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FIRST AND SECOND ORDER TRIANGULATION IN CALIFORNIA

(1927 DATUM)

By

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TRIANGULATION IN CALIFORNIA (1927 DATUM)

GENERAL STATEMENT

This publication contains the results of first-order triangulation in California executed by the U. S. Coast and Geodetic Survey prior to 1934 and some which was executed in 1934; the results of first- and second-order triangulation executed in studies made along fault zones to determine, if possible, any shifts in relative positions of stations; the first-order triangulation executed across the southern part of the State by the Metropolitan Water District of Southern California; and first-order triangulation of the city and parts of the county of Los Angeles which was executed by a commission formed of representatives of various city and county offices. There are also included several second-order arcs of triangulation executed in areas where such triangulation is the only control as yet available for the use of engineers. As a general rule the second-order triangulation executed along the coast and for control of surveys of bays and rivers has not been included. To include such work would have made the present volume unduly cumbersome. A later volume will give the data for these second-order arcs, as well as for such first-order triangulation as has been adjusted since the data given in this volume became available.[1]

Excepting some stations in northern California, the data for which are given in Special Publication No. 175 (First and Second Order Triangulation in Oregon), none of the positions given in the present volume have ever before been published on the North American datum of 1927. This volume, therefore, supersedes all previous publications of triangulation data in California, and where a station in an earlier publication is not included in this one, the engineer is cautioned that such a position is on the earlier datum (North American) and cannot be used in connection with any data given in the present volume without first reducing its position to the 1927 datum.

This volume is one of a series of publications, each of which will contain geographic positions on the new (1927) datum of first- and second-order stations in a State. Because these publications are being brought out while the surveys of the States are still in progress, it is seldom that any one volume will contain all of the first- or second-order triangulation in a State.

READJUSTMENT OF THE TRIANGULATION NET

The triangulation of the United States has been built up by continually adding new arcs to those already measured, and for many

[1] Special Publication No. 175, First and Second Order Triangulation in Oregon, includes the geographic positions for a number of second-order stations in northern California which are not given in the present volume.

years in adjusting this triangulation the plan had to be followed of fitting the new arcs of triangulation to those older ones which had previously been adjusted. This was the only method which could be followed until a comprehensive net had been built up to a point where closed loops of considerable length were formed. It then developed that the last arc to be adjusted into the loop, thereby closing it, received corrections that were apt to be excessive and were certainly not the most probable ones from a mathematical viewpoint, since the entire closing error of the loop had to be absorbed by the one arc.

It was realized that the only way to overcome such a difficulty was to adjust the entire network at one time. It was impracticable, however, to readjust the entire network every time a new loop was closed, as the time required to do so would be too great, and the geographic positions of the triangulation stations would be in a continual state of change, a condition very disturbing to those using the data.

In 1926 the triangulation net west of the ninety-eighth meridian had become so extended that it could serve as a framework for all future triangulation in that area, and it was considered desirable to adjust this portion of the United States net in one piece. In preparation for such an adjustment a method was devised, in 1924, at the office of the Coast and Geodetic Survey,[1] by means of which a large network of triangulation could be adjusted within a reasonable time and at a comparatively small cost. The first application of this method was to the adjustment of the net formed by the ninety-eighth meridian triangulation and the triangulation to the west of that arc. It involved 12,500 miles of arcs forming 16 closed loops. Later the eastern half of the United States net was adjusted, holding fixed the triangulation along the ninety-eighth meridian as included in the first adjustment. The adjusted net of the country is now of such extent and strength that all new arcs can be fitted to it without having to disturb the old work and without causing excessive corrections to the new work.

ARCS INCLUDED IN THIS PUBLICATION

A detailed statement of the triangulation included in this publication would be but a repetition of certain portions of the table of contents wherein the arcs are listed under descriptive geographic names. A general idea of which arcs were included in the general readjustment of the first-order triangulation of the country may be had by reference to figure 8 near the back of this volume. Detailed sketches of all triangulation included in this volume are shown in figures 11 to 45, inclusive, and the general location of each sketch in the State is shown in the index sketch, figure 10. By reference to the descriptions of stations, which supplement information given on the detail sketches, one may determine when each arc was executed, the name of the chief of party if it was executed by the Coast and Geodetic Survey, and in other cases the name of the organization doing the work.

[1] For a description of this method see Special Publication No. 159.

Triangulation just over the State boundary in adjoining States is included, since such stations may prove of great value to a surveyor requiring control along the State boundary.

Special mention should be made here of the control survey which was recently completed by the county and city of Los Angeles. It was made by a cooperative organization representing the various engineering bureaus of these two civil divisions, and is based upon the first-order triangulation of the Coast and Geodetic Survey, strengthened by a base line measured in the western part of the city. Attention is also called to the first-order triangulation executed by the Metropolitan Water District of Southern California, which extends from the vicinity of Los Angeles County eastward to the Colorado River. The data for the above triangulation are given in this publication.

STATEMENT OF ADJUSTMENTS

The general adjustment of the first-order triangulation of the western part of the United States included the following arcs which are in part or in whole within the boundaries of the State of California: The thirty-ninth parallel triangulation; triangulation extending from the thirty-ninth parallel southward along the coast to the Mexican boundary; the California-Oregon triangulation; the California-Washington triangulation; the Texas-California triangulation; the thirty-fifth parallel triangulation; and the triangulation extending from the vicinity of Needles, Calif., northward to the thirty-ninth parallel. Only a few stations of the last-named arc are included in the present publication, and these have been listed with the stations of the Texas-California triangulation.

The other arcs of triangulation for which data are given in this volume were adjusted in the usual way, being fitted in between arcs of the general adjustment mentioned above, either as single arcs or as combinations of several arcs as their arrangement might dictate. This statement also applies to a second-order arc in northern California which was included in this volume because it crosses territory otherwise devoid of control surveys.

The arcs of second-order triangulation, which were executed for purposes of earth-movement studies and which were used to step down from the longer lines of first-order triangulation to the more closely spaced stations in fault zones, were adjusted directly to the first-order arcs within which they occur.

It has been necessary to omit from the present volume the data pertaining to several arcs for which practically all field work has been completed, but for which the final adjustments cannot be made until certain loop closures or the astronomical work needed to furnish Laplace azimuths have been made. In one case final adjustment must await the measurement of a base line. Preliminary results for such arcs are of suitable accuracy for the ordinary needs of local surveys, and may be had upon application to the Washington office of the Survey. These arcs include the Owens Valley triangulation, triangulation along the Colorado River, and several short arcs in the vicinity of the southern boundary of the State.

The general adjustment of the western part of the United States was made under the direction of Dr. O. S. Adams. The adjustments

of the other arcs of triangulation in California which were fitted into the general adjustment were in charge of O. P. Sutherland and of H. P. Kaufman. The sketches and descriptions were prepared under the general direction of the author; the sketches were made under the immediate supervision of Charles McCombs, and the descriptions of stations were prepared by Gale Murphy, assisted by R. J. Connor, C. F. Bealke, and M. F. Godfrey. The plane rectangular coordinates were computed under the immediate supervision of E. S. Belote and under the general direction of Dr. O. S. Adams. To Gale Murphy full credit is due for arranging and editing this report.

NORTH AMERICAN DATUM OF 1927

The adjustment of all triangulation included in this volume was computed upon the Clarke spheroid of 1866, on what is known as the North American datum of 1927, so called in order to distinguish it from the North American datum on which all the older work of the survey was adjusted.

In both of these datums the same spheroid was used as a surface of reference, but in the readjustment of the triangulation of the western part of the United States the position of only one station as determined on the older datum was held fixed. This station, Meades Ranch, in Kansas, was assigned the same position it had in the older or North American datum (originally called the United States standard datum). This position of Meades Ranch is as follows:

$$\text{Latitude} = 39°13'26''.686$$
$$\text{Longitude} = 98°32'30''.506$$

This position was held in the new datum because it had been found to be best in accord with the country as a whole in the extensive investigation that was carried on at the time of the adoption of the original (United States standard) datum.

The orientation in the new adjustment is controlled by the various Laplace azimuths distributed throughout the network of arcs. The position of Meades Ranch, together with the Laplace azimuths included in the arcs, serve to define the North American datum of 1927. A station is said to be on this North American datum of 1927 when it is rigidly adjusted to the scheme of readjusted triangulation.

GENERAL DESCRIPTION OF TABLES, STATIONS, AND SKETCHES

The tables of geographic positions on pages 20 to 161 give the geodetic latitudes and longitudes of the triangulation stations on the North American datum of 1927. They also contain the distances between contiguous stations in meters and feet, the logarithms of the distances in meters, and the azimuths of the lines joining these stations. The distances are corrected for elevation above mean sea level, and the azimuths are referred to true south. The actual ground-surface distance between two stations at their mean elevation may be derived through the use of the formula on page 19.

The tables are divided into two parts, principal points and supplementary points. The stations listed as principal points are those which form the backbone of an arc of triangulation, and the geographic positions of these stations are determined after the comple-

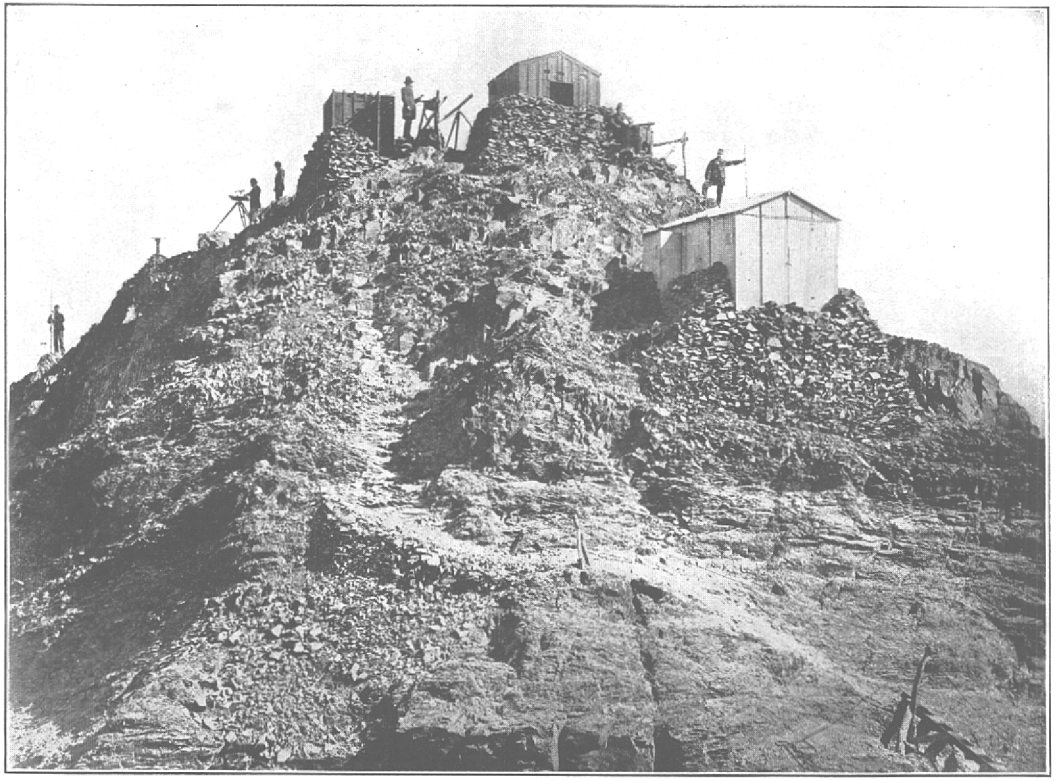

FIGURE 1.—ROUND TOP TRIANGULATION STATION.

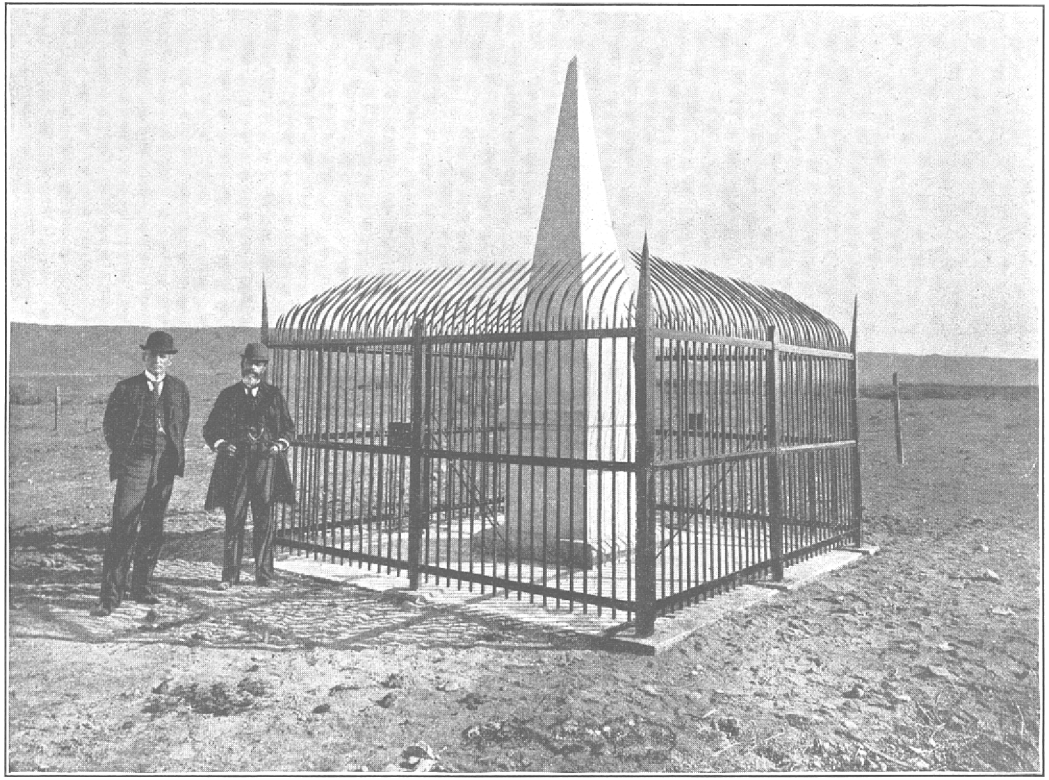

FIGURE 2.—UNITED STATES-MEXICO BOUNDARY MONUMENT NO. 258 AS RECONSTRUCTED IN 1894.

tion of the least-squares adjustment involving all of the main-scheme stations of the arc. The supplementary points are stations whose geographic positions are determined after the positions of the principal points have been adjusted and fixed.

On pages 165 to 250 are given tables of plane rectangular coordinates, with grid azimuths to convenient azimuth marks. These always include the azimuth marks mentioned in a later paragraph and sometimes the grid azimuth to a prominent object such as a church spire or cupola which is visible from the ground at the station. This table is for the convenience of the land surveyor who desires to make use of the accuracy and permanency which will come from having his surveys referenced to the national control net. Since the size and shape of California necessitated the establishment of six different sets of coordinate systems in order to cover the entire State and at the same time maintain an acceptable scale accuracy, it has been necessary to give the coordinates of stations along the borders of adjoining zones on both zones. The engineer is cautioned, therefore, to study carefully the description of these tables given at their beginning, and thereby avoid errors caused by combining data on different zones.

The tables of elevations of stations, on pages 282 to 288, give the elevations above mean sea level of the points named. In the older arcs of triangulation the elevations of the stations used were determined by vertical-angle observations carried continuously through an arc from stations of known elevation, usually stations which had been connected with the level net of the country. These determinations of elevation were designed primarily to provide data required for reducing observed horizontal directions to sea level, and they also served the very important supplementary purpose of furnishing elevations of mountain peaks for geographic map purposes. In much of the later work elevations were either already available from existing maps or unnecessary because the general elevation of the arc was low, and the determination of heights by means of vertical angles was omitted from the program of observing. The tables of elevations, therefore, do not include all stations for which positions are given.

The descriptions of the stations, given on pages 291 to 500, are designed to enable the engineer to recover and identify the station mark after he has visited the general locality of the station. In some cases the description, so far as witness and other marks are concerned, will have become out of date from changes by nature or by the work of man. Anyone who visits a station and finds that the description does not truly represent the present conditions, or who finds that the mark has been mutilated or destroyed, should report the facts to the Director of the Coast and Geodetic Survey, Washington, D. C., in order that the files of this office may be kept up to date. Everyone should realize that the triangulation extended over the country by the Coast and Geodetic Survey is a public survey, made for the use of the people. The stations really belong to the States in which they are located. The engineer who is so fortunate as to find these stations near his work should help to perpetuate the monuments in order that they may be of continuous service and value to the locality. The property owner on whose land a triangulation station has been established should make every effort to protect and preserve it. If his land

boundaries are tied to such a mark they will never be lost, even though their physical monuments are destroyed, since they have as witness marks the many stations of the triangulation net of the country. The Coast and Geodetic Survey officials will, from time to time, visit the stations established and will re-mark and redescribe them if necessary.

At most of the stations there are reference and witness marks to assist in locating the station marks. The distance and azimuth from the station to each additional mark are usually given in the description of the station, and the measurements are supposed to be so carefully made, at least to the reference marks, that if the station mark is later lost or destroyed the station can be relocated with sufficient accuracy to be used in third-order and local surveys. Where only one reference mark is recovered the engineer engaged on local surveys will find it more convenient to use the reference mark as a control station, determining its position from the main station by means of the data given in the description.

On most of the arcs of triangulation executed since about 1928 azimuth marks have been established. These are marked points located at sufficient distances from the main stations to give azimuths accurate enough for local surveys. Distances to these azimuth marks are usually estimated, and are of value only in leading one to the general location of the station. The azimuths of these marks from the main stations are given with an accuracy adequate for the needs of ordinary land surveying.

Near the back of this publication will be found a number of sketches which show graphically the approximate locations of the stations, especially with reference to State and County boundaries. In these sketches the lines over which main-scheme observations were made are shown, and occupied stations are indicated by triangles. Circles are used to represent unoccupied, or as they are often called, "intersection" stations. It is suggested that if one wishes to learn whether there are triangulation stations in his vicinity that he first consult these sketches. From them he can obtain the names of stations that may be of help to him; turning then to the index on page 527 he can obtain the pages on which appear the geographic positions, plane coordinates, and descriptions of the stations required.

OTHER PUBLICATIONS OF VALUE TO THE ENGINEER

If an engineer wishes to compute geographic positions for the stations of any triangulation that he may execute, he should procure a copy of Coast and Geodetic Survey Special Publication No. 8 from the Superintendent of Documents, Washington, D. C. The cost of this publication is 25 cents. If he is interested in knowing the length in meters of the degrees, minutes, and seconds of latitude and longitude in the region in which he is working, he can obtain them from Special Publication No. 5, which can be purchased at a cost of 20 cents from the Superintendent of Documents. Condensed tables for the latitude of California are shown on pages 15 to 17.

The Coast and Geodetic Survey has issued a number of manuals on the various classes of its work. The ones that would be of value to an engineer in connection with triangulation, including base

measurements, are Special Publication No. 120, Manual of First-Order Triangulation, cost 40 cents; Special Publication No. 145, Manual of Second- and Third-Order Triangulation and Traverse, cost 60 cents; and Special Publication No. 137, Manual of First-Order Traverse, cost 30 cents. An engineer interested in the determination of azimuth to a high degree of accuracy should procure a copy of Special Publication No. 14, Determination of Time, Longitude, Latitude, and Azimuth, cost 35 cents. If he is interested only in the determination of approximate azimuths, he should secure a copy of Serial No. 166, Directions for Magnetic Measurements, cost 15 cents.

In computing his triangulation the engineer will find that Special Publication No. 138, Manual of Triangulation Computation and Adjustment, cost 50 cents, will be of great assistance to him. He will also want Special Publication No. 193, Manual of Plane-Coordinate Computation, cost 35 cents, and Special Publication No. 194, Manual of Traverse Computation on the Lambert Grid, cost 20 cents. While the plane coordinates of stations in California are given only on Lambert projections, the engineer of wide practice which leads him into other States may also have need for Special Publication No. 195, Manual of Traverse Computation on the Transverse Mercator Grid, cost 25 cents. All of the above-named publications may be secured from the Superintendent of Documents, Washington, D. C.

The reader can secure from the Director of the United States Coast and Geodetic Survey, free of charge, several leaflets which describe geodetic surveying and which also show how triangulation can be used in connection with the boundary surveys of private and public property.

CLASSIFICATION OF TRIANGULATION

Triangulation is divided into different classes according to accuracy. Four classes of triangulation are now defined by the Federal Board of Surveys and Maps; viz, first, second, third, and fourth orders. The first three of these are, respectively, equal in accuracy to the classes primary, secondary, and tertiary as formerly defined and used by the Coast and Geodetic Survey.

The ultimate criterion applied in classifying the different grades of triangulation is the actual error in the length of any line. This is indicated by the discrepancy between the measured length of a base line and its length as computed through the triangulation from the last preceding base. In first-order triangulation, such discrepancies must not exceed 1 part in 25,000; in second-order triangulation, 1 part in 10,000; and in third-order triangulation, 1 part in 5,000. Before making the comparison between the computed and measured lengths the adjustment of the triangulation should be carried to the point where the side and angle equations have been satisfied. It is also necessary to take into consideration the maximum actual error in the measurement of the base lines.

To secure the accuracy indicated above, certain standards are adopted for the field work, the most important one of which relates to the closing errors of the triangles or the discrepancy between the sum of the measured angles in a triangle and 180° plus the spherical excess of the triangle. In first-order triangulation the average closing error of the triangles must not be greatly in excess of 1 second,

in second-order it should not be more than 3 seconds, and in third-order not more than about 5 seconds. The shape of the figures in the triangulation scheme, the frequency of bases, the size and type of instrument, and the number and kind of observations are all selected with due regard to the accuracy desired.

Under certain conditions the proportionate error in the length of a line as specified above may be found to be exceeded in any class of triangulation. Where two points are fairly close together as compared with the size of the triangulation scheme, the distance between those points may be in error in excess of that indicated by the class of triangulation of the scheme. The accuracy of the computed length of any line can be estimated by computing the ΣR_1 in accordance with the formula for the strength of figures as given in Coast and Geodetic Survey Special Publication No. 145. In any class of triangulation the subsidiary stations will be located with a less degree of accuracy than the main-scheme stations.

CHARACTERISTICS OF FIRST-ORDER TRIANGULATION

Most of the triangulation contained in this volume is of the first order. First-order triangulation is done with such accuracy that the average closing error of the triangles is about 1 second or less. In order that the angles may have this high degree of accuracy, precise theodolites are used. The theodolite, as is well known, is similar in its appearance to the surveyor's transit. The main differences are in the excellence of the workmanship, the accuracy of graduation of the circle, in having micrometer microscopes for reading this circle, and in having a telescope with a high resolving power. Observations are made either on heliotropes, by which the light of the sun is reflected toward the observer, or on electric signal lamps. The heliotrope, or lamp, and the theodolite must be centered directly over the station marks.

At certain intervals, depending upon the shape of the triangles, base lines are measured. A base is necessarily a side of one of the triangles. The ends of the base must be intervisible from the ground or from towers that may be erected over them. In the early years of the Coast and Geodetic Survey's existence the base lines were measured with metal bars, but near the beginning of the present century steel tape lines began to be used in the measurements. Since 1907 all of the bases of the survey have been measured with invar tapes. The probable error of a measured base is about 1 part in 1,000,000 of its length. This accuracy meets all the requirements of engineering and science.

The azimuths of the triangulation depend upon what are called Laplace azimuths, or azimuths determined by observations on Polaris, which have been corrected for the deflection of the vertical at each Laplace station. These deflections are due to the attraction of mountain or plateau masses that are comparatively near the place at which the observations are made. The probable error of a Laplace azimuth is about ± 0.3 second.

If one is interested in the accuracy with which the triangulation of the Coast and Geodetic Survey is done and the reliability of the geographic positions which are given in this publication, he should refer to Special Publication No. 159, The Bowie Method of Trian-

gulation Adjustment as Applied to the First-Order Net in the Western Part of the United States, or to Special Publication No. 178, Geodetic Operations in the United States, January 1, 1930, to December 31, 1932, pages 18 to 21.

CHARACTERISTICS OF SECOND-ORDER TRIANGULATION

In second-order triangulation the same general principles apply as in first-order triangulation, but the details of the work will vary with the circumstances. The angles are nearly always determined with a smaller number of measures. The accuracy of second-order triangulation is represented by an average closing error of a triangle of not more than 3 seconds of arc.

Second-order triangulation has been used principally for three purposes: First, for the main scheme of an isolated region of moderate extent such as the Philippine Islands; second, to connect third-order with first-order triangulation when the latter lies at a considerable distance from the area requiring the detailed third-order control; and third as the detailed control over areas of economic importance. The increasing demand for second-order horizontal control, under the last set of conditions, and the growing economic importance of the entire coastal region of the United States, led the Director of the Coast and Geodetic Survey to decide, early in 1928, to make the entire coastal main-scheme triangulation of first- or second-order accuracy.

In the earthquake regions of California, second-order triangulation has been used for the detailed control along the fault lines. These second-order arcs lie within the limits of first-order arcs, which are adjusted to the other first-order arcs of the State network. By means of this method, it should be possible to detect, by future observations at the same stations, any shifting which may take place along the fault lines.

SUPPLEMENTARY STATIONS

In addition to the stations which form the main network of triangulation in California, a number of objects, such as mountain peaks, church spires, and schoolhouse cupolas, were observed upon from stations of the main scheme. The geographic positions and plane coordinates of these supplementary stations have been computed and the data are included in the tables on pages 20 to 250. These stations are shown on the sketches and in the index, but only a few of them are given in the descriptions of stations, as in most cases the name of the object is all the description that is available. Ordinarily the name of the supplementary station is sufficient for its accurate identification by the engineer who may wish to use it.

In the readjustment of the triangulation of the western part of the United States (see p. 1) each of the unoccupied or intersection stations was computed by means of a single triangle, even though several additional lines to the station had been observed. If the lengths and azimuths of any of these additional lines are needed at any time, the data may be obtained by writing to the Director, Coast and Geodetic Survey, Washington, D. C.

USE OF HORIZONTAL CONTROL DATA

The plan or map for any extensive engineering project, whether or not map construction is the primary object, should have all of its parts properly correlated and should be on the same datum as adjacent surveys. Federal and State mapping organizations have long been aware of the necessity for having all surveys based upon a common datum, but local engineers and surveyors in this country have too often in the past been content; and in many cases compelled to use a local datum for their surveys. The future economic disadvantage of such a system is now becoming recognized, with the result that city and county surveys are being more generally placed upon a permanent basis by connecting them to triangulation stations on the North American datum of 1927.

One other factor must be taken into consideration by the engineer of today. As the States develop industrially they will undoubtedly follow the lead of one of the Eastern States, Massachusetts, which with splendid foresight has extended its triangulation control over the entire State for the purpose of defining property boundaries in terms of latitude and longitude. In 1935 New Jersey took a definite step forward in this direction by adopting legislation legalizing the use of geodetic control through the medium of a State-wide plane-coordinate system (see p. 162). The advantage of a geodetic control system is well stated in the following extracts from the report on the Maryland oyster survey:

> The difficulties of accurately locating and permanently defining the boundaries of a farmer's plantation on land, even with the aid of monuments, public roads, streams of water, and other points of reference, are often great, judging from the disputes frequently arising in connection with such boundaries. * * *
>
> There is only one point on the earth's surface at the intersection of any one parallel of latitude and any one meridian of longitude, and therefore, there can be no dispute as to the meaning of such a geographic definition of the location of a point even though all the original triangulation station marks used in its determination, together with the chart on which its position was orginally plotted, have been totally destroyed.
>
> In the case of the destruction of an original triangulation station mark, or any other point defined by a geographic position, a competent geodetic engineer can reestablish its exact location by means of a new system of triangulation connecting with other distant triangulation marks which have not been destroyed.

There are a number of instances where corporations owning large tracts of land have attempted to make surveys of their boundaries and of subdivisions of property by means of traverse. This method can be used if certain precautions are taken, but most of these corporations have found it advisable to use the method of triangulation for the determination of relative positions of their boundary monuments and of other points which lie within those boundaries. If the triangulation in question is connected with the triangulation system of the Coast and Geodetic Survey, then true geographic positions can be obtained as well as relative ones.

In a section of the country covered by adequate geodetic control the data are available to the engineer for any of the following operations.

EXTENSIVE MAPPING

The topographer needs as initial data for beginning a topographic survey the distance and direction between two points and the geographic position of one of them in latitude and longitude. His local triangulation or traverse, based on this control, will prevent the accumulation of excessive errors as he carries on his mapping operations. In the event that the available first-order triangulation in that region has lines of too great length to join to conveniently, he can measure a base and azimuth at some place visible from a first- or second-order triangulation station and connect his base to the station by triangulation, thus obtaining proper geographic positions for his local surveys. On recent triangulation special azimuth marks have been set (see p. 19) which will enable the topographer to properly orient his survey.

LOCAL INTENSIVE SURVEYS

The necessity for such surveys arises most frequently in connection with extensive improvements over a considerable area or as a basis for city planning, where the needs of a city are being anticipated for a number of years. Here the requirements are somewhat different from those in the preceding operation, for it is often necessary to extend first- or second-order control in considerable detail over the entire area affected; third-order triangulation or traverse then being used to furnish additional points for the survey. Such a control survey should invariably be started from an arc of adjusted triangulation.

In local surveys of limited extent it is usually desirable to use a system of plane coordinates. This greatly simplifies the computation of the survey data and the construction of the projection on which the map is drawn. If the system of coordinates is kept within rather narrow limits, such as 20 miles from the initial point, geodetic control may be reduced to a plane and the survey based thereon with no appreciable sacrifice of accuracy. The limitation of distance indicated above has, however, proved a real obstacle to the use of geodetic control in the field of plane surveying. Wherever a project covered an area of such extent that more than one system of coordinates was required, the use of the coordinates in the borderland common to two adjacent systems was fairly complex, and discouraging to the surveyor. This difficulty has recently been overcome by the United States Coast and Geodetic Survey in adopting widely extended systems of plane projections, in many cases a single projection covering an entire State. In the larger States it has been necessary to have several such zones in order to cover the entire State and yet maintain the accuracy above a certain minimum in the more distorted portions of the projection. In California, because of its shape and great extent, a system of six zones has been established. While the inconveniences in the borderland common to two zones, referred to above, have not been eliminated, the number of such borderlands has been reduced to a minimum, and very extensive surveys may be carried out within the limits of a single zone. A further advantage of the new systems is that it is possible to determine

scale factors for various parts of the projections whereby even the errors inherent in the projection may be eliminated from local survey data and exact values obtained. The six zones established for the State of California are shown in figure 4, and are described on page 162. In the present publication a recently adopted policy of the Survey will be carried out of publishing the plane rectangular coordinates for all stations in the State for which geographic positions are given.

BOUNDARY LINES

Geodetic control has long been used in locating and accurately delimiting the boundaries of large political units such as countries and States. Its use in connection with boundary surveys of smaller subdivisions such as counties and cities has been rare, and while its extended use in surveys of private property boundaries has been limited to the State of Massachusetts and the Territory of Hawaii, there have been cases of such use on Long Island and elsewhere. Recently there has been a renewed interest in this most important use of the geodetic control survey of the country, an interest well exemplified in the State of New Jersey by a legislative act (Assembly, No. 209, 1935) which established a system of land boundary descriptions, defined in part as follows:

> 1. The official survey base for New Jersey shall be a system of plane coordinates to be known as "the New Jersey System of Plane Coordinates," said system being defined as a transverse Mercator projection of Clarke's spheroid of 1866, having a central meridian 74°40′ west from Greenwich on which meridian the scale is set at 1 part in 40,000 too small. * * *

The availability of suitable systems of plane coordinates for each of the various States makes similar legislation in those States practicable. In order to facilitate the use of geodetic control in each State by the surveyor of private land boundaries, the Coast and Geodetic Survey is computing the plane coordinates of the various triangulation stations in each State. On page 162 of the present volume will be found a description of the system adopted for the State of California, followed by the plane coordinates for those triangulation stations for which geographic coordinates are also given in this volume.

In basing any survey on geodetic control it should be noted that while the azimuth and length of one line and the geographic position of one end of that line constitute the essential data for the complete utilization of old work as a basis for new work, there is always grave danger in depending upon this minimum of data. There may be failure to identify the true station mark, or the mark, though genuine, may have been tampered with or otherwise disturbed in position. This will, of course, introduce an error into any new work based on those stations. It is the present practice in this survey, unless unusual conditions render it unnecessary, to establish the integrity of the recovered points by using at least three old stations as a basis for the new work. The third station serves as a check for the two stations on which the new work may actually depend. For intensive surveys of any extent it will be found desirable, wherever possible, to base such work on stations which include the area under survey, so that the work may be started from one set of control points and close on another, and thus permit the

adjusting of the local survey to the larger control with the greatest amount of precision. Where the local survey is based on plane coordinates, it is equally desirable to connect the local survey to more than a single station and one grid azimuth.

Until the recent adoption of State-wide systems of plane coordinates made possible the use of such coordinates in detail surveys and maps of very extended areas, the use of geodetic control through the medium of plane coordinates was limited to small areas, and it was usually necessary for the engineer to make his own reduction from geographic positions to the plane of projection which he adopted for his particular system. The engineer confronted with this problem was generally referred to Coast and Geodetic Survey Special Publication No. 71, Relation Between Plane Rectangular Coordinates and Geographic Positions. It is not believed that the engineer will now need to resort to small systems of plane coordinates which require this publication except in rare cases where it may be desired to add additional control in a project which is already based on such a system. Even in such a case, the fullest possible value of a local survey with reference to adjoining surveys will be realized only by transferring the entire project to the State-wide zone within which the area under survey is located.

GEOPHYSICAL INVESTIGATIONS

An important scientific use which has been made of triangulation in California in recent years has been the investigation of shift or movement of stations in seismic regions. If an arc of triangulation having stations in the vicinity of a fault line is executed before a seismic disturbance occurs, and its stations are again determined after the disturbance, evidence is secured tending to show the amount and direction of the relative displacement of such stations. If the triangulation is carried back far enough from the seismic region to be based on a region of no disturbance, absolute shifts should be shown by changes in geographic positions. In the present volume there are included only the latest determinations of geographic positions of stations established for the above purpose. Anyone desiring to learn to what extent the theoretical uses given above are satisfied by practical determinations is referred to Special Publication No. 151, Comparison of Old and New Triangulation in California. This publication may be secured from the Superintendent of Documents, Washington, D. C., cost 15 cents.

EXPLANATION OF TABLES FOR POLYCONIC MAP PROJECTION

The engineer who prefers to make use of the geographic positions given in this publication and to base his surveys on such data may find it desirable to construct a map covering the area of his survey using those data rather than the data furnished by the tables of plane rectangular coordinates. He may wish to show on this map the meridians and parallels so as to be able to plot the positions of the triangulation stations included in the area and thus show the details of his survey in their correct geographic positions. The engineer will find what is known as the "polyconic projection" most useful for this purpose. This is the projection used for the base topographic map of the United States which is being constructed

on a scale of approximately 1 mile to 1 inch, and in quadrangles which are generally one-fourth degree on the side. It is described in Coast and Geodetic Survey Special Publication No. 68, Elements of Map Projection. To enable the engineer to construct such a projection with the least possible difficulty, the following table, reprinted in an abbreviated form from United States Coast and Geodetic Survey Special Publication No. 5, has been inserted. This table may also be used to interpret in terms of degrees, minutes, and seconds of arc any distance measured along a meridian or parallel. The method of using the table is described below.

To make a projection for a large-scale map (1 to 20,000 and larger), first draw a straight line for a central meridian and a construction line *ab* perpendicular thereto, each to be as central to the sheet as the selected interval of latitude and longitude will permit. (See fig. 3, below.) On the central meridian lay off the distances mm_2 and mm_4, using the length of 1′ along the meridian, for the latitude in question, as given in the table under "Arc of the meridian", and multiplying this length by the number of minutes for the interval between the central parallel and the extreme parallels. Through m_2 and m_4 draw straight lines, *cd* and *ef*, parallel to the line *ab*. On the lines *ef*, *ab*, and *cd* lay off the distances mx_2, m_2x_2, and m_4x_2 on both sides of the central meridian, taking the values from the table under "Arc of the parallel", corresponding to the latitude of m, m_2, and m_4, respectively. The value of 1′ as taken from the table must be multiplied by the number of minutes out from the central meridian. Draw straight lines through the points thus determined for the extreme meridians—that is, through the x_2 points.

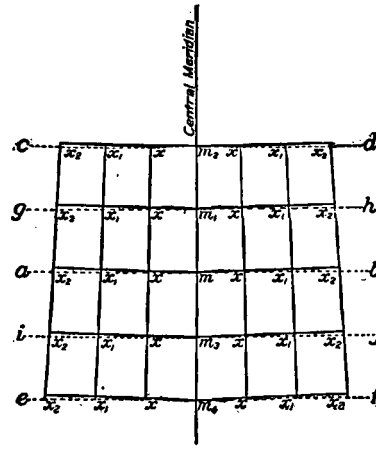

FIGURE 3.—Sketch showing construction of polyconic map projection.

NOTE.—In this figure the angle made at the central meridian by the parallels is grossly exaggerated. In an actual projection the parallels appear practically as straight lines.

At the two points designated x_2 on the line *ab* lay off along the meridians the value of Y as given in the table under "Y coordinate of curvature", using as argument the interval in minutes between the central meridian and the extreme meridian. Draw straight lines from these points to the point m for the middle parallel, and from

the points of intersection with the extreme meridians lay off distances along these meridians, above and below, equal to the distances mm_2 and mm_4 to locate points in the extreme parallels.

Subdivide each of the 3 meridians and 3 parallels already determined into parts corresponding with the projection interval and join the corresponding points of subdivision by straight lines to complete the projection.

The method outlined above may be used for all large-scale maps regardless of the number of meridians and parallels shown. For small-scale maps the method is somewhat more complicated, and it becomes necessary to make use of Special Publication No. 5, which may be obtained for 20 cents from the Superintendent of Documents, Washington, D. C.

Polyconic map projection tables

Latitude	Arc of the parallel		Arc of the meridian		Interval of longitude from central meridian	Y coordinate of curvature latitude 32°
	1″	1′	1″	1′		
° ′	*Meters*	*Meters*	*Meters*	*Meters*	° ′	*Meters*
32 00	26.249	1,574.9	30.801	1,848.05	0 01	0.1
05	26.225	1,573.5	30.801	1,848.08	03	1.1
10	26.201	1,572.1	30.802	1,848.10	05	3.0
15	26.177	1,570.6	30.802	1,848.13	07	6.0
20	26.153	1,569.2	30.803	1,848.15	10	12.1
25	26.129	1,567.8	30.803	1,848.18	15	27.3
30	26.105	1,566.3	30.803	1,848.20	20	48.6
35	26.081	1,564.9	30.804	1,848.23	25	75.9
40	26.057	1,563.4	30.804	1,848.25	30	109.3
45	26.033	1,562.0	30.805	1,848.28	40	194.2
50	26.008	1,560.5	30.805	1,848.30	50	303.5
55	25.984	1,559.0	30.805	1,848.33	1 00	437.0

Latitude	Arc of the parallel		Arc of the meridian		Interval of longitude from central meridian	Y coordinate of curvature latitude 33°
	1″	1′	1″	1′		
° ′	*Meters*	*Meters*	*Meters*	*Meters*	° ′	*Meters*
33 00	25.960	1,557.6	30.806	1,848.35	0 01	0.1
05	25.935	1,556.1	30.806	1,848.38	03	1.1
10	25.911	1,554.7	30.807	1,848.40	05	3.1
15	25.886	1,553.2	30.807	1,848.43	07	6.0
20	25.862	1,551.7	30.808	1,848.45	10	12.3
25	25.837	1,550.2	30.808	1,848.48	15	27.8
30	25.812	1,548.7	30.808	1,848.50	20	49.4
35	25.788	1,547.3	30.809	1,848.53	25	77.1
40	25.763	1,545.8	30.809	1,848.55	30	111.0
45	25.738	1,544.3	30.810	1,848.58	40	197.4
50	25.713	1,542.8	30.810	1,848.60	50	308.4
55	25.688	1,541.3	30.810	1,848.63	1 00	444.2

Latitude	Arc of the parallel		Arc of the meridian		Interval of longitude from central meridian	Y coordinate of curvature latitude 34°
	1″	1′	1″	1′		
° ′	*Meters*	*Meters*	*Meters*	*Meters*	° ′	*Meters*
34 00	25.663	1,539.8	30.811	1,848.65	0 01	0.1
05	25.638	1,538.3	30.811	1,848.68	03	1.1
10	25.613	1,536.8	30.812	1,848.70	05	3.1
15	25.588	1,535.3	30.812	1,848.73	07	6.1
20	25.562	1,533.7	30.813	1,848.75	10	12.5
25	25.537	1,532.2	30.813	1,848.78	15	28.2
30	25.512	1,530.7	30.813	1,848.81	20	50.1
35	25.486	1,529.2	30.814	1,848.83	25	78.3
40	25.461	1,527.6	30.814	1,848.86	30	112.7
45	25.435	1,526.1	30.815	1,848.88	40	200.4
50	25.410	1,524.6	30.815	1,848.91	50	313.1
55	25.384	1,523.0	30.816	1,848.93	1 00	450.8

Polyconic map projection tables—Continued

Latitude	Arc of the parallel		Arc of the meridian		Interval of longitude from central meridian	Y coordinate of curvature latitude 35°
	1″	1′	1″	1′		
° ′	*Meters*	*Meters*	*Meters*	*Meters*	° ′	*Meters*
35 00	25.358	1,521.5	30.816	1,848.96	0 01	0.1
05	25.333	1,520.0	30.816	1,848.99	03	1.1
10	25.307	1,518.4	30.817	1,849.01	05	3.2
15	25.281	1,516.9	30.817	1,849.04	07	6.2
20	25.255	1,515.3	30.818	1,849.06	10	12.7
25	25.229	1,513.7	30.818	1,849.09	15	28.6
30	25.203	1,512.2	30.819	1,849.11	20	50.8
35	25.177	1,510.6	30.819	1,849.14	25	79.3
40	25.151	1,509.1	30.819	1,849.17	30	114.2
45	25.125	1,507.5	30.820	1,849.19	40	203.1
50	25.099	1,505.9	30.820	1,849.22	50	317.3
55	25.072	1,504.3	30.821	1,849.24	1 00	456.9

Latitude	Arc of the parallel		Arc of the meridian		Interval of longitude from central meridian	Y coordinate of curvature latitude 36°
	1″	1′	1″	1′		
° ′	*Meters*	*Meters*	*Meters*	*Meters*	° ′	*Meters*
36 00	25.046	1,502.8	30.821	1,849.27	0 01	0.1
05	25.020	1,501.2	30.822	1,849.30	03	1.2
10	24.993	1,499.6	30.822	1,849.32	05	3.2
15	24.967	1,498.0	30.822	1,849.35	07	6.3
20	24.940	1,496.4	30.823	1,849.37	10	12.8
25	24.914	1,494.8	30.823	1,849.40	15	28.9
30	24.887	1,493.2	30.824	1,849.43	20	51.4
35	24.860	1,491.6	30.824	1,849.45	25	80.3
40	24.834	1,490.0	30.825	1,849.48	30	115.6
45	24.807	1,488.4	30.825	1,849.51	40	205.6
50	24.780	1,486.8	30.826	1,849.53	50	321.2
55	24.753	1,485.2	30.826	1,849.56	1 00	462.5

Latitude	Arc of the parallel		Arc of the meridian		Interval of longitude from central meridian	Y coordinate of curvature latitude 37°
	1″	1′	1″	1′		
° ′	*Meters*	*Meters*	*Meters*	*Meters*	° ′	*Meters*
37 00	24.726	1,483.6	30.826	1,849.58	0 01	0.1
05	24.699	1,481.9	30.827	1,849.61	03	1.2
10	24.672	1,480.3	30.827	1,849.64	05	3.3
15	24.645	1,478.7	30.828	1,849.66	07	6.4
20	24.618	1,477.1	30.828	1,849.69	10	13.0
25	24.590	1,475.4	30.829	1,849.72	15	29.2
30	24.563	1,473.8	30.829	1,849.74	20	51.9
35	24.536	1,472.2	30.829	1,849.77	25	81.2
40	24.509	1,470.5	30.830	1,849.80	30	116.9
45	24.481	1,468.9	30.830	1,849.82	40	207.8
50	24.454	1,467.2	30.831	1,849.85	50	324.6
55	24.426	1,465.6	30.831	1,849.88	1 00	467.5

Latitude	Arc of the parallel		Arc of the meridian		Interval of longitude from central meridian	Y coordinate of curvature latitude 38°
	1″	1′	1″	1′		
° ′	*Meters*	*Meters*	*Meters*	*Meters*	° ′	*Meters*
38 00	24.399	1,463.9	30.832	1,849.90	0 01	0.1
05	24.371	1,462.3	30.832	1,849.93	03	1.2
10	24.343	1,460.6	30.833	1,849.95	05	3.3
15	24.315	1,458.9	30.833	1,849.98	07	6.4
20	24.288	1,457.3	30.833	1,850.01	10	13.1
25	24.260	1,455.6	30.834	1,850.03	15	29.5
30	24.232	1,453.9	30.834	1,850.06	20	52.4
35	24.204	1,452.2	30.835	1,850.09	25	81.9
40	24.176	1,450.6	30.835	1,850.11	30	118.0
45	24.148	1,448.9	30.836	1,850.14	40	209.8
50	24.120	1,447.2	30.836	1,850.17	50	327.7
55	24.092	1,445.5	30.837	1,850.20	1 00	471.9

Polyconic map projection tables—Continued

Latitude	Arc of the parallel		Arc of the meridian		Interval of longitude from central meridian	Y coordinate of curvature latitude 39°
	1″	1′	1″	1′		
° ′	*Meters*	*Meters*	*Meters*	*Meters*	° ′	*Meters*
39 00	24.063	1,443.8	30.837	1,850.22	0 01	0.1
05	24.035	1,442.1	30.837	1,850.25	03	1.2
10	24.007	1,440.4	30.838	1,850.28	05	3.3
15	23.979	1,438.7	30.838	1,850.30	07	6.5
20	23.950	1,437.0	30.839	1,850.33	10	13.2
25	23.922	1,435.3	30.839	1,850.36	15	29.7
30	23.893	1,433.6	30.840	1,850.38	20	52.9
35	23.865	1,431.9	30.840	1,850.41	25	82.6
40	23.836	1,430.2	30.841	1,850.44	30	118.9
45	23.807	1,428.4	30.841	1,850.46	40	211.5
50	23.779	1,426.7	30.842	1,850.49	50	330.4
55	23.750	1,425.0	30.842	1,850.52	1 00	475.8

Latitude	Arc of the parallel		Arc of the meridian		Interval of longitude from central meridian	Y coordinate of curvature latitude 40°
	1″	1′	1″	1′		
° ′	*Meters*	*Meters*	*Meters*	*Meters*	° ′	*Meters*
40 00	23.721	1,423.3	30.842	1,850.54	0 01	0.1
05	23.692	1,421.5	30.843	1,850.57	03	1.2
10	23.663	1,419.8	30.843	1,850.60	05	3.3
15	23.634	1,418.1	30.844	1,850.63	07	6.5
20	23.605	1,416.3	30.844	1,850.65	10	13.3
25	23.576	1,414.6	30.845	1,850.68	15	29.9
30	23.547	1,412.8	30.845	1,850.71	20	53.2
35	23.518	1,411.1	30.846	1,850.73	25	83.2
40	23.489	1,409.3	30.846	1,850.76	30	119.8
45	23.460	1,407.6	30.846	1,850.79	40	212.9
50	23.430	1,405.8	30.847	1,850.81	50	332.6
55	23.401	1,404.1	30.847	1,850.84	1 00	479.0

Latitude	Arc of the parallel		Arc of the meridian		Interval of longitude from central meridian	Y coordinate of curvature	
	1″	1′	1″	1′		Lat. 41°	Lat. 42°
° ′	*Meters*	*Meters*	*Meters*	*Meters*	° ′	*Meters*	*Meters*
41 00	23.372	1,402.3	30.848	1,850.87	0 01	0.1	0.1
05	23.342	1,400.5	30.848	1,850.90	03	1.2	1.2
10	23.313	1,398.8	30.849	1,850.92	05	3.3	3.4
15	23.283	1,397.0	30.849	1,850.95	07	6.6	6.6
20	23.253	1,395.2	30.850	1,850.98	10	13.4	13.4
25	23.224	1,393.4	30.850	1,851.01	15	30.1	30.2
30	23.194	1,391.6	30.851	1,851.03	20	53.5	53.8
35	23.164	1,389.9	30.851	1,851.06	25	83.6	84.0
40	23.134	1,388.1	30.851	1,851.09	30	120.4	120.9
45	23.105	1,386.3	30.852	1,851.11	40	214.1	215.0
50	23.075	1,384.5	30.852	1,851.14	50	334.5	336.0
55	23.045	1,382.7	30.853	1,851.17	1 00	481.7	483.8

CONVERSION TABLE

There is given below a condensed table for the conversion of feet to meters and meters to feet. This table is based on the legal equivalent of 1 meter being equal exactly to 39.37 inches (law of July 28, 1866). It can be used readily for converting a rather large number of one unit to the corresponding number in the other unit by simply taking the conversion value for each digit of the first number, moving the decimal point if necessary, and adding the values together. For

example, to convert 24.6 feet to meters we take from the table the value in meters corresponding to 2 feet and move the decimal point one number to the right. We then take the value for 4 feet as given in the table, and next the value for 6 feet, and move the decimal point one number to the left. This gives, by rounding off the third decimal place, 6.096+1.219+0.183=7.498 meters.

Meters	Feet	Feet	Meters
1	3.280833	1	0.3048006
2	6.561667	2	.6096012
3	9.842500	3	.9144018
4	13.123333	4	1.2192024
5	16.404167	5	1.5240030
6	19.685000	6	1.8288037
7	22.965833	7	2.1336043
8	26.246667	8	2.4384049
9	29.527500	9	2.7432055
10	32.808333	10	3.0480061

EXPLANATION OF TABLES OF GEOGRAPHIC POSITIONS

In the tables of geographic positions the latitude and longitude of each point are given on the North American datum of 1927, and there are also given the length and azimuth of each line observed over, whether in one or both directions. No lengths and azimuths are repeated, and for a given line the length and azimuth will be found opposite the position of one or the other of the two stations involved.

To aid in the use of the tables, a column of logarithms of the lengths in meters is given. It must be remembered that it is the logarithm which is derived first from the computation, the lengths given in the table being then derived from the corresponding logarithms. A final column gives these lengths reduced to feet, the reduction being made from the lengths in meters.

The rule followed in recent publications of this office has been to give the latitudes and longitudes of the stations to thousandths of seconds for all points, the positions of which are fixed by fully adjusted triangulation. Points, the positions of which are given to hundredths of seconds only, are marked by footnotes as being without check (not occupied and observed from two stations only) or checked by vertical angles only.

Points, the positions of which are marked as being without check, should be used by the surveyor with extreme caution. Many such positions are of sufficiently high order of accuracy to serve as control for ordinary mapping, but the engineer should by his own observations determine if the position used is free from blunder. When he does this, the accidental errors which remain because of lack of adjustment will not be of consequence in ordinary cases. When positive accuracy of a definite order is desired, the engineer should use only adjusted data, evaluating them according to the class of triangulation by which they were determined.

In the columns giving azimuths, distances, and logarithms of distances the accuracy is indicated to a certain extent by the number of decimal places given, it being understood that in each case some of the final figures are doubtful. In some cases there is very little

doubt of the correctness of the second figure from the right, while in a few cases some doubt may exist as to the correctness of even the third figure from the right.

EXPLANATION OF LENGTHS

The lengths as given in the tables are all reduced to sea level. If the actual length of a line on the ground reduced only to the horizontal is desired—that is, its length in its actual elevation on the surface of the earth—it may be obtained by adding to the sea-level length as given in meters the following correction,

$$\text{Cor.} = \frac{Sh_m}{6{,}370{,}000},$$

in which S is the length of the line in meters and h_m is the mean elevation of the two ends of the line in meters. The correction for the length in feet can also be found by the same formula if S is taken in feet, but h_m must still be kept in meters, since the denominator is the approximate length of the radius of the earth in meters.

AZIMUTH AND BACK AZIMUTH

The azimuth of a line of triangulation is its true direction reckoned clockwise from true south. The cardinal points of the compass on this system are as follows: South 0° (or 360°), west 90°, north 180°, and east 270°.

Because of the convergence of the meridians, the azimuth and the back azimuth of a line do not differ by exactly 180°, the amount of the divergence varying with the latitude and the difference of longitude of the two ends of the line. To illustrate from the tables on page 20, the azimuth from Mount Diablo to Round Top is 242°00′21″.22, while the back azimuth, or the azimuth from Round Top to Mount Diablo, is 63°11′27″.49.

The azimuths of the triangulation lines offer a very convenient and accurate means of testing the deflection of the magnetic needle of a surveyor's transit, and even the azimuth over such short distances as those between a station mark and its reference mark may be used for this purpose with fair accuracy, provided the distance is greater than 100 feet. On all recent triangulation, a special azimuth mark has been set for each station at a distance usually not less than one-fourth mile. The azimuth of the line from the station to this mark has been very accurately determined and may be used as the starting azimuth for traverse lines and other local surveys.

GEOGRAPHIC POSITIONS

Thirty-ninth parallel arc

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points	° ′ ″	° ′ ″	° ′ ″				
Mount Grant (Nev.), 1879	38 34 13.453	271 02 28		Tank with red beacon.			
	118 47 25.488	271 07 59		Smokestack.			
Mount Como (Nev.), 1879	39 01 17.046	309 57 42.88	130 23 22.34	Mount Grant	4.8898782	77,602.95	254,602.3
	119 28 22.510						
Pah Rah (Nev.), 1878	39 47 40.376	336 18 59.54	156 44 52.65	Mount Grant	5.1707115	148,153.34	486,066.4
	119 28 23.601	359 58 56.92	179 58 57.61	Mount Como	4.9336679	85,835.69	281,612.6
Mount Lola, 1879	39 25 59.008	242 01 57.80	62 36 02.58	Pah Rah	4.9364438	86,386.08	283,418.3
	120 21 50.481	300 25 29.52	120 59 18.28	Mount Como	4.9517997	89,495.19	293,618.8
Round Top, 1879	38 39 49.291	159 51 43.76	339 37 58.16	Mount Lola	4.9592256	91,038.60	298,682.5
	119 59 59.989	228 53 05.68	49 12 55.76	Mount Como	4.7823852	60,587.81	198,778.5
		275 14 11.20	95 59 28.96	Mount Grant	5.0247071	105,853.95	347,289.2
Mount Conness, 1890	37 58 01.597	142 39 24.98	322 14 07.88	Round Top	4.9891358	97,529.45	319,977.9
	119 19 13.072	214 32 16.68	34 51 58.17	Mount Grant	4.9109076	81,453.09	267,234.0
		301 59 32		Reference mark no. 3.			
Pine Hill, 1876	38 43 10.063	214 08 26.60	34 32 05.76	Mount Lola	4.9819919	95,938.27	314,757.5
	120 59 21.774	273 48 15.46	94 25 22.07	Round Top	4.9360197	86,301.77	283,141.7
Marysville Butte, 1876	39 12 21.300	258 10 47.84	79 06 08.18	Mount Lola	5.1073017	128,027.05	420,035.4
	121 49 10.350	290 18 35.48	111 27 12.23	Round Top	5.2275215	168,857.94	553,994.8
		306 37 38.91	127 08 58.21	Pine Hill	4.9540666	89,963.55	295,155.4
Mount Diablo, 1876	37 52 54.387	183 08 47.93	3 12 17.77	Marysville Butte	5.1679428	147,211.86	482,977.6
	121 54 47.107	217 34 48.71	38 32 52.68	Mount Lola	5.3398565	218,703.89	717,531.0
		220 42 16.95	41 16 38.03	Pine Hill	5.0905538	123,183.85	404,145.7
		242 00 21.22	63 11 27.49	Round Top	5.2754636	188,566.09	618,653.9
		266 49 27.78	88 25 05.30	Mount Conness	5.3582382	228,159.32	748,552.7
Monticello, 1880	38 39 49.550	207 55 18.93	28 09 15.25	Marysville Butte	4.8337086	68,188.10	223,713.8
	122 11 21.118	266 14 07.62	86 59 07.83	Pine Hill	5.0194087	104,570.38	343,078.0
		344 21 32.10	164 31 47.82	Mount Diablo	4.9547267	90,100.40	295,604.4
Vaca, 1880	38 22 32.717	163 57 18.91	343 53 22.03	Monticello	4.5220725	33,271.51	109,158.3
	122 05 00.764	193 53 39.50	14 03 34.93	Marysville Butte	4.9775736	94,967.20	311,571.6
		247 51 32.74	68 32 27.44	Pine Hill	5.0117096	102,732.91	337,049.6
		344 41 58.37	164 48 17.27	Mount Diablo	4.7545829	56,830.68	186,452.0
Yolo southeast base, 1880	38 31 41.104	7 56 51.94	187 52 38.49	Mount Diablo	4.8599106	72,428.68	237,626.4
	121 47 57.307	55 49 11.17	235 38 34.73	Vaca	4.4775522	30,029.78	98,522.7
		114 01 52.51	293 47 16.78	Monticello	4.5700850	37,160.79	121,918.4
Yolo northwest base, 1880	38 40 43.723	3 09 30.07	183 07 26.32	Mount Diablo	4.9474527	88,603.88	290,694.6
	121 51 27.351	30 25 39.75	210 17 13.08	Vaca	4.5909078	38,985.92	127,906.3
		86 47 26.98	266 35 01.05	Monticello	4.4610021	28,906.94	94,838.9
		343 05 05.30	163 07 16.35	Yolo southeast base	4.2427032	17,486.512	57,370.33
Mount Helena, 1876	38 40 09.971	229 32 46.66	50 03 25.78	Marysville Butte	4.9650631	92,270.55	302,724.3
	122 37 56.604	267 15 42.37	88 17 20.29	Pine Hill	5.1554804	143,047.53	469,315.1
		270 47 48.48	91 04 25.32	Monticello	4.5863352	38,577.60	126,566.7
		304 05 15.63	124 25 46.24	Vaca	4.7627583	57,910.63	189,995.1
		324 01 32.60	144 28 16.71	Mount Diablo	5.0323337	107,729.26	353,441.7
Mount Tamalpais, 1882	37 55 26.381	177 46 51.13	357 45 28.93	Mount Helena	4.9180648	82,806.57	271,674.6
	122 35 43.976	203 16 58.63	23 32 05.17	Monticello	4.9517183	89,478.42	293,563.8
		221 40 16.91	41 59 15.51	Vaca	4.8279816	67,294.82	220,783.1
		274 15 16.25	94 40 25.58	Mount Diablo	4.7796357	60,205.43	197,524.0
Ross Mountain, 1891	38 30 19.432	246 36 03.09	66 54 15.44	Mount Helena	4.6640165	46,133.51	151,356.4
	123 07 07.981	302 51 46.92	123 36 31.08	Mount Diablo	5.1013687	126,289.91	414,336.1
		324 27 19.50	144 46 44.99	Mount Tamalpais	4.8984708	79,153.62	259,689.8
Farallon Lighthouse, 1891	37 41 57.153	173 25 35.52	353 21 12.89	Ross Mountain	4.9546464	90,082.50	295,545.7
	123 00 02.393	234 54 30.59	55 09 24.70	Mount Tamalpais	4.6388145	43,532.59	142,823.2
		257 43 27.03	78 23 26.27	Mount Diablo	4.9908588	97,917.16	321,249.9
Chaparral, 1860	38 29 32.789	255 19 36.39	75 21 57.69	Ross Mountain	3.7547474	5,685.22	18,652.3
	123 10 54.963	320 40 24.74	141 02 10.46	Mount Tamalpais	4.9103909	81,356.25	266,916.3
		349 42 24.25	169 49 06.89	Farallon Lighthouse	4.9516764	89,469.79	293,535.5
Point Reyes Lighthouse, 1870	37 59 44.450	165 48 21.25	345 42 24.94	Chaparral	4.7550255	56,888.63	186,642.1
	123 01 19.363	171 30 32.61	351 26 56.78	Ross Mountain	4.7574684	57,209.53	187,694.9
		281 51 13.16	102 06 57.60	Mount Tamalpais	4.5833889	38,316.77	125,710.9
Sonoma Mountain, 1855	38 19 23.451	2 26 26.54	182 25 38.81	Mount Tamalpais	4.6468766	44,348.27	145,499.3
	122 34 26.651	28 32 32.56	208 16 46.82	Farallon Lighthouse	4.8961991	78,740.67	258,335.0
		113 11 53.80	292 51 35.14	Ross Mountain	4.7135197	51,703.48	169,630.5
		309 59 45.50	130 24 13.88	Mount Diablo	4.8802738	75,905.60	249,033.6
Tomales Bay, 1855	38 10 54.470	157 13 58.82	337 07 32.69	Ross Mountain	4.5907336	38,970.29	127,855.0
	122 56 45.582	244 08 54.85	64 22 43.81	Sonoma Mountain	4.5579963	36,140.68	118,571.5
		312 49 24.53	133 02 22.17	Mount Tamalpais	4.6233636	42,011.06	137,831.3
		5 08 37.38	185 06 36.37	Farallon Lighthouse	4.7306129	53,779.02	176,440.0

Thirty-ninth parallel arc—Continued

Station	Latitude and longitude			Azimuth			Back Azimuth			To station	Distance		
											Logarithm (meters)	Meters	Feet
Principal points—Continued	°	′	″	°	′	″	°	′	″				
Snow Mountain West, 1892	39	22	37.364	282	54	49.48	103	30	28.13	Marysville Butte	4.9197582	83,130.08	272,735.9
	122	45	27.452	352	05	59.26	172	10	43.15	Mount Helena	4.8992704	79,299.49	260,168.4
				18	02	59.52	197	49	22.11	Ross Mountain	5.0073471	101,706.11	333,680.8
Mount Sanhedrin, 1880	39	30	57.602	297	51	44.16	118	04	36.07	Snow Mountain West	4.5171075	32,893.30	107,917.4
	123	05	42.401	336	46	53.85	157	04	24.30	Mount Helena	5.0092467	102,151.95	335,143.5
				1	03	32.14	181	02	38.28	Ross Mountain	5.0500295	112,209.46	368,140.5
Cold Spring, 1878	39	01	20.217	213	46	20.77	34	02	33.56	Mount Sanhedrin	4.8198259	66,042.86	216,675.6
	123	31	19.282	238	56	41.83	59	25	41.06	Snow Mountain West	4.8858430	76,885.25	252,247.7
				296	36	44.56	117	10	13.40	Mount Helena	4.9375113	86,598.68	284,115.8
Two Rock, 1879	39	21	42.397	240	16	14.48	60	29	34.53	Mount Sanhedrin	4.5396389	34,644.87	113,664.0
	123	26	41.828	10	02	35.25	189	59	39.92	Cold Spring	4.5828957	38,273.28	125,568.3
Paxton, 1878	39	08	08.074	55	25	12.73	235	17	15.40	Cold Spring	4.3448512	22,123.37	72,583.1
	123	18	42.090	155	25	48.73	335	20	45.20	Two Rock	4.4412524	27,621.83	90,622.6
				203	47	09.49	23	55	23.59	Mount Sanhedrin	4.6644482	46,179.39	151,506.9
Walalla, 1860	38	51	23.565	173	16	38.37	353	15	41.71	Cold Spring	4.2677928	18,526.47	60,782.3
	123	29	49.127	207	20	07.49	27	27	07.24	Paxton	4.5426786	34,888.20	114,462.4
				319	42	57.96	139	57	08.67	Ross Mountain	4.7076427	51,008.52	167,350.5
Sanel Mountain, 1860	38	56	54.664	67	19	45.67	247	09	11.39	Walalla	4.4214788	26,392.39	86,589.0
	123	12	59.123	107	16	50.29	287	05	18.15	Cold Spring	4.4427372	27,716.42	90,933.0
				158	22	02.96	338	18	26.93	Paxton	4.3491644	22,344.18	73,307.5
				350	11	09.04	170	14	48.73	Ross Mountain	4.6982385	49,915.85	163,765.6
Sulphur Peak, 1860	38	45	53.154	39	48	20.56	219	38	03.09	Ross Mountain	4.5732355	37,431.35	122,806.0
	122	50	39.006	100	23	27.26	279	58	54.31	Walalla	4.7605017	57,610.51	189,010.5
				122	22	48.37	302	08	47.61	Sanel Mountain	4.5822088	38,212.80	125,369.8
				299	48	45.02	119	56	41.89	Mount Helena	4.3272035	21,242.40	69,692.8
				334	15	23.54	154	25	29.43	Sonoma Mountain	4.7354430	54,380.48	178,413.3
Fisher, 1891	39	03	58.563	200	21	43.70	20	27	05.34	Two Rock	4.5441113	35,003.48	114,840.6
	123	35	10.569	251	57	51.51	72	08	14.94	Paxton	4.3973768	24,967.60	81,914.5
				311	15	34.09	131	17	59.79	Cold Spring	3.8693119	7,401.37	24,282.7
Forty-Acre Opening, 1897	39	11	17.116	73	23	23.79	253	14	52.07	Paxton	4.3076913	20,309.13	66,630.9
	123	05	11.777	122	03	36.53	301	49	59.87	Two Rock	4.5616040	36,442.15	119,560.6
				178	50	55.74	358	50	36.31	Mount Sanhedrin	4.5612481	36,412.30	119,462.7
Cleland, 1897	39	07	00.416	106	49	00.09	286	45	58.45	Paxton	3.8586697	7,222.20	23,694.8
	123	13	54.244	194	50	39.39	14	55	51.01	Mount Sanhedrin	4.6614378	45,860.39	150,460.3
				237	42	08.88	57	47	38.76	Forty-Acre Opening	4.1712607	14,834.08	48,668.1
North, 1925	39	10	16.783	261	49	23.14	81	55	05.97	Forty-Acre Opening	4.1191671	13,157.31	43,166.9
	123	14	14.433	355	25	14.25	175	25	27.00	Cleland	3.7835389	6,074.90	19,930.7
Ukiah magnetic, 1925	39	08	15.457	37	52	36.58	217	51	49.31	Cleland	3.4670817	2,931.44	9,617.6
	123	12	39.327	148	36	36.72	328	35	36.67	North	3.6417994	4,383.28	14,380.8
				242	25	29.70	62	30	12.35	Forty-Acre Opening	4.0834136	12,117.52	39,755.6
Clark, 1891	38	59	36.573	205	44	33.47	25	46	15.51	Fisher	3.9528041	8,970.24	29,429.9
	123	37	52.627	251	18	20.68	71	22	28.26	Cold Spring	3.9995350	9,989.30	32,773.2
Dunn, 1891	39	00	38.813	219	11	18.17	39	13	29.76	Fisher	3.9003313	7,949.34	26,080.5
	123	38	39.502	263	05	14.58	83	09	51.72	Cold Spring	4.0280611	10,667.46	34,998.2
				329	33	13.13	149	33	42.64	Clark	3.3475648	2,226.20	7,303.8
Lane, 1891	39	00	33.443	267	43	50.71	87	45	40.79	Dunn	3.6243583	4,210.74	13,814.7
	123	41	34.376	288	10	26.61	108	12	46.18	Clark	3.7494850	5,616.75	18,427.6
Shoemake 2, 1906	38	57	58.752	169	56	46.96	349	56	24.83	Lane	3.6852617	4,844.64	15,894.5
	123	40	59.226	214	15	16.12	34	16	44.02	Dunn	3.7761545	5,972.48	19,594.7
				236	05	53.38	56	07	50.76	Clark	3.7332322	5,410.44	17,750.8
Supplementary points													
Mucca or Elephant Peak (Nev.), 1879	39	58	34.089	347	33	00.2	167	43	18.8	Mount Como	5.035485	108,513.8	356,016
	119	44	34.944										
Virginia Peak, monument (Nev.), 1878	39	45	20.592	165	25	00.5	345	24	30.3	Pah Rah	3.648818	4,454.7	14,615
	119	27	36.458										
Pond Summit, monument (Nev.), 1879	39	39	08.048	176	43	49.5	356	43	25.2	Pah Rah	4.199384	15,826.5	51,924
	119	27	45.662										
Sage (Nev.), 1879	39	07	41.307	0	18	21.3	180	18	19.7	Mount Como	4.073711	11,849.8	38,877
	119	28	19.880	41	46	28.7	221	26	35.6	Round Top	4.838577	68,956.8	226,236
Galena Saddle (Nev.), 1879	38	53	23.054	60	05	25.2	239	46	40.6	Round Top	4.699717	50,086.1	164,324
	119	30	04.261	189	30	23.8	9	31	27.8	Mount Como	4.170857	14,820.3	48,623
Point Arena Lighthouse, 1925	38	57	17.455	213	43	32.25	33	45	17.74	Lane	3.8614053	7,267.84	23,844.6
	123	44	22.088	232	59	22.41	53	02	57.92	Dunn	4.0137740	10,322.24	33,865.5
				245	22	39.98	65	26	44.94	Clark	4.0132636	10,310.12	33,825.8
Station A, 1925	39	08	15.447	90	36	24	270	36	23	Ukiah magnetic	1.456290	28.595	93.82
	123	12	38.136										
Ukiah latitude, 1925	39	08	14.496	179	33	31	359	33	31	Station A	1.467312	29.330	96.23
	123	12	38.127										

Thirty-ninth parallel to United States-Mexico boundary arc

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points	° ′ ″	° ″	° ′ ″				
Sierra Morena, 1883	37 24 37.212	156 03 24.67	335 52 50.87	Mount Tamalpais	4.7953233	62,419.93	204,789.4
	122 18 26.803	213 30 37.95	33 45 05.08	Mount Diablo	4.7982478	62,841.68	206,173.1
Mocho, 1887	37 28 38.609	83 51 10.32	263 23 43.11	Sierra Morena	4.8261566	67,012.62	219,857.2
	121 33 17.529	118 41 24.96	298 03 13.81	Mount Tamalpais	5.0183137	104,307.07	342,214.1
		144 57 38.88	324 44 30.62	Mount Diablo	4.7394939	54,890.09	180,085.2
Loma Prieta, 1884	37 06 39.818	129 01 11.50	308 44 19.39	Sierra Morena	4.7235748	52,914.51	173,603.7
	121 50 35.130	175 52 56.76	355 50 23.37	Mount Diablo	4.9332895	85,760.94	281,367.3
		212 04 00.16	32 14 28.85	Mocho	4.6814310	48,020.98	157,548.8
Mount Hamilton, Lick Observatory, small dome, 1882.	37 20 30.414	34 57 54.59	214 50 36.18	Loma Prieta	4.4944573	31,221.76	102,433.4
	121 38 30.447	97 33 18.18	277 09 03.47	Sierra Morena	4.7741384	59,448.16	195,039.5
		207 03 18.28	27 06 28.38	Mocho	4.2279812	16,903.68	55,458.2
Santa Ana, 1852	36 54 18.287	112 59 28.70	292 37 25.26	Loma Prieta	4.7706234	58,968.95	193,467.3
	121 13 56.474	155 49 42.56	335 38 00.72	Mocho	4.8430542	69,671.35	228,580.1
Gavilan, 1852	36 45 19.888	143 56 22.32	323 44 42.26	Loma Prieta	4.6890160	48,867.03	160,324.6
	121 31 10.090	236 58 22.77	57 08 42.37	Santa Ana	4.4845948	30,520.72	100,133.4
Mount Toro, 1885	36 31 33.661	162 12 32.41	342 04 06.54	Loma Prieta	4.8338530	68,210.78	223,788.2
	121 36 31.019	182 34 42.01	2 36 38.46	Mocho	5.0240226	105,687.25	346,742.2
		197 21 19.75	17 24 31.28	Gavilan	4.4262958	26,686.75	87,554.8
		218 31 07.14	38 44 36.95	Santa Ana	4.7311620	53,847.06	176,663.2
Hepsedam, 1885	36 18 52.548	108 39 45.65	288 11 47.87	Mount Toro	4.8704418	74,206.47	243,459.1
	120 49 25.097	150 57 27.67	330 42 50.18	Santa Ana	4.8752750	75,036.91	246,183.6
Santa Lucia, 1885	36 08 44.299	157 58 54.51	337 52 07.84	Mount Toro	4.6584551	45,546.51	149,430.5
	121 25 04.676	191 06 14.83	11 12 52.54	Santa Ana	4.9339742	85,896.25	281,811.3
		250 29 24.22	70 50 28.79	Hepsedam	4.7530110	56,625.36	185,778.4
Rocky Butte 2, 1923	35 39 55.019	148 46 26.17	328 33 47.36	Santa Lucia	4.7951598	62,396.44	204,712.3
	121 03 30.792	196 18 59.01	16 27 15.99	Hepsedam	4.8756115	75,095.09	246,374.5
Castle Mount, 1885	35 56 20.348	65 10 18.11	244 45 03.49	Rocky Butte 2	4.8558327	71,751.78	235,405.6
	120 20 21.674	103 35 24.64	282 57 19.90	Santa Lucia	4.9994317	99,869.23	327,654.3
		133 51 13.16	313 34 05.28	Hepsedam	4.7804062	60,312.35	197,874.8
San Luis, 1883	35 16 40.129	133 43 13.05	313 25 53.15	Rocky Butte 2	4.7949297	62,363.39	204,603.9
	120 33 38.798	195 13 55.36	15 21 39.49	Castle Mount	4.8811012	76,050.35	249,508.5
San Jose, 1884	35 18 54.700	81 12 55.22	261 02 47.45	San Luis	4.4297275	26,898.47	88,249.4
	120 16 06.941	118 40 47.43	298 13 16.37	Rocky Butte 2	4.9113126	81,529.09	267,483.4
		174 43 44.79	354 41 16.41	Castle Mount	4.8420180	69,505.32	228,035.4
Tepusquet, 1875	34 54 36.522	140 07 25.72	319 54 29.30	San Luis	4.7261847	53,233.46	174,650.1
	120 11 08.335	170 28 17.98	350 25 26.22	San Jose	4.6586585	45,567.84	149,500.5
Lospe, 1875	34 53 37.534	154 24 03.96	334 08 21.24	Rocky Butte 2	4.9777925	95,015.07	311,728.6
	120 36 18.604	185 24 53.25	5 26 25.11	San Luis	4.6314290	42,798.54	140,414.9
		213 10 55.70	33 22 32.50	San Jose	4.7476044	55,924.79	183,479.9
		267 09 56.90	87 24 21.05	Tepusquet	4.5841805	38,386.67	125,940.3
		116 30 58		Reference mark.			
Alamo, 1925	34 47 54.654	108 23 48.18	288 11 49.53	Lospe	4.5270572	33,655.59	110,418.4
	120 15 20.857	207 21 52.51	27 24 16.83	Tepusquet	4.1444662	13,946.53	45,756.2
Santa Maria southeast base, 1925	34 52 43.283	246 45 13.20	66 48 16.45	Tepusquet	3.9469641	8,850.42	29,036.8
	120 16 28.665	349 01 54.13	169 02 32.86	Alamo	3.9571033	9,059.48	29,722.6
Santa Maria northwest base, 1925	34 59 42.212	291 48 23.22	111 57 12.85	Tepusquet	4.4027352	25,277.56	82,931.5
	120 26 32.810	310 02 58.18	130 08 44.16	Santa Maria southeast base	4.3019644	20,043.078	65,758.00
		321 54 14.35	142 00 38.77	Alamo	4.4422507	27,685.39	90,831.1
Lospe North, 1925	34 54 43.251	238 05 40.49	58 11 15.23	Santa Maria northwest base	4.2418934	17,453.94	57,263.5
	120 36 17.080	270 11 24.88	90 25 48.35	Tepusquet	4.5832128	38,301.24	125,660.0
		276 53 25.33	97 04 45.20	Santa Maria southeast base	4.4828769	30,400.23	99,738.1
		291 25 56.12	111 37 54.06	Alamo	4.5353689	34,305.90	112,551.9
		1 05 41.26	181 05 40.38	Lospe	3.3065255	2,025.47	6,645.2
		256 09 33		Santa Maria, municipal water tank.			
Arguello, 1875	34 34 58.026	173 14 36.55	353 13 04.82	Lospe	4.5408223	34,739.40	113,974.2
	120 33 37.639	223 16 36.09	43 29 25.13	Tepusquet	4.6986856	49,967.26	163,934.3
Gaviota, 1873	34 30 06.542	105 12 04.83	284 59 44.54	Arguello	4.5375822	34,481.18	113,127.0
	120 11 52.053	139 28 13.67	319 14 18.82	Lospe	4.7581753	57,302.72	188,000.7
		181 24 12.72	1 24 37.61	Tepusquet	4.6561972	45,310.33	148,655.6
New San Miguel, 1873	34 02 22.854	165 05 16.84	344 59 21.93	Arguello	4.7948887	62,357.50	204,584.6
	120 23 08.029	198 35 17.31	18 41 37.96	Gaviota	4.7331974	54,100.01	177,493.1
Santa Cruz West, 1874	34 04 23.161	85 13 59.95	264 58 15.39	New San Miguel	4.6376405	43,415.07	142,437.6
	119 55 01.354	133 51 22.83	313 29 36.58	Arguello	4.9131213	81,869.34	268,599.7
		151 33 05.33	331 23 35.95	Gaviota	4.7334120	54,126.75	177,580.8
Santa Barbara, 1858	34 24 16.722	26 58 27.70	206 51 37.19	Santa Cruz West	4.6153657	41,244.47	135,316.2
	119 42 51.740	103 46 32.29	283 30 07.73	Gaviota	4.6600314	45,712.13	149,973.9

Thirty-ninth parallel to United States-Mexico boundary arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points—Continued	° ′ ″	° ′ ″	° ′ ″				
Santa Cruz East, 1857	34 03 17.058	93 40 20.13	273 28 27.74	Santa Cruz West	4.5142632	32,678.58	107,213.0
	119 33 49.504	130 31 20.54	310 09 54.95	Gaviota	4.8842512	76,603.96	251,324.8
		160 22 02.57	340 16 57.55	Santa Barbara	4.6151004	41,219.28	135,233.6
Chaffee 2, 1923	34 18 02.199	38 22 53.52	218 15 00.78	Santa Cruz East	4.5410778	34,759.84	114,041.2
	119 19 47.980	108 10 51.59	287 57 50.75	Santa Barbara	4.5705346	37,199.28	122,044.6
		158 11 50		Reference mark.			
Laguna, 1857	34 06 30.864	82 45 48.73	262 29 00.58	Santa Cruz East	4.6675483	46,510.21	152,592.2
	119 03 50.434	118 54 57.32	298 32 59.39	Santa Barbara	4.8345180	68,315.30	224,131.1
		131 03 47.03	310 54 48.75	Chaffee 2	4.5115654	32,476.22	106,549.1
Santa Clara, 1898	34 19 32.419	5 38 12.22	185 37 20.08	Laguna	4.3837785	24,197.94	79,389.4
	119 02 17.703	58 19 56.72	238 02 13.64	Santa Cruz East	4.7559192	57,005.82	187,026.6
		84 10 19.61	264 00 27.56	Chaffee 2	4.4313233	26,997.48	88,574.2
Castro, 1898	34 05 08.468	95 42 16.86	275 32 53.29	Laguna	4.4132062	25,894.42	84,955.3
	118 47 05.133	138 47 59.11	318 39 26.09	Santa Clara	4.5492246	35,418.05	116,200.7
San Fernando, 1898	34 19 47.213	32 12 34.32	212 06 20.50	Castro	4.5049097	31,982.30	104,928.6
	118 36 00.199	89 28 33.34	269 13 43.74	Santa Clara	4.6056277	40,329.95	132,315.8
		302 10 29		Reference mark.			
Wilson Peak, 1890	34 13 25.512	77 17 05.31	256 52 41.96	Castro	4.8357020	68,501.80	224,743.0
	118 03 38.674	103 28 29.71	283 10 16.26	San Fernando	4.7078831	51,036.76	167,443.1
San Pedro, 1853	33 44 45.871	121 01 08.07	300 36 43.31	Laguna	4.8947973	78,486.93	257,502.5
	118 20 06.075	132 17 32.56	312 02 29.17	Castro	4.7490670	56,113.45	184,098.9
		159 21 59.09	339 13 05.04	San Fernando	4.8402071	69,216.10	227,086.5
		205 29 13.62	25 38 25.56	Wilson Peak	4.7688825	58,733.04	192,693.3
San Juan, 1886	33 54 49.470	71 35 28.48	251 15 30.36	San Pedro	4.7662608	58,379.55	191,533.6
	117 44 14.005	139 06 58.14	318 56 05.71	Wilson Peak	4.6584401	45,544.94	149,425.4
		309 15 50		Metropolitan Water District, survey signal.			
Los Angeles northwest base, 1889	33 55 04.951	53 36 28.71	233 27 09.96	San Pedro	4.5063616	32,089.40	105,280.0
	118 03 22.498	179 18 01.53	359 17 52.47	Wilson Peak	4.5303559	33,912.20	111,260.3
		270 50 13.89	91 00 54.72	San Juan	4.4699197	29,506.64	96,806.4
		239 12 21		Reference mark.			
Los Angeles southeast base, 1889	33 47 33.962	82 01 33.53	261 48 25.86	San Pedro	4.5661990	36,829.77	120,832.3
	117 56 29.020	142 37 03.89	322 33 13.54	Los Angeles northwest base	4.2428950	17,494.238	57,395.68
		167 02 46.84	346 58 46.53	Wilson Peak	4.6907238	49,059.58	160,956.3
		234 33 47.54	54 40 36.99	San Juan	4.3650146	23,174.73	76,032.4
Michelson, 1923	34 13 21.424	319 10 07.43	139 20 52.14	San Juan	4.6553204	45,218.94	148,355.8
	118 03 24.913	359 53 41.23	179 53 42.58	Los Angeles northwest base	4.5287079	33,783.75	110,838.9
		109 40 44.36	289 40 36.62	Wilson Peak	2.5729703	374.085	1,227.31
Antonio, 1923	34 14 54.531	8 54 58.04	188 52 50.98	San Juan	4.5749774	37,581.78	123,299.6
	117 40 27.266	43 59 46.86	223 46 56.18	Los Angeles northwest base	4.7063590	50,857.97	166,856.5
		85 27 20.94	265 14 25.88	Michelson	4.5486745	35,373.21	116,053.6
Santiago eccentric, 1923	33 42 38.055	93 15 21.34	272 48 38.57	San Pedro	4.8716669	74,416.10	244,146.8
	117 31 59.547	139 33 55.27	319 16 14.18	Wilson Peak	4.8747587	74,947.77	245,891.1
		140 05 07.06	319 58 18.35	San Juan	4.4684186	29,404.82	96,472.3
Santiago, 1899	33 42 37.886	240 27	60 27	Santiago, eccentric	1.02235	10.528	34.54
	117 31 59.903	93 15 36.96	272 48 54.39	San Pedro	4.8716153	74,407.26	244,117.8
		139 34 23.53	319 16 42.64	Wilson Peak	4.8747472	74,945.78	245,884.6
		140 06 19.51	319 59 31.00	San Juan	4.4683907	29,402.94	96,466.1
Niguel, 1884	33 30 44.819	115 03 44.10	294 43 44.39	San Pedro	4.7892482	61,552.86	201,944.7
	117 43 59.813	159 04 54.40	338 53 57.43	Wilson Peak	4.9269267	84,513.62	277,275.1
		179 31 50.38	359 31 42.50	San Juan	4.6484613	44,510.38	146,031.1
		220 08 32.20	40 15 10.91	Santiago, eccentric	4.4589169	28,768.48	94,384.6
		220 08 06.13	40 14 44.64	Santiago	4.4587677	28,758.60	94,352.2
San Jacinto, 1898	33 48 52.906	81 56 18.69	261 27 48.82	Santiago, eccentric	4.9031566	80,012.27	262,506.9
	116 40 42.915	81 56 08.96	261 27 38.89	Santiago	4.9032099	80,022.09	262,539.1
		96 41 36.72	276 06 13.03	San Juan	4.9937584	98,573.09	323,401.9
		109 57 04.13	289 10 40.23	Wilson Peak	5.1318939	135,485.84	444,506.5
Cuyamaca, 1898	32 56 48.099	121 08 53.03	300 31 48.82	Niguel	5.0877603	122,394.06	401,554.5
	116 36 21.134	134 42 37.60	314 12 03.28	Santiago, eccentric	5.0826512	120,962.62	396,858.2
		134 42 20.37	314 11 45.85	Santiago	5.0826617	120,965.54	396,867.8
		175 59 57.86	355 57 33.83	San Jacinto	4.9845532	96,505.76	316,619.3
Soledad, 1887	32 50 23.322	149 04 27.31	328 48 38.42	Niguel	4.9399230	87,080.92	285,698.0
	117 15 05.811	164 52 23.92	344 43 07.51	Santiago	5.0003020	100,069.56	328,311.5
		258 43 32.04	79 04 34.52	Cuyamaca	4.7893854	61,572.30	202,008.5
San Miguel, 1898	32 41 46.893	118 19 42.33	298 09 26.47	Soledad	4.5265716	33,617.98	110,295.0
	116 56 07.948	227 56 48.10	48 07 31.38	Cuyamaca	4.6182362	41,517.98	136,213.6
San Javier (Mexico), 1919	32 31 05.988	115 34 49.78	295 20 32.86	San Miguel	4.6620255	45,922.49	150,664.0
	116 29 37.781	167 33 48.77	347 30 10.66	Cuyamaca	4.6870927	48,651.10	159,616.1
Cerro Gordo (Mexico), 1919	32 18 38.408	159 15 54.77	339 10 20.66	San Miguel	4.6603546	45,746.16	150,085.5
	116 45 46.182	191 45 13.39	11 50 18.06	Cuyamaca	4.8576537	72,053.27	236,394.8
		227 37 29.02	47 46 08.13	San Javier	4.5341994	34,213.65	112,249.3

20660°—36——3

Thirty-ninth parallel to United States-Mexico boundary arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points—Continued	° ′ ″	° ′ ″	° ′ ″				
San Antonio (Mexico), 1919	32 30 07.881	204 25 49.23	24 29 11.58	San Miguel	4.3739241	23,655.06	77,608.3
	117 02 23.534	309 06 03.39	129 14 57.89	Cerro Gordo	4.5266009	33,620.25	110,302.4
Point Loma Lighthouse (old), 1919	32 40 18.941	176 40 55.29	356 40 32.83	Soledad	4.2706570	18,649.06	61,184.5
	117 14 24.309	242 40 14.71	63 00 51.84	Cuyamaca	4.8245001	66,757.51	219,020.3
		264 29 56.82	84 39 48.86	San Miguel	4.4577377	28,690.47	94,128.6
United States-Mexico boundary monument no. 258, 1892.	32 32 03.817	143 59 58.48	323 56 09.24	Point Loma Lighthouse (old)	4.2755390	18,859.88	61,876.1
	117 07 18.844	160 16 41.13	340 12 28.95	Soledad	4.5561562	35,987.88	118,070.2
		226 28 12.72	46 44 57.45	Cuyamaca	4.8231944	66,557.11	218,362.8
Supplementary points							
Point Conception Lighthouse, 1873	34 26 55.336	150 47 13.00	330 44 08.05	Arguello	4.2315978	17,045.03	55,921.9
	120 28 11.232	256 39 21.88	76 48 36.15	Gaviota	4.4094777	25,673.07	84,229.1
		273 48 44.78	94 14 22.27	Santa Barbara	4.8426790	69,611.18	228,382.7
		309 08 25.40	129 27 05.65	Santa Cruz West	4.8181242	65,784.59	215,828.3
		350 16 19.22	170 19 09.84	New San Miguel	4.6630309	46,028.94	151,013.3
Santa Barbara Lighthouse, 1876	34 23 50.813	26 43 14.48	206 36 37.30	Santa Cruz West	4.6048703	40,259.68	132,085.3
	119 43 15.363	104 56 01.48	284 39 50.38	Gaviota	4.6563427	45,325.51	148,705.4
		217 04 46.11	37 04 59.46	Santa Barbara	3.0003061	1,000.71	3,283.2
		286 31 01.65	106 44 15.75	Chaffee 2	4.5744822	37,538.96	123,159.1
		297 43 04.85	118 05 15.96	Laguna	4.8355063	68,470.94	224,641.7
		339 05 58.19	159 11 16.47	Santa Cruz East	4.6093805	40,679.96	133,464.2
Camarillo, Catholic Church, spire, 1924	34 12 55.440	12 42 11.89	192 41 13.37	Laguna	4.0844471	12,146.39	39,850.3
	119 02 06.221	109 16 04.20	289 06 06.52	Chaffee 2	4.4588292	28,762.67	94,365.5
		178 37 31.21	358 37 24.74	Santa Clara	4.0876155	12,235.32	40,142.0
Point Hueneme Lighthouse, 1876	34 08 44.209	72 58 37.31	252 46 41.66	Santa Cruz East	4.5345007	34,237.39	112,327.2
	119 12 33.019	121 50 30.60	301 33 26.35	Santa Barbara	4.7378312	54,680.34	179,397.1
		147 06 32.35	327 02 27.72	Chaffee 2	4.3113862	20,482.65	67,200.2
		218 12 19.45	38 18 05.62	Santa Clara	4.4054118	25,433.83	83,444.2
		287 00 57.45	107 05 50.63	Laguna	4.1463515	14,007.21	45,955.3
House, 1921	34 08 49.146	287 45 10.5	107 50 01.2	Laguna	4.144348	13,942.7	45,744
	119 12 28.523	37 07 56.7	217 07 54.2	Point Hueneme Lighthouse	2.280590	190.8	626
Light, 1921	34 08 42.831	136 21 53.3	316 21 52.4	Point Hueneme Lighthouse	1.768522	58.7	193
	119 12 31.438	200 59 48.8	20 59 50.4	House	2.318963	208.4	684
		286 53 53.2	106 58 45.5	Laguna	4.144764	13,956.1	45,788
Castro, fire lookout tower, 1927	34 05 08.465	133 14	313 14	Castro	9.146128	0.140	0.46
	118 47 05.129						
San Pedro 2, 1926	33 44 45.864	98 40 36.1	278 40 36.1	San Pedro	0.134496	1.363	4.47
	118 20 06.023						

Texas-California arc

Principal points							
Butte, 1910	33 33 40.951	60 14 41.75	239 33 10.58	Cuyamaca	5.1332890	135,921.76	445,936.6
	115 20 38.305	103 09 41.03	282 25 15.98	San Jacinto	5.1034552	126,898.13	416,331.6
		358 46 39		Reference mark no. 3.			
American (U.S.G.S.), 1910	32 51 27.313	93 45 50.53	272 45 24.84	Cuyamaca	5.2398771	173,730.92	569,982.2
	114 45 06.932	121 08 36.58	300 05 04.54	San Jacinto	5.3189406	208,420.58	683,793.2
		144 53 38.65	324 34 11.26	Butte	4.9804536	95,599.07	313,644.6
		140 44 48		Reference mark no. 3.			
Kofa (Ariz.), 1910	33 21 33.146	48 31 15.13	228 09 17.97	American (U.S.G.S.)	4.9226636	83,688.08	274,566.6
	114 04 55.583	101 10 05.27	280 28 20.52	Butte	5.0771308	119,434.78	391,845.6
Mohawk (Ariz.), 1910	32 35 22.230	106 18 46.19	285 42 55.95	American (U.S.G.S.)	5.0324494	107,757.97	353,535.9
	113 38 49.403	154 38 34.17	334 24 21.74	Kofa	4.9756756	94,553.07	310,212.9
Harquahalla (Ariz.), 1910	33 48 42.226	11 46 37.92	191 36 44.71	Mohawk	5.1412087	138,423.15	454,143.3
	113 20 46.130	53 54 08.67	233 29 43.02	Kofa	4.9282669	84,774.82	278,132.1
Powell (Ariz.), 1910	34 32 55.936	316 15 50.74	136 44 12.94	Harquahalla	5.0519952	112,718.50	369,810.6
	114 11 15.936	355 44 15.27	175 47 47.72	Kofa	5.1216136	132,316.37	434,108.0
		44 35 16.09	223 56 25.06	Butte	5.1845361	152,945.28	501,788.0
Chemehuevis, 1910	34 33 07.848	270 30 22.30	90 43 06.27	Powell	4.5358935	34,347.37	112,688.0
	114 33 43.012	305 53 25.30	126 34 24.45	Harquahalla	5.1428685	138,953.17	455,882.2
Pine (Ariz.), 1910	34 46 08.017	336 07 41.67	156 24 49.78	Harquahalla	5.0643712	115,976.82	380,500.6
	113 51 10.926	51 35 40.12	231 24 14.84	Powell	4.5933632	39,206.96	128,631.5
		69 53 59.94	249 29 48.52	Chemehuevis	4.8406518	69,287.00	227,319.1
Crescent (Nev.), 1925	35 28 35.401	188 40 10.38	8 43 09.40	Black	4.7077065	51,016.01	167,375.0
	115 07 42.317	303 39 39.29	124 23 40.97	Pine	5.1469842	140,276.26	460,223.0
		333 04 42.82	153 24 12.98	Chemehuevis	5.0600907	114,839.34	376,768.7
		305 04 42		Reference mark no. 3.			
Hualpai (Ariz.), 1925	35 04 30.219	353 13 49.14	173 15 19.91	Pine	4.5340587	34,202.57	112,212.9
	113 53 49.472	46 33 12.93	226 10 26.42	Chemehuevis	4.9245645	84,055.18	275,771.0
		112 02 04.06	291 19 23.96	Crescent	5.0811967	120,558.19	395,531.3
		132 44 08.65	312 04 12.32	Black	5.1486746	140,823.33	462,017.9

Texas-California arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance: Logarithm (meters)	Distance: Meters	Distance: Feet
Supplementary points	° ′ ″	° ′ ″	° ′ ″				
El Toro Peak, 1910 [1]	33 31 25.01	144 00 04	323 51 38	San Jacinto	4.601421	39,941.2	131,040
	116 25 30.11	267 18 46	87 54 37	Butte	5.002142	100,494.4	329,705
Holt, 1924	32 46 52.975	183 09 49.09	3 11 30.51	Butte	4.9377070	86,637.72	284,243.9
	115 23 43.665	261 50 34.94	82 11 30.61	American (U.S.G.S.)	4.7842865	60,853.63	199,650.6
Carrizo, 1924	32 49 30.542	217 15 08.76	37 37 09.88	Butte	5.0121152	102,828.91	337,364.5
	116 00 51.406	267 54 51.88	88 35 56.49	American (U.S.G.S.)	5.0727581	118,238.28	387,920.1
		274 37 09.77	94 57 16.67	Holt	4.7646430	58,162.49	190,821.4
Salton, 1924	33 25 51.347	54 09 48.52	233 43 49.57	Cuyamaca	4.9602259	91,248.53	299,371.2
	115 48 53.277	118 12 30.75	297 43 48.84	San Jacinto	4.9578645	90,753.73	297,747.9
		302 22 33.51	122 57 25.62	American (U.S.G.S.)	5.0711543	117,802.44	386,490.2
Castle Dome Peak (Ariz.), 1910	33 05 04.937	66 18 38.8	245 58 45.1	American (U.S.G.S.)	4.794344	62,279.3	204,328
	114 08 33.524	190 29 07.6	10 31 07.0	Kofa	4.490834	30,962.4	101,582
Sharp Peak, 1910 [1]	33 37 02.24	329 29 23	149 46 48	American (U.S.G.S.)	4.989670	97,649.5	320,372
	115 16 53.54	43 04 53	223 02 48	Butte	3.928810	8,488.1	27,848
Hill, 1893	34 54 11.434	281 01 44.20	101 29 45.91	Pine	4.8823657	76,272.1	250,236
	114 40 14.918	311 28 42.19	131 45 12.41	Powell	4.7721754	59,180.0	194,160
		345 36 19.57	165 40 02.83	Chemehuevis	4.6041534	40,193.3	131,868
		321 27 00		Needles, water tank.			
Peak A, 1910	34 47 38.543	280 41 03.6	101 32 36.9	Powell	5.149472	141,082.1	462,867
	115 41 53.546	284 07 24.4	104 46 11.4	Chemehuevis	5.031570	107,540.0	352,821
Peak B, 1910	34 57 18.873	277 11 16.6	98 08 51.9	Pine	5.190107	154,919.8	508,266
	115 31 55.462	289 43 49.2	110 29 48.0	Powell	5.117554	131,085.3	430,069
Peak C, 1910	35 15 31.339	307 10 59.8	127 49 32.4	Powell	5.111721	129,336.5	424,331
	115 18 37.342	318 40 25.4	139 06 07.2	Chemehuevis	5.017152	104,028.4	341,300
Peak D (Nev.), 1910	35 36 07.784	321 59 36.4	142 33 46.5	Powell	5.169448	147,723.0	484,655
	115 10 43.334	334 02 47.8	154 24 01.8	Chemehuevis	5.111779	129,353.8	424,388
Peak E (Nev.), 1910	35 16 24.093	328 39 12.3	148 57 29.4	Powell	4.972922	93,955.5	308,252
	114 43 12.878	349 42 19.4	169 47 45.5	Chemehuevis	4.910101	81,302.0	266,738
Peak H (Ariz.), 1910 [1]	35 04 30.42	353 13 58	173 15 29	Pine	4.534137	34,208.7	112,233
	113 53 49.44	24 34 40	204 24 42	Powell	4.807212	64,152.3	210,473
Spirit (Nev.), 1925	35 16 29.923	286 11 40.98	106 40 12.98	Hualpai	4.8943228	78,401.2	257,221
	114 43 21.259	305 01 41.03	125 31 37.55	Pine	4.9877129	97,210.4	318,931
		349 34 48.20	169 40 19.17	Chemehuevis	4.9112470	81,516.8	267,443
		281 22 49		Reference mark no. 3.			

Thirty-fifth parallel arc

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance: Logarithm (meters)	Distance: Meters	Distance: Feet
Principal points							
Center, 1926	34 59 27.855	63 00 34.35	242 53 57.33	Tepusquet	4.2954369	19,744.08	64,777.0
	119 59 35.294	145 09 48.39	325 00 17.43	San Jose	4.6419891	43,851.97	143,871.0
McKittrick, 1926	35 17 26.617	32 18 43.68	212 10 46.84	Center	4.5944610	39,306.20	128,957.1
	119 45 46.850	93 31 27.92	273 13 56.09	San Jose	4.6633604	46,063.87	151,127.9
		322 34 50		Reference mark no. 3.			
Peak, 1926	34 54 07.776	91 47 12.87	271 35 57.38	Tepusquet	4.4768554	29,981.64	98,364.8
	119 51 27.881	128 36 39.55	308 32 00.36	Center	4.1991925	15,819.49	51,901.1
		191 18 13.18	11 21 29.26	McKittrick	4.6430998	43,964.26	144,239.4
Pelato, 1926	34 55 12.699	87 21 52.94	267 06 19.05	Peak	4.6177607	41,472.54	136,064.5
	119 24 16.090	141 36 35.86	321 24 13.56	McKittrick	4.7203255	52,520.10	172,309.7
Elk, 1926	35 16 12.295	357 46 05.48	177 46 39.74	Pelato	4.5893424	38,845.65	127,446.1
	119 25 15.687	94 18 32.35	274 06 41.25	McKittrick	4.4941217	31,197.64	102,354.3
		306 55 21		Reference mark no. 2.			
Temblor, 1926	35 06 46.094	49 57 31.96	229 47 04.72	Peak	4.5594033	36,257.96	118,956.3
	119 33 14.536	136 06 25.63	315 59 11.95	McKittrick	4.4380481	27,418.78	89,956.4
		214 44 01.76	34 48 37.73	Elk	4.3271918	21,241.82	69,690.9
		327 23 00.12	147 28 09.09	Pelato	4.4040850	25,356.25	83,189.6
Wheeler, 1926	35 00 38.201	74 25 39.17	254 12 12.22	Pelato	4.5694145	37,103.47	121,730.3
	119 00 48.001	127 53 02.90	307 38 58.13	Elk	4.6721045	47,000.72	154,201.5
		260 48 28		Reference mark no. 2.			
Kern, 1926	35 24 51.669	5 37 48.09	185 36 07.68	Wheeler	4.6532866	45,007.68	147,662.7
	118 57 53.858	36 16 13.56	216 01 02.24	Pelato	4.8317911	67,887.70	222,728.2
		69 01 21.39	248 45 31.66	Elk	4.6477972	44,442.37	145,808.0
Double, 1926	35 01 59.821	87 09 39.13	266 51 29.25	Wheeler	4.6831447	48,210.84	158,171.7
	118 29 08.902	134 14 24.31	313 57 49.39	Kern	4.7835259	60,747.15	199,301.3

[1] No check on this position.

Thirty-fifth parallel arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance: Logarithm (meters)	Distance: Meters	Distance: Feet
Principal points—Continued	° ′ ″	° ′ ″	° ′ ″				
Breckenridge, 1926	35 27 04.504	348 49 31.49	168 52 59.99	Double	4.6745082	47,261.58	155,057.4
	118 35 10.237	38 37 24.66	218 22 37.54	Wheeler	4.7956342	62,464.64	204,936.1
		83 19 21.26	263 06 10.69	Kern	4.5395642	34,638.91	113,644.5
Pajuela, 1926	35 07 14.803	61 04 32.65	240 57 55.10	Double	4.3017773	20,034.44	65,729.7
	118 17 37.121	144 06 37.93	323 56 29.59	Breckenridge	4.6561326	45,303.59	148,633.5
Piute, 1926	35 26 54.180	347 14 15.72	167 17 23.50	Pajuela	4.5712685	37,262.20	122,251.1
	118 23 02.203	11 24 44.99	191 21 13.40	Double	4.6718765	46,976.05	154,120.6
		91 03 05.19	270 56 02.94	Breckenridge	4.2639422	18,362.94	60,245.7
Desert, 1926	35 05 08.042	83 32 04.25	263 13 11.81	Double	4.7014947	50,291.51	164,998.1
	117 56 17.477	96 58 30.28	276 46 14.42	Pajuela	4.5137964	32,643.47	107,097.8
		134 54 34.12	314 39 07.56	Piute	4.7569651	57,143.28	187,477.6
Morris, 1926	35 41 25.136	356 16 05.17	176 17 45.21	Desert	4.8275966	67,235.18	220,587.4
	117 59 10.228	53 27 08.77	233 13 15.79	Piute	4.6527568	44,952.80	147,482.6
Red, 1926	35 20 55.486	48 00 39.14	227 48 22.13	Desert	4.6390640	43,557.61	142,905.3
	117 34 59.445	98 52 19.87	278 24 29.98	Piute	4.8667645	73,580.80	241,406.3
		136 08 54.72	315 54 51.85	Morris	4.7214291	52,653.72	172,748.1
Searles (B. M. M 48), 1926	35 30 27.903	339 50 05.35	159 52 34.05	Red	4.2739343	18,790.32	61,647.9
	117 39 15.978	124 04 04.86	303 52 29.68	Morris	4.5592969	36,249.08	118,927.2
Yucca, 1926	35 54 08.429	7 13 27.65	187 10 28.05	Red	4.7917539	61,909.01	203,113.1
	117 29 51.123	62 06 15.75	241 49 06.84	Morris	4.6993639	50,045.37	164,190.5
		89 01 39		Cairn.			
Pilot, 1926	35 23 50.461	80 41 11.23	260 28 45.61	Red	4.5179395	32,956.38	108,124.4
	117 13 31.463	107 34 52.27	287 19 56.40	Searles (B. M. M 48)	4.6109798	40,830.04	133,956.6
		115 26 53.90	295 00 21.77	Morris	4.8823050	76,261.44	250,201.1
		156 20 11.44	336 10 40.46	Yucca	4.7868157	61,209.06	200,816.7
Leach, 1926	35 32 05.550	63 28 18.30	243 16 37.92	Pilot	4.5320619	34,045.67	111,698.2
	116 53 24.372	126 44 39.42	306 23 22.77	Yucca	4.8352707	68,433.81	224,519.9
Panamint, 1926	36 05 47.634	344 48 06.59	164 54 39.75	Leach	4.8099835	64,562.97	211,820.3
	117 04 36.223	9 52 40.81	189 47 28.11	Pilot	4.8961726	78,735.87	258,319.3
		60 31 42.21	240 16 51.78	Yucca	4.6398387	43,635.37	143,160.4
Funeral, 1926	36 06 11.528	21 00 55.34	200 51 32.88	Leach	4.8294016	67,515.20	221,506.1
	116 37 23.292	89 06 02.73	268 50 00.61	Panamint	4.6112289	40,853.46	134,033.4
Denning, 1926	35 35 45.811	80 14 40.70	259 59 40.55	Leach	4.5972554	39,559.92	129,789.5
	116 27 36.756	135 05 44.98	314 44 05.21	Panamint	4.8957029	78,650.76	258,040.0
		165 23 21.55	345 17 38.04	Funeral	4.7646416	58,162.31	190,820.8
Kingston, 1926	35 45 31.629	69 39 39.08	249 20 58.85	Denning	4.7123660	51,566.31	169,180.5
	115 55 36.003	121 30 13.99	301 05 42.67	Funeral	4.8666279	73,557.66	241,330.4
Charleston (U.S.G.S.) (Nev.), 1926	36 16 17.872	20 14 41.83	200 06 30.82	Kingston	4.7826425	60,623.71	198,896.3
	115 41 40.976	42 53 16.40	222 26 19.12	Denning	5.0083174	101,933.62	334,427.2
		77 39 37.34	257 06 43.91	Funeral	4.9323646	85,578.49	280,768.8
Pahrump southeast base, 1926	36 00 51.585	214 42 06.33	34 49 53.88	Charleston (U.S.G.S.)	4.5410070	34,754.18	114,022.7
	115 54 53.675	2 08 52.18	182 08 27.37	Kingston	4.4529121	28,373.44	93,088.5
		199 55 47		Reference mark no. 3.			
Pahrump northwest base (Nev.), 1926	36 10 09.963	252 43 53.60	72 58 23.08	Charleston (U.S.G.S.)	4.5850230	38,461.21	126,184.8
	116 06 12.442	315 19 43.91	135 26 23.74	Pahrump southeast base	4.3834046	24,177.122	79,321.11
		340 39 27.85	160 45 41.60	Kingston	4.6837127	48,273.93	158,378.7
		269 12 33		Reference mark no. 3.			
Lee (Nev.), 1926	36 08 18.611	27 01 20.38	206 52 58.55	Kingston	4.6745436	47,265.42	155,070.0
	115 41 21.204	55 56 22.67	235 48 24.22	Pahrump southeast base	4.3902028	24,558.55	80,572.5
		95 22 57.36	275 08 17.60	Pahrump northwest base	4.5732724	37,434.53	122,816.5
		178 05 11.82	358 05 00.14	Charleston (U.S.G.S.)	4.1696792	14,780.16	48,491.2
Table (Nev.), 1926	35 48 19.719	82 43 51.55	262 28 22.65	Kingston	4.6045870	40,233.43	131,999.2
	115 29 07.354	160 01 19.03	339 53 55.65	Charleston (U.S.G.S.)	4.7408064	55,056.22	180,630.3
		262 33 45		Reference mark no. 3.			
Black (Nev.), 1925	35 55 51.689	70 53 59.46	250 38 26.79	Table	4.6262810	42,294.22	138,760.3
	115 02 35.556	76 47 36.84	256 16 34.36	Kingston	4.9141792	82,069.02	269,254.8
		122 58 49.81	302 35 47.84	Charleston (U.S.G.S.)	4.8437753	69,787.13	228,959.9
Supplementary points							
G. L. O. Station 15, 1926	34 53 25.724	208 26 16.4	28 35 57.7	San Jose	4.729362	53,624.3	175,932
	120 32 57.836	266 08 29.7	86 20 58.9	Tepusquet	4.522686	33,318.5	109,312
High Mountain, fire lookout tower, 1926	35 15 36.178	246 34 56.0	66 40 19.6	San Jose	4.188130	15,421.6	50,596
	120 25 27.153	307 05 25.8	127 20 18.7	Center	4.693191	49,339.1	161,873
		330 39 46.1	150 47 59.8	Tepusquet	4.648349	44,498.9	145,993
Figueroa Mountain, fire lookout tower, 1926	34 44 36.166	135 07 46.7	315 00 52.0	Tepusquet	4.417142	26,130.2	85,729
	119 59 02.153	178 14 52.7	358 14 33.7	Center	4.439183	27,490.5	90,192
		213 12 17.9	33 16 37.3	Peak	4.323463	21,060.2	69,095
Simmler, 1926 [1]	35 21 05.74	287 02 46	107 11 08	McKittrick	4.360687	22,944.9	75,278
	120 00 15.01	358 33 27	178 33 50	Center	4.602161	40,009.3	131,264

[1] No check on this position.

Thirty-fifth parallel arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Cauvel, 1926 [1]	35 21 29.09	313 22 03	133 25 04	McKittrick	4.036502	10,876.8	35,685
	119 50 59.77	82 59 46	262 45 14	San Jose	4.583860	38,358.4	125,848
G. L. O. Station 14, reference mark, 1926	35 23 43.896	291 04 43.1	111 16 10.7	McKittrick	4.507711	32,189.3	105,608
	120 05 35.505	60 50 39.7	240 44 34.4	San Jose	4.261613	18,264.7	59,923
G. L. O. Station 14, 1926 [1]	35 23 45.12	336 36 34	156 36 34	G. L. O. Station 14, reference mark	1.613884	41.104	134.86
	120 05 36.15						
Caliente (U.S.G.S.), 1926	35 02 11.004	179 18 40.4	359 18 32.6	McKittrick	4.450531	28,218.3	92,580
	119 45 33.425	245 34 40.6	65 41 45.2	Temblor	4.312813	20,550.1	67,421
		291 35 37.2	111 47 49.4	Pelato	4.542450	34,869.8	114,402
		31 09 12.1	211 05 48.9	Peak	4.240432	17,395.3	57,071
Kitt (Standard Oil Co.), 1926 [1]	35 17 28.26	47 09 31	227 09 30	McKittrick	1.873094	74.661	244.95
	119 45 44.68						
G. L. O. Station 13, 1926	35 26 28.479	311 56 32.6	132 04 35.8	Elk	4.452921	28,374.0	93,090
	119 39 10.710	346 05 42.6	166 09 08.4	Temblor	4.574418	37,533.4	123,141
G. L. O. Station 12, reference mark, 1926	35 00 14.859	268 54 48.2	89 11 09.2	Wheeler	4.637158	43,366.9	142,280
	119 29 18.078	320 31 41.1	140 34 34.1	Pelato	4.081280	12,058.1	39,561
G. L. O. Station 12, 1926 [1]	35 00 16.02	294 15 29	114 15 31	G. L. O. Station 12, reference mark	1.938314	86.759	284.64
	119 29 21.20						
Taft, highschool, dome, 1926 [1]	35 08 46.60	66 43 33	246 40 17	Temblor	3.972581	9,388.2	30,801
	119 27 33.98	194 16 36	14 17 56	Elk	4.151473	14,173.4	46,501
Buena Vista Hills, oil tank, 1926 [1]	35 09 55.71	66 23 41	246 18 38	Temblor	4.163399	14,568.0	47,795
	119 24 27.40	173 59 48	353 59 20	Elk	4.067048	11,669.4	38,285
Pan American Petroleum Co. mark, 1926 [1]	35 16 12.35	29 40 43	209 40 43	Elk	0.301030	2.00	6.6
	119 25 15.65						
B. M. 4492 (U.S.G.S.), 1926 [1]	34 55 12.78	13 08 54	193 08 54	Pelato	0.397940	2.50	8.2
	119 24 16.07						
G. L. O. Station 11, reference mark, 1926	35 26 31.472	6 33 54.4	186 31 23.3	Pelato	4.765503	58,277.8	191,200
	119 19 53.594	23 06 30.9	203 03 24.5	Elk	4.316858	20,742.4	68,052
		29 03 20.2	208 55 37.7	Temblor	4.620797	41,763.5	137,019
G. L. O. Station 11, 1926 [1]	35 26 31.17	231 54 56	51 54 56	G. L. O. Station 11, reference mark	1.176439	15.012	49.25
	119 19 54.06						
Reyes Peak, fire lookout tower, 1926	34 37 51.017	119 49 48.0	299 30 03.1	Peak	4.783995	60,812.8	199,517
	119 16 49.959	149 05 32.7	328 48 57.5	McKittrick	4.931687	85,445.1	280,331
		155 00 46.3	334 51 23.4	Temblor	4.771040	59,025.5	193,653
		160 34 18.3	340 30 03.8	Pelato	4.532051	34,044.8	111,695
Frazier Mountain, fire lookout tower, 1926	34 46 29.862	180 14 42.2	0 14 49.1	Kern	4.850856	70,934.2	232,723
	118 58 05.882	204 47 46.8	25 00 58.1	Breckenridge	4.917611	82,720.1	271,391
		236 50 40.2	57 07 14.1	Double	4.720917	52,591.7	172,545
G. L. O. Station 10, 1926	34 56 26.713	148 26 32.1	328 24 44.5	Wheeler	3.958863	9,096.3	29,843
	118 57 40.244	210 58 58.5	31 11 56.7	Breckenridge	4.820434	66,135.4	216,979
		256 33 28.0	76 49 49.3	Double	4.649345	44,601.0	146,328
Ant, 1926	35 25 35.911	14 04 51.8	194 00 28.5	Wheeler	4.677400	47,577.3	156,093
	118 53 11.479	70 28 59.9	250 10 26.7	Elk	4.712637	51,598.5	169,286
		79 11 15.8	259 08 32.1	Kern	3.860527	7,253.2	23,797
G. L. O. Station 9, reference mark no. 1, 1926	35 27 39.368	340 47 03.2	160 47 33.7	Ant	3.605210	4,029.1	13,219
	118 54 04.047	48 17 52.1	228 15 38.8	Kern	3.890190	7,765.9	25,479
G. L. O. Station 9, 1926 [1]	35 27 21.11	200 55 28	20 55 33	G. L. O. Station 9, reference mark no. 1	2.779993	602.55	1,976.9
	118 54 12.58						
G. L. O. Station 9, reference mark no. 2, 1926 [1]	35 27 23.78	221 25 55	41 26 05	G. L. O. Station 9, reference mark no. 1	2.806816	640.9	2,103
	118 54 20.87	291 29 41	111 29 45	G. L. O. Station 9	2.351342	224.6	737
Round Mountain, 1926	35 29 08.217	358 27 19.0	178 27 23.1	Ant	3.815929	6,545.3	21,474
	118 53 18.473	22 46 02.6	202 45 36.2	G. L. O. Station 9, reference mark no. 1	3.472681	2,969.5	9,742
		41 19 04.3	221 16 24.6	Kern	4.022156	10,523.4	34,526
Pampa reference mark (U.S.G.S.), 1926	35 21 54.480	229 57 07.2	50 01 28.6	Breckenridge	4.172028	14,860.3	48,754
	118 42 41.322	330 45 48.3	150 53 36.6	Double	4.624938	42,163.6	138,332
		103 24 44.1	283 15 55.6	Kern	4.374175	23,668.7	77,653
Beale reference mark (U.S.G.S.), 1926	35 15 11.352	47 53 40.1	227 42 25.6	Wheeler	4.602691	40,058.2	131,424
	118 41 15.869	125 26 17.9	305 16 40.7	Kern	4.490022	30,904.5	101,393
		202 45 20.9	22 48 52.5	Breckenridge	4.377270	23,838.0	78,209
Sunday (Tobias) Peak, fire lookout tower, 1926.	35 46 56.312	38 10 57.0	217 42 27.9	Pelato	5.083803	121,283.9	397,912
	118 35 02.461	40 19 45.2	220 06 26.9	Kern	4.728057	53,463.5	175,405
		53 25 34.7	232 56 23.8	Elk	4.976955	94,832.0	311,128
		63 19 05.8	242 37 58.8	McKittrick	5.079286	120,029.0	393,795
G. L. O. Station 8, reference mark, 1926	34 59 42.098	198 19 31.2	18 21 16.0	Pajuela	4.167235	14,697.2	48,219
	118 20 39.614	254 43 07.1	74 57 06.6	Desert	4.584289	38,396.3	125,972
G. L. O. Station 8, 1926 [1]	34 59 41.00	217 36 01	37 36 02	G. L. O. Station 8, reference mark	1.629175	42.577	139.69
	118 20 40.64						

[1] No check on this position.

Thirty-fifth parallel arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Muroc, railway water tank, 1926 [1]	34 55 23.25	102 34 28	282 13 31	Double	4.755194	56,910.7	186,715
	117 52 37.58	162 49 27	342 47 21	Desert	4.275633	18,864.0	61,890
G. L. O. Station 7, 1926	35 05 47.744	281 46 04.7	101 48 17.9	Desert	3.777401	5,989.6	19,651
	118 00 08.955	70 14 07.1	250 02 20.6	G. L. O. Station 8, reference mark	4.520654	33,163.0	108,802
		95 51 18.0	275 41 15.2	Pajuela	4.426182	26,679.8	87,532
Desert (U.S.G.S.), 1926 [1]	35 05 08.12	72 54 44	252 54 44	Desert	0.883093	7.64	25.1
	117 56 17.19						
Owens Peak, cairn, 1926	35 44 17.862	247 51 18.0	68 08 48.4	Yucca	4.686544	48,589.7	159,415
	117 59 45.823	298 12 30.1	118 39 23.9	Pilot	4.900077	79,446.9	260,652
		318 58 38.1	139 13 02.2	Red	4.757258	57,181.8	187,604
Inyokern, Standard Oil Co., tank, 1926 [1]	35 38 47.57	107 01 44	286 55 35	Morris	4.220920	16,631.1	54,564
	117 48 37.78	224 49 31	45 00 30	Yucca	4.602911	40,078.5	131,491
Searles, Trona Railway, tank, 1926 [1]	35 30 50.92	335 58 50	156 01 57	Red	4.302892	20,085.9	65,898
	117 40 23.24	124 39 31	304 28 35	Morris	4.537182	34,449.4	113,023
G. L. O. Station 6, 1926	35 47 53.699	249 49 15.6	70 01 33.2	Yucca	4.526913	33,644.4	110,382
	117 50 50.423	334 16 30.4	154 25 43.6	Red	4.742901	55,322.4	181,504
		46 24 06.8	226 19 14.8	Morris	4.239374	17,353.0	56,932
G. L. O. Station 4, reference mark no. 1, 1926	35 27 04.381	354 39 12.5	174 39 36.9	Red	4.057598	11,418.2	37,461
	117 35 41.582	126 54 18.2	306 40 38.8	Morris	4.646339	44,293.4	145,319
G. L. O. Station 4, 1926 [1]	35 27 05.71	336 20 44	156 20 44	G. L. O. Station 4, reference mark no. 1	1.650550	44.725	146.74
	117 35 42.29						
G. L. O. Station 4, reference mark no. 2, 1926 [1]	35 27 05.74	67 18 03	247 18 01	G. L. O. Station 4, reference mark no. 1	2.036417	108.747	356.78
	117 35 37.60	89 31 18	269 31 16	G. L. O. Station 4	2.072845	118.262	388.00
G. L. O. Station 5, 1926	35 05 51.128	188 41 30.2	8 43 07.5	Red	4.450164	28,194.5	92,501
	117 37 48.183	227 47 46.7	48 01 47.4	Pilot	4.695706	49,625.6	162,813
Dome (U.S.G.S.), cairn, 1926	35 25 43.047	124 43 13.4	304 38 21.5	Searles (B. M. M 48)	4.188331	15,428.8	50,619
	117 30 52.759	277 26 22.2	97 36 25.6	Pilot	4.423252	26,500.4	86,943
		35 06 32.2	215 04 09.4	Red	4.034644	10,830.4	35,533
Mount Argus, highest rock, 1926	35 51 08.456	338 25 32.1	158 33 12.7	Pilot	4.734487	54,260.9	178,021
	117 26 42.105	12 40 08.9	192 35 19.4	Red	4.757846	57,259.3	187,858
		139 29 28.1	319 27 37.5	Yucca	3.863158	7,297.2	23,941
Telescope Peak, cairn, 1926	36 10 11.592	345 41 00.0	165 47 57.9	Leach	4.861511	72,696.1	238,504
	117 05 17.924	352 41 36.5	172 42 01.1	Panamint	3.913928	8,202.2	26,910
		51 17 22.4	231 02 55.8	Yucca	4.675265	47,344.0	155,328
Brown (U.S.G.S.), cairn, 1926	35 41 11.404	173 06 32.6	353 04 23.8	Panamint	4.661159	45,831.0	150,364
	117 00 56.409	325 53 35.7	145 57 58.9	Leach	4.307682	20,308.7	66,629
		30 43 25.6	210 36 06.7	Pilot	4.571651	37,295.0	122,359
Lava, 1926 [1]	35 32 56.20	181 00 14	1 00 38	Panamint	4.783685	60,769.4	199,374
	117 05 18.78	274 54 00	95 00 55	Leach	4.256802	18,063.5	59,263
Panamint mining signal, 1926 [1]	36 05 48.40	357 02 22	177 02 22	Panamint	1.373464	23.63	77.5
	117 04 36.27						
Pilot (U.S.G.S.), cairn, 1926 [1]	35 23 50.54	301 55 52	121 55 52	Pilot	0.681241	4.80	15.7
	117 13 31.62						
G. L. O. Station 3, 1926	35 05 46.721	147 40 00.0	327 31 56.2	Pilot	4.597210	39,555.8	129,776
	116 59 33.108	190 48 28.1	10 52 01.3	Leach	4.694950	49,539.3	162,530
G. L. O. Station 2, 1926	35 15 32.683	119 29 15.3	299 18 52.0	Pilot	4.494824	31,248.1	102,520
	116 55 33.591	186 04 21.6	6 05 36.5	Leach	4.488149	30,771.5	100,956
Tie Fort (U.S.G.S.), cairn, 1926	35 16 58.921	101 57 32.3	281 34 17.5	Pilot	4.793783	62,198.9	204,064
	116 33 20.173	132 41 52.9	312 30 15.2	Leach	4.615717	41,277.8	135,426
		152 33 35.7	332 15 21.3	Panamint	5.007935	101,843.9	334,133
Funeral (U.S.G.S.), 1926 [1]	36 06 11.34	195 22 55	15 22 55	Funeral	0.785686	6.105	20.03
	116 37 23.36						
Beck, 1926	35 58 28.675	117 35 06.4	297 24 22.2	Funeral	4.489951	30,899.5	101,376
	116 19 08.400	239 25 49.1	59 47 54.0	Charleston (U.S.G.S.)	4.813917	65,150.4	213,748
		303 56 18.1	124 10 05.7	Kingston	4.631123	42,768.4	140,316
B. M. 1715 (U.S.G.S.), 1926	35 51 57.175	126 39 25.1	306 25 31.7	Funeral	4.645674	44,225.6	145,097
	116 13 44.896	146 07 06.3	326 03 56.6	Beck	4.162532	14,538.9	47,700
		293 24 16.2	113 34 53.4	Kingston	4.474326	29,807.5	97,793
G. L. O. Station 1, 1926 [1]	35 52 13.20	55 59 19	235 59 02	B. M. 1715 (U.S.G.S.)	2.945826	882.7	2,896
	116 13 15.73						
G. L. O. Station 1, reference mark, 1926 [1]	35 52 03.31	76 31 36	256 31 17	B. M. 1715 (U.S.G.S.)	2.908930	810.8	2,660
	116 13 13.47	169 26 46	349 26 44	G. L. O. Station 1	2.491475	310.081	1,017.32
G. L. O. Station 4 (Nev.), 1926	36 25 31.754	285 04 01.4	105 28 47.5	Charleston (U.S.G.S.)	4.811625	64,807.5	212,623
	116 23 28.201	30 18 26.0	210 10 12.1	Funeral	4.616929	41,393.2	135,804

[1] No check on this position.

Thirty-fifth parallel arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
End (Nev.), 1898 [1]	36 09 51.63	274 16 14	94 30 54	Lee	4.573208	37,429.0	122,798
	116 06 14.08	184 08 29	4 08 30	Pahrump northwest base	2.753237	566.5	1,859
G. L. O. Station 3A (Nev.), 1926	36 09 39.280	94 11 35.0	274 06 27.3	Pahrump northwest base	4.116202	13,067.8	42,873
	115 57 30.971	242 32 56.5	62 42 17.8	Charleston (U.S.G.S.)	4.426842	26,720.3	87,665
G. L. O. Station 3B (Nev.), 1926 [1]	36 09 39.25	90 44 03	270 44 01	G. L. O. Station 3A	1.915679	82.353	270.19
	115 57 27.68						
T 116 (Nev.), 1898	35 55 47.944	133 03 49.3	312 59 54.2	Pahrump southeast base	4.137173	13,714.3	44,994
	115 48 13.556	134 37 17.7	314 26 42.8	Pahrump northwest base	4.578449	37,883.4	124,289
		151 28 29.3	331 23 01.3	G. L. O. Station 3A	4.465024	29,175.9	95,721
		204 00 44.3	24 04 46.9	Lee	4.403724	25,335.2	83,121

Pasadena base net

Principal points							
Pasadena west base, 1922	34 06 49.835	178 00 21.30	358 00 12.09	Michelson	4.0818103	12,072.86	39,609.0
	118 03 08.501	246 42 09.25	66 54 54.02	Antonio	4.5789076	37,923.43	124,420.5
Joaquin, 1922	34 06 50.508	89 07 56.72	269 07 26.90	Pasadena west base	3.1343877	1,362.660	4,470.66
	118 02 15.338	171 35 23.11	351 34 44.04	Michelson	4.0855017	12,175.92	39,947.2
		245 53 55.30	66 06 10.20	Antonio	4.5642809	36,667.47	120,299.9
Dimas, 1922	34 06 49.802	90 04 06.66	269 56 12.57	Pasadena west base	4.3357409	21,664.11	71,076.3
	117 49 03.195	90 07 23.03	269 59 58.76	Joaquin	4.3075302	20,301.598	66,606.16
		118 44 01.38	298 35 57.42	Michelson	4.4006032	25,153.77	82,525.3
		221 27 23.08	41 32 12.94	Antonio	4.2997368	19,940.53	65,421.6
Pasadena east base 2, 1922	34 07 14.102	86 27 22.10	266 23 00.20	Dimas	4.0788166	11,989.928	39,336.96
	117 41 16.258	88 48 26.74	268 36 40.53	Joaquin	4.5088725	32,275.46	105,890.4
		88 49 42.74	268 37 26.71	Pasadena west base	4.5268312	33,638.078	110,360.93
		108 30 02.13	288 17 35.86	Michelson	4.5546265	35,861.34	117,655.1
		185 02 59.50	5 03 27.03	Antonio	4.1535708	14,241.99	46,725.6
Gabriel, 1923	34 06 52.395	89 06 11.99	269 04 51.68	Joaquin	3.5646868	3,670.175	12,041.23
	117 59 52.145						
Edison, 1923	34 06 51.889	90 10 56.44	270 08 58.62	Gabriel	3.7311088	5,384.047	17,664.16
	117 56 22.067						
Citrus, 1923	34 06 50.796	90 25 44.19	270 24 02.49	Edison	3.6671993	4,647.285	15,246.97
	117 53 20.741						
Dalton, 1923	34 06 50.264	90 46 53.25	270 46 26.82	Citrus	3.0819787	1,207.755	3,962.44
	117 52 33.621						
Gladstone, 1923	34 06 50.201	90 03 23.82	270 02 34.77	Dalton	3.3505691	2,241.656	7,354.50
	117 51 06.155	270 12 50.96	90 13 59.92	Dimas	3.4984955	3,151.342	10,339.03
Rock, 1923	34 07 18.125	72 37 24.06	252 36 23.92	Gladstone	3.4593153	2,879.49	9,447.1
	117 49 18.929	335 11 55.18	155 12 04.01	Dimas	2.9828697	961.32	3,153.9
Garrett, 1923	34 07 18.197	72 01 00.75	252 00 01.79	Dimas	3.4521691	2,832.495	9,292.94
	117 47 18.074	89 58 06.50	269 56 58.71	Rock	3.4909529	3,097.08	10,161.0
Bridge, 1923	34 07 18.075	90 05 26.53	270 04 29.42	Garrett	3.4164820	2,609.048	8,559.85
	117 45 36.263						
Reynolds, 1923	34 07 14.348	104 20 15.95	284 20 06.12	Bridge	2.6662869	463.753	1,521.50
	117 45 18.730						
Foot, 1923	34 07 18.057	354 57 38.68	174 57 38.90	Reynolds	2.0596096	114.712	376.35
	117 45 19.123	90 04 29.35	270 04 19.74	Bridge	2.6426948	439.233	1,441.05
Hill, 1923	34 07 14.377	89 55 14.05	269 55 00.17	Reynolds	2.8023864	634.434	2,081.47
	117 44 53.973						
French, 1923	34 07 17.897	79 05 27.80	259 05 15.48	Hill	2.7581903	573.047	1,880.07
	117 44 32.016						
Malone, 1923	34 07 16.071	84 37 12.29	264 37 00.16	Hill	2.7453479	556.350	1,825.29
	117 44 32.359	188 52 43.06	8 52 43.25	French	1.7556356	56.969	186.91
Pate, 1923	34 07 17.683	90 06 10.11	270 04 39.31	French	3.6178809	4,148.403	13,610.22
	117 41 50.135	277 14 37.21	97 14 56.21	Pasadena east base 2	2.9420903	875.166	2,871.27
Pasadena east base, 1922	34 07 16.609	17 14 00.94	197 14 00.41	Pasadena east base 2	1.9077788	80.868	265.31
	117 41 15.323	92 07 50.94	272 07 31.41	Pate	2.9507282	892.747	2,928.95
Supplementary points							
San Dimas, cistern, center, 1923 [1]	34 06 45.52	153 23 14	333 23 03	Rock	3.050569	1,123.5	3,686
	117 48 59.29	248 46 55	68 47 51	Garrett	3.444424	2,782.4	9,129
La Verne, water tank, finial, 1923 [1]	34 06 03.85	132 49 29	312 48 35	Garrett	3.527677	3,370.4	11,058
	117 45 41.61	183 25 50	3 25 54	Bridge	3.360035	2,291.1	7,517

[1] No check on this position.

Los Angeles County (Coast and Geodetic Survey)

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points	° ′ ″	° ′ ″	° ′ ″				
San Buenaventura, 1858	34 15 53.980	312 59 30.16	133 06 17.75	Laguna	4.4051389	25,417.85	83,391.7
	119 15 55.824	49 47 08.25	229 37 05.38	Santa Cruz East	4.5570194	36,059.48	118,305.1
Santa Clara (old), 1857	34 19 32.392	5 38 11.46	185 37 19.32	Laguna	4.3837634	24,197.11	79,386.7
	119 02 17.710	72 14 00.13	252 06 19.16	San Buenaventura	4.3419886	21,978.02	72,106.2
Conejo, 1857	34 11 56.294	47 10 16.54	227 06 19.74	Laguna	4.1685171	14,740.67	48,361.7
	118 56 48.644	149 06 05.91	329 03 00.65	Santa Clara (old)	4.2143693	16,382.09	53,746.9
San Fernando (old), 1856	34 19 08.086	69 07 45.70	248 55 02.18	Conejo	4.5701270	37,164.39	121,930.2
	118 34 12.320	91 07 39.79	270 51 49.49	Santa Clara (old)	4.6344231	43,094.62	141,386.3
Saddle Mountain, 1860	34 05 00.922	114 17 05.23	294 06 41.36	Conejo	4.4944786	31,223.29	102,438.4
	118 38 17.040	193 28 41.30	13 30 58.86	San Fernando (old)	4.4288491	26,844.12	88,071.1
Cowango, 1856	34 08 09.412	78 29 40.65	258 19 21.14	Saddle Mountain	4.4609506	28,903.51	94,827.6
	118 19 52.316	132 44 38.62	312 36 34.89	San Fernando (old)	4.4762481	29,939.74	98,227.3
West Beach, 1854	33 52 38.504	135 29 08.49	315 20 57.63	Saddle Mountain	4.5067238	32,116.18	105,367.8
	118 23 38.799	191 26 13.38	11 28 20.05	Cowango	4.4663486	29,265.01	96,013.6
		339 23 28.96	159 25 27.34	San Pedro	4.1918888	15,555.67	51,035.6
Dominguez Hill, 1854	33 51 54.927	34 43 02.24	214 39 44.32	San Pedro	4.2062028	16,076.92	52,745.7
	118 14 10.343	95 17 40.04	275 12 23.22	West Beach	4.1664841	14,871.83	48,135.8
		163 43 59.95	343 40 48.72	Cowango	4.4952809	31,281.02	102,627.8
		218 23 32		Reference mark no. 1.			
		271 30 09		Reference mark no. 2.			
Los Cerritos, 1853	33 47 59.090	216 50 50.16	36 54 23.50	Los Angeles northwest base	4.2149111	16,402.54	53,814.0
	118 09 45.419	272 06 09.72	92 13 32.71	Los Angeles southeast base	4.3117808	20,501.27	67,261.2
		69 36 16.18	249 30 31.16	San Pedro	4.2315619	17,043.62	55,917.3
		111 57 10.29	291 49 26.22	West Beach	4.3634632	23,092.09	75,761.3
		136 52 04.19	316 49 36.69	Dominguez Hill	3.9982578	9,959.97	32,677.0
Las Bolsas, 1853	33 40 57.298	103 02 18.26	282 51 17.92	San Pedro	4.4973737	31,432.12	103,123.5
	118 00 16.376	131 37 23.86	311 32 07.79	Los Cerritos	4.2918406	19,581.26	64,242.8
		133 25 14.01	313 17 30.40	Dominguez Hill	4.4700081	29,512.64	96,826.1
		169 37 34.54	349 35 51.00	Los Angeles northwest base	4.4240856	26,551.29	87,110.4
		205 34 18.00	25 36 24.27	Los Angeles southeast base	4.1319430	13,550.12	44,455.7
San Pedro northwest base, 1853	33 56 06.361	307 00 01.49	127 03 44.40	Dominguez Hill	4.1093411	12,862.96	42,201.2
	118 20 50.007	311 15 36.69	131 21 47.04	Los Cerritos	4.3568185	22,741.47	74,611.0
		356 54 46.07	176 55 10.54	San Pedro	4.3221434	20,996.33	68,885.5
		34 06 58.76	214 05 24.60	West Beach	3.8884156	7,734.20	25,374.6
San Pedro southeast base, 1853	33 52 42.000	24 57 39.67	204 55 12.07	San Pedro	4.2089295	16,178.17	53,077.9
	118 15 40.829	89 32 04.65	269 27 38.21	West Beach	4.0893452	12,284.15	40,302.2
		128 25 38.90	308 22 46.42	San Pedro northwest base	4.0058659	10,135.984	33,254.47
Supplementary points							
Lions Head, 1898	34 07 13.455	232 36 57.4	52 48 07.5	San Fernando	4.583577	38,333.4	125,765
	118 55 51.707	285 53 01.0	105 57 56.2	Castro	4.147236	14,035.8	46,049
		306 49 46.1	127 09 43.8	San Pedro	4.838830	68,997.0	226,368
Saddle Mountain 1, 1898	34 04 32.935	95 22 41.6	275 18 25.7	Castro	4.070337	11,758.1	38,576
	118 39 28.518	190 42 15.5	10 44 12.6	San Fernando	4.457444	28,671.1	94,065
		253 14 27.5	73 34 34.4	Wilson Peak	4.759419	57,467.1	188,540
Saddle Mountain 2, 1898	34 04 41.494	93 59 23.6	273 55 00.8	Castro	4.081132	12,054.0	39,547
	118 39 16.097	127 55 17.5	307 42 20.9	Santa Clara	4.651029	44,774.3	146,897
		190 10 22.3	10 12 12.4	San Fernando	4.452615	28,354.0	93,025
Peak 26, 1899	34 20 46.894	290 29 51.9	111 25 55.7	San Jacinto	5.216977	164,807.5	540,706
	118 20 45.473	297 17 49.4	117 27 27.8	Wilson Peak	4.470923	29,574.9	97,030
		310 20 40.8	130 41 10.4	San Juan	4.868434	73,864.2	242,336
San Gabriel Peak, 1896	34 14 35.789	302 27 26.5	122 28 41.3	Wilson Peak	3.605697	4,033.6	13,234
	118 05 51.648	337 18 55.7	157 31 06.9	Niguel	4.943455	87,792.0	288,031
		21 45 01.5	201 37 03.7	San Pedro	4.773410	59,348.5	194,713
Mount Lowe, 1898	34 13 54.509	282 19 10.3	102 20 40.1	Wilson Peak	3.621521	4,183.3	13,725
	118 06 18.350	288 56 55.3	109 44 48.8	San Jacinto	5.145010	139,640.1	458,136
		315 59 27.6	136 11 49.5	San Juan	4.689906	48,967.3	160,654
		317 24 52.6	137 44 02.8	Santiago	4.893928	78,330.0	256,988
Sharp Peak or Strawberry Peak, 1898	34 16 59.993	290 57 29.4	111 45 50.5	San Jacinto	5.154426	142,700.7	468,177
	118 07 04.480	321 26 08.6	141 28 04.3	Wilson Peak	3.926859	8,450.0	27,723
		96 45 27.8	276 29 09.4	San Fernando	4.650125	44,681.2	146,592
Old Baldy, southwest peak, 1898	34 17 12.321	10 36 12.1	190 33 23.1	San Juan	4.624185	42,090.6	138,092
	117 39 12.513	46 34 50.2	226 11 57.6	San Pedro	4.939252	86,946.5	285,257
		93 24 06.8	272 52 06.0	San Fernando	4.940838	87,264.6	286,301
Old Baldy Peak, cairn, 1898	34 17 21.001	300 14 54.5	120 47 23.6	San Jacinto	5.015491	103,631.3	339,997
	117 38 43.749	350 47 45.1	170 51 30.9	Santiago	4.813006	65,013.9	213,300
		11 30 59.2	191 27 54.1	San Juan	4.628330	42,494.2	139,416
		46 47 21.2	226 24 08.4	San Pedro	4.942826	87,665.0	287,614
Telegraph Peak, 1878	34 13 22.297	355 14 47.6	175 16 30.1	Santiago	4.756047	57,022.6	187,082
	117 35 03.412	22 25 23.8	202 20 15.4	San Juan	4.569147	37,080.6	121,655
		52 53 25.9	232 28 15.2	San Pedro	4.940665	87,229.8	286,186

Los Angeles County (Coast and Geodetic Survey)—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
De Camp, 1883	34 00 15.900	320 51 31.8	140 58 12.1	Los Cerritos	4.466075	29,246.6	95,953
	118 21 43.116	322 58 18.2	143 02 30.9	Dominguez Hill	4.286126	19,325.3	63,403
		11 54 46.9	191 53 42.3	West Beach	4.158434	14,402.4	47,252
Peak 11 (San Antonio Mountain), 1883	34 17 13.497	49 08 59.1	228 49 23.5	Dominguez Hill	4.853079	71,298.3	233,918
	117 39 12.131	56 35 42.0	236 10 47.7	West Beach	4.914317	82,095.1	269,340
		64 34 10.7	244 10 18.9	De Camp	4.860253	72,485.8	237,814
Los Angeles Normal School, 1883	34 03 01.527	343 07 02.6	163 10 05.7	Los Cerritos	4.463189	29,052.9	95,318
	118 15 13.423	355 29 10.3	175 29 45.5	Dominguez Hill	4.313912	20,602.1	67,592
		34 05 42.6	214 01 00.3	West Beach	4.364917	23,169.5	76,015
		62 59 19.6	242 55 41.6	De Camp	4.050172	11,224.6	36,826
Los Angeles, magnetic observatory, 1883	34 03 02.863	296 21 04.9	116 21 06.7	Los Angeles Normal School	1.967275	92.7	304
	118 15 16.663	342 59 02.1	163 02 07.0	Los Cerritos	4.464138	29,116.4	95,526
		355 15 53.3	175 16 30.3	Dominguez Hill	4.314916	20,649.8	67,749
		33 52 02.3	213 47 21.8	West Beach	4.364685	23,157.1	75,975
		62 36 23.5	242 32 47.3	De Camp	4.048035	11,169.5	36,645
Los Angeles longitude station, 1889 [1]	34 03 03.05						
	118 15 15.64						
Los Angeles longitude station, 1892 [1]	34 03 01.48						
	118 15 15.22						
Los Angeles latitude station, 1892 [1]	34 03 01.48						
	118 15 15.27						
Los Angeles, Baptist Church, spire, 1883	34 02 47.812	343 22 50.0	163 25 47.3	Los Cerritos	4.455941	28,572.0	93,740
	118 15 03.109	35 14 02.4	215 09 14.3	West Beach	4.361207	22,972.4	75,369
		147 57 07.6	327 57 01.8	Los Angeles Normal School	2.697684	498.5	1,635
Los Angeles, Catholic Cathedral, spire, 1883	34 03 01.075	344 56 56.8	164 59 38.9	Los Cerritos	4.459011	28,774.7	94,405
	118 14 35.902	358 10 00.0	178 10 14.3	Dominguez Hill	4.312493	20,534.9	67,372
		36 02 45.1	215 57 41.8	West Beach	4.374952	23,711.1	77,792
		65 07 33.8	245 03 34.8	De Camp	4.082212	12,084.0	39,646
		90 49 56.0	270 49 35.0	Los Angeles Normal School	2.983374	962.4	3,157
Los Angeles, Presbyterian Church, 1883	34 03 08.022	344 37 46.3	164 40 33.2	Los Cerritos	4.463000	29,040.2	95,276
	118 14 44.659	357 33 52.6	177 34 11.7	Dominguez Hill	4.317168	20,757.2	68,101
		35 18 09.7	215 13 11.2	West Beach	4.375737	23,754.0	77,933
		63 44 36.1	243 40 41.9	De Camp	4.078231	11,973.8	39,284
		74 49 35.1	254 49 19.0	Los Angeles Normal School	2.883315	764.4	2,508
Los Angeles, signal service tower, 1883	34 03 18.884	345 54 31.7	165 57 06.1	Los Cerritos	4.465617	29,215.7	95,852
	118 14 21.942	359 11 22.1	179 11 28.6	Dominguez Hill	4.323773	21,075.3	69,145
		35 58 10.0	215 52 58.9	West Beach	4.386776	24,365.5	79,939
		63 33 16.3	243 29 09.5	De Camp	4.101899	12,644.4	41,484
		67 57 12.6	247 56 43.8	Los Angeles Normal School	3.153677	1,424.5	4,674
Los Angeles, high school, flagstaff, 1883	34 03 17.788	345 19 59.0	165 22 39.8	Los Cerritos	4.466214	29,255.9	95,984
	118 14 33.393	358 23 13.1	178 23 26.0	Dominguez Hill	4.323205	21,047.7	69,054
		35 27 04.2	215 21 59.5	West Beach	4.383217	24,166.7	79,287
		63 05 12.8	243 01 12.4	De Camp	4.092258	12,366.8	40,573
		63 59 23.9	243 59 01.5	Los Angeles Normal School	3.057812	1,142.4	3,748
Los Angeles, electric-light mast (Hill Street), 1883.	34 03 16.753	344 41 17.6	164 44 05.5	Los Cerritos	4.467030	29,311.0	96,165
	118 14 46.322	34 50 49.7	214 45 52.2	West Beach	4.379300	23,949.7	78,575
		55 58 57.6	235 58 42.4	Los Angeles Normal School	2.923543	838.6	2,751
		62 30 23.9	242 26 30.7	De Camp	4.081252	12,057.4	39,558
West Los Angeles, M. E. Church, spire, 1883.[1]	34 01 12.91	76 11 19	256 08 44	De Camp	3.866093	7,346.7	24,103
	118 17 05.10	220 33 25	40 34 27	Los Angeles Normal School	3.643981	4,405.4	14,453
Los Angeles, courthouse, spire, 1883	34 03 12.949	358 37 03.1	178 37 14.0	Dominguez Hill	4.320071	20,896.4	68,558
	118 14 29.957	35 49 40.7	215 44 34.0	West Beach	4.381960	24,096.8	79,058
		63 53 14.4	243 49 12.0	De Camp	4.092691	12,379.2	40,614
		72 28 54.3	252 28 29.9	Los Angeles Normal School	3.067821	1,169.0	3,835
Los Angeles, Catholic College, ball and cross, 1883.	34 02 47.736	355 49 49.2	175 50 21.0	Dominguez Hill	4.304636	20,166.8	66,164
	118 15 07.391	35 00 44.3	214 55 58.6	West Beach	4.359974	22,907.3	75,155
Los Angeles (Boyle Heights), electric-light mast, 1883.	34 02 50.266	349 15 48.7	169 17 41.7	Los Cerritos	4.446309	27,945.3	91,684
	118 13 07.804	4 33 06.5	184 32 31.6	Dominguez Hill	4.306536	20,255.2	66,454
		40 43 39.9	220 37 47.4	West Beach	4.395399	24,854.2	81,542
		70 15 12.2	250 10 23.9	De Camp	4.147676	14,050.0	46,096
		96 09 19.7	276 08 09.3	Los Angeles Normal School	3.510617	3,240.5	10,632
Los Angeles (Boyle Heights), Davis tank house, flagstaff, 1883.	34 02 13.216	348 38 22.9	168 40 17.6	Los Cerritos	4.428789	26,840.4	88,059
	118 13 10.953	4 34 53.6	184 34 20.4	Dominguez Hill	4.281279	19,110.8	62,699
		42 21 47.4	222 15 56.7	West Beach	4.379235	23,946.1	78,563
		115 21 46.6	295 20 38.0	Los Angeles Normal School	3.541099	3,476.2	11,405
Compton, schoolhouse, spire, 1883	33 53 50.069	332 21 33.2	152 23 35.9	Los Cerritos	4.086535	12,204.9	40,042
	118 13 25.540	17 59 04.6	197 58 39.6	Dominguez Hill	3.571678	3,729.7	12,237
		132 58 27.4	312 53 49.6	De Camp	4.241837	17,451.7	57,256

[1] No check on this position.

20650°—30——4

Los Angeles County (Coast and Geodetic Survey)—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Watts, Tajanta Schoolhouse, tower, 1883	33 56 36.074	336 23 16.4	156 25 47.3	Los Cerritos	4.240074	17,381.0	57,024
	118 14 16.063	359 01 39.0	179 01 42.2	Dominguez Hill	3.937692	8,663.5	28,423
		120 34 57.9	300 30 48.2	De Camp	4.124694	13,325.8	43,720
Downey, City Church, spire, 1883	33 55 51.527	5 55 16.7	185 54 44.1	Los Cerritos	4.165358	14,633.8	48,011
	118 08 46.728	48 47 00.6	228 44 00.1	Dominguez Hill	4.043670	11,057.8	36,279
		112 17 18.3	292 10 04.6	De Camp	4.333087	21,532.1	70,643
Los Angeles northwest base latitude station, 1890.[1]	33 55 04.99 118 03 21.96						
Dominguez Hill zenith-telescope station, 1870.[1]	33 51 54.92 118 14 10.16						
Dominguez Hill meridian-instrument station, 1870.[1]	33 51 54.92 118 14 10.09						
Mount Wilson, Wilson Peak astronomical station, 1905.[1]	34 13 20.58 118 03 25.08						
San Pedro latitude station, 1852	33 43 20.329	118 56 39.9	298 54 57.0	San Pedro	3.736254	5,448.2	17,875
	118 17 00.844	232 29 52.2	52 33 54.0	Los Cerritos	4.149783	14,118.3	46,320
Point Fermin Lighthouse, 1878	33 42 19.429	139 03 19.1	319 01 54.6	San Pedro	3.776285	5,974.3	19,601
	118 17 33.967	229 00 45.1	49 05 05.5	Los Cerritos	4.203215	15,966.7	52,384
		275 19 45.4	95 29 21.0	Las Bolsas	4.428821	26,842.4	88,065

Los Angeles County (Los Angeles County and City)

Principal points							
Point Dume, 1856	34 00 05.652	191 43 22.54	11 44 04.81	Castro	3.9790506	9,529.07	31,263.3
	118 48 20.652	238 20 58		Reference mark no. 3.			
Triunfo (U.S.G.S. and L. A. C. & C.), 1933	34 06 14.369	282 28 12.07	102 31 32.39	Castro	3.9723379	9,382.92	30,783.8
	118 53 02.487	327 30 40.56	147 33 18.38	Point Dume	4.1292120	13,465.17	44,177.0
Ladyface (U.S.G.S. and L. A. C. & C.), 1933	34 08 03.496	16 56 04.19	196 55 28.27	Castro	3.7510615	5,637.18	18,494.6
	118 46 01.086	72 44 19.41	252 40 23.04	Triunfo (U.S.G.S. and L. A. C. & C.)	4.0534872	11,310.64	37,108.3
Saddle Peak (U.S.G.S. and L. A. C. & C.), 1933.	34 04 32.760	58 56 38.00	238 51 40.26	Point Dume	4.2023284	15,934.13	52,277.2
	118 39 28.742	95 24 24.88	275 20 09.13	Castro	4.0701445	11,752.89	38,559.3
		122 52 47.05	302 49 07.05	Ladyface (U.S.G.S. and L. A. C. & C.)	4.0781075	11,970.37	39,272.8
Calabasas (U.S.G.S. and L. A. C. & C.), 1933	34 08 24.142	9 43 44.24	189 43 17.51	Saddle Peak (U.S.G.S. and L. A. C. & C.)	3.8593265	7,233.13	23,730.7
	118 38 41.070	65 01 16.76	244 56 34.07	Castro	4.1540042	14,256.21	46,772.2
		86 48 17.81	266 44 10.89	Ladyface (U.S.G.S. and L. A. C. & C.)	4.0527660	11,291.87	37,046.7
		191 03 19.92	11 04 50.42	San Fernando	4.3313411	21,445.74	70,359.9
Chatsworth (U.S.G.S. and L. A. C. & C.), 1933.	34 15 25.403	2 03 14.09	182 03 03.88	Calabasas (U.S.G.S. and L. A. C. & C.)	4.1135492	12,988.21	42,612.2
	118 38 22.902	40 47 00.84	220 42 43.34	Ladyface (U.S.G.S. and L. A. C. & C.)	4.2546144	17,972.74	58,965.6
		204 19 52.22	24 21 12.62	San Fernando	3.9471450	8,854.11	29,048.9
Tuna (U.S.G.S. and L. A. C. & C.), 1933	34 03 46.883	103 35 44.92	283 33 37.06	Saddle Peak (U.S.G.S. and L. A. C. & C.)	3.7796665	6,020.97	19,753.8
	118 35 40.497	151 33 53.10	331 32 11.86	Calabasas (U.S.G.S. and L. A. C. & C.)	3.9874897	9,716.05	31,876.7
Divide (U.S.G.S. and L. A. C. & C.), 1933	34 06 08.212	41 32 53.55	221 31 29.24	Tuna (U.S.G.S. and L. A. C. & C.)	3.7647300	5,817.41	19,086.0
	118 33 10.037	73 10 35.39	253 07 03.14	Saddle Peak (U.S.G.S. and L. A. C. & C.)	4.0062194	10,144.24	33,281.6
		116 18 05.33	296 14 59.61	Calabasas (U.S.G.S. and L. A. C. & C.)	3.9759268	9,460.78	31,039.2
San Vicente No. 1 (L. A. W. D. and L. A. C. & C.), 1933.	34 07 43.283	52 09 15.45	232 07 52.98	Divide (U.S.G.S. and L. A. C. & C.)	3.6788081	4,773.18	15,660.0
	118 30 42.987	66 30 10.83	246 25 16.06	Saddle Peak (U.S.G.S. and L. A. C. & C.)	4.1672972	14,699.32	48,226.0
		79 20 48.22	259 11 37.49	Castro	4.4085973	25,621.07	84,058.5
		95 54 18.08	275 49 49.81	Calabasas (U.S.G.S. and L. A. C. & C.)	4.0904074	12,314.23	40,400.9
		140 26 37.50	320 22 19.04	Chatsworth (U.S.G.S. and L. A. C. & C.)	4.2666436	18,477.52	60,621.7
		160 01 28.83	339 58 30.40	San Fernando	4.3754315	23,737.31	77,878.2
Darling (U.S.G.S. and L. A. C. & C.), 1933	34 14 44.192	9 39 58.66	189 39 10.22	San Vicente No. 1 (L. A. W. D. and L. A. C. & C.).	4.1191075	13,155.50	43,161.0
	118 29 16.782						
		51 01 13.53	230 55 56.41	Calabasas (U.S.G.S. and L. A. C. & C.)	4.2694663	18,598.00	61,016.9
		95 14 05.90	275 08 58.53	Chatsworth (U.S.G.S. and L. A. C. & C.)	4.1470961	14,031.24	46,034.2
		132 10 26.30	312 06 39.03	San Fernando	4.1434901	13,915.22	45,653.5
Mandeville (L. A. W. D. and L. A. C. & C.), 1933.	34 05 25.770	104 20 26.57	284 18 34.59	Divide (U.S.G.S. and L. A. C. & C.)	3.7230604	5,285.19	17,339.8
	118 29 50.269	162 18 59.96	342 18 30.40	San Vicente No. 1 (L. A. W. D. and L. A. C. & C.).	3.6480859	4,447.19	14,590.5
Brentwood No. 2 (L. A. C. & C.), 1933	34 02 38.738	100 46 30.47	280 42 28.83	Tuna (U.S.G.S. and L. A. C. & C.)	4.0517409	11,265.25	36,959.4
	118 28 28.949	131 51 57.80	311 49 20.33	Divide (U.S.G.S. and L. A. C. & C.)	3.9856428	9,674.82	31,741.5
		157 56 57.57	337 56 12.02	Mandeville (L. A. W. D. and L. A. C. & C.).	3.7445173	5,552.87	18,218.0
Peavine (L. A. W. D. and L. A. C. & C.), 1933.	34 06 24.156	32 09 26.50	212 07 51.13	Brentwood No. 2 (L. A. C. & C.)	3.9139611	8,202.78	26,912.0
	118 25 38.737	74 25 47.93	254 23 26.91	Mandeville (L. A. W. D. and L. A. C. & C.).	3.8256765	6,693.86	21,961.4
		87 36 12.01	267 31 58.97	Divide (U.S.G.S. and L. A. C. & C.)	4.0636315	11,577.95	37,985.3
		107 23 13.59	287 20 22.93	San Vicente No. 1 (L. A. W. D. and L. A. C. & C.).	3.9121933	8,169.46	26,802.6
Pacoima No. 2 (L. A. C. & C.), 1933	34 15 48.731	6 03 54.78	186 03 14.27	Peavine (L. A. W. D. and L. A. C. & C.)	4.2428726	17,493.33	57,392.7
	118 24 26.623	32 49 15.51	212 45 43.98	San Vicente No. 1 (L. A. W. D. and L. A. C. & C.).	4.2502478	17,792.94	58,375.7
		75 01 39.59	254 58 56.26	Darling (U.S.G.S. and L. A. C. & C.)	3.8856887	7,685.79	25,215.8

[1] No check on this position.

Los Angeles County (Los Angeles County and City)—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points—Continued	° ′ ″	° ′ ″	° ′ ″				
Fernando No. 2 (U.S.G.S. and L. A. C. & C.), 1933.	34 21 11.674	355 16 49.11	175 17 07.21	Pacoima No. 2 (L. A. C. & C.)	3.9993261	9,984.50	32,757.5
	118 24 58.735	19 30 16.38	199 27 02.67	San Vicente No. 1 (L. A. W. D. and L. A. C. & C.).	4.4219365	26,420.22	86,680.3
		28 57 00.32	208 54 34.90	Darling (U.S.G.S. and L. A. C. & C.)	4.1348639	13,641.56	44,755.7
		62 38 24.00	242 30 50.77	Chatsworth (U.S.G.S. and L. A. C. & C.)	4.3648597	23,166.46	76,005.3
		81 18 03.55	261 11 50.40	San Fernando	4.2331498	17,106.05	56,122.1
Del Rey auxiliary (L. A. C. & C.), 1933	33 57 14.216	131 02 16.25	310 57 12.85	Tuna (U.S.G.S. and L. A. C. & C.)	4.2658226	18,442.62	60,507.2
	118 26 38.039	164 07 07.30	344 06 05.28	Brentwood No. 2 (L. A. C. & C.)	4.0168679	10,396.04	34,107.7
		185 07 33.17	5 08 06.36	Peavine (L. A. W. D. and L. A. C. & C.)	4.2307645	17,012.36	55,814.7
Baldwin auxiliary (L. A. C. & C.), 1933	34 00 16.998	53 22 40.17	233 19 55.33	Del Rey auxiliary (L. A. C. & C.)	3.9747653	9,435.51	30,956.3
	118 21 43.111	112 47 10.75	292 43 23.66	Brentwood No. 2 (L. A. C. & C.)	4.0527259	11,290.83	37,043.3
		151 54 29.35	331 52 17.40	Peavine (L. A. W. D. and L. A. C. & C.)	4.1080708	12,825.40	42,078.0
West Beach No. 3 (U.S.G.S. and L. A. C. & C.), 1927.	33 52 38.483	151 29 34.87	331 27 54.59	Del Rey auxiliary (L. A. C. & C.)	3.9853747	9,668.85	31,721.9
	118 23 38.320	191 49 10.58	11 50 14.91	Baldwin auxiliary (L. A. C. & C.)	4.1593746	14,433.60	47,354.2
		339 25 58.89	159 27 57.01	San Pedro	4.1917514	15,550.75	51,019.4
Denker (L. A. C. & C.), 1933	33 56 16.852	7 56 38.37	187 55 34.09	San Pedro	4.3323373	21,495.00	70,521.5
	118 18 10.659	51 23 29.64	231 20 26.83	West Beach No. 3 (U.S.G.S. and L. A. C. & C.).	4.0324664	10,776.22	35,355.0
		97 45 52.14	277 41 08.79	Del Rey auxiliary (L. A. C. & C.)	4.1188751	13,148.47	43,137.9
		143 37 18.65	323 35 19.92	Baldwin auxiliary (L. A. C. & C.)	3.9634087	9,191.97	30,157.3
South Western (L. A. C. & C.), 1933	33 59 08.376	352 59 23.93	172 59 38.07	Denker (L. A. C. & C.)	3.7262832	5,324.55	17,469.0
	118 18 35.962	113 46 24.31	293 44 39.66	Baldwin auxiliary (L. A. C. & C.)	3.7199812	5,247.85	17,217.3
	34 03 41.340	1 21 14.49	181 21 10.16	South Western (L. A. C. & C.)	3.9249327	8,412.647	27,600.49
North Western (L. A. C. & C.), 1933	118 18 28.217	38 28 05.24	218 26 16.16	Baldwin auxiliary (L. A. C. & C.)	3.9052371	8,039.65	26,376.8
		82 54 39.13	262 49 02.74	Brentwood No. 2 (L. A. C. & C.)	4.1910968	15,527.33	50,942.6
		114 28 30.90	294 24 29.63	Peavine (L. A. W. D. and L. A. C. & C.)	4.0836487	12,124.08	39,777.1
Cahuenga No. 2 (L. A. C. and L. A. C. & C.), 1933.	34 08 13.092	53 20 57.04	233 15 54.77	Brentwood No. 2 (L. A. C. & C.)	4.2365612	17,240.95	56,564.7
	118 19 29.677	70 29 20.87	250 25 53.84	Peavine (L. A. W. D. and L. A. C. & C.)	4.0015438	10,035.61	32,925.2
		87 00 18.14	266 54 00.32	San Vicente No. 1 (L. A. W. D. and L. A. C. & C.).	4.2374600	17,276.67	56,681.9
		128 45 41.43	308 40 11.49	Darling (U.S.G.S. and L. A. C. & C.)	4.2848082	19,266.74	63,211.0
		151 35 10.47	331 32 23.55	Pacoima No. 2 (L. A. C. & C.)	4.2031814	15,965.46	52,380.0
		160 41 05.55	340 38 00.37	Fernando No. 2 (U.S.G.S. and L. A. C. & C.)	4.4052541	25,424.60	83,413.9
		248 21 31.35	68 30 25.62	Wilson Peak	4.4180910	26,187.32	85,916.2
		349 20 22.18	169 20 56.63	North Western (L. A. C. & C.)	3.9304381	8,519.97	27,952.6
Verdugo (U.S.G.S. and L. A. C. & C.), 1933	34 12 54.481	25 59 50.31	205 58 17.63	Cahuenga No. 2 (L. A. C. and L. A. C. & C.)	3.9843064	9,645.09	31,643.
	118 16 44.672	66 00 00.00	245 52 09.13	San Vicente No. 1 (L. A. W. D. and L. A. C. & C.).	4.3713284	23,514.10	77,145.8
		114 27 42.90	294 23 22.98	Pacoima No. 2 (L. A. C. & C.)	4.1134019	12,983.80	42,597.7
		140 31 13.23	320 26 34.92	Fernando No. 2 (U.S.G.S. and L. A. C. & C.)	4.2979576	19,859.01	65,154.1
		267 13 03.95	87 20 25.97	Wilson Peak	4.3040972	20,141.75	66,081.7
Sister Elsie (U.S.G.S. and L. A. C. & C.), 1933.	34 16 08.387	28 40 43.57	208 37 47.87	Cahuenga No. 2 (L. A. C. & L. A. C. & C.)	4.2224205	16,688.62	54,752.6
	118 14 17.097	32 18 27.16	212 17 04.12	Verdugo (U.S.G.S. and L. A. C. & C.)	3.8493015	7,068.08	23,189.2
		87 49 24.27	267 43 41.08	Pacoima No. 2 (L. A. C. & C.)	4.1932654	15,605.06	51,197.6
		119 42 58.91	299 36 57.23	Fernando No. 2 (U.S.G.S. and L. A. C. & C.)	4.2760231	18,880.92	61,945.2
		287 01 37.01	107 07 36.29	Wilson Peak	4.2327387	17,089.87	56,069.0
Dominguez 2, 1933	33 51 38.862	36 42 33.40	216 39 08.40	San Pedro	4.2004698	15,866.09	52,054.0
	118 13 57.608	97 03 40.14	276 58 16.48	West Beach No. 3 (U.S.G.S. and L. A. C. & C.).	4.1771979	15,038.27	49,338.1
		142 49 02.26	322 46 41.12	Denker (L. A. C. & C.)	4.0315366	10,753.17	35,279.4
		248 41 28.10	68 47 22.23	Los Angeles northwest base	4.2433272	17,511.66	57,452.8
Vernon (L. A. C. & C.), 1933	33 59 51.921	12 49 01.61	192 47 46.56	Dominguez 2	4.1925380	15,578.94	51,111.9
	118 11 43.157	24 53 04.02	204 48 23.71	San Pedro	4.4880272	30,762.89	100,927.9
		56 21 45.94	236 18 09.43	Denker (L. A. C. & C.)	4.0774803	11,953.09	39,216.1
		82 48 53.71	262 45 02.92	South Western (L. A. C. & C.)	4.0285493	10,679.46	35,037.5
		92 55 10.06	272 49 34.54	Baldwin Auxiliary (L. A. C. & C.)	4.1879657	15,415.79	50,576.6
		206 18 47.95	26 23 19.66	Wilson Peak	4.4467658	27,974.72	91,780.4
		304 28 55.36	124 33 35.02	Los Angeles northwest base	4.1931794	15,601.97	51,187.5
Silverwood (L. A. W. D. and L. A. C. & C.), 1933.	34 04 21.348	21 13 03.07	201 10 56.89	Denker (L. A. C. & C.)	4.2044280	16,011.35	52,530.6
	118 14 25.025	33 44 46.92	213 42 26.49	South Western (L. A. C. & C.)	4.0642483	11,594.40	38,039.3
		56 12 48.86	236 08 43.63	Baldwin Auxiliary (L. A. C. & C.)	4.1311819	13,526.39	44,377.8
		78 50 14.87	258 47 58.64	North Western (L. A. C. & C.)	3.8032392	6,356.81	20,855.6
		102 24 35.15	282 18 17.54	Peavine (L. A. W. D. and L. A. C. & C.)	4.2475054	17,680.94	58,008.2
		132 27 50.16	312 24 59.35	Cahuenga No. 2 (L. A. C. and L. A. C. & C.)	4.0245318	10,581.12	34,714.9
		167 15 37.11	347 14 18.74	Verdugo (U.S.G.S. and L. A. C. & C.)	4.2097884	16,210.20	53,183.0
		224 35 30.42	44 41 33.25	Wilson Peak	4.3722639	23,564.81	77,312.2
		333 24 48.07	153 26 18.67	Vernon (L. A. C. & C.)	3.9676370	9,281.90	30,452.4
Flint (L. A. W. D. and L. A. C. & C.), 1933	34 09 48.849	22 07 46.04	202 06 16.27	Silverwood (L. A. W. D. and L. A. C. & C.)	4.0371183	10,892.27	35,735.7
	118 11 45.004	42 24 56.00	222 21 09.86	North Western (L. A. C. & C.)	4.1855457	15,330.12	50,295.6
		76 06 56.77	256 02 35.92	Cahuenga No. 2 (L. A. C. and L. A. C. & C.)	4.0886342	12,264.06	40,236.3
		126 43 27.55	306 40 39.15	Verdugo (U.S.G.S. and L. A. C. & C.)	3.9809331	9,570.47	31,399.1
		161 35 53.98	341 34 28.45	Sister Elsie (U.S.G.S. and L. A. C. & C.)	4.0907996	12,325.36	40,437.5
		241 45 56.97	61 50 30.28	Wilson Peak	4.1501084	14,128.90	46,354.6
Dawson (L. A. C. & C.), 1933	33 48 00.774	69 16 21.79	249 10 39.81	San Pedro	4.2286516	16,929.79	55,543.8
	118 09 50.902	136 39 56.58	316 37 39.23	Dominguez 2	3.9657095	9,240.80	30,317.5
		172 30 34.77	352 29 32.18	Vernon (L. A. C. & C.)	4.3443866	22,099.71	72,505.5
		217 20 52.88	37 24 29.28	Los Angeles northwest base	4.2160663	16,446.23	53,957.3

Los Angeles County (Los Angeles County and City)—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points—Continued	° ′ ″	° ′ ″	° ′ ″				
Monterey No. 2 (U.S.G.S. and L. A. C. & C.), 1933.	34 03 13.282	21 15 43.03	201 12 42.15	Dominguez 2	4.3608644	22,954.32	75,309.3
	118 08 33.778	38 04 47.47	218 03 01.50	Vernon (L. A. C. & C.)	3.8965347	7,880.15	25,853.5
		64 00 58.75	243 55 21.84	South Western (L. A. C. & C.)	4.2353890	17,194.48	56,412.2
		103 08 02.84	283 04 46.10	Silverwood (L. A. W. D. and L. A. C. & C.)	3.9660614	9,248.29	30,342.1
		118 50 09.72	298 44 02.06	Cahuenga No. 2 (L. A. C. and L. A. C. & C.)	4.2829394	19,184.01	62,939.5
		158 06 29.93	338 04 42.71	Flint (L. A. W. D. and L. A. C. & C.)	4.1184808	13,136.53	43,098.8
		201 49 07.54	21 51 53.16	Wilson Peak	4.3079804	20,322.65	66,675.2
Workman Hill (L. A. F. C. and L. A. C. & C.), 1933.	33 59 30.107	31 34 05.89	211 32 16.76	Los Angeles northwest base	3.9816838	9,587.02	31,453.4
	118 00 07.114	55 49 23.20	235 41 39.68	Dominguez 2	4.4116839	25,803.82	84,658.0
		92 12 31.55	272 06 02.38	Vernon (L. A. C. & C.)	4.2522779	17,876.31	58,649.2
		117 55 02.11	297 50 18.62	Monterey No. 2 (U.S.G.S. and L. A. C. & C.).	4.1674869	14,705.74	48,247.1
		136 52 06.27	316 45 35.25	Flint (L. A. W. D. and L. A. C. & C.)	4.4174096	26,146.26	85,781.5
		168 07 13.55	348 05 14.93	Wilson Peak	4.4200379	26,304.98	86,302.3
Bassett (U.S.G.S. and L. A. C. & C.), 1933	34 03 48.217	5 12 06.96	185 11 51.16	Workman Hill (L. A. F. C. and L. A. C. & C.).	3.9023011	7,985.48	26,199.0
	117 59 38.904	85 33 17.28	265 28 17.72	Monterey No. 2 (U.S.G.S. and L. A. C. & C.)	4.1385940	13,759.23	45,141.7
		120 53 53.66	300 47 06.44	Flint (L. A. W. D. and L. A. C. & C.)	4.3359407	21,674.08	71,109.0
Monrovia (U.S.G.S. and L. A. C. & C.), 1933	34 09 38.384	349 09 35.28	169 10 20.46	Bassett (U.S.G.S. and L. A. C. & C.)	4.0407986	10,984.96	36,039.8
	118 00 59.467	44 29 46.71	224 25 31.95	Monterey No. 2 (U.S.G.S. and L. A. C. & C.).	4.2207547	16,624.73	54,543.0
		91 10 03.07	271 04 00.58	Flint (L. A. W. D. and L. A. C. & C.)	4.2184837	16,538.03	54,258.5

Newport Beach to thirty-fifth parallel arc

Principal points							
Jurupa, 1929	34 01 57.143	13 22 54.96	193 19 51.07	Santiago	4.5647831	36,709.89	120,439.0
	117 26 29.952	64 19 48.08	244 09 53.48	San Juan	4.4818381	30,327.60	99,499.8
		2 52 42		Airway beacon.			
Armada, 1928	33 52 14.880	60 02 22.53	239 51 18.28	Santiago	4.5501987	35,497.57	116,461.6
	117 12 05.557	95 38 22.91	275 20 27.54	San Juan	4.6970595	49,780.53	163,321.6
		129 00 51.83	308 52 49.07	Jurupa	4.4554402	28,539.09	93,632.0
		122 42 24		March Field, water tank.			
Reche, 1928	33 59 22.105	342 23 11.15	162 24 41.90	Armada	4.1401783	13,809.51	45,306.7
	117 14 48.141	104 54 38.11	284 48 05.55	Jurupa	4.2702373	18,631.05	61,125.4
		7 28 55		March Field, water tank.			
Strawberry, 1929	34 13 55.359	355 47 24.74	175 48 28.99	Armada	4.6039794	40,177.18	131,814.6
	117 14 00.309	2 36 44.83	182 36 18.01	Reche	4.4303028	26,934.12	88,366.4
		41 00 58.90	220 53 58.27	Jurupa	4.4669115	29,302.96	96,138.1
Keller, 1929	34 11 45.551	21 25 11.48	201 20 03.45	Armada	4.5880974	38,734.45	127,081.3
	117 02 55.178	38 38 29.24	218 31 49.61	Reche	4.4669346	29,304.52	96,143.2
		63 32 41.09	243 19 27.62	Jurupa	4.6078684	40,538.57	133,000.3
		103 16 17.31	283 10 03.32	Strawberry	4.2427850	17,489.81	57,381.2
San Berdo, 1929	34 07 28.745	43 54 39.51	223 44 50.60	Armada	4.5914043	39,030.51	128,052.6
	116 54 32.356	64 24 44.52	244 13 23.66	Reche	4.5390468	34,597.67	113,509.2
		111 48 24.12	291 37 28.00	Strawberry	4.5077917	32,195.24	105,627.2
		121 36 13.56	301 31 31.21	Keller	4.1794382	15,116.05	49,593.2
Craft, 1929	34 15 23.649	29 48 22.72	209 46 58.16	Keller	3.8889457	7,743.65	25,405.6
	117 00 24.844	82 38 09.92	262 30 31.04	Strawberry	4.3231234	21,043.76	69,041.1
Loaf, 1929	34 11 56.172	46 52 06.20	226 48 53.56	San Berdo	4.0808535	12,046.29	39,521.9
	116 48 49.291	89 12 01.33	269 04 05.90	Keller	4.3356611	21,660.13	71,063.3
		95 32 29.97	275 18 20.31	Strawberry	4.5894248	38,853.02	127,470.3
		109 48 27.25	289 41 56.01	Craft	4.2768123	18,915.26	62,057.8
Lune, 1928	34 20 38.507	299 03 03.99	119 13 39.48	Loaf	4.5191997	33,052.15	108,438.6
	117 07 37.820	311 11 28.05	131 15 32.04	Craft	4.1679426	14,721.18	48,297.7
		336 12 50.44	156 15 29.59	Keller	4.2538918	17,942.86	58,867.5
		38 15 04.43	218 11 28.95	Strawberry	4.1989730	15,811.50	51,874.9
Gold, 1929	34 17 18.431	347 03 23.76	167 04 13.92	Loaf	4.0080914	10,188.06	33,425.3
	116 50 18.421	62 09 05.72	242 01 59.91	Keller	4.3407191	21,913.87	71,895.8
		77 12 15.73	257 06 34.24	Craft	4.2016929	15,910.83	52,200.8
Lucerne, 1928	34 32 19.890	335 55 18.03	155 59 52.23	Gold	4.4830851	30,414.81	99,785.9
	116 58 23.594	338 41 24.39	158 46 48.60	Loaf	4.6070356	40,460.91	132,745.5
		33 15 21.98	213 10 08.54	Lune	4.4121496	25,831.50	84,748.8
Granite, 1929	34 17 54.101	35 09 56.84	215 07 06.10	Loaf	4.1299102	13,486.84	44,248.1
	116 43 45.903	68 58 33.96	248 47 47.19	Keller	4.4986483	31,524.51	103,426.7
		83 46 56.80	263 43 15.64	Gold	4.0042542	10,098.44	33,131.3
		140 02 00.82	319 53 44.72	Lucerne	4.5421161	34,843.05	114,314.2
Lucerne south base, 1928	34 26 22.171	318 15 14.48	138 20 22.68	Granite	4.3215644	20,968.36	68,793.7
	116 52 51.844	142 30 14.95	322 27 07.10	Lucerne	4.1429422	13,897.68	45,596.0
Lucerne north base, 1929	34 33 50.199	338 07 18.54	158 11 40.03	Granite	4.5015886	31,738.66	104,129.3
	116 51 28.379	354 15 18.99	174 16 48.83	Loaf	4.6095125	40,692.33	133,504.8
		8 46 28.81	188 45 41.53	Lucerne south base	4.1451504	13,968.519	45,828.38
		75 18 18.02	255 14 22.53	Lucerne	4.0392540	10,945.96	35,911.9

Newport Beach to thirty-fifth parallel arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance: Logarithm (meters)	Distance: Meters	Distance: Feet
Principal points—Continued	° ′ ″	° ′ ″	° ′ ″				
Sage, 1928	34 33 02.526	351 26 20.52	171 27 53.67	Granite	4.4518746	28,305.75	92,866.4
	116 46 30.672	5 11 49.91	185 10 31.65	Loaf	4.5930675	39,180.28	128,544.0
		11 19 24.98	191 17 16.24	Gold	4.4722599	29,666.06	97,329.4
		38 16 45.59	218 13 09.72	Lucerne south base	4.1961360	15,708.55	51,537.1
		85 55 20.81	265 48 36.55	Lucerne	4.2606802	18,225.53	59,794.9
		100 58 38.45	280 55 49.59	Lucerne north base	3.8882166	7,730.66	25,363.0
Ord, 1929	34 40 29.598	345 25 43.34	165 27 03.12	Sage	4.1533025	14,233.20	46,696.8
	116 48 51.118	13 14 42.14	193 12 25.59	Lucerne south base	4.4285218	26,823.90	88,004.7
		44 04 22.08	223 58 56.95	Lucerne	4.3219532	20,987.14	68,855.3
Nellie Bly, 1929	34 38 30.780	45 14 42.17	225 06 19.89	Lucerne south base	4.5030845	31,848.17	104,488.5
	116 38 05.983	51 51 18.22	231 46 31.66	Sage	4.2138284	16,361.70	53,680.0
		69 52 36.55	249 41 05.30	Lucerne	4.5194008	33,067.46	108,488.8
		102 36 56.07	282 30 49.19	Ord	4.2260936	16,830.37	55,217.6
El Frio, 1929	35 04 15.565	31 03 19.13	210 52 36.49	Nellie Bly	4.7444126	55,515.29	182,136.4
	116 19 21.523	45 47 11.20	225 30 19.42	Ord	4.7983400	62,855.03	206,216.9
Barstow, 1929	35 05 26.214	272 02 35.42	92 23 49.44	El Frio	4.7497354	56,199.88	184,382.4
	116 56 18.266	330 46 52.52	150 57 16.94	Nellie Bly	4.7557915	56,989.06	186,971.6
		346 07 57.13	166 12 12.84	Ord	4.6766581	47,496.12	155,826.9
		142 34 18.74	322 24 22.52	Pilot	4.6324552	42,899.79	140,747.1
		185 04 44.94	5 06 25.45	Leach	4.6944563	49,483.03	162,345.6
Tiefort, 1929	35 16 23.531	312 06 52.86	132 16 16.17	El Frio	4.5237680	33,401.65	109,585.2
	116 35 39.458	3 03 00.33	183 01 36.38	Nellie Bly	4.8459356	70,135.13	230,101.7
		57 13 35.78	237 01 42.01	Barstow	4.5719443	37,320.23	122,441.5
		103 40 49.75	283 18 55.70	Pilot	4.7709128	59,008.26	193,596.3
		137 17 54.34	317 07 37.39	Leach	4.5972385	39,558.38	129,784.5
Supplementary points							
Sugar, 1929	33 47 46.584	137 00 07.7	316 55 44.1	San Juan	4.251033	17,825.1	58,481
	117 36 20.797	210 01 58.3	30 07 28.0	Jurupa	4.481216	30,284.2	99,357
		257 25 48.9	77 39 19.1	Armada	4.583433	38,320.7	125,724
		324 45 28.4	144 47 53.3	Santiago	4.066039	11,642.3	38,196
		20 37 37.2	200 33 22.8	Niguel	4.526704	33,628.2	110,329
		143 55 23		Sierra Peak, fire lookout tower.			
		324 45 34		Santiago Peak, fire lookout tower.			
San Joaquin, 1928	33 36 21.552	191 18 58.5	11 21 26.3	San Juan	4.541752	34,813.8	114,218
	117 48 39.930	221 59 22.8	42 06 12.9	Sugar	4.453639	28,421.0	93,245
		245 41 44.2	65 50 58.4	Santiago	4.451089	28,254.6	92,699
		325 07 18.2	145 09 53.0	Niguel	4.101835	12,642.6	41,478
Black, 1929	33 48 22.480	149 42 00.7	329 39 29.6	San Juan	4.140276	13,812.6	45,317
	117 39 42.731	311 40 34.1	131 44 51.3	Santiago	4.202921	15,955.9	52,349
		11 30 35.6	191 28 13.1	Niguel	4.521818	33,252.0	109,094
		31 57 23.4	211 52 25.3	San Joaquin	4.417753	26,166.9	85,849
		237 01 16		Water tank.			
Bee, 1929	33 43 44.305	201 40 37.5	21 41 51.1	Black	3.964889	9,223.4	30,260
	117 41 55.185	277 33 32.1	97 39 02.5	Santiago	4.189286	15,462.7	50,731
		7 37 43.5	187 36 34.5	Niguel	4.384336	24,229.0	79,491
		37 25 33.6	217 21 49.2	San Joaquin	4.234765	17,169.8	56,331
		277 33 27		Santiago Peak, fire lookout tower.			
Lomas, 1929	33 45 54.675	182 43 48.7	2 44 05.7	San Juan	4.217374	16,495.8	54,120
	117 44 44.594	239 35 25.8	59 38 13.6	Black	3.954376	9,002.8	29,537
		312 38 13.4	132 39 47.5	Bee	3.772940	5,928.4	19,450
		18 57 53.6	198 55 43.0	San Joaquin	4.271121	18,669.0	61,250
		287 03 36		Santiago Peak, fire lookout tower.			
Observatory, 1928	33 46 07.220	192 57 34.2	12 58 54.4	San Juan	4.217795	16,511.8	54,172
	117 46 38.153	248 39 57.6	68 43 48.5	Black	4.059609	11,471.2	37,635
		277 31 35.5	97 32 38.6	Lomas	3.469479	2,947.7	9,671
		32 58 25		Center of pipe in reservoir.			
Cloud, 1928	33 51 37.037	7 31 05.3	187 30 18.0	Santiago	4.224142	16,754.9	54,970
	117 30 34.767	51 26 18.0	231 23 05.4	Sugar	4.056283	11,383.7	37,348
		105 47 32.4	285 39 55.7	San Juan	4.339867	21,870.9	71,755
		198 11 39.7	18 13 56.5	Jurupa	4.303488	20,113.5	65,989
		130 16 25		Silo.			
Grape, 1929	33 53 34.792	329 13 43.2	149 14 30.0	Cloud	3.625539	4,222.2	13,852
	117 31 58.802	0 04 48.6	180 04 48.0	Santiago	4.306193	20,239.2	66,401
		32 08 35.2	212 06 09.3	Sugar	4.102693	12,667.6	41,560
		97 00 07.3	276 53 17.2	San Juan	4.279405	19,028.5	62,429
		62 21 58		Corona, By Products Exchange, water tank.			
Sier, 1929	33 51 00.476	246 45 07.5	66 49 07.9	Grape	4.081412	12,061.8	39,573
	117 39 10.107	265 06 00.0	85 10 47.1	Cloud	4.123702	13,295.4	43,620
		323 54 02.5	143 55 36.8	Sugar	3.868770	7,392.1	24,252
		324 24 32.3	144 28 31.5	Santiago	4.279529	19,034.0	62,447
		9 46 49.1	189 46 30.9	Black	3.693693	4,939.6	16,206
		132 07 05.9	312 04 16.5	San Juan	4.022211	10,524.7	34,530
		302 10 52		Reference mark no. 3.			
Crafton, 1929	34 03 41.098	61 59 23.9	241 53 57.4	Reche	4.229595	16,966.6	55,665
	117 05 04.522	144 05 25.8	324 00 25.1	Strawberry	4.368841	23,379.8	76,705
		192 30 31.9	12 31 44.5	Keller	4.184415	15,290.3	50,165

Newport Beach to thirty-fifth parallel arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Foothill, 1929	34 09 25.219	327 21 44.2	147 24 12.6	Crafton	4.099961	12,588.1	41,299
	117 09 29.260	23 46 27.6	203 43 29.0	Reche	4.307538	20,302.0	66,607
		140 12 00.8	320 09 28.5	Strawberry	4.034917	10,837.2	35,555
		246 46 38.8	66 50 20.2	Keller	4.040587	10,979.6	36,022
		278 48 23.2	98 56 46.6	San Berdo	4.366568	23,257.8	76,305
Chaparral, 1929	34 09 13.792	218 23 50.1	38 26 21.1	Strawberry	4.044263	11,072.9	36,328
	117 18 29.035	258 51 52.6	79 00 37.1	Keller	4.386841	24,369.2	79,951
		268 29 57.2	88 35 00.2	Foothill	4.140868	13,831.5	45,379
		274 54 47.2	95 08 13.4	San Berdo	4.567629	36,951.2	121,231
		296 22 13.5	116 29 44.5	Crafton	4.362248	23,027.6	75,550
		342 43 24.1	162 45 27.8	Reche	4.280811	19,090.2	62,632
		42 32 16.5	222 27 46.9	Jurupa	4.261216	18,248.0	59,869
La Quinta, 1929	34 04 39.336	144 05 04.4	324 02 50.3	Chaparral	4.018864	10,443.9	34,265
	117 14 29.881	221 09 02.8	41 11 51.4	Foothill	4.068272	11,702.3	38,393
		277 00 43.4	97 06 00.0	Crafton	4.164580	14,607.6	47,925
		2 44 41.9	182 44 31.7	Reche	3.990581	9,785.5	32,105
High Grove, 1929	34 01 13.694	175 22 17.7	355 21 51.5	Chaparral	4.171461	14,840.9	48,691
	117 17 42.286	256 47 21.8	76 54 25.9	Crafton	4.300176	19,960.7	65,488
		307 33 35.8	127 35 13.2	Reche	3.751155	5,638.4	18,499
		138 05 16		Riverside Cement Co., flagpole.			
Box Springs, 1929	33 57 58.249	117 26 31.5	297 21 22.1	Jurupa	4.203973	15,994.6	52,476
	117 17 16.617	173 45 31.1	353 45 16.8	High Grove	3.782311	6,057.7	19,874
		174 54 24.8	354 53 44.3	Chaparral	4.320083	20,897.0	68,560
		235 51 20.9	55 52 43.9	Reche	3.663183	4,604.5	15,107
		322 54 46.8	142 57 40.4	Armada	4.122471	13,257.8	43,497
		340 14 03		March Field, water tank.			
Little High Grove, 1929	34 01 50.988	91 11 49.2	271 08 26.4	Jurupa	3.968293	9,295.9	30,498
	117 20 27.663	192 33 22.7	12 34 29.2	Chaparral	4.145451	13,978.2	45,860
		285 08 27.5	105 10 00.1	High Grove	3.643023	4,395.6	14,421
		325 37 25.9	145 39 12.7	Box Springs	3.938858	8,686.8	28,500
		178 57 48		Riverside Cement Co., flagpole.			
Ledge, 1928	33 43 53.982	180 49 23.7	0 49 24.8	Lomas	3.570414	3,718.9	12,201
	117 44 46.670	273 50 59.9	93 52 35.1	Bee	3.645888	4,424.7	14,517
		23 20 22.3	203 18 12.9	San Joaquin	4.181248	15,179.2	49,800
		9 03 59		Water tank, finial.			
Ditch, 1928	33 42 59.047	191 19 27.8	11 19 52.8	Observatory	3.771788	5,912.7	19,399
	117 47 23.274	217 02 07.1	37 03 35.2	Lomas	3.831200	6,779.5	22,242
		260 36 04.7	80 39 06.8	Bee	3.932540	8,561.3	28,088
Mitch, 1928	33 41 43.165	130 02 46.6	310 01 46.7	Ditch	3.560410	3,634.2	11,923
	117 45 35.223	189 32 38.7	9 33 06.8	Lomas	3.895296	7,857.7	25,780
		236 36 32.5	56 38 34.6	Bee	3.831525	6,784.6	22,259
Como, 1928	33 41 37.208	196 37 37.7	16 37 53.9	Ditch	3.420200	2,631.5	8,634
	117 47 52.518	211 21 51.2	31 23 35.5	Lomas	3.968077	9,291.3	30,483
		246 55 08.4	66 58 26.7	Bee	3.999987	9,999.7	32,807
		128 27 26		Windmill on Valencia Avenue.			
Vent, 1928	33 42 38.406	224 08 49.2	44 10 55.8	Lomas	3.925809	8,429.6	27,656
	117 48 32.752	250 25 31.2	70 26 09.7	Ditch	3.278442	1,898.6	6,229
		258 45 01.9	78 48 42.5	Bee	4.018514	10,435.5	34,237
		331 12 26.7	151 12 49.0	Como	3.332722	2,151.4	7,058
French, 1928	33 39 26.486	168 02 51.3	348 02 24.4	Vent	3.781327	6,044.0	19,829
	117 47 44.141	176 56 00.5	356 55 55.9	Como	3.605651	4,033.2	13,232
		184 41 24.4	4 41 36.0	Ditch	3.817622	6,570.9	21,558
		208 59 56.7	29 01 35.2	Ledge	3.974232	9,423.9	30,918
		228 30 07.2	48 33 20.8	Bee	4.078980	11,994.4	39,352
		14 10 05.6	194 09 34.7	San Joaquin	3.769106	5,876.3	19,279
		167 07 39		White-topped wooden tank.			
Smoke, 1928	33 39 54.172	198 07 10.0	18 07 45.7	Vent	3.726245	5,324.1	17,467
	117 49 37.055	286 19 58.7	106 21 01.3	French	3.481678	3,031.6	9,946
		347 19 46.7	167 20 18.3	San Joaquin	3.826986	6,714.1	22,028
Airway, 1928	33 41 48.625	274 09 32.0	94 11 15.9	Como	3.684272	4,833.6	15,858
	117 50 59.703	310 59 07.4	131 00 55.9	French	3.824448	6,674.9	21,899
		328 52 22.2	148 53 08.1	Smoke	3.614794	4,119.0	13,514
		340 19 19.7	160 20 37.2	San Joaquin	4.029431	10,701.2	35,109
Baranca, 1928	33 38 28.704	197 37 12.9	17 37 55.0	Airway	3.810421	6,462.8	21,203
	117 52 15.666	216 43 16.0	36 45 19.7	Vent	3.982265	9,599.9	31,496
		237 11 38.8	57 13 06.7	Smoke	3.686791	4,861.7	15,950
		255 42 14.1	75 44 44.6	French	3.858511	7,219.6	23,686
		305 08 53.1	125 10 52.6	San Joaquin	3.832639	6,802.0	22,316
		61 56 07		Newport Beach, spire on building.			
Mare, 1928	33 39 30.481	211 17 02.4	31 17 58.1	Airway	3.697283	4,980.6	16,341
	117 52 40.128	261 11 21.8	81 13 03.3	Smoke	3.678782	4,772.9	15,659
		270 54 07.1	90 56 51.2	French	3.882367	7,627.2	25,024
		341 40 26.4	161 40 40.0	Baranca	3.302106	2,005.0	6,578
Bowen, 1928	33 38 27.341	219 44 15.9	39 44 50.6	Mare	3.403101	2,529.9	8,300
	117 53 42.898	268 55 22.5	88 56 10.8	Baranca	3.351876	2,248.4	7,377
		296 22 14.6	116 25 02.4	San Joaquin	3.940413	8,717.9	28,602

Newport Beach to thirty-fifth parallel arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Golf, 1928	33 37 00.735	206 52 55.8	26 53 24.9	Bowen	3.475907	2,991.6	9,815
	117 54 35.388	233 01 27.4	53 02 44.8	Baranca	3.653899	4,507.1	14,787
		277 28 40.4	97 31 57.2	San Joaquin	3.965792	9,242.6	30,323
		159 35 39		Newport Beach, spire on large building.			
Newport, 1928	33 37 31.580	252 38 03.9	72 40 05.0	Baranca	3.771009	5,902.1	19,364
	117 55 54.254	280 52 27.1	100 56 27.6	San Joaquin	4.056979	11,401.9	37,408
		295 02 54.2	115 03 37.9	Golf	3.351032	2,244.0	7,362
		300 54 56		San Diego-Los Angeles airway beacon no. 7A.			
Rabbit, 1929	33 45 58.602	335 26 10.1	155 26 50.9	Bee	3.657932	4,549.2	14,925
	117 43 08.643	87 12 05.7	267 11 12.4	Lomas	3.393065	2,472.1	8,111
		230 03 44.7	50 05 39.2	Black	3.839321	6,907.5	22,662
		163 04 13		Standpipe at head of reservoir.			
Glen, 1929	33 46 15.001	80 06 50.4	260 05 47.8	Rabbit	3.468365	2,940.1	9,646
	117 41 16.085	83 21 32.0	263 19 36.1	Lomas	3.732545	5,401.9	17,723
		211 26 16.6	31 27 08.5	Black	3.663107	4,603.7	15,104
Star, 1929	33 46 42.935	33 30 53.2	213 29 34.5	Bee	3.819552	6,600.1	21,654
	117 39 33.628	71 55 41.0	251 54 44.0	Glen	3.442980	2,773.2	9,098
		79 29 50.0	259 26 57.1	Lomas	3.910548	8,138.6	26,701
		175 38 04.5	355 37 59.4	Black	3.487971	3,075.9	10,092
Silver, 1929	33 46 22.493	55 08 52.4	235 06 21.4	Bee	3.930645	8,524.0	27,966
	117 37 23.471	87 48 34.0	267 46 24.6	Glen	3.777422	5,989.9	19,652
		100 39 38.4	280 38 26.0	Star	3.532459	3,407.7	11,180
		135 54 33.2	315 53 15.7	Black	3.711633	5,147.9	16,889
		211 53 30.4	31 54 05.3	Sugar	3.484527	3,051.6	10,012
Baker, 1929	33 47 51.106	331 10 44.4	151 11 16.9	Silver	3.493599	3,116.0	10,223
	117 38 21.850	35 50 44.5	215 48 45.9	Bee	3.972138	9,378.6	30,770
		41 19 38.4	221 18 58.5	Star	3.446642	2,796.7	9,176
		70 00 50.3	249 57 17.5	Lomas	4.020382	10,480.5	34,385
		114 55 36.9	294 54 51.9	Black	3.360603	2,294.1	7,527
Mine, 1929	33 48 48.166	318 09 22.5	138 09 59.3	Sugar	3.405977	2,546.7	8,355
	117 37 26.842	38 49 55.1	218 49 24.5	Baker	3.353467	2,256.7	7,404
		77 15 07.7	257 13 52.1	Black	3.554315	3,583.6	11,757
		146 55 42.2	326 54 44.7	Sier	3.687085	4,865.0	15,961

Sludge, 1928	33 53 20.045	262 44 37.3	82 45 54.9	Grape	3.556590	3,602.4	11,819
	117 34 17.877	298 56 46.8	118 58 51.2	Cloud	3.816491	6,553.8	21,502
		303 54 15		Corona, By Products Exchange, water tank.			
Yorba, 1928	33 52 22.883	211 25 59.1	31 26 22.4	Sludge	3.314741	2,064.1	6,772
	117 34 59.768	244 30 45.5	64 32 26.4	Grape	3.711913	5,151.3	16,901
		281 41 43.0	101 44 10.7	Cloud	3.842376	6,956.3	22,822
Gypsum, 1928	33 49 20.107	183 46 59.4	3 47 07.5	Yorba	3.751558	5,643.6	18,516
	117 35 14.257	212 36 58.1	32 38 47.1	Grape	3.969301	9,317.5	30,569
		239 33 40.5	59 36 16.2	Cloud	3.920790	8,332.8	27,339
		201 46 05		Corona, By Products Exchange, water tank.			
Arroya, 1928	33 49 59.540	52 48 00.4	232 47 25.7	Gypsum	3.303026	2,009.2	6,592
	117 34 12.024	207 17 55.8	27 19 10.1	Grape	3.872962	7,463.8	24,487
		241 42 41.2	61 44 42.2	Cloud	3.802227	6,342.0	20,807
		38 57 55.2	218 56 43.6	Sugar	3.721620	5,267.7	17,282
Hagador, 1929	33 50 11.761	224 47 03.5	44 48 30.4	Yorba	3.755344	5,693.0	18,678
	117 37 35.808	293 36 19.3	113 37 38.1	Gypsum	3.599073	3,972.6	13,033
		336 39 50.5	156 40 32.4	Sugar	3.687634	4,871.2	15,982
		354 52 58.8	174 53 03.9	Mine	3.412604	2,585.9	8,484
Spur, 1929	33 48 56.777	131 47 54.5	311 46 58.5	Hagador	3.539918	3,466.7	11,374
	117 35 55.294	192 39 56.1	12 40 27.0	Yorba	3.813488	6,508.6	21,354
		233 55 55.2	53 56 52.7	Arroya	3.516546	3,285.1	10,778
		235 44 18.1	55 44 40.9	Gypsum	3.106158	1,276.9	4,189
		16 52 32.6	196 52 18.5	Sugar	3.354096	2,259.9	7,414
		232 05 26		Red tank.			
Linson, 1928	33 50 02.782	218 18 46.3	38 20 38.3	Grape	3.920474	8,326.7	27,319
	117 35 19.704	273 16 48.8	93 17 26.5	Arroya	3.241323	1,743.1	5,719
		24 13 59.2	204 13 39.4	Spur	3.348318	2,230.1	7,317
		94 31 50.2	274 30 34.4	Hagador	3.545369	3,510.5	11,517
Prado, 1929	33 51 11.986	231 48 53.8	51 50 55.2	Grape	3.852469	7,119.8	23,359
	117 35 36.599	348 29 02.5	168 29 11.9	Linson	3.337657	2,176.0	7,139
		6 35 02.5	186 34 52.1	Spur	3.622571	4,193.4	13,758
		58 49 02.1	238 47 55.7	Hagador	3.554218	3,582.8	11,755
		282 39 51		Reference mark no. 2.			
Pigeon, 1929	33 59 34.796	164 43 03.8	344 42 38.7	Little High Grove	3.638498	4,350.1	14,272
	117 19 42.969	225 27 15.3	45 28 22.8	High Grove	3.637948	4,344.6	14,254
		308 21 43.1	128 23 04.8	Box Springs	3.680502	4,791.8	15,721
Rubidoux, 1929	33 59 01.830	139 48 10.8	319 46 31.2	Jurupa	3.849610	7,073.1	23,206
	117 23 31.999	222 12 42.3	42 14 25.4	Little High Grove	3.847473	7,038.4	23,092
		260 10 44.0	80 12 52.1	Pigeon	3.775648	5,965.5	19,572
		281 27 43.1	101 31 12.8	Box Springs	3.992701	9,833.3	32,261
		277 04 50		Riverside, tower.			

Newport Beach to thirty-fifth parallel arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance: Logarithm (meters)	Distance: Meters	Distance: Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Pachappa, 1929	33 57 37.993	155 49 35.2	335 49 10.0	Rubidoux	3.452009	2,831.5	9,290
	117 22 46.826	232 39 33.7	52 41 16.5	Pigeon	3.773433	5,935.2	19,472
		265 45 50.0	85 48 54.4	Box Springs	3.929456	8,500.7	27,889
Bliss, 1928	33 55 23.297	159 19 57.6	339 18 17.8	Jurupa	4.112957	12,970.5	42,554
	117 23 31.503	179 53 30.1	359 53 29.8	Rubidoux	3.828219	6,733.2	22,091
		195 27 01.6	15 27 26.5	Pachappa	3.634047	4,305.7	14,126
		243 35 35.4	63 39 04.6	Box Springs	4.031236	10,745.7	35,255
Green, 1928	33 56 30.588	219 50 36.0	39 52 00.6	Rubidoux	3.783202	6,070.2	19,915
	117 26 03.515	247 37 55.7	67 39 45.5	Pachappa	3.737259	5,460.8	17,916
		297 57 30.1	117 58 54.9	Bliss	3.645474	4,420.5	14,503
		297 29 14		Reference mark no. 1.			
La Sierra 1929	33 55 24.410	189 28 31.5	9 29 15.4	Jurupa	4.088773	12,268.0	40,249
	117 27 48.680	232 56 33.9	52 57 32.6	Green	3.529455	3,384.2	11,103
		270 16 39.4	90 19 02.9	Bliss	3.819936	6,606.0	21,673
		194 24 36		Airway beacon.			
Hole, 1928	33 55 50.881	207 19 56.7	27 22 03.7	Jurupa	4.103976	12,705.0	41,683
	117 30 17.353	240 29 24.7	60 33 11.1	Rubidoux	4.077570	11,955.6	39,224
		259 21 06.0	79 23 27.7	Green	3.821704	6,632.9	21,761
		274 37 46.3	94 41 32.8	Bliss	4.019483	10,458.8	34,314
		282 02 40.0	102 04 03.0	La Sierra	3.591596	3,904.8	12,811
		3 16 33.4	183 16 23.5	Cloud	3.893975	7,833.8	25,701
		31 52 16.9	211 51 20.2	Grape	3.693463	4,937.0	16,197
		244 44 34		West side of apex of roof of frame-stucco building.			
Hump, 1928	33 53 47.127	136 50 09.2	316 48 51.5	Hole	3.718371	5,228.4	17,154
	117 27 58.093	184 36 43.1	4 36 48.3	La Sierra	3.478146	3,007.1	9,866
		246 35 02.9	66 37 31.6	Bliss	3.872869	7,462.2	24,482
		257 17 52		Flagpole with weather vane.			
Linn, 1929	33 54 37.897	199 50 12.9	19 50 30.5	Hole	3.378502	2,390.6	7,843
	117 30 48.938	289 36 05.0	109 37 40.3	Hump	3.668362	4,659.7	15,288
		356 15 37.0	176 15 44.7	Cloud	3.746965	5,584.3	18,321
		42 43 07.8	222 42 28.7	Grape	3.422630	2,646.2	8,682
School, 1928	33 53 07.735	37 27 34.6	217 26 47.9	Cloud	3.546561	3,520.1	11,549
	117 29 11.478	92 46 52.3	272 44 01.2	Sludge	3.896672	7,882.6	25,861
		100 59 04.4	280 57 30.9	Grape	3.641444	4,379.7	14,369
		137 58 30.4	317 57 36.0	Linn	3.572867	3,740.0	12,270
		161 23 51.9	341 23 15.1	Hole	3.724591	5,303.8	17,401
		194 15 10.3	14 16 40.3	Jurupa	4.226092	16,830.3	55,217
		206 47 40.5	26 48 26.6	La Sierra	3.673742	4,717.8	15,478
		237 13 40.5	57 14 21.4	Hump	3.350733	2,242.5	7,357
Rail, 1929	34 00 17.404	181 14 26.4	1 14 27.7	Little High Grove	3.460009	2,884.1	9,462
	117 20 30.097	248 02 53.9	68 04 27.8	High Grove	3.666711	4,642.1	15,230
		317 20 30.8	137 20 57.2	Pigeon	3.251639	1,785.0	5,856
		63 30 18.8	243 28 37.1	Rubidoux	3.717416	5,216.9	17,116
Junction, 1929	33 59 10.295	199 59 46.4	20 00 25.6	Little High Grove	3.721719	5,268.9	17,286
	117 21 37.896	255 38 09.9	75 39 14.2	Pigeon	3.483559	3,044.8	9,989
		31 53 43.7	211 53 05.1	Pachappa	3.524978	3,349.5	10,989
		84 55 10.4	264 54 06.6	Rubidoux	3.468395	2,940.3	9,647
Fairmont, 1929	33 59 38.612	217 48 18.5	37 49 27.5	Little High Grove	3.712888	5,162.8	16,938
	117 22 31.025	271 32 53.9	91 34 27.9	Pigeon	3.634957	4,314.8	14,156
		6 13 47.4	186 13 38.5	Pachappa	3.572691	3,738.4	12,265
		54 05 38.4	234 05 04.3	Rubidoux	3.286056	1,932.2	6,339
Broom, 1929	33 55 01.606	76 53 08.2	256 52 00.2	Linn	3.507486	3,217.3	10,555
	117 28 46.970	123 11 23.0	303 10 32.6	Hole	3.443093	2,773.9	9,101
		244 51 24.0	64 51 56.5	La Sierra	3.218521	1,653.9	5,426
		331 18 31.1	151 18 58.4	Hump	3.417609	2,615.8	8,582
		10 10 37.3	190 10 23.7	School	3.551995	3,564.5	11,695
Henry, 1929	33 51 19.424	190 02 42.4	10 02 58.4	Grape	3.626921	4,235.7	13,897
	117 32 27.555	202 30 12.1	22 31 07.2	Linn	3.820819	6,619.4	21,717
		259 23 22.7	79 24 25.5	Cloud	3.469770	2,949.6	9,677
Van Buren, 1929	34 01 36.061	286 33 53.7	106 34 44.2	High Grove	3.383143	2,416.3	7,927
	117 19 12.553	11 48 03.9	191 47 46.9	Pigeon	3.581714	3,816.9	12,523
		103 25 48.2	283 25 06.1	Little High Grove	3.296888	1,981.0	6,499
		82 32 58		Reference mark no. 2.			
Linda, 1929	34 02 19.945	207 48 04.0	27 48 53.4	La Quinta	3.686239	4,855.6	15,930
	117 15 58.208	261 28 00.1	81 34 06.0	Crafton	4.229198	16,951.1	55,614
		341 49 46.2	161 50 25.4	Reche	3.760937	5,766.8	18,920
		52 36 35.2	232 35 37.0	High Grove	3.526458	3,360.9	11,027
Colton, 1929	34 03 57.414	48 44 50.3	228 43 13.3	Little High Grove	3.771289	5,905.9	19,376
	117 17 34.584	74 56 20.0	254 51 20.2	Jurupa	4.152976	14,222.5	46,662
		171 51 24.5	351 50 54.0	Chaparral	3.993325	9,847.5	32,308
		320 32 09.3	140 33 03.2	Linda	3.589896	3,889.5	12,761
		333 16 00.5	153 17 33.6	Reche	3.977572	9,496.7	31,157

Newport Beach to thirty-fifth parallel arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Loma, 1929	34 02 05.322	32 17 40.7	212 16 36.8	Pigeon	3.739255	5,486.0	17,999
	117 17 48.767	83 49 43.7	263 48 14.7	Little High Grove	3.612789	4,100.0	13,451
		186 00 41.2	6 00 49.2	Colton	3.540677	3,472.8	11,394
		227 03 03.0	47 04 54.3	La Quinta	3.843027	6,966.7	22,857
		260 57 51.7	80 58 53.6	Linda	3.458124	2,871.6	9,421
		317 19 17.2	137 20 58.3	Reche	3.834985	6,838.9	22,437
Bryn, 1929	34 03 47.421	158 18 05.0	338 16 37.4	Chaparral	4.034377	10,823.7	35,511
	117 15 52.817	270 37 15.9	90 43 18.9	Crafton	4.220792	16,626.2	54,548
		348 31 16.2	168 31 52.4	Reche	3.921237	8,341.4	27,367
		2 56 14.6	182 56 11.6	Linda	3.431170	2,698.8	8,854
		43 24 00.5	223 22 55.6	Loma	3.636387	4,329.0	14,203
Wilder, 1929	34 02 57.494	232 49 53.4	52 50 37.7	Bryn	3.405957	2,546.6	8,355
	117 17 11.949	232 56 01.6	52 57 32.3	La Quinta	3.716637	5,207.6	17,085
		330 54 55.3	150 56 15.8	Reche	3.880419	7,593.1	24,912
		30 26 12.5	210 25 51.9	Loma	3.270529	1,864.4	6,117
		67 48 41.4	247 46 51.8	Little High Grove	3.734187	5,422.3	17,790
		162 32 51.7	342 32 39.1	Colton	3.286750	1,935.3	6,349
Harlem, 1929	34 06 24.367	122 19 32.4	302 16 31.6	Chaparral	3.989856	9,769.1	32,051
	117 13 06.778	224 59 21.5	45 01 23.5	Foothill	3.896598	7,881.3	25,857
		292 06 09.1	112 10 39.2	Crafton	4.125422	13,348.2	43,793
		11 18 29.2	191 17 32.4	Reche	4.122792	13,267.6	43,529
Oak, 1929	34 07 24.132	128 43 12.9	308 41 30.9	Foothill	3.775703	5,966.3	19,574
	117 06 27.538	214 00 56.3	34 02 55.5	Keller	3.987642	9,719.5	31,888
		342 47 12.5	162 47 59.0	Crafton	3.856968	7,194.0	23,602
Leaf, 1929	34 07 52.630	101 55 00.5	281 50 40.2	Chaparral	4.084462	12,146.8	39,852
	117 10 45.078	214 14 39.2	34 15 21.8	Foothill	3.537983	3,451.3	11,323
		277 33 31.3	97 35 55.8	Oak	3.823313	6,657.5	21,842
		311 34 16.1	131 37 27.0	Crafton	4.067205	11,673.6	38,299
Edwards, 1929	34 08 02.718	83 18 36.5	263 17 38.5	Leaf	3.425659	2,664.8	8,743
	117 09 01.789	164 31 35.8	344 31 20.4	Foothill	3.421213	2,637.6	8,654
		233 47 52.1	53 51 18.0	Keller	4.065672	11,632.5	38,164
		322 56 47.8	142 59 00.8	Crafton	4.004232	10,097.9	33,130
Boulder 1929	34 06 13.171	164 59 48.4	344 59 13.6	Foothill	3.787194	6,126.2	20,099
	117 08 27.348	165 20 53.3	345 20 33.9	Edwards	3.542674	3,488.8	11,446
		234 32 16.6	54 33 23.8	Oak	3.576281	3,769.5	12,367
		312 00 17.7	132 02 11.3	Crafton	3.845078	6,999.7	22,965
Mentone, 1929	34 04 49.367	132 27 00.2	312 25 58.5	Boulder	3.582778	3,826.3	12,553
	117 06 37.200	182 58 20.5	2 58 25.9	Oak	3.678970	4,775.0	15,666
		311 30 21.7	131 31 13.6	Crafton	3.501554	3,173.6	10,412
Morton, 1929	34 06 05.428	353 07 36.9	173 07 48.6	Crafton	3.651199	4,479.2	14,696
	117 05 25.425	38 08 32.4	218 07 52.2	Mentone	3.474155	2,979.6	9,776
		92 56 34.4	272 54 52.4	Boulder	3.669241	4,669.2	15,319
		146 43 16.7	326 42 41.9	Oak	3.462519	2,900.8	9,517
Warm Springs, 1929	34 07 42.557	82 26 39.4	262 25 05.9	Oak	3.634470	4,309.9	14,140
	117 03 40.812	109 32 16.2	289 29 00.6	Foothill	3.976400	9,471.1	31,073
		188 52 11.1	8 52 36.7	Keller	3.879540	7,577.7	24,861
Plunge, 1929	34 07 47.607	13 20 55.7	193 20 39.3	Morton	3.509963	3,235.7	10,616
	117 04 56.280	72 49 12.2	252 48 21.0	Oak	3.388772	2,447.8	8,031
		113 17 27.2	293 14 53.9	Foothill	3.881554	7,613.0	24,977
		274 35 41.7	94 36 24.0	Warm Springs	3.287816	1,940.1	6,365
Creek, 1929	34 07 21.386	126 34 29.4	306 33 51.7	Edwards	3.329893	2,137.4	7,012
	117 07 54.796	147 37 09.9	327 36 16.8	Foothill	3.654979	4,518.3	14,824
		267 49 34.7	87 50 23.6	Oak	3.349799	2,237.7	7,342
		327 14 28.7	147 16 04.0	Crafton	3.906864	8,069.8	26,476
		21 39 07.3	201 38 49.0	Boulder	3.354363	2,261.3	7,419
Highland, 1928	34 08 02.068	73 44 38.6	253 44 16.7	Leaf	3.016434	1,038.6	3,407
	117 10 06.166	99 46 21.6	279 41 39.4	Chaparral	4.116325	13,071.5	42,885
		200 15 12.8	20 15 33.5	Foothill	3.436311	2,730.9	8,960
		269 17 57.8	89 18 33.9	Edwards	3.217390	1,649.6	5,412
Red, 1929	34 08 02.484	114 09 22.6	294 07 35.2	Chaparral	3.730139	5,372.0	17,625
	117 15 17.689	254 02 04.8	74 05 20.3	Foothill	3.967704	9,283.3	30,457
		270 04 04.1	90 06 58.9	Highland	3.902114	7,982.0	26,188
		272 28 03.1	92 30 36.0	Leaf	3.844584	6,991.7	22,939
Wash, 1929	34 05 55.435	119 10 55.6	299 08 22.1	Red	3.904921	8,033.8	26,358
	117 10 43.943	179 32 18.7	359 32 18.0	Leaf	3.557637	3,611.1	11,847
		196 29 11.2	16 29 53.1	Foothill	3.828732	6,741.1	22,116
		295 24 38.4	115 27 48.5	Crafton	3.983923	9,636.6	31,616
Cap, 1929	34 08 41.328	254 27 12.8	74 28 59.4	Foothill	3.703330	5,050.4	16,570
	117 12 39.209	329 58 04.0	149 59 08.6	Wash	3.771112	5,903.5	19,368
		73 35 20.6	253 33 51.7	Red	3.626663	4,233.1	13,888
		96 23 45.2	276 20 28.9	Chaparral	3.955086	9,017.5	29,585
Blue, 1929	34 08 57.835	264 24 34.1	84 27 43.9	Foothill	3.939621	8,702.0	28,550
	117 15 07.359	8 49 19.8	188 49 14.0	Red	3.237007	1,725.9	5,662
		95 27 06.7	275 25 13.5	Chaparral	3.715145	5,189.7	17,027

Newport Beach to thirty-fifth parallel arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Rail 2, 1930 [1]	34 00 17.41 117 20 29.72	89 41 54 35 49 29	269 41 54	Rail Orange light of railway semaphore.	0.985566	9.673	31.74
Junction 2, 1930	33 59 10.362 117 21 38.240	200 05 38.3 283 14 00.7	20 06 17.8 103 14 01.0	Little High Grove Junction	3.721808 0.957224	5,270.0 9.062	17,290 29.73
Southern California Edison Co. triangulation station, 1929 [1].	34 04 49.34 117 06 37.22	211 09 01	31 09 01	Mentone	0.060698	1.15	3.8
Granite (U.S.G.S.), cairn, 1929	34 18 01.263 116 44 29.223	140 16 34.4 159 55 46.9 281 15 44.0	320 11 50.6 339 51 49.9 101 16 08.4	Lucerne south base Lucerne north base Granite	4.302733 4.493272 3.052918	20,078.6 31,136.7 1,129.6	65,875 102,154 3,706
Ord Mountain, U. S. Mineral Monument No. 1, 1929 [1]	34 40 29.64 116 48 51.14	339 43 55	159 43 55	Ord	0.123852	1.33	4.4
B. M. N 3, 1929	34 51 15.258 116 49 44.030	242 22 41.3 356 07 35.9	62 40 05.7 176 08 06.1	El Frio Ord	4.716968 4.299754	52,115.6 19,941.3	170,983 65,424

Riverside to Colorado River arc

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Logarithm (meters)	Meters	Feet
Principal points							
Eagle (M. W. D. of S. C.), 1931	33 44 38.768 115 44 20.406	298 50 12.05 95 24 07.50 143 51 30	119 03 20.12 274 52 46.82	Butte San Jacinto Reference mark no. 3.	4.6219484 4.9414137	41,874.38 87,380.34	137,382.9 286,680.3
Sheep (M. W. D. of S. C.), 1931	34 11 45.849 115 40 15.762	336 38 55.48 7 09 35.52 65 50 30.13 56 56 41	156 49 51.84 187 07 18.82 245 16 41.53	Butte Eagle (M. W. D. of S. C.) San Jacinto Reference mark no. 3.	4.8843768 4.7034927 5.0096156	76,626.11 50,523.42 102,238.77	251,397.5 165,758.9 335,428.4
Anschutz (M. W. D. of S. C.), 1931	33 44 18.680 115 31 47.853	318 39 43.43 91 53 16.98 290 40 03	138 45 54.44 271 46 18.98	Butte Eagle (M. W. D. of S. C.) Reference mark no. 3.	4.4174312 4.2873766	26,147.56 19,381.02	85,785.8 63,585.9
Orocopia (M. W. D. of S. C.), 1931	33 34 08.554 115 46 44.268	190 47 49.39 230 47 29.32 271 05 09.18	10 49 09.12 50 55 46.09 91 19 34.98	Eagle (M. W. D. of S. C.) Anschutz (M. W. D. of S. C.) Butte	4.2959410 4.4739234 4.6063796	19,767.01 29,779.91 40,399.83	64,852.3 97,702.9 132,545.1
Coxcomb (M. W. D. of S. C.), 1931	33 52 21.923 115 19 40.607	2 28 03.03 51 32 18.31	182 27 31.01 231 25 33.69	Butte Anschutz (M. W. D. of S. C.)	4.5386801 4.3785370	34,568.46 23,907.66	113,413.4 78,437.0
Palen (M. W. D. of S. C.), 1931	33 49 01.332 115 08 08.416	34 19 03.45 76 41 53.19 109 12 17.26	214 12 07.50 256 28 44.02 289 05 51.74	Butte Anschutz (M. W. D. of S. C.) Coxcomb (M. W. D. of S. C.)	4.5354098 4.5745576 4.2750472	34,309.14 37,545.47 18,838.54	112,562.6 123,180.4 61,806.1
Coxcomb east base (M. W. D. of S. C.), 1931	33 56 36.193 115 12 36.234	333 49 22.65 54 19 58.64	153 51 51.95 234 16 01.90	Palen (M. W. D. of S. C.) Coxcomb (M. W. D. of S. C.)	4.1934938 4.1279212	15,613.27 13,425.21	51,224.5 44,045.9
Comb (M. W. D. of S. C.), 1931	33 56 06.729 115 18 01.456	263 46 17.81 310 38 51.65 20 12 00.77	83 49 19.38 130 44 22.21 200 11 05.46	Coxcomb east base (M. W. D. of S. C.) Palen (M. W. D. of S. C.) Coxcomb (M. W. D. of S. C.)	3.9243460 4.3032328 3.8680531	8,401.29 20,101.70 7,379.94	27,563.2 65,950.3 24,212.4
Slope (M. W. D. of S. C.), 1931	33 58 36.681 115 15 17.274	311 54 23.67 42 23 28.48	131 55 53.63 222 21 56.78	Coxcomb east base (M. W. D. of S. C.) Comb (M. W. D. of S. C.)	3.7448181 3.7961810	5,556.71 6,254.33	18,230.6 20,519.4
Coxcomb west base (M. W. D. of S. C.), 1931	33 56 06.717 115 16 36.209	90 00 58.77 203 40 41.83 261 35 54.71	270 00 11.19 23 41 25.92 81 38 08.69	Comb (M. W. D. of S. C.) Slope (M. W. D. of S. C.) Coxcomb east base (M. W. D. of S. C.)	3.3403161 3.7029015 3.7944468	2,189.35 5,045.47 6,229.409	7,182.9 16,553.3 20,437.65
Forks (M. W. D. of S. C.), 1931	33 53 52.272 115 15 42.613	139 17 03.03 161 37 07.75 223 27 14.99 65 32 43.73	319 15 45.56 341 36 37.84 43 28 58.99 245 30 31.04	Comb (M. W. D. of S. C.) Coxcomb west base (M. W. D. of S. C.) Coxcomb east base (M. W. D. of S. C.) Coxcomb (M. W. D. of S. C.)	3.7377096 3.6399971 3.8425453 3.8273408	5,466.50 4,365.13 6,958.98 6,719.56	17,934.7 14,321.3 22,831.3 22,045.8
Granite (M. W. D. of S. C.), 1931	33 58 12.608 115 04 20.329	19 03 16.81 65 30 26.18	199 01 09.62 245 21 52.61	Palen (M. W. D. of S. C.) Coxcomb (W. W. D. of S. C.)	4.2544926 4.4148245	17,967.71 25,991.09	58,949.1 85,272.4
Iron (M. W. D. of S. C.), 1931	34 06 02.419 115 12 41.729	318 20 17.84 347 24 16.09 23 04 19.28	138 24 58.48 167 26 48.77 203 00 25.13	Granite (M. W. D. of S. C.) Palen (M. W. D. of S. C.) Coxcomb (M. W. D. of S. C.)	4.2869978 4.5083077 4.4388806	19,364.12 32,233.52 27,471.39	63,530.4 105,752.8 90,129.1
Sablon (M. W. D. of S. C.), 1932	34 09 27.880 114 59 41.658	18 58 39.65 72 29 14.57	198 56 03.56 252 21 56.90	Granite (M. W. D. of S. C.) Iron (M. W. D. of S. C.)	4.3424022 4.3215391	21,998.96 20,967.14	72,174.9 68,789.7
Danby (M. W. D. of S. C.), 1932	34 05 41.980 115 06 12.149	348 17 10.77 93 38 19.07 235 08 50.96	168 18 13.36 273 34 40.67 55 12 30.04	Granite (M. W. D. of S. C.) Iron (M. W. D. of S. C.) Sablon (M. W. D. of S. C.)	4.1504388 4.0002671 4.0859689	14,139.65 10,006.15 12,189.02	46,389.8 32,828.5 39,990.1
Turtle (M. W. D. of S. C.), 1931	34 07 56.792 114 48 29.062	53 39 21.74 99 18 11.57	233 30 29.09 279 11 54.05	Granite (M. W. D. of S. C.) Sablon (M. W. D. of S. C.)	4.4817105 4.2420067	30,318.69 17,458.49	99,470.6 57,278.4
Arica (M. W. D. of S. C.), 1932	34 02 07.498 114 56 10.957	60 05 01.99 158 18 40.57 227 41 56.04	240 00 28.32 338 16 42.46 47 46 14.89	Granite (M. W. D. of S. C.) Sablon (M. W. D. of S. C.) Turtle (M. W. D. of S. C.)	4.1612009 4.1644780 4.2041683	14,494.42 14,604.21 16,001.78	47,553.8 47,914.0 52,499.2
Maria (M. W. D. of S. C.), 1931	33 54 10.234 114 45 06.725	104 14 11.43 130 49 25.71 168 29 37.36	284 03 27.40 310 43 14.57 348 27 44.16	Granite (M. W. D. of S. C.) Arica (M. W. D. of S. C.) Turtle (M. W. D. of S. C.)	4.4850625 4.3525107 4.4148197	30,553.61 22,517.01 25,990.80	100,241.3 73,874.6 85,271.5

[1] No check on this position.

Riverside to Colorado River arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points—Continued	° ′ ″	° ′ ″	° ′ ″				
Riverside (M. W. D. of S. C.), 1931	34 02 09.008	55 49 11.67	235 41 20.06	Maria (M. W. D. of S. C.)	4.4185226	26,213.36	86,001.7
	114 31 02.668	111 51 17.54	291 41 31.13	Turtle (M. W. D. of S. C.)	4.4607183	28,888.05	94,776.9
Grommet (M. W. D. of S. C.), 1931	34 04 37.823	24 44 41.80	204 41 27.92	Maria (M. W. D. of S. C.)	4.3281127	21,286.91	69,838.8
	114 39 19.917	113 34 41.37	293 29 33.46	Turtle (M. W. D. of S. C.)	4.1861795	15,352.51	50,369.0
		289 44 15.01	109 48 53.47	Riverside (M. W. D. of S. C.)	4.1319942	13,551.71	44,460.9
Axtel (M. W. D. of S. C.), 1931	34 18 52.516	17 44 44.05	197 41 07.41	Riverside (M. W. D. of S. C.)	4.5113361	32,459.07	106,492.8
	114 24 37.003	40 42 44.35	220 34 28.13	Grommet (M. W. D. of S. C.)	4.5404123	34,706.62	113,866.6
		61 14 53.28	241 01 27.85	Turtle (M. W. D. of S. C.)	4.6217364	41,853.94	137,315.8
		152 09 58.64	332 04 49.90	Chemehuevis	4.4744389	29,815.28	97,819.0
		218 08 25.36	38 15 58.30	Powell	4.5194547	33,071.56	108,502.3
Gier (M. W. D. of S. C.) (Ariz.), 1932	34 14 06.390	57 59 58.47	237 47 06.99	Riverside (M. W. D. of S. C.)	4.6189505	41,586.32	136,437.8
	114 08 07.855	109 17 14.24	289 07 57.19	Axtel (M. W. D. of S. C.)	4.4280441	26,794.40	87,908.0
Black Peak (M. W. D. of S. C.) (Ariz.), 1931	34 07 28.841	70 53 47.30	250 43 28.46	Riverside (M. W. D. of S. C.)	4.4768403	29,980.60	98,361.4
	114 12 38.298	138 55 30.81	318 48 46.63	Axtel (M. W. D. of S. C.)	4.4466540	27,967.52	91,756.8
		209 27 46.22	29 30 18.15	Gier (M. W. D. of S. C.)	4.1483428	14,071.58	46,166.5
Bennett (M. W. D. of S. C.), 1932	34 12 58.500	258 38 19.33	78 42 08.76	Gier (M. W. D. of S. C.)	4.0272732	10,648.13	34,934.7
	114 14 55.772	340 52 15.80	160 53 33.01	Black Peak (M. W. D. of S. C.)	4.0314220	10,750.33	35,270.0
Parker (M. W. D. of S. C.) (Ariz.) 1932	34 09 20.717	205 26 16.95	25 27 27.01	Bennett (M. W. D. of S. C.)	3.8710639	7,431.28	24,380.8
	114 17 00.470	237 07 05.51	57 12 04.84	Gier (M. W. D. of S. C.)	4.2103480	16,231.10	53,251.5
		297 08 45.51	117 11 12.64	Black Peak (M. W. D. of S. C.)	3.8779425	7,549.92	24,770.0
Parker northeast base (M. W. D. of S. C.) (Ariz.), 1932.	34 09 48.577	77 36 47.75	257 35 22.16	Parker (M. W. D. of S. C.)	3.6018327	3,997.91	13,116.5
	114 14 28.033	173 04 53.89	353 04 38.30	Bennett (M. W. D. of S. C.)	3.7704715	5,894.83	19,340.0
		326 50 53.60	146 51 55.19	Black Peak (M. W. D. of S. C.)	3.7111407	5,142.10	16,870.4
Parker southwest base (M. W. D. of S. C.) (Ariz.), 1932.	34 07 33.837	160 49 39.39	340 49 14.31	Parker (M. W. D. of S. C.)	3.5424043	3,486.62	11,439.0
	114 16 15.770	213 36 34.05	33 37 34.52	Parker northeast base (M. W. D. of S. C.)	3.6976974	4,985.370	16,356.17
		271 33 55.90	91 35 57.90	Black Peak (M. W. D. of S. C.)	3.7462365	5,574.89	18,290.3
Friant (U.S.G.S.)(Ariz.), 1932	34 21 54.633	347 45 58.64	167 47 07.52	Gier (M. W. D. of S. C.)	4.1691567	14,762.39	48,432.9
	114 10 10.086	75 51 25.42	255 43 16.39	Axtel (M. W. D. of S. C.)	4.3590420	22,858.20	74,993.9
		120 01 06.28	299 47 46.83	Chemehuevis	4.6191375	41,604.23	136,496.5
		175 17 23.02	355 16 45.76	Powell	4.3106102	20,446.08	67,080.2
Metal (M. W. D. of S. C.), 1932	34 18 34.039	341 58 22.27	161 59 21.32	Gier (M. W. D. of S. C.)	3.9381302	8,672.22	28,452.1
	114 09 52.722	36 53 25.84	216 50 35.23	Bennett (M. W. D. of S. C.)	4.1113585	12,922.86	42,397.7
		91 30 41.72	271 22 23.25	Axtel (M. W. D. of S. C.)	4.3544383	22,617.17	74,203.2
		175 53 38.58	355 53 28.78	Friant (U.S.G.S.)	3.7921614	6,196.71	20,330.4

Cajalco Reservoir to Colorado River arc

Principal points							
Field (M. W. D. of S. C.), 1931	33 53 48.923	207 00 07.64	27 02 01.46	Reche	4.0615701	11,523.12	37,805.4
	117 18 11.980	287 04 31.08	107 07 55.37	Armada	3.9935244	9,852.00	32,322.8
Rocky (M. W. D. of S. C.), 1931	33 48 37.250	155 47 47.37	335 46 13.78	Field (M. W. D. of S. C.)	4.0223974	10,529.25	34,544.7
	117 15 23.973	182 39 00.82	2 39 20.81	Reche	4.2986250	19,889.55	65,254.3
		217 14 56.90	37 16 47.40	Armada	3.9255816	8,425.23	27,641.8
Mock (M. W. D. of S. C.), 1931	33 52 11.279	239 38 04.02	59 39 55.49	Field (M. W. D. of S. C.)	3.7748093	5,954.01	19,534.1
	117 21 31.919	304 50 59.43	124 54 24.33	Rocky (M. W. D. of S. C.)	4.0618940	11,531.72	37,833.6
Bird (M. W. D. of S. C.), 1931	33 49 06.521	160 20 13.02	340 19 28.94	Mock (M. W. D. of S. C.)	3.7814069	6,045.15	19,833.1
	117 20 12.777	199 37 51.99	19 38 59.29	Field (M. W. D. of S. C.)	3.9655949	9,238.36	30,309.5
		276 54 01.10	96 56 41.82	Rocky (M. W. D. of S. C.)	3.8740294	7,482.20	24,547.9
North Cajalco (M. W. D. of S. C.), 1931	33 51 51.681	265 11 24.64	85 14 00.93	Mock (M. W. D. of S. C.)	3.8593804	7,234.03	23,733.7
	117 26 12.385	298 47 57.56	118 51 17.82	Bird (M. W. D. of S. C.)	4.0233985	10,553.55	34,624.4
South Cajalco (M. W. D. of S. C.), 1931	33 48 50.759	152 51 21.31	332 50 19.39	North Cajalco (M. W. D. of S. C.)	3.7968956	6,264.63	20,553.2
	117 24 21.190	215 08 56.74	35 10 31.00	Mock (M. W. D. of S. C.)	3.8783512	7,557.03	24,793.4
		265 38 01.74	85 40 19.99	Bird (M. W. D. of S. C.)	3.8066656	6,407.16	21,020.8
Cajalco northeast base (M. W. D. of S. C.), 1932.	33 51 32.418	0 31 16.21	180 31 15.23	South Cajalco (M. W. D. of S. C.)	3.6973105	4,980.93	16,341.6
	117 24 19.427	101 33 41.47	281 32 38.53	North Cajalco (M. W. D. of S. C.)	3.4718080	2,963.52	9,722.8
		254 26 47.27	74 28 20.60	Mock (M. W. D. of S. C.)	3.6502108	4,469.00	14,662.1
Cajalco southwest base (M. W. D. of S. C.), 1932.	33 50 07.873	177 55 00.71	357 54 58.19	North Cajalco (M. W. D. of S. C.)	3.5052127	3,200.46	10,500.2
	117 26 07.858	226 55 58.21	46 56 58.61	Cajalco northeast base (M. W. D. of S. C.)	3.5815206	3,815.23	12,517.1
		310 53 21.24	130 54 20.62	South Cajalco (M. W. D. of S. C.)	3.5597779	3,628.92	11,905.9
Perris (M. W. D. of S. C.), 1931	33 51 28.672	63 03 04.62	242 59 19.97	Rocky (M. W. D. of S. C.)	4.0660102	11,641.53	38,193.9
	117 08 40.495	105 07 52.17	285 05 57.91	Armada	3.7371729	5,459.75	17,912.5
Nuevo (M. W. D. of S. C.), 1931	33 47 05.888	102 57 59.81	282 53 34.67	Rocky (M. W. D. of S. C.)	4.0996772	12,579.90	41,272.6
	117 07 27.333	166 55 23.32	346 54 42.59	Perris (M. W. D. of S. C.)	3.9197103	8,312.09	27,270.6
Coney (M. W. D. of S. C.), 1931	33 50 29.773	312 01 17.81	132 03 48.54	Nuevo (M. W. D. of S. C.)	3.9722085	9,380.12	30,774.6
	117 11 58.188	56 47 08.00	236 45 13.44	Rocky (M. W. D. of S. C.)	3.8011509	6,326.32	20,755.6
		176 39 10.00	356 39 05.89	Armada	3.5110649	3,243.88	10,642.6
		250 20 07.87	70 21 57.98	Perris (M. W. D. of S. C.)	3.7321169	5,396.56	17,705.2
Nelson (M. W. D. of S. C.), 1931	33 49 22.678	50 07 17.28	230 05 28.23	Nuevo (M. W. D. of S. C.)	3.8176394	6,571.12	21,558.8
	117 04 11.329	119 18 35.32	299 16 05.42	Perris (M. W. D. of S. C.)	3.8995407	7,934.89	26,033.0

Cajalco Reservoir to Colorado River arc—Continued

Station	Latitude and longitude			Azimuth			Back Azimuth			To station	Distance		
											Logarithm (meters)	Meters	Feet
Principal points—Continued	°	′	″	°		″	°	′	″				
Eden (M. W. D. of S. C.), 1931	33	53	28.238	15	59	08.94	195	58	21.98	Nelson (M. W. D. of S. C.)	3.8959646	7,869.82	25,819.6
	117	02	47.050	31	28	40.52	211	26	04.44	Nuevo (M. W. D. of S. C.)	4.1401845	13,809.71	45,307.4
				67	57	09.76	247	53	52.75	Perris (M. W. D. of S. C.)	3.9913310	9,802.37	32,159.9
Pico west base (M. W. D. of S. C.), 1931	33	50	44.595	21	33	31.78	201	33	10.19	Nelson (M. W. D. of S. C.)	3.4335550	2,713.66	8,903.1
	117	03	32.553	99	45	27.87	279	42	36.33	Perris (M. W. D. of S. C.)	3.9048262	8,032.05	26,351.8
				193	03	23.35	13	03	48.72	Eden (M. W. D. of S. C.)	3.7139732	5,175.75	16,980.8
Pico east base (M. W. D. of S. C.), 1931	33	49	55.611	77	09	16.01	257	07	39.78	Nelson (M. W. D. of S. C.)	3.6588934	4,559.25	14,958.1
	117	01	18.475	113	39	12.30	293	37	57.63	Pico west base (M. W. D. of S. C.)	3.5755613	3,763.23	12,346.5
				160	50	32.36	340	49	43.01	Eden (M. W. D. of S. C.)	3.8410736	6,935.43	22,754.0
David (M. W. D. of S. C.), 1931	33	54	29.319	35	54	25.41	215	51	57.21	Nelson (M. W. D. of S. C.)	4.0667422	11,661.17	38,258.4
	116	59	45.389	68	03	17.13	248	01	35.81	Eden (M. W. D. of S. C.)	3.7017878	5,032.55	16,510.9
Wolf (M. W. D. of S. C.), 1931	33	49	25.779	89	37	53.13	269	33	03.29	Nelson (M. W. D. of S. C.)	4.1267902	13,390.30	43,931.3
	116	55	30.644	123	41	36.44	303	37	33.30	Eden (M. W. D. of S. C.)	4.1296189	13,477.80	44,218.4
				145	01	20.16	324	58	58.20	David (M. W. D. of S. C.)	4.0575312	11,416.45	37,455.5
Banning (M. W. D. of S. C.), 1931	33	57	17.241	19	19	08.09	199	17	17.68	Wolf (M. W. D. of S. C.)	4.1872719	15,391.18	50,495.9
	116	52	12.642	66	02	57.01	245	58	44.28	David (M. W. D. of S. C.)	4.1047348	12,727.26	41,756.0
Oak (M. W. D. of S. C.), 1931	33	52	44.197	33	55	36.24	213	54	07.18	Wolf (M. W. D. of S. C.)	3.8672622	7,366.52	24,168.3
	116	52	50.763	106	56	30.14	286	52	38.92	David (M. W. D. of S. C.)	4.0467009	11,135.27	36,533.0
				186	38	11.35	6	38	32.63	Banning (M. W. D. of S. C.)	3.9278538	8,469.42	27,786.8
Ranger (M. W. D. of S. C.), 1931	33	50	39.807	76	16	37.61	256	13	15.79	Wolf (M. W. D. of S. C.)	3.9820536	9,595.19	31,480.2
	116	49	28.172	126	22	01.19	306	20	08.31	Oak (M. W. D. of S. C.)	3.8106193	6,465.76	21,213.1
Hemet (M. W. D. of S. C.), 1931	33	45	27.878	120	55	34.55	300	51	13.13	Nelson (M. W. D. of S. C.)	4.1489388	14,090.90	46,229.9
	116	56	21.291	190	04	32.44	10	05	00.61	Wolf (M. W. D. of S. C.)	3.8718408	7,444.59	24,424.5
				227	50	32.48	47	54	22.30	Ranger (M. W. D. of S. C.)	4.1561779	14,327.75	47,007.0
Pierce (M. W. D. of S. C.), 1931	33	47	40.603	240	21	51.11	60	23	54.43	Wolf (M. W. D. of S. C.)	3.8166801	6,556.62	21,511.2
	116	59	12.255	312	53	49.98	132	55	25.03	Hemet (M. W. D. of S. C.)	3.7785884	6,006.04	19,704.8
				112	15	34.86	292	12	48.45	Nelson (M. W. D. of S. C.)	3.9196197	8,310.36	27,264.9
				152	44	27.34	332	42	27.72	Eden (M. W. D. of S. C.)	4.0810056	12,050.51	39,535.7
Lard (M. W. D. of S. C.), 1931	33	56	40.816	43	11	04.42	223	08	35.92	Oak (M. W. D. of S. C.)	3.9997827	9,995.00	32,791.9
	116	48	24.606	100	52	02.67	280	49	55.32	Banning (M. W. D. of S. C.)	3.7754022	5,962.14	19,560.8
Barton (M. W. D. of S. C.), 1931	33	53	01.272	82	49	41.29	262	48	10.75	Oak (M. W. D. of S. C.)	3.6239288	4,206.58	13,801.1
	116	50	08.360	201	29	52.45	21	30	50.34	Lard (M. W. D. of S. C.)	3.8615599	7,270.43	23,853.1
				346	39	50.11	166	40	12.50	Ranger (M. W. D. of S. C.)	3.6512105	4,479.30	14,695.8
Cabazon (M. W. D. of S. C.), 1931	33	52	57.470	87	40	13.83	267	36	38.53	Oak (M. W. D. of S. C.)	3.9971146	9,933.78	32,591.1
	116	46	24.545	155	52	02.54	335	50	55.56	Lard (M. W. D. of S. C.)	3.8774270	7,540.97	24,740.7
				48	04	15.28	228	02	32.96	Ranger (M. W. D. of S. C.)	3.8024790	6,345.69	20,819.2
				91	11	02.71	271	08	57.94	Barton (M. W. D. of S. C.)	3.7598808	5,752.82	18,874.0
				131	51	30.19	311	48	15.96	Banning (M. W. D. of S. C.)	4.0792017	12,000.57	39,371.9
Gorgonio (M. W. D. of S. C.), 1931	33	53	54.216	75	29	49.24	255	27	22.77	Cabazon (M. W. D. of S. C.)	3.8433488	6,971.86	22,873.5
	116	42	01.893	117	36	03.28	297	32	29.70	Lard (M. W. D. of S. C.)	4.0449325	11,090.02	36,384.5
Hidden (M. W. D. of S. C.), 1931	33	57	35.535	332	32	30.42	152	33	47.39	Gorgonio (M. W. D. of S. C.)	3.8855816	7,683.90	25,209.6
	116	44	19.790	20	31	03.56	200	29	53.93	Cabazon (M. W. D. of S. C.)	3.9612796	9,147.02	30,009.8
				75	00	21.73	254	58	05.00	Lard (M. W. D. of S. C.)	3.8134732	6,508.38	21,352.9
Cabazon west base (M. W. D. of S. C.), 1931	33	55	11.029	197	52	19.91	17	52	51.13	Hidden (M. W. D. of S. C.)	3.6700769	4,678.18	15,348.3
	116	45	15.708	295	24	25.09	115	26	13.22	Gorgonio (M. W. D. of S. C.)	3.7413879	5,513.00	18,087.2
				119	42	24.94	299	40	39.50	Lard (M. W. D. of S. C.)	3.7470105	5,584.84	18,322.9
Cabazon east base (M. W. D. of S. C.), 1931	33	55	12.241	332	40	46.72	152	41	13.69	Gorgonio (M. W. D. of S. C.)	3.4322808	2,705.71	8,877.0
	116	42	50.225	89	26	19.21	269	24	58.03	Cabazon west base (M. W. D. of S. C.)	3.5725488	3,737.22	12,261.2
				107	39	17.48	287	36	10.83	Lard (M. W. D. of S. C.)	3.9547828	9,011.20	29,564.3
				152	29	17.86	332	28	27.86	Hidden (M. W. D. of S. C.)	3.6970724	4,978.20	16,332.6
Mecca Hill (M. W. D. of S. C.), 1931	33	38	03.160	245	31	02.46	65	40	41.06	Eagle (M. W. D. of S. C.)	4.4698478	29,501.75	96,790.3
	116	01	43.508	287	14	46.33	107	23	03.99	Orocopia (M. W. D. of S. C.)	4.3853375	24,284.97	79,674.9
				287	44	28				Reference mark no. 3.			
Little Berdoo (M. W. D. of S. C.), 1931	33	51	40.370	291	47	26.39	111	59	05.69	Eagle (M. W. D. of S. C.)	4.5421269	34,843.91	114,317.1
	116	05	17.382	318	25	24.27	138	35	42.12	Orocopia (M. W. D. of S. C.)	4.6361045	43,261.79	141,934.7
				347	39	02.08	167	41	00.89	Mecca Hill (M. W. D. of S. C.)	4.4111594	25,772.67	84,555.8
La Quinta (M. W. D. of S. C.), 1931	33	42	14.455	229	51	08.60	49	58	36.33	Little Berdoo (M. W. D. of S. C.)	4.4326014	27,077.05	88,835.3
	116	18	42.577	286	21	08.73	106	30	33.70	Mecca Hill (M. W. D. of S. C.)	4.4372933	27,371.17	89,800.2
Edom (M. W. D. of S. C.), 1931	33	52	11.784	271	39	54.28	91	51	17.19	Little Berdoo (M. W. D. of S. C.)	4.4985162	31,514.92	103,395.2
	116	25	42.903	305	06	06.32	125	19	26.06	Mecca Hill (M. W. D. of S. C.)	4.6565136	45,343.35	148,764.0
				329	31	46.63	149	35	40.38	La Quinta (M. W. D. of S. C.)	4.3293055	21,345.46	70,030.9
Myoma northwest base (M. W. D. of S. C.), 1931.	33	46	58.452	9	43	57.62	189	43	25.25	La Quinta (M. W. D. of S. C.)	3.9482894	8,877.47	29,125.5
	116	17	44.299	128	08	50.35	308	04	23.92	Edom (M. W. D. of S. C.)	4.1942872	15,641.82	51,318.2
Myoma southeast base (M. W. D. of S. C.), 1931.	33	45	24.770	43	19	11.10	223	17	11.90	La Quinta (M. W. D. of S. C.)	3.9061846	8,057.21	26,434.4
	116	15	07.919	125	39	47.20	305	38	20.27	Myoma northwest base (M. W. D. of S. C.)	3.6947883	4,952.09	16,247.0
North Indio (M. W. D. of S. C.), 1931	33	48	06.053	27	27	43.63	207	26	47.84	Myoma southeast base (M. W. D. of S. C.)	3.7481670	5,599.73	18,371.8
	116	13	27.577	36	50	08.61	216	47	13.59	La Quinta (M. W. D. of S. C.)	4.1313100	13,530.38	44,390.9
				72	30	58.44	252	28	35.65	Myoma northwest base (M. W. D. of S. C.)	3.8404125	6,924.88	22,719.4
				111	52	47.29	291	45	57.84	Edom (M. W. D. of S. C.)	4.3089150	20,366.43	66,818.9

Cajalco Reservoir to Colorado River arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points—Continued	° ′ ″	° ″	° ′ ″				
Mine (M. W. D. of S. C.), 1931	33 52 14.749	358 03 42.61	178 03 48.23	North Indio (M. W. D. of S. C.)	3.8846104	7,666.73	25,153.3
	116 13 37.658	33 04 34.30	213 02 17.00	Myoma northwest base (M. W. D. of S. C.)	4.0654772	11,627.26	38,147.1
Palms (M. W. D. of S. C.), 1931	33 52 05.684	326 15 30.84	146 17 47.61	Myoma northwest base (M. W. D. of S. C.)	4.0561729	11,380.80	37,338.5
	116 21 50.000	91 48 59.00	271 46 49.20	Edom (M. W. D. of S. C.)	3.7773624	5,989.11	19,649.3
		268 41 51.17	88 46 25.55	Mine (M. W. D. of S. C.)	4.1023429	12,657.35	41,526.7
		299 42 34.04	119 47 13.79	North Indio (M. W. D. of S. C.)	4.1725877	14,879.48	48,817.1
Deception (M. W. D. of S. C.), 1931	33 54 40.103	304 52 43.04	124 55 02.36	Mine (M. W. D. of S. C.)	3.8936379	7,827.77	25,681.6
	116 17 47.509	52 39 20.08	232 37 04.87	Palms (M. W. D. of S. C.)	3.8943032	7,839.77	25,721.0
Wide (M. W. D. of S. C.), 1931	33 55 23.139	283 17 21.90	103 19 23.68	Deception (M. W. D. of S. C.)	3.7605061	5,761.11	18,901.2
	116 21 25.761	295 43 31.36	115 47 52.42	Mine (M. W. D. of S. C.)	4.1256362	13,354.76	43,814.8
		5 50 49.36	185 50 35.84	Palms (M. W. D. of S. C.)	3.7864278	6,115.44	20,063.7
		48 16 34.54	228 14 11.13	Edom (M. W. D. of S. C.)	3.9471917	8,855.06	29,052.0
Short (M. W. D. of S. C.), 1931	33 55 51.650	326 07 07.36	146 08 48.79	Palms (M. W. D. of S. C.)	3.9234892	8,384.73	27,508.9
	116 24 51.859	10 57 38.51	190 57 10.04	Edom (M. W. D. of S. C.)	3.8388450	6,899.93	22,637.5
		279 24 22.36	99 26 17.39	Wide (M. W. D. of S. C.)	3.7296530	5,366.03	17,605.0
Garnet (M. W. D. of S. C.), 1931	33 53 52.174	251 57 22.04	72 01 27.98	Short (M. W. D. of S. C.)	4.0757680	11,906.06	39,061.8
	116 32 12.625	287 07 57.64	107 11 34.93	Edom (M. W. D. of S. C.)	4.0204356	10,481.79	34,389.0
Mission (M. W. D. of S. C.), 1931	33 58 34.043	295 43 36.46	115 47 22.02	Short (M. W. D. of S. C.)	4.0612046	11,513.43	37,773.6
	116 31 35.700	322 23 48.96	142 27 05.86	Edom (M. W. D. of S. C.)	4.1720304	14,860.40	48,754.5
		6 14 04.35	186 13 43.73	Garnet (M. W. D. of S. C.)	3.9413198	8,736.14	28,661.8
Beacon (M. W. D. of S. C.), 1931	33 55 25.979	234 59 50.05	55 02 50.19	Mission (M. W. D. of S. C.)	4.0046541	10,107.74	33,161.8
	116 36 58.233	291 28 39.47	111 31 18.82	Garnet (M. W. D. of S. C.)	3.8968534	7,885.94	25,872.5
Morongo (M. W. D. of S. C.), 1931	33 59 16.755	283 36 26.88	103 38 25.12	Mission (M. W. D. of S. C.)	3.7471849	5,587.08	18,330.3
	116 35 07.240	335 50 07.92	155 51 45.42	Garnet (M. W. D. of S. C.)	4.0398046	10,959.85	35,957.4
		21 51 00.31	201 49 58.30	Beacon (M. W. D. of S. C.)	3.8842427	7,660.25	25,132.0
Pass (M. W. D. of S. C.), 1931	33 53 27.770	206 17 32.81	26 18 11.89	Beacon (M. W. D. of S. C.)	3.6087954	4,062.52	13,328.4
	116 38 08.291	265 16 08.72	85 19 27.07	Garnet (M. W. D. of S. C.)	3.9623521	9,169.64	30,084.0
		97 44 55.02	277 42 44.74	Gorgonio (M. W. D. of S. C.)	3.7822843	6,057.37	19,873.2
		128 41 19.78	308 37 52.43	Hidden (M. W. D. of S. C.)	4.0870673	12,219.89	40,091.4
Whitewater (M. W. D. of S. C.), 1931	33 56 39.430	297 04 23.35	117 05 59.53	Beacon (M. W. D. of S. C.)	3.6963650	4,970.10	16,306.1
	116 39 50.526	336 00 57.13	156 01 54.18	Pass (M. W. D. of S. C.)	3.8104184	6,462.77	21,203.3
		293 37 26.27	113 41 41.81	Garnet (M. W. D. of S. C.)	4.1086111	12,841.36	42,130.4
		33 33 02.22	213 31 48.90	Gorgonio (M. W. D. of S. C.)	3.7858414	6,107.19	20,036.7
		104 03 29.14	284 00 58.75	Hidden (M. W. D. of S. C.)	3.8528955	7,126.82	23,381.9
Coach (M. W. D. of S. C.), 1931	33 44 25.155	74 19 37.65	254 14 29.07	La Quinta (M. W. D. of S. C.)	4.1722040	14,866.34	48,774.0
	116 09 26.745	110 17 08.19	290 12 31.67	Myoma northwest base (M. W. D. of S. C.)	4.1350566	13,647.61	44,775.5
		137 41 57.21	317 39 43.33	North Indio (M. W. D. of S. C.)	3.9639987	9,204.47	30,198.3
Dino (M. W. D. of S. C.), 1931	33 48 57.627	358 48 17.95	178 48 21.74	Coach (M. W. D. of S. C.)	3.9241052	8,396.63	27,548.0
	116 09 33.548	75 13 49.37	255 11 39.15	North Indio (M. W. D. of S. C.)	3.7941758	6,225.52	20,424.9
Bern (M. W. D. of S. C.), 1931	33 47 10.789	37 01 54.89	217 00 31.78	Coach (M. W. D. of S. C.)	3.8056037	6,391.51	20,969.5
	116 06 57.202	99 39 11.70	279 35 34.56	North Indio (M. W. D. of S. C.)	4.0079884	10,185.64	33,417.4
		129 18 44.32	309 17 17.34	Dino (M. W. D. of S. C.)	3.7157514	5,196.98	17,050.4
Fargo (M. W. D. of S. C.), 1931	33 44 20.321	91 05 47.09	271 02 55.43	Coach (M. W. D. of S. C.)	3.9007322	7,956.69	26,104.6
	116 04 17.694	142 00 08.83	321 58 40.18	Bern (M. W. D. of S. C.)	3.8238560	6,665.86	21,869.6
		341 07 10.30	161 08 35.82	Mecca Hill (M. W. D. of S. C.)	4.0891969	12,279.96	40,288.5
Therm (M. W. D. of S. C.), 1931	33 41 29.557	128 56 18.09	308 53 53.64	Coach (M. W. D. of S. C.)	3.9350965	8,611.85	28,254.0
	116 05 06.517	164 50 41.99	344 49 40.51	Bern (M. W. D. of S. C.)	4.0371246	10,892.43	35,736.2
		193 26 04.70	13 26 31.80	Fargo (M. W. D. of S. C.)	3.7331353	5,409.23	17,746.8
		320 32 48.49	140 34 41.02	Mecca Hill (M. W. D. of S. C.)	3.9155892	8,233.59	27,013.0
Cotton (M. W. D. of S. C.), 1931	33 43 20.298	16 48 07.24	196 47 03.77	Mecca Hill (M. W. D. of S. C.)	4.0088568	10,206.03	33,484.3
	115 59 49.038	67 22 19.53	247 19 23.35	Therm (M. W. D. of S. C.)	3.9473707	8,858.71	29,064.0
		104 59 25.85	284 56 56.67	Fargo (M. W. D. of S. C.)	3.8548633	7,159.18	23,488.1
Shavers Well (M. W. D. of S. C.), 1931	33 37 09.292	100 00 42.52	279 57 19.96	Mecca Hill (M. W. D. of S. C.)	3.9810417	9,572.86	31,407.0
	115 55 37.728	150 29 32.28	330 27 12.94	Cotton (M. W. D. of S. C.)	4.1184809	13,136.54	43,098.8
		291 59 53.66	112 04 48.83	Orocopia (M. W. D. of S. C.)	4.1714137	14,839.31	48,685.3
Cottonwood (M. W. D. of S. C.), 1931	33 43 05.429	8 40 18.01	188 39 42.02	Shavers Well (M. W. D. of S. C.)	4.0452846	11,099.02	36,414.0
	115 54 32.809	50 01 26.76	229 57 27.94	Mecca Hill (M. W. D. of S. C.)	4.1609243	14,485.19	47,523.5
		93 14 41.40	273 11 45.84	Cotton (M. W. D. of S. C.)	3.9114119	8,154.77	26,754.5
		323 50 08.16	143 54 27.75	Orocopia (M. W. D. of S. C.)	4.3113023	20,478.70	67,187.2
Wood (M. W. D. of S. C.), 1931	33 41 52.765	39 19 52.99	219 17 19.16	Shavers Well (M. W. D. of S. C.)	4.0526023	11,287.62	37,032.8
	115 51 00.188	112 15 20.41	292 13 22.41	Cottonwood (M. W. D. of S. C.)	3.7719628	5,915.11	19,406.5
Oro (M. W. D. of S. C.), 1931	33 37 41.869	81 45 34.93	261 43 06.42	Shavers Well (M. W. D. of S. C.)	3.8441811	6,985.24	22,917.4
	115 51 09.538	152 18 11.32	332 16 18.61	Cottonwood (M. W. D. of S. C.)	4.0515492	11,260.28	36,943.1
		181 47 03.56	1 47 08.74	Wood (M. W. D. of S. C.)	3.8883855	7,733.67	25,372.9
Copia (M. W. D. of S. C.), 1931	33 37 29.482	93 46 35.59	273 44 30.81	Oro (M. W. D. of S. C.)	3.7649676	5,820.60	19,096.4
	115 47 24.199	145 33 53.96	325 31 54.24	Wood (M. W. D. of S. C.)	3.9928576	9,836.89	32,273.2
Boulder (M. W. D. of S. C.), 1931	33 41 13.949	30 24 46.13	210 23 18.86	Copia (M. W. D. of S. C.)	3.9040684	8,018.04	26,305.9
	115 44 46.725	56 30 25.11	236 26 52.95	Oro (M. W. D. of S. C.)	4.0730322	11,831.29	38,816.5
		97 06 58.24	277 03 31.07	Wood (M. W. D. of S. C.)	3.9864424	9,692.65	31,800.0

Cajalco Reservoir to Colorado River arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points—Continued	° ′ ″	° ′ ″	° ′ ″				
Summit (M. W. D. of S. C.), 1931	33 38 25.679	80 59 01.69	260 55 08.05	Copia (M. W. D. of S. C.)	4.0417371	11,008.73	36,117.8
	115 40 22.372	127 17 54.50	307 15 27.96	Boulder (M. W. D. of S. C.)	3.9324391	8,559.32	28,081.7
Red (M. W. D. of S. C.), 1931	33 42 18.559	0 03 00.70	180 03 00.57	Summit (M. W. D. of S. C.)	3.8558120	7,174.84	23,539.4
	115 40 22.129	50 42 49.00	230 38 55.03	Copia (M. W. D. of S. C.)	4.1478530	14,055.72	46,114.5
		73 44 11.67	253 41 44.87	Boulder (M. W. D. of S. C.)	3.8512099	7,099.21	23,291.3
Camp (M. W. D. of S. C.), 1931	33 42 27.561	38 50 20.78	218 48 11.72	Summit (M. W. D. of S. C.)	3.9806867	9,565.04	31,381.3
	115 36 29.605	87 21 57.26	267 19 48.22	Red (M. W. D. of S. C.)	3.7777267	5,994.14	19,665.8
Hay (M. W. D. of S. C.), 1931	33 39 25.757	78 50 57.93	258 47 36.52	Summit (M. W. D. of S. C.)	3.9798898	9,547.50	31,323.8
	115 34 18.887	119 40 04.14	299 36 42.69	Red (M. W. D. of S. C.)	4.0320217	10,765.19	35,318.8
		148 59 55.66	328 58 43.16	Camp (M. W. D. of S. C.)	3.8152695	6,535.36	21,441.4
Hayfield west base (M. W. D. of S. C.), 1931	33 40 51.669	288 30 32.56	108 33 22.48	Hay (M. W. D. of S. C.)	3.9205170	8,327.55	27,321.3
	115 39 25.371	18 05 13.55	198 04 41.96	Summit (M. W. D. of S. C.)	3.6749995	4,731.51	15,523.3
		236 51 23.07	56 53 00.58	Camp (M. W. D. of S. C.)	3.7328414	5,405.57	17,734.8
Hayfield east base (M. W. D. of S. C.), 1931	33 41 25.238	48 16 36.34	228 14 22.94	Summit (M. W. D. of S .C.)	3.9195587	8,309.19	27,261.1
	115 36 21.722	77 40 51.80	257 39 09.94	Hayfield west base (M. W. D. of S. C.)	3.6850273	4,842.03	15,885.9
		173 57 55.88	353 57 51.51	Camp (M. W. D. of S. C.)	3.2857454	1,930.84	6,334.8
		319 18 27.44	139 19 35.55	Hay (M. W. D. of S. C.)	3.6861202	4,854.23	15,925.9
Necessity (M. W. D. of S. C.), 1931	33 42 47.009	32 28 24.98	212 27 00.05	Hay (M. W. D. of S. C.)	3.8662087	7,348.67	24,109.8
	115 31 45.753	85 20 06.95	265 17 29.41	Camp (M. W. D. of S. C.)	3.8553198	7,333.64	24,060.5
Sharp (M. W. D. of S. C.), 1931	33 40 27.681	76 24 25.76	256 21 36.29	Hay (M. W. D. of S. C.)	3.9686982	8,103.98	26,587.8
	115 29 13.170	108 13 22.35	288 09 20.25	Camp (M. W. D. of S. C.)	4.0730530	11,831.86	38,818.4
		137 32 18.87	317 30 54.22	Necessity (M. W. D. of S. C.)	3.7649030	5,819.73	19,093.6
Entrance (M. W. D. of S. C.), 1931	33 43 02.753	350 58 27.26	170 58 43.61	Sharp (M. W. D. of S. C.)	3.6846222	4,837.51	15,871.1
	115 29 42.630	81 18 38.16	261 17 29.82	Necessity (M. W. D. of S. C.)	3.5061144	3,207.11	10,522.0
Gator (M. W. D. of S. C.), 1931	33 42 08.539	66 47 10.14	246 44 34.28	Sharp (M. W. D. of S. C.)	3.8963279	7,876.40	25,841.2
	115 24 32.169	96 05 35.40	276 01 34.78	Necessity (M. W. D. of S. C.)	4.0502938	11,227.78	36,836.5
		101 49 31.36	281 46 39.06	Entrance (M. W. D. of S. C.)	3.9120610	8,165.97	26,794.5
Chuck (M. W. D. of S. C.), 1931	33 45 11.924	8 28 25.58	188 28 07.43	Gator (M. W. D. of S. C.)	3.7568124	5,712.32	18,741.2
	115 23 59.483	65 46 25.17	245 43 14.60	Entrance (M. W. D. of S. C.)	3.9862562	9,688.49	31,786.3
May (M. W. D. of S. C.), 1931	33 46 32.922	291 26 41.79	111 28 58.87	Chuck (M. W. D. of S. C.)	3.8337775	6,819.89	22,374.9
	115 28 06.122	325 55 11.17	145 57 10.00	Gator (M. W. D. of S. C.)	3.9926700	9,832.64	32,259.2
		20 59 42.96	200 58 49.35	Entrance (M. W. D. of S. C.)	3.8410654	6,935.30	22,753.6
Cone (M. W. D. of S. C.), 1931	33 48 29.109	338 16 38.39	158 17 30.68	Chuck (M. W. D. of S. C.)	3.8155308	6,539.29	21,454.3
	115 25 33.522	47 39 04.20	227 37 39.33	May (M. W. D. of S. C.)	3.7253203	5,312.76	17,430.3
		231 38 43.54	51 42 00.07	Coxcomb (M. W. D. of S. C.)	4.0632036	11,566.54	37,947.9
Sandy (M. W. D. of S. C.), 1931	33 48 03.100	35 06 30.61	215 05 10.53	Chuck (M. W. D. of S. C.)	3.8092838	6,445.90	21,147.9
	115 21 35.440	74 34 39.77	254 31 02.50	May (M. W. D. of S. C.)	4.0181932	10,427.81	34,211.9
		97 28 24.47	277 26 12.01	Cone (M. W. D. of S. C.)	3.7907116	6,176.06	20,262.6
Flat (M. W. D. of S. C.), 1931	33 50 48.866	6 57 21.42	186 57 07.94	Sandy (M. W. D. of S. C.)	3.7113941	5,145.10	16,880.2
	115 21 11.216	57 28 01.73	237 25 35.71	Cone (M. W. D. of S. C.)	3.9032177	8,002.35	26,254.4
Pinto (M. W. D. of S. C.), 1931	33 53 11.141	303 03 12.68	123 05 38.61	Flat (M. W. D. of S. C.)	3.9048552	8,032.58	26,353.6
	115 25 33.094	327 12 31.05	147 14 43.41	Sandy (M. W. D. of S. C.)	4.0525981	11,287.51	37,032.4
		0 04 21.23	180 04 20.99	Cone (M. W. D. of S. C.)	3.9389926	8,689.46	28,508.7
		279 28 33.66	99 31 50.15	Coxcomb (M. W. D. of S. C.)	3.9630625	9,184.65	30,133.3
Cox (M. W. D. of S. C.), 1931	33 54 46.546	27 58 27.53	207 56 13.76	Cone (M. W. D. of S. C.)	4.1194261	13,165.16	43,192.7
	115 21 33.423	64 30 03.71	244 27 50.04	Pinto (M. W. D. of S. C.)	3.8340058	6,823.48	22,386.7
		245 34 38.82	65 36 37.12	Comb (M. W. D. of S. C.)	3.7766162	5,978.83	19,615.5
		280 29 01.91	100 32 17.60	Forks (M. W. D. of S. C.)	3.9622106	9,166.65	30,074.2
		326 56 41.22	146 57 44.13	Coxcomb (M. W. D. of S. C.)	3.7255726	5,315.85	17,440.4
		355 32 30.96	175 32 43.34	Flat (M. W. D. of S. C.)	3.8660040	7,345.21	24,098.4
Foot (M. W. D. of S. C.), 1932	34 00 18.013	214 23 21.31	34 26 00.02	Iron (M. W. D. of S. C.)	4.1093241	12,862.46	42,199.6
	115 17 25.151	312 38 16.47	132 40 57.92	Coxcomb east base (M. W. D. of S. C.)	4.0036970	10,085.49	33,088.8
		6 52 01.90	186 51 41.61	Comb (M. W. D. of S. C.)	3.8919907	7,798.13	25,584.4
Cross (M. W. D. of S. C.), 1931	34 01 31.605	2 21 27.84	182 21 19.68	Coxcomb east base (M. W. D. of S. C.)	3.9594991	9,109.60	29,887.1
	115 12 21.641	41 05 45.88	221 02 35.95	Comb (M. W. D. of S. C.)	4.1231004	13,277.01	43,559.7
		73 47 24.04	253 44 34.25	Foot (M. W. D. of S. C.)	3.9090726	8,110.97	26,610.7
		176 28 07.90	356 27 56.65	Iron (M. W. D. of S. C.)	3.9222059	8,359.99	27,427.7
		230 49 16.16	50 52 43.09	Danby (M. W. D. of S. C.)	4.0870273	12,218.76	40,087.7
Island (M. W. D. of S. C.), 1932	34 05 11.621	304 51 35.67	124 55 07.94	Cross (M. W. D. of S. C.)	4.0737708	11,851.43	38,882.6
	115 18 40.693	347 54 17.57	167 54 59.86	Foot (M. W. D. of S. C.)	3.9662158	9,251.58	30,352.9
		260 19 08.58	80 22 29.80	Iron (M. W. D. of S. C.)	3.9700747	9,334.15	30,623.8
Cadiz (M. W. D. of S. C.), 1932	34 10 00.105	330 04 21.68	150 05 53.96	Iron (M. W. D. of S. C.)	3.9268126	8,449.14	27,720.2
	115 15 26.178	29 17 50.26	209 16 01.13	Island (M. W. D. of S. C.)	4.0082077	10,190.79	33,434.3
North Iron (M. W. D. of S. C.), 1932	34 09 31.084	21 43 42.64	201 42 46.56	Iron (M. W. D. of S. C.)	3.8401486	6,920.68	22,705.6
	115 11 01.774	55 49 42.69	235 45 25.25	Island (M. W. D. of S. C.)	4.1529074	14,220.26	46,654.3
		97 32 30.92	277 30 02.45	Cadiz (M. W. D. of S. C.)	3.8344975	6,831.21	22,412.1
		313 32 35.40	133 35 17.87	Danby (M. W. D. of S. C.)	4.0104089	10,242.57	33,604.2
Granite Shaft (M. W. D. of S. C.), 1931	34 02 23.257	67 04 30.73	247 03 08.68	Cross (M. W. D. of S. C.)	3.6110608	4,083.77	13,398.2
	115 09 55.036	147 40 47.08	327 39 13.69	Iron (M. W. D. of S. C.)	3.9026418	7,991.75	26,219.6
		223 00 40.64	43 02 45.49	Danby (M. W. D. of S. C.)	3.9230324	8,375.92	27,480.0

Cajalco Reservoir to Colorado River arc—Continued

Station	Latitude and longitude			Azimuth			Back Azimuth			To station	Distance		
											Logarithm (meters)	Meters	Feet
Principal points—Continued	°	′	″	°	′	″	°	′	″				
Lake (M. W. D. of S. C.), 1932	34	09	40.737	353	26	23.12	173	26	41.62	Danby (M. W. D. of S. C.)	3.8695193	7,404.90	24,294.3
	115	06	45.151	87	25	45.84	267	23	21.75	North Iron (M. W. D. of S. C.)	3.8182313	6,580.08	21,588.2
East Iron (M. W. D. of S. C.), 1932	34	09	02.948	102	12	25.98	282	10	58.06	North Iron (M. W. D. of S. C.)	3.6132052	4,103.98	13,464.5
	115	08	25.180	245	33	18.20	65	34	14.36	Lake (M. W. D. of S. C.)	3.4493991	2,814.49	9,233.9
				331	09	16.74	151	10	31.35	Danby (M. W. D. of S. C.)	3.8493288	7,068.53	23,190.7
				49	47	06.69	229	44	42.76	Iron (M. W. D. of S. C.)	3.9350807	8,611.54	28,253.0
Iron west base (M. W. D. of S. C.), 1932	34	06	50.343	194	13	00.71	14	13	23.38	East Iron (M. W. D. of S. C.)	3.6247884	4,214.91	13,828.4
	115	09	05.589	214	24	51.51	34	26	10.33	Lake (M. W. D. of S. C.)	3.8037853	6,364.81	20,881.9
				295	20	19.42	115	21	56.67	Danby (M. W. D. of S. C.)	3.6919024	4,919.29	16,139.4
Dune (M. W. D. of S. C.), 1931	34	03	06.886	115	48	35.49	295	44	59.30	Danby (M. W. D. of S. C.)	4.0409023	10,987.59	36,048.4
	114	59	46.281	180	34	40.74	0	34	43.33	Sablon (M. W. D. of S. C.)	4.0696517	11,739.56	38,515.5
				288	18	48.80	108	20	49.33	Arica (M. W. D. of S. C.)	3.7647913	5,818.24	19,088.7
Freda (M. W. D. of S. C.), 1931	34	07	03.554	259	36	23.22	79	39	39.54	Turtle (M. W. D. of S. C.)	3.9598039	9,115.99	29,908.1
	114	54	18.996	17	28	39.53	197	27	36.80	Arica (M. W. D. of S. C.)	3.9805900	9,562.91	31,374.3
Rice (M. W. D. of S. C.), 1932	34	05	48.396	103	15	21.76	283	11	46.20	Freda (M. W. D. of S. C.)	4.0052437	10,121.47	33,206.9
	114	47	54.575	167	24	31.71	347	24	12.37	Turtle (M. W. D. of S. C.)	3.6078410	4,053.60	13,299.2
				61	54	18.20	241	49	40.15	Arica (M. W. D. of S. C.)	4.1593920	14,434.18	47,356.1
				279	19	05.72	99	23	54.16	Grommet (M. W. D. of S. C.)	4.1262025	13,372.19	43,871.9
Mole (M. W. D. of S. C.), 1931	34	07	23.449	75	34	56.76	255	30	48.12	Rice (M. W. D. of S. C.)	4.0694839	11,735.02	38,500.7
	114	40	31.199	94	49	59.20	274	45	31.10	Turtle (M. W. D. of S. C.)	4.0894822	12,288.03	40,315.0
				340	17	40.76	160	18	20.72	Grommet (M. W. D. of S. C.)	3.7340307	5,420.39	17,783.4
Vidal (M. W. D. of S. C.), 1932	34	09	37.734	5	59	23.36	185	58	51.65	Riverside (M. W. D. of S. C.)	4.1430663	13,901.65	45,609.0
	114	30	06.117	56	58	29.66	236	53	19.03	Grommet (M. W. D. of S. C.)	4.2287996	16,935.56	55,562.8
				278	20	00.51	98	29	48.60	Black Peak (M. W. D. of S. C.)	4.4335674	27,137.35	89,033.1
Stone (M. W. D. of S. C.), 1932	34	11	27.328	290	29	36.39	110	32	54.27	Vidal (M. W. D. of S. C.)	3.9837559	9,632.87	31,603.9
	114	35	58.385	22	16	22.12	202	14	29.04	Grommet (M. W. D. of S. C.)	4.1345993	13,633.25	44,728.4
Mesa (M. W. D. of S. C.), 1931	34	12	16.731	1	18	40.16	181	18	37.70	Vidal (M: W. D. of S. C.)	3.6902205	4,900.28	16,077.0
	114	30	01.739	80	33	49.20	260	30	28.75	Stone (M. W. D. of S. C.)	3.9664865	9,257.35	30,371.8
Vista (M. W. D. of S. C.), 1932	34	12	12.940	297	20	10.87	117	26	21.31	Black Peak (M. W. D. of S. C.)	4.2794172	19,029.05	62,431.2
	114	23	37.955	297	30	08.44	117	33	51.74	Parker (M. W. D. of S. C.)	4.0599137	11,479.25	37,661.5
				31	31	13.55	211	27	04.10	Riverside (M. W. D. of S. C.)	4.3388683	21,820.68	71,590.0
				64	20	17.62	244	16	39.55	Vidal (M. W. D. of S. C.)	4.0426007	11,030.64	36,189.7
				90	42	40.40	270	39	04.67	Mesa (M. W. D. of S. C.)	3.9923836	9,826.15	32,238.0
Cairn (M. W. D. of S. C.), 1932	34	13	17.471	277	21	41.92	97	23	21.12	Bennett (M. W. D. of S. C.)	3.6583443	4,553.49	14,939.2
	114	17	52.192	349	42	21.05	169	42	50.11	Parker (M. W. D. of S. C.)	3.8700563	7,414.06	24,324.3
Start (M. W. D. of S. C.) 1932	34	12	47.902	257	56	05.32	77	57	39.06	Cairn (M. W. D. of S. C.)	3.6398117	4,363.27	14,315.1
	114	20	38.892	318	45	33.60	138	47	36.32	Parker (M. W. D. of S. C.)	3.9287755	8,487.42	27,845.8
				267	50	38.94	87	53	51.86	Bennett (M. W. D. of S. C.)	3.9439555	8,789.32	28,836.3
Badger (M. W. D. of S. C.), 1932	34	16	42.540	326	35	21.42	146	36	31.21	Gier (M. W. D. of S. C.)	3.7606615	5,763.17	18,908.0
	114	10	11.854	46	29	06.95	226	26	27.17	Bennett (M. W. D. of S. C.)	4.0009394	10,021.65	32,879.4
				188	06	15.25	8	06	26.02	Metal (M. W. D. of S. C.)	3.5403591	3,470.24	11,385.3
Lunch (M. W. D. of S. C.), 1932	34	17	19.194	242	49	12.83	62	50	51.85	Metal (M. W. D. of S. C.)	3.7033800	5,051.03	16,571.6
	114	12	48.449	285	44	06.62	105	45	34.83	Badger (M. W. D. of S. C.)	3.6192488	4,161.49	13,653.2
				22	05	10.08	202	03	58.42	Bennett (M. W. D. of S. C.)	3.9379215	8,668.05	28,438.4
Copper (M. W. D. of S. C.), 1932	34	16	48.698	249	43	23.93	69	46	37.77	Metal (M. W. D. of S. C.)	3.9721028	9,377.84	30,767.1
	114	15	36.751	257	40	23.65	77	41	58.45	Lunch (M. W. D. of S. C.)	3.6440494	4,406.05	14,455.5
				351	35	14.65	171	35	37.70	Bennett (M. W. D. of S. C.)	3.8555190	7,170.00	23,523.6
				28	02	41.57	208	01	25.34	Cairn (M. W. D. of S. C.)	3.8676760	7,373.54	24,191.4
				46	12	10.78	226	09	20.75	Start (M. W. D. of S. C.)	4.0300119	10,715.49	35,155.7

San Luis Obispo northeastward arc

Station	Latitude and longitude			Azimuth			Back Azimuth			To station	Logarithm (meters)	Meters	Feet
Principal points													
Orchard Peak (Standard Oil Co.), 1932	35	44	17.386	14	44	06.20	194	39	22.35	San Jose	4.6858689	48,514.20	159,167.0
	120	07	58.458	140	07	38.17	320	00	23.02	Castle Mount	4.4632738	29,058.54	95,336.2
Bench, 1932	35	44	44.416	182	38	18.06	2	38	41.15	Castle Mount	4.3318657	21,471.66	70,444.9
	120	21	01.106	272	21	43.96	92	29	21.13	Orchard Peak (Standard Oil Co.)	4.2941032	19,683.54	64,578.4
				351	09	21.03	171	12	11.98	San Jose	4.6842334	48,331.84	158,568.7
Red Hill, 1932	35	36	17.924	152	16	38.90	332	13	28.45	Bench	4.2464567	17,638.30	57,868.3
	120	15	34.548	169	00	38.12	348	57	50.27	Castle Mount	4.5769620	37,753.91	123,864.3
				217	47	00.45	37	51	26.41	Orchard Peak (Standard Oil Co.)	4.2719862	18,706.23	61,372.0
Flowers, 1932	35	36	45.167	202	06	05.84	22	08	25.09	Bench	4.2025930	15,943.84	52,309.1
	120	24	59.855	273	19	52.75	93	25	21.90	Red Hill	4.1539081	14,253.06	46,761.9
Almond, 1932	35	33	06.456	203	09	55.98	23	13	29.53	Bench	4.3692590	23,402.32	76,779.1
	120	27	07.504	205	28	54.18	25	30	08.46	Flowers	3.8731719	7,467.44	24,499.4
				251	15	30.12	71	22	13.30	Red Hill	4.2652553	18,418.54	60,428.2
Highland, 1932	35	25	54.872	164	37	49.13	344	36	24.85	Almond	4.1397183	13,794.89	45,258.7
	120	24	42.338	178	44	23.46	358	44	13.29	Flowers	4.3020298	20,046.10	65,767.9
				215	39	57.35	35	45	15.59	Red Hill	4.3737925	23,647.90	77,584.8

San Luis Obispo northeastward arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points—Continued	° ′ ″	° ′ ″	° ′ ″				
Grassy, 1932	35 28 48.496	168 44 06.62	348 43 30.10	Almond	3.9088222	8,106.29	26,595.4
	120 26 04.634	338 47 43.30	158 48 31.04	Highland	3.7588460	5,739.13	18,829.1
Barren, 1932	35 27 20.534	225 35 02.77	45 39 13.81	Almond	4.1830483	15,242.22	50,007.2
	120 34 19.758	257 42 30.55	77 47 17.85	Grassy	4.1063480	12,774.62	41,911.4
		280 13 42.35	100 19 17.20	Highland	4.1702703	14,800.29	48,557.3
Green, 1932	35 24 02.943	129 16 40.88	309 13 49.63	Barren	3.9833346	9,623.53	31,573.2
	120 29 24.346	209 46 11.78	29 48 07.59	Grassy	4.0060322	10,139.86	33,267.2
		244 06 43.32	64 09 26.75	Highland	3.8980087	7,906.95	25,941.4
		295 11 45.11	115 19 26.55	San Jose	4.3475456	22,261.05	73,034.8
		25 14 05.38	205 11 38.20	San Luis	4.1785074	15,083.68	49,487.0
Tessajera, 1932	35 23 08.768	235 29 47.07	55 34 06.74	Barren	4.1370348	13,709.91	44,979.9
	120 41 47.797	264 51 18.24	84 58 28.84	Green	4.2749940	18,836.23	61,798.5
		314 04 55.82	134 09 38.62	San Luis	4.2356234	17,203.76	56,442.7
Salinas, 1932	35 21 22.481	101 32 33.71	281 26 24.23	Tessajera	4.2159477	16,441.74	53,942.6
	120 31 09.526	156 30 22.08	336 28 31.86	Barren	4.0803856	12,033.32	39,479.3
		208 13 16.87	28 14 17.77	Green	3.7491708	5,612.69	18,414.3
		23 26 27.06	203 25 00.77	San Luis	3.9769580	9,483.27	31,113.0
		13 38 05		Reference mark no. 2.			
Cerro Remauldo, 1932	35 18 51.008	198 31 59.29	18 33 00.34	Tessajera	3.9231656	8,378.49	27,488.4
	120 43 33.314	284 58 55.32	105 04 38.84	San Luis	4.1918302	15,553.57	51,028.7
Davis, 1932	35 13 58.480	204 56 16.47	24 59 17.09	Tessajera	4.2719816	18,706.03	61,371.4
	120 47 00.297	210 06 33.45	30 08 32.98	Cerro Remauldo	4.0179846	10,422.81	34,195.5
		256 07 21.68	76 15 04.33	San Luis	4.3194144	20,864.81	68,454.0
Biddle, 1932	35 09 40.515	105 50 30.91	285 39 48.79	Davis	4.4666021	29,282.09	96,069.7
	120 28 26.259	148 35 22.67	328 32 22.43	San Luis	4.1805764	15,155.71	49,723.4
		227 31 32.88	47 38 39.45	San Jose	4.4034686	25,320.29	83,071.7
Pyramid, 1932	35 51 18.511	21 06 17.63	201 04 21.04	Orchard Peak (Standard Oil Co.)	4.1433524	13,910.81	45,639.0
	120 04 39.125	111 33 33.05	291 24 20.41	Castle Mount	4.4048760	25,402.47	83,341.3
Dagany, 1932	35 45 48.511	76 54 58.98	256 50 18.83	Orchard Peak (Standard Oil Co.)	4.0923782	12,370.24	40,584.7
	119 59 58.959	145 21 19.82	325 18 35.90	Pyramid	4.0922293	12,366.00	40,570.8
Avenal, 1932	35 48 00.471	228 19 15.71	48 21 55.71	Pyramid	3.9629847	9,183.00	30,127.9
	120 09 12.466	286 15 45.63	106 21 09.26	Dagany	4.1608878	14,483.98	47,519.5
		344 51 50.51	164 52 33.77	Orchard Peak (Standard Oil Co.)	3.8526252	7,122.38	23,367.3
McClure Southwest, 1932	35 47 19.669	108 21 51.13	288 20 22.83	Avenal	3.6014125	3,994.04	13,103.8
	120 06 41.500	202 38 28.47	22 39 40.09	Pyramid	3.9018080	7,976.42	26,169.3
		285 29 48.50	105 33 43.83	Dagany	4.0209228	10,493.56	34,427.6
McClure Northeast, 1932	35 50 47.267	206 19 13.08	26 19 24.20	Pyramid	3.0311494	1,074.36	3,524.8
	120 04 58.110	320 46 14.54	140 49 09.55	Dagany	4.0749109	11,882.58	38,984.8
		20 39 56.90	200 38 11.43	Orchard Peak (Standard Oil Co.)	4.1086082	12,841.28	42,130.1
		22 05 18.88	202 04 18.38	McClure Southwest	3.8391383	6,904.60	22,652.8
		51 10 54.31	231 08 25.44	Avenal	3.9136598	8,197.09	26,893.3
		312 36 49		Reference mark no. 2.			
Standard, 1932	35 48 13.950	50 42 23.76	230 40 16.30	Dagany	3.8497456	7,075.31	23,212.9
	119 56 20.984	114 30 11.33	294 25 19.73	Pyramid	4.1378716	13,736.36	45,066.7
		43 14 22		Reference mark no. 1.			
Kettleman, 1932	35 56 01.841	340 19 40.42	160 21 40.72	Standard	4.1850566	15,312.87	50,239.0
	119 59 46.293	40 05 17.11	220 02 25.43	Pyramid	4.0572887	11,410.08	37,434.6
		165 54 28		Reference mark no. 2.			
Skyline, 1932	36 01 26.604	317 57 15.24	138 00 46.71	Kettleman	4.1294523	13,472.63	44,201.5
	120 05 46.246	354 51 54.09	174 52 33.49	Pyramid	4.2745573	18,817.30	61,736.4
		66 47 04.10	246 38 29.78	Castle Mount	4.3779644	23,876.15	78,333.7
		132 29 46		Reference mark no. 2.			
		135 22 15		Standard Oil Co. plant, flagpole.			
Supplementary points							
Santa Marguerita, 1932	35 22 54.488	93 23 46.5	273 20 55.1	Tessajera	3.873950	7,480.8	24,543
	120 36 51.916	205 04 35.0	25 06 03.2	Barren	3.956802	9,053.2	29,702
		288 08 04.9	108 11 23.1	Salinas	3.958876	9,096.5	29,844
Firebreak, 1932	35 21 38.907	50 53 53.8	230 51 28.1	Cerro Remauldo	3.913837	8,200.4	26,904
	120 39 21.395	126 51 29.5	306 50 04.7	Tessajera	3.664461	4,618.1	15,151
		238 18 04.3	58 19 30.9	Santa Marguerita	3.646831	4,434.4	14,549
Volmer, 1932	35 21 39.192	226 10 49.2	46 11 55.1	Tessajera	3.600715	3,987.6	13,083
	120 43 41.795	270 03 20.4	90 05 51.1	Firebreak	3.817844	6,574.2	21,569
		357 37 59.5	177 38 04.4	Cerro Remauldo	3.714956	5,187.5	17,019
Hill 1400, 1932	35 21 06.155	108 45 09.1	288 44 00.3	Volmer	3.500858	3,168.5	10,395
	120 41 42.954	178 08 49.3	358 08 46.4	Tessajera	3.577565	3,780.6	12,404
		254 13 07.4	74 14 29.3	Firebreak	3.569826	3,713.9	12,185
Guard, 1932	35 19 57.257	19 10 08.6	199 09 52.3	Cerro Remauldo	3.334746	2,161.5	7,092
	120 43 05.219	163 37 10.3	343 36 49.1	Volmer	3.515128	3,274.4	10,743
		224 22 02.6	44 22 50.2	Hill 1400	3.472831	2,970.5	9,746

San Luis Obispo northeastward arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Walters, 1932	35 20 28.763	216 41 25.6	36 42 02.6	Volmer	3.432477	2,706.9	8,881
	120 44 45.858	255 58 32.4	76 00 18.2	Hill 1400	3.677616	4,760.1	15,617
		290 54 00.9	110 54 59.1	Guard	3.434679	2,720.7	8,926
		328 41 11.9	148 41 53.8	Cerro Remauldo	3.547282	3,526.0	11,568
Conner, 1932	35 19 02.796	197 21 31.1	17 21 50.1	Walters	3.443381	2,775.8	9,107
	120 45 18.653	243 30 58.5	63 32 15.7	Guard	3.575767	3,765.0	12,352
		277 45 57.0	97 46 57.9	Cerro Remauldo	3.429039	2,685.6	8,811
Stony, 1932	35 16 10.791	234 58 30.1	55 01 11.3	Cerro Remauldo	3.934886	8,607.7	28,240
	120 48 12.354	335 55 16.1	155 55 57.7	Davis	3.649907	4,465.9	14,652
Perry, 1932	35 15 42.527	2 30 03.3	182 30 00.1	Davis	3.506439	3,209.5	10,530
	120 46 54.759	113 57 07.3	293 56 22.5	Stony	3.331633	2,146.0	7,041
		221 12 50.2	41 14 46.6	Cerro Remauldo	3.887806	7,723.4	25,339
		290 58 02		Reference mark no. 1.			
		337 49 53		Reference mark no. 2.			
Coon, 1932	35 15 02.065	194 19 21.1	14 19 33.4	Stony	3.339631	2,185.9	7,172
	120 48 33.748	243 30 17.6	63 31 14.7	Perry	3.446513	2,795.8	9,173
		309 39 44.0	129 40 37.9	Davis	3.487082	3,069.6	10,071
Guidetti, 1932	35 17 51.736	142 04 01.5	322 03 22.4	Conner	3.443530	2,776.7	9,110
	120 44 11.078	207 34 28.9	27 34 50.7	Cerro Remauldo	3.314029	2,060.8	6,761
Turri, 1932	35 18 25.602	231 31 51.7	51 32 24.7	Conner	3.265471	1,842.8	6,046
	120 46 15.770	259 11 08.4	79 12 42.3	Cerro Remauldo	3.620968	4,178.0	13,707
		288 19 09.7	108 20 21.8	Guidetti	3.520967	3,318.7	10,888
Phil, 1932	35 16 49.792	37 07 57.4	217 07 21.5	Perry	3.414963	2,599.9	8,530
	120 45 52.668	71 12 35.7	251 11 15.0	Stony	3.571627	3,729.3	12,235
		168 49 08.2	348 48 54.8	Turri	3.478531	3,009.8	9,875
		233 21 23.2	53 22 21.9	Guidetti	3.505022	3,199.1	10,496
Clark, 1932	35 17 32.803	237 42 49.8	57 43 48.7	Turri	3.483857	3,046.9	9,996
	120 47 57.728	264 09 51.9	84 12 02.9	Guidetti	3.760154	5,756.4	18,886
		292 44 39.8	112 45 52.1	Phil	3.534908	3,427.0	11,243
		334 54 07.5	154 54 43.9	Perry	3.574327	3,752.6	12,312
		8 19 16.1	188 19 07.7	Stony	3.407267	2,554.3	8,380

Saddle Peak, 1872	35 13 20.647	153 16 40.1	333 16 04.2	Coon	3.543988	3,499.3	11,481
	120 47 31.507	214 05 34.7	34 05 52.7	Davis	3.14857	1,407.9	4,619
Devils Ridge, 1932	35 13 51.823	196 11 21.4	16 11 35.7	Coon	3.352966	2,254.1	7,395
	120 48 58.607	266 04 04.2	86 05 12.4	Davis	3.476932	2,998.7	9,838
		293 33 34.3	113 34 24.5	Saddle Peak	3.380759	2,403.0	7,884
Green Peak, 1872	35 12 22.910	199 07 48.5	19 08 10.2	Devils Ridge	3.462436	2,900.3	9,515
	120 49 36.194	240 33 28.9	60 34 40.8	Saddle Peak	3.558818	3,620.9	11,880
Spooner, 1932	35 13 41.688	263 40 26.8	83 41 31.2	Devils Ridge	3.453121	2,838.7	9,313
	120 50 50.184	277 20 16.6	97 22 11.2	Saddle Peak	3.704660	5,065.9	16,620
		322 22 08.2	142 22 50.9	Green Peak	3.486459	3,065.2	10,056
Rhodes, 1932	35 27 58.934	240 17 30.7	60 18 32.3	Grassy	3.488961	3,082.9	10,114
	120 27 50.852	308 47 30.4	128 49 19.7	Highland	3.785387	6,100.8	20,016
		17 58 24.1	197 57 30.0	Green	3.883413	7,645.6	25,084
Developement, 1932	35 29 55.498	185 25 48.7	5 26 01.6	Almond	3.771707	5,911.6	19,395
	120 27 29.715	313 54 29.9	133 55 19.3	Grassy	3.473794	2,977.1	9,767
		8 26 18.4	188 26 06.2	Rhodes	3.560102	3,631.6	11,915
Pine, 1932	35 29 09.594	234 05 29.4	54 06 14.4	Developement	3.382464	2,412.5	7,915
	120 28 47.244	279 00 00.1	99 01 34.5	Grassy	3.618091	4,150.4	13,617
		326 51 24.3	146 51 57.1	Rhodes	3.415080	2,600.6	8,532
Ferraro, 1932	35 28 53.212	260 52 46.7	80 53 59.2	Pine	3.503612	3,188.7	10,462
	120 30 52.142	290 05 14.1	110 06 59.4	Rhodes	3.687267	4,867.1	15,968
School, 1932	35 27 42.639	161 56 49.7	341 56 33.4	Ferraro	3.359377	2,287.6	7,505
	120 30 24.021	222 18 31.8	42 19 28.0	Pine	3.559206	3,624.1	11,890
		262 34 44.8	82 36 13.8	Rhodes	3.590461	3,894.6	12,778
Early, 1932	35 28 41.173	260 42 42.7	80 43 35.0	Ferraro	3.361789	2,300.3	7,547
	120 32 22.196	301 11 00.9	121 12 09.5	School	3.541960	3,483.1	11,427
		50 01 57.0	230 00 48.8	Barren	3.587496	3,868.1	12,691
Gravel, 1932	35 26 41.784	108 28 58.0	288 27 35.8	Barren	3.576255	3,769.3	12,366
	120 31 57.995	170 35 05.2	350 34 51.2	Early	3.571667	3,729.6	12,236
		202 17 09.0	22 17 47.3	Ferraro	3.641226	4,377.5	14,362
		231 38 05.8	51 39 00.4	School	3.480310	3,022.1	9,915
Sand, 1932	35 26 35.779	122 14 40.2	302 13 49.9	Barren	3.412570	2,585.7	8,483
	120 32 53.035	191 22 28.4	11 22 46.3	Early	3.595704	3,941.9	12,933
		262 24 08.3	82 24 40.2	Gravel	3.146257	1,400.4	4,594
Calf, 1932	35 25 03.994	165 06 48.3	345 06 22.6	Barren	3.638902	4,354.1	14,285
	120 33 35.398	200 41 32.0	20 41 56.6	Sand	3.480551	3,023.8	9,921
		219 10 52.0	39 11 48.5	Gravel	3.589764	3,888.3	12,757
Highway, 1932	35 25 46.088	229 18 28.0	49 19 45.8	Barren	3.649841	4,465.2	14,650
	120 36 34.017	286 02 47.9	106 04 31.4	Calf	3.671083	4,689.0	15,384
		4 52 [illegible].2	184 52 47.9	Santa Marguerita	3.724903	5,307.7	17,414

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San Luis Obispo northeastward arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance: Logarithm (meters)	Distance: Meters	Distance: Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Reis, 1932	35 24 01.656	58 52 21.3	238 51 02.7	Santa Marguerita	3.602390	4,003.0	13,133
	120 34 36.152	137 16 22.1	317 15 13.8	Highway	3.641662	4,381.9	14,376
		183 51 32.2	3 51 41.7	Barren	3.788381	6,143.0	20,154
		218 34 55.2	38 35 30.4	Calf	3.390541	2,457.8	8,064
Hale, 1932	35 24 30.659	234 39 01.7	54 41 51.4	Barren	3.956838	9,053.9	29,704
	120 39 12.605	239 49 48.7	59 51 20.6	Highway	3.665322	4,627.2	15,181
		277 16 46.0	97 19 26.1	Reis	3.847126	7,032.8	23,073
		295 23 53.6	115 28 33.3	Salinas	4.130391	13,501.8	44,297
		309 50 35.0	129 51 56.5	Santa Marguerita	3.665102	4,624.9	15,174
		2 24 02.2	182 23 57.1	Firebreak	3.724089	5,297.7	17,381
		57 12 50.5	237 11 20.5	Tessajera	3.668298	4,659.1	15,286
Vinyard, 1932	35 25 38.338	261 47 45.1	81 48 23.2	Highway	3.223976	1,674.9	5,495
	120 37 39.733	302 44 16.9	122 46 03.3	Reis	3.740943	5,507.4	18,069
		48 19 57.3	228 19 03.5	Hale	3.496503	3,136.9	10,292
Alliance, 1932	35 37 41.415	75 34 55.9	255 32 20.1	Flowers	3.842107	6,952.0	22,808
	120 20 32.333	176 49 33.0	356 49 16.3	Bench	4.115836	13,056.8	42,837
		288 55 32.0	108 58 25.5	Red Hill	3.898927	7,923.7	25,996
		51 19 46		McCune ranch, apex of windmill.			
Wheat, 1932	35 35 49.192	119 11 40.6	299 10 29.1	Flowers	3.548730	3,537.8	11,607
	120 22 57.145	226 29 18.1	46 30 42.4	Alliance	3.701092	5,024.5	16,485
		39 55 43		Reference mark no. 2.			
Range, 1932	35 35 08.959	221 57 09.1	41 58 10.7	Flowers	3.600691	3,987.4	13,082
	120 26 45.769	257 49 26.3	77 51 39.4	Wheat	3.769936	5,887.6	19,316
		8 15 01.4	188 14 48.8	Almond	3.581481	3,814.9	12,516
Wood, 1932	35 34 15.401	65 01 11.3	244 59 26.0	Almond	3.701455	5,028.7	16,498
	120 24 06.527	112 23 18.6	292 21 45.9	Range	3.637087	4,336.0	14,226
		163 47 11.9	343 46 40.8	Flowers	3.681867	4,806.9	15,771
		211 08 24.0	31 09 04.4	Wheat	3.528577	3,377.4	11,081
Shedd, 1932	35 32 38.718	99 26 45.5	279 24 46.7	Almond	3.717486	5,217.8	17,119
	120 23 43.151	135 12 35.0	315 10 48.8	Range	3.814647	6,526.0	21,411
		168 49 31.1	348 49 17.6	Wood	3.482481	3,037.3	9,965
		6 02 07		Oil derrick.			
Brush, 1932	35 30 26.205	35 31 52.3	215 31 02.8	Grassy	3.568190	3,699.9	12,139
	120 24 39.341	142 55 44.7	322 54 18.6	Almond	3.791742	6,190.7	20,311
		186 40 19.3	6 40 38.4	Wood	3.851977	7,111.8	23,333
		199 06 52.5	19 07 25.1	Shedd	3.635717	4,322.3	14,181
Shell, 1932	35 30 12.200	68 33 09.0	248 32 38.8	Developement	3.148433	1,407.5	4,618
	120 26 37.739	172 03 10.8	352 02 53.5	Almond	3.734196	5,422.5	17,790
		261 45 34.9	81 46 43.6	Brush	3.479269	3,014.9	9,891
		342 04 20.0	162 04 39.2	Grassy	3.433166	2,711.2	8,895
Jacks, 1932	35 40 49.300	343 07 53.2	163 08 51.9	Red Hill	3.941476	8,739.3	28,672
	120 17 15.300	40 34 39.7	220 32 44.8	Alliance	3.882070	7,622.0	25,007
		141 56 47.8	321 54 36.0	Bench	3.964004	9,204.6	30,199
Brown, 1932	35 40 12.885	248 39 35.0	68 40 41.7	Jacks	3.489291	3,085.3	10,122
	120 19 09.578	24 02 29.6	204 01 41.4	Alliance	3.708538	5,111.4	16,770
Taylor, 1932	35 42 14.231	292 14 32.5	112 17 00.9	Jacks	3.839417	6,909.0	22,667
	120 21 29.605	316 42 55.7	136 44 17.4	Brown	3.710663	5,136.4	16,852
Hopper, 1932	35 40 26.684	211 24 59.5	31 25 46.5	Taylor	3.589300	3,884.2	12,743
	120 22 50.142	265 14 28.0	85 17 43.3	Jacks	3.926821	8,449.3	27,721
		274 21 58.9	94 24 07.5	Brown	3.745333	5,563.3	18,252
		325 44 56.8	145 46 17.1	Alliance	3.789673	6,161.3	20,214
		15 41 23		Reference mark no. 2.			
Windmill, 1932	35 38 40.582	202 30 36.0	22 31 07.4	Hopper	3.548980	3,539.8	11,613
	120 23 44.029	247 34 57.7	67 37 37.7	Brown	3.873127	7,466.7	24,497
		290 41 39.9	110 43 31.6	Alliance	3.712344	5,156.4	16,917
		347 24 17.6	167 24 45.0	Wheat	3.733380	5,412.3	17,757
		28 12 56.6	208 12 12.5	Flowers	3.605997	4,036.4	13,243
Cottonwood, 1932	35 47 16.028	257 25 11.8	77 27 35.0	Avenal	3.799249	6,298.7	20,665
	120 13 17.296	304 28 44.2	124 31 50.6	Orchard Peak (Standard Oil Co.)	3.987635	9,719.3	31,887
Polonio, 1932	35 45 09.179	135 10 17.2	315 08 46.7	Cottonwood	3.741432	5,513.6	18,089
	120 10 42.516	203 11 03.0	23 11 55.6	Avenal	3.759162	5,743.3	18,843
		291 09 18.7	111 10 54.5	Orchard Peak (Standard Oil Co.)	3.645467	4,420.5	14,503
Snake, 1932	35 44 55.947	171 52 59.3	351 52 45.0	Cottonwood	3.639587	4,361.0	14,308
	120 12 52.777	262 53 10.7	82 54 26.9	Polonio	3.518261	3,298.1	10,821
		279 06 20.4	99 09 12.4	Orchard Peak (Standard Oil Co.)	3.874494	7,490.2	24,574
Crowbar, 1932	35 45 22.875	227 51 11.4	47 52 41.1	Cottonwood	3.715860	5,198.3	17,055
	120 15 50.768	280 29 57.6	100 31 41.5	Snake	3.657841	4,548.2	14,922
Bones, 1932	35 43 45.381	169 07 23.3	349 07 10.0	Crowbar	3.485684	3,059.7	10,038
	120 15 27.787	206 46 51.5	26 48 07.8	Cottonwood	3.861705	7,272.9	23,861
		240 48 38.8	60 50 09.4	Snake	3.649447	4,461.2	14,636
San Andreas, 1932	35 44 38.733	237 36 27.2	57 39 25.2	Cottonwood	3.956909	9,055.4	29,709
	120 18 21.776	250 15 39.7	70 17 08.0	Crowbar	3.605367	4,030.6	13,224
		290 35 46.1	110 37 27.7	Bones	3.669424	4,671.2	15,325

San Louis Obispo northeastward arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Waterhole, 1932	35 42 29.857	142 28 45.9	322 27 35.0	San Andreas	3.699711	5,008.5	16,432
	120 16 20.374	209 35 09.9	29 35 40.6	Bones	3.427606	2,676.7	8,782
		24 01 19.4	204 00 47.3	Jacks	3.530569	3,392.9	11,132
		86 28 48.2	266 25 47.6	Taylor	3.891456	7,788.5	25,553
Old Man, 1932	35 43 34.471	220 38 22.5	40 39 02.0	San Andreas	3.416682	2,610.2	8,564
	120 19 29.435	266 48 40.4	86 51 01.5	Bones	3.784073	6,082.4	19,955
		292 43 15.4	112 45 05.8	Waterhole	3.712014	5,152.5	16,904
		326 28 02.9	146 29 21.2	Jacks	3.785763	6,106.1	20,033
		50 42 08.3	230 40 58.1	Taylor	3.591483	3,903.8	12,808
Major, 1932	35 49 03.969	4 19 53.1	184 19 47.4	McClure Southwest	3.508362	3,223.8	10,577
	120 06 31.804	64 07 53.6	244 06 19.6	Avenal	3.651599	4,483.3	14,709
		216 26 39.4	36 27 34.3	McClure Northeast	3.597477	3,958.0	12,986
Tank, 1932	35 48 15.353	87 00 40.6	266 57 17.8	Avenal	3.940259	8,714.8	28,592
	120 03 25.860	153 41 31.2	333 40 37.2	McClure Northeast	3.717946	5,223.3	17,137
		311 02 17.0	131 04 18.0	Dagany	3.838264	6,890.7	22,607
		77 45 36		Reference mark no. 2.			
Mound, 1932	35 48 11.232	268 45 38.3	88 47 09.5	Standard	3.592565	3,913.5	12,840
	119 58 56.814	19 32 26.8	199 31 50.5	Dagany	3.669069	4,667.3	15,313
		117 30 11		Reference mark no. 1.			
County Line, 1932	35 47 21.134	39 47 37.6	219 46 42.3	Dagany	3.569940	3,714.8	12,188
	119 58 24.312	152 08 33.2	332 08 14.2	Mound	3.242157	1,746.5	5,730
		242 15 42.3	62 16 54.5	Standard	3.543890	3,498.6	11,478
		213 02 31		Reference mark no. 2.			
B. M. 2531 (U.S.G.S.), 1932.[1]	35 47 15.81	141 13 48	321 13 48	Cottonwood	0.936765	8.645	28.36
	120 13 17.08						
Orchard Peak (U.S.G.S.), cairn, 1932	35 44 12.802	38 43 18.7	218 38 47.0	Red Hill	4.272976	18,748.9	61,512
	120 07 48.596	92 51 55.7	272 44 12.8	Bench	4.299675	19,937.7	65,412
		119 41 10.3	299 41 04.5	Orchard Peak (Standard Oil Co.)	2.455245	285.3	936
B. M. 2140 (U.S.G.S.), 1932.[1]	35 44 44.37	111 51 08	291 51 08	Bench	0.582518	3.824	12.55
	120 21 00.95						
Union Oil Co., pumping station, stack, 1932.[1]	35 41 24.26	284 00 07	104 01 47	Jacks	3.648254	4,448.9	14,596
	120 20 06.96	326 43 52	146 44 25	Brown	3.420090	2,630.8	8,631
B. M. 2592 (U.S.G.S.), 1932.[1]	35 36 17.80	147 42 28	327 42 28	Red Hill	0.655331	4.522	14.84
	120 15 34.45						
Red water tank (south of station Walters), 1932.	35 20 08.239	23 59 15.8	203 58 55.2	Conner	3.343881	2,207.4	7,242
	120 44 43.126	173 46 32.5	353 46 30.9	Walters	2.803627	636.2	2,087
		208 54 56.6	28 55 32.0	Volmer	3.505467	3,202.3	10,506
Avenal, cairn, 1932.[1]	35 48 00.39	242 20 25	62 20 25	Avenal	0.736395	5.45	17.9
	120 09 12.66						
B. M. R 33 (U.S.G.S.) 1932	35 48 56.635	296 56 34.1	116 57 34.4	Standard	3.462786	2,902.6	9,523
	119 58 04.040	26 28 14.6	206 27 07.4	Dagany	3.811340	6,476.5	21,248
		43 26 25.4	223 25 54.5	Mound	3.284898	1,927.1	6,322
Kern-Kings county-line sign, 1932.[1]	35 47 19.23	195 36 30	15 36 30	McClure Southwest	1.148448	14.075	46.18
	120 06 41.65						
Kern-Kings county-line marker, 1932.[1]	35 47 21.13	270 26	90 26	County Line	0.021189	1.05	3.4
	119 58 24.35						
Avenal reference mark (U.S.G.S.), 1932.[1]	35 48 13.77	111 58 32	291 58 32	Standard	1.169380	14.77	48.5
	119 56 20.44						
M (Standard Oil Co.), 1932.[1]	35 48 13.86	121 10 37	301 10 37	Standard	0.730944	5.382	17.66
	119 56 20.80						

San Fernando to Bakersfield arc

Principal points							
Loma Verde (U.S.G.S.), 1932	34 29 46.740	341 22 10.58	161 24 28.25	San Fernando	4.2898688	19,492.56	63,951.8
	118 40 03.794	13 20 35.23	193 16 37.85	Castro	4.6703046	46,806.33	153,563.8
		61 02 45.52	240 50 11.69	Santa Clara	4.5907541	38,972.13	127,861.1
May, 1932	34 21 08.061	48 04 56.09	227 52 55.12	Castro	4.6451436	44,171.65	144,919.8
	118 25 43.080	81 04 25.41	260 58 37.29	San Fernando	4.2032794	15,969.06	52,391.8
		126 05 29.46	305 57 22.89	Loma Verde (U.S.G.S.)	4.4341642	27,174.66	89,155.5
		264 22 56		U. S. Geological Survey cairn.			
Pelona, 1932	34 33 39.516	16 17 05.77	196 14 36.04	May	4.3823773	24,120.00	79,133.7
	118 21 18.429	76 03 24.61	255 52 46.74	Loma Verde (U.S.G.S.)	4.4710396	29,582.82	97,056.3
		267 51 56		Reference mark no. 2.			
Sawmill, 1932	34 41 35.366	190 14 07.38	10 16 41.03	Double	4.5837051	38,344.68	125,802.5
	118 33 37.700	307 50 50.52	127 57 50.60	Pelona	4.3777925	23,866.71	78,302.7
		342 12 47.60	162 17 16.59	May	4.5988749	39,707.72	130,274.4
		24 17 09.84	204 13 30.64	Loma Verde (U.S.G.S.)	4.3793011	23,949.76	78,575.2
		266 36 02		U. S. Geological Survey bench mark.			

[1] No check on this position.

San Fernando to Bakersfield arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance: Logarithm (meters)	Distance: Meters	Distance: Feet
Principal points—Continued	° ′ ″	° ′ ″	° ′ ″				
Soledad, 1932	34 58 57.137	18 10 12.96	198 04 29.69	Pelona	4.6920190	49,206.10	161,437.0
	118 11 16.526	46 48 56.31	226 36 10.15	Sawmill	4.6703999	46,816.60	153,597.5
		101 46 57.18	281 36 41.96	Double	4.4435414	27,767.79	91,101.5
		147 51 49.53	327 48 10.94	Pajuela	4.2580894	18,117.13	59,439.3
Liebre, 1932	34 57 20.963	222 35 43.60	42 38 42.42	Double	4.0673652	11,677.91	38,313.3
	118 34 20.713	265 03 55.42	85 17 08.75	Soledad	4.5470207	35,238.76	115,612.5
		335 30 33.91	155 37 59.91	Pelona	4.6822194	48,108.23	157,835.1
		357 50 53.88	177 51 18.44	Sawmill	4.4647747	29,159.14	95,666.3
Pass, 1932	35 04 39.586	73 24 43.79	253 18 30.42	Double	4.2353610	17,193.37	56,408.6
	118 18 18.840	192 27 13.08	12 27 37.07	Pajuela	3.6900705	4,898.58	16,071.4
		314 33 20.36	134 37 22.78	Soledad	4.1770244	15,032.26	49,318.3
Limestone, 1932	35 00 38.282	102 53 50.69	282 49 41.59	Double	4.0525804	11,287.05	37,030.9
	118 21 54.854	208 06 04.31	28 08 32.38	Pajuela	4.1416041	13,854.92	45,455.7
		280 50 52.51	100 56 58.61	Soledad	4.2170899	16,485.03	54,084.6
Cub, 1932	35 09 48.049	280 12 45.60	100 22 36.79	Pajuela	4.4220194	26,425.27	86,696.9
	118 34 44.195	329 29 38.97	149 32 51.76	Double	4.2238272	16,742.77	54,930.2
Fence, 1932	35 05 26.187	157 14 00.69	337 12 43.68	Cub	3.9421190	8,752.24	28,714.6
	118 32 30.367	261 30 44.04	81 39 17.73	Pajuela	4.3592360	22,868.41	75,027.4
		321 13 42.56	141 15 38.29	Double	3.9114223	8,154.97	26,755.1
Flannagan, 1932	35 08 21.695	246 04 34.86	66 06 51.42	Cub	3.8173812	6,567.22	21,546.0
	118 38 41.394	299 53 51.24	119 57 24.66	Fence	4.0350694	10,841.00	35,567.5
		309 00 44.40	129 06 13.47	Double	4.2712886	18,676.20	61,273.5
Black Oak, 1932	35 09 42.920	59 56 36.75	239 45 40.91	Wheeler	4.5240523	33,423.53	109,657.0
	118 41 47.041	138 58 38.81	318 49 20.28	Kern	4.5701211	37,163.88	121,928.5
		269 07 11.94	89 11 15.45	Cub	4.0294895	10,702.61	35,113.5
		298 01 41.91	118 03 28.79	Flannagan	3.7262513	5,324.16	17,467.7
		306 33 32.40	126 40 48.30	Double	4.3788475	23,924.76	78,493.1
Supplementary points							
Newhall, 1932	34 23 39.301	295 30 19.3	115 33 54.8	May	4.033853	10,810.7	35,468
	118 32 04.865	40 04 46.5	220 02 33.7	San Fernando	3.970517	9,343.7	30,655
		14 09 16		Reference mark no. 2.			
East, 1932	34 20 39.212	77 47 37.6	257 44 54.5	San Fernando	3.878759	7,564.1	24,817
	118 31 10.992	166 04 19.4	346 03 49.0	Newhall	3.757186	5,717.2	18,757
		263 55 11.2	83 58 16.2	May	3.925709	8,427.7	27,650
Ridge, 1932	34 19 12.755	108 08 42.4	288 07 30.9	San Fernando	3.532899	3,411.1	11,191
	118 33 53.397	237 17 58.4	57 19 30.0	East	3.693086	4,932.7	16,183
		66 27 32		Reference mark no. 2.			
Mission Point, 1932	34 18 42.152	107 47 50.2	287 46 45.4	Ridge	3.489474	3,086.6	10,127
	118 31 58.447	198 35 09.7	18 35 36.5	East	3.580406	3,805.4	12,485
		169 10 59		Reference mark no. 1.			
Bluff, 1932	34 17 14.470	130 23 20.8	310 21 18.8	San Fernando	3.861281	7,265.8	23,838
	118 32 23.716	147 49 42.3	327 48 51.8	Ridge	3.634084	4,306.1	14,128
		193 26 57.7	13 27 12.0	Mission Point	3.443718	2,777.9	9,114
		171 39 44		Reference mark no. 2.			
Reservoir, 1932	34 17 30.023	84 21 52.7	264 20 06.0	Bluff	3.687322	4,867.7	15,970
	118 29 14.316	117 54 53.1	297 53 20.7	Mission Point	3.676626	4,749.3	15,582
		197 01 60		Reference mark no. 1.			
Corner, 1932	34 15 26.490	168 49 40.4	348 49 25.9	Bluff	3.530377	3,391.4	11,127
	118 31 58.024	179 53 50.1	359 53 49.9	Mission Point	3.780231	6,028.8	19,779
		227 43 06.4	47 44 38.6	Reservoir	3.752744	5,659.1	18,567
		89 41 55		Reference mark no. 2.			
Red, 1932	34 35 11.688	53 04 26.1	232 59 30.3	Loma Verde (U.S.G.S.)	4.221423	16,650.3	54,627
	118 31 22.076	163 43 26.9	343 42 09.8	Sawmill	4.090504	12,317.0	40,410
		250 24 38.9	100 30 21.5	Pelona	4.194415	15,646.4	51,333
		341 33 54.2	161 37 06.1	May	4.437699	27,396.7	89,884
Jupiter Mountain (U.S.G.S.), 1932	34 35 58.931	318 06 34.5	138 08 00.3	Pelona	3.761153	5,769.7	18,929
	118 23 49.547	82 50 27.6	262 46 10.7	Red	4.065335	11,623.4	38,134
		124 44 04.1	304 38 29.7	Sawmill	4.260457	18,216.2	59,764
Towsley, 1932	34 21 21.896	230 13 40.0	50 15 32.5	Newhall	3.820873	6,620.2	21,720
	118 35 24.063	281 28 27.8	101 30 50.6	East	3.819556	6,600.2	21,654
		17 34 11.3	197 33 51.0	San Fernando	3.485741	3,060.1	10,040
		17 05 59		Oak Mountain, fire lookout tower.			
Edison, 1932	34 22 30.967	181 27 26.7	1 27 27.9	Newhall	3.323506	2,106.2	6,910
	118 32 06.963	337 26 21.7	157 26 53.3	East	3.571560	3,728.7	12,233
		49 46 14.1	229 44 02.5	San Fernando	3.892626	7,809.6	25,622
		67 06 27.6	247 04 36.3	Towsley	3.737799	5,467.6	17,938
		59 06 33		Reference mark no. 2.			
Lock, 1932	34 23 38.475	269 39 12.1	89 40 48.8	Newhall	3.640948	4,374.7	14,353
	118 34 56.124	295 41 23.4	115 42 58.9	Edison	3.680889	4,796.1	15,735
		9 37 44.1	189 37 28.3	Towsley	3.630274	4,268.5	14,004
		135 41 40		Reference mark no. 1.			

San Fernando to Bakersfield arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Saugus, 1932	34 24 58.928	350 14 39.3	170 14 48.6	Newhall	3.396118	2,489.5	8,168
	118 32 21.360	57 54 53.5	237 53 26.1	Lock	3.668886	4,665.4	15,306
		358 38 02		Reference mark no. 2.			
Yucca, 1932	34 25 46.779	291 33 52.1	111 35 14.6	Saugus	3.603093	4,009.5	13,155
	118 34 47.398	313 24 25.8	133 25 57.6	Newhall	3.756997	5,714.7	18,749
		3 13 38.0	183 13 33.1	Lock	3.597662	3,959.7	12,991
Foot, 1932	34 26 15.721	353 40 17.7	173 40 23.5	Saugus	3.376712	2,380.7	7,811
	118 32 31.656	75 34 49.5	255 33 32.8	Yucca	3.553718	3,578.6	11,741
		318 54 04		Reference mark no. 2.			
Long, 1932	34 27 50.624	316 13 44.2	136 14 46.2	Foot	3.607352	4,049.0	13,284
	118 34 21.369	329 55 08.2	149 56 16.0	Saugus	3.786281	6,113.4	20,057
		9 52 46.0	189 52 31.3	Yucca	3.588103	3,873.5	12,708
Dry, 1932	34 27 45.575	4 11 02.0	184 10 57.5	Foot	3.443433	2,776.1	9,108
	118 32 23.723	92 58 31.3	272 57 24.8	Long	3.478088	3,006.7	9,864
		333 30 57		Reference mark no. 2.			
Bum, 1932	34 28 45.143	307 45 11.1	127 46 03.6	Dry	3.476743	2,997.4	9,834
	118 33 56.576	334 47 00.2	154 47 48.2	Foot	3.706621	5,088.9	16,696
		20 38 24.5	200 38 10.5	Long	3.254089	1,795.1	5,889
		130 44 28		Reference mark no. 1.			
View, 1932	34 29 29.183	32 32 56.5	212 32 11.3	Dry	3.578310	3,787.1	12,425
	118 31 03.891	72 53 45.3	252 52 07.6	Bum	3.663748	4,610.5	15,126
		159 42 00		Reference mark no. 1.			
Steer, 1932	34 29 52.190	283 20 30.3	103 21 36.6	View	3.487135	3,070.0	10,072
	118 33 00.967	346 18 23.0	166 18 44.1	Dry	3.603741	4,015.5	13,174
		34 29 07.6	214 28 36.2	Bum	3.399025	2,506.3	8,223
Rock, 1932	34 31 02.865	5 50 47.4	185 50 40.8	View	3.462656	2,901.7	9,520
	118 30 52.306	56 26 41.6	236 25 28.7	Steer	3.595368	3,938.8	12,923
		174 20 55.7	354 20 38.8	Red	3.886751	7,704.6	25,278
Powerhouse, 1932	34 32 00.708	193 24 11.3	13 24 42.5	Red	3.781731	6,049.7	19,848
	118 32 17.100	309 29 15.8	129 30 03.9	Rock	3.447533	2,802.4	9,194
		338 11 40.7	158 12 22.2	View	3.701446	5,028.6	16,498
		15 46 51.3	195 46 26.5	Steer	3.614382	4,115.1	13,501
Brushy, 1932	34 32 44.087	24 27 38.0	204 27 06.5	Rock	3.534841	3,426.4	11,241
	118 29 56.682	69 32 25.4	249 31 05.8	Powerhouse	3.582287	3,822.0	12,539
		154 25 48.4	334 25 00.0	Red	3.702623	5,042.2	16,543
House, 1932	34 33 24.339	65 07 56.8	245 06 57.2	Brushy	3.469604	2,948.5	9,674
	118 28 11.766	124 18 17.0	304 16 29.0	Red	3.768744	5,871.4	19,263
		234 30 00.2	54 32 29.0	Jupiter Mountain (U.S.G.S.)	3.914199	8,207.3	26,927
Surge, 1932	34 35 54.605	268 28 50.5	88 30 43.6	Jupiter Mountain (U.S.G.S.)	3.705827	5,079.6	16,665
	118 27 08.822	19 06 55.0	199 06 19.3	House	3.690227	4,900.3	16,077
		36 05 57.2	216 04 21.9	Brushy	3.861198	7,264.4	23,833
		78 26 23.2	258 23 59.4	Red	3.818746	6,587.9	21,614
		357 01 20		Reference mark no. 1.			
Bee, 1932	34 34 01.305	77 57 25.4	257 55 26.7	House	3.736558	5,452.0	17,887
	118 24 42.620	133 08 49.4	313 07 26.4	Surge	3.708094	5,106.2	16,753
		200 27 40.1	20 28 10.2	Jupiter Mountain (U.S.G.S.)	3.587562	3,868.7	12,693
		277 20 00.7	97 21 56.6	Pelona	3.720028	5,248.4	17,219
		233 36 44		Reference mark no. 2.			
Little Buttes, 1932	34 47 51.070	125 54 46.4	305 45 38.9	Liebre	4.477048	29,994.9	98,408
	118 18 23.235	207 47 43.7	27 51 47.8	Soledad	4.365666	23,209.5	76,147
Willow Springs, 1932	34 53 00.731	216 02 54.2	36 05 54.7	Soledad	4.133164	13,588.3	44,581
	118 16 31.788	16 32 11.9	196 31 08.2	Little Buttes	3.997976	9,953.5	32,656
		106 33 00.9	286 22 49.0	Liebre	4.451678	28,292.9	92,824
		71 13 56		Reference mark no. 2.			
Gold, 1932	34 57 40.461	125 49 53.4	305 47 01.7	Limestone	3.971556	9,366.0	30,728
	118 16 55.372	254 36 09.0	74 39 23.2	Soledad	3.950092	8,914.4	29,247
		356 01 32.5	176 01 46.0	Willow Springs	3.936554	8,640.8	28,349
		61 18 01		Airway beacon (flashing white).			
Wash, 1932	34 56 44.332	170 45 13.5	350 44 46.9	Limestone	3.863583	7,304.4	23,965
	118 21 08.567	254 54 39.9	74 57 04.9	Gold	3.823019	6,653.0	21,827
		314 25 11.6	134 27 50.0	Willow Springs	3.993031	9,840.8	32,286
Granite, 1932	34 35 51.289	43 18 41.8	223 17 16.6	Pelona	3.746574	5,579.2	18,304
	118 18 48.303	69 27 25.8	249 24 04.7	Bee	3.984317	9,645.3	31,645
		91 46 50.9	271 43 59.8	Jupiter Mountain (U.S.G.S.)	3.885349	7,679.8	25,196
		255 50 07		Reference mark no. 2.			
Burn, 1932	34 37 15.132	299 34 55.3	119 36 36.7	Granite	3.718590	5,231.1	17,162
	118 21 46.829	353 46 50.5	173 47 06.6	Pelona	3.824988	6,683.3	21,927
		53 06 12.1	233 05 02.4	Jupiter Mountain (U.S.G.S.)	3.592190	3,910.1	12,828
		46 10 53		Reference mark no. 1.			
Leona, 1932	34 38 39.078	350 04 50.9	170 05 11.1	Granite	3.720049	5,248.7	17,220
	118 19 23.784	54 38 18.5	234 36 57.2	Burn	3.650151	4,468.4	14,660
		276 47 18		Reference mark no. 2.			

San Fernando to Bakersfield arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance: Logarithm (meters)	Distance: Meters	Distance: Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Portal, 1932	34 39 57.949	300 23 30.0	120 25 02.5	Leona	3.681429	4,802.1	15,755
	118 22 06.430	326 24 04.6	146 25 57.3	Granite	3.960158	9,123.4	29,932
		354 18 58.7	174 19 09.9	Burn	3.702589	5,041.8	16,541
		120 18 19		Reference mark no. 2.			
Sur, 1932	34 41 20.838	359 47 27.7	179 47 28.1	Leona	3.697627	4,984.6	16,354
	118 19 24.498	58 13 50.7	238 12 18.5	Portal	3.685699	4,849.5	15,910
		355 52 57		Reference mark no. 2.			
Specht, 1932	34 42 14.748	297 09 49.7	117 11 02.1	Sur	3.560797	3,637.4	11,934
	118 21 31.640	333 53 41.0	153 54 53.8	Leona	3.869235	7,400.1	24,278
		11 52 01.9	191 51 42.1	Portal	3.634216	4,307.4	14,132
		286 34 46		Reference mark no. 1.			
Number, 1932	34 44 44.429	359 25 04.5	179 25 05.9	Sur	3.797536	6,273.9	20,584
	118 19 27.002	34 31 11.1	214 30 00.0	Specht	3.747980	5,597.3	18,364
		195 44 24.0	15 45 00.4	Little Buttes	3.776377	5,975.5	19,605
		178 33 36		Reference mark no. 2.			
Trans, 1932	34 45 14.004	223 17 29.6	43 19 11.9	Little Buttes	3.822890	6,651.0	21,821
	118 21 22.644	287 12 20.0	107 13 25.9	Number	3,488457	3,079.3	10,103
		2 22 24.2	182 22 19.0	Specht	3.742602	5,528.4	18,138
		323 25 25		Reference mark no. 2.			
Ante, 1932	34 46 57.810	250 52 34.0	70 54 20.3	Little Buttes	3.700131	5,013.4	16,448
	118 21 29.568	322 48 53.4	142 50 03.3	Number	3.712510	5,158.3	16,924
		356 50 55.4	176 50 59.4	Trans	3.505639	3,203.6	10,510
		354 27 47		Reference mark no. 2.			
Lope, 1932	34 48 29.920	283 52 02.6	103 53 51.4	Little Buttes	3.698056	4,989.5	16,370
	118 21 33.790	357 18 40.5	177 18 47.0	Trans	3.781308	6,043.8	19,829
		357 50 01.4	177 50 03.9	Ante	3.453378	2,840.4	9,319
		16 25 32		Reference mark no. 2.			
Old, 1932	34 49 55.787	211 51 54.5	31 53 14.3	Willow Springs	3.826802	6,711.2	22,018
	118 18 51.308	349 28 49.7	169 29 05.7	Little Buttes	3.592045	3,908.8	12,824
		7 21 41.5	237 20 08.7	Lope	3.690579	4,904.3	16,090
Joshua, 1932	34 50 58.670	244 56 49.9	64 59 51.3	Willow Springs	3.948948	8,890.9	29,170
	118 21 48.964	293 13 10.4	113 14 51.9	Old	3.691272	4,912.2	16,116
		317 51 28.8	137 53 26.3	Little Buttes	3.891781	7,794.4	25,572
		355 11 25.2	175 11 33.9	Lope	3.662753	4,599.9	15,092
Bajada, 1932	34 54 00.300	185 40 09.8	5 40 21.2	Wash	3.705831	5,079.6	16,665
	118 21 28.341	225 34 40.6	45 37 16.9	Gold	3.986620	9,696.6	31,813
		239 26 46.3	59 32 36.7	Soledad	4.255755	18,020.0	59,121
		283 40 35.8	103 43 25.5	Willow Springs	3.889331	7,750.5	25,428
		332 05 33.0	152 07 02.8	Old	3.930712	8,525.3	27,970
		5 20 51.5	185 20 39.7	Joshua	3.749849	5,621.5	18,443
Bend, 1932	34 38 31.737	195 27 51.2	15 28 07.6	Portal	3.440339	2,756.4	9,043
	118 22 35.296	267 19 45.5	87 21 34.4	Leona	3.688656	4,882.7	16,019
		143 54 27		Reference mark no. 2.			
Andreas, 1932	34 38 32.484	89 34 36.9	269 33 28.8	Bend	3.484483	3,051.3	10,011
	118 20 35.492	138 40 53.5	318 40 01.8	Portal	3.544916	3,506.8	11,505
		263 38 44.6	83 39 25.4	Leona	3.264232	1,837.5	6,029
		324 35 08		Reference mark no. 1.			
Gate, 1932	34 40 45.159	149 29 38.5	329 29 02.1	Specht	3.505733	3,204.3	10,513
	118 20 27.725	235 39 30.6	55 40 06.6	Sur	3.289840	1,949.1	6,395
		177 14 39		Reference mark no. 1.			
Pole, 1932	34 43 25.579	359 51 06.6	179 51 06.9	Sur	3.584764	3,843.8	12,611
	118 19 24.889	55 55 24.9	235 54 12.7	Specht	3.590446	3,894.4	12,777
		138 07 50.0	318 06 43.0	Trans	3.651987	4,487.3	14,722
		178 43 56.8	358 43 55.7	Number	3.385666	2,430.3	7,973
		359 45 34		Reference mark no. 2.			
Single, 1932	34 51 47.578	343 44 15.8	163 44 38.4	Old	3.554900	3,588.4	11,773
	118 19 30.854	66 45 49.0	246 44 30.1	Joshua	3.581880	3,818.4	12,528
		143 53 54.2	323 52 47.0	Bajada	3.704365	5,062.5	16,609
		266 20 33		Reference mark no. 2.			
Fault, 1932	34 52 48.834	13 49 53.6	193 49 24.1	Old	3.739701	5,491.6	18,017
	118 17 59.640	59 47 04.2	239 44 53.1	Joshua	3.828781	6,741.9	22,119
		112 34 58.6	292 32 59.2	Bajada	3.758821	5,738.8	18,828
Straight, 1932	34 54 46.258	326 25 23.4	146 26 12.0	Willow Springs	3.591376	3,902.8	12,804
	118 17 56.786	126 47 39.7	306 45 49.9	Wash	3.783695	6,077.1	19,938
		196 11 05.6	16 11 40.7	Gold	3.747401	5,589.9	18,340
		140 59 20		Reference mark no. 2.			
Stump, 1932	34 56 03.758	333 36 11.1	153 37 14.1	Willow Springs	3.799072	6,296.1	20,656
	118 18 22.017	105 29 34.6	286 27 59.2	Wash	3.644202	4,407.6	14,461
		216 24 44.1	36 25 33.7	Gold	3.568581	3,703.2	12,150
Dolemite, 1932	35 02 22.280	338 30 30.2	158 31 47.5	Gold	3.970012	9,332.8	30,619
	118 19 10.143	16 05 46.2	196 04 38.4	Wash	4.034973	10,838.6	35,560
		52 30 22.9	232 28 48.4	Limestone	3.721286	5,263.6	17,269

San Fernando to Bakersfield arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance: Logarithm (meters)	Distance: Meters	Distance: Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Quartz, 1932	35 03 29.197	232 10 34.7	52 13 58.2	Pajuela	4.054783	11,344.4	37,219
	118 23 31.015	335 09 30.0	155 10 25.2	Limestone	3.763699	5,803.6	19,041
Monolith, 1932	35 07 33.647	275 07 00.0	95 09 26.8	Pajuela	3.811963	6,485.8	21,279
	118 21 52.242	18 22 49.7	198 21 52.9	Quartz	3.899695	7,937.7	26,042
Shrub, 1932	35 05 07.658	167 19 32.9	347 19 10.0	Monolith	3.663826	4,611.3	15,129
	118 21 12.282	234 15 56.4	54 18 00.2	Pajuela	3.826833	6,711.7	22,020
		328 43 14.5	148 44 24.7	Dolomite	3.775427	5,962.5	19,562
		7 24 31.6	187 24 07.2	Limestone	3.922775	8,371.0	27,464
		49 12 34.9	229 11 15.2	Quartz	3.666837	4,643.4	15,234
Bed, 1932	35 05 39.218	230 58 25.5	51 00 04.4	Monolith	3.748332	5,601.9	18,379
	118 24 44.119	280 15 23.8	100 17 25.5	Shrub	3.736667	5,453.4	17,892
		335 11 09.7	155 11 51.7	Quartz	3.644845	4,414.1	14,482
Summit, 1932	35 08 01.241	281 58 47.6	102 00 18.6	Monolith	3.611994	4,092.6	13,427
	118 24 30.358	316 49 29.2	136 51 23.1	Shrub	3.865297	7,333.3	24,059
		4 33 12.6	184 33 04.7	Bed	3.642517	4,390.5	14,404
Chapi, 1932	35 08 49.591	288 42 57.0	108 44 36.9	Summit	3.666535	4,640.2	15,224
	118 27 23.949	325 23 15.7	145 24 47.7	Bed	3.852917	7,127.2	23,383
Kiln, 1932	35 05 58.581	202 56 20.7	22 57 11.4	Chapi	3.757606	5,722.8	18,776
	118 28 52.064	240 16 45.5	60 19 16.0	Summit	3.882482	7,629.3	25,030
		275 24 29.1	95 26 51.7	Bed	3.799916	6,308.4	20,697
Brite, 1932	35 07 32.460	250 08 35.1	70 11 04.9	Chapi	3.845393	7,004.8	22,982
	118 31 44.222	303 33 13.9	123 34 53.0	Kiln	3.718686	5,232.2	17,166
		16 43 10.9	196 42 44.4	Fence	3.608845	4,063.0	13,330
Deer, 1932	35 05 08.825	99 32 23.0	279 31 10.7	Fence	3.509429	3,231.7	10,603
	118 30 24.551	155 30 01.7	335 29 15.9	Brite	3.687041	4,864.5	15,960
		213 53 43.1	33 55 27.1	Chapi	3.913682	8,197.5	6,895
		236 47 13.2	56 48 06.5	Kiln	3.447135	2,799.9	29,186
Jail, 1932	35 07 16.030	258 17 35.3	78 18 30.8	Brite	3.397424	2,497.0	8,192
	118 33 20.791	311 16 34.7	131 18 16.0	Deer	3.773824	5,940.5	19,490
		339 19 35.1	159 20 04.1	Fence	3.558449	3,617.8	11,869
		45 29 08		Prison spire.			
School, 1932	35 05 56.961	138 15 51.1	318 14 20.7	Flannagan	3.776574	5,978.2	19,613
	118 36 04.189	195 52 08.4	15 52 54.4	Cub	3.869452	7,403.8	24,291
		239 29 43.3	59 31 17.2	Jail	3.681427	4,802.1	15,755
		245 53 35.2	65 56 04.6	Brite	3.858006	7,211.2	23,659
		279 54 53.8	99 56 56.7	Fence	3.740229	5,498.3	18,039
		26 39 22		Reference mark no. 2.			
Quick, 1932	34 59 20.049	123 36 26.0	303 35 03.9	Limestone	3.639182	4,356.9	14,294
	118 19 31.740	185 34 02.9	5 34 15.3	Dolomite	3.751453	5,642.3	18,511
		307 43 02.1	127 44 31.7	Gold	3.700279	5,015.1	16,454
		135 41 54		Reference mark no. 2.			
Across, 1932	34 58 37.059	199 56 45.7	19 57 42.7	Dolomite	3.868272	7,383.7	24,225
	118 20 49.520	236 06 40.5	56 07 25.1	Quick	3.375906	2,376.3	7,796
		286 20 43.0	106 22 57.2	Gold	3.791736	6,190.6	20,310
Cameron, 1932	35 04 19.454	341 07 54.0	161 08 22.0	Dolomite	3.581587	3,815.8	12,519
	118 19 58.829	23 20 52.6	203 19 46.0	Limestone	3.870580	7,423.0	24,354
		73 56 52.0	253 54 50.1	Quartz	3.747804	5,595.0	18,356
		128 36 19.0	308 35 36.8	Shrub	3.376774	2,381.1	7,812
		73 14 03		Reference mark no. 2.			
Jacks, 1932	35 05 20.515	193 28 27.3	13 28 57.7	Flannagan	3.759025	5,741.5	18,837
	118 39 34.240	258 03 48.1	78 05 48.8	School	3.735416	5,437.7	17,840
Rock Spring, 1932	35 08 17.243	266 28 56.4	86 29 47.2	Flannagan	3.350462	2,241.1	7,353
	118 40 09.754	304 47 17.8	124 49 39.0	School	3.879281	7,573.2	24,846
		350 37 12.7	170 37 33.1	Jacks	3.741930	5,519.9	18,110
Mart, 1932	35 07 44.648	261 27 22.2	81 29 54.6	Rock Spring	3.831094	6,777.9	22,237
	118 44 34.517	300 15 52.2	120 18 44.9	Jacks	3.944808	8,806.6	28,893
Gorge, 1932	35 02 53.026	192 53 06.8	12 53 53.5	Mart	3.964690	9,219.1	30,246
	118 45 55.717	221 13 32.8	41 16 51.7	Rock Spring	4.123516	13,289.7	43,601
		244 47 05.9	64 50 45.1	Jacks	4.028608	10,680.9	35,042
Joker, 1932	35 04 28.129	62 44 10.7	242 38 59.8	Wheeler	4.188790	15,445.1	50,673
	118 51 46.524	241 00 04.5	61 04 12.9	Mart	4.097106	12,505.6	41,029
		288 13 07.9	108 16 29.4	Gorge	3.971274	9,360.0	30,709
		315 35 41		Reference mark no. 1.			
Tejon, 1932	35 07 25.755	249 38 23.5	69 42 43.0	Black Oak	4.085290	12,170.0	39,928
	118 49 17.868	265 20 15.7	85 22 58.7	Mart	3.857204	7,197.9	23,615
		328 37 47.3	148 39 43.4	Gorge	3.993071	9,841.7	32,289
		34 32 02.0	214 30 36.5	Joker	3.822410	6,643.7	21,797
		54 22 04.4	234 15 27.9	Wheeler	4.333030	21,529.3	70,634
Adobe, 1932	35 12 05.348	280 01 51.6	100 11 12.2	Black Oak	4.398056	25,006.7	82,043
	118 58 00.019	303 03 47.3	123 08 48.0	Tejon	4.197983	15,775.5	51,757
		326 06 21.0	146 09 55.9	Joker	4.229643	16,968.5	55,671
		11 22 23.8	191 20 47.2	Wheeler	4.334426	21,598.6	70,861
		180 12 30		Reference mark no. 1.			

San Fernando to Bakersfield arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance: Logarithm (meters)	Distance: Meters	Distance: Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Horsethief, 1932	35 06 46.201	239 31 34.9	59 33 23.3	Rock Spring	3.743089	5,534.6	18,158
	118 43 18.178	294 56 48.8	114 58 57.5	Jacks	3.796317	6,256.3	20,526
		29 03 40.0	209 02 09.4	Gorge	3.914850	8,219.6	26,967
Comanche, 1932	35 06 18.706	244 44 09.0	64 46 16.6	Mart	3.793059	6,209.5	20,372
	118 48 16.315	330 39 12.3	150 40 33.1	Gorge	3.861572	7,270.6	23,854
		57 23 58.5	237 21 57.7	Joker	3.800839	6,321.8	20,741
B.M. 2919 (U.S.G.S.), 1932 [1]	34 05 08.46	181 29 55	1 29 55	Castro	8.9590414	0.091	0.30
	118 47 05.13						
Bluff (U.S.G.S.), 1932 [1]	34 17 14.37	160 14 20	340 14 20	Bluff	0.5106790	3.241	10.63
	118 32 23.67						
B.M. 2771 (U.S.G.S.), 1932 [1]	34 18 41.80	193 07 00	13 07 00	Mission Point	1.0442261	11.072	36.33
	118 31 58.54						
San Fernando (U.S.G.S.), 1932 [1]	34 19 47.21	127 12 34	307 12 34	San Fernando	9.3802112	0.24	0.8
	118 36 00.19						
Los Angeles-San Francisco airway beacon no. 2 (flashing red), 1932.	34 20 51.569	64 53 37.6	244 53 19	East	2.952945	897.3	2,944
	118 30 39.201	76 26 18.2	256 23 17.6	San Fernando	3.926402	8,441.2	27,694
		157 03 13.2	337 02 24.1	Newhall	3.749169	5,612.7	18,414
			.8				
May (U.S.G.S.), cairn, 1932 [1]	34 21 08.02	113 58 55	293 58 55	May	0.544068	3.5	11
	118 25 42.96						
Southern California Edison Co. station, 1932.[1]	34 22 30.87	157 33 22	337 33 22	Edison	0.4906607	3.095	10.15
	118 32 06.92						
Los Angeles-San Francisco airway beacon no. 3A (flashing green), 1932.	34 24 05.317	309 42 46.5	129 43 07	Newhall	3.098493	1,254.6	4,116
	118 32 42.647	342 35 16.6	162 35 36.8	Edison	3.483838	3,046.8	9,996
		32 25 12.4	212 23 20.7	San Fernando	3.974036	9,419.7	30,904
			.9				
Violet Ray Gas Co., stack, 1932	34 25 24.865	189 24 52.4	9 24 54	Yucca	2.835344	684.5	2,246
	118 34 51.782	281 44 35.0	101 46 00.9	Saugus	3.593614	3,923.0	12,871
		1 56 15.6	181 56 13.0	Lock	3.515882	3,280.1	10,761
			.2				
Santa Paula Ridge, fire lookout house, 1932 [1]	34 26 24.82	258 40 11	78 51 46	Loma Verde	4.504292	31,936.8	104,779
	119 00 31.20	12 05 40	192 04 40	Santa Clara	4.113790	12,995.4	42,636
Bum (U.S.G.S.), 1932 [1]	34 28 47.24	12 28 58.7	192 28 58.4	Bum	1.8210351	66.227	217.28
	118 33 56.02						
U.S. Geological Survey black-and-white tripod (west of Haskell Canyon), 1932.	34 28 31.571	56 04 41.4	236 03 54.7	Dry	3.404699	2,539.2	8,331
	118 31 01.168	76 08 40.4	256 06 47.2	Long	3.721214	5,262.8	17,266
		95 21 05.1	275 19 25.9	Bum	3.652793	4,495.7	14,750
U.S. Geological Survey tripod (between Charlie and Tapia Canyons), 1932.	34 31 01.114	245 50 59.0	65 52 29.9	Power house	3.652291	4,490.5	14,733
	118 34 57.775	305 28 13.1	125 29 19.2	Steer	3.563376	3,659.1	12,005
		339 33 25.5	159 34 00.2	Bum	3.650423	4,471.2	14,669
U.S. Geological Survey target (south of station House), 1932.	34 31 57.074	126 29 55.0	306 29 11.4	Brushy	3.386649	2,435.8	7,991
	118 28 39.887	194 55 44.5	14 56 00.5	House	3.444499	2,782.9	9,130
		237 39 22.7	57 41 37.4	Bee	3.854847	7,158.9	23,487
Pelona (U.S.G.S.), 1932 [1]	34 33 39.27	170 21 05	350 21 05	Pelona	0.8847954	7.670	25.16
	118 21 18.38						
Red (U.S.G.S.), cairn, 1932 [1]	34 35 12.22	285 49 50	105 49 51	Red	1.7792356	60.15	197.3
	118 31 24.35						
Leonis Valley, white tower, 1932 [1]	34 39 16.74	359 46 27	179 46 27	Burn	3.573731	3,747.4	12,295
	118 21 47.41	159 07 21	339 07 10	Portal	3.133195	1,358.9	4,458
Sawmill Mountain, fire lookout tower, 1932	34 41 35.662	177 34 13.0	357 33 45.2	Liebre	4.464725	29,155.8	95,655
	118 33 31.997	308 04 49.7	128 11 46.5	Pelona	4.375808	23,757.9	77,946
		24 35 37.0	204 31 54.5	Loma Verde (U.S.G.S.)	4.380539	24,018.1	78,799
Antelope Valley, red-roofed water tank, 1932	34 45 18.074	20 27 45.7	200 27 37.0	Number	3.043978	1,106.6	3,631
	118 19 11.794	87 51 08.2	267 49 53.6	Trans	3.522496	3,330.4	10,926
		131 16 07.1	311 14 48.5	Ante	3.668432	4,660.5	15,290
Antelope Valley, silver tank, 1932 [1]	34 45 16.50	41 21 00	221 20 41	Number	3.119359	1,316.3	4,319
	118 18 52.81	128 04 47	308 03 18	Ante	3.704427	5,063.2	16,612
Antelope Valley, white tank, flagstaff, 1932	34 46 35.242	338 04 49.4	158 05 20.2	Number	3.565924	3,680.6	12,075
	118 20 21.019	32 03 09.6	212 02 34.5	Trans	3.470324	2,953.4	9,690
		111 45 26.9	291 44 47.8	Ante	3.273363	1,876.6	6,157
Antelope Valley, round white water tank, 1932.[1]	34 48 15.62	24 19 15	204 19 07	Little Buttes	2.919186	830.2	2,724
	118 18 09.78	161 07 42	341 07 18	Old	3.513487	3,262.0	10,702
Antelope Valley, white tank with red bottom, 1932.[1]	34 48 42.08	205 14 44	25 15 08	Old	3.399894	2,511.3	8,239
	118 19 33.46	311 21 38	131 22 18	Little Buttes	3.376281	2,378.4	7,803
Los Angeles-Kern county-line marker, 1932	34 49 12.277	357 15 20.6	177 15 23.3	Little Buttes	3.398852	2,505.3	8,219
	118 18 27.953	122 42 43.9	302 40 49.1	Joshua	3.783135	6,069.2	19,912
		156 07 31.6	336 07 18.3	Old	3.166205	1,466.2	4,810
		186 08 58.7	6 09 14.9	Fault	3.826845	6,711.9	22,021
Los Angeles-San Francisco airway beacon no. 5A (flashing red), 1932.	34 45 03.323	214 18 29.6	34 24 19.2	Liebre	4.439872	27,534.2	90,335
	118 44 32.388	242 57 48.5	63 16 49.5	Soledad	4.754604	56,833.4	186,461
		250 51 41.3	71 07 40.9	Willow Springs	4.654892	45,174.4	148,210

[1] No check on this position.

San Fernando to Bakersfield arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
B.M. 3293 (U.S.G.S.), 1932 [1]	34 53 00.33	185 39 26	5 39 26	Willow Springs	1.0986783	12.551	41.18
	118 16 31.84						
Soledad (U.S.G.S.), cairn, 1932 [1]	34 58 57.09	123 36 12	303 36 12	Soledad	0.4232459	2.65	8.7
	118 11 16.44						
Los Angeles-San Francisco airway beacon no. 7 (flashing green), 1932.	35 00 58.251	171 49 35.9	351 48 28.8	Adobe	4.317417	20,769.1	68,140
	118 56 03.294	220 40 12.8	40 44 05.8	Tejon	4.197328	15,751.7	51,679
		225 09 22.7	45 11 50.1	Joker	3.962605	9,175.0	30,102
Monolith, cement plant, tallest stack, 1932	35 07 23.645	240 08 53.7	60 09 05.9	Monolith	2.791882	619.3	2,032
	118 22 13.455	339 42 21.7	159 42 56.8	Shrub	3.650102	4,467.9	14,658
		15 13 06.9	195 12 22.3	Quartz	3.874320	7,487.2	24,564
Tehachapi, water tank, 1932	35 07 41.110	322 59 53.9	143 00 58.2	Bed	3.672371	4,703.0	15,430
	118 26 35.864	47 31 07.5	227 29 49.1	Kiln	3.670011	4,677.5	15,346
		150 01 35.1	330 01 07.4	Chapi	3.386726	2,436.3	7,993
S. C. of C. triangulation station, 1932 [1]	35 07 25.72	112 53 23	292 53 23	Tejon	0.4036352	2.533	8.31
	118 49 17.78						
Los Angeles-San Francisco airway beacon no. 8 (flashing red), 1932.	35 09 02.222	205 07 20.2	25 08 20.5	Adobe	3.794725	6,233.4	20,451
	118 59 44.636	280 33 41.3	100 39 42.1	Tejon	4.207994	16,143.4	52,964
		304 51 45.4	124 56 20.4	Joker	4.169166	14,762.7	48,434

Taft and vicinity

Principal points							
West, 1932	35 12 24.924	219 23 53.45	39 26 04.87	Elk	3.9576022	9,069.89	29,756.8
	119 29 03.452	31 20 39.97	211 18 15.38	Temblor	4.0871901	12,223.35	40,102.8
East, 1932	35 09 12.054	72 55 32.94	252 50 01.02	Temblor	4.1841124	15,279.61	50,129.9
	119 23 37.755	125 49 34.35	305 46 26.70	West	4.0069272	10,160.78	33,335.8
		169 10 47.75	349 09 51.29	Elk	4.1200922	13,185.37	43,259.0
Lake, 1932	35 13 02.369	12 43 51.97	192 43 15.47	East	3.8619136	7,276.35	23,872.5
	119 22 34.402	83 20 33.56	263 16 49.24	West	3.9959687	9,907.60	32,505.2
		145 08 52.94	325 07 19.88	Elk	3.8532993	7,133.44	23,403.6
Spellacy, 1932	35 06 53.162	88 26 48.00	268 23 48.44	Temblor	3.8980760	7,908.17	25,945.4
	119 28 02.367	171 24 21.73	351 23 46.56	West	4.0145232	10,340.06	33,924.0
		237 24 13.81	57 26 46.09	East	3.9003546	7,949.77	26,081.9
Supplementary points							
Bear, 1932	35 10 36.806	130 19 01.7	310 17 32.2	West	3.711882	5,150.9	16,899
	119 26 28.184	190 02 59.7	10 03 41.6	Elk	4.021194	10,500.1	34,449
		232 48 03.9	52 50 18.7	Lake	3.870572	7,422.9	24,353
		301 10 59.5	121 12 37.7	East	3.702625	5,042.3	16,543
Tank, 1932	35 09 51.543	114 02 13.9	294 01 02.7	Bear	3.534756	3,425.8	11,239
	119 24 24.539	205 20 37.9	25 21 41.4	Lake	3.813409	6,507.4	21,350
		315 46 47.6	135 47 14.6	East	3.229916	1,697.9	5,571
Pump, 1932	35 09 49.729	147 05 15.6	327 04 54.2	Bear	3.237593	1,728.2	5,670
	119 25 51.074	268 31 50.9	88 32 40.7	Tank	3.340585	2,190.7	7,187
		288 58 36.4	108 59 53.2	East	3.552471	3,568.4	11,707
Center, 1932	35 09 58.123	184 17 19.2	4 17 21.2	Bear	3.077524	1,195.4	3,922
	119 26 31.717	273 35 42.3	93 36 55.5	Tank	3.508518	3,224.9	10,580
		284 06 51.4	104 07 14.8	Pump	3.025553	1,060.6	3,480
Taft east base, 1932	35 09 19.578	142 59 54.0	322 59 33.6	Center	3.172438	1,487.4	4,880
	119 25 56.344	188 10 04.7	8 10 07.7	Pump	2.972517	938.7	3,080
		247 01 03.8	67 01 56.6	Tank	3.402032	2,523.7	8,280
Taft west base, 1932	35 09 32.951	190 10 47.6	10 10 50.8	Center	2.896601	788.1	2,586
	119 26 37.221	246 07 02.9	66 07 29.5	Pump	3.106274	1,277.2	4,190
		291 42 57.7	111 43 21.3	Taft east base	3.046754	1,113.664	3,653.74
Gate, 1932	35 08 52.588	158 13 12.6	338 13 01.3	Taft west base	3.126939	1,339.5	4,395
	119 26 17.584	200 51 24.3	20 51 39.6	Pump	3.275172	1,884.4	6,182
		212 52 35.0	32 52 47.3	Taft east base	2.995795	990.4	3,249
		261 33 10.1	81 34 42.2	East	3.611702	4,089.8	13,418
		35 47 36.8	215 46 36.6	Spellacy	3.656748	4,536.8	14,884
		69 45 57.6	249 41 57.7	Temblor	4.051276	11,253.2	36,920
Bull, 1932	35 09 06.897	196 45 48.3	16 45 53.8	Taft west base	2.923530	838.6	2,751
	119 26 46.777	252 58 28.5	72 58 57.6	Taft east base	3.125481	1,335.0	4,380
		300 49 23.0	120 49 39.8	Gate	2.934753	860.5	2,823
		24 54 50.5	204 54 07.1	Spellacy	3.657429	4,543.9	14,908
		66 11 09.9	246 07 26.8	Temblor	4.030732	10,733.3	35,214
Gas, 1932	35 10 24.102	347 46 49.3	167 46 54.2	Tank	3.011412	1,026.6	3,368
	119 24 33.125	75 04 22.2	255 03 13.9	Center	3.492204	3,106.0	10,190
		97 40 03.9	277 38 57.6	Bear	3.468005	2,937.7	9,638
		211 36 55.3	31 38 03.7	Lake	3.757997	5,727.9	18,792

[1] No check on this position.

20050°—36——7

Taft and vicinity—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Edge, 1932	35 11 49.909	241 22 32.9	61 24 06.2	Lake	3.668677	4,663.1	15,299
	119 25 16.245	337 34 36.4	157 35 01.2	Gas	3.456447	2,860.5	9,385
		38 56 28.5	218 55 47.0	Bear	3.461828	2,896.2	9,502
Green, 1932	35 09 43.358	140 27 14.0	320 27 05.5	Center	2.770939	590.1	1,936
	119 26 16.870	253 15 33.6	73 15 48.5	Pump	2.833619	681.7	2,237
		324 39 50.8	144 40 02.7	Taft east base	2.953412	898.3	2,947
		58 05 38.8	238 05 27.1	Taft west base	2.782997	606.7	1,990
Fault, 1932	35 09 38.575	107 57 40.9	287 57 30.5	Green	2.679441	478.0	1,568
	119 25 58.903	209 57 35.0	29 57 39.5	Pump	2.598528	396.8	1,302
		353 41 07.2	173 41 08.7	Taft east base	2.770106	589.0	1,932
		79 52 18.6	259 51 56.5	Taft west base	2.993503	985.2	3,232
Extra, 1932	35 09 55.074	283 06 36.9	103 06 53.0	Pump	2.860962	726.0	2,382
	119 26 19.015	314 58 06.7	134 58 18.3	Fault	2.856993	719.4	2,360
		351 27 06.0	171 27 07.2	Green	2.562428	365.1	1,198
		106 17 51.7	286 17 44.4	Center	2.524936	334.9	1,099
		169 46 23.8	349 46 18.5	Bear	3.116218	1,306.8	4,287
Inside, 1932	35 09 46.732	183 06 43.4	3 06 43.9	Center	2.546029	351.6	1,154
	119 26 32.471	232 56 58.9	52 57 06.7	Extra	2.630118	426.7	1,400
		284 45 06.8	104 45 15.8	Green	2.610971	408.3	1,340
		15 48 22.7	195 48 20.0	Taft west base	2.644783	441.3	1,448
End, 1932	35 09 49.943	252 27 28.7	72 27 46.9	Center	2.922456	836.5	2,744
	119 27 03.233	277 14 35.7	97 14 53.4	Inside	2.894752	784.8	2,575
		308 29 50.3	128 30 05.3	Taft west base	2.924892	841.2	2,760
Saddle, 1932	35 09 59.978	210 20 07.1	30 20 22.2	Bear	3.118923	1,315.0	4,314
	119 26 54.431	275 40 35.6	95 40 48.7	Center	2.761674	577.7	1,895
		35 46 00.9	215 45 55.8	End	2.581057	381.1	1,250
House, 1932	35 10 04.785	29 50 34.0	209 50 27.9	Pump	2.728279	534.9	1,755
	119 25 40.556	80 59 40.0	260 59 10.5	Center	3.117566	1,310.9	4,301
		129 18 47.4	309 18 19.9	Bear	3.192476	1,557.7	5,111
		250 45 45.4	70 46 24.2	Gas	3.257015	1,807.2	5,929
		281 58 12.6	101 58 56.3	Tank	3.293710	1,966.6	6,452
Well, 1932	35 10 05.263	271 34 03.4	91 34 15.7	House	2.730912	538.2	1,766
	119 26 01.814	54 11 46.4	234 11 36.5	Extra	2.729759	536.7	1,761
		73 47 26.2	253 47 09.0	Center	2.896574	788.1	2,586
		145 31 59.9	325 31 44.7	Bear	3.071536	1,179.1	3,868
Soco, 1932	35 10 23.390	2 26 13.4	182 26 12.9	House	2.758822	573.9	1,883
	119 25 39.592	45 11 30.8	225 11 18.0	Well	2.899080	792.6	2,600
		108 35 18.4	288 34 50.4	Bear	3.113019	1,297.2	4,256
Low, 1932	35 09 46.997	124 39 36.7	304 38 46.1	Bear	3.431287	2,699.5	8,857
	119 25 00.432	261 13 46.3	81 14 06.9	Tank	2.963363	919.1	3,015
		297 13 26.8	117 14 14.4	East	3.371681	2,353.3	7,721
Camp, 1932 [1]	35 09 39.59	234 26 03	54 26 10	Low	2.593912	392.565	1,287.94
	119 25 13.05						
Taft, airport beacon, 1932	35 08 28.203	253 29 37.8	73 31 21.6	East	3.677637	4,760.3	15,618
	119 26 38.078	36 05 08.7	216 04 20.2	Spellacy	3.559173	3,623.9	11,889
		153 15 04.4	333 13 40.6	West	3.912224	8,170.0	26,804

Inyokern to San Bernardino arc

Principal points							
Inyokern, 1933	35 38 50.713	106 44 36.65	286 38 28.69	Morris	4.2193038	16,569.29	54,361.1
	117 48 39.180	224 57 30.74	45 08 30.20	Yucca	4.6024351	40,034.56	131,346.7
		346 07 54		Reference mark no. 2.			
El Paso (U.S.G.S.), 1933	35 28 30.389	151 16 45.53	331 11 42.63	Morris	4.4351675	27,237.52	89,361.8
	117 50 29.671	188 16 20.57	8 17 24.83	Inyokern	4.2859877	19,319.14	63,382.9
		213 12 14.63	33 24 17.18	Yucca	4.7537083	56,716.35	186,076.9
Spangler, 1933	35 34 28.570	69 54 39.89	249 43 07.42	El Paso (U.S.G.S.)	4.5050283	31,991.04	104,957.3
	117 30 37.937	181 50 56.72	1 51 24.06	Yucca	4.5608873	36,382.06	119,363.5
Rand, 1933	35 20 20.923	135 48 05.15	315 42 27.78	El Paso (U.S.G.S.)	4.3233983	21,057.09	69,084.8
	117 40 47.389	210 25 10.03	30 31 03.57	Spangler	4.4815635	30,308.43	99,436.9
Well, 1933	35 21 15.082	87 19 26.45	267 06 20.41	Rand	4.5359132	34,348.93	112,693.1
	117 18 08.696	105 28 34.71	285 09 49.92	El Paso (U.S.G.S.)	4.7056474	50,774.71	166,583.4
		142 22 22.71	322 15 08.00	Spangler	4.4899770	30,901.32	101,382.1
Fremont (U.S.G.S.), 1933	35 11 39.498	128 03 25.93	307 55 35.97	Rand	4.4167231	26,104.96	85,646.0
	117 27 13.441	217 46 25.28	37 51 39.87	Well	4.3512944	22,454.04	73,668.0
Black, 1933	35 08 24.961	107 04 01.11	286 56 34.96	Fremont (U.S.G.S.)	4.3117304	20,498.89	67,253.4
	117 14 18.836	118 54 30.28	298 39 13.68	Rand	4.6611166	45,826.49	150,349.1
		166 15 34.77	346 13 22.12	Well	4.3879970	24,434.14	80,164.3

[1] No check on this position.

Inyokern to San Bernardino arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance: Logarithm (meters)	Distance: Meters	Distance: Feet
Principal points—Continued	° ′ ″	° ′ ″	° ′ ″				
Power, 1933	35 04 55.044	162 34 43.12	342 31 18.67	Rand	4.4758061	29,909.29	98,127.4
	117 34 52.794	222 58 41.63	43 03 06.01	Fremont (U.S.G.S.)	4.2316332	17,046.42	55,926.5
		258 12 20.52	78 24 10.25	Black	4.5039458	31,911.40	104,696.0
Kramer, 1933	34 54 57.454	163 51 41.46	343 49 40.80	Power	4.2826768	19,172.41	62,901.5
	117 31 22.431	226 07 01.79	46 16 49.31	Black	4.5557177	35,951.55	117,951.0
		264 18 42		Kramer Hills, yellow tank.			
Stein, 1933	34 52 45.936	99 48 31.98	279 39 39.68	Kramer	4.3796346	23,968.15	78,635.5
	117 15 52.021	127 55 12.82	307 44 18.81	Power	4.5638838	36,633.96	120,189.9
		184 39 37.81	4 40 31.27	Black	4.4628970	29,033.34	95,253.5
Silver, 1933	34 44 21.287	184 44 15.47	4 44 52.02	Kramer	4.2938246	19,670.92	64,537.0
	117 32 26.434	238 19 07.88	58 28 35.53	Stein	4.4724028	29,675.82	97,361.4
Helendale, 1933	34 43 55.824	91 57 40.47	271 48 47.11	Silver	4.3770542	23,826.17	78,169.7
	117 16 50.367	132 40 57.95	312 32 39.95	Kramer	4.4787568	30,113.19	98,796.4
		185 10 58.11	5 11 31.41	Stein	4.2149120	16,402.57	53,814.1
Mirage, 1934	34 37 21.411	173 25 28.05	353 24 54.69	Silver	4.1147441	13,023.99	42,729.5
	117 31 27.806	241 22 49.99	61 31 09.21	Helendale	4.4053413	25,429.70	83,430.6
		346 38 12		Reference mark no. 3.			
Oro Grande (U.S.G.S.), 1934	34 36 38.316	93 34 12.66	273 26 08.93	Mirage	4.3371337	21,733.70	71,304.6
	117 17 16.299	121 41 33.41	301 32 55.61	Silver	4.4347313	27,210.18	89,272.1
		182 48 05.70	2 48 20.44	Helendale	4.1302589	13,497.67	44,283.6
Phelan, 1934	34 23 08.377	187 22 14.95	7 23 30.56	Mirage	4.4233207	26,504.57	86,957.1
	117 33 41.286	225 07 10.63	45 16 28.51	Oro Grande (U.S.G.S.)	4.5492052	35,416.46	116,195.5
		299 20 33.97	119 31 39.63	Strawberry	4.5399945	34,673.25	113,757.2
		292 34 13		Cajon, fire lookout house.			
Pinnacle, 1934	34 18 25.830	105 54 22.16	285 43 03.54	Phelan	4.5044835	31,950.93	104,825.7
	117 13 38.473	142 07 50.57	321 57 45.42	Mirage	4.6471463	44,375.81	145,589.6
		170 38 19.17	350 36 15.92	Oro Grande (U.S.G.S.)	4.5329969	34,119.05	111,938.9
		3 50 10.49	183 49 58.20	Strawberry	3.9218178	8,352.52	27,403.2
Rafael, 1934	34 12 55.253	170 26 09.19	350 24 58.97	Phelan	4.2823650	19,158.65	62,856.3
	117 31 36.681	249 38 56.67	69 49 03.66	Pinnacle	4.4684292	29,405.54	96,474.7
		265 59 57.17	86 09 51.30	Strawberry	4.4329980	27,101.79	88,916.5
		314 01 28.43	134 10 53.90	Reche	4.5563013	35,999.90	118,109.7
		338 47 17.40	158 50 09.47	Jurupa	4.3374099	21,747.53	71,350.0
Supplementary points							
Goler (B.M. U 48), 1933	35 25 25.373	335 16 53.45	155 18 32.47	Rand	4.0140074	10,327.79	33,883.8
	117 43 38.403	118 49 58.77	298 46 00.24	El Paso (U.S.G.S.)	4.0731956	11,835.74	38,831.1
Atolia, 1933	35 18 47.389	113 58 35.96	293 56 07.43	Rand	3.8512079	7,099.18	23,291.2
	117 36 30.528	260 37 19.33	80 47 56.56	Well	4.4501969	28,196.61	92,508.4
		299 33 30.26	119 46 18.40	Black	4.5883364	38,755.78	127,151.3
		7 40 46		Reference mark no. 3.			
Beecher, 1933	34 59 32.766	159 00 39.44	338 59 13.09	Power	4.0268604	10,638.01	34,901.5
	117 32 22.382	239 03 40.91	59 14 03.44	Black	4.5048812	31,980.20	104,921.7
		349 49 50.14	169 50 24.49	Kramer	3.9354688	8,619.24	28,278.3
Sunny Hill, 1933	34 44 58.078	322 53 04.70	142 53 37.21	Helendale	3.3812124	2,405.54	7,892.2
	117 17 47.422	87 10 00.95	267 01 39.99	Silver	4.3500182	22,388.15	73,451.8
		191 29 24.36	11 30 30.24	Stein	4.1676825	14,712.37	48,268.8
Dip, 1934	34 38 05.566	81 04 45.74	261 01 32.96	Mirage	3.9419222	8,748.27	28,701.6
	117 25 48.544	138 51 06.80	318 47 20.37	Silver	4.1870253	15,382.44	50,467.2
		231 43 31.68	51 48 37.93	Helendale	4.2415572	17,440.43	57,219.1
		346 26 06		Reference mark no. 3.			
Saddleback (U.S.G.S. and L.A.C.), 1934	34 40 33.750	223 15 59.61	43 25 23.50	Kramer	4.5634502	36,597.39	120,069.9
	117 47 50.582	253 19 33.81	73 28 20.01	Silver	4.3898906	24,540.90	80,514.6
		283 14 42.64	103 24 01.40	Mirage	4.4102660	25,719.70	84,382.0
Black Butte (U.S.G.S. and L.A.C.), 1934	34 33 24.336	152 28 41.84	332 26 07.96	Saddleback (U.S.G.S. and L.A.C.)	4.1738663	14,923.35	48,961.0
	117 43 19.712	219 21 46.61	39 27 58.02	Silver	4.4183439	26,202.57	85,966.3
		248 00 40.60	68 07 24.75	Mirage	4.2913237	19,557.97	64,166.4
		322 04 48.23	142 10 15.62	Phelan	4.3810155	24,044.49	78,886.0
		132 04 52		Reference mark no. 3.			
Angle (U.S.G.S. and L.A.C.), 1933	34 33 28.458	88 45 06.44	268 42 58.55	Black Butte (U.S.G.S. and L.A.C.)	3.7596245	5,749.43	18,862.9
	117 39 34.248	239 53 19.72	59 57 55.88	Mirage	4.1560896	14,324.83	46,997.4
		334 43 51.98	154 47 11.76	Phelan	4.3247678	21,123.59	69,303.0
Los Angeles-Las Vegas airway beacon no. 4B, 1934.	34 31 32.617	247 17 28.0	67 38 41.9	Silver	4.791061	61,810.3	202,789
	118 09 47.867	259 25 49.5	79 47 34.8	Mirage	4.775270	59,603.3	195,548
		265 00 58.0	85 15 58.5	Black Butte (U.S.G.S. and L.A.C.)	4.608981	40,642.6	133,342
Los Angeles-Las Vegas airway beacon no. 5, 1934.	34 37 01.453	256 03 09.4	76 13 01.1	Saddleback (U.S.G.S. and L.A.C.)	4.436137	27,298.4	89,561
	118 05 11.265	269 09 24.5	89 28 34.1	Mirage	4.712241	51,551.5	169,132
		281 12 54.1	101 25 18.6	Black Butte (U.S.G.S. and L.A.C.)	4.532603	34,088.1	111,837
Los Angeles-Las Vegas airway beacon no. 6, 1934.	34 35 46.183	212 34 12.5	32 36 19.0	Saddleback (U.S.G.S. and L.A.C.)	4.021885	10,516.8	34,504
	117 51 32.972	264 26 45.9	84 38 10.4	Mirage	4.489191	30,845.4	101,199
		289 07 52.8	109 12 32.7	Black Butte (U.S.G.S. and L.A.C.)	4.124194	13,310.5	43,670

Inyokern to San Bernardino arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance: Logarithm (meters)	Distance: Meters	Distance: Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Los Angeles-Las Vegas airway beacon no. 7, 1934.	34 41 01.186	356 05 10.7	176 05 21.1	Mirage	3.831742	6,788.0	22,270
	117 31 45.994	88 06 15.7	267 57 06.9	Saddleback (U.S.G.S. and L.A.C.)	4.390403	24,569.9	80,610
		170 31 40.4	350 31 17.4	Silver	3.795969	6,251.3	20,509
Los Angeles-Las Vegas airway beacon no. 8, 1933.	34 44 08.017	91 10 22.6	271 02 28.6	Silver	4.325589	21,163.6	69,434
	117 18 34.660	217 54 45.9	37 55 12.8	Sunny Hill	3.291235	1,955.4	6,415
		278 03 05.8	98 04 05.2	Helendale	3.428092	2,679.7	8,792
Iron (U.S.G.S.), cairn, 1933 [1]	34 51 42.98	16 55 27	196 53 49	Helendale	4.177416	15,045.8	49,363
	117 13 58.20	25 02 58	205 00 47	Sunny Hill	4.138941	13,770.2	45,178
Rock cairn (west of station Silver), 1933 [1]	34 44 14.78	264 50 24	84 51 14	Silver	3.349018	2,233.7	7,328
	117 33 53.88	343 42 49	163 44 12	Mirage	4.122848	13,269.3	43,534
Adelanto, water tank, 1934	34 34 47.066	114 02 30.1	293 58 32.2	Mirage	4.067779	11,689.0	38,350
	117 24 28.755	145 31 57.8	325 27 26.2	Silver	4.331862	21,471.5	70,444
		161 37 16.8	341 36 31.5	Dip	3.809261	6,445.6	21,147
Victorville, Portland Cement Co., tallest stack, 1934.	34 33 12.780	191 44 06.5	11 44 35.7	Oro Grande (U.S.G.S.)	3.810814	6,468.7	21,223
	117 18 07.938	345 50 53.8	165 53 26.2	Pinnacle	4.449978	28,182.4	92,462
		7 58 42.8	187 58 31.3	Victor	3.570396	3,718.7	12,200
Victor, 1934	34 31 13.262	57 24 40.39	237 16 03.81	Phelan	4.4422542	27,685.62	90,831.9
	117 18 28.175	119 46 50.51	299 39 28.12	Mirage	4.3595050	22,882.58	75,073.9
		190 21 38.96	10 22 19.74	Oro Grande (U.S.G.S.)	4.0078470	10,182.33	33,406.5
		43 30 35		Reference mark no. 3.			
Cajon, 1933	34 20 49.917	25 47 07.51	205 44 32.07	Rafael	4.2105812	16,239.82	53,280.1
	117 27 00.709	112 39 29.83	292 35 43.71	Phelan	4.0449006	11,089.21	36,381.8
		302 33 26.44	122 40 46.10	Strawberry	4.3746876	23,696.68	77,744.9
		246 00 07		Reference mark no. 3.			
Strawberry Peak, fire lookout tower, 1934	34 13 55.478	86 09 04.9	265 59 11.5	Rafael	4.432483	27,069.7	88,811
	117 14 01.577	184 03 24.2	4 03 37.2	Pinnacle	3.921735	8,350.9	27,398
		276 44 58.0	96 44 58.6	Strawberry	1.514548	32.70	107.3
Junior, 1934	34 08 09.962	112 38 20.80	292 30 37.03	Rafael	4.3598008	22,898.17	75,125.1
	117 17 51.079	209 01 28.63	29 03 38.29	Strawberry	4.0853954	12,172.94	39,937.4
		270 52 46		Reference mark no. 2.			
Union, 1934	34 05 17.271	125 05 18.44	304 57 57.25	Rafael	4.3906777	24,585.42	80,660.7
	117 18 30.786	203 26 25.53	23 28 57.40	Strawberry	4.2405941	17,401.80	57,092.4
		332 25 21.60	152 27 26.23	Reche	4.0914468	12,343.74	40,497.8
		84 28 46		Reference mark no. 3.			

One-hundred-and-sixteenth meridian arc

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance: Logarithm (meters)	Distance: Meters	Distance: Feet
Principal points							
Bernard, 1934	33 52 06.625	293 31 46.99	113 43 09.39	Eagle (M.W.D. of S.C.)	4.5369648	34,432.20	112,966.3
	116 04 46.887	319 54 44.56	140 04 45.54	Orocopia (M.W.D. of S.C.)	4.6371028	43,361.35	142,261.4
		349 41 31.13	169 43 13.01	Mecca Hill (M.W.D. of S.C.)	4.4218007	26,411.96	86,653.2
Belle, 1934	34 00 02.726	319 54 05.44	140 02 43.93	Eagle (M.W.D. of S.C.)	4.5702607	37,175.83	121,967.7
	115 59 50.680	27 26 04.09	207 23 18.74	Bernard	4.2181205	16,524.20	54,213.1
Pinto, 1934	33 57 13.107	346 38 29.57	166 40 28.99	Eagle (M.W.D. of S.C.)	4.3781417	23,885.91	78,365.7
	115 47 54.807	70 07 05.75	249 57 41.10	Bernard	4.4418788	27,661.69	90,753.4
		105 55 51.32	285 49 11.24	Belle	4.2811486	19,105.07	62,680.5
		47 14 42		Reference mark no. 3.			
Ivanhoe, 1934	34 03 27.871	37 03 01.11	216 59 51.31	Pinto	4.1602505	14,462.74	47,449.8
	115 42 15.435	76 56 23.80	256 46 33.26	Belle	4.4440382	27,799.58	91,205.8
		191 17 34.72	11 18 41.85	Sheep (M.W.D. of S.C.)	4.1944286	15,646.91	51,334.9
		279 38 42		Reference mark no. 3.			
Twentynine Palms, 1934	34 03 30.829	239 19 16.29	59 28 40.94	Sheep (M.W.D. of S.C.)	4.4765768	29,962.41	98,301.7
	115 57 02.207	270 09 38.40	90 17 55.03	Ivanhoe	4.3568271	22,741.92	74,612.4
		309 35 57.73	129 41 03.89	Pinto	4.2610649	18,241.68	59,847.9
		33 59 44.37	213 58 10.09	Belle	3.8883206	7,732.51	25,369.1
		8 12 46		Reference mark no. 3.			
Valley, 1934	34 12 16.297	272 15 06.29	92 23 34.18	Sheep (M.W.D. of S.C.)	4.3646084	23,153.06	75,961.3
	115 55 19.344	308 57 58.54	129 05 18.39	Ivanhoe	4.4125697	25,856.50	84,830.9
		9 15 15.54	189 14 17.82	Twentynine Palms	4.2149398	16,403.62	53,817.5
		309 05 45		Reference mark no. 3.			
Bullion, 1934	34 22 02.126	310 15 52.16	130 24 04.66	Sheep (M. W. D. of S. C.)	4.4674421	29,338.78	96,255.6
	115 54 50.141	2 22 18.11	182 22 01.66	Valley	4.2568661	18,066.17	59,272.1
		134 46 29		Reference mark no. 3.			
Collins, 1934	34 22 58.391	18 13 50.84	198 11 20.66	Sheep (M. W. D. of S. C.)	4.3387580	21,815.14	71,571.8
	115 35 49.211	86 41 09.13	266 30 24.95	Bullion	4.4654109	29,201.89	95,806.5
		125 50 12		Reference mark no. 3.			
Bullion East, 1934	34 20 19.698	17 42 42.15	197 40 57.53	Valley	4.1940851	15,634.54	51,294.3
	115 52 13.554	128 16 25.85	308 14 57.49	Bullion	3.7072792	5,096.58	16,721.0
		258 55 19.55	79 04 35.12	Collins	4.4086597	25,624.75	84,070.5
		310 42 45.16	130 49 29.31	Sheep (M. W. D. of S. C.)	4.3846405	24,246.02	79,547.1
		324 54 15		Reference mark no. 3.			

[1] No check on this position.

One-hundred-and-sixteenth meridian arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance: Logarithm (meters)	Distance: Meters	Distance: Feet
Principal points—Continued	° ′ ″	° ′ ″	° ′ ″				
Amboy, 1934	34 33 31.079	325 40 42.90	145 45 37.62	Collins	4.3727944	23,593.61	77,406.7
	115 44 29.927	36 45 34.22	216 39 43.26	Bullion	4.4229345	26,481.01	86,879.8
		266 45 46		Reference mark no. 3.			
Lead, 1934	34 28 02.789	240 32 16.33	60 38 54.99	Amboy	4.3139115	20,602.10	67,592.1
	115 56 13.543	286 36 14.70	106 47 46.85	Collins	4.5137412	32,639.33	107,084.2
		349 08 39.28	169 09 26.42	Bullion	4.0536679	11,315.35	37,123.8
		157 45 23		Reference mark no. 3.			
Dish Hill, 1934	34 36 48.106	288 11 21.11	108 18 11.28	Amboy	4.2875863	19,390.38	63,616.6
	115 56 32.513	358 17 12.69	178 17 23.45	Lead	4.2093579	16,194.14	53,130.3
		87 48 28		Reference mark no. 3.			
East Bristol, 1934	34 36 01.931	49 56 42.79	229 54 39.75	Amboy	3.8585798	7,220.71	23,689.9
	115 40 53.131	57 54 07.04	237 45 25.27	Lead	4.4429347	27,729.03	90,974.3
		93 28 34.00	273 19 40.49	Dish Hill	4.3797912	23,976.80	78,663.9
		146 08 46		Reference mark no. 3.			
		299 41 29		Cadiz, largest railroad tank.			
Granite Mountain, 1934	34 47 36.728	353 12 46.46	173 13 43.38	East Bristol	4.3336588	21,560.50	70,736.4
	115 42 33.129	46 58 15.74	226 50 17.86	Dish Hill	4.4661886	29,254.22	95,978.2
		269 46 00		Target in cairn.			
Ash Hill, 1934	34 40 55.941	248 15 30.74	68 27 07.85	Granite Mountain	4.5248204	33,482.69	109,851.1
	116 02 56.518	284 56 26.44	105 08 58.70	East Bristol	4.5428387	34,901.06	114,504.6
		307 57 23.86	128 01 02.18	Dish Hill	4.0936984	12,407.90	40,708.3
Coronado, 1934	34 47 46.016	270 32 23.81	90 42 15.43	Granite Mountain	4.4209085	26,357.76	86,475.4
	115 59 49.896	346 04 05.00	166 05 57.39	Dish Hill	4.3198589	20,886.17	68,524.0
		20 36 21.04	200 34 34.70	Ash Hill	4.1302904	13,498.65	44,286.8
		229 57 43		Reference mark no. 3.			
Flynn, 1934	34 59 28.315	349 34 58.96	169 36 29.66	Granite Mountain	4.3481961	22,294.42	73,144.3
	115 45 11.695	45 55 34.78	225 47 12.40	Coronado	4.4923954	31,073.87	101,948.2
		285 53 27		Reference mark no. 3.			
Crucero, 1934	34 56 35.279	259 18 59.37	79 29 43.42	Flynn	4.4624469	29,003.27	95,154.9
	116 03 55.483	296 53 53.67	117 06 06.78	Granite Mountain	4.5629436	36,554.73	119,930.0
		339 03 03.44	159 05 23.84	Coronado	4.2420819	17,461.51	57,288.3
		131 20 13		Reference mark no. 3.			
Cave (U.S.G.S.), 1934	35 04 15.283	301 02 48.62	121 11 39.84	Crucero	4.4381794	27,427.07	89,983.6
	116 19 21.480	172 50 29.8	352 50 29.8	El Frio	0.9428510	8.767	28.76
		53 29 17		Union Pacific Railroad, block signal.			
Old Dad Mountain, 1934	35 06 04.557	321 20 26.39	141 24 07.48	Flynn	4.1939730	15,630.50	51,281.1
	115 51 36.700	46 55 56.12	226 48 52.14	Crucero	4.4092915	25,662.06	84,192.9
		168 59 52		Reference mark no. 3.			
Balch, 1934	35 01 20.661	33 33 52.68	213 31 40.87	Crucero	4.0233279	10,551.83	34,618.8
	116 00 05.587	100 30 02.60	280 18 58.84	Cave (U.S.G.S.)	4.4739992	29,785.11	97,720.0
		235 48 14.65	55 53 06.98	Old Dad Mountain	4.1926376	15,582.52	51,123.7
		278 36 47.60	98 45 20.40	Flynn	4.3603791	22,928.68	75,225.2
		68 27 18		Reference mark no. 3.			
Soda, 1934	35 09 52.199	286 20 40.87	106 29 41.96	Old Dad Mountain	4.3947512	24,817.11	81,420.8
	116 07 16.963	325 14 16.59	145 18 24.59	Balch	4.2828574	19,180.39	62,927.7
		348 14 20.03	168 16 15.75	Crucero	4.3993840	25,083.26	82,294.0
		60 33 04.50	240 26 07.72	Cave (U.S.G.S.)	4.3238789	21,080.40	69,161.3
		186 55 38		Reference mark no. 3.			
Silver Lake, 1934	35 22 45.734	338 36 20.39	158 40 55.70	Old Dad Mountain	4.5201977	33,128.19	108,688.1
	115 59 33.841	26 11 20.72	206 06 53.29	Soda	4.4241786	26,556.98	87,129.0
		183 52 40		Reference mark no. 3.			
Nub (U.S.G.S.), 1934	35 18 42.252	20 26 49.65	200 23 31.52	Old Dad Mountain	4.3964698	24,915.51	81,743.6
	115 45 53.035	63 23 34.40	243 11 13.61	Soda	4.5604050	36,341.68	119,231.0
		109 58 03.49	289 50 08.65	Silver Lake	4.3432685	22,042.89	72,319.0
		232 34 18		Reference mark no. 3.			
Turquoise, 1934	35 26 08.909	313 49 10.99	133 54 39.43	Nub (U.S.G.S.)	4.2980653	19,863.94	65,170.3
	115 55 20.383	45 37 33.76	225 35 06.91	Silver Lake	3.9518307	8,950.16	29,364.0
		32 50 04		Reference mark no. 3.			
Silurian, 1934	35 30 33.169	197 00 18.20	17 03 34.61	Kingston	4.4617994	28,960.05	95,013.1
	116 01 13.137	312 27 09.97	132 30 34.67	Turquoise	4.0813134	12,059.06	39,563.8
		350 07 48.50	170 08 46.08	Silver Lake	4.1649946	14,621.59	47,971.0
		81 10 35		Reference mark no. 3.			
		87 22 50		B. M. E 163.			
Clark, 1934	35 31 32.125	34 08 53.80	214 02 44.83	Nub (U.S.G.S.)	4.4571478	28,651.53	94,000.9
	115 35 16.379	66 18 07.15	246 04 01.78	Silver Lake	4.6039578	40,175.18	131,808.1
		71 55 41.36	251 44 02.52	Turquoise	4.5043990	31,944.71	104,805.3
		87 28 25.10	267 13 20.70	Silurian	4.5940479	39,268.83	128,834.5
		130 14 10.49	310 02 19.78	Kingston	4.6035371	40,136.28	131,680.4
		196 36 39.18	16 40 14.34	Table	4.5106905	32,410.86	106,334.6
		270 15 58		Reference mark no. 3.			
Supplementary points							
Mecca Hills, airway beacon, 1934	33 39 30.275	56 17 53.7	236 16 27.2	Mecca Hill (M. W. D. of S. C.)	3.684444	4,835.5	15,864
	115 59 07.416	159 28 33.3	339 25 24.6	Bernard	4.395965	24,886.6	81,649
		247 20 25.3	67 28 37.4	Eagle (M. W. D. of S. C.)	4.393421	24,741.2	81,172

One-hundred-and-sixteenth meridian arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Pinto Mountains, rock cairn, 1934 [1]	33 57 13.36 115 47 54.87	348 38	168 38	Pinto	0.892095	7.80	25.6
Pinto Mountains, rock cairn, 1934 [1]	34 00 02.80 115 59 50.71	341 06	161 06	Belle	0.380211	2.40	7.9
Pinto Mountains, rock cairn, 1934 [1]	34 03 27.96 115 42 15.68	294 21	114 21	Ivanhoe	0.832509	6.80	22.3
Pinto Mountains, highest point, cairn (M. W. D. of S. C.), 1934.[1]	34 03 31.40 115 57 02.57	331 54 35	151 54 35	Twentynine Palms	1.295567	19.75	64.8
Dale, 1934	34 09 43.821 115 43 05.931	353 37 15.29 61 51 55.93 104 06 05.59 193 02 44	173 37 43.61 241 44 06.95 283 59 13.52	Ivanhoe Twentynine Palms Valley Reference mark no. 3.	4.0665359 4.3859675 4.2868995	11,655.63 24,320.22 19,359.74	38,240.2 79,790.6 63,516.1
Twentynine Palms, target on sand hill, 1934 [1]	34 09 22.64 116 01 11.13	268 34 14 290 29 38	88 44 24 110 40 15	Dale Ivanhoe	4.444122 4.492669	27,804.9 31,093.5	91,223 102,013
Sheep Hole Mountains, highest part, pole target, 1934.[1]	34 13 36.08 115 41 28.28	83 28 24 206 33 29	263 20 36 26 36 40	Valley Collins	4.330719 4.287230	21,415.0 19,374.5	70,259 63,565
Bristol Lake (south of), rock cairn with target, 1934.[1]	34 22 58.63 115 35 49.17	7 32	187 32	Collins	0.863323	7.30	24.0
Amboy (southeast of), cupola on large building, 1934.	34 32 21.951 115 42 44.772	328 33 02.8 128 28 29.6 202 45 54.7	148 36 58.0 308 27 30.0 22 46 58.0	Collins Amboy East Bristol	4.308523 3.534568 3.866379	20,348.1 3,424.3 7,351.6	66,759 11,235 24,119
Mount Lavic, cairn on south end, 1934 [1]	34 32 37.75 115 47 23.48	249 36 43 315 09 30	69 38 22 135 16 02	Amboy Collins	3.673962 4.400590	4,720.2 25,153.0	15,486 82,523
Los Angeles-Amarillo airway beacon no. 18, 1934.	34 34 11.635 115 29 12.188	60 19 17.3 74 45 37.5 100 49 37.4	240 04 46.9 254 30 18.8 280 42 59.5	Bullion Lead East Bristol	4.655440 4.632332 4.259701	45,231.4 42,887.6 18,184.5	148,397 140,707 59,660
Bagdad, 1934	34 34 52.389 115 52 41.673	310 20 14.34 23 11 39.11 121 14 28.98 150 31 30	130 29 47.54 203 09 39.03 301 12 17.90	Collins Lead Dish Hill Reference mark no. 3.	4.5306282 4.1376493 3.8375002	33,933.46 13,729.33 6,878.60	111,330.0 45,046.3 22,567.5
Los Angeles-Amarillo airway beacon no. 16, 1934.[1]	34 34 52.26 115 52 41.88	232 47 08	52 47 08	Bagdad	0.822822	6.650	21.82
Sibe, 1934	34 39 13.524 116 00 48.499	134 05 09.57 304 28 40.74 341 14 38.12 336 47 12	314 03 56.74 124 31 06.22 161 17 14.10	Ash Hill Dish Hill Lead Reference mark no. 3.	3.6567612 3.8982587 4.3389368	4,536.92 7,911.50 21,824.12	14,884.9 25,956.3 71,601.3
Bristol Mountains, cairn and target, 1934 [1]	34 45 23.37 115 56 33.47	359 54 44 131 21 58	179 54 45 311 20 06	Dish Hill Coronado	4.200781 3.823048	15,877.5 6,653.5	52,091 21,829
Bristol Mountains, cairn, 1934 [1]	34 56 35.28 116 03 55.58	270 57	90 57	Crucero	0.414973	2.600	8.53
G. L. O. Station 191, 1934	34 59 16.865 116 07 42.956	310 46 18.20 117 30 01.71 181 55 27.67 150 35 22	130 48 28.56 297 23 20.76 1 55 42.61	Crucero Cave (U. S. G. S.) Soda Reference mark no. 3.	3.8820744 4.3000008 4.2920291	7,622.10 19,952.66 19,589.76	25,006.8 65,461.4 64,270.7
Los Angeles-Las Vegas airway beacon no. 13, 1934.	35 04 39.263 116 23 27.653	235 32 08.6 245 19 56.7 276 44 13.7	55 59 59.5 65 41 36.2 96 46 35.3	Clark Nub (U. S. G. S.) Cave (U. S. G. S.)	4.946227 4.797095 3.798003	88,354.2 62,675.1 6,280.6	289,875 205,627 20,606
Baker, 1934	35 16 18.392 116 03 52.705	208 41 24.81 315 23 28.80 23 28 48.14 50 27 05	28 43 54.49 135 30 32.91 203 26 50.35	Silver Lake Old Dad Mountain Soda Reference mark no. 3.	4.1338679 4.4239689 4.1130782	13,610.31 26,544.15 12,974.13	44,653.2 87,086.9 42,566.0
Cairn and target, 1934	35 09 41.124 116 09 03.959	212 42 58.4 262 48 27.0 57 20 35.1	32 45 57.9 82 49 28.6 237 14 39.9	Baker Soda Cave (U. S. G. S.)	4.163016 3.436050 4.269130	14,555.1 2,729.3 18,583.6	47,753 8,954 60,970
Los Angeles-Las Vegas airway beacon no. 16, 1934.[1]	35 16 18.59 116 03 52.74	350 51 23	170 51 23	Baker	0.790988	6.180	20.28
Los Angeles-Las Vegas airway beacon no. 17, 1934.	35 23 58.772 115 49 49.659	81 21 59.9 115 41 55.4 237 32 03.5	261 16 21.5 295 38 43.7 57 40 30.2	Silver Lake Turquoise Clark	4.173600 3.966499 4.416277	14,914.2 9,257.6 26,078.2	48,931 30,373 85,558
Valley Wells, 1934	35 27 12.849 115 38 39.180	34 52 08.67 85 37 06.51 223 51 39	214 47 57.45 265 27 25.90	Nub (U. S. G. S) Turquoise Reference mark no. 3.	4.2826397 4.4035933	19,170.78 25,327.56	62,896.1 83,095.5
Cairn 4880 (U. S. G. S.) 1934	35 28 13.505 115 51 56.477	332 27 03.6 48 50 04.9 53 15 57.3	152 30 34.1 228 45 39.7 233 13 59.0	Nub (U. S. G. S.) Silver Lake Turquoise	4.297782 4.185678 3.807371	19,851.0 15,334.8 6,417.6	65,128 50,311 21,055

[1] No check on this position.

One-hundred-and-sixteenth meridian arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
U. S. Forest Service boundary monument no. 190, 1934.[1]	35 31 32.13 115 35 16.43	281 11	101 11	Clark	0.130334	1.350	4.43
Cairn 2979 (U. S. G. S.), 1934 [1]	35 33 40.31 116 06 34.61	332 13 37 352 44 15	152 17 42 172 45 49	Silver Lake Baker	4.357786 4.510124	22,792.2 32,368.6	74,777 106,196
Valjean, 1934	35 38 28.150 116 00 29.149	209 25 43.35 288 28 57.65 4 19 49.97 182 56 37	29 28 34.41 108 43 37.92 184 19 24.38	Kingston Clark Silurian Reference mark no. 3.	4.1757582 4.6040891 4.1667337	14,988.50 40,187.32 14,680.26	49,174.8 131,847.9 48,163.5
Avawatz Mountains (U. S. G. S.), cairn, 1934.	35 30 45.913 116 19 50.574	243 56 01.9 270 42 32.2 282 51 05.5	64 07 17.6 90 53 21.3 103 05 18.7	Valjean Silurian Turquoise	4.512270 4.449662 4.580191	32,528.9 28,161.9 38,035.7	106,722 92,394 124,789
California-Nevada boundary monument no. 120, 1934.	35 47 16.969 115 37 13.191	260 57 09.07 354 13 43.04 83 24 16.73 248 00 30	81 01 53.24 174 14 51.13 263 13 32.04	Table Clark Kingston Shenandoah Mill, tank.	4.0917297 4.4663839 4.4454404	12,351.78 29,267.39 27,889.48	40,524.1 96,021.4 91,500.7
G.L.O. Pipe (Nev.), 1934 [1]	35 47 18.02 115 37 05.68	80 15 41	260 15 36	California-Nevada boundary monument no. 120.	2.281692	191.29	627.6
Devil Peak, cairn (Nev.), 1934	35 41 51.273 115 27 10.752	32 40 48.3 123 35 51.4 166 15 33.0	212 36 05.6 303 29 59.6 346 14 25.0	Clark California-Nevada boundary monument no. 120. Table	4.355269 4.259194 4.090788	22,660.5 18,163.3 12,325.0	74,345 59,591 40,436
Kingston (U. S. G. S.), cairn (1926), 1934	35 43 36.378 115 54 53.202	306 54 42.4 41 40 22.8 163 09 30.3	127 06 07.9 221 37 06.9 343 09 05.4	Clark Valjean Kingston	4.569177 4.104222 3.569520	37,083.2 12,712.2 3,711.2	121,664 41,707 12,176
Cairn (east of Shenandoah Mine) (Nev.), 1934.	35 49 21.317 115 32 55.791	288 17 53.4 6 08 08.1 59 21 09.1	108 20 07.0 186 06 46.1 239 18 38.5	Table Clark California-Nevada boundary monument no. 120.	3.781103 4.520366 3.875846	6,040.9 33,141.0 7,513.6	19,819 108,730 [illegible],651
Shenandoah Peak, cairn (Nev.), 1934 [1]	35 52 09.41 115 31 07.60	336 54 06 9 20 06	156 55 16 189 17 41	Table Clark	3.886239 4.587061	7,695.5 38,642.1	25,248 126,778

Monterey Bay to Mariposa Peak arc

Principal points						
Gilroy, 1930	36 58 47.368 121 36 54.823	125 45 53.04 283 33 13.55 341 02 14.19	305 37 38.85 103 47 01.96 161 05 41.02	Loma Prieta Santa Ana Gavilan	4.3972506 4.5453188 4.4202028	24,960.34 35,100.94 26,314.96	81,890.7 115,160.3 86,335.0
Sargent, 1930	36 54 21.970 121 31 15.657	134 17 51.93 270 09 58.32 359 31 35.52	314 14 28.09 90 20 22.35 179 31 38.86	Gilroy Santa Ana Gavilan	4.0689393 4.4103873 4.2229906	11,720.32 25,726.89 16,710.55	38,452.4 84,405.6 54,824.5
Fremont Peak 2, 1930	36 45 26.053 121 30 11.074	142 27 09.56 157 59 34.63 174 28 19.15 235 43 47.48 20 13 39.93	322 14 54.03 337 55 32.39 354 27 40.44 55 53 31.72 200 09 53.18	Loma Prieta Gilroy Sargent Santa Ana Mount Toro	4.6954109 4.4256752 4.2200369 4.4653342 4.4367831	49,591.92 26,648.65 16,597.28 29,196.73 27,339.03	162,702.8 87,429.8 54,452.9 95,789.6 89,694.8
Mariposa, 1930	36 57 25.870 121 12 37.716	18 38 03.32 51 00 43.77 78 30 49.66 94 06 31.70 107 04 02.02	198 37 16.00 230 49 36.56 258 19 37.93 273 51 55.43 286 41 10.35	Santa Ana Gavilan Sargent Gilroy Loma Prieta	3.7854814 4.5502130 4.4508924 4.5578776 4.7695212	6,102.13 35,498.75 28,241.80 36,130.80 58,819.49	20,020.1 116,465.5 92,656.6 118,539.1 192,976.9
Vaca, 1930	36 32 05.444 121 37 15.096	162 50 20.50 200 17 13.37 203 04 40.03 220 04 31.65 311 46 31.87	342 42 21.00 20 20 51.23 23 08 53.11 40 18 27.90 131 46 58.11	Loma Prieta Gavilan Fremont Peak 2 Santa Ana Mount Toro	4.8257309 4.4168569 4.4286551 4.7306481 3.1674503	66,946.97 26,113.01 26,832.13 53,783.38 1,470.45	219,641.8 85,672.4 88,031.7 176,454.3 4,824.3
Point Pinos latitude station 2, 1930	36 38 06.857 121 55 29.015	187 49 26.46 249 38 49.58 292 11 09.14	7 52 22.80 69 53 21.38 112 22 01.13	Loma Prieta Gavilan Vaca	4.7267482 4.5865683 4.4681687	53,302.57 38,598.31 29,387.91	174,876.8 126,634.6 96,416.8
Airway, 1930	36 34 23.944 121 50 50.447	134 48 21.51 235 18 20.69 281 49 18.01 283 43 31.64	314 45 35.41 55 30 05.52 101 57 23.62 103 52 03.45	Point Pinos latitude station 2 Gavilan Vaca Mount Toro	3.9891952 4.5515747 4.3164330 4.3426197	9,754.28 35,610.22 20,722.06 22,009.98	32,002.2 116,831.2 67,985.6 72,211.1
Brush, 1930	36 35 23.308 121 46 18.242	294 15 25.80 74 53 30.20 110 15 55.24 230 43 43.75	114 20 49.35 254 50 47.97 290 10 26.76 50 52 46.14	Vaca Airway Point Pinos latitude station 2 Gavilan	4.1708372 3.8457373 4.1639400 4.4638677	14,819.62 7,010.31 14,586.13 29,098.31	48,620.7 22,999.7 47,854.7 95,466.7
Pajaro Mouth 3, 1923	36 51 13.621 121 48 37.066	174 10 13.93 292 42 05.95 333 34 40.77 334 22 46.33	354 09 02.90 112 52 33.18 153 41 54.57 154 29 33.83	Loma Prieta Gavilan Mount Toro Vaca	4.4578842 4.4494964 4.6084550 4.5936516	28,700.15 28,151.17 40,593.36 39,233.01	94,160.4 92,359.3 133,180.0 128,717.0
Santa Cruz azimuth, 1851	36 58 40.956 122 03 17.434	231 51 11.63 297 11 24.35 302 15 04.60	51 58 50.87 117 30 40.68 122 23 53.39	Loma Prieta Gavilan Pajaro Mouth 3	4.3789902 4.7303537 4.4114244	23,932.62 53,746.94 25,788.40	78,518.9 176,334.8 84,607.4

[1] No check on this position.

Monterey Bay to Mariposa Peak arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points—Continued	° ′ ″	° ′ ″	° ′ ″				
Salinas, 1930	36 45 36.505	271 15 59.45	91 21 38.43	Fremont Peak 2	4.1478004	14,054.02	46,108.9
	121 39 37.528	272 17 17.50	92 22 21.17	Gavilan	4.1002683	12,597.03	41,328.8
		349 52 23.37	169 54 14.68	Mount Toro	4.4214423	26,390.18	86,581.8
		351 56 00.41	171 57 25.42	Vaca	4.4022559	25,249.68	82,840.0
		27 47 46.55	207 43 47.21	Brush	4.3296131	21,360.58	70,080.5
Supplementary points							
Lone Tree, 1930	36 54 55.257	237 49 32.7	57 52 32.1	Mariposa	3.940767	8,725.0	28,625
	121 17 36.228	281 48 48.3	101 51 00.3	Santa Ana	3.744928	5,558.1	18,235
		87 10 21.4	267 02 09.2	Sargent	4.307728	20,310.8	66,636
Pereira, 1930	36 48 58.207	59 20 11.7	239 15 45.7	Fremont Peak 2	4.107520	12,809.1	42,025
	121 22 46.873	128 25 03.9	308 19 58.6	Sargent	4.206182	16,076.1	52,743
		214 55 53.2	34 58 59.6	Lone Tree	4.128052	13,429.3	44,059
Foothill, 1930	36 49 54.817	70 44 05.2	250 42 04.6	Pereira	3.723003	5,284.5	17,338
	121 19 25.603	115 09 03.2	295 01 57.1	Sargent	4.288239	19,419.5	63,712
		196 17 41.1	16 18 46.8	Lone Tree	3.984497	9,649.3	31,658
Fairview, 1930	36 55 33.068	281 45 48.7	101 48 04.4	Lone Tree	3.756493	5,708.1	18,727
	121 21 21.984	344 32 18.1	164 33 28.0	Foothill	4.034142	10,817.9	35,492
		9 48 26.3	189 47 35.4	Pereira	4.091743	12,352.2	40,526
		81 34 01.2	261 28 04.6	Sargent	4.171957	14,857.9	48,746
Hollister, 1930	36 51 20.979	118 35 42.6	298 31 34.2	Sargent	4.067064	11,669.8	38,287
	121 24 21.770	209 47 32.6	29 49 20.5	Fairview	3.952099	8,955.7	29,382
		236 37 54.5	56 41 58.0	Lone Tree	4.079905	12,020.0	39,436
		289 52 23.5	109 55 21.1	Foothill	3.892310	7,803.9	25,603
		331 52 36.0	151 53 32.9	Pereira	3.698086	4,989.8	16,371
Picket, 1930	36 50 29.666	133 10 45.3	313 07 40.3	Sargent	4.019944	10,469.9	34,350
	121 26 07.259	238 48 28.2	58 49 31.5	Hollister	3.484994	3,054.9	10,023
		276 07 37.3	96 11 38.2	Foothill	4.000450	10,010.4	32,842
		299 34 06.1	119 36 06.3	Pereira	3.756662	5,710.3	18,735
Knob, 1930	36 52 20.198	235 13 45.1	55 17 13.0	Fairview	4.018397	10,432.7	34,228
	121 27 08.239	293 51 54.8	113 53 34.7	Hollister	3.654124	4,509.5	14,795
		313 51 15.0	133 53 51.8	Pereira	3.953448	8,983.6	29,474
		336 05 03.6	156 05 40.2	Picket	3.571369	3,727.1	12,228
Oak, 1930	36 47 46.017	151 16 48.9	331 14 06.9	Sargent	4.143660	13,920.7	45,671
	121 26 45.455	190 37 31.5	10 37 54.4	Picket	3.710340	5,132.6	16,839
		208 14 26.6	28 15 52.8	Hollister	3.876361	7,522.5	24,680
		249 21 38.0	69 24 01.0	Pereira	3.800644	6,318.9	20,731
Cross, 1930	36 49 21.711	177 59 21.9	357 59 14.1	Sargent	3.966678	9,261.4	30,385
	121 31 02.532	226 30 50.8	46 33 11.3	Knob	3.902975	7,997.9	26,240
		253 59 58.7	74 02 55.7	Picket	3.881437	7,610.9	24,970
		294 49 06.6	114 51 40.6	Oak	3.846459	7,022.0	23,038
Sandy, 1930	36 46 35.990	225 10 52.1	45 11 44.5	Oak	3.486123	3,062.8	10,049
	121 28 13.088	241 30 44.9	61 34 00.3	Pereira	3.963751	9,199.2	30,181
		53 37 47.8	233 36 37.2	Fremont Peak 2	3.560453	3,634.6	11,925
Moon, 1930	36 48 33.248	288 05 45.5	108 07 33.0	Oak	3.670570	4,683.5	15,366
	121 29 45.023	327 45 23.2	147 46 18.3	Sandy	3.630752	4,273.2	14,020
		6 23 22.1	186 23 06.6	Fremont Peak 2	3.763903	5,806.3	19,050
Yates, 1930	36 47 00.929	211 10 53.8	31 11 35.4	Moon	3.521991	3,326.5	10,914
	121 30 54.506	280 51 29.4	100 53 06.1	Sandy	3.610218	4,075.8	13,372
		339 46 38.1	159 47 04.2	Fremont Peak 2	3.493679	3,116.6	10,225
		7 04 30.7	187 04 21.4	Gavilan	3.496716	3,138.5	10,297
		177 47 39.6	357 47 26.9	Sargent	4.133715	13,605.5	44,637
Hiway, 1930	36 49 13.540	164 10 14.7	344 08 12.9	Gilroy	4.264523	18,387.5	60,326
	121 33 32.031	199 32 54.6	19 34 16.4	Sargent	4.003886	10,089.9	33,103
		316 17 48.9	136 19 23.2	Yates	3.752301	5,653.3	18,548
		324 35 16.3	144 37 16.7	Fremont Peak 2	3.934614	8,602.3	28,223
		333 56 46.9	153 58 11.9	Gavilan	3.903971	8,016.2	26,300
		53 35 36.0	233 31 57.1	Salinas	4.051695	11,264.1	36,956
Dusty, 1930	36 45 26.039	172 06 54.1	352 05 31.0	Gilroy	4.396862	24,938.0	81,817
	121 34 36.499	192 50 05.5	12 50 44.1	Hiway	3.856889	7,192.7	23,598
		242 00 02.2	62 02 15.0	Yates	3.794783	6,234.2	20,453
		272 06 13.2	92 08 16.7	Gavilan	3.709560	5,123.4	16,809
		6 20 11.3	186 19 02.9	Mount Toro	4.411870	25,814.9	84,694
		92 29 56.6	272 26 56.4	Salinas	3.873534	7,473.7	24,520
Bare, 1930	36 46 10.772	64 47 19.5	244 46 08.9	Dusty	3.510007	3,236.0	10,617
	121 32 38.466	166 44 28.0	346 43 55.9	Hiway	3.762550	5,788.3	18,990
		187 42 37.6	7 43 27.2	Sargent	4.184120	15,279.9	50,131
		239 02 23.1	59 03 25.3	Yates	3.478001	3,006.1	9,863
		305 34 44.0	125 35 36.9	Gavilan	3.430614	2,695.3	8,843
Rock, 1930	36 44 59.341	100 28 33.3	280 26 03.5	Salinas	3.800230	6,312.9	20,712
	121 35 27.253	200 01 21.9	20 02 30.9	Hiway	3.921184	8,340.3	27,363
		236 49 27.3	56 49 57.7	Dusty	3.177276	1,504.1	4,935
Sage, 1930	36 43 46.024	138 00 02.8	317 58 48.8	Salinas	3.661182	4,583.3	15,037
	121 37 33.884	234 15 36.1	54 16 51.8	Rock	3.587727	3,870.1	12,697
		234 58 18.2	55 00 04.3	Dusty	3.730231	5,373.2	17,629

Monterey Bay to Mariposa Peak arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance: Logarithm (meters)	Distance: Meters	Distance: Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Anderson, 1930	36 42 31.067	171 11 59.1	351 11 37.7	Salinas	3.762249	5,784.3	18,977
	121 39 01.850	223 22 01.9	43 22 54.5	Sage	3.502253	3,178.7	10,429
		229 20 29.1	49 22 37.4	Rock	3.846178	7,017.4	23,023
		230 39 14.1	50 41 52.8	Dusty	3.929985	8,511.1	27,924
		107 51 50		Reference mark no. 2.			
		195 43 18		Reference mark no. 3.			
Barn, 1930	36 41 49.497	204 27 18.8	24 28 35.5	Salinas	3.885803	7,687.8	25,222
	121 41 45.841	252 30 46.1	72 32 24.1	Anderson	3.630174	4,267.5	14,001
		339 29 10.5	159 31 51.9	Vaca	4.283734	19,219.1	63,055
		29 38 17.1	209 35 34.5	Brush	4.136496	13,692.9	44,924
Dairy, 1930	36 41 40.253	229 36 45.7	49 40 12.2	Salinas	4.050992	11,245.8	36,896
	121 45 22.872	266 57 16.1	86 59 25.8	Barn	3.732004	5,395.2	17,701
		325 34 57.8	145 39 48.6	Vaca	4.331784	21,467.6	70,432
		6 45 21.0	186 44 47.9	Brush	4.068196	11,700.3	38,387
Marin, 1930	36 40 34.873	220 28 17.7	40 28 59.1	Dairy	3.423149	2,649.4	8,692
	121 46 32.144	318 33 10.1	138 38 42.2	Vaca	4.320859	20,934.3	68,682
		357 56 21.0	177 56 29.3	Brush	3.982725	9,610.0	31,529
Lakeside, 1930	36 36 16.368	288 51 44.1	108 53 38.8	Brush	3.703710	5,054.9	16,584
	121 49 30.669	29 47 17.0	209 46 29.5	Airway	3.601270	3,992.7	13,099
		110 57 37.7	290 54 04.0	Point Pinos latitude station 2	3.979251	9,533.5	31,278
Seaside, 1930	36 36 27.499	118 02 23.4	298 00 05.2	Point Pinos latitude station 2	3.814193	6,519.2	21,388
	121 51 37.407	276 12 21.4	96 13 36.9	Lakeside	3.500848	3,168.5	10,395
		342 57 19.0	162 57 47.0	Airway	3.600251	3,983.4	13,069
Range, 1930	36 36 35.695	306 05 19.6	126 06 33.0	Brush	3.578301	3,787.0	12,425
	121 48 21.353	42 23 44.2	222 22 15.4	Airway	3.740206	5,498.0	18,038
		70 55 47.8	250 55 06.5	Lakeside	3.260737	1,822.8	5,980
		87 02 53.5	267 00 56.7	Seaside	3.688324	4,878.9	16,007
		104 50 50.9	284 46 35.9	Point Pinos latitute station 2	4.041064	10,991.7	36,062
Fremont (Gabilan) Peak, 1923	36 45 26.266	116 37 52.3	296 18 00.4	Santa Cruz azimuth	4.740102	54,967.0	180,338
	121 30 10.803	225 43 59.1	55 53 43.2	Santa Ana	4.465196	29,187.4	95,759
		353 33 58.3	173 37 00.1	Santa Lucia	4.834416	68,299.3	224,079
Point Pinos Lighthouse, 1855	36 38 00.300	164 07 19.1	344 02 55.6	Santa Cruz azimuth	4.599533	39,767.9	130,472
	121 55 57.538	204 02 29.0	24 06 52.5	Pajaro Mouth 3	4.427886	26,784.7	87,876
		249 43 31.5	69 58 20.3	Gavilan	4.594757	39,333.0	129,045
		291 18 42.8	111 29 51.6	Vaca	4.476704	29,971.2	98,331
Point Pinos latitude station, 1851 [1]	36 37 58.18	187 04 23	7 04 23	Point Pinos latitude station 2	2.430623	269.540	884.32
	121 55 30.35						

Vicinity of Point Sur

Principal points								
Cone Peak 2, 1933	36 03 07.140	213 46 47.99	33 49 31.86	Santa Lucia	4.0971128	12,505.84	41,029.6
	121 29 42.809	317 16 47.23	137 32 08.11	Rocky Butte 2	4.7655245	58,280.67	191,209.2
Rock Slide West, 1933	36 07 27.581	261 50 08.12	81 56 39.47	Santa Lucia	4.2243054	16,761.21	54,990.7
	121 36 08.331	309 44 16.26	129 48 03.34	Cone Peak 2	4.0985900	12,548.45	41,169.4
Dolan, 1890	36 05 17.811	186 22 07.06	6 22 17.58	Rock Slide West	3.6047228	4,024.60	13,204.0
	121 36 26.183	291 43 08.05	111 47 05.54	Cone Peak 2	4.0361419	10,867.81	35,655.5
Paul, 1932	36 07 32.324	278 24 34.30	98 24 57.60	Rock Slide West	2.9996052	999.09	3,277.8
	121 36 47.854	352 32 58.52	172 33 11.29	Dolan	3.6213016	4,181.21	13,717.9
Supplementary points							
Rock Slide, 1890	36 07 27.462	261 44 29.5	81 50 56.9	Santa Lucia	4.219978	16,595.0	54,445
	121 36 01.596	310 13 22.0	130 17 05.1	Cone Peak 2	4.094017	12,417.0	40,738
		91 15 10.5	271 15 06.5	Rock Slide West	2.226567	168.5	553
B. M. 5148 (U.S.G.S.), 1933 [1]	36 03 07.16	83 38	263 38	Cone Peak 2	0.627878	4.245	13.93
	121 29 42.64						

San Joaquin Valley arc

Principal points							
Bear, 1931	38 06 52.815	76 33 00.44	255 48 48.63	Mount Diablo	5.0343337	108,226.52	355,073.2
	120 42 59.779	160 32 48.63	340 22 38.43	Pine Hill	4.8526908	71,234.57	233,708.7
Mount Oso, 1931	37 30 30.324	131 13 55.82	310 54 08.91	Mount Diablo	4.7998610	63,075.54	206,940.3
	121 22 26.019	193 57 51.84	14 12 06.28	Pine Hill	5.1417177	138,585.46	454,675.8
		220 30 02.66	40 54 13.35	Bear	4.9481982	88,756.10	291,194.0
		51 36 44		Mount Hamilton, observatory cupola.			
Big Hill, 1931	37 49 43.004	63 42 30.75	243 12 56.46	Mount Oso	4.9005697	79,537.09	260,947.9
	120 34 02.587	157 36 25.97	337 30 55.45	Bear	4.5359447	34,351.42	112,701.3

[1] No check on this position.

San Joaquin Valley arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points—Continued	° ′ ″	° ′ ″	° ′ ″				
Livingston, 1931	37 23 12.512	103 19 46.88	282 55 55.64	Mount Oso	4.7738751	59,412.12	194,921.3
	120 43 12.158	180 12 49.96	0 12 57.54	Bear	4.9073332	80,785.46	265,043.6
		195 19 29.02	15 25 04.40	Big Hill	4.7063194	50,853.33	166,841.3
		182 21 28		Reference mark no. 1.			
Merced, 1931	37 18 04.885	114 51 55.75	294 43 29.83	Livingston	4.3543679	22,613.51	74,191.2
	120 29 18.135	173 13 15.58	353 10 22.16	Big Hill	4.7703568	58,932.77	193,348.6
		116 52 48		Reference mark no. 1.			
Shultz, 1931	37 26 44.222	62 25 27.50	242 12 54.54	Merced	4.5373772	34,464.91	113,073.6
	120 08 37.695	82 53 02.80	262 32 02.35	Livingston	4.7112008	51,428.14	168,727.2
		138 47 44.82	318 32 13.63	Big Hill	4.7528946	56,610.18	185,728.6
Chowchilla, 1931	37 07 37.374	133 15 20.64	313 06 55.09	Merced	4.4512735	28,266.59	92,738.0
	120 15 22.237	195 42 25.00	15 46 30.07	Shultz	4.5650500	36,732.46	120,513.1
		118 58 43		Reference mark no. 2.			
Green, 1931	37 15 50.935	57 20 29.53	237 10 49.46	Chowchilla	4.4492297	28,133.88	92,302.6
	119 59 22.702	95 29 05.81	275 10 58.23	Merced	4.6475919	44,421.37	145,739.1
		145 54 05.85	325 48 29.11	Shultz	4.3862229	24,334.53	79,837.5
Madera, 1931	36 57 27.977	136 22 15.81	316 14 58.36	Chowchilla	4.4146323	25,979.59	85,234.7
	120 03 16.062	189 35 53.75	9 38 14.55	Green	4.5376375	34,485.58	113,141.4
		320 47 31		Reference mark no. 2.			
Red Top, 1931	37 07 41.470	52 44 58.15	232 34 53.73	Madera	4.4939273	31,183.68	102,308.5
	119 46 32.733	89 58 31.91	269 41 08.00	Chowchilla	4.6303505	42,692.39	140,066.6
		128 32 07.35	308 24 21.87	Green	4.3847879	24,254.25	79,574.2
Fresno, 1931	36 44 05.714	136 24 57.27	316 15 25.99	Madera	4.5338445	34,185.70	112,157.6
	119 47 23.415	163 12 44.78	343 05 31.90	Green	4.7879201	61,364.91	201,328.0
		181 38 31.33	1 39 01.78	Red Top	4.6400856	43,660.19	143,241.8
Cooper, 1931	36 55 48.009	31 37 19.53	211 31 57.62	Fresno	4.4050240	25,411.13	83,369.7
	119 38 26.434	94 54 12.30	274 39 16.98	Madera	4.5680640	36,988.27	121,352.3
		151 23 01.05	331 18 08.19	Red Top	4.3990451	25,063.69	82,229.8
		23 36 14		Clovis, water tank.			
Campbell, 1931	36 41 44.470	97 37 30.42	277 24 15.36	Fresno	4.5223250	33,290.86	109,221.8
	119 25 13.533	142 58 59.00	322 51 03.89	Cooper	4.5131390	32,594.10	106,935.8
Selma, 1931	36 34 21.238	139 23 37.25	319 17 25.34	Fresno	4.3756426	23,748.85	77,916.0
	119 37 00.437	176 55 42.98	356 54 51.52	Cooper	4.5990325	39,722.13	130,321.7
		232 03 38.97	52 10 40.78	Campbell	4.3473448	22,250.76	73,001.0
		329 34 04		Reference mark no. 2.			
Smith, 1931	36 34 55.191	87 37 03.89	267 27 20.77	Selma	4.3865228	24,351.34	79,892.7
	119 20 41.893	151 52 48.01	331 50 05.90	Campbell	4.1555556	14,307.23	46,939.6
Traver, 1931	36 27 12.248	138 41 13.69	318 36 35.40	Selma	4.2458844	17,615.07	57,792.1
	119 29 12.732	192 27 12.56	12 29 35.08	Campbell	4.4398916	27,535.41	90,339.1
		221 39 00.02	41 44 04.00	Smith	4.2812520	19,109.62	62,695.5
		157 42 22		Reference mark no. 2.			
Venice, 1931	36 22 09.458	108 58 39.72	288 47 49.84	Traver	4.4598628	28,831.21	94,590.4
	119 10 57.872	148 24 55.33	328 19 08.14	Smith	4.4428139	27,721.32	90,949.0
Tagus, 1931	36 16 07.812	151 59 04.59	331 54 45.08	Traver	4.3656008	23,206.03	76,135.1
	119 21 55.013	182 59 40.15	3 00 23.56	Smith	4.5415460	34,797.34	114,164.3
		235 43 47.01	55 50 16.22	Venice	4.2971741	19,823.21	65,036.6
		152 02 18		Reference mark no. 2.			
Octol, 1931	36 07 24.502	168 26 42.97	348 25 24.95	Tagus	4.2165308	16,463.83	54,015.1
	119 19 42.895	205 37 30.94	25 42 41.37	Venice	4.4809111	30,262.94	99,287.7
		169 42 57		Reference mark no. 2.			
Strathmore, 1931	36 06 26.029	93 54 43.84	273 44 08.37	Octol	4.4317448	27,023.70	88,660.3
	119 01 44.765	120 45 59.31	300 34 04.73	Tagus	4.5460081	35,156.70	115,343.3
		154 38 21.49	334 32 54.52	Venice	4.5077480	32,192.00	105,616.6
Earlimart, 1931	35 53 32.503	169 23 39.10	349 21 46.20	Octol	4.4164777	26,090.22	85,597.7
	119 16 30.873	222 52 41.46	43 01 22.30	Strathmore	4.5128462	32,572.13	106,863.7
		168 33 19		Reference mark no. 2.			
Credow, 1931	35 56 42.683	80 39 03.66	260 25 20.85	Earlimart	4.5520648	35,650.43	116,963.1
	118 53 08.285	116 29 21.51	296 13 43.44	Octol	4.6488835	44,553.67	146,173.2
		144 19 01.26	324 13 57.49	Strathmore	4.3453131	22,146.91	72,660.3
		154 02 48		Reference mark no. 2.			
Delano, 1931	35 45 53.676	169 34 18.30	349 33 17.55	Earlimart	4.1577301	14,379.05	47,175.3
	119 14 47.099	238 21 14.06	58 33 54.82	Credow	4.5825011	38,238.52	125,454.2
		168 26 46		Reference mark no. 2.			
Mount Poso, 1931	35 35 33.725	130 58 38.46	310 50 07.00	Delano	4.4650577	29,178.15	95,728.6
	119 00 10.172	143 32 04.78	323 22 31.90	Earlimart	4.6168345	41,384.19	135,774.6
		195 07 37.19	15 11 43.78	Credow	4.6076648	40,519.57	132,938.0
		120 34 42		Reference mark no. 2.			
Wasco, 1931	35 35 53.105	202 11 16.43	22 14 11.75	Delano	4.3008777	19,992.99	65,593.7
	119 19 47.665	271 03 33.01	91 14 58.38	Mount Poso	4.4719874	29,647.45	97,268.3
		12 50 08.84	192 46 58.66	Elk	4.5719328	37,319.24	122,438.2
		358 57 27		Reference mark no. 1.			

San Joaquin Valley arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points—Continued	° ′ ″	° ′ ″	° ′ ″				
Oil Hill, 1931	35 30 05.909	338 46 03.80	158 47 30.30	Kern	4.0165640	10,388.77	34,083.8
	119 00 22.978	55 49 47.35	235 35 22.95	Elk	4.6589615	45,599.65	149,604.9
		110 08 00.36	289 56 43.20	Wasco	4.4945188	31,226.17	102,447.9
		143 24 25.42	323 16 01.99	Delano	4.5612607	36,413.35	119,466.1
		181 49 39.74	1 49 47.19	Mount Poso	4.0046674	10,108.05	33,162.8
		119 36 35		Reference mark no. 1.			
Shafter, 1931	35 30 03.384	288 59 46.21	109 10 24.95	Kern	4.4680597	29,380.53	96,392.6
	119 16 14.952	28 05 39.67	208 00 26.54	Elk	4.4627216	29,021.62	95,215.1
		153 35 06.87	333 33 03.20	Wasco	4.0804905	12,036.23	39,488.9
		269 44 14.50	89 53 27.33	Oil Hill	4.3800759	23,992.52	78,715.5
		132 49 46		Reference mark no. 2.			
San Benito, 1931	36 22 11.033	69 19 33.40	249 13 09.21	Hepsedam	4.2376946	17,286.00	56,712.5
	120 38 36.788	138 37 15.17	318 16 10.23	Santa Ana	4.8997425	79,385.75	260,451.4
		210 15 12.62	30 38 43.38	Green	5.0612006	115,133.21	377,732.9
		241 48 54.30	62 19 24.70	Fresno	4.9370808	86,512.88	283,834.3
Quien Sabe, 1931	36 53 25.789	248 11 37.76	68 54 33.91	Green	5.0545994	113,396.42	372,034.8
	121 10 35.562	277 31 37.30	98 21 28.70	Fresno	5.0966863	124,935.63	409,893.0
		320 19 10.99	140 38 15.84	San Benito	4.8745632	74,914.03	245,780.4
		333 36 01.59	153 48 39.14	Hepsedam	4.8529766	71,281.46	233,862.6
		108 02 18.23	288 00 17.71	Santa Ana	3.7185895	5,231.06	17,162.2
Miller, 1931	36 48 24.923	20 44 34.81	200 37 15.67	San Benito	4.7147967	51,855.73	170,130.0
	120 26 20.048	98 14 42.40	277 48 09.87	Quien Sabe	4.8224335	66,440.59	217,980.5
		5 03 59		Reference mark no. 1.			
Dos Palos, 1931	36 57 41.290	312 29 35.48	132 37 08.22	Miller	4.4041281	25,358.77	83,197.9
	120 38 54.370	359 37 03.24	179 37 13.74	San Benito	4.8173395	65,665.84	215,438.7
		80 39 23.47	260 20 21.26	Quein Sabe	4.6786010	47,709.08	156,525.5
		128 27 40		Reference mark no. 2.			
Calaveras, 1931	36 31 49.641	61 28 46.09	241 15 46.62	San Benito	4.5708085	37,222.75	122,121.6
	120 16 44.816	155 04 49.18	334 59 05.66	Miller	4.5294531	33,841.77	111,029.2
Supplementary points		179 46 36		Reference mark no. 1.			
Mount Diablo, flagpole, 1931 [1]	37 52 54.26	254 12	74 12	Mount Diablo	1.167317	14.70	48.2
	121 54 47.69						
B. M. 1516 (U.S.G.S.), 1931 [1]	37 49 43.96	305 58 45	125 58 46	Big Hill	1.699751	50.09	164.3
	120 34 04.24						
Big Hill, fire lookout house, center, 1931 [1]	37 49 43.24	289 03 30	109 03 31	Big Hill	1.340444	21.90	71.9
	120 34 03.43						
Mount Oso (U.S.G.S.), cairn, 1931 [1]	37 30 30.48	5	185	Mount Oso	0.681241	4.8	16
	121 22 26.00						
Mount Oso, fire lookout house, center, 1931 [1]	37 30 26.94	149 31 49	329 31 47	Mount Oso	2.082785	121.0	397
	121 22 23.52						
B. M. 2287 (U.S.G.S.), 1931 [1]	37 26 45.03	13 11 17	193 11 17	Shultz	1.405858	25.46	83.5
	120 08 37.46						
Shultz (U.S.G.S.), cairn, 1931 [1]	37 26 44.69	21 39 42	201 39 42	Shultz	1.191451	15.54	51.0
	120 08 37.46						
Livingston, municipal water tank, 1931 [1]	37 23 05.42	208 31 59	28 32 02	Livingston	2.395850	248.8	816
	120 43 16.99	262 18 34	82 39 38	Shultz	4.712437	51,574.7	169,208
Shuteye Peak, fire lookout tower, 1931	37 20 58.724	22 13 58.1	202 06 13.9	Cooper	4.701467	50,288.3	164,988
	119 25 37.608	51 38 26.2	231 25 46.7	Red Top	4.596721	39,511.3	129,630
		79 23 52.9	259 03 25.5	Green	4.705567	50,765.3	166,552
Yosemite Cement Co., south stack, 1931	37 19 57.618	107 10 04.9	287 02 03.4	Livingston	4.310311	20,432.0	67,034
	120 29 58.603	248 11 55.5	68 24 53.3	Shultz	4.530346	33,911.4	111,258
		316 29 40.6	136 38 30.8	Chowchilla	4.497262	31,424.0	103,097
		343 59 52.0	164 00 16.5	Merced	3.558152	3,615.4	11,862
Yosemite Cement Co., north stack, 1931	37 19 57.858	107 09 00.1	287 00 58.6	Livingston	4.310222	20,427.8	67,020
	120 29 58.689	248 12 42.0	68 25 39.8	Shultz	4.530336	33,910.6	111,255
		316 30 03.8	136 38 54.0	Chowchilla	4.497356	31,430.8	103,119
		343 59 51.7	164 00 16.2	Merced	3.559074	3,623.0	11,886
Merced, municipal water tank, 1931 [1]	37 18 49.79	316 47 25	136 55 22	Chowchilla	4.453468	28,409.8	93,208
	120 28 30.22	40 26 34	220 26 05	Merced	3.259829	1,819.0	5,968
Green (U.S.G.S.), cairn, 1931	37 15 55.513	308 36 21.8	128 44 08.3	Red Top	4.386929	24,374.1	79,967
	119 59 24.362	343 50 07.9	163 50 08.9	Green	2.167190	147.0	482
		145 47 39.1	325 42 03.3	Shultz	4.383721	24,194.7	79,379
Rabbit (U.S.G.S.), cairn, 1931 [1]	37 08 09.35	159 38 50	339 36 41	Green	4.181237	15,178.8	49,799
	119 55 48.45	273 32 18	93 37 54	Red Top	4.138110	13,743.9	45,091
Red Top, fire lookout house, northwest gable, 1931.	37 07 42.011	20 11 34.4	200 11 34.3	Red Top	1.249687	17.77	58.3
	119 46 32.484	128 29 44.0	308 21 58.4	Green	4.384688	24,248.7	79,556
Chowchilla, municipal water tank, 1931 [1]	37 07 33.29	237 23 29	57 33 19	Green	4.455321	28,531.3	93,606
	120 15 38.09	315 26 13	135 33 40	Madera	4.417671	26,162.0	85,833

[1] No check on this position.

San Joaquin Valley arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Madera, municipal water tank, 1931	36 57 37.154	338 52 26.0	158 52 28.6	Madera	2.481830	303.3	995
	120 03 20.480	136 06 41.6	315 59 26.8	Chowchilla	4.409928	25,699.7	84,316
		316 27 01.4	136 36 35.3	Fresno	4.537389	34,465.8	113,077
Copper (U.S.G.S.), cairn, 1931	36 55 56.669	322 34 14.4	142 42 19.3	Campbell	4.519182	33,050.8	108,434
	119 38 42.728	30 31 49.0	210 26 36.9	Fresno	4.405374	25,431.6	83,437
		303 30 17.1	123 30 26.9	Cooper	2.684512	483.6	1,587
Copper Mountain, fire lookout tower, 1931	36 55 48.415	357 23 58.0	177 23 58.0	Cooper	1.097951	12.53	41.1
	119 38 26.457	151 22 15.8	331 17 23.0	Red Top	4.398850	25,052.4	82,193
Pinedale, Sugar Pine Lumber Co., northernmost stack, 1931.[1]	36 50 47.44	184 49 10	4 50 14	Red Top	4.496518	31,370.3	102,921
	119 48 19.51	237 42 09	57 48 05	Cooper	4.239657	17,364.3	56,969
Pinedale, Sugar Pine Lumber Co., southernmost stack, 1931.[1]	36 50 47.11	184 47 31	4 48 35	Red Top	4.496642	31,379.2	102,950
	119 48 18.93	237 38 55	57 44 51	Cooper	4.239491	17,357.7	56,948
Pinedale, Sugar Pine Lumber Co., water tank, 1931.[1]	36 50 40.67	237 00 42	57 06 36	Cooper	4.241133	17,423.4	57,163
	119 48 16.95	295 36 27	115 50 15	Campbell	4.580729	38,082.8	124,943
Bear Mountain, fire lookout tower, 1931 [1]	36 44 45.09	17 17 38	197 15 22	Smith	4.279723	19,042.5	62,475
	119 16 54.19	65 50 49	245 45 50	Campbell	4.133061	13,585.0	44,570
Fresno, courthouse, dome, 1931 [1]	36 44 07.20	45 34 06	225 34 05	Fresno	1.816711	65.6	215
	119 47 21.53	136 18 23	316 08 50	Madera	4.533833	34,184.8	112,155
Los Angeles-San Francisco airway beacon no. 20 (flashing red), 1931.	36 41 06.932	152 54 37.5	332 53 29.6	Fresno	3.791727	6,190.5	20,310
	119 45 29.797	267 42 16.1	87 54 22.9	Campbell	4.480252	30,217.0	99,137
		314 36 57.1	134 42 01.0	Selma	4.250215	17,791.6	58,371
Los Angeles-San Francisco airway beacon no. 19 (flashing red), 1931.	36 34 34.436	145 06 54.7	325 01 59.1	Fresno	4.331986	21,477.6	70,464
	119 39 08.339	277 16 45.2	97 18 01.4	Selma	3.505960	3,206.0	10,518
		312 33 18.9	132 39 13.3	Traver	4.303947	20,134.8	66,059
Selma, Libby, McNeill & Libby, water tank, 1931.	36 33 49.489	318 58 40.2	139 02 54.6	Traver	4.210074	16,220.9	53,218
	119 36 20.271	134 25 14.9	314 24 51.0	Selma	3.145597	1,398.3	4,588
		139 06 28.7	319 00 52.9	Fresno	4.400403	25,142.2	82,487
Dinuba, water tank, 1931	36 32 35.357	42 23 22.9	222 19 45.9	Traver	4.129631	13,478.2	44,220
	119 23 07.837	99 01 34.8	278 53 18.9	Selma	4.321415	20,961.1	68,770
		169 33 18.5	349 32 03.5	Campbell	4.235827	17,211.8	56,469
Cutler, water tank, 1931 [1]	36 31 32.37	331 51 54	151 55 35	Venice	4.293812	19,670.3	64,535
	119 17 09.95	139 52 57	319 50 51	Smith	3.912600	8,177.1	26,828
Los Angeles-San Francisco airway beacon no. 18 (flashing red), 1931.	36 27 35.921	146 05 00.3	326 01 39.2	Selma	4.177824	15,060.0	49,409
	119 31 22.467	199 17 40.3	19 21 20.1	Campbell	4.442754	27,717.5	90,936
		282 43 02.6	102 44 19.7	Traver	3.520079	3,311.9	10,866
Visalia, Southern California Edison Co., water tank, 1931.	36 20 00.973	125 11 51.8	305 04 22.1	Traver	4.363579	23,098.2	75,781
	119 16 34.752	167 26 04.0	347 23 37.2	Smith	4.450890	28,241.6	92,656
		244 43 47.4	64 47 07.1	Venice	3.967861	9,286.7	30,468
Los Angeles-San Francisco airway beacon no. 17 (flashing green), 1931.	36 19 31.501	145 01 31.5	324 53 52.7	Selma	4.524982	33,495.2	109,892
	119 24 08.237	151 54 25.7	331 51 25.1	Traver	4.206882	16,102.1	52,828
		190 12 47.7	10 14 50.3	Smith	4.461369	28,931.4	94,919
		332 05 18.8	152 06 37.7	Tagus	3.851499	7,103.9	23,307
Farmersville, water tank, 1931 [1]	36 18 16.68	217 25 51	37 28 01	Venice	3.956048	9,037.5	29,651
	119 14 38.22	318 31 15	138 38 52	Strathmore	4.465500	29,207.9	95,826
Tulare, municipal water tank, 1931	36 12 28.724	160 56 37.5	340 55 42.2	Tagus	3.853985	7,144.7	23,441
	119 20 21.557	218 06 56.0	38 12 29.6	Venice	4.357277	22,765.5	74,690
		291 43 56.4	111 54 55.3	Strathmore	4.478142	30,070.6	98,657
Los Angeles-San Francisco airway beacon no. 16 (flashing red), 1931.	36 10 29.248	172 31 39.4	352 31 07.0	Tagus	4.022214	10,524.8	34,530
	119 21 00.178	214 48 36.7	34 54 33.0	Venice	4.419989	26,302.0	86,292
		341 15 08.4	161 15 54.0	Octol	3.779095	6,013.1	19,728
Strathmore, water tank, 1931 [1]	36 08 46.19	156 17 54	336 13 36	Venice	4.432116	27,046.8	88,736
	119 03 41.74	325 53 17	145 54 26	Strathmore	3.717446	5,217.3	17,117
Los Angeles-San Francisco airway beacon no. 15 (flashing red), 1931.	36 01 16.138	176 36 11.8	356 35 55.9	Octol	4.055896	11,373.5	37,315
	119 19 15.948	197 48 52.8	17 53 46.8	Venice	4.608364	40,584.9	133,152
		249 57 33.8	70 07 52.5	Strathmore	4.446955	27,986.9	91,820
		343 50 28.3	163 52 05.2	Earlimart	4.172498	14,876.4	48,807
Delano, municipal water tank, 1931	35 46 15.761	22 58 27.9	202 58 21.2	Delano	2.868825	739.3	2,426
	119 14 35.612	167 52 46.9	347 51 39.5	Earlimart	4.138866	13,767.8	45,170
		312 12 28.7	132 20 53.6	Mount Poso	4.468545	29,413.4	96,500
Los Angeles-San Francisco airway beacon no. 12 (flashing green), 1931	35 45 08.290	25 13 58.7	205 10 51.9	Wasco	4.276722	18,911.3	62,045
	119 14 27.399	160 31 00.5	340 30 49.0	Delano	3.171370	1,483.8	4,868
		168 43 49.0	348 42 36.7	Earlimart	4.199922	15,846.1	51,988
Wasco, water tank, 1931 [1]	35 35 35.69	212 03 56	32 04 03	Wasco	2.801654	633.4	2,078
	119 20 01.02	330 54 25	150 56 36	Shafter	4.068850	11,717.9	38,444
Los Angeles-San Francisco airway beacon no. 11 (flashing red), 1931.	35 34 35.234	37 18 17.9	217 15 50.8	Shafter	4.022430	10,530.0	34,547
	119 12 01.735	101 36 01.4	281 31 30.2	Wasco	4.078210	11,973.2	39,282
		168 45 50.3	348 44 13.9	Delano	4.328763	21,318.8	69,943

[1] No check on this position.

San Joaquin Valley arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Shafter, municipal water tank, 1931	35 30 06.332	27 45 29.3	207 40 19.5	Elk	4.462913	29,034.4	95,257
	119 16 20.670	154 00 40.7	333 58 40.3	Wasco	4.075221	11,891.1	39,013
		302 14 32.0	122 14 35.3	Shafter	2.231368	170.4	559
Poso (U.S.G.S.), 1931 [1]	35 35 33.85	304 00 47	124 00 47	Mount Poso	0.842921	6.965	22.85
	119 00 10.40						
Oil Hill (U.S.G.S.), 1931 [1]	35 30 05.70	228 23 47	48 23 47	Oil Hill	0.982723	9.61	31.5
	119 00 23.26						
Brown & Moore Oil Co., black water tank, 1931.	35 26 52.881	202 58 51.7	22 59 49.8	Oil Hill	3.810370	6,462.0	21,201
	119 02 03.084	300 41 55.7	120 44 20.2	Kern	3.864081	7,312.8	23,992
		60 47 54.1	240 34 28.2	Elk	4.605546	40,322.4	132,291
Bakersfield, airport beacon (flashing green), 1931.	35 25 34.321	199 25 23.3	19 26 31.3	Oil Hill	3.948193	8,875.5	29,119
	119 02 20.088	281 03 06.5	101 05 40.8	Kern	3.835302	6,843.9	22,454
		63 36 27.1	243 23 11.3	Elk	4.588983	38,813.5	127,341
Bakersfield Cotton Compress, black water tank, 1931.[1]	35 25 07.76	275 12 25	95 14 29	Kern	3.735996	5,445.0	17,864
	119 01 28.78	65 30 29	245 16 44	Elk	4.598032	39,630.7	130,022
Oildale, water tank, 1931	35 24 37.554	116 18 27.7	296 10 39.1	Shafter	4.356207	22,709.5	74,506
	119 02 47.212	266 36 46.8	86 39 36.8	Kern	3.870067	7,414.2	24,325
		65 32 09.1	245 19 09.2	Elk	4.573383	37,444.1	122,848
Bakersfield, California Water Service, station no. 23, water tank, 1931.	35 23 24.800	71 39 19.3	251 24 05.7	Elk	4.623958	42,068.6	138,020
	118 58 55.822	169 55 27.4	349 54 36.9	Oil Hill	4.098830	12,555.4	41,192
		210 16 56.4	30 17 32.3	Kern	3.491402	3,100.3	10,172
Bakersfield, Fox Theater, clock tower, 1931	35 22 38.586	72 00 59.7	251 47 05.9	Elk	4.583422	38,319.7	125,721
	119 01 13.632	185 17 26.6	5 17 56.0	Oil Hill	4.141286	13,844.8	45,422
		230 51 16.6	50 53 12.3	Kern	3.812847	6,499.0	21,322
Bakersfield, California Water Service, on A Street, large, shallow, silver-colored water tank, 1931.	35 21 31.384	74 43 36	254 29 58	Elk	4.568911	37,060.5	121,589
	119 01 41.170	187 05 03	7 05 49	Oil Hill	4.203548	15,978.9	52,424
		222 53 19	42 55 29	Kern	3.925666	8,426.9	27,647
B. M. 5258 (U.S.G.S.), 1931 [1]	36 22 10.64	217 28 43	37 28 43	San Benito	1.181844	15.20	49.9
	120 38 37.16						
B. M. 4492 (U.S.G.S.), 1931 [1]	36 18 52.62	19 09	199 09	Hepsedam	0.348305	2.23	7.3
	120 49 25.07						

Sacramento to Stockton arc

Principal points							
Dixon, 1931	38 21 56.469	91 59 33.67	271 44 58.87	Vaca	4.5343883	34,228.54	112,298.1
	121 41 31.493	152 36 14.08	332 32 14.18	Yolo southeast base	4.3077084	20,309.93	66,633.5
		8 17 45		Reference mark no. 2.			
Saxon, 1931	38 28 11.283	22 47 18.11	202 45 13.85	Dixon	4.0980856	12,533.88	41,121.6
	121 38 11.520	75 10 01.55	254 53 21.47	Vaca	4.6064717	40,408.40	132,573.2
		114 33 10.50	294 27 05.84	Yolo southeast base	4.1931192	15,599.81	51,180.4
		10 25 36		Reference mark no. 1.			
Davis, 1931	38 30 08.253	307 22 25.58	127 24 26.75	Saxon	3.7737439	5,939.42	19,486.2
	121 41 26.223	0 29 00.21	180 28 56.94	Dixon	4.1808194	15,164.20	49,751.2
		106 50 50.19	286 46 46.65	Yolo southeast base	3.9955404	9,897.84	32,473.2
		91 47 48		Reference mark no. 2.			
Content, 1931	38 26 40.997	62 32 39.25	242 25 28.06	Dixon	4.2785180	18,989.69	62,302.0
	121 29 57.382	103 07 25.60	283 02 18.28	Saxon	4.0899108	12,300.16	40,354.8
		17 05 50		Reference mark no. 2.			
Randall, 1931	38 20 50.727	98 29 16.40	278 23 27.22	Dixon	4.1402546	13,811.94	45,314.7
	121 32 08.790	147 05 35.53	327 01 50.18	Saxon	4.2091336	16,185.78	53,102.8
		196 26 18.07	16 27 39.69	Content	4.0515805	11,261.09	36,945.8
		68 33 15		Reference mark no. 2.			
Miner, 1931	38 14 58.326	166 00 22.67	345 59 00.63	Dixon	4.1234512	13,287.74	43,594.9
	121 39 19.137	223 51 55.28	43 56 21.99	Randall	4.1784090	15,080.27	49,475.9
		267 23 02		Reference mark no. 1.			
Walnut, 1931	38 14 22.646	95 32 20.09	275 27 29.16	Miner	4.0599937	11,481.37	37,668.5
	121 31 29.161	133 45 58.14	313 39 44.81	Dixon	4.3063898	20,248.36	66,431.5
		175 24 07.53	355 23 42.97	Randall	4.0793442	12,004.50	39,384.8
		88 10 46		Reference mark no. 1.			
Drouin, 1931	38 10 00.365	209 34 11.04	29 36 23.66	Miner	4.0238553	10,564.65	34,660.9
	121 42 53.545	244 02 16.70	64 09 19.97	Walnut	4.2674439	18,511.60	60,733.5
		208 35 48		Reference mark no. 1.			
Jackson, 1931	38 08 16.981	111 26 11.65	291 22 45.36	Drouin	3.9411617	8,732.96	28,651.4
	121 37 19.618	166 47 02.75	346 45 48.85	Miner	4.1042057	12,711.76	41,705.2
		217 04 33.68	37 08 10.36	Walnut	4.1503532	14,136.87	46,380.7
		335 59 01		Reference mark no. 2.			
Pier No. 4 (U.S.G.S.), 1931	38 05 23.520	198 48 27.53	18 49 41.27	Drouin	3.9551013	9,017.81	29,585.9
	121 44 52.974	244 07 19.27	64 11 59.10	Jackson	4.0888763	12,270.90	40,258.8
		143 40 46		Reference mark no. 1.			

[1] No check on this position.

Sacramento to Stockton arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points—Continued	° ′ ″	° ′ ″	° ′ ″				
False, 1931	38 03 14.447	125 29 26.54	305 27 05.24	Pier No. 4 (U.S.G.S.)	3.8361906	6,857.89	22,499.6
	121 41 03.837	167 57 17.32	347 56 09.61	Drouin	4.1071278	12,797.58	41,986.7
		210 20 20.91	30 22 39.25	Jackson	4.0338281	10,810.06	35,466.0
		44 14 51		Reference mark no. 2.			
Holland, 1931	38 01 47.422	106 59 06.11	286 55 23.68	False	3.9638496	9,201.31	30,188.0
	121 35 02.896	164 30 25.16	344 29 00.83	Jackson	4.0956770	12,464.56	40,894.1
		346 15 21		Reference mark no. 2.			
Grass, 1931	38 06 55.022	45 48 30.56	225 44 24.05	Holland	4.1334523	13,597.29	44,610.4
	121 28 23.142	69 55 11.22	249 47 22.00	False	4.2954906	19,746.52	64,785.0
		100 59 29.61	280 53 58.39	Jackson	4.1241379	13,308.77	43,663.9
		267 38 35		Reference mark no. 2.			
Black, 1931	37 59 03.687	353 46 36.69	173 49 00.26	Mount Oso	4.7253783	53,134.71	174,326.1
	121 26 20.534	74 51 54.47	254 34 25.37	Mount Diablo	4.6355137	43,202.98	141,741.8
		111 39 18.63	291 33 56.98	Holland	4.1369458	13,707.11	44,970.7
		168 23 10.65	348 21 55.08	Grass	4.1713312	14,836.49	48,676.1
Bennett, 1931	38 03 27.461	43 43 14.40	223 39 58.19	Black	4.0510642	11,247.71	36,901.9
	121 21 01.985	81 31 03.38	261 22 25.16	Holland	4.3167137	20,735.46	68,029.6
		120 48 04.81	300 43 32.68	Grass	4.0973087	12,511.48	41,048.1
		356 10 52		Reference mark no. 2.			
Stockton, 1931	37 57 22.072	103 06 40.61	283 01 00.29	Black	4.1417700	13,860.22	45,473.1
	121 17 07.384	153 05 15.45	333 02 51.00	Bennett	4.1016121	12,636.07	41,456.8
Roberts, 1931	37 54 22.866	4 30 49.46	184 29 22.65	Mount Oso	4.6464250	44,302.17	145,348.0
	121 20 04.065	87 06 34.91	266 45 15.50	Mount Diablo	4.7073071	50,969.12	167,221.2
		133 19 07.05	313 15 15.56	Black	4.1013222	12,627.64	41,429.2
		175 11 34.56	355 10 58.92	Bennett	4.2266028	16,850.11	55,282.4
		217 58 20.77	38 00 09.38	Stockton	3.8457373	7,010.31	22,999.7
		88 47 18		Reference mark no. 2.			
Blume, 1931	38 02 31.956	155 15 17.98	335 14 16.29	Pier No. 4 (U.S.G.S.)	3.7652861	5,824.87	19,110.4
	121 43 12.920	247 23 22.70	67 24 42.26	False	3.5326455	3,409.15	11,184.9
		55 56 24		Reference mark no. 2.			

No. 8 (U.S.E.), 1931	38 07 07.501	253 59 08.60	74 02 18.14	Jackson	3.8908490	7,777.66	25,517.2
	121 42 26.600	344 18 50.62	164 19 41.67	False	3.8729281	7,463.25	24,485.7
		7 34 23.55	187 33 54.98	Blume	3.9329967	8,570.31	28,117.8
		48 03 27.80	228 01 57.47	Pier No. 4 (U.S.G.S.)	3.6808301	4,795.46	15,733.1
		200 11 39		Reference mark no. 1.			
Pox, 1932	37 54 53.843	83 36 26.88	263 32 53.46	Roberts	3.9313782	8,538.43	28,013.2
	121 14 16.725	137 39 10.20	317 37 25.28	Stockton	3.7913355	6,184.94	20,291.8
		160 58 16		Reference mark no. 1.			
Cactus, 1931	37 50 54.002	145 08 13.07	325 06 20.30	Roberts	3.8948438	7,849.53	25,753.0
	121 17 00.397	179 10 59.50	359 10 55.21	Stockton	4.0779431	11,965.84	39,257.9
		208 23 43.22	28 25 23.72	Pox	3.9246397	8,406.97	27,581.9
		89 38 24		Reference mark no. 2.			
Williams, 1931	37 52 54.548	157 06 05.09	337 04 03.98	Black	4.0918844	12,356.19	40,538.6
	121 23 03.523	238 08 40.23	58 10 30.45	Roberts	3.7127738	5,161.48	16,934.0
		292 41 20.66	112 45 03.55	Cactus	3.9832936	9,622.63	31,570.2
		184 25 25		Reference mark no. 1.			
Mowry, 1931	37 50 07.099	178 06 02.68	358 05 58.38	Williams	3.7131073	5,165.44	16,946.9
	121 22 56.518	208 06 37.87	28 08 23.73	Roberts	3.9514028	8,941.34	29,335.0
		260 32 25.66	80 36 04.13	Cactus	3.9457984	8,826.70	28,958.9
		108 16 00		Reference mark no. 2.			
Moss, 1932	37 47 18.590	128 19 05.94	308 16 21.04	Mowry	3.9234121	8,383.24	27,504.0
	121 18 27.540	197 47 07.81	17 48 01.24	Cactus	3.8435399	6,974.93	22,883.6
		294 11 33		Reference mark no. 2.			
Sugar, 1931	37 46 21.088	204 29 34.83	24 30 54.41	Mowry	3.8841032	7,657.79	25,123.9
	121 25 06.350	259 40 12.90	79 44 17.22	Moss	3.9964685	9,919.01	32,542.6
		313 58 35		Reference mark no. 2.			
Grant, 1931	37 49 13.298	219 25 52.81	39 28 13.70	Williams	3.9461562	8,833.98	28,982.8
	121 26 53.125	253 59 03.27	74 01 28.38	Mowry	3.7795526	6,019.39	19,748.6
		333 47 32.75	153 48 38.19	Sugar	3.7721172	5,917.21	19,413.4
		158 25 10		Reference mark no. 1.			
Trapper, 1931	37 53 37.512	202 57 17.13	22 59 04.45	Black	4.0383200	10,922.45	35,834.7
	121 29 15.090	278 16 07.46	98 19 55.64	Williams	3.9626340	9,175.59	30,103.6
		305 00 00.53	125 03 52.89	Mowry	4.0531166	11,300.99	37,076.7
		336 54 44.26	156 56 11.38	Grant	3.9471593	8,854.40	29,049.8
		243 18 22		Reference mark no. 2.			
Herd, 1931	37 49 13.163	215 05 02.06	35 07 25.88	Trapper	3.9983515	9,962.11	32,684.0
	121 33 09.438	269 56 31.26	90 00 22.01	Grant	3.9639682	9,203.82	30,196.2
		43 06 42		Reference mark no. 1.			
Old, 1931	37 53 25.660	267 01 07.10	87 04 04.92	Trapper	3.8502749	7,083.94	23,241.2
	121 34 04.623	306 22 31.89	126 26 56.68	Grant	4.1175225	13,107.58	43,003.8
		350 09 49.33	170 10 23.19	Herd	3.8976684	7,900.75	25,921.0
		271 26 37		Reference mark no. 2.			

Sacramento to Stockton arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance: Logarithm (meters)	Distance: Meters	Distance: Feet
Principal points—Continued	° ′ ″	° ′ ″	° ′ ″				
Bacon, 1931	37 57 23.442	148 58 45.40	328 56 41.85	Holland	3.9776770	9,498.98	31,164.6
	121 31 42.176	248 29 01.27	68 32 19.17	Black	3.9261990	8,437.21	27,681.1
		332 42 23.37	152 43 53.77	Trapper	3.8941759	7,837.47	25,713.4
		25 23 58.51	205 22 30.96	Old	3.9092749	8,114.75	26,623.1
		359 00 43		Middle River, eastern one of 3 latticed steel power poles.			
Holt, 1931	37 56 02.360	48 02 13.06	228 00 08.20	Trapper	3.8245575	6,676.63	21,904.9
	121 25 51.903	68 10 17.35	248 05 14.59	Old	4.1129187	12,969.36	42,550.3
		106 19 24.23	286 15 48.84	Bacon	3.9498946	8,910.35	29,233.4
		172 52 34.67	352 52 17.06	Black	3.7508250	5,634.11	18,482.6
		268 30 33		Reference mark no. 1.			
Lacto, 1931	37 56 16.918	118 27 38.58	298 26 03.23	Bacon	3.6340424	4,305.69	14,126.3
	121 29 07.122	139 35 53.65	319 32 14.70	Holland	4.1266903	13,387.22	43,921.2
		218 19 35.28	38 21 17.76	Black	3.8166085	6,555.54	21,507.6
		141 36 55		Left one of 2 poles.			
Supplementary points							
B. M. 96 (U.S.E.), 1931	38 33 34.021	353 06 42.2	173 07 21.7	Content	4.108151	12,827.8	42,086
	121 31 00.824	46 23 41.0	226 19 12.8	Saxon	4.158937	14,419.1	47,307
		148 56 30		Reference mark no. 2.			
Pier No. 20 (U.S.G.S.), 1931	38 31 47.662	342 42 14.3	162 43 29.9	Content	3.995770	9,903.1	32,490
	121 31 58.793	53 34 43.8	233 30 51.8	Saxon	4.050340	11,229.0	36,840
		203 10 08.1	23 10 44.3	B. M. 96 (U.S.E.)	3.552346	3,567.4	11,704
		235 40 16		Reference mark no. 1.			
B. M. 89 (U.S.E.), 1931	38 30 26.950	325 25 10.3	145 27 13.5	Content	3.927387	8,460.3	27,757
	121 33 15.390	59 47 21.2	239 44 16.9	Saxon	3.919448	8,307.1	27,254
		354 03 40		Reference mark no. 2.			
B. M. 85 (U.S.E.), 1931	38 28 31.454	329 07 52.3	149 08 44.5	Content	3.598531	3,967.6	13,017
	121 31 21.327	86 27 22.7	266 23 07.5	Saxon	3.998389	9,963.0	32,687
		142 11 25.8	322 10 14.8	B. M. 89 (U.S.E.)	3.654001	4,508.2	14,791
		194 24 47		Reference mark no. 1.			
Pier No. 15 (U.S.G.S.), 1931	38 22 52.689	133 43 23.6	313 39 00.1	Saxon	4.152969	14,222.3	46,661
	121 31 07.536	193 35 08.5	13 35 52.1	Content	3.859885	7,242.4	23,761
		46 24 34		Reference mark no. 1.			

Pier No. 16 (U.S.G.S.), 1931	38 25 08.621	120 28 22.8	300 24 17.1	Saxon	4.045999	11,117.3	36,474
	121 31 36.271	220 05 29.9	40 06 31.4	Content	3.570975	3,723.7	12,217
		350 33 07.0	170 33 24.9	Pier No. 15 (U.S.G.S.)	3.628277	4,248.9	13,940
		23 14 40		Reference mark no. 2.			
Benson, 1931	38 15 18.653	77 05 03.8	257 01 52.5	Walnut	3.887067	7,710.2	25,296
	121 26 20.136	140 25 32.2	320 21 56.2	Randall	4.123503	13,289.3	43,600
		320 08 53		Reference mark no. 1.			
Hope, 1931	38 13 32.499	117 51 23.8	297 50 09.4	Walnut	3.519855	3,310.2	10,860
	121 29 28.818	163 57 41.2	343 56 02.2	Randall	4.147992	14,060.2	46,129
		234 28 58.4	54 30 55.2	Benson	3.750988	5,636.2	18,491
		45 10 08		Reference mark no. 2.			
Fork, 1931	38 10 17.467	313 50 23.2	133 52 01.3	Jackson	3.729328	5,362.0	17,592
	121 39 58.430	82 57 47.7	262 55 59.5	Drouin	3.632984	4,295.2	14,092
		233 59 40		Reference mark no. 1.			
Rio Vista, 1931	38 08 53.036	135 04 07.4	315 03 14.8	Drouin	3.467263	2,932.7	9,622
	121 41 28.461	220 05 18.8	40 06 14.4	Fork	3.531873	3,403.1	11,165
		280 22 27.0	100 25 00.6	Jackson	3.789631	6,160.7	20,212
		22 16 18		Reference mark no. 1.			
Steamboat, 1931	38 11 34.939	355 37 08.6	175 37 20.5	Jackson	3.786854	6,121.4	20,083
	121 37 38.819	54 54 17.4	234 52 51.1	Fork	3.618410	4,153.5	13,627
		74 30 17		Reference mark no. 2.			
Grand, 1931	38 10 55.497	32 25 30.7	212 24 11.9	Jackson	3.762642	5,789.5	18,994
	121 35 12.144	108 49 34.1	288 48 03.3	Steamboat	3.576454	3,771.0	12,372
		33 10 01		Reference mark no. 2.			
Isleton, 1931	38 09 57.266	237 49 06.4	57 50 18.9	Grand	3.527886	3,372.0	11,063
	121 37 09.406	4 35 53.2	184 35 46.9	Jackson	3.491645	3,102.0	10,177
		117 01 29		Reference mark no. 1.			
Walker, 1931	38 12 53.285	337 06 12.6	157 06 51.6	Grand	3.595737	3,942.2	12,934
	121 36 15.164	13 40 29.3	193 39 55.8	Isleton	3.747052	5,585.4	18,325
		40 07 28.1	220 06 36.3	Steamboat	3.499522	3,158.8	10,363
		314 27 30		Reference mark no. 2.			
Pratt, 1931	38 12 25.172	42 53 49.6	222 52 44.3	Grand	3.576766	3,773.7	12,381
	121 33 26.602	75 51 26.4	255 48 50.3	Steamboat	3.801361	6,329.4	20,766
		101 56 57.9	281 55 13.6	Walker	3.622365	4,191.5	13,752
		3 59 06		Reference mark no. 2.			
Ryde, 1931	38 14 22.090	1 21 47.9	181 21 45.7	Pratt	3.557018	3,605.9	11,830
	121 33 23.076	56 49 25.3	236 47 38.8	Walker	3.699122	5,001.8	16,410
		237 34 03		Reference mark no. 1.			

Sacramento to Stockton arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Sutter, 1931	38 14 51.992	283 36 26.1	103 38 02.9	Ryde	3.592735	3,915.0	12,844
	121 35 59.544	320 34 29.7	140 36 04.3	Pratt	3.767843	5,859.3	19,223
		5 55 38.1	185 55 28.4	Walker	3.565818	3,679.7	12,072
		178 52 16		Reference mark no. 1.			
Slough, 1931	38 16 41.572	307 42 59.8	127 45 20.8	Walnut	3.845031	6,998.9	22,962
	121 35 16.822	327 14 52.3	147 16 02.7	Ryde	3.708681	5,113.1	16,775
		17 05 28.3	197 05 01.9	Sutter	3.548355	3,534.7	11,597
		61 38 04.5	241 35 34.5	Miner	3.825817	6,696.0	21,968
		356 25 11		Reference mark no. 2.			
Vorden, 1931	38 15 43.550	3 17 04.9	183 17 01.3	Walnut	3.397704	2,498.6	8,197
	121 31 23.274	49 14 29.5	229 13 15.3	Ryde	3.585043	3,846.3	12,619
		76 42 32.3	256 39 41.3	Sutter	3.839020	6,902.7	22,647
		83 10 07.9	263 05 13.3	Miner	4.066462	11,653.7	38,234
		107 30 37.8	287 28 13.1	Slough	3.774696	5,952.5	19,529
		316 30 07		Reference mark no. 1.			
B. M. 60 (U.S.E.), 1931	38 18 14.983	316 49 32.7	136 51 24.3	Vorden	3.806238	6,400.9	21,000
	121 34 23.419	24 15 37.2	204 15 04.1	Slough	3,499559	3,159.1	10,364
		48 17 49		Reference mark no. 2.			
Courtland, 1931	38 20 25.065	339 34 39.1	159 36 01.5	Vorden	3.966682	9,261.5	30,385
	121 33 36.204	15 57 44.3	195 57 15.0	B. M. 60 (U.S.E.)	3.620305	4,171.6	13,686
		19 32 26.7	199 31 24.3	Slough	3.864025	7,311.8	23,989
		221 04 53		Reference mark no. 1.			
Sherman, 1931	38 05 02.862	33 41 04.5	213 39 46.1	Blume	3.747475	5,590.8	18,342
	121 41 05.759	96 34 52.7	276 32 32.5	Pier No. 4 (U.S.G.S.)	3.746141	5,573.7	18,286
		152 52 10.2	332 51 20.2	No. 8 (U.S.E.)	3.635311	4,318.3	14,168
		8 54 55		Reference mark no. 1.			
Emma, 1931	38 05 01.137	11 35 46.8	191 35 23.0	Blume	3.671667	4,695.3	15,404
	121 42 34.214	101 32 47.1	281 31 21.5	Pier No. 4 (U.S.G.S.)	3.537976	3,451.2	11,323
		182 43 31.9	2 43 36.6	No. 8 (U.S.E.)	3.591120	3,900.5	12,797
		69 45 40		Reference mark no. 2.			
Webb, 1931	38 06 03.400	346 49 44.0	166 50 30.7	Holland	3.908771	8,105.3	26,592
	121 36 18.623	53 10 40.6	233 07 44.7	False	3.938854	8,686.7	28,500
		290 12 54		Reference mark no. 1.			

Brad, 1931	38 05 08.721	245 01 05.2	65 02 36.9	Webb	3.601380	3,993.7	13,103
	121 38 47.200	318 35 53.0	138 38 11.3	Holland	3.917602	8,271.8	27,138
		43 24 03.7	223 22 39.5	False	3.685592	4,848.3	15,906
		122 17 18		Reference mark no. 2.			
Turner (U.S.E.), 1931	38 00 22.145	175 11 33.4	355 11 07.6	Grass	4.084792	12,156.0	39,882
	121 27 41.322	239 34 00.5	59 38 06.5	Bennett	4.052745	11,291.3	37,045
		193 02 02		Reference mark no. 2.			
Columbia (U.S.E.), 1931	38 01 45.038	189 28 58.4	9 29 38.8	Grass	3.986325	9,690.0	31,791
	121 29 28.678	255 37 09.8	75 42 22.0	Bennett	4.105593	12,752.4	41,838
		314 17 38.2	134 18 44.3	Turner (U.S.E.)	3.563381	3,659.2	12,005
		68 20 14		Reference mark no. 2.			
Venice (U.S.E.), 1931	38 03 32.163	217 50 25.0	37 52 28.1	Grass	3.898824	7,921.8	25,990
	121 31 42.636	315 18 22.7	135 19 45.3	Columbia (U.S.E.)	3.667011	4,645.3	15,240
		56 32 21.2	236 30 17.7	Holland	3.767477	5,854.3	19,207
Elk, 1931	38 04 29.621	242 54 02.4	62 57 44.6	Grass	3.993508	9,851.6	32,321
	121 34 23.159	294 20 40.4	114 22 19.4	Venice (U.S.E.)	3.632993	4,295.3	14,092
		10 58 03.4	190 57 38.9	Holland	3.707049	5,093.9	16,712
		50 55 27		Reference mark no. 2.			
Point 18 (U.S.E.), 1931	37 59 45.921	168 49 27.0	348 48 20.9	Grass	4.129890	13,486.2	44,246
	121 26 35.840	229 58 46.6	50 02 12.3	Bennett	4.026458	10,628.2	34,869
		343 59 39.0	163 59 48.5	Black	3.131829	1,354.7	4,445
Elmwood, 1931	37 59 12.204	86 29 57.5	266 28 09.7	Black	3.631675	4,282.3	14,050
	121 23 25.385	203 56 58.8	23 58 27.1	Bennett	3.935117	8,612.3	28,256
		290 10 22.6	110 14 15.1	Stockton	3.992609	9,831.3	32,255
		301 54 43		Reference mark no. 1.			
Lindley (U.S.E.), 1931	37 57 12.467	266 43 45.1	86 45 56.4	Stockton	3.717603	5,219.2	17,123
	121 20 40.823	350 15 20.1	170 15 42.7	Roberts	3.724727	5,305.5	17,406
Pacific (U.S.E.), 1931	37 58 43.863	312 03 08.4	132 04 18.8	Stockton	3.575667	3,764.2	12,350
	121 19 01.873	10 41 32.5	190 40 54.2	Roberts	3.913226	8,188.9	26,866
		40 36 36.9	220 35 36.0	Lindley (U.S.E.)	3.569534	3,711.4	12,176
		70 34 14		Reference mark no. 2.			
Green (U.S.E.), 1931	37 58 00.715	189 20 24.2	9 21 06.1	Bennett	4.009012	10,209.7	33,496
	121 22 09.951	253 49 21.2	73 51 16.9	Pacific (U.S.E.)	3.679373	4,779.4	15,680
		279 08 14.9	99 11 21.0	Stockton	3.873989	7,481.5	24,546
		304 21 08.6	124 22 03.4	Lindley (U.S.E.)	3.420891	2,635.7	8,647
		132 55 52		Reference mark no. 2.			
Dixon, municipal water tank, 1931	38 26 41.990	71 15 53.9	251 06 16.2	Vaca	4.377149	23,831.4	78,187
	121 49 30.997	193 49 23.7	13 50 22.0	Yolo southeast base	3.977649	9,498.4	31,163
		241 32 07.2	61 37 08.8	Davis	4.125870	13,362.0	43,838
Davis, municipal water tank, 1931	38 32 56.215	313 34 49.3	133 38 46.3	Saxon	4.105061	12,736.8	41,787
	121 44 32.125	318 58 36.7	139 00 32.5	Davis	3.836514	6,863.0	22,516
		65 01 45.5	244 59 37.7	Yolo southeast base	3.738979	5,482.5	17,987

Sacramento to Stockton arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
University of California, College of Agriculture, water tank, 1931.	38 32 22.053	308 30 59.1	128 35 08.3	Saxon	4.093675	12,407.2	40,706
	121 44 51.972	309 35 52.7	129 38 00.8	Davis	3.810919	6,470.2	21,228
		74 18 21.6	254 16 26.1	Yolo southeast base	3.668676	4,663.1	15,299
West Sacramento, small water tank, 1931	38 34 23.516	42 42 52.7	222 38 20.6	Saxon	4.193451	15,611.7	51,219
	121 30 54.667	62 49 31.2	242 42 57.7	Davis	4.235582	17,202.1	56,437
		78 39 20.8	258 28 43.3	Yolo southeast base	4.402510	25,264.5	82,889
Sacramento, State Life Building, chimney, 1931.	38 34 48.818	45 41 36.9	225 36 14.5	Saxon	4.243900	17,534.8	57,529
	121 29 33.901	63 25 43.7	243 18 19.9	Davis	4.285529	19,298.7	63,316
		77 52 19.0	257 40 51.3	Yolo southeast base	4.436757	27,337.4	89,689
Sacramento, B.P.O.E. Building, cupola, 1931.	38 34 48.690	46 06 45.8	226 01 18.8	Saxon	4.247028	17,661.5	57,944
	121 29 26.451	63 40 41.0	243 33 12.5	Davis	4.289108	19,458.4	63,840
		77 57 36.8	257 46 04.3	Yolo southeast base	4.439536	27,512.9	90,265
Sacramento, Cathedral of the Blessed Sacrament, spire, 1931.	38 34 44.959	46 16 31.2	226 11 05.4	Saxon	4.244216	17,547.5	57,570
	121 29 28.419	63 55 13.3	243 47 46.1	Davis	4.287016	19,364.9	63,533
		78 10 26.6	257 58 55.5	Yolo southeast base	4.438424	27,442.5	90,034
Sacramento, Cathedral of the Blessed Sacrament, dome, 1931.	38 34 44.578	46 22 51.7	226 17 25.0	Saxon	4.244633	17,564.4	57,626
	121 29 26.993	63 59 47.6	243 52 19.5	Davis	4.287595	19,390.8	63,618
		78 12 46.8	258 01 14.8	Yolo southeast base	4.438920	27,473.9	90,137
Sacramento, State Capitol, dome, 1931	38 34 36.261	46 38 35.2	226 33 12.5	Saxon	4.237445	17,276.1	56,680
	121 29 33.359	64 28 59.5	244 21 35.4	Davis	4.281954	19,140.5	62,797
		78 40 23.5	258 28 55.5	Yolo southeast base	4.435710	27,271.6	89,474
Sacramento, airport beacon, 1931	38 30 49.306	68 10 03.3	248 04 51.6	Saxon	4.116517	13,077.3	42,904
	121 29 50.765	120 07 57.0	300 06 37.2	Pier No. 20 (U.S.G.S.)	3.554563	3,585.6	11,764
		161 31 56.1	341 31 12.5	B. M. 96 (U.S.E.)	3.728747	5,354.8	17,568
Sacramento, 5 miles south-southwest of, brickyard, west stack, 1931.	38 30 56.019	336 49 46.3	156 51 12.6	Content	3.932096	8,552.6	28,060
	121 32 16.150	343 23 56.2	163 24 30.3	B. M. 85 (U.S.E.)	3.667576	4,651.3	15,260
		58 01 15.5	238 00 38.6	B. M. 89 (U.S.E.)	3.228443	1,692.2	5,552
Sacramento, 5 miles south-southwest of, brickyard, east stack, 1931.	38 30 56.745	337 42 12.6	157 43 35.5	Content	3.930559	8,522.3	27,960
	121 32 10.715	345 02 17.3	165 02 48.0	B. M. 85 (U.S.E.)	3.666244	4,637.1	15,214
		59 37 18.3	239 36 38.0	B. M. 89 (U.S.E.)	3.259216	1,816.4	5,959
Freeport, west transmission tower, 1931	38 28 00.663	348 56 48.7	168 57 01.0	Content	3.398435	2,502.9	8,212
	121 30 17.169	19 53 16.2	199 52 27.0	Pier No. 16 (U.S.G.S.)	3.751353	5,641.0	18,507
		121 24 26.4	301 23 46.5	B. M. 85 (U.S.E.)	3.260586	1,822.2	5,978
Freeport, east transmission tower, 1931	38 28 03.149	354 38 37.7	174 38 43.8	Content	3.405551	2,544.2	8,347
	121 30 07.176	21 52 59.9	201 52 04.5	Pier No. 16 (U.S.G.S.)	3.763352	5,709.0	19,026
		115 54 16.2	295 53 30.1	B. M. 85 (U.S.E.)	3.300640	1,998.2	6,556
East Saxon, east transmission tower, 1931	38 28 26.835	210 17 41.4	30 18 37.0	B. M. 89 (U.S.E.)	3.632431	4,289.7	14,074
	121 34 44.701	268 19 39.5	88 21 46.1	B. M. 85 (U.S.E.)	3.693017	4,931.9	16,181
		323 12 01.9	143 13 59.2	Pier No. 16 (U.S.G.S.)	3.882584	7,631.0	25,036
East Saxon, west transmission tower, 1931	38 28 26.071	212 47 21.4	32 48 23.1	B. M. 89 (U.S.E.)	3.646801	4,434.1	14,548
	121 34 54.495	268 08 30.3	88 10 43.0	B. M. 85 (U.S.E.)	3.713488	5,170.0	16,962
		321 41 24.8	141 43 28.2	Pier No. 16 (U.S.G.S.)	3.889699	7,757.1	25,450
San Francisco-Reno airway beacon no. 4 (flashing red), 1931.	38 15 34.664	198 16 24.5	18 18 03.8	Dixon	4.093370	12,398.5	40,677
	121 44 11.628	240 54 48.0	61 02 16.1	Randall	4.302888	20,085.7	65,898
		276 45 51.6	96 53 43.6	Walnut	4.271198	18,672.3	61,261
San Francisco-Reno airway beacon no. 5, 1931	38 23 10.937	302 00 12.7	122 03 09.4	Randall	3.911254	8,151.8	26,745
	121 36 53.469	334 09 33.3	154 12 54.4	Walnut	4.257545	18,094.4	59,365
		13 07 38.2	193 06 07.9	Miner	4.193003	15,595.6	51,167
Star, 1931	38 16 57.811	81 19 26.8	261 18 03.3	Slough	3.520485	3,315.0	10,876
	121 33 01.996	140 15 42.2	320 14 51.8	B. M. 60 (U.S.E.)	3.490614	3,094.7	10,153
		313 38 50.1	133 39 51.3	Vorden	3.520726	3,316.9	10,882
		310 57 36		Reference mark no. 2.			
Vorden, 1½ miles northwest of, southwest transmission tower, 1931.	38 17 31.281	55 36 32.2	235 35 35.1	Slough	3.433449	2,713.0	8,901
	121 33 44.714	145 05 21.1	325 04 57.1	B. M. 60 (U.S.E.)	3.215701	1,643.2	5,391
		314 00 10.4	134 01 38.0	Vorden	3.679471	4,780.5	15,684
Vorden, 1½ miles northwest of, northeast transmission tower, 1931.	38 17 37.325	54 04 16.8	234 03 16.3	Slough	3.466728	2,929.1	9,610
	121 33 39.241	137 15 00.1	317 14 32.7	B. M. 60 (U.S.E.)	3.199022	1,581.3	5,188
		316 41 47.9	136 43 12.1	Vorden	3.683009	4,819.6	15,812
Ryde, water tank, 1931	38 14 15.270	150 28 57.0	330 27 51.9	Slough	3.714685	5,184.2	17,008
	121 33 31.736	228 55 11.1	48 56 30.6	Vorden	3.617336	4,143.2	13,593
		265 37 36.2	85 38 52.1	Walnut	3.475613	2,989.6	9,808
Vorden, 1½ miles southeast of, southwest transmission tower, latticed, 1931.	38 15 35.255	8 26 55.8	188 26 47.4	Walnut	3.354747	2,263.3	7,426
	121 31 15.487	137 10 17.9	317 08 21.5	B. M. 60 (U.S.E.)	3.827175	6,717.0	22,037
		143 29 29.8	323 29 25.0	Vorden	2.502718	318.2	1,044
Vorden, 1½ miles southeast of, northeast transmission tower, latticed, 1931.	38 15 41.204	10 59 35.9	190 59 23.9	Walnut	3.392245	2,467.4	8,095
	121 31 09.813	102 28 15.1	282 28 06.8	Vorden	2.525260	335.2	1,100
		135 14 06.7	315 12 06.8	B. M. 60 (U.S.E.)	3.824785	6,680.1	21,916
Walnut Grove, ½ mile north-northeast of, Standard Oil Co., water tank, 1931.	38 14 58.509	329 55 33.0	149 56 11.9	Hope	3.486339	3,064.4	10,054
	121 30 31.950	51 31 34.6	231 30 59.2	Walnut	3.249718	1,777.1	5,830
		138 03 49.2	318 03 17.4	Vorden	3.271153	1,867.0	6,125

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Sacramento to Stockton arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Walnut Grove, 1¼ miles north of, Libby, McNeill & Libby, water tank, 1931.	38 15 31.692	330 11 48.3	150 12 41.7	Hope	3.626850	4,235.0	13,894
	121 30 55.354	21 06 57.3	201 06 36.4	Walnut	3.358335	2,282.1	7,487
		118 18 42.0	298 18 24.7	Vorden	2.887050	771.0	2,530
Sacramento River-Steamboat Slough, junction point, light, flashing white, 1931.	38 10 38.450	244 33 24.2	64 34 57.2	Steamboat	3.608106	4,056.1	13,307
	121 40 09.333	316 32 09.5	136 33 54.4	Jackson	3.778744	6,008.2	19,712
		30 39 40.3	210 38 51.4	Rio Vista	3.577280	3,778.2	12,396
Grand Island, navigation beacon, 1931	38 10 40.526	321 11 45.9	141 13 16.0	Jackson	3.754220	5,678.3	18,630
	121 39 45.736	37 02 44.5	217 01 41.0	Rio Vista	3.618243	4,151.9	13,622
		74 51 36.8	254 49 40.7	Drouin	3.675436	4,736.3	15,539
Rio Vista, St. Josephs Catholic Church, spire, 1931.	38 09 24.645	347 29 08.0	167 29 13.5	Rio Vista	2.999258	998.3	3,275
	121 41 37.345	120 42 14.0	300 41 26.9	Drouin	3.333928	2,157.4	7,078
		235 55 07.2	55 56 08.3	Fork	3.463451	2,907.0	9,537
Isleton, northeast transmission tower, 1931	38 10 10.100	301 19 10.5	121 19 27.0	Isleton	2.881485	761.2	2,497
	121 37 36.118	353 25 40.1	173 25 50.3	Jackson	3.545405	3,510.8	11,518
		93 45 50.2	273 44 22.3	Fork	3.540528	3,471.6	11,390
Isleton, southwest transmission tower, 1931	38 09 58.530	272 52 28.8	92 52 48.5	Isleton	2.889967	776.2	2,547
	121 37 41.251	350 26 55.3	170 27 08.7	Jackson	3.501744	3,175.0	10,417
		99 55 47.3	279 54 22.6	Fork	3.530192	3,389.9	11,122
Rio Vista, Del Monte water tank, 1931	38 09 47.469	297 19 08.1	117 21 24.9	Jackson	3.783561	6,075.2	19,932
	121 41 01.261	21 32 08.9	201 31 52.1	Rio Vista	3.256294	1,804.2	5,919
		98 17 10.5	278 16 01.1	Drouin	3.441254	2,762.2	9,062
Isleton, municipal water tank, 1931	38 09 43.339	293 47 17.7	113 52 15.7	Grass	4.108736	12,845.1	42,143
	121 36 25.639	26 16 34.7	206 16 01.3	Jackson	3.472660	2,969.3	9,742
		93 12 54.7	273 08 55.0	Drouin	3.975788	9,457.8	31,029
Rio Vista, east municipal water tank, 1931	38 09 17.997	286 05 03.1	106 07 48.3	Jackson	3.831290	6,780.9	22,247
	121 41 47.166	329 22 59.8	149 23 11.4	Rio Vista	2.951470	894.3	2,934
		13 25 39.7	193 25 15.3	No. 8 (U.S.E.)	3.616636	4,136.5	13,571
Rio Vista, west municipal water tank, 1931	38 09 17.767	285 59 43.1	106 02 28.6	Jackson	3.831993	6,791.9	22,283
	121 41 47.719	328 24 40.0	148 24 51.9	Rio Vista	2.951904	895.2	2,937
		13 16 07.1	193 15 43.0	No. 8 (U.S.E.)	3.615586	4,126.5	13,538

B. M. (U.S.E.), 1931 [1]	37 57 09.16	119 13 54	299 13 49	Lindley (U.S.E.)	2.320022	208.94	685.5
	121 20 33.36						
B. M. 203 3/4 (U. S. E. and Debris Commission of California), 1931.[1]	37 57 59.78	188 13 30	8 13 30	Green (U.S.E.)	1.463893	29.10	95.5
	121 22 10.12						
B. M. (U.S.E.), 1931 [1]	37 59 12.40	291 08 59	111 08 59	Elmwood	1.232742	17.09	56.1
	121 23 26.04						
Transmission pole, near station Hope, 1931 [1]	38 13 33.02	310 28	130 28	Hope	1.390935	24.6	81
	121 29 29.59						
Transformer pole, near station Hope, 1931 [1]	38 13 33.39	0 32	180 32	Hope	1.440909	27.6	91
	121 29 28.81						
B. M. (U.S.E.), 1931 [1]	37 59 45.78	265 54 51	85 54 53	Point 18 (U.S.E.)	1.782759	60.64	198.9
	121 26 38.32						
B. M. (U.S.G.S.), 1931 [1]	38 08 57.40	307 42 41	127 42 45	Rio Vista	2.341949	219.76	721.0
	121 41 35.60						
B. M. 41 (U.S.E.), 1931 [1]	38 20 24.44	205 48 34	25 48 34	Courtland	1.330617	21.41	70.2
	121 33 36.59						
Stockton, Fiber Products Co., east stack, 1931.	37 56 37.402	36 01 21.7	216 00 05.8	Roberts	3.709939	5,127.9	16,824
	121 18 00.618	105 27 50.2	285 26 11.7	Lindley (U.S.E.)	3.608327	4,058.1	13,314
		112 54 01.2	292 51 27.9	Green (U.S.E.)	3.819992	6,606.8	21,676
Stockton, Fiber Products Co., west stack, 1931.	37 56 37.314	35 55 45.5	215 54 29.9	Roberts	3.709141	5,118.5	16,793
	121 18 01.121	105 32 50.9	285 31 12.7	Lindley (U.S.E.)	3.607136	4,047.0	13,278
		112 57 49.0	292 55 16.0	Green (U.S.E.)	3.819317	6,596.6	21,642
Stockton, Fiber Products Co., water tank, 1931.	37 56 41.383	104 30 44.5	284 29 11.1	Lindley (U.S.E.)	3.582951	3,827.8	12,558
	121 18 09.038	112 36 05.4	292 33 37.2	Green (U.S.E.)	3.804124	6,369.8	20,898
		161 08 49.1	341 08 16.6	Pacific (U.S.E.)	3.601018	3,990.4	13,092
Stockton, courthouse, dome, 1931	37 57 12.955	89 50 53.4	269 48 45.5	Lindley (U.S.E.)	3.705659	5,077.6	16,659
	121 17 12.844	136 29 32.5	316 28 25.5	Pacific (U.S.E.)	3.587156	3,865.1	12,681
		205 22 02.1	25 22 05.5	Stockton	2.492888	311.1	1,021
T. 1 N., R. 6 E., sec. 17, southwest corner, 1931.[1]	37 55 36.75	239 18 35	59 20 53	Stockton	3.803845	6,365.7	20,885
	121 20 51.61	332 58 52	152 59 22	Roberts	3.407721	2,556.9	8,389
Stockton, 2 miles west of, south steel power pole, latticed, 1931.	37 57 03.212	117 21 25.2	297 19 58.8	Green (U. S. E.)	3.586542	3,859.6	12,663
	121 19 49.516	200 32 25.3	20 32 54.6	Pacific (U. S. E.)	3.520349	3,314.0	10,873
		261 37 45.0	81 39 24.7	Stockton	3.602141	4,000.7	13,126
Stockton, 2 miles west of, north steel power pole, latticed, 1931.	37 57 11.963	114 10 58.7	294 09 34.3	Green (U. S. E.)	3.564767	3,670.9	12,044
	121 19 52.762	203 40 08.1	23 40 39.4	Pacific (U. S. E.)	3.490484	3,093.7	10,150
		265 34 18.5	85 36 00.2	Stockton	3.607397	4,049.5	13,286

[1] No check on this position.

Sacramento to Stockton arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Wooden pole, near station Lindley, 1931	37 57 29.623	8 22 25.2	188 22 23.2	Lindley (U. S. E.)	2.728067	534.6	1,754
	121 20 37.634	113 03 05.5	293 02 08.7	Green (U. S. E.)	3.388980	2,449.0	8,035
		225 35 33.6	45 36 32.5	Pacific (U. S. E.)	3.514747	3,271.5	10,733
Calaveras (U. S. E.), 1931	37 58 36.918	264 35 05.5	84 36 02.5	Pacific (U. S. E.)	3.356429	2,272.1	7,454
	121 20 34.556	3 21 47.9	183 21 44.0	Lindley (U. S. E.)	3.416348	2,608.2	8,557
		64 23 44.4	244 22 45.7	Green (U. S. E.)	3.411976	2,582.1	8,471
State Farm, water tank, 1931	37 59 34.536	328 15 44.2	148 16 47.8	Stockton	3.681397	4,801.7	15,754
	121 18 50.848	9 46 17.8	189 46 11.0	Pacific (U. S. E.)	3.200123	1,585.3	5,201
		59 15 05.6	239 13 03.1	Green (U. S. E.)	3.752431	5,655.0	18,553
Black Slough Landing, steel transmission tower, 1931.	37 59 38.893	286 46 38.6	106 47 47.4	Elmwood	3.454703	2,849.1	9,347
	121 25 17.166	54 56 16.3	234 55 37.3	Black	3.276287	1,889.2	6,198
		96 26 50.7	276 26 02.2	Point 18 (U. S. E.)	3.285971	1,931.8	6,338
Black Slough Landing, wooden transmission tower, 1931.	37 59 48.631	292 46 15.5	112 47 23.0	Elmwood	3.462483	2,900.6	9,516
	121 25 14.983	49 06 12.2	229 05 31.9	Black	3.325578	2,116.3	6,943
		87 34 55.6	267 34 05.8	Point 18 (U. S. E.)	3.295494	1,974.7	6,479
Red Tower (U.S.G.S.), 1931	38 03 47.746	285 28 47.7	105 29 31.6	Venice (U. S. E.)	3.255139	1,799.4	5,904
	121 32 53.770	40 19 55.6	220 18 36.0	Holland	3.687150	4,865.8	15,964
		120 39 22.9	300 38 27.8	Elk	3.403583	2,532.7	8,309
Terminous, water tank, 1931	38 06 48.086	295 45 15.4	115 50 39.2	Bennett	4.152682	14,212.9	46,630
	121 29 47.061	357 15 10.1	177 15 21.5	Columbia (U. S. E.)	3.971013	9,354.3	30,690
		39 44 07.1	219 40 52.3	Holland	4.080983	12,049.9	39,534
Empire (U. S. E.), 1931 [1]	38 03 00.27	350 39 21	170 39 30	Columbia (U. S. E.)	3.371208	2,350.8	7,713
	121 29 44.33	108 50 04	288 48 51	Venice (U. S. E.)	3.483932	3,047.4	9,998
Potato Point Lighthouse, 1931 [1]	38 04 48.76	13 32 29	193 31 55	Holland	3.759720	5,750.7	18,867
	121 34 07.68	32 35 11	212 35 01	Elk	2.845270	700.3	2,298
Oulton Point Landing, light, 1931 [1]	38 05 23.38	47 00 28	226 58 40	False	3.765517	5,828.0	19,121
	121 38 08.99	64 06 49	244 06 25	Brad	3.014935	1,035.0	3,396
Rindge Tract, Camp 11, stack, 1931 [1]	38 00 34.38	9 46 13	189 46 06	Point 18 (U. S. E.)	3.180733	1,516.1	4,974
	121 26 25.30	115 58 59	295 57 06	Columbia (U. S. E.)	3.696823	4,975.3	16,323

Jersey Landing 2, navigation beacon, 1931	38 03 07.829	68 47 17.7	248 46 05.7	Blume	3.485086	3,055.5	10,025
	121 41 16.104	128 22 39.0	308 20 25.2	Pier No. 4 (U.S.G.S.)	3.828751	6,741.4	22,117
		151 24 56.8	331 24 08.6	Emma	3.599739	3,978.7	13,053
Schadd No. 2 Landing, navigation beacon, 1931.	38 02 37.871	59 21 12.1	239 21 04.2	Blume	2.553598	357.8	1,174
	121 43 00.298	185 38 20.9	5 38 41.6	No. 8 (U. S. E.)	3.921880	8,353.7	27,407
		211 58 44.0	31 59 54.6	Sherman	3.721868	5,270.7	17,292
Threemile Slough, north transmission tower, 1931.	38 06 25.230	66 23 42.3	246 21 52.1	Pier No. 4 (U.S.G.S.)	3.676574	4,748.7	15,580
	121 41 54.410	148 58 06.2	328 57 46.3	No. 8 (U. S. E.)	3.182137	1,521.0	4,990
		242 44 18.0	62 47 07.6	Jackson	3.876687	7,528.1	24,698
Threemile Slough, south transmission tower, 1931.	38 06 16.485	69 12 37.0	249 10 48.2	Pier No. 4 (U.S.G.S.)	3.662537	4,597.7	15,084
	121 41 56.588	155 04 21.6	335 04 03.1	No. 8 (U. S. E.)	3.239192	1,734.6	5,691
		241 08 07.2	61 10 58.2	Jackson	3.886593	7,701.8	25,268
Mayberry Slough, south transmission tower, 1931.	38 03 38.473	222 33 16.4	42 34 31.7	Pier No. 4 (U.S.G.S.)	3.643209	4,397.5	14,427
	121 46 55.017	225 24 04.8	45 26 50.4	No. 8 (U. S. E.)	3.962966	9,182.6	30,127
		290 43 27.0	110 45 43.9	Blume	3.762707	5,790.4	18,997
Mayberry Slough, north transmission tower, 1931.	38 04 15.703	233 05 58.9	53 08 57.7	No. 8 (U. S. E.)	3.945815	8,827.0	28,960
	121 47 16.381	239 05 52.3	59 07 20.8	Pier No. 4 (U.S.G.S.)	3.609893	4,072.8	13,362
		298 18 00.0	118 20 30.1	Blume	3.828825	6,742.6	22,121
Toland Landing, navigation beacon, 1931	38 05 12.526	272 57 13.5	92 59 38.6	Sherman	3.759146	5,743.1	18,842
	121 45 01.102	302 10 11.6	122 12 37.8	False	3.834664	6,833.8	22,421
		331 56 49.6	151 57 56.3	Blume	3.748906	5,609.3	18,403
Stockton, Gulf Red Cedar Co., water tank, 1931.	37 58 36.469	330 32 00.9	150 33 38.5	Pox	3.896670	7,882.6	25,861
	121 16 55.468	64 48 27.6	244 46 08.9	Lindley (U. S. E.)	3.783913	6,080.1	19,948
		81 51 15.5	261 48 02.0	Green (U. S. E.)	3.889560	7,754.6	25,442
Stockton, Box Co., water tank, 1931	37 58 27.205	328 55 24.8	148 57 04.6	Pox	3.885331	7,679.5	25,195
	121 16 59.007	66 57 57.5	246 55 41.0	Lindley (U. S. E.)	3.769715	5,884.6	19,306
		83 53 03.8	263 49 52.5	Green (U. S. E.)	3.882720	7,633.4	25,044
Stockton, municipal water tank, 1931	37 57 09.610	326 46 06.3	146 47 15.3	Pox	3.699293	5,003.7	16,416
	121 16 08.986	6 11 40.8	186 11 09.2	Cactus	4.066264	11,648.3	38,216
		48 10 36.1	228 08 11.6	Roberts	3.886854	7,706.4	25,283
Stockton, Western Harvester Co., water tank, 1931.	37 57 05.417	319 35 04.6	139 36 31.5	Pox	3.726492	5,327.1	17,477
	121 16 38.115	2 43 25.1	182 43 11.3	Cactus	4.059339	11,464.1	37,612
		45 07 14.0	225 05 07.4	Roberts	3.851279	7,100.3	23,295
Gar (U. S. E.), 1931	37 55 29.195	223 57 39.7	43 59 04.2	Stockton	3.684465	4,835.8	15,865
	121 19 24.886	278 12 47.5	98 15 56.8	Pox	3.881119	7,605.3	24,952
		25 04 54.8	205 04 30.7	Roberts	3.353692	2,257.8	7,407
Dag (U. S. E.), 1931 [1]	37 56 26.31	254 28 03	74 30 39	Stockton	3.808125	6,428.7	21,091
	121 21 21.10	333 41 17	153 42 05	Roberts	3.627942	4,245.6	13,929

[1] No check on this position.

Sacramento to Stockton arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance: Logarithm (meters)	Distance: Meters	Distance: Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
French Camp, San Joaquin County Hospital, water tank, 1931.	37 53 07.645	57 01 11.0	236 57 35.8	Mowry	4.009345	10,217.5	33,522
	121 17 06.006	118 04 34.7	298 02 45.3	Roberts	3.692852	4,930.1	16,175
		179 45 15.3	359 45 14.4	Stockton	3.894558	7,844.4	25,736
Saunders (U. S. E.), 1931	37 52 56.378	89 19 12.9	269 17 16.2	Williams	3.667110	4,646.3	15,244
	121 19 53.407	174 25 21.6	354 25 15.0	Roberts	3.428005	2,679.2	8,790
		311 43 27.4	131 45 13.7	Cactus	3.753379	5,667.3	18,593
Chic (U. S. E.), 1931	37 51 23.129	285 32 47.0	105 34 07.9	Cactus	3.524804	3,348.1	10,985
	121 19 12.333	66 51 53.7	246 49 36.2	Mowry	3.775348	5,961.4	19,558
		116 31 45.9	296 29 24.0	Williams	3.800348	6,314.6	20,717
Lath (U. S. E.), 1931	37 49 36.150	223 57 28.0	43 58 26.0	Cactus	3.523070	3,334.8	10,941
	121 18 35.076	357 30 37.1	177 30 41.7	Moss	3.627885	4,245.1	13,927
		98 30 38.3	278 27 57.8	Mowry	3.810515	6,464.2	21,208
Sal (U. S. E.), 1931	37 49 01.753	308 40 59.4	128 42 38.9	Moss	3.706484	5,087.3	16,691
	121 21 09.838	49 27 21.7	229 24 56.8	Sugar	3.881791	7,617.1	24,990
		127 41 05.6	307 40 00.2	Mowry	3.518025	3,296.3	10,815
Para (U. S. E.), 1931	37 47 24.331	152 05 44.3	332 04 37.7	Mowry	3.754270	5,679.0	18,632
	121 21 07.830	272 34 12.3	92 35 50.5	Moss	3.593949	3,926.0	12,881
		71 32 53.0	251 30 26.9	Sugar	3.789146	6,153.8	20,190
Tom (U. S. E.), 1931	37 48 12.799	354 27 39.7	174 27 48.0	Sugar	3.539110	3,460.3	11,353
	121 25 19.997	129 19 07.1	309 18 10.0	Grant	3.468964	2,944.2	9,659
		224 52 05.4	44 53 33.2	Mowry	3.696638	4,973.2	16,316
Tracy, municipal water tank (west), 1931	37 44 13.956	131 27 03.3	311 22 41.4	Herd	4.144421	13,945.1	45,752
	121 26 02.084	172 17 48.0	352 17 16.7	Grant	3.969091	9,313.0	30,554
		199 11 15.8	19 11 49.9	Sugar	3.618070	4,150.2	13,616
Tracy, municipal water tank (east), 1931	37 44 18.179	127 48 42.5	307 43 48.6	Herd	4.171668	14,848.0	48,714
	121 25 09.824	181 17 06.8	1 17 08.9	Sugar	3.578673	3,790.3	12,435
		196 51 25.1	16 52 46.8	Mowry	4.050807	11,241.1	36,880
Bell (U. S. E.), 1931	37 49 13.598	186 31 17.3	6 31 40.7	Trapper	3.913271	8,189.8	26,869
	121 29 53.159	270 06 17.7	90 08 08.1	Grant	3.643773	4,403.2	11,446
		89 51 24.0	269 49 23.7	Herd	3.681295	4,800.6	15,750
Fish (U. S. E.), 1931	37 52 57.641	111 11 21.0	291 10 01.3	Trapper	3.531814	3,402.6	11,163
	121 27 05.245	197 27 25.4	17 28 10.5	Holt	3.775994	5,970.3	19,588
		270 54 15.5	90 56 43.8	Williams	3.771430	5,907.9	19,383
Union-Coney Islands, east transmission pole, 1931.	37 50 33.231	30 17 17.3	210 16 41.1	Herd	3.456158	2,858.6	9,379
	121 32 10.490	152 19 15.4	332 18 05.3	Old	3.778418	6,003.7	19,697
		287 35 22.7	107 38 37.3	Grant	3.910773	8,142.8	26,715
Union-Coney Islands, west transmission pole, 1931.	37 50 37.216	27 01 23.6	207 00 50.5	Herd	3.463730	2,908.9	9,544
	121 32 15.399	152 48 11.2	332 47 04.2	Old	3.766362	5,839.3	19,158
		288 08 50.2	108 12 07.9	Grant	3.918803	8,294.7	27,214
Coney (U. S. E.), 1931	37 51 45.656	155 32 29.0	335 31 53.8	Old	3.529859	3,387.3	11,113
	121 33 07.226	191 16 29.8	11 17 22.1	Bacon	4.026107	10,619.6	34,841
		238 41 06.7	58 43 29.2	Trapper	3.822109	6,639.1	21,782
Vic (U. S. E.), 1931 [1]	37 54 47.00	300 04 37	120 06 10	Trapper	3.630785	4,273.5	14,021
	121 31 46.44	53 24 11	233 22 46	Old	3.623820	4,205.5	13,798

Suisun, San Pablo, and San Francisco Bays

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance: Logarithm (meters)	Distance: Meters	Distance: Feet
Principal points							
May, 1931	38 03 41.801	223 47 02.91	43 48 18.99	Pier No. 4 (U.S.G.S.)	3.6379744	4,344.85	14,254.7
	121 46 56.344	291 33 02.37	111 35 20.08	Blume	3.7677183	5,857.58	19,217.7
		266 34 56		Reference mark no. 1.			
Wood, 1931	38 01 48.844	150 14 32.23	330 13 41.89	May	3.6033591	4,011.98	13,162.6
	121 45 34.661	188 43 32.21	8 43 57.91	Pier No. 4 (U.S.G.S.)	3.8258459	6,696.47	21,970.0
		248 57 12.22	68 58 39.55	Blume	3.5685942	3,703.35	12,150.1
		145 18 39		Reference mark no. 2.			
Antioch, 1932	38 01 00.007	196 19 24.26	16 20 01.19	May	3.7158425	5,198.07	17,054.0
	121 47 56.274	246 26 02.29	66 27 29.52	Wood	3.5761072	3,767.97	12,362.1
		87 56 26		Reference mark no. 2.			
Blackjack, 1931	38 04 24.973	292 05 10.99	112 06 33.91	May	3.5487975	3,538.32	11,608.6
	121 49 10.837	312 23 14.84	132 25 28.08	Wood	3.8535812	7,138.08	23,418.9
		343 56 35.19	163 57 21.14	Antioch	3.8179507	6,575.83	21,574.2
		94 52 40		Reference mark no. 2.			
Pittsburg, 1932	38 02 22.677	237 07 10.17	57 09 37.77	Blackjack	3.8419427	6,949.33	22,799.6
	121 53 10.275	288 22 55.29	108 26 08.73	Antioch	3.9069409	8,071.25	26,480.4
		24 50 32		Reference mark no. 1.			
Cattle, 1932	38 05 22.972	298 26 18.00	118 27 41.53	Blackjack	3.5744604	3,753.71	12,315.3
	121 51 26.258	327 42 42.72	147 44 52.16	Antioch	3.9817649	9,588.81	31,459.3
		24 31 43.34	204 30 39.21	Pittsburg	3.7860308	6,109.85	20,045.4
		257 01 39		Reference mark no. 2.			

[1] No check on this position.

Suisun, San Pablo, and San Francisco Bays—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points—Continued	° ′ ″	° ′ ″	° ′ ″				
McAvoy, 1932	38 02 02.959	235 27 24.13	55 31 10.96	Cattle	4.0368025	10,884.35	35,709.7
	121 57 34.164	264 34 49.97	84 37 32.58	Pittsburg	3.8104962	6,463.92	21,207.0
		181 40 40		Reference mark no. 1.			
Kirby, 1922	38 10 03.336	327 39 38.25	147 41 56.89	Cattle	4.0098343	10,229.03	33,559.7
	121 55 10.801	348 18 29.83	168 19 44.21	Pittsburg	4.1614737	14,503.53	47,583.7
		13 16 56.69	193 15 28.22	McAvoy	4.1823411	15,217.42	49,925.8
		148 13 27.29	328 07 21.87	Vaca	4.4344802	27,194.44	89,220.4
		222 06 02.03	42 14 29.44	Dixon	4.4722843	29,667.73	97,334.9
Lopez, 1932	38 07 27.560	255 20 32.30	75 28 20.27	Kirby	4.2802007	19,063.42	62,543.9
	122 07 48.435	303 42 35.45	123 48 54.30	McAvoy	4.2554726	18,008.29	59,082.2
		204 53 34		Reference mark no. 1.			
Rockville, 1932	38 14 25.521	198 17 00.68	18 19 07.44	Vaca	4.1992653	15,822.14	51,909.8
	122 08 25.255	250 20 11.81	70 36 52.05	Dixon	4.6191247	41,603.01	136,492.5
		292 37 37.18	112 45 48.52	Kirby	4.3212250	20,951.98	68,740.0
		356 01 08.73	176 01 31.49	Lopez	4.1111944	12,917.97	42,381.7
		81 29 24		Reference mark no. 2.			
Bay Point (U. S. E.), 1932	38 02 03.694	135 01 59.45	314 57 46.75	Lopez	4.1498974	14,122.04	46,332.1
	122 00 58.701	154 36 32.54	334 31 56.78	Rockville	4.4035663	25,325.98	83,090.3
		209 47 28.22	29 51 02.90	Kirby	4.2316104	17,045.53	55,923.5
		270 14 34.84	90 16 40.86	McAvoy	3.6979387	4,988.14	16,365.3
		229 00 50		Reference mark no. 1.			
Franklin, 1932	38 01 11.014	209 05 37.63	29 08 21.23	Lopez	4.1234922	13,289.00	43,599.0
	122 12 13.721	264 18 28.22	84 25 24.06	Bay Point (U.S.E.)	4.2186239	16,543.37	54,276.0
		313 45 48		Transmission tower, highest.			
Sulphur, 1932	38 06 47.467	252 36 48.28	72 38 28.41	Lopez	3.6170032	4,140.03	13,582.7
	122 10 30.640	302 03 50.96	122 09 43.66	Bay Point (U.S.E.)	4.2163941	16,458.65	53,998.1
		13 37 30.63	193 36 27.07	Franklin	4.0283083	10,673.54	35,018.1
		132 25 27.53	312 17 09.21	Arrowhead	4.4238584	26,537.40	87,064.8
Long Pond 2, 1921	38 07 38.424	276 47 05.14	96 52 37.53	Sulphur	4.1208818	13,209.36	43,337.7
	122 19 29.078	318 20 43.31	138 25 11.78	Franklin	4.2035062	15,977.40	52,419.2
		158 16 06.50	338 13 21.09	Arrowhead	4.2444817	17,558.27	57,605.8
		118 03 37		Azimuth mark.			
Tulucay, 1932	38 15 51.723	348 01 42.94	168 03 13.25	Sulphur	4.2343436	17,153.14	56,276.6
	122 12 56.692	32 09 10.11	212 05 07.49	Long Pond 2	4.2542666	17,958.36	58,918.4
		93 58 22.41	273 51 33.73	Arrowhead	4.2062206	16,077.58	52,747.9
		122 03 16.70	301 54 47.79	Hooker	4.3711717	23,505.62	77,118.0
Rector, 1932	38 25 27.831	339 42 32.68	159 45 20.26	Tulucay	4.2772844	18,935.83	62,125.3
	122 17 26.807	29 37 24.80	209 33 23.00	Arrowhead	4.2825048	19,164.82	62,876.6
		68 21 45.73	248 16 03.71	Hooker	4.1577164	14,378.59	47,173.8
Point Pinole 3, 1897	38 00 42.559	195 40 00.92	15 41 31.97	Long Pond 2	4.1244240	13,317.54	43,692.6
	122 21 56.733	236 00 48.13	56 07 51.13	Sulphur	4.3044347	20,157.41	66,133.1
		266 25 12.44	86 31 11.51	Franklin	4.1537722	14,248.60	46,747.3
Petaluma Creek, 1851	38 06 12.434	259 31 59.64	79 38 05.09	Long Pond 2	4.1662720	14,664.66	48,112.3
	122 29 21.149	313 09 05.65	133 13 39.61	Point Pinole 3	4.1720305	14,860.40	48,754.5
		152 42 53		Petaluma Creek, south tranmission tower.			
		173 49 28		Petaluma Creek, north transmission tower.			
Hind, 1932	37 59 38.383	183 51 38.53	3 51 59.27	Petaluma Creek	4.0855410	12,177.02	39,950.8
	122 29 54.801	225 48 39.33	45 55 05.08	Long Pond 2	4.3274474	21,254.33	69,731.9
		260 19 51.52	80 24 45.86	Point Pinole 3	4.0729967	11,830.33	38,813.3
Richard, 1932	37 55 13.794	128 19 28.29	308 15 07.93	Hind	4.1194411	13,165.61	43,194.2
	122 22 51.508	187 30 34.34	7 31 08.03	Point Pinole 3	4.0096266	10,224.14	33,543.7
Ring, 1932	37 54 35.157	172 34 47.41	352 34 16.72	Hind	3.9744183	9,427.97	30,931.6
	122 29 04.901	222 39 42.80	42 44 06.17	Point Pinole 3	4.1878897	15,413.09	50,567.8
		262 31 36.82	82 35 26.27	Richard	3.9637032	9,198.21	30,177.8
Angel Island Peak 2, 1881	37 51 41.733	115 26 50.33	295 20 43.61	Mount Tamalpais	4.2081596	16,149.52	52,983.9
	122 25 46.903	137 52 30.13	317 50 28.53	Ring	3.8579957	7,211.00	23,658.1
		213 13 47.13	33 15 34.84	Richard	3.8930711	7,817.56	25,648.1
		267 01 12.79	87 20 14.51	Mount Diablo	4.6581099	45,510.32	149,311.8
		347 48 14.23	167 52 42.98	Sierra Morena	4.7095483	51,232.82	168,086.3
Rocky Mound, 1851	37 52 56.148	6 21 51.66	186 19 26.57	Sierra Morena	4.7218159	52,700.64	172,902.0
	122 14 29.258	98 34 06.55	278 21 03.45	Mount Tamalpais	4.4980987	31,484.64	103,295.9
Red Hill, 1854	37 33 03.629	50 25 36.96	230 17 50.20	Sierra Morena	4.3886915	24,473.24	80,292.6
	122 05 39.730	133 17 33.10	312 59 08.81	Mount Tamalpais	4.7820585	60,542.24	198,629.0
		160 36 51.85	340 31 27.91	Rocky Mound	4.5909087	38,986.00	127,906.6
Guano Island, 1851	37 34 22.546	279 17 31.69	99 23 38.99	Red Hill	4.1756904	14,986.16	49,167.1
	122 15 42.240	12 38 28.51	192 36 48.35	Sierra Morena	4.2669972	18,492.57	60,671.0
Hayward, 1925	37 38 40.720	332 31 31.48	152 33 45.78	Red Hill	4.0686123	11,711.49	38,423.4
	122 09 19.849	49 42 48.26	229 38 54.90	Guano Island	4.0899483	12,301.22	40,358.3
		249 49 42		Reference mark no. 2.			
Pulgas east base, 1853	37 28 35.148	64 20 52.55	244 14 35.65	Sierra Morena	4.2281987	16,912.14	55,485.9
	122 08 06.888	133 48 19.26	313 43 41.90	Guano Island	4.1898554	15,483.01	50,797.2
		203 34 30.80	23 36 00.41	Red Hill	3.9557665	9,031.64	29,631.3

Suisun, San Pablo, and San Francisco Bays—Continued

Station	Latitude and longitude			Azimuth			Back Azimuth			To station	Distance		
											Logarithm (meters)	Meters	Feet
Principal points—Continued	°	′	″	°	′	″	°	′	″				
Pulgas west base, 1853	37	28	47.657	176	13	10.47	356	12	53.54	Guano Island	4.0148096	10,346.89	33,946.4
	122	15	14.440	240	44	26.80	60	50	16.79	Red Hill	4.2087140	16,170.15	53,051.6
Pise Hill 2 1906	37	27	41.730	114	35	27.36	294	11	21.68	Farallon Lighthouse	4.8052460	63,862.51	209,522.2
	122	20	31.953	190	44	52.59	10	48	34.25	Rocky Mound	4.6769492	47,527.97	155,931.3
				209	54	26.83	29	57	23.27	Guano Island	4.1540781	14,258.64	46,780.2
				245	33	39.72	65	42	42.95	Red Hill	4.3812295	24,056.34	78,924.8
				255	22	19.86	75	25	33.02	Pulgas west base	3.9064739	8,062.58	26,452.0
				264	47	50.36	84	55	23.61	Pulgas east base	4.2644084	18,382.66	60,310.4
Ridge 2, eccentric, 1906	37	30	47.627	156	57	29.36	336	49	23.39	Mount Tamalpais	4.6951982	49,567.64	162,623.2
	122	22	29.632	195	59	23.59	16	04	17.34	Rocky Mound	4.6295680	42,615.54	139,814.5
				224	44	10.48	45	01	07.12	Mount Diablo	4.7613521	57,723.43	189,381.0
				236	26	27.08	56	30	35.33	Guano Island	4.0790654	11,996.80	39,359.5
				260	19	01.13	80	29	16.37	Red Hill	4.4005001	25,147.80	82,505.7
				333	13	15.69	153	14	27.31	Pise Hill 2	3.8074633	6,418.94	21,059.5
View, 1925	37	25	50.303	134	36	47.55	314	34	40.03	Pulgas east base	3.8596359	7,238.29	23,747.6
	122	04	37.182	173	26	38.14	353	26	00.07	Red Hill	4.1286288	13,447.11	44,117.7
Turk, 1925	37	34	20.572	342	14	40.71	162	14	59.58	Red Hill	3.3963225	2,490.71	8,171.6
	122	06	10.673	15	00	40.17	194	59	29.39	Pulgas east base	4.0423732	11,024.86	36,170.7
				90	17	49.23	270	12	00.71	Guano Island	4.1469351	14,026.04	46,017.1
B (B. W. F. D. Co.), 1932	37	53	05.170	75	58	16.49	255	53	58.57	Angel Island Peak 2	4.0247116	10,585.50	34,729.3
	122	18	46.773	100	27	44.19	280	21	24.50	Ring	4.1862542	15,355.16	50,377.7
				123	34	32.32	303	32	01.97	Richard	3.8558005	7,174.65	23,538.8
Navy, 1932	37	48	36.085	135	11	15.43	315	08	52.70	Angel Island Peak 2	3.9069218	8,070.90	26,479.3
	122	21	54.200	208	53	53.90	28	55	48.90	B (B. W. F. D. Co.)	3.9766960	9,477.55	31,094.3
Piedmont, 1932	37	50	02.665	77	33	03.60	257	28	01.49	Navy	4.0913728	12,341.64	40,490.9
	122	13	41.525	99	50	01.41	279	42	36.36	Angel Island Peak 2	4.2551697	17,995.74	59,041.0
				127	02	43.11	306	59	35.78	B (B. W. F. D. Co.)	3.9706041	9,345.53	30,661.1
				46	55	24				Oakland, Tribune Tower, ball on pole.			
Farm 2, 1932	37	44	06.562	129	16	12.45	309	11	57.77	Navy	4.1185154	13,137.58	43,102.2
	122	14	58.412	189	43	02.95	9	43	50.06	Piedmont	4.0468411	11,138.87	36,544.8
				320	25	25.28	140	28	52.28	Hayward	4.1148734	13,027.87	42,742.3
				164	19	29				Radio tower, west one of two.			
Point Avisadero, 1851	37	43	32.796	178	48	22.08	358	48	17.20	Navy	3.9709316	9,352.58	30,684.3
	122	21	46.234	224	34	43.01	44	39	39.95	Piedmont	4.2275522	16,886.99	55,403.4
				264	00	50.76	84	05	00.32	Farm 2	4.0017627	10,040.67	32,941.8
				296	09	04.22	116	16	40.50	Hayward	4.3093086	20,384.90	66,879.5
Point San Bruno, 1925	37	39	12.095	192	58	06.17	12	58	52.38	Point Avisadero	3.9163486	8,248.00	27,060.3
	122	23	01.817	232	29	12.29	52	34	07.86	Farm 2	4.1738394	14,922.43	48,958.0
				272	40	42.96	92	49	05.04	Hayward	4.3047746	20,173.19	66,184.9
				293	52	18.34	114	02	54.20	Red Hill	4.4467315	27,972.52	91,773.2
				309	35	14.35	129	39	42.64	Guano Island	4.1460375	13,997.08	45,922.1
Bridge, 1930	37	34	21.528	154	24	32.21	334	24	31.84	Guano Island	1.5413421	34.781	114.11
	122	15	41.628	229	29	31.72	49	33	24.71	Hayward	4.0902626	12,310.13	40,387.5
				279	10	58.84	99	17	05.77	Red Hill	4.1751144	14,966.30	49,101.9
Palo Alto northwest base, 1932	37	30	30.784	179	07	10.30	359	07	07.55	Bridge	3.8521443	7,114.50	23,341.5
	122	15	37.173	211	28	32.74	31	32	22.84	Hayward	4.2483748	17,716.37	58,124.5
				252	08	29.10	72	14	33.05	Red Hill	4.1877327	15,407.52	50,549.5
				132	53	43				Reference mark no. 2.			
Palo Alto southeast base, 1932	37	26	39.933	130	21	09.15	310	17	41.52	Palo Alto northwest base	4.0413150	10,998.033	36,082.71
	122	09	55.920	149	12	23.55	329	08	53.05	Bridge	4.2193511	16,571.09	54,367.0
				207	59	29.19	28	02	05.14	Red Hill	4.1270641	13,398.74	43,959.0
Palo Alto base, A station, 1932	37	29	35.856	136	33	41.8	316	33	02.1	Palo Alto northwest base	3.3677903	2,332.33	7,652.0
	122	14	31.879	308	37	43.3	128	40	31.2	Palo Alto southeast base	3.9386852	8,683.31	28,488.5
				319	33	56				Reference mark no. 1.			
Sunnyvale—B.M. G 111, 1932	37	24	24.634	114	18	16.09	294	14	27.46	Palo Alto southeast base	4.0063235	10,146.67	33,289.5
	122	03	39.726	169	34	07.28	349	32	54.26	Red Hill	4.2113732	16,269.46	53,377.4
Goodyear, 1864	38	06	21.798	246	56	39.68	67	03	27.76	Kirby	4.2425958	17,482.19	57,356.2
	122	06	11.602	316	11	21.44	136	14	34.38	Bay Point (U.S.E.)	4.0422867	11,022.67	36,163.5
Army Point 2, 1886	38	03	02.046	200	17	00.23	20	17	57.85	Goodyear	3.8173189	6,566.27	21,542.8
	122	07	45.033	234	40	42.91	54	48	28.40	Kirby	4.3522285	22,502.38	73,826.6
				280	15	23.96	100	19	34.36	Bay Point (U.S.E.)	4.0030373	10,070.18	33,038.6
Suisun Hill 2, 1922	38	12	53.099	44	12	53.58	224	08	45.95	Lopez	4.1460044	13,996.02	45,918.6
	122	01	07.728	105	01	41.76	284	57	11.03	Rockville	4.0420576	11,016.86	36,144.5
Thomasson, 1922	38	13	02.155	7	32	48.84	187	32	14.16	Lopez	4.0173034	10,406.47	34,141.9
	122	06	52.322	138	40	49.95	318	39	52.44	Rockville	3.5343936	3,422.90	11,230.0
				271	52	41.30	91	56	14.47	Suisun Hill 2	3.9236335	8,387.52	27,518.1
Golf, 1932	38	05	02.542	47	41	08.10	227	37	25.78	Point Pinole 3	4.0755457	11,899.96	39,041.8
	122	15	56.015	132	48	51.14	312	46	39.66	Long Pond 2	3.8496819	7,074.27	23,209.5
Lone Tree Point Iron Rod (U. S. E.), 1903	38	02	19.045	70	08	32.65	250	05	04.94	Point Pinole 3	3.9417822	8,745.45	28,692.4
	122	16	19.550	154	53	11.16	334	51	14.26	Long Pond 2	4.0364946	10,876.64	35,684.4
				186	29	28.19	6	29	42.70	Golf	3.7053077	5,073.50	16,645.3

Suisun, San Pablo, and San Francisco Bays—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points—Continued	° ′ ″	° ′ ″	° ′ ″				
View, 1932	38 07 00.229	2 03 30.79	182 03 27.49	Golf	3.5600146	3,630.90	11,912.4
	122 15 50.663	102 30 00.09	282 27 45.26	Long Pond 2	3.7363107	5,448.92	17,877.0
Slaughterhouse Point 3, 1921	38 09 16.937	337 13 27.18	157 14 12.04	View	3.6600365	4,571.27	14,997.6
	122 17 03.310	348 11 23.61	168 12 05.15	Golf	3.9037975	8,013.04	26,289.4
		49 27 34.78	229 26 04.76	Long Pond 2	3.6694885	4,671.85	15,327.6
Crockett, 1932	38 02 34.152	83 06 46.35	263 05 09.09	Lone Tree Point Iron Rod (U. S. E.)	3.5884735	3,876.80	12,719.1
	122 13 41.719	144 25 31.74	324 24 08.94	Golf	3.7501866	5,625.83	18,457.4
Mare Island southeast, 1852	38 04 36.356	329 06 47.28	149 07 44.26	Crockett	3.6424701	4,390.06	14,403.1
	122 15 14.139	20 38 44.37	200 38 04.05	Lone Tree Point Iron Rod (U. S. E.)	3.6555176	4,523.95	14,842.3
		128 21 03.21	308 20 37.39	Golf	3.1143902	1,301.34	4,269.5
Vallejo 3, 1852	38 04 11.755	9 20 49.17	189 20 36.65	Crockett	3.4842675	3,049.77	10,005.8
	122 13 21.406	105 26 27.60	285 25 18.08	Mare Island southeast	3.4549295	2,850.56	9,352.2
Bush Hill, 1851	38 02 59.897	68 44 45.21	248 43 53.65	Crockett	3.3402332	2,188.94	7,181.5
	122 12 18.057	124 43 52.25	304 42 03.69	Mare Island southeast	3.7178430	5,222.07	17,132.7
		145 07 35.69	325 06 56.64	Vallejo 3	3.4314736	2,700.68	8,860.5
San Pablo Ridge, 1897	37 57 32.005	48 21 07.73	228 18 33.50	Ring	3.9138834	8,201.31	26,907.1
	122 24 54.030	117 59 06.38	297 56 01.30	Hind	3.9196392	8,310.73	27,266.1
		216 21 14.98	36 23 04.09	Point Pinole 3	3.8631060	7,296.36	23,938.1
California Point 2, 1897	37 54 47.765	166 17 40.48	346 16 45.39	Hind	3.9648768	9,223.10	30,259.5
	122 28 25.244	225 30 32.57	45 32 42.42	San Pablo Ridge	3.8590187	7,228.01	23,713.9
Bluff Point 2, 1897	37 53 16.384	138 42 53.55	318 41 51.33	California Point 2	3.5740122	3,749.84	12,302.6
	122 26 43.957	158 25 44.58	338 23 47.23	Hind	4.1026392	12,665.99	41,555.0
		198 48 10.30	18 49 17.86	San Pablo Ridge	3.9204309	8,325.89	27,315.9
		158 21 19		California Nautical School, water tank.			
Richardson east, 1895	37 51 04.805	189 42 25.02	9 42 52.90	Ring	3.8182023	6,579.64	21,586.7
	122 29 50.315	259 08 51.66	79 11 21.04	Angel Island Peak 2	3.7823572	6,058.39	19,876.6
Strawberry Hill 2, 1895	37 52 45.538	198 26 36.96	18 27 05.30	Ring	3.5517862	3,562.76	11,688.8
	122 29 51.042	288 13 30.14	108 16 00.02	Angel Island Peak 2	3.7981672	6,283.00	20,613.5
		359 40 19.10	179 40 19.55	Richardson east	3.4921646	3,105.74	10,189.4
Baker, 1932	37 50 14.143	155 14 17.70	335 13 59.61	Richardson east	3.2355680	1,720.16	5,643.6
	122 29 20.845	242 40 29.31	62 42 40.58	Angel Island Peak 2	3.7698573	5,886.50	19,312.6
Alcatraz Lighthouse, 1910	37 49 34.672	101 29 53.89	281 27 23.57	Baker	3.7864445	6,115.68	20,064.5
	122 25 15.758	112 30 34.11	292 27 45.68	Richardson east	3.8612845	7,265.82	23,837.9
		169 00 08.06	348 59 48.95	Angel Island Peak 2	3.6010504	3,990.71	13,092.9
Hill, 1916	37 49 38.857	229 25 49.27	49 27 40.36	Angel Island Peak 2	3.7654266	5,826.75	19,116.6
	122 28 47.971	271 24 21.68	91 26 31.83	Alcatraz Lighthouse	3.7152879	5,191.44	17,032.2
Presidio east base, 1931	37 48 21.708	130 17 44.00	310 16 33.65	Hill	3.5656802	3,678.58	12,068.8
	122 26 53.244	194 43 57.61	14 44 38.30	Angel Island Peak 2	3.8045991	6,376.75	20,921.1
		226 39 32.46	46 40 32.23	Alcatraz Lighthouse	3.5156240	3,278.11	10,754.9
Presidio west base, 1931	37 48 17.276	145 05 51.15	325 05 07.15	Hill	3.4867250	3,067.08	10,062.6
	122 27 36.211	262 35 23.40	82 35 49.74	Presidio east base	3.0252864	1,059.952	3,477.53
Coyote Ridge 2, 1916	37 51 59.542	230 41 23.88	50 43 51.25	Ring	3.8794731	7,576.58	24,857.5
	122 33 04.877	253 19 07.74	73 21 06.74	Strawberry Hill 2	3.6941771	4,945.12	16,224.1
		289 31 09.39	109 33 08.80	Richardson east	3.7030008	5,046.62	16,557.1
Fairway, 1932	37 47 41.125	155 14 03.50	335 13 08.92	Baker	3.7156509	5,195.78	17,046.5
	122 27 51.833	159 16 55.31	339 16 20.88	Hill	3.5889231	3,880.82	12,732.3
		202 22 26.39	22 23 43.00	Angel Island Peak 2	3.9043166	8,022.63	26,320.9
		227 28 02.02	47 29 37.70	Alcatraz Lighthouse	3.7143130	5,179.80	16,994.1
		91 52 42		Reference mark no. 2.			
Barry, 1932	37 49 13.812	242 31 36.56	62 33 06.32	Baker	3.6056891	4,033.57	13,233.5
	122 31 47.199	296 22 34.05	116 24 58.34	Fairway	3.8080547	6,427.69	21,088.2
Lincoln, 1932	37 46 56.213	147 19 12.12	327 18 03.91	Barry	3.7024875	5,040.66	16,537.6
	122 29 55.918	187 59 59.60	8 00 21.10	Baker	3.7897447	6,162.33	20,217.6
		245 28 24.64	65 29 40.68	Fairway	3.5233583	3,337.02	10,948.2
		188 33 09		Flagpole.			
Range, 1931	37 50 06.483	282 27 09.28	102 29 00.52	Alcatraz Lighthouse	3.6573089	4,542.65	14,903.7
	122 28 17.136	327 34 11.29	147 35 02.73	Presidio east base	3.5828406	3,826.84	12,555.2
		343 26 24.11	163 26 49.20	Presidio west base	3.5456230	3,512.55	11,524.1
		41 31 19.59	221 31 00.67	Hill	3.0559676	1,137.54	3,732.1
Fort, 1931	37 48 38.522	170 19 36.94	350 19 28.98	Hill	3.2757787	1,887.03	6,191.0
	122 28 35.006	189 09 12.23	9 09 23.19	Range	3.4388425	2,746.90	9,012.1
		281 45 16.78	101 46 19.16	Presidio east base	3.4052940	2,542.69	8,342.1
		294 28 51.12	114 29 27.16	Presidio west base	3.1987587	1,580.37	5,184.9
Bluff, 1931	37 49 34.675	211 21 15.68	31 21 30.67	Range	3.0600907	1,148.39	3,767.7
	122 28 41.573	310 19 22.54	130 20 28.96	Presidio east base	3.5410584	3,475.83	11,403.6
		326 10 25.89	146 11 05.96	Presidio west base	3.4582283	2,872.29	9,423.5
		354 41 57.39	174 42 01.42	Fort	3.2402182	1,738.67	5,704.3

Suisun, San Pablo, and San Francisco Bays—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points—Continued	° ′ ″	° ′ ″	° ′ ″				
Ridge, 1931	37 49 44.212	222 18 03.49	42 18 19.16	Range	2.9677241	928.38	3,045.9
	122 28 42.688	313 31 44.18	133 32 51.28	Presidio east base	3.5673420	3,692.68	12,115.1
		328 45 07.21	148 45 47.96	Presidio west base	3.4962267	3,134.92	10,285.1
		354 41 57.80	174 41 58.48	Bluff	2.4702749	295.31	968.9
Rock, 1931	37 49 32.024	269 03 06.22	89 05 12.25	Alcatraz Lighthouse	3.7012660	5,026.50	16,491.1
	122 28 41.263	309 21 38.36	129 22 44.59	Presidio east base	3.5337281	3,417.65	11,212.7
		325 22 19.09	145 22 58.97	Presidio west base	3.4472294	2,800.46	9,187.8
		354 41 57.05	174 42 00.89	Fort	3.2192191	1,656.61	5,435.1
Bay Park, 1932	37 42 55.060	193 02 19.31	13 03 20.27	Navy	4.0331243	10,792.56	35,408.6
	122 23 33.741	227 39 34.49	47 45 37.26	Piedmont	4.2920825	19,592.17	64,278.6
		260 02 52.51	80 08 07.83	Farm 2	4.1075867	12,811.11	42,031.1
Point San Mateo, 1925	37 35 28.848	154 31 08.10	334 28 24.55	Bay Park	4.1830380	15,241.86	50,006.0
	122 19 06.017	209 47 48.32	20 50 19.61	Farm 2	4.2323826	17,075.86	56,023.1
South Twin, 1932	37 45 06.057	227 57 15.44	48 00 15.35	Navy	3.9855727	9,673.26	31,736.4
	122 26 47.866	310 20 08.19	130 22 06.99	Bay Park	3.7950097	6,237.49	20,464.2
Telegraph, 1932	37 48 07.761	255 54 19.71	75 55 46.94	Navy	3.5549572	3,588.87	11,774.5
	122 24 16.499	353 48 01.01	173 48 27.19	Bay Park	3.9866534	9,697.36	31,815.4
		33 29 13.73	213 27 41.01	South Twin	3.8271106	6,716.00	22,034.1
McKinley, 1932	37 45 34.056	179 13 23.55	359 13 21.94	Telegraph	3.6757104	4,739.26	15,548.7
	122 24 13.873	348 39 40.30	168 40 04.86	Bay Park	3.6989186	4,999.41	16,402.2
		77 06 54.76	257 05 20.47	South Twin	3.5873990	3,867.22	12,687.7
San Bruno Mountain, 1899	37 41 15.017	230 02 41.54	50 04 13.49	Bay Park	3.6816147	4,804.13	15,761.5
	122 26 04.097	251 58 20.74	72 05 07.93	Farm 2	4.2340477	17,141.45	56,238.2
		316 07 12.46	136 11 27.78	Point San Mateo	4.1701886	14,797.51	48,548.2
Flat, 1899	37 36 50.923	195 08 30.38	15 09 25.31	San Bruno Mountain	3.9260905	8,435.11	27,674.2
	122 27 34.022	233 58 54.04	54 06 35.85	Farm 2	4.3593586	22,874.87	75,048.6
		281 26 07.16	101 31 17.14	Point San Mateo	4.1043314	12,715.44	41,717.2
Brooks Island 2, 1905	37 53 47.379	289 36 22.78	109 37 54.54	B (B. W. F. D. Co.)	3.5883604	3,875.79	12,715.8
	122 21 16.183	5 32 03.98	185 31 40.65	Navy	3.9841838	9,642.37	31,635.0
		59 40 23.92	239 37 37.71	Angel Island Peak 2	3.8846069	7,666.67	25,153.1
Grizzly, 1932	37 52 55.658	355 44 12.28	175 44 22.25	Piedmont	3.7282172	5,348.32	17,546.9
	122 13 57.784	55 32 58.16	235 28 05.86	Navy	4.1502144	14,132.35	46,365.9
		92 24 09.45	272 21 12.00	B (B. W. F. D. Co.)	3.8493040	7,068.12	23,189.3
Farm, 1925	37 44 06.482	52 34 06.71	232 29 11.22	Point San Bruno	4.1737172	14,918.23	48,944.2
	122 14 58.550	84 05 43.97	264 01 34.49	Point Avisadero	4.0016062	10,037.05	32,929.9
		233 49 19	53 49 19	Farm 2	0.6201361	4.170	13.68
		320 24 18.84	140 27 45.92	Hayward	4.1148812	13,028.10	42,743.0
Bay, 1916	37 44 20.290	341 37 31.05	161 37 34.58	Farm	2.6518374	448.58	1,471.7
	122 15 04.325	50 57 19.47	230 52 27.49	Point San Bruno	4.1781323	15,070.66	49,444.3
		81 34 17.65	261 30 11.69	Point Avisadero	3.9978162	9,949.84	32,643.8
Supplementary points							
Antioch, Fiberboard Products Co., water tank, 1932.	38 00 56.685	180 57 26.4	0 57 29.2	Blackjack	3.807725	6,422.8	21,072
	121 49 15.240	213 37 29.8	33 38 55.4	May	3.786371	6,114.6	20,061
		253 20 21.7	73 22 37.6	Wood	3.749374	5,615.3	18,423
Antioch, municipal water tank, 1932	38 00 51.573	151 03 31.6	331 01 34.5	Cattle	3.980611	9,563.4	31,376
	121 48 16.349	168 35 17.5	348 34 43.9	Blackjack	3.826873	6,712.3	22,022
		242 01 48.8	62 02 01.2	Antioch	2.743867	554.5	1,819
Mayberry Slough, transmission tower no. 1, 1932.	38 02 10.660	290 29 09.0	110 29 54.4	Wood	3.283615	1,921.4	6,304
	121 46 48.461	37 12 48.6	217 12 06.8	Antioch	3.436972	2,735.1	8,973
		92 18 41.3	272 14 46.0	Pittsburg	3.969334	9,318.2	30,571
Mayberry Slough, transmission tower no. 2, 1932.	38 02 20.740	298 44 48.7	118 45 34.0	Wood	3.310556	2,044.4	6,707
	121 46 48.155	33 43 37.5	213 42 55.6	Antioch	3.476057	2,992.7	9,819
		90 24 00.0	270 20 04.6	Pittsburg	3.969340	9,318.4	30,572
Transmission tower near station Blackjack, 1932.[1]	38 04 15.71	9 09 43	189 09 18	Antioch	3.786168	6,111.8	20,052
	121 47 16.38	108 49 37	288 47 03	Cattle	3.808442	6,433.4	21,107
Transmission tower near station May, 1932[1]	38 03 38.48	17 00 20	196 59 42	Antioch	3.708354	5,109.2	16,762
	121 46 55.02	116 00 16	295 57 29	Cattle	3.866545	7,354.4	24,129
Pittsburg, Pioneer Rubber Co., water tank, 1932.	38 01 41.837	115 37 16.3	295 36 09.8	Pittsburg	3.464329	2,912.9	9,557
	121 51 22.567	179 14 39.4	359 14 37.0	Cattle	3.833696	6,818.6	22,371
		212 32 56.7	32 34 17.7	Blackjack	3.775813	5,967.8	19,579
Pittsburg, Johns Manville Co., water tank, 1932.	38 01 48.442	145 27 18.1	325 26 59.9	Pittsburg	3.107723	1,281.5	4,204
	121 52 40.475	195 17 31.9	15 18 17.8	Cattle	3.836158	6,857.4	22,498
		226 37 31.1	46 39 40.3	Blackjack	3.846936	7,029.7	23,063
Pittsburg, Western Electrical Chemical Co., water tank, 1932.	38 01 39.312	94 33 06.0	274 29 13.0	McAvoy	3.966285	9,253.1	30,358
	121 51 15.938	159 48 13.4	339 45 48.5	Kirby	4.219071	16,560.4	54,332
		177 54 40.9	357 54 34.6	Cattle	3.838880	6,900.5	22,639

[1] No check on this position.

Suisun, San Pablo, and San Francisco Bays—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Pittsburg, Stockton Firebrick Co., water tank, 1932.[1]	38 01 31.82	212 15 11	32 17 05	Cattle	3.925769	8,428.9	27,654
	121 54 30.84	231 24 00	51 24 50	Pittsburg	3.400362	2,514.0	8,248
Van Sickle Island, navigation beacon, 1932[1]	38 03 40.44	32 25 52	212 25 13	Pittsburg	3.453405	2,840.6	9,320
	121 52 07.81	159 19 43	339 17 50	Kirby	4.101028	12,619.1	41,401
Point New York, navigation beacon, 1932[1]	38 02 31.03	45 08 35	225 08 29	Pittsburg	2.562612	365.3	1,198
	121 52 59.66	82 39 20	262 36 31	McAvoy	3.829293	6,749.8	22,145
San Francisco-Reno airway beacon no. 3, 1932	38 07 01.230	13 02 19.1	193 01 28.8	Pittsburg	3.945242	8,815.4	28,922
	121 51 48.717	42 30 19.4	222 26 46.3	McAvoy	4.095815	12,468.5	40,907
		138 47 04.7	318 44 59.9	Kirby	3.873091	7,466.1	24,495
Point Sacramento, navigation beacon, 1932	38 03 46.699	233 26 09.5	53 26 49.8	Blackjack	3.296924	1,981.2	6,500
	121 50 16.122	326 25 18.9	146 26 45.1	Antioch	3.790140	6,167.9	20,236
		58 37 39.0	238 35 51.7	Pittsburg	3.696703	4,974.0	16,319
San Francisco-Medford airway beacon no. 3, 1932.	38 12 25.354	330 12 29.2	150 13 33.0	Kirby	3.702879	5,045.2	16,552
	121 56 53.778	60 06 29.7	239 59 45.2	Lopez	4.264640	18,392.5	60,343
		102 28 56.3	282 21 48.5	Rockville	4.236106	17,222.9	56,505
Nichols, General Chemical Co., red water tank, 1932.	38 02 47.331	299 51 04.9	119 52 05.1	McAvoy	3.438992	2,747.8	9,015
	121 59 11.890	62 41 26.2	242 40 20.3	Bay Point (U.S.E.)	3.467101	2,931.6	9,618
		92 07 14.1	272 01 57.9	Army Point 2	4.097601	12,519.9	41,076
San Francisco-Reno airway beacon no. 2, 1932	38 01 48.859	108 41 28.5	288 40 54.3	Bay Point (U.S.E.)	3.154595	1,427.6	4,684
	122 00 03.252	205 01 33.4	25 04 33.8	Kirby	4.226055	16,828.9	55,213
		264 03 14.4	84 07 28.8	Pittsburg	4.005398	10,125.1	33,219
Middle Ground Island, navigation beacon, 1932.	38 03 39.380	204 30 41.0	24 32 57.8	Kirby	4.114369	13,012.7	42,692
	121 58 52.576	327 14 50.5	147 15 38.8	McAvoy	3.548338	3,534.6	11,596
		46 12 00.7	226 10 42.9	Bay Point (U.S.E.)	3.629569	4,261.6	13,982
Middle Point, navigation beacon, flashing red, 1932.	38 03 18.418	206 57 54.2	27 00 35.2	Kirby	4.146443	14,010.2	45,965
	121 59 31.775	309 02 28.5	129 03 41.0	McAvoy	3.567361	3,692.8	12,115
		42 37 18.4	222 36 24.8	Bay Point (U.S.E.)	3.495624	3,130.6	10,271
Sealbluff Landing, Pacific Coast Ship Building Co., water tank, 1932[1].	38 03 17.89	318 22 50	138 23 41	Bay Point (U.S.E.)	3.485678	3,059.7	10,038
	122 02 22.03	135 24 08	315 21 46	Goodyear	3.901238	7,966.0	26,135
Roe Island, navigation beacon, 1932	38 04 04.522	220 24 04.8	40 28 03.6	Kirby	4.162407	14,534.7	47,686
	122 01 37.793	345 38 44.6	165 39 08.7	Bay Point (U.S.E.)	3.584934	3,845.3	12,616
		77 53 21.0	257 49 34.6	Army Point 2	3.961790	9,157.8	30,045
Echo Island, navigation beacon, 1932	38 06 52.423	244 53 04.8	64 58 23.9	Kirby	4.142742	13,891.3	45,575
	122 03 47.500	39 12 01.2	219 09 34.7	Army Point 2	3.962048	9,163.2	30,063
		74 57 28.4	254 55 59.4	Goodyear	3.560549	3,635.4	11,927
Bulls Head Point, Mococo Fertilizer Co., stack (1922), 1932.	38 02 03.846	141 28 20.4	321 27 44.3	Army Point 2	3.360576	2,293.9	7,526
	122 06 46.429	186 05 22.9	6 05 44.4	Goodyear	3.903001	7,998.4	26,241
		270 00 06.6	90 03 40.9	Bay Point (U.S.E.)	3.928400	8,480.1	27,822
Avon, Associated Oil Co., stack, 1932	38 01 51.069	114 39 14.1	294 37 13.5	Army Point 2	3.720117	5,249.5	17,223
	122 04 29.355	163 23 01.7	343 21 58.6	Goodyear	3.940082	8,711.3	28,580
		265 38 55.8	85 41 05.6	Bay Point (U.S.E.)	3.711984	5,152.1	16,903
Suisun Point, Southern Pacific Co., airway landmark beacon, 1932.	38 02 17.882	174 21 24.7	354 21 00.8	Lopez	3.982026	9,594.6	31,478
	122 07 09.701	230 36 34.9	50 43 58.4	Kirby	4.354950	22,643.8	74,291
		272 44 10.6	92 47 59.1	Bay Point (U.S.E.)	3.957030	9,058.0	29,718
Fairfield, municipal water tank, 1932	38 14 48.104	321 09 28.2	141 10 40.8	Suisun Hill 2	3.658200	4,552.0	14,934
	122 03 05.082	59 26 01.3	239 23 40.6	Thomasson	3.807538	6,420.0	21,063
		84 55 01.7	264 51 43.4	Rockville	3.893035	7,816.9	25,646
Fairfield, Del Monte water tank, 1932	38 14 47.320	333 48 00.8	153 48 44.9	Suisun Hill 2	3.593819	3,924.8	12,877
	122 02 18.958	64 01 30.1	243 58 40.9	Thomasson	3.869067	7,397.2	24,269
		85 42 58.9	265 39 12.1	Rockville	3.950988	8,932.8	29,307
San Francisco-Medford airway beacon no. 4, 1932.	38 14 35.922	349 59 27.7	170 00 05.4	Kirby	3.931170	8,534.3	28,000
	121 56 11.734	66 15 29.9	246 12 26.7	Suisun Hill 2	3.895778	7,866.4	25,808
		79 32 34.0	259 25 57.6	Thomasson	4.199930	15,846.4	51,989
Benicia, dock, navigation beacon, 1932	38 02 36.843	115 37 21.9	295 34 07.4	Mare Island southeast	3.930913	8,529.3	27,983
	122 09 58.605	120 38 14.4	300 36 09.4	Vallejo 3	3.759316	5,745.3	18,849
		174 13 59.0	354 13 39.3	Sulphur	3.890232	7,766.6	25,481
Crockett, C. & H. Sugar Co., stack, 1932	38 03 24.999	163 01 23.9	343 01 12.8	Vallejo 3	3.178195	1,507.3	4,945
	122 13 03.351	305 01 14.9	125 01 42.8	Bush Hill	3.129855	1,348.5	4,424
		30 49 44.6	210 49 21.0	Crockett	3.261408	1,825.6	5,989
Selby, stack no. 1 (1911), 1932	38 03 26.071	147 10 10.0	327 09 21.5	Golf	3.549011	3,540.1	11,614
	122 14 37.262	157 28 24.0	337 28 01.3	Mare Island southeast	3.370341	2,346.1	7,697
		232 41 48.4	52 42 35.2	Vallejo 3	3.366336	2,324.5	7,626
Selby, stack no. 2 (1911), 1932	38 03 18.679	151 33 59.7	331 33 15.9	Golf	3.561319	3,641.8	11,948
	122 14 44.864	163 24 34.6	343 24 16.6	Mare Island southeast	3.397769	2,499.0	8,199
		231 10 53.0	51 11 44.5	Vallejo 3	3.416806	2,611.0	8,566
South Vallejo, Sperry Flour Co., water tank, 1932.[1]	38 04 53.57	306 43 07	126 43 50	Vallejo 3	3.333628	2,155.9	7,073
	122 14 32.30	62 30 34	242 30 08	Mare Island southeast	3.060505	1,149.5	3,771

[1] No check on this position.

Suisun, San Pablo, and San Francisco Bays—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Mare Island Strait, front range breakwater, west end, naval beacon, 1932.[1]	38 04 10.71	131 49 32	311 49 09	Mare Island southeast	3.074040	1,185.9	3,891
	122 14 37.88	269 00 05	89 00 52	Vallejo 3	3.270546	1,864.4	6,117
Selby, 1911	38 03 17.085	53 14 45.8	233 13 45.2	Lone Tree Point Iron Rod (U.S.E.)	3.475667	2,990.0	9,810
	122 14 41.312	65 52 23.0	245 47 54.7	Point Pinole 3	4.065902	11,638.6	38,184
		161 52 26.0	341 52 05.8	Mare Island southeast	3.410229	2,571.8	8,438
		229 07 22.5	49 08 11.8	Vallejo 3	3.410945	2,576.0	8,451
Mare Island, west wireless tower, 1911	38 05 02.665	292 35 14.9	112 36 50.3	Vallejo 3	3.611125	4,084.4	13,400
	122 15 56.114	308 24 29.1	128 24 55.0	Mare Island southeast	3.115803	1,305.6	4,283
		330 44 22.0	150 45 08.1	Selby	3.571838	3,731.1	12,241
		6 27 47.8	186 27 33.3	Lone Tree Point Iron Rod (U.S.E.)	3.705606	5,077.0	16,657
		47 39 51.4	227 36 09.1	Point Pinole 3	4.075573	11,900.7	39,044
Mare Island, east wireless tower, 1911	38 05 02.089	292 41 38.9	112 43 12.7	Vallejo 3	3.604245	4,020.2	13,190
	122 15 53.565	309 32 35.3	129 32 59.6	Mare Island southeast	3.095548	1,246.1	4,088
		331 26 51.4	151 27 35.9	Selby	3.566498	3,685.5	12,092
Carquinez Strait Lighthouse, 1911	38 04 13.879	8 18 23.1	188 18 16.6	Selby	3.247885	1,769.6	5,806
	122 14 30.826	123 17 08.9	303 16 42.2	Mare Island southeast	3.101353	1,262.9	4,143
		272 12 36.4	92 13 19.2	Vallejo 3	3.228762	1,693.4	5,556
Mare Island Lighthouse, 1911	38 04 24.790	278 18 47.0	98 19 56.5	Vallejo 3	3.443490	2,776.5	9,109
	122 15 14.113	339 02 17.8	159 02 38.0	Selby	3.349352	2,235.4	7,334
		22 22 20.9	202 21 40.5	Lone Tree Point Iron Rod (U.S.E.)	3.622461	4,192.4	13,755
Oleum, wharf, power house, east stack, 1911	38 03 05.656	189 10 23.7	9 10 35.1	Mare Island southeast	3.452199	2,832.7	9,294
	122 15 32.667	254 16 40.4	74 17 12.0	Selby	3.114185	1,300.7	4,267
		38 30 16.8	218 29 47.8	Lone Tree Point Iron Rod (U.S.E.)	3.263954	1,836.3	6,025
Oleum, outer oil tank, 1911	38 03 03.108	185 17 51.5	5 17 58.3	Mare Island southeast	3.460503	2,887.4	9,473
	122 15 25.077	248 00 13.1	68 00 40.1	Selby	3.060990	1,150.8	3,776
		44 21 31.6	224 20 58.0	Lone Tree Point Iron Rod (U.S.E.)	3.278746	1,900.0	6,234
Selby, shot tower, stack, 1911	38 03 16.863	165 39 09.3	345 38 53.5	Mare Island southeast	3.403095	2,529.9	8,300
	122 14 48.418	267 44 21.4	87 44 25.8	Selby	2.239009	173.4	569
		65 32 58.2	245 28 34.3	Point Pinole 3	4.059863	11,477.9	37,657
Lone Tree Point, wharf, southwest point, 1911	38 02 28.386	201 50 20.2	21 51 00.2	Mare Island southeast	3.628469	4,250.8	13,946
	122 16 19.018	237 46 12.2	57 47 12.4	Selby	3.449633	2,816.0	9,239
		68 25 08.0	248 21 39.9	Point Pinole 3	3.947409	8,859.5	29,067
Pinole Point, wharf, outer point, 1911	38 00 54.952	234 21 43.0	54 25 43.9	Mare Island southeast	4.069123	11,725.3	38,469
	122 21 45.117	243 40 00.5	63 45 10.9	Vallejo 3	4.136711	13,699.7	44,946
		246 59 11.1	67 03 32.2	Selby	4.050222	11,225.9	36,830
Pinole Shoal, pile no. 9, 1911	38 03 10.445	245 17 15.0	65 19 40.7	Mare Island southeast	3.802138	6,340.7	20,803
	122 19 10.466	290 48 20.1	110 50 05.4	Lone Tree Point Iron Rod (U.S.E.)	3.649204	4,458.7	14,628
		41 39 40.1	221 37 57.6	Point Pinole 3	3.785458	6,101.8	20,019
Oleum, wharf, northwest corner, 1911	38 03 09.828	260 52 37.0	80 53 12.3	Selby	3.149832	1,412.0	4,633
	122 15 38.494	32 35 48.8	212 35 23.5	Lone Tree Point Iron Rod (U.S.E.)	3.269140	1,858.4	6,097
		63 49 27.9	243 45 34.9	Point Pinole 3	4.012051	10,281.4	33,732
Mare Island, second pile off new dike, 1911	38 04 00.683	265 24 45.9	85 26 33.9	Vallejo 3	3.631691	4,282.4	14,050
	122 16 16.530	300 03 59.7	120 04 58.4	Selby	3.428520	2,682.4	8,801
		1 20 46.5	181 20 44.6	Lone Tree Point Iron Rod (U.S.E.)	3.196178	3,134.6	10,284
Mare Island, first pile off new dike, 1911	38 04 01.118	265 26 56.4	85 28 41.0	Vallejo 3	3.617704	4,146.7	13,605
	122 16 10.989	301 49 58.1	121 50 53.4	Selby	3.410509	2,573.4	8,443
		3 47 43.6	183 47 38.3	Lone Tree Point Iron Rod (U.S.E.)	3.498865	3,154.0	10,348
Mare Island, dolphin off end of new dike, 1911.	38 04 03.590	266 24 27.8	86 26 09.7	Vallejo 3	3.605721	4,033.9	13,235
	122 16 06.570	304 35 35.7	124 36 28.3	Selby	3.402268	2,525.0	8,284
		5 36 30.3	185 36 22.3	Lone Tree Point Iron Rod (U.S.E.)	3.510389	3,238.8	10,626
Hercules Dock, northwest corner of wharf, 1911.	38 01 22.856	79 14 38.8	259 11 53.0	Point Pinole 3	3.822392	6,643.4	21,796
	122 17 29.186	229 13 11.2	49 15 44.0	Vallejo 3	3.901795	7,976.2	26,169
		229 16 46.8	49 18 30.3	Selby	3.732409	5,400.2	17,717
Mare Island, red water tank, 1911[1]	38 05 15.54	297 11 41	117 13 18	Vallejo 3	3.633561	4,300.9	14,111
	122 15 58.35	318 16 03	138 16 30	Mare Island southeast	3.209154	1,618.7	5,311
Pinole Shoal, pile no. 11, 1911[1]	38 03 20.60	243 38 45	63 40 44	Mare Island southeast	3.721358	5,264.5	17,272
	122 18 27.69	301 15 58	121 17 17	Lone Tree Point Iron Rod (U.S.E.)	3.562963	3,655.6	11,993
Lone Tree Point, higher stack, 1911[1]	38 02 18.18	200 26 05	20 26 45	Mare Island southeast	3.657661	4,546.3	14,916
	122 16 19.26	232 44 39	52 45 39	Selby	3.477174	3,000.4	9,844
Oleum, Union Oil Co., stack, 1932	38 03 02.417	43 12 56.1	223 12 24.3	Lone Tree Point Iron Rod (U.S.E.)	3.263586	1,834.8	6,020
	122 15 28.030	145 24 16.4	325 21 47.6	Long Pond 2	4.014536	10,340.4	33,925
		169 33 58.0	349 33 40.7	Golf	3.575880	3,766.0	12,356
Carquinez Strait, range target no. 1 (1929), 1932.	38 04 17.051	258 47 41.4	78 48 57.5	Mare Island southeast	3.486563	3,065.9	10,059
	122 17 17.533	301 04 14.4	121 06 27.5	Crockett	3.788448	6,144.0	20,157
		338 45 42.6	158 46 18.3	Lone Tree Point Iron Rod (U.S.E.)	3.591435	3,903.3	12,806

[1] No check on this position.

Suisun, San Pablo, and San Francisco Bays—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Carquinez Strait, range target no. 2 (1929), 1932.	38 04 40.134	271 33 04.2	91 34 52.0	Mare Island southeast	3.629571	4,261.6	13,982
	122 18 08.923	300 47 03.3	120 49 48.1	Crockett	3.879910	7,584.2	24,882
		328 29 01.2	148 30 08.6	Lone Tree Point Iron Rod (U.S.E.)	3.707760	5,102.2	16,739
Carquinez Bridge, airway landmark beacon, 1932.	38 03 39.662	190 29 51.4	10 29 56.0	Vallejo 3	3.002741	1,006.3	3,302
	122 13 28.928	279 07 35.5	99 15 07.8	Bay Point (U.S.E.)	4.267921	18,531.9	60,800
		305 21 10.5	125 21 54.2	Bush Hill	3.326058	2,118.6	6,951
Vallejo, St. Vincent School, flagpole, 1932	38 06 19.252	321 17 12.2	141 18 31.9	Vallejo 3	3.702183	5,037.1	16,526
	122 15 30.649	352 46 17.8	172 46 28.0	Mare Island southeast	3.504868	3,197.9	10,492
		14 38 54.7	194 38 39.1	Golf	3.388203	2,444.6	8,020
Mare Island, power house, stack, 1932	38 06 01.514	347 15 29.3	167 15 39.7	Golf	3.270474	1,864.1	6,116
	122 16 12.886	122 01 46.1	301 59 45.0	Long Pond 2	3.751012	5,636.5	18,492
		260 19 37.1	80 23 08.3	Sulphur	3.927252	8,457.7	27,748
Pinole Point, Giant Powder Co., water tank, 1932.	37 59 58.887	165 23 53.3	345 23 44.3	Point Pinole 3	3.143469	1,391.5	4,565
	122 21 42.353	192 54 13.0	12 55 35.1	Long Pond 2	4.162451	14,536.2	47,691
		241 12 48.9	61 16 07.7	Lone Tree Point Iron Rod (U.S.E.)	3.953361	8,981.8	29,468
East Brother Island Lighthouse, 1932	37 57 47.820	120 24 59.6	300 22 33.0	Hind	3.828476	6,737.1	22,103
	122 25 56.696	207 23 53.0	27 27 51.8	Long Pond 2	4.312097	20,516.2	67,310
		227 21 51.0	47 24 18.7	Point Pinole 3	3.900752	7,957.0	26,106
Richmond, airway landmark beacon, 1932	37 58 43.444	31 47 46.3	211 46 05.4	Richard	3.881040	7,604.0	24,947
	122 20 07.473	59 47 18.3	239 41 47.8	Ring	4.181615	15,192.0	49,842
		96 47 25.3	276 41 23.8	Hind	4.159337	14,432.3	47,350
Red Rock, naval beacon, 1932 [1]	37 55 44.96	282 36 08	102 37 56	Richard	3.643303	4,398.5	14,431
	122 25 47.25	65 59 26	245 57 25	Ring	3.723093	5,285.6	17,341
Richmond, Ford Motor Co., water tank, 1932	37 54 35.256	306 25 55.0	126 27 29.5	B (B.W.F.D. Co.)	3.669825	4,675.5	15,340
	122 21 20.710	50 35 12.7	230 32 29.2	Angel Island Peak 2	3.925426	8,422.2	27,632
		118 11 14.7	298 10 18.9	Richard	3.400729	2,516.1	8,255
West Berkeley, Eldorado Oil Co., water tank, 1932.	37 52 03.033	254 43 28.2	74 45 57.7	Grizzly	3.790043	6,166.6	20,232
	122 18 01.209	300 17 08.0	120 19 47.3	Piedmont	3.866510	7,353.8	24,127
		41 46 54.0	221 44 31.1	Navy	3.932152	8,553.7	28,063
Mount Diablo, airway landmark beacon, 1932.	37 52 54.060	87 20 45.0	267 01 44.9	Angel Island Peak 2	4.657488	45,445.2	149,098
	121 54 49.756	261 08 19.5	81 08 21.1	Mount Diablo	1.816308	65.510	214.93
Southampton Shoal Lighthouse, 1932	37 52 54.998	49 56 58.5	229 55 51.0	Angel Island Peak 2	3.545279	3,509.8	11,515
	122 23 56.994	200 29 37.8	20 30 18.0	Richard	3.659780	4,568.6	14,989
		267 36 17.1	87 39 27.6	B (B.W.F.D. Co.)	3.880092	7,587.4	24,893
San Francisco, St. Francis Yacht Club, naval beacon, 1932.	37 48 27.446	53 09 54.2	233 09 06.4	Fairway	3.376891	2,381.7	7,814
	122 26 33.920	190 51 39.9	10 52 08.7	Angel Island Peak 2	3.785284	6,099.4	20,011
		222 40 52.1	42 41 40.0	Alcatraz Lighthouse	3.450200	2,819.7	9,251
Oakland, Tribune Building, 1932	37 48 11.506	346 42 34.4	166 43 19.0	Farm 2	3.889826	7,759.4	25,457
	122 16 11.261	48 01 35.0	227 57 04.0	Bay Park	4.163674	14,577.2	47,825
		95 11 26.0	275 07 55.8	Navy	3.925481	8,423.3	27,635
Yerba Buena Island, lookout, 1932	37 48 35.414	48 08 58.7	228 05 58.5	South Twin	3.985410	9,669.6	31,724
	122 21 53.640	76 18 08.0	256 16 40.5	Telegraph	3.555963	3,597.2	11,802
		146 30 47.0	326 30 46.7	Navy	1.394331	24.8	81
San Francisco, 450 Sutter Street, building, 1932.	37 47 22.666	187 48 11.5	7 48 16.2	Telegraph	3.147150	1,403.3	4,604
	122 24 24.287	238 20 06.4	58 21 38.4	Navy	3.634826	4,313.5	14,152
		351 27 58.0	171 28 28.9	Bay Park	3.921305	8,342.7	27,371
San Francisco, Standard Oil Co. Building, chimney, 1932.	37 47 27.337	355 33 53.9	175 34 10.2	Bay Park	3.925291	8,419.6	27,623
	122 24 00.323	43 17 06.8	223 15 24.2	South Twin	3.776858	5,982.2	19,627
		162 23 04.7	342 22 54.8	Telegraph	3.116489	1,307.6	4,290
San Francisco, Park Lane Building, flagpole, 1932.	37 47 34.334	351 25 47.9	171 26 01.9	McKinley	3.574041	3,750.1	12,303
	122 24 35.703	35 05 15.4	215 03 55.1	South Twin	3.747096	5,585.9	18,326
		81 28 11.9	261 24 56.3	Lincoln	3.897557	7,898.7	25,914
San Francisco, Bank of America Building, dome, flagpole, 1932.	37 47 09.547	178 46 33.9	358 46 32.9	Telegraph	3.254110	1,795.2	5,890
	122 24 14.932	232 12 57.3	52 14 23.5	Navy	3.639066	4,355.8	14,291
		44 31 32.9	224 29 59.2	South Twin	3.727467	5,339.1	17,517
San Francisco, Russ Building, flagpole, 1932	37 47 29.328	3 08 55.2	183 08 50.4	McKinley	3.551360	3,559.3	11,677
	122 24 05.886	167 38 27.0	347 38 20.5	Telegraph	3.083876	1,213.0	3,980
		237 24 57.4	57 26 18.1	Navy	3.582397	3,822.9	12,542
San Francisco, Shell Oil Building, flagstaff, 1932.	37 47 29.666	156 34 51.0	336 34 38.3	Telegraph	3.107196	1,280.0	4,199
	122 23 55.704	235 25 37.6	55 26 52.1	Navy	3.557457	3,609.6	11,842
		43 35 44.4	223 33 59.0	South Twin	3.786184	6,112.0	20,052
San Francisco, City Hall, steeple, 1932	37 46 45.629	233 54 50.8	53 56 47.9	Navy	3.762225	5,784.0	18,976
	122 25 05.286	330 18 05.9	150 18 37.4	McKinley	3.404868	2,540.2	8,334
		342 29 34.3	162 30 30.4	Bay Park	3.872358	7,453.5	24,454
San Francisco, William Taylor Hotel, 1932	37 46 52.178	232 44 13.9	52 45 59.5	Navy	3.723680	5,292.7	17,364
	122 24 46.403	346 19 02.9	166 19 47.4	Bay Park	3.876434	7,523.7	24,684
		90 58 02.4	270 54 52.8	Lincoln	3.879387	7,575.1	24,853

[1] No check on this position.

Suisun, San Pablo, and San Francisco Bays—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
San Francisco, Cathedral Apartments, 1932	37 47 28.298	243 46 06.2	63 47 52.5	Navy	3.674934	4,730.8	15,521
	122 24 47.682	347 52 00.8	167 52 46.0	Bay Park	3.935320	8,616.3	28,269
		82 33 15.7	262 30 06.7	Lincoln	3.881204	7,606.8	24,957
San Francisco, Mark Hopkins Hotel, 1932	37 47 29.837	350 12 50.2	170 13 26.7	Bay Park	3.934319	8,596.4	28,203
	122 24 33.397	352 22 27.3	172 22 39.2	McKinley	3.556476	3,601.4	11,816
		82 32 37.9	262 29 20.3	Lincoln	3.900888	7,959.5	26,114
San Francisco, Bell Telephone Building, 1932.	37 47 12.177	356 04 07.6	176 04 21.2	Bay Park	3.900132	7,945.7	26,069
	122 23 55.982	47 16 03.3	227 14 18.0	South Twin	3.758047	5,728.6	18,795
		163 40 31.4	343 40 18.8	Telegraph	3.251810	1,785.7	5,859
San Francisco, Matson Building, tower, 1932	37 47 34.020	234 27 28.5	54 28 35.7	Navy	3.517525	3,292.5	10,802
	122 23 43.723	358 22 18.2	178 22 24.3	Bay Park	3.934696	8,603.9	28,228
		44 40 03.4	224 38 10.6	South Twin	3.807027	6,412.5	21,038
San Francisco, Pacific Gas & Electric Building, smokestack, 1932.	37 47 32.793	144 23 35.3	324 23 16.0	Telegraph	3.122562	1,326.1	4,351
	122 23 44.940	234 13 35.9	54 14 43.8	Navy	3.523584	3,338.8	10,954
		358 09 54.6	178 10 01.5	Bay Park	3.932829	8,567.0	28,107
San Francisco, Ferry Building, tower, 1932	37 47 43.812	124 46 40.4	304 46 13.8	Telegraph	3.112131	1,294.6	4,247
	122 23 33.034	236 18 23.3	56 19 23.9	Navy	3.463253	2,905.7	9,533
		0 06 41.2	180 06 40.8	Bay Park	3.949505	8,902.4	29,207
San Francisco, Schmidt Building, tower, 1932	37 47 01.424	153 29 24.4	333 28 58.8	Telegraph	3.358998	2,285.6	7,499
	122 23 34.798	220 07 59.3	40 09 00.9	Navy	3.581801	3,817.7	12,525
		359 48 17.0	179 48 17.6	Bay Park	3.880559	7,595.5	24,920
San Francisco, Sir Francis Drake Hotel, flagstaff, 1932.	37 47 20.323	189 22 38.1	9 22 44.2	Telegraph	3.170951	1,482.4	4,864
	122 24 26.372	237 52 56.2	57 54 29.5	Navy	3.642952	4,394.9	14,419
		39 55 36.9	219 54 10.3	South Twin	3.732154	5,397.0	17,707
Point Avisadero, dry dock, chimney, 1925	37 43 44.463	265 53 00.8	85 56 58.4	Farm	3.979237	9,533.2	31,277
	122 21 26.876	15 29 28.8	195 28 30.7	Point San Bruno	3.940185	8,713.3	28,587
		52 48 37.1	232 48 25.3	Point Avisadero	2.774561	595.1	1,952
Shag Rock, 1925 [1]	37 43 06.12	13 06 00	193 05 18	Point San Bruno	3.869674	7,407.5	24,303
	122 21 53.33	191 55 21	11 55 25	Point Avisadero	2.924599	840.6	2,758
Candlestick Point, 1894	37 42 47.249	233 21 32.05	53 22 19.22	Point Avisadero	3.3716770	2,353.30	7,720.8
	122 23 03.340	258 19 55.99	78 24 52.61	Farm	4.0835396	12,121.03	39,767.1
		359 40 38.95	179 40 39.88	Point San Bruno	3.8217290	6,633.29	21,762.7
Sierra Point, 1851	37 40 27.542	204 38 57.01	24 40 02.46	Point Avisadero	3.7982690	6,284.48	20,618.3
	122 23 33.262	241 47 37.37	61 52 52.16	Farm	4.1553818	14,301.51	46,920.9
		341 39 55.77	161 40 14.98	Point San Bruno	3.3892307	2,450.36	8,039.2
Point San Bruno, Naval Radio Mast 1, 1925	37 39 15.335	232 54 23.4	52 59 20.1	Farm	4.173099	14,897.0	48,875
	122 23 03.832	309 46 18.8	129 50 48.2	Guano Island	4.149184	14,098.9	46,256
		333 41 08.1	153 41 09.3	Point San Bruno	2.046976	111.4	365
Roberts Point, oyster house, 1925 [1]	37 40 11.06	145 00 06	324 57 59	Farm	3.947540	8,862.2	29,075
	122 11 30.96	310 54 08	130 55 28	Hayward	3.628675	4,252.8	13,953
Mulford Landing 2, 1919	37 41 42.686	334 14 12.6	154 15 20.2	Hayward	3.794396	6,228.7	20,435
	122 11 10.281	26 11 36.2	206 08 50.1	Guano Island	4.179532	15,119.3	49,604
		75 09 03.4	255 01 48.5	Point San Bruno	4.256343	18,044.4	59,201
		102 20 53.8	282 14 24.9	Point Avisadero	4.202563	15,942.7	52,305
Roberts Landing 2, 1919	37 40 25.749	37 41 23.9	217 37 48.7	Guano Island	4.150586	14,144.4	46,405
	122 09 49.836	90 13 26.8	270 05 13.5	Sierra Point	4.304900	20,179.0	66,204
		108 15 02.3	288 07 44.2	Point Avisadero	4.266542	18,473.2	60,607
San Bruno Mountain, west transmission tower, 1932.	37 40 30.451	319 53 12.2	139 56 27.0	Point San Mateo	4.084701	12,153.5	39,874
	122 24 25.196	34 23 15.3	214 21 20.0	Flat	3.913799	8,199.7	26,902
		119 33 34.2	299 32 33.7	San Bruno Mountain	3.444954	2,785.8	9,140
San Bruno Mountain, middle transmission tower, 1932.	37 40 30.508	319 57 15.1	140 00 29.5	Point San Mateo	4.084353	12,143.8	39,842
	122 24 24.495	34 28 47.1	214 26 51.4	Flat	3.914390	8,210.9	26,939
		119 21 17.4	299 20 16.5	San Bruno Mountain	3.447147	2,799.9	9,186
San Bruno Mountain, east transmission tower, 1932.	37 40 30.590	320 02 39.0	140 05 52.8	Point San Mateo	4.083901	12,131.1	39,800
	122 24 23.568	34 36 00.9	214 34 04.6	Flat	3.915181	8,225.9	26,988
		119 05 01.0	299 03 59.5	San Bruno Mountain	3.450018	2,818.5	9,247
Mills Field Airport, wind-vane staff, 1929	37 37 27.231	190 29 54.1	10 30 09.0	Point San Bruno	3.516931	3,288.0	10,787
	122 23 26.257	296 32 07.3	116 36 50.4	Guano Island	4.104738	12,727.4	41,756
		299 44 15.6	119 46 54.4	Point San Mateo	3.866456	7,352.9	24,124
Millbrae, oyster house, windmill, 1925	37 36 40.412	157 29 44.1	337 28 55.8	Point San Bruno	3.704327	5,062.1	16,608
	122 21 42.776	295 38 07.5	115 41 47.4	Guano Island	3.991814	9,813.3	32,196
		299 49 55.8	119 51 31.5	Point San Mateo	3.646725	4,433.3	14,545
Point San Mateo, oyster house, east gable, 1925.	37 35 16.598	136 02 11.8	315 59 17.3	Point San Bruno	4.003930	10,090.9	33,107
	122 18 16.046	293 48 41.1	113 50 14.9	Guano Island	3.615471	4,125.4	13,535
		107 07 32.6	287 07 02.1	Point San Mateo	3.108172	1,282.8	4,209
Point San Mateo, flashing light (1925), 1929	37 35 12.753	343 59 25.8	163 59 36.8	Guano Island	3.206909	1,610.3	5,283
	122 16 00.338	96 13 55.7	276 12 02.4	Point San Mateo	3.661090	4,582.4	15,034
		125 33 28.7	305 29 11.4	Point San Bruno	4.103797	12,699.8	41,666

[1] No check on this position.

Suisun, San Pablo, and San Francisco Bays—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Belmont, water main, vent, 1925	37 30 42.890	147 12 47.3	327 08 35.6	Point San Bruno	4.271394	18,680.7	61,288
	122 16 09.140	185 34 03.4	5 34 19.8	Guano Island	3.832762	6,804.0	22,323
		339 16 35.9	159 17 09.3	Pulgas west base	3.579570	3,798.1	12,461
Redwood City, cement works, east stack, 1925.	37 30 58.489	133 47 51.5	313 41 16.2	Point San Bruno	4.342604	22,009.2	72,209
	122 12 13.751	248 13 29.5	68 17 29.6	Red Hill	4.017659	10,415.0	34,170
		306 03 39.8	126 06 10.1	Pulgas east base	3.875258	7,503.4	24,617
Coyote Hill Slough, California Salt Co., red tank, 1925.	37 34 12.279	315 54 35.2	135 55 26.2	Red Hill	3.469283	2,946.3	9,666
	122 07 03.247	8 33 22.9	188 32 44.2	Pulgas east base	4.021615	10,510.3	34,483
		111 32 37.1	291 22 52.1	Point San Bruno	4.402471	25,262.2	82,881
		157 58 13.8	337 56 50.4	Hayward	3.950777	8,928.5	29,293
Mount Eden Slough, tank, 1925 [1]	37 36 15.28	165 46 33	345 46 04	Hayward	3.665183	4,625.8	15,176
	122 08 33.49	324 10 16	144 12 02	Red Hill	3.862501	7,286.2	23,905
Alviso Channel, flashing light, 1925	37 28 04.631	17 22 08.2	197 21 36.2	View	3.637380	4,338.9	14,235
	122 03 44.499	98 19 27.1	278 16 47.4	Pulgas east base	3.813968	6,515.8	21,377
		162 56 31.6	342 55 21.4	Red Hill	3.984191	9,642.5	31,635
Ravenswood Point, substation, north gable, 1925.[1]	37 29 08.62	321 47 12	141 49 11	View	3.890960	7,779.6	25,524
	122 07 52.92	18 23 42	198 23 33	Pulgas east base	3.036438	1,087.5	3,568
Dumbarton, drawbridge, light, 1925	37 29 51.518	45 00 17.8	224 59 19.4	Pulgas east base	3.522369	3,329.4	10,923
	122 06 31.065	121 44 25.0	301 38 49.1	Guano Island	4.201507	15,904.0	52,178
		192 00 39.9	12 01 11.1	Red Hill	3.782137	6,055.3	19,866
		339 21 59.7	159 23 09.0	View	3.900127	7,945.6	26,068
Plummer Landing, tank, 1925 [1]	37 30 36.96	16 12 02	196 10 59	View	3.963895	9,202.3	30,191
	122 02 52.75	64 04 39	244 01 28	Pulgas east base	3.933590	8,582.0	28,156
Newark Slough, draw, 1925 [1]	37 30 48.35	49 25 32	229 23 34	Pulgas east base	3.800120	6,311.3	20,706
	122 04 51.79	164 14 32	344 14 03	Red Hill	3.636838	4,333.5	14,217
Redwood City, tall transmission tower, 1925 [1]	37 29 14.91	71 30 05	251 29 03	Pulgas west base	3.422701	2,646.7	8,683
	122 13 32.28	161 24 58	341 23 39	Guano Island	4.000287	10,006.6	32,830
Redwood City, Frank's Tannery, stack, 1925	37 29 31.110	63 25 25.0	243 24 18.7	Pulgas west base	3.476151	2,993.3	9,821
	122 13 25.484	159 31 12.6	339 29 49.3	Guano Island	3.981893	9,591.6	31,468
		240 09 15.6	60 13 59.3	Red Hill	4.119942	13,180.8	43,244

San Mateo Bridge, west span, red light, 1932	37 34 59.613	284 29 24.8	104 35 07.4	Red Hill	4.153656	14,244.8	46,735
	122 15 01.589	333 59 37.6	154 02 43.7	Palo Alto southeast base	4.233920	17,136.4	56,222
		6 01 11.3	186 00 49.6	Palo Alto northwest base	3.920837	8,333.7	27,341
San Mateo Bridge, east span, red light, 1932	37 35 01.845	284 49 12.1	104 54 53.2	Red Hill	4.152413	14,204.1	46,601
	122 14 59.140	334 16 29.8	154 19 34.4	Palo Alto southeast base	4.234824	17,172.1	56,339
		6 22 40.7	186 22 17.5	Palo Alto northwest base	3.924723	8,408.6	27,587
Palo Alto, radio mast, 1932	37 26 43.856	88 34 43.3	268 32 44.1	Palo Alto southeast base	3.683042	4,819.9	15,813
	122 06 39.899	117 57 59.7	297 52 32.8	Palo Alto northwest base	4.174362	14,940.4	49,017
		187 11 22.8	7 11 59.4	Red Hill	4.071916	11,800.9	38,717
Palo Alto, historical tree, 1932 [1]	37 26 50.35	295 07 06	115 11 02	Sunnyvale—B. M. G 111	4.024081	10,570.1	34,679
	122 10 08.87	315 15 22	135 15 30	Palo Alto southeast base	2.655453	452.3	1,484
Palo Alto, flagpole, 1932 [1]	37 26 37.37	294 22 03	114 25 46	Sunnyvale—B. M. G 111	3.995920	9,906.5	32,502
	122 09 46.65	109 06 00	289 05 54	Palo Alto southeast base	2.382332	241.2	791
Monument 15 (U. S. N.) (B. M. 4268), 1932	37 24 24.636	89 59 32.3	269 59 25.5	Sunnyvale—B. M. G 111	2.438258	274.32	900.0
	122 03 28.572						
Sunnyvale, stake no. 1, 1932	37 24 32.714	318 10 28.4	138 10 33.9	Monument 15 (U. S. N.) (B. M. 4268)	2.524031	334.2	1,096
	122 03 37.634	11 40 06.0	191 40 04.7	Sunnyvale—B. M. G 111	2.405438	254.4	835
Sunnyvale, stake no. 2, 1932	37 24 38.188	14 58 09.8	194 58 07.0	Monument 15 (U. S. N.) (B. M. 4268)	2.635945	432.5	1,419
	122 03 24.030	42 44 06.9	222 43 57.3	Sunnyvale—B. M. G 111	2.754995	568.8	1,866
		63 14 19.8	243 14 11.5	Sunnyvale, stake no. 1	2.573693	374.7	1,229
Sunnyvale, stake no. 3, 1932	37 24 27.338	81 13 19.1	261 13 05.8	Monument 15 (U. S. N.) (B. M. 4268)	2.737009	545.8	1,791
	122 03 06.640	128 01 51.5	308 01 41.0	Sunnyvale, stake no. 2	2.734740	542.9	1,781
B. M. H 111, 1932	37 24 40.106	346 01 20.9	166 01 23.3	Sunnyvale, stake no. 3	2.608118	405.6	1,331
	122 03 10.624	42 47 09.9	222 46 59.0	Monument 15 (U. S. N.) (B. M. 4268)	2.812796	649.8	2,132
		79 49 57.8	259 49 49.7	Sunnyvale, stake no. 2	2.524967	334.9	1,099
Sunnyvale, mooring mast, 1932	37 24 24.917	89 27 13.1	269 26 50.6	Sunnyvale—B. M. G 111	2.957917	907.6	2,978
	122 03 02.822	128 06 45.8	308 06 32.9	Sunnyvale, stake no. 2	2.821436	662.9	2,175
		157 43 05.2	337 43 00.4	B. M. H 111	2.704185	506.0	1,660

California-Washington arc

Principal points							
Soda (Oreg.), 1904	42 03 53.606	217 40 10		Old Baldy fire lookout tower.			
	122 28 40.488						
Sterling (Oreg.), 1904	42 01 02.801	261 00 09.38	81 16 33.63	Soda	4.5341895	34,212.87	112,246.7
	122 53 10.260						

[1] No check on this position.

California-Washington arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points—Continued	° ′ ″	° ′ ″	° ′ ″				
Spur, 1904	41 24 13.598	142 17 22.37	321 51 54.04	Sterling	4.9365198	86,401.20	283,467.9
	122 14 53.337	165 29 03 41	345 19 52.78	Soda	4.8800981	75,874.89	248,932.9
Boliver, 1904	41 15 34.513	173 59 54.23	353 55 38.67	Sterling	4.9275786	84,640.57	277,691.6
	122 46 45.643	195 34 45.92	15 46 47.27	Soda	4.9680054	92,897.79	304,782.2
		250 01 13.21	70 22 16.13	Spur	4.6745307	47,264.02	155,065.4
Gazelle astronomical station, 1904	41 31 35.191	183 13 34.77	3 15 12.49	Soda	4.7774268	59,900.00	196,521.9
	122 31 07.114	300 59 39.52	121 10 24.32	Spur	4.4213855	26,386.73	86,570.5
Bally, 1904	40 36 10.879	171 31 46.95	351 26 41.34	Boliver	4.8676103	73,724.24	241,876.9
	122 38 59.178	200 40 26.95	20 56 15.59	Spur	4.9783111	95,128.60	312,101.1
Mears, 1904	41 07 28.483	16 28 15.13	196 20 18.77	Bally	4.7808670	60,376.38	198,084.8
	122 26 51.092	118 24 59.88	298 11 53.17	Boliver	4.4999381	31,618.27	103,734.3
		208 15 06.83	28 23 00.21	Spur	4.5468137	35,221.98	115,557.4
Round, 1904	40 48 18.839	69 14 20.50	248 47 14.36	Bally	4.7972334	62,695.07	205,692.1
	121 57 25.699	130 49 31.16	310 30 13.76	Mears	4.7357812	54,422.84	178,552.3
		159 54 12.23	339 42 43.46	Spur	4.8501774	70,823.50	232,360.1
Kent, 1904	39 58 00.686	185 58 03.27	6 01 26.35	Bally	4.8514243	71,027.13	233,028.2
	122 44 13.251	215 10 26.60	35 40 45.77	Round	5.0578290	114,242.84	374,811.7
		316 41 35.77	137 16 40.59	Marysville Butte	5.0627330	115,540.16	379,068.0
Lyons, 1904	40 18 05.054	68 42 26.66	247 59 58.31	Kent	5.0030168	100,697.06	330,370.3
	121 38 19.822	111 39 37.09	291 00 15.79	Bally	4.9640939	92,064.85	302,049.4
		154 22 26.04	334 10 01.03	Round	4.7931209	62,104.19	203,753.5
		7 18 50.66	187 11 54.64	Marysville Butte	5.0885310	122,611.44	402,267.7
Snow Mountain East, 1876	39 23 00.920	222 41 41.65	43 24 26.96	Lyons	5.1444121	139,447.94	457,505.4
	122 45 03.683	283 29 46.48	104 05 10.21	Marysville Butte	4.9177268	82,742.15	271,463.2
		352 34 45.77	172 39 14.69	Mount Helena	4.9027835	79,943.56	262,281.5
		38 04 13.23	218 03 58.13	Snow Mountain West	2.9650434	922.66	3,027.1
Supplementary points		181 03 31.87	1 04 04.06	Kent	4.8113692	64,769.30	212,497.3
Redding, courthouse, 1904	40 34 57.225	96 06 11.7	275 56 15.6	Bally	4.335680	21,661.1	71,066
	122 23 43.090	236 07 43.5	56 24 51.9	Round	4.648669	44,531.7	146,101
Redding astronomical station, 1904	40 34 18.302	99 11 07.1	279 01 07.5	Bally	4.341460	21,951.3	72,019
	122 23 37.495	234 46 12.3	55 03 17.0	Round	4.654217	45,104.2	147,979
Hill, 1908	40 34 27.394	354 26 25.9	174 26 26.6	Redding astronomical station	2.449913	281.8	925
	122 23 38.655	173 31 56.4	353 31 53.6	Redding, courthouse	2.966656	926.1	3,038
Redding south base, 1908	40 34 27.100	50 02 57.4	230 02 48.4	Redding astronomical station	2.625930	422.6	1,386
	122 23 23.721	91 28 58.7	271 28 49.0	Hill	2.545762	351.4	1,153
Redding north base, 1908	40 34 41.115	20 46 02.4	200 45 55.0	Redding astronomical station	2.876541	752.6	2,469
	122 23 26.151	34 47 56.5	214 47 48.4	Hill	2.712126	515.4	1,691
Corning Tower, 1904	39 55 39.715	95 23 04.1	275 01 33.2	Kent	4.680554	47,924.1	157,231
	122 10 42.812	227 46 56.2	48 07 48.1	Lyons	4.792105	61,959.1	203,277
Corning astronomical station, 1908 [1]	39 55 39.42	247 24 10	67 24 11	Corning Tower	1.36933	23.41	76.8
	122 10 43.72						

Station	Latitude and longitude	Station	Latitude and longitude
Supplementary points—Continued	° ′ ″	*Supplementary points*—Continued	° ′ ″
Greyback (Oreg.), 1904	42 06 36.03	Russian Peak, north point, 1904	41 16 58.04
	123 18 40.54		122 57 01.99
Pilot Rock (Oreg.), 1904	42 01 50.60	Russian Peak, south point, 1904[1]	41 16 57.65
	122 33 34.93		122 57 02.08
Goosenest, tall tree, 1904[3]	41 48 57.86	Saw Tooth, 1904	40 58 20.94
	122 14 17.84		123 00 04.22
Marble Mountain, 1904	41 34 45.57	Thompson (Granite) Peak, 1904[2]	40 56 36.62
	123 05 26.78		122 52 18.17
Mount Shasta, top, 1904	41 24 32.75	Crater Peak, 1904	40 41 53.32
	122 11 37.31		121 37 04.09
China Mountain, 1904	41 22 40.36	Lassen Peak, 1904	40 29 17.56
	122 34 29.94		121 30 14.32
Black (Wintoon) Butte, cairn, 1904	41 21 59.25	Mount Linn, 1904	40 02 11.56
	122 20 48.78		122 51 10.67
Mount Eddy, cairn, 1904	41 19 11.39	Mount St. John, 1904	39 26 02.11
	122 28 41.31		122 41 30.95

[1] No check on this position. [2] Position checked by vertical angles only. [3] This station is not Gooseneck Mountain.

California-Oregon arc

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points	° ′ ″	° ′ ″	° ′ ″				
Crane (Oreg.), 1920	42 03 46.556 120 14 23.155						
Yonna (Oreg.), 1920	42 19 34.947 121 16 04.795	288 39 53.20 144 57 19	109 21 19.46	Crane Calimus, fire lookout house.	4.9534258	89,830.92	294,720.3
Cougar (Oreg.), 1920	42 18 25.453 120 37 45.165	309 59 43.72 92 32 48.05	130 15 25.21 272 06 59.86	Crane Yonna	4.6240457 4.7218566	42,077.09 52,705.58	138,047.9 172,918.2
Lakeview—B.M. M 16 (Oreg.), 1920	42 11 35.939 120 21 38.767	325 19 12.26 119 47 17.31	145 24 04.46 299 36 27.53	Crane Cougar	4.2455720 4.4066084	17,602.40 25,504.01	57,750.5 83,674.4
Dog (Oreg.), 1920	42 07 07.338 120 43 01.851	199 07 00.13 254 10 02.14 278 45 12.03 255 37 00	19 10 32.91 74 24 23.29 99 04 24.09	Cougar Lakeview—B.M. M 16 Crane Lakeview, courthouse, finial.	4.3453342 4.4857378 4.6018625	22,147.98 30,601.15 39,981.81	72,663.8 100,397.3 131,173.7
Hoffman, 1920	41 36 39.873 121 33 09.130	196 26 23.18 224 24 38.62 244 50 56.98	16 37 48.19 45 01 41.10 65 43 29.38	Yonna Cougar Crane	4.9184289 5.0365930 5.0793156	82,876.02 108,791.00 120,037.13	271,902.4 356,925.1 393,821.8
Aspen (Oreg.), 1920	42 18 56.248 122 05 11.226	268 42 38.05 330 19 41.37 290 13 49	89 15 41.85 150 41 06.62	Yonna Hoffman Klamath Falls, courthouse.	4.8291736 4.9537825	67,479.77 89,904.73	221,389.9 294,962.4
Goosenest, 1920	41 43 11.808 122 13 16.473	189 31 59.02 229 12 44.23 282 01 37.65	9 37 23.83 49 51 01.56 102 28 18.02	Aspen Yonna Hoffman	4.8267129 5.0161060 4.7558053	67,098.52 103,778.16 56,990.87	220,139.1 340,478.8 186,977.5
Whaleback, 1920	41 31 42.128 122 08 22.255	162 16 37.09 259 10 44.74 61 03 26.71	342 13 21.66 79 34 06.88 240 38 03.61	Goosenest Hoffman Boliver	4.3491028 4.6973459 4.7872795	22,341.01 49,813.37 61,274.46	73,297.1 163,429.4 201,031.3
Grizzly, 1920	41 08 41.258 121 58 38.529	162 22 50.51 214 19 15.86 43 30 49.31 100 59 42.10	342 16 24.97 34 36 06.85 223 04 25.21 280 28 00.28	Whaleback Hoffman Bally Boliver	4.6503986 4.7980079 4.9172866 4.8354792	44,709.37 62,806.99 82,658.33 68,466.67	146,684.0 206,059.3 271,188.2 224,627.7
Eddy, 1920	41 19 11.155 122 28 40.512	205 39 08.38 230 34 20.04 294 40 48.94 10 21 29.71 75 16 26.58	25 49 20.92 50 47 46.08 115 00 36.66 190 14 44.13 255 04 30.53	Goosenest Whaleback Grizzly Bally Boliver	4.6931974 4.5630683 4.6650854 4.9079455 4.4169610	49,339.81 36,565.23 46,247.19 80,899.43 26,119.27	161,875.7 119,964.4 151,729.3 265,417.5 85,693.0
Supplementary points							
Soldier, 1920	41 04 27.792 121 33 42.975	102 45 58.2 180 45 11.8	282 29 34.9 0 45 34.1	Grizzly Hoffman	4.553405 4.775314	35,760.6 59,609.3	117,325 195,568
Turret, 1920	41 24 57.300 121 06 29.584	45 13 40.8 120 26 49.0	224 55 43.9 300 09 08.8	Soldier Hoffman	4.730082 4.633071	53,713.3 42,960.7	176,224 140,947
Dixie, 1920	40 55 02.454 121 05 32.675	109 02 12.5 113 58 18.0	288 27 21.0 293 39 49.1	Grizzly Soldier	4.895379 4.635334	78,592.1 43,185.1	257,848 141,683
Bald Mountain (U.S.G.S.), 1920	40 54 03.223 121 22 38.428	118 25 07.9 141 10 54.0	298 01 30.2 321 03 38.1	Grizzly Soldier	4.757974 4.393559	57,276.2 24,749.1	187,914 81,198
Burney (U.S.G.S.), 1920 [1]	40 48 24.29 121 37 37.46	141 58 09 254 35 04	321 44 22 74 56 03	Grizzly Dixie	4.678833 4.669522	47,734.6 46,722.1	156,609 153,287
Crater (U.S.G.S.), 1920	40 41 53.626 121 37 04.586	148 42 43.2 186 25 42.3	328 28 35.7 6 27 54.3	Grizzly Soldier	4.764200 4.623643	58,103.2 42,038.1	190,627 137,920
Crater Peak, fire lookout house, 1920 [1]	40 41 22.61 121 37 04.80	149 11 57 240 08 14	328 57 50 60 28 51	Grizzly Dixie	4.770265 4.708047	58,920.3 51,056.0	193,308 167,506
Black Fox, 1920	41 20 47.580 121 53 24.864	223 43 21.7 18 04 56.7	43 56 46.8 198 01 29.9	Hoffman Grizzly	4.609887 4.372300	40,727.4 23,566.8	133,620 77,319
Weed Lumber Co., east chimney, 1920 [1]	41 26 06.10 122 22 26.69	34 11 42 201 53 22	214 07 35 21 59 27	Eddy Goosenest	4.189494 4.532944	15,470.1 34,114.9	50,755 111,925
Weed Lumber Co., west chimney, 1920 [1]	41 26 06.40 122 22 26.96	34 09 23 201 54 18	214 05 16 22 00 23	Eddy Goosenest	4.189604 4.532866	15,474.0 34,108.8	50,768 111,905
Boliver, fire lookout house, 1920	41 15 32.434 122 46 47.419	212 48 09.1 254 57 44.8	32 48 10.3 75 09 42.1	Boliver Eddy	1.882600 4.417900	76.3 26,175.8	250 85,878
Bonanza, 1920	41 04 48.974 122 37 24.452	146 44 57.0 251 31 40.9	326 38 47.6 71 38 37.3	Boliver Mears	4.377064 4.192490	23,826.7 15,577.2	78,171 51,106
Bonanza, fire lookout house, 1920	41 04 48.674 122 37 23.948	146 44 16.6 204 34 43.6	326 38 06.8 24 40 28.4	Boliver Eddy	4.377323 4.466405	23,840.9 29,268.8	78,218 96,026
Granite, 1920 [1]	40 54 36.31 122 52 17.73	236 07 38 331 08 44	56 24 19 151 17 26	Mears Bally	4.632381 4.590007	42,892.5 38,905.1	140,723 127,641

[1] No check on this position.

Lakeview, Oreg., to Reno, Nev., arc

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points	° ′ ″	° ′ ″	° ′ ″				
Sugar, 1931	41 48 13.979	137 14 51.65	316 59 08.76	Dog	4.6787128	47,721.36	156,565.8
	120 19 31.665	193 50 50.15	13 54 16.32	Crane	4.4718435	29,637.63	97,236.1
		137 14 47		Dog Mountain, fire lookout house.			
Blue, 1931	41 49 48.557	200 32 23.12	20 38 12.84	Dog	4.5344863	34,236.26	112,323.5
	120 51 44.750	243 11 34.92	63 36 33.30	Crane	4.7615088	57,744.25	189,449.3
		273 33 46.02	93 55 14.92	Sugar	4.6504231	44,711.90	146,692.3
Schaffer, 1931	41 19 40.414	178 49 09.71	358 48 36.65	Blue	4.7465942	55,794.86	183,053.6
	120 50 54.931	219 21 50.09	39 42 39.62	Sugar	4.8359926	68,547.65	224,893.4
Warren, 1931	41 22 43.344	84 05 50.98	263 40 52.76	Schaffer	4.7243948	53,014.51	173,931.8
	120 13 07.324	133 16 07.50	313 50 28.74	Blue	4.8659448	73,442.05	240,951.1
		169 21 34.93	349 17 19.80	Sugar	4.6817237	48,053.36	157,655.1
Eagle, 1931	41 17 00.773	95 23 32.57	274 57 50.62	Schaffer	4.7369182	54,565.51	179,020.3
	120 11 58.926	171 26 50.39	351 26 05.22	Warren	4.0288637	10,687.19	35,062.9
		206 15 14		Reference mark no. 2.			
Spring, 1931	40 56 56.448	176 51 01.41	356 49 55.91	Schaffer	4.6246990	42,140.44	138,255.8
	120 49 15.371	226 26 56.04	46 50 43.10	Warren	4.8420592	69,511.90	228,057.0
		234 20 38.76	54 45 09.44	Eagle	4.8065325	64,051.97	210,143.8
Observation, 1931	40 46 27.667	109 41 27.78	289 15 55.89	Spring	4.7646770	58,167.04	190,836.4
	120 10 13.892	177 31 29.74	357 30 20.79	Eagle	4.7528228	56,600.83	185,697.9
Fredonyer, 1931	40 41 16.398	147 02 19.46	326 53 33.53	Spring	4.5389385	34,589.04	113,480.9
	120 35 50.784	206 42 34.10	26 58 13.23	Eagle	4.8700251	74,135.31	243,225.6
		254 57 10.18	75 13 53.02	Observation	4.5719561	37,321.24	122,444.8
		99 11 30		Harvey, fire lookout tower.			
Hot Springs, 1931	40 22 51.474	131 29 19.35	311 11 29.59	Fredonyer	4.7126274	51,597.35	169,282.3
	120 08 24.765	176 38 49.96	356 37 38.98	Observation	4.6410632	43,758.58	143,564.6
Thompson, 1931	40 15 41.346	175 52 10.61	355 50 36.09	Fredonyer	4.6764440	47,472.71	155,750.0
	120 33 25.169	209 46 40.10	30 01 44.00	Observation	4.8175402	65,696.20	215,538.3
		249 20 00.22	69 36 11.09	Hot Springs	4.5777993	37,826.77	124,103.3
State Line (Nev.), 1931	40 01 47.841	301 01 17.10	121 20 43.73	Pah Rah	4.7031158	50,479.59	165,615.1
	119 58 41.848	26 38 30.67	206 23 43.06	Mount Lola	4.8696076	74,064.07	242,991.9
		117 43 12.37	297 20 49.18	Thompson	4.7451694	55,612.12	182,454.1
		160 34 22.28	340 28 05.99	Hot Springs	4.6163827	41,341.16	135,633.5
Ingalls, 1931	39 59 38.911	191 14 31.29	11 17 12.23	Thompson	4.4809771	30,267.54	99,302.8
	120 37 34.879	223 47 25.15	44 06 14.49	Hot Springs	4.7756538	59,655.96	195,721.3
		265 40 52.17	86 05 52.19	State Line	4.7440975	55,475.03	182,004.3
		340 03 39.42	160 13 42.85	Mount Lola	4.8210725	66,232.71	217,298.5
Summit, 1931	39 42 09.328	32 32 59.16	212 24 30.82	Mount Lola	4.5499002	35,473.19	116,381.6
	120 08 32.457	128 09 39.76	307 51 03.28	Ingalls	4.7207503	52,571.49	172,478.3
		201 03 49.82	21 10 08.39	State Line	4.5906600	38,963.68	127,833.3
		259 41 30.35	80 07 10.63	Pah Rah	4.7653061	58,251.36	191,113.0
Supplementary points							
Brushy (Strawberry) Mountain, fire lookout tower (Oreg.), 1931.[1]	42 05 34.54	257 04 42	77 10 48	Dog	4.109008	12,853.1	42,169
	120 52 07.20	358 59 00	178 59 15	Blue	4.465251	29,191.1	95,771
Blue Mountain, fire lookout tower, spike on top, 1931.[1]	41 49 49.04	308 42 03	128 42 04	Blue	1.381656	24 08	79.0
	120 51 45.56						
Sugar Hill, fire lookout tower, 1931	41 48 14.636	349 17 35.8	169 21 50.9	Warren	4.681903	48,073.2	157,720
	120 19 31.668	359 51 07.3	179 51 07.3	Sugar	1.307710	20.31	66.6
		93 53 41.4	273 32 12.5	Blue	4.650409	44,710.4	146,687
		193 51 24.3	13 54 50.5	Crane	4.471554	29,617.9	97,171
Cedar Peak, cairn, 1931	41 36 35.803	350 42 21.7	170 44 21.5	Warren	4.415344	26,022.2	85,375
	120 16 08.177	116 32 34.4	296 08 52.5	Blue	4.741244	55,111.7	180,812
		167 41 53.0	347 39 37.6	Sugar	4.343363	22,047.7	72,335
G. L. O. Station M 47, 1931	41 19 18.928	75 51 37.8	255 43 40.2	Eagle	4.239728	17,367.1	56,979
	119 59 55.239	108 58 38.6	288 49 55.3	Warren	4.289227	19,463.8	63,857
		178 16 40		Reference mark no. 2.			
Squaw Peak, highest point, cairn, 1931	41 25 07.935	300 20 46.0	120 29 27.5	G. L. O. Station M 47	4.327668	21,265.1	69,767
	120 13 04.302	0 54 07.3	180 54 05.3	Warren	3.649451	4,461.2	14,636
		130 35 24.6	310 09 43.2	Blue	4.848268	70,512.8	231,341
Warren Peak, cairn, 1931 [1]	41 22 43.36	81 06	261 06	Warren	0.380211	2.4	8
	120 13 07.22						
Eagle Peak, cairn, 1931 [1]	41 17 00.83	34 34	214 34	Eagle	0.322219	2.1	7
	120 11 58.88						
Manzanita, fire lookout tower, 1931 [1]	41 16 39.82	143 40 51	323 38 55	Schaffer	3.839866	6,916.2	22,691
	120 47 58.79	175 08 33	355 06 03	Blue	4.789421	61,577.4	202,025
South Fork Peak, highest point, 1931	41 09 18.982	43 32 49.6	223 22 39.1	Spring	4.499110	31,558.0	103,537
	120 33 45.811	128 45 11.2	308 33 52.8	Schaffer	4.486977	30,688.6	100,684
		229 09 58.4	49 23 35.4	Warren	4.580203	38,036.7	124,792
Hayden Hill, fire lookout tower, 1931 [1]	40 59 52.83	182 42 12	2 43 01	Schaffer	4.564389	36,676.6	120,330
	120 52 09.32	323 12 22	143 14 16	Spring	3.832054	6,792.9	22,286

[1] No check on this position.

Lakeview, Oreg., to Reno, Nev., arc—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
McDonald Peak, highest point, cairn, 1931	40 56 28.571	312 15 51.3	132 25 19.4	Observation	4.439636	27,519.2	90,869
	120 24 42.322	91 33 49.4	271 17 44.0	Spring	4.537398	34,466.6	113,027
		205 02 13.7	25 10 35.6	Eagle	4.623017	41,977.5	137,721
Observation Peak, cairn, 1931 [1]	40 46 27.68	79 53	259 53	Observation	0.505150	3.2	10
	120 10 13.76						
Spanish Springs Peak, highest point, 1931	40 44 46.468	114 54 33.3	294 31 47.6	Spring	4.731159	53,846.7	176,662
	120 14 27.345	183 18 46.1	3 20 23.4	Eagle	4.776484	59,770.1	196,096
		242 16 24.1	62 19 09.6	Observation	3.827029	6,714.7	22,030
Shaffer Peak, highest point, 1931	40 26 48.163	142 49 23.3	322 40 00.2	Fredonyer	4.526943	33,646.7	110,389
	120 21 24.911	203 22 47.3	23 30 04.0	Observation	4.598300	39,655.2	130,102
		291 34 41.2	111 43 07.0	Hot Springs	4.296437	19,789.6	64,926
Thompson Peak, fire lookout tower, 1931	40 15 39.823	143 40 41.2	323 40 40.2	Thompson	1.765526	58.3	191
	120 33 23.709	175 49 57.2	355 48 21.7	Fredonyer	4.676895	47,522.0	155,912
		249 14 55.0	69 31 04.9	Hot Springs	4.577620	37,811.2	124,052
High Rock (Nev.), 1931	40 14 10.662	355 25 05.1	175 25 55.0	State Line	4.361429	22,984.2	75,407
	119 59 59.284	93 33 23.1	273 11 47.0	Thompson	4.676612	47,491.1	155,810
		143 25 51.3	323 20 24.3	Hot Springs	4.301317	20,013.2	65,660
Kettle Rock, fire lookout tower, 1931	40 08 47.944	189 43 19.5	9 48 03.8	Fredonyer	4.785204	60,982.3	200,073
	120 43 09.339	227 14 36.3	47 20 53.4	Thompson	4.274170	18,800.5	61,681
		241 58 12.9	62 20 40.2	Hot Springs	4.745906	55,706.5	182,764
State Line Peak, cairn (Nev.), 1931 [1]	40 01 47.74	94 47 23	274 47 22	State Line	1.556302	36.0	118
	119 58 40.34						
Ingalls Peak, flagpole, 1931 [1]	39 59 38.88	244 16	64 16	Ingalls	0.318063	2.08	6.8
	120 37 34.96						
Tule Peak, cairn (Nev.), 1931 [1]	39 58 35.31	311 05 40	131 16 04	Pah Rah	4.486820	30,677.5	100,648
	119 44 35.33	106 33 00	286 23 56	State Line	4.320959	20,939.1	68,698
Dixie Mountain, fire lookout tower, 1931	39 56 20.431	335 07 34.8	155 13 01.8	Summit	4.461236	28,922.5	94,890
	120 17 03.095	6 58 34.2	186 55 30.6	Mount Lola	4.752739	56,589.9	185,662
		101 56 12.6	281 43 01.3	Ingalls	4.475200	29,867.6	97,991
Grizzly Peak, highest point, 1931 [1]	39 52 03.10	149 32 35	329 28 51	Ingalls	4.212557	16,313.9	53,523
	120 31 46.30	298 46 50	119 01 42	Summit	4.578486	37,886.6	124,300
Mount Elwell, fire lookout tower, 1931	39 42 30.027	189 27 08.6	9 29 31.3	Ingalls	4.507465	32,171.0	105,548
	120 41 17.588	270 36 24.8	90 57 20.2	Summit	4.670423	46,819.1	153,606
		317 32 53.0	137 45 16.4	Mount Lola	4.616517	41,354.0	135,676
Summit Peak, cairn, 1931 [1]	39 42 09.13	127 54 43	307 54 43	Summit	0.989005	9.75	32.0
	120 08 32.13						
Babbit, fire lookout tower, 1931	39 36 08.180	49 58 31.7	229 48 37.5	Mount Lola	4.464818	29,162.0	95,676
	120 06 16.743	163 48 49.1	343 47 22.5	Summit	4.064399	11,598.4	38,052
		248 17 07.3	68 41 19.2	Pah Rah	4.765023	58,213.4	190,988
Sierra Buttes, highest point, 1931 [1]	39 35 37.41	182 08 15	2 08 59	Ingalls	4.648256	44,489.3	145,962
	120 38 44.82	306 16 08	126 26 53	Mount Lola	4.478404	30,088.7	98,716

Redding to Mendocino arc (second order)

Principal points							
Weaver, 1928	40 49 55.201	233 43 48.06	54 04 38.01	Mears	4.7415413	55,149.47	180,936.2
	122 58 37.159	312 29 48.52	132 42 36.96	Bally	4.5747595	37,562.93	123,237.7
Bully Choop, 1928	40 33 19.264	149 56 17.61	329 48 02.47	Weaver	4.5504751	35,520.17	116,535.8
	122 45 57.764	202 55 14.53	23 07 44.41	Mears	4.8368535	68,683.67	225,339.7
		241 41 42.74	61 46 15.04	Bally	4.0483600	11,177.89	36,672.8
Chaparral, 1928	40 42 10.332	257 43 35.20	78 14 51.38	Weaver	4.8381883	68,895.10	226,033.3
	123 46 30.362	280 31 58.61	101 11 24.04	Bully Choop	4.9391708	86,930.22	285,203.6
Mount Lassic, 1881	40 20 02.655	155 25 09.58	335 16 30.86	Chaparral	4.6537862	45,059.48	147,832.6
	123 33 11.958	221 14 28.79	41 36 58.56	Weaver	4.8677258	73,743.85	241,941.3
		249 32 51.16	70 03 29.76	Bully Choop	4.8522848	71,168.00	233,490.3
		336 31 26.34	156 49 05.03	Mount Sanhedrin	4.9952738	98,917.66	324,532.4
Bear Ridge, 1869	40 29 51.540	242 23 21.72	62 43 36.37	Chaparral	4.6941535	49,448.55	162,232.4
	124 17 36.826	285 53 04.54	106 21 52.26	Mount Lassic	4.8155864	65,401.30	214,570.8
Mount Pierce 2, 1928	40 25 02.439	121 10 25.64	301 03 38.82	Bear Ridge	4.2369181	17,255.12	56,611.2
	124 07 09.874	222 29 38.49	42 43 04.47	Chaparral	4.6342441	43,076.86	141,328.0
		280 42 13.01	101 04 13.16	Mount Lassic	4.6898127	48,956.76	160,619.0
King Peak, 1879	40 09 24.996	159 06 20.61	338 59 43.57	Bear Ridge	4.6075574	40,509.55	132,905.1
	124 07 23.296	180 37 37.37	0 37 46.06	Mount Pierce 2	4.4611408	28,916.17	94,869.1
		205 51 44.41	26 05 16.97	Chaparral	4.8288644	67,431.75	221,232.3
		247 44 11.36	68 06 16.66	Mount Lassic	4.7186880	52,322.45	171,661.2
		308 37 55.14	129 17 26.00	Mount Sanhedrin	5.0537348	113,170.91	371,294.9

[1] No check on this position.

Redding to Mendocino arc (second order)—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points—Continued	° ′ ″	° ′ ″	° ′ ″				
Cahto, 1880	39 41 11.951	138 26 31.87	318 05 33.23	King Peak	4.8449174	69,970.89	229,562.8
	123 34 42.032	181 41 39.22	1 42 37.13	Mount Lassic	4.8568280	71,916.41	235,945.8
		294 22 55.79	114 41 24.71	Mount Sanhedrin	4.6592019	45,624.89	149,687.7
		342 19 01.98	162 24 07.60	Two Rock	4.5780495	37,848.57	124,174.8
		356 12 59.76	176 15 08.34	Cold Spring	4.8687506	73,918.07	242,512.9
Great Caspar, 1878	39 20 28.349	159 13 40.41	338 58 11.46	King Peak	4.9865404	96,948.34	318,071.3
	123 43 10.546	197 31 48.00	17 37 11.55	Cahto	4.6045527	40,230.25	131,988.7
		249 57 26.40	70 21 14.25	Mount Sanhedrin	4.7571288	57,164.82	187,548.2
		264 24 11.63	84 34 38.57	Two Rock	4.3762803	23,783.75	78,030.5
		302 49 23.54	123 04 52.43	Paxton	4.6229301	41,969.14	137,693.8
		334 11 44.42	154 19 13.80	Cold Spring	4.5944682	39,306.85	128,959.2
		339 17 08.58	159 22 11.97	Fisher	4.5135311	32,623.54	107,032.4
Chemise Mountain, 1872	40 00 50.663	147 15 37.13	327 10 59.49	King Peak	4.2757206	18,867.77	61,902.0
	124 00 12.138	227 01 42.74	47 19 07.94	Mount Lassic	4.7182411	52,268.63	171,484.7
		305 06 16.58	125 41 08.08	Mount Sanhedrin	4.9798778	95,472.39	313,229.0
		314 50 48.04	135 07 08.51	Cahto	4.7111877	51,426.59	168,722.1
		341 51 29.95	162 02 22.21	Great Caspar	4.8952732	78,572.98	257,784.9
Supplementary points							
Granite Peak, fire lookout tower, 1928	40 54 32.997	236 01 56.0	56 18 38.6	Mears	4.633168	42,970.3	140,978
	122 52 18.799	331 02 25.1	151 11 07.2	Bally	4.589141	38,827.6	127,387
		45 59 25.7	225 55 18.1	Weaver	4.096826	12,326.1	40,440
Weaver (U.S.G.S.), cairn, 1928 [1]	40 49 55.44	304 00 14	124 00 14	Weaver	1.11059	12.90	42.3
	122 58 37.62						
Bully Choop (U.S.G.S.), cairn, 1928 [1]	40 33 19.31	70 06	250 06	Bully Choop	0.59384	3.925	12.88
	122 45 57.61						
Table, 1919	40 37 49.547	345 17 32.9	165 20 24.0	Mount Pierce 2	4.3884653	24,460.5	80,251
	124 11 33.282	30 08 54.1	210 04 57.7	Bear Ridge	4.2316002	17,045.1	55,922
Table Bluff, highest wireless tower, 1928	40 41 46.609	317 06 34.0	137 09 42.3	Table	3.9989785	9,976.5	32,731
	124 16 22.199	337 11 24.8	157 17 24.0	Mount Pierce 2	4.5262036	33,589.5	110,202
		4 33 19.2	184 32 30.6	Bear Ridge	4.3449113	22,126.4	72,593

Vicinity of Point Reyes

Principal points							
Petaluma, 1930	38 20 45.258	1 47 57.74	181 47 20.55	Mount Tamalpais	4.6707431	46,853.61	153,718.9
	122 34 43.740	110 44 36.81	290 24 28.46	Ross Mountain	4.7022110	50,374.53	165,270.4
		172 36 11.03	352 34 10.95	Mount Helena	4.5589997	36,215.93	118,818.4
		350 39 15.04	170 39 25.64	Sonoma Mountain	3.4076156	2,556.32	8,386.9
Hooker, 1930	38 22 35.524	14 53 07.73	194 47 30.12	Mount Tamalpais	4.7156975	51,963.39	170,483.2
	122 26 37.431	73 58 39.80	253 53 37.99	Petaluma	4.0894299	12,286.55	40,310.1
		153 13 05.86	333 06 02.85	Mount Helena	4.5615660	36,438.96	119,550.2
Arrowhead, 1930	38 16 27.336	23 58 18.34	203 51 01.83	Mount Tamalpais	4.6286743	42,527.93	139,527.1
	122 23 56.531	116 53 02.18	296 46 20.96	Petaluma	4.2460278	17,620.89	57,811.2
		161 01 00.26	340 59 20.48	Hooker	4.0794132	12,006.41	39,391.0
Hicks, 1930	38 07 46.255	333 30 22.49	153 35 09.18	Mount Tamalpais	4.4061915	25,479.54	83,594.1
	122 43 29.361	140 33 57.20	320 19 17.62	Ross Mountain	4.7333197	54,115.25	177,543.1
		207 58 36.00	28 04 01.32	Petaluma	4.4347076	27,208.69	89,267.2
		240 31 10.20	60 43 15.52	Arrowhead	4.5151925	32,748.58	107,442.6
Point Reyes Hill, 1855	38 04 47.340	148 25 24.96	328 22 28.41	Tomales Bay	4.1235310	13,290.18	43,602.9
	122 51 59.644	155 01 57.40	334 52 34.52	Ross Mountain	4.7171887	52,142.12	171,069.6
		223 23 41.27	43 34 32.47	Sonoma Mountain	4.5709022	37,230.79	122,148.0
		246 01 44.94	66 06 59.84	Hicks	4.1335802	13,601.29	44,623.6
		305 55 02.49	126 05 03.20	Mount Tamalpais	4.4687007	29,423.93	96,535.0
Point Reyes Head 2, 1907	37 59 47.246	170 46 48.93	350 42 54.61	Ross Mountain	4.7576727	57,236.45	187,783.3
	123 00 49.511	196 05 45.16	16 08 15.64	Tomales Bay	4.3306886	21,413.55	70,254.3
		234 20 58.62	54 26 25.11	Point Reyes Hill	4.2011886	15,892.37	52,140.2
		282 12 54.75	102 28 20.83	Mount Tamalpais	4.5754460	37,622.36	123,432.7
Wittenberg, 1930	38 02 22.519	302 53 59.15	123 02 17.95	Mount Tamalpais	4.3724855	23,576.84	77,351.7
	122 49 14.486	74 17 26.79	254 10 18.72	Point Reyes Head 2	4.2459167	17,616.38	57,796.4
		137 58 20.23	317 56 38.41	Point Reyes Hill	3.7790458	6,012.37	19,725.6
		220 05 22.53	40 08 55.41	Hicks	4.1156994	13,052.67	42,823.6
Black, 1930	38 04 50.772	319 30 28.94	139 36 43.20	Mount Tamalpais	4.3591433	22,863.53	75,011.4
	122 45 51.838	47 14 28.11	227 12 23.18	Wittenberg	3.8280473	6,730.50	22,081.6
		66 55 47.62	246 46 34.48	Point Reyes Head 2	4.3767018	23,806.84	78,106.3
		89 21 18.92	269 17 32.07	Point Reyes Hill	3.9525374	8,964.73	29,411.8
		212 40 15.88	32 41 43.81	Hicks	3.8080988	6,428.34	21,090.3
Supplementary points							
Sleepy, 1930	38 13 55.112	150 21 32.2	330 18 28.5	Petaluma	4.162978	14,553.9	47,749
	122 29 47.333	196 01 35.5	16 03 33.2	Hooker	4.222618	16,696.2	54,777
		241 08 50.6	61 12 27.8	Arrowhead	3.988364	9,735.6	31,941
		60 27 17.2	240 18 49.0	Hicks	4.361982	23,013.5	75,503

[1] No check on this position.

Vicinity of Point Reyes—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Antonio, 1930	38 11 36.945	218 38 56.9	38 44 42.0	Petaluma	4.335694	21,661.8	71,069
	122 44 00.862	258 19 57.6	78 28 45.7	Sleepy	4.326275	21,197.0	69,544
		353 50 36.6	173 50 56.1	Hicks	3.854549	7,154.0	23,471
		12 11 15.2	192 10 06.7	Black	4.107603	12,811.6	42,033
		42 45 21.2	222 40 25.6	Point Reyes Hill	4.235239	17,188.5	56,393
Canada, 1930	38 06 18.617	55 31 41.5	235 27 13.7	Wittenberg	4.108866	12,848.9	42,155
	122 42 00.100	64 23 46.2	244 21 23.3	Black	3.796775	6,262.9	20,548
		79 08 53.0	259 02 43.2	Point Reyes Hill	4.172550	14,878.2	48,813
		141 11 01.6	321 10 06.5	Hicks	3.540120	3,468.3	11,379
Madera, 1930	38 09 01.957	20 38 35.0	200 37 46.9	Canada	3.730901	5,381.5	17,656
	122 40 42.228	60 10 51.2	240 09 08.0	Hicks	3.671340	4,691.8	15,393
		134 40 52.9	314 38 50.1	Antonio	3.832384	6,798.0	22,303
Hammock, 1930	38 09 47.629	290 02 42.3	110 04 20.2	Madera	3.613384	4,105.7	13,470
	122 43 20.634	343 03 54.9	163 04 44.6	Canada	3.828416	6,736.2	22,100
		3 15 02.3	183 14 56.9	Hicks	3.573832	3,748.3	12,298
		21 55 57.4	201 54 24.1	Black	3.994141	9,866.0	32,369
		163 48 18.9	343 47 54.0	Antonio	3.545290	3,509.9	11,515
Lincoln, 1930	38 10 00.174	320 21 25.4	140 22 03.1	Madera	3.367509	2,330.8	7,647
	122 41 43.302	3 25 41.7	183 25 31.3	Canada	3.835270	6,843.4	22,452
		32 01 57.3	212 00 51.8	Hicks	3.687539	4,870.1	15,978
		80 44 14.3	260 43 14.1	Hammock	3.380354	2,400.8	7,877
		131 43 08.9	311 41 43.8	Antonio	3.651728	4,484.6	14.713
Marin, 1930	38 10 24.349	52 52 07.4	232 50 42.2	Madera	3.623995	4,207.2	13,803
	122 38 24.470	81 15 42.5	261 13 39.6	Lincoln	3.689935	4,897.1	16,067
		105 19 12.2	285 15 44.1	Antonio	3.928777	8,487.4	27,846
Pala, 1930	38 11 44.540	244 50 21.7	64 53 59.9	Sleepy	3.976805	9,479.9	31,102
	122 35 40.127	55 44 37.6	235 41 30.8	Madera	3.949369	8,899.6	29,198
		58 17 26.6	238 15 45.0	Marin	3.672299	4,702.2	15,427
		70 01 37.3	249 57 52.8	Lincoln	3.973434	9,406.6	30,861
Chileno, 1930	38 12 17.769	306 38 01.1	126 40 00.5	Marin	3.767778	5,858.4	19,220
	122 41 37.608	347 24 34.7	167 25 08.9	Madera	3.791413	6,186.0	20,295
		1 52 16.6	181 52 13.1	Lincoln	3.627849	4,244.7	13,926
		28 27 02.3	208 25 58.6	Hammock	3.721372	5,264.7	17,273
		70 09 26.5	250 07 57.9	Antonio	3.568905	3,706.0	12,159
Sonoma, 1930	38 11 38.567	267 19 47.6	87 21 28.5	Pala	3.599253	3,974.2	13,039
	122 38 23.273	0 43 46.8	180 43 46.1	Marin	3.359553	2,288.5	7,508
		58 05 18.7	238 03 15.1	Lincoln	3.758633	5,736.3	18,820
Miseria, 1930	38 12 48.213	338 55 37.2	158 55 58.2	Sonoma	3.361963	2,301.2	7,550
	122 38 57.276	349 47 41.3	169 48 01.6	Marin	3.653884	4,507.0	14,787
		37 57 43.4	217 56 00.8	Lincoln	3.817582	6,570.3	21,556
		76 29 00.8	256 27 21.6	Chileno	3.603371	4,012.1	13,163
Lyptus, 1930	38 12 52.236	330 20 47.0	150 21 17.2	Pala	3.380522	2,401.7	7,880
	122 36 28.960	50 46 20.4	230 45 09.7	Sonoma	3.555213	3,591.0	11,781
		88 02 38.2	268 01 06.5	Miseria	3.557541	3,610.3	11,845
Petal, 1930	38 14 08.736	3 16 28.7	183 16 22.2	Pala	3.648676	4,453.2	14,610
	122 35 29.673	31 26 44.4	211 26 07.7	Lyptus	3.441634	2,764.6	9,070
		63 50 10.6	243 48 02.2	Miseria	3.750279	5,627.0	18,461
Lake, 1930	38 13 29.940	260 01 23.7	80 03 15.9	Sleepy	3.651943	4,486.9	14,721
	122 32 49.025	52 02 08.8	232 00 22.9	Pala	3.722716	5,281.0	17,326
		107 02 07.9	287 00 28.5	Petal	3.611329	4,086.3	13,406
Adobe, 1930	38 15 34.002	175 08 57.4	355 08 36.2	Petaluma	3.983699	9,631.6	31,600
	122 34 10.201	295 28 43.2	115 31 25.6	Sleepy	3.850162	7,082.1	23,235
		332 41 47.3	152 42 37.5	Lake	3.633926	4,304.5	14,122
		17 11 13.1	197 10 17.3	Pala	3.869546	7,405.4	24,296
		36 19 29.1	216 18 39.9	Petal	3.513594	3,262.8	10,705
		53 48 51.3	233 45 53.6	Miseria	3.937163	8,652.9	28,389
Lynch, 1930	38 16 28.226	302 42 45.2	122 43 51.5	Adobe	3.490364	3,092.9	10,147
	122 35 57.239	320 12 19.0	140 14 15.5	Lake	3.854476	7,152.8	23,467
		351 08 25.0	171 08 42.1	Petal	3.638769	4,352.8	14,281
		357 16 28.3	177 16 38.8	Pala	3.942343	8,756.8	28,730
		32 51 10.8	212 49 19.4	Miseria	3.907073	8,073.7	26,488
Laurel, 1930	38 19 46.618	206 48 10.2	26 48 33.2	Petaluma	3.306598	2,025.8	6,646
	122 35 21.358	342 18 15.8	162 19 50.1	Lake	4.086009	12,190.1	39,994
		347 28 38.0	167 29 22.1	Adobe	3.901927	7,978.6	26,176
		8 06 52.3	188 06 30.0	Lynch	3.790912	6,178.9	20,272
		22 09 26.2	202 07 12.5	Miseria	4.143874	13,927.5	45,694
Pacheco, 1930	38 05 44.358	195 27 58.6	15 28 25.0	Hicks	3.591027	3,899.7	12,794
	122 44 12.059	251 48 07.1	71 49 28.5	Canada	3.529469	3,384.3	11,103
		55 48 50.1	235 47 48.6	Black	3.468309	2,939.7	9,645

Vicinity of Point Reyes—Continued

Station	Latitude and longitude	Azimuth	Back Azimuth	To station	Distance: Logarithm (meters)	Distance: Meters	Distance: Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Tacoma, 1930	38 03 03.712	74 07 58.8	254 06 06.0	Wittenberg	3.666603	4,640.9	15,226
	122 46 11.422	110 39 21.6	290 35 46.9	Point Reyes Hill	3.957603	9,069.9	29,757
		188 13 40.2	8 13 52.3	Black	3.523122	2,335.2	10,942
Tomasi, 1930	38 05 07.762	281 14 23.2	101 15 29.9	Black	3.428993	2,685.3	8,810
	122 47 39.906	330 34 20.5	150 35 15.1	Tacoma	3.642558	4,390.9	14,406
		24 21 26.6	204 20 28.4	Wittenberg	3.747583	5,592.2	18,347
		84 20 30.5	264 17 50.4	Point Reyes Hill	3.803548	6,361.3	20,870
Garcia, 1930	38 03 58.054	226 54 10.8	46 54 54.8	Black	3.376446	2,379.3	7,806
	122 47 03.124	323 02 29.1	143 03 01.0	Tacoma	3.321517	2,096.6	6,879
		47 24 25.7	227 23 04.8	Wittenberg	3.638617	4,351.3	14,276
		101 53 57.1	281 50 54.3	Point Reyes Hill	3.868380	7,385.5	24,231
		157 21 39.1	337 21 16.4	Tomasi	3.367122	2,328.7	7,640
Langdon, 1930	38 02 55.300	63 05 10.2	243 04 19.9	Wittenberg	3.348746	2,232.3	7,324
	122 47 52.860	184 25 12.4	4 25 20.3	Tomasi	3.612389	4,096.3	13,439
		212 04 15.8	32 04 46.4	Garcia	3.358579	2,283.4	7,491
		219 38 09.8	39 39 24.4	Black	3.664992	4,623.7	15,170
		264 00 14.7	84 01 17.2	Tacoma	3.395645	2,486.8	8,159
Faultline E, 1930	38 03 14.441	189 11 27.2	9 11 41.5	Tomasi	3.548929	3,539.4	11,612
	122 48 03.103	227 07 13.2	47 08 34.2	Black	3.640060	4,365.8	14,323
		227 23 34.7	47 24 11.7	Garcia	3.298093	1,986.5	6,517
		276 54 58.8	96 56 07.7	Tacoma	3.438214	2,742.9	8,999
		337 03 40.8	157 03 47.2	Langdon	2.806738	640.8	2,102
Faultline F, 1930	38 03 26.664	9 21 52.7	189 21 48.8	Langdon	2.990981	979.4	3,213
	122 47 46.323	47 23 47.4	227 23 37.1	Faultline E	2.744920	555.8	1,823
		47 24 06.4	227 23 12.2	Wittenberg	3.465466	2,920.6	9,582
		182 52 18.7	2 52 22.7	Tomasi	3.494379	3,121.6	10,241
Faultline A, 1930	38 02 58.582	227 09 20.0	47 10 54.4	Black	3.706550	5,088.0	16,693
	122 48 24.907	267 12 20.4	87 13 42.7	Tacoma	3.513011	3,258.4	10,690
		277 22 33.5	97 22 53.3	Langdon	2.896476	787.9	2,585
Faultline D, 1930	38 03 10.848	274 24 51.0	94 26 02.9	Tacoma	3.455110	2,851.7	9,356
	122 48 08.038	322 19 53.7	142 20 03.1	Langdon	2.782182	605.6	1,987
		47 24 07.7	227 23 26.8	Wittenberg	3.342663	2,201.2	7,222
		47 24 12.9	227 24 02.5	Faultline A	2.747211	558.7	1,833
Faultline B, 1930	38 03 06.740	47 24 09.4	227 24 02.5	Faultline A	2.570065	371.591	1,219.13
	122 48 13.688	227 24 09.4	47 24 12.9	Faultline D	2.272194	187.152	614.01
Faultline C, 1930	38 03 09.039	47 24 11.4	227 24 09.4	Faultline B	2.020158	104.751	343.67
	122 48 10.526	227 24 11.4	47 24 12.9	Faultline D	1.915932	82.401	270.34
S. E. I. C. northeast monument, 1930	38 02 41.434	206 02 09.1	26 02 38.3	Garcia	3.419824	2,629.2	8,626
	122 47 50.466	215 56 20.9	35 57 34.1	Black	3.692489	4,925.9	16,161
		254 06 51.9	74 07 53.0	Tacoma	3.399799	2,510.7	8,237
Point Reyes East 2, 1930	37 59 25.742	98 45 39.8	278 43 51.1	Point Reyes Head 2	3.639513	4,360.3	14,305
	122 57 52.895	220 57 15.6	41 00 53.3	Point Reyes Hill	4.118431	13,135.0	43,094
		246 38 22.9	66 43 42.2	Wittenberg	4.138945	13,770.4	45,178
Drake, 1930	38 02 58.793	249 00 29.4	69 04 10.4	Point Reyes Hill	3.971057	9,355.3	30,693
	122 57 58.021	274 57 43.7	95 03 06.4	Wittenberg	4.107705	12,814.6	42,043
		358 54 32.2	178 54 35.4	Point Reyes East 2	3.817560	6,569.9	21,555
		35 19 23.0	215 17 37.4	Point Reyes Head 2	3.859556	7,237.0	23,743
Pacific, 1930	38 02 10.538	20 17 03.5	200 16 16.1	Point Reyes East 2	3.733731	5,416.7	17,771
	122 56 35.939	54 29 06.7	234 26 30.5	Point Reyes Head 2	3.880880	7,601.2	24,938
		126 37 53.3	306 37 02.7	Drake	3.396879	2,493.9	8,182
Mud, 1929	38 01 42.727	61 56 23.1	241 53 03.4	Point Reyes East 2	3.952809	8,970.3	29,430
	122 52 28.495	73 48 03.9	253 42 55.4	Point Reyes Head 2	4.104830	12,730.0	41,765
		98 06 30.0	278 03 57.6	Pacific	3.784991	6,095.2	19,997
		106 17 53.9	286 14 30.9	Drake	3.922774	8,370.9	27,464
Estero, 1930	38 03 53.388	32 18 14.6	212 16 02.9	Point Reyes East 2	3.989500	9,761.1	32,025
	122 54 19.119	46 27 46.4	226 26 22.1	Pacific	3.663004	4,602.6	15,100
		51 28 32.6	231 24 32.1	Point Reyes Head 2	4.085487	12,175.5	39,946
		72 30 45.5	252 28 30.5	Drake	3.747870	5,595.9	18,359
Muddy, 1930	38 02 10.414	291 22 45.9	111 23 40.9	Mud	3.369384	2,340.9	7,680
	122 53 57.872	48 29 34.8	228 27 10.1	Point Reyes East 2	3.884121	7,658.1	25,125
		90 04 13.5	270 02 36.1	Pacific	3.585993	3,854.7	12,647
		104 18 39.6	284 16 11.6	Drake	3.781243	6,042.9	19,826
		170 44 03.5	350 43 50.4	Estero	3.507435	3,216.9	10,554
Lagoon, 1930	38 02 01.455	258 25 45.4	78 26 19.5	Muddy	3.139154	1,377.7	4,520
	122 54 53.217	279 16 43.7	99 18 12.8	Mud	3.553453	3,576.5	11,734
		42 24 39.0	222 22 48.4	Point Reyes East 2	3.812967	6,500.8	21,328
		193 32 30.5	13 32 51.5	Estero	3.550209	3,549.8	11,646
Cabesa, 1930	37 59 46.233	203 28 42.2	23 29 47.4	Drake	3.811125	6,473.3	21,238
	122 59 43.795	283 07 53.9	103 09 02.2	Point Reyes East 2	3.443860	2,778.8	9,117
		91 07 16.9	271 06 36.5	Point Reyes Head 2	3.205141	1,603.8	5,262

EXPLANATION OF TABLES OF PLANE COORDINATES

In order to meet the various demands imposed upon it by engineering and surveying operations, a plane-coordinate system must satisfy the requirements for accurate computations and exact results. The preservation of angles is one important factor to be considered; another factor of utmost importance is the elimination of variations of scale. Since variations of scale are inevitable, it becomes of utmost importance to select a projection which will give definite scale values in certain directions, so that such scale values may be tabulated, and through their use, when utmost accuracy is desired, eliminate the distortions of scale which result from the projection of spheroidal coordinates onto a plane.

These various requirements pointed very definitely to the adoption of one of the conformal projections. After due consideration, it was decided to employ the Lambert conformal projection with two standard parallels in States with greatest extent in an east-west direction and the transverse Mercator projection where the greatest extent was in a north-south direction. Such a rule, however, could be applied only in those States which were of such limited extent in one of these directions that the entire State could be included in a single zone. It therefore became necessary to divide the larger States into a number of zones, using the projection in each which would satisfy the requirements of accuracy indicated by a certain limiting scale error, and at the same time keep to a minimum the number of zones required.

For these reasons the Lambert conformal projections with six zones was adopted for California (see fig. 4). It will be noticed that the junction lines between adjacent zones follow the county boundary lines, and therefore all stations in any county will be included in the same zone. Since, however, some surveys will extend across these artificial boundaries, the coordinates of stations which lie within what may be termed the "borderland" of two contiguous zones are given on both systems. With these data the engineer will not have to go from one system of coordinates to the other in extending a survey a short distance beyond a boundary. Care must always be taken, however, to use in direct combination only coordinates which are given on the same system. Where it is necessary to go from one system to another, suitable directions for so doing will be found in Special Publication No. 193.

The geodetic positions in this publication have been reduced to plane coordinates which are given in the following tables. These coordinates are based upon the Lambert conformal projection. Coordinate tables for the State have been computed by this Bureau as a basis for computing the coordinates. These tables are given on pages 253–281. The purpose in view in supplying these coordinates has been to provide for computations of surveys by the usual methods of plane surveying in which the convergence of the meridians is not considered. A State-wide application can now be made of principles ordinarily confined in common practice to very restricted areas.

In the table, the x and y coordinates are given in feet to two decimal places. This is one place farther than geodetic positions justify, but it was thought desirable to accept the positions as if they

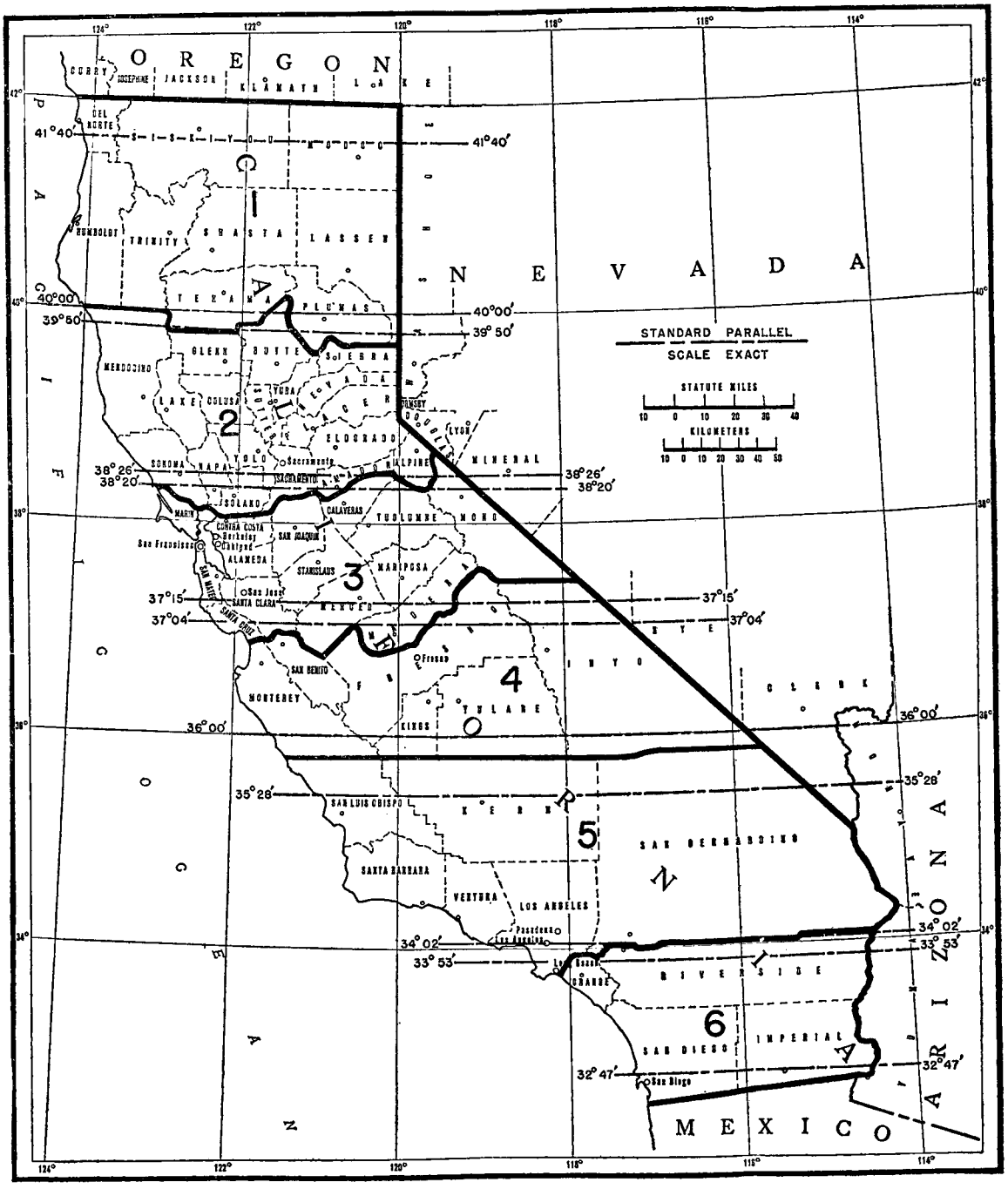

FIGURE 4.—Map of California with grid system outline.

were correct to three decimal places, and carry two decimal places in the coordinates for use in adjusting traverses between fixed points.

The plane coordinates are in all essential features merely the plane representation of the spheriodal coordinates given in the tables of geographic positions. For definite instructions regarding the use of such coordinates reference should be made to the following special publications of this Bureau: No. 193, Manual of Plane Coordinate Computation; No. 194, Manual of Traverse Computation on the Lambert Grid; and No. 195, Manual of Traverse Computation on the Transverse Mercator Grid.

A few stations, for which geographic positions are given in this publication, lie so far outside the State that plane coordinates were not computed for them on the grid of this State. If it becomes necessary to use any of these as control for local surveys, their coordinates should be obtained from the Coast and Geodetic Survey on the grid of the State in which they lie. Computations of traverses tied to them would then have to be made by passing from one grid to the other. The method of accomplishing this is given in Special Publication No. 193. It is not thought that this necessity will arise very often, but when it does occur the method of handling it is not very complicated and the necessary computations can easily be made.

EXPLANATION OF PLANE LENGTHS

The tables of plane coordinates do not give lengths of lines, but any such length can be computed from the differences of coordinates just as is done in ordinary plane surveying. The resulting length is affected by the distortion due to the reduction of the actual curved surface of the earth to a plane. It must be corrected for the scale of the grid at that point to reduce it to the sea-level length listed in the geographic-position tables. Should it be desired to obtain the actual ground-level length, a further correction must be applied as described on page 19 for lines of triangulation.

EXPLANATION OF PLANE OR GRID AZIMUTHS

The plane or grid azimuths given in the tables of plane-coordinate positions are based upon the central meridian of the adopted system and they, therefore, differ from the geodetic azimuths which appear in the lists of geographic positions and the descriptions. The back azimuth differs from the forward azimuth by exactly 180°, hence it is necessary to list the azimuth of each line in only one direction.

Many of the azimuths listed are to special azimuth marks located at comparatively short distances from the stations. These marks have been placed at such positions as to be visible from the ground at the stations, and thus are readily available as starting azimuths for local surveys such as traverses. Since 1927 it has been the custom to establish these azimuth marks at most of the first-order stations established by this Bureau.

The plane azimuth from a triangulation station to an azimuth mark or other triangulation station may be computed in two ways; first, by means of the formula

$$\text{Geodetic azimuth-grid azimuth} = +\theta - \frac{x_2 - x_1}{2\rho_0^2 \sin 1''}\left(y_1 - y_0 + \frac{y_2 - y_1}{3}\right)$$

in which θ is the mapping angle obtained from table II of the plane-coordinate projection tables (pages 253 to 281), x_1, x_2, y_1, and y_2 are the coordinates of the stations, and $\frac{1}{2\rho_0^2 \sin 1''}$ and y_0 are obtained from the table of constants, page 252, for the zone in which the stations are located; and, second, by means of the usual plane-surveying method using the formula

$$\text{Tangent grid azimuth}=\frac{\Delta x}{\Delta y},$$

in which Δx and Δy are the respective differences of the x and y coordinates of the two stations.

Since the second term of the first formula is negligible for distances up to approximately 1 mile, the mapping angle, θ, may be applied directly to the geodetic azimuth to obtain the grid azimuth. The first formula, using only the θ angle, will give more consistent results for azimuths over short distances than the second formula. This is due to the fact that there are not enough significant figures in the differences of the x and y coordinates to make the second formula sufficiently exact.

Inconsistencies between plane azimuths, as computed from the two formulas, may also arise when the coordinates of the azimuth mark are derived from a "no check" (see page 18) geodetic position. This results from discarding the third decimal place of the seconds of latitude and longitude and thus using only hundredths of seconds for computing the plane-coordinate position.

Since these inconsistencies diminish as the distance between the station and the azimuth mark increases, the second formula has been used to compute the plane azimuths of such lines as are of sufficient length to make the differences negligible. In other words, when the distance between the station and the azimuth mark is such that both formulas give practically the same result, and when the coordinates of both station and azimuth mark are known, the second (or tangent) formula has been used.

The first formula has been used to compute the plane azimuths to all azimuth marks whose coordinates were not known, and also to stations whose coordinates were derived from "no check" geodetic positions and to other azimuth marks whose coordinates were known but which did not give consistent results when computed by means of the second formula.

In the tables of plane-coordinate positions, the plane azimuths between stations for which coordinates were available but which were computed by means of the first formula are marked by footnote (*).

PLANE COORDINATES

ZONE 1

Thirty-ninth parallel arc

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points	*Feet*	° ′ ″	
Pah Rah (Nev.), 1878	2,709,987.99 178,259.86	67 02 27.8	Babbit, fire lookout tower.
Mount Lola, 1879	2,462,181.66 40,646.08	228 44 18.2	Do.
Snow Mountain West, 1892	1,785,776.24 16,851.38		
Mount Sanhedrin, 1880	1,690,986.71 68,479.25		
Supplementary points			
Mucca or Elephant Peak (Nev.), 1879	2,632,487.31 242,317.54		
Virginia Peak, monument (Nev.), 1878	2,714,076.50 164,227.26		
Pond Summit, monument (Nev.), 1879	2,714,449.39 126,523.60		

California-Washington arc

Principal points			
Soda (Oreg.), 1904	1,870,206.64 995,518.61	217 58 55	Old Baldy, fire lookout tower.
Sterling (Oreg.), 1904	1,759,155.30 979,090.77		
Spur, 1904	1,931,924.30 754,351.79		
Boliver, 1904	1,785,734.55 702,673.95		
Gazelle astronomical station, 1904	1,857,983.95 799,369.47		
Bally, 1904	1,819,583.83 463,201.20		
Mears, 1904	1,876,709.46 652,849.06		
Round, 1904	2,011,865.01 536,198.13		
Kent, 1904	1,793,411.36 231,660.29		
Lyons, 1904	2,100,733.66 352,866.84		
Snow Mountain East, 1876	1,787,663.51 19,219.08		
Supplementary points			
Redding, courthouse, 1904	1,890,205.62 455,326.91		
Redding astronomical station, 1904	1,890,619.58 451,386.41		
Hill, 1908	1,890,534.21 452,306.82		
Redding south base, 1908	1,891,686.40 452,271.92		

ZONE 1—Continued

California-Washington arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued			
	Feet		
Redding north base, 1908	1,891,505.23 453,690.91		
Corning Tower, 1904	1,949,919.45 216,577.73		
Corning astronomical station, 1908 [1]	1,949,848.50 216,548.32		
Greyback (Oreg.), 1904	1,644,140.77 1,014,271.10		
Pilot Rock (Oreg.), 1904	1,847,914.72 983,197.59		
Goosenest, tall tree, 1904	1,935,037.85 904,575.16		
Marble Mountain, 1904	1,701,567.87 820,075.64		
Mount Shasta, top, 1904	1,946,866.56 756,252.47		
China Mountain, 1904	1,842,201.64 745,336.74		
Black (Wintoon) Butte, cairn, 1904	1,904,784.47 740,846.85		
Mount Eddy, cairn, 1904	1,868,663.15 724,028.29		
Russian Peak, north point, 1904	1,738,757.83 711,591.32		
Russian Peak, south point, 1904 [1]	1,738,750.53 711,551.92		
Saw Tooth, 1904	1,723,554.92 598,703.55		
Thompson (Granite) Peak, 1904	1,759,194.85 587,765.35		
Crater Peak, 1904	2,105,970.72 497,415.05		
Lassen Peak, 1904	2,137,963.26 421,099.37		
Mount Linn, 1904	1,761,158.16 257,339.59		
Mount St. John, 1904	1,804,515.16 37,417.14		

California-Oregon arc

Principal points		° ′ ″	
Crane (Oreg.), 1920	2,478,035.18 999,252.61	12 45 44.8	Sugar Hill, fire lookout tower.
Yonna (Oreg.), 1920	2,198,001.96 1,091,298.69	144 28 36	Calimus, fire lookout house.
Cougar (Oreg.), 1920	2,370,889.01 1,086,336.30		
Lakeview—B. M. M 16 (Oreg), 1920	2,444,288.76 1,046,128.07		

[1] No check on this position.

ZONE 1—Continued

California-Oregon arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points—Continued			
	Feet	° ′ ″	
Dog (Oreg.), 1920	2,348,094.62 1,017,326.15	254 46 40	Lakeview, courthouse, finial.
Hoffman, 1920	2,122,368.38 830,099.81		
Aspen (Oreg.), 1920	1,976,611.21 1,086,564.77	290 17 13	Klamath Falls, courthouse.
Goosenest, 1920	1,939,596.57 869,534.65		
Whaleback, 1920	1,961,798.49 799,681.69		
Grizzly, 1920	2,006,232.78 659,899.81		
Eddy, 1920	1,868,723.91 724,004.18	214 26 21.8	Weed Lumber Co., east chimney.
Supplementary points			
Soldier, 1920	2,120,774.96 634,550.40		
Turret, 1920	2,244,597.09 759,923.09		
Dixie, 1920	2,250,814.11 578,337.36		
Bald Mountain (U.S.G.S.), 1920	2,172,117.05 571,656.11		
Burney (U.S.G.S.), 1920 [1]	2,103,232.24 536,966.51		
Crater (U.S.G.S.), 1920	2,105,932.38 497,445.85		
Crater Peak, fire lookout house, 1920 [1]	2,105,929.59 494,307.27		
Black Fox, 1920	2,030,137.02 733,423.79		
Weed Lumber Co., east chimney, 1920 [1]	1,897,425.84 765,860.52		
Weed Lumber Co., west chimney, 1920 [1]	1,897,405.41 765,890.97		
Boliver, fire lookout house, 1920	1,785,597.05 702,464.75		
Bonanza, 1920	1,828,126.76 637,003.54		
Bonanza, fire lookout house, 1920	1,828,165.14 636,972.90		
Granite, 1920 [1]	1,759,107.51 575,590.88		

Lakeview, Oreg., to Reno, Nev., arc

Principal points			
Sugar, 1931	2,456,568.93 904,407.74	136 09 05	Dog Mountain, fire lookout house.
Blue, 1931	2,310,048.46 911,631.28	272 47 47.5	Sugar Hill, fire lookout tower.

[1] No check on this position.

ZONE 1—Continued

Lakeview, Oreg., to Reno, Nev., arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*	° ′ ″	
Schaffer, 1931	2,316,224.76 728,685.01	1 57 51.0	Hayden Hill, fire lookout tower.
Warren, 1931	2,488,823.16 750,089.80	168 11 56.0	Sugar Hill, fire lookout tower.
Eagle, 1931	2,494,748.52 715,533.58	205 04 36	Reference mark no. 2.
Spring, 1931	2,325,677.00 590,765.21	142 28 01.3	Hayden Hill, fire lookout tower.
Observation, 1931	2,506,638.22 530,234.66	61 07 24.2	Spanish Springs Peak, highest point.
Fredonyer, 1931	2,388,928.15 496,560.55	98 16 28	Harvey, fire lookout tower.
Hot Springs, 1931	2,518,072.96 387,139.67	68 18 11.9	Thompson Peak, fire lookout tower.
Thompson, 1931	2,402,701.41 341,433.71	46 24 19.0	Kettle Rock, fire lookout tower.
State Line (Nev.), 1931	2,566,120.92 260,308.24	67 38 52.2	Dixie Mountain, fire lookout tower.
Ingalls, 1931	2,384,872.24 243,747.55	280 49 00.7	Do.
Summit, 1931	2,522,716.45 140,064.06	154 00 12.7	Do.
Supplementary points			
Brushy (Strawberry) Mountain, fire lookout tower (Oreg.), 1931.	2,307,112.46 1,007,365.75		
Blue Mountain, fire lookout tower, spike on top, 1931.[1]	2,309,986.50 911,679.38		
Sugar Hill, fire lookout tower, 1931	2,456,567.43 904,474.24		
Cedar Peak, cairn, 1931	2,473,374.59 834,051.47		
G. L. O. Station M 47, 1931	2,549,664.49 730,710.26	176 58 09.8	Reference mark no. 2.
Squaw Peak, highest point, cairn, 1931	2,488,755.87 764,725.21		
Warren Peak, cairn, 1931 [1]	2,488,831.05 750,091.58		
Eagle Peak, cairn, 1931 [1]	2,494,751.92 715,539.42		
Manzanita, fire lookout tower, 1931 [1]	2,329,911.99 710,590.11		
South Fork Peak, highest point, 1931	2,395,760.90 666,962.55		
Hayden Hill, fire lookout tower, 1931 [1]	2,312,100.87 608,436.91		
McDonald Peak, highest point, cairn, 1931	2,438,739.76 589,729.36		
Observation Peak, cairn, 1931 [1]	2,506,648.36 530,236.19		
Spanish Spring Peak, highest point, 1931	2,487,349.52 519,596.99		

[1] No check on this position.

ZONE 1—Continued

Lakeview, Oreg., to Reno, Nev., arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued			
Shaffer Peak, highest point, 1931	*Feet* 2,457,264.24 / 409,878.95		
Thompson Peak, fire lookout tower, 1931	2,402,817.13 / 341,281.48		
High Rock (Nev.), 1931	2,558,383.08 / 335,315.05		
Kettle Rock, fire lookout tower, 1931	2,358,031.60 / 298,903.09		
State Line Peak, cairn (Nev.), 1931 [1]	2,566,238.43 / 260,300.73		
Ingalls Peak, flagpole, 1931 [1]	2,384,865.99 / 243,744.31		
Tule Peak, cairn (Nev.), 1931 [1]	2,632,454.08 / 242,440.27		
Dixie Mountain, fire lookout tower, 1931	2,481,122.58 / 225,357.44		
Grizzly Peak, highest point, 1931 [1]	2,412,773.22 / 198,071.08		
Mount Elwell, fire lookout tower, 1931	2,369,099.00 / 139,380.43		
Summit Peak, cairn, 1931 [1]	2,522,742.42 / 140,044.58		
Babbit, fire lookout tower, 1931	2,534,113.02 / 103,754.02		
Sierra Buttes, highest point, 1931 [1]	2,381,683.54 / 97,812.97		

Redding to Mendocino arc (second order)

Principal points			
Weaver, 1928	1,729,661.65 / 547,453.48		
Bully Choop, 1928	1,787,148.05 / 446,097.07		
Chaparral, 1928	1,507,890.01 / 503,890.21		
Mount Lassic, 1881	1,566,985.27 / 368,397.20		
Bear Ridge, 1869	1,362,229.60 / 432,494.61		
Mount Pierce 2, 1928	1,409,939.02 / 402,030.02		
King Peak, 1879	1,406,603.03 / 307,225.11		
Cahto, 1880	1,555,763.17 / 132,717.93		
Great Caspar, 1878	1,513,541.48 / 7,642.40		
Chemise Mountain, 1872	1,438,880.72 / 254,406.04		

[1] No check on this position.

ZONE 1—Continued

Redding to Mendocino arc (second order)—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points	*Feet*		
Granite Peak, fire lookout tower, 1928	1,759,022.11 575,256.45		
Weaver (U.S.G.S.), cairn, 1928[1]	1,729,626.49 547,478.05		
Bully Choop (U.S.G.S.), cairn, 1928[1]	1,787,159.98 446,101.62		
Table, 1919	1,391,514.50 480,129.82		
Table Bluff, highest wireless tower, 1928	1,369,869.23 504,677.65		

ZONE 2

Thirty-ninth parallel arc

Principal points	*Feet*	° ′ ″	
Mount Grant (Nev.), 1879	2,917,467.52 345,329.98	269 01 03 269 06 34	Tank with red beacon. Smokestack.
Mount Como (Nev.), 1879	2,717,862.12 503,351.97		
Pah Rah (Nev.), 1878	2,709,947.57 784,836.02	67 05 34.1	Babbit, fire lookout tower.
Mount Lola, 1879	2,462,064.46 647,455.26	228 46 47.0	Do.
Round Top, 1879	2,571,030.45 369,383.81		
Mount Conness, 1890	2,772,524.57 120,811.76	300 18 10	Reference mark no. 3.
Pine Hill, 1876	2,288,337.97 385,013.32		
Marysville Butte, 1876	2,051,135.54 560,620.15		
Mount Diablo, 1876	2,025,089.77 78,354.64		
Monticello, 1880	1,945,976.49 363,182.51		
Vaca, 1880	1,976,048.18 258,252.21		
Yolo southeast base, 1880	2,057,430.21 313,778.94		
Yolo northwest base, 1880	2,040,652.66 368,638.23		
Mount Helena, 1876	1,819,444.74 365,820.25		
Mount Tamalpais, 1882	1,828,184.16 94,282.03		
Ross Mountain, 1891	1,679,814.74 307,424.72		
Farallon Lighthouse, 1891	1,710,410.61 13,446.66		

[1] No check on this position.

ZONE 2—Continued

Thirty-ninth parallel arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*	° ′ ″	
Chaparral, 1860	1,661,711.52 302,935.16		
Point Reyes Lighthouse, 1870	1,705,437.67 121,482.64		
Sonoma Mountain, 1855	1,835,299.14 239,615.37		
Tomales Bay, 1855	1,728,060.75 189,022.03		
Snow Mountain West, 1892	1,785,837.57 623,788.26		
Mount Sanhedrin, 1880	1,691,052.23 675,367.32		
Cold Spring, 1878	1,567,612.26 497,312.09		
Two Rock, 1879	1,591,470.99 620,582.38		
Paxton, 1878	1,627,955.74 537,636.62		
Walalla, 1860	1,573,731.83 436,843.70		
Sanel Mountain, 1860	1,654,063.93 469,142.46		
Sulphur Peak, 1860	1,759,303.38 401,026.23		
Fisher, 1891	1,549,642.08 513,640.59		
Forty-Acre Opening, 1897	1,692,024.03 555,917.34		
Cleland, 1897	1,650,540.37 530,475.27		
North, 1925	1,649,219.86 550,360.53		
Ukiah magnetic, 1925	1,656,545.33 537,986.77		
Clark, 1891	1,536,387.17 487,367.38		
Dunn, 1891	1,532,800.96 493,729.40		
Lane, 1891	1,518,990.41 493,439.67		
Shoemake 2, 1906	1,521,474.56 477,741.91		
Supplementary points			
Mucca or Elephant Peak (Nev.), 1879	2,632,510.98 848,968.25		
Virginia Peak, monument (Nev.), 1878	2,714,021.24 770,800.28		
Pond Summit, monument (Nev.), 1879	2,714,354.98 733,100.57		
Sage (Nev.), 1879	2,716,988.45 542,216.04		

ZONE 2—Continued

Thirty-ninth parallel arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Galena Saddle (Nev.), 1879	2,711,153.50 455,198.10		
Point Arena Lighthouse, 1925	1,505,375.55 473,866.67		
Station A, 1925	1,656,639.15 537,984.51		
Ukiah latitude, 1925	1,656,638.56 537,888.30		
San Joaquin Valley arc			
Principal point			
Bear, 1931	2,369,269.05 165,768.06		
Supplementary point			
Mount Diablo, flagpole, 1931 [1]	2,025,043.05 78,341.74		
Sacramento to Stockton arc			
Principal points			
Dixon, 1931	2,088,289.96 254,723.95	8 06 06	Reference mark no. 2.
Saxon, 1931	2,104,065.61 292,698.34	10 11 51	Reference mark no. 1.
Davis, 1931	2,088,540.33 304,473.51	91 36 06	Reference mark no. 2.
Content, 1931	2,143,415.21 283,752.09	16 46 54	Do.
Randall, 1931	2,133,141.57 248,264.02	68 15 41	Do.
Miner, 1931	2,098,992.17 212,462.92	267 10 00	Reference mark no. 1.
Walnut, 1931	2,136,503.99 209,022.71	87 52 47	Do.
Drouin, 1931	2,081,982.01 182,261.95	208 25 01	Do.
Jackson, 1931	2,108,695.81 171,900.91	335 44 43	Reference mark no. 2.
Pier No. 4 (U.S.G.S.), 1931	2,072,521.01 154,227.89	143 31 14	Reference mark no. 1.
False, 1931	2,090,886.86 141,227.91	44 02 55	Reference mark no. 2.
Holland, 1931	2,119,800.29 132,540.55	345 59 37	Do.
Grass, 1931	2,151,608.40 163,823.36	267 18 39	Do.
Blume, 1931	2,080,574.19 136,895.61	55 45 49	Do.
No. 8 (U. S. E.), 1931	2,084,190.39 164,781.78	200 00 55	Reference mark no. 1.

[1] No check on this position.

ZONE 2—Continued

Sacramento to Stockton arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points	*Feet*	° ′ ″	
B. M. 96 (U. S. E.), 1931	2,138,145.75 325,505.27	148 38 14	Reference mark no. 2.
Pier No. 20 (U.S.G.S.), 1931	2,133,596.51 314,722.17	235 22 36	Reference mark no. 1.
B. M. 89 (U. S. E.), 1931	2,127,549.84 306,526.96	353 46 48	Reference mark no. 2.
B. M. 85 (U. S. E.), 1931	2,136,677.97 294,889.72	194 06 43	Reference mark no. 1.
Pier No. 15 (U.S.G.S.), 1931	2,137,956.16 260,626.82	46 06 22	Do.
Pier No. 16 (U.S.G.S.), 193.	2,135,596.41 274,365.39	22 56 46	Reference mark no. 2.
Benson, 1931	2,161,125.13 214,828.86	319 47 40	Reference mark no. 1.
Hope, 1931	2,146,134.18 204,001.89	44 50 53	Reference mark no. 2.
Fork, 1931	2,095,961.87 184,039.61	233 47 02	Reference mark no. 1.
Rio Vista, 1931	2,088,800.72 175,473.13	22 04 37	Do.
Steamboat, 1931	2,107,079.55 191,919.99	74 16 11	Reference mark no. 2.
Grand, 1931	2,118,808.11 187,980.69	32 54 23	Do.
Isleton, 1931	2,109,469.25 182,049.15	116 47 05	Reference mark no. 1.
Walker, 1931	2,113,723.98 199,873.66	314 12 32	Reference mark no. 2.
Pratt, 1931	2,127,191.59 197,091.84	3 42 21	Do.
Ryde, 1931	2,127,415.31 208,920.52	237 17 16	Reference mark no. 1.
Sutter, 1931	2,114,917.82 211,887.43	178 37 08	Do.
Slough, 1931	2,118,275.86 222,987.65	356 09 36	Reference mark no. 2.
Vorden, 1931	2,136,930.75 217,209.31	316 12 05	Reference mark no. 1.
B. M. 60 (U. S. E.), 1931	2,122,490.05 232,456.63	48 01 40	Reference mark no. 2.
Courtland, 1931	2,126,190.10 245,633.46	220 48 14	Reference mark no. 1.
Sherman, 1931	2,090,695.08 152,194.78	8 43 00	Do.
Emma, 1931	2,083,622.72 151,996.71	69 34 41	Reference mark no. 2.
Webb, 1931	2,113,628.05 158,408.52	289 57 58	Reference mark no. 1.
Brad, 1931	2,101,772.05 152,828.24	122 03 56	Reference mark no. 2.
Dixon, municipal water tank, 1931	2,050,043.14 283,505.55		

ZONE 2—Continued

Sacramento to Stockton arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Davis, municipal water tank, 1931	2,073,713.81 321,418.19		
University of California, College of Agriculture, water tank, 1931.	2,072,146.69 317,957.99		
West Sacramento, small water tank, 1931	2,138,608.09 330,514.67		
Sacramento, State Life Building, chimney, 1931.	2,145,007.89 333,109.16		
Sacramento, B. P. O. E. Building, cupola, 1931.	2,145,599.55 333,099.52		
Sacramento, Cathedral of the Blessed Sacrament, spire, 1931.	2,145,445.38 332,721.23		
Sacramento, Cathedral of the Blessed Sacrament, dome, 1931.	2,145,558.84 332,683.33		
Sacramento, State Capitol, dome, 1931	2,145,058.02 331,839.17		
Sacramento, airport beacon, 1931	2,143,802.74 308,873.30		
Sacramento, 5 miles south-southwest of, brickyard, west stack, 1931.	2,132,243.81 309,491.04		
Sacramento, 5 miles south-southwest of, brickyard, east stack, 1931.	2,132,675.41 309,566.68		
Freeport, west transmission tower, 1931	2,141,797.08 291,802.27		
Freeport, east transmission tower, 1931	2,142,590.49 292,058.09		
East Saxon, east transmission tower, 1931	2,120,506.88 294,342.52		
East Saxon, west transmission tower, 1931	2,119,728.34 294,261.65		
San Francisco-Reno airway beacon no. 4 (flashing red), 1931	2,075,647.59 216,060.78		
San Francisco-Reno airway beacon no. 5, 1931.	2,110,401.87 262,341.46		
Star, 1931	2,129,019.32 224,681.32	310 40 36	Reference mark no. 2.
Vorden, 1½ miles northwest of, southwest transmission tower, 1931.	2,125,596.73 228,050.48		
Vorden, 1½ miles northwest of, northeast transmission tower, 1931.	2,126,030.12 228,663.97		
Ryde, water tank, 1931	2,126,727.71 208,227.25		
Vorden, 1½ miles southeast of, southwest transmission tower, latticed, 1931.	2,137,556.27 216,373.47		
Vorden, 1½ miles southeast of, northeast transmission tower, latticed, 1931.	2,138,005.68 216,977.65		
Walnut Grove, ½ mile north-northeast of, Standard Oil Co., water tank, 1931.	2,141,049.07 212,674.83		
Walnut Grove, 1¼ miles north of, Libby, McNeill & Libby, water tank, 1931.	2,139,164.11 216,021.55		

ZONE 2—Continued

Sacramento to Stockton arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Sacramento River-Steamboat Slough, junction point, light, flashing white, 1931.	2,095,094.80 186,159.11		
Grand Island, navigation beacon, 1931	2,096,966.99 186,376.01		
Rio Vista, St. Joseph's Catholic Church, spire, 1931.	2,088,080.20 178,668.31		
Isleton, northeast transmission tower, 1931.	2,107,330.45 183,338.58		
Isleton, southwest transmission tower, 1931.	2,106,925.29 182,166.48		
Rio Vista, Del Monte water tank, 1931	2,090,954.54 180,987.06		
Isleton, municipal water tank, 1931	2,112,970.98 180,655.17		
Rio Vista, east municipal water tank, 1931.	2,087,297.93 177,993.16		
Rio Vista, west municipal water tank, 1931.	2,087,253.84 177,969.75		
Transmission pole, near station Hope, 1931.[1]	2,146,072.28 204,054.25		
Transformer pole, near station Hope, 1931.[1]	2,146,134.31 204,092.02		
B. M. (U.S.G.S.), 1931 [1]	2,088,228.88 175,912.67	307 31 05 *	Rio Vista.
B. M. 41 (U. S. E.), 1931 [1]	2,126,159.66 245,570.08		
Red Tower (U.S.G.S.), 1931	2,130,072.53 144,761.97		
Terminous, water tank, 1931	2,144,905.04 163,083.68		
Potato Point Lighthouse, 1931 [1]	2,124,131.66 150,905.47		
Oulton Point Landing, light, 1931 [1]	2,104,821.33 154,323.22		
Jersey Landing 2, navigation beacon, 1931.	2,089,907.87 140,555.03		
Schadd No. 2 landing, navigation beacon, 1931.	2,081,582.17 137,497.12		
Threemile Slough, north transmission tower, 1931.	2,086,777.26 160,514.01		
Threemile Slough, south transmission tower, 1931.	2,086,606.10 159,628.79		
Mayberry Slough, south transmission tower, 1931.	2,062,788.60 143,575.94		
Mayberry Slough, north transmission tower, 1931.	2,061,070.97 147,338.14		
Toland Landing, navigation beacon, 1931	2,071,874.18 153,113.93		

[1] No check on this position.
* This azimuth has been computed by means of the θ correction. See page 163.

ZONE 2—Continued

Suisun, San Pablo, and San Francisco Bays

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points	*Feet*	° ′ ″	
May, 1931	2,062,681.65 143,912.35	266 26 42	Reference mark no. 1.
Wood, 1931	2,069,245.37 132,501.87	145 09 33	Reference mark no. 2.
Antioch, 1932	2,057,924.29 127,533.89	87 48 50	Do.
Blackjack, 1931	2,051,915.42 148,256.15	94 45 51	Do.
Pittsburg, 1932	2,032,782.38 135,853.45	24 46 14	Reference mark no. 1.
Cattle, 1932	2,041,076.22 154,104.18	256 56 15	Reference mark no. 2.
McAvoy, 1932	2,011,669.33 133,840.80	181 39 08	Reference mark no. 1.
Kirby, 1922	2,023,097.83 182,444.10		
Lopez, 1932	1,962,564.36 166,702.23	204 58 29	Do.
Rockville, 1932	1,959,687.12 208,987.76	81 34 43	Reference mark no. 2.
Bay Point (U. S. E.), 1932	1,995,302.95 133,912.97	229 01 27	Reference mark no. 1.
Franklin, 1932	1,941,278.24 128,649.16	313 53 31	Transmission tower, highest.
Sulphur, 1932	1,949,593.70 162,668.15	252 43 24.5	Lopez.
Long Pond 2, 1921	1,906,575.56 167,941.37	118 15 54	Azimuth mark.
Tulucay, 1932	1,938,050.67 217,750.36		
Rector, 1932	1,916,692.70 276,088.87		
Point Pinole 3, 1897	1,894,606.77 125,916.82		
Petaluma Creek, 1851	1,859,214.98 159.454.51	153 01 23 174 07 58	Petaluma Creek, south transmission tower. Petaluma Creek, north transmission tower.
Hind, 1932	1,856,306.20 119,606.65		
Goodyear, 1864	1,970,295.33 160,039.73		
Army Point 2, 1886	1,962,798.05 139,842.02		
Suisun Hill 2, 1922	1,994,594.23 199,607.76		
Thomasson, 1922	1,967,091.36 200,544.05		
Golf, 1932	1,923,555.90 152,116.88	308 30 37.4	Mare Island southeast.
Lone Tree Point Iron Rod (U. S. E.), 1903	1,921,624.51 135,582.83		
View, 1932	1,924,018.45 164,020.99		

ZONE 2—Continued

Suisun, San Pablo, and San Francisco Bays—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*	° ′ ″	
Slaughterhouse Point 3, 1921	1,918,255.44 177,867.97		
Crockett, 1932	1,934,256.65 137,076.32	248 52 29.7	Bush Hill.
Mare Island southeast, 1852	1,926,896.95 149,458.30	128 30 37.4	Golf.
Vallejo 3, 1852	1,935,906.02 146,945.99		
Bush Hill, 1851	1,940,956.07 139,664.78	68 52 29.7	Crockett.
Supplementary points			
Antioch, Fiberboard Products Co., water tank, 1932.	2,051,604.84 127,184.61		
Antioch, municipal water tank, 1932	2,056,319.41 126,677.18		
Mayberry Slough, transmission tower no. 1, 1932.	2,063,334.49 134,693.87		
Mayberry Slough, transmission tower no. 2, 1932.	2,063,356.51 135,713.64		
Transmission tower near station Blackjack, 1932.[1]	2,061,071.04 147,338.85		
Transmission tower near station May, 1932.[1]	2,062,788.37 143,576.65		
Pittsburg, Pioneer Rubber Co., water tank, 1932.	2,041,406.70 131,734.19		
Pittsburg, Johns Manville Co., water tank, 1932.	2,035,171.35 132,393.25		
Pittsburg, Western Electrical Chemical Co., water tank, 1932.	2,041,937.59 131,479.60		
Pittsburg, Stockton Firebrick Co., water tank, 1932.[1]	2,026,341.51 130,701.35		
Van Sickle Island, navigation beacon, 1932.[1]	2,037,768.89 143,726.86		
Point New York, navigation beacon, 1932.[1]	2,033,630.61 136,699.53		
San Francisco-Reno airway beacon no. 3, 1932.	2,039,265.58 164,041.34		
Point Sacramento, navigation beacon, 1932.	2,046,701.31 144,374.44		
San Francisco-Medford airway beacon no. 3, 1932.	2,014,865.05 196,804.74		
Nichols, General Chemical Co., red water tank, 1932.	2,003,848.95 138,327.25		
San Francisco-Reno airway beacon no. 2, 1932.	1,999,739.77 132,411.81		
Middle Ground Island, navigation beacon, 1932.	2,005,393.05 143,592.93		
Middle Point, navigation beacon, flashing red, 1932.	2,002,257.82 141,471.90		
Sealbluff Landing, Pacific Coast Ship Building Co., water tank, 1932.[1]	1,988,638.50 141,420.86		

[1] No check on this position.

ZONE 2—Continued

Suisun, San Pablo, and San Francisco Bays—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued			
	Feet		
Roe Island, navigation beacon, 1932	1,992,178.58 146,136.95		
Echo Island, navigation beacon, 1932	1,981,816.54 163,127.25		
Bulls Head Point, Mococo Fertilizer Co., stack (1922), 1932.	1,967,478.86 133,948.13		
Avon, Associated Oil Co., stack, 1932	1,978,446.08 132,644.25		
Suisun Point, Southern Pacific Co., airway landmark beacon, 1932.	1,965,618.69 135,370.42		
Fairfield, municipal water tank, 1932	1,985,234.12 211,245.31		
Fairfield, Del Monte water tank, 1932	1,988,913.86 211,164.17		
San Francisco-Medford airway beacon no. 4, 1932.	2,018,211.97 210,015.15		
Benicia, dock, navigation beacon, 1932	1,952,107.82 137,309.79		
Crockett, C. & H. Sugar Co., stack, 1932	1,937,338.67 142,212.57		
Selby, stack no. 1 (1911), 1932	1,929,826.91 142,340.08		
Selby, stack no. 2 (1911), 1932	1,929,216.80 141,593.93		
South Vallejo, Sperry Flour Co., water tank, 1932.[1]	1,930,247.43 151,190.56		
Mare Island Strait, front range breakwater, west end, naval beacon, 1932.[1]	1,929,789.59 146,855.97		
Selby, 1911	1,929,500.50 141,431.92		
Mare Island, west wireless tower, 1911	1,923,548.02 152,129.35		
Mare Island, east wireless tower, 1911	1,923,751.68 152,070.49		
Carquinez Strait Lighthouse, 1911	1,930,354.60 147,175.05		
Mare Island Lighthouse, 1911	1,926,895.76 148,288.26		
Oleum, wharf, power house, east stack, 1911.	1,925,389.13 140,287.12		
Oleum, outer oil tank, 1911	1,925,995.58 140,027.64		
Selby, shot tower, stack, 1911	1,928,932.00 141,410.99		
Lone Tree Point, wharf, southwest point, 1911.	1,921,669.90 136,527.65		
Pinole Point, wharf, outer point, 1911	1,895,541.52 127,166.79		
Pinole Shoal, pile no. 9, 1911	1,907,967.56 140,827.06		
Oleum, wharf, northwest corner, 1911	1,924,924.20 140,710.50		

[1] No check on this position.

ZONE 2—Continued

Suisun, San Pablo, and San Francisco Bays—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*		
Mare Island, second pile off new dike, 1911.	1,921,896.83 145,863.98		
Mare Island, first pile off new dike, 1911	1,922,340.13 145,906.67		
Mare Island, dolphin off end of new dike, 1911.	1,922,694.29 146,155.70		
Hercules Dock, northwest corner of wharf, 1911.	1,916,034.61 129,915.92		
Mare Island, red water tank, 1911 [1]	1,923,373.05 153,432.32		
Pinole Shoal, pile no. 11, 1911 [1]	1,911,392.92 141,842.54		
Lone Tree Point, higher stack, 1911 [1]	1,921,647.45 135,495.25		
Oleum, Union Oil Co., stack, 1932	1,925,759.15 139,958.41		
Carquinez Strait, range target no. 1 (1929), 1932.	1,917,023.06 147,534.81		
Carquinez Strait, range target no. 2 (1929), 1932.	1,912,920.92 149,883.28		
Carquinez Bridge, airway landmark beacon, 1932.	1,935,296.40 143,700.88		
Vallejo, St. Vincent School, flagpole, 1932	1,925,606.27 159,871.11		
Mare Island, power house, stack, 1932	1,922,224.62 158,086.54		
Pinole Point, Giant Powder Co., water tank, 1932.	1,895,740.17 121,494.27		
East Brother Island Lighthouse, 1932	1,875,315.78 108,324.22		
Mount Diablo, airway landmark beacon, 1932.[1]	2,024,877.39 78,321.36		

California-Washington arc

Principal points			
Kent, 1904	1,793,406.08 838,571.26		
Lyons, 1904	2,100,754.12 959,815.38		
Snow Mountain East, 1876	1,787,723.59 626,155.87		
Supplementary points			
Corning tower, 1904	1,949,919.25 823,517.77		
Corning astronomical station, 1908	1,949,848.30 823,488.37		
Mount Linn, 1904	1,761,143.13 864,241.20		
Mount St. John, 1904	1,804,565.29 644,353.97		

[1] No check on this position.

ZONE 2—Continued

Lakeview, Oreg., to Reno, Nev., arc

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points	*Feet*	° ′ ″	
State Line (Nev.), 1931	2, 566, 157. 45 867, 017. 76	67 41 29. 8	Dixie Mountain, fire lookout tower.
Ingalls, 1931	2, 384, 888. 45 850, 582. 02	280 51 10. 9	Do.
Summit, 1931	2, 522, 658. 91 746, 811. 48	154 02 43. 3	Do.
Supplementary points			
Ingalls Peak, flagpole, 1931 [1]	2, 384, 882. 19 850, 578. 80		
Tule Peak, cairn (Nev.), 1931 [1]	2, 632, 477. 88 849, 091. 02		
Dixie Mountain, fire lookout tower, 1931	2, 481, 129. 53 832, 130. 70		
Grizzly Peak, highest point, 1931 [1]	2, 412, 763. 02 804, 889. 08		
Mount Elwell, fire lookout tower, 1931	2, 369, 058. 51 746, 227. 40		
Summit Peak, cairn, 1931 [1]	2, 522, 684. 88 746, 791. 97		
Babbit, fire lookout tower, 1931	2, 534, 026. 02 710, 497. 84		
Sierra Buttes, highest point, 1931 [1]	2, 381, 618. 61 704, 659. 01		

Redding to Mendocino arc (second order)

Principal points			
Mount Lassic, 1881	1, 566, 888. 27 975, 219. 02		
King Peak, 1879	1, 406, 524. 26 913, 915. 83		
Cahto, 1880	1, 555, 816. 48 739, 521. 30		
Great Caspar, 1878	1, 513, 688. 14 614, 444. 24		
Chemise Mountain, 1872	1, 438, 849. 32 861, 119. 37		

Vicinity of Point Reyes

Principal points			
Petaluma, 1930	1, 833, 989. 96 247, 899. 39		
Hooker, 1930	1, 872, 787. 97 258, 835. 72		
Arrowhead, 1930	1, 885, 437. 66 221, 530. 96		
Hicks, 1930	1, 791, 486. 40 169, 398. 17		
Point Reyes Hill, 1855	1, 750, 538. 34 151, 656. 71		

[1] No check on this position.

ZONE 2—Continued

Vicinity of Point Reyes—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points—Continued			
	Feet		
Point Reyes Head 2, 1907	1,707,830.63 121,738.71		
Wittenberg, 1930	1,763,612.49 136,884.31		
Black, 1930	1,779,952.05 151,739.97		
Supplementary points			
Sleepy, 1930	1,857,377.58 206,270.05		
Antonio, 1930	1,789,157.60 192,754.40		
Madera, 1930	1,804,898.90 176,952.95		
Hammock, 1930	1,792,281.36 181,670.55		
Lincoln, 1930	1,800,065.06 182,878.93		
Marin, 1930	1,815,962.41 185,207.75		
Pala, 1930	1,829,139.91 193,230.59		
Chileno, 1930	1,800,626.09 196,794.24		
Sonoma, 1930	1,816,110.86 192,714.83		
Miseria, 1930	1,813,446.51 199,779.31		
Lyptus, 1930	1,825,287.13 200,104.38		
Petal, 1930	1,830,069.46 207,811.75		
Lake, 1930	1,842,864.08 203,806.91		
Adobe, 1930	1,836,464.64 216,396.58		
Lynch, 1930	1,827,962.99 221,936.66		
Laurel, 1930	1,830,954.56 241,986.79		

ZONE 3

Thirty-ninth parallel arc

Principal points	*Feet*	°	′	″	
Mount Grant (Nev.), 1879	2,488,801.06 758,341.23	269 270	59 05	40 11	Tank with red beacon. Smokestack.
Round Top, 1879	2,142,785.46 788,234.23				
Mount Conness, 1890	2,340,076.90 536,324.20	301	16	12	Reference mark no. 3.
Pine Hill, 1876	1,860,353.87 808,530.46				

ZONE 3—Continued

Thirty-ninth parallel arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*		
Mount Diablo, 1876	1,592,180.48 506,186.77		
Monticello, 1880	1,517,641.07 792,232.38		
Vaca, 1880	1,546,033.31 686,828.90		
Yolo southeast base, 1880	1,628,298.20 741,044.17		
Yolo northwest base, 1880	1,612,403.63 796,171.14		
Mount Helena, 1876	1,391,152.59 796,881.78		
Mount Tamalpais, 1882	1,395,591.75 525,248.44		
Ross Mountain, 1891	1,250,608.51 740,687.80		
Farallon Lighthouse, 1891	1,276,585.06 446,298.91		
Chaparral, 1860	1,232,436.32 736,482.11		
Point Reyes Lighthouse, 1870	1,273,310.24 554,376.45		
Sonoma Mountain, 1855	1,405,007.13 670,435.75		
Tomales Bay, 1855	1,296,989.05 621,544.08		

Thirty-ninth parallel to United States-Mexico boundary arc

Principal points		° ′ ″	
Sierra Morena, 1883	1,475,064.91 336,523.50		
Mocho, 1887	1,693,897.71 357,593.85		
Loma Prieta, 1884	1,608,352.19 225,299.78		
Mount Hamilton, Lick Observatory, small dome, 1882.	1,668,073.57 308,518.47		
Santa Ana, 1852	1,785,852.32 148,330.49	288 27 08.3	Quien Sabe.
Gavilan, 1852	1,701,306.52 94,666.27		
Mount Toro, 1885	1,674,198.70 11,403.01		

Monterey Bay to Mariposa Peak arc

Principal points			
Gilroy, 1930	1,674,224.58 176,648.03		
Sargent, 1930	1,701,451.60 149,493.66		
Fremont Peak 2, 1930	1,706,116.07 95,237.86		

ZONE 3—Continued

Monterey Bay to Mariposa Peak arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*		
Mariposa, 1930	1,792,393.36 167,252.44		
Vaca, 1930	1,670,639.20 14,660.30		
Point Pinos latitude station 2, 1930	1,581,911.77 52,424.72		
Pajaro Mouth 3, 1923	1,616,603.30 131,499.74		
Santa Cruz azimuth, 1851	1,545,805.89 177,831.55		
Supplementary points			
Lone Tree, 1930	1,768,034.91 152,214.93		
Foothill, 1930	1,758,884.91 121,906.75		
Fairview, 1930	1,749,735.88 156,200.49		
Hollister, 1930	1,734,890.46 130,843.22		
Picket, 1930	1,726,264.95 125,738.09		
Knob, 1930	1,721,421.62 136,966.59		
Cross, 1930	1,702,187.48 119,116.02		
Hiway, 1930	1,690,022.39 118,424.51		
Dusty, 1930	1,684,515.62 95,476.48		
Fremont (Gabilan) Peak, 1923	1,706,138.37 95,259.16		
Point Pinos Lighthouse, 1855	1,579,576.76 51,797.10		

San Joaquin Valley arc

		° ′ ″	
Principal points			
Bear, 1931	1,937,681.20 587,984.74		
Mount Oso, 1931	1,746,516.90 368,350.89	52 08 50 330 03 53*	Mount Hamilton, observatory cupola. Mount Oso, fire lookout house, center.
Big Hill, 1931	1,980,537.79 483,757.52		
Livingston, 1931	1,936,068.75 322,962.98	182 29 33 28 40 07*	Reference mark no. 1. Livingston, municipal water tank.
Merced, 1931	2,003,382.59 291,775.37	116 52 23 220 25 39*	Reference mark no. 1. Merced, municipal water tank.
Shultz, 1931	2,103,407.00 344,496.54	325 28 56.8	Green (U.S.G.S.), cairn.
Chowchilla, 1931	2,071,086.41 228,403.01	118 49 46	Reference mark no. 2.

*This azimuth has been computed by means of the θ correction. See p. 163.

ZONE 3—Continued

San Joaquin Valley arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points—Continued			
	Feet	° ′ ″	
Green, 1931	2,148,522.41 278,632.78	308 03 10.6	Red Top, fire lookout house, northwest gable.
		163 31 24*	Green (U.S.G.S.), cairn.
Madera, 1931	2,130,189.41 166,987.38	320 31 09 158 36 07*	Reference mark no. 2. Madera, municipal water tank.
Red Top, 1931	2,211,146.75 229,541.69	330 50 44.4	Copper Mountain, fire lookout tower.
Fresno, 1931	2,208,128.96 86,327.06	332 27 24.0	Los Angeles-San Francisco airway beacon no. 20 (flashing red).
		317 43 33	Calwa, Producers Cotton Oil Co., water tank.
Cooper, 1931	2,251,190.71 157,720.16	23 04 39 122 58 53*	Clovis, water tank. Copper (U.S.G.S.), cairn.
Quien Sabe, 1931	1,802,132.73 142,898.21	108 27 08.3	Santa Ana.
Miller, 1931	2,017,889.13 111,759.57	5 01 44	Reference mark no. 1.
Dos Palos, 1931	1,956,627.91 168,058.33	128 33 07	Reference mark no. 2.
Supplementary points			
Mount Diablo, flagpole, 1931 [1]	1,592,133.55 506,174.63		
B. M. 1516 (U.S.G.S.), 1931 [1]	1,980,405.23 483,854.31		
Big Hill, fire lookout house, center, 1931 [1]	1,980,470.16 483,781.44		
Mount Oso (U.S.G.S.), cairn, 1931 [1]	1,746,518.59 368,366.65		
Mount Oso, fire lookout house, center, 1931.[1]	1,746,715.06 368,006.77		
B. M. 2287 (U.S.G.S.), 1931 [1]	2,103,425.64 344,578.33		
Shultz (U.S.G.S.), cairn, 1931 [1]	2,103,425.77 344,543.94		
Livingston, municipal water tank, 1931 [1]	1,935,677.09 322,246.63		
Shuteye Peak, fire lookout tower, 1931	2,311,863.62 311,144.47		
Yosemite Cement Co., south stack, 1931	2,000,112.83 303,176.69		
Yosemite Cement Co., north stack, 1931	2,000,105.88 303,200.96		
Merced, municipal water tank, 1931 [1]	2,007,252.79 296,317.71		
Green (U.S.G.S.), cairn, 1931	2,148,385.70 279,095.05		
Rabbit (U.S.G.S.), cairn, 1931 [1]	2,166,126.06 232,050.17		
Red Top, fire lookout house, northwest gable, 1931.	2,211,166.49 229,596.56		

*This azimuth has been computed by means of the θ correction. See p. 163.

[1] No check on this position.

ZONE 3—Continued

San Joaquin Valley arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*		
Chowchilla, municipal water tank, 1931 [1]	2,069,803.60 227,986.65		
Madera, municipal water tank, 1931	2,129,826.41 167,913.81		
Copper (U.S.G.S.), cairn, 1931	2,249,859.69 158,583.87		
Copper Mountain, fire lookout tower, 1931	2,251,188.46 157,761.20		
Pinedale, Sugar Pine Lumber Co., northernmost stack, 1931.[1]	2,203,260.85 126,922.08		
Pinedale, Sugar Pine Lumber Co., southernmost stack, 1931.[1]	2,203,308.23 126,889.06		
Pinedale, Sugar Pine Lumber Co., water tank, 1931.[1]	2,203,474.03 126,238.93		
Fresno, courthouse, dome, 1931 [1]	2,208,281.26 86,478.52		

Sacramento to Stockton arc

Principal points		° ′ ″	
Randall, 1931	1,702,944.44 674,314.76	69 11 18	Reference mark no. 2.
Miner, 1931	1,668,222.25 639,071.24	268 05 28	Reference mark no. 1.
Walnut, 1931	1,705,671.51 635,025.58	88 48 25	Do.
Drouin, 1931	1,650,728.45 609,150.61	209 20 26	Do.
Jackson, 1931	1,677,269.16 598,360.94	336 40 14	Reference mark no. 2.
Pier No. 4 (U.S.G.S.), 1931	1,640,817.96 581,275.48	144 26 37	Reference mark no. 1.
False, 1931	1,658,969.65 567,982.82	44 58 21	Reference mark no. 2.
Holland, 1931	1,687,735.12 558,831.07	346 55 10	Do.
Grass, 1931	1,720,041.13 589,591.38	268 14 20	Do.
Black, 1931	1,729,360.83 541,818.74	235 30 06.7	Black Slough Landing, steel transmission tower.
Bennett, 1931	1,755,105.00 568,254.01	356 42 07	Reference mark no. 2.
Stockton, 1931	1,773,557.58 531,133.09		
Roberts, 1931	1,759,246.13 513,130.34	89 17 57	Do.
Blume, 1931	1,648,589.87 563,817.92	56 41 13	Do.
No. 8 (U. S. E.), 1931	1,652,654.58 591,638.79	200 56 20	Reference mark no. 1.

[1] No check on this position.

ZONE 3—Continued

Sacramento to Stockton arc—Continued

Station	x coordinate / y coordinate	Plane azimuth			Mark
Principal points—Continued	*Feet*	°	′	″	
Pox, 1932	1,787,106.97 516,029.56	161	25	23	Reference mark no. 1.
Cactus, 1931	1,773,788.55 491,878.39	90	07	11	Reference mark no. 2.
Williams, 1931	1,744,779.88 504,329.89	184	57	54	Reference mark no. 1.
Mowry, 1931	1,745,181.76 487,388.85	108	48	25	Reference mark no. 2.
Moss, 1932	1,766,611.35 470,151.11	294	41	13	Do.
Sugar, 1931	1,734,542.72 464,630.70	314	32	19	Do.
Grant, 1931	1,726,146.80 482,133.13	159	00	00	Reference mark no. 1.
Trapper, 1931	1,715,038.60 508,973.13	243	54	39	Reference mark no. 2.
Herd, 1931	1,695,954.27 482,442.21	43	45	22	Reference mark no. 1.
Old, 1931	1,691,818.12 508,029.32	272	05	51	Reference mark no. 2.
Bacon, 1931	1,703,500.35 531,950.58	359	38	30	Middle River, eastern one of three latticed steel power poles.
Holt, 1931	1,731,470.44 523,456.17	269	04	45	Reference mark no. 1.
Lacto, 1931	1,715,847.01 525,088.71	142	13	07	Left one of two poles.
Supplementary points					
Benson, 1931	1,730,382.10 640,432.00	320	43	22	Reference mark no. 1.
Hope, 1931	1,715,218.62 629,849.88	45	46	33	Reference mark no. 2.
Fork, 1931	1,664,733.96 610,702.48	234	42	30	Reference mark no. 1.
Rio Vista, 1931	1,657,436.21 602,253.37	23	00	04	Do.
Steamboat, 1931	1,675,976.47 618,401.77	75	11	42	Reference mark No. 2.
Grand, 1931	1,687,638.96 614,273.86	33	49	56	Do.
Isleton, 1931	1,678,206.29 608,494.43	117	42	36	Reference mark no. 1.
Walker, 1931	1,682,748.00 626,246.54	315	08	04	Reference mark no. 2.
Pratt, 1931	1,696,167.98 623,247.63	4	37	57	Do.
Ryde, 1931	1,696,582.90 635,070.40	238	12	51	Reference mark no. 1.
Sutter, 1931	1,684,135.68 638,238.72	179	32	40	Do.
Slough, 1931	1,687,672.43 649,282.72	357	05	09	Reference mark no. 2.

ZONE 3—Continued

Sacramento to Stockton arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Vorden, 1931	1,706,230.64 643,203.77	317 07 42	Reference mark no. 1.
Sherman, 1931	1,658,954.77 578,949.98	9 38 27	Do.
Emma, 1931	1,651,880.98 578,865.99	70 30 06	Reference mark no. 2.
Webb, 1931	1,681,982.35 584,792.08	290 53 30	Reference mark no. 1.
Brad, 1931	1,670,039.18 579,404.59	122 59 25	Reference mark no. 2.
Turner (U. S. E.), 1931	1,722,974.85 549,819.82	193 37 21	Do.
Columbia (U. S. E.), 1931	1,714,471.80 558,293.43	68 56 39	Do.
Venice (U. S. E.), 1931	1,703,873.39 569,243.99	106 07 17.5	Red Tower (U.S.G.S.).
Elk, 1931	1,691,102.40 575,199.58	51 34 52	Reference mark no. 2.
Point 18 (U. S. E.), 1931	1,728,178.56 546,102.70	344 34 18.4	Black.
Elmwood, 1931	1,743,390.69 542,543.12	302 27 25	Reference mark no. 1.
Lindley (U. S. E.), 1931	1,756,455.15 530,310.49	299 44 51.3	B. M. (U. S. E.).
Pacific (U. S. E.), 1931	1,764,460.74 539,484.16	71 04 15	Reference mark no. 2.
Green (U. S. E.), 1931	1,749,362.26 535,255.76	133 27 48	Do.
Star, 1931	1,698,441.46 650,802.44	311 36 11	Do.
Vorden, 1½ miles northwest of, southwest transmission tower, 1931.	1,695,073.91 654,226.36		
Vorden, 1½ miles northwest of, northeast transmission tower, 1931.	1,695,517.15 654,832.76		
Ryde, water tank, 1931	1,695,884.21 634,388.38		
Vorden, 1½ miles southeast of, southwest transmission tower, latticed, 1931.	1,706,842.54 642,357.96		
Vorden, 1½ miles southeast of, northeast transmission tower, latticed, 1931.	1,707,301.63 642,954.76		
Walnut Grove, ½ mile north-northeast of, Standard Oil Co., water tank, 1931.	1,710,274.84 638,603.49		
Walnut Grove, 1¼ miles north of, Libby, McNeill and Libby, water tank, 1931.	1,708,444.37 641,980.10		
Sacramento River-Steamboat Slough, junction point, light, flashing white, 1931.	1,663,889.86 612,835.66		
Grand Island, navigation beacon, 1931	1,665,776.57 613,022.16		
Rio Vista, St. Josephs Catholic Church, spire, 1931.	1,656,767.37 605,459.46		

ZONE 3—Continued

Sacramento to Stockton arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Isleton, northeast transmission tower, 1931.	1,676,088.77 609,818.13		
Isleton, southwest transmission tower, 1931.	1,675,664.77 608,652.82		
Rio Vista, Del Monte water tank, 1931	1,659,678.48 607,731.36		
Isleton, municipal water tank, 1931	1,681,684.76 607,044.21		
Rio Vista, east municipal water tank, 1931.	1,655,974.41 604,797.07		
Rio Vista, west municipal water tank, 1931.	1,655,929.94 604,774.37		
B. M. (U. S. E.), 1931 [1]	1,757,049.84 529,970.63	119 44 51.3	Lindley (U. S. E.).
B. M. 203¾ (U. S. E. and Debris Commission of California), 1931.[1]	1,749,347.85 535,161.32		
B. M. (U. S. E.), 1931 [1]	1,743,338.45 542,563.44		
Transmission pole, near station Hope, 1931.[1]	1,715,157.58 629,903.23		
Transformer pole, near station Hope, 1931.[1]	1,715,220.21 629,939.99		
B. M. (U. S. E.), 1931 [1]	1,727,979.91 546,090.44		
B. M. (U.S.G.S.), 1931 [1]	1,656,871.59 602,702.03	308 26 31*	Rio Vista.
Stockton, Fiber Products Co., east stack, 1931.	1,769,255.59 526,651.17		
Stockton, Fiber Products Co., west stack, 1931.	1,769,215.23 526,642.62		
Stockton, Fiber Products Co., water tank, 1931.	1,768,584.59 527,059.59		
Stockton, courthouse dome, 1931	1,773,112.55 530,214.65		
T. 1 N., R. 6 E., sec. 17, southwest corner, 1931.[1]	1,755,503.53 520,637.31		
Stockton, 2 miles west of, south steel power pole, latticed, 1931.	1,760,555.99 529,337.64		
Stockton, 2 miles west of, north steel power pole, latticed, 1931.	1,760,303.88 530,225.05		
Wooden pole, near station Lindley, 1931	1,756,726.20 532,043.39		
Calaveras (U. S. E.), 1931	1,757,034.00 538,847.55		
State Farm, water tank, 1931	1,765,388.01 544,601.71		
Black Slough Landing, steel transmission tower, 1931.	1,734,468.85 545,329.14		
Black Slough Landing, wooden transmission tower, 1931.	1,734,653.28 546,312.34		

[1] No check on this position.
* This azimuth has been computed by means of the θ correction. See p. 163.

ZONE 3—Continued

Sacramento to Stockton arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued			
	Feet		
Red Tower (U.S.G.S.), 1931	1,698,202.18 570,883.21		
Terminous, water tank, 1931	1,713,327.40 588,960.40		
Empire (U. S. E.), 1931 [1]	1,713,300.82 565,915.99		
Potato Point Lighthouse, 1931 [1]	1,692,362.16 577,121.19		
Oulton Point Landing, light, 1931 [1]	1,673,111.84 580,849.99		
Rindge Tract, Camp 11, stack, 1931 [1]	1,729,071.46 550,995.47		
Jersey Landing 2, navigation beacon, 1931	1,657,980.06 567,325.91		
Schadd No. 2 Landing, navigation beacon, 1931.	1,649,607.28 564,403.01		
Threemile Slough, north transmission tower, 1931.	1,655,172.05 587,330.35		
Threemile Slough, south transmission tower, 1931.	1,654,986.65 586,448.09		
Mayberry Slough, south transmission tower, 1931.	1,630,916.53 570,782.92		
Mayberry Slough, north transmission tower, 1931.	1,629,259.89 574,571.81		
Toland Landing, navigation beacon, 1931	1,640,153.36 580,172.21		
Stockton, Gulf Red Cedar Co., water tank, 1931.	1,774,574.79 538,649.84		
Stockton, Box Co., water tank, 1931	1,774,283.60 537,715.22		
Stockton, municipal water tank, 1931	1,778,224.16 529,833.81		
Stockton, Western Harvester Co., water tank, 1931.	1,775,887.67 529,428.99		
Gar (U. S. E.), 1931	1,762,444.99 519,811.15		
Dag (U. S. E.), 1931 [1]	1,753,186.67 525,671.40		
French Camp, San Joaquin County Hospital, water tank, 1931.	1,773,452.07 505,398.91		
Saunders (U. S. E.), 1931	1,760,022.53 504,375.26		
Chic (U. S. E.), 1931	1,763,232.64 494,914.95		
Lath (U. S. E.), 1931	1,766,126.83 484,069.07		
Sal (U. S. E.), 1931	1,753,679.10 480,700.46		
Para (U. S. E.), 1931	1,753,750.48 470,845.85		

[1] No check on this position.

ZONE 3—Continued

Sacramento to Stockton arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*		
Tom (U. S. E.), 1931	1,733,558.42 475,939.69		
Tracy, municipal water tank (west), 1931	1,729,939.82 451,817.22		
Tracy, municipal water tank (east), 1931	1,734,141.68 452,202.75		
Bell (U. S. E.), 1931	1,711,702.58 482,313.66		
Fish (U. S. E.), 1931	1,725,405.06 504,832.78		
Union-Coney Islands, east transmission pole, 1931.	1,700,773.43 490,487.31		
Union-Coney Islands, west transmission pole, 1931.	1,700,384.15 490,894.71		
Coney (U. S. E.), 1931	1,696,305.11 497,862.98		
Vic (U. S. E.), 1931 [1]	1,702,984.79 516,131.83		

Suisun, San Pablo, and San Francisco Bays

		° ′ ″	
Principal points			
May, 1931	1,630,815.02 571,120.97	267 22 02	Reference mark no. 1.
Wood, 1931	1,637,193.31 559,607.83	146 04 55	Reference mark no. 2.
Antioch, 1932	1,625,795.39 554,823.43	88 44 09	Do.
Blackjack, 1931	1,620,121.42 575,636.87	95 41 09	Do.
Pittsburg, 1932	1,600,794.03 563,544.90	25 41 27	Reference mark no. 1.
Cattle, 1932	1,609,378.95 581,657.69	257 51 31	Reference mark no. 2.
McAvoy, 1932	1,579,654.32 561,871.65	182 34 17	Reference mark no. 1.
Kirby, 1922	1,591,859.90 610,279.83		
Lopez, 1932	1,531,087.76 595,511.11	205 53 27	Do.
Bay Point (U. S. E.), 1932	1,563,293.50 562,206.14	229 56 32	Do.
Franklin, 1932	1,509,199.24 557,807.62	314 48 23	Transmission tower, highest.
Sulphur, 1932	1,518,055.69 591,685.20	253 38 20.4	Lopez.
Long Pond 2, 1921	1,475,131.63 597,643.18	119 10 39	Azimuth mark.
Point Pinole 3, 1897	1,462,497.00 555,819.71		

[1] No check on this position.

ZONE 3—Continued

Suisun, San Pablo, and San Francisco Bays—Continued

Station	x coordinate / y coordinate	Plane azimuth			Mark
Principal points—Continued	*Feet*	°	′	″	
Petaluma Creek, 1851	1,427,647.21 589,911.15	153	55	57	Petaluma Creek, south transmission tower.
		175	02	32	Petaluma Creek, north transmission tower.
Hind, 1932	1,424,106.88 550,119.81				
Richard, 1932	1,457,445.95 522,660.71	299	19	22.3	Richmond, Ford Motor Co., water tank.
Ring, 1932	1,427,450.04 519,371.53				
Angel Island Peak 2, 1881	1,442,952.48 501,502.51				
Rocky Mound, 1851	1,497,423.87 507,962.07				
Red Hill, 1854	1,537,814.54 386,609.61				
Guano Island, 1851	1,489,453.77 395,459.75				
Hayward, 1925	1,520,694.59 421,005.37	250	50	31	Reference mark no. 2.
Pulgas east base, 1853	1,525,491.54 359,664.37				
Pulgas west base, 1853	1,491,056.62 361,553.33				
Pise Hill 2, 1906	1,465,337.07 355,378.56				
Ridge 2 eccentric, 1906	1,456,227.79 374,364.57				
View, 1925	1,542,112.19 342,704.49				
Turk, 1925	1,535,456.40 394,433.01				
B (B. W. F. D. Co.), 1932	1,476,800.35 509,266.46	110	44	29.9	Brooks Island 2.
Navy, 1932	1,461,235.41 482,350.78				
Piedmont, 1932	1,500,925.95 490,347.34	47	58	53	Oakland, Tribune Tower, ball on pole.
Farm 2, 1932	1,494,085.70 454,450.98	165	23	45	Radio tower, west one of two.
Point Avisadero, 1851	1,461,263.98 451,668.74				
Point San Bruno, 1925	1,454,662.21 425,428.03				
Bridge, 1930	1,489,501.10 395,355.88				
Palo Alto northwest base, 1932	1,489,420.73 372,016.01	133	58	23	Reference mark no. 2.
Palo Alto southeast base, 1932	1,516,496.65 348,168.54	269	33	54.8	Palo Alto, radio mast.
Palo Alto base, A station, 1932	1,494,577.39 366,363.18	320	37	56	Reference mark no. 1.

ZONE 3—Continued

Suisun, San Pablo, and San Francisco Bays—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points—Continued	Feet	° ′ ″	
Sunnyvale—B. M. G 111, 1932	1,546,601.30 333,963.60	270 56 46*	Monument 15 (U. S. N.) (B. M. 4268)
Goodyear, 1864	1,538,710.41 588,726.55		
Army Point 2, 1886	1,530,892.07 568,653.77		
Suisun Hill 2, 1922	1,563,637.39 627,897.06		
Thomasson, 1922	1,536,154.85 629,273.36		
Golf, 1932	1,491,855.83 581,551.92	309 25 25.6	Mare Island southeast.
Lone Tree Point Iron Rod (U. S. E.), 1903	1,489,661.38 565,052.89		
View, 1932	1,492,508.04 593,445.79		
Slaughterhouse Point 3, 1921	1,486,967.02 607,381.51		
Crockett, 1932	1,502,314.00 566,344.56	249 47 21.5	Bush Hill.
Mare Island southeast, 1852	1,495,153.67 578,840.75	129 25 25.6	Golf.
Vallejo 3, 1852	1,504,120.40 576,185.37		
Bush Hill, 1851	1,509,052.95 568,825.44	69 47 21.5	Crockett.
San Pablo Ridge, 1897	1,447,916.49 536,836.37		
California Point 2, 1897	1,430,654.33 520,579.28		
Bluff Point 2, 1897	1,438,577.18 511,168.59	159 32 47	California Nautical School, water tank.
Richardson east, 1895	1,423,357.33 498,177.82		
Strawberry Hill 2, 1895	1,423,516.50 508,365.31		
Baker, 1932	1,425,611.48 493,004.49		
Alcatraz Lighthouse, 1910	1,445,185.74 488,602.38		
Hill, 1916	1,428,172.48 489,380.41		
Presidio east base, 1931	1,437,212.48 481,385.83		
Presidio west base, 1931	1,433,755.65 481,009.66		
Coyote Ridge 2, 1916	1,407,877.82 504,050.33		
Fairway, 1932	1,432,425.46 477,380.33	93 04 52	Reference mark no. 2.

*This azimuth has been computed by means of the θ correction. See p. 163.

ZONE 3—Continued

Suisun, San Pablo, and San Francisco Bays—Continued

Station	x coordinate / y coordinate	Plane azimuth			Mark
Principal points—Continued	*Feet*	°	′	″	
Barry, 1932	1,413,741.57 487,155.89				
Lincoln, 1932	1,422,371.06 473,049.71	189	46	35	Flagpole.
Range, 1931	1,430,704.65 492,121.77				
Fort, 1931	1,429,083.56 483,257.30				
Bluff, 1931	1,428,676.74 488,946.67				
Ridge, 1931	1,428,607.69 489,912.95				
Rock, 1931	1,428,695.94 488,678.07				
Bay Park, 1932	1,452,551.54 448,026.13				
Point San Mateo, 1925	1,473,182.17 402,478.01	288 120	13 58	49.2 19.9	Point San Mateo, oyster house, east gable. Millbrae, oyster house, windmill.
South Twin, 1932	1,437,232.39 461,592.47				
Telegraph, 1932	1,449,760.23 479,716.57	34	39	11.6	South Twin.
McKinley, 1932	1,449,654.70 464,169.36	349	49	36.4	Bay Park.
San Bruno Mountain, 1899	1,440,263.78 438,156.83				
Flat, 1899	1,432,477.92 411,602.43				
Brooks Island 2, 1905	1,464,909.46 513,769.53				
Grizzly, 1932	1,499,945.78 507,865.69				
Farm, 1925	1,494,074.46 454,443.10				
Bay, 1916	1,493,636.77 455,848.10				
Supplementary points					
Antioch Fiberboard Products Co., water tank, 1932.	1,619,472.04 554,575.90				
Antioch, municipal water tank, 1932	1,624,177.14 553,992.78				
Mayberry Slough, transmission tower no. 1, 1932.	1,631,319.31 561,894.40				
Mayberry Slough, transmission tower no. 2, 1932.	1,631,357.75 562,913.55				
Transmission tower near station Blackjack, 1932.[1]	1,629,259.97 574,572.51				
Transmission tower near station May, 1932.[1]	1,630,916.30 570,783.63				
Pittsburg, Pioneer Rubber Co., water tank, 1932.	1,609,349.86 559,288.19				
Pittsburg, Johns Manville Co., water tank, 1932.	1,603,126.79 560,047.26				

[1] No check on this position.

ZONE 3—Continued

Suisun, San Pablo, and San Francisco Bays—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*		
Pittsburg, Western Electrical Chemical Co., water tank, 1932.	1,609,876.50 559,025.14		
Pittsburg, Stockton Firebrick Co., water tank, 1932.[1]	1,594,272.16 558,497.62		
Van Sickle Island, navigation beacon, 1932.[1]	1,605,905.73 571,336.14		
Point New York, navigation beacon, 1932[1]	1,601,655.63 564,377.14		
San Francisco-Reno airway beacon no. 3, 1932.	1,607,728.45 591,621.55		
Point Sacramento, navigation beacon, 1932.	1,614,846.23 571,840.00		
San Francisco-Medford airway beacon no. 3, 1932.	1,583,859.28 624,769.62		
Nichols, General Chemical Co., red water tank, 1932.	1,571,907.96 566,482.31		
San Francisco-Reno airway beacon no. 2, 1932.	1,567,705.07 560,634.29		
Middle Ground Island, navigation beacon, 1932.	1,573,536.06 571,721.85		
Middle Point, navigation beacon, flashing red, 1932.	1,570,367.64 569,651.63		
Sealbluff Landing, Pacific Coast Ship Building Co., water tank, 1932.[1]	1,556,751.05 569,818.79		
Roe Island, navigation beacon, 1932	1,560,365.75 574,476.98		
Echo Island, navigation beacon, 1932	1,550,278.28 591,629.01		
Bulls Head Point, Mococo Fertilizer Co., stack, (1922), 1932.	1,535,477.52 562,686.61		
Avon, Associated Oil Co., stack, 1932	1,546,420.84 561,207.66		
Suisun Point, Southern Pacific Co., airway landmark beacon, 1932.	1,533,640.47 564,138.27		
Fairfield, municipal water tank, 1932	1,554,465.41 639,682.32		
Fairfield, Del Monte water tank, 1932	1,558,143.19 639,542.28		
San Francisco-Medford airway beacon no. 4, 1932.	1,587,417.52 637,923.80		
Benicia, dock, navigation beacon, 1932	1,520,164.19 566,293.02		
Crockett, C. & H. Sugar Co., stack, 1932	1,505,477.16 571,430.30		
Selby, stack no. 1 (1911), 1932	1,497,969.37 571,677.61		
Selby, stack no. 2 (1911), 1932	1,497,347.51 570,941.38		
South Vallejo, Sperry Flour Co., water tank, 1932.[1]	1,498,530.93 580,519.14		

[1] No check on this position.

ZONE 3—Continued

Suisun, San Pablo, and San Francisco Bays—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*		
Mare Island Strait, front range breakwater, west end, naval beacon, 1932.[1]	1,498,004.09 576,192.94		
Selby, 1911	1,497,628.57 570,774.88		
Mare Island, west wireless tower, 1911	1,491,848.15 581,564.51		
Mare Island, east wireless tower, 1911	1,492,050.82 581,502.42		
Carquinez Strait Lighthouse, 1911	1,498,574.04 576,502.92		
Mare Island Lighthouse, 1911	1,495,133.82 577,671.01		
Oleum, wharf, power house, east stack, 1911.	1,493,499.99 569,695.94		
Oleum, outer oil tank, 1911	1,494,102.16 569,426.85		
Selby, shot tower stack, 1911	1,497,059.87 570,763.03		
Lone Tree Point, wharf, southwest point, 1911.	1,489,721.82 565,996.74		
Pinole Point, wharf, outer point, 1911	1,463,451.39 557,054.48		
Pinole Shoal, pile no. 9, 1911	1,476,091.55 570,513.31		
Oleum, wharf, northwest corner, 1911	1,493,041.93 570,126.62		
Mare Island, second pile off new dike, 1911.	1,490,097.50 575,327.03		
Mare Island, first pile off new dike, 1911	1,490,541.37 575,362.64		
Mare Island, dolphin off end of new dike, 1911.	1,490,899.41 575,605.97		
Hercules Dock, northwest corner of wharf, 1911.	1,483,982.67 559,476.58		
Mare Island, red water tank, 1911 [1]	1,491,693.99 582,869.96		
Pinole Shoal, pile no. 11, 1911 [1]	1,479,532.21 571,473.99		
Lone Tree Point, higher stack, 1911 [1]	1,489,682.91 564,964.98		
Oleum, Union Oil Co., stack, 1932	1,493,864.67 569,361.41		
Carquinez Strait, range target no. 1 (1929), 1932.	1,485,251.59 577,075.12		
Carquinez Strait, range target no. 2 (1929), 1932.	1,481,187.90 579,488.35		
Carquinez Bridge airway landmark beacon, 1932.	1,503,459.17 572,950.82		
Vallejo, St. Vincent School, flagpole, 1932	1,494,029.32 589,271.59		

[1] No check on this position.

ZONE 3—Continued

Suisun, San Pablo, and San Francisco Bays—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*		
Mare Island, power house, stack, 1932	1,490,620.04 587,541.34		
Pinole Point, Giant Powder Co., water tank, 1932.	1,463,559.73 551,380.35		
East Brother Island Lighthouse, 1932	1,442,931.85 538,538.82		
Richmond, airway landmark beacon, 1932	1,471,003.07 543,600.97		
Red Rock, naval beacon, 1932 [1]	1,443,431.91 526,099.04		
Richmond, Ford Motor Co., water tank, 1932.	1,464,642.71 518,618.30		
West Berkeley, Eldorado Oil Co., water tank, 1932.	1,480,331.50 502,912.30		
Mount Diablo, airway landmark beacon, 1932.	1,591,967.63 506,156.90		
Southampton Shoal Lighthouse, 1932	1,451,914.84 508,731.04		
San Francisco, St. Francis Yacht Club, naval beacon, 1932.	1,438,774.99 481,933.83		
Oakland, Tribune Building, 1932	1,488,703.34 479,330.82		
Yerba Buena Island, lookout, 1932	1,461,278.99 482,282.03		
San Francisco, 450 Sutter Street, building, 1932.	1,449,042.40 475,169.20		
San Francisco, Standard Oil Co. Building, chimney, 1932.	1,450,975.18 475,602.42		
San Francisco, Park Lane Building, flagpole, 1932.	1,448,070.06 476,369.42		
San Francisco, Bank of America Building, dome, flagpole, 1932.	1,449,766.18 473,827.30		
San Francisco, Russ Building, flagpole, 1932.	1,450,532.83 475,812.83		
San Francisco, Shell Oil Building, flagstaff, 1932.	1,451,350.65 475,830.41		
San Francisco, City Hall, steeple, 1932	1,445,675.33 471,491.21		
San Francisco, William Taylor Hotel, 1932	1,447,204.50 472,122.43		
San Francisco, Cathedral Apartments, 1932.	1,447,176.53 475,777.04		
San Francisco, Mark Hopkins Hotel, 1932.	1,448,326.09 475,909.26		
San Francisco, Bell Telephone Building, 1932.	1,451,292.45 474,062.34		
San Francisco, Matson Building, tower, 1932.	1,452,321.07 476,251.20		
San Francisco, Pacific Gas & Electric Building, smokestack, 1932.	1,452,220.89 476,129.11		

[1] No check on this position.

ZONE 3—Continued

Suisun, San Pablo, and San Francisco Bays—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*		
San Francisco, Ferry Building, tower, 1932.	1,453,198.88 477,224.03		
San Francisco, Schmidt Building, tower, 1932.	1,452,970.61 472,940.53		
San Francisco, Sir Francis Drake Hotel, flagstaff, 1932.	1,448,870.24 474,935.69		
Point Avisadero drydock, chimney, 1925	1,462,842.29 452,817.62		
Shag Rock, 1925 [1]	1,460,640.25 448,982.58		
Candlestick Point, 1894	1,454,977.86 447,186.99		
Sierra Point, 1851	1,452,288.30 433,108.26		
Point San Bruno, Naval Radio Mast 1, 1925.	1,454,506.79 425,758.92		
Roberts Point, oyster house, 1925 [1]	1,510,316.64 430,329.51		
Mulford Landing 2, 1919	1,512,145.90 439,565.15		
Roberts Landing 2, 1919	1,518,472.06 431,669.17		
San Bruno Mountain, west transmission tower, 1932	1,448,119.94 433,487.16		
San Bruno Mountain, middle transmission tower, 1932	1,448,176.41 433,491.78		
San Bruno Mountain, east transmission tower, 1932.	1,448,251.08 433,498.55		
Mills Field Airport, wind-vane staff, 1929	1,452,482.95 414,863.85		
Millbrae oyster house, windmill, 1925	1,460,711.99 409,962.62		
Point San Mateo, oyster house, east gable, 1925.	1,477,179.41 401,161.44		
Point San Mateo, flashing light (1925), 1929.	1,488,092.94 400,564.23		
Belmont, water main, vent, 1925	1,486,868.64 373,288.74		
Redwood City, cement works, east stack, 1925.	1,505,859.40 374,514.26		
Coyote Hill Slough, California Salt Co., red tank, 1925.	1,531,210.09 393,667.20		
Mount Eden Slough, tank, 1925 [1]	1,524,164.32 406,232.12		
Alviso Channel, flashing light, 1925	1,546,587.69 356,217.03		
Ravenswood Point, substation, north gable, 1925.[1]	1,526,676.32 363,029.51		
Dumbarton, drawbridge, light, 1925	1,533,347.27 367,253.31		

[1] No check on this position.

ZONE 3—Continued

Suisun, San Pablo, and San Francisco Bays—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Plummer Landing, tank, 1925 [1]	1,551,013.81 371,551.94		
Newark Slough, draw, 1925 [1]	1,541,443.35 372,864.09		
Redwood City, tall transmission tower, 1925.[1]	1,499,340.59 364,156.11		
Redwood City, Frank's Tannery, stack, 1925.	1,499,918.41 365,784.18		
San Mateo Bridge, west span, red light, 1932.	1,492,795.89 399,146.63		
San Mateo Bridge, east span, red light, 1932.	1,492,997.21 399,368.65		
Palo Alto, radio mast, 1932	1,532,308.77 348,288.53		
Palo Alto, historical tree, 1932 [1]	1,515,471.26 349,240.54		
Palo Alto, flagpole, 1932 [1]	1,517,239.49 347,896.07		
Monument 15 (U. S. N.) (B. M. 4268), 1932.	1,547,501.12 333,948.81	90 56 46*	Sunnyvale—B. M. G 111.
Sunnyvale, stake no. 1, 1932	1,546,783.69 334,777.87		
Sunnyvale, stake no. 2, 1932	1,547,890.34 335,313.15		
Sunnyvale, stake no. 3, 1932	1,549,274.96 334,192.65		
B. M. H 111, 1932	1,548,974.99 335,489.13	338 40 03*	Sunnyvale, mooring mast.
Sunnyvale, mooring mast, 1932	1,549,578.91 333,942.72		

Vicinity of Point Reyes

Principal points			
Petaluma, 1930	1,403,829.40 678,739.33		
Hooker, 1930	1,442,795.69 689,058.67		
Arrowhead, 1930	1,454,850.64 651,558.41		
Hicks, 1930	1,360,091.80 600,924.83		
Point Reyes Hill, 1855	1,318,873.55 583,833.41		
Point Reyes Head 2, 1907	1,275,706.54 554,594.87		
Wittenberg, 1930	1,331,711.63 568,858.75		
Black, 1930	1,348,281.35 583,452.90		

[1] No check on this position.
*This azimuth has been computed by means of the θ correction. See page 163.

ZONE 3—Continued

Vicinity of Point Reyes—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points	*Feet*		
Sleepy, 1930	1,426,553.12 636,745.92		
Antonio, 1930	1,358,132.38 624,312.87		
Canada, 1930	1,367,013.61 591,894.06		
Madera, 1930	1,373,620.69 608,265.97		
Hammock, 1930	1,361,080.43 613,181.96		
Lincoln, 1930	1,368,881.55 614,267.10		
Marin, 1930	1,384,812.41 616,344.04		
Pala, 1930	1,398,114.21 624,156.64		
Chileno, 1930	1,369,662.40 628,170.71		
Sonoma, 1930	1,385,079.61 623,847.23		
Miseria, 1930	1,382,527.54 630,952.48		
Lyptus, 1930	1,394,371.04 631,090.10		
Petal, 1930	1,399,274.51 638,720.27		
Lake, 1930	1,412,003.28 634,513.45		
Pacheco, 1930	1,356,386.43 588,679.73		
Tacloma, 1930	1,346,453.34 572,664.99		
Tomasi, 1930	1,339,685.44 585,381.35		
Garcia, 1930	1,342,453.21 578,260.60		
Langdon, 1930	1,338,321.10 572,012.38		
Faultline E, 1930	1,337,549.61 573,968.01		
Faultline F, 1930	1,338,921.68 575,171.03		
Faultline A, 1930	1,335,766.62 572,407.31		
Faultline D, 1930	1,337,146.07 573,614.40		
Faultline B, 1930	1,336,684.07 573,210.12		
Faultline C, 1930	1,336,942.62 573,436.38		

ZONE 3—Continued

Vicinity of Point Reyes—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*		
S. E. I. C. northeast monument, 1930	1,338,478.12 570,605.58		
Point Reyes East 2, 1930	1,289,781.73 552,044.56		
Drake, 1930	1,289,939.33 573,597.55		
Pacific, 1930	1,296,375.29 568,546.10		
Mud, 1929	1,316,093.71 565,224.46		
Estero, 1930	1,307,585.03 578,662.29		
Muddy, 1930	1,309,016.63 568,206.41		
Lagoon, 1930	1,304,566.93 467,414.39		
Cabesa, 1930	1,280,962.24 554,351.68		

ZONE 4

Thirty-ninth parallel to United States-Mexico boundary arc

Principal points	*Feet*	° ′ ″	
Mocho, 1887	1,258,616.92 790,419.24		
Loma Prieta, 1884	1,171,054.36 659,442.39		
Mount Hamilton, Lick Observatory, small dome, 1882.	1,232,041.75 741,740.94		
Santa Ana, 1852	1,347,344.58 579,764.18	289 20 10.0	Quien Sabe.
Gavilan, 1852	1,261,992.88 527,412.29		
Mount Toro 1885	1,233,616.97 444,588.75		
Hepsedam, 1885	1,462,740.02 362,316.36	250 18 24.6	San Benito.
Santa Lucia, 1885	1,286,129.93 304,696.50		
Rocky Butte 2, 1923	1,388,475.79 127,399.31		
Castle Mount, 1885	1,603,496.70 223,246.71		

Thirty-fifth parallel arc

Principal points			
Morris, 1926	2,301,093.39 131,547.20		
Red, 1926	2,422,604.83 8,728.43		

ZONE 4—Continued

Thirty-fifth parallel arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*	° ′ ″	
Yucca, 1926	2,444,996.04 210,623.19	88 07 52	Cairn.
Pilot, 1926	2,528,982.30 28,193.07		
Leach, 1926	2,627,816.89 80,267.95		
Panamint, 1926	2,568,198.38 283,534.85		
Funeral, 1926	2,702,120.01 288,950.24		
Denning, 1926	2,755,118.99 105,630.08		
Kingston, 1926	2,911,804.65 169,474.01	341 19 04.3	Kingston (U.S.G.S.), cairn.
Charleston (U.S.G.S.) (Nev.), 1926	2,974,170.67 358,339.71		
Pahrump southeast base, 1926	2,912,304.01 262,563.46	198 05 21	Reference mark no. 3.
Pahrump northwest base (Nev.), 1926	2,854,863.03 317,264.11	267 28 52	Do.
Lee (Nev.), 1926	2,977,459.10 309,961.70		
Table (Nev.), 1926	3,042,051.50 190,950.27	260 27 57	Do.
Black (Nev.), 1926	3,171,196.96 241,713.81		
Supplementary points			
Sunday (Tobias) Peak, fire lookout tower, 1926.	2,123,398.57 163,713.95		
Owens Peak, cairn, 1926	2,297,974.46 148,981.61		
Inyokern, Standard Oil Co., tank, 1926 [1]	2,353,463.01 116,213.62		
G. L. O. Station 6, 1926	2,341,852.13 171,301.16		
Mount Argus, highest rock, 1926	2,460,840.13 192,674.32		
Telescope Peak, cairn, 1926	2,564,245.40 310,152.44		
Brown (U.S.G.S.), cairn, 1926	2,589,318.92 134,657.74		
Lava, 1926 [1]	2,568,673.82 84,152.56		
Panamint mining signal, 1926 [1]	2,568,192.98 283,612.22		
Funeral (U.S.G.S.), 1926 [1]	2,702,114.90 288,931.10		
Beck, 1926	2,793,245.65 244,530.90		

[1] No check on this position.

ZONE 4—Continued

Thirty-fifth parallel arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
B. M. 1715 (U.S.G.S.), 1926	2,820,968.55 205,713.81		
G. L. O. Station 1, 1926 [1]	2,823,321.42 207,402.63	54 19 52*	B. M. 1715 (U.S.G.S.).
G. L. O. Station 1, reference mark, 1926 [1]	2,823,536.29 206,408.66	74 52 06* 167 47 16*	Do. G. L. O. Station 1.
G. L. O. Station 4 (Nev.), 1926	2,767,440.66 408,007.36		
End (Nev.), 1898 [1]	2,854,784.69 315,407.09		
G. L. O. Station 3A (Nev.), 1926	2,897,698.09 315,484.62		
G. L. O. Station 3B (Nev.), 1926 [1]	2,897,967.93 315,490.14		
T 116 (Nev.), 1898 [1]	2,946,180.62 232,951.34		

San Luis Obispo northeastward arc

Principal points			
Orchard Peak (Standard Oil Co.), 1932	1,663,748.53 149,359.31	300 21 41.2	Orchard Peak (U.S.G.S.), cairn.
Bench, 1932	1,599,264.88 152,926.53		
Red Hill, 1932	1,625,512.04 101,347.97		
Pyramid, 1932	1,680,659.75 191,751.74		
Dagany, 1932	1,703,375.57 158,134.51		
Avenal, 1932	1,657,918.09 171,988.76		
McClure Southwest, 1932	1,670,306.42 167,716.48		
McClure Northeast, 1932	1,679,061.30 188,610.13	313 15 35	Reference mark no. 2.
Standard, 1932	1,721,484.18 172,659.29	43 47 59	Reference mark no. 1.
Kettleman, 1932	1,705,062.76 220,140.13	166 30 07	Reference mark no. 2.
Skyline, 1932	1,675,836.22 253,300.22	133 09 00 136 01 29	Reference mark no. 2. Standard Oil Co. plant, flagpole.
Supplementary points			
Cottonwood, 1932	1,637,692.80 167,744.42	258 09 39	Avenal, cairn.
Polonio, 1932	1,650,287.58 154,759.03		
Snake, 1932	1,639,533.74 153,554.89		
Crowbar, 1932	1,624,897.89 156,466.97		

[1] No check on this position.
* This azimuth has been computed by means of the θ correction. See p. 163.

ZONE 4—Continued

San Luis Obispo northeastward arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Bones, 1932	1,626,662.90 146,584.29		
San Andreas, 1932	1,612,390.93 152,170.27		
Major, 1932	1,671,227.03 178,253.37		
Tank, 1932	1,686,487.02 173,164.92	78 23 26	Reference mark no. 2.
Mound, 1932	1,708,644.98 172,512.87	118 05 21 224 01 04.2	Reference mark no. 1. B. M. R. 33 (U.S.G.S.).
County Line, 1932	1,711,270.99 167,419.95	213 37 22	Reference mark no. 2.
B. M. 2531 (U.S.G.S.), 1932 [1]	1,637,710.32 167,722.15		
Orchard Peak (U.S.G.S.), cairn, 1932	1,664,556.12 148,886.23		
B. M. 2140 (U.S.G.S.), 1932 [1]	1,599,276.85 152,921.71		
Union Oil Co., pumping station, stack, 1932. [1]	1,603,446.83 132,626.13		
Avenal, cairn, 1932 [1]	1,657,902.02 171,980.77		
B. M. R 33 (U.S.G.S.), 1932	1,713,038.50 177,059.66		
Kern-Kings county-line sign, 1932 [1]	1,670,293.55 167,672.23		
Kern-Kings county-line marker, 1932 [1]	1,711,267.85 167,419.58		
Avenal reference mark (U.S.G.S.), 1932. [1]	1,721,528.83 172,640.64		
M (Standard Oil Co.), 1932 [1]	1,721,499.26 172,650.04		

Inyokern to San Bernardino arc

Principal points			
Inyokern, 1933	2,353,343.52 116,529.98	345 25 20	Reference mark no. 2.
El Paso (U.S.G.S.), 1933	2,344,980.54 53,694.07		
Spangler, 1933	2,442,995.16 91,269.25		

One-hundred-and-sixteenth meridian arc

Principal points			
Silver Lake, 1934	2,896,534.79 30,797.82	182 05 01	Reference mark no. 3.
Turquoise, 1934	2,916,858.72 51,998.41	30 59 54	Do.

[1] No check on this position.

ZONE 4—Continued

One-hundred-and-sixteenth meridian arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*	° ′ ″	
Silurian, 1934	2,886,848.21 77,788.13	79 23 56 85 36 10	Reference mark no. 3. B. M. E 163.
Clark, 1934	3,015,291.39 88,029.05	268 13 50	Reference mark no. 3.
Supplementary points			
Los Angeles-Las Vegas airway beacon no. 17, 1934.	2,944,651.18 39,735.54		
Valley Wells, 1934	2,999,451.89 61,235.37	221 51 32	Do.
Cairn 4880 (U.S.G.S.), 1934	2,933,315.23 65,137.15		
U. S. Forest Service, boundary monument no. 190, 1934.[1]	3,015,287.17 88,029.41		
Cairn 2979 (U.S.G.S.), 1934 [1]	2,859,708.98 95,891.64		
Valjean, 1934	2,888.987.70 125,909.27	181 09 31	Do.
Avavatz Mountains (U.S.G.S.), cairn, 1934.	2,794,452.97 76,359.31		
California-Nevada boundary monument no. 120, 1934.	3,002,278.85 183,172.72	245 59 31	Shenandoah Mill, tank.
G. L. O. Pipe (Nev.), 1934 [1]	3,002.893.60 183,300.71		
Devil Peak, cairn (Nev.), 1934	3,053,100.70 152,050.24		
Kingston (U.S.G.S.), cairn (1926), 1934	2,915,705.07 157,938.87		
Cairn (east of Shenandoah mine) (Nev.), 1934.	3,023,022.20 196,492.75		
Shenandoah Peak, cairn (Nev.), 1934 [1]	3,031,310.87 213,800.64		

Monterey Bay to Mariposa Peak arc

Principal points			
Gilroy, 1930	1,236,173.13 609,791.46		
Sargent, 1930	1,262,978.85 582,224.98		
Fremont Peak 2, 1930	1,266,810.00 527,909.96		
Mariposa, 1930	1,354,176.10 598,581.59		
Vaca, 1930	1,230,108.52 447,899.46		
Point Pinos latitude station 2, 1930	1,141,985.14 487,006.84		
Airway, 1930	1,164,010.84 463,792.83		
Brush, 1930	1,186,377.87 469,143.96		

[1] No check on this position.

ZONE 4—Continued

Monterey Bay to Mariposa Peak arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*	° ′ ″	
Pajaro Mouth 3, 1923	1,177,873.12 565,532.87		
Santa Cruz azimuth, 1851	1,107,795.09 612,933.50		
Salinas, 1930	1,220,760.93 530,205.52		
Supplementary points			
Lone Tree, 1930	1,329,590.61 583,922.39		
Pereira, 1930	1,303,476.57 548,439.10		
Foothill, 1930	1,319,975.95 553,761.55		
Fairview, 1930	1,311,356.56 588,188.81		
Hollister, 1930	1,296,124.32 563,065.07		
Picket, 1930	1,287,422.29 558,093.60		
Knob, 1930	1,282,752.47 569,394.03		
Oak, 1930	1,283,897.05 541,628.41		
Cross, 1930	1,263,248.64 551,842.62		
Sandy, 1930	1,276,589.75 534,731.54		
Moon, 1930	1,269,421.07 546,778.86		
Yates, 1930	1,263,528.17 537,593.48		
Hiway, 1930	1,251,075.74 551,337.79		
Dusty, 1930	1,245,218.65 528,479.70		
Bare, 1930	1,254,939.94 532,745.77		
Rock, 1930	1,241,017.23 525,891.92		
Sage, 1930	1,230,512.76 518,760.30		
Anderson, 1930	1,223,145.52 511,379.81	109 26 43 197 18 11	Reference mark no. 2. Reference mark no. 3.
Barn, 1930	1,209,679.59 507,549.32		
Dairy, 1930	1,191,985.33 507,116.56		
Marin, 1930	1,186,155.05 500,670.24		
Lakeside, 1930	1,170,849.75 474,964.44		

ZONE 4—Continued

Monterey Bay to Mariposa Peak arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*		
Seaside, 1930	1,160,554.15 476,395.39		
Range, 1930	1,176,556.12 476,752.35		
Fremont (Gabilan) Peak, 1923	1,266,832.60 527,930.91		
Point Pinos Lighthouse, 1855	1,139,641.27 486,414.96		
Point Pinos latitude station, 1851 [1]	1,141,849.67 486,133.10		
Vicinity of Point Sur			
Principal points			
Cone Peak 2, 1933	1,262,439.62 271,198.25		
Rock Slide West, 1933	1,231,506.27 298,364.20		
Dolan, 1890	1,229,686.03 285,286.53		
Paul, 1932	1,228,278.01 298,931.67		
Supplementary points			
Rock Slide, 1890	1,232,058.29 298,337.20		
B. M. 5148 (U.S.G.S.), 1933 [1]	1,262,453.54 271,199.91		
San Joaquin Valley arc			
Principal points		° ′ ″	
Green, 1931	1,711,993.22 704,394.67	308 57 27.0 164 25 34*	Red Top, fire lookout house, northwest gable. Green (U.S.G.S.), cairn.
Madera, 1931	1,691,904.54 593,053.45	321 25 15 159 30 13*	Reference mark no. 2. Madera, municipal water tank.
Red Top, 1931	1,773,835.67 654,320.34	331 45 10.6	Copper Mountain, fire lookout tower.
Fresno, 1931	1,768,553.89 511,182.17	333 21 46.4 318 37 54	Los Angeles-San Francisco airway beacon no. 20 (flashing red). Calwa, Producers Cotton Oil Co., water tank.
Cooper, 1931	1,812,735.71 581,876.84	23 59 09 123 53 23*	Clovis, water tank. Copper (U.S.G.S.), cairn.
Campbell, 1931	1,876,739.08 496,216.88	246 00 54.6	Bear Mountain, fire lookout tower.
Selma, 1931	1,818,882.19 451,707.28	329 56 12 314 46 55.6	Reference mark no. 2. Selma, Libby, McNeil & Libby, water tank.

[1] No check on this position.
* This azimuth has been computed by means of the θ correction. See p. 163.

ZONE 4—Continued

San Joaquin Valley arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*	° ′ ″	
Smith, 1931	1,898,712.45 454,741.03	40 18 53.7	Dinuba, water tank.
Traver, 1931	1,856,811.93 408,108.26	157 59 47	Reference mark no. 2.
Venice, 1931	1,946,197.20 377,178.12	64 53 40.5	Visalia, Southern California Edison Co., water tank.
Tagus, 1931	1,892,315.29 340,762.07	152 15 22 341 08 45.8	Reference mark no. 2. Tulare, municipal water tank.
Octol, 1931	1,902,953.18 287,806.53	169 54 42	Reference mark no. 2.
Strathmore, 1931	1,991,403.09 281,729.09	145 55 30.9	Strathmore, water tank.
Earlimart, 1931	1,918,465.84 203,626.33	168 43 10	Reference mark no. 2.
Credow, 1931	2,033,855.18 222,760.53	153 58 42	Do.
Delano. 1931	1,926,885.83 157,206.73	168 35 35	Do.
Mount Poso, 1931	1,999,159.78 94,422.66	120 34 48	Do.
San Benito, 1931	1,516,132.90 381,426.58	70 18 24.6	Hepsedam.
Quien Sabe, 1931	1,363,537.85 574,081.92	109 20 10.0	Santa Ana.
Miller, 1931	1,578,762.15 539,599.04	5 55 29	Reference mark no. 1.
Dos Palos, 1931	1,518,392.58 596,841.73	129 26 40	Reference mark no. 2.
Calaveras, 1931	1,624,196.23 438,298.44	180 32 23	Reference mark no. 1.
Supplementary points			
Shuteye Peak, fire lookout tower, 1931	1,875,837.32 734,317.48		
Green (U.S.G.S.), cairn, 1931	1,711,863.80 704,859.05		
Rabbit (U.S.G.S.), cairn, 1931 [1]	1,728,860.55 657,539.58		
Red Top, fire lookout house, northwest gable, 1931.	1,773,856.28 654,374.89		
Madera, municipal water tank, 1931	1,691,556.19 593,985.42		
Copper (U.S.G.S.), cairn, 1931	1,811,418.66 582,761.46		
Copper Mountain, fire lookout tower, 1931	1,812,734.12 581,917.90		
Pinedale, Sugar Pine Lumber Co., northernmost stack, 1931.[1]	1,764,328.71 551,844.07		
Pinedale, Sugar Pine Lumber Co., southernmost stack, 1931.[1]	1,764,375.56 551,810.30		
Pinedale, Sugar Pine Lumber Co., water tank, 1931.[1]	1,764,531.03 551,157.71		

[1] No check on this position.

ZONE 4—Continued

San Joaquin Valley arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*		
Bear Mountain, fire lookout tower, 1931 [1]	1,917,458.60 514,333.46		
Fresno, courthouse dome, 1931 [1]	1,768,708.56 511,331.19		
Los Angeles-San Francisco airway beacon no. 20 (flashing red), 1931.	1,777,659.13 493,028.81		
Los Angeles-San Francisco airway beacon no. 19 (flashing red), 1931.	1,808,458.64 453,110.80		
Selma, Libby, McNeill & Libby, water tank, 1931.	1,822,138.19 448,475.95		
Dinuba, water tank, 1931	1,886,752.70 440,646.01		
Cutler, water tank, 1931 [1]	1,915,937.16 434,174.53		
Los Angeles-San Francisco airway beacon no. 18 (flashing red), 1931.	1,846,226.46 410,557.79		
Visalia, Southern California Edison Co., water tank, 1931.	1,918,608.79 364,251.58		
Los Angeles-San Francisco airway beacon no. 17 (flashing green), 1931.	1,881,492.08 361,402.48		
Farmersville, water tank, 1931 [1]	1,928,116.70 353,679.68		
Tulare, municipal water tank, 1931	1,899,889.97 318,580.06		
Los Angeles-San Francisco airway beacon no. 16 (flashing red), 1931.	1,896,680.85 306,510.17		
Strathmore, water tank, 1931 [1]	1,981,813.32 295,906.57		
Los Angeles-San Francisco airway beacon no. 15 (flashing red), 1931.	1,905,039.41 250,550.66		
Delano, municipal water tank, 1931	1,927,838.24 159,437.56		
Los Angeles-San Francisco airway beacon no. 12 (flashing green), 1931.	1,928,497.98 152,613.17		
Poso (U.S.G.S.), 1931 [1]	1,999,140.95 94,435.30		
B. M. 5258 (U.S.G.S.), 1931 [1]	1,516,101.79 381,387.37		
B. M. 4492 (U.S.G.S.), 1931 [1]	1,462,742.36 362,323.61		

ZONE 5

Thirty-ninth parallel to United States-Mexico boundary arc

Principal points	*Feet*		
Hepsedam, 1885	1,167,907.83 1,036,121.78		
Santa Lucia, 1885	990,736.66 980,071.15		

[1] No check on this position.

ZONE 5—Continued

Thirty-ninth parallel to United States-Mexico boundary arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*	° ′ ″	
Rocky Butte 2, 1923	1,091,509.34 801,850.15		
Castle Mount, 1885	1,307,409.44 895,728.32		
San Luis, 1883	1,235,737.37 656,725.04		
San Jose, 1884	1,323,230.35 668,232.37		
Tepusquet, 1875	1,344,765.72 520,299.52		
Lospe, 1875	1,218,869.67 517,335.36	118 00 04	Reference mark.
Alamo, 1925	1,322,828.82 480,148.72		
Santa Maria southeast base, 1925	1,317,835.71 509,446.65		
Santa Maria northwest base, 1925	1,268,545.41 552,966.17		
Lospe North, 1925	1,219,168.71 523,973.37	257 38 38	Santa Maria, municipal water tank.
Arguello, 1875	1,229,390.80 403,856.56		
Gaviota, 1873	1,337,876.82 371,814.83		
New San Miguel, 1873	1,277,326.79 204,976.65		
Santa Cruz West, 1874	1,419,471.24 214,098.03		
Santa Barbara, 1858	1,482,896.37 333,623.70		
Santa Cruz East, 1857	1,526,343.29 205,564.34		
Chaffee 2, 1923	1,598,327.02 294,012.30	158 57 19	Reference mark.
Laguna, 1857	1,677,914.31 223,175.64		
Santa Clara, 1898	1,686,527.45 302,093.79		
Castro, 1898	1,762,378.96 214,069.45		
San Fernando, 1898	1,818,835.85 302,511.04	302 31 01	Do.
Wilson Peak, 1890	1,981,637.59 263,391.37		
San Pedro, 1853	1,898,144.66 89,723.08		
San Juan, 1886	2,079,731.63 150,673.97	309 06 51	Metropolitan Water District, survey signal.
Los Angeles northwest base, 1889	1,982,933.66 152,139.45	239 14 16	Reference mark.
Los Angeles southeast base, 1889	2,017,807.80 106,550.57		

ZONE 5—Continued

Thirty-ninth parallel to United States-Mexico boundary arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*	° ′ ″	
Michelson, 1923	1,982,792.88 262,977.46		
Antonio, 1923	2,098,447.13 272,543.88		
Santiago eccentric, 1923	2,141,977.23 76,962.22		
Santiago, 1899	2,141,947.23 76,944.99		
Niguel, 1884	2,081,315.30 4,638.76		
San Jacinto, 1898	2,401,405.83 117,164.18		
Supplementary points			
Point Conception Lighthouse, 1873	1,255,474.56 354,394.81		
Santa Barbara Lighthouse, 1876	1,480,872.45 331,038.86		
Camarillo, Catholic Church, spire, 1924	1,687,077.17 261,957.14		
Point Hueneme Lighthouse, 1876	1,634,136.40 237,150.79		
House, 1921	1,634,520.27 237,645.27	37 49 15* 288 26 27.0	Point Hueneme Lighthouse. Laguna.
Light, 1921	1,634,267.60 237,009.91	201 41 09* 287 35 11.6	House. Laguna.
Castro, fire lookout tower, 1927	1,762,379.29 214,069.14		
San Pedro 2, 1926	1,898,149.04 89,722.36	270 42 36 298 13 34	Seal Beach, white stack. Los Angeles Harbor Lighthouse.

Texas-California arc

Principal points			
Powell (Ariz.), 1910	3,147,670.44 403,465.54		
Chemehuevis, 1910	3,035,026.79 400,606.21		
Pine (Ariz.), 1910	3,245,081.66 487,457.33		
Crescent (Nev.), 1925	2,854,931.54 731,520.82	303 26 29	Reference mark no. 3.
Hualpai (Ariz.), 1925	3,227,319.42 598,247.37		
Supplementary points			
Hill, 1893	2,998,035.88 527,168.63	319 33 08	Needles, water tank.
Peak A, 1910	2,691,014.66 478,833.52		
Peak B, 1910	2,739,439.47 538,666.12		

[1] No check on this position.
*This azimuth has been computed by means of the θ correction. See page 163.

ZONE 5—Continued

Texas-California arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Peak C, 1910	2,802,894.97 650,776.99		
Peak D (Nev.), 1910	2,838,681.61 776,820.66		
Peak E (Nev.), 1910	2,978,826.60 661,338.45		
Peak H (Ariz.), 1910 [1]	3,227,321.24 598,267.78		
Spirit (Nev.), 1925	2,978,112.83 661,904.90	279 30 44	Reference mark no. 3.
Thirty-fifth parallel arc			
Principal points			
Center, 1926	1,403,054.62 548,546.12		
McKittrick, 1926	1,473,881.90 656,303.43	323 35 09	Reference mark no. 3.
Peak, 1926	1,443,001.93 515,416.83		
Pelato, 1926	1,578,986.56 519,774.11		
Elk, 1926	1,575,824.54 647,173.55	307 43 57	Reference mark no. 2.
Temblor, 1926	1,535,238.06 590,524.77		
Wheeler, 1926	1,696,563.14 551,268.70	261 23 08	Do.
Kern, 1926	1,712,458.37 698,066.93	30 50 31.2	Bakersfield, California Water Service station no. 23, water tank
Double, 1926	1,854,566.17 558,342.06		
Breckenridge, 1926	1,825,406.01 710,626.58		
Pajuela, 1926	1,912,185.56 589,962.68		
Piute, 1926	1,885,636.76 709,292.06		
Desert, 1926	2,018,492.77 577,024.84		
Morris, 1926	2,004,106.02 797,140.00		
Red, 1926	2,124,306.00 673,064.74		
Searles (B. M. M 48), 1926	2,102,855.92 730,860.08		
Yucca, 1926	2,148,839.85 874,699.46	88 44 28	Cairn
Pilot, 1926	2,230,864.50 691,387.66		

[1] No check on this position.

ZONE 5—Continued

Thirty-fifth parallel arc—Continued

Station	x coordinate / y coordinate	Plane azimuth			Mark
Principal points—Continued	*Feet*	°	′	″	
Leach, 1926	2,330,243.96 742,379.86				
Panamint, 1926	2,272,838.17 946,294.80				
Funeral, 1926	2,406,840.11 950,244.87				
Denning, 1926	2,457,806.82 766,334.64				
Kingston, 1926	2,615,197.08 828,410.35	341	58	11.1	Kingston (U.S.G.S.), cairn.
Charleston (U.S.G.S.) (Nev.), 1926	2,679,728.18 1,016,582.75				
Pahrump southeast base, 1926	2,616,755.59 921,496.94	198	44	28	Reference mark no. 3.
Pahrump northwest base (Nev.), 1926	2,559,926.29 976,856.95	268	07	41	Do.
Lee (Nev.), 1926	2,682,461.63 968,156.76				
Table (Nev.), 1926	2,745,686.49 848,391.18	261	07	45	Do.
Black (Nev.), 1925	2,875,427.12 897,646.87				
Supplementary points					
G. L. O. Station 15, 1926	1,235,557.45 515,713.09				
High Mountain, fire lookout tower, 1926	1,276,331.99 649,250.60				
Figueroa Mountain, fire lookout tower, 1926.	1,404,032.36 458,366.23				
Simmler, 1926 [1]	1,402,367.00 679,801.93				
Cauvel, 1926 [1]	1,448,396.62 681,280.63				
G. L. O. Station 14, reference mark, 1926	1,376,156.51 696,330.15				
G. L. O. Station 14, 1926 [1]	1,376,105.71 696,454.99				
Caliente (U.S.G.S.), 1926	1,473,374.58 563,729.89				
Kitt (Standard Oil Co.), 1926 [1]	1,474,064.69 656,466.36				
G. L. O. Station 13, 1926	1,507,617.53 710,523.68				
G. L. O. Station 12, reference mark, 1926	1,554,294.52 550,679.27				
G. L. O. Station 12, 1926 [1]	1,554,036.57 550,800.47				
Taft, high school, dome, 1926 [1]	1,563,704.32 602,282.39				
Buena Vista Hills, oil tank, 1926 [1]	1,579,294.92 609,047.72				

[1] No check on this position.

ZONE 5—Continued

Thirty-fifth parallel arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Pan American Petroleum Co. mark, 1926 [1]	1,575,827.68 647,179.07		
B. M. 4492 (U.S.G.S.), 1926 [1]	1,578,994.09 519,776.12		
G. L. O. Station 11, reference mark, 1926	1,603,359.07 709,404.85		
G. L. O. Station 11, 1926 [1]	1,603,320.11 709,374.84		
Reyes Peak, fire lookout tower, 1926	1,614,791.65 413,982.25		
Frazier Mountain, fire lookout tower, 1926	1,709,221.61 465,378.57		
G. L. O. Station 10, 1926	1,711,936.95 525,692.39		
Ant, 1926	1,735,870.55 702,324.72		
G. L. O. Station 9, reference mark no. 1, 1926.	1,731,632.01 714,845.54		
G. L. O. Station 9, 1926 [1]	1,730,909.53 713,005.89	201 26 22*	G. L. O. Station 9, reference mark no. 1.
G. L. O. Station 9, reference mark no. 2, 1926.[1]	1,730,226.38 713,281.61	221 56 55* 292 00 40*	Do. G. L. O. Station 9.
Round Mountain, 1926	1,735,481.48 723,795.17		
Pampa reference mark (U.S.G.S.), 1926	1,787,863.43 679,522.42		
Beale reference mark (U.S.G.S.), 1926	1,794,661.93 638,716.16		
Sunday (Tobias) Peak, fire lookout tower, 1926.	1,826,749.54 831,132.11		
G. L. O. Station 8, reference mark, 1926	1,896,869.24 544,244.09		
G. L. O. Station 8, 1926 [1]	1,896,783.50 544,133.38		
Muroc, railway water tank, 1926 [1]	2,036,839.57 517,921.91		
G. L. O. Station 7, 1926	1,999,255.89 581,032.93		
Desert (U.S.G.S.), 1926 [1]	2,018,516.62 577,032.73		
Owens Peak, cairn, 1926	2,001,168.86 814,605.91		
Inyokern, Standard Oil Co., tank, 1926 [1]	2,056,310.87 781,259.96		
Searles, Trona Railway, tank, 1926 [1]	2,097,287.14 733,168.76		
G. L. O. Station 6, 1926	2,045,278.58 836,466.40		
G. L. O. Station 4, reference mark no. 1, 1926.	2,120,665.08 710,348.21		

[1] No check on this position.
* This azimuth has been computed by means of the θ correction. See p. 163.

ZONE 5—Continued

Thirty-fifth parallel arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
G. L. O. Station 4, 1926 [1]	2,120,605.95 710,482.35		
G. L. O. Station 4, reference mark no. 2, 1926.[1]	2,120,993.65 710,487.15	67 04 10* 89 17 25*	G. L. O. Station 4, reference mark no. 1. G. L. O. Station 4.
G. L. O. Station 5, 1926	2,110,664.33 581,578.68		
Dome (U.S.G.S.), cairn, 1926	2,144,600.94 702,230.56		
Mount Argus, highest rock, 1926	2,164,493.14 856,581.12		
Telescope Peak, cairn, 1926	2,269,173.00 972,959.95		
Brown (U.S.G.S.), cairn, 1926	2,292,343.35 797,182.58		
Lava, 1926 [1]	2,271,152.62 746,907.32		
Panamint mining signal, 1926 [1]	2,272,833.60 946,372.23		
Pilot (U.S.G.S.), cairn, 1926 [1]	2,230,851.44 691,395.55		
G. L. O. Station 3, 1926	2,301,368.48 582,439.81		
G. L. O. Station 2, 1926	2,320,636.92 641,883.29		
Tie Fort (U.S.G.S.), cairn, 1926	2,431,083.84 651,986.55		
Funeral (U.S.G.S.), 1926 [1]	2,406,834.78 950,225.77		
Beck, 1926	2,497,482.60 904,806.56		
B. M. 1715 (U.S.G.S.), 1926	2,524,771.63 865,676.57		
G. L. O. Station 1, 1926 [1]	2,527,143.53 867,338.99	54 58 29*	B. M. 1715 (U.S.G.S.).
G. L. O. Station 1, reference mark, 1926 [1]	2,527,347.24 866,342.59	75 30 44* 168 25 54*	Do. G. L. O. Station 1.
End (Nev.), 1898 [1]	2,559,826.95 975,000.46		
G. L. O. Station 3A (Nev.), 1926	2,602,749.37 974,591.88		
G. L. O. Station 3B (Nev.), 1926 [1]	2,603,019.31 974,594.33		
T 116 (Nev.), 1898 [1]	2,650,297.09 891,496.06		

[1] No check on this position.
* This azimuth has been computed by means of the θ correction. See p. 163.

ZONE 5—Continued

Pasadena base net

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points	*Feet*		
Pasadena west base, 1922	1,984,150.42 223,392.74		
Joaquin, 1922	1,988,620.52 223,458.78		
Dimas, 1922	2,055,225.60 223,435.40		
Pasadena east base 2, 1922	2,094,478.95 225,988.36		
Gabriel, 1923	2,000,660.45 223,647.40		
Edison, 1923	2,018,324.16 223,601.76		
Citrus, 1923	2,033,570.47 223,504.28		
Dalton, 1923	2,037,532.47 223,455.13		
Gladstone, 1923	2,044,886.80 223,458.72		
Rock, 1923	2,053,897.58 226,296.07		
Garrett, 1923	2,064,058.35 226,323.05		
Bridge, 1923	2,072,618.04 226,329.94		
Reynolds, 1923	2,074,093.03 225,956.75		
Foot, 1923	2,074,059.08 226,331.59		
Hill, 1923	2,076,174.46 225,964.82		
French, 1923	2,078,019.59 226,325.32		
Malone, 1923	2,077,991.23 226,140.67		
Pate, 1923	2,091,629.66 226,341.64		
Pasadena east base, 1922	2,094,556.78 226,242.02		
Supplementary points			
San Dimas, cistern, center, 1923 [1]	2,055,554.73 223,003.15		
La Verne, water tank, finial, 1923 [1]	2,072,186.29 218,825.81		

Los Angeles County (Coast and Geodetic Survey)

Principal points			
San Buenaventura, 1858	1,617,638.83 280,800.79		
Santa Clara (old), 1857	1,686,526.83 302,091.07		

[1] No check on this position.

ZONE 5—Continued

Los Angeles County (Coast and Geodetic Survey)—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*	° ′ ″	
Conejo, 1857	1,713,689.67 255,715.68		
San Fernando (old), 1856	1,827,860.56 298,503.26		
Saddle Mountain, 1860	1,806,791.18 212,992.30		
Cowango, 1856	1,899,774.11 231,597.83		
West Beach, 1854	1,880,367.11 137,565.32		
Dominguez Hill, 1854	1,928,288.76 133,009.97	218 31 37 271 38 14	Reference mark no. 1. Reference mark no. 2.
Los Cerritos, 1853	1,950,591.77 109,125.49		
Las Bolsas, 1853	1,998,615.97 66,447.12		
San Pedro northwest base, 1853	1,894,672.15 158,524.32		
San Pedro southeast base, 1853	1,920,670.27 137,787.32		
Supplementary points			
Lions Head, 1898	1,718,207.18 227,081.31		
Saddle Mountain 1, 1898	1,800,760.59 210,202.04		
Saddle Mountain 2, 1898	1,801,811.06 211,060.39		
Peak 26, 1899	1,895,569.30 308,182.90		
San Gabriel Peak, 1896	1,970,478.42 270,504.15		
Mount Lowe, 1898	1,968,232.38 266,333.61		
Sharp Peak or Strawberry Peak, 1898	1,964,381.13 285,087.63		
Old Baldy, southwest peak, 1898	2,104,674.33 286,493.36		
Old Baldy Peak, cairn, 1898	2,107,084.76 287,379.19		
Peak 11 (San Antonio Mountain), 1883	2,104,705.99 286,612.34		
Telegraph Peak, 1878	2,125,672.01 263,320.71		
De Camp, 1883	1,890,287.96 183,764.93		
Los Angeles Normal School, 1883	1,923,139.19 200,406.95		
Los Angeles, magnetic observatory, 1883	1,922,866.91 200,542.69		
Los Angeles longitude station, 1889 [1]	1,922,953.03 200,561.37		
Los Angeles longitude station, 1892 [1]	1,922,987.97 200,402.58		

[1] No check on this position.

ZONE 5—Continued

Los Angeles County (Coast and Geodetic Survey)—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*		
Los Angeles latitude station, 1892 [1]	1,922,983.76 200,402.59		
Los Angeles, Baptist Church, spire, 1883	1,924,003.61 199,018.38		
Los Angeles, Catholic Cathedral, spire, 1883.	1,926,296.31 200,353.45		
Los Angeles, Presbyterian Church, 1883	1,925,561.16 201,057.48		
Los Angeles, signal service tower, 1883	1,927,475.28 202,150.86		
Los Angeles, high school, flagstaff, 1883	1,926,511.52 202,042.38		
Los Angeles, electric-light mast (Hill Street), 1883.	1,925,423.40 201,940.40		
West Los Angeles, M. E. Church, spire, 1883.[1]	1,913,710.94 189,452.51		
Los Angeles, courthouse, spire, 1883	1,926,799.45 201,552.53		
Los Angeles, Catholic College, ball and cross, 1883.	1,923,643.26 199,011.60		
Los Angeles (Boyle Heights), electric-light mast, 1883	1,933,707.02 199,243.77		
Los Angeles (Boyle Heights), Davis tank house, flagstaff, 1883.	1,933,433.85 195,499.13		
Compton, schoolhouse, spire, 1883	1,932,092.99 144,640.67		
Watts, Tajanta Schoolhouse, tower, 1883	1,927,873.62 161,431.30		
Downey, City Church, spire, 1883	1,955,614.70 156,875.18		
Los Angeles northwest base latitude station, 1890.[1]	1,982,978.99 152,143.36		
Dominguez Hill zenith-telescope station 1870.[1]	1,928,304.19 133,009.23		
Dominguez Hill meridian-instrument station, 1870.[1]	1,928,310.10 133,009.22		
Mount Wilson, Wilson Peak astronomical station, 1905.[1]	1,982,778.81 262,892.15		
San Pedro latitude station, 1852	1,913,763.32 81,027.63		
Point Fermin Lighthouse, 1878	1,910,947.30 74,879.35		

Los Angeles County (Los Angeles County and City)

Prinicpal points		° ′ ″	
Point Dume, 1856	1,755,781.85 183,510.27	238 48 31	Reference mark no. 3.
Triunfo (U.S.G.S. and L. A. C. & C.), 1933.	1,732,381.35 220,980.34		
Ladyface (U.S.G.S. and L. A. C. & C.), 1933.	1,767,900.83 231,720.17		

[1] No check on this position.

ZONE 5—Continued

Los Angeles County (Los Angeles County and City)—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*		
Saddle Peak (U.S.G.S. and L. A. C. & C.), 1933.	1,800,741.63 210,184.48		
Calabasas (U.S.G.S. and L. A. C. & C.), 1933.	1,804,901.76 233,547.41		
Chatsworth (U.S.G.S. and L. A. C. & C), 1933.	1,806,699.86 276,120.15		
Tuna (U.S.G.S. and L. A. C. & C.), 1933.	1,819,913.91 205,427.42		
Divide (U.S.G.S. and L. A. C. & C.), 1933.	1,832,650.98 219,641.30		
San Vicente No. 1 (L. A. W. D. and L. A. C. & C.), 1933.	1,845,065.74 229,185.99		
Darling (U.S.G.S. and L. A. C. & C.), 1933.	1,852,519.25 271,697.23		
Mandeville (L. A. W. D. and L. A. C. & C.), 1933.	1,849,428.79 215,263.32		
Brentwood No. 2 (L. A. C. & C.), 1933	1,856,188.43 198,345.88		
Peavine (L. A. W. D. and L. A. C. & C.), 1933.	1,870,608.92 221,067.94		
Pacoima No. 2 (L. A. C. & C.), 1933	1,876,904.20 278,112.64		
Fernando No. 2 (U.S.G.S. and L. A. C. & C.), 1933.	1,874,344.21 310,768.31		
Del Rey auxiliary (L. A. C. & C.), 1933	1,865,376.80 165,498.88		
Baldwin auxiliary (L. A. C. & C.), 1933	1,890,288.77 183,875.91		
West Beach No. 3 (U.S.G.S. and L. A. C. & C.), 1927.	1,880,407.48 137,563.04		
Denker (L. A. C. & C.), 1933	1,908,102.24 159,541.39		
South Western (L. A. C. & C.), 1933	1,906,023.72 176,886.55		
North Western (L. A. C. & C.), 1933	1,906,760.44 204,477.25		
Cahuenga No. 2 (L. A. C. and L. A. C. & C.), 1933.	1,901,678.34 231,963.61		
Verdugo (U.S.G.S. and L. A. C. & C.), 1933.	1,915,627.40 260,366.17		
Sister Elsie (U.S.G.S. and L. A. C. & C.), 1933.	1,928,067.18 279,935.31		
Dominguez 2, 1933	1,929,358.97 131,383.51		
Vernon (L. A. C. & C.), 1933	1,940,794.94 181,200.96		
Silverwood (L. A. W. D. and L. A. C. & C.), 1933.	1,927,230.97 208,465.69		
Flint (L. A. W. D. and L. A. C. & C.), 1933.	1,940,756.99 241,542.06		
Dawson (L. A. C. & C.), 1933	1,950,129.31 109,296.47		

ZONE 5—Continued

Los Angeles County (Los Angeles County and City)—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*		
Monterey No. 2 (U.S.G.S. and L. A. C. & C.), 1933.	1,956,769.34 201,528.89		
Workman Hill (L. A. F. C. and L. A. C. & C.), 1933.	1,999,400.96 178,938.35		
Bassett (U.S.G.S. and L. A. C. & C.), 1933.	2,001,774.87 205,029.69		
Monrovia (U.S.G.S. and L. A. C. & C.), 1933.	1,995,002.68 240,426.90		
Newport Beach to thirty-fifth parallel arc			
Principal points		° ′ ″	
Jurupa, 1929	2,169,172.78 194,271.49	2 33 36	Airway beacon.
Armada, 1928	2,242,389.56 135,905.43	122 15 05	March Field, water tank.
Reche, 1928	2,228,356.18 178,985.13	7 03 09 171 09 50	Do Loma Linda, water tank.
Strawberry, 1929	2,231,710.66 267,286.48		
Keller, 1929	2,287,679.43 254,642.60		
San Berdo, 1929	2,330,195.86 229,113.86		
Craft, 1929	2,300,089.01 276,810.20		
Loaf, 1929	2,358,716.90 256,471.68		
Lune, 1928	2,263,470.77 308,299.30		
Gold, 1929	2,350,854.37 288,957.78		
Lucerne, 1928	2,309,216.71 379,634.98		
Granite, 1929	2,383,741.23 292,961.66		
Lucerne south base, 1928	2,337,370.14 343,772.80		
Lucerne north base, 1929	2,343,845.70 389,138.23		
Sage, 1928	2,368,799.80 384,612.57		
Ord, 1929	2,356,520.20 429,662.21		
Nellie Bly, 1929	2,410,559.35 418,335.80		
El Frio, 1929	2,501,892.64 575,901.59		
Barstow, 1929	2,317,579.77 580,533.34		
Tiefort, 1929	2,419,587.44 648,245.15		

ZONE 5—Continued

Newport Beach to thirty-fifth parallel arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points	*Feet*	° ′ ″	
Sugar, 1929	2,119,782.69 108,056.20	143 41 52 324 32 05	Sierra Peak, fire lookout tower. Santiago Peak, fire lookout tower.
San Joaquin, 1928	2,057,529.10 38,625.90	221 52 49.8	Sugar.
Black, 1929	2,102,727.03 111,622.74	236 49 43	Water tank.
Lomas, 1929	2,077,290.25 96,606.39	286 54 54	Santiago Peak, fire lookout tower.
Observatory, 1928	2,067,699.36 97,851.80	32 51 45	Center of pipe in reservoir.
Cloud, 1928	2,148,874.25 131,480.38	129 59 39	Silo.
Grape, 1929	2,141,731.74 143,350.02	62 06 00	Corona, By Products Exchange, water tank.
Sier, 1929	2,105,425.05 127,603.48	301 58 59	Reference mark no. 3.
Crafton, 1929	2,277,261.02 205,572.53		
Foothill, 1929	2,254,696.83 240,162.30		
Chaparral, 1929	2,209,344.04 238,661.13		
La Quinta, 1929	2,229,651.82 211,063.37		
High Grove, 1929	2,213,613.18 190,158.57	137 41 10	Riverside Cement Co., flagpole.
Box Springs, 1929	2,215,913.79 170,417.52	339 49 42	March Field, water tank.
Little High Grove, 1929	2,199,667.99 193,833.95	178 35 16	Riverside Cement Co., flagpole.
Mine, 1929	2,114,185.14 114,260.00	146 42 53.3	Sier.
Sludge, 1928	2,130,013.59 141,807.09	303 39 36	Corona, By Products Exchange, water tank.
Yorba, 1928	2,126,505.81 136,013.95		
Gypsum, 1928	2,125,359.90 117,532.70	201 32 00	Do.
Hagador, 1929	2,113,397.17 122,707.55		
Spur, 1929	2,121,906.84 115,160.32	231 52 38	Red tank.
Linson, 1928	2,124,882.67 121,844.70		
Prado, 1929	2,123,429.06 128,834.50	282 25 57	Reference mark no. 2.
Pigeon, 1929	2,203,521.56 180,092.04		
Rubidoux, 1929	2,184,256.92 176,636.99	276 44 03	Riverside, tower.

ZONE 5—Continued

Newport Beach to thirty-fifth parallel arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Pachappa, 1929	2,188,113.30 168,185.61		
Bliss, 1928	2,184,432.29 154,546.93		
Green, 1928	2,171,583.56 161,274.24	297 09 53	Reference mark no. 1.
La Sierra, 1929	2,162,758.70 154,536.06	194 06 15	Airway beacon.
Hole, 1928	2,150,216.47 157,147.59	244 27 37	West side of apex of roof of frame-stucco building.
Linn, 1929	2,147,590.65 149,756.97		
School, 1928	2,155,851.68 140,683.75		
Rail, 1929	2,199,525.09 184,372.78		
Junction, 1929	2,193,860.23 177,552.28		
Fairmont, 1929	2,189,368.52 180,386.55		
Broom, 1929	2,157,858.38 152,205.09		
Van Buren, 1929	2,205,999.72 192,367.17	82 09 43	Reference mark no. 2.
Linda, 1929	2,222,324.93 196,918.14		
Colton, 1929	2,214,145.07 206,712.50		
Loma, 1929	2,213,031.14 195,373.49		
Bryn, 1929	2,222,713.94 205,763.80		
Wilder, 1929	2,216,092.30 200,669.04		
Harlem, 1929	2,236,559.59 221,733.71		
Oak, 1929	2,270,076.61 228,054.38		
Leaf, 1929	2,248,401.81 230,750.51		
Edwards, 1929	2,257,075.84 231,842.37		
Boulder, 1929	2,260,065.56 220,793.75		
Mentone, 1929	2,269,402.81 212,403.27		
Morton, 1929	2,275,370.39 220,145.66		
Warm Springs, 1929	2,284,075.74 230,044.46		
Plunge, 1929	2,277,726.94 230,496.35		

ZONE 5—Continued

Newport Beach to thirty-fifth parallel arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Creek, 1929	2,262,743.28 227,712.57		
Highland, 1928	2,251,664.94 231,731.40		
Red, 1929	2,225,478.17 231,568.08		
Wash, 1929	2,248,594.01 218,904.94		
Cap, 1929	2,238,769.08 235,596.18		
Blue, 1929	2,226,304.87 237,169.55		
Rail 2, 1930 [1]	2,199,556.81 184,373.60	35 26 58	Orange light of railway semaphore.
Junction 2, 1930	2,193,831.22 177,558.86		
Southern California Edison Co. triangulation station, 1929.[1]	2,269,401.15 212,400.52		
Granite (U.S.G.S.), cairn, 1929	2,380,098.06 293,639.85		
Ord Mountain, U. S. Mineral Monument No. 1, 1929.[1]	2,356,518.32 429,666.42		
B. M. N 3, 1929	2,351,340.98 494,875.95		

Riverside to Colorado River arc

Principal points			
Eagle (M. W. D. of S. C.), 1931	2,687,363.78 96,566.31	142 34 10	Reference mark no. 3.
Sheep (M. W. D. of S. C.), 1931	2,704,209.04 261,469.90	55 37 02	Do.
Anschutz (M. W. D. of S. C.), 1931	2,750,952.22 96,031.82	289 15 34	Do.
Coxcomb (M. W. D. of S. C.), 1931	2,811,056.64 146,435.52		
Palen (M. W. D. of S. C.), 1931	2,869,981.02 127,773.77		
Coxcomb east base (M. W. D. of S. C.), 1931.	2,846,115.23 173,101.11		
Comb (M. W. D. of S. C.), 1931	2,818,804.29 169,375.64		
Slope (M. W. D. of S. C.), 1931	2,832,219.55 184,902.74		
Coxcomb west base (M. W. D. of S. C.), 1931.	2,825,984.76 169,568.17		
Forks (M. W. D. of S. C.), 1931	2,830,869.38 156,105.27		
Granite (M. W. D. of S. C.), 1931	2,887,596.29 184,031.39		

[1] No check on this position.

ZONE 5—Continued

Riverside to Colorado River arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*		
Iron (M. W. D. of S. C.), 1931	2,844,064.83 230,303.77		
Sablon (M. W. D. of S. C.), 1932	2,909,017.17 252,953.88		
Danby (M. W. D. of S. C.), 1932	2,876,873.16 229,164.89		
Turtle (M. W. D. of S. C.), 1931	2,965,806.31 245,492.96		
Arica (M. W. D. of S. C.), 1932	2,928,072.60 208,992.69		
Maria (M. W. D. of S. C.), 1931	2,985,506.27 162,527.87		
Riverside (M. W. D. of S. C.), 1931	3,054,939.17 213,278.01		
Grommet (M. W. D. of S. C.), 1931	3,012,614.07 226,891.86		
Axtel (M. W. D. of S. C.), 1931	3,083,754.98 315,795.15		
Gier (M. W. D. of S. C.) (Ariz.) 1932	3,167,779.73 289,969.09		
Black Peak (M. W. D. of S. C.), (Ariz.), 1931.	3,146,604.33 248,946.92		
Bennett (M. W. D. of S. C.), 1932	3,133,811.52 281,814.04		
Parker (M. W. D. of S. C.) (Ariz.), 1932	3,124,160.49 259,425.49		
Parker northeast base (M. W. D. of S. C.), (Ariz.), 1932.	3,136,857.17 262,716.02		
Parker southwest base (M. W. D. of S. C.), (Ariz.), 1932.	3,128,315.21 248,768.00		
Friant (U.S.G.S.) (Ariz.), 1932	3,155,721.35 336,874.62		
Metal (M. W. D. of S. C.), 1932	3,157,949.41 316,667.69		

Cajalco Reservoir to Colorado River arc

Principal points			
Field (M. W. D. of S. C.), 1931	2,211,425.32 145,181.93		
Eden (M. W. D. of S. C.), 1931	2,289,414.45 143,731.09		
David (M. W. D. of S. C.), 1931	2,304,667.18 150,054.41		
Banning (M. W. D. of S. C.), 1931	2,342,635.86 167,433.07		
Lard (M. W. D. of S. C.), 1931	2,361,888.55 163,973.23		
Barton (M. W. D. of S. C.), 1931	2,353,404.70 141,679.21		
Cabazon (M. W. D. of S. C.), 1931	2,372,278.72 141,519.33		

ZONE 5—Continued

Cajalco Reservoir to Colorado River arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*		
Gorgonio (M. W. D. of S. C.), 1931	2, 394, 348. 25 147, 533. 38		
Hidden (M. W. D. of S. C.), 1931	2, 382, 443. 94 169, 755. 95		
Cabazon west base (M. W. D. of S. C.), 1931.	2, 377, 914. 95 155, 090. 72		
Cabazon east base (M. W. D. of S. C.), 1931.	2, 390, 173. 35 155, 367. 63		
Deception (M. W. D. of S. C.), 1931	2, 516, 858. 84 154, 002. 61		
Wide (M. W. D. of S. C.), 1931	2, 498, 394. 68 158, 046. 20		
Short (M. W. D. of S. C.), 1931	2, 480, 982. 76 160, 649. 01		
Garnet (M. W. D. of S. C.), 1931	2, 444, 021. 19 148, 009. 59		
Mission (M. W. D. of S. C.), 1931	2, 446, 715. 98 176, 545. 17		
Beacon (M. W. D. of S. C.), 1931	2, 419, 816. 47 157, 150. 19		
Morongo (M. W. D. of S. C), 1931	2, 428, 840. 99 180, 606. 41		
Pass (M. W. D of S. C.), 1931	2, 414, 075. 20 145, 121. 22		
Whitewater (M. W. D. of S. C.), 1931	2, 405, 199. 42 164, 378. 01		
Pinto (M. W. D. of S. C.), 1931	2, 781, 216. 01 150, 633. 62		
Cox (M. W. D. of S. C.), 1931	2, 801, 162. 76 160, 798. 60		
Foot (M. W. D. of S. C.), 1932	2. 821, 177. 62 194, 850. 08		
Cross (M. W. D. of S. C.), 1931	2, 846, 514. 32 202, 985. 80		
Island (M. W. D. of S. C.), 1932	2, 814, 026. 12 224, 348. 32		
Cadiz (M. W. D. of S. C.), 1932	2, 829, 585. 11 253, 941. 00		
North Iron (M. W. D. of S. C.), 1932	2, 851, 876. 43 251, 622. 83		
Granite Shaft (M. W. D. of S. C.), 1931	2, 858, 702. 15 208, 550. 47		
Lake (M. W. D. of S. C.), 1932	2, 873, 405. 60 253, 209. 98		
East Iron (M. W. D. of S. C.), 1932	2, 865, 111. 81 249, 151. 33		
Iron west base (M. W. D. of S. C.), 1932	2, 862, 096. 80 235, 655. 85		
Dune (M. W. D. of S. C.), 1931	2, 909, 779. 58 214, 446. 45		
Freda (M. W. D. of S. C.), 1931	2, 936, 569. 69 239, 194. 16		

ZONE 5—Continued

Cajalco Reservoir to Colorado River arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*		
Rice (M. W. D. of S. C), 1932	2,969,117.28 232,612.73		
Mole (M. W. D. of S. C.), 1931	3,006,067.53 243,426.24		
Vidal (M. W. D. of S. C.), 1932	3,058,117.32 258,775.54		
Stone (M. W. D. of S. C.), 1932	3,028,157.10 268,831.90		
Mesa (M. W. D. of S. C.), 1931	3,057,925.56 274,850.89		
Vista (M. W. D. of S. C.), 1932	3,090,153.54 275,607.03		
Cairn (M. W. D. of S. C.), 1932	3,118,935.46 283,181.27		
Start (M. W. D. of S. C.), 1932	3,105,055.08 279,682.01		
Badger (M. W. D. of S. C.), 1932	3,156,775.05 305,343.75		
Lunch (M. W. D. of S. C.), 1932	3,143,504.01 308,548.56		
Copper (M. W. D. of S. C.), 1932	3,129,506.95 304,939.41		

San Luis Obispo northeastward arc

		° ′ ″	
Principal points			
Orchard Peak (Standard Oil Co.), 1932	1,366,969.95 821,274.26	300 54 05.4	Orchard Peak (U.S.G.S.), cairn.
Bench, 1932	1,302,521.74 825,445.75		
Red Hill, 1932	1,328,285.18 774,625.50		
Flowers, 1932	1,281,679.57 777,465.23		
Almond, 1932	1,270,602.62 755,612.15		
Highland, 1932	1,281,548.13 711,696.61		
Grassy, 1932	1,275,164.74 729,410.69		
Barren, 1932	1,233,999.10 721,539.53		
Green, 1932	1,257,936.72 700,952.15		
Tessajera, 1932	1,196,261.54 697,064.44		
Salinas, 1932	1,248,825.22 684,950.41	15 04 15	Reference mark no. 2.
Cerro Remauldo, 1932	1,186,820.94 671,248.65		

ZONE 5—Continued

San Luis Obispo northeastward arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*	° ′ ″	
Davis, 1932	1,168,854.78 642,154.55		
Biddle, 1932	1,260,598.31 613,665.44	203 51 08.0	High Mountain, fire lookout tower.
Pyramid, 1932	1,384,281.19 863,507.08		
Dagany, 1932	1,406,678.90 829,674.57		
Avenal, 1932	1,361,352.74 843,958.25		
McClure Southwest, 1932	1,373,700.80 839,569.24		
McClure Northeast, 1932	1,382,653.00 860,380.48	313 48 03	Reference mark no. 2.
Standard, 1932	1,424,925.33 844,027.22	44 20 41	Reference mark no. 1.
Supplementary points			
Santa Marguerita, 1932	1,220,715.30 694,973.94		
Firebreak, 1932	1,208,139.75 687,659.34		
Volmer, 1932	1,186,579.83 688,265.74		
Hill 1400, 1932	1,196,330.04 684,661.18		
Guard, 1932	1,189,329.57 677,881.24		
Walters, 1932	1,181,081.07 681,292.09		
Conner, 1932	1,178,126.89 672,678.01		
Stony, 1932	1,163,252.52 655,692.39		
Perry, 1932	1,169,605.13 652,657.19	292 33 11 339 25 02	Do. Reference mark no. 2.
Coon, 1932	1,161,285.04 648,796.26		
Guidetti, 1932	1,183,529.29 665,343.26		
Turri, 1932	1,173,291.63 669,049.07		
Phil, 1932	1,174,939.25 659,313.27		
Clark, 1932	1,164,695.73 663,947.07		
Saddle Peak, 1872	1,166,160.46 638,402.84		
Devils Ridge, 1932	1,159,025.12 641,755.12		
Green Peak, 1872	1,155,655.43 632,856.98		

ZONE 5—Continued

San Luis Obispo northeastward arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Spooner, 1932	1,149,743.50 640,991.60		
Rhodes, 1932	1,266,259.42 724,615.01		
Developement, 1932	1,268,295.59 736,354.54		
Pine, 1932	1,261,772.21 731,872.01		
Ferraro, 1932	1,251,404.62 730,472.71		
School, 1932	1,253,551.76 723,281.20		
Early, 1932	1,243,928.16 729,443.07		
Gravel, 1932	1,245,625.06 717,324.99		
Sand, 1932	1,241,056.91 716,833.11		
Calf, 1932	1,237,316.40 707,644.93		
Highway, 1932	1,222,647.32 712,279.66		
Reis, 1932	1,232,127.81 701,472.60		
Hale, 1932	1,209,325.92 704,999.38		
Vinyard, 1932	1,217,190.09 711,638.00		
Alliance, 1932	1,303,896.52 782,628.40	52 39 53	McCune ranch, apex of windmill.
Wheat, 1932	1,291,675.31 771,565.00	41 17 12 197 13 00	Reference mark no. 2. Windmill.
Range, 1932	1,272,699.59 767,951.52		
Wood, 1932	1,285,720.05 762,220.41		
Shedd, 1932	1,287,417.81 752,401.12	7 24 02	Oil derrick.
Brush, 1932	1,282,454.05 739,117.29		
Shell, 1932	1,272,633.23 737,938.01		
Jacks, 1932	1,320,591.42 801,247.41	105 19 59	Union Oil Co., pumping station, stack.
Brown, 1932	1;311,080.24 797,782.20	148 03 46	Do.
Taylor, 1932	1,299,816.62 810,318.08		
Hopper, 1932	1,292,918.01 799,602.59	17 02 48	Reference mark no. 2.

ZONE 5—Continued

San Luis Obispo northeastward arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Windmill, 1932	1,288,217.21 788,982.44		
Cottonwood, 1932	1,341,087.61 839,904.00	258 41 57	Avenal, cairn.
Polonio, 1932	1,353,560.22 826,800.50		
Snake, 1932	1,342,795.37 825,697.41		
Crowbar, 1932	1,328,187.15 828,746.62		
Bones, 1932	1,329,859.58 818,847.72		
San Andreas, 1932	1,315,640.35 824,567.01		
Waterhole, 1932	1,325,351.86 811,310.32		
Old Man, 1932	1,309,913.57 818,198.96		
Major, 1932	1,374,720.81 850,097.47		
Tank, 1932	1,389,932.83 844,864.82	78 55 57	Reference mark no. 2.
Mound, 1932	1,412,084.69 844,002.82	118 37 59 224 33 43.6	Reference mark no. 1. B. M. R 33 (U.S.G.S.).
County Line, 1932	1,414,662.34 838,884.97	214 10 00	Reference mark no. 2.
B. M. 2531 (U.S.G.S.), 1932 [1]	1,341,104.91 839,881.57		
Orchard Peak (U.S.G.S.), cairn, 1932	1,367,773.06 820,793.58		
B. M. 2140 (U.S.G.S.), 1932 [1]	1,302,533.66 825,440.82		
Union Oil Co.. pumping station, stack, 1932.[1]	1,306,514.19 805,107.24		
B. M. 2592 (U.S.G.S.), 1932 [1]	1,328,293.00 773,612.78		
Red water tank (south of station Walters), 1932.	1,181,250.66 679,211.61		
Avenal, cairn, 1932 [1]	1,361,336.59 843,950.41		
B. M. R 33 (U.S.G.S.), 1932	1,416,521.43 848,507.90		
Kern-Kings county-line sign, 1932 [1]	1,373,687.51 839,525.12		
Kern-Kings county-line marker, 1932 [1]	1,414,659.20 838,884.64		
Avenal reference mark (U.S.G.S.), 1932 [1]	1,424,969.78 844,008.15		
M (Standard Oil Co.), 1932 [1]	1,424,940.31 844,017.82		

[1] No check on this position.

ZONE 5—Continued

San Fernando to Bakersfield arc

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points	*Feet*	′ ′ ″	
Loma Verde (U.S.G.S.), 1932	1,798,809.74 363,242.42		
May, 1932	1,870,624.74 310,418.71	264 37 35	U. S. Geological Survey cairn.
		117 16 37.0	Los Angeles-San Francisco airway beacon no. 3A (flashing green).
Pelona, 1932	1,893,081.95 386,293.69	268 04 05	Reference mark no. 2.
Sawmill, 1932	1,831,523.69 434,677.37	266 55 12	U. S. Geological Survey bench mark.
Soledad, 1932	1,943,707.26 539,574.73	63 23 12.9	Los Angeles-San Francisco airway beacon no. 5A (flashing red).
Liebre, 1932	1,828,476.54 530,287.84		
Pass, 1932	1,908,672.35 574,280.98		
Limestone, 1932	1,890,630.26 549,946.07		
Cub, 1932	1,826,957.05 605,825.77		
Fence, 1932	1,837,925.48 579,290.34		
Flannagan, 1932	1,807,207.55 597,215.50		
Black Oak, 1932	1,791,846.65 605,529.96	53 45 44.2	Los Angeles-San Francisco airway beacon no. 7 (flashing green).
Supplementary points			
Newhall, 1932	1,838,696.64 325,860.12	14 27 33	Reference mark no. 2.
East, 1932	1,843,117.01 307,632.22	245 11 09.3	Los Angeles-San Francisco airway beacon no. 2 (flashing red).
		160 03 43.2	Los Angeles-San Francisco airway beacon no. 3A (flashing green).
Ridge, 1932	1,829,450.37 298,966.26	66 46 51	Reference mark no. 2.
Mission Point, 1932	1,839,075.21 295,820.13	169 29 12	Reference mark no. 1.
Bluff, 1932	1,836,907.99 286,968.18	171 59 58	Reference mark no. 2.
Reservoir, 1932	1,852,807.53 288,459.15	197 17 40	Reference mark no. 1.
Corner, 1932	1,839,005.85 276,041.61	90 00 08	Reference mark no. 2.
Red, 1932	1,842,646.34 395,831.47		
Jupiter Mountain (U.S.G.S.), 1932	1,880,499.31 400,434.01		
Towsley, 1932	1,821,922.54 312,064.03	17 26 10	Oat Mountain, fire lookout tower.
Edison, 1932	1,838,484.04 318,953.54	59 24 52	Reference mark no. 2.

ZONE 5—Continued

San Fernando to Bakersfield arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Lock, 1932	1,824,344.84 325,856.35	136 01 35	Reference mark no. 1.
Saugus, 1932	1,837,355.87 333,916.58	358 56 29 102 04 26.9	Reference mark no. 2. Violet Ray Gas Co., stack.
Yucca, 1932	1,825,150.88 338,821.67		
Foot, 1932	1,836,536.85 341,683.81	319 12 36	Reference mark no. 2.
Long, 1932	1,827,402.47 351,328.01		
Dry, 1932	1,837,250.07 350,763.12	333 49 25	Do.
Bum, 1932	1,829,509.37 356,827.31	131 03 48	Reference mark no. 1.
View, 1932	1,843,988.38 361,201.20	159 59 42	Do.
teer, 1932	1,834,201.70 363,578.92		
Rock, 1932	1,845,006.53 370,666.10		
Powerhouse, 1932	1,837,942.68 376,550.35		
Brushy, 1932	1,849,711.70 380,874.75	306 46 15.7	U. S. Geological Survey target (south of station House).
House, 1932	1,858,506.63 384,901.37	15 12 03.8	Do.
Surge, 1932	1,863,839.39 400,067.10	357 16 48	Reference mark no. 1.
Bee, 1932	1,876,014.07 388,561.42	233 50 49	Reference mark no. 2.
Little Buttes, 1932	1,907,996.23 472,327.82	177 25 53.2	Los Angeles-Kern county-line marker.
Willow Springs, 1932	1,917,376.08 503,604.95	71 23 20	Reference mark no. 2.
Gold, 1932	1,915,490.70 531,889.15	61 27 40	Airway beacon (flashing white).
Wash, 1932	1,894,397.48 526,281.37		
Granite, 1932	1,905,678.82 399,572.49	256 00 50	Reference mark no. 2.
Burn, 1932	1,890,785.50 408,098.18	46 23 18	Reference mark no. 1.
Leona, 1932	1,902,767.32 416,543.28	276 58 22	Reference mark no. 2.
Portal, 1932	1,889,207.75 424,562.94	120 30 55	Do.
Sur, 1932	1,902,760.29 432,895.50	356 04 01	Do.
Specht, 1932	1,892,162.99 438,381.22	286 47 03	Reference mark no. 1.
Number, 1932	1,902,617.57 453,476.98	178 44 42 200 38 40.0	Reference mark no. 2. Antelope Valley, red-roofed water tank.

ZONE 5—Continued

San Fernando to Bakersfield arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Trans, 1932	1,892,978.29 456,499.36	323 37 36	Reference mark no. 2.
Ante, 1932	1,892,437.95 466,995.13	354 40 02 291 57 02.3	Do. Antelope Valley, white tank, flagstaff.
Lope, 1932	1,892,119.09 476,307.81	16 37 50	Reference mark no. 2.
Old, 1932	1,905,694.51 484,942.77	336 18 03.2	Los Angeles-Kern county line marker.
Joshua, 1932	1,890,908.22 491,349.62	302 53 15.5	Do.
Bajada, 1932	1,892,692.36 509,704.74		
Bend, 1932	1,886,764.05 415,856.88	144 07 20	Reference mark no. 2.
Andreas, 1932	1,896,773.96 415,896.56	324 46 52	Reference mark no. 1.
Gate, 1932	1,897,468.40 429,306.22	177 26 18	Do.
Pole, 1932	1,902,768.24 445,505.52	359 56 38	Reference mark no. 2.
Single, 1932	1,902,434.56 496,254.36	266 31 40	Do.
Fault, 1932	1,910,053.72 502,423.20	6 19 30.2	Los Angeles-Kern county line marker.
Straight, 1932	1,910,326.81 514,293.17	141 09 34	Reference mark no. 2.
Stump, 1932	1,908,249.47 522,134.20		
Dolemite, 1932	1,904,364.31 560,413.12		
Quartz, 1932	1,882,698.98 567,254.90		
Monolith, 1932	1,890,999.79 591,937.15		
Shrub, 1932	1,894,267.13 577,166.20	159 55 01.3	Monolith, cement plant, tallest stack.
Bed, 1932	1,876,675.60 580,423.86	143 15 03.6	Tehachapi, water tank.
Summit, 1932	1,877,877.43 594,777.33		
Chapi, 1932	1,863,481.91 599,727.46	330 16 44.0	Do.
Kiln, 1932	1,856,081.89 582,472.95	227 46 16.3	Do.
Brite, 1932	1,841,827.25 592,035.69		
Deer, 1932	1,848,371.78 577,480.58		
Jail, 1932	1,833,796.73 590,417.94	45 48 08	Prison spire.

ZONE 5—Continued

San Fernando to Bakersfield arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued			
	Feet	° ′ ″	
School, 1932	1,820,175.79 582,502.47	26 59 55 179 48 48	Reference mark no. 2. Cummings Valley, school, bell tower.
Quick, 1932	1,902,508.84 541,996.23	135 53 02	Reference mark no. 2.
Across, 1932	1,896,022.40 537,671.85		
Cameron, 1932	1,900,355.27 572,272.09	73 25 26	Do.
Jacks, 1932	1,802,698.56 578,927.41		
Rock Spring, 1932	1,799,866.34 596,813.39		
Mart, 1932	1,777,853.40 593,672.65		
Gorge, 1932	1,770,884.49 564,241.85		
Joker, 1932	1,741,800.97 574,092.36	316 05 11	Reference mark no. 1.
Tejon, 1932	1,754,303.01 591,945.82		
Adobe, 1932	1,711,203.33 620,597.08	180 45 34	Do.
Horsethief, 1932	1,784,151.61 587,717.70		
Comanche, 1932	1,759,361.61 585,126.14		
B. M. 2919 (U.S.G.S.), 1932 [1]	1,762,379.20 214,068.64		
Bluff (U.S.G.S.), 1932 [1]	1,836,911.79 286,958.05		
B. M. 2771 (U.S.G.S.), 1932 [1]	1,839,067.22 295,784.59		
San Fernando (U.S.G.S.), 1932 [1]	1,818,836.60 302,510.73		
Los Angeles-San Francisco airway beacon no. 2 (flashing red), 1932.	1,846,789.02 308,867.66		
May (U.S.G.S.), cairn, 1932 [1]	1,870,634.79 310,414.52		
Southern California Edison Co. station, 1932.[1]	1,838,487.59 318,943.71		
Los Angeles-San Francisco airway beacon no. 3A (flashing green), 1932.	1,835,544.80 328,506.94		
Violet Ray Gas Co., stack, 1932	1,824,770.85 336,608.63		
Santa Paula Ridge, fire lookout house, 1932.[1]	1,695,877.62 343,688.70		
Bum (U.S.G.S.), 1932 [1]	1,829,557.10 357,039.02		
U. S. Geological Survey black-and-white tripod (west of Haskell Canyon), 1932.	1,844,186.34 355,376.29		

[1] No check on this position.

ZONE 5—Continued

San Fernando to Bakersfield arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*		
U. S. Geological Survey tripod (between Charlie and Tapia Canyons), 1932.	1,824,465.88 370,601.21		
U. S. Geological Survey target (south of station House), 1932.	1,856,112.78 376,091.18		
Pelona (U.S.G.S.), 1932 [1]	1,893,085.95 386,268.81		
Red (U.S.G.S.), cairn, 1932	1,842,456.50 395,886.24		
Leonis Valley, white tower, 1932 [1]	1,890,781.36 420,391.41		
Sawmill Mountain, fire lookout tower, 1932.	1,832,000.04 434,704.63		
Antelope Valley, red-roofed water tank, 1932.	1,903,897.46 456,874.07		
Antelope Valley, silver tank, 1932 [1]	1,905,480.93 456,709.96		
Antelope Valley, white tank, flagstaff, 1932.	1,898,147.85 464,693.90		
Antelope Valley, round white water tank, 1932.[1]	1,909,125.77 474,806.19		
Antelope Valley, white tank with red bottom, 1932.[1]	1,902,156.59 477,502.87		
Los Angeles-Kern county-line marker, 1932.	1,907,627.91 480,538.28		
Los Angeles-San Francisco airway beacon no. 5A (flashing red), 1932.	1,777,013.89 456,053.33		
B. M. 3293 (U.S.G.S.), 1932 [1]	1,917,371.63 503,564.42		
Soledad (U.S.G.S.), cairn, 1932[1]	1,943,714.40 539,569.96		
Los Angeles-San Francisco airway beacon no. 7 (flashing green), 1932.	1,720,262.88 553,066.15		
Monolith, cement plant, tallest stack, 1932.	1,889,234.05 590,932.41		
Tehachapi, water tank, 1932	1,867,444.46 592,786.31		
S. C. of C. triangulation station, 1932 [1]	1,754,310.30 591,942.22		
Los Angeles-San Francisco airway beacon no. 8 (flashing red), 1932.	1,702,338.34 602,168.69		

Taft and vicinity

		° ′ ″	
Principal points			
West, 1932	1,556,600.93 624,461.35	334 04 27.2	Taft, airport beacon.
East, 1932	1,583,355.07 604,577.11	74 19 01.6	Do.
Lake, 1932	1,588,933.99 627,787.35		
Spellacy, 1932	1,561,179.81 590,849.50	216 54 31.0	Do.

[1] No check on this position.

ZONE 5—Continued

Taft and vicinity—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points	*Feet*		
Bear, 1932	1,569,327.46 613,344.20		
Tank, 1932	1,579,526.54 608,623.16		
Pump, 1932	1,572,340.00 608,541.20		
Center, 1932	1,568,978.09 609,437.96		
Taft east base, 1932	1,571,859.06 605,499.49		
Taft west base, 1932	1,568,484.63 606,899.90		
Gate, 1932	1,570,056.55 602,796.27		
Bull, 1932	1,567,653.37 604,277.53		
Gas, 1932	1,578,859.90 611,924.53		
Edge, 1932	1,575,403.23 620,649.17		
Green, 1932	1,570,189.27 607,927.71		
Fault, 1932	1,571,673.99 607,422.90		
Extra, 1932	1,570,028.14 609,114.62		
Inside, 1932	1,568,898.97 608,287.35		
End 1932	1,566,349.85 608,648.70		
Saddle, 1932	1,567,095.19 609,652.60		
House, 1932	1,573,234.81 610,050.77		
Well, 1932	1,571,470.80 610,124.22		
Soco, 1932	1,573,341.55 611,930.42		
Low, 1932	1,576,540.31 608,205.46		
Camp, 1932 [1]	1,575,482.19 607,471.48		
Taft, airport beacon, 1932	1,568,319.45 600,355.63		

Inyokern to San Bernardino arc

Principal points		° ′ ″	
Inyokern, 1933	2,056,194.72 781,577.55	346 01 26	Reference mark no 2.
El Paso (U.S.G.S.), 1933	2,047,173.70 718,838.50		

[1] No check on this position.

ZONE 5—Continued

Inyokern to San Bernardino arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*	° ′ ″	
Spangler, 1933	2,145,568.86 755,372.27		
Rand, 1933	2,095,493.56 669,464.58		
Well, 1933	2,208,021.64 675,510.11		
Fremont (U.S.G.S.), 1933	2,163,214.94 617,038.44		
Black, 1933	2,227,651.36 597,789.55		
Power, 1933	2,125,261.41 575,965.95		
Kramer, 1933	2,143,030.96 515,631.04	264 02 24	Kramer Hills, yellow tank.
Stein, 1933	2,220,607.23 502,803.23		
Silver, 1933	2,137,995.01	83 35 32	Rock Cairn (west of station Silver).
	451,295.82	325 11 43.4	Adelanto, water tank.
Helendale, 1933	2,216,129.93 449,179.84		
Mirage, 1934	2,143,088.48 408,874.22	346 21 56 293 42 15.7	Reference mark no. 3. Adelanto, water tank.
Oro Grande (U.S.G.S.), 1934	2,214,279.03 404,938.37	11 20 15.0	Victorville, Portland Cement Co., tallest stack.
Phelan, 1934	2,132,309.81 322,593.74	292 19 13	Cajon, fire lookout house.
Pinnacle, 1934	2,233,333.86 294,640.42	3 37 11.4	Strawberry Peak, fire lookout tower.
Rafael, 1934	2,143,044.44 260,663.74	265 42 57.6	Do.
Supplementary points			
Goler, 1933	2,081,241.63 700,204.66		
Atolia, 1933	2,116,811.18 660,083.25	7 27 23	Reference mark no. 3.
Beecher, 1933	2,137,911.07 543,439.89		
Sunny Hill, 1933	2,211,324.17 455,439.24	37 31 10.9	Los Angeles-Las Vegas airway beacon no. 8.
Dip, 1934	2,171,415.11 413,485.14	346 06 36	Reference mark no. 3.
Saddleback (U.S.G.S. and L. A. C.), 1934	2,060,918.65 428,040.36		
Black Butte (U.S.G.S. and L. A. C.), 1934	2,083,660.78 384,685.95	131 55 22	Do.
Angle (U.S.G.S. and L. A. C.), 1933	2,102,516.35 385,160.63		
Los Angeles-Las Vegas airway beacon no. 4B, 1934.	1,950,814.36 373,316.90		
Los Angeles-Las Vegas airway beacon no. 5, 1934.	1,973,985.67 406,529.37		

ZONE 5—Continued

Inyokern to San Bernardino arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Los Angeles-Las Vegas airway beacon no. 6, 1934.	2,042,386.09 398,938.99		
Los Angeles-Las Vegas airway beacon no. 7, 1934.	2,141,464.52 431,083.56		
Los Angeles-Las Vegas airway beacon no. 8, 1934.	2,207,417.33 450,351.37		
Iron (U.S.G.S.) cairn, 1933 [1]	2,230,138.22 496,509.93		
Rock cairn (west of station Silver), 1933 [1]	2,130,700.28 450,605.57		
Adelanto, water tank, 1934	2,178,200.22 393,458.05		
Victorville, Portland Cement Co., tallest stack, 1934.	2,210,107.23 384,131.44		
Victor, 1934	2,208,497.84 372,038.30	43 06 55	Reference mark no. 3.
Cajon, 1933	2,165,957.87 308,762.64	245 41 18	Do.
Strawberry Peak, fire lookout tower, 1934	2,231,604.11 267,297.70		
Junior, 1934	2,212,578.97 232,231.12	270 28 45	Reference mark no. 2.
Union, 1934	2,209,361.35 214,751.81	84 05 07	Reference mark no. 3.

One-hundred-and-sixteenth meridian arc

Principal points			
Bernard, 1934	2,582,940.09 139,676.75		
Belle, 1934	2,606,955.38 188,282.03		
Pinto, 1934	2,667,591.28 172,400.35	45 59 25	Reference mark no. 3.
Ivanhoe, 1934	2,695,308.81 210,913.40	278 20 11	Do.
Twentynine Palms, 1934	2,620,708.37 209,599.84	7 02 41	Do.
Valley, 1934	2,628,263.21 262,883.39	307 54 41	Do.
Bullion, 1934	2,629,486.55 322,140.32	133 35 09	Do.
Collins, 1934	2,724,967.88 329,961.78	124 28 01	Do.
Bullion East, 1934	2,642,814.60 312,063.56	323 41 25	Do.
Amboy, 1934	2,679,900.75 392,890.08	265 28 32	Do.
Lead, 1934	2,621,748.50 358,446.41	156 34 50	Do.
Dish Hill, 1934	2,619,073.58 411,505.57	86 38 05	Do.

[1] No check on this position.

ZONE 5—Continued

One-hundred-and-sixteenth meridian arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*	° ′ ″	
East Bristol, 1934	2,697,676.03 408,548.06	144 49 29 298 22 11	Reference mark no. 3. Cadiz, largest railroad tank.
Granite Mountain, 1934	2,687,718.56 478,574.68	268 27 40	Target in cairn.
Ash Hill, 1934	2,586,498.64 435,914.18		
Coronado, 1934	2,601,254.62 477,666.88	228 49 13	Reference mark no. 3.
Flynn, 1934	2,672,889.95 550,194.57	284 36 37	Do.
Crucero, 1934	2,579,747.84 530,760.28	130 14 03	Do.
Cave (U.S.G.S.), 1934	2,501,896.69 575,873.14	52 31 55	Union Pacific Railroad, block signal.
Old Dad Mountain, 1934	2,640,012.51 589,545.23	167 46 41	Reference mark no. 3.
Balch, 1934	2,598,309.04 559,979.61	67 18 58	Do.
Soda, 1934	2,561,472.35 610,994.00	185 51 23	Do.
Silver Lake, 1934	2,598,354.49 689,928.37	182 44 01	Do.
Nub (U.S.G.S.), 1934	2,666,857.23 666,751.39	231 17 52	Do.
Turquoise, 1934	2,618,914.28 710,893.00	31 39 01	Do.
Silurian, 1934	2,589,202.70 737,018.11	80 02 53 86 15 08	Do. B. M. E 163.
Clark, 1934	2,717,739.80 745,789.16	268 53 29	Reference mark no. 3
Supplementary points			
Mecca Hills, airway beacon, 1934	2,613,094.15 63,794.11		
Pinto Mountains, rock cairn, 1934 [1]	2,667,585.40 172,425.80		
Pinto Mountains, rock cairn, 1934 [1]	2,606,952.70 188,289.46		
Pinto Mountains, rock cairn, 1934 [1]	2,695,287.99 210,921.92		
Pinto Mountains, highest point, cairn (M. W. D. of S. C.), 1934.[1]	2,620,676.66 209,656.92		
Dale, 1934	2,690,198.67 248,810.02	191 44 42	Do.
Twentynine Palms, target on sand hill, 1934.[1]	2,599,068.17 244,736.19		
Sheep Hole Mountains, highest part, pole target, 1934.[1]	2,697,863.26 272,469.19		
Bristol Lake (south of), rock cairn with target, 1934.[1]	2,724,970.74 329,986.01		
Amboy (southeast of), cupola on large building, 1934.	2,688,852.13 386,102.77		

[1] No check on this position.

ZONE 5—Continued

One-hundred-and-sixteenth meridian arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Mount Lavic, cairn on south end, 1934 [1]	2,665,507.75 387,177.88		
Los Angeles-Amarillo airway beacon no. 18, 1934.	2,756,531.62 398,810.15		
Bagdad, 1934	2,638,595.23 400,211.35	149 18 56	Reference mark no. 3.
Los Angeles-Amarillo airway beacon no. 16, 1934.[1]	2,638,578.20 400,197.95		
Sibe, 1934	2,597,392.12 425,772.38	335 39 15	Do.
Bristol Mountains, cairn and target, 1934.[1]	2,617,927.56 463,580.56		
Bristol Mountains, cairn, 1934 [1]	2,579,739.76 530,760.22		
G.L.O. Station 191, 1934	2,560,510.40 546,734.39	149 31 22	Do.
Los Angeles-Las Vegas airway beacon no. 13, 1934.	2,481,398.81 577,962.66		
Baker, 1934	2,577,676.21 650,353.10	49 20 54	Do.
Cairn and target, 1934	2,552,611.06 609,709.81		
Los Angeles-Las Vegas airway beacon no. 16, 1934.[1]	2,577,672.93 650,373.06		
Los Angeles-Las Vegas airway beacon no. 17, 1934.	2,646,560.46 698,316.32		
Valley Wells, 1934	2,701,594.85 719,183.16	222 31 05	Do.
Cairn 4880 (U.S.G.S.), 1934	2,635,516.88 723,841.52		
U. S. Forest Service boundary monument no. 190, 1934.[1]	2,717,735.57 745,789.57		
Cairn 2979 (U.S.G.S.), 1934 [1]	2,562,272.75 755,425.47		
Valjean, 1934	2,591,887.17 785,107.97	181 48 30	Do.
Avawatz Mountains (U.S.G.S.), cairn, 1934.	2,496,808.14 736,629.65		
California-Nevada boundary monument no. 120, 1934.	2,705,824.93 841,073.08	246 39 06	Shenandoah Mill, tank.
G.L.O. Pipe (Nevada), 1934 [1]	2,706,441.13 841,193.99		
Devil Peak, cairn (Nevada), 1934	2,756,284.44 809,365.01		
Kingston (U.S.G.S.), cairn (1926), 1934	2,618,966.06 816,831.43		
Cairn (east of Shenandoah Mine) (Nevada), 1934.	2,726,721.54 854,153.64		
Shenandoah Peak, cairn (Nevada), 1934 [1]	2,735,210.28 871,365.82		

[1] No check on this position.

ZONE 5—Continued

San Joaquin Valley arc

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points	*Feet*	° ′ ″	
Earlimart, 1931	1,622,211.60 873,090.77	169 16 56	Reference mark no. 2.
Credow, 1931	1,737,798.06 891,082.44	154 33 05	Do.
Delano, 1931	1,630,175.52 826,587.78	169 09 23	Do.
Mount Poso, 1931	1,701,823.29 763,093.40	121 09 00	Do.
Wasco, 1931	1,604,600.95 766,181.33	359 42 56 32 49 32*	Reference mark no. 1. Wasco, water tank.
Oil Hill, 1931	1,700,433.79 729,959.08	120 11 00	Reference mark no. 1.
Shafter, 1931	1,621,720.26 730,595.42	133 33 14 122 58 03*	Reference mark no. 2. Shafter, municipal water tank.
Supplementary points			
Delano, municipal water tank, 1931	1,631,149.84 828,809.19		
Los Angeles-San Francisco airway beacon no. 12 (flashing green), 1931.	1,631,742.43 821,978.49		
Wasco, water tank, 1931 [1]	1,603,474.70 764,435.18		
Los Angeles-San Francisco airway beacon no. 11 (flashing red), 1931.	1,642,984.75 757,823.63		
Shafter, municipal water tank, 1931	1,621,251.27 730,899.46		
Poso (U.S.G.S.), 1931 [1]	1,701,804.60 763,106.23		
Oil Hill (U.S.G.S.), 1931 [1]	1,700,410.25 729,938.19		
Brown & Moore Oil Co., black water tank, 1931.	1,691,956.00 710,527.00		
Bakersfield, airport, beacon (flashing green), 1931.	1,690,467.06 702,598.83		
Bakersfield, cotton compress, black water tank, 1931 [1]	1,694,685.83 699,869.84		
Oildale, water tank, 1931	1,688,162.58 696,882.81		
Bakersfield, California Water Service, station no. 23, water tank, 1931.	1,707,243.77 689,333.92		
Bakersfield, Fox Theater, clock tower, 1931.	1,695,786.44 684,775.26		
Bakersfield, California Water Service, on A Street, large, shallow, silver-colored water tank, 1931.	1,693,436.60 678,004.30		

[1] No check on this position.
* This azimuth has been computed by means of the θ correction. See page 163.

ZONE 6

Thirty-ninth parallel to United States-Mexico boundary arc

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points	*Feet*	° ′ ″	
Wilson Peak, 1890	1,452,583.03 753,251.94		
San Pedro, 1853	1,366,198.67 581,001.91		
San Juan, 1886	1,548,771.56 638,895.57	310 04 52	Metropolitan Water District, survey signal.
Los Angeles northwest base, 1889	1,452,014.05 641,988.94	240 11 54	Reference mark.
Los Angeles southeast base, 1889	1,486,116.49 595,823.39		
Michelson, 1923	1,453,731.35 752,818.67		
Antonio, 1923	1,569,543.60 760,438.00		
Santiago eccentric, 1923	1,609,757.48 564,146.52		
Santiago, 1899	1,609,727.18 564,129.81		
Niguel, 1884	1,547,890.32 492,870.33		
San Jacinto, 1898	1,869,812.98 599,902.48		
Cuyamaca, 1898	1,890,823.30 283,992.38		
Soledad, 1887	1,692,347.68 246,396.13		
San Miguel, 1898	1,789,086.69 193,428.70		
San Javier (Mexico), 1919	1,924,832.01 128,039.59		
Cerro Gordo (Mexico), 1919	1,841,532.73 52,785.28		
San Antonio (Mexico), 1919	1,756,454.15 123,001.52		
Point Loma Lighthouse (old), 1919	1,695,308.57 185,283.08		
United States-Mexico boundary monument no. 258, 1892	1,731,259.67 134,919.91		

Texas-California arc

Principal points			
Butte, 1910	2,276,011.36 508,655.95	358 16 47	Reference mark no. 3.
American (U.S.G.S.), 1910	2,460,041.64 254,690.65	139 55 24	Do.
Kofa (Ariz.), 1910	2,661,915.97 440,777.50		
Mohawk (Ariz.), 1910	2,801,713.61 163,856.83		
Harquahalla (Ariz.), 1910	2,881,988.02 610,838.08		

ZONE 6—Continued

Texas-California arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points	*Feet*		
El Toro Peak, 1910 [1]	1,946,655.07 493,761.43		
Holt, 1924	2,262,652.08 224,735.94		
Carrizo, 1924	2,072,416.21 239,666.04		
Salton, 1924	2,132,778.74 460,269.64		
Castle Dome Peak (Ariz.), 1910	2,645,452.80 340,542.49		
Sharp Peak, 1910 [1]	2,294,841.93 529,171.31		
Los Angeles County (Coast and Geodetic Survey)			
Principal points		° ′ ″	
Dominguez Hill, 1854	1,397,058.50 623,777.00	219 29 01 272 35 38	Reference mark no. 1. Reference mark no. 2.
Los Cerritos, 1853	1,418,958.00 599,524.52		
Las Bolsas, 1853	1,466,255.86 556,051.77		
Supplementary point			
Point Fermin Lighthouse, 1878	1,378,750.78 565,948.37		
Los Angeles County (Los Angeles County and City)			
Principal points			
West Beach No. 3 (U.S.G.S. and L. A. C. & C.), 1927.	1,349,261.77 629,127.42		
Denker (L. A. C. & C.), 1933	1,377,318.10 650,640.82		
Dominguez 2, 1933	1,398,101.37 622,132.95		
Vernon (L. A. C. & C.), 1933	1,410,367.84 671,751.60		
Dawson (L. A. C. & C.), 1933	1,418,498.48 599,703.20		
Monterey No. 2 (U.S.G.S. and L. A. C. & C.), 1933.	1,426,680.35 691,810.06		
Workman Hill (L. A. F. C. and L. A. C. & C.), 1933.	1,468,928.43 668,507.74		
Bassett (U.S.G.S. and L. A. C. & C.), 1933.	1,471,740.01 694,556.23		
Monrovia (U.S.G.S. and L. A. C. & C.), 1933.	1,465,562.39 730,064.32		

[1] No check on this position.

ZONE 6—Continued

Newport Beach to thirty-fifth parallel arc

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points—Continued			
	Feet	° ′ ″	
Jurupa, 1929	1,638,938.23 680,972.71	3 31 59	Airway beacon.
Armada, 1928	1,711,150.21 621,368.92	123 13 46	March Field, water tank.
Reche, 1928	1,697,854.04 664,681.09	8 01 47 172 08 28	Do. Loma Linda, water tank.
Strawberry, 1929	1,702,714.32 752,917.84		
Keller, 1929	1,758,464.75 739,317.83		
San Berdo, 1929	1,800,540.63 713,061.55		
Supplementary points			
Sugar, 1929	1,588,094.74 595,609.08	144 40 04 325 30 16	Sierra Peak, fire lookout tower. Santiago Peak, fire lookout tower.
San Joaquin, 1928	1,524,684.75 527,247.78	222 50 53	Sugar.
Black, 1929	1,571,103.06 599,463.33	237 47 50	Water tank.
Bee, 1929	1,559,536.23 571,501.49	278 21 13	Santiago Peak, fire lookout tower.
Lomas, 1929	1,545,418.28 584,879.85	287 52 55	Do.
Observatory, 1928	1,535,850.59 586,286.74	33 49 44	Center of pipe in reservoir.
Cloud, 1928	1,617,577.19 618,535.69	130 57 57	Silo.
Grape, 1929	1,610,637.25 630,524.25	63 04 16	Corona, By Products Exchange, water tank.
Sier, 1929	1,574,070.67 615,395.22	302 57 07	Reference mark no. 3.
Crafton, 1929	1,747,207.15 690,429.88		
Foothill, 1929	1,725,236.30 725,402.53		
Chaparral, 1929	1,679,860.85 724,675.13		
La Quinta, 1929	1,699,696.60 696,733.48		
High Grove, 1929	1,683,303.38 676,104.39	138 39 44	Riverside Cement Co., flagpole.
Box Springs, 1929	1,685,267.36 656,326.76	340 48 16	March Field, water tank.
Little High Grove, 1929	1,669,422.45 680,016.77	179 33 47	Riverside Cement Co., flagpole.
Ledge, 1928	1,545,067.96 572,684.07	9 53 19	Water tank, finial.
Ditch, 1928	1,531,760.91 567,324.49		
Mitch, 1928	1,540,776.24 559,521.83		

ZONE 6—Continued

Newport Beach to thirty-fifth parallel arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Como, 1928	1,529,168.05 559,089.87	129 18 28	Windmill on Valencia Avenue.
Vent, 1928	1,525,861.35 565,325.59		
French, 1928	1,529,679.93 545,867.82	167 58 37	White-topped wooden tank.
Smoke, 1928	1,520,178.68 548,808.83		
Airway, 1928	1,513,371.39 560,482.47		
Baranca, 1928	1,506,639.75 540,376.64	62 49 34	Newport Beach, spire on building.
Mare, 1928	1,504,669.33 546,652.30		
Bowen, 1928	1,499,263.39 540,354.41		
Golf, 1928	1,494,686.79 531,672.06	160 30 23	Newport Beach, spire on large building.
Newport, 1928	1,488,068.28 534,896.20	301 50 24	San Diego-Los Angeles airway beacon no. 7A.
Rabbit, 1929	1,553,523.78 585,161.58	163 52 40	Standpipe at head of reservoir.
Glen, 1929	1,563,048.36 586,686.57		
Star, 1929	1,571,735.14 589,391.80	80 16 17	Lomas.
Silver, 1929	1,582,693.84 587,179.10		
Baker, 1929	1,577,885.39 596,200.62	115 41 25.3	Black.
Mine, 1929	1,582,603.34 601,906.28	147 41 01.9	Sier.
Sludge, 1928	1,598,895.01 629,180.12	304 37 50	Corona, By Products Exchange, water tank.
Yorba, 1928	1,595,289.76 623,447.44		
Gypsum, 1928	1,593,831.17 604,989.19	202 30 12	Do.
Arroya, 1928	1,599,131.83 608,907.91		
Hagador, 1929	1,581,958.43 610,365.43		
Spur, 1929	1,590,338.66 602,675.76	232 50 49	Red tank.
Linson, 1928	1,593,427.03 609,308.39		
Prado, 1929	1,592,092.04 616,321.43	283 24 09	Reference mark no. 2.
Pigeon, 1929	1,673,041.63 666,210.99		
Rubidoux, 1929	1,653,720.82 663,084.13	277 42 30	Riverside, tower.

ZONE 6—Continued

Newport Beach to thirty-fifth parallel arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Pachappa, 1929	1,657,432.96 654,568.39		
Bliss, 1928	1,653,520.61 640,994.41		
Green, 1928	1,640,788.24 647,939.00	298 08 16	Reference mark no. 1.
La Sierra, 1929	1,631,850.39 641,351.73	195 04 37	Airway beacon.
Hole, 1928	1,619,354.47 644,175.65	245 25 55	West side of apex of roof of frame-stucco building.
Hump, 1928	1,630,942.49 631,527.85	257 57 57	Flagpole with weather vane.
Linn, 1929	1,616,603.75 636,830.77		
School, 1928	1,624,709.46 627,619.00		
Rail, 1929	1,669,118.55 670,559.19		
Junction, 1929	1,663,338.39 663,835.98		
Fairmont, 1929	1,658,895.48 666,746.27		
Broom, 1929	1,626,911.31 639,104.30		
Henry, 1929	1,608,044.07 616,871.80	260 05 58.0	Cloud.
Van Buren, 1929	1,675,728.47 678,442.38	83 08 15	Reference mark no. 2.
Linda, 1929	1,692,129.30 682,714.69		
Colton, 1929	1,684,117.23 692,647.38		
Loma, 1929	1,682,810.25 681,328.60		
Bryn, 1929	1,692,669.04 691,552.75		
Wilder, 1929	1,685,961.28 686,571.39		
Harlem, 1929	1,706,785.77 707,285.01		
Mentone, 1929	1,739,466.56 697,394.35		
Morton, 1929	1,745,566.06 705,033.95		
Wash, 1929	1,718,770.82 704,251.05		
Rail 2, 1930 [1]	1,669,150.29 670,559.47	36 25 28	Orange light of railway semaphore.
Junction 2, 1930	1,663,309.49 663,843.07		
Southern California Edison Co., triangulation station, 1929.[1]	1,739,464.87 697,391.64		

[1] No check on this position.

ZONE 6—Continued

Riverside to Colorado River arc

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points	*Feet*	° ′ ″	
Eagle (M. W. D. of S. C.), 1931	2,155,345.70 574,327.28	143 34 39	Reference mark no. 3.
Sheep (M. W. D. of S. C.), 1931	2,175,091.36 738,909.00	56 37 36	Do.
Anschutz (M. W. D. of S. C.), 1931	2,218,908.70 572,672.02	290 16 19	Do.
Orocopia (M. W. D. of S. C.), 1931	2,143,485.06 510,570.79		
Coxcomb (M. W. D. of S. C.), 1931	2,279,891.76 622,000.39		
Palen (M. W. D. of S. C.), 1931	2,338,472.09 602,295.33		
Coxcomb east base (M. W. D. of S. C.), 1931.	2,315,417.50 648,038.47		
Comb (M. W. D. of S. C.), 1931	2,288,045.01 644,798.80		
Slope (M. W. D. of S. C.), 1931	2,301,733 83 660,085.17		
Coxcomb west base (M. W. D. of S. C.), 1931.	2,295,227.69 644,863.82		
Forks (M. W. D. of S. C.), 1931	2,299,872.33 631,316.60		
Granite (M. W. D. of S. C.), 1931	2,357,086.44 658,228.37		
Iron (M. W. D. of S. C.), 1931	2,314,384.51 705,269.90		
Sablon (M. W. D. of S. C.), 1932	2,379,734.70 726,760.52		
Danby (M. W. D. of S. C.), 1932	2,347,169.23 703,547.13		
Turtle (M. W. D. of S. C.), 1931	2,436,385.63 718,284.10		
Arica (M. W. D. of S. C.), 1932	2,398,002.59 682,463.39		
Maria (M. W. D. of S. C.), 1931	2,454,594.81 634,977.22		
Riverside (M. W. D. of S. C.), 1931	2,524,929.41 684,470.32		
Grommet (M. W. D. of S. C.), 1931	2,482,854.66 698,844.55		
Axtel (M. W. D. of S. C.), 1931	2,555,593.49 786,459.81		
Gier (M. W. D. of S. C.) (Ariz.), 1932	2,639,147.62 759,112.16		
Black Peak (M. W. D. of S. C.) (Ariz.), 1931.	2,617,229.09 718,477.42		
Bennett (M. W. D. of S. C.), 1932	2,605,033.25 751,573.99		
Parker (M. W. D. of S. C.) (Ariz.), 1932	2,594,977.21 729,361.88		
Parker northeast base (M. W. D. of S. C.) (Ariz.), 1932.	2,607,732.49 732,422.06		

ZONE 6—Continued

Riverside to Colorado River arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*		
Parker southwest base (M. W. D. of S. C.) (Ariz.), 1932.	2, 598, 938. 50 718, 630. 07		
Friant (U.S.G.S.) (Ariz.), 1932	2, 627, 941. 42 806, 235. 70		
Metal (M. W. D. of S. C.), 1932	2, 629, 802. 57 785, 988. 42		
Cajalco Reservoir to Colorado River arc			
Principal points			
Field (M. W. D. of S. C.), 1931	1, 680, 349. 73 631, 171. 68		
Rocky (M. W. D. of S. C.), 1931	1, 694, 207. 49 599, 528. 58		
Mock (M. W. D. of S. C.), 1931	1, 663, 391. 23 621, 476. 81		
Bird (M. W. D. of S. C.), 1931	1, 669, 869. 78 602, 731. 81		
North Cajalco (M. W. D. of S. C.), 1931	1, 639, 720. 07 619, 756. 25		
South Cajalco (M. W. D. of S. C.), 1931	1, 648, 893. 75 601, 364. 09		
Cajalco northeast base (M. W. D. of S. C.), 1932.	1, 649, 223. 57 617, 702. 24		
Cajalco southwest base (M. W. D. of S. C.), 1932.	1, 639, 982. 50 609, 259. 44		
Perris (M. W. D. of S. C.), 1931	1, 728, 400. 93 616, 545. 18		
Nuevo (M. W. D. of S. C.), 1931	1, 734, 348. 15 589, 931. 19		
Coney (M. W. D. of S. C.), 1931	1, 711, 674. 82 610, 739. 21		
Nelson (M. W. D. of S. C.), 1931	1, 751, 000. 31 603, 623. 23		
Eden (M. W. D. of S. C.), 1931	1, 758, 300. 27 628, 389. 22		
Pico west base (M. W. D. of S. C.), 1931	1, 754, 335. 98 611, 877. 73		
Pico east base (M. W. D. of S. C.), 1931	1, 765, 608. 14 606, 840. 74		
David (M. W. D. of S. C.), 1931	1, 773, 658. 65 634, 450. 10		
Wolf (M. W. D. of S. C.), 1931	1, 794, 931. 17 603, 621. 73		
Banning (M. W. D. of S. C.), 1931	1, 811, 919. 47 651, 174. 21		
Oak (M. W. D. of S. C.), 1931	1, 808, 541. 17 623, 593. 45		
Ranger (M. W. D. of S. C.), 1931	1, 825, 553. 13 610, 921. 23		
Hemet (M. W. D. of S. C.), 1931	1, 790, 499. 26 579, 603. 06		

ZONE 6—Continued

Cajalco Reservoir to Colorado River arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*	° ′ ″	
Pierce (M. W. D. of S. C.), 1931	1,776,159.43 593,117.29		
Lard (M. W. D. of S. C.), 1931	1,831,109.66 647,383.79		
Barton (M. W. D. of S. C.), 1931	1,822,243.68 625,239.55		
Cabazon (M. W. D. of S. C.), 1931	1,841,111.50 624,754.87		
Gorgonio (M. W. D. of S. C.), 1931	1,863,280.67 630,387.47		
Hidden (M. W. D. of S. C.), 1931	1,851,761.45 652,811.62		
Cabazon west base (M. W. D. of S. C.), 1931.	1,846,980.49 638,226.78		
Cabazon east base (M. W. D. of S. C.), 1931.	1,859,241.59 638,292.37		
Mecca Hill (M. W. D. of S. C.), 1931	2,067,345.36 534,030.98	287 37 10	Reference mark no. 3.
Little Berdoo (M. W. D. of S. C.), 1931	2,049,133.60 616,600.63		
La Quinta (M. W. D. of S. C.), 1931	1,981,195.61 559,365.25		
Edom (M. W. D. of S. C.), 1931	1,945,787.86 619,784.34		
Myoma northwest base (M. W. D. of S. C.), 1931.	1,986,131.79 588,068.86		
Myoma southeast base (M. W. D. of S. C.), 1931.	1,999,331.37 578,596.47		
North Indio (M. W. D. of S. C.), 1931	2,007,799.60 594,899.92		
Mine (M. W. D. of S. C.), 1931	2,006,943.34 620,038.39		
Palms (M. W. D. of S. C.), 1931	1,965,426.50 619,140.19		
Deception (M. W. D. of S. C.), 1931	1,985,881.67 634,733.69		
Wide (M. W. D. of S. C.), 1931	1,967,490.98 639,097.53		
Short (M. W. D. of S. C.), 1931	1,950,127.15 642,002.17		
Garnet (M. W. D. of S. C.), 1931	1,912,952.95 630,005.42		
Mission (M. W. D. of S. C.), 1931	1,916,141.19 658,489.71		
Beacon (M. W. D. of S. C.), 1931	1,888,910.48 639,562.97		
Morongo (M. W. D. of S. C.), 1931	1,898,339.04 662,859.59		
Pass (M. W. D. of S. C.), 1931	1,882,966.64 627,635.25		
Whitewater (M. W. D. of S. C.), 1931	1,874,420.67 647,042.04		

ZONE 6—Continued

Cajalco Reservoir to Colorado River arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*		
Coach (M. W. D. of S. C.), 1931	2,028,143.27 572,583.11		
Dino (M. W. D. of S. C.), 1931	2,027,544.80 600,124.09		
Bern (M. W. D. of S. C.), 1931	2,040,750.58 589,339.06		
Fargo (M. W. D. of S. C.), 1931	2,054,243.32 572,128.42		
Therm (M. W. D. of S. C.), 1931	2,050,147.48 554,861.12		
Cotton (M. W. D. of S. C.), 1931	2,076,946.27 566,108.33		
Shavers Well (M. W. D. of S. C.), 1931	2,098,289.73 528,666.95		
Cottonwood (M. W. D. of S. C.), 1931	2,103,662.03 564,681.49		
Wood (M. W. D. of S. C.), 1931	2,121,650.41 557,400.61		
Oro (M. W. D. of S. C.), 1931	2,120,957.07 532,038.00		
Copia (M. W. D. of S. C.), 1931	2,140,016.71 530,864.33		
Boulder (M. W. D. of S. C.), 1931	2,153,223.21 553,613.96		
Summit (M. W. D. of S. C.), 1931	2,175,655.20 536,721.80		
Red (M. W. D. of S. C.), 1931	2,175,545.43 560,260.39		
Camp (M. W. D. of S. C.), 1931	2,195,183.99 561,285.10		
Hay (M. W. D. of S. C.), 1931	2,206,346.52 542,979.13		
Hayfield west base (M. W. D. of S. C.), 1931.	2,180.390.43 551,504.80		
Hayfield east base (M. W. D. of S. C.), 1931.	2,195,888.86 554,989.86		
Necessity (M. W. D. of S. C.), 1931	2,219,150.09 563,407.49		
Sharp (M. W. D. of S. C.), 1931	2,232,142.44 549,416.62		
Entrance (M. W. D. of S. C.), 1931	2,229,539.26 565,072.41		
Gator (M. W. D. of S. C.), 1931	2,255,807.91 559,793.45		
Chuck (M. W. D. of S. C.), 1931	2,258,418.19 578,351.52		
May (M. W. D. of S. C.), 1931	2,237,531.99 586,375.59		
Cone (M. W. D. of S. C.), 1931	2,250,320.56 598,218.65		
Sandy (M. W. D. of S. C.), 1931	2,270,432.62 595,754.87		

ZONE 6—Continued

Cajalco Reservoir to Colorado River arc—Continued

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*		
Flat (M. W. D. of S. C.), 1931	2,272,332.70 612,527.64		
Pinto (M. W. D. of S. C.), 1931	2,250,131.35 626,726.46		
Cox (M. W. D. of S. C.), 1931	2,270,254.46 636,536.20		
Foot (M. W. D. of S. C.), 1932	2,290,870.17 670,227.15		
Cross (M. W. D. of S. C.), 1931	2,316,347.94 677,911.57		
Island (M. W. D. of S. C.), 1932	2,284,243.12 699,848.66		
Cadiz (M. W. D. of S. C.), 1932	2,300,326.18 729,162.45		
North Iron (M. W. D. of S. C.), 1932	2,322,574.63 726,448.14		
Granite Shaft (M. W. D. of S. C.), 1931	2,328,633.19 683,258.70		
Lake (M. W. D. of S. C.), 1932	2,344,130.42 727,651.85		
East Iron (M. W. D. of S. C.), 1932	2,335,764.97 723,741.24		
Iron west base (M. W. D. of S. C.), 1932	2,332,509.95 710,300.62		
Dune (M. W. D. of S. C.), 1931	2,379,809.34 688,243.31		
Freda (M. W. D. of S. C.), 1931	2,407,038.89 712,509.46		
Rice (M. W. D. of S. C.), 1932	2,439,465.34 705,345.77		
Mole (M. W. D. of S. C.), 1931	2,476,606.02 715,494.88		
Vidal (M. W. D. of S. C.), 1932	2,528,927.67 729,905.71		
Stone (M. W. D. of S. C.), 1932	2,499,150.81 740,501.18		
Mesa (M. W. D. of S. C.), 1931	2,529,025.86 745,983.40		
Vista (M. W. D. of S. C.), 1932	2,561,265.53 746,157.58		
Cairn (M. W. D. of S. C.), 1932	2,590,182.80 753,210.67		
Start (M. W. D. of S. C.), 1932	2,576,239.85 749,962.85		
Badger (M. W. D. of S. C.), 1932	2,628,422.63 774,686.07		
Lunch (M. W. D. of S. C.), 1932	2,615,210.13 778,131.63		
Copper (M. W. D. of S. C.), 1932	2,601,148.03 774,776.38		

ZONE 6—Continued

Inyokern to San Bernardino arc

Station	x coordinate / y coordinate	Plane azimuth	Mark
Principal point	*Feet*	° ′ ″	
Rafael, 1934	1,673,938.50 747,803.26	259 51 35.0	Strawberry Peak fire lookou tower.
Supplementary points			
Cajon, 1933	1,637,667.89 795,512.93	246 39 41	Reference mark no. 3.
Strawberry Peak, fire lookout tower, 1934	1,702,607.96 752,930.87		
Junior, 1934	1,682,986.00 718,190.45	271 27 18	Reference mark no. 2.
Union, 1934	1,679,470.94 700,767.40	85 03 40	Reference mark no. 3.

One-hundred-and-sixteenth meridian arc

Principal points			
Bernard, 1934	2,051,700.97 619,258.65		
Belle, 1934	2,076,562.09 667,435.94		
Pinto, 1934	2,136,910.47 650,493.35	46 59 49	Reference mark no. 3.
Ivanhoe, 1934	2,165,301.51 688,513.60	279 20 42	Do.
Twentynine Palms, 1934	2,090,686.59 688,510.25	8 02 54	Do.
Valley, 1934	2,099,174.46 741,657.01	308 54 56	Do.
Bullion, 1934	2,101,436.60 800,891.52	134 35 24	Do.
Collins, 1934	2,197,057.49 807,033.70	125 28 40	Do.
Bullion East, 1934	2,114,602.75 790,580.91	324 41 44	Do.
Lead, 1934	2,094,334.63 837,334.70	157 35 04	Do.
Supplementary points			
Mecca Hills, airway beacon, 1934	2,080,520.95 542,866.98		
Pinto Mountains, rock cairn, 1934 [1]	2,136,905.05 650,518.91		
Pinto Mountains, rock cairn, 1934 [1]	2,076,559.56 667,443.41		
Pinto Mountains, rock cairn, 1934 [1]	2,165,280.85 688,522.50		
Pinto Mountains, highest point, cairn (M. W. D. of S. C.), 1934.[1]	2,090,655.87 688,567.88		
Dale, 1934	2,160,858.94 726,496.64	192 45 12	Do.
Twentynine Palms, target on sand hill, 1934.[1]	2,069,663.47 724,022.15		
Sheep Hole Mountains, highest part, pole target, 1934.[1]	2,168,939.64 750,019.53		
Bristol Lake (south of) rock cairn with target, 1934.[1]	2,197,060.77 807,057.89		

[1] No check on this position.

EXPLANATION OF PLANE-COORDINATE PROJECTION TABLES

The State tables of plane coordinates are intended primarily for use in the reduction of geodetic positions to grid coordinates, and they were computed with that end in view. However, they serve another purpose, sometimes being needed in the computation of surveys on the grid coordinate system. The zone projection constants are frequently needed in the solution of special problems, while the scale factors are necessary if computations are to produce exact results through the elimination of variations in scale.

There are several ways in which the table of scales can be used on the Lambert grids. The factors are listed for every minute of latitude and the most rigid method of using them is to determine the mean latitude of each line of a survey and interpolate for this value. But in general we do not have the latitudes of the stations of a survey and hence we have no means of computing the latitude of the middle of a given line. If United States Geological Survey quadrangle maps for the region are available, a traverse can be plotted on them approximately by angles and distances, and then the latitudes of the middle points of the various lines can be scaled from the maps. This has been found to be very satisfactory in a general way. Unfortunately, these maps are not always available and for many sections of the country no such maps have yet been made.

With most traverses of ordinary length, it would be sufficiently accurate to determine the mean latitude of the whole traverse. If the traverse runs from one geodetic control point to another, the latitudes of the control points would be known and from these a mean latitude of the whole traverse could be found. The scale factor for this mean latitude could then be adopted for the whole traverse. By noting how much change there is in the scale factor as given for the two control stations, one can judge whether this method would be satisfactory. Except where exact results are sought, this method would be satisfactory, unless the traverse is a very long one and covers a great distance in a north-south direction.

A third method of approximation can be employed in the following manner. If the computations of the grid coordinates for the control stations are available, a mean of the y'' values for these control stations can be subtracted from the y coordinates of the various traverse stations to determine approximate y' values for those stations. A mean of these for the ends of each line of the traverse would give a mean approximate y' value for each line with which interpolation could be made in the y' table for a scale factor for the various lines. This method is not very acceptable for two reasons. In general the computations of the grid coordinates of the control stations would not be available, since only the coordinates of the same are given; and in the second place, a preliminary computation of the y coordinates for the various stations of the traverse would have to be made. Either a plotting of the traverse on a map or the adoption of a mean scale factor would seem to be the best solution of the question.

The scale factors are tabulated in two forms: First, as a correction to the final places of the logarithm of the length; and, second, as a ratio for direct multiplication. The logarithmic corrections

are given in units of the seventh place of logarithms, with tenths for the eighth place. These corrections are given the signs that must be used in applying them to the measured lengths reduced to sea level; that is, they must be added algebraically with the sign as given to the logarithms of those lengths. The ratio form is used as a factor for multiplying the measured lengths. If one wishes to go from the grid length to the geodetic length, the logarithmic correction must be subtracted algebraically and the factor used as a divisor. This correction of a grid length gives a geodetic or sea-level length; a further correction for elevation must be applied to secure the ground-level length. In the computation of the traverse the measured length should be reduced to sea level before the grid factor is applied.

Reference should be made to Special Publication No. 193, Manual of Plane-Coordinate Computation, and to Special Publication No. 194, Manual of Traverse Computation on the Lambert Grid. These publications give full accounts of the use of the State tables and of the use of coordinates in computations.

PLANE-COORDINATE PROJECTION TABLES

TABLE OF CONSTANTS

Constant	Zone		
	1	2	3
Standard parallel (south)	40°00′	38°20′	37°04′
Standard parallel (north)	41°40′	39°50′	38°26′
Central meridian	122°00′	122°00′	120°30′
l	0.6538843192	0.6304679732	0.6122320427
log l	9.8155009227−10	9.7996630299−10	9.7869160557−10
log K	7.6054570526	7.6135991422	7.6206261281
y_0 feet	+547,078.17	+516,407.35	+455,516.19
$\log \frac{1}{2\rho_0^2 \sin 1''}$	0.3724621−10	0.3726393−10	0.3727729−10

Constant	Zone		
	4	5	6
Standard parallel (south)	36°00′	34°02′	32°47′
Standard parallel (north)	37°15′	35°28′	33°53′
Central meridian	119°00′	118°00′	116°15′
l	0.5965571443	0.5700119219	0.5495175982
log l	9.7756738907−10	9.7558839391−10	9.7399816052−10
log K	7.6271443424	7.6392675454	7.6495876331
y_0 feet	+470,526.63	+455,278.73	+424,696.79
$\log \frac{1}{2\rho_0^2 \sin 1''}$	0.3728843−10	0.3730670−10	0.3732022−10

$$\text{Geodetic azimuth} - \text{grid azimuth} = +\theta - \frac{x_2 - x_1}{2\rho_0^2 \sin 1''}\left(y_1 - y_0 + \frac{y_2 - y_1}{3}\right)$$

ZONE 1

Table I

Latitude		R	y′ (y value on the central meridian)	Tabular difference of R for 1 second of latitude	Scale correction expressed in units of the seventh place of logarithms	Scale correction expressed as a ratio
°	′	*Feet*	*Feet*	*Feet*		
39	20	24 792 436.23	0.00	101.20050	+1 016.9	1.000 2341
	21	24 786 364.20	6 072.03	.20000	984.5	267
	22	24 780 292.20	12 144.03	.19967	952.4	193
	23	24 774 220.22	18 216.01	917	920.7	120
	24	24 768 148.27	24 287.96	867	889.4	2048
	25	24 762 076.35	30 359.88	817	858.4	1977
39	26	24 756 004.46	36 431.77	101.19783	+827.7	1.000 1906
	27	24 749 932.59	42 503.64	750	797.5	836
	28	24 743 860.74	48 575.49	717	767.6	767
	29	24 737 788.91	54 647.32	650	738.0	699
	30	24 731 717.12	60 719.11	633	708.8	632
39	31	24 725 645.34	66 790.89	101.19583	+680.0	1.000 1566
	32	24 719 573.59	72 862.64	550	651.5	1500
	33	24 713 501.86	78 934.37	533	623.3	1435
	34	24 707 430.14	85 006.09	483	595.6	1371
	35	24 701 358.45	91 077.78	450	568.2	1308
39	36	24 695 286.78	97 149.45	101.19417	+541.1	1.000 1246
	37	24 689 215.13	103 221.10	383	514.4	1184
	38	24 683 143.50	109 292.73	350	488.1	1124
	39	24 677 071.89	115 364.34	317	462.1	1064
	40	24 671 000.30	121 435.93	300	436.5	1005
39	41	24 664 928.72	127 507.51	101.19250	+411.2	1.000 0947
	42	24 658 857.17	133 579.06	233	386.4	890
	43	24 652 785.63	139 650.60	217	361.8	833
	44	24 646 714.10	145 722.13	183	337.7	778
	45	24 640 642.59	151 793.64	150	313.8	723
39	46	24 634 571.10	157 865.13	101.19133	+290.4	1.000 0669
	47	24 628 499.62	163 936.61	100	267.3	615
	48	24 622 428.16	170 008.07	083	244.6	563
	49	24 616 356.71	176 079.52	067	222.2	512
	50	24 610 285.27	182 150.96	033	200.2	461
39	51	24 604 213.85	188 222.38	101.19033	+178.5	1.000 0411
	52	24 598 142.43	194 293.80	.19000	157.3	362
	53	24 592 071.03	200 365.20	.18983	136.3	314
	54	24 585 999.64	206 436.59	950	115.8	267
	55	24 579 928.27	212 507.96	950	95.6	220
39	56	24 573 856.90	218 579.33	101.18933	+75.8	1.000 0175
	57	24 567 785.54	224 650.69	917	56.3	130
	58	24 561 714.19	230 722.04	900	37.2	86
	59	24 555 642.85	236 793.38	883	18.4	42
40	00	24 549 571.52	242 864.71	867	0.0	1.000 0000
40	01	24 543 500.20	248 936.03	101.18867	−18.0	0.999 9959
	02	24 537 428.88	255 007.35	850	35.7	918
	03	24 531 357.57	261 078.66	833	53.1	878
	04	24 525 286.27	267 149.96	833	70.0	839
	05	24 519 214.97	273 221.26	817	86.6	801
40	06	24 513 143.68	279 292.55	101.18817	−102.9	0.999 9763
	07	24 507 072.39	285 363.84	817	118.8	726
	08	24 501 001.10	291 435.13	800	134.3	691
	09	24 494 929.82	297 506.41	783	149.4	656
	10	24 488 858.55	303 577.68	800	164.2	622
40	11	24 482 787.27	309 648.96	101.18783	−178.6	0.999 9589
	12	24 476 716.00	315 720.23	783	192.7	556
	13	24 470 644.73	321 791.50	783	206.4	525
	14	24 464 573.46	327 862.77	767	219.7	494
	15	24 458 502.20	333 934.03	783	232.7	464
40	16	24 452 430.93	340 005.30	101.18783	−245.3	0.999 9435
	17	24 446 359.66	346 076.57	783	257.6	407
	18	24 440 288.39	352 147.84	783	269.4	380
	19	24 434 217.12	358 219.11	783	280.9	353
	20	24 428 145.85	364 290.38	800	292.1	327

ZONE 1—Continued

Table I—Continued

Latitude		R	y′ (y value on the central meridian)	Tabular difference of R for 1 second of latitude	Scale correction expressed in units of the seventh place of logarithms	Scale correction expressed as a ratio
°	′	*Feet*	*Feet*	*Feet*		
40	21	24 422 074.57	370 361.66	101.18800	−302.9	0.999 9303
	22	24 416 003.29	376 432.94	800	313.3	279
	23	24 409 932.01	382 504.22	800	323.4	255
	24	24 403 860.73	388 575.50	817	333.1	233
	25	24 397 789.44	394 646.79	833	342.5	211
40	26	24 391 718.14	400 718.09	101.18833	−351.4	0.999 9191
	27	24 385 646.84	406 789.39	850	360.0	171
	28	24 379 575.53	412 860.70	850	368.3	152
	29	24 373 504.22	418 932.01	867	376.2	134
	30	24 367 432.90	425 003.33	867	383.7	116
40	31	24 361 361.58	431 074.65	101.18900	−390.9	0.999 9100
	32	24 355 290.24	437 145.99	900	397.7	084
	33	24 349 218.90	443 217.33	917	404.1	70
	34	24 343 147.55	449 288.68	950	410.2	55
	35	24 337 076.18	455 360.05	950	415.9	42
40	36	24 331 004.81	461 431.42	101.18967	−421.2	0.999 9030
	37	24 324 933.43	467 502.80	19000	426.2	19
	38	24 318 862.03	473 574.20	19000	430.8	9008
	39	24 312 790.63	479 645.60	33	435.0	8998
	40	24 306 719.21	485 717.02	50	438.9	89
40	41	24 300 647.78	491 788.45	101.19067	−442.4	0.999 8981
	42	24 294 576.34	497 859.89	100	445.6	74
	43	24 288 504.88	503 931.35	117	448.4	68
	44	24 282 433.41	510 002.82	150	450.8	62
	45	24 276 361.92	516 074.31	167	452.8	57
40	46	24 270 290.42	522 145.81	101.19183	−454.5	0.999 8953
	47	24 264 218.91	528 217.32	233	455.8	50
	48	24 258 147.37	534 288.86	250	456.8	48
	49	24 252 075.82	540 360.41	267	457.4	47
	50	24 246 004.26	546 431.97	317	457.6	46
40	51	24 239 932.67	552 503.56	101.19333	−457.4	0.999 8947
	52	24 233 861.07	558 575.16	367	456.9	48
	53	24 227 789.45	564 646.78	400	456.0	50
	54	24 221 717.81	570 718.42	433	454.8	53
	55	24 215 646.15	576 790.08	467	453.2	56
40	56	24 209 574.47	582 861.76	101.19517	−451.2	0.999 8961
	57	24 203 502.76	588 933.47	533	448.8	67
	58	24 197 431.04	595 005.19	567	446.2	73
	59	24 191 359.30	601 076.93	617	443.0	80
41	00	24 185 287.53	607 148.70	650	439.6	88
41	01	24 179 215.74	613 220.49	101.19700	−435.8	0.999 8996
	02	24 173 143.92	619 292.31	733	431.6	9006
	03	24 167 072.08	625 364.15	750	427.1	17
	04	24 161 000.23	631 436.00	817	422.2	28
	05	24 154 928.34	637 507.89	850	416.9	40
41	06	24 148 856.43	643 579.80	101.19900	−411.3	0.999 9053
	07	24 142 784.49	649 651.74	50	405.2	67
	08	24 136 712.52	655 723.71	19983	398.9	81
	09	24 130 640.53	661 795.70	20033	392.1	097
	10	24 124 568.51	667 867.72	083	385.0	113
41	11	24 118 496.46	673 939.77	101.20117	−377.5	0.999 9131
	12	24 112 424.39	680 011.84	183	369.7	149
	13	24 106 352.28	686 083.95	217	361.4	168
	14	24 100 280.15	692 156.08	283	352.9	187
	15	24 094 207.98	698 228.25	317	343.9	208
41	16	24 088 135.79	704 300.44	101.20383	−334.6	0.999 9230
	17	24 082 063.56	710 372.67	433	324.9	252
	18	24 075 991.30	716 444.93	483	314.8	275
	19	24 069 919.01	722 517.22	533	304.4	299
	20	24 063 846.69	728 589.54	583	293.6	324

ZONE 1—Continued

Table I—Continued

Latitude		R	y′ (y value on the central meridian)	Tabular difference of R for 1 second of latitude	Scale correction expressed in units of the seventh place of logarithms	Scale correction expressed as a ratio
°	′	*Feet*	*Feet*	*Feet*		
41	21	24 057 774.34	734 661.89	101.20650	−282.4	0.999 9350
	22	24 051 701.95	740 734.28	717	270.9	376
	23	24 045 629.52	746 806.71	767	259.0	404
	24	24 039 557.06	752 879.17	817	246.7	432
	25	24 033 484.57	758 951.66	883	234.1	461
41	26	24 027 412.04	765 024.19	101.20950	−221.1	0.999 9491
	27	24 021 339.47	771 096.76	21000	207.7	522
	28	24 015 266.87	777 169.36	067	193.9	554
	29	24 009 194.23	783 242.00	133	179.8	586
	30	24 003 121.55	789 314.68	183	165.3	619
41	31	23 997 048.84	795 387.39	101.21267	−150.4	0.999 9654
	32	23 990 976.08	801 460.15	317	135.2	689
	33	23 984 903.29	807 532.94	400	119.6	725
	34	23 978 830.45	813 605.78	450	103.6	761
	35	23 972 757.58	819 678.65	533	87.3	799
41	36	23 966 684.66	825 751.57	101.21600	−70.6	0.999 9837
	37	23 960 611.70	831 824.53	667	53.5	877
	38	23 954 538.70	837 897.53	733	36.0	917
	39	23 948 465.66	843 970.57	817	18.2	0.999 9958
	40	23 942 392.57	850 043.66	883	0.0	1.000 0000
41	41	23 936 319.44	856 116.79	101.21950	+18.6	1.000 0043
	42	23 930 246.27	862 189.96	2017	37.5	086
	43	23 924 173.06	868 263.17	117	56.8	131
	44	23 918 099.79	874 336.44	183	76.5	176
	45	23 912 026.48	880 409.75	250	96.5	222
41	46	23 905 953.13	886 483.10	101.22333	+117.0	1.000 0269
	47	23 899 879.73	892 556.50	417	137.8	317
	48	23 893 806.28	898 629.95	500	159.0	366
	49	23 887 732.78	904 703.45	567	180.5	416
	50	23 881 659.24	910 776.99	650	202.4	466
41	51	23 875 585.65	916 850.58	101.22750	+224.7	1.000 0517
	52	23 869 512.00	922 924.23	817	247.4	570
	53	23 863 438.31	928 997.92	900	270.4	623
	54	23 857 364.57	935 071.66	2983	293.8	676
	55	23 851 290.78	941 145.45	3083	317.5	731
41	56	23 845 216.93	947 219.30	101.23150	+341.7	1.000 0787
	57	23 839 143.04	953 293.19	233	366.2	843
	58	23 833 069.08	959 367.15	333	391.1	901
	59	23 826 995.08	965 441.15	417	416.4	959
42	00	23 820 921.03	971 515.20	517	442.0	1018
42	01	23 814 846.92	977 589.31	101.23617	+468.0	1.000 1078
	02	23 808 772.75	983 663.48	683	494.4	138
	03	23 802 698.54	989 737.69	800	521.1	200
	04	23 796 624.26	995 811.97	883	548.2	262
	05	23 790 549.93	1 001 886.30	3983	575.7	326
42	06	23 784 475.54	1 007 960.69	101.24067	+603.6	1.000 1390
	07	23 778 401.10	1 014 035.13	167	631.8	455
	08	23 772 326.60	1 020 109.63	283	660.4	521
	09	23 766 252.03	1 026 184.20	367	689.4	588
	10	23 760 177.41	1 032 258.82	450	718.8	655
42	11	23 754 102.74	1 038 333.49	101.24567	+748.5	1.000 1723
	12	23 748 028.00	1 044 408.23	667	778.6	793
	13	23 741 953.20	1 050 483.03	767	809.1	863
	14	23 735 878.34	1 056 557.89	867	840.0	1934
	15	23 729 803.42	1 062 632.81	4967	871.2	2006
42	16	23 723 728.44	1 068 707.79	101.25083	+902.8	1.000 2079
	17	23 717 653.39	1 074 782.84	167	934.8	152
	18	23 711 578.29	1 080 857.94	317	967.2	227
	19	23 705 503.10	1 086 933.13	101.25367	999.9	302
42	20	23 699 427.88	1 093 008.35		1 033.0	1.000 2379

ZONE 1—Continued

Table II

[1″ of longitude=0″.65388432 of θ]

Longitude		θ			Longitude		θ			Longitude		θ		
°	′	°	′	″	°	′	°	′	″	°	′	°	′	″
119	30	+1	38	04.9589	120	36	+0	54	55.5770	121	41	+0	12	25.4281
	31		37	25.7258		37		54	16.3439		42		11	46.1951
	32		36	46.4928		38		53	37.1109		43		11	06.9620
	33		36	07.2597		39		52	57.8778		44		10	27.7289
	34		35	28.0266		40		52	18.6447		45		09	48.4959
	35		34	48.7936										
					120	41	+0	51	39.4117	121	46	+0	09	09.2628
119	36	+1	34	09.5605		42		51	00.1786		47		08	30.0298
	37		33	30.7275		43		50	20.9456		48		07	50.7967
	38		32	51.0944		44		49	41.7125		49		07	11.5637
	39		32	11.8613		45		49	02.4794		50		06	32.3306
	40		31	32.6283										
					120	46	+0	48	23.2464	121	51	+0	05	53.0975
119	41	+1	30	53.3952		47		47	44.0133		52		05	13.8645
	42		30	14.1622		48		47	04.7803		53		04	34.6314
	43		29	34.9291		49		46	25.5472		54		03	55.3984
	44		28	55.6961		50		45	46.3141		55		03	16.1653
	45		28	16.4630										
					120	51	+0	45	07.0811	121	56	+0	02	36.9322
119	46	+1	27	37.2299		52		44	27.8480		57		01	57.6992
	47		26	57.9969		53		43	48.6150		58		01	18.4661
	48		26	18.7638		54		43	09.3819		59		00	39.2331
	49		25	39.5308		55		42	30.1488	122	00		00	00.0000
	50		25	00.2977										
					120	56	+0	41	50.9158	122	01	−0	00	39.2331
119	51	+1	24	21.0646		57		41	11.6827		02		01	18.4661
	52		23	41.8316		58		40	32.4497		03		01	57.6992
	53		23	02.5985		59		39	53.2166		04		02	36.9322
	54		22	23.3655	121	00		39	13.9836		05		03	16.1653
	55		21	44.1324										
					121	01	+0	38	34.7505	122	06	−0	03	55.3984
119	56	+1	21	04.8993		02		37	55.5174		07		04	34.6314
	57		20	25.6663		03		37	16.2844		08		05	13.8645
	58		19	46.4332		04		36	37.0513		09		05	53.0975
	59		19	07.2002		05		35	57.8183		10		06	32.3306
120	00		18	27.9671										
					121	06	+0	35	18.5852	122	11	−0	07	11.5637
120	01	+1	17	48.7340		07		34	39.3521		12		07	50.7967
	02		17	09.5010		08		34	00.1191		13		08	30.0298
	03		16	30.2679		09		33	20.8860		14		09	09.2628
	04		15	51.0349		10		32	41.6530		15		09	48.4959
	05		15	11.8018										
					121	11	+0	32	02.4199	122	16	−0	10	27.7289
120	06	+1	14	32.5687		12		31	23.1868		17		11	06.9620
	07		13	53.3357		13		30	43.9538		18		11	46.1951
	08		13	14.1026		14		30	04.7207		19		12	25.4281
	09		12	34.8696		15		29	25.4877		20		13	04.6612
	10		11	55.6365										
					121	16	+0	28	46.2546	122	21	−0	13	43.8942
120	11	+1	11	16.4035		17		28	07.0215		22		14	23.1273
	12		10	37.1704		18		27	27.7885		23		15	02.3604
	13		09	57.9373		19		26	48.5554		24		15	41.5934
	14		09	18.7043		20		26	09.3224		25		16	20.8265
	15		08	39.4712										
					121	21	+0	25	30.0893	122	26	−0	17	00.0595
120	16	+1	08	00.2382		22		24	50.8562		27		17	39.2926
	17		07	21.0051		23		24	11.6232		28		18	18.5257
	18		06	41.7720		24		23	32.3901		29		18	57.7587
	19		06	02.5390		25		22	53.1571		30		19	36.9918
	20		05	23.3059										
					121	26	+0	22	13.9240	122	31	−0	20	16.2248
120	21	+1	04	44.0729		27		21	34.6910		32		20	55.4579
	22		04	04.8398		28		20	55.4579		33		21	34.6910
	23		03	25.6067		29		20	16.2248		34		22	13.9240
	24		02	46.3737		30		19	36.9918		35		22	53.1571
	25		02	07.1406										
					121	31	+0	18	57.7587	122	36	−0	23	32.3901
120	26	+1	01	27.9076		32		18	18.5257		37		24	11.6232
	27		00	48.6745		33		17	39.2926		38		24	50.8562
	28	+1	00	09.4414		34		17	00.0595		39		25	30.0893
	29	+0	59	30.2084		35		16	20.8265		40		26	09.3224
	30		58	50.9753										
					121	36	+0	15	41.5934	122	41	−0	26	48.5554
120	31	+0	58	11.7423		37		15	02.3604		42		27	27.7885
	32		57	32.5092		38		14	23.1273		43		28	07.0215
	33		56	53.2762		39		13	43.8942		44		28	46.2546
	34		56	14.0431		40		13	04.6612		45		29	25.4877
	35		55	34.8100										

ZONE 1—Continued

Table II—Continued

[1″ of longitude=0″.65388432 of θ]

Longitude		θ			Longitude		θ			Longitude		θ		
°	′	°	′	″	°	′	°	′	″	°	′	°	′	″
122	46	−0	30	04.7207	123	26	−0	56	14.0431	124	06	−1	22	23.3655
	47		30	43.9538		27		56	53.2762		07		23	02.5985
	48		31	23.1868		28		57	32.5092		08		23	41.8316
	49		32	02.4199		29		58	11.7423		09		24	21.0646
	50		32	41.6530		30		58	50.9753		10		25	00.2977
122	51	−0	33	20.8860	123	31	−0	59	30.2084	124	11	−1	25	39.5308
	52		34	00.1191		32	−1	00	09.4414		12		26	18.7638
	53		34	39.3521		33		00	48.6745		13		26	57.9969
	54		35	18.5852		34		01	27.9076		14		27	37.2299
	55		35	57.8183		35		02	07.1406		15		28	16.4630
122	56	−0	36	37.0513	123	36	−1	02	46.3737	124	16	−1	28	55.6961
	57		37	16.2844		37		03	25.6067		17		29	34.9291
	58		37	55.5174		38		04	04.8398		18		30	14.1622
	59		38	34.7505		39		04	44.0729		19		30	53.3952
123	00		39	13.9836		40		05	23.3059		20		31	32.6283
123	01	−0	39	53.2166	123	41	−1	06	02.5390	124	21	−1	32	11.8613
	02		40	32.4497		42		06	41.7720		22		32	51.0944
	03		41	11.6827		43		07	21.0051		23		33	30.7275
	04		41	50.9158		44		08	00.2382		24		34	09.5605
	05		42	30.1488		45		08	39.4712		25		34	48.7936
123	06	−0	43	09.3819	123	46	−1	09	18.7043	124	26	−1	35	28.0266
	07		43	48.6150		47		09	57.9373		27		36	07.2597
	08		44	27.8480		48		10	37.1704		28		36	46.4928
	09		45	07.0811		49		11	16.4035		29		37	25.7258
	10		45	46.3141		50		11	55.6365		30		38	04.9589
123	11	−0	46	25.5472	123	51	−1	12	34.8696	124	31	−1	38	44.1919
	12		47	04.7803		52		13	14.1026		32		39	23.4250
	13		47	44.0133		53		13	53.3357		33		40	02.6581
	14		48	23.2464		54		14	32.5687		34		40	41.8911
	15		49	02.4794		55		15	11.8018		35		41	21.1242
123	16	−0	49	41.7125	123	56	−1	15	51.0349	124	36	−1	42	00.3572
	17		50	20.9456		57		16	30.2679		37		42	39.5903
	18		51	00.1786		58		17	09.5010		38		43	18.8234
	19		51	39.4117		59		17	48.7340		39		43	58.0564
	20		52	18.6447	124	00		18	27.9671	124	40	−1	44	37.2895
123	21	−0	52	57.8778	124	01	−1	19	07.2002					
	22		53	37.1109		02		19	46.4332					
	23		54	16.3439		03		20	25.6663					
	24		54	55.5770		04		21	04.8993					
	25		55	34.8100		05		21	44.1324					

ZONE 2

Table I

Latitude		R	y′ (y value on the central meridian)	Tabular difference of R for 1 second of latitude	Scale correction expressed in units of the seventh place of logarithms	Scale correction expressed as a ratio
°	′	*Feet*	*Feet*	*Feet*		
37	40	26 312 257.65	0.00	101.16950	+944.8	1.000 2175
	41	26 306 187.48	6 070.17	933	914.2	2105
	42	26 300 117.32	12 140.33	867	883.9	2035
	43	26 294 047.20	18 210.45	850	854.0	1966
	44	26 287 977.09	24 280.56	800	824.4	898
	45	26 281 907.01	30 350.64	750	795.2	831
37	46	26 275 836.96	36 420.69	101.16733	+766.4	1.000 1765
	47	26 269 766.92	42 490.73	683	737.9	699
	48	26 263 696.91	48 560.74	650	709.8	634
	49	26 257 626.92	54 630.73	617	682.0	570
	50	26 251 556.95	60 700.70	583	654.6	507

ZONE 2—Continued

Table I—Continued

Latitude		R	y′ (y value on the central meridian)	Tabular difference of R for 1 second of latitude	Scale correction expressed in units of the seventh place of logarithms	Scale correction expressed as a ratio
°	′	*Feet*	*Feet*	*Feet*		
37	51	26 245 487.00	66 770.65	101.16533	+627.6	1.000 1445
	52	26 239 417.08	72 840.57	517	600.9	384
	53	26 233 347.17	78 910.48	483	574.6	323
	54	26 227 277.28	84 980.37	450	548.6	263
	55	26 221 207.41	91 050.24	417	523.0	204
37	56	26 215 137.56	97 120.09	101.16400	+497.8	1.000 1146
	57	26 209 067.72	103 189.93	367	472.9	089
	58	26 202 997.90	109 259.75	333	448.4	1032
	59	26 196 928.10	115 329.55	317	424.2	0977
38	00	26 190 858.31	121 399.34	283	400.4	922
38	01	26 184 788.54	127 469.11	101.16250	+376.9	1.000 0868
	02	26 178 718.79	133 538.86	233	353.8	815
	03	26 172 649.05	139 608.60	217	331.1	762
	04	26 166 579.32	145 678.33	183	308.7	711
	05	26 160 509.61	151 748.04	167	286.7	660
38	06	26 154 439.91	157 817.74	101.16150	+265.1	1.000 0610
	07	26 148 370.22	163 887.43	117	243.8	561
	08	26 142 300.55	169 957.10	117	222.9	513
	09	26 136 230.88	176 026.77	083	202.3	466
	10	26 130 161.23	182 096.42	066	182.1	419
38	11	26 124 091.59	188 166.06	101.16050	+162.3	1.000 0374
	12	26 118 021.96	194 235.69	033	142.8	329
	13	26 111 952.34	200 305.31	033	123.7	285
	14	26 105 882.72	206 374.93	16000	104.9	242
	15	26 099 813.12	212 444.53	16000	86.5	199
38	16	26 093 743.52	218 514.13	101.15983	+68.5	1.000 0158
	17	26 087 673.93	224 583.72	967	50.8	117
	18	26 081 604.35	230 653.30	967	33.5	077
	19	26 075 534.77	236 722.88	950	16.6	38
	20	26 069 465.20	242 792.45	933	0.0	1.000 0000
38	21	26 063 395.64	248 862.01	101.15933	−16.2	0.999 9963
	22	26 057 326.08	254 931.57	933	32.1	926
	23	26 051 256.52	261 001.13	917	47.6	890
	24	26 045 186.97	267 070.68	917	62.8	855
	25	26 039 117.42	273 140.23	900	77.5	822
38	26	26 033 047.88	279 209.77	101.15900	−92.0	0.999 9788
	27	26 026 978.34	285 279.31	900	106.0	756
	28	26 020 908.80	291 348.85	900	119.7	724
	29	26 014 839.26	297 418.39	900	133.0	694
	30	26 008 769.72	303 487.93	900	146.0	664
38	31	26 002 700.18	309 557.47	101.15900	−158.6	0.999 9635
	32	25 996 630.64	315 627.01	900	170.8	607
	33	25 990 561.10	321 696.55	900	182.7	579
	34	25 984 491.56	327 766.09	900	194.2	553
	35	25 978 422.02	333 835.63	900	205.4	527
38	36	25 972 352.48	339 905.17	101.15917	−216.2	0.999 9502
	37	25 966 282.93	345 974.72	917	226.6	478
	38	25 960 213.38	352 044.27	933	236.7	455
	39	25 954 143.82	358 113.83	917	246.4	433
	40	25 948 074.27	364 183.38	950	255.7	411
38	41	25 942 004.70	370 252.95	101.15933	−264.7	0.999 9391
	42	25 935 935.14	376 322.51	967	273.3	371
	43	25 929 865.56	382 392.09	967	281.5	352
	44	25 923 795.98	388 461.67	5967	289.4	334
	45	25 917 726.40	394 531.25	6000	296.9	316
38	46	25 911 656.80	400 600.85	101.16000	−304.1	0.999 9300
	47	25 905 587.20	406 670.45	017	310.8	284
	48	25 899 517.59	412 740.06	033	317.3	269
	49	25 893 447.97	418 809.68	050	323.3	256
	50	25 887 378.34	424 879.31	067	329.0	242

ZONE 2—Continued

Table I—Continued

Latitude		R	y′ (y value on the central meridian)	Tabular difference of R for 1 second of latitude	Scale correction expressed in units of the seventh place of logarithms	Scale correction expressed as a ratio
°	′	*Feet*	*Feet*	*Feet*		
38	51	25 881 308.70	430 948.95	101.16083	−334.3	0.999 9230
	52	25 875 239.05	437 018.60	100	339.3	219
	53	25 869 169.39	443 088.26	117	343.9	208
	54	25 863 099.72	449 157.93	133	348.1	198
	55	25 857 030.04	455 227.61	167	352.0	190
38	56	25 850 960.34	461 297.31	101.16167	−355.5	0.999 9182
	57	25 844 890.64	467 367.01	217	358.6	174
	58	25 838 820.91	473 436.74	217	361.4	168
	59	25 832 751.18	479 506.47	250	363.8	162
39	00	25 826 681.43	485 576.22	283	365.8	158
39	01	25 820 611.66	491 645.99	101.16300	−367.5	0.999 9154
	02	25 814 541.88	497 715.77	317	368.8	151
	03	25 808 472.09	503 785.56	367	369.7	149
	04	25 802 402.27	509 855.38	383	370.3	147
	05	25 796 332.44	515 925.21	400	370.3	147
39	06	25 790 262.60	521 995.05	101.16450	−370.4	0.999 9147
	07	25 784 192.73	528 064.92	483	369.8	149
	08	25 778 122.84	534 134.81	500	369.0	150
	09	25 772 052.94	540 204.71	533	367.7	153
	10	25 765 983.02	546 274.63	567	366.1	157
39	11	25 759 913.08	552 344.57	101.16617	−364.1	0.999 9162
	12	25 753 843.11	558 414.54	633	361.8	167
	13	25 747 773.13	564 484.52	683	359.1	173
	14	25 741 703.12	570 554.53	717	356.0	180
	15	25 735 633.09	576 624.56	750	352.6	188
39	16	25 729 563.04	582 694.61	101.16800	−348.7	0.999 9197
	17	25 723 492.96	588 764.69	817	344.6	207
	18	25 717 422.87	594 834.78	883	340.0	217
	19	25 711 352.74	600 904.91	900	335.1	228
	20	25 705 282.60	606 975.05	967	329.8	241
39	21	25 699 212.42	613 045.23	101.16983	−324.1	0.999 9254
	22	25 693 142.23	619 115.42	7050	318.1	268
	23	25 687 072.00	625 185.65	083	311.7	282
	24	25 681 001.75	631 255.90	133	305.0	298
	25	25 674 931.47	637 326.18	183	297.8	314
39	26	25 668 861.16	643 396.49	101.17217	−290.4	0.999 9331
	27	25 662 790.83	649 466.82	283	282.5	350
	28	25 656 720.46	655 537.19	317	274.3	368
	29	25 650 650.07	661 607.58	367	265.7	388
	30	25 644 579.65	667 678.00	433	256.7	409
39	31	25 638 509.19	673 748.46	101.17467	−247.4	0.999 9430
	32	25 632 438.71	679 818.94	533	237.7	453
	33	25 626 368.19	685 889.46	583	227.6	476
	34	25 620 297.64	691 960.01	633	217.2	500
	35	25 614 227.06	698 030.59	683	206.4	525
39	36	25 608 156.45	704 101.20	101.17750	−195.2	0.999 9551
	37	25 602 085.80	710 171.85	800	183.6	577
	38	25 596 015.12	716 242.53	867	171.7	605
	39	25 589 944.40	722 313.25	917	159.4	633
	40	25 583 873.65	728 384.00	7967	146.8	662
39	41	25 577 802.87	734 454.78	101.18050	−133.8	0.999 9692
	42	25 571 732.04	740 525.61	100	120.4	723
	43	25 565 661.18	746 596.47	150	106.7	754
	44	25 559 590.29	752 667.36	233	92.5	787
	45	25 553 519.35	758 738.30	283	78.0	820
39	46	25 547 448.38	764 809.27	101.18350	−63.2	0.999 9854
	47	25 541 377.37	770 880.28	417	47.9	890
	48	25 535 306.32	776 951.33	483	32.3	926
	49	25 529 235.23	783 022.42	550	16.3	0.999 9962
	50	25 523 164.10	789 093.55	617	0.0	1.000 0000

ZONE 2—Continued

Table I—Continued

Latitude		R	y' (y value on the central meridian)	Tabular difference of R for 1 second of latitude	Scale correction expressed in units of the seventh place of logarithms	Scale correction expressed as a ratio
°	′	Feet	Feet	Feet		
39	51	25 517 092.93	795 164.72	101.18683	+16.7	1.000 0038
	52	25 511 021.72	801 235.93	767	33.8	79
	53	25 504 950.46	807 307.19	833	51.3	118
	54	25 498 879.16	813 378.49	883	69.1	159
	55	25 492 807.83	819 449.82	8983	87.3	201
39	56	25 486 736.44	825 521.21	101.19033	+105.9	1.000 0243
	57	25 480 665.02	831 592.63	133	124.8	287
	58	25 474 593.54	837 664.11	183	144.2	332
	59	25 468 522.03	843 735.62	283	163.8	377
40	00	25 462 450.46	849 807.19	333	183.9	423
40	01	25 456 378.86	855 878.79	101.19433	+204.3	1.000 0470
	02	25 450 307.20	861 950.45	500	225.1	518
	03	25 444 235.50	868 022.15	583	246.3	567
	04	25 438 163.75	874 093.90	650	267.8	617
	05	25 432 091.96	880 165.69	750	289.7	667
40	06	25 426 020.11	886 237.54	101.19817	+312.0	1.000 0718
	07	25 419 948.22	892 309.43	917	334.6	770
	08	25 413 876.27	898 381.38	19983	357.6	823
	09	25 407 804.28	904 453.37	20083	381.0	877
	10	25 401 732.23	910 525.42	150	404.8	932
40	11	25 395 660.14	916 597.51	101.20250	+428.9	1.000 0988
	12	25 389 587.99	922 669.66	333	453.4	1044
	13	23 383 515.79	928 741.86	433	478.3	101
	14	25 377 443.53	934 814.12	500	503.6	160
	15	25 371 371.23	940 886.42	600	529.2	218
40	16	25 365 298.87	946 958.78	101.20700	+555.2	1.000 1278
	17	25 359 226.45	953 031.20	783	581.6	339
	18	25 353 153.98	959 103.67	867	608.3	401
	19	25 347 081.46	965 176.19	0967	635.4	463
	20	25 341 008.88	971 248.77	1067	662.9	526
40	21	25 334 936.24	977 321.41	101.21150	+690.8	1.000 1591
	22	25 328 863.55	983 394.10	250	719.0	656
	23	25 322 790.80	989 466.85	350	747.6	721
	24	25 316 717.99	995 539.66	450	776.5	788
	25	25 310 645.12	1 001 612.53	550	805.9	856
40	26	25 304 572.19	1 007 685.46	101.21650	+835.6	1.000 1924
	27	25 298 499.20	1 013 758.45	733	865.7	1993
	28	25 292 426.16	1 019 831.49	850	896.2	2064
	29	25 286 353.05	1 025 904.60	101.21950	927.0	134
40	30	25 280 279.88	1 031 977.77		958.2	1.000 2206

Table II

[1″ of longitude=0″.63046797 of θ]

Longitude		θ			Longitude		θ			Longitude		θ		
°	′	°	′	″	°	′	°	′	″	°	′	°	′	″
119	00	+1	53	29.0541	119	11	+1	46	32.9452	119	21	+1	40	14.6645
	01		52	51.2260		12		45	55.1172		22		39	36.8364
	02		52	13.3980		13		45	17.2891		23		38	59.0083
	03		51	35.5699		14		44	39.4610		24		38	21.1802
	04		50	57.7418		15		44	01.6329		25		37	43.3522
	05		50	19.9137										
					119	16	+1	43	23.8049	119	26	+1	37	05.5241
119	06	+1	49	42.0856		17		42	45.9768		27		36	27.6960
	07		49	04.2576		18		42	08.1487		28		35	49.8679
	08		48	26.4295		19		41	30.3206		29		35	12.0398
	09		47	48.6014		20		40	52.4925		30		34	34.2118
	10		47	10.7733							—			

ZONE 2—Continued

Table II—Continued

[1″ of longitude=0″.63046797 of θ]

Longitude	θ	Longitude	θ	Longitude	θ
° ′	° ′ ″	° ′	° ′ ″	° ′	° ′ ″
119 31	+1 33 56.3837	120 36	+0 52 57.5586	121 41	+0 11 58.7335
32	33 18.5556	37	52 19.7305	42	11 20.9054
33	32 40.7275	38	51 41.9024	43	10 43.0773
34	32 02.8994	39	51 04.0743	44	10 05.2493
35	31 25.0714	40	50 26.2463	45	09 27.4212
119 36	+1 30 47.2433	120 41	+0 49 48.4182	121 46	+0 08 49.5931
37	30 09.4152	42	49 10.5901	47	08 11.7650
38	29 31.5871	43	48 32.7620	48	07 33.9369
39	28 53.7591	44	47 54.9340	49	06 56.1089
40	28 15.9310	45	47 17.1059	50	06 18.2808
119 41	+1 27 38.1029	120 46	+0 46 39.2778	121 51	+0 05 40.4527
42	27 00.2748	47	46 01.4497	52	05 02.6246
43	26 22.4467	48	45 23.6216	53	04 24.7965
44	25 44.6187	49	44 45.7936	54	03 46.9685
45	25 06.7906	50	44 07.9655	55	03 09.1404
119 46	+1 24 28.9625	120 51	+0 43 30.1374	121 56	+0 02 31.3123
47	23 51.1344	52	42 52.3093	57	01 53.4842
48	23 13.3063	53	42 14.4813	58	01 15.6562
49	22 35.4783	54	41 36.6532	59	00 37.8281
50	21 57.6502	55	40 58.8251	122 00	0 00 00.0000
119 51	+1 21 19.8221	120 56	+0 40 20.9970	122 01	−0 00 37.8281
52	20 41.9940	57	39 43.1689	02	01 15.6562
53	20 04.1660	58	39 05.3409	03	01 53.4842
54	19 26.3379	59	38 27.5128	04	02 31.3123
55	18 48.5098	121 00	37 49.6847	05	03 09.1404
119 56	+1 18 10.6817	121 01	+0 37 11.8566	122 06	−0 03 46.9685
57	17 32.8536	02	36 34.0285	07	04 24.7965
58	16 55.0256	03	35 56.2005	08	05 02.6246
59	16 17.1975	04	35 18.3724	09	05 40.4527
120 00	15 39.3694	05	34 40.5443	10	06 18.2808
120 01	+1 15 01.5413	121 06	+0 34 02.7162	122 11	−0 06 56.1089
02	14 23.7133	07	33 24.8882	12	07 33.9369
03	13 45.8852	08	32 47.0601	13	08 11.7650
04	13 08.0571	09	32 09.2320	14	08 49.5931
05	12 30.2290	10	31 31.4039	15	09 27.4212
120 06	+1 11 52.4009	121 11	+0 30 53.5758	122 16	−0 10 05.2493
07	11 14.5729	12	30 15.7478	17	10 43.0773
08	10 36.7448	13	29 37.9197	18	11 20.9054
09	09 58.9167	14	29 00.0916	19	11 58.7335
10	09 21.0886	15	28 22.2635	20	12 36.6516
120 11	+1 08 43.2605	121 16	+0 27 44.4354	122 21	−0 13 14.3896
12	08 05.4325	17	27 06.6074	22	13 52.2177
13	07 27.6044	18	26 28.7793	23	14 30.0458
14	06 49.7763	19	25 50.9512	24	15 07.8739
15	06 11.9482	20	25 13.1231	25	15 45.7020
120 16	+1 05 34.1202	121 21	+0 24 35.2951	122 26	−0 16 23.5300
17	04 56.2921	22	23 57.4670	27	17 01.3581
18	04 18.4640	23	23 19.6389	28	17 39.1862
19	03 40.6359	24	22 41.8108	29	18 17.0143
20	03 02.8078	25	22 03.9827	30	18 54.8424
120 21	+1 02 24.9798	121 26	+0 21 26.1547	122 31	−0 19 32.6704
22	01 47.1517	27	20 48.3266	32	20 10.4985
23	01 09.3236	28	20 10.4985	33	20 48.3266
24	+1 00 31.4955	29	19 32.6704	34	21 26.1547
25	+0 59 53.6674	30	18 54.8424	35	22 03.9827
120 26	+0 59 15.8394	121 31	+0 18 17.0143	122 36	−0 22 41.8108
27	58 38.0113	32	17 39.1862	37	23 19.6389
28	58 00.1832	33	17 01.3581	38	23 57.4670
29	57 22.3551	34	16 23.5300	39	24 35.2951
30	56 44.5271	35	15 45.7020	40	25 13.1231
120 31	+0 56 06.6990	121 36	+0 15 07.8739	122 41	−0 25 50.9512
32	55 28.8709	37	14 30.0458	42	26 28.7793
33	54 51.0428	38	13 52.2177	43	27 06.6074
34	54 13.2147	39	13 14.3896	44	27 44.4354
35	53 35.3867	40	12 36.6516	45	28 22.2635

ZONE 2—Continued

Table II—Continued

[1″ of longitude=0″.63046797 of θ]

Longitude	θ	Longitude	θ	Longitude	θ
° ′	° ′ ″	° ′	° ′ ″	°	° ′ ″
122 46	−0 29 00.0916	123 21	−0 51 04.0743	123 56	−1 13 08.0571
47	29 37.9197	22	51 41.9024	57	13 45.8852
48	30 15.7478	23	52 19.7305	58	14 23.7133
49	30 53.5758	24	52 57.5586	59	15 01.5413
50	31 31.4039	25	53 35.3867	124 00	15 39.3694
122 51	−0 32 09.2320	123 26	−0 54 13.2147	124 01	−1 16 17.1975
52	32 47.0601	27	54 51.0428	02	16 55.0256
53	33 24.8882	28	55 28.8709	03	17 32.8536
54	34 02.7162	29	56 06.6990	04	18 10.6817
55	34 40.5443	30	56 44.5271	05	18 48.5098
122 56	−0 35 18.3724	123 31	−0 57 22.3551	124 06	−1 19 26.3379
57	35 56.2005	32	58 00.1832	07	20 04.1660
58	36 34.0285	33	58 38.0113	08	20 41.9940
59	37 11.8566	34	59 15.8394	09	21 19.8221
123 00	37 49.6847	35	−0 59 53.6674	10	21 57.6502
123 01	−0 38 27.5128	123 36	−1 00 31.4955	124 11	−1 22 35.4783
02	39 05.3409	37	01 09.3236	12	23 13.3063
03	39 43.1689	38	01 47.1517	13	23 51.1344
04	40 20.9970	39	02 24.9798	14	24 28.9625
05	40 58.8251	40	03 02.8078	15	25 06.7906
123 06	−0 41 36.6532	123 41	−1 03 40.6359	124 16	−1 25 44.6187
07	42 14.4813	42	04 18.4640	17	26 22.4467
08	42 52.3093	43	04 56.2921	18	27 00.2748
09	43 30.1374	44	05 34.1202	19	27 38.1029
10	44 07.9655	45	06 11.9482	20	28 15.9310
123 11	−0 44 45.7936	123 46	−1 06 49.7763	124 21	−1 28 53.7591
12	45 23.6216	47	07 27.6044	22	29 31.5871
13	46 01.4497	48	08 05.4325	23	30 09.4152
14	46 39.2778	49	08 43.2605	24	30 47.2433
15	47 17.1059	50	09 21.0886	25	31 25.0714
123 16	−0 47 54.9340	123 51	−1 09 58.9167	124 26	−1 32 02.8994
17	48 32.7620	52	10 36.7448	27	32 40.7275
18	49 10.5901	53	11 14.5729	28	33 18.5556
19	49 48.4182	54	11 52.4009	39	33 56.3837
20	50 26.2463	55	12 30.2290	124 30	−1 34 34.2118

ZONE 3

Table I

Latitude	R	y′ (y value on the central meridian)	Tabular difference of R for 1 second of latitude	Scale correction expressed in units of the seventh place of logarithms	Scale correction expressed as a ratio
° ′	*Feet*	*Feet*	*Feet*		
36 30	27 512 992.04	0.00	101.14417	+717.4	1.000 1652
31	27 506 923.39	6 068.65	383	690.4	590
32	27 500 854.76	12 137.28	367	663.7	528
33	27 494 786.14	18 205.90	317	637.3	467
34	27 488 717.55	24 274.49	283	611.4	408
35	27 482 648.98	30 343.06	267	585.8	349
36 36	27 476 580.42	36 411.62	101.14217	+560.5	1.000 1291
37	27 470 511.89	42 480.15	200	535.6	233
38	27 464 443.37	48 548.67	183	511.1	177
39	27 458 374.86	54 617.18	133	486.9	121
40	27 452 306.38	60 685.66	117	463.1	066
36 41	27 446 237.91	66 754.13	101.14100	+439.6	1.000 1012
42	27 440 169.45	72 822.59	067	416.5	0959
43	27 434 101.01	78 891.03	050	393.8	907
44	27 428 032.58	84 959.46	017	371.4	855
45	27 421 964.17	91 027.87	4000	349.4	805

ZONE 3—Continued

Table I—Continued

Latitude		R	y′ (y value on the central meridian)	Tabular difference of R for 1 second of latitude	Scale correction expressed in units of the seventh place of logarithms	Scale correction expressed as a ratio
°	′	*Feet*	*Feet*	*Feet*		
36	46	27 415 895.77	97 096.27	101.13983	+327.8	1.000 0755
	47	27 409 827.38	103 164.66	950	306.5	706
	48	27 403 759.01	109 233.03	933	235.6	658
	49	27 397 690.65	115 301.39	933	265.0	610
	50	27 391 622.29	121 369.75	900	244.8	564
36	51	27 385 553.95	127 438.09	101.13883	+225.0	1.000 0518
	52	27 379 485.62	133 506.42	867	195.5	450
	53	27 373 417.30	139 574.74	850	186.4	429
	54	27 367 348.99	145 643.05	833	167.6	386
	55	27 361 280.69	151 711.35	833	149.2	344
36	56	27 355 212.39	157 779.65	101.13817	+131.2	1.000 0302
	57	27 349 144.10	163 847.94	800	113.5	261
	58	27 343 075.82	169 916.22	783	96.2	222
	59	27 337 007.55	175 984.49	783	79.3	183
37	00	27 330 939.28	182 052.76	767	62.7	144
37	01	27 324 871.02	188 121.02	101.13767	+46.5	1.000 0107
	02	27 318 802.76	194 189.28	750	30.6	070
	03	27 312 734.51	200 257.53	750	+15.1	035
	04	27 306 666.26	206 325.78	733	0.0	1.000 0000
	05	27 300 598.02	212 394.02	733	−14.8	0.999 9966
37	06	27 294 529.78	218 462.26	101.13733	−29.2	0.999 9933
	07	27 288 461.54	224 530.50	733	43.2	901
	08	27 282 393.30	230 598.74	717	56.9	869
	09	27 276 325.07	236 666.97	717	70.2	838
	10	27 270 256.84	242 735.20	733	83.2	808
37	11	27 264 188.60	248 803.44	101.13717	−95.8	0.999 9779
	12	27 258 120.37	254 871.67	717	108.0	751
	13	27 252 052.14	260 939.90	733	119.9	724
	14	27 245 983.90	267 008.14	733	131.4	697
	15	27 239 915.66	273 076.38	717	142.5	672
37	16	27 233 847.43	279 144.61	101.13733	−153.3	0.999 9647
	17	27 227 779.19	285 212.85	750	163.7	623
	18	27 221 710.94	291 281.10	750	173.8	600
	19	27 215 642.69	297 349.35	750	183.5	577
	20	27 209 574.44	303 417.60	750	192.8	556
37	21	27 203 506.19	309 485.85	101.13767	−201.8	0.999 9535
	22	27 197 437.93	315 554.11	783	210.4	516
	23	27 191 369.66	321 622.38	783	218.6	497
	24	27 185 301.39	327 690.65	800	226.5	478
	25	27 179 233.11	333 758.93	817	234.0	461
37	26	27 173 164.82	339 827.22	101.13817	−241.2	0.999 9445
	27	27 167 096.53	345 895.51	833	247.9	429
	28	27 161 028.23	351 963.81	850	254.4	414
	29	27 154 959.92	358 032.12	867	260.4	400
	30	27 148 891.60	364 100.44	883	266.1	387
37	31	27 142 823.27	370 168.77	101.13900	−271.4	0.999 9375
	32	27 136 754.93	376 237.11	917	276.4	364
	33	27 130 686.58	382 305.46	933	281.0	353
	34	27 124 618.22	388 373.82	950	285.2	343
	35	27 118 549.85	394 442.19	3983	289.1	334
37	36	27 112 481.46	400 510.58	101.14000	−292.6	0.999 9326
	37	27 106 413.06	406 578.98	017	295.7	319
	38	27 100 344.65	412 647.39	033	298.5	313
	39	27 094 276.23	418 715.81	067	300.9	307
	40	27 088 207.79	424 784.25	100	302.9	303
37	41	27 082 139.33	430 852.71	101.14117	−304.6	0.999 9299
	42	27 076 070.86	436 921.18	133	305.9	296
	43	27 070 002.38	442 989.66	167	306.8	294
	44	27 063 933.88	449 058.16	200	307.4	292
	45	27 057 865.36	455 126.68	233	307.6	292

ZONE 3—Continued

Table I—Continued

Latitude		R	y′ (y value on the central meridian)	Tabular difference of R for 1 second of latitude	Scale correction expressed in units of the seventh place of logarithms	Scale correction expressed as a ratio
°	′	Feet	Feet	Feet		
37	46	27 051 796.82	461 195.22	101.14250	−307.4	0.999 9292
	47	27 045 728.27	467 263.77	283	306.9	293
	48	27 039 659.70	473 332.34	317	306.0	295
	49	27 033 591.11	479 400.93	367	304.8	298
	50	27 027 522.49	485 469.55	333	303.1	302
37	51	27 021 453.86	491 538.18	101.14417	−301.1	0.999 9307
	52	27 015 385.21	497 606.83	450	298.8	312
	53	27 009 316.54	503 675.50	483	296.0	318
	54	27 003 247.85	509 744.19	533	292.9	326
	55	26 997 179.13	515 812.91	567	289.5	333
37	56	26 991 110.39	521 881.65	101.14600	−285.7	0.999 9342
	57	26 985 041.63	527 950.41	633	281.5	352
	58	26 978 972.85	534 019.19	683	276.9	362
	59	26 972 904.04	540 088.00	717	272.0	374
38	00	26 966 835.21	546 156.83	767	266.7	386
38	01	26 960 766.35	552 225.69	101.14800	−261.0	0.999 9399
	02	26 954 697.47	558 294.57	850	255.0	413
	03	26 948 628.56	564 363.48	900	248.6	428
	04	26 942 559.62	570 432.42	933	241.9	443
	05	26 936 490.66	576 501.38	4983	234.8	459
38	06	26 930 421.67	582 570.37	101.15033	−227.3	0.999 9477
	07	26 924 352.65	588 639.39	083	219.4	495
	08	26 918 283.60	594 708.44	133	211.2	514
	09	26 912 214.52	600 777.52	183	202.6	533
	10	26 906 145.41	606 846.63	233	193.6	554
38	11	26 900 076.27	612 915.77	101.15267	−184.3	0.999 9576
	12	26 894 007.11	618 984.93	333	174.5	598
	13	26 887 937.91	625 054.13	383	164.5	621
	14	26 881 868.68	631 123.36	450	154.0	645
	15	26 875 799.41	637 192.63	483	143.2	670
38	16	26 869 730.12	643 261.92	101.15550	−132.0	0.999 9696
	17	26 863 660.79	649 331.25	600	120.5	723
	18	26 857 591.43	655 400.61	667	108.5	750
	19	26 851 522.03	661 470.01	733	96.3	778
	20	26 845 452.59	667 539.45	783	83.6	808
38	21	26 839 383.12	673 608.92	101.15833	−70.6	0.999 9837
	22	26 833 313.62	679 678.42	900	57.2	868
	23	26 827 244.08	685 747.96	5967	43.4	900
	24	26 821 174.50	691 817.54	6017	29.3	933
	25	26 815 104.89	697 887.15	083	−14.8	0.999 9966
38	26	26 809 035.24	703 956.80	101.16150	0.0	1.000 0000
	27	26 802 965.54	710 026.49	233	+15.3	035
	28	26 796 895.81	716 096.23	283	30.9	071
	29	26 790 826.04	722 166.00	350	46.9	108
	30	26 784 756.23	728 235.81	417	63.2	146
38	31	26 778 686.38	734 305.66	101.16483	+79.9	1.000 0184
	32	26 772 616.49	740 375.55	567	97.0	223
	33	26 766 546.55	746 445.49	617	114.5	264
	34	26 760 476.58	752 515.46	700	132.3	305
	35	26 754 406.56	758 585.48	767	150.5	347
38	36	26 748 336.50	764 655.54	101.16850	+169.0	1.000 0389
	37	26 742 266.39	770 725.65	917	188.0	433
	38	26 736 196.24	776 795.80	6983	207.3	477
	39	26 730 126.05	782 865.99	7067	227.0	523
	40	26 724 055.81	788 936.23	150	247.0	569
38	41	26 717 985.52	795 006.52	101.17217	+267.4	1.000 0616
	42	26 711 915.19	801 076.85	300	288.2	664
	43	26 705 844.81	807 147.23	383	309.3	712
	44	26 699 774.38	813 217.66	450	330.9	762
	45	26 693 703.91	819 288.13	533	352.8	812

ZONE 3—Continued

Table I—Continued

Latitude		R	y′ (y value on the central meridian)	Tabular difference of R for 1 second of latitude	Scale correction expressed in units of the seventh place of logarithms	Scale correction expressed as a ratio
°	′	*Feet*	*Feet*	*Feet*		
38	46	26 687 633.39	825 358.65	101.17617	+375.0	1.000 0863
	47	26 681 562.82	831 429.22	700	397.6	916
	48	26 675 492.20	837 499.84	800	420.7	0969
	49	26 669 421.52	843 570.52	867	444.0	1022
	50	26 663 350.80	849 641.24	7983	467.8	077
38	51	26 657 280.01	855 712.03	101.18083	+491.9	1.000 1133
	52	26 651 209.16	861 782.88	150	516.4	189
	53	26 645 138.27	867 853.77	217	541.3	246
	54	26 639 067.34	873 924.70	300	566.5	304
	55	26 632 996.36	879 995.68	400	592.2	364
38	56	26 626 925.32	886 066.72	101.18467	+618.1	1.000 1423
	57	26 620 854.24	892 137.80	550	644.5	484
	58	26 614 783.11	898 208.93	633	671.2	545
	59	26 608 711.93	904 280.11	101.18733	698.3	608
39	00	26 602 640.69	910 351.35		725.8	1.000 1671

Table II

[1″ of longitude=0″.61223204 of θ]

Longitude		θ			Longitude		θ			Longitude		θ		
°	′	°	′	″	°	′	°	′	″	°	′	°	′	″
117	40	+1	44	04.7663	118	16	+1	22	02.3456	118	51	+1	00	36.6583
	41		43	28.0329		17		21	25.6117		52	+0	59	59.9244
	42		42	51.2990		18		20	48.8778		53		59	23.1905
	43		42	14.5651		19		20	12.1439		54		58	46.4566
	44		41	37.8311		20		19	35.4099		55		58	09.7226
	45		41	01.0972										
					118	21	+1	18	58.6760	118	56	+0	57	32.9887
117	46	+1	40	24.3633		22		18	21.9421		57		56	56.2548
	47		39	47.6294		23		17	45.2082		58		56	19.5209
	48		39	10.8955		24		17	08.4742		59		55	42.7870
	49		38	34.1615		25		16	31.7403	119	00		55	06.0530
	50		37	57.4276										
					118	26	+1	15	55.0064	119	01	+0	54	29.3191
117	51	+1	37	20.6937		27		15	18.2725		02		53	52.5852
	52		36	43.9598		28		14	41.5386		03		53	15.8513
	53		36	07.2258		29		14	04.8046		04		52	39.1173
	54		35	30.4919		30		13	28.0707		05		52	02.3834
	55		34	53.7580										
					118	31	+1	12	51.3368	119	06	+0	51	25.6495
117	56	+1	34	17.0241		32		12	14.6029		07		50	48.9156
	57		33	40.2902		33		11	37.8689		08		50	12.1816
	58		33	03.5562		34		11	01.1350		09		49	35.4477
	59		32	26.8223		35		10	24.4011		10		48	58.7138
118	00		31	50.0884										
					118	36	+1	09	47.6672	119	11	+0	48	21.9799
118	01	+1	31	13.3545		37		09	10.9332		12		47	45.2460
	02		30	36.6205		38		08	34.1993		13		47	08.5120
	03		29	59.8866		39		07	57.4654		14		46	31.7781
	04		29	23.1527		40		07	20.7315		15		45	55.0442
	05		28	46.4188										
					118	41	+1	06	43.9976	119	16	+0	45	18.3103
118	06	+1	28	09.6848		42		06	07.2636		17		44	41.5763
	07		27	32.9509		43		05	30.5297		18		44	04.8424
	08		26	56.2170		44		04	53.7958		19		43	28.1085
	09		26	19.4831		45		04	17.0619		20		42	51.3746
	10		25	42.7492										
					118	46	+1	03	40.3279	119	21	+0	42	14.6407
118	11	+1	25	06.0152		47		03	03.5940		22		41	37.9067
	12		24	29.2813		48		02	26.8601		23		41	01.1728
	13		23	52.5474		49		01	50.1262		24		40	24.4389
	14		23	15.8135		50		01	13.3923		25		39	47.7050
	15		22	39.0795										

ZONE 3—Continued

Table II—Continued

[1″ of longitude=0″.61223204 of θ]

Longitude	θ	Longitude	θ	Longitude	θ
° ′	° ′ ″	° ′	° ′ ″	° ′	° ′ ″
119 26	+0 39 10.9710	120 31	−0 00 36.7339	121 36	−0 40 24.4389
27	38 34.2371	32	01 13.4678	37	41 01.1728
28	37 57.5032	33	01 50.2018	38	41 37.9067
29	37 20.7693	34	02 26.9357	39	42 14.6407
30	36 44.0354	35	03 03.6696	40	42 51.3746
119 31	+0 36 07.3014	120 36	−0 03 40.4035	121 41	−0 43 28.1085
32	35 30.5675	37	04 17.1375	42	44 04.8424
33	34 53.8336	38	04 53.8714	43	44 41.5763
34	34 17.0997	39	05 30.6053	44	45 18.3103
35	33 40.3657	40	06 07.3392	45	45 55.0442
119 36	+0 33 03.6318	120 41	−0 06 44.0731	121 46	−0 46 31.7781
37	32 26.8979	42	07 20.8071	47	47 08.5120
38	31 50.1640	43	07 57.5410	48	47 45.2460
39	31 13.4301	44	08 34.2749	49	48 21.9799
40	30 36.6961	45	09 11.0088	50	48 58.7138
119 41	+0 29 59.9622	120 46	−0 09 47.7428	121 51	−0 49 35.4477
42	29 23.2283	47	10 24.4767	52	50 12.1816
43	28 46.4944	48	11 01.2106	53	50 48.9156
44	28 09.7604	49	11 37.9445	54	51 25.6495
45	27 33.0265	50	12 14.6785	55	52 02.3834
119 46	+0 26 56.2926	120 51	−0 12 51.4124	121 56	−0 52 39.1173
47	26 19.5587	52	13 28.1463	57	53 15.8513
48	25 42.8247	53	14 04.8802	58	53 52.5852
49	25 06.0908	54	14 41.6141	59	54 29.3191
50	24 29.3569	55	15 18.3481	122 00	55 06.0530
119 51	+0 23 52.6230	120 56	−0 15 55.0820	122 01	−0 55 42.7870
52	23 15.8891	57	16 31.8159	02	56 19.5209
53	22 39.1551	58	17 08.5498	03	56 56.2548
54	22 02.4212	59	17 45.2838	04	57 32.9887
55	21 25.6873	121 00	18 22.0177	05	58 09.7226
119 56	+0 20 48.9534	121 01	−0 18 58.7516	122 06	−0 58 46.4566
57	20 12.2194	02	19 35.4855	07	59 23.1905
58	19 35.4855	03	20 12.2194	08	−0 59 59.9244
59	18 58.7516	04	20 48.9534	09	−1 00 36.6583
120 00	18 22.0177	05	21 25.6873	10	01 13.3923
120 01	+0 17 45.2838	121 06	−0 22 02.4212	122 11	−1 01 50.1262
02	17 08.5498	07	22 39.1551	12	02 26.8601
03	16 31.8159	08	23 15.8891	13	03 03.5940
04	15 55.0820	09	23 52.6230	14	03 40.3279
05	15 18.3481	10	24 29.3569	15	04 17.0619
120 06	+0 14 41.6141	121 11	−0 25 06.0908	122 16	−1 04 53.7958
07	14 04.8802	12	25 42.8247	17	05 30.5297
08	13 28.1463	13	26 19.5587	18	06 07.2636
09	12 51.4124	14	26 56.2926	19	06 43.9976
10	12 14.6785	15	27 33.0265	20	07 20.7315
120 11	+0 11 37.9445	121 16	−0 28 09.7604	122 21	−1 07 57.4654
12	11 01.2106	17	28 46.4944	22	08 34.1993
13	10 24.4767	18	29 23.2283	23	09 10.9332
14	09 47.7428	19	29 59.9622	24	09 47.6672
15	09 11.0088	20	30 36.6961	25	10 24.4011
120 16	+0 08 34.2749	121 21	−0 31 13.4301	122 26	−1 11 01.1350
17	07 57.5410	22	31 50.1640	27	11 37.8689
18	07 20.8071	23	32 26.8979	28	12 14.6029
19	06 44.0731	24	33 03.6318	29	12 51.3368
20	06 07.3392	25	33 40.3657	30	13 28.0707
120 21	+0 05 30.6053	121 26	−0 34 17.0997	122 31	−1 14 04.8046
22	04 53.8714	27	34 53.8336	32	14 41.5386
23	04 17.1375	28	35 30.5675	33	15 18.2725
24	03 40.4035	29	36 07.3014	34	15 55.0064
25	03 03.6696	30	36 44.0354	35	16 31.7403
120 26	+0 02 26.9357	121 31	−0 37 20.7693	122 36	−1 17 08.4742
27	01 50.2018	32	37 57.5032	37	17 45.2082
28	01 13.4678	33	38 34.2371	38	18 21.9421
29	+0 00 36.7339	34	39 10.9710	39	18 58.6760
30	0 00 00.0000	35	39 47.7050	40	19 35.4099

ZONE 3—Continued

Table II—Continued

[1″ of longitude=0″.61223204 of θ]

Longitude	θ	Longitude	θ	Longitude	θ
° ′	° ′ ″	° ′	° ′ ″	° ′	° ′ ″
122 41	−1 20 12.1439	122 56	−1 29 23.1527	123 11	−1 38 34.1615
42	20 48.8778	57	29 59.8866	12	39 10.8955
43	21 25.6117	58	30 36.6205	13	39 47.6294
44	22 02.3456	59	31 13.3545	14	40 24.3633
45	22 39.0795	123 00	31 50.0884	15	41 01.0972
122 46	−1 23 15.8135	123 01	−1 32 26.8223	123 16	−1 41 37.8311
47	23 52.5474	02	33 03.5562	17	42 14.5651
48	24 29.2813	03	33 40.2902	18	42 51.2990
49	25 06.0152	04	34 17.0241	19	43 28.0329
50	25 42.7492	05	34 53.7580	123 20	44 04.7668
122 51	−1 26 19.4831	123 06	−1 35 30.4919		
52	26 56.2170	07	36 07.2258		
53	27 32.9509	08	36 43.9598		
54	28 09.6848	09	37 20.6937		
55	28 46.4188	10	37 57.4276		

ZONE 4

Table I

Latitude	R	y′ (y value on the central meridian)	Tabular difference of R for 1 second of latitude	Scale correction expressed in units of the seventh place of logarithms	Scale correction expressed as a ratio
° ′	*Feet*	*Feet*	*Feet*		
35 20	28 652 931.96	0.00	101.12700	+836.6	1.000 1926
21	28 646 864.34	6 067.62	667	808.6	862
22	28 640 796.74	12 135.22	633	781.1	799
23	28 634 729.16	18 202.80	600	753.8	736
24	28 628 661.60	24 270.36	567	727.0	674
25	28 622 594.06	30 337.90	533	700.4	613
35 26	28 616 526.54	36 405.42	101.12500	+674.3	1.000 1553
27	28 610 459.04	42 472.92	467	648.5	493
28	28 604 391.56	48 540.40	433	623.1	435
29	28 598 324.10	54 607.86	417	598.0	377
30	28 592 256.65	60 675.31	383	573.3	320
35 31	28 586 189.22	66 742.74	101.12350	+548.9	1.000 1264
32	28 580 121.81	72 810.15	317	524.9	209
33	28 574 054.42	78 877.54	300	501.3	154
34	28 567 987.04	84 944.92	283	478.0	101
35	28 561 919.67	91 012.29	250	455.1	1048
35 36	28 555 852.32	97 079.64	101.12217	+432.6	1.000 0996
37	28 549 784.99	103 146.97	200	410.4	945
38	28 543 717.67	109 214.29	183	388.6	895
39	28 537 650.36	115 281.60	150	367.1	845
40	28 531 583.07	121 348.89	150	346.0	797
35 41	28 525 515.78	127 416.18	101.12117	+325.3	1.000 0749
42	28 519 448.51	133 483.45	100	304.9	702
43	28 513 381.25	139 550.71	067	284.9	656
44	28 507 314.01	145 617.95	067	265.2	611
45	28 501 246.77	151 685.19	050	245.9	566
35 46	28 495 179.54	157 752.42	101.12033	+227.0	1.000 0523
47	28 489 112.32	163 819.64	017	208.4	480
48	28 483 045.11	169 886.85	2017	190.2	438
49	28 476 977.90	175 954.06	1983	172.4	397
50	28 470 910.71	182 021.25	983	154.9	357
35 51	28 464 843.52	188 088.44	101.11967	+137.8	1.000 0317
52	28 458 776.34	194 155.62	967	121.0	279
53	28 452 709.16	200 222.80	950	104.6	241
54	28 446 641.99	206 289.97	933	88.6	204
55	28 440 574.83	212 357.13	950	72.9	168

ZONE 4—Continued

Table I—Continued

Latitude		R	y′ (y value on the central meridian)	Tabular difference of R for 1 second of latitude	Scale correction expressed in units of the seventh place of logarithms	Scale correction expressed as a ratio
°	′	*Feet*	*Feet*	*Feet*		
35	56	28 434 507.66	218 424.30	101.11917	+57.6	1.000 0133
	57	28 428 440.51	224 491.45	917	42.7	098
	58	28 422 373.36	230 558.60	917	28.1	065
	59	28 416 306.21	236 625.75	917	13.9	032
36	00	28 410 239.06	242 692.90	917	0.0	1.000 0000
36	01	28 404 171.91	248 760.05	101.11900	−13.5	0.999 9969
	02	28 398 104.77	254 827.19	900	26.6	939
	03	28 392 037.63	260 894.33	917	39.4	909
	04	28 385 970.48	266 961.48	900	51.8	881
	05	28 379 903.34	273 028.62	900	63.9	853
36	06	28 373 836.20	279 095.76	101.11900	−75.6	0.999 9826
	07	28 367 769.06	285 162.90	917	86.9	800
	08	28 361 701.91	291 230.05	917	97.9	775
	09	28 355 634.76	297 297.20	917	108.5	750
	10	28 349 567.61	303 364.35	917	118.7	727
36	11	28 343 500.46	309 431.50	101.11917	−128.6	0.999 9704
	12	28 337 433.31	315 498.65	950	138.1	682
	13	28 331 366.14	321 565.82	933	147.2	661
	14	28 325 298.98	327 632.98	950	156.0	641
	15	28 319 231.81	333 700.15	967	164.4	621
36	16	28 313 164.63	339 767.33	101.11967	−172.5	0.999 9603
	17	28 307 097.45	345 834.51	983	180.1	585
	18	28 301 030.26	351 901.70	1983	187.5	568
	19	28 294 963.07	357 968.89	2017	194.4	552
	20	28 288 895.86	364 036.10	017	201.0	537
36	21	28 282 828.65	370 103.31	101.12033	−207.2	0.999 9523
	22	28 276 761.43	376 170.53	050	213.1	509
	23	28 270 694.20	382 237.76	067	218.6	497
	24	28 264 626.96	388 305.00	083	223.7	485
	25	28 258 559.71	394 372.25	100	228.4	474
36	26	28 252 492.45	400 439.51	101.12117	−232.8	0.999 9464
	27	28 246 425.18	406 506.78	133	236.9	455
	28	28 240 357.90	412 574.06	167	240.6	446
	29	28 234 290.60	418 641.36	183	243.9	438
	30	28 228 223 29	424 708.67	200	246.8	432
36	31	28 222 155.97	430 775.99	101.12233	−249.4	0.999 9426
	32	28 216 088.63	436 843.33	250	251.6	421
	33	28 210 021.28	442 910.68	267	253.5	416
	34	28 203 953.92	448 978.04	300	255.0	413
	35	28 197 886.54	455 045.42	333	256.1	410
36	36	28 191 819.14	461 112.82	101.12350	−256.9	0.999 9408
	37	28 185 751.73	467 180.23	383	257.2	408
	38	28 179 684.30	473 247.66	417	257.3	408
	39	28 173 616.85	479 315.11	433	256.9	408
	40	28 167 549.39	485 382.57	483	256.2	410
36	41	28 161 481.90	491 450.06	101.12500	−255.1	0.999 9413
	42	28 155 414.40	497 517.56	533	253.7	416
	43	28 149 346.88	503 585.08	567	251.9	420
	44	28 143 279.34	509 652.62	617	249.7	425
	45	28 137 211.77	515 720.19	633	247.1	431
36	46	28 131 144.19	521 787.77	101.12667	−244.2	0.999 9438
	47	28 125 076.59	527 855.37	717	240.9	445
	48	28 119 008.96	533 923.00	750	237.3	454
	49	28 112 941.31	539 990.65	783	233.3	463
	50	28 106 873.64	546 058.32	833	228.9	473
36	51	28 100 805.94	552 126.02	101.12867	−224.2	0.999 9484
	52	28 094 738.22	558 193.74	917	219.0	496
	53	28 088 670.47	564 261.49	950	213.6	508
	54	28 082 602.70	570 329.26	2983	207.7	522
	55	28 076 534.91	576 397.05	3033	201.5	536

ZONE 4—Continued

Table I—Continued

Latitude		R	y′ (y value on the central meridian)	Tabular difference of R for 1 second of latitude	Scale correction expressed in units of the seventh place of logarithms	Scale correction expressed as a ratio
°	′	*Feet*	*Feet*	*Feet*		
36	56	28 070 467.09	582 464.87	101.13083	−194.9	0.999 9551
	57	28 064 399.24	588 532.72	133	188.0	567
	58	28 058 331.36	594 600.60	167	180.6	584
	59	28 052 263.46	600 668.50	217	173.0	602
37	00	28 046 195.53	606 736.43	283	164.9	620
37	01	28 040 127.56	612 804.40	101.13317	−156.5	0.999 9640
	02	28 034 059.57	618 872.39	367	147.7	660
	03	28 027 991.55	624 940.41	417	138.6	681
	04	28 021 923.50	631 008.46	467	129.0	703
	05	28 015 855.42	637 076.54	517	119.2	726
37	06	28 009 787.31	643 144.65	101.13567	−108.9	0.999 9749
	07	28 003 719.17	649 212.79	633	98.3	774
	08	27 997 650.99	655 280.97	683	87.3	799
	09	27 991 582.78	661 349.18	733	75.9	825
	10	27 985 514.54	667 417.42	800	64.2	852
37	11	27 979 446.26	673 485.70	101.13850	−52.1	0.999 9880
	12	27 973 377.95	679 554.01	917	39.6	909
	13	27 967 309.60	685 622.36	3967	26.8	938
	14	27 961 241.22	691 690.74	4033	−13.6	0.999 9969
	15	72 955 172.80	697 759.16	083	0.0	1.000 0000
37	16	27 949 104.35	703 827.61	101.14167	+13.9	1.000 0032
	17	27 943 035.85	709 896.11	200	28.2	065
	18	27 936 967.33	715 964.63	283	42.9	099
	19	27 930 898.76	722 033.20	350	58.0	134
	20	27 924 830.15	728 101.81	400	73.4	169
37	21	27 918 761.51	734 170.45	101.14483	+89.2	1.000 0205
	22	27 912 692.82	740 239.14	533	105.4	243
	23	27 906 624.10	746 307.86	617	121.9	281
	24	27 900 555.33	752 376.63	667	138.8	320
	25	27 894 486.53	758 445.43	750	156.1	359
37	26	27 888 417.68	764 514.28	101.14817	+173.7	1.000 0400
	27	27 882 348.79	770 583.17	900	191.8	442
	28	27 876 279.85	776 652.11	4950	210.1	484
	29	27 870 210.88	782 721.08	5033	228.9	527
	30	27 864 141.86	788 790.10	117	248.0	571
37	31	27 858 072.79	794 859.17	101.15183	+267.5	1.000 0616
	32	27 852 003.68	800 928.28	250	287.3	662
	33	27 845 934.53	806 997.43	350	307.5	708
	34	27 839 865.32	813 066.64	400	328.1	755
	35	27 833 796.08	819 135.88	500	349.1	804
37	36	27 827 726.78	825 205.18	101.15567	+370.4	1.000 0853
	37	27 821 657.44	831 274.52	650	392.1	903
	38	27 815 588.05	837 343.91	733	414.2	0954
	39	27 809 518.61	843 413.35	817	436.7	1006
	40	27 803 449.12	849 482.84	883	459.5	058
37	41	27 797 379.59	855 552.37	101.15983	+482.7	1.000 1111
	42	27 791 310.00	861 621.96	6067	506.2	166
	43	27 785 240.36	867 691.60	133	530.2	221
	44	27 779 170.68	873 761.28	233	554.5	277
	45	27 773 100.94	879 831.02	333	579.1	333
37	46	27 767 031.14	885 900.82	101.16400	+604.2	1.000 1391
	47	27 760 961.30	891 970.66	500	629.6	450
	48	27 754 891.40	898 040.56	583	655.4	509
	49	27 748 821.45	904 110.51	683	681.6	569
	50	27 742 751.44	910 180.52	767	708.1	630
37	51	27 736 681.38	916 250.58	101.16850	+735.0	1.000 1692
	52	27 730 611.27	922 320.69	6967	762.3	755
	53	27 724 541.09	928 390.87	7033	789.9	819
	54	27 718 470.87	934 461.09	150	818.0	884
	55	27 712 400.58	940 531.38	233	846.4	1949
37	56	27 706 330.24	946 601.72	101.17333	+875.1	1.000 2015
	57	27 700 259.84	952 672.12	433	904.3	082
	58	27 694 189.38	958 742.58	533	933.8	150
	59	27 688 118.86	964 813.10	101.17633	963.7	219
38	00	27 682 048.28	970 883.68		994.0	1.000 2289

ZONE 4—Continued

Table II

[1″ of longitude=0″.59658714 of θ]

Longitude	θ	Longitude	θ	Longitude	θ
° ′	° ′ ″	° ′	° ′ ″	° ′	° ′ ″
115 30	+2 05 16.9980	116 31	+1 28 53.4891	117 31	+0 53 05.7754
31	04 41.2028	32	28 17.6938	32	52 29.9801
32	04 05.4076	33	27 41.8986	33	51 54.1849
33	03 29.6123	34	27 06.1034	34	51 18.3897
34	02 53.8171	35	26 30.3082	35	50 42.5944
35	02 18.0219				
		116 36	+1 25 54.5129	117 36	+0 50 06.7992
115 36	+2 01 42.2266	37	25 18.7177	37	49 31.0040
37	01 06.4314	38	24 42.9225	38	48 55.2088
38	+2 00 30.6362	39	24 07.1272	39	48 19.4135
39	+1 59 54.8410	40	23 31.3320	40	47 43.6183
40	59 19.0457				
		116 41	+1 22 55.5368	117 41	+0 47 07.8231
115 41	+1 58 43.2505	42	22 19.7416	42	46 32.0278
42	58 07.4553	43	21 43.9463	43	45 56.2326
43	57 31.6600	44	21 08.1511	44	45 20.4374
44	56 55.8648	45	20 32.3559	45	44 44.6421
45	56 20.0696				
		116 46	+1 19 56.5606	117 46	+0 44 08.8469
115 46	+1 55 44.2744	47	19 20.7654	47	43 33.0517
47	55 08.4791	48	18 44.9702	48	42 57.2565
48	54 32.6839	49	18 09.1750	49	42 21.4612
49	53 56.8887	50	17 33.3797	50	41 45.6660
50	53 21.0934				
		116 51	+1 16 57.5845	117 51	+0 41 09.8708
115 51	+1 52 45.2982	52	16 21.7893	52	40 34.0755
52	52 09.5030	53	15 45.9940	53	39 58.2803
53	51 33.7078	54	15 10.1988	54	39 22.4851
54	50 57.9125	55	14 34.4036	55	38 46.6899
55	50 22.1173				
		116 56	+1 13 58.6084	117 56	+0 38 10.8946
115 56	+1 49 46.3221	57	13 22.8131	57	37 35.0994
57	49 10.5268	58	12 47.0179	58	36 59.3042
58	48 34.7316	59	12 11.2227	59	36 23.5089
59	47 58.9364	117 00	11 35.4274	118 00	35 47.7137
116 00	47 23.1412				
		117 01	+1 10 59.6322	118 01	+0 35 11.9185
116 01	+1 46 47.3459	02	10 23.8370	02	34 36.1233
02	46 11.5507	03	09 48.0418	03	34 00.3280
03	45 35.7555	04	09 12.2465	04	33 24.5328
04	44 59.9602	05	08 36.4513	05	32 48.7376
05	44 24.1650				
		117 06	+1 08 00.6561	118 06	+0 32 12.9423
116 06	+1 43 48.3698	07	07 24.8608	07	31 37.1471
07	43 12.5746	08	06 49.0656	08	31 01.3519
08	42 36.7793	09	06 13.2704	09	30 25.5567
09	42 00.9841	10	05 37.4752	10	29 49.7614
10	41 25.1889				
		117 11	+1 05 01.6799	118 11	+0 29 13.9662
116 11	+1 40 49.3936	12	04 25.8847	12	28 38.1710
12	40 13.5984	13	03 50.0895	13	28 02.3757
13	39 37.8032	14	03 14.2942	14	27 26.5805
14	39 02.0080	15	02 38.4990	15	26 50.7853
15	38 26.2127				
		117 16	+1 02 02.7038	118 16	+0 26 14.9901
116 16	+1 37 50.4175	17	01 26.9086	17	25 39.1948
17	37 14.6223	18	00 51.1133	18	25 03.3996
18	36 38.8270	19	+1 00 15.3181	19	24 27.6044
19	36 03.0318	20	+0 59 39.5229	20	23 51.8091
20	35 27.2366				
		117 21	+0 59 03.7276	118 21	+0 23 16.0139
116 21	+1 34 51.4414	22	58 27.9324	22	22 40.2187
22	34 15.6461	23	57 52.1372	23	22 04.4235
23	33 39.8509	24	57 16.3420	24	21 28.6282
24	33 04.0557	25	56 40.5467	25	20 52.8330
25	32 28.2604				
		117 26	+0 56 04.7515	118 26	+0 20 17.0378
116 26	+1 31 52.4652	27	55 28.9563	27	19 41.2425
27	31 16.6700	28	54 53.1610	28	19 05.4473
28	30 40.8748	29	54 17.3658	29	18 29.6521
29	30 05.0795	30	53 41.5706	30	17 53.8569
30	29 29.2843				

ZONE 4—Continued

Table II—Continued

[1″ of longitude=0″.59658714 of θ]

Longitude	θ	Longitude	θ	Longitude	θ
° ′	° ′ ″	° ′	° ′ ″	° ′	° ′ ″
118 31	+0 17 18.0616	119 36	−0 21 28.6282	120 41	−1 00 15.3181
32	16 42.2664	37	22 04.4235	42	00 51.1133
33	16 06.4712	38	22 40.2187	43	01 26.9086
34	15 30.6759	39	23 16.0139	44	02 02.7038
35	14 54.8807	40	23 51.8091	45	02 38.4990
118 36	+0 14 19.0855	119 41	−0 24 27.6044	120 46	−1 03 14.2942
37	13 43.2903	42	25 03.3996	47	03 50.0895
38	13 07.4950	43	25 39.1948	48	04 25.8847
39	12 31.6998	44	26 14.9901	49	05 01.6799
40	11 55.9046	45	26 50.7853	50	05 37.4752
118 41	+0 11 20.1093	119 46	−0 27 26.5805	120 51	−1 06 13.2704
42	10 44.3141	47	28 02.3757	52	06 49 0656
43	10 08.5189	48	28 38.1710	53	07 24.8608
44	09 32.7237	49	29 13.9662	54	08 00.6561
45	08 56.9284	50	29 49.7614	55	08 36.4513
118 46	+0 08 21.1332	119 51	−0 30 25.5567	120 56	−1 09 12.2465
47	07 45.3380	52	31 01.3519	57	09 48.0418
48	07 09.5427	53	31 37.1471	58	10 23.8370
49	06 33.7475	54	32 12.9423	59	10 59.6322
50	05 57.9523	55	32 48.7376	121 00	11 35.4274
118 51	+0 05 22.1571	119 56	−0 33 24.5328	121 01	−1 12 11.2227
52	04 46.3618	57	34 00.3280	02	12 47.0179
53	04 10.5666	58	34 36.1233	03	13 22.8131
54	03 34.7714	59	35 11.9185	04	13 58.6084
55	02 58.9761	120 00	35 47.7137	05	14 34.4036
118 56	+0 02 23.1809	120 01	−0 36 23.5089	121 06	−1 15 10.1988
57	01 47.3857	02	36 59.3042	07	15 45.9940
58	01 11.5905	03	37 35.0994	08	16 21.7893
59	00 35.7952	04	38 10.8946	09	16 57.5845
119 00	0 00 00.0000	05	38 46.6899	10	17 33.3797
119 01	−0 00 35.7952	120 06	−0 39 22.4851	121 11	−1 18 09.1750
02	01 11.5905	07	39 58.2803	12	18 44.9702
03	01 47.3857	08	40 34.0755	13	19 20.7654
04	02 23.1809	09	41 09.8708	14	19 56.5606
05	02 58.9761	10	41 45.6660	15	20 32.3559
119 06	−0 03 34.7714	120 11	−0 42 21.4612	121 16	−1 21 08.1511
07	04 10.5666	12	42 57.2565	17	21 43.9463
08	04 46.3618	13	43 33.0517	18	22 19.7416
09	05 22.1571	14	44 08.8469	19	22 55.5368
10	05 57.9523	15	44 44.6421	20	23 31.3320
119 11	−0 06 33.7475	120 16	−0 45 20.4374	121 21	−1 24 07.1272
12	07 09.5427	17	45 56.2326	22	24 42.9225
13	07 45.3380	18	46 32.0278	23	25 18.7177
14	08 21.1332	19	47 07.8231	24	25 54.5129
15	08 56.9284	20	47 43.6183	25	26 30.3082
119 16	−0 09 32.7237	120 21	−0 48 19.4135	121 26	−1 27 06.1034
17	10 08.5189	22	48 55.2088	27	27 41.8986
18	10 44.3141	23	49 31.0040	28	28 17.6938
19	11 20.1093	24	50 06.7992	29	28 53.4891
20	11 55.9046	25	50 42.5944	30	29 29.2843
119 21	−0 12 31.6998	120 26	−0 51 18.3897	121 31	−1 30 05.0795
22	13 07.4950	27	51 54.1849	32	30 40.8748
23	13 43.2903	28	52 29.9801	33	31 16.6700
24	14 19.0855	29	53 05.7754	34	31 52.4652
25	14 54.8807	30	53 41.5706	35	32 28 2604
119 26	−0 15 30.6759	120 31	−0 54 17.3658	121 36	−1 33 04.0557
27	16 06.4712	32	54 53.1610	37	33 39.8509
28	16 42.2664	33	55 28.9563	38	34 15.6461
29	17 18.0616	34	56 04.7515	39	34 51.4414
30	17 53.8569	35	56 40.5467	40	35 27.2366
119 31	−0 18 29.6521	120 36	−0 57 16.3420	121 41	−1 36 03.0318
32	19 05.4473	37	57 52.1372	42	36 38.8270
33	19 41.2425	38	58 27.9324	43	37 14.6223
34	20 17.0378	39	59 03.7276	44	37 50.4175
35	20 52.8330	40	−0 59 39.5229	45	38 26.2127

ZONE 4—Continued

Table II—Continued

[1″ of longitude=0″.59658714 of θ]

Longitude	θ	Longitude	θ	Longitude	θ
° ′	° ′ ″	° ′	° ′ ″	° ′	° ′ ″
121 46	−1 39 02.0080	122 01	−1 47 58.9364	122 16	−1 56 55.8648
47	39 37.8032	02	48 34.7316	17	57 31.6600
48	40 13.5984	03	49 10.5268	18	58 07.4553
49	40 49.3936	04	49 46.3221	19	58 43.2505
50	41 25.1889	05	50 22.1173	20	59 19.0457
121 51	−1 42 00.9841	122 06	−1 50 57.9125	122 21	−1 59 54.8410
52	42 36.7793	07	51 33.7078	22	−2 00 30.6362
53	43 12.5746	08	52 09.5030	23	01 06.4314
54	43 48.3698	09	52 45.2982	24	01 42.2266
55	44 24.1650	10	53 21.0934	25	02 18.0219
121 56	−1 44 59.9602	122 11	−1 53 56.8887	122 26	−2 02 53.8171
57	45 35.7555	12	54 32.6839	27	03 29.6123
58	46 11.5507	13	55 08.4791	28	04 05.4076
59	46 47.3459	14	55 44.2744	29	04 41.2028
122 00	47 23.1412	15	56 20.0696	122 30	−2 05 16.9980

ZONE 5

Table I

Latitude	R	y′ (y value on the central meridian)	Tabular difference of R for 1 second of latitude	Scale correction expressed in units of the seventh place of logarithms	Scale correction expressed as a ratio
° ′	*Feet*	*Feet*	*Feet*		
33 30	30 649 424.27	0.00	101.09283	+687.0	1.000 1582
31	30 643 358.70	6 065.57	250	659.9	519
32	30 637 293.15	12 131.12	217	633.2	458
33	30 631 227.62	18 196.65	200	606.9	397
34	30 625 162.10	24 262.17	150	580.9	338
35	30 619 096.61	30 327.66	117	555.3	279
33 36	30 613 031.14	36 393.13	101.09100	+530.0	1.000 1220
37	30 606 965.68	42 458.59	050	505.1	163
38	30 600 900.25	48 524.02	033	480.6	107
39	30 594 834.83	54 589.44	9000	456.4	1051
40	30 588 769.43	60 654.84	8983	432.6	0996
33 41	30 582 704.04	66 720.23	101.08950	+409.2	1.000 0942
42	30 576 638.67	72 785.60	917	386.0	889
43	30 570 573.32	78 850.95	900	363.3	837
44	30 564 507.98	84 916.29	883	341.0	785
45	30 558 442.65	90 981.62	850	318.9	734
33 46	30 552 377.34	97 046.93	101.08833	+297.3	1.000 0685
47	30 546 312.04	103 112.23	800	276.0	636
48	30 540 246.76	109 177.51	783	255.1	587
49	30 534 181.49	115 242.78	767	234.5	540
50	30 528 116.23	121 308.04	750	214.3	493
33 51	30 522 050.98	127 373.29	101.08733	+194.4	1.000 0448
52	30 515 985.74	133 438.53	717	175.0	403
53	30 509 920.51	139 503.76	700	155.8	359
54	30 503 855.29	145 568.98	683	137.1	316
55	30 497 790.08	151 634.19	667	118.7	273
33 56	30 491 724.88	157 699.39	101.08650	+100.6	1.000 0232
57	30 485 659.69	163 764.58	633	83.0	191
58	30 479 594.51	169 829.76	633	65.6	151
59	30 473 529.33	175 894.94	617	48.7	112
34 00	30 467 464.16	181 960.11	600	32.1	074
34 01	30 461 399.00	188 025.27	101.08600	+15.9	1.000 0037
02	30 455 333.84	194 090.43	583	0.0	1.000 0000
03	30 449 268.69	200 155.58	583	−15.5	0.999 9964
04	30 443 203.54	206 220.73	567	30.7	929
05	30 437 138.40	212 285.87	567	45.4	895

ZONE 5—Continued

Table I—Continued

Latitude		R	y′ (y value on the central meridian)	Tabular difference of R for 1 second of latitude	Scale correction expressed in units of the seventh place of logarithms	Scale correction expressed as a ratio
°	′	*Feet*	*Feet*	*Feet*		
34	06	30 431 073.26	218 351.01	101.08567	−59.9	0.999 9862
	07	30 425 008.12	224 416.15	567	73.9	830
	08	30 418 942.98	230 481.29	550	87.6	798
	09	30 412 877.85	236 546.42	550	100.9	768
	10	30 406 812.72	242 611.55	550	113.9	738
34	11	30 400 747.59	248 676.68	101.08533	−126.5	0.999 9709
	12	30 394 682.47	254 741.80	550	138.7	681
	13	30 388 617.34	260 806.93	550	150.6	653
	14	30 382 552.21	266 872.06	550	162.1	627
	15	30 376 487.08	272 937.19	550	173.2	601
34	16	30 370 421.95	279 002.32	101.08550	−184.0	0.999 9576
	17	30 364 356.82	285 067.45	567	194.4	552
	18	30 358 291.68	291 132.59	567	204.5	529
	19	30 352 226.54	297 197.73	567	214.2	507
	20	30 346 161.40	303 262.87	567	223.5	485
34	21	30 340 096.26	309 328.01	101.08583	−232.5	0.999 9465
	22	30 334 031.11	315 393.16	600	241.0	445
	23	30 327 965.95	321 458.32	600	249.3	426
	24	30 321 900.79	327 523.48	617	257.2	408
	25	30 315 835.62	333 588.65	617	264.6	391
34	26	30 309 770.45	339 653.82	101.08633	−271.8	0.999 9374
	27	30 303 705.27	345 719.00	650	278.6	358
	28	30 297 640.08	351 784.19	650	285.0	344
	29	30 291 574.89	357 849.38	683	291.0	330
	30	30 285 509.68	363 914.59	683	296.7	317
34	31	30 279 444.47	369 979.80	101.08700	−302.0	0.999 9305
	32	30 273 379.25	376 045.02	717	307.0	293
	33	30 267 314.02	382 110.25	750	311.6	283
	34	30 261 248.77	388 175.50	750	315.8	273
	35	30 255 183.52	394 240.75	783	319.7	264
34	36	30 249 118.25	400 306.02	101.08800	−323.2	0.999 9256
	37	30 243 052.97	406 371.30	817	326.3	249
	38	30 236 987.68	412 436.59	833	329.1	242
	39	30 230 922.38	418 501.89	867	331.5	237
	40	30 224 857.06	424 567.21	883	333.5	232
34	41	30 218 791.73	430 632.54	101.08917	−335.2	0.999 9228
	42	30 212 726.38	436 697.89	933	336.5	225
	43	30 206 661.02	442 763.25	967	337.4	223
	44	30 200 595.64	448 828.63	8983	338.0	222
	45	30 194 530.25	454 894.02	9017	338.2	221
34	46	30 188 464.84	460 959.43	101.09050	−338.0	0.999 9222
	47	30 182 399.41	467 024.86	083	337.5	223
	48	30 176 333.96	473 090.31	100	336.6	225
	49	30 170 268.50	479 155.77	133	335.3	228
	50	30 164 203.02	485 221.25	183	333.7	232
34	51	30 158 137.51	491 286.76	101.09200	−331.7	0.999 9236
	52	30 152 071.99	497 352.28	233	329.4	242
	53	30 146 006.45	503 417.82	267	326.6	248
	54	30 139 940.89	509 483.38	317	323.5	255
	55	30 133 875.30	515 548.97	350	320.1	263
34	56	30 127 809.69	521 614.58	101.09383	−316.3	0.999 9272
	57	30 121 744.06	527 680.21	417	312.1	281
	58	30 115 678.41	533 745.86	467	307.5	292
	59	30 109 612.73	539 811.54	500	302.6	303
35	00	30 103 547.03	545 877.24	533	297.3	315
35	01	30 097 481.31	551 942.96	101.09583	−291.6	0.999 9329
	02	30 091 415.56	558 008.71	617	285.6	342
	03	30 085 349.79	564 074.48	683	279.2	357
	04	30 079 283.98	570 140.29	717	272.5	373
	05	30 073 218.15	576 206.12	750	265.3	389

ZONE 5—Continued

Table I—Continued

Latitude		R	y′ (y value on the central meridian)	Tabular difference of R for 1 second of latitude	Scale correction expressed in units of the seventh place of logarithms	Scale correction expressed as a ratio
°	′	*Feet*	*Feet*	*Feet*		
35	06	30 067 152.30	582 271.97	101.09800	−257.8	0.999 9406
	07	30 061 086.42	588 337.85	850	250.0	424
	08	30 055 020.51	594 403.76	900	241.8	443
	09	30 048 954.57	600 469.70	09950	233.2	463
	10	30 042 888.60	606 535.67	10000	224.2	484
35	11	30 036 822.60	612 601.67	101.10050	−214.9	0.999 9505
	12	30 030 756.57	618 667.70	083	205.2	528
	13	30 024 690.52	624 733.75	150	195.1	551
	14	30 018 624.43	630 799.84	217	184.7	575
	15	30 012 558.30	636 865.97	250	173.9	600
35	16	30 006 492.15	642 932.12	101.10317	−162.8	0.999 9625
	17	30 000 425.96	648 998.31	367	151.2	652
	18	29 994 359.74	655 064.53	417	139.3	679
	19	29 988 293.49	661 130.78	483	127.0	708
	20	29 982 227.20	667 197.07	533	114.4	737
35	21	29 976 160.88	673 263.39	101.10600	−101.4	0.999 9767
	22	29 970 094.52	679 329.75	667	88.0	797
	23	29 964 028.12	685 396.15	717	74.3	829
	24	29 957 961.69	691 462.58	783	60.2	861
	25	29 951 895.22	697 529.05	833	45.7	895
35	26	29 945 828.72	703 595.55	101.10900	−30.8	0.999 9929
	27	29 939 762.18	709 662.09	0983	15.6	964
	28	29 933 695.59	715 728.68	1033	0.0	1.000 0000
	29	29 927 628.97	721 795.30	100	+16.0	037
	30	29 921 562.31	727 861.96	167	32.3	074
35	31	29 915 495.61	733 928.66	101.11233	+49.0	1.000 0113
	32	29 909 428.87	739 995.40	300	66.0	152
	33	29 903 362.09	746 062.18	383	83.5	192
	34	29 897 295.26	752 129.01	433	101.3	233
	35	29 891 228.40	758 195.87	517	119.5	275
35	36	29 885 161.49	764 262.78	101.11583	+138.0	1.000 0318
	37	29 879 094.54	770 329.73	667	156.9	361
	38	29 873 027.54	776 396.73	733	176.2	406
	39	29 866 960.50	782 463.77	800	195.9	451
	40	29 860 893.42	788 530.85	883	215.9	497
35	41	29 854 826.29	794 597.98	101.11950	+236.3	1.000 0544
	42	29 848 759.12	800 665.15	2050	257.1	592
	43	29 842 691.89	806 732.38	117	278.2	641
	44	29 836 624.62	812 799.65	183	299.7	690
	45	29 830 557.31	818 866.96	267	321.6	741
35	46	29 824 489.95	824 934.32	101.12367	+343.9	1.000 0792
	47	29 818 422.53	831 001.74	433	366.5	844
	48	29 812 355.07	837 069.20	517	389.5	897
	49	29 806 287.56	843 136.71	600	412.9	0951
	50	29 800 220.00	849 204.27	683	436.6	1005
35	51	29 794 152.39	855 271.88	101.12767	+460.7	1.000 1061
	52	29 788 084.73	861 339.54	850	485.2	117
	53	29 782 017.02	867 407.25	2950	510.0	174
	54	29 775 949.25	873 475.02	3033	535.2	232
	55	29 769 881.43	879 542.84	117	560.8	291
35	56	29 763 813.56	885 610.71	101.13200	+586.8	1.000 1351
	57	29 757 745.64	891 678.63	300	613.1	412
	58	29 751 677.66	897 746.61	383	639.8	473
	59	29 745 609.63	903 814.64	483	666.9	536
36	00	29 739 541.54	909 882.73	567	694.3	599
36	01	29 733 473.40	915 950.87	101.13667	+722.1	1.000 1663
	02	29 727 405.20	922 019.07	767	750.3	728
	03	29 721 336.94	928 087.33	867	778.8	793
	04	29 715 268.62	934 155.65	3950	807.7	860
	05	29 709 200.25	940 224.02	4050	837.0	927

ZONE 5—Continued

Table I—Continued

Latitude		R	y′ (y value on the central meridian)	Tabular difference of R for 1 second of latitude	Scale correction expressed in units of the seventh place of logarithms	Scale correction expressed as a ratio
°	′	*Feet*	*Feet*	*Feet*		
36	06	29 703 131.82	946 292.45	101.14150	+866.7	1.000 1996
	07	29 697 063.33	952 360.94	250	896.7	1.000 2065
	08	29 690 994.78	958 429.49	333	927.2	135
	09	29 684 926.18	964 498.09	450	957.9	206
	10	29 678 857.51	970 566.76	550	989.1	277
36	11	29 672 788.78	976 635.49	101.14650	+1020.6	1.000 2350
	12	29 666 719.99	982 704.28	750	1052.5	423
	13	29 660 651.14	988 773.13	867	1084.8	498
	14	29 654 582.22	994 842.05	4967	1117.5	573
	15	29 648 513.24	1 000 911.03	5067	1150.5	649
36	16	29 642 444.20	1 006 980.07	101.15183	1183.9	1.000 2726
	17	29 636 375.09	1 013 049.18	283	1217.6	804
	18	29 630 305.92	1 019 118.35	383	1251.8	882
	19	29 624 236.69	1 025 187.58	101.15500	1286.3	2962
36	20	29 618 167.39	1 031 256.88		1321.2	1.000 3042

Table II

[1″ of longitude=0″.57001192 of θ]

Longitude		θ			Longitude		θ			Longitude		θ		
°	′	°	′	″	°	′	°	′	″	°	′	°	′	″
114	00	+2	16	48.1717	114	36	+1	56	16.9459	115	11	+1	36	19.9209
	01		16	13.9710		37		55	42.7452		12		35	45.7202
	02		15	39.7702		38		55	08.5445		13		35	11.5195
	03		15	05.5695		39		54	34.3438		14		34	37.3187
	04		14	31.3688		40		54	00.1431		15		34	03.1180
	05		13	57.1681	114	41	+1	53	25.9423	115	16	+1	33	28.9173
114	06	+2	13	22.9674		42		52	51.7416		17		32	54.7166
	07		12	48.7667		43		52	17.5409		18		32	20.5159
	08		12	14.5660		44		51	43.3402		19		31	46.3152
	09		11	40.3652		45		51	09.1395		20		31	12.1144
	10		11	06.1645	114	46	+1	50	34.9388	115	21	+1	30	37.9137
114	11	+2	10	31.9638		47		50	00.7381		22		30	03.7130
	12		09	57.7631		48		49	26.5373		23		29	29.5123
	13		09	23.5624		49		48	52.3366		24		28	55.3116
	14		08	49.3617		50		48	18.1359		25		28	21.1109
	15		08	15.1609	114	51	+1	47	43.9352	115	26	+1	27	46.9102
114	16	+2	07	40.9602		52		47	09.7345		27		27	12.7094
	17		07	06.7595		53		46	35.5338		28		26	38.5087
	18		06	32.5588		54		46	01.3330		29		26	04.3080
	19		05	58.3581		55		45	27.1323		30		25	30.1073
	20		05	24.1574	114	56	+1	44	52.9316	115	31	+1	24	55.9066
114	21	+2	04	49.9567		57		44	18.7309		32		24	21.7059
	22		04	15.7559		58		43	44.5302		33		23	47.5052
	23		03	41.5552		59		43	10.3295		34		23	13.3044
	24		03	07.3545	115	00		42	36.1288		35		22	39.1037
	25		02	33.1538	115	01	+1	42	01.9280	115	36	+1	22	04.9030
114	26	+2	01	58.9531		02		41	27.7273		37		21	30.7023
	27		01	24.7524		03		40	53.5266		38		20	56.5016
	28		00	50.5516		04		40	19.3259		39		20	22.3009
	29	2	00	16.3509		05		39	45.1252		40		19	48.1001
	30	1	59	42.1502	115	06	+1	39	10.9245	115	41	+1	19	13.8994
114	31	+1	59	07.9495		07		38	36.7237		42		18	39.6987
	32		58	33.7488		08		38	02.5230		43		18	05.4980
	33		57	59.5481		09		37	28.3223		44		17	31.2973
	34		57	25.3474		10		36	54.1216		45		16	57.0966
	35		56	51.1466										

ZONE 5—Continued

Table II—Continued

[1″ of longitude=0″.57001192 of θ]

Longitude	θ	Longitude	θ	Longitude	θ
° ′	° ′ ″	° ′	° ′ ″	° ′	° ′ ″
115 46	+1 16 22.8959	116 51	+0 39 19.8494	117 56	+0 02 16.8029
47	15 48.6951	52	38 45.6486	57	01 42.6021
48	15 14.4944	53	38 11.4479	58	01 08.4014
49	14 40.2937	54	37 37.2472	59	00 34.2007
50	14 06.0930	55	37 03.0465	118 00	0 00 00.0000
115 51	+1 13 31.8923	116 56	+0 36 28.8458	118 01	−0 00 34.2007
52	12 57.5916	57	35 54.6451	02	01 08.4014
53	12 23.4908	58	35 20.4443	03	01 42.6021
54	11 49.2901	59	34 46.2436	04	02 16.8029
55	11 15.0894	117 00	34 12.0429	05	02 51.0036
115 56	+1 10 40.8887	117 01	+0 33 37.8422	118 06	−0 03 25.2043
57	10 06.6880	02	33 03.6415	07	03 59.4050
58	09 32.4873	03	32 29.4408	08	04 33.6057
59	08 58.2866	04	31 55.2401	09	05 07.8064
116 00	08 24.0858	05	31 21.0393	10	05 42.0072
116 01	+1 07 49.8851	117 06	+0 30 46.8386	118 11	−0 06 16.2079
02	07 15.6844	07	30 12.6379	12	06 50.4086
03	06 41.4837	08	29 38.4372	13	07 24.6093
04	06 07.2830	09	29 04.2365	14	07 58.8100
05	05 33.0823	10	28 30.0358	15	08 33.0107
116 06	+1 04 58.8815	117 11	+0 27 55.8351	118 16	−0 09 07.2114
07	04 24.6808	12	27 21.6343	17	09 41.4122
08	03 50.4801	13	26 47.4336	18	10 15.6129
09	03 16.2794	14	26 13.2329	19	10 49.8136
10	02 42.0787	15	25 39.0322	20	11 24.0143
116 11	+1 02 07.8780	117 16	+0 25 04.8315	118 21	−0 11 58.2150
12	01 33.6773	17	24 30.6308	22	12 32.4157
13	00 59.4765	18	23 56.4300	23	13 06.6165
14	+1 00 25.2758	19	23 22.2293	24	13 40.8172
15	0 59 51.0751	20	22 48.0286	25	14 15.0179
116 16	+0 59 16.8744	117 21	+0 22 13.8279	118 26	−0 14 49.2186
17	58 42.6737	22	21 39.6272	27	15 23.4193
18	58 08.4730	23	21 05.4265	28	15 57.6200
19	57 34.2722	24	20 31.2258	29	16 31.8207
20	57 00.0715	25	19 57.0250	30	17 06.0215
116 21	+0 56 25.8708	117 26	+0 19 22.8243	118 31	−0 17 40.2222
22	55 51.6701	27	18 48.6236	32	18 14.4229
23	55 17.4694	28	18 14.4229	33	18 48.6236
24	54 43.2687	29	17 40.2222	34	19 22.8243
25	54 09.0680	30	17 06.0215	35	19 57.0250
116 26	+0 53 34.8672	117 31	+0 16 31.8207	118 36	−0 20 31.2258
27	53 00.6665	32	15 57.6200	37	21 05.4265
28	52 26.4658	33	15 23.4193	38	21 39.6272
29	51 52.2651	34	14 49.2186	39	22 13.8279
30	51 18.0644	35	14 15.0179	40	22 48.0286
116 31	+0 50 43.8637	117 36	+0 13 40.8172	118 41	−0 23 22.2293
32	50 09.6629	37	13 06.6165	42	23 56.4300
33	49 35.4622	38	12 32.4157	43	24 30.6308
34	49 01.2615	39	11 58.2150	44	25 04.8315
35	48 27.0608	40	11 24.0143	45	25 39.0322
116 36	+0 47 52.8601	117 41	+0 10 49.8136	118 46	−0 26 13.2329
37	47 18.6594	42	10 15.6129	47	26 47.4336
38	46 44.4587	43	09 41.4122	48	27 21.6343
39	46 10.2579	44	09 07.2114	49	27 55.8351
40	45 36.0572	45	08 33.0107	50	28 30.0358
116 41	+0 45 01.8565	117 46	+0 07 58.8100	118 51	−0 29 04.2365
42	44 27.6558	47	07 24.6093	52	29 38.4372
43	43 53.4551	48	06 50.4086	53	30 12.6379
44	43 19.2544	49	06 16.2079	54	30 46.8386
45	42 45.0536	50	05 42.0072	55	31 21.0393
116 46	+0 42 10.8529	117 51	+0 05 07.8064	118 56	−0 31 55.2401
47	41 36.6522	52	04 33.6057	57	32 29.4408
48	41 02.4515	53	03 59.4050	58	33 03.6415
49	40 28.2508	54	03 25.2043	59	33 37.8422
50	39 54.0501	55	02 51.0036	119 00	34 12.0429

ZONE 5—Continued

Table II—Continued

[1″ of longitude=0″.57001192 of θ]

Longitude		θ			Longitude		θ			Longitude		θ		
°	′	°	′	″	°	′	°	′	″	°	′	°	′	″
119	01	−0	34	46.2436	120	01	−1	08	58.2866	121	01	−1	43	10.3295
	02		35	20.4443		02		09	32.4873		02		43	44.5302
	03		35	54.6451		03		10	06.6880		03		44	18.7309
	04		36	28.8458		04		10	40.8887		04		44	52.9316
	05		37	03.0465		05		11	15.0894		05		45	27.1323
119	06	−0	37	37.2472	120	06	−1	11	49.2901	121	06	−1	46	01.3330
	07		38	11.4479		07		12	23.4908		07		46	35.5338
	08		38	45.6486		08		12	57.6916		08		47	09.7345
	09		39	19.8494		09		13	31.8923		09		47	43.9352
	10		39	54.0501		10		14	06.0930		10		48	18.1359
119	11	−0	40	28.2508	120	11	−1	14	40.2937	121	11	−1	48	52.3366
	12		41	02.4515		12		15	14.4944		12		49	26.5373
	13		41	36.6522		13		15	48.6951		13		50	00.7381
	14		42	10.8529		14		16	22.8959		14		50	34.9388
	15		42	45.0536		15		16	57.0966		15		51	09.1395
119	16	−0	43	19.2544	120	16	−1	17	31.2973	121	16	−1	51	43.3402
	17		43	53.4551		17		18	05.4980		17		52	17.5409
	18		44	27.6558		18		18	39.6987		18		52	51.7416
	19		45	01.8565		19		19	13.8994		19		53	25.9423
	20		45	36.0572		20		19	48.1001		20		54	00.1431
119	21	−0	46	10.2579	120	21	−1	20	22.3009	121	21	−1	54	34.3438
	22		46	44.4587		22		20	56.5016		22		55	08.5445
	23		47	18.6594		23		21	30.7023		23		55	42.7452
	24		47	52.8601		24		22	04.9030		24		56	16.9459
	25		48	27.0608		25		22	39.1037		25		56	51.1466
119	26	−0	49	01.2615	120	26	−1	23	13.3044	121	26	−1	57	25.3474
	27		49	35.4622		27		23	47.5052		27		57	59.5481
	28		50	09.6629		28		24	21.7059		28		58	33.7488
	29		50	43.8637		29		24	55.9066		29		59	07.9495
	30		51	18.0644		30		25	30.1073		30		59	42.1502
119	31	−0	51	52.2651	120	31	−1	26	04.3080	121	31	−2	00	16.3509
	32		52	26.4658		32		26	38.5087		32		00	50.5516
	33		53	00.6665		33		27	12.7094		33		01	24.7524
	34		53	34.8672		34		27	46.9102		34		01	58.9531
	35		54	09.0680		35		28	21.1109		35		02	33.1538
119	36	−0	54	43.2687	120	36	−1	28	55.3116	121	36	−2	03	07.3545
	37		55	17.4694		37		29	29.5123		37		03	41.5552
	38		55	51.6701		38		30	03.7130		38		04	15.7559
	39		56	25.8708		39		30	37.9137		39		04	49.9567
	40		57	00.0715		40		31	12.1144		40		05	24.1574
119	41	−0	57	34.2722	120	41	−1	31	46.3152	121	41	−2	05	58.3581
	42		58	08.4730		42		32	20.5159		42		06	32.5588
	43		58	42.6737		43		32	54.7166		43		07	06.7595
	44		59	16.8744		44		33	28.9173		44		07	40.9602
	45		59	51.0751		45		34	03.1180		45		08	15.1609
119	46	−1	00	25.2758	120	46	−1	34	37.3187	121	46	−2	08	49.3617
	47		00	59.4765		47		35	11.5195		47		09	23.5624
	48		01	33.6773		48		35	45.7202		48		09	57.7631
	49		02	07.8780		49		36	19.9209		49		10	31.9638
	50		02	42.0787		50		36	54.1216		50		11	06.1645
119	51	−1	03	16.2794	120	51	−1	37	28.3223	121	51	−2	11	40.3652
	52		03	50.4801		52		38	02.5230		52		12	14.5660
	53		04	24.6808		53		38	36.7237		53		12	48.7667
	54		04	58.8815		54		39	10.9245		54		13	22.9674
	55		05	33.0823		55		39	45.1252		55		13	57.1681
119	56	−1	06	07.2830	120	56	−1	40	19.3259	121	56	−2	14	31.3688
	57		06	41.4837		57		40	53.5266		57		15	05.5695
	58		07	15.6844		58		41	27.7273		58		15	39.7702
	59		07	49.8851		59		42	01.9280		59		16	13.9710
120	00		08	24.0858	121	00		42	36.1288	122	00	−2	16	48.1717

ZONE 6

Table I

Latitude		R	y′ (y value on the central meridian)	Tabular difference of R for 1 second of latitude	Scale correction expressed in units of the seventh place of logarithms	Scale correction expressed as a ratio
°	′	*Feet*	*Feet*	*Feet*		
32	10	32 271 267.72	0.00	101.07133	+693.7	1.000 1597
	11	32 265 203.44	6 064.28	083	668.4	539
	12	32 259 139.19	12 128.53	050	643.5	482
	13	32 253 074.96	18 192.76	050	619.0	425
	14	32 247 010.73	24 256.99	7017	594.8	370
	15	32 240 946.52	30 321.20	6967	571.0	315
32	16	32 234 882.34	36 385.38	101.06950	+547.5	1.000 1261
	17	32 228 818.17	42 449.55	933	524.4	207
	18	32 222 754.01	48 513.71	900	501.7	155
	19	32 216 689.87	54 577.85	867	479.3	104
	20	32 210 625.75	60 641.97	850	457.3	053
32	21	32 204 561.64	66 706.08	101.06833	+435.7	1.000 1003
	22	32 198 497.54	72 770.18	800	414.4	0954
	23	32 192 433.46	78 834.26	783	393.5	906
	24	32 186 369.39	84 898.33	767	372.9	859
	25	32 180 305.33	90 962.39	733	352.7	812
32	26	32 174 241.29	97 026.43	101.06733	+332.9	1.000 0767
	27	32 168 177.25	103 090.47	700	313.4	722
	28	32 162 113.23	109 154.49	700	294.3	678
	29	32 156 049.21	115 218.51	667	275.6	635
	30	32 149 985.21	121 282.51	667	257.2	592
32	31	32 143 921.21	127 346.51	101.06633	+239.2	1.000 0551
	32	32 137 857.23	133 410.49	633	221.5	510
	33	32 131 793.25	139 474.47	617	204.2	470
	34	32 125 729.28	145 538.44	617	187.2	431
	35	32 119 665.31	151 602.41	583	170.6	393
32	36	32 113 601.36	157 666.36	101.06583	+154.4	1.000 0356
	37	32 107 537.41	163 730.31	583	138.6	319
	38	32 101 473.46	169 794.26	567	123.1	283
	39	32 095 409.52	175 858.20	567	108.0	249
	40	32 089 345.58	181 922.14	550	93.2	215
32	41	32 083 281.65	187 986.07	101.06550	+78.8	1.000 0181
	42	32 077 217.72	194 050.00	533	64.7	149
	43	32 071 153.80	200 113.92	550	51.1	118
	44	32 065 089.87	206 177.85	533	37.7	087
	45	32 059 025.95	212 241.77	517	24.8	057
32	46	32 052 962.04	218 305.68	101.06533	+12.2	1.000 0028
	47	32 046 898.12	224 369.60	533	0.0	1.000 0000
	48	32 040 834.20	230 433.52	533	−11.9	0.999 9973
	49	32 034 770.28	236 497.44	533	23.4	946
	50	32 028 706.36	242 561.36	533	34.5	921
32	51	32 022 642.44	248 625.28	101.06533	−45.3	0.999 9896
	52	32 016 578.52	254 689.20	533	55.7	872
	53	32 010 514.60	260 753.12	550	65.7	849
	54	32 004 450.67	266 817.05	533	75.4	826
	55	31 998 386.75	272 880.97	567	84.7	805
32	56	31 992 322.81	278 944.91	101.06550	−93.7	0.999 9784
	57	31 986 258.88	285 008.84	567	102.2	765
	58	31 980 194.94	291 072.78	583	110.5	746
	59	31 974 130.99	297 136.73	583	118.3	728
33	00	31 968 067.04	303 200.68	600	125.8	710
33	01	31 962 003.08	309 264.64	101.06617	−132.9	0.999 9694
	02	31 955 939.11	315 328.61	617	139.7	678
	03	31 949 875.14	321 392.58	633	146.1	664
	04	31 943 811.16	327 456.56	633	152.2	650
	05	31 937 747.18	333 520.54	667	157.9	636
33	06	31 931 683.18	339 584.54	101.06683	−163.2	0.999 9624
	07	31 925 619.17	345 648.55	683	168.1	613
	08	31 919 555.16	351 712.56	717	172.7	602
	09	31 913 491.13	357 776.59	733	176.9	593
	10	31 907 427.09	363 840.63	750	180.8	584

ZONE 6—Continued

Table I—Continued

Latitude		R	y′ (y value on the central meridian)	Tabular difference of R for 1 second of latitude	Scale correction expressed in units of the seventh place of logarithms	Scale correction expressed as a ratio
°	′	*Feet*	*Feet*	*Feet*		
33	11	31 901 363.04	369 904.68	101.06750	−184.3	0.999 9576
	12	31 895 298.99	375 968.73	800	187.4	568
	13	31 889 234.91	382 032.81	800	190.2	562
	14	31 883 170.83	388 096.89	833	192.6	557
	15	31 877 106.73	394 160.99	850	194.6	552
33	16	31 871 042.62	400 225.10	101.06883	−196.2	0.999 9548
	17	31 864 978.49	406 289.23	900	197.5	545
	18	31 858 914.35	412 353.37	933	198.4	543
	19	31 852 850.19	418 417.53	950	199.0	542
	20	31 846 786.02	424 481.70	983	199.2	541
33	21	31 840 721.83	430 545.89	101.07017	−199.0	0.999 9542
	22	31 834 657.62	436 610.10	033	198.5	543
	23	31 828 593.40	442 674.32	067	197.6	545
	24	31 822 529.16	448 738.56	100	196.3	548
	25	31 816 464.90	454 802.82	133	194.7	552
33	26	31 810 400.62	460 867.10	101.07167	−192.7	0.999 9556
	27	31 804 336.32	466 931.40	200	190.3	562
	28	31 798 272.00	472 995.72	233	187.6	568
	29	31 792 207.66	479 060.06	267	184.4	575
	30	31 786 143.30	485 124.42	317	181.0	583
33	31	31 780 078.91	491 188.81	101.07333	−177.2	0.999 9592
	32	31 774 014.51	497 253.21	383	173.0	602
	33	31 767 950.08	503 317.64	417	168.4	612
	34	31 761 885.63	509 382.09	450	163.5	624
	35	31 755 821.16	515 446.56	500	158.2	636
33	36	31 749 756.66	521 511.06	101.07533	−152.5	0.999 9649
	37	31 743 692.14	527 575.58	583	146.5	663
	38	31 737 627.59	533 640.13	633	140.1	677
	39	31 731 563.01	539 704.71	667	133.3	693
	40	31 725 498.41	545 769.31	700	126.2	709
33	41	31 719 433.79	551 833.93	101.07767	−118.7	0.999 9727
	42	31 713 369.13	557 898.59	800	110.8	745
	43	31 707 304.45	563 963.27	850	102.6	764
	44	31 701 239.74	570 027.98	900	94.0	784
	45	31 695 175.00	576 092.72	7950	85.0	804
33	46	31 689 110.23	582 157.49	101.08000	−75.7	0.999 9826
	47	31 683 045.43	588 222.29	050	66.0	848
	48	31 676 980.60	594 287.12	100	55.9	871
	49	31 670 915.74	600 351.98	150	45.4	895
	50	31 664 850.85	606 416.87	200	34.6	920
33	51	31 658 785.93	612 481.79	101.08267	−23.4	0.999 9946
	52	31 652 720.97	618 546.75	317	11.9	0.999 9973
	53	31 646 655.98	624 611.74	367	0.0	1.000 0000
	54	31 640 590.96	630 676.76	433	+12.3	28
	55	31 634 525.90	636 741.82	483	24.9	57
33	56	31 628 460.81	642 806.91	101.08533	+37.9	1.000 0087
	57	31 622 395.69	648 872.03	600	51.3	118
	58	31 616 330.53	654 937.19	667	65.1	150
	59	31 610 265.33	661 002.39	733	79.2	182
34	00	31 604 200.09	667 067.63	783	93.7	216
34	01	31 598 134.82	673 132.90	101.08850	+108.6	1.000 0250
	02	31 592 069.51	679 198.21	900	123.8	285
	03	31 586 004.17	685 263.55	8983	139.4	321
	04	31 579 938.78	691 328.94	9033	155.3	358
	05	31 573 873.36	697 394.36	117	171.7	395
34	06	31 567 807.89	703 459.83	101.09167	+188.4	1.000 0434
	07	31 561 742.39	709 525.33	250	205.5	473
	08	31 555 676.84	715 590.88	317	222.9	513
	09	31 549 611.25	721 656.47	383	240.7	554
	10	31 543 545.62	727 722.10	450	258.9	596

ZONE 6—Continued

Table I—Continued

Latitude		R	y′ (y value on the central meridian)	Tabular difference of R for 1 second of latitude	Scale correction expressed in units of the seventh place of logarithms	Scale correction expressed as a ratio
°	′	Feet	Feet	Feet		
34	11	31 537 479.95	733 787.77	101.09517	+277.4	1.000 0639
	12	31 531 414.24	739 853.48	600	296.3	682
	13	31 525 348.48	745 919.24	667	315.6	727
	14	31 519 282.68	751 985.04	750	335.3	772
	15	31 513 216.83	758 050.89	817	355.3	818
34	16	31 507 150.94	764 116.78	101.09883	+375.7	1.000 0865
	17	31 501 085.01	770 182.71	09967	396.5	913
	18	31 495 019.03	776 248.69	10050	417.6	0962
	19	31 488 953.00	782 314.72	133	439.1	1011
	20	31 482 886.92	788 380.80	200	461.0	061
34	21	31 476 820.80	794 446.92	101.10283	+483.3	1.000 1113
	22	31 470 754.63	800 513.09	367	505.9	165
	23	31 464 688.41	806 579.31	450	528.9	218
	24	31 458 622.14	812 645.58	533	552.2	271
	25	31 452 555.82	818 711.90	617	576.0	326
34	26	31 446 489.45	824 778.27	101.10700	+600.1	1.000 1382
	27	31 440 423.03	830 844.69	783	624.5	438
	28	31 434 356.56	836 911.16	867	649.4	495
	29	31 428 290.04	842 977.68	101.10967	674.6	553
34	30	31 422 223.46	849 044.26		700.2	1.000 1612

Table II

[1″ of longitude=0″.54951760 of θ]

Longitude		θ			Longitude		θ			Longitude		θ		
°	′	°	′	″	°	′	°	′	″	°	′	°	′	″
114	00	+1	14	11.0925	114	31	+0	57	08.9898	115	01	+0	40	39.8581
	01		13	38.1215		32		56	36.0188		02		40	06.8871
	02		13	05.1504		33		56	03.0477		03		39	33.9160
	03		12	32.1794		34		55	30.0766		04		39	00.9450
	04		11	59.2083		35		54	57.1056		05		38	27.9739
	05		11	26.2373	114	36	+0	54	24.1345	115	06	+0	37	55.0029
114	06	+1	10	53.2662		37		53	51.1635		07		37	22.0318
	07		10	20.2952		38		53	18.1924		08		36	49.0607
	08		09	47.3241		39		52	45.2214		09		36	16.0897
	09		09	14.3530		40		52	12.2503		10		35	43.1186
	10		08	41.3820	114	41	+0	51	39.2793	115	11	+0	35	10.1476
114	11	+1	08	08.4109		42		51	06.3082		12		34	37.1765
	12		07	35.4399		43		50	33.3371		13		34	04.2055
	13		07	02.4688		44		50	00.3661		14		33	31.2344
	14		06	29.4978		45		49	27.3950		15		32	58.2634
	15		05	56.5267	114	46	+0	48	54.4240	115	16	+0	32	25.2923
114	16	+1	05	23.5557		47		48	21.4529		17		31	52.3212
	17		04	50.5846		48		47	48.4819		18		31	19.3502
	18		04	17.6135		49		47	15.5108		19		30	46.3791
	19		03	44.6425		50		46	42.5398		20		30	13.4081
	20		03	11.6714	114	51	+0	46	09.5687	115	21	+0	29	40.4370
114	21	+1	02	38.7004		52		45	36.5976		22		29	07.4660
	22		02	05.7293		53		45	03.6266		23		28	34.4949
	23		01	32.7583		54		44	30.6555		24		28	01.5239
	24		00	59.7872		55		43	57.6845		25		27	28.5528
	25	+1	00	26.8161	114	56	+0	43	24.7134	115	26	+0	26	55.5817
114	26	+0	59	53.8451		57		42	51.7424		27		26	22.6107
	27		59	20.8740		58		42	18.7713		28		25	49.6396
	28		58	47.9030		59		41	45.8002		29		25	16.6686
	29		58	14.9319	115	00		41	12.8292		30		24	43.6975
	30		57	41.9609										

ZONE 6—Continued

Table II—Continued

[1″ of longitude=0″.54951760 of θ]

Longitude		θ			Longitude		θ			Longitude		θ		
°	′	°	′	″	°	′	°	′	″	°	′	°	′	″
115	31	+0	24	10.7265	116	41	−0	14	17.2475	117	51	−0	52	45.2214
	32		23	37.7554		42		14	50.2185		52		53	18.1924
	33		23	04.7843		43		15	23.1896		53		53	51.1635
	34		22	31.8133		44		15	56.1606		54		54	24.1345
	35		21	58.8422		45		16	29.1317		55		54	57.1056
115	36	+0	21	25.8712	116	46	−0	17	02.1027	117	56	−0	55	30.0766
	37		20	52.9001		47		17	35.0738		57		56	03.0477
	38		20	19.9291		48		18	08.0448		58		56	36.0188
	39		19	46.9580		49		18	41.0159		59		57	08.9898
	40		19	13.9870		50		19	13.9870	118	00		57	41.9609
115	41	+0	18	41.0159	116	51	−0	19	46.9580	118	01	−0	58	14.9319
	42		18	08.0448		52		20	19.9291		02		58	47.9030
	43		17	35.0738		53		20	52.9001		03		59	20.8740
	44		17	02.1027		54		21	25.8712		04	−0	59	53.8451
	45		16	29.1317		55		21	58.8422		05	−1	00	26.8161
115	46	+0	15	56.1606	116	56	−0	22	31.8133	118	06	−1	00	59.7872
	47		15	23.1896		57		23	04.7843		07		01	32.7583
	48		14	50.2185		58		23	37.7554		08		02	05.7293
	49		14	17.2475		59		24	10.7265		09		02	38.7004
	50		13	44.2764	117	00		24	43.6975		10		03	11.6714
115	51	+0	13	11.3053	117	01	−0	25	16.6686	118	11	−1	03	44.6425
	52		12	38.3343		02		25	49.6396		12		04	17.6135
	53		12	05.3632		03		26	22.6107		13		04	50.5846
	54		11	32.3922		04		26	55.5817		14		05	23.5557
	55		10	59.4211		05		27	28.5528		15		05	56.5267
115	56	+0	10	26.4501	117	06	−0	28	01.5239	118	16	−1	06	29.4978
	57		09	53.4790		07		28	34.4949		17		07	02.4688
	58		09	20.5080		08		29	07.4660		18		07	35.4399
	59		08	47.5369		09		29	40.4370		19		08	08.4109
116	00		08	14.5658		10		30	13.4081		20		08	41.3820
116	01	+0	07	41.5948	117	11	−0	30	46.3791	118	21	−1	09	14.3530
	02		07	08.6237		12		31	19.3502		22		09	47.3241
	03		06	35.6527		13		31	52.3212		23		10	20.2952
	04		06	02.6816		14		32	25.2923		24		10	53.2662
	05		05	29.7106		15		32	58.2634		25		11	26.2373
116	06	+0	04	56.7395	117	16	−0	33	31.2344	118	26	−1	11	59.2083
	07		04	23.7684		17		34	04.2055		27		12	32.1794
	08		03	50.7974		18		34	37.1765		28		13	05.1504
	09		03	17.8263		19		35	10.1476		29		13	38.1215
	10		02	44.8553		20		35	43.1186		30		14	11.0925
116	11	+0	02	11.8842	117	21	−0	36	16.0897	118	31	−1	14	44.0636
	12		01	38.9132		22		36	49.0607		32		15	17.0347
	13		01	05.9421		23		37	22.0318		33		15	50.0057
	14		00	32.9711		24		37	55.0029		34		16	22.9768
	15	0	00	00.0000		25		38	27.9739		35		16	55.9478
116	16	−0	00	32.9711	117	26	−0	39	00.9450	118	36	−1	17	28.9189
	17		01	05.9421		27		39	33.9160		37		18	01.8899
	18		01	38.9132		28		40	06.8871		38		18	34.8610
	19		02	11.8842		29		40	39.8581		39		19	07.8320
	20		02	44.8553		30		41	12.8292		40		19	40.8031
116	21	−0	03	17.8263	117	31	−0	41	45.8002	118	41	−1	20	13.7742
	22		03	50.7974		32		42	18.7713		42		20	46.7452
	23		04	23.7684		33		42	51.7424		43		21	19.7163
	24		04	56.7395		34		43	24.7134		44		21	52.6873
	25		05	29.7106		35		43	57.6845		45		22	25.6584
116	26	−0	06	02.6816	117	36	−0	44	30.6555	118	46	−1	22	58.6294
	27		06	35.6527		37		45	03.6266		47		23	31.6005
	28		07	08.6237		38		45	36.5976		48		24	04.5716
	29		07	41.5948		39		46	09.5687		49		24	37.5426
	30		08	14.5658		40		46	42.5398		50		25	10.5137
116	31	−0	08	47.5369	117	41	−0	47	15.5108	118	51	−1	25	43.4847
	32		09	20.5080		42		47	48.4819		52		26	16.4558
	33		09	53.4790		43		48	21.4529		53		26	49.4268
	34		10	26.4501		44		48	54.4240		54		27	22.3979
	35		10	59.4211		45		49	27.3950		55		27	55.3689
116	36	−0	11	32.3922	117	46	−0	50	00.3661	118	56	−1	28	28.3400
	37		12	05.3632		47		50	33.3371		57		29	01.3111
	38		12	38.3343		48		51	06.3082		58		29	34.2821
	39		13	11.3053		49		51	39.2793		59		30	07.2532
	40		13	44.2764		50		52	12.2503	119	00	−1	30	40.2242

ELEVATIONS

The elevations given in the following tables are referred to mean sea level. The stations are divided into three classes: First, those fixed by direct connection with sea level, the elevations of which are subject to a probable error of ±0.1 meter; second, the stations in the main scheme fixed by reciprocal measures of vertical angles and subject to probable errors varying from ±0.1 to ±1.5 meters; and, third, the intersection stations, the elevations of which are fixed by measurement of vertical angles which are not reciprocal (the station not being occupied). The probable errors of these last elevations may be as great as ±3 meters.

Since recent adjustments have changed the elevations of bench marks in California by slight amounts, the elevations of the class 1 stations, as given in the following table, do not agree exactly with the latest adopted elevations of these points. The differences are small, however, and it did not seem advisable to readjust the trigonometric elevations to eliminate these discrepancies, especially as the probable errors of the class 2 and class 3 elevations are several times as large as any changes that would be made by the readjustment.

TABLES OF ELEVATIONS

Thirty-ninth parallel arc

Station	Point to which elevation refers	Elevation	
		Meters	Feet
Class 1			
Mount Diablo	Copper bolt	1,173.10	3,848.7
Yolo southeast base		21.66	71.1
Yolo northwest base		46.66	153.1
Ross Mountain	Ground	672.23	2,205.5
Sonoma Mountain	do	698.56	2,291.9
Tomales Bay	do	205.13	673.0
Class 2			
Mount Grant (Nev.)	Station mark	3,427.4	11,245
Mount Como (Nev.)	do	2,747.9	9,015
Pah Rah (Nev.)	do	2,513.2	8,245
Mount Lola	Ground	2,786.8	9,143
Round Top	do	3,165.6	10,386
Mount Conness	do	3,835.8	12,585
Pine Hill	do	627.6	2,059
Marysville Butte	do	638.0	2,093
Monticello	do	932.4	3,059
Vaca	do	729.8	2,394
Mount Helena	do	1,322.1	4,338
Mount Tamalpais	do	790.7	2,594
Snow Mountain West	do	2,145.7	7,040
Mount Sanhedrin	do	1,884.6	6,183
Cold Spring	do	834.0	2,736
Two Rock	do	837.6	2,748
Paxton	do	1,037.2	3,403
Walalla	do	673.5	2,210
Sanel Mountain	do	1,022.0	3,353
Sulphur Peak	do	1,054.5	3,460
Class 3			
Chaparral (Sonoma County)[1]	do	393	1,289
Fisher	do	683	2,241
Clark [1]	do	624	2,047
Dunn [1]	do	587	1,926

[1] No check on this elevation.

Thirty-ninth parallel to United States-Mexico boundary arc

Station	Point to which elevation refers	Elevation	
		Meters	Feet
Class 1			
Gaviota		748.91	2,457.0
New San Miguel		246.62	809.1
Santa Cruz West	Ground	218.19	715.8
San Pedro	Station mark	450.80	1,479.0
Los Angeles northwest base	Copper bolt	39.00	128.0
Los Angeles southeast base	do	32.70	107.3
Class 2			
Sierra Morena	Ground	735.9	2,414
Mocho	do	1,248.1	4,095
Loma Prieta	do	1,157.5	3,798
Santa Ana	do	1,101.4	3,614
Gavilan	do	858.2	2,816
Mount Toro	do	1,081.2	3,547
Hepsedam		1,364.4	4,476
Santa Lucia		1,784.1	5,853
Castle Mount		1,325.2	4,348
San Luis		869.2	2,852
San Jose		1,149.5	3,771
Tepusquet		990.0	3,248
Lospe		499.4	1,638
Arguello		659.6	2,164
Santa Barbara		140.0	459
Santa Cruz East		94.9	311
Laguna	Ground	437.6	1,436
Santa Clara	do	685.2	2,248
Castro	do	858.9	2,818
San Fernando	do	1,136.8	3,730
Wilson Peak	Top of pier	1,738.6	5,704
San Juan	do	541.7	1,777
Michelson		1,718.3	5,637
Antonio		2,079.8	6,823
Santiago	Ground	1,734.7	5,691
Niguel		285.8	938
San Jacinto		3,301.2	10,831
Cuyamaca		1,982.9	6,506
Soledad	Ground	245.0	804
Class 3			
Mount Hamilton, Lick Observatory, small dome.	Top of small dome	1,299	4,261
San Miguel		779	2,556
Point Loma Lighthouse (old)	Railing	134	440

Texas-California arc

Station	Point to which elevation refers	Elevation	
		Meters	Feet
Class 2			
Butte	Station mark	1,368.6	4,490
American (U.S.G.S.)	do	649.0	2,129
Kofa (Ariz.)	do	1,471.6	4,828
Mohawk (Ariz.)	do	842.7	2,765
Harquahalla (Ariz.)	do	1,728.7	5,672
Powell (Ariz.)	do	1,555.5	5,103
Chemehuevis	do	1,127.9	3,700
Pine (Ariz.)	do	2,154.5	7,069
Hill	do	245.5	805
Class 3			
Castle Dome Peak (Ariz.)	Top	1,156.1	3,793
Peak C	do	2,314.7	7,594
Peak D (Nev.)	do	2,151.5	7,059
Peak E (Nev.)	do	1,716.4	5,631

Thirty-fifth parallel arc

Station	Point to which elevation refers	Elevation	
		Meters	Feet
Class 1			
Searles (B.M. M 48) [2]	Station mark	971.543	3,187.47
Class 2			
Center	do	1,513.74	4,966.3
McKittrick	do	1,320.56	4,332.5
Peak	do	1,779.66	5,838.8
Pelato	do	1,366.85	4,484.4
Elk	do	406.36	1,333.2
Temblor	do	1,084.21	3,557.1
Wheeler	do	652.94	2,142.2
Kern	do	233.29	765.4
Double	do	2,435.20	7,989.5
Breckenridge	do	2,310.36	7,579.9
Pajuela	do	1,756.87	5,764.0
Piute	do	2,570.33	8,432.8
Desert	do	868.97	2,850.9
Morris	do	2,197.17	7,208.5
Red	do	1,603.11	5,259.5
Yucca	do	1,932.18	6,339.2
Pilot	do	1,654.58	5,428.4
Leach	do	1,481.91	4,861.9
Panamint	do	2,935.09	9,629.5
Funeral	do	1,946.57	6,386.4
Denning	do	762.05	2,500.2
Kingston	do	2,176.42	7,140.5
Charleston (U.S.G.S.) (Nev.)	do	3,630.68	11,911.7
Pahrump southeast base	do	796.68	2,613.8
Pahrump northwest base (Nev.)	do	791.50	2,596.8
Lee (Nev.)	do	1,901.10	6,237.2
Table (Nev.)	do	1,569.29	5,148.6
Black (Nev.)	do	1,546.84	5,074.9

Pasadena base net

Station	Point to which elevation refers	Elevation	
		Meters	Feet
Class 2			
Pasadena west base	Station mark	129.04	423.4
Joaquin	do	116.64	382.7
Dimas	do	298.37	978.9
Pasadena east base	do	473.73	1,554.2

Los Angeles County (Coast and Geodetic Survey)

Station	Point to which elevation refers	Elevation	
		Meters	Feet
Class 3			
Los Cerritos		108.4	356
Los Bolsas		27.7	91
Lions Head	Top	1,141	3,743
Saddle Mountain [1]	do	852	2,795
Peak 26	do	1,693	5,554
San Gabriel Peak	do	1,878	6,161
Mount Lowe	do	1,705	5,594
Sharp Peak or Strawberry Peak [1]	do	1,819	5,968
Old Baldy, southwest peak	do	3,042	9,980
Telegraph Peak	do	2,702	8,865

[1] No check on this elevation. [2] Elevation from field computations.

Newport Beach to thirty-fifth parallel arc

Station	Point to which elevation refers	Elevation	
		Meters	Feet
Class 1			
B.M. N 3	Station mark	602.617	1,977.09
Class 2			
Jurupa	do	681.17	2,234.8
Armada	do	674.96	2,214.4
Reche	do	944.14	3,097.6
Strawberry	do	1,875.46	6,153.1
Keller	do	2,402.51	7,882.2
San Berdo	do	3,258.62	10,691.0
Craft	do	2,602.11	8,537.1
Loaf	do	3,033.50	9,952.4
Lune	do	1,819.35	5,969.0
Gold	do	2,510.46	8,236.4
Lucerne	do	1,346.63	4,418.1
Granite	do	2,289.70	7,512.1
Lucerne south base	do	914.77	3,001.2
Lucerne north base	do	986.13	3,235.3
Sage	do	1,158.63	3,801.3
Ord	do	1,924.05	6,312.5
Nellie Bly	do	1,793.11	5,882.9
El Frio	do	1,101.50	3,613.8
Barstow	do	1,376.35	4,515.6
Tiefort	do	1,181.36	3,875.8
Sugar	do	1,221.36	4,007.1
San Joaquin	do	355.17	1,165.3
Black	do	825.88	2,709.6
Bee	do	534.98	1,755.2
Lomas	do	399.75	1,311.5
Observatory	do	225.31	739.2
Cloud	do	495.98	1,627.2
Grape	do	322.31	1,057.4
Sier	do	927.83	3,044.1
Crafton	do	935.70	3,069.9
Foothill	do	1,412.32	4,633.6
Chaparral	do	520.52	1,707.7
La Quinta	do	333.71	1,094.8
High Grove	do	735.78	2,414.0
Box Springs	do	914.63	3,000.7
Little High Grove	do	448.66	1,472.0
Ledge	do	139.38	457.3
Ditch	do	24.05	78.9
Mitch	do	57.36	188.2
Como	do	19.42	63.7
Vent	do	16.42	53.9
French	do	99.09	325.1
Smoke	do	18.60	61.0
Airway	do	11.32	37.1
Baranca	do	56.72	186.1
Mare	do	18.66	61.2
Bowen	do	26.41	86.6
Golf	do	28.84	94.6
Newport	do	30.48	100.0
Rabbit	do	351.24	1,152.4
Glen	do	339.21	1,112.9
Star	do	591.92	1,942.0
Silver	do	984.84	3,231.1
Baker	do	862.51	2,829.8
Mine	do	1,037.30	3,403.2
Sludge	do	198.81	652.3
Yorba	do	218.24	716.0
Gypsum	do	698.69	2,292.3
Arroya	do	379.12	1,243.8
Hagador	do	821.10	2,693.9
Spur	do	917.22	3,009.2
Linson	do	433.08	1,420.9
Prado	do	288.50	946.5
Pigeon	do	433.84	1,423.4
Rubidoux	do	405.10	1,329.1

Newport Beach to thirty-fifth parallel arc—Continued

Station	Point to which elevation refers	Elevation	
		Meters	Feet
Class 2—Continued			
Pachappa	Station mark	361.40	1,185.7
Bliss	do	356.28	1,168.9
Green	do	242.51	795.6
La Sierra	do	312.32	1,024.7
Hole	do	384.30	1,260.8
Hump	do	268.99	882.5
Linn	do	455.55	1,494.6
School	do	359.05	1,178.0
Rail	do	275.16	902.8
Junction	do	266.19	873.3
Fairmont	do	291.95	957.8
Broom	do	216.30	709.6
Henry	do	241.65	792.8
Van Buren	do	303.54	995.9
Linda	do	481.68	1,580.3
Colton	do	300.86	987.1
Loma	do	476.91	1,564.7
Bryn	do	318.89	1,046.2
Wilder	do	341.19	1,119.4
Harlem	do	350.38	1,149.5
Oak	do	1,066.17	3,497.9
Leaf	do	514.15	1,686.8
Edwards	do	784.41	2,573.5
Boulder	do	466.23	1,529.6
Mentone	do	573.49	1,881.5
Morton	do	857.33	2,812.8
Warm Springs	do	1,025.46	3,364.4
Plunge	do	1,020.44	3,347.9
Creek	do	746.06	2,447.7
Highland	do	604.49	1,983.2
Red	do	384.92	1,262.9
Wash	do	397.42	1,303.9
Cap	do	480.14	1,575.3
Blue	do	377.28	1,237.8

San Luis Obispo northeastward arc

Station	Point to which elevation refers	Elevation	
		Meters	Feet
Class 3			
Saddle Peak		554.5	1,819

Monterey Bay to Mariposa Peak arc

Station	Point to which elevation refers	Elevation	
		Meters	Feet
Class 1			
Santa Cruz azimuth	Station mark	109.48	359.2

Vicinity of Point Sur

Station	Point to which elevation refers	Elevation	
		Meters	Feet
Class 3			
Rock Slide		1,571.2	5,155

Suisun, San Pablo, and San Francisco Bays

Station	Point to which elevation refers	Elevation	
		Meters	Feet
Class 1			
Red Hill	Ground	57.12	187.4
Guano Island	do	8.67	28.4
Pulgas east base	do	5.87	19.3
Pulgas west base	do	39.43	129.4
Point Avisadero	do	52.09	170.9
Class 2			
Rocky Mound	do	429.4	1,409
Class 3			
Petaluma Creek	do	33.8	111
Mare Island southeast	do	86.2	283
Vallejo 3	do	113.0	371
Bush Hill	do	146.8	482

California—Washington arc

Station	Point to which elevation refers	Elevation	
		Meters	Feet
Class 1			
Gazelle astronomical station	Station mark	848.28	2,783.1
Redding astronomical station	do	202.16	663.3
Class 2			
Soda (Oreg.)	do	1,857.4	6,094
Sterling (Oreg.)	do	2,239.3	7,347
Spur	do	2,766.9	9,078
Boliver	do	2,451.5	8,043
Bally	do	1,892.4	6,209
Mears	do	2,174.1	7,133
Round	do	1,043.4	3,423
Kent	do	2,032.9	6,670
Lyons	do	2,031.4	6,665
Snow Mountain East	do	2,150.6	7,056
Class 3			
Redding, courthouse	Tangent to roof	198.2	650
Greyback (Oreg.)	Top of peak	2,149.5	7,052
Pilot Rock (Oreg.)	Summit	1,803.9	5,918
Goosenest, tall tree	Top	2,398.5	7,869
Marble Mountain	Summit	2,533.3	8,311
Mount Shasta, top	Top of peak	4,316.5	14,162
China Mountain	Summit	2,606.2	8,551
Black (Wintoon) Butte, cairn	Top of peak	1,933.8	6,344
Mount Eddy, cairn	Summit	2,754.8	9,038
Russian Peak, north point	Highest summit	2,494.3	8,183
Saw Tooth	Summit	2,717.4	8,915
Thompson (Granite) Peak	do	2,555.0	8,383
Crater Peak	Top	2,646.5	8,683
Lassen Peak	do	3,189.9	10,466
Mount Linn	do	2,463.8	8,083
Mount St. John	do	2,057.6	6,751

California-Oregon arc

Station	Point to which elevation refers	Elevation	
		Meters	Feet
Class 1			
Lakeview—B.M. M 16 (Oreg.)	Station mark	1,443.056	4,734.43
Class 2			
Crane (Oreg.)	do	2,574.52	8,446.6
Yonna (Oreg.)	do	2,202.64	7,226.5
Cougar (Oreg.)	do	2,415.63	7,925.3
Dog (Oreg.)	do	2,113.96	6,935.6
Hoffman	do	2,416.38	7,927.7
Aspen (Oreg.)	do	2,502.53	8,210.4
Goosenest	do	2,526.48	8,289.0
Whaleback	do	2,601.73	8,535.8
Grizzly	do	1,905.99	6,253.2
Eddy	do	2,753.44	9,033.6
Class 3			
Soldier	do	1,688.5	5,540
Turret	do	1,871.1	6,139
Dixie	do	1,852.0	6,076
Bald Mountain (U.S.G.S.)	Ground	1,701.3	5,582
Burney (U.S.G.S.)	Top of cairn	2,399.2	7,871
Crater (U.S.G.S.)	Ground	2,645.3	8,679
Black Fox	Station mark	1,984.4	6,510
Weed Lumber Co., east chimney	Top	1,128.3	3,702
Weed Lumber Co., west chimney	do	1,127.3	3,698
Boliver, fire lookout house	Top of house	2,472.6	8,112
Bonanza, fire lookout house	do	2,124.9	6,971
Granite [1]	Ground	2,467	8,094

Redding to Mendocino arc (second order)

Station	Point to which elevation refers	Elevation	
		Meters	Feet
Class 2			
Mount Lassic	Ground	1,791.9	5,879
King Peak	do	1,246.8	4,091
Cahto		1,290.2	4,233
Great Caspar	Ground	320.9	1,053
Chemise Mountain		791.8	2,598
Class 3			
Bear Ridge	Ground	753.2	2,471

Vicinity of Point Reyes

Station	Point to which elevation refers	Elevation	
		Meters	Feet
Class 3			
Point Reyes Hill [1]	Ground	429	1,407

[1] No check on this elevation.

DESCRIPTIONS OF TRIANGULATION STATIONS

The following descriptions of stations may be conveniently consulted by reference to the illustrations at the end of this publication or to the index. All azimuths given in the descriptions are geodetic azimuths and are reckoned continuously from true south around by west to 360°, south being 0°, west 90°, north 180°, and east 270°. Where magnetic azimuths are given they are indicated as such.

In general, except where the contrary is specifically stated, the surface and underground marks are not in contact, so that a disturbance of the surface mark will not necessarily affect the underground mark. The underground mark should be resorted to only in cases where there is evidence that the surface mark has been disturbed.

The name and dates given in each description immediately after the county refer to the chief of party by whom the station was established, the date of the establishment of the station, and the date when the station was last recovered.

Any person who finds that one of the stations herein described has been disturbed or that the description no longer fits the facts is requested to send such information to the Director, United States Coast and Geodetic Survey, Washington, D. C.

MARKING OF STATIONS

The standard disk station and reference marks referred to in the following descriptions and notes consist of a disk and shank of brass cast in one piece, as shown in figure 5. The disk of the station mark is 90 millimeters in diameter, with a hole at the center surrounded by a 20-millimeter equilateral triangle, and has the following inscribed legend: "U. S. Coast and Geodetic Survey Triangulation Station. For information write to the Superintendent, Washington, D. C. $250 fine or imprisonment for disturbing this mark." On the new marks made since March 1921 the word "Director" replaces the word "Superintendent" in the inscription. The shank is 25 millimeters in diameter and 80 millimeters long, with a slit at the lower end into which a wedge is inserted, so that when it is driven into a drill hole in the rock it will bulge at the bottom and hold the mark firmly in place. In recent years the slits in the stems of both station and reference disks have been enlarged so that the two prongs may be spread far apart and set in concrete without the use of a wedge. The marks used between about 1915 and 1920 have grooves cut around the shank instead of the slit.

The old type of station mark, shown in figure 6, consists also of a disk and shank made of bronze and cast in one piece. The disk, which is somewhat smaller than the disk of the marks described above, has a polished center with an inscribed triangle. Around the polished part are the letters "U. S. C. & G. S." and a raised flange around the edge.

The standard disk reference mark, shown in figure 5, is the same size and shape as the newer type of station mark, described above, but instead of a triangle it has an arrow at the center of the disk, which, when the mark is properly set, points to the station. The legend is the same as for the station mark except that the words

"reference mark" take the place of the words "triangulation station."

Since about 1928 azimuth marks have been established at the principal triangulation stations at such distances as to make them satisfactory for the ordinary purposes of local surveying. Such marks usually consist of standard reference disks set in standard manner; they are sometimes stamped with a number, and sometimes with letters to indicate their character.

When the name of an object appearing in the body of a description is printed in italics, it means that the horizontal position of that object has been determined and is included in this publication.

The station and reference marks of the Los Angeles County and City Cooperative Survey Control are brass caps which are brazed onto 3-inch pipes, 3½ feet long, set in concrete. The inscriptions on the marks are shown in figure 7.

The station mark of the Metropolitan Water District of Southern California is a bronze disk about 3 inches in diameter and $\frac{7}{16}$-inch thick with a slightly tapered shank about 3 inches long and ¾-inch in diameter. A slit about 1¾ inches long is cut in the lower end of the shank. The inscription on the face of the disk is shown in figure 7. The reference mark of the Metropolitan Water District of Southern California is a bronze pin, 2½ inches long and ⅜-inch in diameter, with a punch hole in the top surface and five V-shaped grooves cut in the lower part.

The standard notes on the marking of stations which are given below serve as a guide to the field observer in selecting the best type of mark for each particular station. They are also useful to the observer in writing his descriptions, as he need not describe the marking used at a station but simply give the numbers of the standard notes which describe the station, underground, reference, and witness marks. The notes were made as general as possible in order that it might not be necessary in the field to describe small and unimportant variations.

For the convenience of the reader a brief description of the marking is given in each of the following descriptions of stations. In addition, the number of the note describing the mark in detail is also given.

STANDARD NOTES ON THE MARKING OF STATIONS

Surface marks

Note 1.—A standard disk triangulation station mark set in the top of (*a*) a square block or post of concrete, (*b*) a concrete cylinder, (*c*) an irregular mass of concrete.

Note 2.—A standard disk triangulation station mark wedged in a drill hole in outcropping bedrock (*a*) and surrounded by a triangle chiseled in the rock, (*b*) and surrounded by a circle chiseled in the rock, (*c*) at the intersection of two lines chiseled in the rock.

Note 3.—A standard disk triangulation station mark set in concrete in a depression in outcropping bedrock.

Note 4.—A standard disk triangulation station mark wedged in a drill hole in a boulder.

Note 5.—A standard disk triagulation station mark set in concrete in a depression in a boulder.

Note 6.—A standard disk triangulation station mark set in concrete at the center of the top of a tile (*a*) which is embedded in the ground, (*b*) which is surrounded by a mass of concrete, (*c*) which is fastened by means of concrete to the upper end of a long wooden pile driven into the marsh, (*d*) which is set in a block of concrete and projects from 12 to 20 inches above the block,

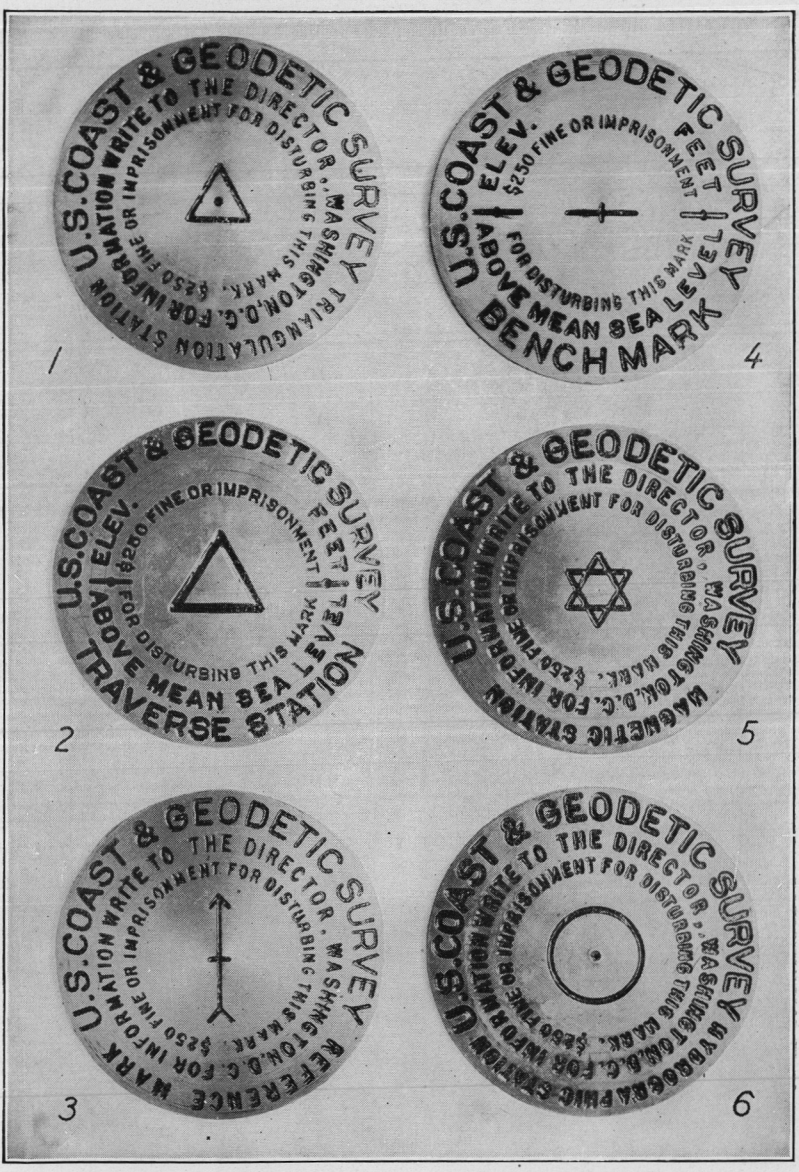

FIGURE 5.—STANDARD MARKS OF THE U. S. COAST AND GEODETIC SURVEY.

1. Triangulation station mark.
2. Traverse station mark.
3. Reference mark.
4. Bench mark.
5. Magnetic station mark.
6. Hydrographic station mark.

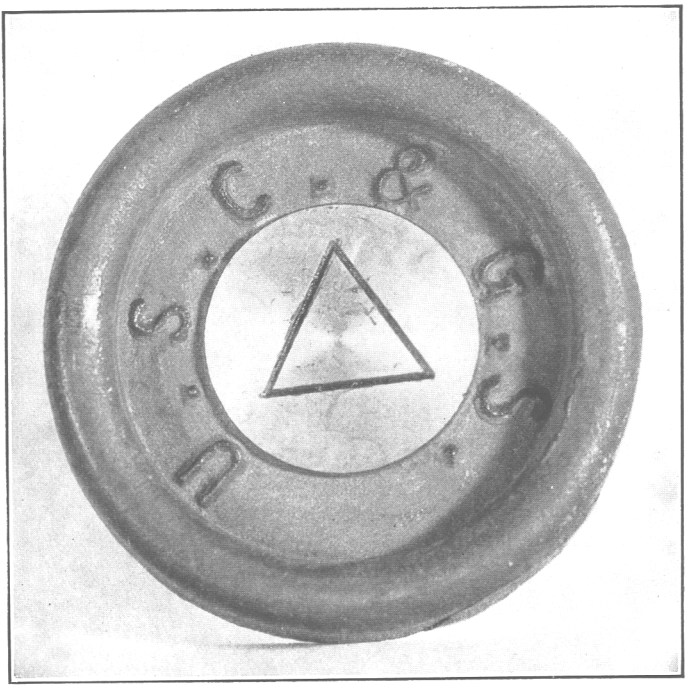

FIGURE 6.—OLD-TYPE STATION MARK.

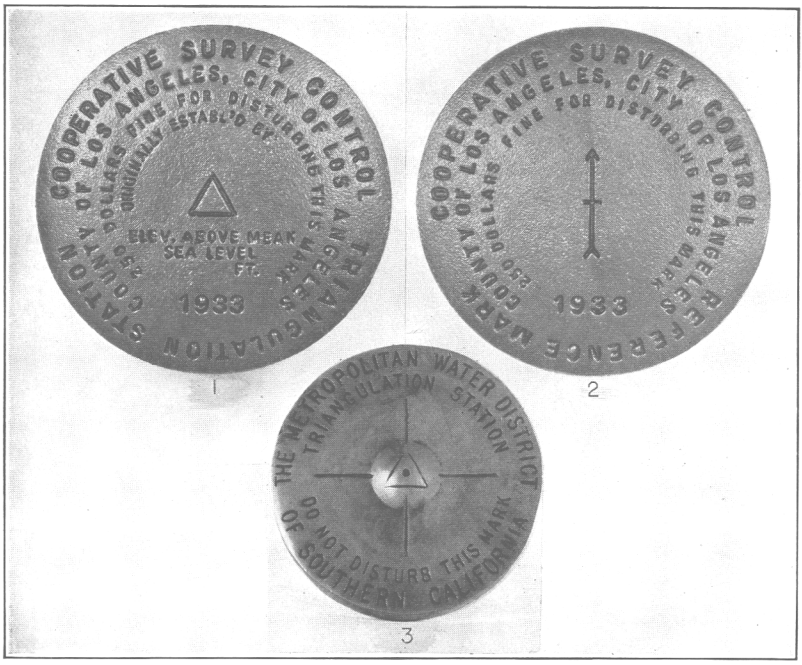

FIGURE 7.—STANDARD MARKS OF THE LOS ANGELES COUNTY AND CITY COOPERATIVE SURVEY CONTROL AND OF THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA.

Underground marks

Note 7.—A block of concrete 3 feet below the ground containing at the center of its upper surface (*a*) a standard disk triangulation station mark, (*b*) a copper bolt projecting slightly above the concrete, (*c*) an iron nail with the point projecting above the concrete, (*d*) a glass bottle with the neck projecting a little above the concrete, (*e*) an earthenware jug with the mouth projecting a little above the concrete.

Note 8.—In bedrock (*a*) a standard disk triangulation station mark wedged in a drill hole, (*b*) a standard disk triangulation station mark set in concrete in a depression, (*c*) a copper bolt set in cement in a drill hole or depression, (*d*) an iron spike set point up in cement in a drill hole or depression.

Note 9.—In a boulder 3 feet below the surface of the ground (*a*) a standard disk triangulation station mark wedged in a drill hole, (*b*) a standard disk triangulation station mark set in concrete in a depression, (*c*) a copper bolt set with cement in a drill hole or depression, (*d*) an iron spike set with cement in a drill hole or depression.

Note 10.—Embedded in earth 3 feet below the surface of the ground (*a*) a bottle in an upright position, (*b*) an earthenware jug in an upright position, (*c*) a brick in a horizontal position with a drill hole in its upper surface.

Reference marks

Note 11.—A standard disk reference mark with the arrow pointing toward the station set at the center of the top of (*a*) a square block or post of concrete, (*b*) a concrete cylinder, (*c*) an irregular mass of concrete.

Note 12.—A standard disk reference mark with the arrow pointing toward the station (*a*) wedged in a drill hole in outcropping bedrock (*b*) set in concrete in a depression in outcropping bedrock, (*c*) wedged in a drill hole in a boulder, (*d*) set in concrete in a depression in a boulder.

Note 13.—A standard disk reference mark with the arrow pointing toward the station, set in concrete at the center of the top of a tile (*a*) which is embedded in the ground, (*b*) which is surrounded by a mass of concrete, (*c*) which is fastened by means of concrete to the upper end of a long wooden pile driven into the marsh, (*d*) which is set in a block of concrete and projects from 12 to 20 inches above the block.

Witness marks

Note 14.—A conical mound of earth surrounded by a circular trench.

Note 15.—A tree marked with (*a*) a triangular blaze with a nail at the center and each apex of the triangle, (*b*) a square blaze with a nail at the center and each corner of the square, (*c*) a blaze with a standard disk reference mark set at its center into the tree.

THIRTY-NINTH PARALLEL ARC

Principal points

Mount Grant (Mineral County, Nev., W. Eimbeck, 1879; 1934).—About 10 miles west-northwest of Hawthorne, 5 miles west of Walker Lake, 3.0 miles northeast of Lapon Meadows, on center one of three peaks which form summit of Mount Grant, and about 200 meters (656 feet) north of highest peak. To reach from Leevining, follow highway north 7 miles, turn right onto Bodie road and go 18 miles to Bodie, pass through Bodie and continue 13.7 miles, take left fork at entrance to large valley and follow road 14.5 miles across valley toward low gap in range, at point where Morgan ranch is visible turn right up wash and follow main wash 5.6 miles, take either road around small hill and go 1.9 miles to top of divide, follow left fork down canyon 1.0 mile to good road, turn right up road and go 4.7 miles, take left fork and continue to station site. (Road was under construction in 1934 and expected to be finished in 1935.) In 1879 station was marked by copper bolt in rock which was embedded in masonry pier about 3 feet above base and 8 inches below top of pier. Opening in top of pier allowed access to bolt. Station was surrounded by brick pier about 1 foot high. Circular stone wall enclosed area

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4.70 meters (15.5 feet) in diameter around pier, and hook-shaped stone wall extended southeast around one side of vertical-circle pier (box filled with gravel) which was distant 9.9 meters (33 feet). In 1933 station was recovered in good condition but vertical-circle pier was disintegrating. Two standard reference disks were established in 1934. No. 1 is 3.132 meters (10.28 feet) from station in azimuth 281°06′. No. 2 is 6.820 meters (22.38 feet) from station in azimuth 198°21′. Azimuths from station to following points are: Tank with red beacon, distant 6 miles, 271°02′28″; smokestack, distant 6 miles, 271°07′59″; and smokestack, distant 4 miles, 281°37′34″.

Mount Como (Douglas County, Nev., W. Eimbeck, 1879; 1931).—On a sharp conical peak of the Como Range of mountains which lies between Carson and Mason Valleys, about 27 miles west of Yerington, 24 miles southeast of Carson City, 20 miles nearly due east of Genoa, and 17 miles southeast of Dayton. To reach from Reno, go to Wellington via Carson City (1 mile southwest of Wellington), follow north up Smith Valley to east-and-west road just before reaching Nevada Hot Springs, take west branch and follow west about 5 miles to signboard "Artesia—Luding—Yerrington" and point where road turns east, take dim road leading north around base of mountain (road to Jew ranch) and go about 7 miles, take left turn and proceed to sign "Burlington," take left turn and follow road to prospect tunnel known as the "Burlington Mine" (cabin and mine dump can be seen from valley), and proceed west 2½ miles from cabin to high peak and station site. To take pack animals to station, follow second canyon north of cabin to ridge and proceed along ridge to station site. This route is about 5 miles. In 1879 station was marked by a ½- by 4-inch copper bolt leaded into a large and well-bedded granite rock. A masonry pier, resting on solid rock formation, was built up to a height of a few inches above copper bolt and was capped with a large slab of rock about 19 by 22 inches by 5 inches thick. A one-half-inch hole was then drilled in slab directly over copper bolt. Three small brick piers, 1 brick square and about 8 inches high, were erected on masonry pier to support the instrument tripod. Vertical-circle piers were constructed at following distances and azimuths from station: 10.60 meters (34.8 feet), 179°04′; and 7.24 meters (23.8 feet), 338°12′. Drill hole in rock was established 6.25 meters (20.5 feet) from station in azimuth 49°13′. A ring wall of stone, about 2 feet thick and 4½ feet high and resembling the figure "6" was built to serve as a windbreak. A Wheeler monument, about 35° west of south and 10 feet distant from station formed part of wall. In 1922: Pier over copper bolt marking station and the north vertical-circle pier had been destroyed. The rock with the copper bolt was partly undermined on the west and southwest sides. Two standard reference disks were established in rock at following distances and magnetic azimuths from station: No. 1, 58.5 feet, 155°30′; and no. 2, 50.0 feet, 215°30′. Drill hole in rock was established in line to reference mark no. 1, 37.1 feet from station. In 1925 station had evidently been struck by lightning and the pier destroyed. The copper bolt was in good condition. The ring wall was repaired. In 1931 station mark was recovered in good condition, but reference mark no. 2 had been destroyed.

Pah Rah (Washoe County, Nev., W. Eimbeck, 1878; 1931).—About 30 miles northeast of Reno, 15 miles north-northwest of Wadsworth, and on highest point of Pah Rah Mountain. To reach from Reno, follow highway east to Wadsworth, proceed north 13.2 miles on Pyramid Lake road, take left fork at sign "Sutcliff Resort" and go 3.8 miles, turn left along railroad tracks and go 5.6 miles, turn left onto side road and go 0.1 mile, cross railroad tracks and follow up canyon 1.3 miles to Andy Morgan's ranch, and follow horse trail up left side of canyon about 4 miles to station site. In 1878 underground station mark was one-half inch copper bolt cemented in bedrock with stone slab cemented over it. A three-fourths inch drill hole in slab marked station, and a masonry wall was built around it for wind protection. Vertical-circle pier was built N. 37° E. of station, distant 8 feet 7 inches. In 1925, only the copper bolt was in place; stone slab, ring wall, and vertical-circle pier had been destroyed. In 1931 two standard reference disks in bedrock, note 12a, were established—no. 1 is 16.52 meters (54.2 feet) from station in azimuth 204°45′; no. 2 is 4.97 meters (16.3 feet) from station in azimuth 326°30′. Azimuth from station to *Babbit, fire lookout tower* is 68°41′19″.

Mount Lola (Nevada County, W. Eimbeck, 1876; 1934).—On highest point of Mount Lola, about 2 miles west of western end of Lake Independence, 22 miles

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northwest of Truckee, and 5½ miles west-northwest of Independence Lake hotel. To reach from hotel at Independence Lake, follow trail west about 6 miles to station. In 1876 station was marked by one-half inch drill hole in rock buried 2 feet, with dime in drill hole; and surface mark consisting of drill hole in stone. Reference marks were four similar stones placed 6 feet from station. In 1879 the geodetic position of the station was determined. Station was re-marked with copper bolt flush with surface and surmounted by rough stone pier, about 22 inches square and 3 feet high, with hole in capstone marking station. Three brick piers were also constructed: "Mount Lola latitude station" was 9.5 meters (31 feet) N. 45° E. of station; and the other two were 8.5 meters (28 feet) from station, N. 36° E. and N. 28° W., respectively. In 1922 two brick piers were recovered as follows: 5.25 meters (17.2 feet) (slope) from station in azimuth 152°10′, and 8.615 meters (28.26 feet) (slope) from station in azimuth 216°43′. Large wooden post was 16.19 meters (53.1 feet) (slope) from station in azimuth 346°26′. Standard reference disk was established 14.67 meters (48.1 feet) from station in azimuth 352°53′. In 1934 drill hole in station pier had been partly broken away. The brick pier, 5.25 meters (17.2 feet) (slope) distant from station in azimuth 152°10′, was partly broken off on top. Azimuth from station to *Babbit, fire lookout tower*, is 229°48′38″.

Round Top (Alpine County, W. Eimbeck, 1876; 1934).—On highest and most easterly pinnacle of Round Top Mountain, about 20 miles south of Lake Tahoe, 35 miles southwest of Carson City, 2 miles south of Carson Pass, and 2.5 miles southwest of Woods Lake. To reach from Gardnerville, go south-southwest 15 miles on main road to Woodfords, go west on highway 6.1 miles to fork, continue 7.9 miles on left fork (Carson Pass Road) to summit (marked by granite monument to Kit Carson), continue down western grade 1.5 miles to sign at left "Woods Lake—Winnemucca Lake—Fourth of July Lake", turn left (south) off highway and go 0.1 mile to fork, take right fork and go 1.2 miles to Lost Cabin Mine and end of truck travel, go southwest 0.5 mile up main canyon (keeping on left of creek on faint trail) to bushy flat (facing east, station is on farthest of range of peaks to left), continue on left side of creek to head of draw, and follow trail up side of peak to station site. In 1876, station was marked by pine peg, with copper nail in center, sunk 4 inches into solid rock. In 1879 the geodetic position of the station was determined. Station was remarked with ⅝-inch copper bolt in drill hole in rock, and surmounted by stone pier, 30 inches square and 36 inches high, with 5-inch hole in center. Three other piers were constructed and were recovered in 1922 as follows: Vertical-circle pier, 5.39 meters (17.7 feet) from station in azimuth 199°07′; "Round Top latitude station" pier, 10.71 meters (35.1 feet) from station in azimuth 87°36′; and meridian pier, 12.10 meters (39.7 feet) from station in azimuth 87°43′. In 1922 standard reference disk was set in ledge rock 9.27 meters (30.4 feet) from station in azimuth 349°43′. In 1934 standard reference disk was set in ledge rock 49 feet from station in azimuth 60°, and an azimuth mark was established just below top of highest point, and ¼ mile southwest of station. (See fig. —.)

Mount Conness (Tuolumne County, L. A. Sengteller, 1879; 1934).—About 4 miles northwest of east gate to Yosemite Park, 4 miles southwest of Saddlebag Lake, and on highest point of Mount Conness. To reach from Leevining, go south 0.3 mile on highway, turn right onto Tioga Pass Road and go 12 miles, turn right onto road to Saddlebag Lake, and go 1.5 miles, turn right and go about 0.6 mile to end of road, follow up creek about one-fourth mile, go to right up side of mountain to north point of high ridge and thence along ridge to highest point and station site. In 1879 station was marked by cross on copper bolt set in drill hole in solid rock. In 1890 the geodetic position of the station was determined. Concrete pier, 26 inches in diameter and 40 inches above rock, was built; and ⅝-inch copper bolt with broad, flat, spherical head was placed in top. A silver pin was driven into head of bolt but cross on top a short distance away marks station. "Mount Conness latitude station", marked by concrete pier, was 194.5 meters (638 feet) from station in azimuth 301°59′; magnetic pier was 180.4 meters (592 feet) from station in azimuth 298°20′; vertical-circle pier was 8.72 meters (28.6 feet) west and 24.81 meters (81.4 feet) south of magnetic pier; and transit pier was 1.545 meters (5.07 feet) west of latitude pier. In 1934 two standard reference disks in bedrock, note 12a, were established—no. 1 is 14.304 meters (46.93 feet) from station in azimuth 347°52′; no. 2 is 22.126 meters (72.59 feet) from station in azimuth 93°44′. Reference

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mark no. 3 (probably standard reference disk) was also established, at base of sharp peak, in concrete pier about 3 feet high, and about one-fourth mile from station in azimuth 301°59′32″.

Pine Hill (Eldorado County, W. Eimbeck, 1876; 1931).—On highest summit of Pine Hill, about 28 miles northeast by east of Sacramento, and 10 miles east northeast of Folsom. In 1876, station was marked with ½-inch drill hole in rock embedded in surface. In 1879 copper bolt was placed in drill hole, and later a stone pier, 18 inches square, with 22-inch-square capstone was placed over mark. Reference marks were crosses in rock, 3.812 meters (12.51 feet) from station in azimuth 258°16′ and 4.07 meters (13.35 feet) (slope) from station in azimuth 130°43′. In 1922 drill hole in outcropping rock was 10.62 meters (34.8 feet) (slope) from station in azimuth 23°49′; center of highest rock was 11.60 meters (38.1 feet) (slope) from station in azimuth 37°59′; and standard reference disk was established 4.506 meters (14.78 feet) (slope) from station in azimuth 23°49′. In 1931: Reference disk established in 1922 was not recovered. Two standard reference disks were established as follows: No. 1 is in same outcrop as cross and 4.290 meters (14.07 feet) from station in azimuth 258°14′; and no. 2 is in old drill hole in rock 10.600 meters (32.81 feet) from station in azimuth 23°49′.

Marysville Butte (Sutter County, G. Davidson, 1876; 1925).—About 15 miles west of Marysville, 4 miles northwest of Sutter, on south and highest peak of Marysville Buttes. These buttes are now sometimes known as "Sutter Buttes" and consist of a chain of several conical peaks extending north and south and rising abruptly from plain between Sacramento and Feather Rivers. To reach from Sutter, go 5 miles to T. J. Moore's ranch at foot of buttes and climb steep trail about 2 miles to station. In 1876 station was marked by ½-inch drill hole, 2 inches deep in rock containing wooden peg and copper cartridge shell. Reference marks were similar drill holes in rock at following distances and azimuths from station: 2.683 meters (8.8 feet), 5°05′; 2.495 meters (8.19 feet), 247°09′; and 2.92 meters (9.6 feet), 102°52′. In 1904: Station was re-marked with copper bolt at bottom of old drill hole and old-type station disk (see fig. 6) at surface. Reference marks were re-marked with copper bolts in old drill holes. In 1922 two standard reference disks were established in bedrock, 7.96 meters (26.1 feet) from station in azimuth 94°52′ and 2.514 meters (8.25 feet) from station in azimuth 24°30′. Pole in center of cairn on higher point of butte is about 60 meters (197 feet) from station in azimuth 138°07′.

Mount Diablo (Contra Costa County, R. D. Cutts, 1852; 1935).—About 30 miles east of Berkeley and Oakland, about 15 miles by road east of Walnut Creek, and about 15 miles by road northeast of Danville, on summit of Mount Diablo, most prominent landmark in vicinity and a State park. At west end of parking space on summit is *Mount Diablo, airway landmark beacon* (see below). At east end of summit is small wooden observation tower built over rock outcrop which forms highest part of summit. From this point summit breaks off steeply in all directions except west. Station is under northwest part of this platform, 3 feet northwest of concrete pier which is at center of platform and around which range finders are centered. In 1852 station was marked by hole about 2 inches in diameter and 1½ inches deep in center of bottom of another hole 8 inches in diameter and 6 inches deep. In 1858 a ½-inch hole was drilled in rock. In 1876 copper bolt with crosslines on top was set in solid rock. Over this was placed pier with ¾-inch copper bolt marked with crosslines cemented flush in top. In 1892 hole at intersection of crosslines in upper bolt was found eccentric to true station, and center was re-marked with new crosslines $\frac{3}{16}$ inch southeast of hole. In 1922 top of pier found in ruins and mark recovered described as ½-inch copper bolt with crosslines in top set firmly in, and projecting ⅛ inch above bedrock. Old pier had three openings at base to permit access to mark. Pier was repaired, and on it was placed concrete cap 20 inches high, making total height of pier about 4 feet. In center of concrete cap was hole 6 inches square to permit access to mark. In 1935 reported that brick and concrete pier had opening on north side to permit access to mark at ground line. Pier was reported to extend 3 feet above observation platform. In 1876 vertical-angle pier was built 144.74 feet west of station; brick latitude pier, 27.7 feet southwest of vertical-angle pier and 167.82 feet west of station; and transit-instrument pier, 32.5 feet southwest of vertical-angle pier. In 1922 only base of vertical-angle pier was found. Grading of summit may have destroyed other old auxiliary

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piers. In 1922 reported that two standard reference disks were set in solid rock, but data furnished for three reference marks as follows: no. 1, 2.41 meters (7.9 feet) from station in azimuth 165°50′; no. 2, 3.05 meters (10.0 feet) from station in azimuth 325°44′; no. 3, 17.14 meters (56.2 feet) from station in azimuth 72°18′. In 1935 no. 1 was recovered in good condition, reported to be unstamped. In 1931 no. 2 reported under observation platform. No. 3 not recovered in 1932. *Mount Diablo, flagpole* (see description thereof) is 14.70 meters (48.2 feet) from station in azimuth 74°12′. *Mount Diablo, airway landmark beacon* (see description thereof) is 65.51 meters (214.9 feet) from station in azimuth 81°08′.

Monticello (Yolo County, W. Eimbeck, 1876; 1922).—About 6 miles north of Monticello, on high, prominent, brushy ridge lying between Capay Valley on east and Berryessa Valley on west. Ridge is continuation of Vaca Mountains (known locally as "Blue Ridge"), and forms boundary between Napa and Yolo Counties. To reach from Monticello, go 7.2 miles to Marr's ranch in Berryessa Valley, proceed 3 miles by road and trail to W. S. Gray's homestead cabin, and climb 2 miles by steep, brushy, dimly marked trail to station site on highest part of ridge which is faced to southwest by high sandstone bluffs. Underground mark is metallic cartridge in ½-inch drill hole in bottom of hole 6 inches in diameter and 1 foot deep in sandstone; top of cartridge is 2.5 feet below surface. A stone 4 inches square and 1 foot long with copper bolt in top was placed over this. In 1880 the geodetic position of the station was determined. Rough-stone foundation crowned with large stone even with surface was imposed, and copper bolt with silver pin was set in hole in stone as surface mark. Bolt projects about one-fourth inch. A rough-stone pier was built to height of 3.84 feet and capped with flat stone 32 inches square with crosslines on it. Astronomical observations were made at piers at following distances and directions from station: Transit pier, 31.288 feet north and 3.687 feet east; latitude pier, 31.413 feet north and 8.823 feet east; and vertical-circle pier, 19.786 meters (64.91 feet), S. 38°17′ E. (true). In 1922 two standard reference disks were established. No. 1 is 22.34 meters (72.3 feet) (slope) from station in azimuth 140°31′. No. 2 is 3.86 meters (12.7 feet) (slope) from station in azimuth 44°29′.

Vaca (Solano County, W. Eimbeck, 1876; 1931).—About 5½ miles west of Vacaville, on prominent, high ridge lying between Sacramento Valley and Gordon Valley. Ridge is known locally as "Vaca Mountains", and station is about 2 miles south of highest point on land belonging to Mr. Gordon. To reach from Vacaville, go 2 miles up Gates Canyon to the Mita brothers' ranch, follow wagon road to Moody's goat ranch and about 1½ miles by trail to the old Collins ranch house near top of ridge, and follow trail in a southerly direction through dense brush to station site. In 1876 underground mark was soda-water bottle of flint glass, filled with sand and buried neck up 1.18 feet below surface. An irregular-shaped rock with drill hole in center was placed over bottle. In 1880 the geodetic position of the station was determined. Copper nail was centered in mouth of bottle and copper bolt with silver pin was set in large stone which was centered in stone and cement pier, with top of pier 3.44 feet above underground mark. Astronomical observations were made at concrete piers at following distances and directions from station: Vertical-circle pier, 15.9 meters (52 feet) S. 6°02′ E. (true); and zenith-telescope pier, 72.1 feet, S. 58°42′ E. (true). In 1922 two standard reference disks in bedrock were established. No. 1 is 16.03 meters (52.6 feet) from station in azimuth 354°28′. No. 2 is 21.88 meters (71.8 feet) from station in azimuth 306°19′. Zenith-telescope pier was recovered 22.03 meters (72.3 feet) from station in azimuth 301°12′. Vertical-circle pier was not recovered.

Yolo southeast base (Yolo County, G. Davidson, 1880; 1931).—About 3 miles southwest of Davis, in NW¼ sec. 19, T. 8 N., R. 2 E. of the Mount Diablo meridian, and about 72 feet north of levee of Putah Creek. In 1880 underground mark was fine needle hole in German-silver plug inserted in copper bolt in top of granite block, 35 inches long by 20 inches square at base. Top of block was dressed to 12 inches, letters "U.S.C.G.S." cut on it, and placed 4½ feet below surface. Surface mark was fine needle hole in copper bolt leaded into top of granite cube 26 inches on each edge. Top of cube had letters "U.S.C.S. S.E. YOLO BASE" cut on it and was flush with surface. Block itself was in center of brick pier which was carried hollow to a point 33¼ feet above ground and

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capped with granite slab 40 inches square by 8 inches thick with ¼-inch hole in center. Pier was 70 inches square at point 50 inches below surface, and battered to 54 inches square at point 30 feet above surface. Reference marks were granite cubes, 1 foot on each edge with copper bolts leaded into drill holes in top, incased in brickwork with tops 18 inches below surface. Two were set in line to *Yolo northwest base* at distances of 20 feet ⅝ inch and 328 feet 2 5/16 inches from station, and two at right angles easterwardly to this line at distances of 18 feet 11 1/16 inches and 327 feet 10 inches from station. Latitude observations were made at a pier 48.71 meters (159.8 feet) from station in azimuth 253°36′. Two courses of brick were left standing 18 inches below surface when pier was demolished. Transit pier was 4.9 feet west of latitude pier and two courses of bricks were also left 18 inches below surface. Vertical-circle pier was 22.65 meters (74.3 feet) from station in azimuth 324°50′. Between 1880 and 1927 hollow brick pier was demolished, and an 8-foot granite monument erected. In 1927 irrigation ditch had been constructed along southerly and westerly sides exposing about 3½ feet of brick foundation. In 1931 the two nearby reference marks were recovered; the one on line to *Yolo northwest base* was 6 inches below surface and the other 3 feet below surface. The two distant marks were not searched for.

Yolo northwest base (Yolo County, G. Davidson, 1880; 1931).—About 4½ miles west of Woodland, in extreme southeast corner of SE¼ sec. 28, T. 10 N., R. 1 E. of the Mount Diablo meridian. To reach from Woodland, take road running west toward Madison and Capay Valley and follow to station site on north side of road. In 1880 underground mark was fine needle hole in German-silver plug inserted in copper bolt in top of granite block, 35 inches long by 20 inches square at base. Top of block was dressed to 12 inches and letters "U.S.C.G.S." cut on it. Surface mark was fine needle hole in copper bolt leaded into top of granite cube, 26 inches on each edge, having letters "U.S. C.S. N.W. YOLO BASE" cut on it. Top of cube was flush with surface and block was centered in brick pier which was carried hollow from surface to height of about 12 feet. Latitude observations were made at a pier 5.95 meters (19.5 feet) from station in azimuth 131°45′. Meridian pier was 24.21 feet from station in azimuth 122°11′. Vertical-circle pier was 17.72 feet from station in azimuth 310°45′. Piers were built of brick and cement, with bases 3 feet below surface. Between 1880 and 1931 hollow brick pier over station was demolished and an 8-foot granite monument erected.

Mount Helena (Sonoma County, W. Eimbeck, 1876; 1930).—About 7 miles north of Calistoga, 4 miles northwest of summit of grade where State highway crosses divide, and on highest point of Mount Helena. In 1876 station was marked by fine drill hole and cross cut in top of ½-inch copper bolt cemented in bedrock and projecting ¼ inch. Drill hole in basalt rock, said to mark boundary between Lake and Napa Counties, was 7 feet 1¾ inches northwest of station. Pier, 3 bricks square by 43 inches above ground, with drill hole in center brick marking station was built over bolt. Collimator pier, 61 inches high and 2 bricks square, was 7 feet 7½ inches northwest of station. Transit pier, 3.25 feet high and 2 bricks by 3 bricks, was 55 feet 11 inches southeast of station. Latitude pier, 3.05 feet high and 2 by 2½ bricks, with 3.5-foot space between side of pier and side of transit pier, was 58 feet 2½ inches from station in azimuth 330°09′. Vertical-circle pier, 3.65 feet high and 2 bricks square, was 55½ feet southeast of latitude pier and 109 feet 3½ inches from station in azimuth 314°02′. In 1891 brick piers were rebuilt. In 1922 two standard reference disks were established in bedrock. No. 1 is 2.502 meters (8.21 feet) (slope) from station in azimuth 164°15′. No. 2 is 10.48 meters (34.4 feet) (slope) from station in azimuth 65°35′.

Mount Tamalpais (Marin County, G. Davidson, 1859; 1932).—About 3 miles northwest of Mill Valley, on western and highest summit of Mount Tamalpais. To reach from Mill Valley, follow road signs along Ridgecrest Boulevard to the Panorama Toll Gate, follow toll road to T-intersection at crest of ridge, turn right along ridge and go ¾ mile to large rock cairn visible from road, and continue to station site on first peak east of cairn. In 1859: Station was marked by ½-inch drill hole in large stone block flush with surface. Three surface reference stones, with ½-inch drill holes, were placed each 6 feet from station to north, south, and west. Mass of lead was placed in rock 18 feet 9¼ inches from station. In 1882 the geodetic position of the station was determined. Station was re-marked by stone bottle in concrete, with neck

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20 inches below surface, and surmounted by stone and concrete pier 36 inches in diameter at base and 26 inches at surface. An irregular-shaped stone with copper bolt was placed on top of pier and flush with surface of ground. Upon this was built a hexagonal pier of same diameter to a height of 24 inches, where a stone bottle was placed neck up. Pier was then built 29 inches higher, and ⅝-inch copper bolt with hole was placed in top. Three concrete piers for astronomical observations at following distances and azimuths from station: Latitude pier (18 inches square), 5.60 meters (18.4 feet), 103°13′; vertical-circle pier, 12.57 meters (41.2 feet), 185°57′; and longitude pier (16 by 24 inches), 7.108 meters (23.32 feet), 100°14′. In 1922: Two standard reference disks were established. One is in above-mentioned latitude pier, 5.655 meters (18.55 feet) from station in azimuth 104°27′; and other is in drill hole in bedrock, 30.01 meters (98.5 feet) (slope) from station in azimuth 204°06′. Cartridge in drill hole in rock is 11.408 meters (37.43 feet) from station in azimuth 206°24′.

Ross Mountain (Sonoma County, R. D. Cutts, 1855; 1930).—About 4 miles west of Cazadero, 3 miles northeast of mouth of Russian River, and on grassy summit of Pole Mountain, which is highest peak in immediate vicinity. To reach from Cazadero, proceed northwest up hill along Pole Mountain road and go 2.8 miles to saddle, continue about ¼ mile to point where remains of old building are visible, and follow trail to station site. In 1855: Station was marked by signal pole, resting on stone with drill hole. Four stubs, one with iron nail in it, were placed around station. In 1859: Latitude observations were made at solid spruce block, 3½ feet in ground and resting on solid rock, distant 9.68 meters (31.8 feet) from station in azimuth 269°50′. In 1860: Station was re-marked by ½-inch drill hole in large rock placed 1 foot below surface. Three witness marks of similar character were placed flush with surface and 6 feet from station in line to *Tomales Bay*, *Mount Helena*, and *Walalla*, respectively. Charred oak stump with nail in top was 20 feet 4 inches from station in bearing N. 54°01′ W. (true). In 1881 station was marked by copper bolt in top of concrete pier. In 1891 the first-order geodetic position of the station was determined. In 1922 witness marks were not recovered, concrete station pier was in good condition, and two standard reference disks were established. No. 1 is in concrete station pier 0.193 meter (0.63 foot) from station in azimuth 114°36′. No. 2 is in boulder 3.51 meters (11.5 feet) (slope) from station in azimuth 218°09′.

Chaparral (Sonoma County, G. Davidson, 1860; 1930).—About 3½ miles below Fort Ross, 200 yards from abandoned coast road, on land owned by Frank Fisk, and on center of small knoll south of his house. To reach, follow coast road north from Jenner to point where old ridge road turns east and goes toward the Seaview ranch, follow ridge road about 1 mile and go north across field to bottom of hill on which station is located. Original station mark was ½-inch drill hole in stone buried 2 feet below surface. Reference marks were drill holes in rocks, two in line with the station and *Ross Mountain* and the other at right angles to that line. In 1925 a large stone, weighing about 300 pounds, was placed over old drill hole, and standard station disk was placed in stone. In 1930, two reference marks were established. Reference mark no. 1 is standard reference disk in boulder, note 12c, at saddle at foot of hill and 165.52 feet (slope) from station in azimuth 236°20′. Reference mark no. 2 is standard reference disk in concrete, note 11c, 23.34 feet from station in azimuth 112°41′.

Sonoma Mountain (Sonoma County, R. D. Cutts, 1855; 1907).—On prominent hill, about 4 miles east by north of Penn Grove. Marked by stone, 6 inches long, buried 1 foot 4 inches below surface, in top of which was leaden plug with small hole in center. This stone was covered with earth and another stone, 1.1 feet long and with lead plug and cross in top, was placed just below surface. Four similar stones, each marked by plug and cross, were placed to northwest, northeast, southeast, and southwest, and exactly 6 feet from station. Distances between stones were 8.84 feet, 8.25 feet, 8.95 feet, and 7.85 feet, beginning with distance from northwest to northeast stone. In 1859 southeast reference stone was 5 feet 11 inches from station, and southwest stone had been destroyed.

Tomales Bay (Sonoma County, G. A. Fairfield, 1855; 1931).—On highest hill of Tomales Point, about 2 miles across bay from Blakes Landing, on highest point of Pierce ranch, and about ½ mile south of ranch house. To reach

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from Point Reyes Station, proceed northwest along the south Tomales Bay road and then follow Tomales Point country road out along peninsula to highest hill and go northeast to station site. In 1855 station was marked by small hole in center of lead plug placed in stone. Four reference stones were placed each 6 feet from station and nearly at right angles. Distances between them were 8.52 feet, 8.23 feet, 8.56 feet, and 8.27 feet starting from stone approximately northwest and counting to right. In 1906 these reference stones were not found and three stones 6 inches square with drill holes in tops were set at following distances and azimuths from station: 25.07 feet, 180°26′; 24.80 feet, 359°59′; and 34.00 feet, 89°49′. In 1921, masonry monument, 16 inches square and 4 feet above ground, with cross on copper bolt in top was found on station site. A U. S. Geological Survey bench mark (elevation 677 VA) had been placed in top of pier, about half-way between center and southeast corner. In 1929, two standard reference disks were placed in old reference mark drill holes.

Snow Mountain West (Lake County, E. F. Dickins, 1892; 1925).—On highest point of southwestern summit of Snow Mountain, at point where ridge is about 50 yards wide. Ridge is about 200 yards long, slopes slightly to southeast, is bare of grass, and is covered with small broken stones. To reach, follow road through Sites, Stoney Ford, and Fouts Springs to the Caldwell ranch at head of Paradise Valley and follow trail 6 miles up east side of mountain to station site. Trail up east side of mountain is less rugged and of easier slope than the one on the south side. Marked by ½-inch drill hole, 3½ inches deep, into which a brass bolt, 3 inches long, was driven. Over this was placed a spruce stump, 6 inches in diameter and 3 feet long, with a brass bolt in the lower end which rested on brass bolt in stone, and surrounded by a pile of stones.

Mount Sanhedrin (Mendocino County, B. A. Colonna, 1878; 1925).—On highest point of Mount Sanhedrin (also known as "Big Signal Peak"). To reach from Potter Valley, follow road to Eel River, cross ferry and follow Gravelly Valley road 5 miles to old sawmill site (½ mile beyond summit), follow trail to Sanhedrin fire lookout tower, continue on trail toward Burgess Camp to foot of north side of peak, and go up ridge to station site. The first-order geodetic position of the station was determined in 1880. Originally marked by glass bottle embedded in base of concrete pier and by a screw in wooden core in top of pier. Top of bottle was 3.60 feet below top of pier. Nails were driven into stumps at following distances and azimuths from station: 5 feet 1 inch, 101°00′; 7 feet 1½ inches, 155°30′; and 5 feet, 225°30′. In 1925: Standard station disk was placed in top of concrete pier. None of the reference stumps were recovered.

Cold Spring (Mendocino County, B. A. Colonna, 1878; 1925).—On southwest end of summit of Cold Spring Mountain (locally known as "Signal Ridge"), on conspicuous boulder which is about 20 feet in diameter at base and about 15 feet higher than surrounding ridge. To reach from Booneville or Philo, follow Greenwood road to Clow's ranch near Signal School, take road leading south and go about 5 miles to Andersen's ranch (formerly known as "Cold Spring ranch"), follow ranch road about 1 mile to summit, and follow trail through brush east one-fourth mile to station site. Marked by drill hole in rock. Drill hole was 13½ inches deep, and for a depth of 4 inches was 2 inches in diameter; below a depth of 4 inches its diameter was 1¼ inches. Drill hole was filled with cement, and a brass cartridge shell inserted in top to mark station. Concrete pier, 26 inches square and 3 feet 11 inches high, was built over drill hole, and copper bolt was placed in top. Reference marks were eyebolts in rock at following distances from station: No. 1, 10 feet 1 inch, a little to the right of line to *Paxton;* no 2, 9 feet 4 inches; and no. 3, 12 feet.

Two Rock (Mendocino County, C. Rockwell, 1877; 1925).—On most westerly of three bare peaks west of Russian River Valley. The mountain is crowned on the northwest side by a conspicuous sandstone ledge, 200 feet long and 6 to 20 feet wide, and is precipitous on three sides. To reach from Willits, follow Fort Bragg road about 7 miles to point near summit, follow private road south three-fourths mile to the Two Rock farm (owned by Mr. Bennett), and follow trail from house about 1½ miles to station site. The first-order geodetic position of the station was determined in 1879. Originally marked by drill hole, 1½ inches in diameter and about 3 inches deep, in bare rock. In 1925

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standard station disk was placed in drill hole. Standard reference disk was established in rock 7.12 meters (23.4 feet) from station in azimuth 274°14′.

Paxton (Mendocino County, C. Rockwell, 1878; 1925).—On Pine Ridge, west of Ukiah, on highest hill in vicinity, and at extreme southeast corner of U. N. Briggs' ranch. Hill is wooded on sides and clear on top, and has been known as "Bald Mountain." To reach from Ukiah, follow the Low Gap road about 10 miles to Briggs' ranch and follow ranch roads to station site. Marked by 1-inch drill hole, 2 inches deep, in top of irregular-shaped stone, about 16 by 18 by 26 inches, placed flush with surface of ground and with ridge-shaped top placed in the direction of *Mount Sanhedrin*. Broken glass was mixed with earth around stone. A white earthenware bottle was buried with its top 22½ inches below stone. A hexagonal concrete pier 26 inches in diameter and 50 inches high, with iron rod running through center and bent at right angles at foot, was built over stone. Reference marks were: Drill hole in stone, with triangular flat top and a somewhat pointed bottom, placed 6 feet from station in direction of *Mount Sanhedrin;* 1-inch drill hole, 1 inch deep, in pointed top of stone buried with big end down in direction away from *Mount Sanhedrin;* and 1-inch drill hole, 1 inch deep, in a somewhat square stone placed at right angle to line between other stones. An oak stump, marked with triangle, 7 feet high and 1 foot in diameter, was 54.82 feet from station a little to right of line to *Mount Sanhedrin*, and a large oak tree, marked with triangle, was 103.3 feet from station a little to right of line to *Cold Spring*. In 1925 standard reference disk was placed in rock outcrop southwest of station, but its distance and azimuth from station were not determined.

Walalla (Mendocino County, G. Davidson, 1860; 1878).—On Walalla Mountain, about 6 miles from coast, and about 7 miles north by east of Gualala. Marked by bottle set in hole in solid rock 18 inches below surface, and covered with three inches of dirt and flat rock. Wooden pier was set over rock and broken glass mixed with earth was filled in around pier. Stone cairn 6 feet in diameter and 3 feet high was built around pier. Reference stones with crosses cut in tops were placed 6 feet from station; two in line with *Ross Mountain* and the other at right angles to this line.

Sanel Mountain (Mendocino County, G. Davidson, 1860; 1878).—On high, round-topped hill, about 4 miles east-northeast of Yorkville. Marked by cross cut in flat stone flush with surface. Reference marks are three flat stones, flush with surface with ½-inch drill holes in tops and each 6 feet from station; two in line with *Ross Mountain* and the other at right angles to them.

Sulphur Peak (Sonoma County, G. Davidson, 1860; 1878).—On Sulphur Peak (also known as "Goodwin" or "Geyser Peak"), about 4½ miles northeast of Geyserville, and on east side of Russian River Valley. Summit of peak is very limited in extent, sides fall away rapidly in every direction, and peak is covered with chaparral and scrub trees. Marked by drill hole in flat rock, 6 inches square, flush with surface. Reference marks are crosses on flat rocks 6 feet from station; two in line with each other and with *Mount Helena* and *Sanel Mountain*, and the third at right angles to the other two in line to *Ross Mountain*. Redwood stake was placed 6 feet from station in line with reference stone toward *Ross Mountain*.

Fisher (Mendocino County, B. A. Colonna, 1878; 1925).—About 12 miles by road east of Greenwood, 4½ miles northwest of Cold Spring, on highest knoll of long wooded ridge known as "Cliffs Ridge", and on property of the Greenwood Ranch Co. To reach from Greenwood, proceed via private road of Greenwood Ranch Co. to a point about 7 miles east of headquarters house of ranch. Road passes around north side of hill about 150 yards from station. Station was marked by 7-inch bottle resting on rock 20½ inches below surface. Bottle was covered with a little earth and surmounted by a stone projecting 1 inch at the surface, in the top of which was a ½-inch drill hole about 1 inch deep. Three reference stones on the surface were placed as follows: One in line to *Cold Spring*, one on the opposite side, and one at right angles toward the southwest, each marked with a ½-inch drill hole and each 6 feet from station. The first-order geodetic position of the station was determined in 1891. In 1919 two additional reference marks (probably standard reference disks) were established in boulders. No. 4 is 28.16 meters (92.4 feet) from station in azimuth 274°20′. No. 5 is 53 meters (174 feet) from station in

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azimuth 130°29′. In 1925 station was re-marked with standard station disk in concrete that had formerly supported a signal pole.

Forty-Acre Opening (Mendocino County, C. H. Sinclair, 1897; 1925).—About 6 miles east of Ukiah, on Cow Mountain, on the first knoll in an opening or clearing which is plainly visible from Ukiah, and in the rock nearest to the southwest edge of bare top. The rock rises slightly above the ground surface and is about 1 foot across. Rock is not very firm and is slowly disintegrating. There are several rock outcrops to the east and northeast. A few oak trees are on north side of summit. To reach from Ukiah, follow Upper Lake road to Layton's ranch (also known as "Cow Mountain Cattle Co.") and follow trail to station site. In 1897: Station was marked by drill hole in rock. In 1925 station was re-marked with standard station disk. Standard reference disk was established in rock outcrop 25.63 meters (84.1 feet) from station in azimuth 335°48′.

Cleland (Mendocino County, C. H. Sinclair, 1897; 1925).—On most southerly of three ridges which form mountain mass west of and nearest to Ukiah, east of another higher summit covered with bushes and small growth, near center of round knoll, and on part of mountain bare of trees. To reach from Ukiah, go south 2 miles on farm road and follow trail to summit and station site. In 1897, station was marked by drill hole in only boulder on summit, flush with ground. In 1925, station was re-marked with standard station disk.

North (Mendocino County, W. Mussetter, 1925).—About 3 miles north by west of Ukiah, on prominent rounded hill which is first hill lying north of Low Gap road west of Ukiah Valley. There are hills northwest of station which are higher. To reach from Ukiah, follow Low Gap road 3 miles to point about one-half mile beyond where road enters hills and begins to wind up canyon, and follow ridges northward to station site. Marked by standard station disk in large boulder. Witness marks are triangles cut on oak trees. No. 1 is 6.84 meters (22.4 feet) from station in azimuth 37°52′. No. 2 is 4.84 meters (15.9 feet) from station in azimuth 136°14′.

Ukiah magnetic (Mendocino County, W. Mussetter, 1925).—About 1 mile south and one-fourth mile west of center of Ukiah, at the International Latitude Observatory, in open lot north of observatory residence, 126.4 feet northwest of northwest corner of observatory, 124.7 feet southwest of southwest corner of shelter around the observatory meridian mark, 49.8 feet north of fence, and 38.6 feet east of fence on west side of grounds. Marked by standard magnetic-station disk in top of pyramidal concrete monument 48 inches long, 20 inches at the base and 12 inches square at the top, which projects 10 inches above ground. A concrete platform 5 feet in diameter surrounds station.

Clark (Mendocino County, B. A. Colonna, 1878; 1930).—On Adams Ridge, in plowed field of old ranch, and about 300 yards southwest of old house and orchard. To reach from Manchester, follow old woods road to top of ridge and station site. Station was marked by a square glass bottle, 9 inches high, placed with the top of the bottle 22 inches below ground. Over this a stone, irregular but somewhat square, 12 inches long, 8 inches wide, and 5 inches thick, was placed, a drill hole in the top being 13 inches below ground. Above this was placed a round-topped stone with a flat base about 12 inches deep, and top of stone projected 3 inches above ground. Two original reference stones were set nearly in range to *Point Arena Lighthouse*. The one nearest lighthouse was 18 inches long, triangular in shape, with ½-inch drill hole in top, and was 6 feet 4 inches from station. The other was on opposite side of station from lighthouse, and was 14 inches long, square and flat on top, and 6 feet 2 inches from station. The first-order geodetic position of the station was determined in 1891. In 1906 it was reported that the reference stones had disappeared due to plowing of the field, and that the surface station mark had been disturbed. Station mark was reset, and two 3-inch terra-cotta pipes, 26 inches long, were set in fence lines; one in prolongation of line from station *Dunn*, 185.3 feet distant from station, and the other in prolongation of line from station *Cold Spring*, distant 182 feet. A fir tree marked by spike in triangle is 227 feet southeast of station. In 1925 underground rock and both reference marks were recovered. Surface mark had disappeared, probably due to cultivation. In 1930 surface station mark was recovered 12.0 meters (39 feet) in azimuth 169°53′ from its original position. This point was occupied and designated as station "Clark 2."

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Dunn (Mendocino County, B. A. Colonna, 1878; 1930).—In the vicinity of Manchester, on hill known locally as "Bald Ridge", and 10 or 15 paces from highest part of hill in the direction of *Point Arena Lighthouse*. Marked by black bottle, buried with top 11 inches below ground. Over this was placed a stone, about 12 by 14 by 8 inches, with top even with surface and with ½-inch drill hole ¾ inch deep. Reference marks were drill holes in stones. Two were in range to *Point Arena Lighthouse*, the one nearer the lighthouse being rounded on top, with its smaller end in the ground and projecting 4 inches, and the other having a sharp end, with the larger end in the ground. The third one was at right angles to the line between the other two and almost in the direction of station *Clark* and had a sag in its top, in which a drill hole was made. The first-order geodetic position of the station was determined in 1891. In 1919 station was re-marked with standard station disk in boulder, note 4. Standard reference disk was established in boulder 12.08 meters (39.6 feet) from station in azimuth 53°29′. In 1930 reference mark was found in drill hole in boulder 15.07 meters (49.4 feet) from station in azimuth 320°55′.

Lane (Mendocino County, L. A. Sengteller, 1870; 1930).—In vicinity of Manchester, on property owned by Ben Moralli, across county road from the old Dennau place which is first house north of Alder Creek, and about 30 feet 7 inches east of edge of bluff. The bluff is all earth, no stone being visible, and an earthquake crack is about 50 feet inshore from station. Originally marked by ¾-inch drill hole, 3 inches deep, in stone buried 3 feet below ground. The first-order geodetic position of the station was determined in 1891. In 1906 a 3-inch terra-cotta pipe, projecting 3 inches above ground, was placed over station mark. Two reference marks, consisting of drill holes in rocks, were established. No. 1 is 9.83 meters (32.3 feet) from station in azimuth 268°05′. No. 2 is 9.78 meters (32.1 feet) from station in azimuth 320°43′. In 1919 station was re-marked with standard station disk in concrete in pipe. Two standard reference disks in concrete, note 11a, were established. No. 1 is 29.41 meters (96.5 feet) from station in azimuth 267°44′. No. 2 is 17.44 meters (57.2 feet) from station in azimuth 349°56′. In 1930 two standard reference disks were established in boulders, note 12c. No. 1 is 20.43 meters (67.0 feet) from station in azimuth 321°03′. No. 2 is 17.46 meters (57.3 feet) from station in azimuth 268°14′.

Shoemake 2 (Mendocino County, E. Smith, 1906; 1930).—On a rocky hill which is the first high point off the county road just south of Manchester. In 1906 hole was picked in solid rock into which a stone, with drill hole to mark the station, was placed. Reference mark was drill hole in rock. In 1919 old reference mark and an additional point were marked with standard reference disks. In 1930 station was re-marked with standard station disk in boulder, note 4. Reference marks were found to be at following distances and azimuth from station. No. 1, 19.21 meters (63.0 feet), 169°59′; and no. 2, 8.75 meters (28.7 feet), 218°20′.

THIRTY-NINTH PARALLEL TO UNITED STATES-MEXICO BOUNDARY ARC

Principal points

Sierra Morena (San Mateo County, G. Davidson, 1883; 1932).—About 11 miles south of San Mateo, on range of mountains extending northwest and southeast along San Francisco Peninsula, and on highest knoll in vicinity known as "Signal Point." To reach from San Mateo, go west 3.7 miles on Crystal Spring Avenue to Skyline Boulevard, turn left and follow boulevard 10.8 miles to point about 100 yards north of wide fill in road, take dirt road leading right and go 0.2 mile, and go about 50 yards up hill to highest point and station site. In 1883 station was marked by copper bolt in stone 2 feet below surface. Hexagonal concrete pier, 26 inches across and 4.07 feet above ground, containing key-like copper bolt was built over stone. In 1922 standard reference disk was established 0.255 meter (0.84 foot) from station in azimuth 342°34′. In 1932 standard reference disk in concrete, note 11a, was established 7.08 meters (23.2 feet) from station in azimuth 349°18′. Azimuths from station to following airway beacons are: Flashing red "W", 198°58′33″; flashing white (to right of Mount Diablo), 216°02′12″; and flashing white, 242°23′32″.

Mocho (Santa Clara County, W. Eimbeck, 1875; 1932).—About 20 miles south-southeast of Livermore, 11 miles northeast of Mount Hamilton, on summit of high, rounded, grassy ridge which is known locally as "Eylar Mountain." To

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reach from Livermore, go south 2.5 miles on South Livermore Avenue, turn right and go 23.1 miles on Mines road (sometimes called "Mount Hamilton" road), turn right off main highway and follow road 1.2 miles up mountainside to Beall ranch, turn left and go 0.2 mile to small cabin, turn right and follow up steep grade 1.9 miles to station site. In 1875 station site was selected but not marked. In 1879 station was marked by copper bolt sunk in rock. In 1887: Concrete pier 45 inches high by 24 inches square was built over copper bolt and its geodetic position determined. Latitude observations were made at a brick pier 1.588 meters (5.21 feet) from station in azimuth 89°55′. In 1922 station and latitude piers were found in good condition and two standard reference disks were established at following distances and azimuths from station: In rock outcrop, 8.660 meters (28.41 feet), 189°35′; and in latitude pier, 1.610 meters (5.28 feet), 271°57′. A lead slug is 7.765 meters (25.48 feet) from station in azimuth 187°17′.

Loma Prieta (Santa Clara County, R. D. Cutts, 1851; 1931).—About 15½ miles southwest of San Jose, 14 miles northeast of Santa Cruz, 6 miles southeast of Los Gatos, and on summit of Loma Prieta Mountain, which is highest peak within 50 miles. Prior to 1884, station was known as "Mount Bache." To reach from Santa Cruz, go north 19.5 miles toward Los Gatos, turn right and go 1.6 miles, take left fork and bear to left to top. To reach from Los Gatos, go toward Santa Cruz to summit, go south on Soquel road past Burrell's store and ranch to Mark's ranch, follow road posted "Loma Prieta" which leads to base of last rise (about 10 miles from Burrell's store), and follow good trail up southwest slope one-half mile to summit. In 1854 station was marked by signal pole with 2- by 3-inch brown stone with copper bolt in center 3 feet 2 inches below surface. In 1884 rock with drill hole filled with lead was placed 2 feet below surface and three-eighth inch west of copper bolt in brown stone and its geodetic position determined. Concrete foundation, 3½ feet square by 9 inches deep, was laid around this stone, and hexagonal pier, 30 inches across at base and 26 inches at top, was built upon it. Copper bolt, one-half inch in diameter by 8 inches long, in top of pier, marked station. In 1906 pier was enlarged about 3 inches at base and extending up about 1 foot. In 1922 pier was found broken and surface mark destroyed, but underground mark was recovered. Standard station disk was cemented in drill hole in boulder, 14 by 24 by 12 inches, and placed over it for a new surface mark. Two standard reference disks in boulders, note 12c, were established. No. 1 is 5.9 meters (19 feet) from station in azimuth 267°30′. No. 2 is 24.83 meters (81.5 feet) from station in azimuth 16°55′.

Santa Ana (San Benito County, R. D. Cutts, 1852; 1931).—About 10 miles north-northwest of Hollister, on western summit of Henrietta Peak, and about ¾ mile south of J. W. Garner's ranch house. To reach from Hollister, follow main street north 1 mile to road leading east, turn right (east) and go 2 miles to paved highway which leads to Santa Ana Valley, bear left (north) to first open road leading east, and follow main-traveled road to ranch owned by J. W. Garner, continue to end of truck travel at top of hill beyond ranch house and follow trail about 1 mile to station site. In 1852, station was marked by signal pole. In 1884 station was marked underground by copper bolt in top of irregular-shaped rock and copper bolt in another rock placed even with surface. In 1885 surface mark was removed and concrete foundation 3 feet square by 10 inches deep was laid around underground mark. Hexagonal concrete pier, 26 inches across, was built, and copper bolt with cross was placed in top. Bolt in top of pier was 5 feet 2½ inches above underground mark. Latitude observations were made at a concrete pier 37 feet, 6 inches from station in azimuth 129°07′. In 1923 two standard reference disks were established. No. 1 is 9.031 meters (29.63 feet) from station in azimuth 299°11′. No. 2 is 2.031 meters (6.66 feet) from station in azimuth 83°02′. Station *Quien Sabe* (see description thereof) is visible from ground in azimuth 288°00′18″.

Gavilan (Monterey County, R. D. Cutts, 1852; 1930).—About 6½ miles south by east of San Juan Bautista. To reach from San Juan Bautista, go south up canyon road to east of cement plant and continue to old mine at Fremont Peak, follow steep foot trail up hill from mine, pass through tunnel and follow trail west ¾ mile along south side of crest to station site. In 1852 station was marked by stone block, with drill hole in top filled with lead, set 2½ feet below surface. Three other rocks, similarly marked, with tops level with surface of ground, were placed 6 feet from station, two in line and other at

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right angle. Three rocks firmly bedded and projecting above surface contained drill holes filled with lead at following distances and bearings from station: 8.45 feet, S. 59° W.; 5.77, N. 16°40′E.; and 3.17 feet, S. 63°40′ E. In 1864: Three lead bolts in fixed rocks were established at following distances and azimuths from station: 5 feet, 9 inches, 212°16′; 13 feet, 9 inches, 301°33′; and 13 feet 2 inches, 12°54′. In 1923: Two standard reference disks were established. No. 1 is 7.055 meters (23.15 feet) from station in azimuth 10°35′. No. 2 is 7.215 meters (23.68 feet) from station in azimuth 288°03′.

Mount Toro (Monterey County, G. Davidson, 1885; 1931).—About 9 miles southeast of Salinas, on summit of barren hill which is highest hill in vicinity of untimbered range of mountains bordering Salinas Valley on west, about 500 yards south of A. B. Parson's house, and on his land. To reach from Salinas, go south on Monterey road, turn left immediately after crossing bridge and follow south side of river to Pine Canyon road, turn right onto Pine Canyon road and go to top of ridge, turn sharply to left and continue up steep grade (always keeping road which appears to be going higher) to station site. In 1885 underground mark was copper bolt in flat-topped rock, 2 feet below surface and in center of concrete pier; and surface mark was cross on copper bolt in top of pier, 1.498 meters (4.91 feet) above underground mark. Astronomical observations were made at piers which were at following distances and azimuths from station: Vertical-circle pier, 10.18 meters (33.4 feet), 134°14′; zenith-telescope pier (concrete), 19.81 meters (65.0 feet), 135°55′; and transit pier (concrete), 20.85 meters (68.4 feet) 132°25′. In 1923 standard reference disk was established 3.35 meters (11.0 feet) from station in azimuth 303°55′.

Hepsedam (San Benito County, J. S. Lawson, 1885; 1931).—About 17 miles northeast of King City, on Hepsedam Peak. To reach from King City, go east about 14 miles to road up San Benito River, go up river to forks at Sweetwater Springs, take right fork (leaving main-traveled road) and go 4.5 miles up steep climb to point within ½ mile of the Laguna ranch house, go south through forest to point where Hepsedam Peak is plainly visible ¾ mile distant, and follow trail to station site. In 1884 station was marked by copper tack leaded into drill hole in outcropping rock. Three similar marks were set at following approximate directions and distances from station: North, 6.90 feet; south, 7.98 feet; and west, 6.70 feet. In 1885 concrete pier was built over station; copper bolt with small drill hole was placed in top and its geodetic position determined. Concrete latitude pier was built 1.57 meters (5.2 feet) due east of station; and wooden vertical-circle pier was built 9.753 meters (32.00 feet) from station in azimuth 79°03′. In 1923 standard reference disk was established 9.495 meters (31.15 feet) from station in azimuth 254°20′. *B. M. 4492* (*U.S.G.S.*) (see description thereof) is 2.23 meters (7.3 feet) from station in azimuth 199°09′. Station *San Benito* (see description thereof) is visible from ground in azimuth 249°13′09″.

Santa Lucia (Monterey County, G. Davidson, 1885; 1933).—About 18 miles slightly southwest of King City, on eastern summit of highest peak of Santa Lucia Range. To reach from King City, go north 0.9 mile on Route 101 and cross bridge, leave highway at end of bridge and follow road leading south 0.4 mile, take left fork (over Jolon grade) and go 12.4 miles, take right fork (dirt road) at sign "The Indians" and go 18 miles to clubhouse and follow trail about 6 miles to station site. In 1885 station was marked by cross cut in projecting end of copper bolt which was set in solid rock. Hexagonal concrete pier, 26 inches across and resting on foundation 3 feet square by 10 inches deep was built over mark, and copper bolt with cross was set in top. Reference marks were copper tacks leaded into drill holes in outcropping bedrock at following approximate directions and distances from station: North, 6.88 feet; south, 7.18 feet; east, 5.91 feet; and west, 10.08 feet. Latitude observations were made at a concrete pier 44 feet 1 inch from station in azimuth 227°28′. A frame pier which was used for vertical-circle observations was 5.486 meters (18.00 feet) from station in azimuth 56°14′. In 1923, standard reference disk was established 3.220 meters (10.56 feet) from station in azimuth 77°02′. In 1933, standard reference disk was established in large boulder 5.455 meters (17.90 feet) from station in azimuth 190°42′.

Rocky Butte 2 (San Luis Obispo County, F. W. Hough, 1923; 1932).—On prominent flat-topped peak known as "Rocky Butte", about 7 miles north by east of Cambria, about 100 feet west of large rock-pile formation slightly higher than station, about 200 feet southeast of small pines on summit of mountain, and in approximate position of station "Rocky Butte (1884)." To

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reach from Cambria, follow Coast Highway northwest 4.0 miles, turn right (east) and follow county road 10.3 miles to wooden bridge, take left fork and go 1.1 miles, again bear left and follow steep road winding around east side of mountain 4.7 miles to point where forest trail climbs to peak, and climb to summit. Surface mark is standard station disk in top of old concrete pier. Underground mark is copper tack leaded into stone set in bowl dug in bedrock. Reference mark no. 1 is standard reference disk in concrete, note 11a, 1.432 meters (4.70 feet) from station in azimuth 89°07′. In 1932, reference mark no. 2 was established in boulder, note 12c, 6.788 meters (22.27 feet) from station in azimuth 196°05′.

Castle Mount (Monterey-Fresno Counties, J. S. Lawson, 1883; 1932).—About 15 miles south of Coalinga, 5½ miles northeast of Parkfield, and on western end of long flat ridge, which is highest ridge in divide between Monterey and Fresno Counties. To reach from Parkfield, go to Ed Taylor's ranch house, follow road east 2.8 miles (passing to left of old barn), turn left (mountain road turns right through wooden gate) and go to 1.0 mile, take right fork up canyon and go 1.0 mile to end of truck travel, and continue north-northwest 1¼ miles to station site. In 1883 station was marked by hole drilled in outcropping rock. Copper tacks were leaded into holes drilled in outcropping rocks at following approximate directions and distances from station: North, 4.525 feet; south, 6.540 feet; east, 3.520 feet; and west, 10.390 feet. In 1885 station was further marked by hole in copper bolt in top of concrete pier which was placed over station. Latitude observations were made at a concrete pier 1.6 meters (5 feet) due east of station, and a wooden pier for vertical-circle observations was established 10.642 meters (39.91 feet) from station in azimuth 32°40′. In 1923 standard reference disk was established 2.995 meters (9.83 feet) from station in azimuth 7°26′. In 1932 standard reference disk in boulder was established 4.975 meters (16.32 feet) from station in azimuth 227°34′.

San Luis (San Luis Obispo County, J. S. Lawson, 1883; 1932).—About 6 miles east of San Luis Obispo, on Piney Ridge which is highest peak in vicinity of Santa Lucia Range. To reach from San Luis Obispo, take main road toward Arroyo Grande; about 2 miles from town and just before crossing first of twin bridges peak is visible and is distinguished by its dome-shaped appearance. Cross first small bridge, turn left and continue to place of C. Righetti, and follow pack trail 4 miles to station site. In 1883 station was marked by cross in copper bolt in top of concrete pier. Reference stones were placed approximately north, south, east, and west, each 4 feet from station. In 1923 and 1932 standard reference disks were established in rock. No. 1 (1932) is 24.84 meters (81.5 feet) from station in azimuth 268°37′. No. 2 (1923) is 30.77 meters (101.0 feet) from station in azimuth 65°07′.

San Jose (San Luis Obispo County, J. S. Lawson, 1884; 1932).—About 6 miles east of Pozo, on summit of peak. To reach from Pozo, follow Avenal Road about 3 miles over first hill; at foot of hill take road to left through gate and go one-half mile to the Nick Ranch; continue one-half mile to vacant house of Charley Blake and follow trail 4 miles to station site. In 1884 station was marked by cross on copper bolt in top of concrete pier. Four reference stones were placed approximately north, south, east, and west from station, each about 5 feet distant. In 1923 standard reference disk was established 3.205 meters (10.52 feet) from station in azimuth 77°10′. In 1932 another standard reference disk stamped "1884–1932" was set in bedrock, note 12a, 7.605 meters (24.95 feet) from station in azimuth 264°38′.

Tepusquet (Santa Barbara County, O. H. Tittmann, 1875; 1932).—About 14 miles slightly southeast of Santa Maria, on Tepusquet Peak. To reach from flagpole in Santa Maria, go south 1.0 mile on U. S. Route 101, turn left and go 9.0 miles on paved road, turn left onto oiled road and go about 150 yards, turn left again and across long concrete bridge and continue 4.3 miles to Tepusquet Creek, proceed 3.7 miles on gravel road up large canyon along Tepusquet Creek (passing schoolhouse), turn right up second canyon to right and go 0.5 mile to house and orchard, continue one-half mile on poor road, and then follow trail up canyon to summit of peak and station site. In 1875 station was marked by hole drilled in outcropping ledge of rock. Dry redwood plug was placed in hole, and four witness marks with deep crosses sawed in tops were driven in ground. In 1881 concrete pier, 21 inches square and projecting 3.95 feet above ground, with copper bolt in top, was built over station. In 1882 latitude observations were made at a concrete pier, 1.30 by 1.95 feet and

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projecting 3.30 feet above surface, 67.78 feet from station in azimuth 152°15′. Four reference stones, each marked by tack leaded into drill hole, were established. In 1923 standard reference disk was established 9.448 meters (31.00 feet) from station in azimuth 341°34′. Reference stones were recovered at following distances and azimuths from station: 6.01 feet, 177°32′; 4.96 feet, 266°34′; and 5.99 feet, 356°53′. Reference stone to west was about 5 feet from station, but lead plug had been removed.

Lospe (Santa Barbara County, O. H. Tittmann, 1875; 1933).—About 5½ miles south by west of Guadalupe, on easterly and highest part of Lospe Ridge. To reach from Guadalupe, go south 3.0 miles, turn right and go 4.0 miles on main-traveled road to large turn in road, take farm road to left and go up canyon 1.4 miles, turn left through gate in fence at farmhouse and continue 0.8 mile up canyon to top of ridge, turn right (east) and go 0.8 mile along ridge to station site. In 1875 station was marked by drill hole in flat stone buried 2 feet below surface. Four stones with cross lines were placed at following approximate directions and distances from station: South, 5 feet 4⅝ inches; east (farthest hole), 6 feet; north, 4 feet 4¼ inches; and west, 5 feet 1⅜ inches. In 1883 underground mark was raised and marked by cross on copper bolt, over which was built a brick pier with opening on each side to permit access to station mark. Center of station was also marked on top of pier. Two piers for astronomical observations were established at following distances and azimuths from station: Latitude pier (brick), 1.588 meters (5.21 feet), 89°55′; and vertical-circle pier (concrete), 62.00 feet, 300°18′. In 1923 station pier had been demolished, but mark was found in good condition. Standard reference disk was established in latitude pier, 1.327 meters (4.35 feet) from station in azimuth 91°01′. In 1932 standard reference disk was established in bedrock, note 12a, 210 paces from station in azimuth 116°30′58″.

Alamo (Santa Barbara County, W. Mussetter, 1925; 1933).—About 15 miles southeast of Santa Maria, 4 miles east of north of Los Alamos, and on first high hill northeast of summit of Holland Grade between Sisquoc and Los Alamos. Hill ½ mile southwest of station is slightly higher. To reach from Sisquoc, take right-hand (southerly) road and go 2.0 miles, turn left and go 1.3 miles, turn right and go 2.6 miles, turn right again and go 2.1 miles, turn left (leaving main-traveled road) through gate and cattle guard (oil rig is to right of road 0.3 mile before making this bend) and go 0.8 mile to very definite saddle to northward and end of truck travel, proceed to top of ridge via saddle and continue in northerly direction to rocky end of ridge and station site. Marked by standard station disk in outcropping rock. Reference mark is standard reference disk in outcropping rock, 7.429 meters (24.37 feet) from station in azimuth 256°55′. In 1933, standard reference disk (no. 2) was established in outcropping rock, 8.27 meters (27.1 feet) from station in azimuth 16°42′.

Santa Maria southeast base (Santa Barbara County, W. Mussetter, 1925; 1933).—About 11 miles southeast of Santa Maria, 1½ miles northeast of Sisquoc, 300 yards southwest of county road, and in fence line between two fields on plateau between Cuyama River and Tepusquet Creek and bounded by Sisquoc River and foothills on northeast. To reach from Santa Maria, go south 1.0 mile on Route 101, turn left onto Gary Road and follow pavement 9.2 miles to fork, take left branch crossing bridge and continue 2.6 miles to line of eucalyptus trees, go 0.1 mile beyond trees to first fence line leading south and follow this fence line 0.15 mile to station site. Surface mark is standard station disk in concrete block, 18 inches square by 3½ feet deep, flush with ground. Underground mark is standard station disk in 14-inch tile filled with concrete and placed 4 inches below upper mark. Reference marks are standard reference disks in concrete blocks, circular at top. No. 1 is in fence line and 26.44 meters (86.8 feet) from station in azimuth 212°21′. No. 2 is in fence line and 28.93 meters (94.9 feet) from station in azimuth 31°56′.

Santa Maria northwest base (Santa Barbara County, W. Mussetter, 1925; 1926).—About 3 miles north of flagpole at Santa Maria, 300 yards west of Nelson ranch, in bed of Santa Maria River, and about 20 yards south of high earth bluff on north side of channel. To reach from Santa Maria, follow State highway north 3 miles to first gate on west side of road and north of second trestle, go through gate and continue west ¼ mile to Nelson ranch, and follow foot of bluff west to station site. Surface mark is standard station

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disk in concrete block, 15 inches square at surface by 4½ feet deep, and projecting 8 inches. Underground mark is standard station disk in 16- by 16- by 16-inch concrete block placed with top 4 inches below bottom of surface mark. No reference marks were established. In 1926 surface mark had been covered with about 1 foot of sand. In 1933 it was reported that both marks had been destroyed by floods.

Lospe North (Santa Barbara County, W. Mussetter, 1925; 1933).—About 5 miles west of Betteravia, 4½ miles south-southwest of Guadalupe, on second knoll on north flank of Mount Lospe after descending steep incline from main part of mountain, and about 200 feet south of fence line. Knoll is bare and has been cultivated. To reach from Santa Maria, take road toward Guadalupe and go 4.0 miles, turn left onto road to Point Sal and go 0.9 mile, take right fork and go 0.4 mile, turn right and go 1.8 miles, keep straight ahead across railroad tracks and go 1.2 miles, again cross railroad tracks and continue straight ahead 3.9 miles, take left fork and go 1.5 miles, turn left through wire gate and go 0.9 mile to top of ridge, turn left through wire gate and follow fence 0.4 mile, turn left through fence and go 0.2 mile, turn right through wire gate, then left along fence line and follow 1.1 miles to point about 200 feet north of station site. Marked by standard station disk in tapered concrete block 12 inches square at top and 2 feet deep. Reference mark (1925) was standard reference disk in concrete block similar to station, 18.35 meters (60.2 feet) from station in azimuth 342°10′. In 1933 reference mark established in 1925 was not recovered. Two additional reference marks were established. Reference mark no. 1 is standard reference disk in bedrock, note 12a, 62.00 feet from station in azimuth 337°26′. Reference mark no. 2 is standard reference disk in concrete, note 11a, 157.62 feet from station in azimuth 180°49′. Azimuth from station to Santa Maria, municipal water tank, is 256°09′33″.

Arguello (Santa Barbara County, O. H. Tittman, 1875; 1933).—About 10 miles northwest of Point Conception, 7 miles southwest of Lompoc, and on summit of El Tranquillon which is highest peak in vicinity. To reach from Lompoc, go west 4.0 miles on Ocean Avenue, turn left just before reaching large red shed or warehouse, and continue 4.8 miles to fork (closed by iron gate), pass through gate and go 0.5 mile to L. E. Thompson's ranch, enter barnyard, turn around and retrace route 0.1 mile, follow old road leading up hill 1.9 miles to end of truck travel, and then follow fence line to station site. In 1875 station was marked by piece of rough stone, 2½ feet high, set on concrete foundation 2 inches thick which rested partly on solid ledge and partly on ground. Four copper tacks marked with cross lines were leaded into drill holes in surrounding ledge and rocks at following distances and azimuths from station: 3 feet 8.8 inches, 47°59′; 7 feet 5.2 inches, 168°29′; 10 feet 11.2 inches, 205°57′; and 6 feet 10.9 inches, 270°06′. Latitude observations were made at hole in capstone of stone and cement pier which was 90.44 feet (95.10 feet slope) from station in azimuth 69°13′. In 1924 copper bolt had been removed from station pier and point was re-marked with standard station disk. Standard reference disk was established 2.105 meters (6.91 feet) from station in azimuth 266°43′. In 1933 another standard reference disk was established 6.500 meters (21.33 feet) from station in azimuth 190°43′. Lead slugs in rock outcrops were recovered 2.260 meters (7.41 feet) from station in azimuth 168°19′, and 2.095 meters (6.87 feet) from station in azimuth 271°10′.

Gaviota (Santa Barbara County, O. H. Tittmann, 1873; 1933).—On Gaviota Peak, about 17 miles southeast of Lompoc, and about 1½ miles east by south of Las Cruces. To reach from Las Cruces, leave Route 101 at Las Cruces store and follow old road up canyon to barn and corral, follow up ridge to southwest and then well-worn trail to station site. In 1873 station was marked by post 5 feet high and by witness marks. In 1875 station was marked by cross on copper tack leaded into stone 20 inches below surface and large rock with copper tack placed flush with surface. Pier, 2 feet square by 2 feet 7¼ inches high, was built of blocks of sandstone cemented together and placed over station mark. Reference marks were established as follows: North, wooden stub with copper tack, 7 feet 8¾ inches from station; east, wooden plug with nail in drill hole in rock, 7 feet 2½ inches from station; and west, wooden plug in hole in rock, 13 feet 3⅜ inches from station. Latitude observations were made at a point marked by a copper tack leaded into drill hole in irregular stone, 18 inches square and flush with surface, 97.58 feet from station in azimuth 200°10′.

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This stone was surrounded by four wooden stubs with copper tacks in tops placed as follows: North, 7.985 feet; south, 7.280 feet; east, 6.505 feet; and west, 8.235 feet. In 1923 station pier had fallen in. Standard reference disk was established 5.350 meters (17.55 feet) from station in azimuth 277°36′. In 1924 old reference marks were recovered at following distances and azimuths from station: 1.867 meters (6.13 feet), 355°20′; 4.047 meters (13.28 feet), 95°28′; and 2.230 meters (7.32 feet), 291°14′. In 1933 standard reference disk was established 11.145 meters (36.56 feet) from station in azimuth 347°52′.

New San Miguel (Santa Barbara County, O. H. Tittmann, 1873; 1924).—On San Miguel Island, on highest part of Green Mountain. Station can best be reached by wagon road leading from harbor to ranch from which station is visible. In 1873 station was marked by rectangular brick pier whose foundation was 2½ feet below surface. Smooth stone, 8 by 8 inches, with leaden bolt and copper tack in center was placed on top of pier. Latitude observations were made at a point marked by a copper tack leaded into top of irregular-shaped sandstone block which rested on a foundation of bricks with its top 6 inches below surface of ground and 19 feet 3 inches from station in azimuth 324°56′. In 1934 bricks surrounding station were cemented together and rock cairn was built around marker. Two standard reference disks were established in boulders, note 12c, projecting 4 inches. No. 1 is 10.295 meters (33.78 feet) from station in azimuth 306°33′. No. 2 is 7.345 meters (24.10 feet) from station in azimuth 37°22′.

Santa Cruz West (Santa Barbara County, W. E. Greenwell, 1861; 1934).—On highest point of high bluff forming western extremity of Santa Cruz Island. In 1861 station was marked by drill hole in granite which was at intersection of diagonal of four drill holes, each 2 feet 2 inches distant. In 1874 copper tack was leading into hole; brick pier, 2 feet square by 2 feet 11 inches high, was built over station, and its geodetic position determined. Latitude observations were made at point marked by large stone with lead bolt and copper tack in top, surrounded by bricks, 51 feet 8½ inches from station in azimuth 255°03′. In 1924 standard reference disk was established in bedrock, 9.446 meters (30.99) from station in azimuth 199°23′. In 1934 brick pier had been removed and station was covered with small pile of rocks.

Santa Barbara (Santa Barbara County, W. E. Greenwell, 1858; 1934).—A few feet south of summit of Lavigia Hill which is southern one of two smooth, round hills about 450 feet high lying west of Santa Barbara and Honda Valley and north of La Mesa oil field. In 1858 station was marked by wooden stub with tack in top and surmounted by square block of red sandstone with "U. S. C. S." cut in top. North and south reference marks, each 4 feet seven-eighths inch from station, were sandstone blocks; and east and west reference marks, each 4 feet 1 inch from station, were wooden stubs. In 1869 stone marking station was placed on brick pier, 2 feet square by 3 feet high, with top flush with surface. In 1898 4-foot square concrete block was poured around remains of brick pier. A concrete pier, 25 inches in diameter by 3 feet 4 inches high, was built on concrete base, and station marked by iron nail in its top. Reference marks, consisting of nails in tops of 2-foot sections of 4-inch tile pipe, were established as follows: 128.20 feet from station in azimuth 340°16′ and 350.38 feet from station in azimuth 37°03′. Triangular concrete pier for vertical-circle observations was established 48.6 feet from station in azimuth 204°18′. In 1924 old reference marks were not recovered. Standard reference disk was established in triangular concrete post, flush with ground near fence line, about 11 feet lower than station, and 43.717 meters (143.43 feet) from station in azimuth 307°01′. In 1934 original tile-pipe reference marks were recovered; one was flush with ground in fence line and about 40 feet lower than and 106.795 meters (350.38 feet) from station in azimuth 38°31′; and other was 1 foot below surface of ground, in fence line, and about 17 feet lower than and 42.065 meters (138.01 feet) from station in azimuth 341°39′. Another standard reference disk was established in triangular concrete post projecting 4 inches and 8 feet lower than and 28.764 meters (94.37 feet) from station in azimuth 37°06′.

Santa Cruz East (Santa Barbara County, W. E. Greenwell, 1857; 1933).—Near east point of Santa Cruz Island, approximately one-half mile from Scorpion ranch, on high rocky bank facing north, 20 feet from edge of cliff which rises sheer from water. In 1857 station was not permanently marked, but four

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reference marks were established. North and south marks were wooden stubs, each distant 37 inches from station; and east and west marks were stone slabs with cross marked on top, each distant 2 feet 11½ inches from station. In 1876 copper tack in lead bolt in irregular-shaped stone with letters "U. S. C. S." carved in top was placed 13 inches below surface. South reference mark was missing and was replaced by wooden stub at same distance from station. In 1898 concrete pier marked "U. S. C. & G. S. 1898" was built over mark flush with surface of ground, and copper bolt with cross was placed in top of pier. Reference marks, consisting of holes 4 inches deep and 1 inch in diameter, were drilled in solid rock as follows: In large black rock projecting 2 feet, 13.58 feet from station in azimuth 304°22′; in rock projecting 1 foot, 24.81 feet from station in azimuth 1°58′; in solid ledge close to edge of cliff on west side, 15.40 feet from station in azimuth 50°07′; and in solid rock flush with surface and close to edge of cliff on north side, 14.94 feet from station in azimuth 174°43′. Vertical-circle pier was established 45 feet from station in azimuth 282°22′. In 1924 a standard reference disk was established 4.750 meters (15.58 feet) from station in azimuth 305°09′. Two of the old reference marks were recovered as follows: 7.510 meters (24.64 feet) from station in azimuth 2°47′, and 4.684 meters (15.37 feet) from station in azimuth 60°59′.

Chaffee 2 (Ventura County, F. W. Hough, 1923; 1933).—About 2 miles northwest of Ventura, on highest point of first range of hills west of Ventura, 150 meters (492 feet) southwest of narrow ridge which forms narrow bridge across deep canyon, about 100 meters (328 feet) west of fence line along edge of canyon, and in approximately same position as station "Chaffee (1867)." [Station "Chaffee (1867)" was marked by bottle placed below surface and concrete-filled tile with copper bolt in center and was referenced by tile pipes 4 inches in diameter by 2 feet long.] To reach from Ventura, cross Ventura River and follow Coast Highway west 0.2 mile, go north ½ mile from highway to Taylor's ranch, continue to cultivated field on slope above plateau and to southwest of ranch buildings, and climb about 1½ miles to station site. Surface mark is standard station disk in irregular-shaped block of concrete, 32 inches deep and flush with surface. Underground mark is standard station disk in concrete block 36 inches below surface. Reference mark is standard reference disk 115.515 meters (378.99 feet) from station in azimuth 158°11′50″.

Laguna (Ventura County, W. E. Greenwell, 1857; 1932).—About 9 miles southeast of Oxnard, 8 miles east by south of Hueneme, and on summit of highest and westernmost peak of first range southeast of Oxnard. To reach from Oxnard, follow Coast Highway southeast to base of peak, follow road northerly along base of hills to Hacienda Mugu (formerly Broome ranch), continue to gate and cattle guard in saddle between main range of hills and small conical hill to northward, and follow ridge in southerly direction to station site. Shorter approach to station is from point where Coast Highway meets base of hills, but climb is rather steep. In 1857 station was marked by stone monument and referenced by four live-oak stubs, each 1 foot 10 inches from station. In 1877 oak stubs were not recovered and reference stones, each with lead bolt in top were established as follows: North, 4.05 feet from station; west, 4 feet from station; south, 4.95 feet from station; and east, 4.02 feet from station. In 1898 station was re-marked as follows: A 4-inch tile, 8 inches long, with 5-inch spike placed in center, was filled with cement, and buried 2 feet below surface. A triangular mass of concrete, 27 inches on each side and 13 inches thick, was laid over tile, and a sandstone post with small hole in top was placed in center of concrete. Surface of concrete was flush with ground and top of post was 1½ inches below surface of concrete. Corners of concrete triangle were built up 4 inches, like posts. Reference marks were 4-inch tiles, each 2 feet long, filled with concrete, with spike in center, and at following distances and azimuths from station: No. 1, 6.93 feet, 107°06′; no. 2, 6.92 feet, 197°06′; no. 3, 7.35 feet, 287°06′; and no. 4, 7.23 feet, 17°06′. In 1921 corner blocks of concrete triangle had been knocked off. A copper bolt inscribed "U. S. G. S." and with elevation of station was found set in concrete beside station mark. In 1923 station was re-marked with standard station disk in drill hole in stone post. Standard reference disk was established in boulder 34.16 meters (112.1 feet) from station in azimuth 5°36′.

Santa Clara (Ventura County, A. T. Mosman, 1898; 1932).—About 2 miles from Santa Paula, on summit of western one of two peaks of nearly same elevation. Station hill is easily distinguished from Santa Paula by large white let-

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ters "S. P." on northern slope. To reach from Santa Paula, go to oil wells on side of peak and follow good trail one-half mile to station site. In 1898 underground mark was bottle sunk mouth up 2.3 feet below surface. Surface mark was copper bolt in tile pipe, 4 inches in diameter by 2 feet long, filled with concrete. Upper part of pipe was encased in concrete triangle, at apexes of which three marble blocks, 6 by 6 by 4 inches, were set in cement. Four tile pipes, 4 inches in diameter by 2 feet long, were filled with concrete and an iron nail placed in upper surface. In 1932 three of the tile pipes were recovered at following distances and azimuths from station: 1.950 meters (6.40 feet), 324°36′; 1.936 meters (6.35 feet), 144°14′; and 1.988 meters (6.52 feet) from station in azimuth 236°52′; the fourth, distant 6.44 feet southwest by west of station, was not recovered. Standard reference disks were established in buried boulders, note 12c. No. 1 is 31.888 meters (104.62 feet) from station in azimuth 232°22′. No. 2 is 29.881 meters (98.03 feet) from station in azimuth 54°38′. Reference mark in same post as station mark is distant 6 inches from station in azimuth 276°.

Castro (Los Angeles County, A. T. Mosman, 1898; 1933).—About 20 miles west by north of Santa Monica, 9 miles southwest of Calabasas, on Castro Peak, and under 30-foot steel fire lookout tower. To reach from Calabasas, follow Route 101 southwest 6.9 miles to Seminole Hot Springs road, turn left (leaving highway) and go 7.5 miles past Malibu Junction and Cornell post office to Streshly ranch road, turn left and follow this road 1.5 miles to end of truck travel, and follow up firebreak about three-eighths mile to station site. In 1898 underground mark was quart bottle with neck placed 25¾ inches below surface. Surface mark was cross on copper bolt, three-fourths inch in diameter by 5 inches long, in top of triangular bed of concrete which was 12 inches thick. Corners of concrete block were truncated and on each was placed a cement cube, 6 inches on a side. Reference marks were drill holes, 1 inch in diameter by 2 or 3 inches deep, at following distances and azimuths from station: 8.35 feet, 312°02′; 6.68 feet, 30°26′; 6.77 feet, 138°28′; and 7.13 feet, 213°39′. In 1925 steel fire lookout tower was built over station marks. Center of *Castro, fire lookout tower* is 0.140 meter (0.46 foot) from station in azimuth 313°14′. Standard reference disks were established in 1923 and 1932. No. 1 (1923) is 13.288 meters (43.60 feet) from station in azimuth 268°57′. No. 2 (1932) is 18.288 meters (60.00 feet) from station in azimuth 163°17′. *B. M. 2919* (*U. S. G. S.*) (see description thereof) is 0.091 meter (0.299 foot) from station in azimuth 1°30′. In 1933 an eccentric station was established by the Los Angeles County and City Cooperative Survey control. This station is marked by a brass disk (see fig. 7), stamped "Castro Ecc. 1933" and "R. E. 62", in concrete flush with surface. Distances and azimuths from this eccentric station to standard reference disks are: No. 1, 10.486 meters (34.40 feet), 278°12′; and no. 2, 17.769 meters (58.30 feet), 152°37′.

San Fernando (Los Angeles County, A. T. Mosman, 1898; 1933).—About 10 miles northwest of San Fernando, 5 miles southwest of Newhall, 5 miles north of Chatsworth, and on summit of Oat Mountain. To reach from intersection of San Fernando and Brand Boulevards in San Fernando, go west 2.1 miles on Brand Boulevard, turn right onto oiled road and go 3.1 miles, turn left with pavement and go 0.5 mile, turn right onto concrete and go 3.7 miles to De Soto Avenue (opposite sign "Fig Headquarters"), turn right and follow Browns Canyon road as follows: Go 1.0 mile, turn right, then left and go 1.5 miles, take right fork and go 0.7 mile, take left fork and go 1.6 miles, turn right at sign "Oat Mountain Lookout" and go 0.8 mile, take right fork and go 2.2 miles to station site. In 1898 station was marked by bottle sunk 18 inches below surface with neck protruding 2 or 3 inches into lower end of tile pipe, 24 inches long and 4 inches in diameter, which was placed over bottle. Pipe was filled with concrete and copper bolt with cross on top was placed in top. Concrete triangle 1 foot deep, with three marble blocks, 6 inches square by 4 inches deep at corners, surrounded pipe. Reference marks were tile pipes similar to station mark with iron spike in top of concrete, and were recovered in 1932 at following distances and azimuths from station: 1.817 meters (5.96 feet), 302°37′; 1.810 meters (5.94 feet), 32°10′; 1.812 meters (5.94 feet), 124°19′. Northerly mark, distant 5.85 feet from station, was not recovered in 1932. In 1923 standard reference disk was established 27.645 meters (90.70 feet) from station in azimuth 304°36′. In 1932 standard reference disk was established approximately 400 meters (1,312 feet) from station in azimuth 302°10′29″. Azimuths

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from station to following objects are: Lookout tower, pipe, distant 26.82 meters (88.0 feet), 307°51′; *San Fernando* (*U. S. G. S.*), distant 0.24 meter (0.8 foot), 307°; *Los Angeles-San Francisco airway beacon no. 3A* (*flashing green*), 212°23′21″; and *Los Angeles-San Francisco airway beacon no. 2* (*flashing red*), 256°23′17″.

Wilson Peak (Los Angeles County, G. Davidson, 1890; 1933).—On Mount Wilson, 60 meters (197 feet) south-southwest of Mount Wilson Hotel. To reach from Foothill Boulevard and Mendocino Lane in Altadena, follow Mount Wilson toll road to summit. In 1890 underground mark was copper bolt with cross leaded into drill hole in large rock about 20 inches below surface. Surface mark was stone. In 1896 surface stone had been removed, but underground mark was undisturbed. Hexagonal concrete pier, 26 inches in diameter and extending 3.2 feet above surface, with ¾-inch copper bolt and cross in top was erected over station. Reference marks were established at the following true azimuths and distances from station: Big pine, wire nail in blaze, 41.5 feet, 61°24′; southwest corner of porch of Casino, 21.3 feet, 149°24′; nail in center of doorsill of Casino, 11.6 feet, 213°44′; southeast corner of porch of Casino, 19.2 feet, 286 44′; and big pine, wire nail in blaze, 109 feet, 299°19′. In 1922 reference marks were not recovered. In 1933 station mark was centered in ground floor of an 18-foot high, frame observation tower.

San Pedro (Los Angeles County, G. Davidson, 1853; 1933).—About 4 miles west of San Pedro, about 100 feet northeast of highest point on summit of San Pedro Hill which is highest peak in Palos Verdes Hills, and in stony area in cultivated field. To reach from Lometa, go south on paved road and cross the Redlands-Wilmington highway, continue south to end of paved road after passing dumping grounds, proceed up canyon to third ranch house, and continue about one-half mile to station site. In 1853 station was marked by three stubs with copper nails, each 6 feet 2 inches from base of signal pole. In 1855 granite monument was placed at base of pole. Between 1878 and 1896 station was marked by cross on ½-inch copper bolt leaded into drill hole in top of granite post, 6 by 6 inches square and projecting 1 inch above surface. In 1899 triangular bed of concrete was laid around granite post. Reference marks, consisting of tile pipes, 4 by 24 inches, and filled with concrete with iron spikes in center, were placed as follows: In line to *Point Fermin Lighthouse,* distant 6.05 feet from station; in prolongation of this line through station, distant 6.08 feet from station; at right angles to this line (southerly), 5.97 feet from station; and at right angles to line (northerly), 5.99 feet from station. In 1917 two standard reference disks in concrete, note 11c, were established. No. 1 was 31.27 meters (102.6 feet) from station in azimuth 250°22′. No. 2 was 45.50 meters (149.3 feet) from station in azimuth 189°50′. In 1926 station *San Pedro 2* (see description thereof) was established 1.363 meters (4.47 feet) from station in azimuth 278°41′. In 1927 standard reference disk in concrete was established 8.227 meters (26.99 feet) from station in azimuth 157°39′.

San Juan (Orange–San Bernardino Counties, P. A. Welker and F. Morse, 1886; 1933).—About 5 miles east of Olinda, 5 miles northeast of Yorba Linda, and on summit of highest and sharpest peak of San Juan Hills. To reach from Olive, go northeast 3 miles on Santa Ana Canyon road toward Corona; turn left onto Fullerton road and go 1.2 miles; turn right and go 1.3 miles; turn right onto Ohio Street and go 0.4 mile; take right fork where main road bears left and turn right again at intersection; continue straight ahead at end of pavement and take right fork at point 0.5 mile beyond last turn; continue 0.4 mile and bear right just after passing power line; turn left into small canyon and follow main-traveled road 1.0 mile, passing small farmhouse and continue 0.6 mile to another house; take road to right which runs east along fence line and follow 2.4 miles to station site. Station pier can be seen on highest hill for some distance before reaching it. In 1886 underground mark was cross in copper bolt leaded into drill hole 2½ feet below surface. Surface mark was probably large stone. In 1896 hexagonal concrete pier, 26 inches across and projecting 3.1 feet above surface, was erected, and copper bolt with cross was placed in top. Three reference stones, with drill holes filled with lead, were placed to north, south, and east, each 6 feet from station. Cairn of stones marking boundary between Orange and San Bernardino Counties was N. 33½°W. (magnetic), distant 16 feet from station. In 1899 reference stones were reset, the one to east being placed 6.12 feet from sta-

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tion. In 1929 reference stones were searched for but not recovered. In 1933 center of top diagonals of transmission tower was 0.5 mile from station in azimuth 206°04′18″; and Metropolitan Water District survey signal was 0.5 mile from station in azimuth 309°15′50″.

Los Angeles northwest base (Los Angeles County, G. Davidson, 1889; 1934).—About 1.5 miles northeast of Norwalk, 600 feet east of Atchison, Topeka & Santa Fe Railway track, 700 feet west of Shoemaker Avenue, and 5,000 feet south of Lakeland Road. In 1889 underground mark was small needle hole a little northwest of center of piece of silver wire, one-tenth inch in diameter, which was driven into head of ⅝-inch copper bolt which was fixed in melted sulphur in granite block. Block was 1 foot square on top, 3 feet long, and placed 5 feet below surface. Copper bolt was covered with glass evaporating dish, cemented onto block, and top of block was marked with letters "U.S.C. & G.S." Underground mark was surmounted by brick and cement pier, 72 inches square at base and 54 inches square at surface. Space around pier was filled in with coarse sand and charcoal. Surface mark was small needle hole in silver core of ⅝-inch copper bolt which was set in granite block, 26 inches square, flush with surface of ground, and built into foundation pier. Four reference marks were established. Each one consisted of a hole one-fourth millimeter in diameter in silver wire driven into ⅝-inch copper bolt which was leaded into upper face of 1-foot granite cube. Copper bolts were covered with glass evaporating dishes, and cubes were buried below surface of ground, surrounded by brick and cement. Two of the reference marks were in line to *Los Angeles southeast base* (see description thereof) at distances of 9.995 feet and 100 feet, and were buried 11 inches and 15 inches below surface, respectively. The other two reference marks were placed at angle of 90° to base line to southwest and were 10 and 100 feet from station, both buried 17 inches below surface. Heads of copper bolts were marked with a steel point as follows: "Southeast Witness 100 feet", "Southeast Witness 9.995 feet", "Southwest Witness 100 feet", and "Southwest Witness 10 feet." In 1890, brick pier, 15 feet high, was built over station. In 1896 this pier was removed and granite monument, 24 inches square at base and sloping to 12 inches at point 2 feet above base, with pyramidal top and small hole at apex of pyramid marking center, was cemented to surface block. Side of monument toward base line was lettered "U.S.C. & G.S. N. W. BASE 1889." *Los Angeles northwest base latitude station* (see description thereof) was 45.1 feet from station in azimuth 264°49′. In 1924 "Los Angeles northwest base longitude station", marked by iron pipe 30 inches long and 1½ inches in diameter driven into ground, was 3.880 meters (12.73 feet) east and 81.264 meters (266.61 feet) south of station. In 1932 standard reference disk in concrete, note 11a, was established 206.685 meters (678.10 feet) from station in azimuth 239°12′21″. Los Angeles flood control reference mark no. 5 is in azimuth 274°36′. Distances and azimuths from station to undescribed reference marks are reported by the Los Angeles County and City Cooperative Survey Control as follows: A, 29.721 meters (97.51 feet), 81°29′; B, 29.401 meters (96.46 feet), 166°16′; A^1, 30.934 meters (101.49 feet), 261°29′; and B^1, 45.394 meters (148.93 feet), 346°16′.

Los Angeles southeast base (Orange County, G. Davidson, 1889; 1932).—In Garden Grove, near intersection of Euclid Street and Chapman Avenue, and on property of J. D. Smiley (third house north and west of above intersection). In 1889 underground mark was small needle hole in piece of silver wire, one-tenth inch in diameter, which was driven into head of ⅝-inch copper bolt which was fixed in melted sulphur in granite block. Block was 1 foot square on top, 3 feet long, and placed 5 feet below surface. Copper bolt was covered with glass evaporating dish, cemented onto block, and top of block was marked with letters "U. S. C. & G. S." Underground mark was surmounted by brick and cement pier, 72 inches square at base and 54 inches square at surface. Space around pier was filled in with coarse sand and charcoal. Surface mark was small needle hole in silver core of ⅝-inch copper bolt which was set in granite block, 26 inches square, flush with surface of ground and built into foundation pier. Four reference marks were established. Each one consisted of hole one-quarter millimeter in diameter in silver wire driven into ⅝-inch copper bolt which was leaded into upper face of 1-foot granite cube. Copper bolts were covered with glass evaporating dishes, and cubes were buried 18 inches below surface of ground, surrounded by brick and cement. Two of the reference marks were in line to *Los Angeles northwest base* (see description

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thereof) at distances of 10.03 feet and 100.10 feet, respectively, and the other two were placed at angle of 90° to base line to southwest at distances of 10.017 and 100.003 feet, respectively. Heads of copper bolts were marked with a steel point as follows: "Southwest Witness 100.003 feet", "Southwest Witness 10.02 feet", "Northwest Witness 100 feet", and "Northwest Witness 10 feet". In 1890 brick pier, 35 feet high, was built over station. In 1896 this pier was removed and granite monument, 24 inches square at base and sloping to 12 inches at point 2 feet above base, with pyramidal top and small hole at apex of pyramid marking center, was cemented to surface block. Side of monument toward base line was lettered "U. S. C. & G. S. S.E. BASE 1889". In 1932 reference mark (probably standard disk) was established immediately east of Euclid Street, in line with poles of power line opposite the Smiley driveway, and 95.762 meters (314.18 feet) from station in azimuth 266°40′.

Michelson (Los Angeles County, C. L. Garner, 1923; 1932).—On Mount Wilson, 22.1 meters (75 feet) N. 10° E. of north side of 10-inch observatory, 5 meters (16 feet) west of automobile road leading to monastery, 2 meters (7 feet) east of building used by Dr. A. A. Michelson for determining velocity of light, and about 36 meters (118 feet) N. 10° E. of *Mount Wilson, Wilson Peak astronomical station.* Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in conrcete, note 11a. No. 1 is 12.6000 meters (41.338 feet) from station in azimuth 4°59′. No. 2 is 16.251 meters (53.32 feet) from station in azimuth 157°44′.

Antonio (Los Angeles County, C. L. Garner, 1923).—About 16 miles north of Pomona, 5 miles by trail northwest of Camp Baldy, on spur of San Antonio Peak (about 7,000 feet elevation), just south of fire lookout tower, 15 feet below highest part of ground, and in top of westernmost pier which was set by Dr. A. A. Michelson for support of his instruments. Marked by standard station disk. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 27.350 meters (89.73 feet) from station in azimuth 183°54′. No. 2 is 19.851 meters (65.12 feet) from station in azimuth 196°39′. Center of fire lookout house is 13.87 meters (45.5 feet) from station in azimuth 160°28′.

Santiago eccentric (Riverside-Orange Counties, F. W. Hough, 1923).—On highest and southeastern peak of Santiago Mountain, near 75-foot fire lookout tower. Station point was not marked. Station *Santiago* (see description thereof) is 10.528 meters (34.54 feet) from station in azimuth 60°27′. Reference mark of station *Santiago* is 1.357 meters (4.45 feet) from station in azimuth 158°56′.

Santiago (Riverside-Orange Counties, A. T. Mosman, 1899; 1933).—On highest and most southeastern peak of Santiago Mountain, 1.0 meter (3 feet) southeast of center of 75-foot fire lookout tower. Opening in concrete platform allows access to station mark. To reach from intersection of Sixth and Main Streets in Corona, go south 1.3 miles on Main Street to Ontario Avenue, turn left onto Ontario Avenue and proceed up Temescal Canyon 5.9 miles to olive orchard on right and Standard Oil station, turn right at point 100 yards before reaching filling station at sign "Santiago Peak Lookout 12 miles—Bedford Motorway" and continue 12 miles to fire lookout tower and station site. Underground mark is center of stone bottle 3½ feet below surface; and surface mark is copper bolt in large stone projecting about 3 inches above top of cement pier and depressed 3 inches below concrete platform. Original reference marks were drill holes in rock filled with lead at following distances and azimuths from station: 10.31 feet, 199°23′; 12.65 feet, 273°48′; 26.70 feet, 25°41′; and 8.35 feet, 105°10′. In 1923, standard reference disk was established in rock outcrop 10.880 meters (35.70 feet) from station in azimuth 233°20′. In 1929, original reference marks were not recovered. Station *Santiago, eccentric* (see description thereof) is 10.528 meters (34.54 feet) from station in azimuth 240°27′.

Niguel (Orange County, A. F. Rodgers, 1884; 1933).—About 15 miles southeast of Newport Beach, 4½ miles west by north of Capistrano, on highest point of flat summit of highest ridge between San Juan Capistrano and Aliso Canyon, and about 30 meters (98 feet) east of fence. To reach from intersection of Newport Avenue and Ocean Avenue (Ocean Highway) in Newport Beach, go south 15.5 miles on Ocean Avenue to Dart's Submarine Nature Studio on right-hand side of highway, turn left onto dirt road, pass through locked gate (key

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kept at above-mentioned studio), and continue 0.4 mile, turn left onto very dim trail through brush and go 2.2 miles to station site. In 1884 underground mark was cross on copper bolt in flat rock buried 21 inches below surface. Surface mark was nail in stub. In 1898 tile pipe, 4 inches in diameter and 2 feet long, was filled with concrete and placed over underground mark. Copper bolt 4 inches long with cross was placed in top of pipe to mark center. Concrete triangle, with marble blocks at vertices, surrounded pipe for depth of 1 foot. Four reference marks consisting of nails in tops of tile pipes 4 inches in diameter and 2 feet long, filled with concrete, were established. In 1914, east reference mark was replaced with standard reference disk. In 1933 tile-pipe reference marks were recovered at following distances and azimuths from station: 1.822 meters (5.98 feet), 216°42′; 1.878 meters (6.16 feet), 37°55′; and 1.910 meters (6.27 feet), 122°50′. Two standard reference disks in concrete, note 11a, were established. No. 1 is 17.580 meters (57.68 feet) from station in azimuth 220°35′. No. 2 is 18.645 meters (61.17 feet) from station in azimuth 291°19′. Reference disk established in 1914 in place of original east mark was found loose in ground and was removed.

San Jacinto (Riverside County, A. T. Mosman, 1898; 1931).—About 16 miles east by north of San Jacinto, 5½ miles northeast of Strawberry Valley, and on summit of San Jacinto Peak. Peak is highest and most northern peak of San Jacinto Mountains. To reach, go to Decker's ranch which is reached from Banning-Idyllwild road and follow trail on southwest side of mountains 5 miles to station site. In 1898 cairn of rocks about 5 feet in diameter and 8 feet high was built on top of boulder forming highest point of mountain. Station was marked by 1-inch hole drilled 1 inch deep in large flat boulder which was 13 feet from boulder with cairn in true azimuth 63°42′. In 1899 station was remarked by 1¼-inch drill hole 5 inches deep. Reference marks consisting of drill holes 1¼ inches in diameter and 3 inches deep were established in boulders. In 1923 reference marks were recovered at following distances and azimuths from station: 16.955 meters (55.63 feet) 21°19′; 10.415 meters (34.17 feet), 332°59′; 3.430 meters (11.25 feet), 252°55′; and 8.755 meters (28.72 feet), 162°25′. Standard station disk which had been placed between 1910 and 1923 was found out of place, and a new standard station disk was set in drill hole. Standard reference disk was placed in old reference drill hole, 8.755 meters (28.72 feet) from station in azimuth 162°25′.

Cuyamaca (San Diego County, A. T. Mosman, 1898; 1935).—On Cuyamaca Peak, about 35 miles northeast of San Diego, 9 miles south of Julian, 6½ miles north of Descanso, 3 miles southwest of Cuyamaca, 14.2 meters (47 feet) north-northwest of center of fire-lookout tower, and 10 feet south of highest point. Peak is highest point of backbone of large ledge which forms highest part of southern and taller peak of Cuyamaca Peak. To reach from Julian, drive past Cuyamaca Dam to summit, leave main road and follow dim road to right 2 miles up through forest to station site. In 1898 station was marked by cross on copper bolt set in drill hole in ledge. Reference marks were copper bolts at intersections of cross lines cut in rock at following approximate directions and distances from station: South, 1.900 meters (6.23 feet); north, 2.343 meters (7.69 feet); and northeast, 2.150 meters (7.05 feet). In 1910 copper bolt marking station had been removed; center of drill hole was used as station. A cross was cut in face of large rock almost directly under old north reference mark, and rock containing original north reference mark, although split, was replaced in old position over new mark. In 1919 a cross cut in top of large boulder was placed ½ meter (2 feet) below and 8.88 meters (29.1 feet) from station in azimuth 334°11′. In 1923 standard station disk was set in drill hole marking station. Standard reference disk (no. 1) was established in rock outcrop 22.220 meters (72.90 feet) from station in azimuth 326°17′. In 1935, standard reference disk (no. 2) was established in rock outcrop 14.792 meters (48.53 feet) from station in azimuth 239°11′.

Soledad (San Diego County, A. F. Rodgers, 1887; 1935).—On highest peak of Soledad Mountain, about 1¼ miles southeast of La Jolla. To reach from La Jolla, go south to end of Fay Avenue, follow steep road 1.1 miles to the Muirland development, turn left and go 0.4 mile on dirt road, take right fork and go 0.5 mile, take left fork and go 0.2 mile, take left fork and go 0.2 mile to station site. To reach from San Diego Military Academy, go north and follow dirt road to summit. In 1887 surface mark was redwood stub, 4 by 4 by 24 inches, with nail driven in top. Underground mark was small glass bottle buried neck up with its top 18 inches below surface. In 1898 a new bottle was placed

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32 inches below surface, and surface was re-marked by cross on ¾-inch copper bolt, 4 inches long, placed in 3 by 24-inch tile pipe which was filled with concrete. Cross marking station was identical with nail in stub (1887). Pipe was surrounded to a depth of 1 foot by a triangular bed of concrete, at the vertices of which were embedded three marble blocks. Reference marks, consisting of concrete-filled drain tiles, 4 inches in diameter, were placed as follows: On line to *Point Loma Lighthouse* (*old*), 5.85 feet from station; on prolongation of this line through station, 6.00 feet; at right angle westward, 6.19 feet; and at right angle eastward, 6.00 feet. Latitude and azimuth observations were made at a brick pier laid in cement, distant 18.02 meters (59.1 feet) from station in azimuth 178°33′. In 1919 reference mark to westward had been destroyed to point slightly below surface. In 1922 marble blocks in bed of concrete around station had been broken out, but sockets were still in place. Reference mark toward *Point Loma Lighthouse* (*old*) was in good condition, but the others had been badly broken or destroyed. Brick pier was still in place, but top was damaged. In 1935 cross on copper bolt was obliterated, but center of bolt was used as station. Reference marks toward *Point Loma Lighthouse* (*old*) and to eastward were recovered: 1.78 meters (5.8 feet) from station in azimuth 355°48′ and 1.82 meters (6.0 feet) from station in azimuth 266°46′, respectively. They were badly broken at surface. A form was placed over brick pier and a concrete slab, 2½ feet long by 18 inches wide by 2 feet deep, was built flush with its top and standard reference disk was placed in the top, 18.21 meters (59.7 feet) (slope) from station in azimuth 178°35′. Standard reference disk in concrete, note 11a, was established, 18.96 meters (62.2 feet) (slope) from station in azimuth 83°23′.

San Miguel (San Diego County, A. T. Mosman, 1898; 1935).—About 12 miles east-southeast of San Diego, 4 miles southwest of Jamul, on summit of highest peak of San Miguel Mountain, and 19 feet northwest of airway beacon. To reach from Jamul (a store on the Campo Highway 20 miles east of San Diego), turn south from highway onto gravel road and go 0.2 mile to sign "Sunnyside", turn right and follow main-traveled highway 7.8 miles, turn right onto farm road leading to the old Rickey ranch and go 0.7 mile to ranch house, continue straight ahead on dim road along edge of field and go 1.0 mile to group of eucalyptus trees and end of truck travel, go one-fourth mile across cultivated field in a northeasterly direction to gate and follow trail to summit of peak and station site. In 1899 station was marked by drill hole 2 inches deep in bottom of crevice 6 inches long and 2 inches deep. In 1919 standard station disk was set in drill hole. Standard reference disk was established in boulder 0.19 meter (0.6 foot) above and 16.43 meters (53.9 feet) from station in azimuth 225°50′. In 1935 two standard reference disks were established in bedrock, note 12a. No. 1 is 9.435 meters (30.95 feet) from station in azimuth 112°14′. No. 2 is 7.018 meters (23.02 feet) from station in azimuth 195° 46′.

United States–Mexico boundary monument no. 258 (San Diego County, Calif., Lower California, Mexico, International Boundary Commission, United States and Mexico, 1892; A. T. Mosman, 1898; 1933).—About 12 miles south of San Diego, 4 miles southwest of Palm City, and on United States-Mexico boundary. To reach from Palm City, go south 0.8 mile on Tia Juana highway, continue straight ahead on dirt road at Shell oil station 2.1 miles, turn right at Monument schoolhouse and go 1.4 miles, branch right and go 0.6 mile, take left fork and go 0.2 mile, bear left and go 0.5 mile to end of road at boundary fence line, and go east up hill about 200 feet to station site. Marked by white marble shaft, 14 feet high, standing in area 12 feet square and enclosed by 7-foot iron picket fence. (See fig. 2.)

Supplementary points

House (Ventura County, F. Morse, 1921; 1933).—On low sand dune, north of and just outside lighthouse reservation at Point Hueneme, about 15 meters (49 feet) north of center line of Hueneme road, about 75 meters (246 feet) east of north-and-south row of higher sand dunes, and 35 meters (115 feet) east of entrance gate to reservation. Distances from station to two fence posts, each marked with three nails in shape of triangle between middle and lower rails are: Post in east-and-west fence of reservation, 34.25 meters (112.4 feet); and post at intersection of above-mentioned fence and fence which passes close to radio compass station, 43.60 meters (143.0 feet). Original

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station mark was bottle buried about 18 inches below surface. In 1927, surface mark, consisting of standard station disk in concrete, note 1a, projecting about 3 inches, was established. *Point Hueneme Lighthouse* is 190.8 meters (626 feet) from station in azimuth 37°07′57″. Station *Light* (see description thereof) is 208.4 meters (684 feet) from station in azimuth 20°59′50″. Station *Laguna* (see description thereof) is visible from ground in azimuth 287°45′10″.

Light (Ventura County, F. Morse, 1921; 1933).—On lighthouse reservation at Point Hueneme, southeast of lighthouse, 21.72 meters (71.3 feet) from fence corner at left of gate into enclosure, 20.86 meters (68.4 feet) from southeast fence of same enclosure, and 12.90 meters (42.3 feet) east of west fence. Original station marks were a bottle buried 2 feet below surface and standard station disk in irregular-shaped block of concrete. In 1927 surface mark had been partly undermined, and was replaced with concrete post, 12 inches square at top by 2 feet long, projecting 3 inches. *Point Hueneme Lighthouse* is 58.7 meters (193 feet) from station in azimuth 136°22′. Station *House* (see description thereof) is 208.4 meters (684 feet) from station in azimuth 200°59′49″. United States Navy radio compass instrument station is 67.65 meters (221.9 feet) from station in azimuth 285°13′. Station *Laguna* (see description thereof) is visible from ground in azimuth 286°53′53″.

San Pedro 2 (Los Angeles County, T. J. Maher, 1926; 1933).—About 4 miles west of San Pedro, a little northeast of highest point of San Pedro Hill of the Palos Verde Range. Hill is flat topped, and area surrounding station is cultivated. Marked by standard station disk in concrete, note 1a. Pile of stones was placed around mark. Station *San Pedro* (see description thereof) is 1.363 meters (4.47 feet) from station in azimuth 98°41′. Azimuth from station to Seal Beach, white stack, is 270°31′14″; and to Los Angeles Harbor Lighthouse, 298°02′08″. In 1933 station disk had been broken out of concrete post.

TEXAS-CALIFORNIA ARC

Principal points

Butte (Riverside County, J. S. Hill, 1910; 1934).—On eastern and highest point of Chuckwalla Mountains, about 11 miles south-southeast of Desert Center, and 10 miles south of United States Route 60. Station site is visible from Niland (Imperial Junction) through gap in the Chocolate Mountains, distant about 24 miles in bearing N. 23° E. To reach from Desert Center, go west 9.5 miles on United States Route 60 to sign "Desert Center 9.5—Shavers Well 22", continue 1.2 miles and turn left onto dirt road, go 2.4 miles and then follow right fork 2.7 miles to sign "Dos Palmas 20", continue straight ahead 0.8 mile, continue straight ahead 3.1 miles to point just before reaching tin shack, turn left and go 0.8 mile, take right fork and go 3.6 miles to T-road, turn left and go 6 miles to sign "Chuckwalla Well 16—Mecca 42", continue 3.7 miles, turn left and go 3.4 miles to Gullidays Well near foot of mountain, continue about 0.2 mile to end of truck travel, go up wash to second ridge and follow this ridge to highest point and station site. Marked by standard station disk cemented in flat rock which is in level spot about 5 meters (16 feet) east and 1 meter (3 feet) below highest point of ridge. In 1934 two reference marks (probably standard reference disks) were established. No. 2 is 4.220 meters (13.85 feet) from station in azimuth 249°38′. No. 3 is on first hill across saddle and one-fourth mile from station in azimuth 358°46′39″. Original reference marks were crosses cut in rock. One was in top of rock which was lowest and most eastern one of large ledge of rocks running west of station, about level with station, and 5.445 meters (17.86 feet) from station in azimuth 21°59′. Other was in sloping face of rock outcrop, about 1 foot lower than station and 4.555 meters (14.94 feet) from station in azimuth 259°35′. In 1931 these marks were recovered but in 1934 they were not found.

American (U.S.G.S.) (Imperial County, J. S. Hill, 1910; 1934).—On highest point of Cargo Muchaco Mountains, about 12 miles northwest of Yuma, 6 miles northeast of Ogilby, and 3 miles south of east of "American Girl" gold mine. To reach from Yuma, go west 14 miles on Route 80, turn right and go 4 miles to Ogilby, turn right across railroad tracks and go 2.3 miles on road toward mountain, continue straight ahead 1.6 miles, pass just north of mill and go

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up wash 0.5 mile, take second of two left forks and go 0.2 mile, take left fork and go 0.8 mile, take left fork and go 0.4 mile, take left fork and go 0.3 mile to end of truck travel, and proceed southeast up wash bearing left to station site. Marked by United States Geological Survey triangulation disk cemented in rock. Original reference marks were crosses cut in rock: One was in flat rock in saddle, 1½ feet below and 3.61 meters (11.8 feet) from station in azimuth 357°06′; and other was in pinnacle of large boulder, about 6 feet below and 7.23 meters (23.7 feet) from station in azimuth 237°23′. In 1934, three standard reference disks in bedrock, note 12a, were established. No. 1 is 7.705 meters (25.28 feet) from station in azimuth 233°23′. No. 2 is 11.350 meters (37.24 feet) from station in azimuth 339°23′. No. 3 is on sharp knob one-eighth mile from station in azimuth 140°44′48″.

Kofa (Yuma County, Ariz., J. S. Hill, 1910; 1934).—About 57 miles northeast of Yuma, 45 miles northwest of Mohawk, about 18 miles south-southeast of Quartzsite, 9 miles northwest of North Star mine or Polaris post office, and on southerly one of two highest peaks (about same elevation) in vicinity. To reach from east city limits of Yuma, go east 7.5 miles on United States Route 80 to road leading north at sign "Dome—Quartzsite", turn left and go 1.8 miles, turn right and follow main road 8.6 miles, take left fork and go 1.1 miles to forks just after crossing bridge, take right fork and follow main road (Quartzsite road) 36.3 miles to road on right at sign "Horse Tank 5—King Mine—North Star", go east 13.7 miles to road leading north toward range of mountains, go north 4.1 miles, turn sharp left and go south-southwest 1.0 mile to dim crossroad, turn right (west) and follow main-traveled road 5.9 miles in a westerly direction toward a cone-shaped hill, continue straight ahead 0.9 mile, turn north and go about 1.0 mile toward base of mountain to end of truck travel, go to entrance of first canyon just east of highest or main part of mountain, follow canyon to forks, take left fork and go up canyon (keeping to all main left forks) to top, turn left and climb to the left one of two peaks and station site. Marked by standard station disk cemented in drill hole in rock. Reference mark is cross cut in rock 11.22 meters (36.8 feet) from station in azimuth 227°39′. In 1934, reference mark was established (probably standard reference disk) 10.99 meters (36.06 feet) (slope) from station in azimuth 7°21′.

Mohawk (Yuma County, Ariz., J. S. Hill, 1910; 1934).—On highest and most southern peak of the Mohawk Mountains, 11 miles S. 1° W. (true) from Stoval (from which place peak is visible), and about 16 miles by road from Mohawk. To reach from Mohawk, go east 7.0 miles on United States Route 80 to road crossing railroad tracks on right (0.2 mile west of Stoval railroad station), go south from railroad tracks 0.7 mile on main-traveled road, keep to left and go 1.3 miles passing an old water hole, continue 1.8 miles and pass another water hole, continue 2.2 miles, take left fork and go 1.8 miles, turn right off road and go west about 3.0 miles keeping well to left of trees along wash and heading toward long saddle to right of peak, at end of 3 miles bear right to wash and follow left side of wash to two old roads 0.1 mile apart, after crossing second road continue to tracks leading west, follow tracks 3.9 miles toward peak to end of truck travel, follow wash leading to deep saddle south of peak, go right along ridge (keeping to left side and below rim rock) to second saddle, and proceed to left to top and station site. Marked by standard station disk in bedrock. Reference mark is cross cut in rock near edge of bluff 13.31 meters (43.7 feet) from station in azimuth 186°28′. In 1934 two standard reference disks in bedrock, note 12a, were established. No. 1 is 17.577 meters (57.67 feet) from station in azimuth 50°34′. No. 2 is 26.077 meters (85.55 feet) from station in azimuth 145°32′.

Harquahalla (Yuma County, Ariz., J. S. Hill, 1910; 1924).—About 11 miles east of Wenden, about 7 miles south of nearest point of branch of Santa Fe, Prescott & Phoenix Railway, on highest peak of Harquahala Mountains, and about 100 yards north of Smithsonian Institution building. To reach from east or west, follow along railway to point 75 yards east of milepost 36 (9 miles east of Wenden), go south 4 miles on wagon road into Squaw Canyon (canyon northwest of highest part of mountain) to end of road, follow trail to fork (about 80 yards west of small spring), and follow left (east) fork to station site. Marked by standard station disk in bedrock, note 2. Reference mark is cross cut near north edge of top of boulder, inscribed "R. P. C. & G. S. 1910", 8.21 meters (26.9 feet) from station in azimuth 88°32′. In 1919 station mark was stamped "Harquahalla 1919."

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Powell (Mohave County, Ariz., J. S. Hill, 1910; 1935).—On higher and more easterly of two peaks (known locally as "Powell Peak") on Arizona branch of the Chemehuevis Mountains, 15 miles S. 20° E. from Franconia, and 30 miles S. 51° E. of Needles. To reach from Topock, take dirt road on south side of railroad track and follow main-traveled road (not turning to right) east 11 miles, turn south onto well-defined road toward Colorado River and follow main road (keeping to right) about 18 or 19 miles to road turning left (northeast) toward Falls Springs mines, follow this road about 7 miles to crossroad going down into wash on northwest, enter wash and follow road up wash 2 miles to Falls Springs mine camp, continue to end of wash and climb ridge on northwest side to peak and station site. Marked by standard station disk cemented in drill hole in bedrock. Reference mark is cross cut in solid rock, 2 feet lower than and 5.62 meters (18.4 feet) from station in azimuth 21°11′. In 1935 two reference marks were established (probably standard reference disks in bedrock). No. 1 is 4.660 meters (15.29 feet) from station in azimuth 290°38′. No. 2 is 5.562 meters (18.25 feet) from station in azimuth 21°08′.

Chemehuevis (San Bernardino County, J. S. Hill, 1911; 1934).—On highest and most southerly peak of the Chemehuevis Mountains, 20 miles south and 2 miles east of Needles, and 3 miles east of Parker-Needles road. To reach from Needles, go 23 miles toward Parker, go east three-fourths mile on low black rock divide between two main washes to gap between low hills, continue on foot across desert to mouth of left-hand and westerly of two large canyons leading up mountain from southwest, go up canyon and ridge to right to its summit, and go one-fourth mile southeast up peak to station site. Marked by standard station disk in drill hole in bedrock. In 1925, rock had cracked through drill hole and half of it was displaced. Disk was replaced and stone cemented together. Reference mark is cross in solid rock about 5 feet below and 6.42 meters (21.1 feet) from station in azimuth 7°23′. In 1934 an undescribed reference mark was reported 12.195 meters (40.01 feet) from station in azimuth 248°35′.

Pine (Mohave County, Ariz., J. S. Hill, 1910; 1925).—About 18 miles S. 67°E. of Yucca, on highest peak (known locally as "Pine Peak") near south end of Hualpai Mountains. To reach from Yucca, go 16 miles to Heath ranch, from ranch follow old Cedar Mine road 6 miles to fork where older grade leads to right, follow old grade 4 miles to north base of peak where it starts descent to southeast, and follow old trail to southern and slightly lower of two brushy knobs. Marked by standard station disk cemented in large rock about 1½ feet above surface of ground. Reference mark is cross cut in south side of large rock which is near highest point of peak and in azimuth 161°12′.

Crescent (Clark County, Nev., W. Mussetter, 1925; 1934).—About 12 miles west of Searchlight, 11 miles northeast of Nipton, 5 miles east of Old Crescent, on highest conical peak in vicinity, and 1.4 meters (5 feet) east of tumble-down cairn. To reach from Searchlight, follow road west toward Nipton 16½ miles to sign "Searchlight 16½—Needles 71—Nipton 5"; turn left onto road leading south between white house and old stamp mill and go 0.4 mile, continue straight ahead 0.05 mile, take left fork in bottom of wash and go 0.1 mile, take left fork and go 0.2 mile to forks (right fork leads to stamp mill), take left fork and go 2.4 miles, take left fork and go 0.9 mile to site of the old Turquois Mine and end of truck travel, follow old road up canyon to some old mine shafts at end of road, and continue on up canyon to top of mountain and station site. Marked by standard station disk in rock. Reference marks are standard reference disks in rock. No. 1 is 12.490 meters (40.98 feet) from station in azimuth 237°19′. No. 2 is 4.855 meters (15.93 feet) from station in azimuth 295°31′. In 1934, reference mark no. 3, probably standard reference disk in rock, was established on rocky point one-third mile from station in azimuth 305°04′42″.

Hualpai (Mohave County, Ariz., W. Mussetter, 1925).—About 12 miles southeast of Kingman, on southeasterly one of the two highest rock peaks of Hualpai Mountain. To reach from Kingman, follow road 16 miles to the Pine Lodge summer resort on Hualpai Mountain, follow trail 2 miles to small fruit ranch, and continue to station site about three-fourths mile to south. Best ascent of peak is from northeast. Marked by standard station disk in solid rock. Reference mark is standard reference disk in solid rock 3.995 meters (13.11 feet) from station in azimuth 69°36′.

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Supplementary points

Holt (Imperial County, F. W. Hough, 1924; 1934).—About 2 miles southwest of Holtville, on property of W. J. Vineyard, in northwest corner of field, 3 feet southeast of fence corner, 9 feet northwest of northwest corner of pond, and 25 feet east of center of road. To reach from Holtville, go west 1.0 mile on U. S. Route 80, turn left (south) and go 0.2 mile, jog left about 200 feet and continue south 1.5 miles to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is in fence line and 12.403 meters (40.69 feet) from station in azimuth 178°39′. No. 2 was in fence line and 36.125 meters (118.52 feet) from station in azimuth 58°38′; but, in 1934, it was not recovered as ditch bank had been built, thus destroying or covering up the mark.

Carrizo (Imperial County, F. W. Hough, 1924; 1935).—About 8 miles north by west of Coyote Well, 5 miles east of San Diego-Imperial County line, and on highest point of Carrizo Mountain. To reach from Coyote Well, go east 0.8 mile on highway to sign "Painted Gorge", turn left and follow main-traveled road 5.0 miles, turn left and go up canyon 1.4 miles, turn right and follow road up right bank of wash 0.5 mile to end of road, follow trail along right side of canyon to ridge, and proceed north and a little west along ridge to highest point and station site. Station mark is probably standard station disk. Reference mark is standard reference disk in marble 19.534 meters (64.09 feet) from station in azimuth 121°59′. A United States Geological Survey cairn, 8 feet high, was 2.5 feet south of station, but, in 1935, had been moved. A United States Geological Survey station mark is 1.290 meters (4.23 feet) from station. In 1935, a reference mark and an azimuth mark were established. Reference mark is 8.639 meters (28.34 feet) east of station, and azimuth mark is on light-colored ridge one-half mile northeast of station.

Salton (Imperial County, F. W. Hough, 1924).—About 1½ miles east of Durmid, on highest peak of buttes east of and plainly visible from Durmid or Salton. Buttes are known locally as "Bat Caves". Truck can be driven within one-half mile of station whether approaching from Durmid, Niland, or Dos Palmas. Marked by standard station disk in concrete cube embedded in sandstone. Reference marks are standard reference disks in concrete cubes embedded in sandstone. No. 1 is 10.348 meters (33.95 feet) from station in azimuth 206°50′. No. 2 is 8.792 meters (28.85 feet) from station in azimuth 281°10′. No. 3 is 9.636 meters (31.61 feet) from station in azimuth 105°52′.

Hill (San Bernardino County, W. B. Fairfield, 1893; 1934).—About 6 miles northwest of Needles, about 5 miles east of south end of Dead Mountains, about 7½ miles south-southwest of point where California-Nevada State line crosses Colorado River, 3 miles west of the Colorado River, 2 miles northwest of ranch of Mr. Dinsmore, and on highest sand hill in vicinity which is reached just before going down into first great wash after leaving the Dinsmore ranch. To reach from Needles, go west 2½ miles on United States Route 66 to sign "Needles 2½—Amboy 70", continue 1.4 miles on highway, turn right onto gravel road and go 0.1 mile, keep left and go 0.1 mile, keep left and go 2.3 miles (0.1 mile before reaching golf links), turn left onto dim road leading west and follow 2.1 miles to station site. Original surface mark was 4- by 4-inch redwood stake with nail in top. Underground mark was bottle buried 2½ feet below surface, mouth upward. In 1910 redwood stake was replaced by standard station disk cemented in top of large irregular-shaped rock (18 by 18 by 20 inches) flush with surface. In 1934 two reference marks were established (probably standard reference disks). No. 1 is 8.220 meters (26.97 feet) from station in azimuth 234°54′. No. 2 is 16.880 meters (55.38 feet) from station in azimuth 350°10′. Azimuth from station to Needles, water tank, distant about 6 miles, is 321°27′00″.

Spirit (Clark County, Nev., W. Mussetter, 1925; 1934).—About 18 miles southeast of Searchlight, on Dead Mountain, on highest point of high rocky peak at northern end of ridge, and one-fourth mile west of sharp peak a little lower in elevation. To reach from Needles, follow United States Route 66 east 10 miles to fork, take right fork and go 6.2 miles, turn right onto Searchlight road and go 20.5 miles to sign "Cottonwood Mine 4", turn right (east) onto old road and go 2.0 miles, bear left and go 0.6 mile, take sharp left fork (right fork

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leads to mine) and go 2.1 miles, bear left and go 0.5 mile, take right fork over ridge and down into canyon and go 1.7 miles to mine house, pass in front of house and turn right (south) up canyon, follow old mine road up canyon to its end, go up ridge to right of canyon, cross canyon and climb left side of ridge to saddle of main ridge, and continue north along ridge to station site. Marked by standard station disk in rock. In 1934, three reference marks were established (probably standard reference disks in rock). No. 1 is 5.001 meters (16.41 feet) from station in azimuth 44°18′. No. 2 is 7.632 meters (25.04 feet) from station in azimuth 155°41′. No. 3 is about 300 yards from station in azimuth 281°22′49″.

THIRTY-FIFTH PARALLEL ARC

Principal points

Center (Santa Barbara County, W. Mussetter, 1925).—About 24 miles east of Santa Maria, on summit of San Rafael Mountains, 1 mile northwest of higher summit, at head of Kelly Canyon, and in dense brush at junction of main mountain ridge and branch ridge. To reach from Cuyama Valley road between Santa Maria and Maricopa, go to Spanish ranch which is about 30 miles east of Santa Maria and follow road through ranch and across bridge over Cuyama River, go up Kelly Canyon about 6 miles to Davis ranch at end of road, take dim brushy trail up first main ridge west of the Davis ranch house and follow to summit of main mountain ridge which is rather flat on top, and follow trail (very dim) along ridge to station site. Marked by standard station disk in rock buried in ground. Reference mark is standard reference disk in rock buried in ground, 4.073 meters (13.36 feet) from station in azimuth 195°05′.

McKittrick (Kern County, W. Mussetter, 1926; 1932).—About 8 miles west of McKittrick, on highest summit of the Temblor Range. To reach from McKittrick, go 5.2 miles on Simmler road to crossroad, continue ahead 2.1 miles on dirt road along fence to gate, go through gate and continue 0.2 mile, go through barnyard and 2 gates, continue 1.4 miles on road up canyon to old house and barn 200 yards to left of road, continue 0.2 mile, turn up arm of canyon to northwest and go 0.4 mile to saddle, turn left and follow up ridge to top and station site. Marked by standard station disk in solid rock. Reference marks are standard reference disks in solid rock. No. 1 is 7.445 meters (24.43 feet) from station in azimuth 279°40′. No. 2 is 18.628 meters (61.12 feet) from station in azimuth 112°59′. No. 3 (1932) is one-fourth mile from station in azimuth 322°34′50″. Station *Kitt* (*Standard Oil Co.*) (see description thereof) is 74.661 meters (244.95 feet) from station in azimuth 227°09′.

Peak (Santa Barbara County, W. Mussetter, 1926).—About 30 miles southwest of Maricopa, 30 miles south of east of Santa Maria, and on summit of Green or Peak Mountain which is highest in northern division of San Rafael Mountains which lie on southwest side of Cuyama Valley. To reach from Cuyama Valley road at point about 42 miles east of Santa Maria, follow posted road southwest about 4 miles to Richardson's ranch at Wasioja post office, go through ranch to Wasioja schoolhouse, take Government fire trail across flat and follow up first main ridge east of Green Canyon, leave trail at summit and follow ridge west 1½ miles to station site. Marked by standard station disk in solid rock. Reference marks are standard reference disks in solid rock. No. 1 is 3.693 meters (12.12 feet) from station in azimuth 98°55′. No. 2 is 4.592 meters (15.07 feet) from station in azimuth 211°49′.

Pelato (Kern County, W. Mussetter, 1926; 1932).—About 10 miles south of Maricopa, on high round hill of plateau-like ridge extending in a northwesterly direction from San Emigdio Mountain, and one-fourth mile north of road. To reach from Maricopa via Cuyama Valley road, go 10.6 miles to gas station on right of road near summit between San Joaquin and Cuyama Valleys, turn left through iron gate and go 2¼ miles up draw to schoolhouse, just before reaching schoolhouse take road switching back to right and follow one-fourth mile, take right-hand road doubling back along fence line and follow 1.0 mile (keeping left-hand fork at tank and water trough) to the Jones ranch, continue on road passing through fenced lane with barn on right to end of lane, and go north one-fourth mile to top of high round hill. Marked by standard station disk in solid rock. Reference mark is standard reference disk in solid rock,

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7.39 meters (24.2 feet) from station in azimuth 328°37′. *B.M. 4492 (U.S.G.S.)* (see description thereof) is 2.50 meters (8.2 feet) from station in azimuth 253°15′.

Elk (Kern County, W. Mussetter, 1926; 1932).—About 24 miles south of west of Bakersfield, 9 miles north of Taft, 11 miles southeast of McKittrick, on knoll of the Elk Hills, about 2 miles east of Standard Oil Co.'s Hay Lease, on grounds of the United States Naval Oil Reserve, and on third and last of three hills of 1,300-foot elevation east of buildings of the Hay Lease. To reach from Taft, go by oiled road to the Hay Lease, proceed east 2 miles on private road of oil company to point where it passes around knoll, and go south 30 yards to station site. Marked by standard station disk in concrete block flush with ground. Reference marks are standard reference disks in concrete foundations for oil derricks. No. 1 is 31.39 meters (103.0 feet) from station in azimuth 9°27′. No. 2 (1932) is about 20 feet north of road, and one-eighth mile from station in azimuth 306°55′21″. *Pan American Petroleum Co. mark* (see description thereof) is 2.00 meters (6.6 feet) from station in azimuth 209°41′.

Temblor (Kern County, W. Mussetter, 1926; 1932).—About 6 miles west by south of Taft, 3½ miles southwest of Midland post office, and on high, bare, rounded summit of the Temblor Range. To reach from Maricopa, go southwest 2 miles on Cuyama Valley road, turn right onto graded road between white railings and follow main-traveled road to Elkhorn Plains, after passing cattle guard keep right-hand road to point 14 miles from Maricopa, take dim right-hand road just at point of ridge on right and go 1 mile to oil derrick, continue up large wash to its main forks, and climb up nose of ridge between them to station site. Marked by standard station disk in buried boulder. Reference marks are standard reference disks in ledge rock. No. 1 is 25.702 meters (84.32 feet) from station in azimuth 316°17′. No. 2 is 30.654 meters (100.57 feet) from station in azimuth 350°03′.

Wheeler (Kern County, W. Mussetter, 1926; 1932).—About 25 miles due south of Bakersfield, 10 yards northeast of corner of garage built into tank tower immediately north of superintendent's house, and on highest part of Wheeler Ridge which is a low extension of the Tehachapi Mountains that project into San Joaquin Valley about 3 miles west of Ridge Route Highway. Ridge is visible from Bakersfield, and is identified by oil derricks, tanks and buildings on it. To reach from Bakersfield, follow Ridge Route south about 27 miles to private road of Standard Oil Co. leading west to top of Wheeler Ridge. Marked by standard station disk in concrete block flush with surface of ground. Reference marks are standard reference disks in concrete. No. 1 is in northwest corner of concrete base of water tower and 15.860 meters (52.03 feet) from station in azimuth 55°29′. No. 2 (1932) is in top of southeast corner of concrete retaining wall of ice plant and ¼ mile from station in azimuth 260°48′28″.

Kern (Kern County, W. Mussetter, 1926; 1932).—About 3 miles northeast of Bakersfield, on edge of bluffs overlooking Kern River, and 10 yards back from bank. To reach from Bakersfield, go north on Baker Street which passes just west of depot and follow road signs toward Kern River Park 2.9 miles on main highway to point where main road descends bluff, and follow gravel road east 0.7 mile along bluff to station site. Marked by standard station disk in boulder projecting 4 inches. Reference marks are standard reference disks in boulders. No. 1 is 10.140 meters (33.27 feet) from station in azimuth 221°00′. No. 2 is 10.275 meters (33.71 feet) from station in azimuth 116°51′. No. 3 (1932) is 24.015 meters (78.79 feet) from station in azimuth 337°59′. Azimuth from station to *Bakersfield, California Water Service station no. 23, water tank,* is 30°17′32″.

Double (Kern County, W. Mussetter, 1926; 1932).—About 7 miles south and 2 miles west of Tehachapi, on summit of central of three high peaks of Tehachapi Mountains, and on most northerly of two knobs on summit. Peak is highest in vicinity and is known as "Double Mountain." To reach from Tehachapi, go south 1.4 miles on highway, go west 2.2 miles on section-line road, go southwest 5 miles on posted Paradise Valley road to its end near cabin of Mr. MacKneilledge, follow up canyon to south to top of ridge, follow ridge in southerly direction and ascend to station site. Marked by standard station disk in rock outcrop. Reference marks are standard reference disks in rock outcrops. No. 1 is 8.662 meters (28.42 feet) from station in azimuth 148°03′. No. 2 is 13.731 meters (45.05 feet) from station in azimuth 197°38′.

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Breckenridge (Kern County, W. Mussetter, 1926).—About 23 miles north of east of Bakersfield, 6 miles southwest of Havilah, on easterly of two highest peaks, and just north of trail between east and west lookouts on summit of Breckenridge Mountain. Mountain is a high and heavily timbered ridge. To reach from Bakersfield, go 6 miles to Edison, go north across tracks and through orange groves 17 miles on road to Democrat Springs and Kernville via Rock Springs to sign "Sawmill and Breckenridge R. S.", take right fork and follow main-traveled road 14 miles to Breckenridge ranger station, and follow good trail 2 miles to summit. Marked by standard station disk in solid rock. Reference marks are standard reference disks in solid rock. No. 1 is 4.182 meters (13.72 feet) from station in azimuth 206°33′. No. 2 is 6.130 meters (20.11 feet) from station in azimuth 305°28′.

Pajuela (Kern County, W. Mussetter, 1926; 1932).—About 4½ miles east of Monolith, 2 miles north of Cameron (railroad stations in Tehachapi Pass), and on first high smooth hill north of railroad. To reach from Monolith, go west 3½ miles on main highway over Tehachapi Pass to turn just east of turning wye at Eric railroad station, turn north through gate at angle of road, pass gravel pit and follow road about one-fourth mile to foot of long smooth ridge to right, then follow main ridge about 1 mile (climbing about 2,000 feet) to station site. Marked by standard station disk in solid rock. Reference marks are standard reference disks in solid rock. No. 1 is 14.560 meters (47.77 feet) from station in azimuth 295°41′. No. 2 is 8.865 meters (29.08 feet) from station in azimuth 166°07′. Station "Pajuela (U.S.G.S.", marked by United States Geological Survey tablet in base of rock cairn, is 3.15 meters (10.3 feet) from station in azimuth 113°04′. In 1926 this cairn was repaired.

Piute (Kern County, W. Mussetter, 1926).—About 35 miles north of east of Bakersfield, 6 miles northeast of Walker Basin, 6 miles north of Piute post office, one-half mile east of United States Forest Service lookout, and on southern end of ridge-like summit of Piute Peak. Peak is the highest peak in the Sierras south of Kern River and is covered with large pine and fir trees. To reach from Bakersfield or Mojave, go via Caliente and follow road to Piute post office which is ranch house, continue about 4 miles toward Walker Basin, turn north onto road at sign "Piute L.O. 9 miles" and continue up very heavy grade about 8 miles to point about one-half mile before reaching summit, turn left and go about one-half mile to first high-wooded knob. Marked by standard station disk in solid rock. Reference marks are standard reference disks in solid rock. No. 1 is 14.05 meters (46.1 feet) from station in azimuth 100°12′. No. 2 is 6.08 meters (19.9 feet) from station in azimuth 163°40′.

Desert (Kern County, W. Mussetter 1926).—About 15 miles north of east of Mojave, 25 miles southwest of Randsburg, and on northerly of two prominent haystack buttes which rise from floor of desert. To reach from Mojave or Randsburg, follow direct road between these places to Conklin's ranch, and go south about 4 miles on road to foot of butte. Road passes around east side of butte and there is a deserted shack at base of hill. Marked by standard station disk in solid rock. Reference marks are standard reference disks in solid rock. No. 1 is 3.325 meters (10.91 feet) from station in azimuth 142°30′. No. 2 is 9.15 meters (30.0 feet) from station in azimuth 265°36′. Station *Desert* (*U.S.G.S.*) (see description thereof) is 7.64 meters (25.1 feet) from station in azimuth 252°55′.

Morris (Kern County, W. Mussetter, 1926; 1934).—About 10 miles northwest of Inyokern, about 3 miles northeast of Walker Pass, about 4 miles south of and 1,200 feet lower than Owens Peak, and about 5 meters (16 feet) south of southerly of two highest knobs on divide between desert and south fork of Kern River. Owens Peak is prominent, sharp, rocky peak, and highest in vicinity. To reach from Southern Pacific railroad station at Inyokern, go west 4.0 miles on paved road, turn right onto Bishop highway and follow 1.7 miles to Indian Wells, continue 0.2 mile to top of hill, turn left onto dirt road up Indian Wells Canyon and go 4.1 miles to concrete tank in willow thicket, continue straight ahead 1.8 miles, turn left and go 0.6 mile, keep to left and go 0.2 mile to turning point for trucks, continue up canyon to cabin of E. F. Morris, follow game trail up right side of canyon to head of draw, bear left to saddle and continue south about 0.5 mile to high rock-knobbed hill and station site. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 5.080 meters (16.67 feet)

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from station in azimuth 125°56′. No. 2 is 25.171 meters (82.58 feet) from station in azimuth 311°14′.

Red (San Bernardino County, W. Mussetter, 1926; 1933).—About 4 miles south of east of Randsburg, 2 miles east of Osdick, and on highest and most southern point of Red Mountain. Mountain is a well-known peak in the Randsburg mining district. To reach from Osdick (Red Mountain post office), cross railroad tracks and turn left, turn right around north end of row of small houses and continue to fork, follow right fork 0.1 mile, again follow right fork 0.1 mile and again follow right fork 0.1 mile, follow left fork 0.2 mile, again take left fork and follow 0.1 mile to prospect hole, climb to highest part of southern end of mountain, and go south along ridge to station site. Marked by standard station disk in rock. Reference marks are standard reference disks in rock. No. 1 is 23.186 meters (76.07 feet) from station in azimuth 251°07′. No. 2 is 5.559 meters (18.24 feet) from station in azimuth 187°45′. Nearest face of a rock cairn of U.S. Geological Survey is 3.34 meters (11.0 feet) from station in azimuth 252°. Cairn is 4.95 meters (16.2 feet) in circumference.

Searles (B.M. M 48) (Kern County, W. Mussetter 1926).—About 1¾ miles northwest of Searles railroad station, on Southern Pacific Railroad right-of-way, on west side of track, and 6 feet south of edge of wagon road crossing track at first curve north of Searles. To reach from Randsburg, go 12 miles to Searles railroad station, proceed north 2½ miles on road leading toward Inyokern to fork at signboard, and follow right-hand road about 200 yards to railroad crossing. Marked by standard bench-mark disk, stamped "B.M. M 48", in concrete block projecting 8 inches above ground. Reference mark is standard reference disk in concrete block, 41.35 meters (135.7 feet) from station in azimuth 336°46′.

Yucca (Inyo County, W. Mussetter 1926; 1934).—About 21 miles northeast of Brown railroad siding on Southern Pacific Railroad, on rocky peak near south end of group of the Argus Mountains lying south of Mount Springs Canyon and north of Wilson Canyon, and 100 feet east of and 10 feet lower than highest point of hill. To reach from Brown, cross railroad tracks at pole 456 (Darwin Road) and go east 4.0 miles turn left and go 0.5 mile, turn right and go 2.9 miles, turn left and go 1.0 mile, turn right just after passing house and go 18 miles across valley and up Mount Springs Canyon to summit, take right fork and go 0.7 mile, take right fork and go 2.0 miles, take left fork and go 0.4 mile, take right fork and go 0.2 mile, again take right fork and go 0.2 mile, turn south and go 0.1 mile across country, and climb hill to south to station site. Marked by standard station disk in solid rock. Reference marks are standard reference disks in solid rock. No. 1 is 9.908 meters (32.51 feet) from station in azimuth 79°06′. No. 2 is 12.635 meters (42.45 feet) from station in azimuth 146°50′. Azimuth from station to rock cairn, distant three-fourths mile, is 89°01′39″.

Pilot (San Bernardino County, W. Mussetter, 1926; 1929).—About 23 miles east of Johannesburg, on summit of conspicuous peak known as "Pilot Butte" or "Granite Mountain." To reach from Johannesburg, go 24 miles on posted road to Granite Wells, go east up north side of wash to water trough in mouth of small canyon, and continue up this canyon to its head from whence station is visible. Alternate route from Granite Wells is to go to Black Willow Spring which is one-half mile west, and then to follow Barstow road south and east about 3 miles to point where it crosses ridge south of Pilot Butte (location of "B.M. 4402 (U.S.G.S.)"), and proceed north along ridge about 1½ miles to station site. Marked by standard station disk in outcropping rock. Reference marks are standard reference disks in outcropping rock. No. 1 is 8.135 meters (26.69 feet) from station in azimuth 164°01′. No. 2 is 16.255 meters (53.33 feet) from station in azimuth 287°57′. Station *Pilot* (*U. S. G. S.*), *cairn* (see description thereof) is 4.80 meters (15.7 feet) from station in azimuth 121°56′.

Leach (San Bernardino County, W. Mussetter, 1926; 1929).—About 45 miles north of east of Johannesburg, 65 miles south of west of Shoshone, 6 miles west of Leach Spring, and on high, black malpais ridge. Ridge is rather flat and covered with Joshua trees, and has granite knob on its north end. To reach from Johannesburg or Shoshone, follow main road between them to Leach Spring which is on loop road south of main road, go 1½ miles west of Leach Spring to point where road ceases to skirt hills, follow truck tracks southwest 1 mile to mouth of broad open wash, go one-half mile up wash to bank

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of deep sandy wash cutting across valley, follow up main wash 1 mile to branch wash on left which comes down between malpais peak (highest visible) on left and granite peak on right (main wash swings to right), follow this branch wash to summit of ridge from whence station site can be seen three-fourths mile to southwest. Marked by standard station disk in firm boulder. Reference marks are standard reference disks in firm boulders. No. 1 is 7.292 meters (23.92 feet) from station in azimuth 254°27′. No. 2 is 6.787 meters (22.27 feet) from station in azimuth 171°20′.

Panamint (Inyo County, W. Mussetter, 1926).—About 55 miles northeast of Johannesburg, 25 miles northeast of Trona, 10 miles northeast of old Ballarat, and on easterly summit of Sentinel Peak which is the highest point in Panamint Mountains south of Telescope Peak. Summit is composed of seamed and stratified shale-like rock. To reach from Trona, Leach Spring, or Granite Wells, follow posted roads to Ballarat, continue 13 miles on mining company's steep road up Surprise Canyon to Panamint camp, take graded trail and go via Wyoming claim about 2 miles to point where it crosses Marvel Canyon, and proceed up main ridges to station site which is visible from trail. Distance from Panamint is about 3½ miles and difference in elevation is 3,700 feet. Marked by standard station disk in ledge rock. Reference marks are standard reference disks in ledge rock. No. 1 is 10.107 meters (33.16 feet) from station in azimuth 2°07′. No. 2 is 16.345 meters (53.63 feet) from station in azimuth 175°52′. *Panamint mining signal* (see description thereof) is 23.63 meters (77.5 feet) from station in azimuth 177°02′.

Funeral (Inyo County, W. Mussetter, 1926).—About 15 miles south of Ryan, 24 miles northwest of Shoshone, and on summit of Funeral Peak which is highest point on southern group of Funeral or Amargosa Range of mountains. To reach from Shoshone, go 27 miles on posted road via Ryan and Furnace Creek ranch to road leading west to old Greenwater (abandoned), and continue 1½ miles toward Greenwater Spring. About one-fourth mile before reaching the springs take dim road which branches off to left at large red mine dump and follow about 1 mile to another old shaft, 300 yards west of old shaft take trail leading southeast into open country from whence station site is visible on highest point to southwest (only one composed of malpais), just before entering range of low hills leave trail and follow direct course across undulating ridges to station site. Marked by standard station disk in solid rock. Reference marks are standard reference disks in solid rock. No. 1 is 11.764 meters (38.60 feet) from station in azimuth 36°47′. No. 2 is 15.016 meters (49.27 feet) from station in azimuth 230°46′. Station *Funeral* (*U.S.G.S.*) (see description thereof) is 6.105 meters (20.03 feet) from station in azimuth 15°23′.

Denning (San Bernardino County, W. Mussetter, 1926).—About 30 miles southwest of Shoshone, 2 miles northeast of Denning Spring, and on highest point and northern spur of Avawatz Mountains which lie between old borax road to Cave Spring via Cave Wash and new road from Shoshone to Cave Spring via Denning Spring. To reach from Shoshone, go to Denning Spring via Bradbury Well and south end of Death Valley and follow Barstow Road to Denning Spring, continue to canyon emerging from hills about one-half mile north of Denning Spring, go east up canyon about one-half mile, and ascend to highest summit by following ridges leading northeast. Marked by standard station disk in solid rock. Reference marks are standard reference disks in solid rock. No. 1 is 32.18 meters (105.6 feet) from station in azimuth 96°25′. No. 2 is 11.07 meters (36.3 feet) from station in azimuth 283°11′.

Kingston (San Bernardino County, W. Mussetter, 1926; 1934).—About 30 miles west of Good Springs, Nev., 22 miles east of Tecopa, on summit of high, sharp, conical peak on northwest end of Kingston Range, and about 3 miles northwest and 300 feet lower than highest point of Kingston Peak. To reach from Good Springs, go west 16 miles on Pahrump Road to sign "Good Springs 16—Pahrump 37", turn left (south) and go 1.7 miles to sign "Horse Spring 14 miles", turn right (west) and follow signs to Horse Spring, follow Tecopa Road 1 mile and go 0.5 mile up west side of wash to foot of rocky ridge, go about 200 yards to large canyon on right and follow to top of ridge, and proceed southwest about 3 miles along ridge to station site. Marked by standard station disk in solid rock. Reference marks are standard reference disks in solid rock. No. 1 is 5.150 meters (16.90 feet) from station in azimuth 123°17′. No. 2 is 6.94 meters (22.8 feet) from station in azimuth 215°16′.

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Azimuth from station to *Kingston* (*U. S. G. S.*), *cairn* (*1926*) distant 2½ miles, is 343°09′05″; and to Sandy, water tank at mill, distant about 12 miles, 261°18′02″.

Charleston (U.S.G.S.) (Clark County, Nev., W. Mussetter, 1926).—About 30 miles north of west of Las Vegas, on summit of Charleston Peak. Peak is sharp and conical shaped and highest in southern Nevada. Top is barren of all vegetation and covered with fragmental limestone. To reach from Las Vegas, go 37 miles by good road to Griffith's resort at Charleston Park, and follow steep trail to summit of peak. To reach from Manse, go east 16 miles to Charlie Williams' ranch in Trout Canyon, follow cow trail up canyon about 3 miles and continue up zigzag trail to summit of Charleston Ridge, and follow ridge west about 4½ miles to station site. Distance from Williams' ranch is about 10 miles and total climb is about 6,000 feet. Marked by U.S. Geological Survey aluminum disk in solid rock. Reference marks are standard reference disks in solid rock. No. 1 is 13.224 meters (43.39 feet) from station in azimuth 340°40′. No. 2 is 16.975 meters (35.69 feet) from station in azimuth 176°40′.

Pahrump southeast base (Inyo County, W. Mussetter, 1926; 1934).—About 10 miles south of Manse ranch, 3 miles west of Yount's ranch in Pahrump Valley, on level sandy plain covered with greasewood and rabbit brush, and 4 meters (13 feet) south of old road leading from Yount's ranch to Tecopa Pass. To reach from Pahrump, go 6.5 miles on Good Springs Road to Manse ranch, continue 9.0 miles to sign "Water 1—Kingston 27—Good Springs 37—Manse 9—Pahrump 16", turn sharp right and go west 1.3 miles to shack, continue 0.1 mile, take right fork and go 100 yards, take right fork and go 0.3 mile, take left fork and go 0.7 mile, take right fork and go 0.2 mile, take left fork and go 0.1 mile, and follow right fork 0.7 mile to station site. Surface and underground marks are standard station disks in concrete. Surface mark projects 8 inches. Reference marks are standard reference disks in concrete. No. 1 is 24.050 meters (78.90 feet) from station in azimuth 208°24′. No. 2 is 19.030 meters (62.43 feet) from station in azimuth 314°07′. No. 3 (1934) (probably standard reference disk) is in buried boulder, projecting 4 inches, on ridge where road turns out of sand onto ridge and 0.6 mile from station in azimuth 199°55′47″.

Pahrump northwest base (Nye County, Nev., W. Mussetter, 1926; 1934).—On extreme southern end of malpais hills dividing Pahrump and Stewart Valleys, 100 yards southwest of main Shoshone-Pahrump road at point 7.3 miles west of Pahrump ranch and 20.8 miles northeast of Shoshone, and on small rocky hill. Top of hill is flat solid rock about 30 feet higher than road. To reach from Pahrump ranch, go 7.3 miles on road to Shoshone to top of first small rise after road bears to right up small draw and go southwest 100 yards up first low hill to station site. Marked by standard station disk in solid rock. Reference marks are standard reference disks in solid rock. No. 1 is 17.295 meters (56.74 feet) from station in azimuth 281°48′. No. 2 is 7.640 meters (25.74 feet) from station in azimuth 106°06′. No. 3 (1934) is on small rocky hill about 200 yards south of road, near rock cairn, and three-fourths mile from station in azimuth 269°12′33″.

Lee (Clark County, Nev., W. Mussetter, 1926).—About 12 miles east of Manse ranch in Pahrump Valley, on west end of ridge of one of the spurs of Charleston Range of mountains. Ridge appears to be conical hill from valley and is about 1 mile south of and 1,200 feet in elevation above road. Ridge is covered with scattered growth of juniper. To reach from Manse ranch, go south 1½ miles on main road to fork and signboard, follow left-hand road 100 yards to first fork, take left fork and follow in an easterly direction about 11 miles to gate in drift fence, take right-hand road leading to Lee ranch and follow about 4 miles to point where road winds around base of mountain to south, and climb to station site on west end of ridge. Marked by standard station disk in outcropping rock. Reference mark is standard reference disk in outcropping rock, 12.43 meters (40.8 feet) from station in azimuth 266°13′.

Table (Clark County, Nev., W. Mussetter, 1926; 1934).—About 5 miles southwest of Good Springs, about 2 miles west of Argentine Mine, on highest point of Table Mountain. To reach from Good Springs, go 3.3 miles on Sandy and Kingston road or 100 yards beyond summit of divide, turn left and go 1.0 mile to office of the Argentine Mine, take right fork up steep hill and go 0.4 mile to top of divide, turn right (northwest) and go across country 1.1 miles to highest point and station site. Marked by standard station disk in boulder.

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Reference marks nos. 1 and 2 are standard reference disks in boulders. No. 1 is 11.450 meters (37.57 feet) from station in azimuth 206°09′. No. 2 is 13.590 meters (44.59 feet) from station in azimuth 326°21′. Reference mark no. 3 (1934) is standard station disk in rock outcrop on first high hill south of Argentine Mine and 1.2 miles from station in azimuth 262°33′45″. Azimuth from station to cairn on sharp peak, distant 6 miles, is 346°14′23″; and to Shenandoah Peak, cairn, distant 4 miles, 156°55′16″.

Black (Clark County, Nev., W. Mussetter, 1925; 1934).—About 21 miles south by east of Las Vegas, about 7 miles northwest of dry lake crossed by Las Vegas-Needles road, and on highest sharp peak of extreme north end of Black Mountain. To reach from Las Vegas, go to Mountain Pass via Las Vegas-Boulder highway, follow Needles highway to sign "Nelson 22 miles" and dry farm on left, continue south 1.0 mile on Needles Highway to point where old highway enters new road, follow old highway northwest 3.0 miles, leave road and go southwest across desert as far as truck will go, continue on foot about 3 miles across desert to well-defined canyon, follow to top of ridge and go south along ridge to station site. Marked by standard station disk in solid rock. Reference mark is standard reference disk in solid rock, 10.485 meters (34.40 feet) from station in azimuth 164°19′.

Supplementary points

G. L. O. Station 15 (Santa Barbara County, W. Mussetter, 1926).—About 8 miles southwest of Santa Maria, about 3 miles southwest of Betteravia, and about 6 miles northeast of Orcutt. To reach from corner of Broadway and Main Streets in Santa Maria, go west 0.8 mile on Main Street, turn south onto Miller Avenue and go 5.3 miles to oil tanks which are 1 mile north of Orcutt, turn west and go 5.3 miles toward Casmalia to sign "N.T.U. Shale Plant 4", turn right and go 3.3 miles to small bridge, follow old winding road to left 1.3 miles to top of ridge, and follow old tracks to right 0.6 mile along top of ridge to station site at corner of fences bearing northeast, southeast, and west. Station is corner no. 1 of the Guadalupe Rancho and angle point on boundary of Punta de la Laguna Rancho, and northeast corner of sec. 3, T. 9 N., R. 35 W. of the San Bernardino meridian. Marked by brass disk in concrete post, stamped "G R 1—P L R—S 3. T 9 N, R 35 W, 1926". Mark prior to 1926 was 3-inch galvanized-iron pipe, marked "Survey Monument of the Associated Oil Co.—Property Survey made by F. F. Flournoy, May 1917" which was replaced alongside concrete post. Reference marks are brass disks in drill holes in rock with arrows pointing toward station. No. 1 is 11.151 meters (36.58 feet) from station in azimuth 159°10′. No. 2 is 35.808 meters (117.48 feet) from station in azimuth 306°22′.

Simmler (San Luis Obispo County, W. Mussetter, 1926).—About 29 miles west of McKittrick, about one-quarter mile south of Simmler post office (ranch house), one-fourth mile west of Simmler School, in northwest corner of crossroads, and immediately inside fence line and partly under fence. To reach from McKittrick or Santa Margarita, go on main connecting road to signboard and crossroads 0.3 mile south of Simmler post office. Marked by standard station disk in boulder projecting 10 inches above ground.

Cauvel (Kern County, W. Mussetter, 1926).—About 13 miles north of west of McKittrick, about 8 miles east of Simmler post office, and on rounded and highest summit in vicinity of the Temblor Mountains. To reach from McKittrick, go via Temblor Grade about 14 miles to Cauvel ranch which is first ranch on west side of summit and north side of road, continue past ranch house and follow old road up westerly of two canyons back of house one-half mile to old homestead, follow nose of ridge between main canyon and branch entering from left and go up main ridge to highest summit. Marked by standard station disk welded to top of 4-inch iron pipe, 3 feet long, set in ground. Station is identical in position with wooden hub of the Pan American Petroleum Co.

G. L. O. Station 14, reference mark (San Luis Obispo County, W. Mussetter, 1926).—About 25 miles north of west of McKittrick, near north end of Carriso Plains, and just northeast of J. S. Van Metre's farmhouse. Marked by brass disk, in concrete post projecting 3 inches, with arrow pointing toward *G. L. O. Station 14* (see description thereof) which is 41.104 meters (134.86 feet) distant in azimuth 156°37′.

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G. L. O. Station 14 (San Luis Obispo County, W. Mussetter, 1926).—About 25 miles north of west of McKittrick, near north end of Carriso Plains, at corner of fences bearing north, south, and west, just northeast of J. S. Van Metre's farmhouse, and at corner of secs. 13, 18, 19, and 24, Tps. 29 S., Rs. 17 and 18 E. of the Mount Diablo meridian. To reach from McKittrick, go south 1.0 mile toward Taft, turn right onto main-traveled road and go west 33.2 miles toward Santa Margarita to sign "Simmler 6—McKittrick 34—Bakersfield 73", turn north and follow road 1½ miles to station site. Marked by brass disk, in concrete post projecting 4 inches, stamped with section, township, and range numbers. Mark prior to 1926 was cedar post which was replaced alongside concrete post. *G. L. O. Station 14, reference mark* (see description thereof) is 41.104 meters (134.86 feet) from station in azimuth 336°37′.

Caliente (U.S.G.S.) (Santa Barbara County, W. Mussetter, 1926).—About 8 miles northwest of the Cuyama ranch, on highest point of the Caliente Mountains on the north side of Cuyama River. Station is highest point of peak.

Kitt (Standard Oil Co.) (Kern County, W. Mussetter, 1926; 1932).—About 8 miles west of McKittrick, on highest summit of the Temblor Range. Marked by hole in center of brass-capped pipe which projects about 4 inches. Station *McKittrick* (see description thereof) is 74.661 meters (244.95 feet) from station in azimuth 47°10′.

G. L. O. Station 13 (Kern County, W. Mussetter, 1926).—About 10 miles west of north of McKittrick, 36 miles north of west of Bakersfield, one-fourth mile northwest of deserted shack, and at standard corner of secs. 31 and 36, Tps. 28 S., Rs. 21 and 22 E. of the Mount Diablo meridian. This corner is on the north side of sec. 6, T. 29 S., R. 22 E. of the Mount Diablo meridian. To reach from Bakersfield, go toward Paso Robles via Buttonwillow and Lokern, keep on north side of railroad at Lokern and continue west on main-traveled road to intersection with north-and-south oiled-surface road 40 miles from Bakersfield, turn north and go 1½ miles to group of white buildings on right, go around south side of buildings to southeast corner of fence, go northeast 1½ miles on old road, and go north 0.1 mile across country to station site. Marked by brass disk, in concrete post projecting 4 inches, stamped with section, township, and range numbers. Marks prior to 1926 were an old decomposed stake, a new square stake alongside marked "CC", and a buried pint flask containing charcoal. Old stake was replaced alongside concrete post. Reference mark is brass disk, in concrete post, with arrow pointing toward station and 17.614 meters (57.79 feet) distant in azimuth 222°35′.

G. L. O. Station 12, reference mark (San Luis Obispo County, W. Mussetter, 1926).—About 10 miles south of Taft and 7 miles southwest of Maricopa. Marked by brass disk, in concrete post projecting 3 inches, with arrow pointing toward *G. L. O. Station 12* (see description thereof) which is 86.759 meters (284.64 feet) distant in azimuth 114°16′.

G. L. O. Station 12 (San Luis Obispo County, W. Mussetter, 1926).—About 10 miles south of Taft, 7 miles southwest of Maricopa, at corner of secs. 25, 30, 31 and 36 Tps. 11 N., Rs. 24 and 25 W. of San Bernardino meridian, on north slope and south side of draw bearing east, 150 feet north of road, and near old fence line running east. To reach from Maricopa, go 2 miles on paved road toward Cuyama Valley, turn right across small bridge and follow main-traveled road 5.6 miles, take road on left and go 1 mile along foot of hills across south end of Elkhorn Plain, turn left and follow old road south 1 mile to old deserted farm shack, continue southwest 1.4 miles on old road to fence (on south side of road) running south and west, and go north about 150 feet to station site. Marked by brass disk, in concrete post projecting 4 inches, stamped with section, township, and range numbers. Mark prior to 1926 was 2-inch square cedar post which was replaced alongside concrete post and deposit of charcoal. *G. L. O. Station 12, reference mark* (see description thereof) is 86.759 meters (284.64 feet) from station in azimuth 294°15′.

Pan American Petroleum Co. mark (Kern County, W. Mussetter, 1926).—About 24 miles south of west of Bakersfield, 9 miles north of Taft, 11 miles southeast of McKittrick, on knoll of the Elk Hills, about 2 miles east of the Standard Oil Co.'s Hay Lease, on grounds of the United States Naval Oil Reserve, and on third and last of three hills of 1,300-foot elevation east of buildings of the Hay Lease. Mark is inscribed "P. A. P. B. F. I.—B. M. 1334

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ft." Station *Elk* (see description thereof) is 2.00 meters (6.6 feet) from station in azimuth 29°41′.

B. M. 4492 (U.S.G.S.) (Kern County, W. Mussetter, 1926).—About 10 miles south of Maricopa, on high round hill of plateau-like ridge extending in a northwesterly direction from San Emigdio Mountain, and ¼ mile north of road. (Type of mark not described.) Station *Pelato* (see description thereof) is 2.50 meters (8.2 feet) from station in azimuth 73°15′.

G. L. O. Station 11, reference mark (Kern County, W. Mussetter 1926).—About 18 miles north of west of Bakersfield. Marked by brass disk, in concrete post, with arrow pointing toward *G. L. O. Station 11* (see description thereof) which is 15.012 meters (49.25 feet) distant in azimuth 51°55′.

G. L. O. Station 11 (Kern County, W. Mussetter, 1926).—About 18 miles north of west of Bakersfield, at standard corner of secs. 31 and 36, Tps. 28 S., Rs. 24 and 25 E. of the Mount Diablo meridian, and in center of road. This corner is on the north side of sec. 6, T. 29 S., R. 25 E. of the Mount Diablo meridian. To reach from corner of Nineteenth Street and Chester Avenue in Bakersfield, go west 1 mile on Nineteenth Street, turn right and follow paved highway 12 miles to store on left, turn right and follow paved highway north 4 miles, turn left and go west 4.6 miles to station site. Marked by brass disk, in concrete post 4 inches below ground, stamped with section, township, and range numbers. Mark prior to 1926 was decomposed stake and charcoal. *G. L. O. Station 11, reference mark* (see description thereof) is 15.012 meters (49.25 feet) from station in azimuth 231°55′. Witness marks are nails in 6-inch square concrete posts. One is 12.925 meters (42.40 feet) from station in bearing N. 42½° W., and other is 12.925 meters (42.40 feet from station in bearing S. 42½° E.

G. L. O. Station 10 (Kern County, W. Mussetter, 1926).—About 30 miles south of Bakersfield, 2 miles south of Ridge Route Highway from Bakersfield to Los Angeles, 100 meters (328 feet) east of north-and-south fence, one-fourth mile north of small shack, and at quarter-section corner of secs. 13 and 24, T. 10 N., R. 20 W. of the San Bernardino meridian. Station is also "Corner No. 12" of the Rancho Castac. To reach from corner of Nineteenth Street and Union Avenue in Bakersfield, go south 29.3 miles on the Ridge Route Highway, turn right through gate and go southwest 0.7 mile, turn right and follow road northwest along telephone line 0.9 mile to point about 100 yards east of large white boulder, turn left and follow old right-hand dim road south toward buildings 0.6 mile, and go west 0.1 mile across country to station site. Marked by brass disk, in concrete post projecting 4 inches, stamped with section, township, and range numbers. Mark prior to 1926 was partially decomposed 2- by 3-inch wood post set in mound of earth and stone. Reference mark is brass disk, in concrete post projecting 3 inches, with arrow pointing toward station and 18.877 meters (61.93 feet) distant in azimuth 224°48′.

Ant (Kern County, W. Mussetter, 1926).—On south side of round-topped and highest hill in vicinity overlooking Kern River. (Type of mark not described.) To reach from Baker and Niles Streets in East Bakersfield, go east 4.3 miles on Niles Street and main road to water tank on right, turn left and follow winding road north and northeast 3 miles to gate and cattle guard in east-and-west fence, pass through gate and go to right (northeast) one-half mile to deserted shack, and go northeast 1 mile across country to station site.

G. L. O. Station 9, reference mark no. 1 (Kern County, W. Mussetter, 1926).—About 9 miles northeast of Bakersfield, on top of hill, and north of point where telephone line turns east. Marked by brass disk, in concrete post, with arrow pointing toward *G. L. O. Station 9* (see description thereof) which is 602.55 meters (1,976.9 feet) distant in azimuth 20°55′33″. *G. L. O. Station 9, reference mark no. 2* (see description thereof) is 640.9 meters (2,103 feet) from station in azimuth 41°26′05″.

G. L. O. Station 9 (Kern County, W. Mussetter, 1926).—About 9 miles northeast of Bakersfield, about three-fourths mile north of Kern River, at northeast fence corner of small farm belonging to R. Keyland, and at corner of sections 25, 30, 31, and 36, Tps. 28 S., Rs. 28 and 29 E. of the Mount Diablo meridian. To reach from Baker Avenue and Southern Pacific railroad in East Bakersfield, follow Baker Avenue north to north end of Kern River bridge, and follow road northeast 5 miles up north side of river to station site. Marked by brass disk, in concrete post projecting 4 inches, stamped with section, township, and range numbers. Mark prior to 1926 was 3-inch square wooden stake

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which was replaced alongside concrete post. *G. L. O. Station 9, reference mark no. 1* (see description thereof) is 602.55 meters (1,976.9 feet) from station in azimuth 200°55′28″. *G. L. O. Station 9, reference mark no. 2* (see description thereof) is 224.6 meters (737 feet) from station in azimuth 111°29′45″.

G. L. O. Station 9, reference mark no. 2 (Kern County, W. Mussetter, 1926).—About 9 miles northeast of Bakersfield. Marked by brass disk, in concrete post, with arrow pointing toward *G. L. O. Station 9* (see description thereof) which is 224.6 meters (737 feet) distant in azimuth 291°29′41″. *G. L. O. Station 9, reference mark no. 1* (see description thereof) is 640.9 meters (2,103 feet) from station in azimuth 221°25′55″.

Pampa reference mark (U.S.G.S.) (Kern County, W. Mussetter, 1926.)—About 16 miles east of Bakersfield, about 3 miles northeast of Pampa, and on Pampa Peak. To reach from Bakersfield, follow main road leading to Tehachapi Pass about 14 miles to branch road turning left about 1 mile west of Bena railroad station, pass through gate and cross railroad track, and continue across flat and up steep grade to northeast which passes three-fourths mile northwest of station. Marked by United States Geological Survey aluminum tablet in top of rock about 1 foot high. Disk is stamped "V. A. 3180 M." Station "Pampa (U.S.G.S.)" is marked by United States Geological Survey bronze triangulation tablet flush with ground under center of cairn, with tree in approximate center, 9.5 feet distant from reference mark in azimuth 102°23′.

Beale reference mark (U.S.G.S.) (Kern County, W. Mussetter, 1926).—About 25 miles southeast of Bakersfield, 5 miles southwest of Caliente, on first prominent foothills of the Tehachapi Mountains, and in Truxton Beale's pasture. To reach from Bakersfield, follow main road toward Tehachapi Pass to road leading to White Wolf ranch. This is an old road leading west about 3 miles south of junction of main road and branch road leading east to Caliente. Follow 2 miles to ranch, pass through gate just beyond ranch and follow road 0.6 mile, leave road and go northeast across pasture to mouth of draw just below peak, and climb peak to station site which is about 200 feet in elevation above draw. Marked by United States Geological Survey aluminum tablet in large firm rock standing about 18 inches above ground. Disk is a topographer's tablet and is marked "2626." Station "Beale (U.S.G.S.)" is marked by United States Geological Survey bronze triangulation tablet flush with ground under center of cairn and 7.1 feet distant in azimuth 131°10′.

G. L. O. Station 8, reference mark (Kern County, W. Mussetter, 1926).—About 10 miles southwest of Mojave. Marked by brass disk, in concrete post projecting 3 inches, with arrow pointing toward *G. L. O. Station 8* (see description thereof) which is 42.577 meters (139.69 feet) distant in azimuth 37°36′.

G. L. O. Station 8 (Kern County, W. Mussetter, 1926).—About 10 miles southwest of Mojave, about 200 yards from road, and at corner of secs. 2, 3, 34, and 35, Tps. 10 and 11 N., R 14 W. of the San Bernardino meridian. To reach from Mojave schoolhouse, cross railroad tracks and follow road 4.2 miles toward Oak Creek, turn left and follow road southwest 6.5 miles along aqueduct to deserted shack, make sharp turn to right and follow road northwest 2.7 miles toward Tehachapi, turn left into bottom of dry wash and follow left-hand road 0.8 mile to bottom of draw draining east, turn left and follow dim tracks southeast over saddle in spur and down small draw to station site. Marked by brass disk, in concrete post projecting 5 inches, stamped with section, township, and range numbers. Mark prior to 1926 was a cedar stake, which was replaced alongside concrete post, set in a mound of earth and stone. *G. L. O. Station 8, reference mark* (see description thereof) is 42.577 meters (139.69 feet) from station in azimuth 217°36′.

Muroc, railway water tank (Kern County, W. Mussetter, 1926).—In Muroc, center of Atchison, Topeka & Santa Fe Railway water tank. This station is probably identical or on same site as United States Geological Survey station "Muroc."

G. L. O. Station 7 (Kern County, W. Mussetter, 1926).—About 12 miles north of east of Mojave and at standard corner of secs. 33 and 34, T. 32 S., R. 37 E. of the Mount Diablo meridian. To reach from Mojave, follow main road 12.5 miles toward Randsburg to sign "Atolia 28—Randsburg 28—D. V. Points—Tehachapi 28—Bakersfield 72", turn right and go south one-half mile, again turn right and go southwest 1.2 miles to sign "Mojave 10—Los Angeles 113—Randsburg 30—Johannesburg 30", turn left and follow old road east one-half mile, leave road and go south 1 mile along west side of old clearing to southwest corner of clearing, and go west 0.1 mile to station site. Marked by brass

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disk, in concrete post projecting 4 inches, stamped with section, township, and range numbers. Mark prior to 1926 was a mound of earth, pieces of charred wood, and trench. Reference mark is brass disk, in concrete post projecting 3 inches, with arrow pointing toward station and 18.629 meters (61.12 feet) distant in azimuth 224°14′.

Desert (U.S.G.S.) (Kern County, W. Mussetter, 1926).—About 15 miles north of east of Mojave, 25 miles southwest of Randsburg, and on highest rock of northerly of two prominent haystack buttes which rise from floor of desert. Marked by United States Geological Survey tablet in rock. Station *Desert* (see description thereof) is 7.64 meters (25.1 feet) from station in azimuth 72°55′.

G. L. O. Station 6 (Inyo-Kern Counties, W. Mussetter, 1926).—About 2 miles north of Brown, at northwest corner of old clearing, and at closing corner of secs. 1 and 2, T. 25 S., R. 38 E. of the Mount Diablo meridian. To reach from Brown, go east 0.4 mile, turn north and continue along transmission line 1.5 miles to tower no. 911, and go east about 0.1 mile across country to station site. Marked by 3-inch iron post, set in concrete post projecting 4 inches, with brass cap stamped with section, township, and range numbers. Marks prior to 1926 were a 4-inch square wood post, an old 2-inch square decomposed stake, and a 6-inch square concrete post. These old marks were replaced alongside new concrete post. Reference mark is brass disk, in concrete post projecting 3 inches, with arrow pointing toward station and 12.832 meters (42.10 feet) distant in azimuth 304°21′.

G. L. O. Station 4, reference mark no. 1 (San Bernardino County, W. Mussetter, 1926).—About 8 miles northeast of Johannesburg. Marked by brass disk, in granite boulder projecting 6 inches, with arrows pointing toward *G. L. O. Station 4* (see description thereof) distant 44.725 meters (146.74 feet) in azimuth 156°21′, and *G. L. O. Station 4, reference mark no. 2* (see description thereof) distant 108.747 meters (356.78 feet) in azimuth 247°18′01″.

G. L. O. Station 4 (San Bernardino County, W. Mussetter, 1926).—About 8 miles northeast of Johannesburg, on west side of main draw, on south side of small draw from west, and at closing corner of secs. 4 and 5, T. 29 S., R. 41 E. of the Mount Diablo meridian. To reach from Johannesburg, go 5 miles on road toward Searles to sign "Johannesburg 5—Inyokern 22", take right-hand road and follow 1.4 miles, make sharp turn to left and follow old road southwest 0.3 mile to station site. Marked by 3-inch iron pipe, set in concrete, with brass cap stamped with section, township, and range numbers. Mark prior to 1926 was a granite stone, 14 by 10 by 4 inches, which was replaced alongside concrete post. *G. L. O. Station 4, reference mark no. 1* (see description thereof) is 44.725 meters (146.74 feet) from station in azimuth 336°21′. *G. L. O. Station 4, reference mark no. 2* (see description thereof) is 118.262 meters (388.00 feet) distant in azimuth 269°31′16″.

G. L. O. Station 4, reference mark no. 2 (San Bernardino County, W. Mussetter, 1926).—About 8 miles northeast of Johannesburg. Marked by 3-inch iron pipe in concrete with brass disk with arrow pointing toward *G. L. O. Station 4* (see description thereof) distant 118.262 meters (388.00 feet) in azimuth 89°31′18″. *G. L. O. Station 4, reference mark no. 1* (see description thereof) is 108.747 meters (356.78 feet) distant in azimuth 67°18′03″.

G. L. O. Station 5 (San Bernardino-Kern Counties, W. Mussetter, 1926).—About 19 miles south of Johannesburg, about 200 meters (656 feet) east of ridge bearing northwest and southeast, at head of straight draw bearing northeast, and at standard corner of secs. 31 and 36, Tps. 32 S., Rs. 40 and 41 E. of the Mount Diablo meridian. To reach from Johannesburg, go 10.4 miles on road toward San Bernardino and Kramer to forks in road and transmission line, follow right-hand road 9.3 miles to raised mound of earth and two trenches on west side of road, continue south 50 yards, leave road and drive straight west across country 1.6 miles to station site. Marked by 3-inch iron post, set in concrete post projecting 4 inches, with brass cap stamped with section, township, and range numbers. Mark prior to 1926 was a 1½-inch square oak stake, which was replaced alongside concrete post, and a mound of earth. Reference mark is 3-inch iron post, set in concrete post projecting 3 inches, with arrow on brass cap pointing toward station and in azimuth 223°40′ from station.

Dome (U.S.G.S.), cairn (San Bernardino County, W. Mussetter, 1926).—On Dome Mountain, about 8 miles northeast of Johannesburg, and in sec. 7, T. 29 S., R. 42 E. Marked by rock cairn 6 feet high.

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Brown (U.S.G.S.), cairn (San Bernardino County, W. Mussetter, 1926).—On east side of Brown Mountain which is prominent double-topped mountain in the southern part of the Panamint Range, just south of Wingate Pass, and 6 miles due east across valley from Lone Willow Spring. Marked by rock cairn, 9 feet high by 7 feet at base.

Lava (San Bernardino County, W. Mussetter, 1926).—About 12 miles northeast of Pilot Butte, 2 miles east of junction of Granite Wells-Leach Spring road and road leading to Ballarat, one-fourth mile south of road, and on point of black malpais ridge which comes down to road from south. To reach from Johannesburg, go to Granite Wells, proceed about 10 miles on Leach Spring road to junction with road leading to Ballarat, and continue east about 2 miles and south one-fourth mile to station site. Marked by standard station disk in solid rock. Reference mark is standard reference disk in solid rock. (Distance and azimuth to reference mark are not recorded as station was not occupied.)

Panamint mining signal (Inyo County, W. Mussetter, 1926).—About 55 miles northeast of Johannesburg, 25 miles northeast of Trona, 10 miles northeast of old Ballarat, and on easterly summit of Sentinel Peak. (Type of mark not described.) Station *Panamint* (see description thereof) is 23.63 meters (77.5 feet) from station in azimuth 357°02′.

Pilot (U.S.G.S.), cairn (San Bernardino County, W. Mussetter, 1926).—About 23 miles east of Johannesburg, on summit of conspicuous peak known as "Pilot Butte" or "Green Mountain." Marked by rock cairn. United States Geological Survey bronze triangulation tablet is 2 feet southwest of cairn. Station *Pilot* (see description thereof) is 4.80 meters (15.7 feet) from station in azimuth 301°56′. (The field records made when station *Pilot* was occupied refer to this station as a pier.)

G. L. O. Station 3 (San Bernardino County, W. Mussetter, 1926).—About 13 miles east of north of Barstow, about 15 feet east of large yucca tree with several branches, and at standard corner of secs. 36 and 31, Tps. 32 S., Rs. 46 and 47 E. of the Mount Diablo meridian. This corner is also closing corner of secs. 32 and 33, T. 12 N., R. 1 W. of the San Bernardino meridian. To reach from Barstow, follow road 16 miles toward Randsburg, Ballarat, Granite Wells, and Pilot Knob to point 0.1 mile south of sign "Barstow 15—Granite Wells 29—Randsburg 57", go 30 feet east of road to "B. M. 28 (elev. 3679) (U.S.G.S.)" and continue east 0.2 mile across country to foot of north slope of round-topped butte and station site. Marked by 3-inch iron post, set in concrete post projecting 4 inches, with brass cap stamped with section, township, and range numbers. Mark prior to 1926 was same brass-capped iron post, with an old stake alongside, and witnessed by three pits. Reference mark is brass disk, in concrete post projecting 3 inches, with arrow pointing toward station and 14.268 meters (46.81 feet) distant in azimuth 230°10′.

G. L. O. Station 2 (San Bernardino County, W. Mussetter, 1926).—About 30 miles east of north of Barstow, about 4 miles southwest of Goldstone, and at closing corner of secs. 6 and 31, Tps. 13 and 14 N., R. 1 E. of the San Bernardino meridian. This station is also corner of secs. 3 and 10, T. 31 S., R. 47 E. of the Mount Diablo meridian. To reach from Barstow, follow road 21.2 miles toward Randsburg, Ballarat, Granite Wells, and Pilot Knob, turn right and follow road toward Indian Springs and Goldstone 4.3 miles to sign "Barstow 25", take right-hand road and follow 3.6 miles (going around south shore of dry lake and by windmill on southeast side of lake), take right-hand road and follow 0.9 mile to old shacks, follow old road east 1.7 miles and go north about 125 yards across country to station site. Marked by 3-inch iron post, set in concrete post projecting 4 inches, with brass disk stamped with section, township, and range numbers. Mark prior to 1926 was same brass-capped iron pipe, witnessed by pits, a mound of earth, and a yucca tree. Reference mark is brass disk, in concrete post projecting 3 inches, with arrow pointing toward station and 14.319 meters (46.98 feet) distant in azimuth 231°30′.

Tie Fort (U.S.G.S.), cairn (San Bernardino County, W. Mussetter, 1926).—On Tiefort Mountain. Marked by rock cairn.

Funeral (U.S.G.S.) (Inyo County, W. Mussetter, 1926).—About 15 miles south of Ryan, 24 miles northwest of Shoshone, and on summit of Funeral Peak. (Type of mark not described.) Station *Funeral* (see description thereof) is 6.105 meters (20.03 feet) from station in azimuth 195°23′.

Beck (Inyo County, W. Mussetter, 1926).—About 4 miles west of Shoshone, on peak at northern end of long malpais ridge bearing north and south, and south of road from Shoshone to Death Valley via Salsberry Pass. Ridge is in

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highest of group of hills between Shoshone and Funeral Mountains. (Type of station and reference marks and distance between them are not recorded but probably they are standard disks.) Reference mark is in azimuth 49°50′ from station.

B. M. 1715 (U.S.G.S.) (Inyo County, W. Mussetter, 1926).—About 8 miles east of south of Shoshone and about 1¼ miles north of Tecopa. (Type of mark not described.) *G. L. O. Station 1* (see description thereof) is 882.7 meters (2,896 feet) from station in azimuth 235°59′02″. *G. L. O. Station 1, reference mark* (see description thereof) is 810.8 meters (2,660 feet) from station in azimuth 256°31′17″.

G. L. O. Station 1 (Inyo County, W. Mussetter, 1926).—About 8 miles east of south of Shoshone, about 1¼ miles north of Tecopa, at standard corner of secs. 3, 4, 33, and 34, Tps. 20 and 21, N., R. 7 E. of the San Bernardino meridian. To reach from Shoshone, go south 8.5 miles toward Tecopa, take right-hand road and follow 0.4 mile to station site. Marked by iron post, set in concrete post projecting 4 inches, with brass cap stamped with section, township, and range numbers. Mark prior to 1926 was same iron post. *G. L. O. Station 1, reference mark* (see description thereof) is 310.081 meters (1,017.32 feet) from station in azimuth 349°26′44″. *B. M. 1715* (*U.S.G.S.*) (see description thereof) is 882.7 meters (2,896 feet) from station in azimuth 55°59′19″.

G. L. O. Station 1, reference mark (Inyo County, W. Mussetter, 1926).—About 8 miles east of south of Shoshone and about 1¼ miles north of Tecopa. Marked by brass disk, set in concrete post projecting 3 inches, with arrow pointing toward *G. L. O. Station 1* (see description thereof) distant 310.081 meters (1,017.32 feet) in azimuth 169°26′46″. *B. M. 1715* (*U. S. G. S.*) (see description thereof) is 810.8 meters (2,660 feet) distant in azimuth 76°31′36″.

G. L. O. Station 4 (Nye County, Nev., W. Mussetter, 1926).—About 9 miles east of north of Death Valley Junction, Calif., about one-half mile north of General Petroleum and Clay Co.'s buildings, and at corner of secs. 1, 6, 31, and 36, Tps. 17 and 18 S., Rs. 49 and 50 E. of the Mount Diablo meridian. To reach from Death Valley Junction, follow main road 7 miles toward Fairbanks ranch and Las Vegas to sign "Death Valley Junction 7—Beatty 42—Fairbanks Ranch 9—Las Vegas 95", take northerly one of two roads running east and follow northeast 2.1 miles to the General Petroleum and Clay Co.'s buildings, continue north about one-half mile and then east and southeast about 0.1 mile to crossroads, and go southeast 200 yeards to station site. Marked by brass disk, in concrete post projecting 4 inches, stamped with section, township, and range numbers. Mark prior to 1926 was 2-inch square wooden stake in mound of earth and was replaced alongside concrete post. Reference mark is brass disk, in concrete post projecting 3 inches, with arrow pointing toward station and 14.629 meters (48.00 feet) distant in azimuth 229°56′.

End (Nye County, Nev., C. H. Sinclair, 1898; 1926).—On most southerly high butte of range separating Stewart and Pahrump Valleys. Marked in 1926 by standard station disk in the drill hole in solid rock which originally marked station.

G. L. O. Station 3B (Nye County, Nev., W. Mussetter, 1926).—About 20 miles northeast of Shoshone, in Pahrump Valley, about midway between the Pahrump Valley ranch and the Manse ranch, and at closing corners of secs. 1 and 6, Tps. 21 S., Rs. 53 and 54 E. of the Mount Diablo meridian. Marked by brass disk, in concrete post projecting 4 inches, stamped with section, township, and range numbers. Mark prior to 1926 was a 2-inch square wooden stake in mound of earth and was replaced alongside concrete post. *G. L. O Station 3A* (see description thereof) is 82.353 meters (270.19 feet) from station in azimuth 90°44′.

T 116 (Clark County, Nev.; Inyo County, Calif., C. H. Sinclair, 1898; 1926).—In sag just east of highest point of highest one of chain of bare hills about 4 miles south of Stump Springs. Hills extend east and west and nearly divide Pahrump Valley. Part of valley south of this chain of hills is sometimes called "Mesquite Valley." Hill is bare and covered with small loose stones and scattered sagebrush. In 1926 standard station disk was set in original drill hole in large rock which marked station.

G. L. O. Station 3A (Nye County, Nev., W. Mussetter, 1926).—About 20 miles northeast of Shoshone, in Pahrump Valley, about midway between the Pahrump Valley ranch and the Manse ranch, and at standard corner of secs. 31

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and 36, Tps. 20 S., Rs. 53 and 54 E. of the Mount Diablo meridian. To reach from Shoshone or Las Vegas, go to Pahrump Valley ranch, continue southeast 1 mile on main-traveled road toward Manse ranch to artesian well, follow wagon road south 2.6 miles to quarter-section-corner stake and pile of tins and rubbish 60 feet west of road, and go one-half mile straight east across country (heading for north edge of trees at Manse ranch) to station site. Marked by brass disk, in concrete post projecting 2 inches, stamped with section, township, and range numbers. Mark prior to 1926 was a mesquite post which was replaced alongside concrete post. Reference mark is brass disk, in concrete post projecting 3 inches, with arrow pointing toward station and 15.14 meters (49.7 feet) distant in azimuth 228°51′. *G. L. O. Station 3B* (see description thereof) is 82.353 meters (270.19 feet) from station in azimuth 270°44′.

PASADENA BASE NET

Principal points

Pasadena west base (Los Angeles County, C. L. Garner, 1922; 1936).—In Arcadia, in small cultivated field, 60 feet east of center line of Baldwin Avenue, and about 130 feet north of center line of West Walnut Avenue. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference mark no. 1 is marked by surface and underground standard station disks (probably in concrete), in line of eucalyptus trees and 50.045 meters (164.19 feet) from station in azimuth 347°15′. Upper mark is 1.5 feet below surface. Reference marks nos. 2 and 3 are standard reference disks in concrete, note 11a. No. 2 is 49.743 meters (163.20 feet) from station in azimuth 2°58′. No. 3 is 10.746 meters (36.25 feet) from station in azimuth 89°05′.

Joaquin (Los Angeles County, C. L. Garner, 1922; 1936).—In Arcadia, about 35 feet west of center line of El Monte Avenue, and about in line with south edge of pavement on West Walnut Avenue. Station marks are standard disks in concrete, notes 1a and 7a. Reference mark no. 1 is disk in concrete, note 11a, in yard at southeast corner of street intersection, at southeast corner of small mound, and 66.08 feet from station in azimuth 287°07′. Reference mark no. 2 is center of fire plug 73.58 feet from station in azimuth 243°02′.

Dimas (Los Angeles County, C. L. Garner, 1922; 1923).—About one-half mile north and one-half mile west of San Dimas, on northwest slope of prominent hill upon which the San Dimas Reservoir is located, 80 meters (262 feet) east of road leading around base of hill, 9 meters (30 feet) south of extension of Gladstone Avenue, and 9 meters (30 feet) south of wire fence. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference mark is standard reference disk in concrete, note 11a, in fence line and 8.6025 meters (28.223 feet) from station in azimuth 178°17′. Station and reference marks were destroyed in 1928 due to extension of Gladstone Avenue through Way Hill.

Pasadena east base 2 (San Bernardino County, C. L. Garner, 1923; 1934).—About 2 miles east and 1 mile north of Claremont High School in Los Angeles County, one-fourth mile east of well-defined wash marking boundary between Los Angeles and San Bernardino Counties, 35 meters (115 feet) south of Base Line Road, and 30 meters (98 feet) west of old wagon road. Surface and underground marks are standard station disks in concrete, notes 1a and 7a.

Gabriel (Los Angeles County, C. L. Garner, 1923; 1934).—Two and one-half miles south of Monrovia, 1.3 miles south from intersection of Atchison, Topeka & Santa Fe Railway with California Avenue, on Dalton county road, on east edge of Monrovia dumping grounds, 0.2 mile north of house belonging to J. S. Kelley, 220 feet east of small stream, and 30 feet east of center line of old asphalt pavement. Surface and underground marks are standard station disks in concrete, notes 1a and 7a.

Edison (Los Angeles County, C. L. Garner, 1923; 1934).—About 1½ miles south and 2 miles west of Azusa, 500 meters (1,640 feet) west of Dalton substation of Southern California Edison Co., and about 6 meters (20 feet) north of center line of highway. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference mark is standard reference disk in concrete, note 11a, 17.921 meters (58.80 feet) from station in azimuth 334°51′.

Citrus (Los Angeles County, C. L. Garner, 1923; 1934).—About 1½ miles north of Covina Grammar School, 21.5 meters (71 feet) east of center line of

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Citrus Avenue, and 3.5 meters (11 feet) north of center line of Gladstone Avenue. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference mark is standard reference disk in concrete wall at southwest corner of Citrus and Gladstone Avenues and 23.69 meters (77.7 feet) from station in azimuth 81°22′.

Dalton (Los Angeles County, C. L. Garner, 1923).—About 1½ miles north and three-fourths mile east of Covina Grammar School and 2.5 meters (8 feet) north of center line of Gladstone Avenue. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reported destroyed in 1934.

Gladstone (Los Angeles County, E. O. Heaton, 1923; 1934).—Two and one-half miles west and one-half mile north of San Dimas, about 225 meters (738 feet) east of north-and-south road, and 3.5 meters (11 feet) north of center line of Gladstone Avenue. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference mark is standard reference disk in concrete, note 11a, about 6 meters (20 feet) north of center line of Gladstone Avenue and 32.427 meters (106.39 feet) from station in azimuth 97°21′.

Rock (Los Angeles County, E. O. Heaton, 1923).—About 1 mile north and three-fourths mile west of San Dimas, near northern edge of San Dimas wash, about 250 meters (820 feet) west of Amelia Avenue, and 30 meters (98 feet) south of orange grove. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference mark is standard reference disk in concrete, note 11a, at southern edge of orange grove and 31.918 meters (104.72 feet) from station in azimuth 184°08′. Not recovered in 1934.

Garrett (Los Angeles County, E. O. Heaton, 1923; 1934).—One and one-half miles west and 1½ miles north of La Verne, at north edge of Base Line Road about 30 meters (98 feet) northeast of junction of Base Line Road and Foothill Boulevard, and 1 foot north of stone wall. Surface and underground marks are standard station disks in concrete, notes 1a and 7a.

Bridge (Los Angeles County, E. O. Heaton, 1923; 1934).—One and one-half miles due north of La Verne, about 5 meters (16 feet) north of center line of Base Line Road, and 0.3 mile west of southward jog in road. Surface and underground marks are standard station disks in concrete, notes 1a and 7a.

Reynolds (Los Angeles County, E. O. Heaton, 1923; 1934).—One and one-half miles north and 0.2 mile east of La Verne, 0.3 mile west of Williams Avenue, and at southern edge of Base Line Road where it makes northward jog. Surface and underground marks are standard station disks in concrete, notes 1a and 7a.

Foot (Los Angeles County, E. O. Heaton, 1923; 1934).—One and one-half miles north and 0.2 mile east of La Verne, and at north edge of Base Line Road at point where it jogs southward. Surface and underground marks are standard station disks in concrete, notes 1a and 7a.

Hill (Los Angeles County, E. O. Heaton, 1923; 1934).—One and one-half miles north and 0.6 mile east of La Verne, about 135 meters (443 feet) east of Williams Avenue, and 6 meters (20 feet) south of center line of Base Line Road. Surface and underground marks are standard station disks in concrete, notes 1a and 7a.

French (Los Angeles County, E. O. Heaton, 1923; 1934).—One mile north and 1 mile west of Claremont High School, about 1 meter (3) feet north of westward extension of center line of Base Line Road at point where it turns south along Live Oak Canyon, and about 3 meters (10 feet) east of edge of bluff. Surface and underground marks are standard station disks in concrete, notes 1a and 7a.

Malone (Los Angeles County, E. O. Heaton, 1923; 1934).—One mile north and 1 mile west of Claremont High School, about 60 meters (197) feet south of point where Base Line Road turns south at Live Oak Canyon, and 3.5 meters (11 feet) west of center line of road. Surface and underground marks are standard station disks in concrete, notes 1a and 7a.

Pate (Los Angeles County, E. O. Heaton, 1923).—One mile north and 1½ miles east of Claremont High School, 0.2 mile west of Los Angeles County line, 25 meters (82 feet) east of road running north, and about 3.5 meters (11 feet) north of center line of Base Line Road. Surface and underground marks are standard station disks in concrete, notes 1a and 7a.

Pasadena east base (San Bernardino County, C. L. Garner, 1922; 1934).—About 2 miles east and 1 mile north of Claremont High School in Los Angeles County, one-fourth mile east of well-defined wash marking boundary between

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Los Angeles and San Bernardino Counties, 35 meters (115 feet) south of Base Line Road, and 25 meters (82 feet) west of old wagon road. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on north side of Base Line Road and 38.9350 meters (127.739 feet) from station in azimuth 192°10′. No. 2 is on south side of Base Line Road, east of old wagon road, and 61.0580 meters (200.321 feet) from station in azimuth 248°57′.

LOS ANGELES COUNTY (COAST AND GEODETIC SURVEY)

Principal points

San Buenaventura (Ventura County, W. E. Greenwell, 1858).—About 2 miles southeast of the San Buenaventura Mission, on perpendicular bluff about 40 feet high, and at point where road to the house of Raimundo Olivas approaches nearest to bluff. Marked by red stone block buried 1½ feet in ground. Top of stone was marked with two intersecting lines and letters "U. S. C. S." Eight cedar stubs with copper tacks in top were placed north, south, east, and west from station; the nearest of which were 3 feet 11 inches from station and the farthest, 5 feet 10 inches. All marks were covered with earth. In 1927, station was searched for but not recovered. Part of bluff on which station was located may have been carried away.

Santa Clara (old) Ventura County, W. E. Greenwell, 1857).—About 18 miles northeast of San Buenaventura, about 5 miles east of Punta de la Loma, on rancho San Cazotano owned by T. Wallace Moore, on mountain range south of Santa Clara Valley, which runs from San Fernando to Punta de la Loma, and on red egg-shaped peak which is highest in immediate range. Marked by four live oak stubs, 2 feet from center to north, south, east, and west.

Conejo (Ventura County, W. E. Greenwell, 1857).—On highest part of isolated mountain on Rancho del Conejo, which is owned by Don Jose Lorenzana, of Santa Barbara, and 1 mile north of house occupied by the ranch foreman. Marked by granite slab, 5 inches square, sunk into ground. Top of stone was marked with two intersecting lines and letters "U. S. C. S." Four live oak stubs, 6 inches in diameter, with nails in center were driven into ground; those to north, south, and east were distant 4 feet 5 inches from station; and the one to west, 3 feet 10 inches.

San Fernando (old) (Los Angeles County, W. E. Greenwell, 1856).—About 5 miles from mission of San Fernando, on peak (not highest) of San Fernando Mountains. Marked by red stone block. Top of stone was marked with two intersecting lines and letters "U. S. C. S." Four live oak stubs with composition nails in tops were placed north, south, east, and west, 5 feet distant from station.

Saddle Mountain (Los Angeles County, W. E. Greenwell, 1860).—On top of northeastern of two peaks in isolated mountain range commencing near Cahuenga Pass and ending at the laguna near ocean, 5 or 6 miles from Point Dume, and about midway between the ranchos of Malaga and Santa Monica. Marked by sandstone block sunk 2 feet into ground and projecting 3 inches. Top of stone was marked with two intersecting lines and letters "U.S.C.S." Four sandstone blocks were sunk 1 foot 6 inches into ground to north, south, east, and west from station. (Distances from station were not recorded.)

Cowango (Los Angeles County, W. E. Greenwell, 1856).—On westernmost peak of very abrupt and conspicuous red hill (having little or no vegetation) near Cahuenga Peak, and 1 mile northeast of Cahuenga Pass which connects La Brea and Universal City. Marked by sandstone slab with letters "U.S. C.S." cut in top. Drill holes at intersection of crosses cut in rock were filled with lead, 4 feet 2 inches north and 6 feet 7 inches south of station. Two wooden stubs, each with a composition tack marked with cross on top, were driven into ground 3 feet 10 inches to east and west of station.

West Beach (Los Angeles County, G. Davidson, 1854; 1883).—On highest of grassy hills in Hermosa Beach, about 90 meters (295 feet) north of Camino Real, and west of Longfellow Avenue. Marked by granite block, 8 inches square, flush with ground and with hole in center. Reference marks were four stubs driven into ground 4 feet from station to north, south, east, and west; and three stubs, 1 foot 3 inches in length, 6 feet from station to north, south, and east. In 1917, station was searched for by the city of Los Angeles

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survey party but was not recovered. Stations "West Beach 2" and "West Beach 3" have been established by the city of Los Angeles in the immediate vicinity.

Dominguez Hill (Los Angeles County, E. C. O. Ord., 1854; 1932).—On northern edge of flat-topped ridge running east and west within city limits of Compton, 286 meters (938 feet) east of east side of Dominguez Street, and 217 meters (712 feet) south of south side of Compton Street. Original station mark was irregular-shaped depression, about five-eighths by three-eighths by three-eighths inch deep, in top of granite post, about 5 inches square, which projected about 3 inches above ground. Original reference marks were a wooden stub 2½ feet long, 6 feet west of station, and two iron stubs, each 6 feet from station to north and to east. In 1870 only one iron stub was recovered. Station post was reset in brick pier so that top projected 3 inches. Pier had an octagonal foundation which extended 3 feet below surface. The part of pier above surface was irregular in form, about 24 inches in diameter with hollow core, and built about 3 feet above ground. Two arches (about 8 inches high) at right angles to each other were built into pier at surface of ground so that a plumb line could be used. Two additional piers were constructed for astronomical observations. *Dominguez Hill zenith-telescope station* (see description thereof) was 15 feet 5.5 inches east and 8.8 inches south of station. *Dominguez Hill meridian-instrument station* (see description thereof) was 20 feet 11.6 inches east and 9.8 inches south of station. In 1917 only bases of pier and granite stone marking station were recovered. Two standard reference disks in concrete, note 11c, were established. No. 1 was near telephone pole no. 1216 on south side of Compton Street and 217.4 meters (713 feet) from station in azimuth 218°23′32″. No. 2 was near telephone pole no. 1220 and 148.9 meters (489 feet) from station in azimuth 271°30′09″. In 1927 a ring of 1-inch iron pipes had been driven into ground around station.

Los Cerritos (Los Angeles County, G. Davidson, 1853; 1920).—On Signal Hill in Long Beach, 0.82 meter (2.7 feet) from northeast corner of garage. Marked by 6-inch square granite block with ½-inch hole drilled in center. Reference marks were 3 stubs; each 6 feet from station, 120° apart, and with copper nail in top. In 1917 two standard reference disks in concrete, note 11c, were established. One was between cement sidewalk and wall 18.40 meters (60.4 feet) from station (azimuth unknown). Other was near wall and 27.08 meters (88.8 feet) from station in azimuth 154°23′. High tank was 26.00 meters (85.3 feet) from station in azimuth 198°. In 1922 station mark had been disturbed by oil-drilling operations. In 1932 station site was lost in the grading of Panorama Drive.

Las Bolsas (Orange County, G. Davidson, 1853; 1896).—About three-fourths mile from coast, 5½ miles south of Westminster, on Las Bolsas ranch, on highest part of mesa, and about 100 yards east of road. There are a number of groves on hill on west side of road nearly opposite station. Marked by crosslines on top of copper bolt leaded into drill hole in 6-inch square granite post. Reference marks were three stakes, 15 inches long, driven into ground; each 6 feet from station, 120° apart, and with copper nails in tops; and four stubs, 1.2 feet from station, to north, south, east, and west, and with empty cartridge shells driven into tops. In 1920 station had been destroyed by construction of concrete water reservoir.

San Pedro northwest base (Los Angeles County, G. Davidson, 1853; 1881).—On plains between Los Angeles and San Pedro, in Inglewood, about 600 feet south of Lennox Avenue, and 900 feet east of Hawthorne Avenue. Marked by hole in top of blue limestone post, 5¾ inches square by 35¾ inches long. One face of stone was rough and was placed to northeast. Reference marks were three ash stubs, each 2 feet 2 inches long with copper nail (with crosslines on head) in top, placed 6 feet from station, and about 120° apart. In 1856 four additional stubs were driven into ground around station, each 2 feet distant. In 1881 stone marking station had been dug up and carelessly thrown back into excavation. Stubs were recovered and station stone was reset within 2 inches of its original position but 15 inches below surface. A stub projecting a few inches was placed over station.

San Pedro southeast base (Los Angeles County, G. Davidson, 1853; 1881).—About 1 mile northeast of head of northern branch of Nigger Slough, on plains between Los Angeles and San Pedro. Marked by irregular depression, about ⅜ by ⅝ inch by $\frac{3}{16}$ inch deep, in top of 6½-inch square blue limestone shaft

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projecting 6¾ inches. Original reference marks were three ash stubs; each 2 feet 2 inches long with copper nail (with crosslines on head) in top, placed 6 feet from station and about 120° apart. One of the stubs was nearly in line with base. In 1870 four stubs were recovered, each projecting about 2½ inches. Two of the stubs were about northwest and southeast from station, and the others approximately at right angles. The northeast and southwest stubs had copper nails marked by crosslines in their tops. Northwest stub was 3 feet ⅜ inch from station and southeast stub 3 feet ⅝ inch. (Distances to other stubs were not recorded.) In 1881 station mark was leaning slightly to northeast.

Supplementary points

Los Angeles, Normal School (Los Angeles County, A. F. Rodgers, 1883).—Center of tower above main entrance of Los Angeles Normal School.

Los Angeles, magnetic observatory (Los Angeles County, A. F. Rodgers, 1883).—Center of roof of magnet room in Los Angeles Normal School grounds.

Los Angeles longitude station (1889) (Los Angeles County, C. H. Sinclair, 1889).—A pier of brick laid in Portland cement 3 feet in ground and 3 feet above, 47.04 meters (154.3 feet) north of and 56.77 meters (186.3 feet) west of flagpole over cupola at entrance of the Normal School on Fifth Street, Los Angeles.

Los Angeles longitude station (1892) (Los Angeles County, C. H. Sinclair, 1892).—In grounds of the Normal School on Fifth Street, Los Angeles. Marked by a pier, 46.18 meters (151.5 feet) west and 1.55 meters (5.1 feet) south of flagpole on the Normal School.

Los Angeles latitude station (1892) (Los Angeles County, C. H. Sinclair, 1892).—A pier of brick laid in cement, 50 inches due west of Los Angeles longitude station (1892) in grounds of the Normal School.

Los Angeles, Presbyterian Church (Los Angeles County, A. F. Rodgers, 1883).—Figure of Angel Gabriel on spire.

Los Angeles northwest base latitude station (Los Angeles County, J. J. Gilbert, 1890).—Pier 45.1 feet from station *Los Angeles northwest base* (see description thereof) in azimuth 264°49′.

Dominguez Hill zenith-telescope station (Los Angeles County, G. Davidson, 1870; 1917).—In Compton, about 290 meters (951 feet) east of east side of Dominguez Street, and 217 meters (712 feet) south of south side of Compton Street. Marked by brick pier 25 by 13 inches by 2½ feet high. Only base of pier was recovered in 1917 and part above ground had been entirely destroyed. Station *Dominguez Hill* (see description thereof) is 15 feet 5.5 inches west and 8.8 inches north of station.

Dominguez Hill meridian-instrument station (Los Angeles County, G. Davidson, 1870; 1917).—In Compton, about 292 meters (958 feet) east of east side of Dominguez Street, and 217 meters (712 feet) south of south side of Compton Street. Marked by brick pier 25 by 13 inches by 3¼ feet high. Only base of pier was recovered in 1917 and part above ground had been entirely destroyed. Station *Dominguez Hill* (see description thereof) is 20 feet 11.6 inches west and 9.8 inches north of station.

Mount Wilson, Wilson Peak astronomical station (Los Angeles County, E. E. Smith, 1905; 1922).—On Mount Wilson, 9 meters (30 feet) south of south side of 10-inch telescope building, about 25 meters (82 feet) west of road leading to Monastery, and about 50 meters (164 feet) north of Monastery. Marked by the center one of three piers which was also used for the Bruce telescope.

San Pedro latitude station (Los Angeles County, G. Davidson, 1852; 1855).—In San Pedro, on bluff just to left of south road up from landing, about 20 yards from north side of Alexander & Banning's office. Marked by copper nails in tops of two stubs, to north and south of station and in line with it, and distant 5 feet.

LOS ANGELES COUNTY (LOS ANGELES COUNTY AND CITY)

Principal points

Point Dume (Los Angeles County, W. E. Greenwell, 1856; Los Angeles County and City Cooperative Survey Control, 1933).—Eighteen miles west of Santa Monica, on headland of Point Dume, and 1 foot lower than and 12 feet south

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of highest point. To reach from Santa Monica, go west 18 miles on new coast highway to the Zuma Camp of "Rancho Topango Malibu Sequit" (Rindge ranch), go south on ranch road 1 mile to watchman's house, and continue south one-quarter mile to headland and station site. Original station mark was 1-inch drill hole in stone buried 3 inches below surface. Original reference marks were four redwood stubs, each 4 inches square with copper nail in top, and driven into ground so that it projected 3 inches. Directions and distances from station were: North, 4 feet 9¾ inches; east, 4 feet 10½ inches; south, 4 feet 11½ inches; and west, 4 feet 10½ inches. In 1917 stone marking station had been removed, but redwood stubs were recovered in a fair state of preservation about 1 foot below surface. Position of station was re-marked with standard station disks in concrete, notes 1c and 7a. Three standard reference disks in concrete, note 11c, were established. No. 1 is 571.6 meters (1,875 feet) from station in azimuth 141°46′. No. 2 is 13.93 meters (45.7 feet) from station in azimuth 174°29′. No. 3 is 1,166 meters (3,825 feet) from station in azimuth 238°20′58″.

Triunfo (U.S.G.S. and L. A. C. & C.) (Los Angeles County, Los Angeles County and City Cooperative Survey Control, 1933).—About 25 miles west and 6 miles north of Santa Monica, 2 miles east of Triunfo Pass, and on highest point of Pacific Mountain, which is peak near west end of the Santa Monica Range. Reached by fire road from summit of Decker Road in Tecumseh Pass. Marked by United States Geological Survey tablet, stamped "Triunfo R. S. 1928", cemented in sandstone boulder. Reference marks are cooperative survey control brass disks (see fig. 7) in boulders. No. 1 is 14.886 meters (48.84 feet) from station in azimuth 171°54′. No. 2 is 23.860 meters (78.28 feet) from station in azimuth 238°51′.

Ladyface (U.S.G.S. and L. A. C. & C.) (Los Angeles County, Los Angeles County and City Cooperative Survey Control, 1933).—About 9 miles west of Calabasas, 0.7 mile south of Ventura Boulevard, on east end of spur of Ladyface Mountain, about 70 feet below summit, and on the Paramount Lasky ranch. To reach from intersection of Cornell Road and Ventura Boulevard, go south 2.6 miles on Cornell Road to main gate of the Paramount Lasky ranch, pass through gate, take first road to right and follow north to foot of mountain at firebreak, and follow firebreak to station site. Original mark was United States Geological Survey tablet, stamped "Ladyface R. S. 1928", set in boulder. In 1933 original mark was placed 6 inches below surface of boulder, and cooperative survey control station disk (see fig. 7), stamped "Ladyface 1933" and "R. E. 62", was set flush with top of boulder, directly over old mark. Reference marks are cooperative survey control reference disks (see fig. 7) in boulders. No. 1 is 6.351 meters (20.84 feet) from station in azimuth 128°06′. No. 2 is 7.775 meters (25.51 feet) from station in azimuth 213°27′.

Saddle Peak (U.S.G.S. and L. A. C. & C.) (Los Angeles County, Los Angeles County and City Cooperative Survey Control, 1933).—About 10 miles northwest of Santa Monica, 3½ miles west of Fernwood (village in Topanga Canyon), and on middle one of three peaks on Saddle Mountain. To reach from summit of Tuna Canyon road, follow Saddle Peak road west to saddle in main ridge at foot of slope to Saddle Peak Mountain and follow main ridge west about 1 mile to station site. Original mark was United States Geological Survey tablet, stamped "Saddle Peak R.S. 1928", in sandstone boulder. In 1933 original mark was placed 4 feet below surface, and cooperative survey control station disk (see fig. 7), stamped "Saddle Peak 1933" and "R.E. 62", was set in concrete flush with surface, directly over old mark. Reference marks are cooperative survey control reference disks (see fig. 7) in concrete. No. 1 is 7.764 meters (25.47 feet) from station in azimuth 134°42′. No. 2 is 14.182 meters (46.53 feet) from station in azimuth 220°21′.

Calabasas (U.S.G.S. and L. A. C. & C.) (Los Angeles County, Los Angeles County and City Cooperative Survey Control, 1933).—About 1.5 miles south of Calabasas, 1 mile west of Dry Canyon road, and on high chalk hill near northern edge of the Santa Monica Mountains. Original mark was U. S. Geological Survey tablet, stamped "Calabasas R.S. 1924." In 1933 original mark was placed 4 feet below surface, and cooperative survey control station disk (see fig. 7), stamped "Calabasas 1933" and "R.E. 62", was set in concrete flush with surface, directly over old mark. Reference marks are cooperative survey control reference disks (see fig. 7) in concrete. No. 1 is 53.437 meters (175.32

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feet) from station in azimuth 96°36′. No. 2 is 8.661 meters (28.42 feet) from station in azimuth 186°18′.

Chatsworth (U.S.G.S. and L. A. C. & C.) (Los Angeles County, Los Angeles County and City Cooperative Survey Control, 1933).—About 2.0 miles west of Chatsworth, 0.4 mile west of Ventura-Los Angeles County line, 0.75 mile south of Santa Susana Pass, a few feet south of tangent to Devonshire Street (Chatsworth-San Fernando road), and on rocky summit of Chatsworth Peak. Peak is capped with large boulder about 20 by 50 by 15 feet high. Marked by United States Geological Survey tablet, stamped "Chatsworth R.S. 1924", cemented in the large boulder. Reference marks are cooperative survey control reference disks (see fig. 7) in boulders. No. 1 is 25.385 meters (83.28 feet) from station in azimuth 53°02′. No. 2 is 33.241 meters (109.06 feet) from station in azimuth 147°17′.

Tuna (U.S.G.S. and L. A. C. & C.) (Los Angeles County, Los Angeles County and City Cooperative Survey Control, 1933).—About 1½ miles south of Fernwood, on highest peak of ridge between Tuna and Topanga Canyons. To reach from Fernwood, follow Fernwood Pacific Drive south 2.4 miles from Topanga Canyon road, take fire road and go southeast 0.2 mile to saddle in main ridge, and go east three-fourth mile on firebreak trail to station site. Original mark was United States Geological Survey tablet, stamped "Tuna R.S. 1925", cemented in sandstone boulder projecting 3 inches above surface. In 1933 original mark was placed 4 feet below surface, and cooperative survey control station disk (see fig. 7) stamped "Tuna 1933" and "R.E. 62" was cemented in concrete flush with surface. Reference marks are cooperative survey control reference disks (see fig. 7) in concrete. No. 1 is 9.675 meters (31.74 feet) from station in azimuth 135°38′. No. 2 is 9.298 meters (30.50 feet) from station in azimuth 219°01′.

Divide (U.S.G.S. and L. A. C. & C.) (Los Angeles County, Los Angeles County and City Cooperative Survey Control, 1933).—On top of highest point in ridge between Temescal Canyon and Santa Ynez Canyon, near head of Temescal Canyon, and one-half mile north of city of Los Angeles fire department's lookout no. 3. To reach, go south 3.1 miles on "Fire Road" joining Mulholland Highway 3.4 miles west of the "San Vicente Lookout Tower." Original mark was United States Geological Survey bronze tablet, stamped "Divide R.S. 1925", in sandstone boulder. In 1933 original mark was reset 5 inches below surface, and cooperative survey control station disk (see fig. 7), stamped "Divide 1933" and "R.E. 62", was placed in boulder flush with surface, directly over old mark. Reference marks are cooperative survey control reference disks (see fig. 7) in concrete. No. 1 is 21.832 meters (71.63 feet) from station in azimuth 65°18′. No. 2 is 65.751 meters (215.72 feet) from station in azimuth 170°47′.

San Vicente No. 1 (L. A. W. D. and L. A. C. & C.) (Los Angeles County, Los Angeles County and City Cooperative Survey Control, 1933).—About 2.5 miles west of Sepulveda Boulevard, 100 feet south of Mulholland Highway, on top of small peak of the Santa Monica Range, at head of Mandeville Canyon, and 15 feet north of Los Angeles County fire department's lookout no. 2. Original mark, established by the city of Los Angeles Water Department, was 2-inch pipe with 2¾-inch iron cap, centered with a ¼-inch hole, surmounted by 14-inch cement block flush with ground. In 1933 original mark was placed 4 feet below surface, and cooperative control survey station disk (see fig. 7), stamped "San Vicente #1 1933" and "R.E. 62", was set in concrete flush with surface, directly over old mark. Reference marks are cooperative survey control reference disks (see fig. 7) in concrete. No. 1 is 10.414 meters (34.17 feet) from station in azimuth 208°19′. No. 2 is 10.506 meters (34.47 feet) from station in azimuth 124°45′.

Darling (U.S.G.S. and L. A. C. & C.) (Los Angeles County, Los Angeles County and City Cooperative Survey Control, 1933).—About 4.5 miles southwest of San Fernando, 0.2 mile north of Plummer Street, 0.2 mile west of Woodley Avenue, and near west edge of broad, low knoll on the Darling Ranch. Knoll is 50 feet higher than surrounding area and drops off very abruptly on west side. Original mark was United States Geological Survey tablet, stamped "Darling R.S. 1923", in 6- by 6-inch concrete post 9 inches high. In 1933, original mark was placed 4 feet below surface, and cooperative survey control station disk (see fig. 7), stamped "Darling 1933" and "R.E. 62", was set in concrete flush with surface, directly over old mark. Reference marks are cooperative survey control reference disks (see fig. 7) in concrete. No. 1 is 79.349 meters (260.33

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feet) from station in azimuth 50°42′. No. 2 is 50.623 meters (166.08 feet) from station in azimuth 170°05′.

Mandeville (L. A. W. D. and L. A. C. & C.) (Los Angeles County, Los Angeles County and City Cooperative Survey Control, 1933).—About 5 miles north of Santa Monica, on ridge east of Mandeville Canyon. To reach from intersection of Mulholland Highway and Sepulveda Boulevard, go west 1.7 miles on Mulholland Highway, pass through fire gate and go southeast 3.1 miles on fire road along firebreak to small saddle, and follow firebreak south 0.2 mile to station site. Original mark, established by the city of Los Angeles Water Department, was 2-inch galvanized iron pipe with 2¾-inch iron cap, centered with ¼-inch hole, stamped "L.A.M." In 1933, original mark was placed 4 feet below surface, and cooperative survey control station disk (see fig. 7), stamped "Mandeville 1933" and "R.E. 62", was set in concrete flush with surface, directly over old mark. Reference marks are cooperative survey control reference disks (see fig. 7) in concrete. No. 1 is 15.012 meters (49.25 feet) from station in azimuth 162°11′. No. 2 is 9.407 meters (30.86 feet) from station in azimuth 252°15′.

Brentwood No. 2 (L. A. C. & C.) (Los Angeles County, Los Angeles County and City Cooperative Survey Control, 1933).—On flat-topped hill, approximately 1,800 feet northwest of intersection of Wilshire Boulevard and Franklin Street, and approximately 10 feet east of center of steel water tank of the city of Santa Monica Water Department. Marked by cooperative survey control station disk (see fig. 7), stamped "Brentwood #2" and "R.E. 62", in concrete flush with surface. Reference marks are cooperative survey control reference disks (see fig. 7) in concrete. No. 1 is 106.534 meters (349.52 feet) from station in azimuth 114°42′56″. No. 2 is 92.821 meters (304.53 feet) from station in azimuth 196°22′.

Peavine (L. A. W. D. and L. A. C. & C.) (Los Angeles County, Los Angeles County and City Cooperative Survey Control, 1933).—In the Santa Monica Mountain Range, on highest peak in ridge between Peavine Canyon and Benedict Canyon. To reach from Benedict Canyon Drive and Tower Road, go north on Tower Road to Tower Grove Drive, continue north to top of spur, and follow firebreak north one-half mile to station site. Original mark, established by the City of Los Angeles Water Department, was 2¾-inch iron cap, with one-half inch hole and stamped "L. A. W. D. Peavine", on 2-inch galvanized-iron pipe 4 inches below surface. In 1933: Original mark was placed 4 feet below surface, and cooperative survey control station disk (see fig. 7), stamped "Peavine 1933" and "R. E. 62", was set in concrete flush with surface, directly over old mark. Reference marks are cooperative survey control reference disks (see fig. 7) in concrete. No. 1 is 13.989 meters (45.90 feet) from station in azimuth 230°02′. No. 2 is 6.178 meters (20.27 feet) from station in azimuth 319°19′.

Pacoima No. 2 (L. A. C. & C.) (Los Angeles County, Los Angeles County and City Cooperative Survey Control, 1933).—About one-half mile east of Pacoima, on top of Pacoima Hill, and about 110 feet northeast of and 10 feet lower than highest part of hill. Marked by cooperative survey control station disk (see fig. 7), stamped "Pacoima #2 1933" and "R. E. 62", in concrete flush with surface. Reference mark is cooperative survey control reference disk (see fig. 7) in concrete 36.513 meters (119.79 feet) from station in azimuth 159°36′. "Pacoima (U.S.G.S.)", marked by disk stamped "Pacoima R. S. 1924", is under floor of ranger station and 27.433 meters (90.00 feet) from station in azimuth 41°59′.

Fernando No. 2 (U.S.G.S. and L. A. C. & C.) (Los Angeles County, Los Angeles County and City Cooperative Survey Control, 1933).—About 4½ miles north and 1½ miles east of San Fernando, near southeast corner sec. 11, T. 3 N., R. 15 W. of the San Bernardino meridian, and on high peak in most westerly ridge of the San Gabriel Mountains which form northerly rim of San Fernando Valley. To reach from Little Tujunga Canyon road at summit between Pacoima Canyon and Bear Canyon, follow trail west along ridge to station site. Original mark was U. S. Geological Survey bronze tablet in concrete post flush with ground. In 1933 original mark was placed 4 feet below surface, and cooperative survey control station disk (see fig. 7), stamped "Fernando #2 1933" and "R. E. 62", was set in concrete flush with surface, directly over old mark. Reference marks are cooperative survey control reference disks (see fig 7) in concrete. No. 1 is 66.072 meters (216.77 feet) from station in azimuth 85°31′. No. 2 is 30.566 meters (100.28 feet) from station in azimuth 340°56′.

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Del Rey auxiliary (L. A. C. & C.) (Los Angeles County, Los Angeles County and City Cooperative Survey Control, 1933).—About 3 miles north of El Segundo, in subdivision known as "Palisades Del Rey", on line of sand dunes fronting ocean, on highest point of southerly of two highest knolls in vicinity, about 200 feet northwest of Redlands Avenue, and 75 feet southwest of Trask Avenue. Marked by cooperative survey control station disk (see fig. 7), stamped "Del Rey Aux. 1933" and "R. E. 62", set in concrete flush with surface. Station "Del Rey", marked by standard station disk in concrete foundation under center of wooden water tank, is 9.289 meters (30.48 feet) from station in azimuth 308°28′.

Baldwin auxiliary (L. A. C. & C.) (Los Angeles County, Los Angeles County and City Cooperative Survey Control, 1933).—About 3 miles north and ½ mile west of Inglewood, on highest summit of Baldwin Hills, and about 45 feet south of southerly one of three water tanks belonging to Pacific Oil Co. To reach from intersection of La Brea Avenue and Overhill Drive, go west ¼ mile on La Brea Avenue and then north 0.6 mile on private road to station site. Marked by cooperative survey control station disk (see fig. 7), stamped "Baldwin Aux. 1933" and "R. E. 62", in concrete flush with surface. Station "Baldwin", marked by standard station disk in concrete block, is 7.941 meters (26.05 feet) from station in azimuth 134°04′. Reference mark of station "Baldwin", standard reference disk in concrete block, is 17.859 meters (58.59 feet) from station in azimuth 88°24′. "Baldwin Hills (U. S. G. S.)" is 11.629 meters (38.15 feet) from station in azimuth 147°55′.

West Beach No. 3 (U. S. G. S. and L. A. C. & C.) (Los Angeles County, W. Mussetter, 1927; Los Angeles County and City Cooperative Survey Control, 1933).—On highest hill in Manhattan Beach, near northeast corner of Hermosa Beach, 270 feet east of Sepulveda Boulevard, 150 feet south of east prolongation of Duncan Street, and 20 feet east of southwest corner of concrete reservoir. Original mark was U. S. Geological Survey tablet in 6- by 6-inch concrete monument flush with surface of ground. In 1927 standard reference disk in concrete was established 31.623 meters (103.75 feet) from station in azimuth 99°42′. In 1933 original mark was placed 4 feet below surface, and cooperative survey control station disk (see fig. 7), stamped "West Beach #3 1933" and "R. E. 62", was set in concrete flush with surface, directly over old mark. Cooperative survey control reference disk (no number) (see fig. 7), is 23.527 meters (77.19 feet) from station in azimuth 7°46′.

Denker (L. A. C. & C.) (Los Angeles County, Los Angeles County and City Cooperative Survey Control, 1933).—About 3 miles southeast of Inglewood, on concrete roof of auditorium of George Washington High School, 10 feet from north wall, and 25 feet from east wall. Mark is approximately 50 feet above ground. The school is situated on first hill east of Western Avenue, on south side of One Hundred and Eighth Street, and 200 feet east of Denker Avenue. Marked by cooperative survey control station disk (see fig. 7), stamped "Denker 1933" and "R. E. 62", cemented into concrete roof. Reference marks are cooperative survey control reference disks (see fig. 7) in concrete. No. 1 is 119.227 meters (391.16 feet) from station in azimuth 120°03′42″. No. 2 is 79.003 meters (259.20 feet) from station in azimuth 195°15′.

South Western (L. A. C. & C.) (Los Angeles County, Los Angeles County and City Cooperative Survey Control, 1933).—In city of Los Angeles, about 1,100 feet south of Slauson Avenue, 450 feet west of Western Avenue, on top of 310-foot gas tank of Southern California Gas Co., 17 feet from northeast side of large ventilator, and N. 67° E. from center of ventilator. Marked by cross cut in center of three-sixteenths-inch brass bolt which is screwed into a joint of steel roof plates.

North Western (L. A. C. & C.) (Los Angeles County, Los Angeles County and City Cooperative Survey Control, 1933).—In city of Los Angeles, on concrete roof of tower of the Pellissier Building, and 10 feet west of 45-foot metallic flagpole. Structure is a theater building, 12 stories high, at southeast corner of Western Avenue and Wilshire Boulevard. Marked by cooperative survey control station disk (see fig. 7), stamped "North Western 1933."

Cahuenga No. 2 (L. A. C. and L. A. C. & C.) (Los Angeles County, Los Angeles County and City Cooperative Survey Control, 1933).—About 2½ miles north of Hollywood, on Cahuenga Peak. Original mark was 6-inch vitrified pipe, filled with cement with copper bolt in center, set flush with surface. In 1933 original mark was placed 4 feet below surface, and cooperative survey control

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station disk (see fig. 7), stamped "Cahuenga #2 1933" and "R. E. 62", was set in concrete flush with surface, directly over old mark. Reference marks are cooperative survey control reference disks (see fig. 7) in concrete. No. 1 is 14.457 meters (47.43 feet) from station in azimuth 180°46′. No. 2 is 13.326 meters (43.72 feet) from station in azimuth 270°56′.

Verdugo (U. S. G. S. and L. A. C. & C.) (Los Angeles County, Los Angeles County and City Cooperative Survey Control, 1933).—About 3 miles northeast of Burbank, on highest peak of Verdugo Mountain. May be reached by roads from Stough Canyon or Deer Canyon. Original mark was U. S. Geological Survey tablet, stamped "Verdugo R. S. 1924", cemented in granite outcrop about 2 inches above ground. In 1933 original mark was placed 2 feet below surface of rock, and cooperative survey control station disk (see fig. 7), stamped "Verdugo 1933" and "R. E. 62", was set in concrete flush with surface, directly over old mark. Reference marks are cooperative survey control reference disks (see fig. 7) in concrete. No. 1 is 38.360 meters (125.85 feet) from station in azimuth 266°24′. No. 2 is 8.174 meters (26.82 feet) from station in azimuth 359°32′.

Sister Elsie (U.S.G.S. and L. A. C. & C.) (Los Angeles County, Los Angeles County and City Cooperative Survey Control, 1933).—About 2½ miles east and 1½ miles north of Tujunga, on highest part of Sister Elsie Peak. To reach from Haines Canyon road, leave bottom of canyon 1 mile northeast of quarry at mouth of canyon and follow fire road to station site. Marked by U. S. Geological Survey tablet, stamped "Sister Elsie R.S. 1931", cemented in large boulder flush with surface. Reference marks are cooperative survey control reference disks (see fig. 7) in boulders. No. 1 is 9.114 meters (29.90 feet) from station in azimuth 28°24′. No. 2 is 28.984 meters (95.09 feet) from station in azimuth 294°32′.

Dominguez 2 (Los Angeles County, R. W. Knox, 1932; Los Angeles County and City Cooperative Survey Control, 1933).—About 2½ miles south and 1 mile west of Compton, 2,400 feet south of Victoria Street, 465 feet east of Wilmington Boulevard, 20 meters (66 feet) south of foot of embankment forming north side of reservoir, 5.0 meters (16 feet) southwest of northeast corner of wire fence encircling reservoir atop Dominguez Hill, and 2 meters (7 feet) east of foot forming east side. To reach, go north on Wilmington Boulevard to crest of Dominguez Hill and reservoir and station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11b. No. 1 is 13.443 meters (44.10 feet) from station in azimuth 128°09′. No. 2 is 20.176 meters (66.19 feet) from station in azimuth 235°00′.

Vernon (L. A. C. & C.) (Los Angeles County, Los Angeles County and City Cooperative Survey Control, 1933).—In Vernon, on six-story Tower Building at 4814 Loma Vista Avenue, and in center of concrete roof of 6- by 6-foot penthouse over stairway on south side of building. Building is about 1,000 feet east of Downey Road and about 500 feet south of Leonis Boulevard. Marked by cooperative survey control station disk (see fig. 7), stamped "Vernon 1933" and "R.E. 62", cemented flush with concrete roof. Reference marks are cooperative survey control reference disks (see fig. 7) in concrete roof. No. 1 is 34.067 meters (111.77 feet) from station in azimuth 65°48′. No. 2 is 39.462 meters (129.47 feet) from station in azimuth 303°26′.

Silverwood (L. A. W. D. and L. A. C. & C.) (Los Angeles County, Los Angeles County and City Cooperative Survey Control, 1933).—About 1¼ miles N. 4° E. of Los Angeles City Hall, on high round-topped hill. To reach from Yale Street and Lookout Drive, follow Lookout Drive one-half mile to end of road and follow trail southeast one-eighth mile to station site. Original mark, established by city of Los Angeles Water Department, was 2¾-inch iron cap, with ¼-inch hole and stamped "L. A. S.", on 2-inch galvanized-iron pipe. In 1933: Original mark was placed 4 feet below surface, and cooperative survey control station disk (see fig. 7), stamped "Silverwood 1933" and "R.E. 62", was set in concrete flush with surface, directly over old mark. Reference marks are cooperative survey control reference disks (see fig. 7) in concrete. No. 1 is 17.879 meters (58.66 feet) from station in azimuth 88°45′. No. 2 is 19.013 meters (62.38 feet) from station in azimuth 178°39′.

Flint (L. A. W. D. and L. A. C. & C.) (Los Angeles County, Los Angeles County and City Cooperative Survey Control, 1933).—About 1.5 miles southwest of Linda Vista, on highest point of San Rafael Hills, and midway between heads of Scholl and Sycamore Canyons. To reach from Scholl Canyon at end of

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Gardner place, go east 2 miles to saddle in main ridge and west along ridge one-eighth mile to station site. Original mark, established by city of Los Angeles Water Department, was 3-inch iron cap, with ¼-inch hole and stamped "L. A. L.", on 2½-inch iron pipe set flush with surface. In 1933: Original mark was placed 4 feet below surface, and cooperative survey control station disk (see fig. 7), stamped "Flint 1933" and "R. E. 62", was set in concrete flush with surface, directly over old mark. Reference marks are cooperative survey control reference disks (see fig. 7). No. 1 is in boulder 9.114 meters (29.90 feet) from station in azimuth 215°44′. No. 2 is in concrete 14.626 meters (47.98 feet) from station in azimuth 304°42′.

Dawson (L. A. C. & C.) (Los Angeles County, Los Angeles County and City Cooperative Survey Control, 1933).—On northwest slope of Signal Hill, about 29 feet west of west curb line of Dawson Avenue, and 15 feet southeast of end of fence on northerly side of Panorama Drive. Surface mark is cooperative survey control station disk (see fig. 7), stamped "Dawson 1933" and "R. E. 62", set in concrete flush with surface. Underground mark is cross cut in head of bolt, 1 inch square, set in concrete 4 feet below surface. Reference marks are cooperative survey control reference disks (see fig. 7) in concrete. No. 1 is 37.744 meters (123.83 feet) from station in azimuth 10°16′. No. 2 is 21.590 meters (70.83 feet) from station in azimuth 295°40′.

Monterey No. 2 (U.S.G.S. and L. A. C. & C.) (Los Angeles County, Los Angeles County and City Cooperative Survey Control, 1933).—About 3 miles southwest of Alhambra, 1 mile south of Midwick Country Club, and on top of round hill on south side of Coyote Pass. Original mark was United States Geological Survey tablet in cement post. In 1933 top of post and tablet had been broken off. A ½-inch hole was drilled in center of remaining portion of monument. Hole was then filled with lead and a copper tack centered. Mark was placed 4 feet below surface, and cooperative survey control station disk (see fig. 7), stamped "Monterey #2 1933" and "R. E. 62", was set in concrete flush with surface, directly over old mark. Reference marks are cooperative survey control reference disks (see fig. 7) in concrete. No. 1 is 159.048 meters (521.81 feet) from station in azimuth 43°22′18″. No. 2 is 14.505 meters (47.59 feet) from station in azimuth 311°21′.

Workman Hill (L. A. F. C. and L. A. C. & C.) (Los Angeles County, Los Angeles County and City Cooperative Survey Control, 1933; R. W. Knox, 1932; 1934).—About 2.5 miles northeast of Whittier, on highest part of Workman Hill, and 0.25 mile south of road passing over hill at head of Turnbull Canyon. Original mark was Los Angeles Flood Control District bronze tablet in 10-inch round cement monument projecting 1½ inches above surface. In 1933 original mark was placed 4 feet below surface, and cooperative survey control station disk (see fig. 7), stamped "Workman 1933" and "R. E. 62", was set in concrete flush with surface, directly above old mark. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 5.192 meters (17.03 feet) from station in azimuth 45°06′. No. 2 is 19.850 meters (65.12 feet) from station in azimuth 77°43′. No. 3 is 13.971 meters (45.84 feet) from station in azimuth 170°34′. A United States Geological Survey mark is 3.872 meters (12.70 feet) from station in azimuth 14°43′.

Bassett (U.S.G.S. and L. A. C. & C.) (Los Angeles County, Los Angeles County and City Cooperative Survey Control, 1933).—About three-fourths mile northeast of Bassett, one-half mile west of Bassett-Baldwin Park Road, on east bank of San Gabriel River wash, 1,000 feet southeast of Garvey Avenue (State Route 26), and 1,400 feet southwest of its intersection with Bess Avenue and Frazier Street. Original mark was United States Geological Survey tablet, stamped "Bassett R. S. 1923." In 1933 original mark was placed 4 feet below surface, and cooperative survey control station disk (see fig 7), stamped "Bassett 1933", was set in concrete flush with ground, directly over old mark. Reference marks are cooperative survey control reference disks (see fig. 7) in concrete. No. 1 is 99.801 meters (327.43 feet) from station in azimuth 179°34′08″. No. 2 is 36.232 meters (118.87 feet) from station in azimuth 277°54′.

Monrovia (U.S.G.S. and L. A. C. & C.) (Los Angeles County, Los Angeles County and City Cooperative Survey Control, 1933).—About 1 mile northwest of Monrovia, on highest point of spur of mountain on east side of Santa Anita Canyon. To reach, take trail which begins at point on west side of Highland Place about 800 feet north of Hillcrest Avenue and follow along ridge to station site. Original mark was United States Geological Survey tablet, stamped

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"Monrovia R.S. 1923." In 1933 original mark was placed 4 feet below surface, and cooperative survey control station disk (see fig. 7), stamped "Monrovia 1933" and "R. E. 62", was set in concrete flush with surface, directly over old mark. Reference mark no. 1 is flood control reference disk in concrete 9.025 meters (29.61 feet) from station in azimuth 266°06′. Reference mark no. 2 is cooperative survey control reference disk (see fig. 7) in concrete 6.917 meters (22.69 feet) from station in azimuth 359°23′.

NEWPORT BEACH TO THIRTY FIFTH PARALLEL ARC

Principal points

Jurupa (Riverside County, G. L. Bean, 1929; 1934).—About 4 miles northwest of Riverside, on highest point of range of mountains known as the "Jurupa Mountains." A large rock cairn, which probably marked station "Jurupa (U. S. G. S.)", was torn down and station established in same spot. To reach from Riverside, follow highway 3 miles from bridge across Santa Ana River toward Ontario to Sunny Slope camp grounds and grocery store on right side of highway, turn right (east) onto oiled road and proceed 0.2 mile, turn left (north) onto dirt road and follow 0.5 mile, turn right (east) onto dirt road and follow 0.2 mile, turn left (north) onto track leading toward highest mountain and follow 0.45 mile to end of road at group of beehives, climb toward top bearing about 308° magnetic to trail marked with white rags leading up gully to right, and follow trail about three-fourths mile to top and station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 9.17 meters (30.1 feet) from station in azimuth 36°30′. No. 2 is 18.275 meters (59.96 feet) from station in azimuth 191°34′. Azimuth from station to airway beacon is 2°52′42″.

Armada (Riverside County, G. L. Bean, 1928; 1933).—On ridge about 2 miles southeast of March Field, on south shoulder of hill, about one-fourth mile southwest of highest point of hill, and on large flat rock about 40 feet east of tip of shoulder. To reach from intersection of Eighth and Main Streets in Riverside, go east 6.5 miles on Eighth Street and continue on road leading toward March Field, turn left onto Beaumont Road and go 3.6 miles, turn right onto dirt road and go 1.3 miles to farm buildings, take dim road to left leading toward hill and go 1.6 miles to large boulder on right side of road, and climb hill to east to station site. Marked by standard station disk in bedrock, note 2a. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 59.27 feet from station in azimuth 307°35′. No. 2 is 98.66 feet from station in azimuth 237°45′. Azimuth from station to March Field, water tank, distant about 2 miles, is 122°42′24″.

Reche (Riverside County, G. L. Bean, 1928; 1934).—About 7 miles east of Riverside, about 4 miles north of March Field, and on highest point of brush-covered hill south of Reche Canyon. Another point of almost equal elevation is about 100 yards east of station. To reach from corner of Seventh and Main Streets in Riverside, go north 0.8 mile on Main Street, turn right onto Russell Street and go 0.4 mile, turn left onto La Cadena Drive and go 2.8 miles, turn right onto Palm Avenue and go 2.5 miles, turn right onto Reche Canyon Road and go 3.7 miles, turn right through the gate leading to the W. S. Chase ranch and go 0.4 mile to house, follow dim road across creek and ascend ridge to south, and follow crest of ridge to its summit. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 22.188 meters (72.80 feet) from station in azimuth 177°11′. No. 2 is 3.763 meters (12.35 feet) from station in azimuth 263°52′. Azimuth from station to March Field, water tank is 7°28′55″; and to Loma Linda, water tank, 171°35′36″.

Strawberry (San Bernardino County, G. L. Bean, 1929; 1934).—On east end of Strawberry Peak in the San Bernardino Mountains and about 50 feet east of highest point on peak. To reach, take San Bernardino-Lake Arrowhead Road to Twin Peaks post office and go about 1 mile on posted road leading south to Strawberry Peak. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 19.230 meters (63.09 feet) from station in azimuth 192°47′. No. 2 is 15.375 meters (50.44 feet) from station in azimuth 298°27′. *Strawberry Peak, fire lookout tower* is 32.70 meters (107.3 feet) from station in azimuth 94°45′.

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Keller (San Bernardino County, G. L. Bean, 1929).—On Keller Mountain in the San Bernardino Mountains, about 20 feet north of steel lookout tower. To reach, take San Bernardino-Bear Lake Road to Fish Camp and follow Forest Service trail about 3 miles to lookout. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 7.377 meters (24.20 feet) from station in azimuth 273°39′. No. 2 is 4.283 meters (14.05 feet) from station in azimuth 47°43′.

San Berdo (San Bernardino County, G. L. Bean, 1929).—About 8 miles by trail northwest of Forest Home, on middle peak of San Bernardino Mountain. To reach from Torres Camp at Forest Home take Forest Service trail and follow up to middle peak. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 4 feet below level of station and 12.578 meters (41.27 feet) from station in azimuth 192°41′. No. 2 is 9 feet below level of station and 8.430 meters (27.66 feet) from station in azimuth 57°35′.

Craft (San Bernardino County, G. L. Bean, 1929).—About 3 miles east of east end of Big Bear Lake, on highest point of Butler Peak in the San Bernardino Mountains, and about 4 feet west of United States Geological Survey cairn. To reach from Fawnskin on northern side of Big Bear Lake go 4.5 miles on Holcomb Valley Road, go south up slope to summit of ridge, and go along ridge to highest point, which is visible from almost anywhere on ridge as a ragged ledge about 100 feet above surrounding ground. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 4.896 meters (16.06 feet) from station in azimuth 112°32′. No. 2 is 7.060 meters (23.16 feet) from station in azimuth 264°26′.

Loaf (San Bernardino County, G. L. Bean, 1929).—In the San Bernardino Range, in small clearing on highest and westernmost end of high ridge known as "Sugarloaf Mountain." Ground slopes gently about 100 feet to west away from station and then drops sharply. To reach from Pine Knot post office on south side of Big Bear Lake, go east along south side of Baldwin Lake to signboard pointing to Green Canyon and the "Fish Hatchery", turn right onto this road and follow to sign pointing to Green Canyon, turn left onto this road and follow to head of canyon where cabin stands, climb up ridge leading southwest to top of mountain, and go to right along mountain to station site on extreme western end, distant about 3 miles from cabin. Marked by standard station disk in boulder, note 4.

Lune (San Bernardino County, G. L. Bean, 1928).—About 4 miles west of Coxy ranger station, 2 miles southwest of Oak Springs, on highest point at southwestern end of Luna Mountain, which is on edge of desert and northern edge of San Bernardino National Forest. To reach, follow the Hesperia Cutoff between Big Bear Lake and Hesperia to a point 4 miles north of Coxy ranger station, turn east and follow farm road through farmyard at Oak Springs about one-half mile from main road, pass through gate and follow dim road leading to old mine about 1 mile to bank of wash, go about 1 mile to highest point visible to southwest, and proceed about one-fourth mile further to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 24.533 meters (80.49 feet) from station in azimuth 157°37′. No. 2 is 11.703 meters (38.40 feet) from station in azimuth 334°41′.

Gold (San Bernardino County, G. L. Bean, 1929).—On highest point of Gold Mountain, about 1½ miles northwest of Baldwin Lake in the San Bernardino Range. To reach from Bear Lake, follow road leading to Lucerne Valley to signboard pointing left to the Doble Mine, go about 2 miles on this road past mine buildings to point where road crosses a ridge, and go about 1½ miles up ridge to highest point on mountain. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 4.310 meters (14.14 feet) from station in azimuth 231°12′. No. 2 is 10.720 meters (35.17 feet) from station in azimuth 93°53′.

Lucerne (San Bernardino County, G. L. Bean, 1928).—About 18 miles east-northeast of Victorville, about 7 miles north of Box S ranch, on the Granite Mountains, and just northwest of dry lake bed. To reach from Box S ranch, go east to Lucerne Avenue, turn north and go about 6 miles (nearly crossing lake bed) to point about one-fourth mile north of old pump house, skirt along southern edge of mountain and go 1.3 miles to draw on west side, ascend this

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draw by upper right-hand edge to ridge at its head from which station can be seen on highest point, and go north about one-eighth mile to station site. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is about 5 feet lower than station and 9.422 meters (30.91 feet) from station in azimuth 27°05′. No. 2 is 7.672 meters (25.17 feet) from station in azimuth 143°44′.

Granite (San Bernardino County, G. L. Bean, 1929).—About 6 miles northwest of Baldwin Lake, on ragged mass of rock on northern end of highest part of Granite Mountain in the San Bernardino Mountains, and about one-fourth mile from United States Geological Survey cairn at about same elevation on southern end of mountain. To reach from Smarts ranch, which is about 2 miles west of road between Lucerne Valley and Big Bear Lake and about 5 miles northwest of Baldwin Lake, follow around south side of mountain about 2 miles to prominent wash, climb up this wash to top of mountain and go north across a fairly level space to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 12.063 meters (39.58 feet) from station in azimuth 342°50′. No. 2 is 5.103 meters (16.74 feet) from station in azimuth 33°37′.

Lucerne south base (San Bernardino County, G. L. Bean, 1928).—About 26 miles east-southeast of Victorville, about 4 miles east of Box S ranch, and at southern edge of the Lucerne Valley. To reach from crossroads at Box S ranch go east 3.95 miles on Old Woman Springs Road, turn south and go one-fourth mile to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Upper mark projects 6 inches. Reference marks are standard reference disks in concrete, note 11a. No. 1 projects 3 inches and is 30.542 meters (100.20 feet) from station in azimuth 81°08′. No. 2 projects 3 inches and is 40.420 meters (132.61 feet) from station in azimuth 5°24′.

Lucerne north base (San Bernardino County, G. L. Bean, 1929).—About 5 miles north of east of dry lake bed, 11.2 miles by road northeast of Box S ranch buildings, on northern side of the Lucerne Valley, on southwestern slope leading up small ragged butte which is about 1 mile to northeast and about 20 feet southeast of old road running northeast and southwest. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 17.766 meters (58.29 feet) from station in azimuth 211°02′. No. 2 is 19.048 meters (62.49 feet) from station in azimuth 288°56′.

Sage (San Bernardino County, G. L. Bean, 1928).—About 13 miles northeast of Box S ranch, on low group of hills at eastern edge of the Lucerne Valley, on northwest side of ridge, and about one-fourth mile west of highest hill in this ridge. To reach from Box S ranch, go northeast 13.4 miles on Ord Belt Mine road, and station is on second hump (counting from north) of group of hills to east of road and about three-fourths mile distant. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is about 1 foot above surface of ground and 47.925 meters (157.23 feet) from station in azimuth 33°51′. No. 2 is about 2 feet above surface of ground and 12.490 meters (40.98 feet) from station in azimuth 298°58′.

Ord (San Bernardino County, G. L. Bean, 1929).—To reach from Daggett, go south about 7 miles on road marked "Ord Belt Mine" to forks with sign "Rabbit Springs 26 miles—Ord Mountain 7 miles"; take left fork leading to Ord Mountain, and go about 2 miles to fork with sign "Ord Mines 6 miles"; take right fork and follow to mine buildings; follow up left ridge to highest point, and continue south across ridge about 1 mile to station site. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is about 3 feet above surface of ground and 10.028 meters (32.90 feet) from station in azimuth 192°17′. No. 2 is about 2 feet above surface of ground and 6.542 meters (21.46 feet) from station in azimuth 268°40′. *Ord Mountain, U. S. Mineral Monument No. 1* (see description thereof) is 1.33 meters (4.4 feet) from station in azimuth 159°44′.

Nellie Bly (San Bernardino County, G. L. Bean, 1929).—To reach from Newberry, go east to point where old highway leaves new grade, follow old highway about 2.1 miles to point where dim road leads to south, follow dim road 4 miles, take left fork and go 6 miles, take right-hand road and go 1.5 miles, follow left-hand road to point about 100 yards from Rock Camp buildings, take very dim trail leading to south and go up canyon or wash to foot of highest peak

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visible, and climb up ridge from which station site can be seen on southwestern peak. A United States Geological Survey cairn tops the highest peak, which is about one-fourth mile east of station. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 2½ feet above surface of ground and 5.459 meters (17.91 feet) from station in azimuth 249°07′. No. 2 is 1½ feet above surface of ground and 6.820 meters (22.38 feet) from station in azimuth 118°42′.

El Frio (San Bernardino County, G. L. Bean, 1929; 1934).—About 23 miles southwest of Baker, on top of Cave Mountain, known locally as "Cone or Sheep Mountain", and about 1.5 miles south of and about 2,000 feet higher than Route 91. Top of mountain is flat and covered with large boulders. Station is not on highest point and will not see to east or southeast. To reach from Baker, follow Route 91 southwest 23.5 miles, just beyond second of two culverts close together, turn left onto old highway and go 0.1 mile, go south up large canyon to top and station site about 15 feet northeast of large boulder. Mountain is very steep and rope necessary to cross several cliffs. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 was 17.41 meters (57.1 feet) from station in azimuth 140°33′. No. 2 was 9.061 meters (29.73 feet) from station in azimuth 229°44′. In 1934 there was marked evidence of movement or disturbance on mountain. In some places sections of cliffs had fallen into canyons. The distance between station and reference mark no. 1 was found to be 16.875 meters (55.36 feet); and between station and reference mark no. 2, 11.935 meters (39.16 feet). Station *Cave* (*U. S. G. S.*) (see description thereof) is 8.767 meters (28.76 feet) from station in azimuth 352°50′.

Barstow (San Bernardino County, G. L. Bean, 1929).—To reach from Barstow, go north 14 miles toward Granite Wells, cross summit at south edge of mesa, take road turning to right with sign "Williams Wells 6 miles" and go 0.3 mile to forks, take right-hand road and go 2.7 miles to point where dim road branches to right, follow this road to old mine shaft and continue about one-half mile up main ridge to highest point and station site. Marked by standard station disk in boulder, note 4, flush with surface of ground and surrounded by three rock cairns. Reference marks are standard reference disks in boulders, note 12c. No. 1 is flush with surface of ground and 19.028 meters (62.43 feet) from station in azimuth 104°09′. No. 2 is about 8 inches above surface of ground and 30.782 meters (100.99 feet) from station in azimuth 224°29′.

Tiefort (San Bernardino County, G. L. Bean, 1929).—About 40 miles northeast of Barstow, on west shoulder of Tiefort Mountain, and about 1½ miles west of highest point of mountain. To reach from Yermo, go northeast 6½ miles on main road and turn north at sign "Death Valley Short Cut", follow posted road 5 miles to and beyond Garlic Springs to Bicycle Lake bed and signpost "Garlic Springs 5 miles—Barstow 40 miles", turn southeast and go 1.9 miles across lake bed and up gradual slope to base of mountain, keeping to left or north side of wash, follow up ridge on east side of big wash to main ridge running east and west, and go up this ridge to first prominent shoulder and station site. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 1½ feet above surface of ground and 6.808 meters (22.34 feet) from station in azimuth 110°15′. No. 2 is flush with surface of ground, 5 feet lower than station, and 8.941 meters (29.33 feet) from station in azimuth 220°41′.

Supplementary points

Sugar (Orange-Riverside Counties, G. L. Bean, 1929; 1933).—About 6 miles airline and about 15 miles by road southwest of Corona, on Sugarloaf Peak in the Santa Ana Mountains. To reach from Corona, go south on Main Street to Lemon Street and follow "Corona Skyline Drive" signs to divide, turn left at divide and go south 4.0 miles on Forest Service road along crest of ridge to sign "Sugarloaf Firebreak", and go about 200 yards southeast up firebreak to station site. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 3.640 meters (11.94 feet) from station in azimuth 76°45′. No. 2 is 14.750 meters (48.39 feet) from station in azimuth 30°28′. Azimuth from station to Sierra Peak, fire lookout tower, is 143°55′23″; and to Santiago Peak, fire lookout tower, 324°45′34″. Station *San Joaquin* (see description thereof) is visible from ground in azimuth 42°06′13″.

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San Joaquin (Orange County, G. L. Bean, 1928; 1933).—On highest one of the San Joaquin Hills, 57 feet northwest of highest rocky point of the hill, and 7 feet from east edge of rock ledge running in a northerly direction from top of hill. To reach from post office in Irvine, go southwest 1.2 miles on Central Avenue, keep to right and go 0.3 mile, keep straight ahead on dirt road and go 1.8 miles, keep to left and go 1.0 mile, turn left at ranch house and go 0.6 mile, keep to left through gate and go 1.5 miles, turn right and go 0.7 mile, turn left off road and go 0.1 mile to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is north of rock cairn, and 11.440 meters (37.53 feet) from station in azimuth 355°52′. No. 2 is 23.933 meters (78.52 feet) from station in azimuth 168°25′. A rock cairn is 17.400 meters (57.09 feet) from station in azimuth 353°54′. Station *Sugar* (see description thereof) is visible from ground in azimuth 221°59′23″.

Black (Orange County, G. L. Bean, 1929; 1933).—About 1 mile west of top of main range of the Santa Ana Mountains at point where the Corona Skyline Drive crosses, on highest point of prominent ridge just north of Black Star Canyon, and 5 feet back from small bluff overlooking canyon. To reach from flagpole circle in Orange, go 5.4 miles on Chapman Avenue and County Park Road to Old County Park Road and turn right, go southeast 4.8 miles to Black Star Canyon Road (Corona Skyline Drive) and turn left, go 6.2 miles to cattle guard, proceed in westerly direction on dim trail keeping on south side of canyon until reaching summit of first steep climb, bear right across open swale to saddle, and continue north to top of hill. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 9.965 meters (32.69 feet) from station in azimuth 242°40′. No. 2 is 10.880 meters (35.70 feet) from station in azimuth 142°35′. Azimuth from station to water tank, distant about 1 mile, is 237°01′16″. Station *Baker* (see description thereof) is visible from ground in azimuth 294°54′52″.

Bee (Orange County, G. L. Bean, 1929; 1933).—On top of prominent foothill of the Santa Ana Mountains just south of head of Bee Canyon on property of the Irvine Co. To reach from flagpole circle in Orange, go east 5.6 miles on East Chapman Avenue, turn right onto Silverado Canyon Road and go 4.9 miles to point 0.1 mile beyond Black Star Canyon Road, turn right through gate onto dirt road at sign on gate "Augustine Camp—Irvine Company" and go 0.9 mile in a southwesterly direction along dim road, follow trail about 1.0 mile along canyon in southwesterly direction, and continue along ridge one-half mile to station site on highest hill in vicinity. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 9.050 meters (29.69 feet) from station in azimuth 279°10′. No. 2 is 7.838 meters (25.72 feet) from station in azimuth 194°37′. Azimuth from station to Santiago Peak fire lookout tower is 277°33′27″.

Lomas (Orange County, G. L. Bean, 1929; 1933).—About 4 miles northeast of Tustin, about 2½ miles north of the Irvine ranch headquarters, on prominent rounded hill on the Irvine Co. ranch, in foothills of the Santa Ana Mountains, and about 15 yards east of wire fence in cultivated field. To reach from Orange, go east 5.4 miles from circle on Chapman Avenue and County Park Road to Old County Park Road, turn right and go 2.9 miles to point where old dim road leaves pavement, follow 100 yards and bear right along south side of canyon, and continue along the most feasible route to summit of highest hill, which is about 1 mile from pavement. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 29.478 meters (96.71 feet) from station in azimuth 64°59′. No. 2 is 126.99 feet from station in azimuth 347°54′. Azimuth from station to Santiago Peak, fire lookout tower is 287°03′36″. Station *Star* (see description thereof) is visible from ground in azimuth 259°26′57″.

Observatory (Orange County, G. L. Bean, 1928; 1933).—On land known as "Lemon Heights", about 70 feet west of highest point of highest hill within a radius of 1 mile, about one-half mile northeast of water reservoir, and on land belonging to Mr. Marcy. A winding road leads uphill on southwest side. To reach from Tustin, go east 2.4 miles on Newport Boulevard to Skyland Drive, go 1.1 miles on Skyland Drive and turn left uphill onto dirt road and go east about 1 mile over a winding road to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Surface

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mark projects 2 inches. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 10.060 meters (33.01 feet) from station in azimuth 196°10′. No. 2 is 27.820 meters (91.27 feet) from station in azimuth 96°51′. Center of pipe in reservoir, distant one-half mile, is in azimuth 32°58′25″.

Cloud (Riverside County, G. L. Bean, 1928; 1933).—About 5 miles west of Arlington, on highest point of southernmost one of three peaks about 1 mile south of highway. To reach from post office in Arlington, go west 4.6 miles on Magnolia Avenue and cross railroad track at sign "Rilanco", go 0.5 mile on dirt road leading southwest, turn left and follow main-traveled road 1 mile, turn left across dry wash just before reaching railroad trestle and follow dim road 0.3 mile to point of ridge, and go east about one-half mile up crest of ridge to summit of peak. Marked by standard station disk in bedrock, note 3. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 14.700 meters (48.23 feet) from station in azimuth 93°53′. No. 2 is 4.936 meters (16.19 feet) from station in azimuth 347°41′. Azimuth from station to silo, distant one-half mile, is 130°16′25″; and to pole on hill, distant 200 yards, 198°08′18″. Station *Henry* (see description thereof) is visible from ground in azimuth 79°24′26″.

Grape (Riverside County, G. L. Bean, 1929; 1933).— About 2 miles northeast of Corona, just west of the Parkridge Subdivision, about one-half mile northeast of the Parkridge Country Club, and about 100 yards south of highest point of small hill. To reach from post office in Arlington, go west 4.0 miles on Magnolia Avenue, turn north onto Hamner Avenue and go 0.8 mile, turn left onto dirt road on north side of grove of eucalyptus trees and go 0.3 mile, turn left and go 0.4 mile, turn right and go north 0.3 mile toward point of ridge, and ascend ridge about 200 yards to station site. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 11.728 meters (38.48 feet) from station in azimuth 174°56′. No. 2 is 8.968 meters (29.42 feet) from station in azimuth 46°47′. Azimuth from station to Corona, By Products Exchange, water tank, is 62°21′58″.

Sier (Orange-Riverside Counties, G. L. Bean, 1929; 1933).—About 6 miles southwest of Corona, on highest point of Sierra Peak of the Santa Ana Mountains on or near Orange-Riverside County line, and 20 feet east of Forest Service lookout house. To reach from Santa Ana or Corona, follow Corona Skyline Drive to summit of the Santa Ana Mountains and signpost reading "Corona 9 miles", turn in a westerly direction and follow road along crest of ridge and firebreak 2.5 miles to lookout house on Sierra Peak. Surface and underground marks are standard station disks in boulders, notes 4 and 9a. Reference mark, established in 1928, was standard reference disk in bedrock, note 12a, 89.808 meters (294.65 feet) from station in azimuth 335°14′. In 1933 this mark was found to have been destroyed by grading on firebreak, and three standard reference disks in boulders or bedrock were established. No. 1 is 13.910 meters (45.64 feet) from station in azimuth 335°32′. No. 2 is 13.685 meters (44.90 feet) from station in azimuth 64°18′. No. 3 is almost in line with telephone post, 40 feet north of road, and approximately three-eighths mile from station in azimuth 302°10′52″. Station *Mine* (see description thereof) is visible from ground in azimuth 326°54′45″.

Crafton (San Bernardino County, G. L. Bean, 1929).—About 6 miles east of Redlands, on the westernmost prominent peak of the Crafton Hills, about 1 mile west of highest point on hills, and about one-half mile south of Mill Creek road which is a continuation of Lugonia Avenue in Redlands. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 12.152 meters (39.87 feet) from station in azimuth 125°04′. No. 2 is 6.553 meters (21.50 feet) from station in azimuth 342°14′.

Foothill (San Bernardino County, G. L. Bean, 1929).—About 3 miles north of Highlands, on highest point of south end of Harrison Mountain in the San Bernardino Mountains. To reach from San Bernardino, go east on Highland Avenue toward mouth of Santa Ana Canyon until reaching Forest Service road leading up Plunge Creek, go 1.5 miles on this road to point where fire trail crosses road, and follow fire trail west to top of most southerly peak of Harrison Mountain. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 11.198 meters (36.74 feet) from station in azimuth 284°54′. No. 2 is 13.603 meters (44.63 feet) from station in azimuth 164°29′.

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Chaparral (San Bernardino County, G. L. Bean, 1929).—About 1 mile north of San Bernardino, on the most easterly hill on east end of range of hills known as the "Shandin Hills", in line with Serrano Avenue which runs north and south, about one-half mile north of Highland Avenue, which runs east and west, and about one-half mile east of Forest Service lookout tower on same group of hills. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 26.313 meters (86.33 feet) from station in azimuth 63°01′. No. 2 is 26.301 meters (86.29 feet) from station in azimuth 103°41′.

La Quinta (San Bernardino County, G. L. Bean, 1929).—About 5 miles north of west of Redlands, 71 feet south of east of Pacific Electric Railway station house "La Quinta", on inside of curve, 14.5 feet from center line of tracks, 37 feet north of fence line across paved road from station, and 13.6 feet east of south of trolley-line pole. To reach from Redlands, go west to intersection of Colton Avenue and Mountainview Avenue, go north 1 mile along Mountainview Avenue to crossroad, and go east to point where road crosses tracks. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11c. No. 1 is 13.375 meters (43.88 feet) from station in azimuth 325°06′. No. 2 is 18.065 meters (59.27 feet) from station in azimuth 54°38′.

High Grove (Riverside County, G. L. Bean, 1929; 1933).—About 4 miles east of Riverside, in large boulder on extreme southern end of large and rocky hill, and about 0.1 mile south of highest part of hill. To reach from corner of Main and Seventh Streets in Riverside, go north 0.8 mile on Main Street, turn right onto Russell Street and go 0.4 mile, turn left onto La Cadena Drive and go 2.8 miles, turn right onto Palm Avenue and go 1.1 miles to a point where paved road makes left turn, go straight ahead 0.6 mile on gravel road to its end, go east about 200 yards up draw to saddle in ridge, and follow south along crest of ridge about 1 mile to station site. Marked by standard station disk in boulder, note 5. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 11.855 meters (38.89 feet) from station in azimuth 304°13′. No. 2 is 10.955 meters (35.94 feet) from station in azimuth 89°48′. Azimuth from station to Riverside Cement Co., flagpole, distant 3 miles, is 138°05′16″; and to concrete silo, distant 2 miles, 232°15′32″.

Box Springs (Riverside County, G. L. Bean, 1929; 1933).—About 3½ miles east of Riverside, about one-half mile west of highest point on Box Springs Mountain, and on south end of long ridge directly above Riverside-Elsinore highway. To reach from intersection of Main and Seventh Streets in Riverside, go north 0.8 mile on Main Street, turn right onto Russel Street and go 0.4 mile, turn left onto La Cadena Drive and go 0.8 mile, turn right onto Palmarita Avenue and go 1.7 miles, turn left onto Mount Vernon Avenue and go 0.3 mile, turn right onto gravel road at bottom of arroyo just before starting up out of arroyo, go 2.8 miles on Pigeon Pass road to point one-fourth mile south of summit where road makes left turn, turn right onto road leading to Hester's ranch and go 0.2 mile, take left fork and go 1.0 mile, go into lane and turn left onto dim road running along east side of fence line, go about one-fourth mile and follow trail leading to spring, go south on side of ridge to saddle, cross wide canyon over next ridge, and cross next canyon, at which point station site can be seen on highest point to south. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 5.902 meters (19.36 feet) from station in azimuth 248°46′. No. 2 is 4.502 meters (14.77 feet) from station in azimuth 14°10′.. Azimuth from station to March Field, water tank, is 340°14′03″.

Little High Grove (Riverside County, G. L. Bean, 1929; 1933).—About 3 miles north of Riverside, on prominent rocky hill about one-third mile west of intersection of La Cadena Drive and Palm Avenue, and on little ledge on southeast side of highest rock on ridge. To reach from intersection of Seventh and Main Streets in Riverside, go north 0.8 mile on Main Street, turn right onto Russell Street and go 0.4 mile, turn left onto La Cadena Drive and go 2.7 miles, turn left onto Palm Avenue and go west 0.3 mile to foot of hill, go about 200 yards up hill in a westerly direction to top of ridge, and follow south along crest of ridge one-fourth mile to highest point. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 7.850 meters (25.75 feet) from station in azimuth 29°08′. No. 2 is 12.788 meters (41.96 feet) from station in azimuth 196°54′. Azimuth from station to Riverside Cement Co., flagpole, distant 2 miles, is 178°57′48″.

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Ledge (Orange County, G. L. Bean, 1928; 1933).—On eastern end of summit of brush-covered hill about 200 feet high, about 15 feet east of outcropping rock projecting 3 feet above surface of ground, and immediately southwest of pipe line crossing hill. To reach from Santa Ana, go east on Seventeenth Street to Newport Avenue, go southwest to Irvine Boulevard and follow southeast to Glen Road, turn left (northeast) onto Glen Road and go 0.8 mile, turn left after crossing wooden bridge and go 0.2 mile, turn right and go 0.65 mile, turn left after crossing wash and continue 0.25 mile along edge of cultivated field to small brushy hill. Marked by standard station disk in boulder, note 4, projecting about 8 inches. Reference marks are standard reference disks in boulders, note 12c, projecting about 3 feet. No. 1 is 4.980 meters (16.34 feet) from station in azimuth 97°59′. No. 2 is 10.078 meters (33.06 feet) from station in azimuth 153°50′. Azimuth from station to water tank, finial, distant 5 miles, is 9°03′59″.

Ditch (Orange County, G. L. Bean, 1928).—Two and seven-tenths miles south of Tustin on Route 101, 27 feet east of center line of highway, and 20 feet north of center of abutment of concrete culvert. Surface and underground marks were standard station disks in concrete, notes 1a and 7a. Reference mark no. 1 was standard reference disk in center of east abutment of concrete culvert, 6.730 meters (22.08 feet) from station in azimuth 316°28′. Reference mark no. 2 was standard reference disk in concrete, note 11a, about 27 feet west of center line of highway, and 18.155 meters (59.56 feet) from station in azimuth 50°53′. In 1933 station was in the way of proposed improvements to highway and marks were dug up and reset as station "Ditch 2", 15.598 meters (51.17 feet) distant in azimuth 144°17′.

Mitch (Orange County, G. L. Bean, 1928; 1933).—Five hundred feet south of Jeffery Road, 15 feet west of center line of Trabuco Road, 10 feet east of line of trees, and about 50 feet south of farmhouse on west side of road. To reach from Tustin, go south 3.4 miles on Route 101 to point where highway makes a bend to right and go south 1.7 miles on Trabuco Road to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Upper mark projects 3 inches. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 10.887 meters (35.72 feet) from station in azimuth 312°55′. No. 2 is 13.128 meters (43.07 feet) from station in azimuth 218°57′. A 4- by 6-inch redwood stake, painted white and projecting 5 feet above surface of ground, is close by each mark.

Como (Orange County, G. L. Bean, 1928; 1933).—Fifty feet north of center line of Culver Road and 15 feet east of center line of Valencia Avenue. To reach from Tustin, go south 3.3 miles on Route 101, turn right onto Culver Road which intersects the highway just north of bend in highway at intersection of Trabuco Road, and go west 1.5 miles to Valencia Avenue. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Upper mark projects 2 inches. Reference marks are standard reference disks in concrete, note 11a. No 1 is east of Valencia Avenue and 17.933 meters (58.84 feet) from station in azimuth 123°57′. No 2 is on west side of Valencia Avenue and 13.740 meters (45.08 feet) from station in azimuth 35°46′. Azimuth from station to windmill on Valencia Avenue, distant 1 mile, is 128°27′26″.

Vent (Orange County, G. L. Bean, 1928; 1933).—To reach from Tustin, go south and southwest on Route 101 to Red Hill Avenue, turn southwest (right) and go 1.6 miles, turn southeast (left) onto dirt road and go 1.3 miles, turn northeast (left) and go 0.5 mile along irrigation ditch to station site which is 3 feet southwest of fence along railroad right-of-way. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Upper mark projects 3 inches. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 14.868 meters (48.78 feet) from station in azimuth 131°56′. No. 2 is 5.190 meters (17.03 feet) from station in azimuth 304°32′. The arrow on reference mark no. 2 points 90° to left of station.

French (Orange County, G. L. Bean, 1928; 1933).—On northernmost one of group of hills known as the "French Hills." To reach from Irvine, go southwest 1.2 miles on Central Avenue, cross bridge, keep to right and go 0.4 mile, turn right with main-traveled road and go 0.9 mile, turn left at power line up dirt road and go 0.6 mile, leave road at end of power line and go south 0.4 mile toward only rock-topped hill in vicinity, and climb about 100 yards to station site. Marked by standard station disk in boulder, note 4, flush with surface. Reference marks are standard reference disks in boulders, note 12c. No. 1 is on

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highest point of hill and 7.988 meters (26.21 feet) from station in azimuth 63°44′. No. 2 is 7.525 meters (24.69 feet) from station in azimuth 197°16′. Azimuth from station to white-topped wooden tank, distant 1.0 mile, is 167°07′39″.

Smoke (Orange County, G. L. Bean, 1928; 1933).—Three-tenths mile east of farmhouse, 14 feet southeast of center line of road, and 3 feet south of edge of road. To reach from Tustin, go south 0.4 mile on Route 101 to Newport Avenue, turn southwest onto Newport Avenue and go 3.8 miles, turn southeast (left) onto Lane Road and go 3.0 miles, turn right onto dirt road and go 0.4 mile, take right fork and go 0.1 mile to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Upper mark projects 3 inches. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 3 feet northwest of edge of road and 8.008 meters (26.27 feet) from station in azimuth 150°51′. No. 2 is 4 feet southeast of edge of road and 12.540 meters (41.14 feet) from station in azimuth 242°46′.

Airway (Orange County, G. L. Bean, 1928; 1933).—To reach from Santa Ana, go due south 3.8 miles to junction of Main Street and Newport Boulevard go northeast 0.8 mile on Newport Boulevard, turn southeast onto dirt road between double line of power poles and go 0.5 mile to crossroads and houses, and continue straight ahead 250 feet to station site which is 1 foot northeast of center line of power poles on northeast side of road and 30 feet southeast of pole 283574 E. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Upper mark projects 3 inches. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 5 feet northwest of pole 283574 E, and 11.562 meters (37.93 feet) from station in azimuth 129°00′. No. 2 is on west side of road, 4 feet southeast of pole 334734 E, and 15.427 meters (50.61 feet) from station in azimuth 40°50′.

Baranca (Orange County, G. L. Bean, 1928; 1933).—To reach from Costa Mesa, go northeast on Newport Avenue to Palisades Road, turn right and go 2.1 miles, continue on main-traveled road (right fork) and go 0.4 mile, take right fork and go 0.3 mile to small grove of eucalyptus trees on right-hand side of road, turn left away from road at this point and go southeast about 0.3 mile to station site on top of nearest hill. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Upper mark is 12 inches below ground. Reference marks are standard reference disks in concrete, note 11a. No. 1 is at edge of plowed field, west of gulch, and 61.873 meters (203.00 feet) from station in azimuth 199°55′. No. 2 is at edge of plowed field, west of gulch, and 74.900 meters (245.73 feet) from station in azimuth 268°59′. A 4- by 6-inch redwood stake, painted white and protruding 4 feet above surface of ground, is near each mark. Azimuth from station to Newport Beach, spire on building, is 61°56′07″.

Mare (Orange County, G. L. Bean, 1928; 1933).—In garden patch, 27 feet southeast of center line of street, and 7 feet southeast of line of power-line poles. To reach from Santa Ana, go south and southwest on Newport Boulevard to Orchard Avenue in Costa Mesa, turn southeast and go 1.0 mile to Acacia Avenue, turn right (southwest) and go about 100 yards to station site. A tall steel standpipe which is 200 yards north of Acacia Avenue is 0.2 mile east of station. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Upper mark projects 3 inches. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 13.785 meters (45.23 feet) from station in azimuth 214°51′. No. 2 is on northwest side of street and 14.200 meters (46.59 feet) from station in azimuth 125°31′.

Bowen (Orange County, G. L. Bean, 1928; 1933).—Directly opposite road leading to house to northwest, about 150 yards west of old barn, and 27 feet southeast of center line of street. To reach from Costa Mesa, go east 0.7 mile on Newport Avenue to Twenty-first Street, turn southeast, and go 1 mile to Irvine Avenue, turn left (northeast) and go 0.1 mile to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Upper mark projects 3 inches. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 31.985 meters (104.94 feet) from station in azimuth 213°30′. No. 2 is 21.510 meters (70.57 feet) from station in azimuth 303°40′. A 4- by 6-inch post, painted white, is beside each mark.

Golf (Orange County, G. L. Bean, 1928; 1933).—Near edge of highest bluff on east side of coast highway, just north of Ocean Avenue and east of Newport Avenue. To reach from Newport Beach, go northeast on Newport Avenue

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to Fifteenth Street, turn right and go 1.1 miles, turn southwest along edge of the now abandoned Newport Beach golf course and go 0.3 mile to station site, which is about one-fourth mile west of clubhouse. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Upper mark projects 3 inches. Reference marks are standard reference disks in concrete, note 11a. No. 1 is at edge of old golf course and 27.260 meters (89.44 feet) from station in azimuth 126°43′. No. 2 is at edge of bluff and 40.71 meters (133.6 feet) from station in azimuth 273°25′. Azimuth from station to Newport Beach, spire on large building, is 159°35′39″. A tile mark, probably station "Turning Point (1875)", is 8.40 meters (27.6 feet) from station in azimuth 326°25′.

Newport (Orange County, G. L. Bean, 1928; 1933).—On highest part of grass-covered mesa northwest of junction of Ocean and Newport Avenues, 225 feet west of dirt road and 375 feet south of barn. To reach from Costa Mesa, go west 1.6 miles on Newport Avenue to Ocean Avenue, turn right and go under railroad bridge known as "Branagan Underpass", turn right onto first dirt road after passing under bridge and go 0.4 mile to mesa, leave road and go southeast 0.1 mile to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Upper mark projects 3 inches. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 27.995 meters (91.85 feet) from station in azimuth 18°59′. No. 2 is 27.830 meters (91.31 feet) from station in azimuth 113°45′. Azimuth from station to San Diego-Los Angeles airway beacon no. 7A is 300°54′56″.

Rabbit (Orange County, G. L. Bean, 1929; 1933).—On summit of small hill in foothills of the Santa Ana Mountains, about 3.4 miles by road south of entrance to Orange County Park and on land of and three-eighths mile southeast of ranch house of the Irvine Co. To reach from flagpole circle in Orange, go east 5.6 miles on Chapman Avenue and County Park Road, turn right at signpost designating the Silverado Canyon and go 3.1 miles, and go in a southeasterly direction up ridge to station site on highest point of second small peak south of highway. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 58.49 meters (191.9 feet) from station in azimuth 173°23′. No. 2 is 35.95 meters (117.9 feet) from station in azimuth 20°24′. Azimuth from station to standpipe at head of reservoir, distant 0.9 mile, is 163°04′13″.

Glen (Orange County, G. L. Bean, 1929; 1933).—On low hill (slightly reddish in color near top) in the Santa Ana Mountains. To reach from circle in center of Orange, go east 5.5 miles on Chapman Avenue and continue on County Park Road to junction with Old County Park Road, turn right (southeast) onto Old County Park Road and go 4.8 miles to sign and junction of Black Star Canyon Road, turn left up Black Star Canyon Road and go 1.9 miles, turn right onto old dim road and go 0.1 mile to foot of hill and climb up southwest slope to station site. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 11.445 meters (37.55 feet) from station in azimuth 97°38′. No. 2 is 5.570 meters (18.27 feet) from station in azimuth 200°59′.

Star (Orange County, G. L. Bean, 1929; 1933).—On low peak in the Santa Ana Mountains, 1½ miles east of mouth of Black Star Canyon, and 200 feet north of highest part of ridge which is made up of large boulders and outcropping ledge rock. To reach from flagpole circle in Orange, go east 5.6 miles on Chapman Avenue, turn right onto Silverado Canyon Road and go 4.8 miles, turn left onto Black Star Canyon Road and go 2.6 miles, turn left (continuing on Black Star Canyon Road) and go 0.7 mile to Black Star Creek bridge, go 0.8 mile to clearing on right-hand side of road, and follow trail in a southerly direction to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 17.815 meters (58.45 feet) from station in azimuth 141°44′. No. 2 is 20.825 meters (68.32 feet) from station in azimuth 18°08′. Station *Lomas* (see description thereof) is visible from ground in azimuth 79°29′50″.

Silver (Orange County, G. L. Bean, 1929; 1933).—About 1½ miles by trail and 1 mile airline from summit of main ridge of the Santa Ana Mountains, about 1½ miles from junction of Silverado Canyon trail and West Ladd Canyon trail, on main ridge between Silverado and Ladd Canyons, on highest point of lowest and most southwesterly of prominent peaks on ridge just before ridge drops sharply to southwest, and about 20 feet west of trail. To reach from

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Orange, go east on Chapman Avenue and continue on County Park Road to junction with Old County Park Road, turn right (southeast) and go to Black Star Canyon Road, turn left and go to summit of Santa Ana Ridge, turn right onto road leading along crest of ridge past water tank and continue to sign "West Ladd Firebreak" and go along firebreak to station site on last prominent point of ridge. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 1.461 meters (4.79 feet) from station in azimuth 60°14′. No. 2 is 4.770 meters (15.65 feet) from station in azimuth 228°43′.

Baker (Orange County, G. L. Bean, 1929; 1933).—About 7 miles southwest of Corona, about 1 mile west of main divide of the Santa Ana Mountains, on prominent ridge east of Baker Canyon, about 25 yards left of trail, and 10 feet from edge of sandstone bluff overlooking Baker Canyon. To reach from flagpole circle in Orange, go east 5.6 miles on Chapman Avenue, turn right onto Silverado Canyon Road and go 4.8 miles, turn left onto Black Star Canyon Road and go 2.6 miles, turn left (continuing on Black Star Canyon Road) and go 0.7 mile to Black Star Creek bridge, go 0.3 mile, keep to right and go 0.5 mile, take left fork on main-traveled road and go 3.0 miles, turn right off road into ranch yard, and follow the Hidden Ranch firebreak about 1½ miles in a southerly direction to station site. Marked by standard station disk in bedrock, note 2. Reference mark no. 1 is standard reference disk in boulder, note 12c, 6.515 meters (21.37 feet) from station in azimuth 221°36′. Reference mark no. 2 is standard reference disk in bedrock, note 12a, 11.500 meters (37.73 feet) from station in azimuth 351°48′. Station *Black* (see description thereof) is visible from ground in azimuth 114°55′37″.

Mine (Orange-Riverside Counties, G. L. Bean, 1929; 1933).—About 5 miles southwest of Corona, on or near Orange-Riverside County line, on summit of main ridge of the Santa Ana Mountains, 1.6 miles by road south of summit of Black Star Canyon road 150 feet west of Forest Service road along ridge, 30 feet west of Forest Service telephone line along ridge, near southern end of small knoll, and about one-half mile north of highest point on ridge. To reach from flagpole circle in Orange, go east 5.6 miles on Chapman Avenue, turn right onto Silverado Canyon road and go 4.8 miles, turn left onto Black Star Canyon road and go 2.6 miles, turn left and go 0.7 mile to Black Star Creek bridge, go 6.6 miles on main-traveled road, turn right, pass through chain gate and go 1.5 miles, turn right off road and go 0.1 mile up the Hagador firebreak to station site on crest of hill. Marked by standard station disk in boulder, note 4. Reference mark no. 1 (1928) was standard reference disk in boulder, note 12c, 19.417 meters (63.70 feet) from station in azimuth 201°16′. In 1933, this mark was not recovered and two additional reference marks were established. Reference mark no. 1 (1933) is standard reference disk in boulder, note 12c, 8.158 meters (26.77 feet) from station in azimuth 256°29′. Reference mark no. 2 (1933) is standard reference disk in bedrock, note 12a, 11.436 meters (37.52 feet) from station in azimuth 323°04′. Station *Sier* (see description thereof) is visible from ground in azimuth 146°55′42″.

Sludge (Riverside County, G. L. Bean, 1928; 1933).—On summit of northwestern hump of double hill about 200 feet high. The Corona sewerage disposal beds are at western foot of hill. To reach from Corona, go north 0.4 mile on Main Street from intersection of North Main and Sixth Streets, turn left and go 0.05 mile, turn right and go 0.4 mile, turn right and go 0.3 mile, turn left and go 0.1 mile, leave road at this point and go south (left) 0.1 mile to station site on summit of hill. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Upper mark projects 4 inches. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 18.780 meters (61.61 feet) from station in azimuth 357°54′. No. 2 is 14.210 meters (46.62 feet) from station in azimuth 75°53′. Azimuth from station to Corona, By Products Exchange, water tank, distant about 0.9 mile, is 303°54′15″.

Yorba (Riverside County, G. L. Bean, 1928; 1933).—One mile west of Corona, on edge of cultivated field, 63 feet west of west side of concrete ditch, and 20 feet south of center line of east-and-west road. To reach from intersection of Sixth and Main Streets in Corona, go west 0.9 mile on Sixth Street to the Corona electric sign, turn left onto Lincoln Street and go 0.3 mile to road intersection, turn right and go 100 feet to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Upper

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mark projects about 4 inches. Reference mark no. 1 is standard reference disk in north abutment of bridge over concrete ditch and 22.405 meters (73.51 feet) from station in azimuth 246°35′. Reference mark no. 2 is standard reference disk in east edge of concrete ditch and 31.509 meters (103.38 feet) from station in azimuth 324°49′.

Gypsum (Riverside County, G. L. Bean, 1928; 1933).—On shoulder of ridge about 3 miles southwest of Corona. To reach from Corona, go south-southwest on Main Street to its end, go northwest 0.5 mile to concrete reservoir, go north 0.1 mile around reservoir (station is on second prominent shoulder visible from here), and follow crest of ridge across cultivated field and westward about 1¼ miles to station site. Marked by standard station disk in boulder, note 4, flush with surface. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 11.080 meters (36.35 feet) from station in azimuth 40°34′. No. 2 is 8.142 meters (26.71 feet) from station in azimuth 135°49′. Azimuth from station to Corona, By Products Exchange, water tank, is 201°46′05″.

Arroya (Riverside County, G. L. Bean, 1928; 1933).—Three miles south of Corona, on edge of cultivated field, 1 meter (3 feet) west of bank of wide arroyo, and 100 feet south of turn of road leading around lemon orchard. To reach from intersection of Sixth and Main Streets in Corona, go south 2.9 miles on Main Street, and go east 0.1 mile between two steel tanks and lemon orchard to edge of arroyo and station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Upper mark projects 4 inches. Reference marks are standard reference disks in concrete, note 11a. No. 1 is at turn of road and 34.820 meters (114.24 feet) from station in azimuth 187°58′. No. 2 is about 2 feet south of drainage ditch and 45.267 meters (148.51 feet) from station in azimuth 132°00′.

Hagador (Riverside County, G. L. Bean, 1929; 1933).—About 5 miles southwest of Corona, in the Santa Ana Mountains, on first ridge west of Hagador Canyon, 2.8 miles by road from control sign on Corona Skyline Drive, 50 yards east of road, and 2 yards south of Forest Service telephone line along ridge. To reach from intersection of Sixth and Main Streets in Corona, go south 1.8 miles on Main Street, turn right onto Lemon Street and follow Corona Skyline Drive signs up into mountains, go 2.8 miles from control sign at foot of grade (at this point station can be seen on point to northeast) and follow firebreak northeast about 300 yards to station site. Marked by standard station disk in boulder, note 4. Reference mark no. 1 is standard reference disk in boulder, note 12c, 59.046 meters (193.72 feet) from station in azimuth 37°09′. In 1933, reference mark no. 2, standard reference disk in boulder, note 12c, was established 8.780 meters (28.81 feet) from station in azimuth 117°57′.

Spur (Riverside County, G. L. Bean, 1929; 1933).—In the Santa Ana Mountains, on shoulder of ridge leading to Sugarloaf Peak, and about 1½ miles by trail northeast of Sugarloaf Peak. To reach from Corona, go south on Main Street to Lemon Street, follow Corona Skyline Drive to the pass, turn left, and go 4.0 miles along ridge road to Main Street firebreak, go about 1½ miles down firebreak to prominent knoll on ridge and station site. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 6.778 meters (22.24 feet) from station in azimuth 227°41′. No. 2 is 11.015 meters (36.14 feet) from station in azimuth 330°45′. Azimuth from station to red tank near station *Arroya* is 232°05′26″.

Linson (Riverside County, G. L. Bean, 1928; 1933).—About 2 miles southwest of Corona, on highest point of brush-covered hill (about 300 feet high) at end of Lincoln Street, and on north side of firebreak where it goes over ridge. Hill is cultivated about half-way to top. To reach from intersection of Sixth and Main Streets in Corona, go south 1.8 miles on Main Street, turn right onto Lemon Street and go 0.9 mile, turn left onto Lincoln Street and go 0.4 mile to barn, go around east side of barn and follow dim road 0.2 mile to point where road nears firebreak, and go about 100 yards up firebreak to station site. Marked by standard station disk in boulder, note 4, flush with surface. Reference marks are standard reference disks in boulders, note 12c, flush with surface. No. 1 was 21.599 meters (70.86 feet) from station in azimuth 331°53′. In 1933, reference mark no. 1 was found 18.670 meters (61.25 feet) from station in azimuth 48°28′. No. 2 is 14.252 meters (46.76 feet) from station in azimuth 100°06′.

Prado (Riverside County, G. L. Bean, 1929; 1933).—About 2 miles southwest of Corona, 1½ miles west of Main Street, one-half mile south of Ontario Avenue,

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on slope leading up to foothills of the Santa Ana Mountains, 50 yards north of bank of dry wash, 175 yards west of dirt road, across cultivated field from road, and one-fourth mile southwest of small farmhouse. To reach from Corona, go south 1.7 miles on Main Street, turn right onto Ontario Avenue and go 0.7 mile, turn left (south) along dry wash and go 0.3 mile, turn right off road and go 0.15 mile to station site on east side of wash. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 53.99 meters (177.1 feet) from station in azimuth 190°33′. No. 2 is near telephone pole at west edge of road and 161.46 meters (529.7 feet) from station in azimuth 282°39′51″.

Pigeon (Riverside County, G. L. Bean, 1929; 1933).—About 2 miles northeast of Riverside, on shoulder of rocky hill (first hill just west of saddle), between saddle and highest point, and about three-eighths mile west of highest point and about 500 feet lower in elevation. To reach from intersection of Eighth and Main Streets in Riverside, go northeast 0.4 mile on Main Street, turn right onto First Street and go 0.4 mile, turn left onto La Cadena Drive and go 0.9 mile, turn right onto Marlborough Avenue and go 1.4 miles on its continuation, turn right just before crossing open concrete irrigation flume, go south 0.2 mile along irrigation flume to point where it enters tunnel in hillside, and proceed in a southeasterly direction to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 3.648 meters (11.97 feet) from station in azimuth 80°31′. No. 2 is 11.600 meters (38.06 feet) from station in azimuth 280°04′.

Rubidoux (Riverside County, G. L. Bean, 1929; 1936).—On massive dome-shaped boulder at south end of Mount Rubidoux in west part of Riverside, 32 feet west of large wooden memorial cross. To reach from business district, go west on Seventh Street to masonry overhead bridge, take roadway over bridge and circle around mountain to summit. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is in nearly-buried boulder, 51.05 feet from station in azimuth 341°06′. No. 2 is in rugged boulder wedged at apex of large pile, 27.88 feet from station in azimuth 144°35′. Azimuth from station to Riverside tower is 277°04′50″.

Pachappa (Riverside County, G. L. Bean, 1929; 1933).—On highest part of Pachappa Hill, in southeastern section of Riverside. To reach from junction of Market Street and Magnolia Avenue in Riverside, go south 1.2 miles on Magnolia Avenue, turn left (east) onto Jurupa Avenue and go 0.4 mile over overhead railroad crossing, take left fork and go 0.1 mile, take left fork and follow winding road about 0.2 mile to its highest point, and ascend rocky hill to east about 200 yards to station site. Marked by standard station disk in bedrock, note 2, flush with surface. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 7.802 meters (25.60 feet) from station in azimuth 261°16′. No. 2 is 8.618 meters (28.27 feet) from station in azimuth 185°21′.

Bliss (Riverside County, G. L. Bean, 1928; 1933).—About 3½ miles south of Riverside, 1½ miles east of Arlington, and on highest point of small rocky hill. To reach from intersection of Market Street and Magnolia Avenue in Riverside, go south 2.8 miles on Magnolia Avenue to Madison Street, turn left (south) and go 1.3 miles, turn left into the Bliss Ranch and go 0.1 mile to house, and ascend rocky hill to southeast about 200 yards to summit. There is a 1-inch iron pipe, with cap, cemented in rock about 3 feet south of station. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 13.435 meters (44.08 feet) from station in azimuth 65°49′. No. 2 is 8.065 meters (26.46 feet) from station in azimuth 180°15.′

Green (Riverside County, G. L. Bean, 1928; 1933).—On northern slope of round-topped hill north of Arlington, about 300 meters (984 feet) west of Adams Street, 500 meters (1,640 feet) southwest of crossroad and garbage dump, and about 3 feet below highest point of hill. To reach from intersection of Market Street and Magnolia Avenue in Riverside, go south 3.7 miles on Magnolia Avenue to Adams Street, turn right (north) onto Adams Street and go 0.8 mile, turn left onto farm road and go 0.2 mile in a westerly direction to top of hill. Surface and underground marks are standard

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station disks in concrete, notes 1a and 7a. Upper mark is flush with surface. Reference marks are standard reference disks in concrete, note 11a. No. 1 is in fence corner, near group of beehives, and 141.807 meters (465.25 feet) from the station in azimuth 297°29′14″. No. 2 is on slope of hill, in open field, and 30.805 meters (101.07 feet) from station in azimuth 18°56′.

La Sierra (Riverside County, G. L. Bean, 1929; 1933).—About 1 mile west of Arlington, on highest point of rocky hill, and 100 feet west of covered reservoir of the Domestic Water Co. of Arlington. To reach from post office in Arlington, go southwest 0.6 mile on Magnolia Avenue, turn right onto Hole Avenue and go 0.4 mile, turn right onto Tyler Avenue and go 0.7 mile, turn right onto Cook Street and go 0.4 mile, turn right onto dim road just after passing small reservoir and go about 0.1 mile to gate, skirt the gate by going east around fence and back to road, go 0.15 mile to end of road and continue west about 50 feet to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 6.030 meters (19.78 feet) from station in azimuth 354°18′. No. 2 is 5.570 meters (18.27 feet) from station in azimuth 155°20′. Azimuth from station to airway beacon is 194°24′36″.

Hole (Riverside County, G. L. Bean, 1928; 1933).—About 1 mile west of La Sierra, on southern edge of bare hill on the Hole Estate. To reach from post office in Arlington, go west 0.6 mile on Magnolia Avenue to Hole Avenue, turn right onto Hole Avenue and go 1.6 miles, turn right onto Holden Avenue and go 1.2 miles, turn left onto Cypress Street and go 0.3 mile, pass through gate leading into the Hole Estate and go 0.1 mile to south side of house, take road leading up hill and go 0.4 mile, turn left and go 0.25 mile to top of hill and station site. Marked by standard station disk in boulder, note 4, flush with surface. Reference marks are standard reference disks in bedrock, note 12a. No. 1 projects 1 foot and is 12.310 meters (40.39) feet from station in azimuth 31°36′. No. 2 is near large cactus and 14.408 meters (47.27 feet) from station in azimuth 239°11′. Azimuth from station to west side of apex of roof of frame-stucco building, distant 0.5 mile, is 244°44′34″.

Hump (Riverside County, G. L. Bean, 1928; 1933).—On top of grass-covered hill, about 300 meters (984 feet) east of Taylor Street, and about 11 feet west of corner of concrete irrigation standpipe on top of hill. To reach from post office in Arlington, go southwest 1.9 miles on Magnolia Avenue, turn left onto Taylor Street (known also as Holden Avenue) and go 0.6 mile, turn left onto dim road directly after passing cut through crest of hill and go 0.1 mile, turn right uphill and go 0.2 mile to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Upper mark projects 4 inches. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 2 feet southwest of center of concrete trough running from standpipe, and 18.945 meters (62.16 feet) from station in azimuth 262°18′. No. 2 is 15 feet northwest of center of concrete trough, and 25.330 meters (83.10 feet) from station in azimuth 10°12′. Azimuth from station to flagpole with weather vane, distant 0.8 mile, is 257°17′52″.

Linn (Riverside County, G. L. Bean, 1929; 1933).—About 1 mile west of La Sierra, on high, sharp, rocky hill which is the highest one of group of hills. To reach from La Sierra, go west 0.6 mile on Pierce Street, turn right onto Sierra Vista Avenue and go 0.3 mile, turn left onto Norwood Street and go 0.3 mile to gate leading into the Sierra Vista Rancho, pass through barnyard and continue 0.3 mile along northern side of canyon on dim road in poor condition to saddle, turn left off road and go south 0.2 mile up hill, and go in a southwesterly direction to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 5.030 meters (16.50 feet) from station in azimuth 101°46′. No. 2 is 2.495 meters (8.19 feet) from station in azimuth 219°10′.

School (Riverside County, G. L. Bean, 1928; 1933).—On hill which is covered with large boulders, about 85 feet north of boulder 12 feet high, and about 300 yards northwest of higher ridge, which is farther from highway and covered with fewer boulders. To reach from post office in Arlington, go southwest 1.8 miles on Magnolia Avenue, turn left (south) onto Pierce Street and go 0.4 mile to end of street at its junction with irrigation ditch, cross ditch, and follow dim trail in southerly direction to second hump and station site. Marked by standard station disk in boulder, note 4, flush with surface. Reference marks are standard reference disks in large boulders, note 12c. No. 1

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is 25.690 meters (84.28 feet) from station in azimuth 346°12′. No. 2 is 13.250 meters (43.47 feet) from station in azimuth 231°36′.

Rail (Riverside County, G. L. Bean, 1929).—About 0.4 mile east of the Riverside city-limit sign going north on La Cadena Drive, at intersection of Palmyrita Avenue and Atchison, Topeka & Santa Fe Railway tracks, 10.8 feet west of center line of tracks, and 15 feet north of center line of Palmyrita Avenue. Surface and underground marks were standard station disks in concrete, notes 1c and 7a. Reference marks were standard reference disks in concrete, note 11c. No. 1 was 27.255 meters (89.42 feet) from station in azimuth 257°06′. No. 2 was 28.330 meters (92.95 feet) from station in azimuth 57°44′. In 1930 station was destroyed by the construction of a new track and was replaced by station *Rail 2* (see description thereof) 9.673 meters (31.74 feet) distant in azimuth 269°42′.

Junction (Riverside County, G. L. Bean, 1929).—In Riverside, 260 feet south of right-angle crossing of Atchison, Topeka & Santa Fe Railway and Southern Pacific railroad tracks, between La Cadena Drive and railroad tracks, 7.5 meters (25 feet) west of center line of Atchison, Topeka & Santa Fe Railway tracks at Y-junction with Union Pacific Railroad tracks, and 98 feet south of railroad signboard "Riverside Junction." Surface and underground marks were standard station disks in concrete, notes 1c and 7a. Reference marks were standard reference disks in concrete, note 11c. No. 1 was just southwest of crossing of Southern Pacific railroad and Atchison, Topeka & Santa Fe Railway tracks and 79.214 meters (259.89 feet) from station in azimuth 218°54′. No. 2 was just east of Pacific Electric Railway tracks and 61.170 meters (200.69 feet) from station in azimuth 115°35′. In 1930 station was destroyed by the construction of a new track and was replaced by station *Junction 2* (see description thereof) 9.062 meters (29.73 feet) distant in azimuth 103°14′.

Fairmont (Riverside County, G. L. Bean, 1929; 1933).—At northwest corner of city of Riverside, on highest point in vicinity of Fairmont Park, about 50 yards north of concrete observatory of the Carnegie Institute, and 3 meters (10 feet) south of edge of cliff. To reach from intersection of Main and Seventh Streets in Riverside, go northwest on Seventh Street to Locust Street, turn right onto Locust Street and go 0.5 mile to intersection of Locust and Houghton Streets, turn left onto Houghton Street, leave pavement and turn left across vacant lot onto dim road, follow dim road 0.2 mile to top of hill and station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 24.360 meters (79.92 feet) from station in azimuth 78°19′. No. 2 is 24.141 meters (79.20 feet) from station in azimuth 260°18′.

Broom (Riverside County, G. L. Bean, 1929; 1933).—On small granite-covered rise in La Sierra-Arlington district, 100 yards southeast of intersection of Hole and Schuyler Avenues and 85 yards south of center line of Hole Avenue. To reach from post office in Arlington, go southwest 0.6 mile on Magnolia Avenue, turn right onto Hole Avenue and go 1.3 miles, turn left off road and cross field to rock pile and station site which is opposite intersection of Hedrick Street. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 4.955 meters (16.26 feet) from station in azimuth 17°23′. No. 2 is 16.730 meters (54.89 feet) from station in azimuth 147°37′.

Henry (Riverside County, G. L. Bean, 1929; 1933).—About 1½ miles east of Corona, 285 yards north of road, 5 feet south of concrete water standpipe, 2.65 meters (8.7 feet) north of railroad track, and on land planted in orange trees and belonging to Mr. Henry. To reach from intersection of Victoria and East Sixth Streets in Corona, go east 0.3 mile on East Sixth Street, turn right and go 0.2 mile, turn left and go 1.3 miles, turn left onto gravel road and go 0.6 mile, turn left and go 0.1 mile, turn left at railroad tracks and go 0.1 mile to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 23.900 meters (78.41 feet) from station in azimuth 271°31′. No. 2 is 26.090 meters (85.60 feet) from station in azimuth 75°57′. Station *Cloud* (see description thereof) is visible from ground in azimuth 259°23′23″.

Van Buren (Riverside County, G. L. Bean, 1929; 1933).—About 1½ miles northeast of Highgrove, in line with row of power-line poles, 120 yards east of

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intersection of Michigan Avenue and Van Buren Street, and 28 feet north of center line of Van Buren Street. To reach from post office in Highgrove, go east 0.5 mile on Center Street, turn left (north) onto Michigan Avenue and go 0.6 mile to Van Buren Street, turn right onto Van Buren Street and go 0.1 mile to station site. Surface and underground marks are standard station disks in concrete, notes 1c and 7a. Reference marks are standard reference disks in concrete, note 11c. No. 1 is south of Van Buren Street and 14.242 meters (46.73 feet) from station in azimuth 16°33′. No. 2 is at southeast corner of intersection of Michigan Avenue and Van Buren Street and 116.825 meters (383.28 feet) from station in azimuth 82°32′58″. In 1933 reference mark no. 2 was not recovered.

Linda (San Bernardino County, G. L. Bean, 1929).—About three-fourths mile south of Loma Linda, 1 mile from intersection of Palm Avenue and San Juan Drive, on southeastern end of long ridge, and about 100 meters (328 feet) north of barren spot marking highest portion of ridge which is just in front of steep decline. To reach from Loma Linda, go south on San Juan Drive, continue up grade from right-angle turn in drive past water tank and south through cultivated field, go west to crest of ridge, and continue up crest to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11c. No. 1 is 11.406 meters (37.42 feet) from station in azimuth 52°26′. No. 2 is 12.190 meters (39.99 feet) from station in azimuth 336°16′.

Colton (San Bernardino County, G. L. Bean, 1929).—About 1 mile south of Colton, on small knoll which is cut away on the western and northern sides and slopes gently to south, about 100 meters (328 feet) south of Colton Avenue bridge across Santa Ana River, 7 yards east of vertical cut on western side of knoll, and 14 yards south of most westerly post of fence across northern end of knoll. There is a depression about 4 feet deep between this post and station. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11c. No. 1 is 16.080 meters (52.76 feet) from station in azimuth 270°12′. No. 2 is 27.335 meters (89.68 feet) from station in azimuth 346°49′. In 1935 it was reported that station marks would be destroyed by highway construction.

Loma (San Bernardino County, G. L. Bean, 1929).—On highest point of small rocky knoll which is northern end of a long high hill. To reach from Riverside, go north on La Cadena Drive to Palm Avenue, go east on Palm Avenue to a sharp left-hand turn in road at automobile club sign "Riverside 6 mi.—Loma Linda 4 mi.—Redlands 8½ mi.", follow dirt road leading straight east about 1 mile to foot of hill, follow fence line east about one-fourth mile to large saddle in ridge, and go north along ridge about one-fourth mile to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 14.478 meters (47.50 feet) from station in azimuth 109°46′. No. 2 is 4.112 meters (13.49 feet) from station in azimuth 193°16′.

Bryn (San Bernardino County, G. L. Bean, 1929).—In Loma Linda, about 1,300 feet west of intersection of Colton and Anderson Avenues, 45 feet north of center line of Colton Avenue, and 4½ feet southeast of fence corner. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11c. No. 1 is 16.185 meters (53.10 feet) from station in azimuth 92°03′. No. 2 is 15.678 meters (51.44 feet) from station in azimuth 179°10′.

Wilder (San Bernardino County, G. L. Bean, 1929).—About 8 miles north of Riverside, about 2 miles south of Loma Linda, on brow of small hill belonging to Mr. Wilder, across small gulch and 3 meters (10 feet) back from edge of hill facing Palm Avenue, 50 yards north of Wilder's house, and 15 meters (49 feet) west of center line of road leading to Wilder's house. To reach from Riverside, follow La Cadena Drive to Palm Avenue, follow Palm Avenue to road intersection with automobile club sign "Riverside 8 mi.—Loma Linda 2 mi.—Los Angeles 65 mi.", and go 0.1 mile on dirt road which turns to right about 100 feet east of intersection and leads upgrade to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11c. No. 1 is 38.801 meters (127.30 feet) from station in azimuth 307°04′. No. 2 is 30.812 meters (101.09 feet) from station in azimuth 228°42′.

Harlem (San Bernardino County, G. L. Bean, 1929).—About 1 mile south of Harlem Springs, near northern edge of Santa Ana Wash, 95 feet north of 8-foot

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masonry pier marking entrance to subdivision known as "Valmont Acres", and 5.3 feet west of projection of west curb line of street leading south from entrance to subdivision. To reach from San Bernardino, go east along Base Line Avenue to Pepper Avenue, go south 1 mile along Pepper Avenue, and go east 0.4 mile to entrance to Valmont Acres. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11c. No. 1 is 28.662 meters (94.04 feet) from station in azimuth 8°19′. No. 2 is 21.634 meters (70.98 feet) from station in azimuth 101°38′.

Oak (San Bernardino County, G. L. Bean, 1929).—In center of fire trail, on top of first hill west of mouth of Santa Ana Canyon, just north of Santa Ana Wash, and about three-fourths mile northwest of Southern California Edison Co.'s power plant in mouth of Santa Ana Canyon. To reach from East Highlands, go about 2 miles on road leading toward mouth of Santa Ana Canyon or to within 1 mile of mouth of canyon, take Forest Service trail to left leading to head of Alder Creek and go about one-third mile to point where fire trail crosses, and follow fire trail to highest part of mountain. Marked by standard station disk in concrete, note 1c. Reference mark no. 1 is standard reference disk in concrete, note 11c, 9.140 meters (29.99 feet) from station in azimuth 101°02′.

Leaf (San Bernardino County, G. L. Bean, 1929).—On small hill about 1½ miles east of Patton, 1½ miles north of East Highlands, about one-fourth mile from point where Highland Avenue makes right-angle turn, about 150 yards west of farmhouse, on land belonging to Donald and Howard Draper, and about one-fourth mile northeast of their home. The hill is surrounded by orange groves. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 12.335 meters (40.47 feet) from station in azimuth 188°06′. No. 2 is 6.287 meters (20.63 feet) from station in azimuth 131°12′.

Edwards (San Bernardino County, G. L. Bean, 1929).—About 2 miles north of Highlands, in foothills of the San Bernardino Mountains, and on west end of small ridge just east of Harrison Mountain. To reach from San Bernardino, follow Highland Avenue toward Santa Ana Canyon to Forest Service road leading up Plunge Creek, go 1½ miles on this road to point where fire trail crosses road, follow fire trail east about 200 yards to top of ridge, and go west about 20 yards through brush to station site. Surface and underground marks are standard station disks in concrete, notes 1c and 7a. Reference marks are standard reference disks in concrete, note 11c. No. 1 is 7.220 meters (23.69 feet) from station in azimuth 230°04′. No. 2 is 5.642 meters (18.51 feet) from station in azimuth 102°29′.

Boulder (San Bernardino County, G. L. Bean, 1929).—About 2 miles east of East Highlands, one-half mile south of north edge of Santa Ana Wash, and 1,025 feet south and 1½ pole spaces west of power transmission pole 254468 E. Power line runs east and west in the wash. To reach from East Highlands, go east 1.9 miles on Santa Ana Canyon road, go 0.2 mile on dirt road leading southwest at the Water Conservation Headquarters' sign, and go southwest 0.3 mile to station site. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in concrete, note 11c. No. 1 is 14.854 meters (48.73 feet) from station in azimuth 231°52′. No. 2 is 16.120 meters (52.89 feet) from station in azimuth 286°18′.

Mentone (San Bernardino County, G. L. Bean, 1929).—About 1½ miles northeast of Mentone, about 1½ miles south of mouth of Santa Ana Canyon, on small knoll in Santa Ana Wash, about 50 meters (164 feet) north of Southern California Edison Co.'s power transmission line which runs east and west in wash, and about one-fourth mile south of railroad bridge and orange packing house. The nearest transmission pole to station is A316. To reach from Redlands, go north on Orange Street to Lugonia Avenue, go east 6 miles to forks of road at service station, take road leading north at road sign "Greenspot Ranger Station" and go 1.6 miles to orange packing plant and railroad bridge (signboard "Greenspot"), go south across bridge to milepost 553, and go east 0.1 mile to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11c. No. 1 is 7.896 meters (25.91 feet) from station in azimuth 309°20′. No. 2 is 9.810 meters (32.18 feet) from station in azimuth 40°22′. A triangulation station of the Southern California Edison Co. is 1.15 meters (3.8 feet) from station in azimuth 31°09′.

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Morton (San Bernardino County, G. L. Bean, 1929).—About 5 miles east of East Highlands, on shoulder of ridge of Morton Mountain leading east and west from mouth of Santa Ana Canyon, and in middle of firebreak which follows ridge to top of mountain. To reach from East Highlands, go east 4.3 miles along Santa Ana Canyon road, turn south onto road leading into wash and go 0.2 mile, cross river and go up firebreak along crest of ridge to station site. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 9.252 meters (30.35 feet) from station in azimuth 353°57′. No. 2 is 13.696 meters (44.93 feet) from station in azimuth 70°54′.

Warm Springs (San Bernardino County, G. L. Bean, 1929).—About 2 miles north of mouth of Santa Ana Canyon, in the San Bernardino Mountains, on summit of and at extreme end of ridge lying between Santa Ana Canyon and Warm Springs Creek. To reach from Southern California Edison Co.'s power plant, go about 2 miles on Forest Service road leading up Santa Ana Canyon to Warm Springs road fork, turn right at fork and follow creek until reaching burned-over area, turn left and follow up ridge about 2½ miles to top. Marked by standard station disk in boulder, note 4. Reference mark no. 1 is standard reference disk in boulder, note 12c, 4.002 meters (13.13 feet) from station in azimuth 180°54′. Reference mark no. 2 is standard reference disk in concrete, note 11c, 5.900 meters (19.36 feet) from station in azimuth 320°03′.

Plunge (San Bernardino County, G. L. Bean, 1929).—In the San Bernardino Mountains, about 1¾ miles north of mouth and about 0.5 mile west of Santa Ana Canyon, and on highest point of low ridge just west of canyon. To reach from Southern California Edison Co.'s power plant in mouth of Santa Ana Canyon, go about 1½ miles on Forest Service road leading up canyon to point where Forest Service trail leading to Plunge Creek branches off from road to left, go about 1 mile on this trail to lone pine tree, go directly up and strike another trail, follow to right around mountain about 1 mile until directly below summit, follow up steep draw to shoulder, and go north to clearing on extreme end of peak. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 6.382 meters (20.94 feet) from station in azimuth 171°48′. No. 2 is 5.195 meters (17.04 feet) from station to azimuth in 104°29′.

Creek (San Bernardino County, G. L. Bean, 1929).—In foothills of the San Bernardino Mountains, on second hill west of mouth of Santa Ana Canyon, and just north of Santa Ana Wash. To reach from East Highlands, go east about 1½ miles to Plunge Creek, follow up Plunge Creek about one-fourth mile to fire trail, and follow up fire trail 1.5 miles to top of hill and station site, which is in center of fire trail. Marked by standard station disk in boulder, note 4. Reference mark no. 1 is standard reference disk in concrete, note 11c, 8.106 meters (26.59 feet) from station in azimuth 234°42′.

Highland (San Bernardino County, G. L. Bean, 1928).—On highest point of small dome-shaped hill about 1½ miles north of East Highlands and about 1 mile southeast of foot of Harrison Mountain. To reach from East Highlands post office, go north 1.5 miles on Church Street to ranch house 100 yards north of Highland Avenue and off highway, turn right onto dirt road and go 0.2 mile to first left-hand road, and go 0.9 mile on main-traveled road, which winds around small brush-covered hill to its summit. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 13.540 meters (44.42 feet) from station in azimuth 150°32′. No. 2 is 14.036 meters (46.05 feet) from station in azimuth 241°30′.

Red (San Bernardino County, G. L. Bean, 1929).—About 1 mile west of Patton, among eucalyptus trees on summit of small hill lying between Highland and Base Line Avenues, and on highest point of first knoll east of old foundation of burned house. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11c. No. 1 is 13.793 meters (45.25 feet) from station in azimuth 210°36′. No. 2 is 45.243 meters (148.43 feet) (slope) from station in azimuth 315°03′.

Wash (San Bernardino County, G. L. Bean, 1929).—In Santa Ana Wash, 0.9 mile north of Redlands city limits, 8 paces north of center line of road and 10 paces east of point where road tops rise. To reach from Redlands, go north on Orange Street and continue north 0.7 mile from northern end of highway

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bridge across Santa Ana River and go east 0.1 mile on dirt road leading to rise. This road leads to the Izaak Walton Rifle and Trap Range. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 25.395 meters (83.32 feet) from station in azimuth 105°07′. No. 2 is 20.147 meters (66.10 feet) from station in azimuth 33°33′.

Cap (San Bernardino County, G. L. Bean, 1929).—On brow of small knoll about 1¼ miles northeast af Patton, 130 feet from house belonging to W. D. Sutton and on his land. To reach from Patton, go east on Highland Avenue to Orange Avenue, go north 0.6 mile, and go east 0.1 mile to Sutton's house. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is about 2 feet from southeast corner of Sutton's house and 38.418 meters (126.04 feet) from station in azimuth 239°57′. No. 2 is 7.542 meters (24.74 feet) from station in azimuth 139°56′.

Blue (San Bernardino County, G. L. Bean, 1929).—About 0.4 mile north of Atchison, Topeka & Santa Fe Railway station Del Rosa, 151 feet west of center line of Del Rosa Avenue, and 19.3 feet south of center line of cross street. To reach from San Bernardino, go east on Highland Avenue to Del Rosa Avenue, go north 1.0 mile to intersection, and proceed west 151 feet to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 13.725 meters (45.03 feet) from station in azimuth 179°25′. No. 2 is 37.474 meters (122.95 feet) from station in azimuth 273°24′.

Rail 2 (Riverside County, G. L. Bean, 1930; 1936).—About 0.4 mile northeast of Riverside city limits, at northeast corner of intersection of Palmyrita Avenue with joint tracks of Atchison, Topeka & Santa Fe Railway and Union Pacific Railroad, about 8 feet north of Palmyrita Avenue pavement and just east of automatic railroad crossing signal. To reach from First Street, Riverside, proceed east to junction with La Cadena Drive, thence north on La Cadena Drive 1.4 miles, thence east on Palmyrita Avenue 0.4 mile to station, reached just after crossing tracks. Surface mark is standard station disk in concrete. Underground mark is standard station disk in concrete, note 7a. Reference mark no. 1 is standard reference disk in top of east headwall of railroad culvert, 14.125 meters (46.34 feet) from station in azimuth 216°58′. Reference mark no. 2 is standard reference disk in concrete, note 11a, 8 feet north of edge of Palmyrita Avenue pavement, and 43.415 meters (142.44 feet) from station in azimuth 269°02′. Azimuth from station to orange light of railroad semaphore, distant 0.5 mile, is 35°49′29″. Station *Rail* (see description thereof) is 9.673 meters (31.74 feet) from station in azimuth 89°42′.

Junction 2 (Riverside County, G. L. Bean, 1930; 1936).—In northeast part of Riverside, about 400 feet northeast of intersection of First Street and La Cadena Drive, whence it may be reached via dim road which parallels railroad tracks on west and leads to Riverside Junction control signal tower. Station is about 200 feet southwest of signal tower, 35 feet west of joint tracks of Atchison, Topeka & Santa Fe Railway and Union Pacific Railroad, and about 30 feet westerly from sign "Riverside Junction." Surface mark is standard traverse disk in concrete. Underground mark is standard station disk in concrete, note 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is at west edge of dim road, 23.090 meters (75.75 feet) from station in azimuth 43°45′. No. 2 (probably no. 2 of 1928) is about 10 feet east of street railway track on east side of La Cadena Drive, and 52.345 meters (171.74 feet) from station in azimuth 117°26′. Old reference mark (probably no. 1 of 1928) was 273.97 feet from station in azimuth 224°31′. Station *Junction* (see description thereof) was 9.062 meters (29.73 feet) from station in azimuth 283°14′.

Granite (U.S.G.S.), cairn (San Bernardino County, G. L. Bean, 1929).—On west end of sharp granite peak which is north of road between Victor and Rose Mine, on mesa formation, about 2 miles north of Jim Smart's ranch, and about 2,000 feet higher than ranch. Marked by rock cairn about 3 feet high and 3 feet in diameter erected over United States Geological Survey aluminum tablet in top of boulder.

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Ord Mountain, U. S. Mineral Monument No. 1 (San Bernardino County, G. L. Bean, 1929).—On Ord Mountain. Marked by 4- by 4-inch post, marked "Ord Mt. No. 1", in center of rock cairn. Station *Ord* (see description thereof) is 1.33 meters (4.4 feet) from station in azimuth 339°44′.

B.M. N 3 (San Bernardino County, G. L. Bean, 1929).—About 3½ miles east of Daggett, 6 meters (20 feet) southwest of second telegraph pole east of milepost 734½ of Atchison, Topeka & Santa Fe Railway, and 14 meters (46 feet) south of tracks. To reach from Daggett, go east 3½ miles on highway to point where large white sign is visible on left side of road. Station can be seen near third telegraph pole east of first block signal east of siding. Marked by standard bench-mark disk.

RIVERSIDE TO COLORADO RIVER ARC

Principal points

Eagle (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931; C. Pierce, 1934).—About 23 miles northeast of Mecca, 35 miles south-southeast of Twentynine Palms, 5 miles north of U. S. Route 60, and on highest point of Eagle Mountains. To reach from Mecca, go 12 miles on U.S. Route 60 to Shavers Well, continue 0.8 mile and take left fork, follow Twentynine Palms road 15 miles to top of pass and sign "Twentynine Palms 39—Cottonwood Springs 1 3/10", continue 3.5 miles to dim road on right at rocky butte, follow 2.9 miles and take right fork, continue 2.0 miles to end of truck travel, follow old road to cabin, and follow up canyon to left to highest point and station site. Marked by bronze disk (see fig. 7) in granite ledge. Reference mark is bronze pin 3.148 meters (10.33 feet) from station in azimuth 304°17′. In 1934 three standard reference disks in rock outcrops, note 12a, were established. No. 1 is 8.808 meters (28.90 feet) from station in azimuth 211°48′. No. 2 is 3.108 meters (10.20 feet) from station in azimuth 75°24′. No. 3 is in largest rock on mountain and one-quarter mile from station in azimuth 143°51′30″. Azimuth from station to silver-colored water tank is 47°16′55″. Mark of old triangulation station "Eagle" (not described) is 1.83 meters (6.0 feet) from station in azimuth 224°43′.

Sheep (M. W. D. of S. C.) (San Bernardino County, Metropolitan Water District of Southern California, 1931; C. Pierce, 1934).—About 23 miles east-northeast of Twentynine Palms, 4 miles north-northeast of Dale Lake, and on southern point of prominent, double-pointed, rugged peak toward southeastern end of Sheep Hole Mountains. Double-pointed peak farther to southeast may be mistaken for point, but as seen from west it is lower and has more space between double peaks. To reach from Twentynine Palms, follow the Amboy road to Dale Lake (peak is visible from point where road turns sharply north of Dale Lake), follow road to road junction called "Bush" and go north across country to mouth of canyon west of peak; follow up main canyon to impassable waterfall 125 to 150 feet high which is visible from west along Amboy road, turn right and follow up main wash to another fork, and follow left-hand canyon up to station site. Marked by bronze disk (see fig. 7) in rock about 1 foot below surrounding rocks. Reference mark is bronze pin 7.770 meters (25.49 feet) from station in azimuth 194°21′. Three standard reference disks in rock outcrops, note 12a, were established. No. 1 is 5.955 meters (19.54 feet) from station in azimuth 174°32′. No. 2 is 7.708 meters (25.29 feet) from station in azimuth 227°54′. No. 3 is on face of rounded knob and one-fourth mile from station in azimuth 56°56′41″.

Anschutz (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931; C. Pierce, 1934).—Seven and three-tenths miles west-northwest of Desert Center, on eastern end of Eagle Mountains, and on prominent summit which can be seen from Desert Center. To reach from Desert Center, go west about 6 miles on Mecca highway (U. S. Route 60) to sign "Contractors General Hospital 1 mi.", proceed north 1.3 miles to crossroad, follow right fork 0.7 mile, follow left fork 1.7 miles, turn left onto dim road leading into canyon and follow 1.1 miles to end of truck travel, continue up canyon on foot about 0.5 mile, climb to ridge and continue to station site on middle one of three points. Marked by bronze disk (see fig. 7) in rock. In 1934 three standard reference disks in rock outcrops (note 12a) were established. No. 1 is 8.718 meters (28.60 feet) from station in azimuth 222°17′.

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No. 2 is 2.545 meters (8.35 feet) from station in azimuth 130°18′. No. 3 is in azimuth 290°40′03″. Mark of old triangulation station "Anschutz" (not described) is 2.780 meters (9.12 feet) from station in azimuth 165°28′.

Orocopia (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931; C. Pierce, 1934).—About 17 miles east of Mecca, 7 miles south-southwest of Shavers Summit, and on highest point of Orocopia Mountains. To reach from Shavers Summit, go west 4.0 miles on United States Route 60 or 0.2 mile west of pole line crossing highway, turn left and follow faint tracks across country 4.0 miles, turn right and go southwest 0.2 mile, enter wash and go about 0.5 mile to end of truck travel, continue to head of wash and bear southeast along ridge to highest point and station site. Marked by bronze disk (see fig. 7) in rock. Reference marks of Metropolitan Water District of Southern California are iron pipes with copper tacks marking centers in irregular masses of concrete. No. 1 is 6.394 meters (20.98 feet) from station in azimuth 12°26′. No. 2 is 8.832 meters (28.98 feet) from station in azimuth 104°43′. In 1934 two standard reference disks in rock outcrops (note 12a) were established. No. 1 is 7.185 meters (23.57 feet) from station in azimuth 353°29′. No. 2 is 4.88 meters (16.0 feet) from station in azimuth 96°44′. Azimuth from station to Shavers Summit, airway beacon, is 206°51′34″.

Coxcomb (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—Twelve miles north-northeast of Desert Center, on flat-topped peak in southern part of Coxcomb Mountains. Peak, as seen from northeast, is easily identified, since northern half is red and southern half is black. Sharper peak of about same elevation is further south. To reach from Desert Center, go northeast about 15 miles on aqueduct road, proceed west through pass toward main range, and keep well to left along base of ridge. Marked by bronze disk (see fig. 7) in rock. Reference mark is bronze pin 10.86 feet from station in azimuth 130°43′. Mark of old triangulation station "Cement" (not described) is 6.83 feet from station in azimuth 157°12′.

Palen (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 16½ miles east-northeast of Desert Center, on first prominent peak of Palen Mountains as seen from northwest or along aqueduct road north of southern end of Coxcomb Mountains. To reach from Desert Center, go about 10½ miles on road leading to Granite Pass, take sandy road to east (power-line road) leading toward pass between Granite and Palen Mountains, continue to Malipai Rock, and south across country to base of peak. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins. No. 1 is 16.50 feet from station in azimuth 90°07′. No. 2 is 14.70 feet from station in azimuth 205°59′.

Coxcomb east base (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 19 miles north-northeast of Desert Center, in flat on eastern side of valley between Coxcomb and Granite Mountains. To reach from Desert Center, go northeast about 19 miles along aqueduct road and then 3 miles east across country. Marked by Metropolitan Water District of Southern California bronze disk (see fig. 7) in concrete post and bronze subsurface mark. Reference marks are bronze pins in concrete posts. No. 1 is 62.33 feet from station in azimuth 356°41′. No. 2 is 91.903 feet from station in azimuth 261°04′.

Comb (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—Sixteen miles north-northeast of Desert Center, on eastern side of the Coxcomb Mountains, approximately 1 mile north of pass leading to big saddle, west of a long, low, black ridge running north and south, east of higher broad-topped peak, about 30 feet below summit of southern one of two peaks of approximately same height which are separated by small saddle, and on ridge south of peak. To reach from Desert Center, go northeast about 20 miles on aqueduct road, turn west and proceed toward black ridge, go south about 200 yards to large wash, follow left side of wash to base of hill, and climb to station site. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins. No. 1 is 8.44 feet from station in azimuth 333°06′. No. 2 is 13.92 feet from station in azimuth 65°23′.

Slope (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—In flat area about 19½ miles north-northeast of Desert Center. To reach from Desert Center, go northeast about 22 miles

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on aqueduct road and proceed west 0.25 mile across country to station site. Marked by Metropolitan Water District of Southern California bronze disk (see fig. 7) in concrete post with bronze subsurface mark in concrete. Reference marks are bronze pins in concrete posts. No. 1 is 83.56 feet from station in azimuth 22°07′. No. 2 is 87.17 feet from station in azimuth 104°41.

Coxcomb west base (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 16½ miles north-northeast of Desert Center, on flat area near eastern base of Coxcomb Mountains. To reach from Desert Center, go northeast about 18 miles along aqueduct road and proceed west 0.5 mile to station site. Marked by Metropolitan Water District of Southern California bronze disk (see fig. 7) in concrete post with subsurface mark. Reference marks are bronze pins in concrete posts. No. 1 is 133.845 feet from station in azimuth 90°25′. No. 2 is 91.93 feet from station in azimuth 13°09′.

Forks (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 15½ miles northeast of Desert Center, on flat area about 4 miles north of southeastern end of Coxcomb Mountains. To reach from Desert Center, go northeast about 16 miles on aqueduct road and proceed west 0.1 mile to station site. Marked by Metropolitan Water District of Southern California bronze disk (see fig. 7) in concrete post with bronze subsurface mark. Reference marks are bronze pins in concrete posts. No. 1 is 58.91 feet from station in azimuth 128°43′. No. 2 is 42.18 feet from station in azimuth 43°40′.

Granite (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 14½ miles southwest of Rice, on highest point of Granite Mountains. To reach, go west on aqueduct road to Freda Station, enter large north-and-south wash which drains eastern side of Granite Mountains, proceed south 7 miles and continue to highest point of mountain and station site. Large canyon may be followed to station site. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins. No. 1 is 25.12 feet from station in azimuth 170°55′. No. 2 is 20.01 feet from station in azimuth 292°56′. Mark of old triangulation station "Granite" (not described) is 6.25 feet from station in azimuth 53°44′.

Iron (M. W. D. of S. C.) (San Bernardino County, Metropolitan Water District of Southern California, 1931).—About 19½ miles west of Rice, on southernmost high peak of Iron Mountains overlooking Granite Pass. To reach from Rice, go west on aqueduct road to point about 2 miles east of summit, go northwest across country up large wash to saddle between lower hills and peak on which station is located, and follow wash or ridge to top and station site. Marked by bronze disk (see fig. 7) in boulder. Reference marks are bronze pins. No. 1 is 6.59 feet from station in azimuth 342°36′. No. 2 is 14.09 feet from station in azimuth 87°23′. Mark of old triangulation station "South Iron" (not described) is 7.71 feet from station in azimuth 291°07′.

Sablon (M. W. D. of S. C.) (San Bernardino County, Metropolitan Water District of Southern California, 1932).—In flat area about 9½ miles northwest of Rice and 1½ miles south of Sablon. To reach from railway station in Sablon, go southeast 1 mile along railway to milepost 150, turn west and go 0.8 mile toward southern end of Iron Mountains. Marked by Metropolitan Water District of Southern California bronze disk (see fig. 7) in concrete post with bronze subsurface mark in concrete. Reference marks are bronze pins in concrete posts. No. 1 is 69.99 feet from station in azimuth 90°53′. No. 2 is 90.22 feet from station in azimuth 177°26′.

Danby (M. W. D. of S. C.) (San Bernardino County, Metropolitan Water District of Southern California, 1932).—About 13½ miles west of Rice, 6 miles east-northeast of Granite Pass, and on southwestern side of Danby Lake. To reach from Granite Pass, follow aqueduct road to forks, turn north, go 2 miles toward Salt Marsh and Sablon and proceed east 0.4 mile to station site. Marked by Metropolitan Water District of Southern California bronze disk (see fig. 7) in concrete post. Underground mark is bronze pin in concrete. Reference marks are bronze pins in concrete posts. No. 1 is 93.182 feet from station in azimuth 306°21′. No. 2 is 72.61 feet from the station in azimuth 18°32′.

Turtle (M. W. D. of S. C.) (San Bernardino County, Metropolitan Water District of Southern California, 1931).—About 4 miles northeast of Rice, on highest southerly peak of Turtle Mountains. Top of peak appears from east and west as slightly inclined plane. To reach from Grommet, follow road

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leading northwest 2.4 miles, follow left-hand road 4 miles, take left-hand road which doubles back and goes around prominent isolated peak, continue up into canyon to old mine (total of 12 miles from Grommet), climb out of wash and bear to left up ridge or wash to station site. Marked by bronze disk (see fig. 7) in boulder. Reference marks are bronze pins. No. 1 is 12.87 feet from station in azimuth 25°45′. No. 2 is 14.09 feet from station in azimuth 135°21′. Mark of old triangulation station "Big Turtle" (not described) is 6.23 feet from station in azimuth 176°03′.

Arica (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1932).—Six miles southwest of Rice, on northernmost peak of Arica Mountains. To reach from Rice, go 3.5 miles on Blythe road to Priest Mine road, turn west onto this road and go 0.4 mile, proceed northwest 3.5 miles on old mine road which leads to base of mountain, follow old trail to shaft and continue to top of mountain and station site. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins. No. 1 is 10.00 feet from station in azimuth 255°04′. No. 2 is 15.06 feet from station in azimuth 13°17′.

Maria (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 14 miles south-southeast of Rice, on low peak on northern side of Maria Mountains. Peak is almost separated from main high mountain by deep saddle. To reach from Rice, follow Rice-Blythe road to point 0.5 mile north of railway crossing in pass between Little Maria and Maria Mountains, follow road leading northeast about 2 miles to railway tracks, cross tracks and go about 2 miles across country toward saddle to south of peak. Marked by Metropolitan Water District of Southern California bronze disk (see fig. 7) in shale ledge. Reference marks are bronze pins. No. 1 is 22.46 feet from station in azimuth 185°07′. No. 2 is 20.71 feet from station in azimuth 280°06′.

Riverside (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 5½ miles south of Vidal, on highest point of eastern portion of Riverside Mountains, overlooking river. To reach from Vidal, follow road southeast about 2 miles, turn right across mesa, keep to left and follow road up wash to old mine buildings, and take trail to right up ravine to station site. Marked by bronze disk (see fig. 7) in boulder. Station "Riverside 2 (U.S.G.S.)", marked by United States Geological Survey aluminum bolt in rock flush with surface of ground, is 5.46 feet from station in azimuth 0°04′.

Grommet (M. W. D. of S. C.) (San Bernardino County, Metropolitan Water District of Southern California, 1931).—About 9 miles west-southwest of Vidal, about 3 miles southeast of Grommet, and on northernmost peak of western portion of Riverside Mountains. To reach from Grommet, go southeast about 3½ miles along road leading toward saddle one-half mile south of station, and hike across washes and up ravine to peak and station site. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins. No. 1 is 22.41 feet from station in azimuth 93°12′. No. 2 is 20.77 feet from station in azimuth 186°41′.

Axtel (M. W. D. of S. C.) (San Bernardino County, Metropolitan Water District of Southern California, 1931).—Fourteen miles north-northeast of Vidal, 13 miles north-northwest of Parker, Ariz., and on highest point of Whipple Mountains. To reach from Needles, go south on old Needles-Parker Road toward Whipple Mountains to road leading east to West Well, proceed about 6 miles to West Well, go south 6 miles on road to old mine with tall derrick, just before reaching mine turn into wash on left and go as far as possible. On nearing mountain a main canyon is seen leading toward top. Head toward this and either go down into canyon or stay on right-hand ridge. There is a slight saddle on ridge a little lower than and near top. To reach from south, follow Hays Mine Road north 9 miles from highway about 2 miles west of Earp, go up wash toward mountain as far as is practicable, and continue up canyon to station site. Northern route is recommended. Marked by bronze disk (see fig. 7) in boulder. Reference marks are bronze pins. No. 1 is 14.92 feet from station in azimuth 220°39′. No. 2 is 11.52 feet from station in azimuth 141°49′. Station "Axtel (U.S.G.S.)", marked by United States Geological Survey bronze tablet cemented in rock, is 6.50 feet from station in azimuth 345°40′.

Gier (M. W. D. of S. C.) (Yuma County, Ariz., Metropolitan Water District of Southern California, 1932).—About 10½ miles northeast of Parker, on

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highest point of Gier Peak. To reach from Parker, take boat to Gier's place on east bank of Colorado River, follow wash and trail to miner's cabin on north side of eastern end of Red Hill, and hike toward southwestern ridge of peak taking first wash north of wedge-shaped, narrow, red bluff. Top mesa of peak can be approached only through saddle on southwestern ridge which is visible from foot of peak. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins. No. 1 is 40.38 feet from station in azimuth 70°14′. No. 2 is 57.46 feet from station in azimuth 344°43′. Station "Gier (U. S. G. S.)", marked by U. S. Geological Survey bronze tablet cemented in rock buried in ground, is 6.46 feet from station in azimuth 279°09′.

Black Peak (M. W. D. of S. C.) (Yuma County, Ariz., Metropolitan Water District of Southern California, 1931).—Five miles east-southeast of Parker, on highest point of Black Peak. To reach from Parker, go east 4.5 miles on Swansea road, go south toward saddle between main peak and small hills on northwest side to northwest base of peak, climb north slope to break in bluffs near top, and go east along top to highest point and station site. Marked by bronze disk (see fig. 7) in boulder. Reference marks are bronze pins. No. 1 is 21.18 feet from station in azimuth 239°47′. No. 2 is 12.40 feet from station in azimuth 13°45′. Station "Black (U. S. G. S.)", marked by U. S. Geological Survey bronze tablet cemented in rock, is 15.00 feet from station in azimuth 256°33′.

Bennett (M. W. D. of S. C.) (San Bernardino County, Metropolitan Water District of Southern California, 1932).—Five miles northeast of Earp, on flat-topped hill. To reach from Earp, go northeast about 6 miles along road to Parker Dam site to point opposite Sterling ranch, turn west into wash, keep to right in main wash at 0.25 mile from road, continue 1.5 miles from road and proceed northeast a short distance up small wash characterized by red sand to point from which station site may be seen directly ahead. Marked by bronze disk (see fig. 7) in large rock. Reference mark is bronze pin 61.58 feet from station in azimuth 333°05′. Mark of old triangulation station "C No. 5" (not described) is 33.28 feet from station in azimuth 336°29′.

Parker (M. W. D. of S. C.) (Yuma County, Ariz., Metropolitan Water District of Southern California, 1932).—Three-fourths mile northwest of Parker and about 200 feet east of River Road. Marked by Metropolitan Water District of Southern California bronze disk (see fig. 7) in concrete post, with bronze subsurface mark in concrete. Reference marks are bronze pins. No. 1 is 82.09 feet from station in azimuth 243°07′. No. 2 is 94.35 feet from station in azimuth 311°50′.

Parker northeast base (M. W. D. of S. C.) (Yuma County, Ariz., Metropolitan Water District of Southern California, 1932).—Three miles east-northeast of Parker, on southern end of low ridge. Marked by Metropolitan Water District of Southern California bronze disk (see fig. 7) in concrete post, with bronze subsurface mark in concrete. Reference marks are bronze pins. No. 1 is 91.125 feet from station in azimuth 211°56′. No. 2 is 92.92 feet from station in azimuth 274°06′.

Parker southwest base (M. W. D. of S. C.) (Yuma County, Ariz., Metropolitan Water District of Southern California, 1932).—Two miles south-southeast of Parker, on southern end of low ridge, and about 600 feet east of Parker Cut-off of Atchison, Topeka & Santa Fe Railway. Marked by Metropolitan Water District of Southern California bronze disk (see fig. 7) in concrete post, with bronze subsurface mark in concrete. Reference marks are bronze pins. No. 1 is 80.93 feet from station in azimuth 302°08′. No. 2 is 42.556 feet from station in azimuth 33°51′.

Friant (U.S.G.S.) (Mohave County, Ariz., Metropolitan Water District of Southern California, 1932).—About 16 miles north-northeast of Parker, about 2 miles east-northeast of mouth of the Black Metal Wash, and 5 miles north of mouth of Williams River. To reach from Parker, take boat to east bank of Colorado River 0.25 mile below point opposite mouth of Black Metal Wash, follow main wash heading toward south side peak approximately three-fourths mile, and go north up ridge to station site. Station site may be seen from river bank and appears as highest peak of near range of hills. There is another peak of about equal height about 1 mile northwest. Marked by United States Geological Survey bronze triangulation tablet cemented in rock. Reference marks are bronze pins. No. 1 is 15.78 feet from station in azimuth 17°56′. No. 2 is 26.98 feet from station in azimuth 104°42′.

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Metal (M. W. D. of S. C.) (San Bernardino County, Metropolitan Water District of Southern California, 1932).—About 12 miles northeast of Earp, about 1½ miles west of mouth of Williams River, and on southeastern end of long, high ridge overlooking and parallel to Colorado River. To reach from Earp, follow road leading through Copper Basin to Gene Wash, continue down Gene Wash to within one-half mile of end of road, and go north to station site. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins. No. 1 is 23.34 feet from station in azimuth 19°31′. No. 2 is 31.27 feet from station in azimuth 287°53′. Mark of old triangulation station "Black Metal" (not described) is 11.92 feet from station in azimuth 250°37′.

CAJALCO RESERVOIR TO COLORADO RIVER ARC

Principal points

Field (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—Seven miles southeast of Riverside and approximately 5 miles west of March Field. To reach from Riverside, go south on Riverside-Perris Highway to intersecting road 1.7 miles south of Moreno Road intersection, turn west and go 1.6 miles, and turn north and go 0.7 mile to station site. Marked by bronze disk (see fig. 7) in massive boulder. Reference mark no. 1 is bronze pin 15.73 feet from station in azimuth 219°51′. Reference mark no. 2 is old triangulation station "West Alessandro" (not described) 34.16 feet from station in azimuth 148°41′.

Rocky (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—Two and one-half miles northwest of Perris, on summit of small rocky hill. To reach from Perris, go north 2.4 miles along Perris-Riverside Highway to railroad siding at Anderson, go west 0.7 mile and south 0.1 mile to old road, and go west approximately 0.8 mile along old road to summit of hill. Marked by bronze disk (see fig. 7) in large boulder. Reference mark no. 1 is old triangulation station "Anderson", marked by 1-inch iron pipe, 13.42 feet from station in azimuth 142°36′. Reference mark no. 2 is bronze pin 19.42 feet from station in azimuth 43°33′.

Mock (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—Approximately 8 miles south of Riverside and 5 miles northeast of and overlooking Cajalco Reservoir site. To reach from Riverside, go south about 12½ miles on Riverside-Perris Highway to Mockingbird Canyon Road, go west 7.0 miles or 1.0 mile beyond Cajalco and Carob Districts road junction, go north 1.0 mile along road in small wash, and continue 0.5 mile along winding road to base of hill on which station is located. Marked by bronze disk (see fig. 7) in massive boulder. Reference mark no. 1 is bronze pin 16.43 feet from station in azimuth 318°03′. Reference mark no. 2 is old triangulation station "Three Sisters" (not described) 10.06 feet from station in azimuth 116°23′.

Bird (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—Six and one-half miles west-northwest of Perris, on summit of peak 6 miles east-southeast of and overlooking Cajalco Reservoir site. To reach from Perris, go north 4.0 miles on Perris-Riverside Highway to Mockingbird Canyon Road, go west 6.0 miles to Cajalco and Carob Districts road junction, follow latter road 0.8 mile, turn south and follow winding road 2.5 miles through hills to junction of several roads, and go east 2.5 miles and north 1.2 miles along road to base of hill on which station is located. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins. No. 1 is 21.51 feet from station in azimuth 107°53′. No. 2 is 34.68 feet from station in azimuth 317°51′.

North Cajalco (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—Four miles south of Arlington, on highest point of isolated hill, and 600 feet east of road. To reach from Arlington, go south about 5 miles along Cajalco and Carob Districts road. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins. No. 1 is 12.24 feet from station in azimuth 49°39′. No. 2 is 21.28 feet from station in azimuth 148°38′.

South Cajalco (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 7.5 miles south-southeast of Arlington, on top of brushy hill 2 miles southeast of and overlooking Cajalco Reservoir site. There is another hill about 0.7 mile south of and 350 feet higher

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than one on which station is located. To reach from Arlington, go south approximately 8.5 miles on Cajalco and Carob Districts road to road junction and Automobile Club of Southern California sign which reads "Cajalco District—Perris 13 miles—Carob District—Arlington 8.5 miles—Riverside 15.5 miles—Corona 16.5 miles", and go south 1 mile past M. Lewis' ranch house to foot of hill on which station is located. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins. No. 1 is 21.80 feet from station in azimuth 201°28′. No. 2 is 12.385 feet from station in azimuth 122°22′.

Cajalco northeast base (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1932).—Five miles south-southeast of Arlington, about 500 feet north of road on summit of small hill. To reach from Arlington, go south 5.3 miles on Cajalco and Carob Districts road and proceed east about 2 miles to station site. Marked by bronze disk (see fig. 7) in concrete post. Reference marks are bronze pins. No. 1 is 23.26 feet from station in azimuth 149°53′. No. 2 is 15.30 feet from station in azimuth 226°.

Cajalco southwest base (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1932).—Six miles south of Arlington and 800 feet south of and 30 feet above a wash. To reach from Arlington, go south about 6.4 miles to road intersection at southern edge of carob orchard and go east 0.2 mile and south 0.6 mile to station site. Marked by bronze disk (see fig. 7) in concrete post. Reference marks are bronze pins. No. 1 is 38.86 feet from station in azimuth 45°16′. No. 2 is 38.82 feet from station in azimuth 129°22′.

Perris (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—Two miles northwest of Lakeview, on northeasternmost sharp peak of middle portion of range northwest of Lakeview. To reach from Lakeview, go west-northwest 0.7 mile along road toward saddle, go 0.5 mile along right-hand road to road in flat, which is 0.5 mile from base of mountain, take either ranch road or go across country to base of mountain and proceed on foot toward saddle, and then bear right to station site. Marked by bronze disk (see fig. 7) in massive granite boulder. Reference marks are bronze pins. No. 1 is in azimuth 33°06′. No. 2 is 27.64 feet from station in azimuth 115°38′.

Nuevo (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 2 miles south of Nuevo and approximately 0.2 mile southeast of old mine. To reach from post office in Nuevo, go due east 0.9 mile to galvanized water tank, turn south and follow road through hills 1.1 miles to road forks, and follow right-hand fork to old mine. Marked by bronze disk (see fig. 7) in massive boulder. Reference marks are bronze pins. No. 1 is 38.44 feet from station in azimuth 24°40′. No. 2 is 41.32 feet from station in azimuth 98°35′.

Coney (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—Four and one-half miles north-northeast of Perris, on small, red, cone-shaped hill which is southern one of the only two hills in immediate vicinity. To reach from Perris, go north about 4½ miles along Perris-Riverside highway, go east 2.9 miles to point where hill is visible about 0.2 mile to south, and continue to station site. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins. No. 1 is 28.47 feet from station in azimuth 224°00′. No. 2 is 20.57 feet from station in azimuth 283°38′.

Nelson (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—Three miles east-southeast of Lakeview, on northernmost high peak of range of mountains on west side of San Jacinto Valley, and in exact location of old triangulation station "Juniper." To reach from Lakeview, go south 2.3 miles on main road, proceed to left 1.4 miles to road fork and sign "Nelson's Ranch 2.5 miles", turn left onto Nelson's ranch road and go 2.0 miles to a point where road turns sharply to left and ranch may be seen 0.5 mile to west, go north across country to base of ridge, and follow ridge to station site. Marked by bronze disk (see fig. 7) in massive boulder. Reference marks are bronze pins. No. 1 is 34.82 feet from station in azimuth 331°55′. No. 2 is 19.49 feet from station in azimuth 61°18′.

Eden (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—Four and one-half miles southwest of Beaumont, 0.5 mile southeast of Eden Hot Springs, and on summit of highest hill in vicinity known locally as "Mount Eden." To reach from Beaumont, go west on Riverside road over Jack Rabbit Trail, turn left and follow San Jacinto-River-

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side highway southeast about 1 mile, proceed north to Eden Hot Springs, and follow trail which leads to station site from resort. Marked by bronze disk (see fig. 7) in boulder. Reference marks are bronze pins. No. 1 is 9.56 feet from station in azimuth 336°50′. No. 2 is 30.52 feet from station in azimuth 98°34′.

Pico west base (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—Seven miles northwest of San Jacinto, in pasture about 1.8 miles northwest of Pico ranch house, and about 15 feet east of fence. To reach from San Jacinto, go northwest approximately 7.0 miles along paved San Jacinto-Lakeview Road, and proceed north 0.3 mile along west side of fence to station site. Marked by bronze disk (see fig. 7) in concrete post protected by fence. Reference marks are bronze pins. No. 1 is 62.75 feet from station in azimuth 8°46′. No. 2 is 75.115 feet from station in azimuth 117°02′.

Pico east base (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—Five miles northwest of San Jacinto, in pasture about 0.9 mile northeast of Pico ranch house, and 15 feet south of fence. To reach from San Jacinto, go northwest approximately 4.9 miles along paved San Jacinto-Lakeview Road, go north 0.5 mile through field passing through two gates, and go northeast 0.25 mile along north side of fence to station site. Marked by bronze disk (see fig. 7) in concrete post protected by wire fence. Reference marks are bronze pins. No. 1 is 61.635 feet from station in azimuth 240°59′. No. 2 is 68.40 feet from station in azimuth 316°31′.

David (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—One and one-half miles southwest of Beaumont, on highest point of hill known locally as "Mount David." To reach from Beaumont, follow road leading to American Airways radio station to saddle about 0.5 mile from radio station, turn left and follow road up ridge to station site. Marked by bronze disk (see fig. 7) in concrete post. Reference mark no. 1 is brass bolt in large boulder 60.95 feet from station in azimuth 66°47′. Reference mark no. 2 is 1-inch iron bar driven flush with ground 20.92 feet from station in azimuth 161°38′.

Wolf (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 3.4 miles northeast of San Jacinto, on highest point of shoulder of San Jacinto Mountains, and directly south of and overlooking Wolfskill ranch. Peak is brush covered, rather sharp, and large white rocks are visible near its top. To reach from San Jacinto, go east on Main Street, cross river, turn right, and go south to first left turn beyond Indian Hospital, turn left and follow this road 1.5 miles, take left-hand winding road to mouth of canyon, bear to left and take side-hill road which follows left bank of canyon and ends at old ranch house in clearing, proceed to wide trail which is northwest of house at edge of clearing and leads up small brush-covered ridge, follow trail (bearing east of north) to rocky peak at head of canyon, and follow dim trail west to station site on second ridge. Marked by bronze disk (see fig. 7) in granite ledge. Reference marks are bronze pins. No. 1 is 11.04 feet from station in azimuth 173°42′. No. 2 is 9.49 feet from station in azimuth 302°29′. Old triangulation station "Soboba" (not described) is 54.00 feet from station in azimuth 353°23′.

Banning (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—Two miles north of Banning on small brush-covered hill which is visible to west of street line when looking north on Hargrave Street. To reach from Banning, go north about 1½ miles on Hargrave Street to wash, follow road to right to ranch in mouth of canyon, go west across pasture to canyon on southeast side of hill, and ascend canyon or ridge to its top and station site. Marked by bronze disk (see fig. 7) in buried boulder. Reference mark no. 1 is bronze pin 8.80 feet from station in azimuth 279°34′. Old triangulation station "Water", marked by 1-inch iron pipe, is 155.04 feet from station in azimuth 349°30′.

Oak (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—Three miles south of Banning, on high brush-covered ridge on northwestern end of San Jacinto Mountains. To reach from Banning, go south about 6 miles on Banning-Idlewild Road to windmill on right of road and house on north side, and follow trail north from house to station site. Marked by bronze disk (see fig. 7) in boulder. Reference marks are

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bronze pins. No. 1 is 11.85 feet from station in azimuth 33°56′. No. 2 is 14.70 feet from station in azimuth 152°10′.

Ranger (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—Six and one-half miles south-southeast of Banning, on summit of high peak on western slope of San Jacinto Mountains, and approximately 1.0 mile west-northwest of the ranger station on Banning-Idlewild Road. To reach from Banning, go south about 13 miles on Banning-Idlewild Road to the ranger station, go west 0.4 mile along old Poppet Flat Road to wide trail cut through brush, go north along this trail approximately 200 yards to rocky point from which station site may be seen on another rocky point of about same elevation and 0.2 mile northwest, and follow trail between the points to station site. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins. No. 1 is 16.49 feet from station in azimuth 61°56′. No. 2 is 28.10 feet from station in azimuth 312°48′.

Hemet (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—Two miles east-northeast of Hemet, on summit of isolated knoll known locally as "Park Hill." To reach from Hemet, go to northwest base of hill and follow winding road about 0.7 mile to station site. Marked by bronze disk (see fig. 7) in concrete post. Reference marks are bronze pins. No. 1 is 17.55 feet from station in azimuth 137°33′. No. 2 is 38.40 feet from station in azimuth 238°25′. Old triangulation station "Hemet" (not described) is 6.05 feet from station in azimuth 41°33′.

Pierce (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 1.7 miles northwest of San Jacinto, in flat on northern boundary of the Pierce property, and 15 feet south of fence. To reach from San Jacinto, go northwest about 2 miles on South Central Avenue to Records Dairy, go south approximately 0.6 mile to old railroad roadbed, and proceed east 0.2 mile along fence line to station site. Marked by bronze disk (see fig. 7) in concrete post. Reference marks are bronze pins. No. 1 is 52.54 feet from station in azimuth 263°46′. No. 2 is 52.70 feet from station in azimuth 359°32′.

Lard (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 2.2 miles northwest of Cabazon, approximately 4 miles east-northeast of Banning, and on brushy ridge forming divide between Millard and Potrero Canyons. To reach from Banning, go east 3.9 miles on State Highway, go north 1.7 miles on dirt road to mouth of Millard Canyon, and go west across country to base of ridge. Marked by bronze disk (see fig. 7) in buried boulder. One reference mark is cross cut in boulder and other is bronze pin. No. 1 is 32.74 feet from station in azimuth 202°19′. No. 2 is 47.80 feet from station in azimuth 293°22′.

Barton (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 10.2 miles west-northwest of San Jacinto Peak, 3.5 miles southeast of Banning, and on highest peak north of Barker Flat. To reach from Banning, go east on State highway to Cabazon, turn south and follow road up over Halls Grade to Water Hole ranch, and go to right through Barker Flat to base of peak on which the station is located. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins. No. 1 is 11.75 feet from station in azimuth 37°43′. No. 2 is 10.08 feet from station in azimuth 124°31′.

Cabazon (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—On highest point of Cabazon Peak, 2.4 miles south of Cabazon. To reach from Cabazon, drive south to Brown's ranch to point between barn and house, follow lane northeast across ranch toward saddle, and go up westerly slope of ridge to station site. Slope is very brushy. Marked by bronze disk (see fig. 7) in top of large boulder. Reference marks are bronze pins. No. 1 is 38.21 feet from station in azimuth 228°57′. No. 2 is 33.61 feet from station in azimuth 333°49′. Old triangulation station "Cabazon Peak", marked by 1-inch iron pipe, is 1.49 feet from station in azimuth 155°52′.

Gorgonio (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—Four miles west-southwest of Whitewater, on prominent rocky ridge extending north from San Jacinto Mountains. To reach from Whitewater, follow Snow Creek road to point about 1 mile south of railroad, bear off to right, and follow winding road to last house in canyon east of ridge on which station is located. Marked by bronze disk (see fig. 7) in large

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rock. Reference mark no. 1 is bronze pin, 11.89 feet from station in azimuth 306°35′.

Hidden (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—Four miles northeast of Cabazon, on prominent peak on southeast slope of San Bernardino Mountains. Peak is very steep and is covered with brush on top and northern slope. Southern slope is bluish in color. There is a hidden dry lake northwest of peak. To reach from Cabazon, go east approximately 2.4 miles on State highway, go north 2 miles on dirt road to ranch in Stubby Canyon, continue past house 0.2 mile to base of ridge, and follow left-hand ridge to top and station site. Marked by bronze disk (see fig. 7) in buried boulder. Reference marks are bronze pins. No. 1 is 12.76 feet from station in azimuth 338°21′. No. 2 is 9.46 feet from station in azimuth 220°15′.

Cabazon west base (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 1.6 miles east of Cabazon, in open country about 50 yards south of south fence of Southern Pacific right-of-way. Marked by bronze disk (see fig. 7) in concrete post. Reference marks are bronze pins. No. 1 is 58.07 feet from station in azimuth 167°03′. No. 2 is 54.192 feet from station in azimuth 82°48′.

Cabazon east base (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 3.8 miles east of Cabazon, in open country about 50 yards south of south fence of Southern Pacific right-of-way. Marked by bronze disk (see fig. 7) in concrete post. Reference marks are bronze pins. No. 1 is 90.35 feet from station. No. 2 is 61.309 feet from station and approximately on base line produced.

Mecca Hill (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931; C. Pierce, 1934).—On highest point of hills, which are 5.6 miles north-northeast of Mecca and are known locally as the "Mecca Hills." To reach from Mecca, go east 3.0 miles on U. S. Route 60, turn left and follow Painted Canyon Road 4.5 miles, turn left into branch wash and go 2.1 miles, turn left up narrow wash and continue to end of truck travel, take center wash, go up left ridge to main ridge, and go to right along ridge to highest point. Marked by bronze disk (see fig. 7) in concrete post. Reference mark no. 1 (M. W. D. of S. C.) is bronze pin 5.372 meters (17.62 feet) from station in azimuth 168°54′. Reference mark no. 2 (M. W. D. of S. C.) is bronze pin 6.628 meters (21.75 feet) from station in azimuth 273°06′. In 1934 three standard reference disks in rock outcrops, note 12a, were established. No. 1 is 14.440 meters (47.38 feet) from station in azimuth 45°03′. No. 2 is 10.100 meters (33.14 feet) from station in azimuth 109°51′. No. 3 is on small knob, 0.2 mile from station in azimuth 287°44′28″.

Little Berdoo (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 32 miles east of Whitewater, about due north of Indio, and on summit of southernmost peak of Little San Bernardino Miuntains overlooking Coachella Valley. To reach from White water, go east 0.5 mile on State highway to Morongo Valley Road, go northeast about 40 miles through Morongo Valley to Twentynine Palms, turn south at Twentynine Palms and go approximately 9.5 miles to Cottonwood Springs Road junction, go southwest 7.5 miles on right-hand fork to Gold Coin mine, follow Pinyon Well Road about 4½ miles past Pinyon Well to left-hand wash below Hansons well (property of El Dorado Mining Co.), follow old trail along 1-inch pipe line in left-hand canyon about 0.5 mile to Hansons well and continue to end of trail at mine, go south to ridge, and proceed southeast 4 or 5 miles along ridge to top. An alternate route from Gold Coin mine is to follow road southwest 1.8 miles, take left-hand road to mouth of rugged canyon, go up canyon about 1 mile to old shaft on right, and pack up canyon to its top. Latter route is preferable. Marked by bronze disk (see fig. 7) in rock. Reference mark no. 1 is bronze pin 13.54 feet from station in azimuth 332°49′. Pole in rock cairn is 9.0 feet from station in azimuth 147°29′

La Quinta (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—Six miles west of Indio, on summit of northernmost peak of Santa Rosa Mountains. To reach from Indio, go west about 6 miles on Palm Springs road, go south 2 miles on La Quinta Hotel road, turn west and cross wide, flat, whitish area to mouth of canyon, and follow canyon to peak. Marked by bronze disk (see fig. 7) in a rock about 1 foot below surrounding area. Reference marks are bronze pins. No. 1 is 19.60 feet from

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station in azimuth 161°10′. No. 2 is 16.83 feet from station in azimuth 253°27′.

Edom (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—Four and one-half miles northwest of Edom, on westernmost sandy summit of Indio Hills. To reach from Edom, go northwest about 4.4 miles on State highway, turn east across sand and go about 200 yards to end of truck travel, and continue to station site on summit of hill to north. Surface mark is bronze disk (see fig. 7) in concrete post., Underground mark is drill hole in cap of 1-inch iron pipe. Reference marks are bronze pins. No. 1 is 15.29 feet from station in azimuth 3°47′. No. 2 is 14.29 feet from station in azimuth 155°42′.

Myoma northwest base (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—Six miles east-southeast of Edom, in flat sandy area about 1 mile west and 1½ miles north of Myoma. To reach from Edom, go southeast about 5.3 miles on State highway, go east 1.7 miles on dirt road, and continue east across country 0.3 mile to station site. Marked by bronze disk (see fig. 7) in concrete post. Post is set to depth of 7½ feet in sandy ground. Reference marks are bronze pins in concrete posts. No. 1 is 91.000 feet from station in azimuth 159°03′. No. 2 is 87.812 feet from station in azimuth 247°31′.

Myoma southeast base (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 3.5 miles northwest of Indio, in northeast corner of sec. 9, T. 5 S., R. 7 E., on small brush-covered sand knoll, about 200 feet west of road, and 500 feet southwest of Bundy Ranch house. To reach from Indio, go northwest about 2 miles on State highway, cross Southern Pacific railroad tracks, turn north onto dirt road and go approximately 1.2 miles to north side of American Airways emergency landing field. Marked by bronze disk (see fig. 7) in concrete post. Post is set to depth of 7½ feet in sandy ground. Reference marks are bronze pins in concrete posts. No. 1 is 37.222 feet from station in azimuth 264°47′. No. 2 is 63.358 feet from station in azimuth 155°20′.

North Indio (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—Five and one-half miles north of Indio, on highest point of Indio Hills. To reach from Indio, go north on old Indio-Pinyon Well road to alluvial terrace leading up north slope of hill and ascend hill to station site. Pinyon Well road is in wash directly below terrace. Marked by bronze disk (see fig. 7) in concrete post flush with ground. Reference marks are bronze pins. No. 1 is 29.09 feet from station in azimuth 240°31′. No. 2 is 23.08 feet from station in azimuth 146°53′.

Mine (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 10½ miles north of Indio, on southwest slope of Little San Bernardino Mountains, and on summit of ridge between Fan Hill Wash and West Pushawalla Canyon. To reach from Indio go southeast about 2 miles on State highway, go north on paved aqueduct road to road paralleling base of mountains, continue northwest on this road to West Pushawalla Canyon, go north about 2 miles following wash around base of ridge on which station is located, and follow left-hand wash or ridge to its top. Marked by bronze disk (see fig. 7) in boulder. Reference marks are bronze pins. No. 1 is 21.33 feet from station. No. 2 is 9.94 feet from station. Angle from reference mark no. 1 to no. 2 is 79°51′.

Palms (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 4½ miles north-northeast of Edom, about 10.7 miles east-southeast of Garnet, and on highest summit near northern end of middle portion of Indio Hills. To reach from Garnet, go north and east about 12½ miles on aqueduct highway to West Deception Wash, follow wash south approximately 2.3 miles to north base of hill on which station is located, cross country to base of ridge, and follow ridge to top. Marked by bronze disk (see fig. 7) in boulder. Reference marks are bronze pins. No. 1 is 7.50 feet from station in azimuth 329°31′. No. 2 is 8.84 feet from station in azimuth 59°45′.

Deception (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 14.3 miles east of Garnet, 9 miles east-northeast of Edom, on southwesterly slope of Little San Bernardino Mountains, and on ridge between Fan Hill Wash and Deception Wash. To reach from Garnet, go north and east about 14 miles on aqueduct highway to Deception Wash, go northeast about 2 miles up wash, and follow up large canyon on

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right to station site which is on yellow-topped, conical-shaped hill. There are other yellow-topped hills farther up ridge. Marked by bronze disk (see fig. 7) in buried boulder. Reference mark no. 1 is 1-inch iron pipe with cap 16.48 feet from station in azimuth 40°18′. Reference mark no. 2 is 1-inch iron pipe without cap 21.06 feet from station in azimuth 144°16′.

Wide (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 10.9 miles east of Garnet, on southwesterly slope of Little San Bernardino Mountains, and on ridge dividing East Wide Canyon and West Deception Wash. To reach from Garnet, go north and east about 11.5 miles on aqueduct highway to base of ridge. Marked by bronze disk (see fig. 7) in boulder. Reference marks are bronze pins. No. 1 is 14.17 feet from station in azimuth 163°14′. No. 2 is 10.51 feet from station in azimuth 280°42′.

Short (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—Eight miles east-northeast of Garnet, on southwesterly slope of Little San Bernardino Mountains, and on point of ridge forming western side of West Wide Canyon. To reach from Garnet, go north and east about 9 miles on aqueduct highway and go north about 0.3 mile across country to base of ridge. Marked by bronze disk (see fig. 7) in buried boulder. Reference marks are bronze pins. No. 1 is 14.73 feet from station in azimuth 322°27′. No. 2 is 13.03 feet from station in azimuth 75°01′.

Garnet (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—One-half mile east of Garnet, on highest point of small hill about 0.3 mile south of State highway. Marked by bronze disk (see fig. 7) in ledge rock. Reference marks are bronze pins. No. 1 is 20.89 feet from station in azimuth 355°29′. No. 2 is 26.77 feet from station in approximate azimuth 80°.

Mission (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—Five and one-half miles north of Garnet, on flat country about 1 mile south of mouth of Little Morongo Canyon, on east side of road, and 54 feet north of corner of secs. 23, 24, 25, and 26, T. 2 S., R. 4 E. To reach from Garnet, go north 1½ miles on aqueduct highway to right-angle turn, continue north 2½ miles on dirt road, and go east 1 mile and north 1 mile to station site. Marked by bronze disk (see fig. 7) in buried boulder. Reference mark no. 1 is General Land Office pipe marking corner of secs. 23, 24, 25, and 26, T. 2 S., R. 4 E., and is 54.16 feet from station in azimuth 16°41′. Reference mark no. 2 is bronze pin 50.88 feet from station in azimuth 118°06′.

Beacon (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—One and one-half miles east of Whitewater, on summit of small hill. An airway beacon is on southwest shoulder of hill. To reach from Whitewater, go east about 0.5 mile on State highway to Morongo Valley road and go northeast to top of hill and station site. Marked by bronze disk (see fig. 7) in boulder. Reference marks are bronze pins. No. 1 is 58.57 feet from station in azimuth 344°57′. No. 2 is 37.32 feet from station in azimuth 81°25′. Old triangulation station "Whitewater", marked by 1-inch iron pipe, is 17.70 feet from station in azimuth 28°18′.

Morongo (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—Six miles north-northeast of Whitewater, on gentle slope at northern end of Coachella Valley, and about 100 feet east of road. To reach from Whitewater, go east about one-half mile on State highway, go northeast 6 miles on Morongo Valley road, turn left and follow road approximately 1 mile or almost to telephone line. Marked by bronze disk (see fig. 7) in buried boulder. Reference marks are bronze pins. No. 1 is 80.62 feet from station in azimuth 25°14′. No. 2 is 115.40 feet from station in azimuth 148°56′.

Pass (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 2½ miles south of Whitewater, on northeastern shoulder of San Jacinto Mountains. To reach from Whitewater, go west 1 mile on State highway, go south 2 miles on Palm Springs road to bridge across wash, go west up white sandy slope to ridge, and follow ridge to station site. Marked by bronze disk (see fig. 7) in boulder. Reference marks are bronze pins. No. 1 is 19.19 feet from station in azimuth 172°45′. No. 2 is 17.85 feet from station in azimuth 323°57′.

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Whitewater (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—Two miles northwest of Whitewater, on highest point of some yellow hills. To reach from Whitewater, go west on State highway to point about 0.5 mile west of Palm Springs road junction, go north through gate and continue 0.5 mile along road paralleling telephone line to dim road leading into canyon, and follow up canyon or westerly ridge to top. Marked by bronze disk (see fig. 7) in boulder. Reference marks are bronze pins. No. 1 is 10.18 feet from station in azimuth 152°33′. No. 2 is 19.30 feet from station in azimuth 235°29′. Old triangulation station "Whitewater No. 1", marked by 1-inch iron pipe, is 54.37 feet from station in azimuth 145°.

Coach (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—On northwestern end of small isolated hill, about 1 mile southeast of southeastern end of Indio Hills and 3.5 miles east-northeast of Indio. To reach from Indio, go southeast 2 miles on State highway, go north 3.6 miles on paved aqueduct highway, go east about 0.4 mile on Fargo Canyon branch of highway and proceed north about 0.2 mile to station site. Marked by bronze disk (see fig. 7) in boulder. Reference mark no. 1 is bronze pin 12.93 feet from station in azimuth 42°22′. Old triangulation station "N. Coachella" (not described) is 18.90 feet from station in azimuth 221°49′.

Dino (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 7.2 miles north-northeast of Indio, on southwestern slope of Little San Bernardino Mountains, on ridge between Berdoo Canyon and Indio Canyon and on dark-colored peak, which is separated from rest of ridge by deep saddle. There are large granite boulders on peak. To reach from Indio, go southeast about 2 miles on State highway, go north 7.6 miles on paved aqueduct highway to mouth of Berdoo Canyon and go up canyon approximately 2 miles to base of ridge on east. Marked by bronze disk (see fig. 7) in large boulder. Reference marks are bronze pins. No. 1 is 19.33 feet from station in azimuth 324°39′. No. 2 is 28.28 feet from station in azimuth 202°39′.

Bern (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—On second highest point of reddish-colored ridge west of Fargo Canyon and 7.3 miles northeast of Indio. To reach from Indio, go southeast 2 miles on State highway, go north 3.6 miles on paved aqueduct highway, go east 3.2 miles on Fargo Canyon branch of highway to mouth of canyon, go northeast 1.2 miles up canyon to road fork, follow left-hand fork up Little Fargo Canyon to old rock house, and follow wash on left up over large waterfall to top of ridge and station site. Marked by bronze disk (see fig. 7) in rock ledge. Reference marks are bronze pins. No. 1 is 25.33 feet from station in azimuth 187°30′. No. 2 is 14.44 feet from station in azimuth 279°06′.

Fargo (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 8.3 miles east-northeast of Indio, on southwesterly slope of Little San Bernardino Mountains and on second ridge east of mouth of Fargo Canyon. To reach from Indio, go southeast 2 miles on State highway, go north 3.6 miles on paved aqueduct highway, go east 3.2 miles on Fargo Canyon branch of highway, go southeast about 2 miles on old aqueduct road, go northeast 0.3 mile to very rocky wash and follow ridge or wash to main ridge on which station is located. There is a darker-colored peak above station. Marked by bronze disk (see fig. 7) in buried boulder. Reference marks are bronze pins. No. 1 is 34.61 feet from station in azimuth 180°49′. No. 2 is 19.05 feet from station in azimuth 261°27′.

Therm (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 4.7 miles northeast of Thermal, on summit of hill on left of wash. To reach from Thermal, go east on Thermal Canyon road to end of pavement, proceed to left along power line to its end at ranch house, turn right and follow old road about 0.7 mile, and go to right up wash approximately 2.3 miles. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins. No. 1 is 24.28 feet from station in azimuth 151°34′. No. 2 is 10.55 feet from station in azimuth 261°48′.

Cotton (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 12.4 miles east of Indio, on highest point of westernmost ridge of Cottonwood Mountains, and on round-topped one of three points comprising peak. To reach from Indio, go southeast 2 miles on State

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highway, go northeast on paved aqueduct highway to mouth of Fargo Canyon, go southeast 6.5 miles on old aqueduct road to Thermal Canyon, and go north 1.4 miles up canyon on Pinkham's Well road. Station site is visible to the east. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins. No. 1 is 19.41 feet from station in azimuth 64°43′. No. 2 is 44.66 feet from station in azimuth 181°21′.

Shavers Well (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—Nine miles east-northeast of Mecca, on summit of high hill due west of Shavers Well. To reach from Mecca, go east about 11 miles on Mecca-Blythe highway to Shavers Well, go north and west 200 yards up first small canyon east of buildings, climb out on left-hand ridge, and follow ridge to top. Marked by bronze disk (see fig. 7) in boulder projecting about 1 foot. Reference mark no. 1 is old triangulation station "Shavers", marked by 1-inch galvanized-iron pipe, 30.33 feet from station in azimuth 306°18′. Reference mark no. 2 is bronze pin 15.30 feet from station in azimuth 59°39′.

Cottonwood (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 14 miles northeast of Mecca, on first peak west of highest point of southerly portion of Cottonwood Mountains. To reach from Mecca, go east about 12 miles on Mecca-Blythe Highway, go northeast 11 miles on Cottonwood Springs Road to road branching to left just beyond Cottonwood Springs, go west about 6 miles on this road, turn sharply to left into canyon around mountain range, follow meandering canyon about 1½ or 2 miles to point where southerly portion of Cottonwood Mountains can be seen about 3 miles distant, cross flat area to small canyon about center of range, and go up canyon to top bearing to right in climbing. Marked by bronze disk (see fig. 7) in rock ledge. Reference mark no. 1 is bronze pin 16.96 feet from station in azimuth 290°10′. Old triangulation station "Cottonwood" (not described) is 21.71 feet from station in azimuth 77°35′.

Wood (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—Sixteen miles northeast of Mecca, on prominent, sharp, yellow-colored peak about 1 mile west of pass between Eagle and Cottonwood Mountains. Overlooking pass, north of station, and a little higher is large flat-topped peak. To reach from Mecca, go east 12 miles on Mecca-Blythe Highway, go northeast 5.4 miles to aqueduct road junction, go west 0.4 mile on aqueduct road, go north 0.6 mile on branch of that road to point where large canyon with ridge in center can be seen on left, go 0.8 mile across country to base of ridge, and continue on foot to its top. There is a small saddle about two-thirds of way up where some elevation is lost. Marked by bronze disk (see fig. 7) in rock ledge. Reference marks are bronze pins. No. 1 is 11.71 feet from station in azimuth 19°52′. No. 2 is 18.76 feet from station in azimuth 275°26′.

Oro (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 13.2 miles east-northeast of Mecca, on eastern end of low ridge on northern slope of Orocopia Mountains. Ridge runs east and west, eastern end being higher. To reach from Mecca, go east about 15 miles on Mecca-Blythe Highway, go south 1 mile across country to base of hills and follow wash which winds around east side. Marked by bronze disk (see fig. 7) in rock ledge. Reference marks are bronze pins. No. 1 is 13.42 feet from station in azimuth 210°54′. No. 2 is 17.89 feet from station in azimuth 358°36′. Old triangulation station "S. Shaver", marked by spike and tin in rock, is 25.21 feet from station in azimuth 184°51′.

Copia (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 16.3 miles east-northeast of Mecca, on peak of ridge on northern slope of Orocopia Mountains and in exact location of old triangulation station "Sulphur." Ridge is yellowish in color and there is another peak to west. To reach from Mecca, go east about 19 miles on Mecca-Blythe Highway and go south across country 2 miles, following a wash to point east of peak. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins. No. 1 is 27.17 feet from station in azimuth 311°43′. No. 2 is 21.80 feet from station in azimuth 46°02′.

Boulder (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 20½ miles east-northeast of Mecca, on large high peak of ridge on southerly slope of Eagle Mountains. There is a higher point to north of station. To reach from Mecca, go east about 23 miles

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on Mecca-Blythe Highway to Shavers Summit, go north 1 mile on road along pipe line to second aqueduct road, go west about 1 mile to mouth of large canyon, go north up canyon as far as practicable and hike up west side to station site. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins. No. 1 is 28.22 feet from station in azimuth 126°16′. No. 2 is 28.80 feet from station in azimuth 237°20′. Old triangulation station "N. Summit", marked by stake, is 7.85 feet from station in azimuth 44°31′.

Summit (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 16.5 miles west-southwest of Desert Center, on westerly summit of ridge which begins at Shavers Summit and extends east on south side of Hayfield Lake, and in exact location of old triangulation station "Summit Mountain." To reach from Desert Center, go west approximately 16 miles on Mecca-Blythe Highway and proceed south about 2 miles across country following a wash southeast up peak as far as possible. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins. No. 1 is 27.68 feet from station in azimuth 94°36′. No. 2 is 11.84 feet from station in azimuth 248°01′.

Red (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 15.2 miles west of Desert Center, about 3 miles northwest of Hayfield Lake, on ridge of southern slope of Eagle Mountains, and on round-topped peak which is south of higher and sharper peak. Ridge is red in color, but lighter than adjacent ridges, and is covered with granite boulders. To reach from Desert Center, go west approximately 15 miles on old Mecca-Blythe Highway, go northwest 1 mile on aqueduct road, and bear left to base of peak. Marked by bronze disk (see fig. 7) in granite ledge. Reference marks are bronze pins. No. 1 is 28.32 feet from station in azimuth 304°28′. No. 2 is 35.28 feet from station in azimuth 41°26′.

Camp (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—On ridge of southern slope of Eagle Mountains, 11.7 miles west of Desert Center, about 1½ miles northeast of Hayfield Lake, and 1.0 mile northeast of buildings of the Cram brothers' ranch. To reach from Desert Center, go west about 13 miles on old Mecca-Blythe Highway, go northeast 0.5 mile on the Cram brothers' ranch road past buildings, and continue along pipe line to base of ridge. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins. One is 8.88 feet from station in azimuth 181°39′; and other is 13.12 feet from station in azimuth 308°21′.

Hay (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 10½ miles west-southwest of Desert Center, about 4 miles southeast of Hayfield Lake, and on low black butte on northeastern end of Orocopia Mountains. To reach from Desert Center, go west about 9½ miles on Mecca-Blythe Highway, go south a short distance on road through pass between Orocopia and Chuckwalla Mountains, and continue southwest across country to base of peak keeping out of wash which is very sandy. Marked by bronze disk (see fig. 7) in rock ledge. Reference marks are bronze pins. No. 1 is 23.73 feet from station in azimuth 130°42′. No. 2 is 23.60 feet from station in azimuth 191°45′.

Hayfield west base (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 13 miles west of Desert Center, at western end of Hayfield Lake. To reach from Desert Center, go west about 13 miles on Mecca-Blythe Highway and proceed north across country 1 mile to station site. Surface mark is bronze disk (see fig. 7) in concrete post. Underground mark is bronze pin in concrete. Reference marks are bronze pins in concrete posts. No. 1 is 56.986 feet from station in azimuth 76°47′. No. 2 is 54.52 feet from station in azimuth 181°46′.

Hayfield east base (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 11.7 miles west of Desert Center, on east side of Hayfield Lake. To reach from Desert Center, go west about 11½ miles on old Mecca-Blythe Highway and proceed south 0.5 mile to station site. Surface mark is bronze disk (see fig. 7) in concrete post. Underground mark is bronze pin in concrete. Reference marks are bronze pins in concrete posts. No. 1 is 81.51 feet from station in azimuth 173°16′. No. 2 is 50.269 feet from station in azimuth 258°16′.

Necessity (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 7.4 miles west of Desert Center, on southeasternmost slope of Eagle Mountains, and approximately 2 miles

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northeast of saddle east of Hayfield Lake. To reach from Desert Center, go west about 9 miles on old Mecca-Blythe Highway to aqueduct road junction, go northeast 1.7 miles on aqueduct road, and continue north across country 0.2 mile to base of ridge. Marked by bronze disk (see fig. 7) in granite ledge. Reference marks are bronze pins. No. 1 is 9.50 feet from station in azimuth 273°09′. No. 2 is 11.07 feet from station in azimuth 19°05′. Old triangulation station "Necessity" (not described) is 7.15 feet from station in azimuth 343°31′.

Sharp (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—Five and one-half miles southwest of Desert Center, on prominent peak at extreme northwestern end of Chuckwalla Mountains. Peak is about 1,000 feet north and 250 feet lower than highest peak in vicinity. To reach from Desert Center, go west about 5 miles on Mecca-Blythe Highway, go south on old road around base of mountains to mouth of large canyon, proceed up road on right-hand bank of wash as far as possible, continue on foot up wash and bearing to left climb out on ridge about two-thirds of the way, and follow ridge to station site. Marked by bronze disk (see fig. 7) in rock ledge. Reference marks are bronze pins. No. 1 is 18.88 feet from station in azimuth 125°33′. No. 2 is 18.65 feet from station in azimuth 47°22′.

Entrance (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 5.3 miles west of Desert Center, on eastern end of southern one of three low hills at southeastern base of Eagle Mountains. To reach from Desert Center, go west about 5 miles on old Mecca-Blythe Highway and go northwest 1 mile to base of hill. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins. No. 1 is 26.84 feet from station in azimuth 206°03′. No. 2 is 26.20 feet from station in azimuth 76°01′. Old triangulation station "Entrance Hill" (not described) is 7.42 feet from station in azimuth 254°40′.

Gator (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—Eight-tenths mile south-southwest of Desert Center, on highest point of and near middle of low rugged ridge. There is an airway beacon on northeastern end of ridge. To reach from Desert Center, go southwest 1 mile on road just east of buildings to middle of ridge. Marked by bronze disk (see fig. 7) in rock ledge. Reference mark is bronze pin, 14.61 feet from station in azimuth 49°30′. Old triangulation station "Alligator no. 2", marked by 1-inch iron pipe, is 4.14 feet from station in azimuth 225°44′.

Chuck (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—On flat country at western end of Chuckwalla Valley, 2.5 miles north of Desert Center, and about 600 feet north of road. To reach from Desert Center, go west 1 mile on old Mecca-Blythe Highway, go north 1.7 miles on aqueduct road, and go east 1.2 miles on old road to point opposite station site. Marked by bronze disk (see fig. 7) in concrete post. Reference marks are bronze pins. No. 1 is 53.05 feet from station in azimuth 72°07′. No. 2 is 87.44 feet from station in azimuth 321°22′.

May (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 5.7 miles northwest of Desert Center, on low isolated hill between eastern end of Eagle Mountains and long ridge projecting east. This ridge is the southern one of two which extend east from mountains. To reach from Desert Center, go west 1 mile on old Mecca-Blythe Highway, go north 3.3 miles on aqueduct road, and go west about 2 miles on road along base of hills to pass. Station is on hill west of pass and is readily approached from either north or south side. Marked by bronze disk (see fig. 7) in rock. Reference mark is bronze pin 9.94 feet from station in azimuth 297°29′. Old triangulation station "Two Tone", marked by 1-inch iron pipe, is 59.78 feet from station in azimuth 289°26′.

Cone (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—On eastern end of long, low ridge projecting east from Eagle Mountains (northern one of two similar ridges) and 6.6 miles north of Desert Center. As seen from southwest, the hill on which station is located appears conical shaped. To reach from Desert Center, go west about 1 mile on old Mecca-Blythe Highway, go north about 7.4 miles on aqueduct road through pass, turn to right and go up small canyon to north base of hill. Marked by bronze disk (see fig. 7) in boulder. Reference marks are bronze pins. No. 1 is 51.84 feet from station in azimuth 254°44′. No. 2 is 28.34 feet from station in azimuth 153°23′. Old triangulation station "Melema" (not described) is 191.33 feet from station in azimuth 57°33′.

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Sandy (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 6.7 miles north-northeast of Desert Center, about 4.5 miles west-southwest of southern end of Coxcomb Mountains, on flat country in western end of Chuckwalla Valley, and approximately 200 feet east of road. To reach from Desert Center, go northeast about 5 miles on aqueduct highway and go north 3 miles on old road past Boulder Well. Marked by bronze disk (see fig. 7) in concrete post. Reference marks are bronze pins. No. 1 is 59.59 feet from station in azimuth 87°30′. No. 2 is 81.03 feet from station in azimuth 169°22′.

Flat (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—Nine and one-half miles north-northeast of Desert Center, on alluvial fan at southwest base of Coxcomb Mountains, and on flat rocky ridge about 100 feet west of road. To reach from Desert Center, go northeast about 8 miles on aqueduct highway to Pinto Wash Road junction and go northwest 4.5 miles or 0.2 mile beyond Boulder Well Road junction to point opposite station site. Surface mark is bronze disk (see fig. 7) in concrete post. Underground mark is bronze pin in concrete. Reference marks are bronze pins. No. 1 is 90.37 feet from station in azimuth 59°33′. No. 2 is 102.98 feet from station in azimuth 169°42′.

Pinto (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 11.4 miles north of Desert Center, at northwestern end of Chuckwalla Valley, on western side of Pinto Wash, and about 3 miles south and 1 mile west of pass between Eagle and Coxcomb Mountains and which connects Chuckwalla Valley with Pinto Basin. To reach from Desert Center, go west about 1 mile on old Mecca-Blythe Highway, go north approximately 11 miles on aqueduct road, and proceed northwest across country 1 mile to station site. Marked by bronze disk (see fig. 7) in concrete post. Reference marks are bronze pins. No. 1 is 105.69 feet from station in azimuth 327°43′. No. 2 is 88.53 feet from station in azimuth 54°17′.

Cox (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 13.6 miles north of Desert Center, on high sharp peak near southern end of central portion of Coxcomb Mountains. To reach from Desert Center, go northeast about 8 miles on aqueduct highway to Pinto Basin Road junction, go northwest 8.5 miles, go northeast across country to mouth of large canyon north of deep saddle in main range, and go up canyon to peak on left. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins. No. 1 is 19.94 feet from station in azimuth 323°20′. No. 2 is 6.53 feet from station in azimuth 219°04′.

Foot (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1932).—About 21 miles north-northeast of Desert Center, on low isolated hill east of northern end of central section of Coxcomb Mountains. To reach from Desert Center, go northeast about 23½ miles on aqueduct highway and proceed west across country 3.5 miles to base of hill. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins. No. 1 is 11.70 feet from station in azimuth 357°40′. No. 2 is 27.29 feet from station in azimuth 99°11′.

Cross (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 20.5 miles west-southwest of Rice, on summit of high peak at extreme northwestern end of Granite Mountains. To reach from Rice, go west about 20 miles on aqueduct highway through Granite Pass and go east 1.3 miles up wide sandy wash north of ridge on which station is located. Marked by bronze disk (see fig. 7) in rock. Reference mark is bronze pin 14.70 feet from station in azimuth 346°24′. Old triangulation station "North Granite", marked by 1-inch iron pipe, is 10.17 feet from station in azimuth 129°17′.

Island (M. W. D. of S. C.) (San Bernardino County, Metropolitan Water District of Southern California, 1932).—About 26 miles north of Desert Center, on middle one of three isolated hills about 3 miles east of northern end of Coxcomb Mountains and 7 miles west of and 1 mile north of Granite Pass. The hill to west is larger and the hill to east is smaller than one on which station is located. To reach from Desert Center, go northeast approximately 28 miles on aqueduct highway, go northwest 1 mile on road around west base of Iron Mountains, proceed west down wash to its junction with wash which drains into Cadiz Lake, and continue west across country about 1 mile. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins.

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No. 1 is 15.75 feet from station in azimuth 49°19′. No. 2 is 43.17 feet from station in azimuth 142°11′.

Cadiz (M. W. D. of S. C.) (San Bernardino County, Metropolitan Water District of Southern California, 1932).—About 33 miles north-northeast of Desert Center, on low point of extreme western end of ridge which extends west from central portion of Iron Mountains. To reach from Desert Center, go northeast about 28 miles on aqueduct highway, go northwest about 1.1 miles on road around west base of Iron Mountains, follow right-hand fork out of large wash, and continue north 9.5 miles to base of ridge. After leaving wash, ridge is visible and appears to be most westerly point of mountains. Marked by bronze disk (see fig. 7) in concrete post. Reference mark no. 1 is bronze pin 10.08 feet from station in azimuth 31°33′. Reference mark no. 2 is 1-inch iron pipe 26.94 feet from station in azimuth 106°01′. Reference mark no. 3 is bronze pin 14.54 feet from station in azimuth 255°23′.

North Iron (M. W. D. of S. C.) (San Bernardino County, Metropolitan Water District of Southern California, 1932).—About 33 miles north-northeast of Desert Center, about 20 miles west-northwest of Rice, on high peak of central part of Iron Mountains, and south of and 4 feet lower than highest point of peak. To reach from Desert Center, go northeast about 28 miles on aqueduct highway, go northwest 1.1 miles on road around west base of Iron Mountains, take right-hand fork out of large wash and continue about 7 miles north, go 2 miles across country into mouth of large canyon, go up canyon to point where large waterfall will be seen on left, climb out of canyon just beyond this point onto left-hand ridge, and continue up ridge to top. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins. No. 1 is 11.30 feet from station in azimuth 293°44′. No. 2 is 32.46 feet from station in azimuth 3°18′.

Granite Shaft (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 17½ miles west-southwest of Rice, at extreme northeastern end of Granite Mountains, and on highest point of group of hills separated from main range by large wash and low pass. To reach from Rice, go west approximately 18 miles on aqueduct highway, go south across country to dirt road, go south to end of this road, go 0.5 mile up wash, and continue to station site on highest peak to north. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins. No. 1 is 23.352 feet from station in azimuth 4°. No. 2 is 21.611 feet from station in azimuth 52°11′.

Lake (M. W. D. of S. C.) (San Bernardino County, Metropolitan Water District of Southern California, 1932).—About 15.3 miles west-northwest of Rice, on highest point of eastern end of ridge extending east to Danby Lake from central part of Iron Mountains. To reach from Rice, go west approximately 15.5 miles on aqueduct highway, go north-northeast 3.8 miles on dirt road, and proceed northwest 2 miles to base of ridge. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins. No. 1 is 22.02 feet from station in azimuth 18°56′. No. 2 is 40.62 feet from station in azimuth 323°09′.

East Iron (M. W. D. of S. C.) (San Bernardino County, Metropolitan Water District of Southern California, 1932). About 16½ miles west-northwest of Rice, on highest point of western end of ridge extending east to Danby Lake from central part of Iron Mountains. To reach from Rice, go west about 15½ miles on aqueduct highway, go north-northeast 3.8 miles on dirt road, and go west 2.5 miles on road to south base of hill. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins. No. 1 is 14.20 feet from station in azimuth 263°51′. No. 2 is 22.94 feet from station in azimuth 118°30′.

Iron west base (M. W. D. of S. C.) (San Bernardino County, Metropolitan Water District of Southern California, 1932).—About 18 miles west-northwest of Rice, on flat country east of southern portion of Iron Mountains. To reach from Rice, go west approximately 15.5 miles on aqueduct highway, go north-northeast 0.8 mile on dirt road, and go northwest across country to station site. Surface mark is bronze disk (see fig. 7) in concrete post. Underground mark is bronze pin in concrete. Reference marks are bronze pins in concrete posts. No. 1 is 72.34 feet from station. No. 2 is 89.639 feet from station. Angle from reference mark no. 1 to no. 2 is 270°16′.

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Dune (M. W. D. of S. C.) (Riverside County, Metropolitan Water District of Southern California, 1931).—About 8.4 miles west-southwest of Rice, on small sand dune 1 mile east of large wash which drains north into Danby Lake. To reach from Rice, go west about 10 miles on aqueduct highway, go south 3.5 miles up large wash, and go east 1 mile across country to largest dune in vicinity. There are three higher dunes about 1 mile south. Marked by bronze disk (see fig. 7) in concrete post. Reference marks are bronze pins; one in rock and other in concrete. No. 1 is 45.70 feet from station in azimuth 149°49′. No. 2 is 40.86 feet from station in azimuth 248°00′.

Freda (M. W. D. of S. C.) (San Bernardino County, Metropolitan Water District of Southern California, 1931).—Three miles west-northwest of Rice, on gentle slope west of southern end of Turtle Mountains, and 1 mile north of Freda railway station. To reach from Rice, go west 4.5 miles on road parallel to railway to railway bridge with white disk marked "STATION", cross tracks and go 1.7 miles across country toward highest part of southern end of Turtle Mountains and station site. Surface mark is bronze disk (see fig. 7) in concrete post. Underground mark is bronze pin in concrete. Reference marks are bronze pins. No. 1 is 83.27 feet from station in azimuth 314°58′. No. 2 is 71.52 feet from station in azimuth 32°24′.

Rice (M. W. D. of S. C.) (San Bernardino County, Metropolitan Water District of Southern California, 1932).—About 3.2 miles east-northeast of Rice, on isolated hill south of southern end of Turtle Mountains. To reach from Rice, cross Atchison, Topeka & Santa Fe Railway tracks and go east about 3 miles across country to wash and go north 1 mile to base of hill. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins. No. 1 is 12.96 feet from station in azimuth 263°51′. No. 2 is 27.39 feet from station in azimuth 27°36′.

Mole (M. W. D. of S. C.) (San Bernardino County, Metropolitan Water District of Southern California, 1931).—About 9.7 miles west of Vidal, 2.5 miles northeast of Grommet railway station, about 50 feet west of highway, and on prolongation of tangent which extends northeast from railway crossing. To reach from Grommet, go northeast on aqueduct highway to point about 1.2 miles northeast of railway crossing. Marked by bronze disk (see fig. 7) in concrete post. Reference mark no. 1 is bronze pin 67.12 feet from station in azimuth 337°17′.

Vidal (M. W. D. of S. C.) (San Bernardino County, Metropolitan Water District of Southern California, 1932).—About 2.3 miles north of Vidal, on summit of small hill. To reach from Vidal, go north about 3 miles on old Vidal-Needles Road, go east 0.5 mile across country to large wash, and proceed south down wash to northeast base of hill. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins. No. 1 is 39.24 feet from station in azimuth 34°27′. No. 2 is 45.17 feet from station in azimuth 315°43′.

Stone (M. W. D. of S. C.) (San Bernardino County, Metropolitan Water District of Southern California, 1932).—Seven and one-half miles northwest of Vidal and 200 feet east of road. To reach from Vidal, go northwest 6 miles on new Vidal-Needles Road to aqueduct highway, go west 1 mile on highway, and proceed northwest about 0.5 mile on continuation of new Needles Road. Marked by bronze disk (see fig. 7) in concrete post. Reference mark no. 1, bronze pin, is 46.95 feet from station in azimuth 235°11′. Bench mark "20 U" is 186.02 feet from station in azimuth 334°17′.

Mesa (M. W. D. of S. C.) (San Bernardino County, Metropolitan Water District of Southern California, 1931).—About 5.7 miles north of Vidal, on southern end of long low ridge. To reach from Vidal, go north 6.0 miles on old Vidal-Needles Road or about 1 mile north of its intersection with aqueduct highway and go east 0.5 mile on ridge to station site. Marked by bronze disk (see fig. 7) in concrete post. Reference marks are bronze pins. No. 1 is 74.27 feet from station in azimuth 293°00′. No. 2 is in azimuth 33°52′.

Vista (M. W. D. of S. C.) (San Bernardino County, Metropolitan Water District of Southern California, 1932).—About 5.9 miles northwest of Earp, on highest point of prominent black ridge north of Earp Mines. To reach from Earp, go west approximately 6 miles on aqueduct highway and go north on Earp Mine Road to its end about 0.2 mile from station site. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins. No. 1 is 36.64 feet from station in azimuth 2°55′. No. 2 is 41.66 feet from station in azimuth 123°14′.

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Cairn (M. W. D. of S. C.) (San Bernardino County, Metropolitan Water District of Southern California, 1932).—Four miles north of Earp, on long, low, rounded hill about 1 mile southeast of Copper Basin and Blue Cloud Mine roads intersection. To reach from Earp, go north about 7 miles on Copper Basin Road or 1.5 miles beyond Blue Cloud Mine road intersection, and proceed to right down large wash to base of hill. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins. No. 1 is 39.62 feet from station in azimuth 295°47′. No. 2 is 54.24 feet from station in azimuth 207°50′. Old triangulation station "Cairn 389" (not described) is 2.95 feet from station in azimuth 184°03′.

Start (M. W. D. of S. C.) (San Bernardino County, Metropolitan Water District of Southern California, 1932).—Four miles northwest of Earp, on low rocky ridge. To reach from Earp, go west 1.4 miles on old Earp-Vidal road or 0.6 mile beyond Hays Mine Road junction, go north about 4.2 miles up west side of large wash to base of ridge, and go east up ridge to station site. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins. No. 1 is 53.13 feet from station in azimuth 282°. No. 2 is 19.11 feet from station in azimuth 36°.

Badger (M. W. D. of S. C.) (San Bernardino County, Metropolitan Water District of Southern California, 1932).—About 11 miles northeast of Earp, on red cone-shaped peak 2 miles west of Colorado River from point 2 miles south of mouth of Williams River, and on site of old triangulation station "Badger." To reach from Earp, go north about 12 miles on Copper Basin-Bandit Wash Road to Gene Wash, go down Gene Wash as far as possible (about 2 miles), go south 1 mile across wash to base of ridge, and continue to station site. The new Earp-Parker Dam Site Road passes about 1 mile south of station. Marked by Metropolitan Water District of Southern California bronze disk (see fig. 7) in concrete in 1-inch iron pipe. Reference mark no. 1 is bronze pin, 29.25 feet from station in azimuth 327°49′.

Lunch (M. W. D. of S. C.) (San Bernardino County, Metropolitan Water District of Southern California, 1932).—Ten miles north-northeast of Earp, on southeastern end of long high ridge east of Bandit Wash and north of Copper Basin. To reach from Earp, go north approximately 15 miles on Copper Basin Road (main road enters Bandit Wash at this point), go east 1 mile down sandy wash, and continue to station site on high ridge to north. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins. No. 1 is 35.56 feet from station in azimuth 34°26′. No. 2 is 33.54 feet from station in azimuth 165°12′. Old triangulation station "Lunch" (not described) is 17.40 feet from station in azimuth 325°14′.

Copper (M. W. D. of S. C.) (San Bernardino County, Metropolitan Water District of Southern California, 1932).—About 8.7 miles north of Earp, on southern section of large table-like mountain which is about 1,500 feet west-southwest of prominent peak known locally as "Monument Peak." To reach from Earp, go north on Copper Basin road to point 5.0 miles beyond Blue Cloud Mine road intersection, go northeast up wash as far as is practicable, and climb southern ridge to station site. Marked by bronze disk (see fig. 7) in rock. Reference marks are bronze pins. No. 1 is 19.96 feet from station in azimuth 171°39′. No. 2 is 18.23 feet from station in azimuth 244°36′.

SAN LUIS OBISPO NORTHEASTWARD ARC

Principal points

Orchard Peak (Standard Oil Co.) (Kern County, F. G. Johnson, 1932).—On high grassy ridge, on western one of two high points. To reach from Cholame, go northeast 2 miles on Route 33, turn left onto Cottonwood Pass Road and go 8.9 miles, turn right up canyon road and go 0.6 mile, climb up to top ridge to east, go southeast along ridge to main ridge, go east along main ridge to highest point and station site. Station is identical with one of the Standard Oil Co. the mark of which was removed. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is at edge of rocky rim and 39.230 meters (128.71 feet) from station in azimuth 340°57′. No. 2 is at edge of rocky rim and 25.870 meters (84.88 feet) from station in azimuth 37°28′. Station *Orchard Peak* (*U.S.G.S.*), *cairn* (see description thereof) is 285.3 meters (936 feet) from station in azimuth 299°41′04″.

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Bench (San Luis Obispo County, F. G. Johnson, 1932).—On highest ground at head of McMillan Canyon, about 1 mile south of point where McMillan Canyon road crosses divide, and on grassland at southwest end of short ridge. Northwest part of ridge is sparsely covered with oak trees. To reach from Shandon, go west 2.1 miles on Route 33 and turn right onto road leading into McMillan Canyon, go 3.4 miles and take right fork, go 4.1 miles and turn to right about 165° passing through gate at fence corner (about 0.3 mile south of divide), follow wagon trail eastward up small gulch 0.3 mile to saddle, turn right and follow road around hill one-fourth mile to top of grade, leave wagon tracks and go south along ridge with trees on right, and continue 0.5 mile south and southwest to hill and station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 53.48 meters (175.5 feet) from station in azimuth 71°13′. No. 2 is 17.361 meters (56.96 feet) from station in azimuth 164°39′. *B. M. 2140* (*U.S.G.S.*) (see description thereof) is 3.824 meters (12.55 feet) from station in azimuth 291°51′.

Red Hill (San Luis Obispo County, F. G. Johnson, 1932).—On highest part of the Red Hills which lie between Palo Prieto Pass and San Juan River Valley, and 6 yards from sheer cliff where deep gorge comes up from valley. Hill is grassy but there are no bushes or trees on it. To reach from Shandon, go east 0.4 mile on Route 33, turn right onto oiled road and go 0.3 mile, turn right with oiled road and go 4.1 miles to mouth of Gillis Canyon, turn left up canyon and go 2.4 miles to house, pass to right of house and go 3.2 miles to end of road, from ranch house at head of canyon go south on farm road by windmill and continue 0.5 mile, take left fork and go 1.4 miles, pass through gate keeping to high ground and go 0.6 mile to farmhouse, pass between house and barn and continue a little north of west on farm road to break of hills to west, and go northwest 1.1 miles along high ground to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 19.708 meters (64.66 feet) from station in azimuth 164°38′. No. 2 is 22.488 meters (73.78 feet) from station in azimuth 254°29′. *B. M. 2592* (*U.S.G.S.*) (see description thereof) is 4.522 meters (14.84 feet) from station in azimuth 327°42′.

Flowers (San Luis Obispo County, F. G. Johnson, 1932).—About 4 miles southwest of Shandon, one-half mile east of Shedd Canyon, and on barren hill. To reach from Shandon, go west 1.1 mile on Route 33 and turn left onto oiled road, go 2.9 miles to farmyard and buildings on right, continue 0.8 mile to barbed-wire gate on right (northwest) side of road, pass through gate and go 0.2 mile parallel to road in a northerly direction to wedge-shaped fence corner, turn left and go northwest up gully 0.1 mile to top of ridge in saddle, go north and northwest down gully 0.3 mile to main gulch, cross gulch and continue northwest 0.4 mile up smaller ridge to main ridge, and go west along main ridge about 50 yards to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 10.300 meters (33.79 feet) from station in azimuth 248°27′. No. 2 is 10.882 meters (35.70 feet) from station in azimuth 351°47′.

Almond (San Luis Obispo County, F. G. Johnson, 1932).—About 6 miles northeast of Creston, in pasture just east of almond grove. To reach from Creston, go north 3.1 miles on Paso Robles Road and turn right, follow this road 3 miles to junction with Creston-Shandon Road, turn left at T-intersection and go 0.9 mile toward Shandon, turn right off oiled road and take the left one of two roads which leads up hill, follow 1.1 miles to group of buildings on left in almond grove, take road going up draw in a southeasterly direction and follow 0.3 mile to saddle, turn left and go 0.2 mile through grove, turn right and go southeast 0.2 mile across depression, turn right at top of grade following ridge and go 0.1 mile, turn left and go 0.1 mile, turn left and go 0.1 mile to wire gate, pass through gate and continue about 50 meters (164 feet) to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 29.968 meters (98.32 feet) from station in azimuth 271°46′. No. 2 is 21.780 meters (71.46 feet) from station in azimuth 172°15′.

Highland (San Luis Obispo County, F. G. Johnson, 1932).—Near northwestern end of La Panza ranch, about 2 miles southeast of Highland School, about 200

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yards from wire fence, and on highest and northwesterly of four knobs of nearly same elevation. Eastern slope is grassy and covered with pine trees; northern and southern slopes are brushy. To reach from Creston, go 5.7 miles on road leading east from post office, take left road and go 4.2 miles to old barn and mail box, turn right through gate onto old dim road and go 0.7 mile to old house, continue 0.4 mile to another old house, walk up canyon behind barn to tree with triangular blaze, follow left fork of canyon about one-fourth mile to saddle at head and go southeast about one-half mile along ridge to highest point. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is about 2 yards from blazed tree and 7.612 meters (24.97 feet) from station in azimuth 276°17′. No. 2 is 9.028 meters (29.62 feet) from station in azimuth 322°15′. Nail in center of blaze on tree is 6.67 meters (21.9 feet) from station in azimuth 263°43′.

Grassy (San Luis Obispo County, F. G. Johnson, 1932).—On large, flat, grassy hill lying east of Edgar Rhodes' house, and on highest point on ridge. There is higher ground to southeast which is separated by deep saddle. To reach from Creston, go north 0.7 mile from post office on Paso Robles road, turn right, cross bridge, and go 0.5 mile to the Union Oil Co. pumping station, turn right onto La Panza road and go 1.1 miles, take right fork and go 3.8 miles to Rhodes' gate, turn right through gate and follow farm road 0.4 mile to top of grade, turn left and go 0.9 mile along ridge to station site. Marked by standard station disk in large buried boulder which projects 6 inches. Reference marks are standard reference disks in boulders, note 12c. No. 1 is in large, flat boulder and 24.475 meters (80.30 feet) from station in azimuth 313°48′. No. 2 is in boulder flush with surface of ground and 18.962 meters (62.21 feet) from station in azimuth 194°35′.

Barren (San Luis Obispo County, F. G. Johnson, 1932).—About 5 miles north-northeast of Santa Margarita, on highest point of barren hills in that vicinity. To reach from Santa Margarita, go 1.6 miles on Pozo road, turn left and follow oiled road 1.9 miles to bridge across Salinas River, continue 0.6 mile and take left road, go 1.3 miles and turn left, go 5.7 miles and turn left, go 2.2 miles and turn left, passing through farmyard, follow this road 0.7 mile, turn right and go 1.2 miles, go east and south along foot of main ridge about one-half mile (from here hill will be seen to southeast), ascend ridge to south and go east along ridge to highest point and station site. Marked by standard station disk in buried rock. Reference mark no. 1 is standard reference disk in buried rock, 13.595 meters (44.60 feet) from station in azimuth 299°43′. Reference mark no. 2 is standard reference disk in boulder, note 12c, 15.760 meters (51.71 feet) from station in azimuth 67°10′.

Green (San Luis Obispo County F. G. Johnson, 1932).—On small boulder-strewn hill which is not highest in vicinity, three-eighths mile north-northeast of J. W. Green's house. To reach from Santa Margarita, go east 1.6 miles on first street north of depot following road signs toward Pozo, turn left onto oiled road and go 1.9 miles to bridge across Salinas River, continue 0.6 mile beyond bridge, turn right onto Park Hill road and go 5.2 miles along main-traveled road to Green's ranch. Marked by standard station disk, note 4, in buried boulder which is about 1 foot square on top. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 12.780 meters (41.93 feet) from station in azimuth 248°18′. No. 2 is 12.230 meters (40.12 feet) from station in azimuth 20°55′.

Tessajera (San Luis Obispo County, F. G. Johnson, 1932).—About 8 miles north-northwest of San Luis Obispo, near center of hogback on ridge forming crest of Santa Lucia Range, on southernmost of two points of about same elevation and about 150 yards apart, and west of Tassajera Creek. There are numerous rock outcrops on this mountain. To reach from San Luis Obispo, go west 3.4 miles on Morro Bay highway, turn right onto gravel road and go 0.3 mile to gate and sign "Chorro Creek Road", go 1.3 miles on Chorro Creek Road and turn left onto bridge over creek, go 0.8 mile and take right fork keeping to north of creek, go 0.3 mile and ford stream near gate, follow winding road 0.8 mile to gate, pass through gate and go 0.3 mile, take right fork and go 0.3 mile, keeping to south of dry-bed stream to edge of trees, follow trail leading to old mine about 100 yards away and continue along meandering trail to top of hill about 1 mile to north of mine, follow ridge to west to base of high mountain about three-fourths mile distant, skirt mountain to north by

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following well-worn path which leads to bottom of hill lying to west of mountain, cross hill and follow trail to top of western mountain and station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 8.605 meters (28.23 feet) from station in azimuth 266°45′. No. 2 is 12.440 meters (40.81 feet) from station in azimuth 148°49′.

Salinas (San Luis Obispo County, F. G. Johnson, 1932).—On high grassy hill west of Salinas River, near point where river leaves valley and goes into hills. To reach from Santa Margarita, go 5.4 miles on Pozo Road, cross two bridges and turn left, go 1.0 mile to top of grade and climb to north to highest point of ridge. Marked by standard station disk in boulder, note 4. Reference mark no. 1 is standard reference disk in boulder, note 12c, on hillside, and 176.00 feet (slope) from station in azimuth 325°08′. Reference mark no. 2 is standard reference disk in bedrock, note 12a, in saddle, and 483.30 feet (slope) from station in azimuth 13°38′05″.

Cerro Remauldo (San Luis Obispo County, F. G. Johnson, 1932; 1933).—About 4½ miles west-northwest of San Luis Obispo, on high peak known as "Cerro Romauldo." To reach from San Luis Obispo, go west 4.1 miles on Santa Rosa Street from Monterey Street, turn left onto farm road and go 0.9 mile to Bettlinger's ranch buildings, pass through gate just west of barn and go in a southwesterly direction to foot of lower peak on east, go up hump to east of high peak and follow dim trail leading to top of mountain and station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 4.300 meters (14.11 feet) from station in azimuth 56°57′. No. 2 is 8.460 meters (27.76 feet) (slope) from station in azimuth 134°57′.

Davis (San Luis Obispo County, F. G. Johnson, 1932; 1933).—On high point lying northwest of head of Davis Canyon, on divide between Coon Creek and Diablo Canyon, on south side of flat, narrow, bushy hogback. To reach from the Auto Tel service station in south end of San Luis Obispo, go south 5.5 miles on Route 101, turn right onto gravel road and go 1.2 miles, turn right at signboard "See Canyon Oil Company" and go 1.7 miles (at this point main-traveled road turns right up See Canyon), keep straight ahead 3.2 miles on narrow mountain road up canyon to Sam Wright's place, continue 0.8 mile to point where road comes out on saddle, turn sharply to right and go 0.3 mile (triangular blaze was cut on oak tree to right of road), follow trail which winds around west slope of hill to top of ridge, leave trail at top of ridge and follow ridge to left about one-half mile to station site. Marked by standard station disk in boulder, note 4. Reference mark no. 1 is standard reference disk in boulder projecting 6 inches, note 12c, 11.09 meters (36.4 feet) from the station in azimuth 278°32′. Reference mark no. 2 is standard reference disk in bedrock, note 12a, at east side of ridge, at edge of trees, and 35.87 meters (117.7 feet) from station in azimuth 141°01′.

Biddle (San Luis Obispo County, F. G. Johnson, 1932).—On highest part of highest grassy hill which drops off to west into valley which extends out to beach. A low range of brushy hills which extends in an arm part way to beach lies just to the south. To reach from corner of Marsh and Broad Streets in San Luis Obispo, go 5 miles on Broad Street toward Edna, turn left across railroad tracks and go 1.2 miles, turn right and go 5.1 miles to T-road, turn right and go 0.2 mile, turn left across bridge and go 0.4 mile to farmhouse, turn right just after passing small garage and shed and go 0.2 mile to fork in road, take left fork up point of ridge and go 1.9 miles to dairy farm, pass through farm, take road leading around hill to right and follow 0.5 mile to fence, turn right before going through fence and go 0.1 mile to gate, turn left through gate (where road ends) and drive across field through two more gates onto ridge running north and south, follow this ridge to top of another ridge running east and west and go to right up latter ridge to foot of large grass-covered hill visible to right. Marked by standard station disk in buried boulder, note 4. Reference marks are standard reference disks in buried boulders, note 12c. No. 1 is 10.040 meters (32.94 feet) from station in azimuth 273°01′. No. 2 is 18.742 meters (61.49 feet) from station in azimuth 355°34′. Azimuth from station to *High Mountain, fire lookout tower* is 202°26′31″.

Pyramid (Kings County, F. G. Johnson, 1932).—On the Pyramid Hills lying between Kettleman Plain and McLure Valley, on round-topped shale-covered knob on first hill south of point where the Cottonwood Pass Road passes the

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Pyramid Hills near Little Tar Canyon. To reach from Cholame, go northeast 2 miles on Route 33 and turn left onto Cottonwood Pass Road, go 11.6 miles to Kings-Kern County line, continue straight ahead 5 miles to top of Pyramid Hills, and go about 200 yards north from road to first hill. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 5.852 meters (19.20 feet) from station in azimuth 39°22′. No. 2 is 21.138 meters (69.35 feet) from station in azimuth 144°02′.

Dagany (Kern County, F. G. Johnson, 1932).—In highest hills south of Dagany Gap, on flat-topped shale-covered knob. Line of hills runs north and south across valley. To reach from Kettleman City, go south on road leading toward Devils Den to point 0.9 mile beyond Devils Den service station, turn right onto oiled road and go 0.6 mile to cattle guard, turn right through cattle guard and follow along fence 1 mile, turn left and follow ridge one-half mile to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 6.265 meters (20.55 feet) from station in azimuth 185°08′. No. 2 is on shoulder of hill, several feet lower and 82 paces from station in azimuth 290°25′.

Avenal (Kings County, F. G. Johnson, 1932).—On sharp peak in the Avenal Ridge, about 3½ miles east of Monterey-Kings County line, and about 1¾ miles north of Cottonwood Pass Road. The peak, which is the highest one rising from McLure Valley, is prominently marked with rock cairn and should not be confused with peak lying to west about 1 mile also with cairn on its top. To reach from Cholame, go northeast 1.8 miles on Route 33 and turn left onto Cottonwood Pass Road, go 9.5 miles or 4 miles east of Cottonwood Pass and turn to left 165°, proceed across country and up ridge about 0.4 mile, and follow along ridge northwest, north, and northeast around head of canyon about 2½ miles to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 11.478 meters (37.66 feet) from station in azimuth 57°14′. No. 2 is 9.385 meters (30.79 feet) from station in azimuth 314°31′. *Avenal, cairn,* is 5.45 meters (17.9 feet) from station in azimuth 62°20′.

McClure Southwest (Kings County, F. G. Johnson, 1932).—On southwest side of McLure Valley, at bend at south end of straight stretch of road, between fence and road, on flat piece of grassy ground, and 7.69 meters (25.2 feet) west of center line of road. To reach from Cholame, go northeast 2 miles on Route 33, turn left onto Cottonwood Pass Road, and go 11.6 miles to Kern-Kings County line. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is in field, 8.00 meters (26.2 feet) east of center line of road and 16.365 meters (53.69 feet) from station in azimuth 280°40′. No. 2 is in fence corner at west side of road, 6.00 meters (19.7 feet) from center line of road and 14.525 meters (47.65 feet) from station in azimuth 21°29′. *Kern-Kings county-line sign* (see description thereof) is 14.075 meters (46.18 feet) from station in azimuth 15°36′.

McClure Northeast (Kings County, F. G. Johnson, 1932).—In McLure Valley, on southwest edge of Pyramid Hills, and 27 paces northwest of Cottonwood Pass Road. To reach from Cholame, go northeast 1.8 miles on Route 33 and turn left onto Cottonwood Pass Road, go 11.6 miles to road sign marking Kings-Kern County line, continue 4.3 miles, and turn left onto low knoll. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 23.819 meters (78.15 feet) from station in azimuth 110°59′. No. 2 is on low hill and 0.2 mile from station in azimuth 312°36′49″.

Standard (Kings County, F. G. Johnson, 1932).—On highest point of Kettleman Hills, near Standard Oil Co. tripod signal. To reach from Devils Den service station, go north 0.6 mile on road leading to Kettleman City and take right fork, go 1.0 mile to county line and continue 1.9 miles beyond county line, turn right and go southeast 1.1 miles along pipe and telephone line to fence, turn left and go east 0.6 mile along north side of fence to fence corner, and continue east-northeast 0.9 mile along ridge to tripod signal and station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on top of ridge and one-fourth mile from station in azimuth 43°14′22″. No. 2 is 9.073 meters (29.77 feet) from station in azimuth 142°23′.

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Avenal reference mark (*U. S. G. S.*) (see description thereof) is 14.77 meters (48.5 feet) from station in azimuth 291°59′. Station *M* (*Standard Oil Co.*) (see description thereof) is 5.382 meters (17.66 feet) from station in azimuth 301°11′.

Kettleman (Kings County, F. G. Johnson, 1932).—About 7½ miles north-northwest of Avenal Gap, on round hill on highest point of highest ridge of Kettleman Hills. To reach from Kettleman City, go south 1.9 miles on Devils Den road, take right fork (Cottonwood Pass road) and follow road 6.9 miles, take left fork and go 0.7 mile to divide, turn left and go 1.1 miles on dirt road in a southerly direction to point where fence crosses road, pass fence and turn right off road, and go across country 0.1 mile to top of hill. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 20 feet up gentle slope from west side of highway and 23.857 meters (78.27 feet) from station in azimuth 258°10′. No. 2 is on west side of highway, abreast of third curve in road, 10 feet from edge of road, and one-half mile from station in azimuth 165°54′28″.

Skyline (Kings County, F. G. Johnson, 1932).—In Kettleman Hills, at highest point of small round-topped knob one-half mile east of Standard Oil Co. plant, just to right of road, about 75 yards from fork in roads, and in sec. 11, T. 22 S., R. 17 E. To reach from Kettleman City, go south 1.9 miles on Devils Den road, take right fork (Cottonwood Pass road) and go 6.9 miles, take right fork and go 1.9 miles, take left fork and go 6.2 miles to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 7.592 meters (24.91 feet) from station in azimuth 40°31′. No. 2 is 30 feet west of highway, 150 feet south of small gasoline pumping station, and one-fourth mile from station in azimuth 132°29′46″. Azimuth from station to Standard Oil Co. plant, flagpole, distant one-half mile, is 135°22′15″.

Supplementary points

Santa Marguerita (San Luis Obispo County, F. G. Johnson, 1932).—About three-fourths mile south of west of Santa Margarita, on hill about one-fourth mile south of Route 101, about 40 feet east of two large oak stumps, and on land belonging to the Santa Margarita Land & Cattle Co. To reach from depot in Santa Margarita, go south 0.6 mile on Route 101 and turn left across railroad tracks, turn right through gate of corral adjoining tracks and go southeast through corral to station site. Marked by standard station disk, note 4, in buried boulder which projects about 8 inches. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 14.205 meters (46.60 feet) from station in azimuth 241°49′. No. 2 is 28.187 meters (92.48 feet) from station in azimuth 334°21′.

Firebreak (San Luis Obispo County, F. G. Johnson, 1932).—On National Guard Reservation, on east side of firebreak just where it turns left and runs along ridge. A pine-timbered hill to north is higher than station. To reach from San Luis Obispo, go west 3.4 miles on Santa Rosa Street, turn right onto gravel road and go 0.3 mile, turn left through gate and go 1.4 miles on Chorro Creek road, take right-hand road and go 0.1 mile, pass through two gates and ford stream at large, blazed sycamore tree, turn right and follow along north side of stream about one-fourth mile, and follow along old road leading north on west side of large hill to firebreak at top of divide and station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 44.54 meters (146.1 feet) from station in azimuth 156°34′. No. 2 is 18.57 meters (60.9 feet) from station in azimuth 86°56′.

Volmer (San Luis Obispo County, F. G. Johnson, 1932).—About 7 miles north-northwest of San Luis Obispo, on hill which is covered with brushy growth on southern slope only and grass on crest and other slopes, and about 50 meters (164 feet) east of western crest of hill. To reach from San Luis Obispo, go west 9.5 miles on Morro Bay highway or 4.2 miles west of Hope School, turn right onto gravel road leading between number of buildings and up San Luisito Creek, go 0.4 mile and take right fork, continue 1 mile, pass through gate and take left fork, go 1.1 miles, pass through farmyard and continue 0.6 mile to fork in road near gate, take right fork and go about 0.1 mile

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across ravine to farmhouse, and climb hill south of farmhouse about three-fourths of a mile to station site. Slope from station to farmhouse is free of brush. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 17.360 meters (56.96 feet) from station in azimuth 128°30′. No. 2 is 20.050 meters (65.78 feet) from station in azimuth 219°24′.

Hill 1400 (San Luis Obispo County, F. G. Johnson, 1932).—On National Guard Reservation, directly under target previously established by the National Guard. To reach from Route 101 (Monterey Street) in San Luis Obispo, go northwest 3.4 miles on Santa Rosa Street and turn right onto gravel road, go 0.3 mile to gate and sign "Chorro Creek Road", turn left through gate and go 1.3 miles, turn left across creek and go 0.8 mile, take right fork and go 0.3 mile, ford creek and go about three-fourths of a mile to top of grade and wire gate, and continue south along ridge to station site keeping on south side of fence. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 26.018 meters (85.36 feet) from station in azimuth 223°29′. No. 2 is 2 feet south of fence, and 25.527 meters (83.75 feet) from station in azimuth 96°28′.

Guard (San Luis Obispo County, F. G. Johnson, 1932).—On National Guard Reservation, on first hill about 1 mile northwest of National Guard camp, and on highest point of east-and-west ridge. Hill is flat and grassy on top. To reach from San Luis Obispo, go 5.3 miles on Morro Bay highway to Hope School and go north one-half mile across fields to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 10.230 meters (33.56 feet) from station in azimuth 200°59′. No. 2 is 18.62 meters (61.1 feet) from station in azimuth 121°07′.

Walters (San Luis Obispo County, F. G. Johnson, 1932).—About 7 miles northwest of San Luis Obispo, on hill which is covered with rock outcrops, and on land belonging to C. Walters. To reach from San Luis Obispo, go west 6.6 miles on Morro Bay highway or 1.3 miles beyond Hope School to Mr. Walters' house on left side of highway and his barn on right side, go through barnyard and turn left into field with red water tank, follow east side of field along fence line around foot of hill for a short distance and then proceed northwest about one-fourth mile to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 4.075 meters (13.37 feet) from station in azimuth 343°31′. No. 2 is 14.970 meters (49.11 feet) from station in azimuth 81°58′.

Conner (San Luis Obispo County, F. G. Johnson, 1932).—About 6 miles northwest of San Luis Obispo, on western end of high rocky ridge 2 miles west of Cerro Romauldo Mountain. To reach from San Luis Obispo, go west 5.6 miles on Morro Bay highway or 0.3 mile beyond Hope School, turn left and follow road 0.9 mile to gate at end of road, go across field in a southwesterly direction to top of ridge, and go west along ridge to highest point and station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 16.720 meters (54.86 feet) from station in azimuth 245°03′. No. 2 is 6.615 meters (21.70 feet) from station in azimuth 310°16′.

Stony (San Luis Obispo County, F. G. Johnson, 1932).—About 8½ miles west-southwest of San Luis Obispo, on rocky hill which is distinguished by boulders on south slope and stone fence over its top, about 20 meters (66 feet) north of stone fence, and on land belonging to the Sinsoma brothers. To reach from Route 101 in San Luis Obispo, go west 2.1 miles on Los Osos Valley road, turn left and go 3.1 miles, take right fork passing through gate and go to road junction 0.1 mile beyond Irish Hills School, which is on left, keep straight ahead 1.6 miles to junction with Sycamore Canyon road, go south 2.3 miles on main-traveled road along ridge, proceed across fields to right of ridge and then along ridge to high point 0.1 mile north of road, continue north 0.1 mile and take right fork passing through gate on ridge, continue 0.6 mile to fence corner, turn right and go 100 yards to another fence corner and gate, and proceed along ridge about three-fourths mile to head of canyon and station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 12.644 meters

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(41.48 feet) from station in azimuth 335°57′. No. 2 is 18.116 meters (59.44 feet) from station in azimuth 72°09′.

Perry (San Luis Obispo County, F. G. Johnson, 1932; 1934).—In cultivated field, about 150 yards east of road leading along ridge from Sycamore Canyon. To reach from San Luis Obispo, go west 2.1 miles on Los Osos Valley road, turn left and go 3.1 miles, take right fork passing through gate and go to road junction 0.1 mile beyond Irish Hill School, which is on left, keep straight ahead and go 1.6 miles to junction with Sycamore Canyon road, go south 2.3 miles on main-traveled road along ridge, leave road and go 0.1 mile across fields to right to station site on high point. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Upper mark is 8 inches below surface. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 546.3 feet (slope) from station in azimuth 290°58′02″. No. 2 is 617.0 feet (slope) from station in azimuth 337°49′53″. In 1934, reference marks were searched for but not recovered.

Coon (San Luis Obispo County, F. G. Johnson, 1932).—On southeast shoulder of high ridge north of Coon Creek, about one-fourth mile from highest point of ridge, and in scattered brush and trees on flat part of hill. To reach from San Luis Obispo, go south 5.5 miles on Route 101, turn right onto gravel road and go 1 mile to bridge, cross bridge and go 0.1 mile, turn right and go 1.7 miles on road leading to the See Canyon Oil Co., turn right and go 2.6 miles, turn left onto main-traveled road up steep grade through gate and go 3.4 miles into Coon Creek Canyon, go north up ridge which lies on east side of gully and follow along ridge to station site. Marked by standard station disk cemented in cracked limestone. Reference mark no. 1 is standard reference disk in ledge of limestone, alongside scrub-oak tree, and 43.796 meters (143.69 feet) from station in azimuth 97°38′.

Guidetti (San Luis Obispo County, F. G. Johnson, 1932).—On smooth, flat grassy hill which is highest one to east of barnyard, on property farmed by L. Guidetti. A knob which is a few feet higher is one-fourth mile to west. To reach from San Luis Obispo, go 5.7 miles on Los Osos Valley Road to gate on right leading to Guidetti's house, pass through gate and go northeast across fields to top of ridge. Marked by standard station disk, note 4, in buried boulder which is 10 inches square by 30 inches long and projects 6 inches. Reference marks are standard reference disks in boulders, note 12c, projecting 6 inches. No. 1 is 29.527 meters (96.87 feet) from station in azimuth 137°43′. No. 2 is 6.520 meters (21.39 feet) from station in azimuth 223°14′.

Turri (San Luis Obispo County, F. G. Johnson, 1932).—Near water tank on small rocky hill about 200 yards west of Mr. Turri's house. To reach from San Luis Obispo, go southwest 5.9 miles on Los Osos Valley Road, turn right (north) onto gravel road and go 0.4 mile to Turri's gate, turn right through gate and go to house. Marked by standard station disk, note 2, in rock ledge flush with surface of ground. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 26.084 meters (85.58 feet) from station in azimuth 210°25′. No. 2 is 27.894 meters (91.52 feet) from station in azimuth 282°03′.

Phil (San Luis Obispo County, F. G. Johnson, 1932).—In pasture on western end of principal ridge between Los Osos and Clark Valleys, 75 feet northwest of fence intersection and wire gate, and on land belonging to Miss Philliponi. To reach from San Luis Obispo, go 3 miles on Los Osos Valley Road, turn left onto Sycamore Canyon Road and go to top of grade, follow old wagon road north to top of ridge, and go west 1 mile along ridge to western end and station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 9.880 meters (32.41 feet) from station in azimuth 201°40′. No. 2 is 12.355 meters (40.53 feet) from station in azimuth 302°05′.

Clark (San Luis Obispo County, F. G. Johnson, 1932).—About 8 miles west-northwest of San Luis Obispo, on highest point of and near western end of ridge between Clark and Los Osos Valley, and on land belonging to Charles Lauritzen. To reach from San Luis Obispo, go 7.4 miles on Los Osos Valley Road, take left fork and go 1.1 miles to Lauritzen's gate on left side of road, pass through gate and go 0.3 mile to farmyard, go through barnyard and across fields toward hill which is visible to south. Marked by standard station disk in drill hole in buried rock. Reference marks are standard reference disks in drill holes in buried rocks. No. 1 is 73.58 meters (241.4 feet) (slope) from station in azimuth 304°27′. No. 2 is 40.30 meters (132.2 feet) (slope) from station in azimuth 77°25′.

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Saddle Peak (San Luis Obispo County, L. A. Sengteller, 1872; 1933).—On Saddle Peak in the San Luis Range. This peak is the westerly one of two peaks whose tops form a saddle. The easterly peak is about three-fourths of a mile distant and is highest point in range. To reach from the Auto Tel service station in San Luis Obispo, go south 5.5 miles on Route 101, turn right onto gravel road and go 1.2 miles to sign "See Oil Co.", turn right and go 1.7 miles, keep straight ahead (main-traveled road turns right up See Canyon) on narrow mountain road and follow 3.2 miles up canyon to Sam Wright's place, continue 0.8 mile to point where road comes out on saddle, take left-hand road and continue one-third mile on foot to point where road leaves ridge and descends sidehill to left, take trail to right (marked by blazed trees) and follow three-fourths of a mile to point on saddle between the two peaks, and go along ridge to western peak and station site. In 1872 station was marked with small hole in upper surface of a 10- by 10- by 4-inch limestone block, sunk 3 feet below surface, and surmounted by a 3- by 3-inch redwood signal pole which was cut off about 1 foot above ground and marked with copper tack. Three stubs were driven into ground, each 2 feet from station. In 1881 or 1884 station was re-marked with copper plug in top of stone placed flush with surface of ground. Four reference stones, marked with copper tacks in lead plugs, were established at following distances and approximate directions from station: 4.03 feet, north; 3.13 feet, south; 3.54 feet, east; and 2.62 feet, west. In 1932 copper plug in surface station mark was replaced with standard station disk. Underground mark was not disturbed. Two standard reference disks in bedrock, note 12a, were established. No. 1 is 2.300 meters (7.55 feet) from station in azimuth 82°23′. No. 2 is 3.490 meters (11.45 feet) from station in azimuth 188°32′.

Devils Ridge (San Luis Obispo County, F. G. Johnson, 1932).—About 9½ miles southwest of San Luis Obispo, on highest point of ridge lying north of Devils or Diablo Canyon, and on land owned by the Spooner brothers. Ridge to east of station is covered with heavy growth of small oak trees, and to northeast with some jack pines. To reach from south part of San Luis Obispo, take Los Osos Valley Road and follow 7.4 miles to end of pavement at fork in road, take left fork and go 3.4 miles, keep straight ahead (main-traveled road turns right to Baywood Park) and go 5.0 miles to Spooner's ranch house, continue 1.3 miles, turn right and go 3.7 miles following main-traveled road along coast line, turn left into Crowbar Canyon and follow road 0.4 mile across cultivated field to gate, pass through gate and follow trail 0.8 mile up canyon to fork near dilapidated bunk or cook car, climb ridge to southeast and go south and southeast about 3¼ miles along ridge to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 6.774 meters (22.22 feet) from station in azimuth 301°09′. No. 2 is 28.501 meters (93.51 feet) from station in azimuth 90°25′.

Green Peak (San Louis Obispo County, L. A. Sengteller, 1872; 1933).—On Green Peak which is highest point of the hills rising from the sea south of Devils or Diablo Canyon, and on land owned by the Barre, Luigi Cattle Co. To reach from San Luis Obispo, go south 6.5 miles on Route 101, turn right onto Avila Beach Road and go 1.5 miles, turn right through gate and cross bridge, continue 1.6 miles to road forks (right fork leads to Mr. Barre's residence), take left fork and go 5.2 miles to point where road approaches coast, turn right shortly after passing through wire gate and continue 0.6 mile to barnyard, proceed north 1.0 mile to some buildings and water trough, ascend ridge to main ridge and follow northwest to station site. In 1872 station was marked with hole in 5- by 12- by 12-inch limestone block, sunk 3 feet below surface, and surmounted by 3- by 3-inch pine signal pole which was cut off 1 foot above ground and marked with copper tack. In 1932 standard station disk in large rock was placed directly over old station mark. Two standard reference disks in rock outcrops were established. No. 1 is 29.225 meters (95.88 feet) from station in azimuth 340°30′. No. 2 is 27.928 meters (91.63 feet) from station in azimuth 43°55′.

Spooner (San Louis Obispo County, F. G. Johnson, 1932; 1933).—About 11 miles southwest of San Luis Obispo, on highest point of hill which rises from the sea north of Devils or Diablo Canyon and west shoulder of Devils Ridge, and on land owned by the Spooner brothers. Top of hill is sparsely covered with sagebrush, northeast slope with grass, and north and west slopes with

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some trees. To reach from south part of San Luis Obispo, take Los Osos Valley Road and follow 7.4 miles to end of pavement at fork in road, take left fork and go 3.4 miles, keep straight ahead (main-traveled road turns right to Baywood Park) and go 5.0 miles to Spooner's ranch house, continue 1.3 miles, turn right and go 3.7 miles following main-traveled road along coast line, turn left into Crowbar Canyon and follow road 0.4 mile across cultivated field to gate, pass through gate and follow trail 0.8 mile up canyon to fork near dilapidated bunk or cook car, climb ridge to south and follow circling ridge southwest to station site. Marked by standard station disk in concrete, note 1a, about 10 inches below surface. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 6.957 meters (22.82 feet) from station in azimuth 181°59′. No. 2 is 6.464 meters (21.21 feet) from station in azimuth 87°58′.

Rhodes (San Luis Obispo County, F. G. Johnson, 1932).—On flat, grassy hill which is the lower of two grassy hills on ridge running northwest and southeast, on northwest end of ridge, 295 paces west of north-and-south fence, 125 paces north of east-and-west fence, and on land belonging to Edgar Rhodes. To reach from post office in Creston, go east 4.7 miles to Huerhuero School, go 0.9 mile beyond school and take left-hand road, go 2.1 miles to gate leading into Rhodes' ranch, pass through gate and follow farm road 0.6 mile, cross creek, go southwest to top of ridge and follow along ridge to fence corner (southwest corner, section 22) which is about 1¾ miles from gate. Marked by standard station disk in boulder, note 4, projecting about 3 inches. Reference marks are standard reference disks in boulders, note 12c. No. 1 projects 4 inches and is 12.990 meters (42.62 feet) from station in azimuth 245°44′. No. 2 is flush with surface and 14.285 meters (46.87 feet) from station in azimuth 340°56′.

Developement (San Luis Obispo County, F. G. Johnson, 1932).—About 5 miles east of Creston, on low sand hill. To reach from Creston, go north 0.7 mile on Paso Robles Road, turn right onto oiled road crossing a bridge and go 0.5 mile to the Union Oil Co. pumping station, turn right and follow graveled road 1.1 miles, take right fork (marked "La Panza") and go 2.8 miles to cattle guard across road, and ascend nearest sand hill to north to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 33.18 meters (108.9 feet) from station in azimuth 232°06′. No. 2 is 34.99 meters (114.8 feet) from station in azimuth 149°51′.

Pine (San Luis Obispo County, F. G. Johnson, 1932).—About 4 miles southeast of Creston, on ridge running southeast and northwest. To reach from post office in Creston, go east 4.7 miles to Huerhuero School, continue 0.9 mile beyond school and take left-hand road, go 2.1 miles to gate on left side of road leading into Edgar Rhodes' ranch, pass through gate and follow farm road 0.9 mile, turn left and cross dry creek, follow along southwest side of creek 0.3 mile, follow old road leading up canyon in a southwesterly and westerly direction 1.2 miles, go south 0.2 mile along prominent narrow canyon on left, turn right up gully leading west, follow gully 0.2 mile and climb hill to left (south) to station site. This hill is very prominent, due to a peculiar rock outcrop, running in a northwest and southeast direction, which appears as a stone fence. Marked by standard station disk in boulder, note 4, 60 paces west-southwest of outcrop. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 14.740 meters (48.36 feet) from station in azimuth 169°02′. No. 2 is 17.635 meters (57.86 feet) from station in azimuth 263°21′.

Ferraro (San Luis Obispo County, F. G. Johnson, 1932).—About 3 miles southeast of Creston, on southern end of highest ridge lying between Middle and West Branches of Huerhuero Creek. To reach from Creston, go east 3.1 miles on street just north of post office to gate on right, pass through gate and go 0.5 mile to abandoned farmhouse, turn right at farmhouse and pass around house, follow road leading in a westerly direction one-half mile, and go north one-fourth mile to hill and station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 9.680 meters (31.76 feet) from station in azimuth 19°29′. No. 2 is 24.211 meters (79.43 feet) from station in azimuth 102°28′.

School (San Luis Obispo County, F. G. Johnson, 1932).—To reach from post office in Creston, go east 4.7 miles to Huerhuero School, turn right and pass

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through wire gate north of schoolhouse, follow old dirt road west 0.6 mile up canyon to old ruined house, bear to right and go straight ahead 0.2 mile across meadow passing along north side of creek bed to blazed oak tree, continue along creek bed about one-fourth mile, bear left (northwest) up sparsely covered ridge to its summit, and go north and west to station site which is close to end of ridge. Marked by standard station disk in boulder, note 4, projecting about 3 inches. Reference marks are standard reference disks in boulders, note 12c, projecting about 3 inches. No. 1 is 6.548 meters (21.48 feet) from station in azimuth 44°03′. No. 2 is 10.045 meters (32.96 feet) from station in azimuth 147°23′.

Early (San Luis Obispo County, F. G. Johnson, 1932).—Three and one-half miles south of Creston, on sandy foothills east of Santa Margarita. To reach from Creston, go south 2.3 miles on continuation of road leading to Paso Robles, take left fork (road leading to Santa Margarita) and go 0.8 mile to bridge, cross bridge and go 0.3 mile to gate on left, pass through gate, cross creek, and go in a northerly direction about 0.1 mile to foot of low sandy hill, and climb about 300 yards up to highest part of ridge lying to northeast. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 5.917 meters (19.41 feet) from station in azimuth 121°42′. No. 2 is 11.960 meters (39.24 feet) from station in azimuth 36°55′.

Gravel (San Luis Obispo County, F. G. Johnson, 1932).—On sandy, round-topped hill with scattering of grass, the highest hill in vicinity and on third ridge from road. To reach from Santa Margarita, go 0.2 mile north of depot on Route 101 and turn east onto Pozo road, go 0.3 mile and turn left, go 1.3 miles to bridge, turn left and go 1.8 miles to bridge across Salinas River, go straight ahead 0.5 mile, take left fork up Calf Canyon and go 1.4 miles to fork in roads, take left fork and go 1.6 miles to top of grade (a shack is on left side of road), go east and ascend ridge, and follow ridge southeast about 1 mile to highest point. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 18.589 meters (60.99 feet) from station in azimuth 100°45′. No. 2 is 21.364 meters (70.09 feet) from station in azimuth 37°07′.

Sand (San Luis Obispo County, F. G. Johnson, 1932).—On southern of two high points west of divide. To reach from Santa Margarita, go east 1.6 miles on Pozo road, turn left after crossing the second of two small bridges and go 2.3 miles, take left fork up Calf Canyon and go 0.6 mile to top of grade, continue north 0.8 mile and take left fork, go 1.6 miles to top of another grade and to small dwelling on left of road, go past house to top of ridge, and go along ridge to westward to station site. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 22.763 meters (74.68 feet) from station in azimuth 250°36′. No. 2 is 11.355 meters (37.25 feet) from station in azimuth 314°26′.

Calf (San Luis Obispo County, F. G. Johnson, 1932).—To reach from Santa Margarita, go 1.6 miles on Pozo road, follow left fork 1.8 miles to bridge across Salinas River, continue 0.5 mile and take left fork leading up Calf Canyon, continue 0.6 mile to top of grade, and go northwest about two-thirds mile along ridge to highest point. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 4.980 meters (16.34 feet) from station in azimuth 240°49′. No. 2 is 9.027 meters (29.62 feet) from station in azimuth 309°55′.

Highway (San Luis Obispo County, F. G. Johnson, 1932).—On hill about 2½ miles northwest of Santa Margarita, on land belonging to the Atascadero Development Syndicate. An orchard is on south slope of hill. To reach from Santa Margarita, go north 2.8 miles on Route 101 or until crossing steel highway bridge no. 4905 and turn left onto dirt road, go 0.1 mile on this road, and climb up hill to northwest to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 11.676 meters (38.31 feet) from station in azimuth 156°55′. No. 2 is 9.645 meters (31.64 feet) from station in azimuth 232°09′.

Reis (San Luis Obispo County, F. G. Johnson, 1932).—In pasture on wooded hill, on land belonging to the Santa Margarita Land & Cattle Co. There are a few stumps of large oak trees on the hill. To reach from Santa Margarita, go east 1.5 miles on Pozo Road, turn left through gate just after crossing the

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second of two bridges and Y-forks of road and go 0.9 mile in a northeasterly direction on old dim road, cross pasture and go up hill to station site. Marked by standard station disk in buried rock, note 4, projecting about 6 inches. Reference marks are standard reference disks in buried rocks, note 12c, projecting about 6 inches. No. 1 is 12.300 meters (40.35 feet) from station in azimuth 221°02′. No. 2 is 25.68 meters (84.3 feet) from station in azimuth 318°19′.

Hale (San Luis Obispo County, F. G. Johnson, 1932).—About 3½ miles northwest of Santa Margarita, on first high ridge west of Santa Margarita which runs approximately north and south, and on land belonging to Mrs. Kathleen Burke Hale of Santa Barbara. To reach from Santa Margarita, go north 4.9 miles on Route 101 to signboard "Hale" on left side of road, turn left and follow main-traveled road 3.8 miles to the Eagle ranch buildings, go west of barn and proceed south on good road for 0.8 mile to saddle, turn left and follow road 0.8 mile to cultivated field, pass around west edge of field and continue 1.5 miles to end of road. Marked by standard station disk in bedrock, note 2, 10 yards south of end of road. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 2.725 meters (8.94 feet) from station in azimuth 329°34′. No. 2 is 4.285 meters (14.06 feet) from station in azimuth 93°26′.

Vinyard (San Luis Obispo County, F. G. Johnson, 1932).—About 3 miles northwest of Santa Margarita, on low hill on land belonging to the Atascadero Development Syndicate. South slope of hill is planted in a large vineyard. To reach from Santa Margarita, go north 3.2 miles on Route 101, turn left onto dirt road and go 1 mile, turn left and go 0.2 mile, turn left and go about 0.4 mile, and go about one-fourth mile across field along ridge to station site. A house, windmill, and supply tank are on road about one-half mile north of station. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 13.020 meters (42.72 feet) from station in azimuth 67°41′. No. 2 is 9.030 meters (29.63 feet) from station in azimuth 144°59′.

Alliance (San Luis Obispo County, F. G. Johnson, 1932).—On flat-topped, grassy hill on first high ground east of San Juan River, and about 1½ miles north-northeast of Alliance School. To reach from Shandon, go east to bridge across San Juan River (immediately after crossing bridge highway turns left and oiled road leads straight ahead), follow oiled road 0.3 mile, turn right with oiled road and go 2.4 miles to wire gate east of road, pass through gate and turn right following farm road running parallel to main road 0.4 mile, immediately after crossing two washes close together turn left and follow grade up side of hill to top of ridge (0.3 mile from this point two posts will be seen to east), go between posts and continue 0.9 mile in a northeasterly direction along ridge and side-hill grade to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is in fence line and 29.310 meters (96.16 feet) from station in azimuth 183°23′. No. 2 is 17.110 meters (56.14 feet) from station in azimuth 287°43′. Azimuth from station to McCune ranch, apex of windmill, is 51°19′46″.

Wheat (San Luis Obispo County, F. G. Johnson, 1932).—On northeastern and highest point of ridge to east of farm road up gulch, in cultivated field about one-half mile south of Mr. McCune's house. To reach from west end of Shandon, go 0.8 mile on Creston road, turn right and go 0.2 mile, turn left and go 1 mile, go straight ahead 1.9 miles on dirt road to Mr. McCune's house, pass to west of barn and go south 0.5 mile on farm road up gulch to top of grade, turn left and go northeast about one-fourth mile along ridge to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 240 paces east of fence corner and 400 paces from station in azimuth 8°37′18″. No. 2 is 100 paces north of fence corner and 455 paces from station in azimuth 39°55′43″. Azimuth from station to windmill, distant about one-half mile, is 195°51′31″.

Range (San Luis Obispo County, F. G. Johnson, 1932).—About 6 miles southwest of Shandon, on a barren hill. To reach from Shandon, go west 1.1 miles on Route 33, turn left onto oiled road and go 5.3 miles to farmyard and buildings, turn right and go 0.1 mile to gate, pass through gate and follow canyon road 0.4 mile, turn left and go 0.3 mile in a southwesterly direction to corral,

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take road on west side of hill and to east of corral and go along east side of fence 0.8 mile to point at head of steep-sided, small stream bed, turn left and go 0.1 mile up gully, turn left and go up ridge, and follow ridge 0.4 mile in a southeasterly direction to station site on highest hill in vicinity. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 12.510 meters (41.04 feet) from station in azimuth 214°41′. No. 2 is 13.834 meters (45.39 feet) from station in azimuth 113°20′.

Wood (San Luis Obispo County, F. G. Johnson, 1932).—Near western end of ridge at head of Wood Canyon. To reach from Creston, go east 11.5 miles on Shandon Road or 8.3 miles from junction of Paso Robles and Creston Roads to road leading south into Wood Canyon, go south 0.7 mile and take left fork, go 1.4 miles to deserted house and take right fork, go 0.3 mile and turn left through gate, follow farm road 0.4 mile to top of ridge, and go west 0.1 mile along ridge to station site. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 14.085 meters (46.21 feet) from station in azimuth 151°50′. No. 2 is 17.200 meters (56.43 feet) from station in azimuth 236°38′.

Shedd (San Luis Obispo County, F. G. Johnson, 1932).—On large, flat, grassy ridge overlooking valley, about one-fourth mile east of hill of about same elevation, and in middle of valley or canyon at point where canyon makes right-angle bend. To reach from Shandon, go 7.0 miles on Creston Road to dirt road on left just beyond group of farm buildings, take this road and pass through cattle guard, go 3.1 miles to another cattle guard and continue 0.4 mile, take left fork and go 0.5 mile to gate in farmyard east of house, pass through barnyard and through gate about 100 yards south of oil derrick (station can be seen at west end of highest ridge north of this point), go 1.0 mile in a general northerly direction on old road up canyon to top of ridge and to gate, pass through gate and go north 0.1 mile along east side of fence through cultivated field to another gate where old road enters, pass through gate, leave road and go west 0.3 mile to station site. Marked by standard station disk in boulder, note 4, about flush with surface. Reference mark no. 1 is standard reference disk in buried boulder, note 12c, 19.420 meters (63.71 feet) from station in azimuth 282°11′. Reference mark no. 2 is standard reference disk in bedrock, note 12a, 36.768 meters (120.63 feet) from station in azimuth 23°03′. Oil derrick in valley is about one-half mile from station in azimuth 6°02′07″.

Brush (San Luis Obispo County, F. G. Johnson, 1932).—About 8 miles east of Creston, on high ridge west of Shedd Canyon, and on property in charge of W. F. Brush, of Paso Robles. To reach from Creston, go 8.4 miles on Shandon Road to road leading south-southeast into Shedd Canyon, turn right just before reaching farmyard and follow Shedd Canyon Road south-southeast 5.4 miles, turn right onto farm road leading up canyon, go 0.7 mile and turn up ridge to right (northwest), and follow ridge to highest point and station site. There is another hill about 75 meters (246 feet) southwest of station that may be mistaken for the hill upon which station is located. Marked by standard station disk in concrete, note 1a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 14.957 meters (49.07 feet) from station in azimuth 123°38′. No. 2 is 18.460 meters (60.56 feet) from station in azimuth 223°57′.

Shell (San Luis Obispo County, F. G. Johnson, 1932).—About 5½ miles east of Creston, on western end of rocky ridge which is covered with small brush. To reach from Creston, go north 0.7 mile on Paso Robles road, turn right and go 0.5 mile on oiled road crossing bridge, pass the Union Oil Co. pumping station and turn right, follow gravel road 1.1 miles, take right fork (marked "La Panza") and follow 4.2 miles, turn left onto farm road near ruins of house and go 1.8 miles to low saddle to left, cross over saddle and follow up canyon in a southerly direction 0.9 mile, and continue to right about 200 yards to station site. Surface mark is standard station disk in buried boulder. Underground mark is standard station disk in bedrock 15 inches below surface mark. Reference mark no. 1 is standard reference disk in bedrock, note 12a, 14.50 meters (47.6 feet) from station in azimuth 130°12′. Reference mark no. 2 is standard reference disk in buried rock, 32.05 meters (105.2 feet) from station in azimuth 214°34′.

Jacks (San Luis Obispo County, F. G. Johnson, 1932).—On ridge west of Palo Prieto Canyon or Bitterwater Valley, on highest part of flat-topped hill running

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north and south. The hill which is highest in vicinity lies north of head of Cormack Canyon and west of small ridge. To reach from Shandon, go east 5.5 miles on Route 33 to Bitterwater Valley road, turn right onto dirt road and go 0.8 mile, take farm road to right and cross stream bed, follow this road 1.5 miles, take left fork and go 1 mile to top of ridge, go 0.1 mile farther and leave road, ascend ridge to right and go northwest 0.5 mile across fields to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Underground mark is 40 inches below surface. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 12.945 meters (42.47 feet) from station in azimuth 191°19′. No. 2 is 19.215 meters (63.04 feet) from station in azimuth 56°35′. Azimuth from station to *Union Oil Co., pumping station, stack,* is 104°01′47″.

Brown (San Luis Obispo County, F. G. Johnson, 1932).—On the Long Ridge ranch, on flat-topped, grassy hill which is first hill west of ridge that runs southwest from Brown's ranch house. To reach from Shandon, go east 3.1 miles on Route 33 from bridge across San Juan River to road leading into Brown's ranch, follow this road 2.1 miles to ranch house, pass to west of house, and go south about 1½ miles along old road and across fields to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 18.285 meters (59.99 feet) from station in azimuth 355°49′. No. 2 is 14.965 meters (49.10 feet) from station in azimuth 64°52′. Azimuth from station to *Union Oil Co., pumping station, stack,* is 146°44′25″.

Taylor (San Luis Obispo County, F. G. Johnson, 1932).—About 4 miles north-northeast of Shandon, east of McMillan Canyon, and on high ground in pasture at head of Hopper Canyon. To reach from Shandon, go west 2.1 miles on Route 33 and turn right onto road leading into McMillan Canyon, go 3.2 miles and turn right, go 1.0 mile to G. Smiley's farmhouse and gate, pass through two gates and around shed, go north 0.4 mile on farm road east of shed to fence gate, pass through gate and turn right, go 0.2 mile to top of first ridge from gate, and go about 200 yards in a northeasterly direction to highest part of ridge and station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 19.645 meters (64.45 feet) from station in azimuth 192°27′. No. 2 is 99.0 feet from station in azimuth 106°23′.

Hopper (San Luis Obispo County, F. G. Johnson, 1932).—About 1¾ miles north of Shandon, west of Hopper Canyon, and in cultivated field on highest point of first ridge north of Estrella River. To reach from Shandon, go east 0.8 mile on Route 33 past bridge across San Juan River, turn left 135°. and go 0.6 mile to gate leading to Mr. Hopper's house, pass through yard, and go about one-half mile northwest, west and then southwest along ridge to west of Hopper Canyon to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Upper mark is 16 inches below surface. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on edge of field on south slope of hill and 12.460 meters (40.88 feet) from station in azimuth 338°47′. No. 2 is on end of ridge running south of hill and one-fourth mile from station in azimuth 15°41′23″.

Windmill (San Luis Obispo County, F. G. Johnson, 1932).—About 1 mile southwest of Shandon, in Estrella River Valley, in fence line south of road, and about 120 yards west of windmill. To reach from Shandon, go west 1.1 miles on Route 33, turn left onto oiled road and go 0.7 mile, turn left onto dirt road lying between two fences and go 0.3 mile to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is in fence line north of road and 11.965 meters (39.26 feet) from station in azimuth 179°23′. No. 2 is in fence line south of road and 15.250 meters (50.03 feet) from station in azimuth 272°30′.

Cottonwood (San Luis Obispo County, F. G. Johnson, 1932).—Near Monterey-San Luis Obispo County line, and on highest point of ridge west of ridge which is boundary between Kings and Monterey Counties. The hill, which is covered with brush, is sharp and round-topped. To reach from Cholame, go east 1.8 miles on Route 33 to Cottonwood Pass Road, go 2 miles and turn left, go 2 miles to ranch house and follow up old woods road to highest point on ridge. Marked by standard station disk in bedrock, note 2. Reference marks

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are standard reference disks in bedrock, note 12a. No. 1 is 15.70 meters (51.5 feet) from station in azimuth 269°19′. No. 2 is 16.23 meters (53.2 feet) from station in azimuth 25°11′. *B.M. 2531* (*U.S.G.S.*) (see description thereof) is 8.645 meters (28.36 feet) from station in azimuth 321°14′. Azimuth from station to *Avenal, cairn* is 257°25′58″; and to cairn northwest of Avenal Peak, 252°38′24″.

Polonio (Kern County, F. G. Johnson, 1932).—About 2 miles from Cottonwood Pass, on ridge running southeast from Cottonwood Pass. To reach from Cholame, go northeast 6.9 miles on Route 33 to Kern County line, turn left through gate, go 1 mile and turn right uphill, and follow ridge to station site. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 24.28 meters (79.7 feet) from station in azimuth 261°44′. No. 2 is 11.16 meters (36.6 feet) from station in azimuth 167°10′.

Snake (San Luis Obispo County, F. G. Johnson, 1932).—At head of Antelope Valley, on ridge about one-half mile north of Polonio Pass Road (Route 33). To reach from Cholame, go northeast 6.9 miles on Route 33 to Kern County line, turn left through gate and follow main-traveled road 3.1 miles to corner of fence, turn left and cross small draw, go to top of saddle and turn left up ridge, pass through barbed-wire fence and continue to station site, which is 0.9 mile from road. Marked by standard station disk in boulder, note 4. Reference mark no. 1 is standard reference disk in bedrock, note 12a, 12.59 meters (41.3 feet) from station in azimuth 145°42′. Reference mark no. 2 is standard reference disk in concrete, note 11a, 11.59 meters (38.0 feet) from station in azimuth 211°51′. Triangular blaze on 10-inch oak tree is 34.93 meters (114.6 feet) from station in azimuth 304°58′.

Crowbar (San Luis Obispo County, F. G. Johnson, 1932).—About 3 miles northeast of Cholame, on low and flat hill lying west of Cottonwood Pass Road. (Hill is not highest in vicinity.) To reach from Cholame, go northeast 1.8 miles on Route 33 to Cottonwood Pass Road, turn left and go 1.1 miles, turn left (northwest) and cross creek, and go 0.4 mile in a northwesterly direction to northern part of flat hill. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 19.555 meters (64.16 feet) from station in azimuth 272°30′. No. 2 is 25.990 meters (85.27 feet) from station in azimuth 355°15′.

Bones (San Luis Obispo County, F. G. Johnson, 1932).—Two miles east of Cholame, on rise of ground just south of Route 33, and three-eights mile south-southeast from lower hill which is covered with large rocks at its crest. These rocks are the most prominent ones in vicinity. To reach from Cholame, go east on Route 33 to point 1 mile beyond Cholame Creek bridge, pass through gate on right of highway, and go 1.1 miles in a southeasterly direction across fields to station site. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 22.28 meters (73.1 feet) from station in azimuth 304°04′. No. 2 is 25.04 meters (82.2 feet) from station in azimuth 63°09′.

San Andreas (San Luis Obispo County, F. G. Johnson, 1932).—About 1¾ miles north-northwest of Cholame, in foothills west of Cholame Valley, and on round-topped hill rising directly from valley. To reach from Cholame, go northeast 0.8 mile on Route 33 and turn left through gate onto farm road, go 1.0 mile and turn left (southwest), leave road and go 0.4 mile across fields to foot of hill, and climb up hill about 0.3 mile to station site. The hill is highest point to southwest that can be seen just before leaving farm road. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 14.105 meters (46.28 feet) from station in azimuth 324°39′. No. 2 is 7.130 meters (23.39 feet) from station in azimuth 40°44′.

Waterhole (San Luis Obispo County, F. G. Johnson, 1932).—About three-eighths mile west of fair-sized water hole, east of Palo Prieto Canyon, on hill which is covered with grass and scattered sagebrush, and on land belonging to the Jack ranch. There is a similar knob southwest of station of approximately same elevation which is covered with scattered small oak trees on northerly approach. To reach from Shandon, go east 5.5 miles on Route 33 to Bitterwater Valley road, turn right onto this dirt road and go 2.1 miles, turn

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left onto farm road and go 0.4 mile to top of grade, go left across fields ascending ridge and go gradually to northeast to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 8.570 meters (28.12 feet) from station in azimuth 219°41′. No. 2 is 27.48 meters (90.2 feet) from station in azimuth 21°39′.

Old Man (San Luis Obispo County, F. G. Johnson, 1932).—About 1 mile west-northwest of Cholame, on high ground lying northwest of Cholame Creek Valley. To reach from Shandon, go east 5.3 miles on Route 33 and turn left (north-northwest) onto farm road, go 0.6 mile to house, go north across gulch and then northwest and west up ridge about three-fourths mile to high point at southern end (this hill has a prominent moon-shaped landslide on its southern face), and continue a little west of north to station site on high point about one-half mile distant. A somewhat conspicuous knob lies about one-fourth mile west of station. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 47.80 meters (156.8 feet) from station in azimuth 185°38′. No. 2 is 15.240 meters (50.00 feet) from station in azimuth 307°12′.

Major (Kings County, F. G. Johnson, 1932).—On highest point of low, lone hill near western edge of McLure Valley. To reach from Cholame, go northeast 1.8 miles on Route 33 and turn left onto Cottonwood Pass Road, go 11.6 miles to road sign marking Kings-Kern county line, turn left (north) onto farm road and go 2.1 miles, turn right and go 0.1 mile to low hill. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 15.390 meters (50.49 feet) from station in azimuth 187°58′. No. 2 is 19.685 meters (64.58 feet) from station in azimuth 104°52′.

Tank (Kings County, F. G. Johnson, 1932).—On slight rise of ground in fenced enclosure, 73 feet southwest of water tank. To reach from Cholame, go northeast 1.8 miles on Route 33, turn left onto Cottonwood Pass Road and go 11.6 miles to sign marking Kings-Kern county line, go east 2.4 miles and turn right onto road leading to the Orchard ranch, follow 0.8 mile to point a short distance north of ranch houses, turn left 135° and go 0.6 mile, turn right onto road going east and follow 1.5 miles, turn right 90° and go south 1.0 mile to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is in fence line of farmyard enclosure and 28.000 meters (91.86 feet) from station in azimuth 153°29′. No. 2 is in fence line and approximately 0.3 mile from station in azimuth 77°45′36″.

Mound (Kings County, F. G. Johnson, 1932.)—On highest point of gently sloping hill lying toward western end of Kettleman Plain, three-fourths of a mile north of Kings-Kern County line. To reach from Devils Den, go north 0.6 mile on Kettleman City Road, take left fork and go about 1 mile, and go across country to station site on small hill to right and northeast of road. Marked by standard station disk in boulder, note 4. Reference mark no. 1 is standard reference disk in boulder, note 12c, 0.4 mile from station in azimuth 117°30′11″. Reference mark no. 2 is standard reference disk in bedrock, note 12a, on slope of hill, and 21.180 meters (69.49 feet) from station in azimuth 30°53′. Azimuth from station to *B.M. R 33* (*U. S. G. S.*) is 223°25′54″.

County Line (Kern-Kings Counties, F. G. Johnson, 1932; 1934).—At junction of Kern and Kings Counties, 1.6 miles north of Devils Den, and 22.5 feet east of Kettleman City Road. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on flat ground and 22.045 meters (72.33 feet) from station in azimuth 259°48′. No. 2 is 20 feet east of highway and approximately 0.4 mile from station in azimuth 213°02′31″. *Kern-Kings county-line marker* (see description thereof) is 1.05 meters (3.4 feet) from station in azimuth 90°26′.

B. M. 2531 (U.S.G.S.) (San Luis Obispo County, F. G. Johnson, 1932).—Near Monterey-San Luis Obispo County line, on highest point of ridge west of ridge which is boundary between Kings and Monterey Counties. (Type of mark not described.) Station *Cottonwood* (see description thereof) is 8.645 meters (28.36 feet) from station in azimuth 141°14′.

Orchard Peak (U.S.G.S.), cairn (Kern County, F. G. Johnson, 1932).—On high grassy ridge, on eastern one of two high points. Marked by rock cairn.

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Station *Orchard Peak* (*Standard Oil Co.*) (see description thereof) is 285.3 meters (936 feet) from station in azimuth 119°41′10″.

B. M. 2140 (U.S.G.S.) (San Luis Obispo County, F. G. Johnson, 1932).—On highest ground at head of McMillan Canyon, about 1 mile south of point where McMillan Canyon Road crosses divide, and on grassland at southwest end of short ridge. Marked by United States Geological Survey mark. Station *Bench* (see description thereof) is 3.824 meters (12.55 feet) from station in azimuth 111°51′.

B. M. 2592 (U.S.G.S.) (San Luis Obispo County, F. G. Johnson, 1932).—On highest part of the Red Hills which lie between Palo Prieto Pass and San Juan River Valley. Marked by 3-inch iron pipe projecting 1 foot, elevation 2,592 feet. Station *Red Hill* (see description thereof) is 4.522 meters (14.84 feet) from station in azimuth 147°42′.

Avenal, cairn (Kings County, F. G. Johnson, 1932).—On sharp peak in the Avenal Ridge, about 3½ miles east of Monterey-Kings County line, and about 1¾ miles north of Cottonwood Pass Road. Peak should not be confused with one lying to west about 1 mile, also with cairn on its cap. Marked by rock cairn. Station *Avenal* (see description thereof) is 5.45 meters (17.9 feet) from station in azimuth 242°20′.

B. M. R. 33 (U.S.G.S.) (Kings County, F. G. Johnson, 1932).—About 3.4 miles north of Devils Den, at point where pole line to northwest crosses highway, 30 feet east of highway and 15 feet south of gate into field. Marked by United States Geological Survey bronze tablet, stamped "R 33 1930", in concrete post. "U. S. B. M. 461.9" is painted on fence post.

Kern-Kings county-line sign (Kern-Kings Counties, F. G. Johnson, 1932).—On southwest side of McLure Valley, on county line, and at bend at south end of straight stretch of Cottonwood Pass Road. (Type of mark not described.) Station *McClure Southwest* (see description thereof) is 14.075 meters (46.18 feet) from station in azimuth 195°36′.

Kern-Kings county-line marker (Kern-Kings Counties, F. G. Johnson, 1932).—At junction of Kern and Kings Counties, 1.6 miles north of Devils Den, and near Kettleman City road. Marked by bronze cap on 3-inch pipe projecting about 8 inches. Station *County Line* (see description thereof) is 1.05 meters (3.4 feet) from station in azimuth 270°26′.

Avenal reference mark (U.S.G.S.) (Kings County, F. G. Johnson, 1932).—On highest point of Kettleman Hills. Marked by United States Geological Survey bronze reference tablet, in concrete in length of well casing, with arrow pointing toward station *M* (*Standard Oil Co.*) (see description thereof). Station *Standard* (see description thereof) is 14.77 meters (48.5 feet) from station in azimuth 111°59′.

M (Standard Oil Co.) (Kings County, F. G. Johnson, 1932).—On highest point of Kettleman Hills. Marked by 2-inch capped pipe, with Standard Oil Co. symbol, projecting about 18 inches. Station *Standard* (see description thereof) is 5.382 meters (17.66 feet) from station in azimuth 121°11′. *Avenal reference mark* (*U. S. G. S.*) (see description thereof) is about 10 meters (33 feet) east-southeast of station.

SAN FERNANDO TO BAKERSFIELD ARC

Principal points

Loma Verde (U.S.G.S.) (Los Angeles County, F. G. Johnson, 1932).—On high ground lying west of Castaic Valley, north of Hasley Canyon, east of Santa Felicia Canyon, and on land belonging to Mr. Romero. To reach from Richfield beacon which is about 17 miles north of San Fernando on Route 99, go north 1.0 mile on Route 99, turn left 170° onto old highway and go 0.2 mile, turn right onto gravel road leading through ranch and up Hasley Canyon, proceed 2.1 miles and take right-hand road, go 0.8 mile and turn right at two mail boxes, proceed 1.0 mile to point 0.3 mile beyond ranch house on left and turn left through gate, follow road up hill and canyon 2.6 miles to Romero's house and barn and end of truck travel, take wagon road to south leading up hill to high valley, go down valley about one-fourth mile to vineyard, and climb hill to right to station site. Marked by United States Geological Survey lead slug pounded into drill hole in square boulder of sandstone. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 11.450 meters (37.57 feet) from

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station in azimuth 214°56′. No. 2 is 19.678 meters (64.56 feet) from station in azimuth 309°52′.

May (Los Angeles County, F. G. Johnson, 1932).—About 5 miles east of San Fernando Pass, on high point on San Gabriel Mountains. To reach from Newhall, go north on highway and turn right just after crossing Placerita Creek bridge, follow main-traveled road up Placerita Canyon 3 miles to gate, pass gate and continue 2.1 miles, take right fork and go 0.5 mile to Walker's Camp, follow road marked "Placerita-Wilson Trail" 0.2 mile to end of truck travel, take trail to left and go about 3 miles to top of ridge, and go east about 2 miles on ridge trail which runs all the way to foot of firebreak just before station is reached. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in large boulders, note 12c, projecting 18 inches. No. 1 is 22.302 meters (73.17 feet) from station in azimuth 133°49′. No. 2 is 16.990 meters (55.74 feet) from station in azimuth 253°45′. Azimuths from station to following points are: *May* (*U. S. G. S.*), *cairn* (see description thereof), distant 3.5 meters (11 feet), 293°59′; "Iron Mountain (U. S. G. S.), target", 247°36′12″; U. S. Geological Survey cairn, distant 1 mile, 264°22′56″; and *Los Angeles-San Francisco airway beacon no. 3A* (*flashing green*), 117°01′56″.

Pelona (Los Angeles County, F. G. Johnson, 1932).—On highest point of the Sierra Pelona. To reach from store at Hughes Lake, go east 4.4 miles on Pine Canyon Road, turn right (south) at San Francisquito Canyon Road and go 3.5 miles to junction with Spunky Canyon Road at store of O. P. Smith at El Verde, turn left and go 5.2 miles to Bouquet Canyon Road, turn left and go 0.7 mile, take right fork and go 1 mile to road which leads off to right at angle of 170°, go 0.7 mile to gate, continue 2.5 miles to Forest Service gate, go 2.8 miles to top of ridge, take right fork and go 0.6 mile, leave road at this point, and go to left 0.2 mile up ridge to station site. Marked by standard station disk in concrete, note 1a. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 6.975 meters (22.88 feet) from station in azimuth 220°00′. No. 2 is on first hill west of road leading to station and approximately one-fourth mile from station in azimuth 267°51′56″. Station *Pelona* (*U. S. G. S.*) (see description thereof) is 7.670 meters (25.16 feet) from station in azimuth 350°21′. Azimuth from station to *Sawmill Mountain, fire lookout tower* is 128°11′46″.

Sawmill (Los Angeles County, F. G. Johnson, 1932).—On Sawmill Mountain about 150 meters (492 feet) southwest of Sawmill Mountain fire lookout tower, and about 7½ miles airline west of Hughes Lake. To reach from Hughes Lake, go west 5.3 miles on Pine Canyon road to top of ridge. (Use telephone attached to telephone pole near top of ridge to call lookout tower and find out if one-way road is clear.) Take this road which is to left of Pine Canyon road and go a few yards to gate, pass through gate and continue 3.5 miles to top of saddle, turn right and go about 0.1 mile to top of mountain and station site. Surface and underground marks are standard disk station marks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 21.905 meters (71.87 feet) from station in azimuth 14°29′. No. 2 is 23.800 meters (78.08 feet) from station in azimuth 102°10′. United States Geological Survey bench mark under fire lookout tower is approximately 150 meters (492 feet) from station in azimuth 266°36′02″.

Soledad (Kern County, F. G. Johnson, 1932).—Near highest point of Soledad Butte. To reach from Mojave, go south 4.1 miles on highway toward Los Angeles to gate and cattle guard about 100 yards north of section house on railroad, turn right and go 1.4 miles, turn left with main-traveled road and go 0.4 mile to old schoolhouse, turn left at schoolhouse and go 0.3 mile to house with trees in yard, follow road south of house and continue to old stamp mill on side of mountain 0.4 mile beyond house, follow old trail leading up wash south of mill, go along side of hill on west side of wash to saddle west of peak, and proceed east along ridge to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 9.100 meters (29.86 feet) from station in azimuth 328°40′. No. 2 is 7.500 meters (24.61 feet) from station in azimuth 65°39′. Station *Soledad* (*U. S. G. S.*), *cairn* (see description thereof) is 2.65 meters (8.7 feet) from station in azimuth 303°36′. Azimuth from station to *Los Angeles-San Francisco airway beacon no. 5A* (*flashing red*) is 63°16′50″.

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Liebre (Kern County, F. G. Johnson, 1932).—On Liebre Mountain, north of Antelope Valley, and on knob on first ridge west of valley which lies about three-fourths mile northeast of highest point of mountain. To reach from Fairmont, go north 0.2 mile on oiled road, turn left and follow oiled road 0.2 mile to telephone line, turn right (north) onto road following telephone line and go 10.0 miles, or about 25 meters (82 feet) beyond oil derrick, turn left onto White Oak Lodge Road and go 0.5 mile, turn right and go 0.2 mile, turn left onto road along telephone line and go 4.0 miles (taking right fork at 2.6 miles) to B. E. Hall's mail box, leave telephone line and follow right fork and signs pointing to White Oak Lodge, which is 5.3 miles from Hall's mail box, pass through gate into lodge, which is camp ground, and take first left-hand road, go 0.1 mile and take left fork at cabin with porch, go 0.2 mile to wire gate at southwest corner of field and pass through gate, follow road 1.8 miles to power line, just west of power line keep straight ahead 2.2 miles on left-hand road to Catshin ranch (Mr. Dryden's house), go south on east side of barn and pass through gate alongside of barn, continue south 0.1 mile to another gate, pass through gate and follow old trail about 0.5 mile to edge of wash and end of truck travel, cross wash to east and climb ridge about 1¼ miles in southeasterly direction, keeping to western slope, cross gulch and ascend ridge, follow ridge in southerly direction about 1 mile, turn west and cross gully, and ascend high and near peak on which station is located. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 7.640 meters (25.07 feet) from station in azimuth 136°29′. No. 2 is 8.664 meters (28.43 feet) from station in azimuth 66°09′.

Pass (Kern County, F. G. Johnson, 1932).—To reach from Tehachapi, go east 1.8 miles on paved highway, turn right onto dirt road leading to Willow Springs and go 1.3 miles, turn left and go 1 mile, turn right and go 6 miles to Oak Creek bridge, take left fork or road leading to Mojave and go 2.4 miles, take left fork up canyon and go 0.5 mile to farmhouse, pass through gate at right of farmyard and go north along pasture fence leading up canyon, turn left at fence corner and go to top of ridge, proceed north along ridge to flat pasture land at summit, turn right at summit and continue about 1.7 miles to station site. Surface and underground marks are standard disk station marks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 3.265 meters (10.71 feet) from station in azimuth 343°25′. No. 2 is on first small hill, approximately 75 meters (246 feet) from station in azimuth 91°00′.

Limestone (Kern County, F. G. Johnson, 1932).—About 9.5 miles southeast of Tehachapi, on east side of summit of highest hill about 1 mile west of road. Ground is slightly higher about 200 yards west of station. To reach from Tehachapi, go east 1.6 miles on Mojave Road, turn right onto Willow Springs Road and go 10.9 miles or 2.5 miles beyond Oak Creek bridge to end of truck travel, and climb to summit of mountain to west. Marked by standard station disk in bedrock, note 3. Reference marks are standard reference disks in bedrock, note 12b. No. 1 is 14.848 meters (48.71 feet) from station in azimuth 359°20′. No. 2 is 10.440 meters (34.25 feet) from station in azimuth 95°55′.

Cub (Kern County, F. G. Johnson, 1932).—On highest point of grassy ridge east of first saddle east of Bear Mountain and south of fence which runs along top of ridge. Ridge runs east and west over large rocks. To reach from Tehachapi, follow paved highway toward Bakersfield 3.1 miles to sign pointing to Bear Valley, turn left onto dirt road and go 6.9 miles to another sign pointing to Bear Valley, turn right and go 2.4 miles to divide between Bear Valley and Cummings Valley, drive to right across fields 0.3 mile to end of truck travel at small shack, go up ridge lying a little east of north (starting from left of blazed oak tree), follow this ridge to main ridge, and go east along ridge to station site. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 7.700 meters (25.26 feet) from station in azimuth 229°57′. No. 2 is 9.320 meters (30.58 feet) from station in azimuth 114°26′.

Fence (Kern County, F. G. Johnson, 1932).—Six and one-fourth miles southwest of Tehachapi, on summit of first prominent ridge lying between Brite Valley and Cummings Creek. To reach from Southern Pacific railroad depot at Tehachapi, go west 1 block and turn left (south), go 0.4 mile and turn west onto oiled road leading toward Bakersfield, go 2.8 miles and turn left onto gravel Cummings Valley Road, go 2.6 miles and take left fork passing through

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gate, go 0.5 mile and take right fork, go 1.7 miles and turn left through wire gate, go south-southeast 0.2 mile to rocky hill and end of truck travel, climb up wash between rocky hill and high ridge to left of hill to top of flat, climb ridge to left (north), and follow east-southeast along fence line to summit of ridge. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 16.460 meters (54.00 feet) from station in azimuth 313°10′. No. 2 is 12.955 meters (42.50 feet) from station in azimuth 112°04′.

Flannagan (Kern County, F. G. Johnson, 1932).—Near summit of mountain known locally as "Flannagan Mountain", 11½ miles west of Tehachapi, south of Fickerts ranch in Bear Valley, and about 10 meters (33 feet) west of Fickerts ranch fence line. To reach from Tehachapi, go west 3 miles on road leading to Bakersfield, turn left (south) onto Cummings Valley Road and follow 7.1 miles to junction with Bear Valley Road, turn right (north) onto Bear Valley Road and go 5.9 miles to Fickerts ranch, continue straight ahead 2.2 miles to wire gate on left (south) which is 0.3 mile east of Hills ranch, pass through gate and go south and southwest 0.6 mile across field to southwest corner and end of truck travel, walk up canyon and trail three-fourths mile to low saddle on divide, turn left (northeast) and follow along ridge in easterly direction about 2 miles to station site. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is in shoulder of same boulder as station mark, 3.866 meters (12.68 feet) from station in azimuth 194°43′. No. 2 is about 2 meters (7 feet) east of fence line and 16.950 meters (55.61 feet) from station in azimuth 311°05′.

Black Oak (Kern County, F. G. Johnson, 1932).—In Black Oak Hills which lie to west of Bear Valley, on first hill south of highest and most northerly hill of group. To reach from Tehachapi, follow paved highway toward Bakersfield 3.1 miles to sign pointing to Bear Valley, turn left onto dirt road and go 6.9 miles to another sign pointing to Bear Valley, turn right and go 8.1 miles on main road through Bear Valley to Hills ranch, pass through barnyard at Hills ranch and continue 1.6 miles to divide, turn right (north) and follow blazes about 1¼ miles to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 4.205 meters (13.80 feet) from station in azimuth 102°28′. No. 2 is 13.300 meters (43.64 feet) from station in azimuth 158°46′. Azimuth from station to *Los Angeles-San Francisco airway beacon no. 7* (*flashing green*) is 53°21′57″.

Supplementary points

Newhall (Los Angeles County, F. G. Johnson, 1932).—About 1 mile north of Newhall, about three-eighths mile east of highway and railroad, and on second knob east of highway. Knob is highest point of small ridge running east and west, approximately 125 feet high. To reach from Newhall, go north on highway to point just across Placerita Creek bridge, turn right and then left onto first road after crossing railroad tracks, follow road to end of truck travel at foot of hill, and climb to station site. Marked by standard station disk in boulder, note 4. Reference mark no. 1 is standard reference disk in boulder, note 12c, 17.470 meters (57.32 feet) from station in azimuth 279°16′. Reference mark no. 2 (probably standard reference disk) is in southeast corner of concrete foundation of small bridge (no. 5314) which crosses Placerita Creek, and approximately one-fourth mile from station in azimuth 14°09′16″. Azimuth from station to *Los Angeles-San Francisco airway beacon no. 3A* (*flashing green*) is 129°43′08″; and to *Los Angeles-San Francisco airway beacon no. 2* (*flashing red*), 337°02′25″.

East (Los Angeles County, F. G. Johnson, 1932).—Six and six-tenths miles north of San Fernando, at top of grade on highest point lying north of Route 99. To reach from San Fernando, go north on Route 99 to point just beyond top of grade at wide fill and end of truck travel, cross fence and proceed up ridge in northerly direction just east of fill, continue short distance to old road and follow to point about 100 yards northwest of transmission tower, follow left trail to top of ridge, and go about one-half mile along ridge to highest point. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 7.285 meters (23.90 feet) from station in azimuth 245°38′. No. 2 is 27.680

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meters (90.81 feet) from station in azimuth 341°30′. Azimuth from station to *Los Angeles-San Francisco airway beacon no. 3A* (*flashing green*) is 159°45′56″; and to *Los Angeles-San Francisco airway beacon no. 2* (*flashing red*), 244°53′20″.

Ridge (Los Angeles County, F. G. Johnson, 1932).—On eastern end of Oat Mountain. To reach from San Fernando, go north on Route 99 to road leading to Cascade ranch (marked by sign), turn left onto this road and go 1.2 miles, take left-hand road and go 0.2 mile, turn right just after crossing small bridge and turn left at first road before reaching red barn, follow 3.9 miles and take left fork, go 1.2 miles and take left fork, go 0.3 mile to top of ridge, leave road and go left (east) 0.2 mile along ridge to station site. Surface and underground marks are standard disk station marks in concrete, notes 1a and 7a. Reference mark no. 1 is standard reference disk in concrete, note 11a, 9.455 meters (31.02 feet) from station in azimuth 163°52′. Reference mark no. 2 is standard reference disk in bedrock, note 12a, 119 paces from station in azimuth 66°27′32″. Azimuth from station to Bodel lookout is 47°40′52″; and to "Iron Mountain (U. S. G. S.), target", 251°16′13″.

Mission Point (Los Angeles County, F. G. Johnson, 1932).—On highest part of Mission Point, the southern and higher of two knobs which are three-eighths mile apart. To reach from San Fernando, go north on Route 99 to road leading to Cascade ranch (marked by sign), turn left onto gravel road and go 1.3 miles, take left fork and go 0.2 mile, just after crossing small bridge turn right onto farm road, and then left about 30 yards farther on or just before reaching red barn, and follow this road 2.5 miles to station site, which is about 25 yards to left of road. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 10 feet west of edge of road and approximately one-fourth mile from station in azimuth 169°10′59″. No. 2 is 5.250 meters (17.22 feet) from station in azimuth 117°38′. *B. M. 2771* (*U. S. G. S.*) (see description thereof) is 11.072 meters (36.33 feet) from station in azimuth 13°07′. Azimuth from station to airway beacon (flashing red) is 206°56′02″.

Bluff (Los Angeles County, F. G. Johnson, 1932).—East of Limekiln Canyon, on eastern and higher end of ridge with cliffs on southern and western slopes. To reach from San Fernando, go north on Route 99 for two blocks from intersection of highway and Maclay Street, turn left onto San Fernando Mission Boulevard, go 4.9 miles and turn right onto Hesperia Avenue, go 0.3 mile and take left fork, go 1.5 miles to cultivated field, turn left across ravine, go about 0.4 mile up draw, and continue to station site to right of draw. Surface and underground marks are standard disk station marks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 9.679 meters (31.76 feet) from station in azimuth 262°40′. No. 2 is in fence line in draw and 0.3 mile from station in azimuth 171°39′44″. Station *Bluff* (*U.S.G.S.*) (see description thereof) is 3.241 meters (10.63 feet) from station in azimuth 340°14′.

Reservoir (Los Angeles County, F. G. Johnson, 1932).—On southerly of two knobs of nearly same elevation and about 50 meters (164 feet) apart which lie to west of lower San Fernando Reservoir. To reach from San Fernando, go west 2.1 miles on San Fernando Mission Boulevard from intersection with Route 99, turn right onto Haskell Avenue and go 0.1 mile to road going around southern end of San Fernando Reservoir, continue 1.2 miles to gate with cattle guard, continue 0.6 mile around west side of reservoir to spillway and building, turn left up draw, and go about 0.1 mile to crest of hill and station site. Marked by standard station disk in boulder, note 4. Reference mark no. 1 is standard reference disk in west concrete bulwark of spillway and one-fourth mile from station in azimuth 197°01′00″. Reference mark no. 2 is standard reference disk in bedrock, note 12a, on ridge running in westerly direction, and 51.488 meters (168.92 feet) from station in azimuth 113°22′.

Corner (Los Angeles County, F. G. Johnson, 1932).—On north side of highway, about 300 meters (984 feet) east of intersection of Devonshire Avenue and paved road (with sign "North Los Angeles"), and 10 feet north of edge of road cut which is about 10 feet deep at this point. To reach from San Fernando Road and Brand Boulevard in San Fernando, go west and south 2.5 miles via Brand Boulevard and Sepulveda Road to Devonshire Avenue, and proceed west 3.2 miles to station site. Surface and underground marks are standard disk station marks in concrete, notes 1a and 7a. Reference marks are standard

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reference disks in concrete, note 11a. No. 1 is 5 feet northeast of power pole and 22.53 meters (73.9 feet) from station in azimuth 346°08′. No. 2 is directly opposite T-intersection of pavements and approximately 300 meters (984 feet) from station in azimuth 89°41′55″.

Red (Los Angeles County, F. G. Johnson, 1932).—On Red Mountain in the Santa Barbara National Forest. To reach from Saugus, go north about 15 miles on San Francisquito Canyon road to municipal power house no. 1, go west 1 mile up Clearwater Canyon to end of truck travel, follow trail up canyon about 1 mile to green and white ranger house in canyon, take trail which starts about 15 meters (49 feet) south of house and follow in a general westerly direction about 1½ miles to top of ridge, turn left (south) and follow faint firebreak in a general westerly direction about 2 miles to Red Mountain. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is approximately 63 meters (207 feet) from station in azimuth 108°11′. No. 2 is 9.359 meters (30.71 feet) from station in azimuth 149°38′. Station *Red* (*U.S.G.S.*), *cairn* (see description thereof) is 60.15 meters (197.3 feet) from station in azimuth 105°50′.

Jupiter Mountain (U.S.G.S.) (Los Angeles County, F. G. Johnson, 1932).—On eastern and higher peak of Jupiter Mountain. To reach from store of O. P. Smith in El Verde at junction of Spunky and San Francisquito Canyons, go east 2.8 miles on Spunky Canyon road until very definite firebreak which runs to right or in southerly direction is reached, and climb ridge to station site. Marked by U. S. Geological Survey mark in concrete in 4-inch tile pipe. Reference mark no. 1 is standard reference disk in bedrock, note 12a, 14.325 meters (47.00 feet) from station in azimuth 166°33′. Reference mark no. 2 is standard reference disk in boulder, note 12c, 9.200 meters (30.18 feet) from station in azimuth 271°24′.

Towsley (Los Angeles County, F. G. Johnson, 1932).—On highest peak at head of Towsley Canyon, about 50 meters (164 feet) east of highest part of mountain. To reach from north edge of San Fernando, go north 8.3 miles on Route 99 and turn left onto dirt road leading into Towsley Canyon, pass through gate and go 1 mile, take left fork and go 0.7 mile, turn right onto side road crossing small stream and go 0.3 mile to small shack, go to south of shack and follow old road to end of truck travel, go up trail running in a general southwesterly direction to top of ridge, go west on top of ridge to north slope of high peak, and climb slope of peak to station site. Marked by standard station disk in bedrock, note 3. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 6.868 meters (22.53 feet) from station in azimuth 322°56′. No. 2 is 10.918 meters (35.82 feet) from station in azimuth 32°35′. Azimuth from station to Oat Mountain, fire lookout tower, distant 2 miles, is 17°05′59″.

Edison (Los Angeles County, F. G. Johnson, 1932).—On low hill about three-fourths mile west of Newhall, on ridge about 150 feet west of road, and about 30 feet west of transmission tower. To reach from San Fernando, go 5.3 miles on Route 99, turn right and go 4.1 miles on highway to Newhall, from sign "Newhall" on highway at Newhall go 0.2 mile and turn left, go 0.6 mile and turn left, go 0.5 mile and turn left, go 0.3 mile and take right fork, go 0.1 mile to top of first ridge and end of truck travel, and go west about 150 feet to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 28.430 meters (93.27 feet) from station in azimuth 358°23′. No. 2 is at junction of Eighth and Valley Streets, 6 feet north of Eighth Street, 4 feet east of Valley Street, and approximately three-eighths mile from station in azimuth 59°06′33″. *Southern California Edison Co. station* (see description thereof) is 3.095 meters (10.15 feet) from station in azimuth 337°33′. Azimuth from station to *Los Angeles-San Francisco airway beacon no. 3A* (*flashing green*) is 162°35′37″.

Lock (Los Angeles County, F. G. Johnson, 1932).—On east end of ridge, on high ground lying north of Pico Canyon, and on land belonging to the Newhall Land and Farming Co. To reach from intersection of Route 99 and San Fernando Mission Boulevard at San Fernando, go north 10.7 miles on Route 99 to top of grade north of Pico Canyon, turn left through gate, go west about one-half mile across field to end of truck travel along ridge which breaks off sharply to south, and continue along ridge about one-fourth to one-half mile

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to station site. Station is not on highest part of ridge. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is near fence line, on north slope of ridge, about 4 meters (13 feet) off top of ridge, and approximately 150 meters (492 feet) from station in azimuth 135°41′40″. No. 2 is on ridge and 13.581 meters (44.56 feet) from station in azimuth 297°32′.

Saugus (Los Angeles County, F. G. Johnson, 1932).—About 0.4 mile north of Saugus railroad depot, on most western knob on western end of hills northeast of Saugus. Truck can be driven to foot of hill. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference mark no. 1 is standard reference disk in boulder, note 12c, 36.050 meters (118.27 feet) from station in azimuth 213°47′. Reference mark no. 2 is standard reference disk in concrete, note 11a, on east side of railroad track, 12 feet north of second telephone post just north of Saugus railroad station, and three-eighth mile from station in azimuth 358°38′02″. Azimuth from station to *Violet Ray Gas Co., stack*, is 101°46′00″.

Yucca (Los Angeles County, F. G. Johnson, 1932).—On highest point of eastern end of butte at confluence of San Francisquito Creek and Santa Clara River. A plateau lies to east of station. To reach from San Fernando, go north about 13 miles on Route 99 to junction with Saugus Road, continue 0.5 mile on Route 99, turn right and pass through wire gate, turn right and follow farm road 0.7 mile along north side of butte to end of truck travel, and continue about one-fourth mile uphill in a southeasterly direction to station site. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 8.498 meters (27.88 feet) from station in azimuth 214°14′. No. 2 is 49.29 meters (161.7 feet) from station in azimuth 320°45′.

Foot (Los Angeles County, F. G. Johnson, 1932).—On hills between Dry and San Francisquito Canyons, on highest and southernmost of two small peaks, and about 150 yards south of transmission-line poles crossing hills. To reach from Saugus, go north and take right fork of two paved roads just north of town, continue 0.7 mile and turn left onto road up Dry Canyon, cross bridge and continue 0.9 mile, take left fork and go 0.2 mile, turn left off road toward some ranch buildings, turn right just after reaching ranch buildings and drive across field to high-tension line, turn left and go in westerly direction to large oak tree in canyon to the left 0.8 mile from ranch buildings, ascend ridge to northward and follow about one-half mile to station site. Marked by standard station disk in boulder, note 4. Reference mark no. 1 is standard reference disk in boulder, note 12c, 5.715 meters (18.75 feet) from station in azimuth 275°12′. Reference mark no. 2 is standard reference disk in concrete, note 11a, in front of house, on north edge of lane, east of road just before crossing bridge over creek, 50 yards east of highway, and one-half mile from station in azimuth 318°54′04″.

Long (Los Angeles County, F. G. Johnson, 1932).—On northeast one of group of small knobs lying between San Francisquito Canyon and Castaic Valley, and about 2½ miles north of butte at confluence of San Francisquito Creek and Santa Clara River. To reach from Castaic on Route 99, go north 0.7 mile to first road on right before reaching Castaic bridge, turn right and go 0.9 mile to ranch house and windmill, turn left just before reaching house and go 0.1 mile, turn right and go 0.1 mile to standpipe, turn left at standpipe and go 0.4 mile, taking left fork 0.2 mile from standpipe, turn right onto road leading up canyon and go 1.5 miles to end of truck travel, ascend ridge to east to its highest point, and go southeast along ridge and firebreak about one-half mile to station site. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 10.814 meters (35.48 feet) from station in azimuth 324°47′. No. 2 is across slight depression in ridge and 40.94 meters (134.3 feet) from station in azimuth 55°45′.

Dry (Los Angeles County, F. G. Johnson, 1932).—Four miles north of Saugus, on highest point of hills lying between San Francisquito and Dry Canyons, and just north of point where road crosses these hills. To reach from Saugus, go north 0.5 mile on the San Francisquito Canyon road, take left fork and go 0.9 mile, turn left and go 1.6 miles, take left fork and go 0.4 mile to top of grade, go 0.1 mile to end of truck travel, ascend ridge to north, and go along ridge about one-fourth mile to station site. Surface and under-

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ground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 6.398 meters (20.99 feet) from station in azimuth 110°06′. No. 2 is just south of San Francisquito Canyon road and approximately one-fourth mile from station in azimuth 333°30′57″. Center of 1½-inch capped iron pipe is 1.842 meters (6.04 feet) from station in azimuth 113°48′.

Bum (Los Angeles County, F. G. Johnson, 1932).—On ridge of mountains lying to west of San Francisquito Canyon, 4¾ miles north-northwest of Saugus. To reach from Saugus, go north 0.5 mile on San Francisquito Canyon road, take left fork and go 0.9 mile, turn left and go 1.6 miles, take left fork and go 1.1 miles, take road branching to left and crossing San Francisquito Canyon, continue as far as possible with truck (about 1.0 mile after crossing canyon), pass to north of ranch house, ascend ridge to southwest, and follow west and southwest along ridge about three-fourths mile to station site. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is on ridge across draw and approximately 125 meters (410 feet) from station in azimuth 130°44′28″. No. 2 is 47.092 meters (154.50 feet) from station in azimuth 193°30′. Station *Bum* (*U.S.G.S.*) (see description thereof) is 66.227 meters (217.28 feet) from station in azimuth 192°29′.

View (Los Angeles County, F. G. Johnson, 1932).—On high ground between Haskell and Dry Canyons, a little north of east from Dry Canyon Reservoir, on small bushy ridge running approximately north and south, and just east of gate on road along transmission line. To reach from Saugus, go 0.9 mile from junction north of town, turn right and go 1 mile, turn left and go 0.9 mile to gate, turn right and go 0.1 mile, turn left and go 0.5 mile to ranch building, take right fork and continue 1.5 miles, take left fork and go 1.2 miles to gate of Forest Service, pass through gate, and ascend ridge to eastward. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 25 yards from north side of road and about one-fourth mile from station in azimuth 159°42′00″. No. 2 is 17.255 meters (56.61 feet) from station in azimuth 4°53′. Azimuth from station to *United States Geological Survey black-and-white tripod* (*west of Haskell Canyon*) is 357°45′30″.

Steer (Los Angeles County, F. G. Johnson, 1932).—About 6 miles north-northwest of Saugus, on firebreak on flat ridge near head of Tapia and Charlie Canyons. To reach from Saugus, go north 0.6 mile on San Francisquito Canyon Road, take left fork and go 0.9 mile, turn left and go 1.6 miles, take left fork and go 2.1 miles, turn left through gate and cross canyon, go 0.3 mile to farmyard, pass through farmyard and go up canyon 0.3 mile to junction of two creek beds, go up creek bed to right to end of truck travel, continue to head of canyon, ascend ridge to firebreak, turn right (north) and go along ridge and firebreak about one-fourth mile to hill and station site. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is on east edge of firebreak and 33.59 meters (110.2 feet) from station in azimuth 170°53′. No. 2 is on east edge of the firebreak and 8.011 meters (26.28 feet) from station in azimuth 310°34′.

Rock (Los Angeles County, F. G. Johnson, 1932).—On western end of small knob which is east of transmission line and second closest one in this locality to transmission line. To reach from Saugus, go north to first road junction, continue 0.9 mile, turn right and go 1 mile, turn left and go 0.9 mile to gate, turn right and go 0.1 mile, turn left and go 0.5 mile to ranch building, take right fork and continue 1.5 miles, take left fork and go 1.2 miles to gate of the Forest Service which is just west of station *View*, and continue 1.9 miles to station site on ridge to eastward. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 19.345 meters (63.47 feet) from station in azimuth 321°43′. No. 2 is 27.123 meters (88.99 feet) from station in azimuth 41°29′.

Powerhouse (Los Angeles County, F. G. Johnson, 1932).—About 9 miles north of Saugus, about three-fourths mile west of municipal power house no. 2, on ridge west of San Francisquito Canyon which is covered with red-colored rocks, and about three-fourth mile southeast of prominent rock pillar. To reach from municipal power house no. 2, go north 0.2 mile on San Francisquito Canyon road and turn yeft at sign "San Francisquito Trail", follow trail which extends in same direction as road straight ahead 0.2 mile to end of truck travel,

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ascend ridge and go about one-half mile along trail to firebreak, turn left and go about one-half mile along firebreak to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 11.266 meters (36.96 feet) from station in azimuth 222°07′. No. 2 is 15.200 meters (49.87 feet) from station in azimuth 78°05′.

Brushy (Los Angeles County, F. G. Johnson, 1932).—Near northern end of ridge and on highest ground between San Francisquito and Dry Canyons. To reach from Saugus, go north 0.9 mile from road junction north of town, turn right and go 1.0 mile, turn left and go 0.9 mile to gate, turn right and go 0.1 mile, turn left and go 0.5 mile to ranch building, take right fork and continue 1.5 miles, take left fork and go 1.2 miles to gate of the Forest Service, which is just west of station *View*, continue 2.9 miles on main-traveled road (passing station *Rock* at 1.9 miles), take road to right and go 1.6 miles to end of truck travel, and climb ridge to westward to highest point of brushy hill. Marked by standard station disk in boulder, note 4. Reference mark no. 1 is standard reference disk in boulder, note 12c, 8.835 meters (28.99 feet) from station in azimuth 199°15′. Reference mark no. 2 is standard reference disk in bedrock, note 12a, 48.27 meters (158.4 feet) from station in azimuth 78°58′. Azimuth from station to *United States Geological Survey target* (*south of station House*) is 306°29′11″.

House (Los Angeles County, F. G. Johnson, 1932).—To reach from Saugus, go north 0.9 mile from road junction north of town, turn right and go 1.0 mile, turn left and go 0.9 mile to gate, turn right and go 0.1 mile, turn left and go 0.5 mile to ranch building, take right fork and continue 1.5 miles, take left fork and go 1.2 miles to gate of the Forest Service which is just west of station *View*, continue 2.9 miles on main-traveled road, take road to right, and go 4.2 miles to station which is about 76 feet northwest of edge of road and across road from transmission tower no. 18. Marked by standard station disk in boulder, note 4. Reference mark no. 1 is standard reference disk in bedrock, note 12a, 25.740 meters (84.45 feet) from station in azimuth 216°23′. Reference mark no. 2 is standard reference disk in boulder, note 12c, 10.820 meters (35.50 feet) from station in azimuth 311°03′. Northwest corner of small metal house is 19.710 meters (64.67 feet) from station in azimuth 7°17′. Azimuth from station to *United States Geological Survey target* (*south of station House*) is 14°56′00″.

Surge (Los Angeles County, F. G. Johnson, 1932).—About 15 paces south of surge tank of municipal power house no. 1 which is in San Francisquito Canyon. To reach from Saugus, go north about 15 miles on San Francisquito Canyon road to municipal power house no. 1, continue north 2.2 miles up canyon to Surge Chamber road on left, proceed 2.4 miles to watchman's house and end of truck travel, and ascend trail to north leading to surge tank. Marked by standard station disk in boulder note 4. Reference mark no. 1 is probably standard reference disk in concrete support for penstock near watchman's house and 0.2 mile from station in azimuth 357°01′20″. Reference mark no. 2 is probably standard reference disk on south abutment of concrete spillway of surge tank and 147.0 feet from station in azimuth 134°57′. A 2-inch, capped iron pipe, with hole in center of cap, is set in concrete 2.99 meters (9.8 feet) from station in azimuth 135°21′.

Bee (Los Angeles County, F. G. Johnson, 1932).—On ridge between Bouquet and Bee Canyons, about 1 mile south of head of Bee Canyon, about 1 mile northwest of Bouquet Canyon Dam, on western and higher of two knobs about 0.2 mile apart, and about 5 yards south of road at crest of hill. To reach from north side of Bouquet Canyon Dam, follow power-line road up hill to west about one-half mile to locked gate, and continue 0.9 mile to crest of highest hill in vicinity and station site. Marked by standard station disk in boulder, note 5. Reference marks are standard reference disks in bedrock, note 12b. No. 1 is 20.70 feet from station in azimuth 347°47′. No. 2 is about 0.2 mile from station in azimuth 233°36′44″.

Little Buttes (Los Angeles County, F. G. Johnson, 1932).—On lowest hill of the Little Buttes in Antelope Valley. To reach from Del Sur, go west 2.0 miles, turn right and go north 7.0 miles, turn right (east) and go 1.2 miles, turn left (north) along very faint road on east side of fence line, and follow fence line approximately 0.5 mile toward most westerly hill. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 16.775 meters (55.04 feet) from station in azimuth

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254°01′. No. 2 is 4.765 meters (15.63 feet) from station in azimuth 353°51′. Azimuths from station to following points are: *Antelope Valley, white tank with red bottom*, 131°22′18″; *Los Angeles-Kern county-line marker*, 177°15′23″; white tank house, southwest corner, 233°38′37″; "B.M. 2594 (U.S.G.S.)", distant about 312 meters (1,024 feet), 253°48′42″; and Lancaster, large tank, 305°50′36″.

Willow Springs (Kern County, F. G. Johnson, 1932).—About 1½ miles northeast of Willow Springs, on more northeasterly of two highest peaks of butte. To reach from Willow Springs, go north 0.8 mile on Oak Creek cut-off and take road angling off to right, go about 40 meters (131 feet) and turn right onto old road going toward old adobe shack, follow this road 0.2 mile and follow right fork 0.1 mile to adobe shack, go southeast from shack and drive up most southwesterly wash to saddle, turn left along ridge, and proceed to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 4.668 meters (15.31 feet) from station in azimuth 339°22′. No. 2 is in most westerly saddle of butte, about 5 feet north of most westerly of three prominent boulders, and one-half mile from station in azimuth 71°13′56″. *B.M. 3293* (*U.S.G.S.*) (see description thereof) is 12.551 meters (41.18 feet) from station in azimuth 5°39′.

Gold (Kern County, F. G. Johnson, 1932).—On most westerly of large group of hills, 5½ miles north of Willow Springs. A prominent white mine dump is on south side of next high peak north of station. To reach from garage at Willow Springs, go north 6.1 miles on Tehachapi road, turn right and go east 100 yards, take right fork of old road and go 2.0 miles, turn right (south) down wash (no road visible) and continue 0.5 mile, turn left 45° and head for highest peak, go 0.4 mile to end of truck travel, and ascend in easterly direction about one-third mile to top of hill. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 30.945 meters (101.53 feet) from station in azimuth 288°33′. No. 2 is 29.659 meters (97.31 feet) from station in azimuth 11°06′. Azimuth from station to airway beacon (flashing white) is 61°18′01″.

Wash (Kern County, F. G. Johnson, 1932).—One mile north of pumping station which is about 5 miles northwest of Willow Springs, on west bank of wash, and 60 yards east of road. To reach from pumping station at Los Angeles Aqueduct, go west 0.3 mile on road along north side of aqueduct and turn right (north), go 0.9 mile and then east about 60 yards to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 19.852 meters (65.13 feet) from station in azimuth 355°46′. No. 2 is 22.410 meters (73.52 feet) from station in azimuth 84°12′.

Granite (Los Angeles County, F. G. Johnson, 1932).—About 2½ miles west of junction of Bouquet Canyon and Leonis Valley, on top of highest peak. To reach from Texaco service station on Leonis Valley road, about 1 mile west of junction of Leonis Valley and Bouquet Canyon roads, go south 0.2 mile on dirt road and turn right onto Leona Avenue, go 1.7 miles and turn left with road, go 0.7 mile and take left fork, go 0.4 mile to end of road at farmhouse, turn left and go along south side of orchard, follow old road 0.6 mile to summit, continue 0.1 mile to end of truck travel, and walk about 1 mile up draw to west to top of highest hill. Marked by standard station disk in boulder, note 5. Reference marks are standard reference disks in boulders, note 12d. No. 1 is near United States Geological Survey pole and 7.118 meters (23.35 feet) from station in azimuth 166°50′. No. 2 is on ridge about one-fourth mile from station in azimuth 255°50′07″.

Burn (Los Angeles County, F. G. Johnson, 1932).—On highest ground lying east of head of San Francisquito Canyon, 14 miles west-southwest of Lancaster. To reach from Hughes Lake, go east 3.6 miles on Pine Canyon Road (oiled), take right fork and continue 0.7 mile to gas station, turn right and follow road leading down San Francisquito Canyon 2.9 miles to O. P. Smith's store at El Verde, turn left (east) onto Spunky Canyon Road and go 2.7 miles to poor road leading to left along ridge from point near highest point of road, turn left onto this road and go 2.4 miles to end of road on top of ridge, turn left and go about 200 meters (656 feet) to end of truck travel, and continue in a general westerly direction along firebreak about three-fourths mile to station site. Marked by standard station disk in boulder, note 4. Reference mark no. 1 is standard reference disk in boulder, note 12c, on small knob, and

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approximately 200 meters (656 feet) from station in azimuth 46°10′53″. Reference mark no. 2 is standard reference disk in bedrock, note 12a, on slope of hill, and 14.756 meters (48.41 feet) from station in azimuth 179°19′.

Leona (Los Angeles County, F. G. Johnson, 1932).—On highest point of ridge on one of the highest hills of the Portal Ridge which is above upper end of Leonis Valley. To reach from store at Hughes Lake, go east 7.6 miles on Pine Canyon Road, turn left (north) up old road in center of small flat draw and go 0.2 mile, turn left and continue over first ridge and west 0.5 mile up canyon to gate, continue 0.5 mile to another gate, turn right (east) 100 feet after passing through gate, and follow up ridge about 0.3 mile to end of truck travel, and climb to station site on top of hill. Marked by standard station disk in boulder, note 4. Reference mark no. 1 is standard reference disk in boulder, note 12c, 17.620 meters (57.81 feet) from station in azimuth 225°07′. Reference mark no. 2 is standard reference disk in bedrock, note 12a, on first hill from station, one-eighth mile distant, in azimuth 276°47′18″.

Portal (Los Angeles County, F. G. Johnson, 1932).—About 13½ miles west-southwest of Lancaster, on Portal Ridge, about one-half mile southeast of farmhouse and about one-third mile north of road which crosses ridge and leads into town of Del Sur. To reach from Hughes Lake, go east 3.6 miles on the Pine Canyon Road to fork in road, take left fork and immediately turn left, go through gate to farmhouse on knoll 0.3 mile distant, continue west from farmhouse to wash, cross wash and go to fence corner 0.3 mile distant from farmhouse, turn right and go 0.4 mile up canyon to top of ridge, turn right on top of ridge and go 0.6 mile in easterly direction to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 25.196 meters (82.66 feet) from station in azimuth 51°46′. No. 2 is on first hill from station, approximately one-fourth mile distant, in azimuth 120°18′19″.

Sur (Los Angeles County, F. G. Johnson, 1932).—Two miles west of Del Sur School, 24 feet south of east-and-west road, and 35 feet west of north-and-south road. To reach from Del Sur, go west 2.0 miles on dirt road to road intersection. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 13 feet east of north-and-south road, 13 feet south of east-and-west road, and 20.730 meters (68.01 feet) from station in azimuth 263°59′. No. 2 is just east of fence line, 5 feet east of edge of road, and 0.2 mile from station in azimuth 355°52′57″.

Specht (Los Angeles County, F. G. Johnson, 1932).—In Antelope Valley, 3¾ miles west-northwest of Del Sur. To reach from Del Sur, go north 1 mile on gravel road to paved road, turn left onto paved road and go west 3 miles to point where paved road turns right (north), go west (straight ahead) 0.5 mile on dirt road to H. P. Specht's farmhouse, go south of farmhouse and along south side of east-and-west fence to fence corner 0.4 mile distant, pass through gate at fence corner, and go north 0.1 mile along fence to top of knoll and station site in fence line. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on top of knoll in east-and-west fence line and one-fourth mile from station in azimuth 286°34′46″. No. 2 is in fence line and 22.449 meters (73.65 feet) from station in azimuth 359°56′.

Number (Los Angeles County, F. G. Johnson, 1932).—Seven feet west of edge of road, opposite point between poles 457562 E and 457563 E. To reach from Del Sur, go west 2 miles and north 3.9 miles to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 5 feet east of edge of road and 13.630 meters (44.72 feet) from station in azimuth 267°20′. No. 2 is 12 feet west of road and 0.3 mile from station in azimuth 178°33′36″. Azimuths from station to following points are: *Antelope Valley, white tank, flagstaff*, 158°05′20″; *Antelope Valley, red-roofed water tank*, 200°27′37″; *Antelope Valley, silver tank*, 221°20′41″; tank on concrete tower, 316°57′40″; galvanized tank on tower, 326°03′51″; galvanized tank at cut of shed, 335°06′47″; and green, galvanized tank near road, 356°15′28″.

Trans (Los Angeles County, F. G. Johnson, 1932).—About 3 miles east-northeast of Fairmont, in Antelope Valley, on ridge at point where transmission line crosses ridge, and 26 meters (85 feet) south of transmission tower no.

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"West M41 T4." To reach from Del Sur, go north 1 mile and turn west onto paved road, go 4 miles to intersection, turn north toward Willow Springs, go 0.3 mile and take left fork, go 0.7 mile and take left fork, go 0.6 mile and turn left onto road along power line, and follow northwest 1.3 miles to crest of ridge. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is under transmission tower and 26.222 meters (86.03 feet) from station in azimuth 205°24′. No. 2 is beyond first transmission tower and one-fourth mile from station in azimuth 323°25′25″.

Ante (Los Angeles County, F. G. Johnson, 1932).—To reach from Del Sur, go west 2.0 miles, turn right and go 6.1 miles, turn left (west) and go 2.0 miles, turn right and go 0.5 mile in a general northerly direction to station site, which is 15 paces to north of large Joshua tree. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 32.580 meters (106.89 feet) from station in azimuth 246°07′. No. 2 is 0.2 mile from station in azimuth 354°27′47″. Azimuths from station to following points are: *Antelope Valley, white tank, flagstaff*, 291°44′48″; tank near cut in shed, 303°29′26″; *Antelope Valley, silver tank*, 308°03′18″; and *Antelope Valley, red-roofed water tank*, 311°14′48″.

Lope (Los Angeles County, F. G. Johnson, 1932).—About 5½ miles southwest of Willow Springs, three-fourths mile south of Kern-Los Angeles County line, on highest ground in vicinity, and about one-fourth mile north-northeast of road intersection. To reach from Willow Springs, go south 0.3 mile and turn left, go 0.6 mile to road intersection, turn right (south) and go 5.0 miles to road intersection and Rogers school, turn right (west) and go 3.7 miles to old road at old windmill, turn right (northwest) and go 0.3 mile, turn to right off road about 150 meters (492 feet) before reaching section line, and drive to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 15.590 meters (51.15 feet) from station in azimuth 272°14′. No. 2 is at fence corner at intersection of roads and one-fourth mile from station in azimuth 16°25′32″.

Old (Kern County, F. G. Johnson, 1932).—About 3 miles south and 1 mile west of Willow Springs. To reach from garage at Willow Springs, go south 0.3 mile and turn west, go west 0.6 mile and turn south, go south 3 miles and turn west, go west 0.3 mile and turn south onto old road, and continue south 0.2 mile to station site which is 53 feet west of road. Joshua trees extend to westward from station. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 4½ feet west of edge of road and 14.785 meters (48.51 feet) from station in azimuth 279°14′. No. 2 is about 5 feet east of large Joshua tree and 31.140 meters (102.17 feet) from station in azimuth 172°00′. Azimuths from station to following points are: *Antelope Valley, white tank with red bottom*, 25°15′08″; galvanized tank on skeleton platform, 174°31′14″; white tank house, center, 281°08′12″: *Los Angeles-Kern county-line marker*, 336°07′18″; and *Antelope Valley, round white water tank*, 341°07′18″.

Joshua (Kern County, F. G. Johnson, 1932).—About 4½ miles southwest of Willow Springs, on low flat ground which is covered with Joshua trees. To reach from Willow Springs, go south 0.2 mile and turn right, go 0.6 mile and turn left (south), go 0.8 mile and turn right (west) onto main-traveled road, go 3.9 miles or about 50 meters (164 feet) beyond westerly of two galvanized-iron culverts and turn left onto poor road, follow south 0.7 mile and turn left, and go due east through brush 0.6 mile to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 21.298 meters (69.88 feet) from station in azimuth 260°08′. No. 2 is 25.970 meters (85.20 feet) from station in azimuth 352°34′.

Bajada (Kern County, F. G. Johnson, 1932).—Four miles northwest of Willow Springs, on low flat ground. To reach from garage at Willow Springs, go south 0.3 mile, turn right (west) and go 0.6 mile, turn right (north) and go 0.2 mile, turn left onto main-traveled road and follow to spring (group of green trees), go north 0.3 mile and take right fork, go 0.5 mile and take left fork, go 1.6 miles and follow left fork (straight ahead) 0.9 mile to

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station site which is about 5 meters (16 feet) south of road. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is about 3 meters (10 feet) north of road and 21.050 meters (69.06 feet) from station in azimuth 182°02′. No. 2 is about 6 meters (20 feet) south of road and 18.898 meters (62.00 feet) from station in azimuth 268°47′.

Bend (Los Angeles County, F. G. Johnson, 1932).—To reach from Hughes Lake, go east 4.4 miles on paved highway to point where San Francisquito Canyon Road joins paved highway, and go south 0.5 mile on San Francisquito Canyon Road to station site which is approximately 30 feet east of road. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 9 feet east of road and 10.160 meters (33.33 feet) from station in azimuth 78°09′. No. 2 is 4 feet from west side of road, on first curve northwest of station, and one-eighth mile from station in azimuth 143°54′27″. Azimuth from station to apex of white tower is 180°27′04″.

Andreas (Los Angeles County, F. G. Johnson, 1932).—To reach from store at Hughes Lake, go east 6.2 miles on paved highway, turn left through gate marked "C. H. Kellogg", go 0.5 mile and turn left, and go 0.1 mile to top of ridge and station site. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is in large rock outcrop about 4 feet above surface of ground and about one-eighth mile from station in azimuth 324°35′08″. No. 2 is 24.095 meters (79.05 feet) from station in azimuth 57°44′.

Gate (Los Angeles County, F. G. Johnson, 1932).—Just north of Portal Ridge, 42 feet east of edge of road, and 4 feet west and north from fence corner near old gate where road bears off to right toward farmhouse at base of hills. To reach from Del Sur, go west 3.0 miles on dirt road, turn left, and go south 0.7 mile to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is in fence corner, 10 feet west of road, and 0.2 mile from station in azimuth 177°14′39″. No. 2 is 14 feet east of road, 3 feet west of fence, and 13.460 meters (44.16 feet) from station in azimuth 54°07′. Azimuth from station to water tank on top of square concrete tower is 240°56′16″.

Pole (Los Angeles County, F. G. Johnson, 1932).—Two miles west and 2.3 miles north of Del Sur, about half-way between road and fence, and 8.2 meters (27 feet) west of center line of road. To reach from Del Sur, go west 2 miles, turn right onto Elizabeth Lake road, and go north 2.3 miles to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on east side of road, near telephone pole, and 14.720 meters (48.29 feet) from station in azimuth 273°34′. No. 2 is on west side of road, 2 feet from fence, 32 yards north of fence corner, and about 0.3 mile from station in azimuth 359°45′34″.

Single (Kern County, F. G. Johnson, 1932).—About 2 miles southwest of Willow Springs. To reach from garage at Willow Springs, go south 0.3 mile, turn west and go 0.6 mile, turn south and go 0.8 mile, turn west and go 1 mile to road turning south and station site which is about 30 feet southwest of intersection of center lines of roads. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on north side of road and 24.697 meters (81.03 feet) from station in azimuth 183°56′. No. 2 is about 30 feet north of center line of road and about one-fourth mile from station in azimuth 266°20′33″.

Fault (Kern County, F. G. Johnson, 1932).—On top of knoll about one-half mile west of Willow Springs. To reach from garage at Willow Springs, go north about 200 yards on Tehachapi road, turn west through opening in fence, and drive across field to highest point of knoll. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 6.891 meters (22.61 feet) from station in azimuth 281°13′. No. 2 is 28.730 meters (94.26 feet) from station in azimuth 176°15′.

Straight (Kern County, F. G. Johnson, 1932).—About 2½ miles north of Willow Springs and 15 feet west of road leading to Tehachapi. To reach from

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garage at Willow Springs, go north 0.8 mile on main-traveled road, take left fork, and continue 1.7 miles on Tehachapi road to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 32 feet east of edge of road and 19.825 meters (65.04 feet) from station in azimuth 268°56′. No. 2 is approximately 250 yards from station in azimuth 140°59′20″.

Stump (Kern County, F. G. Johnson, 1932).—About 4 miles north of Willow Springs and about 150 yards west of Tehachapi Road. To reach from garage at Willow Springs, go north 0.8 mile on main-traveled road, take left fork and continue 3.2 miles on Tehachapi Road, turn left off road, and go west approximately 150 yards to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 10.390 meters (34.09 feet) from station in azimuth 354°47′. No. 2 is 20.385 meters (66.88 feet) from station in azimuth 96°26′.

Dolemite (Kern County, F. G. Johnson, 1932).—On top of first prominent hill on west side of road entering Oak Creek Canyon from east, and about 1 mile west of road. To reach from Tehachapi, go east 1.8 miles on paved highway, turn right onto dirt road leading to Willow Springs and go 1.3 miles, turn left and continue 1.0 mile, turn right and go 6.0 miles to Oak Creek Bridge, take left fork and go east 2.5 miles, take right fork and go 0.9 mile, turn right onto old road and go 0.1 mile, take right fork and go 0.4 mile, turn right, crossing wash and continue 0.7 mile to fork, and continue straight ahead across fields to end of truck travel at base of peak. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 6.320 meters (20.73 feet) from station in azimuth 313°56′. No. 2 is 2.640 meters (8.66 feet) from station in azimuth 26°36′.

Quartz (Kern County, F. G. Johnson, 1932).—At summit of grassy hill, about 6 miles southeast of Tehachapi, and one-half mile west of Oak Creek Road. There are a few bushes and some large quartz boulders on top of hill. To reach from Tehachapi, go east 1.7 miles on Mojave Road, turn right and follow Oak Creek Road 6.1 miles to summit of hill, and climb one-half mile up hill to west. Marked by standard station disk in boulder, note 5. Reference mark no. 1 is standard reference disk in quartz outcrop flush with ground, 11.960 meters (39.24 feet) from station in azimuth 94°43′. Reference mark no. 2 is standard reference disk in large white boulder, note 12d, 17.668 meters (57.97 feet) from station in azimuth 150°51′.

Monolith (Kern County, F. G. Johnson, 1932).—About three-fourths mile northeast of Monolith, on first prominent peak. To reach from transformer station on west side of Monolith, go 0.4 mile across railroad tracks to gate, turn right (east) through the gate and go 0.8 mile on old road up valley, turn right about 135° and go 0.4 mile in direction of cement plant to saddle in ridge, and climb to east (left) to summit of hill and station site. Marked by standard station disk in bedrock, note 3. Reference mark no. 1 is standard reference disk, note 12c, in boulder on edge of cliff, 6.720 meters (22.05 feet) from station in azimuth 286°08′. Reference mark no. 2 is standard reference disk in bedrock, note 12a, 7.158 meters (23.48 feet) from station in azimuth 9°56′.

Shrub (Kern County, F. G. Johnson, 1932).—About 2 miles north of Oak Creek bridge, on top of highest hill overlooking Tehachapi Valley. To reach from Tehachapi, go east 1.8 miles on paved highway, turn right onto dirt road to Willow Springs and go 1.3 miles, turn left and continue 1.0 mile, turn right and go 5.5 miles, turn left and go 2.0 miles up old road along power line to summit, turn east and follow old road along ridge 1.2 miles to divide and end of truck travel, and continue across divide to next hill to eastward. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 4.280 meters (14.04 feet) from station in azimuth 255°12′. No. 2 is 9.145 meters (30.00 feet) from station in azimuth 11°25′. Azimuth from station to *Monolith, cement plant, tallest stack*, is 159°42′57″.

Bed (Kern County, F. G. Johnson, 1932).—On low hill about 3 miles southeast of Tehachapi, on south side of valley, three-fourths mile southwest of ranch house, and 200 yards southeast of gate. To reach from Tehachapi, go east 1.9 miles on paved road, turn south onto Oak Creek road and go 1.3 miles

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to intersection, continue straight ahead 0.2 mile and take right fork, and go 0.9 mile to gate on west side of wash. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 15.282 meters (50.14 feet) from station in azimuth 270°43′. No. 2 is 23.432 meters (76.88 feet) from station in azimuth 176°42′. Azimuth from station to *Tehachapi, water tank*, is 143°00′58″.

Summit (Kern County, F. G. Johnson, 1932).—Two miles east of Tehachapi and 1 mile northeast of "Summit" signboard on railroad. To reach from Southern Pacific railroad depot in Tehachapi, go east 2.4 miles along main road or 0.5 mile east of road leading to Willow Springs via Oak Creek bridge, turn left (north) and cross railroad tracks, turn left (west) and go 0.4 mile to point where ridge starts up from flat ground, turn right and ascend to top of ridge. Marked by standard station disk in boulder, note 4. Reference mark no. 1 is standard reference disk in boulder, note 12c, 19.105 meters (62.68 feet) from station in azimuth 158°48′. Reference mark no. 2 is standard reference disk in bedrock, note 12a, 17.800 meters (58.40 feet) from station in azimuth 305°14′.

Chapi (Kern County, F. G. Johnson, 1932).—About 1 mile northwest of Tehachapi, on crest of grassy hill. To reach from Southern Pacific railroad depot in Tehachapi, go west 0.4 mile along south side of tracks, cross tracks and go north 0.4 mile, take right fork and go 0.5 mile to gate, go through gate and continue 0.2 mile to ridge, turn left and follow up ridge to top and station site which is about one-half mile northwest of gate. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 11.250 meters (36.91 feet) from station in azimuth 234°04′. No. 2 is 11.030 meters (36.19 feet) from station in azimuth 159°44′. Azimuth from station to *Tehachapi, water tank*, is 330°01′07″.

Kiln (Kern County, F. G. Johnson, 1932).—About 3 miles southwest of Tehachapi, near tree line on southern and higher of two grassy peaks on south side of Tehachapi Valley. Hills south of station are covered with brush. To reach from Tehachapi, go south 0.7 mile on paved road, continue straight ahead 1.0 mile on gravel road, turn west and go 2.2 miles, turn left onto Paradise Valley road and go 0.4 mile, take left fork and go 0.6 mile up canyon, turn left at limekiln onto old road up hill, go 0.2 mile to ridge and turn left, and continue about 0.2 mile to summit of hill. Marked by standard station disk in concrete, note 1a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 15.250 meters (50.03 feet) from station in azimuth 303°26′. No. 2 is 9.543 meters (31.31 feet) from station in azimuth 10°30′. Azimuth from station to *Tehachapi, water tank*, is 227°29′49″.

Brite (Kern County, F. G. Johnson, 1932).—Five miles west of Tehachapi, on first prominent ridge on north side of Brite Valley, and about one-fourth mile south of first distinct summit. To reach from Southern Pacific railroad depot at Tehachapi, go west 1 block and turn left (south), go 0.4 mile and turn right (west) onto oiled road leading toward Bakersfield, follow 2.8 miles and turn left onto Brite Valley road, follow 3 miles to gate where road makes curve to west (gate is on north side of road, 0.7 mile east of ranch house of Walter Brite in Brite Valley), pass through gate and go northwest 0.3 mile to another gate, pass through gate and go 0.2 mile across field in northwesterly direction on slope of hill, pass through gate and follow old wagon trail 0.3 mile to old fence line across low saddle of ridge, cross fence line and continue up ridge 0.1 mile to station site. Marked by standard station disk in bedrock, note 3. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 7.435 meters (24.39 feet) from station in azimuth 193°26′. No. 2 is on ridge slope and 110.17 feet from station in azimuth 345°58′.

Deer (Kern County, F. G. Johnson, 1932).—About 1 mile southeast of Brite Valley, on grassy hill which is spotted with large oak trees. To reach from Southern Pacific railroad station at Tehachapi, go 5.9 miles on Cummings Valley Road, turn left through gate and go 0.5 mile, take left fork and go 1.5 miles to blaze on large lone oak tree, turn left 90° across small field, continue across wash and turn right, follow up wash until old wagon road is reached near wire fence, follow wagon road along line of blazes to top of slope, and follow blazes up to summit of hill. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders,

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note 12c. No. 1 is 23.045 meters (75.61 feet) from station in azimuth 173°44′. No. 2 is 16.470 meters (54.04 feet) from station in azimuth 74°15′.

Jail (Kern County, F. G. Johnson, 1932).—About 1¼ miles northeast of prison in Cummings Valley, on northwest side of northern end of highest point of ridge which separates Brite and Cummings Valleys. To reach from right-angle turn in road on west side of Brite Valley and on east side of hill which separates Brite and Cummings Valleys, go north 0.2 mile, pass through fence and continue north 0.1 mile along fence, turn left and climb about 0.2 mile to summit of ridge. Marked by standard station disk in boulder, note 5. Reference mark no. 1 is standard reference disk in bedrock, note 12b, 7.582 meters (24.88 feet) from station in azimuth 225°54′. Reference mark no. 2 is standard reference disk in boulder, note 12d, 17.041 meters (55.91 feet) from station in azimuth 291°19′. Azimuth from station to prison spire is 45°29′08″.

School (Kern County, F. G. Johnson, 1932).—On east side of road, 0.7 mile south of Cummings Valley School, 1.3 meters (4 feet) west of east property line of roadway, and 4.0 meters (13 feet) north of power line pole 314129 E. To reach from Tehachapi, go west 3.0 miles on paved road, go south 7.1 miles on Cummings Valley Road, continue straight ahead at Bear Valley Road and go west and south 3.1 miles on main-traveled road to Cummings Valley School, and continue south 0.7 mile to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is in fence line on east side of road and 12.730 meters (41.77 feet) from station in azimuth 186°58′. No. 2 is in fence line north of road, and 0.3 mile south and one-eighth mile west of station in azimuth 26°39′22″. Azimuth from station to Cummings Valley School bell tower, distant 0.7 mile, is 179°28′15″.

Quick (Kern County, F. G. Johnson, 1932).—About 8 miles north of Willow Springs and 17½ feet east of edge of Tehachapi Road. To reach from Tehachapi, go east 1.8 miles on paved highway, turn right onto dirt road leading toward Willow Springs and go 1.3 miles, turn left and continue 1 mile, turn right and go 6 miles to Oak Creek Bridge, cross bridge and take right fork or upper road, and continue 5 miles to station site. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is approximately 66 feet west of edge of road and 30.615 meters (100.44 feet) from station in azimuth 53°54′. No. 2 is about 35 feet west of edge of road and about 200 yards from station in azimuth 135°41′54″.

Across (Kern County, F. G. Johnson, 1932).—Three miles north-northwest of Los Angeles Aqueduct pumping station, which is 7½ miles northwest of Willow Springs. To reach from the pumping station, go northwest 0.2 mile to road running parallel to aqueduct, turn right (northeast) and go 1 mile along aqueduct road, turn left (north) and go 0.1 mile, take left fork and go 2.4 miles, turn left (south) and go across wash and sagebrush about 125 meters (410 feet) to station site on sloping ground. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 19.430 meters (63.75 feet) from the station in azimuth 13°48′. No. 2 is 18.736 meters (61.47 feet) from station in azimuth 125°25′.

Cameron (Kern County, F. G. Johnson, 1932).—About 2 miles northeast of Oak Creek Bridge. To reach from Tehachapi, go east 1.8 miles on paved highway, turn right onto dirt road leading to Willow Springs and go 1.3 miles, turn left and continue 1.0 mile, turn right and go 5.8 miles, turn left and go 0.3 mile, pass through gate and continue 1.6 miles to summit, turn right through opening in fence at warning sign, and go northeast 0.5 mile to highest hill. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 23.055 meters (75.64 feet) from station in azimuth 319°26′. No. 2 is 0.2 mile from station in azimuth 73°14′03″.

Jacks (Kern County, F. G. Johnson, 1932).—Twelve and one-half miles west-southwest of Tehachapi, on hills just west of Cummings Valley. To reach from Cummings Valley School in Cummings Valley, go south 1.0 mile and turn right, follow road 2.5 miles to gate, pass through gate, and go 0.1 mile to another gate, take old road leading to left and go 0.9 mile to steel gate, pass through gate and continue 0.4 mile on same road, turn southwest (left) onto dim trail and go 0.4 mile to draw on left, turn up draw and go 0.3 mile, and turn left up

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hill which is covered with large boulders. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 8.439 meters (27.69 feet) from station in azimuth 281°46′. No. 2 is 9.545 meters (31.32 feet) from station in azimuth 30°24′.

Rock Spring (Kern County, F. G. Johnson, 1932).—On western end of summit of Rock Spring Mountain which is south of Hills ranch in southwest end of Bear Valley, in nest of large boulders or protruding outcrop, and about 1 mile from a divide. To reach from junction of Bear Valley and Cummings Valley roads in Cummings Valley, go north 5.9 miles on Bear Valley road to Fickerts ranch, continue 2.2 miles to gate on left (south) at Hills ranch, proceed west 0.3 mile and south and southwest 0.6 mile to southwest corner of field and end of truck travel, go south about three-fourths of a mile along trail to divide, turn right (west) and ascend ridge to station site on west end of summit. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 13.535 meters (44.41 feet) from station in azimuth 285°43′. No. 2 is 6.365 meters (20.88 feet) from station in azimuth 17°33′.

Mart (Kern County, F. G. Johnson, 1932).—About 1 mile northwest of road corner northwest of Horsethief Flats, on top of highest hill. To reach from Jacks Camp, go northwest 4.5 miles to gate, go 0.1 mile and turn right onto dragged road, go 0.4 mile to gate, go through fence on west side of gate and proceed to left up hill 0.6 mile to gate, go 0.2 mile and turn left up old road, go about 30 yards and turn left up hill, and follow ridge to summit. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 8.070 meters (26.48 feet) from station in azimuth 244°58′. No. 2 is 7.170 meters (23.52 feet) from station in azimuth 3°19′.

Gorge (Kern County, F. G. Johnson, 1932).—On southern foothills of the Tejon Hills, about 4 miles northwest of Tejon ranch, and about 10 feet north of wooden lookout tower. To reach from Arvin, go south 4.4 miles on pavement which parallels railroad tracks and turn left onto gravel road at Y between pavement and gravel road, follow main road 0.5 mile to cattle guard, pass through cattle guard and go south 0.3 mile to road along power line, turn right onto this road and go 2.8 miles to road which follows Tejon ranch telephone line, proceed southeast about 7 miles to ranch gate, and follow dim road leading north (left) up ridge about 0.7 mile to wooden lookout tower. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 13.156 meters (43.16 feet) from station in azimuth 156°48′. No. 2 is 7.608 meters (24.96 feet) from station in azimuth 255°32′.

Joker (Kern County, F. G. Johnson, 1932).—On plains about 11 miles south and 4 miles west of Arvin, and about 10 yards southwest of road. To reach from Arvin, go south 4.5 miles on paved road and turn right, go south 7 miles along power line to tower no. M 28 T6, turn right and go 0.2 mile along south side of fence, go through fence and proceed west 100 yards, turn right (northwest) and follow old wagon road 1.5 miles to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on same side of road and about one-fourth of a mile from station in azimuth 315°35′41″. No. 2 is directly across road and 19.030 meters (62.43 feet) from station in azimuth 231°19′.

Tejon (Kern County, F. G. Johnson, 1932).—Five and one-half miles south of Arvin, on highest point of highest hill at northern end of Tejon Hills, and about 10 feet northeast of bluff. To reach from Arvin, go south to end of paved road, turn onto road along power line and go about 6 miles around west side of Tejon Hills to Tejon Creek, go southeast 0.8 mile on old road on east side of creek and along foot of hills, turn left and follow up ridge to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 11.875 meters (38.96 feet) from station in azimuth 309°11′. No. 2 is 10.020 meters (32.87 feet) from station in azimuth 24°31′. *S. C. of C. triangulation station* (see description thereof) is 2.533 meters (8.31 feet) from station in azimuth 292°53′.

Adobe (Kern County, F. G. Johnson, 1932).—About 11 miles south and 2 miles east of Bakersfield, on east side of road, 0.5 mile north of the old Adobe

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Station (now Bush Gun Club), on plains in San Joaquin Valley, and about 10 feet northeast of power-line pole. To reach from Route 99, go east 2.0 miles on Bear Mountain Highway toward Arvin, turn south onto old road and follow main telephone line 2.6 miles to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 10 feet east of highway and 0.3 mile from station in azimuth 180°12′30″. No. 2 is 14.805 meters (48.57 feet) from station in azimuth 269°05′.

Horsethief (Kern County, F. G. Johnson, 1932).—On hill about three-fourths mile south of Horsethief Flats, about 19 yards southeast of highest point of hill. To reach from Tehachapi, go 10 miles on Cummings Valley Road, continue west at Bear Valley Road, go 3 miles to Cummings Valley School, go south 1 mile, turn west and go 2.6 miles, go through gate and follow road along power line 7 miles, and proceed west one-half mile to top of hill. Blazed tree stands on road, and line of blazed trees leads to top of hill. Marked by standard station disk in bedrock, note 3. Reference marks are standard reference disks in bedrock, note 12b. No. 1 is 15.471 meters (50.76 feet) from station in azimuth 187°13′. No. 2 is 10.655 meters (34.96 feet) from station in azimuth 92°04′.

Comanche (Kern County, F. G. Johnson, 1932).—About 8 miles south and 2 miles east of Arvin, on highest hill northeast of point where Tejon Creek emerges from Tejon Hills. To reach from Arvin, go south on paved road along railroad to end of road, turn left and then right and follow along power line about 6 miles to Tejon Creek, which is dry in summer, go 0.2 mile and turn southeast onto road along telephone line up Tejon Creek, go 1.8 miles and turn left onto private road up Tejon Creek, go 0.8 mile, turn left (northeast) and follow up ridge to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on top of hill and 20.745 meters (68.06 feet) from station in azimuth 59°48′. No. 2 is on top of hill and 8.139 meters (26.70 feet) from station in azimuth 141°59′. Galvanized pipe driven into ground (probably remains of U. S. Geological Survey target) is 0.70 meter (2.3 feet) from station in azimuth 56°59′.

B. M. 2919 (U.S.G.S.) (Los Angeles County, F. G. Johnson, 1932).—On Castro Peak, under 30-foot, steel, fire lookout tower. Marked by United States Geological Survey bench mark. Station *Castro* (see description thereof) is 0.091 meter (0.30 foot) from station in azimuth 181°30′.

Bluff (U.S.G.S.) (Los Angeles County, F. G. Johnson, 1932).—East of Limekiln Canyon, on eastern and higher end of ridge with cliffs on southern and western slopes. Marked by United States Geological Survey disk in buried boulder. Disk is stamped "W. R. Porter—1924." Station *Bluff* (see description thereof) is 3.241 meters (10.63 feet) from station in azimuth 160°14′.

B. M. 2771 (U.S.G.S.) (Los Angeles County, F. G. Johnson, 1932).—On highest part of Mission Point, the southern and higher of two knobs which are three-eighths mile apart. Marked by United States Geological Survey bench mark. Station *Mission Point* (see description thereof) is 11.072 meters (36.33 feet) from station in azimuth 193°07′.

San Fernando (U.S.G.S.) (Los Angeles County, F. G. Johnson, 1932).—About 10 miles northwest of San Fernando, on summit of Oat Mountain, and about 88 feet in bearing N.52°W. from fire lookout tower. Marked by U. S. Geological Survey tablet. Station *San Fernando* (see description thereof) is 0.24 meter (0.8 foot) from station in azimuth 127°13′.

May (U.S.G.S.) cairn (Los Angeles County, F. G. Johnson, 1932).—About 5 miles east of San Fernando Pass, on high point on San Gabriel Mountains. Marked by large rock cairn. Station *May* (see description thereof) is 3.5 meters (11 feet) from station in azimuth 113°59′.

Southern California Edison Co. station (Los Angeles County, F. G. Johnson, 1932).—On low hill about three-fourths mile west of Newhall, on ridge about 150 feet west of road. Marked by bronze cap on 1½-inch pipe. Station *Edison* (see description thereof) is 3.095 meters (10.15 feet) from station in azimuth 157°33′.

Bum (U.S.G.S.) (Los Angeles County, F. G. Johnson, 1932).—On ridge of mountain lying to west of San Francisquito Canyon, 4¾ miles north-northwest of Saugus. Marked by United States Geological Survey disk in concrete-filled pipe projecting about 3 inches. Station *Bum* (see description thereof) is 66.227 meters (217.28 feet) from station in azimuth 12°29′.

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Pelona (U.S.G.S.) (Los Angeles County, F. G. Johnson, 1932).—On highest point of the Sierra Pelona. (Type of mark not described.) Station *Pelona* (see description thereof) is 7.670 meters (25.16 feet) from station in azimuth 170°21′.

Red (U.S.G.S.), cairn (Los Angeles County, F. G. Johnson, 1932).—On Red Mountain which lies in the Santa Barbara National Forest. Marked by rock cairn. Station *Red* (see description thereof) is 60.15 meters (197.3 feet) from station in azimuth 285°50′.

B. M. 3293 (U.S.G.S.) (Kern County, F. G. Johnson, 1932).—About 1½ miles northeast of Willow Springs, on most northeasterly of two highest peaks of butte. (Type of mark not described.) Station *Willow Springs* (see description thereof) is 12.551 meters (41.18 feet) from station in azimuth 185°39′.

Soledad (U.S.G.S.), cairn (Los Angeles County, F. G. Johnson, 1932).—Near highest point of Soledad Butte. Marked by United States Geological Survey triangulation tablet cemented in solid rock and surmounted by rock cairn. Station *Soledad* (see description thereof) is 2.65 meters (8.7 feet) from station in azimuth 123°36′.

S. C. of C. triangulation station (Kern County, F. G. Johnson, 1932).—Five and one-half miles south of Arvin, on highest point of highest hill at northern end of Tejon Hills. Marked by pipe cap stamped "S. C. of C. Tri. Sta." Station *Tejon* (see description thereof) is 2.533 meters (8.31 feet) from station in azimuth 112°53′.

TAFT AND VICINITY

Principal points

West (Kern County, F. G. Johnson, 1932).—About 200 yards east of tank on highest part of western end of Buena Vista Hills, 20 feet south of center line of road, and 6 feet north of pipe line. To reach from corner of Sixth and Center Streets in Taft, go west 0.3 mile on Center Street, turn right and go 2.6 miles to T-intersection, turn left and then right at jog, follow main-traveled, oiled road 0.8 mile to "10 M. P. H." sign, turn left and go 0.3 mile, bear right and go 0.5 mile to top of grade, turn left and follow crest of ridge 0.8 mile to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 20.720 meters (67.98 feet) from station in azimuth 303°03′. No. 2 is 11.538 meters (37.85 feet) from station in azimuth 34°11′. Azimuth from station to *Taft, airport beacon,* is 333°13′41″.

East (Kern County, F. G. Johnson, 1932).—To reach from Taft, go east 0.2 mile on Center Street past city limits, turn left onto concrete road, which later becomes oiled road, and go 0.3 mile to airport, continue 1.4 miles and turn right just before reaching field office of Southern California Gas Co., go 0.9 mile and take right fork, follow about 30 feet and again take right fork, go 0.2 mile and turn right at "Drive Slow" sign, go 0.1 mile and take left fork at oil well "9–D, S. O.", follow main-traveled road 0.8 mile to point just beyond green shed on left which is used as waiting room for school bus, turn left off road, and go about 50 yards to top of hill. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 9.945 meters (32.63 feet) from station in azimuth 181°55′. No. 2 is 23.810 meters (78.12 feet) from station in azimuth 283°06′. Azimuth from station to *Taft, airport beacon,* is 73°31′22″.

Lake (Kern County, F. G. Johnson, 1932).—About 250 feet (paced) west of San Joaquin Light & Power Corp. transmission pole no. 21190 which is stamped "1115." To reach from Taft, go north 6.8 miles on Sixth Street or to point just opposite Log Cabin dance pavilion, turn right onto dirt road and go 0.4 mile, and go obliquely to left 0.3 mile to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Upper mark projects 4 inches. Reference marks are standard reference disks in concrete, note 11a, projecting about 4 inches. No. 1 is 8.590 meters (28.18 feet) from station in azimuth 281°19′. No. 2 is 14.200 meters (46.59 feet) from station in azimuth 13°11′.

Spellacy (Kern County, F. G. Johnson, 1932).—To reach from depot in Taft, go south 0.2 mile on Ashur Avenue which is east of depot to "City Limits" sign, go 0.3 mile to Wood Street, turn left onto Wood Street and go 0.2 mile

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For notes in regard to marking of stations see p. 290.

to Olive Avenue, turn right onto Olive Avenue and follow main-traveled road 2.2 miles to station site. Station is 145 feet north of oil well "No. 25—Sec. 26." Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 25 feet south of road and 23.415 meters (76.82 feet) from station in azimuth 336°48′. No. 2 is 45 feet north of road and 19.975 meters (65.54 feet) from station in azimuth 110°05′. Azimuth from station to *Taft, airport beacon*, is 216°04′20″.

Supplementary points

Bear (Kern County, F. G. Johnson, 1932).—On highest part of hills about one-half mile east of top of grade of main highway and about 300 feet east of oil derrick marked "Sec. 6—No. 23." To reach from Taft, go north about 3 miles on Sixth Street or to point about one-fourth mile south of highest point of grade, turn right and follow main road (among oil derricks) which leads to summit of small hill. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Upper mark projects about 5 inches. Reference marks are standard reference disks in concrete, note 11a, projecting about 5 inches. No. 1 is 8.706 meters (28.56 feet) from station in azimuth 170°31′. No. 2 is 9.445 meters (30.99 feet) from station in azimuth 51°49′.

Tank (Kern County, F. G. Johnson, 1932).—Just northwest of oil tanks nos. 44 and 45. To reach from Taft, go east on Kern Street to airport, continue 2.7 miles on main highway, turn right and go 100 yards, take left fork heading for large steel tank marked "H P" within circle, go 100 yards and take right fork, and continue 0.1 mile in southerly direction to first small knob. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 22.535 meters (73.93 feet) from station in azimuth 22°29′. Two-inch iron pipe is in base of reference mark no. 1, projecting 8 inches above mark, and is 22.613 meters (74.19 feet) from station in line with mark. No. 2 is 9.760 meters (32.02 feet) from station in azimuth 111°33′.

Pump (Kern County, F. G. Johnson, 1932).—On highest part of ridge, equidistant from oil wells "No. 265, 7–D", and "No. 229, 7–D." To reach from Taft, go north 0.9 mile on Sixth Street, turn right onto Cedar Street and go 1.3 miles, turn left and go 0.2 mile, leave paved road at this point and ascend ridge in line with paved road for 0.1 mile, turn right and go 0.1 mile, turn left and go 0.2 mile to top of ridge. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 14.930 meters (48.98 feet) from station in azimuth 206°55′. No. 2 is 9.990 meters (32.78 feet) from station in azimuth 308°07′.

Center (Kern County, F. G. Johnson, 1932).—On highest point of Buena Vista Hills, about 2 miles north of Taft, and about 0.5 mile east of Taft-Bakersfield Highway. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 7.618 meters (24.99 feet) from station in azimuth 9°24′. No. 2 is 14.378 meters (47.17 feet) from station in azimuth 119°10′.

Taft east base (Kern County, F. G. Johnson, 1932).—Thirty-five feet west of road and 150 feet west of oil well "No. 59, 7–D, S. O." To reach from Taft, go east on Kern Street to airport, continue 1 mile and turn left, go 0.1 mile and turn left, go 0.1 mile and turn right, and continue 150 yards to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 9.210 meters (30.22 feet) from station in azimuth 250°48′. No. 2 is 10.840 meters (35.56 feet) from station in azimuth 112°09′.

Taft west base (Kern County, F. G. Johnson, 1932).—To reach from Taft, go north 0.8 mile on Sixth Street, turn right at Jackson Street and go 0.2 mile, leave paved highway at this point and take left fork which follows in easterly direction and runs along aqueduct of Western Water Co. and go 0.5 mile to station site which is approximately 150 feet southeast of road. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 11.900 meters (39.04 feet) from station in azimuth 28°02′. No. 2 is 8.165 meters (26.79 feet) from station in azimuth 109°29′.

Gate (Kern County, F. G. Johnson, 1932).—North of airport and approximately 200 yards a little north of west from first iron gate to left of road.

For notes in regard to marking of stations see p. 290.

Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 11.465 meters (37.61 feet) from station in azimuth 180°12′. No. 2 is 10.365 meters (34.01 feet) from station in azimuth 100°48′.

Bull (Kern County, F. G. Johnson, 1932).—To reach from Taft, go northeast 0.5 mile from corner of Sixth and Lucard Streets, turn right onto first road after passing "Lukes Snappy Service Station" and small bridge, go 0.5 mile to end of street, continue straight ahead between two iron posts about 14 feet high, turn left and go about 40 paces to station site which is 12 paces east of north-and-south fence. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 13.140 meters (43.11 feet) from station in azimuth 129°04′. No. 2 is 10.870 meters (35.66 feet) from station in azimuth 53°09′.

Gas (Kern County, F. G. Johnson, 1932).—To reach from Taft, go east on Kern Street to airport, continue 3.1 miles on main-traveled highway, turn left and follow along ridge in northerly direction 0.1 mile, take left fork and begin to descend ridge on main-traveled road, go 0.2 mile and leave road, and go along small ridge to northward about 0.15 mile to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 11.310 meters (37.11 feet) from station in azimuth 240°49′. No. 2 is 8.440 meters (27.69 feet) from station in azimuth 132°14′.

Edge (Kern County, F. G. Johnson, 1932).—Two hundred and ninety-four feet east of center line of Bakersfield highway, 155 feet south of Standard Oil Co. well "No. 52, 29–6", and 7 meters (23 feet) from center line of road passing between station and this well. To reach from Taft, go north 4.2 miles from intersection of Sixth and San Emidio Streets, turn right (east) and go 300 feet to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Upper mark projects 6 inches. Reference marks are standard reference disks in concrete, note 11a, projecting 6 inches. No. 1 is 12.320 meters (40.42 feet) from station in azimuth 273°57′. No. 2 is 16.520 meters (54.20 feet) from station in azimuth 146°47′.

Green (Kern County, F. G. Johnson, 1932).—On south slope of Buena Vista Hills, about 100 yards south from break in grade, near center of fault zone, about 500 feet south of active fault, 15 paces south of macadam road which runs along slope of ridge, and about 20 paces southwest of small green waiting room at south side of road. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 11.661 meters (38.26 feet) from station in azimuth 286°26′. No. 2 is 15.283 meters (50.14 feet) from station in azimuth 18°10′.

Fault (Kern County, F. G. Johnson, 1932).—Forty feet west of road and 50 paces east of oil well "No. 117, 7–D, S. O." To reach from Taft, go north 0.8 mile on Sixth Street, turn right onto Cedar Street and go 1.4 miles, turn left and go 0.4 mile, turn left and go 150 feet. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 9.940 meters (32.61 feet) from station in azimuth 249°50′. No. 2 is 11.600 meters (38.06 feet) from station in azimuth 13°14′.

Extra (Kern County, F. G. Johnson, 1932).—To reach from Taft, go north 0.7 mile on Sixth Street, turn right and go 1.5 miles, turn left and go 0.4 mile, turn left and go 0.6 mile, turn right and go 0.1 mile, take left fork and go 0.1 mile, take left fork and go 0.1 mile, leave road at this point and bear to right to top of small knob. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 5.040 meters (16.54 feet) from station in azimuth 16°42′. No. 2 is 18.059 meters (59.25 feet) from station in azimuth 106°58′.

Inside (Kern County, F. G. Johnson, 1932.—On south slope of Buena Vista Hills, near western end of fault, about 500 yards south of active fault, 40 paces south of macadam road along slope of hills, and about 60 yards southwest of oil well "No. 71, 7—D, S.O." Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 11.138 meters (36.54 feet) from station in azimuth 222°37′. No. 2 is 9.962 meters (32.68 feet) from station in azimuth 335°00′.

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End (Kern County, F. G. Johnson, 1932).—At western end of active fault and about 500 feet south of fault, on first small rise south of Buena Vista Hills, on second rise east of Taft-Bakersfield Highway, and 6 paces north of western one of two small storage tanks which occupy highest point of knoll. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 9.078 meters (29.78 feet) from station in azimuth 138°00′. No. 2 is 20.081 meters (65.88 feet) from station in azimuth 205°32′.

Saddle (Kern County, F. G. Johnson, 1932).—On saddle east of most western hill east of Taft-Bakersfield Highway, about 600 feet north of western end of fault, about 100 yards east of last small knoll east of Bakersfield Highway, and about 500 yards west of most western of highest points on ridge. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 11.805 meters (38.73 feet) from station in azimuth 312°32′. No. 2 is 10.390 meters (34.09 feet) from station in azimuth 36°19′.

House (Kern County, F. G. Johnson, 1932).—Near center of small ridge running north and south on north slope of Buena Vista Hills, in second line of stations back from fault line, about 40 yards north of highest point of ridge, and about 50 yards west by south from oil well "No. 10, 5—D, S. O." Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 10.198 meters (33.46 feet) from station in azimuth 228°20′. No. 2 is at highest point of hill and 36.15 meters (118.6 feet) from station in azimuth 326°27′.

Well (Kern County, F. G. Johnson, 1932).—Seventy-four feet south-southeast of pump house of well "No. 68—Sec. 6." Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 16.800 meters (55.12 feet) from station in azimuth 240°10′. No. 2 is 20.100 meters (65.94 feet) from station in azimuth 328°46′.

Soco (Kern County, F. G. Johnson, 1932).—At northern end of small ridge running approximately north and south, about 40 yards east of high-tension line at point midway between pole no. 20736–5/11 and next pole to northward, and about 30 meters (98 feet) southwest of and 30 feet higher than concrete foundation of oil well with derrick removed. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 10.235 meters (33.58 feet) from station in azimuth 277°11′. No. 2 is 85.771 meters (281.40 feet) from station in azimuth 0°46′.

Low (Kern County, F. G. Johnson, 1932).—On first small knob south of road and approximately 150 feet from road. To reach from Taft, go east on Kern Street to airport and continue 2.4 miles on main-traveled highway. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 5.850 meters (19.19 feet) from station in azimuth 13°51′. No. 2 is 8.966 meters (29.42 feet) from station in azimuth 118°10′.

Camp (Kern County, F. G. Johnson, 1932).—Twenty-five feet east of highway. To reach from Taft, go east on Kern Street to airport and continue 2 miles on highway. Surface and underground marks are standard station disks in concrete, notes 1a and 7a.

INYOKERN TO SAN BERNARDINO ARC

Principal points

Inyokern (Kern County, L. C. Johnson, 1933).—In Inyokern, at Southern Pacific railroad section house, 77 feet north of milepost 447, 51.6 feet east of east rail, and about 100 feet south of section foreman's house. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference mark no. 1 is standard reference disk in concrete, note 11a, 25.79 meters (84.6 feet) from station in azimuth 143°46′. "B.M. B 48 (1925)" (probably standard bench-mark disk in concrete) is 20.305 meters (66.62 feet) from station in azimuth 346°11′. Reference mark no. 2 is standard reference disk in concrete, note 11a, 200 feet east of Inyokern-Randsburg Highway, 77.3

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feet east of tracks, 28.35 feet southeast of "B.M. C 48", and 1.1 miles from station in azimuth 346°07′54″.

El Paso (U.S.G.S.) (Kern County, L. C. Johnson, 1933).—About 12 miles northwest of Randsburg. To reach from Randsburg, go north 10 miles to Garlock, proceed west 3.6 miles on road to Last Chance Canyon, keep left on main-traveled road and go 0.1 mile, take right fork and go 0.8 mile, leave road and go to left (north) 0.9 mile up over round-topped hill, and continue on foot along ridge to station site on most northerly range. Marked by United States Geological Survey tablet stamped "5259", in drill hole in rock outcrop. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 23.840 meters (78.22 feet) (slope) from station in azimuth 208°31′. No. 2 is 6.510 meters (21.36 feet) (slope) from station in azimuth 154°21′.

Spangler (San Bernardino County, L. C. Johnson, 1933).—About 15 miles north-northeast of Johannesburg, 10 feet east of highest point of low hill, which is highest in vicinity. To reach from St. Charles Hotel in Johannesburg, go east 1.0 mile toward Red Mountain (Osdick), turn left across railroad tracks onto road to Trona and Searles and go 11.5 miles to railroad tracks, continue straight ahead 4.5 miles on main road to sign "Red Top Mine", turn east onto dim road and go 0.9 mile, follow left fork about 150 yards, again take left fork and go about 0.4 mile, continue straight ahead 1.1 miles to old mine dump, continue to east side of hill (one-fourth mile distant to southeast) and climb to station site. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 12.960 meters (42.52 feet) from station in azimuth 278°23′. No. 2 is 6.859 meters (22.50 feet) from station in azimuth 44°14′.

Rand (Kern County, L. C. Johnson, 1933).—About 2½ miles southwest of Randsburg, on highest point of hill. To reach from Randsburg post office, follow macadam road 1.45 miles toward San Bernardino to sign "San Bernardino 101 miles", continue straight ahead 0.25 mile, leave macadam road and turn right up small hill toward roof of galvanized-iron building (Baltic Mill) (there is a mine shaft on left of highway), take left fork and follow main road 1.65 miles, take right fork and follow 0.9 mile along foothills to sign "Buckboard Mine", pass mine hoist and take road leading down into stream bed, follow up stream bed 0.8 mile, and climb slope to southwest (about 225° magnetic) to station site on highest point of top of hill. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 20.290 meters (66.57 feet) from station in azimuth 85°23′. No. 2 is 28.260 meters (92.72 feet) from station in azimuth 173°56′.

Well (San Bernardino County, L. C. Johnson, 1933).—About 16 miles east of Atolia, about 2 miles east of Blackwater Well, 20 feet west of rocky point, and 100 yards northwest of highest point of hill. To reach from Atolia, go northeast to dry lake and then follow road signs northeast to Blackwater Well (14 miles from Atolia), go south 3.0 miles, turn left off road and go 0.1 mile to foot of mountain, and climb to station site on hill to northwest. Marked by standard station disk in large flat boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 10.653 meters (34.95 feet) from station in azimuth 229°31′. No. 2 is 12.485 meters (40.96 feet) from station in azimuth 126°43′.

Fremont (U.S.G.S.) (San Bernardino County, L. C. Johnson, 1933).—On highest part of hill 12 miles southeast of Randsburg. To reach from Atolia, go 9.0 miles to road leading east to Fremont station on railroad at sign "Monarch Rand", go east 1.1 miles to railroad station, cross tracks and continue straight ahead toward lone mountain in foreground (keeping main-traveled road 6.4 miles to Monarch Rand at west base of mountain), turn right at first house at mine settlement and go south about 200 yards, turn left up hill and follow dim road 0.5 mile to its end at open mine, ascend ridge to south and go east to its summit and station site. Station is 0.3 mile southeast of and 1,000 feet higher than open mine. Marked by United States Geological Survey tablet, stamped "4604", in drill hole in large rock outcrop. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 12.005 meters (39.39 feet) from station in azimuth 112°27′. No. 2 is 6.695 meters (21.97 feet) from station in azimuth 158°07′.

Black (San Bernardino County, L. C. Johnson, 1933).—About 18 miles northeast of Kramer Hills, on highest point of hill. To reach from intersection of

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Randsburg-San Bernardino and Mojave-Barstow highways, go left toward Barstow 12.3 miles, or 0.8 mile beyond milepost 98, turn left onto graded road and follow 7 miles to end of grading, continue straight ahead to dry lake bed, take right-hand of three forks and go across lake bed to sagebrush flat, take first right fork and follow 1.0 mile, turn left and go 0.9 mile, turn right and go 2.6 miles, turn left into sandy wash and follow road 4.4 miles to small pile of rocks on right, continue on foot up rock-strewn gorge to right, continue up draw always keeping to right fork, and after passing open place in draw climb ridge to right to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 5.135 meters (16.85 feet) from station in azimuth 256°44′. No. 2 is 7.730 meters (25.36 feet) from station in azimuth 21°21′.

Power (San Bernardino County, L. C. Johnson, 1933).—About 15 miles south of Randsburg, about 1.5 miles west of Atolia-Adelanto Highway, and on top of most easterly ridge of east-and-west foothills. To reach from Atolia, go south 15.9 miles on Atolia-Adelanto Highway, turn right off road at transmission tower no. 1324, and follow rough truck tracks west 1.4 miles to station site on top of ridge. Marked by standard station disk in concrete, note 1a. Reference mark no. 1 is standard reference disk in bedrock, note 12b, 13.51 meters (44.32 feet) from station in azimuth 247°53′. Reference mark no. 2 is standard reference disk in bedrock, note 12a, 8.948 meters (29.36 feet) from station in azimuth 347°39′.

Kramer (San Bernardino County, L. C. Johnson, 1933).—About 24 miles north of Adelanto, 5 miles south of Kramer, on north point of ridge about 150 yards west of highway, and 200 yards west of Southern Sierras Power Co.'s transmission tower no. 1420. To reach from post office in Adelanto, go west 0.5 mile and then north on highway 24.0 miles to small pass in hills, and continue west to station site. To reach from Kramer, go south 5.3 miles to point where highway goes through pass in hills. Marked by 1½-inch pipe, with cap stamped "Kramer 1933" set in ground. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 7.861 meters (25.79 feet) from station in azimuth 22°43′. No. 2 is 8.545 meters (28.03 feet) from station in azimuth 138°31′. Azimuth from station to Southern Sierras Power Co., transmission tower no. 1420, distant 200 yards, is 268°40′32″; and to Kramer Hills, yellow tank, 264°18′42″.

Stein (San Bernardino County, L. C. Johnson, 1933).—About 8 miles southwest of Barstow, on most easterly one of group of three knobs on northern end of prominent ridge which extends north and south. To reach from Helendale (on Route 66) go northeast 1.7 miles, turn left onto dirt road and go 2.3 miles, take left fork and go 1.1 miles, turn left and go 1.2 miles, turn right at signpost and go 6.4 miles, turn right and follow tracks northeast 0.6 mile, and climb to station site. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 12.690 meters (41.63 feet) from station in azimuth 281°16′. No. 2 is 12.50 meters (41.0 feet) from station in azimuth 165°09′.

Silver (San Bernardino County, L. C. Johnson, 1933).—On highest point of Silver Mountain, about 15 miles northwest of Adelanto. To reach from post office in Adelanto, go west 0.6 mile, turn right (north) and go 10.6 miles, turn left (west) onto road at transmission towers nos. 1527 and 1528 and go 4.7 miles, take right fork and go 0.9 mile to old house, continue east 0.2 mile on dim road and climb to station site on hill about one-fourth mile to north. Marked by standard station disk in bedrock, note 2a. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 8.000 meters (26.25 feet) from station in azimuth 231°15′. No. 2 is 15.26 meters (50.1 feet) from station in azimuth 344°58′. Azimuth from station to *Adelanto, water tank*, is 325°27′26″; and to *Rock cairn* 84°51′14″.

Helendale (San Bernardino County, L. C. Johnson, 1933).—About 2.0 miles east of Helendale, on highest hill of rise east of Victorville-Mojave Highway, and 1.0 mile east of airway beacon. To reach from Helendale, go north 2.3 miles on Route 66, turn right at road leading south at an acute angle to unpainted buildings and continue 0.3 mile, bear left on dim tracks which lead to isolated shack about 0.5 mile east of buildings, pass to left of shack and bear to south up gentle slope 1.2 miles to station site on first and highest hill. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 12.010 meters (39.40

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feet (slope) from station in azimuth 2°10′. No. 2 is 20.378 meters (66.86 feet) (slope) from station in azimuth 252°48′.

Mirage (San Bernardino County, L. C. Johnson, 1934).—About 8 miles northwest of Adelanto, on high peak. To reach from post office in Adelanto, go west 0.5 mile, turn right (north) and go 0.5 mile, turn left (west) and follow main road 6.8 miles to sign on south side of road "Adelanto 8 miles" and sign on north side of road "Hess Ranch—Desert View", follow road northwest 0.7 mile, turn sharply to right and go 0.2 mile, go north 0.6 mile across sand toward mountain and climb highest peak, which is about one-half mile to north. Marked by standard station disk in concrete, note 1a. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 16.890 meters (55.41 feet) from station in azimuth 17°11′. No. 2 is 4.774 meters (15.66 feet) from station in azimuth 54°27′. No. 3 is 200 yards from station in azimuth 346°38′12″. Azimuth from station to *Adelanto, water tank,* is 293°58′32″.

Oro Grande (U.S.G.S.) (San Bernardino County, L. C. Johnson, 1934).—About 4 miles west by north of Oro Grande, on highest part of hill. To reach from post office in Oro Grande, go north 0.05 mile on main road, turn right under first underpass, then left and go 0.1 mile, go through yard of Oro Grande Cement Co. plant, go east 0.3 mile on main-traveled road (near large pipes), cross railroad tracks and go 1.05 miles, cross tracks and go 0.15 mile, cross tracks and follow left fork up canyon 1.3 miles, take left fork (leaving main-traveled road) and go 0.55 mile, turn right onto road which has been cleared but not much traveled, keep to left of big square rock and go 0.5 mile to end of truck travel, and climb to station site on highest part of hill about one-half mile distant in magnetic bearing 160° Marked by pipe cemented in drill hole in large outcropping rock. Top of pipe is covered and stamped with small triangle. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 12.535 meters (41.13 feet) from station in azimuth 105°56′. No. 2 is 9.302 meters (30.52 feet) from station in azimuth 206°24′. Azimuth from station to *Victorville, Portland Cement Co., tallest stack,* is 11°44′36″.

Phelan (San Bernardino County, L. C. Johnson, 1934).—On sandy hill about 2 miles south of Phelan. To reach from post office and general store in Phelan, go east 1.0 mile on main road, turn right (south) and follow main road about 2.5 miles to its end at farmhouse, continue south 0.3 mile to crest of divide and climb to station site on hill about one-fourth mile to west. Marked by standard station disk in top of 3-inch soil pipe, about 5 feet long and projecting 1½ feet. Reference marks are standard reference disks in tops of 3-inch soil pipes, about 5 feet long and projecting 1½ feet. No. 1 is 8.150 meters (26.74 feet) from station in azimuth 133°51′. No. 2 is 16.335 meters (53.59 feet) from station in azimuth 202°25′. Azimuth from station to Cajon, fire lookout house is 292°34′13″.

Pinnacle (San Bernardino County, L. C. Johnson, 1934).—About 15 miles north and east of San Bernardino, on highest peak in vicinity. To reach from Twin Peaks, go east 1.2 miles toward Lake Arrowhead to gravel road leading left at sign "Deer Lodge Park 4 miles", turn left (north) and follow main road to Deer Lodge Park, continue straight ahead 0.8 mile from rustic sign in front of tavern, turn left and go 0.7 mile to old Toll Road public camp grounds maintained by the Forest Service, enter grounds and go to northwest corner, continue on foot along creek up mesa to west and climb west side of hill to station site. From the camp grounds, station is about 1.5 miles northwest and west of crags which appear on skyline. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 21.54 meters (70.67 feet) from station in azimuth 297°46′. No. 2 is 24.248 meters (79.55 feet) from station in azimuth 61°32′. "B.M. 5745", marked by pipe cemented in large boulder, is 10.195 meters (33.45 feet) from station in azimuth 270°33′. Azimuth from station to *Strawberry Peak, fire-lookout tower* is 4°03′37″.

Rafael (San Bernardino County, L. C. Johnson, 1934).—About 13 miles northwest of San Bernardino, about 75 feet northwest of highest point of high hill. To reach from San Bernardino, go west on Highland Avenue and continue about 10 miles to sign "Lythe Creek 12—Glenn Ranch—San Bernardino 12", turn north and go 2.1 miles on paved road, turn left (west) onto gravel road and go 0.9 mile to sign "San Sevaine Motorway", turn right and go 0.25 mile, passing some old concrete buildings, bear left to locked gate, continue 0.1 mile, turn right (east) and go 1.0 mile to another locked gate, go through gate and con-

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tinue 4.0 miles, take left fork (main-traveled) and go 0.1 mile, bear right at water tank and go 0.8 mile, take right fork at sign "San Sevaine Spur No. 2" and go 0.9 mile, take left fork at sign "San Sevaine Spur No. 3" and go 0.25 mile, continue straight ahead 1.6 miles on road up hill to point where road passes over ridge, and follow path to northeast one-fourth mile to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 8.800 meters (28.87 feet) from station in azimuth 222°18′. No. 2 is 7.150 meters (23.46 feet) from station in azimuth 324°53′. Azimuth from station to *Strawberry Peak, fire-lookout tower* is 265°59′12″.

Supplementary points

Goler (B. M. U 48) (Kern County, L. C. Johnson, 1933).—About 5 miles northwest of Randsburg, 50 feet east of road where it crosses Southern Pacific railroad, and 35 feet south of track. To reach from Wood's store at west end of Randsburg, go north 0.5 mile on paved street toward Johannesburg, take left fork and go 0.6 mile, keep straight where left fork goes to Mojave, and continue 0.9 mile, continue straight ahead 2.1 miles to point just before crossing railroad tracks, turn left (west) and follow road which nearly parallels tracks 2.0 miles to station site. Marked by standard bench-mark disk, stamped "U 48." Reference marks are standard reference disks in concrete, note 11a, about 15 feet south of tracks. No. 1 is 19.420 meters (63.71 feet) from station in azimuth 214°20′. No. 2 is 10.960 meters (35.96 feet) from station in azimuth 93°32′.

Atolia (San Bernardino County, L. C. Johnson, 1933).—About 0.1 mile south of Atolia post office, 40 feet east of center line of highway, and about 50 feet west of first railroad-switch signal south of rusty iron building which is on west side of railroad track just south of post office. To reach, go south 0.1 mile on main Randsburg-San Bernardino highway. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 20.420 meters (66.99 feet) from station in azimuth 198°50′. No. 2 is 111.44 feet from station in azimuth 289°07′. No. 3 is 5 feet west of road and 2½ miles (by road) from station in azimuth 7°40′46″.

Beecher (San Bernardino County, L. C. Johnson, 1933).—At Kramer Crossing in the Mojave Desert, east of Kramer, 115 yards east of intersection of Mojave-Barstow and Atolia-Adelanto highways, 55.20 feet north of center line of Barstow-Mojave highway, and 113.50 feet south of south rail of Atchison, Topeka & Santa Fe Railway. Surface and underground marks are standard station disks in concrete notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 14.190 meters (46.56 feet) from station in azimuth 276°28′. No. 2 is 27.25 meters (89.4 feet) from station in azimuth 6°20′.

Sunny Hill (San Bernardino County, L. C. Johnson, 1933).—About 1.5 miles northeast of Helendale, 38 feet north of Route 66, about 100 yards west of Sunny Hill garage, and 120 feet west of dirt road which leads north to Hinkley. To reach from Helendale, go northeast 1.6 miles on Route 66 direct to station site. Marked by standard station disk in concrete, note 1a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 19.903 meters (65.30 feet) from station in azimuth 71°29′. No. 2 is 21.582 meters (70.81 feet) from station in azimuth 346°25′. Azimuth from station to *Los Angeles-Las Vegas airway beacon no. 8* is 37°55′13″.

Dip (San Bernardino County, L. C. Johnson, 1934).—About 4 miles north of Adelanto, 33 feet east of center of highway, and about 150 feet north of power-line tower no. 1580. To reach from post office in Adelanto, go west 0.5 mile and north 4.0 miles to station site at top of small grade. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 22.500 meters (73.82 feet) from station in azimuth 170°34′. No. 2 is 23.813 meters (78.13 feet) from station in azimuth 78°29′. No. 3 is at corner of crossroads and 0.2 mile from station in azimuth 346°26′06″. Azimuth from station to *Adelanto, water tank*, is 341°36′32″.

Saddleback (U.S.G.S. and L. A. C.) (Los Angeles County, L. C. Johnson, 1934).—About 25 miles west by north of Adelanto, and about 10 feet west of highest rocky point on northeast peak of Saddleback Mountain. To reach from post office in Adelanto, go west 0.5 mile, north 0.5 mile, west 2.1 miles, north

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1.0 mile, and then west 12.8 miles on main-traveled road to Los Angeles County line, continue straight ahead 6.5 miles on macadam road (Wilsona post office on left 0.1 mile), keep straight ahead 2.0 miles, turn right (north) off macadam road and go 2.0 miles to corner with signs "Wilsona Valley 4 miles—Adelanto 28 miles—Dr. Curran one-half mile", go straight ahead 0.1 mile, turn sharply to right and go 0.25 mile, take left fork and go 0.3 mile, go straight ahead 0.45 mile, take left fork and go 0.15 mile, take left fork and go 0.4 mile, take left fork and go 0.1 mile, take right fork and follow north toward foot of mountain and climb to station site. Marked by bronze tablet established by United States Geological Survey in cooperation with Los Angeles County. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 8.578 meters (28.14 feet) from station in azimuth 218°19′. No. 2 is 11.546 meters (37.88 feet) from station in azimuth 128°29′.

Black Butte (U.S.G.S. and L. A. C.) (Los Angeles County, L. C. Johnson, 1934).—On highest point of low butte about 17 miles west of Adelanto. To reach from post office in Adelanto, go west 0.5 mile, turn right (north) and go 0.5 mile, turn left (west) and follow main road 16 miles to Los Angeles County line, continue straight ahead 1.5 miles to point where paved road turns north, continue straight ahead 1.0 mile to ranch house, turn left (south) and follow main road which bears west 0.5 mile, turn left and follow main road 1.4 miles, turn left and follow road which bears south 1.2 miles to the Brase ranch, turn right (west) at south side of ranch house and go 0.3 mile to base of butte, and climb to station site on highest point of easterly butte. Marked by bronze tablet set in concrete between 2 boulders, established by the United States Geological Survey in cooperation with Los Angeles County. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 26.890 meters (88.22 feet) from station in azimuth 294°51′. No. 2 is 21.502 meters (70.54 feet) from station in azimuth 36°28′. No. 3 is on first hill to northwest and about one-eighth mile from station in azimuth 132°04′52″.

Angle (U. S. G. S. and L. A. C.) (Los Angeles-San Bernardino Counties, L. C. Johnson, 1933).—About 14 miles west by south of Adelanto, about 3 miles east of Black Butte Mountain, on sandy brushy flat, 0.4 mile west of windmill at ranch buildings, 0.6 mile north of group of buildings, and about one-fourth mile west of north-and-south dirt road. To reach from Adelanto, go north 1.0 mile on Johannesburg road, turn left onto dirt road and follow El Mirage Valley road west 14.2 miles, turn left at signpost and go 2.9 miles on dirt road, take right fork and go 0.2 mile, turn right and go 0.2 mile across sand to station site. Marked by 4-inch square copper plate in top of concrete post which is 2 feet square on top. Plate is stamped "County Surveyor's Monument 1925 R. 7–8 W., T. 5–6 N." and has hole punched in T-mark in center of plate surrounded by triangle. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 21.605 meters (70.88 feet) from station in azimuth 179°50′. No. 2 is 20.332 meters (66.71 feet) from station in azimuth 265°27′.

Victor (San Bernardino County, L. C. Johnson, 1934).—About 1.6 miles southwest of Victorville, 54 feet northeast of center line of highway. To reach from Victorville, go 1.0 mile on Route 66 toward San Bernardino to neon sign "Victorville" on south side of road, and continue 0.6 mile to station site at top of grade. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 106.18 feet from station in azimuth 225°39′. No. 2 is 103.08 feet from station in azimuth 138°49′. No. 3 is 48 feet west of center line of highway and one-fourth mile from station in azimuth 43°30′35″.

Cajon (San Bernardino County, L. C. Johnson, 1933).—On top of small knob on summit of Cajon Pass, directly above and about one-eighth mile west of Route 66, 9 feet southwest of southwest corner of Cajon Summit Lookout House, and at southwest edge of summit of knob. To reach from Summit Inn gas station at summit of Cajon Pass, go south 0.2 mile on Route 66 toward San Bernardino, turn right (west) onto steep dirt road and go 0.2 mile to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 13.126 meters (43.06 feet) (slope) from station in azimuth 69°33′. No. 2 is 19.063 meters (62.54 feet) (slope) from station in azimuth 179°20′. No. 3 is on edge of Route 66 and about one-third mile from station in azimuth 246°00′07″.

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Junior (San Bernardino County, L. C. Johnson, 1934).—In San Bernardino, on southwest corner of Arrow View Junior High School grounds, 19.6 feet north of curb on Highland Avenue, and 50.3 feet east of curb on G Street. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 25.085 meters (82.30 feet) from station in azimuth 349°32′. No. 2 is at corner of Highland Avenue and G Street and about 1 block from station in azimuth 270°52′46″. No. 3 is 30.860 meters (101.25 feet) from station in azimuth 86°07′.

Union (San Bernardino County, L. C. Johnson, 1934).—In San Bernardino, on football field of San Bernardino Valley Union Junior College at Mount Vernon Avenue and Colton Boulevard, one-fourth mile southeast of school, on center line of football goal posts at north end of field, and about 4 feet south of concrete rim of track. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 140.35 feet from station in azimuth 314°23′. No. 2 is 139.40 feet from station in azimuth 46°53′. No. 3 (distance not recorded) is in azimuth 84°28′46″.

ONE HUNDRED AND SIXTEENTH MERIDIAN ARC

Principal points

Bernard (Riverside County, C. Pierce, 1934).—About 12 miles northeast of Indio, in southeast section of San Bernardino Mountain Range, on highest part of range which extends most easterly, and on most southerly of two prominent black rocky knobs. Large valley lies below station to east and extends in northerly direction. To reach from Twentynine Palms, take Mecca road south to Riverside county-line sign, follow right fork 5.7 miles, turn left at sign "Gold Coin Mine" and go 5.8 miles, turn left and go 1.4 miles to within 100 yards of mine, turn right at signpost and go 0.9 mile, turn right (west) and go 1.2 miles, turn left up wash and go 1.2 miles to end of truck travel, continue up wash and turn left up steep ridge, and follow along crest of ridge (bearing slightly to left) to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 9.874 (32.40 feet) from station in azimuth 311°20′. No. 2 is 8.12 meters (26.6 feet) from station in azimuth 56°48′.

Belle (Riverside County, C. Pierce, 1934).—On round-topped hill, about 9.0 miles south-southeast of Twentynine Palms, 5.0 miles southwest of highest point of Pinto Mountain Range, and 1.0 mile east of Twentynine Palms-Pinto Basin road. Slightly higher round-topped hill is 1.0 mile south. To reach from Twentynine Palms, take Twentynine Palms-Pinto Basin road to Riverside county-line sign and auto club sign "Lost Horse Wells 10½—Twentynine Palms 8", take left fork and go 1.6 miles, turn left off main-traveled road and go 0.2 mile, turn left and go 0.2 mile to mine shaft and end of truck travel, and go southeast to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 9.620 meters (31.56 feet) from station in azimuth 339°53′. No. 2 is 7.525 meters (24.69 feet) from station in azimuth 68°14′. *Pinto Mountains, rock cairn*, is 2.40 meters (7.9 feet) from station in azimuth 161°06′.

Pinto (San Bernardino County, C. Pierce, 1934).—About 20 miles southeast of Twentynine Palms, on eastern end of mountains on north side of Pinto Basin, and on highest part of mountain, which is pinto-colored from south. To reach from Twentynine Palms, follow Pinto Basin road south 8.0 miles to Riverside-San Bernardino County line, take left fork and go 8.0 miles or 0.1 mile beyond Goldfield of America mine, take left fork and go 3.0 miles to auto club sign "Twentynine Palms 19—Banning 81—Cottonwood Spring 19—Shavers Well 31", continue straight ahead 0.8 mile, leave main-traveled road and go northeast across country 6.0 miles toward highest point and mouth of large wash, follow wash to end of truck travel, and continue to highest point and station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disk in bedrock, note 12a. No. 1 is 3.195 meters (10.48 feet) from station in azimuth 198°37′. No. 2 is 8.210 meters (26.94 feet) from station in azimuth 306°30′. No. 3 is on north end of long ridge just south of blue saddle and three-fourths mile from station in azimuth 47°14′42″. *Pinto Mountains, rock cairn*, is 7.80 meters (25.6 feet) from station in azimuth 168°38′.

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Ivanhoe (San Bernardino County, C. Pierce, 1934).—About 20 miles east by south of Twentynine Palms, 7 miles south of Bush (soda camp), 2 miles east of Virginia Dale mine, three-fourths mile southwest of Ivanhoe mine, on north side of Dale Lake, and on highest point of mountain on northwest end of Pinto Mountains. To reach from Twentynine Palms, follow Amboy road east to sign "Amboy 46", take fork to right and continue east 12 miles, turn south and go 3.5 miles to crossroad sign "Virginia Dale Mine", take left fork and go 0.7 mile to Virginia Dale mail box, continue 0.9 mile on main-traveled road through pass, take right fork and follow main-traveled road 4.0 miles (last part up canyon) to divide, take left fork to Ivanhoe mine and go 0.5 mile to summit and end of truck travel, and follow trail west about three-fourths mile to highest point and station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 3.425 meters (11.24 feet) from station in azimuth 249°37′. No. 2 is 4.195 meters (13.76 feet) from station in azimuth 354°51′. No. 3 is on first small hill west of road at divide and one-third mile from station in azimuth 279°38′42″. *Pinto Mountains, rock cairn*, is 6.80 meters (22.3 feet) from station in azimuth 114°21′.

Twentynine Palms (San Bernardino County, C. Pierce, 1934).—About 13 miles southwest of Dale Lake, 7 miles southeast of Twentynine Palms, and on highest point of Pinto Mountain Range. To reach from Twentynine Palms, go south 0.4 mile on road just east of American Legion Camp to crossroad, continue straight ahead 0.4 mile to road sign "Bagdad 44—Amboy 51—Twentynine Palms Inn 1", keep straight ahead (south) 0.5 mile on main-traveled road, go 0.3 mile, take left fork and go 3.1 miles, take left fork following "Jensen's Camp" sign and go 0.1 mile, take right fork and go 0.2 mile, take right fork and go 1.7 miles to "Gold Park" sign, keep straight ahead as per sign and go 3.0 miles, take left fork at "Jensen's Camp" sign and go 0.1 mile, take right fork and go 0.4 mile, bear left opposite tin shaft house on hillside to right and go 0.4 mile, take left fork and go 0.5 mile, take right fork with shack on left and go 0.1 mile, take left fork and go 1.0 mile, turn left and take dim road which loops to left and follows down large open canyon, continue 1.8 miles to end of truck travel, follow up draw to saddle and follow gradual ridge trend southeasterly and circling back northwest to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 4.748 meters (15.58 feet) from station in azimuth 183°19′. No. 2 is 8.716 meters (28.60 feet) from station in azimuth 71°25′. No. 3 is about three-fourths mile from station in azimuth 8°12′46″.

Valley (San Bernardino County, C. Pierce, 1934).—About 12 miles slightly north of west of Dale Lake and 8 miles northeast of Twentynine Palms. To reach from Twentynine Palms, go to American Legion camp and follow Bagdad road 4.5 miles, turn right along pole line and follow 6.3 miles, turn left at pole no. 4803 and go 0.9 mile across country (passing to right of small knoll) to base of hill, and climb to station site on top of first hill to northeast. Slightly higher point on ridge is about 50 feet north. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 4.973 meters (16.32 feet) from station in azimuth 303°56′. No. 2 is 11.972 meters (39.28 feet) from station in azimuth 34°25′. No. 3 is on north side of pile of rocks and one-fourth mile from station in azimuth 309°05′45″.

Bullion (San Bernardino County, C. Pierce, 1934).—About 15 miles south-southwest of Bagdad, on highest point of ridge in southern end of Bullion Mountains. To reach from Bagdad, go south 5.0 miles on Twentynine Palms road, go straight ahead 0.5 mile, take left fork and follow road straight ahead 9.5 miles, turn left up wash and go 4.7 miles to end of truck travel, continue up wash about 1.0 mile, climb to top of left-hand ridge, and go along ridge to south and east to top and station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 5.540 meters (18.18 feet) from station in azimuth 314°34′. No. 2 is 6.423 meters (21.07 feet) from station in azimuth 16°35′. No. 3 is on same ridge and 0.4 mile from station in azimuth 134°46′29″.

Collins (San Bernardino County, C. Pierce, 1934; 1935).—About 14 miles southeast of Amboy, 10 miles southwest of Cadiz, and on middle peak of low range southeast of Bristol Lake. The peak about one-half mile north is

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slightly higher, and peak about one-half mile south is about same height. To reach from Amboy, follow Twentynine Palms road south 18.5 miles to sign "Amboy 18.5—Banning 92—Twentynine Palms 32", turn sharp left and go 4.4 miles, turn off road and go southeast about 2.0 miles toward middle point of range, continue on foot up ridge running west from station and follow to highest point and station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 6.562 meters (21.53 feet) from station in azimuth 178°49′. No. 2 is 3.445 meters (11.30 feet) from station in azimuth 283°34′. No. 3 is on large black rock, one-fourth mile from end of ridge, south of deep wash, and 0.5 mile from station in azimuth 125°50′12″. *Bristol Lake (south of), rock cairn with target* is 7.30 meters (24.0 feet) from station in azimuth 187°32′.

Bullion East (San Bernardino County, C. Pierce, 1934).—About 19 miles northeast of Twentynine Palms, about 4 miles southeast of station *Bullion*, on round flat-topped peak which is first point in ridge of Bullion Mountains northwest of highest southern part of range near Sheep Hole Mountain. To reach from Twentynine Palms, go to American Legion Camp, follow Bagdad road 4.3 miles, turn right and follow pole line east 6.9 miles, turn left at pole no. 4775 and go north 9.0 miles across country to end of truck travel, go northeast up wash to base of mountain, bear left to top of ridge, and continue north and east along ridge to highest point and station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 23.010 meters (75.49 feet) from station in azimuth 92°54′. No. 2 is 13.135 meters (43.09 feet) from station in azimuth 29°52′. No. 3 is on large boulder on ridge and one-half mile from station in azimuth 324°54′15″.

Amboy (San Bernardino County, C. Pierce, 1934; 1935).—About 0.15 mile east of post office at Amboy and 31 meters (102 feet) north of center of United States Route 66. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference mark no. 1 is standard reference disk in concrete, note 11a, 16.982 meters (55.72 feet) from station in azimuth 180°10′. Reference mark no. 2 is copper tack in concrete right-of-way monument 3.712 meters (12.18 feet) from station in azimuth 84°34′. Reference mark no. 3 is standard reference disk in bedrock, note 12a, on small knoll which projects about 50 feet above surrounding country, 0.1 mile north of highway, and 4.0 miles from station in azimuth 266°45′46″. Azimuth from station to *Amboy (southeast of), cupola on large building,* is 308°27′30″.

Lead (San Bernardino County, C. Pierce, 1934; 1935).—About 8.5 miles southwest of Bagdad, on highest point of Lead Mountains. To reach from Bagdad, go south 5.0 miles on road to Twentynine Palms, take right fork and go 1.4 miles, continue straight ahead at crossroad and go 3.3 miles to end of truck travel at point where large canyon comes in from left, go up left-hand canyon to point where right wall can be scaled, turn right out of draw to ridge and go along ridge to highest point of mountain and station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 12.940 meters (42.45 feet) from station in azimuth 297°15′. No. 2 is 7.050 meters (23.13 feet) from station in azimuth 325°36′. No. 3 is on high sharp knob just south of end of truck travel and 1.0 mile from station in azimuth 157°45′23″.

Dish Hill (San Bernardino County, C. Pierce, 1934; 1935).—About 5 miles northwest of Bagdad, 5 miles southeast of Siberia, and on highest point of horseshoe-shaped hill. To reach from Bagdad, go west 4.3 miles on highway, turn right across country and go 0.2 mile to railroad and end of truck travel, go across tracks and up hill to north, and proceed along ridge to highest point and station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 6.945 meters (22.79 feet) from station in azimuth 251°45′. No. 2 is 3.370 meters (11.06 feet) from station in azimuth 338°01′. No. 3 is on small knoll which just clears ridge to west and about three-fourths mile from station in azimuth 87°48′28″.

East Bristol (San Bernardino County, C. Pierce, 1934).—About 14 miles northwest of Cadiz, 6 miles northeast of Amboy, and on highest and most prominent point on eastern end of Bristol Mountains. Mountain is rocky on east, south, and west sides, and top is covered with large boulders. To reach from Amboy, follow United States Route 66 east 6.1 miles, turn left around point of hills and go 1.1 miles, take left fork on Pine Tree Ranch road and go 3.0 miles,

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take right fork and go 0.9 mile, take right fork and go about 1.0 mile to old mine and end of truck travel, follow main canyon to saddle, turn right and climb to highest point and station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 6.085 meters (19.96 feet) from station in azimuth 237°30′. No. 2 is 8.060 meters (26.44 feet) from station in azimuth 347°15′. No. 3 is on first point across saddle and one-fourth mile from station in azimuth 146°08′46″. Azimuth from station to Cadiz, largest railroad tank, is 299°41′29″.

Granite Mountain (San Bernardino County, C. Pierce, 1934).—About 18 miles north of Amboy, on highest part of western end of Granite Mountain. Point is highest in vicinity, rounded, and is timbered with juniper and pinon. Point to east is about same height and is very sharp. To reach from Amboy, follow United States Route 66 east 6.1 miles, turn left around point of hill and go 1.1 miles, take left fork on Pine Tree Ranch road and go 3.0 miles, take right fork and go 7.3 miles, take left fork and go 1.5 miles, take right fork and go to end of truck travel, go northwest about 3 miles beyond blue-colored point, turn north up main canyon which comes down from point and go to top of ridge, and proceed southwest along ridge to highest point and station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 7.410 meters (24.31 feet) from station in azimuth 161°48′. No. 2 is 8.950 meters (29.36 feet) from station in azimuth 265°10′. Azimuth from station to target in cairn on sharp point of about same height as station, distant three-fourths mile, is 269°46′00″.

Ash Hill (San Bernardino County, C. Pierce, 1934).—About 12.7 miles west (along U. S. Route 66) of Bagdad, on top of prominent rocky hill which lies about 0.5 mile southwest of highway and overlooks desert to south and east. To reach from Bagdad, go west 6.9 miles on Route 66 to Siberia, continue west 5.8 miles, turn left at highway milepost 136.5 and go 0.3 mile to end of truck travel, and go west up rocky slope to top and station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 7.488 meters (24.57 feet) from station in azimuth 279°57′. No. 2 is 7.085 meters (23.25 feet) from station in azimuth 322°15′. Rock cairn with target is 10.50 meters (34.4 feet) from station in azimuth 316°44′.

Coronado (San Bernardino County, C. Pierce, 1934).—About 11 miles north of Ludlow, about 4 miles northwest of highest point in Bristol Range, and on high flat-topped hill. To reach from Bagdad, go west 11 miles on United States Route 66 to point just opposite milepost 138, turn right off highway and go 0.1 mile on old pavement, turn right onto dirt road and go 0.5 mile, pass under railroad and bear right to top of wash, follow left fork 0.7 mile to old graded road, turn left and go 0.5 mile, turn right up wash just before reaching western bank (wash drains from peak where station is located and should be followed entire distance) and go 6.3 miles, take right-hand wash and go 2.0 miles to point where small wash comes in from left just before reaching summit of pass, go left up small wash to ridge and then left along ridge to highest point and station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 6.122 meters (20.09 feet) from station in azimuth 264°52′. No. 2 is 9.505 meters (31.18 feet) from station in azimuth 335°49′. No. 3 is on low blue hill and about three-fourths mile from station in azimuth 229°57′43″.

Flynn (San Bernardino County, C. Pierce, 1934).—About 6.5 miles west by north of Kelso, 2¼ miles northwest of Flynn, and on rocky-topped peak. Sides of peak are covered with sand about two-thirds of way to summit. To reach from Baker, go 23 miles on United States Route 91 to Valley Wells service station, continue 0.9 mile to windmill, continue 0.5 mile, turn right off highway and go 15.7 miles, take left fork and go 1.8 miles to Cima, turn right along north side of main-line railroad tracks and go 17.0 miles to Kelso, cross tracks just after passing depot and follow south side of railroad tracks 5.0 miles to Flynn and end of truck travel, and go northwest across country to first high peak and station site. Marked by standard station disk in bedrock, note 2. Reference marks nos. 1 and 2 are standard reference disks in bedrock, note 12a. No. 1 is 10.492 meters (34.42 feet) from station in azimuth 151°43′. No. 2 is 10.618 meters (34.84 feet) from station in azimuth 275°15′. No. 3 (probably standard reference disk) is in northeast abutment of railroad bridge at Flynn

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and 2¼ miles from station in azimuth 285°53′27″. Azimuth from station to Kelso, railroad shops, stack, distant 6 miles, is 256°06′33″; and to cairn on high, sharp, light-colored peak, distant 12 miles, 274°03′30″.

Crucero (San Bernardino County, C. Pierce, 1934).—About 10 miles southeast of Crucero, 9 miles south by west of Balch, and on more northeasterly of 2 peaks about three-fourths mile apart at extreme northern end of the Bristol Range. To reach from Baker, go west 8.1 miles on highway, turn left onto old highway and go 1.5 miles, turn left onto dirt road leading south and go 5.6 miles to Rasor, cross railroad tracks, turn right and go 3.6 miles to Crucero, turn right across railroad tracks at point 0.1 mile north of tower and go 0.3 mile, turn left across Union Pacific Railroad tracks and go 2.0 miles, take right fork immediately after crossing Tonopah and Tidewater Railroad and continue 1.9 miles, take left fork and go 3.2 miles, turn right onto dim road and go 4.0 miles across country to end of truck travel in large canyon at base of mountain, go up canyon to ridge, and thence southeast along ridge to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 8.685 meters (28.49 feet) from station in azimuth 61°28′. No. 2 is 13.171 meters (43.21 feet) from station in azimuth 356°58′. No. 3 is three-fourths mile from station in azimuth 131°20′13″. *Bristol Mountains, cairn,* is 2.600 meters (8.53 feet) from station in azimuth 90°57′.

Cave (U.S.G.S.) (San Bernardino County, F. G. Johnson, 1934).—About 23 miles southwest of Baker, 1.5 miles south of Route 91, and on highest point of Cave Mountain (known locally as "Cone Mountain"). Cave Mountain is flat-topped, and top is covered with large boulders. To reach from Baker, go southwest 23.5 miles on Route 91, after crossing second of two culverts close together turn left onto old highway and go 0.1 mile, go south about 1.5 miles up large canyon and climb to top and station site. Marked by United States Geological Survey disk in boulder about 20 feet high. Station *El Frio* (see description thereof) is 8.767 meters (28.76 feet) from station in azimuth 172°50′. Reference mark no. 2 of station *El Frio* is 18.271 meters (59.94 feet) from station in azimuth 206°01′. Distances and azimuths from station to following points are: Union Pacific Railroad, block signal, 4 miles, 53°29′17″; *Los Angeles-Las Vegas airway beacon no. 13,* 4 miles, 96°46′35″; and cairn and target, 12 miles, 237°14′40″.

Old Dad Mountain (San Bernardino County, F. G. Johnson, 1934).—About 17 miles southeast of Baker, 13 miles northwest of Kelso, and on about center and highest point of ridge which forms Old Dad Mountain. To reach from Baker, follow dirt road southeast 10.0 miles from center of town to first of several roads leading to left, turn left and go 2.0 miles, bear right up wash along northeast side of hills and go 2.1 miles to point where wash appears to go through pass, go through pass and continue 3.3 miles on right side of wash toward lava flow, turn right up another wash and go 2.5 miles to summit, cross summit and continue down wash 4.6 miles to south end of Old Dad Mountain, turn right up wash which follows east side of Old Dad Mountain and go 1.7 miles to end of truck travel, and climb mountain to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 8.090 meters (26.54 feet) from station in azimuth 190°49′. No. 2 is 8.950 meters (29.36 feet) from station in azimuth 55°39′. No. 3 is on point in curve of ridge and 0.5 mile from station in azimuth 168°59′52″.

Balch (San Bernardino County, C. Pierce, 1934).—On ridge about 9 miles south by east of Crucero and 2 miles southeast of Balch. To reach from Baker, go west 8.1 miles on highway, turn left onto old highway and go 1.5 miles, turn left onto dirt road leading south and go 5.6 miles to Rasor, cross railroad tracks, turn right and go 3.6 miles to Crucero, turn right across railroad tracks at point 0.1 mile north of tower and go 0.3 mile, turn left across Union Pacific Railroad tracks and go 2.0 miles, take right fork immediately after crossing Tonopah & Tidewater Railroad and continue 1.9 miles, take left fork and go 9.7 miles, turn left and follow road leading into wash, continue 0.3 mile on this road and then straight ahead 0.2 mile across country to another road, turn left and go 2.2 miles, turn right up gravelly wash and go 0.7 mile, take left wash and go 0.4 mile to end of truck travel, go east by north toward highest point of ridge (crossing two washes) and go up ridge to station site. Marked by standard station disk in bedrock, note 2. Refer-

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ence marks are standard reference disks in bedrock, note 12a. No. 1 is 24.500 meters (80.38 feet) from station in azimuth 145°43′. No. 2 is 12.145 meters (39.85 feet) from station in azimuth 209°33′. No. 3 is on top of small butte in low saddle and 0.8 mile from station in azimuth 68°27′18″.

Soda (San Bernardino County, F. G. Johnson, 1934).—About 10 miles southeast of highest point of Soda Mountains, 8 miles slightly west of south of Baker, and on highest point of first high ridge west of Soda Lake. Ridge runs north and south. Point one-fourth mile north is about same elevation as station. To reach from Baker, go southwest 0.9 mile on Route 91, turn left onto old highway and go 2.2 miles, take left fork (dim sandy road) and follow main-traveled road 3.4 miles to northwest edge of Soda Lake, follow edge of lake 0.9 mile to large sandy canyon, and follow canyon west 1.5 miles to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 8.718 meters (28.60 feet) from station in azimuth 81°45′. No. 2 is 6.875 meters (22.56 feet) from station in azimuth 356°04′. No. 3 is about same elevation as station, on next point of ridge, and one-fourth mile from station in azimuth 186°55′38″. Azimuth from station to *Cairn and target*, on ridge to west, which is slightly higher in elevation than station and about 4 miles distant, is 82°49′29″.

Silver Lake (San Bernardino County, F. G. Johnson, 1934).—About 10 miles northeast of Baker, 7 miles slightly north of east of Silver Lake, and on highest point of black rocky point of ridge running east from Silver Lake. To reach from Baker, go east 8.0 miles on Route 91, turn left off highway at sign "Last Chance Mine" and follow main-traveled road 3.0 miles to mine, continue 0.3 mile and turn left into large wash, go up wash 0.5 mile to end of truck travel, follow wash to saddle and go south along ridge to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 4.585 meters (15.04 feet) from station in azimuth 91°51′. No. 2 is 9.105 meters (29.87 feet) from station in azimuth 350°47′. No. 3 is on highest point of next ridge and one-fourth mile from station in azimuth 183°52′40″. Azimuth from station to *Cairn 4880* (*U. S. G. S.*), on light-colored hill, distant about 15 miles, is 228°45′41″; and to *Cairn 2979* (*U. S. G. S.*), about 3 miles northeast of Riggs, distant about 12 miles, is 152°17′43″.

Nub (U.S.G.S.) (San Bernardino County, F. G. Johnson, 1934; 1935).—About 12 miles south-southwest of Valley Wells, about 7 miles south-southeast of highway at highest point of grade between Baker and Valley Wells, and on small nub-like point on hill. Hill is flat on top, about 50 feet across, and nub projects about 15 feet above rest of hill. To reach from Baker, follow U. S. Route 91 east 13 miles toward Las Vegas to Halloran Springs, continue 11 miles to point just across bridge or about 150 yards before reaching Valley Wells service station, turn right through gate, go 0.2 mile and keep straight ahead at crossroad, go 8.8 miles and turn right (west) across country toward highest rocky point, go about 2 miles to end of truck travel and continue on foot to station site. Marked by United States Geological Survey tablet in bedrock. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 5.748 meters (18.86 feet) from station in azimuth 213°38′. No. 2 is 2.652 meters (8.70 feet) from station in azimuth 297°08′. No. 3 is on first small hill 0.5 mile from station in azimuth 232°34′18″.

Turquoise (San Bernardino County, F. G. Johnson, 1934; 1935).—About 20 miles northeast of Baker, 5 miles north of Halloran Springs, and on eastern and highest point of red ridge. Ridge is first one south of old Good Springs-Silver Lake road, runs east and west, gradually slopes off to west, and is about 500 feet higher than road which lies about 1 mile north. To reach from Halloran Springs, go west 0.1 mile on Route 91, turn right (north) onto sandy road at sign "Baker 13—Barstow 79—Halloran Springs one-fourth" and go 0.4 mile to old highway, turn right and go 0.2 mile to original Halloran Springs "S. S.", go north 0.6 mile on sandy road (passing spring), take right fork at sign "Inter City Dev. Co." and go 2.0 miles, take left fork and go 0.9 mile to wide sandy wash, follow wash north 1.8 miles to old road, turn left and go 2.2 miles to top of grade and end of truck travel, and southeast about 0.5 mile to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 4.760 meters (15.62 feet) from station in azimuth 52°34′. No. 2 is 7.894 meters (25.90 feet) from

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station in azimuth 210°51′. No. 3 is on a rocky point of ridge about 100 feet lower in elevation than station and which runs northeast and southwest and about one-fourth mile from station in azimuth 32°50′04″. Azimuth from station to *Avawatz Mountains* (*U.S.G.S.*), *cairn*, highest point on skyline, distant about 25 miles, 103°05′19″.

Silurian (San Bernardino County, F. G. Johnson, 1934).—About 20 miles north-northeast of Baker, about 11 miles northeast of Silver Lake, 5 miles east of Riggs siding on Tonopah & Tidewater Railroad, and on black peak which is highest point of the Silurian Hills. Slightly higher, light-colored hill lies about 1 mile southeast. Peak is visible from Riggs in magnetic bearing 76°. To reach from Baker, go north 17.5 miles on Silver Lake road to sign "Eastern Star Mine", take right fork (leaving graded road) and go 1.1 miles to crossroad in dry lake bed, turn right and go 3.2 miles to Riggs, cross railroad tracks and go to right along tracks about 100 feet, turn left onto road and follow main-traveled road 2.7 miles, take left fork and go 0.2 mile, take left fork and go 2.1 miles, take right fork and go 1.2 miles to old cabin and end of truck travel, and go east 1 mile to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 6.935 meters (22.75 feet) from station in azimuth 171°50′. No. 2 is 10.240 meters (33.60 feet) from station in azimuth 324°56′. No. 3 is on ridge, in line with old mine, and about one-half mile from station in azimuth 81° 10′35″. B. M. E 163 is just east of the railroad tracks at Riggs and about 7 miles from station in azimuth 87°22′50″. *Avawatz Mountains* (*U.S.G.S.*), *cairn*, highest point on skyline, is about 18 miles from station in azimuth 90°53′21″.

Clark (San Bernardino County, F. G. Johnson, 1934; 1935).—About 4.5 miles northwest of Mountain Pass (where Route 91 crosses divide), 3.5 miles southwest of Coliseum Mine, and on summit of Clark Mountain. Peak is highest in vicinity. Station is on site of United States Geological Survey cairn which was torn down, and station mark was placed as near to its center as possible. To reach from Baker, follow United States Route 91 east 35.0 miles to Mountain Pass service station, turn left off highway and go 0.7 mile toward airway beacon, turn right and go 0.3 mile to wash, turn left and follow up wash about 4 miles to end of truck travel, and climb to station site. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 14.275 meters (46.83 feet) from station in azimuth 136°10′. No. 2 is 7.340 meters (24.08 feet) from station in azimuth 55°22′. No. 3 is on first point of same ridge and one-fourth mile from station in azimuth 270°15′58″. *U. S. Forest Service boundary monument no. 190* is 1.350 meters (4.43 feet) from station in azimuth 101°11′. Azimuth from station to *Devil Peak, cairn*, distant 14½ miles, is 212°36′06″; and to *Kingston* (*U. S. G. S.*), *cairn* (*1926*), distant 23 miles, 127°06′08″.

Supplementary points

Dale (San Francisco County, C. Pierce, 1934).—About 19.5 miles east of Twentynine Palms, 1.0 mile west by north of Bush, on main road from Banning to Amboy, and 25 paces south of intersection of road where it makes sharp turn to north. To reach from Twentynine Palms, follow main road east toward Amboy to auto club sign, "Twentynine Palms 19½—Amboy 32" or 1.0 mile before reaching Bush. Surface and underground marks are standard station disks in boulders, notes 4 and 9a. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 10.028 meters (32.90 feet) from station in azimuth 108°00′. No. 2 is 10.805 meters (35.50 feet) from station in azimuth 21°07′. No. 3 is on prominent blue knob which lies between station and Sheep Hole Range and 1.0 mile from station in azimuth 193°02′44″.

Bagdad (San Bernardino County, C. Pierce, 1934).—Just northeast of airway beacon at intermediate airfield near Bagdad. To reach from Bagdad, go west 0.1 mile on highway, turn left onto old highway and go 0.3 mile, turn left and go 0.2 mile to beacon and station site. Marked by standard station disk in concrete, note 1a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 6.765 meters (22.20 feet) from station in azimuth 280°00′. No. 2 is 7.320 meters (24.02 feet) from station in azimuth 26°18′. No. 3 is in west abutment of Atchison, Topeka & Santa Fe Railway bridge and

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0.5 mile from station in azimuth 150°31′30″. *Los Angeles-Amarillo airway beacon no. 16* is 6.650 meters (21.82 feet) from station in azimuth 52°47′.

Sibe (San Bernardino County, C. Pierce, 1934).—About 10.6 miles east of Ludlow, 9.6 miles northwest of Bagdad, on small knoll 26 meters (85 feet) west of center of Atchison, Topeka & Santa Fe Railway, and 23 meters (75 feet) east of top of edge of cut on Route 66. To reach from Bagdad, go west 6.4 miles on Route 66 to Siberia, continue 1.6 miles to large curve in highway and railroad, go 0.9 mile to culvert, continue 0.2 mile, turn right off highway, and go about 100 yards up small hill to station site. Marked by standard station disk in boulder, note 4. Reference marks nos. 1 and 2 are standard reference disks in boulders, note 12c. No. 1 is 7.168 meters (23.52 feet) from station in azimuth 272°32′. No. 2 is 6.275 meters (20.59 feet) from station in azimuth 23°29′. Reference mark no. 3 (probably standard reference disk) is in northwest abutment of railroad bridge and one-third mile from station in azimuth 336°47′12″. Block signal no. 6782 is one-half mile from station in azimuth 339°13′49″.

G. L. O. Station 191 (San Bernardino County, F. G. Johnson, 1934).—In southwest corner of sec. 33, T. 11 N., R. 8 E. To reach from Baker, go west 8.1 miles on highway, turn left onto old highway and go 1.5 miles, turn left onto dirt road leading south, and go 5.6 miles to Rasor, cross railroad tracks, turn right and go 3.6 miles to Crucero, turn right across railroad tracks at point 0.1 mile north of tower and go 0.3 mile, turn left across Union Pacific Railroad tracks and go 2.0 miles, take right fork immediately after crossing Tonopah and Tidewater Railroad, and continue 1.9 miles, take left fork and go 3.2 miles, turn right onto dim road leading south and continue 0.6 mile to station site, which is between road and small wash to east of road. Marked by General Land Office pipe. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 14.380 meters (47.18 feet) from station in azimuth 167°26′. No. 2 is 12.945 meters (42.47 feet) from station in azimuth 78°06′. No. 3 is on first small ash-colored hill and about 0.7 mile from station in azimuth 150°35′22″.

Baker (San Bernardino County, F. G. Johnston, 1934).—At Baker, in southwest corner of intermediate landing field, 99 feet north of center of Route 91, 47 feet east of west boundary fence, 18 feet south of beacon control house, and 5 feet north of south boundary fence. Surface and underground marks are standard station disks in boulders, notes 4 and 9a. Reference marks nos. 1 and 2 are standard reference disks in boulders, note 12c. No. 1 is 15.010 meters (49.25) feet from station in azimuth 54°10′. No. 2 is 4.250 meters (13.94 feet) from station in azimuth 322°03′. Reference mark no. 3 is standard reference disk in bedrock, note 12a, about 200 feet north of highway, on first point of ridge running north from highway, and 1¼ miles from station in azimuth 50°27′05″. *Cairn and target* is on first ridge south of highway and about 8 miles from station in azimuth 32°45′58″. *Cairn 2979* (*U. S. G. S.*) is on first point of ridge east of Riggs siding on Tonopah and Tidewater Railroad, about 3 miles east of Riggs, and 17 miles from station, in azimuth 172°45′49″. *Los Angeles-Las Vegas airway beacon no. 16* is 6.180 meters (20.28 feet) from station in azimuth 170°51′.

Valley Wells (San Bernardino County, F. G. Johnson, 1934).—About 3.3 miles east of Valley Wells service station, 60 meters (197 feet) south of U. S. Route 91, on exact line of telephone poles, and 30 meters (98 feet) west of pole marked "T–1720 KA 68". To reach from Baker, follow U. S. Route 91 east 13 miles toward Las Vegas to Halloran Springs, continue 10 miles to Valley Wells service station, go 1.0 mile to point where Kingston road turns off, continue 0.4 mile to point where another Kingston road turns off, go 1.9 miles, turn off highway and drive 60 meters (197 feet) to telephone line and station site. Surface and underground marks are standard station disks in boulders, notes 4 and 9a. Reference mark no. 1 is standard reference disk in boulder, note 12c, 10.260 meters (33.66 feet) from station in azimuth 157°57′. Reference marks nos. 2 and 3 are 6-inch concrete posts with copper tacks in center, buried 3 feet and projecting 6 inches. No. 2 is 16.020 meters (52.56 feet) from station in azimuth 66°31′. No. 3 is just across highway and one-fourth mile from station in azimuth 223°51′39″. Azimuth from station to Los Angeles-Las Vegas airway beacon no. 19 at Mountain Pass, distant about 5 miles, is 247°53′28″.

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Valjean (San Bernardino County, F. G. Johnson, 1934).—About 10 miles southwest of Kingston Peak, 7.5 miles northeast of Valjean siding on Tonopah & Tidewater Railroad, and on southern peak of low black malpais hill which lies 3 miles northwest of Kingston Spring. Hilltop is pointed and rocky and has ridge which runs northwest and southeast. To reach from Baker, go north 17.5 miles on Silver Lake Road to sign "Eastern Star Mine", take right fork (leaving graded road) and go 6.9 miles on main-traveled road to railroad tracks at Valjean siding, cross tracks, turn left and go 0.1 mile, turn right and go 4.8 miles, take left fork (leaving main-traveled road) and go 3.5 miles to wide sandy wash, turn left (southwest) down wash and go 1.5 miles, cross flat to north and climb right-hand ridge to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 4.043 meters (13.26 feet) from station in azimuth 102°46′. No. 2 is 5.225 meters (17.14 feet) from station in azimuth 31°35′. No. 3 is on left side of next peak and about 200 yards from station in azimuth 182°56′37″. Azimuth from station to *Kingston* (*U. S. G. S.*), *cairn* (*1926*) is 221°37′07″; and to *Avawatz Mountains* (*U. S. G. S.*), *cairn*, 64°07′18″.

California-Nevada boundary monument no. 120 (San Bernardino County, Calif.; Clark County, Nev. F. G. Johnson, 1934).—In Mesquite Valley, 11 miles east-southeast of Good Springs, Nev., 2 miles southwest of Inyo-San Bernardino County line and State line intersection, on or near California-Nevada State line, 40.2 meters (132 feet) from road intersection, 33.0 meters (108 feet) south of east-and-west road, and 14.6 meters (48 feet) east of north-and-south road. To reach from Good Springs, take Kingston and Pahrump road and go 11.0 miles to Sandy, continue 0.2 mile, take left fork with sign "Kingston 2½ miles" and go 1.0 mile to Arts ranch buildings and station site. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 9.945 meters (32.63 feet) from station in azimuth 126°11′. No. 2 is 6.405 meters (21.01 feet) from station in azimuth 46°01′. Distances and azimuths from station to following points are: G. L. O. Pipe, one-half mile, 151°17′46″; Shenandoah Mill, tank, 3 miles, 248°00′30″; *Devil Peak, cairn*, 11.5 miles, 303°30′00″; and *G. L. O. Pipe*, 191.29 meters (627.6 feet), 260°15′36″. (It is not definitely known that this station is on the State line.)

MONTEREY BAY TO MARIPOSA PEAK ARC

Principal points

Gilroy (Santa Clara County, G. L. Bean, 1930).—About 2 miles west of Gilroy, on prominent grassy knob which is highest point in vicinity. To reach from Sargent, go north 3.3 miles on Route 101, turn left and go 2.3 miles to gate leading into pasture, turn right and follow ridge about 3.1 miles to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 27.550 meters (90.39 feet) from station in azimuth 102°09′. No. 2 is 60.650 meters (198.98 feet) from station in azimuth 358°58′.

Sargent (San Benito County, G. L. Bean, 1930).—About 1 mile southeast of Sargent, on most northern and highest hump of ridge, and about 20 meters (66 feet) north of fence line. To reach from Sargent, go south 0.3 mile across bridge, pass through first gate on left and follow old road up ridge to station site. Marked by standard station disk in concrete, note 1c. Reference marks are standard reference disks in concrete, note 11a. No. 1 is in fence line and 27.600 meters (90.55 feet) from station in azimuth 303°36′. No. 2 is in fence line and 31.650 meters (103.84 feet) from station in azimuth 17°00′.

Fremont Peak 2 (San Benito County, G. L. Bean, 1930).—About 3 miles south of San Juan, on Gabilan Peak which is highest and most prominent peak in vicinity, and about 10 feet west of flagpole and monument erected to Captain Fremont. To reach from road forks south of San Juan, go south 0.2 mile on Salinas road, turn by cement plant and continue 6.5 miles up main road, turn right through gate and follow up ridge about 5 miles to base of sharp rocky peak, and follow trail to top and station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 2.685 meters (8.81 feet) from station in azimuth 84°41′. No. 2 is 1.878 meters (6.16 feet) from station in azimuth 192°53′.

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Mariposa (San Benito-Merced Counties, G. L. Bean, 1930).—On prominent peak known locally as "Mariposa Peak", on southeastern side of and at about middle of jagged top, at about middle of 9-foot shelf, and about 6 feet lower than jagged outcropping to east. A sharp needlelike pinnacle is about 50 feet southeast of station. To reach from Hollister, go north 1.0 mile on San Benito Street, turn right and go 2.0 miles to paved road, turn left and go 4.0 miles to fork, turn right and continue on the road which climbs for about 10.0 miles to base of sharp jagged peak. Marked by standard station disk in bedrock, base of sharp jagged peak. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 5.338 meters (17.51 feet) from station in azimuth 163°23′. No. 2 is 2.173 meters (7.13 feet) from station in azimuth 268°15′.

Vaca (Monterey County, G. L. Bean, 1930).—On highest point of last high knoll on northwest end of Mount Toro Ridge. To reach from Salinas, go south about 3.5 miles on Monterey Road across bridge, turn left onto Pine Canyon Road, turn right and continue on road which climbs to first high grassy knoll on top of ridge. Marked by standard station disk in boulder, note 4. Reference mark no. 1 is standard reference disk in boulder, note 12c, 19.468 meters (63.87 feet) from station in azimuth 190°17′. Reference mark no. 2 is standard reference disk in bedrock, note 12a, 13.970 meters (45.83 feet) from station in azimuth 131°52′.

Point Pinos latitude station 2 (Monterey County, G. L. Bean, 1930; 1936).—On northeast part of Point Pinos, in extreme northwest part of Pacific Grove, 45 feet north of Ocean View Boulevard, 0.3 mile east of lighthouse reservation gates, 300 feet west of where boulevard turns sharply southeast, in small natural oval flower bed, 60 feet from ocean. Mark is standard station disk in boulder. Reference marks are standard reference disks in rock outcrops, at top of bluff breaking down to ocean. No. 1 is 126.10 feet (slope) from station in azimuth 135°28′; no. 2, 96.00 feet (slope), 236°04′.

Airway (Monterey County, G. L. Bean, 1930; 1932).—About 2 miles southeast of Monterey, about 0.7 mile southwest of airport, and on highest point of prominent brush-covered knoll. To reach from Monterey, go about 0.5 mile toward Salinas beyond the airport, turn right through gate and follow old road southwest about 1 mile, and continue to station site on highest hill to west. Marked by standard station disk in concrete, note 1a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 8.308 meters (27.26 feet) from station in azimuth 172°16′. No. 2 is 12.680 meters (41.60 feet) from station in azimuth 334°50′.

Brush (Monterey County, G. L. Bean, 1930).—About 5 miles east of Monterey, on highest part of Army reserve, and about 5 meters (16 feet) south of range target. To reach from Salinas, go 12.6 miles on Monterey highway to west end of high fence, turn right through gate and follow old road along fence (keeping to right) for 2.2 miles, turn left into brush and go northwest 0.6 mile along top of ridge to station site on highest point. A sandstone outcrop shows around west and north sides of hill about 40 meters (131 feet) from top of hill. Surface mark is standard station disk in boulder, note 4, projecting 3 inches. Underground mark is standard station disk in concrete, note 7a. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 36.790 meters (120.70 feet) (slope) from station in azimuth 49°18′. No. 2 is 47.200 meters (154.86 feet) (slope) from station in azimuth 128°50′.

Pajaro Mouth 3 (Santa Cruz County, F. W. Hough, 1923; 1932).—On highest dune at south end of sand dunes on north side of mouth of Pajaro River. Sand dunes are covered with thick growth of poison ivy. To reach from Watsonville, go west on beach road to sand dunes, turn left at beach camp, pass through gate and follow road to end of sand dunes. Surface mark is standard station disk in 10-inch galvanized-steel pipe, 3 feet long, filled with concrete and projecting 4 inches. Underground mark is standard station disk in concrete post 12 inches in diameter and 4 inches below bottom of pipe with surface mark. Reference mark is standard reference disk in concrete post, 12 inches in diameter by 28 inches deep, projecting 2 inches, and 8.109 meters (26.60 feet) from station in azimuth 137°36′. In 1932 a 10-foot observing tower and a signal were constructed and left standing over station.

Santa Cruz azimuth (Santa Cruz County, R. D. Cutts; 1851; 1932).—On smooth rounded hill back of Santa Cruz, 1 mile west of Mission Church, three-tenths mile southwest of ranch house, 400 meters (1,312 feet) northwest of

For notes in regard to marking of stations see p. 290.

city water tank, and in cultivated field on land of the Henry Cowell Lime & Cement Co. To reach, follow High Street about one-half mile beyond end of pavement. Marked by cross-cut in top of granite block, 12 inches square, 15 inches below ground surface, and surrounded by circle of wood ashes and charcoal 6 feet in diameter and 1 foot deep. Four bottles at level of mark point toward station. In 1906, three blocks similar to station mark were placed 6 feet from center, two in line with center and the other at right angles to them. Reference mark (1923) is standard reference disk in northwest corner of barnyard and 57.797 meters (189.62 feet) from station in azimuth 300°55′.

Salinas (Monterey County, G. L. Bean, 1930).—About 4 miles north of Salinas, on highest point of hill near south edge of prominent outcropping ledge of sandstone. To reach from forks in road south of San Juan, go south 12.8 miles over the San Juan grade, turn right and go 0.9 mile, turn right and go 1.1 miles, turn left and go 0.7 mile to bottom of hill, turn right into field and go east about 0.6 mile to sandstone ledge on top of hill. Surface mark is standard station disk in boulder, note 4. Underground mark is standard station disk in bedrock, note 8a. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 11.490 meters (37.70 feet) from station in azimuth 281°56′. No. 2 is 7.580 meters (24.87 feet) from station in azimuth 26°40′.

Supplementary points

Lone Tree (San Benito County, G. L. Bean, 1930.)—About 4 miles northeast of Hollister, on prominent grassy knob known as "Lone Tree" because of large pepper tree on lower shelf of knob, and about 15 feet west of highest part of hill. To reach from Hollister, go north 1.0 mile on San Benito Street, turn right and go 2.0 miles, turn left and go 0.5 mile, turn right onto Lone Tree road and go 7.8 miles, turn left into field and follow old road (keeping to left) about 0.5 mile to base of hill. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 4.863 meters (15.96 feet) from station in azimuth 65°44′. No. 2 is on range with station and large tree on lower shelf of hill and 13.645 meters (44.77 feet) from station in azimuth 312°14′.

Pereira (San Benito County, G. L. Bean, 1930).—About 1 mile southeast of Hollister, on northern end of highest part of prominent mound. To reach from Hollister, go south to end of San Benito Street, turn left and go 0.4 mile, turn right and go 0.7 mile, turn left and go 0.3 mile, turn right and go 1.9 miles along west side of knob to gate, turn left up canyon to farmhouse, and pass through corrals to highest part of hill. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Surface mark projects 2 inches. Reference mark is standard reference disk in concrete, note 11a, 23.868 meters (78.31 feet) from station in azimuth 146°43′.

Foothill (San Benito County, G. L. Bean, 1930).—On grassy ridge about 3 miles southeast of Hollister. To reach from Hollister, go south to end of San Benito Street, turn left and go 2.2 miles to crossroad, turn right and go 4.0 miles to Y-intersection, take left fork and go 2.0 miles to gate leading into corral, continue through corral and up canyon to some locust trees, go across gap in ridge to canyon on other side and go up canyon to highest point on fence line and station site, which is about 5 meters (16 feet) south of fence line. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is in fence line and 10.043 meters (32.95 feet) from station in azimuth 245°27′. No. 2 is 12.745 meters (41.81 feet) from station in azimuth 327°08′.

Fairview (San Benito County, G. L. Bean, 1930).—About 1 mile north of Fairview school, on highest part of prominent grassy knob about 0.5 mile out in valley from main range of ridges. To reach from Hollister, go north 1.0 mile on San Benito Street, turn right and go 2.0 miles to paved road, turn left and go 4.0 miles, turn right and go 0.8 mile to gate marked "Pacheco Cattle Co.", and go about 0.2 mile to highest part of hill. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 15.462 meters (50.73

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feet) from station in azimuth 359°44′. No. 2 is 13.502 meters (44.30 feet) from station in azimuth 268°53′.

Hollister (San Benito County, G. L. Bean, 1930).—In Hollister, on cultivated knoll, 615 feet north along ridge from north side of buildings which cover the city reservoir, and about 20 meters (66 feet) west of old fence line. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Surface mark projects 10 inches. Reference marks are standard reference disks in concrete, note 11a. No. 1 is in fence line and 48.100 meters (157.81 feet) from station in azimuth 297°18′. No. 2 is in fence line and 22.052 meters (72.35 feet) from station in azimuth 42°34′.

Picket (San Benito County, G. L. Bean, 1930).—About 1 mile west of Hollister, in northwest corner of crossing fences, and about 5 feet north of east-and-west fence line. To reach from forks in road south of San Juan, go 4.9 miles toward Hollister, turn right off pavement and go 0.4 mile to farmyard, pass through corral and continue 0.2 mile to head of wash, turn left and go 0.6 mile to highest part of ridge. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Surface mark projects 4 inches. Reference marks are standard reference disks in concrete, note 11a. No. 1 is along southern fence, north of fence line, and 18.970 meters (62.24 feet) from station in azimuth 60°28′. No. 2 is in fence line and 15.948 meters (52.32 feet) from station in azimuth 175°44′.

Knob (San Benito County, G. L. Bean, 1930).—About 2 miles northwest of Hollister, on southeast edge of top of highest of group of knolls. To reach from Hollister, go out San Juan road to edge of city, turn left past cemetery and follow winding road west 3.2 miles to gate, pass through gate and turn north up canyon, continue over ridge and through fence about 0.8 mile to highest knoll in vicinity. A knoll topped by grove of eucalyptus trees is about one-fourth mile distant. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on highest part of knoll and 21.450 meters (70.37 feet) from station in azimuth 205°58′. No. 2 is 15.108 meters (49.57 feet) from station in azimuth 132°32′.

Oak (San Benito County, G. L. Bean, 1930).—About 2 miles southwest of Hollister, on small scrub-oak-covered knoll which is last brush-covered knoll toward valley. To reach from San Juan, go south 0.2 mile on Salinas road from forks in road south of San Juan, turn left by cement plant and continue 6.3 miles up main road to road forks, turn left and go 0.3 mile to old road to left, and go northeast about 0.3 mile to highest peak toward valley. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 12.995 meters (42.63 feet) from station in azimuth 9°21′. No. 2 is 17.018 meters (55.83 feet) from station in azimuth 285°52′.

Cross (San Benito County, G. L. Bean, 1930).—On grassy hill about 0.8 mile south of San Juan and about 20 meters (66 feet) south of large concrete cross. To reach from Salinas forks south of San Juan, go south 0.2 mile, turn left and go past cement plant, continue 2.7 miles up main road and turn left onto old woods road, go about 100 feet, turn sharply to left and continue on left-hand road to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Surface mark projects 4 inches. Reference mark no. 1 is standard reference disk, note 11c, in base of concrete cross, on southeast corner of first step, and 19.802 meters (64.97 feet) from station in azimuth 131°16′. Reference mark no. 2 is standard reference disk in boulder, note 12c, 25.655 meters (84.17 feet) from station in azimuth 14°18′.

Sandy (San Benito County, G. L. Bean, 1930).—About 1½ miles east of Gabilan Peak, on highest point of brushy knob which is continuation of ridge, and about 200 meters (656 feet) from timber line. To reach from road forks south of San Juan, go south 0.2 mile on Salinas road, turn left past cement plant and continue 6.5 miles up main road, turn right through gate and follow up ridge 2.2 miles, turn left by old gate and go east about 0.2 mile to highest point of hill. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 10.252 meters (33.64 feet) from station in azimuth 168°02′. No. 2 is 4.950 meters (16.24 feet) from station in azimuth 55°37′.

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Moon (San Benito County, G. L. Bean, 1930).—About 3 miles west of Hollister, on highest part of grassy ridge. Higher hill which is covered with oak trees is north of station. To reach from forks south of San Juan, go 0.2 mile on Salinas road, turn left by cement plant and follow main road 4.0 miles to P. Pearce's ranch, go through yard, cross creek and old railroad, take road leading up canyon to east and follow to head of canyon, turn left and continue to highest point. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Surface mark projects about 4 inches. Reference marks are standard reference disks in concrete, note 11a, projecting about 4 inches. No. 1 is 11.012 meters (36.13 feet) from station in azimuth 205°09′. No. 2 is 13.180 meters (43.24 feet) from station in azimuth 300°06′.

Yates (San Benito County, G. L. Bean, 1930).—About 3 miles south of San Juan, on most eastern and lower one of two grassy knobs which are first grassy knobs north of Gabilan Peak. To reach from road forks south of San Juan, go south 0.2 mile, turn left by cement plant and continue 4.0 miles up main road, make hairpin turn to right and follow old railroad grade 1.7 miles to Mr. Yates' ranch, keep to right of house and prune orchard and continue up draw to top of ridge, and climb to top of grassy knob to south. Surface mark is standard station disk in concrete, note 1a. Underground mark is standard station disk in bedrock, note 8b. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 25.969 meters (85.20 feet) from station in azimuth 280°12′. No. 2 is 24.140 meters (79.20 feet) from station in azimuth 41°26′.

Hiway (San Benito County, G. L. Bean, 1930).—About 1½ miles southwest of San Juan, on highest part of grassy ridge, about 300 feet south of fence line on highest part of hill, and about 250 feet south of power line which crosses ridge. To reach from road forks south of San Juan, go south about 4 miles to top of San Juan grade, turn left into field and go about 1 mile up canyon to top of ridge. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 12.175 meters (39.94 feet) from station in azimuth 153°05′. No. 2 is 5.968 meters (19.58 feet) from station in azimuth 30°18′.

Dusty (Monterey County, G. L. Bean, 1930).—On prominent, round-topped, rocky hill about 6 miles northeast of Salinas. To reach from Salinas, go north 8.0 miles toward San Juan to foot of San Juan grade at point where power line crosses road, turn right and go 0.2 mile, turn right and go 0.9 mile, turn left through gate and go 0.8 mile to ranch house, and continue to station site, which is on first high point to southeast of ranch house. A narrow gate leads into pasture northeast of ranch house. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 12.400 meters (40.68 feet) from station in azimuth 311°09′. No. 2 is 7.810 meters (25.62 feet) from station in azimuth 71°27′.

Bare (Monterey County, G. L. Bean, 1930).—On highest part of ridge leading north from Gabilan. To reach from Salinas, go north 8 miles on San Juan Road to foot of San Juan grade at point where power line crosses road, turn right and go 0.3 mile, turn left and go 2.9 miles, turn right between ranch house and barn and follow winding road 1.5 miles, turn right into field and cross meadow to base of ridge, and climb through brush to top of ridge to west. Station is on the fourth hump along top of ridge, about 0.7 mile south of first hump reached after arriving at top of ridge. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 3.480 meters (11.42 feet) from station in azimuth 268°25′. No. 2 is 39.980 meters (131.17 feet) from station in azimuth 323°50′.

Rock (Monterey County, G. L. Bean, 1930).—About 8 miles northeast of Salinas, at about middle of highest part of curving ridge above old stone quarry, and about 100 feet south of telephone line. To reach from Salinas, go north 8 miles on Route 101, turn right and go 0.2 mile, turn right and go 2.0 miles, turn left and go 0.2 mile, turn right and go up ridge to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 15.440 meters (50.66 feet) from station in azimuth 93°54′. No. 2 is 21.198 meters (69.55 feet) from station in azimuth 171°07′.

Sage (Monterey County, G. L. Bean, 1930).—About 4½ miles northeast of Salinas, on west end of curve in road, on north side of road, and about 5 feet south of fence line. To reach from Salinas, go north about 5 miles on Route

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101, turn right and go 0.6 mile to curve in road. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 15.859 meters (52.03 feet) from station in azimuth 12°35′. No. 2 is 30.535 meters (100.18 feet) from station in azimuth 94°33′.

Anderson (Monterey County, G. L. Bean, 1930).—About 4 miles north of Salinas, in cultivated field on the Anderson ranch, about 0.5 mile south of road forks and long curve in Route 101, 200.4 meters (657 feet) east of fence line along highway, and on south side of road leading from the Anderson ranch to main road. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Surface mark is 1 foot below surface of ground. Reference marks are standard reference disks in concrete, note 11a, projecting about 4 inches. (There is no reference mark no. 1) No. 2 is on fence line along road, about 6 feet north of gate leading into field, and 200.134 meters (656.61 feet) from the station in azimuth 107°51′50″. No. 3 is in fence line and 187.800 meters (616.14 feet) from station in azimuth 195°43′18″.

Barn (Monterey County, G. L. Bean, 1930).—About 2.5 miles northwest of Salinas, in a corral on property of George Fondus, and about 25 meters (82 feet) northwest of barn on north side of west gate leading into corral. To reach from Salinas, go 2.7 miles out Market Street to forks in road at schoolhouse and packing plant, turn right across railroad tracks and creek and go to right up hill to ranch house. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 22.572 meters (74.05 feet) from station in azimuth 189°27′. No. 2 is 32.955 meters (108.12 feet) from station in azimuth 231°41′.

Dairy (Monterey County, G. L. Bean, 1930; 1932).—About 5 miles northwest of Salinas, in clearing on prominent hill on west bank of the Salinas River, just off high part of hill, and on southeast slope. To reach from Salinas, go west 2 miles on Central Avenue, turn right and follow main road 3.8 miles to gate on bank of river, turn right and go about 1 mile to grassy point covered with scattered scrub-oak trees. Surface and underground marks are station disks in concrete, notes 1a and 7a. Surface mark projects about 6 inches. Reference marks are standard reference disks in concrete, note 11a, projecting about 6 inches. No. 1 is 11.485 meters (37.68 feet) from station in azimuth 207°00′. No. 2 is 13.212 meters (43.35 feet) from station in azimuth 332°37′.

Marin (Monterey County, G. L. Bean, 1930; 1932).—About 6 miles west of Salinas, on highest knoll in vicinity, and about 25 meters (82 feet) south of fence line. To reach from Monterey, go north 8.4 miles on Monterey-Watsonville highway to Marina, continue 100 yards beyond general store, turn right and follow gravel road 1.3 miles, turn left and go 0.3 mile to gate, pass through gate and go 0.1 mile to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Surface mark projects 2 inches. Reference marks are standard reference disks in concrete, note 11a, projecting 4 inches. No. 1 is in fence line and 29.810 meters (97.80 feet) from station in azimuth 240°14′. No. 2 is in fence line and 35.940 meters (117.91 feet) from station in azimuth 166°25′.

Lakeside (Monterey County, G. L. Bean, 1930; 1932).—About 1½ miles east of Monterey, on sandy brush-covered hill, and about 50 meters (164 feet) west of fence on top of ridge. To reach from point where Salinas-Watsonville highway forks east of Monterey, go 1.1 miles toward Watsonville to Kimball Avenue, turn right and go 1.0 mile up Kimball Avenue, turn left and go 0.3 mile to gate leading into army rifle range, and continue along fence running northwest about 0.2 mile to top of ridge. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Surface mark projects about 4 inches. Reference marks are standard reference disks in concrete, note 11a, projecting about 4 inches. No. 1 is 21.440 meters (70.34 feet) from station in azimuth 61°00′. No. 2 is 13.375 meters (43.88 feet) from station in azimuth 256°26′.

Seaside (Monterey County, G. L. Bean, 1930; 1932).—About 1½ miles east of Monterey, on sand dune, about 150 meters (492 feet) northeast of large oil tank, and about 200 meters (656 feet) from beach. To reach from Monterey, go east 2.0 miles on Del Monte Avenue, turn left and go about 100 meters (328 feet), and climb to highest sand dune. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Surface mark projects about

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6 inches. Reference marks are standard reference disks in concrete, note 11a, projecting about 6 inches. No. 1 is 15.960 meters (52.36 feet) from station in azimuth 144°27′. No. 2 is 34.605 meters (113.53 feet) from station in azimuth 339°09′.

Range (Monterey County, G. L. Bean, 1930).—On brush-covered hill about 2½ miles east of Monterey. To reach from point where Salinas-Watsonville highway forks east of Monterey, go 1.6 miles toward Watsonville, turn right and go about 1 mile to gate at entrance of Government rifle range, continue on sandy road along telephone line about 1 mile to pole marked "7/10", turn right and go through brush about 100 meters (328 feet) to highest point. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Surface mark is 1 foot below surface of ground. Reference marks are standard reference disks in concrete, note 11a, projecting about 6 inches. No. 1 is 6.430 meters (21.10 feet) from station in azimuth 80°43′. No. 2 is 8.692 meters (28.52 feet) from station in azimuth 222°25′.

Point Pinos latitude station (Monterey County, G. Davidson, 1851; 1936).—On east part of Point Pinos, in extreme northwest part of Pacific Grove, about 900 feet south of shore, a little south of center of block bounded by Del Monte Boulevard, Companion Way and the Esplanade, 150 feet south of and 100 feet east of low rocky knolls. Originally marked by lead-filled drill hole in stone block. Three bottles, necks level with ground, were placed 6.5 feet west, 6 feet east, and 8 feet south from station. In 1930, standard station disk stamped with name of station and date "1851" was set in concrete post, note 1a, over original mark. In 1930, original reference marks consisting of lead plugs in rocks were found at following distances and azimuths from station: 5.724 meters (18.78 feet), 243°17′; 5.500 meters (18.04 feet), 338°12′; and 5.430 meters (17.81 feet), 65°15′. In 1923, standard reference disk in concrete, note 11a, was set in top of highest rock on knoll, and its distance and azimuth as determined in 1930 was 46.686 meters (153.17 feet), 215°30′. In 1930, *Point Pinos latitude station 2* (see description thereof) was established 269.540 meters (884.32 feet) from station in azimuth 187°04′.

VICINITY OF POINT SUR

Principal points

Cone Peak 2 (Monterey County, F. G. Johnson, 1933).—In Santa Barbara National Forest, on Cone Peak. To reach from ranch of Sam Avila, follow trail north about 9 miles to summit and station site. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 6.770 meters (22.21 feet) from station in azimuth 349°21′. No. 2 is 3.490 meters (11.45 feet) from station in azimuth 109°21′. *B. M. 5148* (*U. S. G. S.*) is 4.245 meters (13.93 feet) from station in azimuth 263°38′. Cone Peak fire lookout tower is 8.810 meters (28.90 feet) from station in azimuth 187°31′.

Rock Slide West (Monterey County, F. G. Johnson, 1933).—Just south of Hot Springs Canyon, on summit just west of highest point of east-and-west ridge. Station *Rock Slide* (see description thereof) occupies highest point of ridge. To reach from Hot Springs Canyon, follow trail about one-half mile on south edge of creek up Hot Springs Canyon, follow winding trail south to top of ridge, and follow ridge to station site. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 8.380 meters (27.49 feet) from station in azimuth 3°20′. No. 2 is 10.800 meters (35.43 feet) from station in azimuth 279°04′.

Dolan (Monterey County, A. F. Rodgers, 1890; 1933).—About 1.5 miles north of Big Creek, on summit of high prominent knoll, and above and east of old coast trail from Big Creek to the old Dolan homestead. Peak is rocky at summit and bare of timber. To reach from the old Dolan homestead on coast road south of Monterey, go south 1.0 mile on trail after passing Dolan Creek, and go east up slope of first prominent knoll south of creek to station site. Original station mark was rock buried 20 inches below surface, with hole drilled at center, one-half inch in diameter and 1 inch deep, and filled with lead marked with cross. In 1932, surface mark, consisting of standard station disk in boulder, note 4, was placed directly over original station mark. Two standard

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reference disks in bedrock, note 12a, were established. No. 1 is 3.747 meters (12.29 feet) from station in azimuth 133°47′. No. 2 is 2.045 meters (6.71 feet) from station in azimuth 205°32′.

Paul (Monterey County, C. Pierce, 1932; 1933).—Just south of Hot Springs Canyon, 1¾ miles east of coast line, on high east-and-west ridge, one-third mile west of summit, one-fourth mile east of cliff, and about 75 feet southeast of brush line. To reach, follow trail about one-half mile on south edge of creek up Hot Springs Canyon, follow winding trail south to top of ridge, and follow ridge east to station site. Surface mark is standard station disk in boulder (12 by 14 by 12 inches), note 4. Underground mark is bottle buried 20 inches below surface. Reference mark is standard reference disk in boulder (12 by 16 by 18 inches), note 12c, 5.455 meters (17.90 feet) from station in azimuth 150°10′.

Supplementary point

Rock Slide (Monterey County, A. F. Rodgers, 1890; 1933).—Just south of Hot Springs Canyon, on highest part of summit of east-and-west ridge. To reach from station *Rock Slide West* (see description thereof) continue up ridge to highest point and station site. Marked by drill hole in stone, buried 18 inches below surface; and four witness stubs, each with tack in top and 6 feet from station to north, south, east, and west. In 1933, surface mark, consisting of standard station disk in buried rock, was placed directly over original station mark.

SAN JOAQUIN VALLEY ARC

Principal points

Bear (Calaveras County, J. Bowie, Jr., 1931).—About 6 miles southwest of San Andreas, on pointed, rocky, timber-covered peak of Bear Mountain Range, and 60 feet southeast of large oak tree with rock leaning against its base. To reach from San Andreas, go south 0.8 mile on highway to forks, follow right-hand road 2.0 miles to Calaveras cement plant, turn left onto dirt road and follow 6.6 miles to gate with sign "Gilbeau Ranch", enter gate and follow road 3.6 miles to ranch house of Norman L. Schroebel (owner of that part of mountain on which station is situated) and end of truck travel, go through barnyard and continue up mountain which is visible to west, bearing slightly to left to keep out of brush. Two other hills, flatter and covered with timber, lie about one-fourth mile to west. Marked by standard station disk, note 2, in rock outcrop which was filled in with loose rock to make it flat on top. Reference mark no. 1 is standard reference disk, note 12c, in large boulder a little higher than station and 16.230 meters (53.25 feet) from station in azimuth 151°46′. Reference mark no. 2 is standard reference disk in bedrock, note 12a, 11.050 meters (36.25 feet) from station in azimuth 284°24′.

Mount Oso (Stanislaus County, J. Bowie, Jr., 1931).—About 10 miles southwest of Vernalis, on highest point of Mount Oso, beside old stone cairn of United States Geological Survey, and 121.0 meters (397 feet) northwest of center of fire lookout house. To reach from Vernalis, go north 0.4 mile to fork, turn left across railroad and go 3.9 miles to T-intersection, turn left and go 2.8 miles to end of improved road, enter Hospital Canyon and follow road 11.5 miles up Hospital Creek to fork in road at the Winegar brothers' ranch house and end of truck travel, and follow trail northeast about 2 miles up mountain to station site. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 9.04 meters (29.7 feet) from station in azimuth 40°25′. No 2 is in high pointed rock outcrop and 18.70 meters (61.4 feet) from station in azimuth 173°06′. *Mount Oso (U.S.G.S.), cairn* (see description thereof) is 4.8 meters (16 feet) from station in azimuth 185°. Azimuth from station to Mount Hamilton, Observatory cupola, is 51°36′44″.

Big Hill (Tuolumne County, J. Bowie, Jr., 1931).—About 6 miles east of Knights Ferry, on high flat rock which is highest point of small mountain known as "Big Hill", on ranch belonging to Bill Rushing and leased by the State, and within 2 feet of point where United States Geological Survey cairn formerly stood. To reach from Knights Ferry, follow Sonora road 7.1 miles to gate on right in front of red house and sign "Rushing Lookout 2 miles", and follow this road to lookout and station site. Marked by standard station disk in

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bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 29.30 meters (96.1 feet) from station in azimuth 325°05′. No. 2 is 17.19 meters (56.4 feet) from station in azimuth 57°57′. *Big Hill, fire lookout, house, center*, is 21.90 meters (71.9 feet) from the station in azimuth 109°04′. *B.M. 1516* (*U.S.G.S.*) (see description thereof) is 50.09 meters (164.3 feet) from station in azimuth 125°59′.

Livingston (Merced County, J. Bowie, Jr., 1931; 1934).—At south end of Livingston, on property belonging to Mrs. Ella B. Edwards, and between Union Oil service station, Southern Pacific railroad and property line of Merced Lumber Co. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is at south corner of Portuguese Catholic Church of Livingston and 167.67 meters (550.1 feet) from station in azimuth 182°21′28″. No. 2 is beside telephone pole at south corner of building of Merced Lumber Co. and 35.14 meters (115.3 feet) from station in azimuth 90°57′.

Merced (Merced County, J. Bowie, Jr., 1931; 1934).—In Merced, on Southern Pacific railroad right-of-way, 29.2 meters (96 feet) southwest of southwest rail, and 37 meters (121 feet) northwest of center line of O Street, which is first street northwest of railroad station. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on southeast side of street crossing, about 65 feet southwest of railroad tracks, and 1,258.38 feet from station in azimuth 116°52′48″. No. 2 is beside curbing on northwest side of Fifteenth Street, about 100 feet northwest of O Street, and 36.52 meters (119.8 feet) from station in azimuth 18°18′.

Shultz (Mariposa County, J. Bowie, Jr., 1931).—On top of large and prominent mountain known as "Shultz Mountain", about 10 miles south-southwest of Mariposa, about 50 yards east of fence, and on low, flat rock outcrop to west of scattered boulders and outcrops projecting from ground. To reach from Merced, follow Mariposa road 23 miles to Cathay post office, continue 100 yards to road on left and sign "Houlihan Ranch 2.0 miles", follow this road 2.6 miles to gate on right opposite barn with a half tin roof, pass through gate and go to right along fence line 0.2 mile to another gate, turn right through gate and follow road 0.2 mile to third gate, continue 0.5 mile to wire fence and end of truck travel, and follow fence line east up mountain to station site. Marked by standard station disk in bedrock, note 2. Reference mark no. 1 is standard reference disk, note 12c, in boulder 6 feet high and 23.39 meters (76.7 feet) from station in azimuth 327°35′. Reference mark no. 2 is standard reference disk, note 12a, in large flat outcrop 4 feet high and 14.29 meters (46.9 feet) from station in azimuth 65°16′. *Shultz* (*U. S. G. S.*), *cairn* (see description thereof) is 15.54 meters (51.0 feet) from station in azimuth 201°40′. *B. M. 2287* (*U. S. G. S.*) (see description thereof) is 25.46 meters (83.5 feet from station in azimuth 193°11′. Station *Green* (*U. S. G. S.*), *cairn* (see description thereof) is in azimuth 325°42′03″.

Chowchilla (Madera County, J. Bowie, Jr., 1931).—On southeast bank of dry stream in Chowchilla, just northeast of San Joaquin Cement Pipe Co. buildings, near power line which extends northeast from Route 99, and on land belonging to Mrs. Nettie H. Mayes. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is beside second power-line pole northeast of Route 99 and 34.39 meters (112.8 feet) from station in azimuth 28°28′. No. 2 is beside third telephone pole northwest of northwest end of highway bridge, on southeast side of Route 99, and 433.30 meters (1421.6 feet) from station in azimuth 118°58′43″.

Green (Mariposa County, J. Bowie, Jr., 1931).—About 15 miles east of Le Grand, on second highest point on top of Green Mountain which is owned by A. Wright of Raymond, and in small rock outcrop on a flat grassy knoll. Stone fence about 3 feet high extends across top of mountain. An abandoned mine is on west side of mountain near the top. To reach from Le Grand, cross railroad in south end of town and go east 6.2 miles to point where road turns right, proceed 0.3 mile and follow left fork 3.8 miles to point where road turns left at entrance to ranch house, continue 0.6 mile and take left fork, continue 2.3 miles and take right fork which goes past ranch house, proceed 3.7 miles and take right fork at chimney, continue 1.1 miles to road up hill on left to small house, continue about one-fourth mile past house to wire fence, go through gate and

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bear left toward top of mountain and station site. Marked by standard station disk in bedrock, note 2. Reference mark no. 1 is standard reference disk, note 12c, in boulder which is surrounded by group of smaller rocks, and 21.490 meters (70.51 feet) from station in azimuth 308°10′. Reference mark no. 2 is standard reference disk, note 12a, near corner of wall, in outcrop 2 feet high, and 17.865 meters (58.61 feet) from station in azimuth 168°52′. Azimuth from station to *Green* (*U. S. G. S.*), *cairn* (see description thereof), distant 147.0 meters (482 feet), is 163°50′09″; and to *Red Top, fire lookout house, northwest gable*, 308°21′58″.

Madera (Madera County, J. Bowie, Jr., 1931).—In Madera, on Southern Pacific railroad right-of-way, 22.55 meters (74.0 feet) northeast of northeast rail, and 16.7 meters (55 feet) southeast of center line of Ninth Street. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is at south corner of board fence, near railroad crossing warning sign, about 15 meters (49 feet) northwest of center line of Ninth Street, and 45.36 meters (148.8 feet) from station in azimuth 191°19′. No. 2 is in fence line beside telephone pole on northeast side of tracks, about 50 yards northwest of road crossing at Union Oil Co.'s bulk station, and 2,126.5 feet from station in azimuth 320°47′31″.

Red Top (Madera County, J. Bowie, Jr., 1931).—About 22 miles east-northeast of Madera, on ridge on which is located the Red Top fire lookout house, and 4 feet south of road. To reach from Madera, turn east onto main street from United States Route 99 and go 14 miles to fork with sign "North Fork 29—Madera 14—Coarsegold 22—Yosemite 79", follow right fork 5.7 miles, take left fork leading past Bates' station and go 1.5 miles, take left fork and go 2.9 miles (0.5 mile beyond small shingle house) to gate on left, go through gate and follow right-hand trail to station site. Marked by standard station disk in concrete, note 1a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is alongside fence and 34.68 meters (113.8 feet) from station in azimuth 233°22′. No. 2 is alongside tree and 11.75 meters (38.5 feet) from station in azimuth 349°04′. Azimuth from station to *Red Top, fire lookout house, northwest gable*, distant 17.77 meters (58.3 feet), is 200°12′; and to *Copper Mountain, fire lookout tower*, 331°17′23″.

Fresno (Fresno County, J. Bowie, Jr., 1931).—In Fresno, on top of Pacific Southwest Building, 1.72 meters (5.6 feet) west of east corner of inner parapet wall, and 1.25 meters (4.1 feet) northeast of outside edge of smokestack. Marked by standard station disk in drill hole in concrete parapet wall. Reference mark no. 1 is standard reference disk in drill hole in top of southeast corner of inner parapet wall and 4.065 meters (13.34 feet) from station in azimuth 294°17′.

Cooper (Fresno County, J. Bowie, Jr., 1931).—About 8 miles northeast of Clovis, on rock outcrop on the top of Copper Mountain. There is a copper mine on west side of Copper Mountain. To reach from Standard Oil service station on Fulton Street in Clovis, go north 1.0 mile to T-intersection, turn left and go 0.4 mile, take right fork at railroad, and go 4.5 miles, turn right at T-intersection and go 3.0 miles (past copper mine) to gate leading into pasture at point where road turns right, enter gate and follow road along power line to top. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is at southeast corner of lookout tower and 8.62 meters (28.3 feet) from station in azimuth 179°33′. No. 2 is 22.28 meters (73.1 feet) from station in azimuth 279°33′. Azimuth from station to Clovis, water tank, is 23°36′14″. *Copper Mountain, fire lookout tower* is 12.53 meters (41.1 feet) from station in azimuth 177°24′.

Campbell (Fresno County, J. Bowie, Jr., 1931).—About 9 miles east of Sanger, on highest part of round mountain known as "Campbell Mountain", and in rock outcrop among numerous scattered outcrops and boulders. To reach from Sanger, go 4.6 miles to Centerville, follow Squaw Valley road 3.2 miles, take left fork and go 0.3 mile to railroad, cross railroad and go 0.3 mile, take right-hand road at intersection and go 1.6 miles to road on left leading past ranch house to foot of mountain, and climb to station site. Do not take truck over bridge over canal. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 12.80 meters (42.0 feet) from station in azimuth 351°59′. No. 2 is on rocky point a

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little lower than station and 32.425 meters (106.38 feet) from station in azimuth 62°22′. Azimuth from station to *Bear Mountain, fire lookout tower* is 245°45′50″. Station *Traver* (see description thereof) is visible from ground in azimuth 12°29′35″.

Selma (Fresno County, J. Bowie, Jr. 1931; 1934).—In Selma, 0.5 mile northwest of railroad station, on fence line between property of Consolidated Irrigation Ditch Co. and another lot containing concrete foundation of large packing house which has been destroyed by fire, and 34.93 meters (114.6 feet) northeast of northeast rail of main track of Southern Pacific railroad. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is beside fire hydrant, 18.5 meters (61 feet) southwest of center line of Chandler Street, and 25.44 meters (83.5 feet) from station in azimuth 229°40′. No. 2 is between Southern Pacific railroad tracks and Route 99, beside power-line pole at first railroad crossing southeast of station, and 846.2 feet from station in azimuth 329°34′04″.

Smith (Fresno County, J. Bowie, Jr., 1931).—About 5 miles northeast of Dinuba, on rocky point on east side and highest part of Smith Mountain, and in large rock outcrop about 3 feet high surrounded by walk of loose rock. To reach from water tank on East Tulare Street in Dinuba, go east 0.2 mile and take right fork opposite Shell service station, continue 0.5 mile to crossroad and turn left, go 1.1 miles and turn right at railway crossing, go 1.5 miles and turn left onto ranch road at summit, go 0.2 mile and take right fork at group of houses, follow 1.0 mile through orange orchard around to east of rocky knob and up onto bench of ridge and continue on foot to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is in rock outcrop which comes up to a point on top and 6.10 meters (20.0 feet) from station in azimuth 25°41′. No. 2 is in outcrop projecting 2 feet above surface and 81.04 meters (265.9 feet) from station in azimuth 99°17′. Azimuth from station to *Dinuba, water tank*, is 40°06′33″. Station *Traver* (see description thereof) is visible from ground in azimuth 41°44′04″.

Traver (Tulare County, J. Bowie, Jr., 1931; 1934).—In Traver, on Southern Pacific railroad right-of-way, about 100 yards north of railroad station, 31.84 meters (104.5 feet) east of east rail of main track, and 12.4 meters (41 feet) south of center line of road crossing railroad. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is east of railroad tracks, beside telegraph pole, and 20.425 meters (67.01 feet) from station in azimuth 46°35′. No. 2 is between fifth and sixth telephone poles from crossroads near station, east of oiled road which parallels east side of railroad, and 1,580.18 feet from station in azimuth 157°42′22″. B.M. L 87 (1931) is 30.42 meters (99.8 feet) from station in azimuth 110°53′. Station *Campbell* (see description thereof) is visible from ground in azimuth 192°27′13″. Station *Smith* (see description thereof) is visible from ground in azimuth 221°39′00″.

Venice (Tulare County, J. Bowie, Jr., 1931).—About 10 miles east-northeast of Visalia, on middle and highest peak of three-humped mountain known as "Venice Hills", and in rock outcrop surrounded by wall of loose rock and many scattered rocks. To reach from Visalia, follow road to Ivanhoe and continue east 1.1 miles on road leading to Venice Hills, turn right and go 1.0 mile to brick gate on left marked "Venice Grove", pass through gate and follow road through orange orchard owned by Mr. Rooke to foot of mountain, and climb to summit and station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is in large rock crop and 18.43 meters (60.5 feet) from station in azimuth 2°42′. No. 2 is in large rock outcrop about 3 feet high and 17.60 meters (57.7 feet) from station in azimuth 69°04′. Azimuth from station to *Visalia, Southern California Edison Co., water tank*, is 64°47′07″.

Tagus (Tulare County, J. Bowie, Jr., 1931).—At Tagus, about 5 miles north of Tulare, on Southern Pacific railroad right-of-way, about 200 yards southeast of railroad station, 23.1 meters (76 feet) east of east rail of main track, 15.95 meters (52.3 feet) west of center line of Route 99, and between loading platform and cattle loader. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on east side of Route 99, at

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intersection of highway and Liberty Lane, and 31.875 meters (104.58 feet) from station in azimuth 228°20′. No. 2 is on west side of Route 99 beside telephone pole opposite Tagus ranch store, and 1,180.9 feet from station in azimuth 152°02′18″.

Octol (Tulare County, J. Bowie, Jr., 1931).—About 5 miles south of Tulare, in village of Octol, on Southern Pacific railroad right-of-way, in small triangular area between tracks and Route 99 which makes a jog here, 21.55 meters (70.7 feet) west of rail of main line, and 24.70 meters (81.0 feet) east of center line of Route 99. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is in fence corner, beside power-line pole, approximately 45 feet west of Route 99, and 45.64 meters (149.7 feet) from station in azimuth 101°12′. No. 2 is between Route 99 and railroad tracks, and 0.5 mile from station in azimuth 169°42′57″.

Strathmore (Tulare County, J. Bowie, Jr., 1931).—About 3 miles southeast of Strathmore, 4 miles north of Porterville, on high and prominent mountain, and in rocky ridge in middle of highest part of mountain. Base of mountain extends almost to highway between Strathmore and Porterville. To reach from Strathmore, follow Porterville highway 1.7 miles to Welcome road on left, turn left and go 1.1 miles, turn right through orange orchard and go 0.4 mile, go about 50 yards to left and turn right, go 0.4 mile to second fence and turn right, follow fence about 0.2 mile to end of truck travel, and continue west to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 21.478 meters (70.47 feet) from station in azimuth 356°08′. No. 2 is 2.928 meters (9.61 feet) from station in azimuth 90°34′. Azimuth from station to *Strathmore, water tank*, is 145°54′26″.

Earlimart (Tulare County, J. Bowie, Jr., 1931).—In northern part of Earlimart, on Southern Pacific railroad right-of-way in area inclosed by barbed-wire fence, directly opposite auto camp and Associated Oil Company service station, 23.30 meters (76.4 feet) east of east track of main line of railroad, and 32.65 meters (107.1 feet) west of center line of Route 99, which makes a slight jog at this point. Surface mark is standard station disk in concrete, note 1a. Underground mark is standard station disk in bedrock, note 8a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is approximately 35 feet west of west rail and 36.90 meters (121.1 feet) from station in azimuth 78°14′. No. 2 is opposite semaphore, between railroad tracks and Route 99, and 1,641.3 feet from station in azimuth 168°33′19″.

Credow (Tulare County, J. Bowie, Jr., 1931).—About 10 miles southeast of Porterville, 12 miles northeast of Ducor, on large and prominent mountain known as "Credow Mountain", on small rock outcrop on first ridge to east of ranch house, and in middle and highest part of mountain. Mountain is bare, flat-topped, and slightly pointed at southeast end. To reach from Ducor, take gravel road leading east at sign "White River 15" and follow 7.7 miles to crossroad opposite Shell service station, turn left and go 1.3 miles to gate on right leading into pasture, pass through gate and follow left fork 3.3 miles to foot of mountain, and climb to station site. Marked by standard station disk in bedrock, note 2. Reference mark no. 1 is standard reference disk in bedrock, note 12a, 16.560 meters (54.33 feet) from station in azimuth 82°29′. Reference mark no. 2 is standard reference disk, note 12c, in boulder in rock pile on north and lower part of ridge, and 265 paces from station in azimuth 154°02′48″.

Delano (Kern County, J. Bowie, Jr., 1931; 1934).—In southern part of Delano, opposite Monte Carlo Saloon at Glenwood Street and Seventh Avenue, on Southern Pacific railroad right-of-way, and 34.47 meters (113.1 feet) west of west rail of main track. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is beside power-line pole, 13.40 meters (44.0 feet) east of center line of Glenwood Street, and 27.72 meters (90.9 feet) from station in azimuth 78°10′. No. 2 is between Glenwood Street and railroad tracks, opposite railroad water tank, and 1,137.8 feet from station in azimuth 168°26′46″.

Mount Poso (Kern County, J. Bowie, Jr., 1931).—About 18 miles north of Bakersfield, in the oil district known as "Mount Poso", and on bare and inconspicuous flat-topped hill. To reach from Bakersfield, go north 0.3 mile on

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United States Route 99 from north end of highway bridge over Kern River to point where highway turns left, leave Route 99, and keep straight ahead 16.0 miles in northerly direction on road through oil fields to "Red's Place" (a soft drink stand), take left fork and follow 2.1 miles to road leading to left at oil derrick just before reaching 3 tin buildings of Shell Oil Co., turn left onto this road and go 0.6 mile, take right fork and go 0.4 mile, take another right fork and follow 1.3 miles, turn right off road at top of grade, and go 0.2 mile to station site. Marked by standard station disk in concrete, note 1a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 14.540 meters (47.70 feet) from station in azimuth 341°51′. No. 2 is approximately 0.3 mile from station in azimuth 120°34′42″. *Poso* (*U. S. G. S.*) (see description thereof) is 6.965 meters (22.85 feet) from station in azimuth 124°01′. United States Geological Survey reference mark is 6.80 meters (22.3 feet) from station in azimuth 53°04′.

Wasco (Kern County, J. Bowie, Jr., 1931).—In Wasco, in northeast corner of barbed-wire fence line, on right-of-way of Atchison, Topeka & Santa Fe Railway, east of tracks, and about opposite Wasco Lumber Co. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is in fence line paralleling railway tracks and 1,461.5 feet from station in azimuth 358°57′27″. No. 2 is in fence line and 22.47 meters (73.7 feet) from station in azimuth 142°11′.

Oil Hill (Kern County, J. Bowie, Jr., 1931).—About 10 miles north of Bakersfield, in the oil section known as "Oil Hill", and on highest, bare, flat-topped hill in vicinity. To reach from Bakersfield, go north 0.3 mile on United States Route 99 from highway bridge over Kern River to point where highway turns left, leave Route 99 and keep straight ahead 6.1 miles in northerly direction on road through oil fields, turn left onto tar-surfaced road and go 0.2 mile to top of first hill, turn right and go 2.0 miles on dirt road to station site. Marked by standard station disk in concrete, note 1a, projecting about 6 inches. Reference marks are standard reference disks in concrete, note 11a, projecting about 6 inches. No. 1 is approximately 300 yards from station in azimuth 119°36′35″. No. 2 is 12.56 meters (41.2 feet) from station in azimuth 179°07′. Station *Oil Hill* (*U. S. G. S.*) (see description thereof) is 9.61 meters (31.5 feet) from station in azimuth 48°24′.

Shafter (Kern County, J. Bowie, Jr., 1931).—In Shafter, on right-of-way of Atchison, Topeka & Santa Fe Railway, about 200 yards south of railway station, in small, triangular area bounded on the west by street, on the east by sidetrack, and on the south by cattle loader, 128.3 feet west of west rail of main track, and 18.6 meters (61 feet) east of center line of Santa Fe Avenue. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on west side of Santa Fe Avenue and 27.44 meters (90.0 feet) from station in azimuth 62°04′. No. 2 is beside power-line pole between Santa Fe Avenue and railway, about 5 feet from curbing on east side of Santa Fe Avenue and 862.5 feet from station in azimuth 132°49′46″.

San Benito (San Benito County, J. Bowie, Jr., 1931).—About 5 miles south of Idria, on top of San Benito Mountain, which is the highest in vicinity. To reach from Idria, follow road up canyon past reservoir to post on left side of road, which is 6.0 miles from gate in Idria, and go up draw on right to station site. The first 2 miles of road from Idria to reservoir is steep and narrow, with dangerous curves. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 16.73 meters (54.9 feet) from station in azimuth 135°27′. No. 2 is 20.85 meters (68.4 feet) from station in azimuth 249°33′. *B. M. 5258* (*U. S. G. S.*) (see description thereof) is 15.20 meters (49.9 feet) from station in azimuth 37°29′. Station *Hepsedam* (see description thereof) is visible from ground in azimuth 69°19′33″.

Quien Sabe (San Benito County, J. Bowie, Jr., 1931).—Fifteen miles east of Hollister, on highest peak at head of Quien Sabe Valley, and on east side on highest part of rocky and bushy point. To reach from Hollister, go north on the main street and turn right onto first street after crossing railroad tracks, go 2.2 miles to T-intersection, turn left and go 0.5 mile, turn right and go 8.6 miles, take left fork leading to Quien Sabe Valley and continue 4.5 miles, take left fork and go 0.7 mile, turn right and cross bridge over small stream, follow road over small ridge 2.7 miles to house and end of truck travel, go

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through two gates in barnyard, continue across field past straw rick about 1.0 mile to base of ridge, and climb to summit. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 9.115 meters (29.90 feet) from station in azimuth 285°07′. No. 2 is 7.755 meters (25.44 feet) from station in azimuth 353°45′. Station *Santa Ana* (see description thereof) is visible from ground in azimuth 108°02′18″.

Miller (Fresno County, J. Bowie, Jr., 1931).—About 5 miles northwest of Mendota, at Standard Oil Co. pumping station known as "Miller Colony", just west of Las Deltas garage, 22 meters (72 feet) east of center line of north-and-south road, and on land belonging to Fred Vasquez. To reach from Mendota, go northwest 4.30 miles on road to Firebaugh, turn left across railroad tracks at cotton gin, and continue west 0.8 mile to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is beside telephone pole on west side of road, and 1248.15 feet from station in azimuth 5°03′59″. No. 2 is on west side of road, and 30.995 meters (101.69 feet) from station in azimuth 83°06′. Center line of Standard Oil Co. tank is 11.43 meters (37.5 feet) from station in azimuth 137°11′.

Dos Palos (Merced County, J. Bowie, Jr., 1931).—In South Dos Palos, on west side of railroad tracks at south end of town, on railroad property, 22 yards southeast of southeast corner of fence around railroad section-gang cabins, and across tracks from Standard Oil Co. tanks. To reach from Firebaugh, go northwest 10 miles on paved road along railroad tracks to point where paved road turns north, leave paved road and continue straight ahead 3½ miles on oiled road to South Dos Palos. Marked by standard station disk in concrete, note 1a, projecting about 10 inches. Reference marks are standard reference disks in concrete, note 11a, projecting about 8 inches. No. 1 is 26.87 meters (88.2 feet) from station in azimuth 265°20′. No. 2 is on northeast side of tracks, across from railroad station, and about 0.3 mile from station in azimuth 128°27′40″.

Calaveras (Fresno County, J. Bowie, Jr., 1931).—About 16 miles southeast of Mendota, about 8 miles south of Tranquility, on west side of Calaveras Avenue where power line comes onto street, near sign "Tranquility 8½—Coalinga 30—Fresno 38½" and 5 yards from edge of road. To reach from Mendota, go east 11 miles on road to Fresno, turn right at sign "Mendota 11—Fresno 23½—Tranquility 7" and continue to railroad crossing at edge of Tranquility, go southwest 3½ miles on road leading to Coalinga, turn south and go 5 miles to station site. Marked by standard station disk in concrete, note 1a, projecting about 8 inches. Reference marks are standard reference disks in concrete, note 11a, projecting 8 inches. No. 1 is 8 yards from edge of road and 0.35 mile from station in azimuth 179°46′36″. No. 2 is about 5 yards east of edge of road and 21.915 meters (71.90 feet) from station in azimuth 268°15′.

Supplementary points

Mount Diablo, flagpole (Contra Costa County, J. Bowie, Jr., 1931; 1935).—In 1935 described as follows: On the summit of Mount Diablo, east of parking space, about 50 feet west and a little south of observation platform, and 14.70 meters (48.2 feet) in azimuth 74°12′ from station *Mount Diablo* (see description thereof). Flagpole is set in concrete circular platform base bearing bronze memorial plate.

B. M. 1516 (U.S.G.S.) (Tuolumne County, J. Bowie, Jr., 1931).—About 6 miles east of Knights Ferry, on high flat rock on highest point of small mountain known as "Big Hill." (Type of mark not described.) Station *Big Hill* (see description thereof) is 50.09 meters (164.3 feet) from station in azimuth 305°59′.

Mount Oso (U.S.G.S.), cairn (Stanislaus County, J. Bowie, Jr., 1931).—About 10 miles southwest of Vernalis, on highest point of Mount Oso. Marked by rock cairn. Station *Mount Oso* (see description thereof) is 4.8 meters (16 feet) from station in azimuth 5°.

B. M. 2287 (U.S.G.S.) (Mariposa County, J. Bowie, Jr., 1931).—About 10 miles south-southwest of Mariposa, on top of Shultz Mountain. Probably marked by United States Geological Survey bench-mark tablet. Station *Shultz* (see description thereof) is 25.46 meters (83.5 feet) from station in azimuth 13°11′.

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Shultz (U.S.G.S.), cairn (Mariposa County, J. Bowie, Jr., 1931).—About 10 miles south-southwest of Mariposa, on top of Shultz Mountain. Marked by rock cairn. Station *Shultz* (see description thereof) is 15.54 meters (51.0 feet) from station in azimuth 21°40′.

Green (U.S.G.S.), cairn (Mariposa County, J. Bowie, Jr., 1931).—About 8 miles from Raymond, on bald hill known locally as "Green Mountain." The abandoned Green Mountain copper mine is just under hill on south side. Marked by cairn 8 feet high. Station *Green* (see description thereof) is 147.0 meters (482 feet) from station in azimuth 343°50′08″.

Rabbit (U.S.G.S.), cairn (Madera County, J. Bowie, Jr., 1931).—On bald hill about 5 miles from Raymond. Marked by United States Geological Survey triangulation tablet under center of cairn 7 feet high.

Copper (U.S.G.S.), cairn (Fresno County, J. Bowie, Jr., 1931).—About 8 miles northeast of Clovis, on most northern point of high foothill. Marked by United States Geological Survey tablet under rock cairn.

Poso (U.S.G.S.) (Kern County, J. Bowie, Jr., 1931).—About 18 miles north of Bakersfield, in the oil district known as "Mount Poso", and on bare and inconspicuous flat-topped hill. Marked by United States Geological Survey iron pipe with cap stamped "1215 Datum B." Reference mark is bronze reference tablet in concrete post, 23.12 feet from station. Station *Mount Poso* (see description thereof) is 6.965 meters (22.85 feet) from station in azimuth 304°01′.

Oil Hill (U.S.G.S.) (Kern County, J. Bowie, Jr., 1931).—About 10 miles north of Bakersfield, in the oil section known as "Oil Hill", in sec. 7, T. 28 S., R. 28 E., and on highest, bare, flat-topped hill in vicinity. Marked by United States Geological Survey bronze triangulation tablet stamped "1205." Station *Oil Hill* (see description thereof) is 9.61 meters (31.5 feet) from station in azimuth 228°24′.

B. M. 5258 (U.S.G.S.) (San Benito County, J. Bowie, Jr., 1931).—About 5 miles south of Idria, on highest point of San Benito Mountain. Marked by United States Geological Survey triangulation tablet cemented in solid rock. Station *San Benito* (see description thereof) is 15.20 meters (49.9 feet) from station in azimuth 217°29′.

B. M. 4492 (U.S.G.S.) (San Benito County, J. Bowie, Jr., 1931).—About 17 miles northeast of King City, on Hepsedam Peak. Probably marked by United States Geological Survey bench-mark tablet. Station *Hepsedam* (see description thereof) is 2.23 meters (7.3 feet) from station in azimuth 19°09′.

SACRAMENTO TO STOCKTON ARC

Principal points

Dixon (Yolo County, J. Bowie, Jr., 1931; 1933).—Nine miles from Dixon, on Mound ranch which belongs to J. S. Joseph of San Francisco, just east of levee along Solano-Yolo County line, on line with south side of house of Elks Gun Club, and 78 feet south of center line of road. To reach from west end of Rio Vista bridge over Sacramento River, go north and west about 7 miles on road on levee to county ferry running to Liberty Farms Unit No. 1, cross ferry and go north about 4.5 miles to road leading west to wooden bridge crossing dredger cut, turn right at west end of bridge and go north about 4¾ miles to road crossing levee, go east and down off levee and turn south onto road at toe of levee, follow about one-half mile to house of duck club, and turn left into farmyard and station site. Marked by standard station disk in concrete, note 1a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 13 feet north and 3.3 feet west of fence corner southwest of house and 25.060 meters (82.22 feet) from station in azimuth 293°33′. No. 2 is about 200 yards from station in azimuth 8°17′45″. Southwest gable of house of Elks Gun Club is 42.60 meters (139.8 feet) from station in azimuth 266°16′.

Saxon (Yolo County, John Bowie, Jr., 1931; 1932).—About 1 mile east by north of Saxon railway station of Sacramento Northern Railway, about three-eighths mile northeast of the Clide brothers' ranch house, on land belonging to T. S. Clide, near signal pole 808 D, 6.2 meters (20 feet) south of south right-of-way fence of railway, about 60 feet east of private road crossing leading to red house about 150 yards north of railway station, 21.34 meters (70.0 feet) from center line of railway, 20.1 meters (66 feet) from center of transmission line which is parallel to railway, and about 398 feet west of transmission tower.

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To reach from Davis, go west 3 miles on Route 40 and proceed south 1.2 miles across Putah Creek bridge, go west 2 miles and turn left leaving Route 40, proceed east 5.6 miles, turn right and go 0.5 mile, turn left and go 2 miles, turn right and go 1.3 miles, turn left and go 0.1 mile, cross railway tracks at Saxon, go through gate and continue 0.6 mile to another gate and corrals, continue 0.2 mile to ranch house, turn left just past ranch house and go 0.2 mile to gate at fence corner, turn left and go 0.2 mile to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is in fence corner at gate and one-fourth mile from station in azimuth 10°25′36″. No. 2 is in fence corner at gate beside railway and 66.47 meters (218.1 feet) from station in azimuth 89°06′.

Davis (Yolo County, J. Bowie, Jr., 1931).—About 4 miles southeast of Davis, 3.90 meters (12.8 feet) north of fence on north side of dirt road, and on land belonging to Mr. Wilbur. To reach from Davis, go west 3 miles on Route 40, turn south and go 1.2 miles, cross Putah Creek bridge and go west 2 miles, turn left leaving Route 40 and go east 5.6 miles, turn left and go 0.5 mile, turn right and continue 0.2 mile to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is beside south fence on south side of road and 22.47 meters (73.7 feet) from station in azimuth 355°58′. No. 2 is in fence corner at T-intersection in road and 0.2 mile from station in azimuth 91°47′48″.

Content (Sacramento County, J. Bowie, Jr., 1931; 1933).—About 1½ miles south of Freeport, on east levee of Sacramento River, just northwest of intersection of railroad and highway, 32 feet from center line of railroad, 43 feet from wigwag warning signal, and 90.9 feet from center line of cattle guard to north of crossing. To reach from Courtland, go north 10 miles on main highway to railroad crossing and station site. To reach from Freeport, go south 1.2 miles on main highway to railroad crossing and station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on west of highway, and 13.36 meters (43.8 feet) from station in azimuth 264°07′. No. 2 is 17.6 feet west of levee road, between highway and river and 0.2 mile from station in azimuth 17°05′50″. "Pier No. 17 (U. S. G. S.)" is near southeast corner of garage and about 0.2 mile from station in azimuth 3°41′58″.

Randall (Sacramento County, J. Bowie, Jr., 1931; 1933).—About 2 miles northeast of Courtland, about 1½ miles south of Hood, at northeast end of Randall Island, about 150 yards west of highway, about 50 yards east of Sacramento River, 20.73 meters (68.0 feet) east of north gable of house which is situated among tall gum trees and owned by George B. Greene, 4.2 meters (14 feet) from wire fence, 3.3 meters (11 feet) west of center line of concrete pathway in yard, 23 meters (75 feet) north of concrete pathway leading from house to river, 5.03 meters (16.5 feet) from iron gatepost, and 11.54 meters (37.9 feet) from end post of fence which is set in concrete. To reach from Courtland, go northeast 2.1 miles to point where highway runs onto levee, turn left and continue about 100 yards to Mr. Greene's house and station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 22.45 meters (73.7 feet) from station in azimuth 335°57′. No. 2 is 1 pace south of road and 463 paces from station in azimuth 68°33′15″. "B. M. 64 (U. S. E.)" is at northeast corner of Mr. Greene's garage and 295.95 feet from station in azimuth 353°13′.

Miner (Solano County, J. Bowie, Jr., 1931; 1932).—About 6½ miles north of Rio Vista, 1½ miles northeast of junction of Miner and Cache Sloughs, on west side of Ryer Island, on east levee of Miner Slough, one-half mile north of road crossing Ryer Island to Howard Landing Ferry, 5 meters (16 feet) west of center line of levee road, and 9.5 meters (31 feet) south of ditch line extended. To reach from west end of Rio Vista bridge, go north along river 2.2 miles to ferry, cross Cache Slough by ferry to Ryer Island, turn left onto levee road, and go 5.0 miles to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on south side of road running across island and about one-half mile from station in azimuth 267°23′02″. No. 2

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is on levee and 18.60 meters (61.0 feet) from station in azimuth 338°28′. Gable of small pump house is 10.2 meters (33 feet) from station in azimuth 45°00′.

Walnut (Sacramento County, J. Bowie, Jr., 1931; 1934).—Two miles east of Ryde, about 1 mile west of Walnut Grove, 0.6 mile south of west end of Walnut Grove bridge, on north levee of Sacramento River, and 6.95 meters (22.8 feet) south of center line of road. To reach from Ryde, go east 1.8 miles along highway direct to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 4 feet south of edge of pavement and one-half mile from station in azimuth 88°10′46″. No. 2 is on north side of road, in center of Y formed by roads running off levee road to orchard, and 23.073 meters (75.70 feet) from station in azimuth 221°11′. Azimuth from station to following points are: *Vorden, 1½ miles southeast of, southwest transmission tower, latticed,* 188°26′47″; *Vorden, 1½ miles southeast of, northeast transmission tower, latticed,* 190°59′24″; and *Walnut Grove, 1¼ miles north of, Libby McNeill & Libby, water tank,* 201°06′36″. In 1934 reference mark no. 1 was reported destroyed or covered by debris used to build shoulders along highway.

Drouin (Solano County, J. Bowie, Jr., 1931; 1933).—About 1½ miles northwest of Rio Vista, near northeast end of the Montezuma Hills, at about 111 feet elevation above sea level, and on land belonging to Ed Drouin. A 4- by 4-inch redwood post, painted white, and inscribed with triangle and letters "U. S. C. & G. S.", is set in fence line 2.90 meters (9.5 feet) southwest of station. To reach from Second and Main Streets in Rio Vista, go northwest 0.9 mile on Main Street and paved road, turn left through gate and go 0.2 mile to E. Drouin's house, continue past house following road turning to left down a hill and then right along fence to barn about 0.4 mile from farmhouse, turn right and continue 0.4 mile to fence, turn right before going through gate and follow fence 0.1 mile to fence corner, and turn right and follow fence 0.1 mile to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Upper mark is 15 inches below surface. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on west side of highway, beyond road leading to the Drouin ranch, 0.9 meter (3 feet) northeast of southwest right-of-way fence line, and 0.5 mile from station in azimuth 208°35′48″. Another 4- by 4-inch redwood post, painted white and marked "AZ. WIT. MARK" on one side and "U. S. C. & G. S." on the other, is 1.24 feet northeast of reference mark no. 1 and in line with station and reference mark. No. 2 is on east side of fence and 21.34 meters (70.0 feet) from station in azimuth 323°17′.

Jackson (Sacramento County, J. Bowie, Jr., 1931; 1932).—About 2 miles south of Isleton, on west side of Andrus Island, on east side of Jackson Slough, in corral, 25.6 meters (84 feet) from southwest corner and 28.6 meters (94 feet) from southeast corner of barn, and 13.4 meters (44 feet) east of center line of gravel road. To reach from Isleton, go to west end of main street, which is 2 blocks west of point where highway from Rio Vista intersects main street, turn left and go 2 blocks, turn right and go 2 miles to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 26.15 meters (85.8 feet) from station in azimuth 227°35′. No. 2 is east of road, on garden fence line between small water tank and dwelling house, and approximately 250 meters (820 feet) from station in azimuth 335°59′01″.

Pier No. 4 (U.S.G.S.) (Solano County, J. Bowie, Jr., 1931; 1933).—About 5½ miles south of Rio Vista, on hill just north of Sacramento River, on land owned by Dozier and Pressley Co., and about one-fourth mile northeast of Mr. Dozier's house. To reach from Second and Main Streets in Rio Vista, go southwest one-half mile on Second Street, take right fork and follow main-traveled road 5.0 miles to a T-intersection, turn left and continue straight ahead 2.4 miles to gate entering farmyard, take left fork of three roads and go about 400 feet to gate, pass through gate and continue about 50 yards, leave road and go up hill to station site. Marked by United States Geological Survey bronze disk in concrete post, about 2 feet square, projecting about 2½ feet. Reference marks are standard reference disks in concrete, note 11a. No. 1 is west of road and 0.4 mile from station in azimuth 143°40′46″. A 4- by 4-inch redwood post, painted white and inscribed "U.S.C.&G.S." on one side and "AZ. WIT. MARK" on the other, is on west right-of-way fence line of road,

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2.13 feet northwest of reference mark no. 1 and in line with mark and station. No. 2 is 14.466 meters (47.46 feet) from station in azimuth 241°29′.

False (Contra Costa County, J. Bowie, Jr., 1931; 1933).—About 4½ miles northeast of Oakley, about one-fourth mile west of mouth of False River, on north side of Jersey Tract, 0.7 mile from Jersey, and on south side of levee road. To reach from Oakley, go southeast 0.7 mile on main road, turn left and go east 2.5 miles, turn left again and go 1.3 miles to Jersey Island Ferry, cross ferry, turn left and go 0.2 mile, turn right leaving levee and go 2.6 miles to Jersey, turn right onto levee road and go 0.7 mile to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is at toe of levee and 21.836 meters (71.64 feet) from station in azimuth 260°13′. No. 2 is about 125 yards southwest of nearby flashing river light and about 0.3 mile from station in azimuth 44°14′51″.

Holland (Contra Costa County, J. Bowie, Jr., 1931; 1932).—About 6 miles northeast of Knightsen, on north end of Holland Tract. To reach from Knightsen, go east 2.2 miles across railroad tracks, turn left and go 0.4 mile to Rock Slough, cross slough over dirt fill and follow levee road 4.2 miles to north end of tract to point where road turns right and station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 41.63 meters (136.6 feet) from station in azimuth 233°23′. No. 2 is along levee and 0.3 mile from station in azimuth 346°15′21″. Frank Tract, northwestern one of two steel latticed power poles, is 349.4 meters (1,146 feet) from station in azimuth 228°17′24″. Quimby Tract, southeastern one of two steel latticed power poles, is 538.8 meters (1,768 feet) from station in azimuth 255°32′56″.

Grass (San Joaquin County, J. Bowie, Jr., 1931; 1933).—About 1 mile east of Terminous which is on south fork of Mokelumne River, on property of Western Pacific Railroad at station "Grass", just west of tracks, 28.3 meters (93 feet) south of center line of Kettleman-Terminous road, 57.80 meters (189.6 feet) west of gravel road running south from highway and 17.6 meters (58 feet) northeast of southeast corner, and 14.6 meters (48 feet) from east gable and 15.4 meters (51 feet) from northeast corner of galvanized-iron warehouse belonging to John C. Maurer & Sons. To reach from Oak Park at Stockton, go west 0.7 mile on Alpine Street to Pacific Avenue, go north 3.0 miles on Pacific Avenue to Junction service station, take left fork and go 1.1 miles, turn left and go 6.1 miles along main-traveled road, turn left and go 7 miles to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Upper mark is flush with surface. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 19.645 meters (64.45 feet) from station in azimuth 182°05′. No. 2 is on north side of tracks along right-of-way of Western Pacific Railroad and about 0.3 mile from station in azimuth 267°38′35″. Azimuths from station to following points are: Honker Cut and White Slough, northern one of two latticed steel poles, 345°27′32″; Honker Cut and White Slough, southern one of two latticed steel poles, 346°52′56″; and Honker Cut, southern end, northern one of three latticed steel poles, 349°53′12″.

Black (San Joaquin County, J. Bowie, Jr., 1931; 1933).—About 8.5 miles west by north of Stockton, 1.3 miles southwest of Black Slough Landing, on property belonging to the West Coast Life Insurance Co., in corner of cultivated field, 20.5 meters (67 feet) south of center line of dirt road, 27 meters (89 feet) east of privet hedge, and 38 meters (125 feet) east of north gable of house owned by Harry Dunlop. To reach from Stockton, go west on Washington Street, cross drawbridge and continue 2 miles to San Joaquin River bridge, proceed 2 miles to another bridge, turn to right across bridge and go 1.6 miles to McDonald Island road, follow to right 0.4 mile and to left 0.9 mile, turn right at Black Slough Landing road and go 2 miles, turn left onto dirt road, and continue 0.8 mile to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Upper mark is 18 inches below ground. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on north side of road beside telephone pole and 80.80 meters (265.1 feet) from station in azimuth 252°40′. No. 2 is on east bank of slough and 70.30 meters (230.6 feet) from station in azimuth 12°08′. Station *Point 18* (*U. S. E.*) (see description thereof) is visible from ground in azimuth 163°59′48″. Azi-

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muth from station to *Black Slough Landing, steel transmission tower*, is 234°55′37″.

Bennett (San Joaquin County, J. Bowie, Jr., 1931; 1932).—About 8 miles northwest of Stockton, on land belonging to Mr. Bennett, in southwest corner of crossroad in field inclosed by woven-wire fence, 23.64 meters (77.6 feet) from center line of road to north, and 19.01 meters (62.4 feet) from center line of road to west. To reach from Stockton post office, go north 1.1 miles on California Street to Harding Way, turn left and go 0.5 mile to Pacific Avenue, turn right and follow Pacific Avenue 3.8 miles to Junction service station, take left fork and go 1.1 miles, turn left and go 2.1 miles to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Upper mark projects about 8 inches. Reference marks are standard reference disks in concrete, note 11a, projecting about 8 inches. No. 1 is alongside of fence and 23.18 meters (76.0 feet) from station in azimuth 243°01′. No. 2 is alongside of fence and 1,306.2 feet from station in azimuth 356°10′52″.

Stockton (San Joaquin County, J. Bowie, Jr., 1931; 1932).—At the corner of East Minor Avenue and North Sutter Street in Stockton, on roof of the Medical and Dental Building which is highest building in town, 4.930 meters (16.17 feet) southwest of southwest corner of elevator superstructure, in lower coping at niche in structure, and 0.4 meter (1 foot) above floor of roof in center aperture. Reference mark no. 1 is probably standard reference disk in lower coping in northwest corner of building, 0.4 meter (1 foot) above floor of roof, and 15.30 meters (50.2 feet) from station in azimuth 169°46′.

Roberts (San Joaquin County, J. Bowie, Jr., 1931; 1933).—About 4 miles southwest of Stockton, 3.5 miles northwest of French Camp, 881.8 feet west of intersection of north-and-south tangent and east-and-west tangent to center line of Roberts Island road, in cultivated field owned by T. O. Lewis of Stockton, and 10.8 meters (35 feet) north of north fence line of highway which goes to Tracy. To reach from Stockton post office, go west 5 blocks on Market Street to Center Street, turn left and go 0.7 mile to French Camp Turnpike which forks to right, follow this road 1.0 mile and turn right across bridge onto Garwood road, follow main road 1.7 miles and cross San Joaquin River bridge, go west about one-fourth mile and turn left onto Roberts Island road, and proceed south 1.5 miles to turn in road and station site. Marked by standard station disk in concrete, note 7a, 2 feet below surface. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on south side of road, 1 foot south of fence line, and 26.545 meters (87.09 feet) from station in azimuth 7°20′. No. 2 is at fence corner at southwest corner of field and 1,181.9 feet from station in azimuth 88°47′18″.

Blume (Sacramento County, J. Bowie, Jr., 1931; 1934).—About 1½ miles northeast of Antioch bridge, on north levee of San Joaquin River on Sherman Island, about 200 yards west of Riverside Lodge, and 5.36 meters (17.6 feet) north of center line of road. To reach from east end of Rio Vista bridge, go south 9.2 miles on main road toward Antioch bridge to point where pavement turns onto levee about one-half mile east of bridge, turn left and follow levee road 1.0 mile to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. Through error, station and reference marks are stamped "Blum." Reference mark no. 1 is on levee, 5.18 meters (17.0 feet) north of center line of road, and 23.607 meters (77.45 feet) from station in azimuth 237°31′. No. 2 is in center of levee, 4.0 meters (13 feet) northwest of center line of road, 20.27 meters (66.5 feet) south of south corner of small house, and approximately 300 meters (984 feet) from station in azimuth 55°56′24″. A 4- by 4-inch redwood post, painted white and marked "U. S. C. & G. S." on one side and "AZ. WIT. MARK" on the other, is 5.60 feet southwest of reference mark no. 2 and in line with mark and station.

No. 8 (U. S. E.) (Solano County, J. Bowie, Jr., 1931; 1933).—About 2½ miles south of Rio Vista, on hill just west of Sacramento River, and on land belonging to Perry Anderson. To reach from Second and Main Streets in Rio Vista, go southwest 0.5 mile on Second Street to fork in road, take right fork and go 1.0 mile to farmhouse, turn left, go through farmyard between house and barn and go 0.5 mile, take right fork and go 0.9 mile, pass through gate, turn left and go 0.4 mile to another gate, go 0.1 mile to barn, pass through gate at west side of barn and go up gulch 0.2 mile, turn right and go 0.1 mile to station site. In 1931 United States Engineers' mark, which consisted of 4- by 4-inch

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by 2.5-foot wooden post with its top about 14 inches below surface, was replaced with standard station disks in concrete, notes 1a and 7a. Upper mark is 12 inches below surface. A 4- by 4-inch redwood post, painted white and inscribed with triangle and "U. S. C. & G. S.", is in fence line east of station. Two standard reference disks in concrete, note 11a, were established in 1931. No. 1 is 2.0 feet west of fence and 0.4 mile from station in azimuth 200°11′39″. No. 2 is 2.0 feet west of same fence and 21.29 meters (69.8 feet) from station in azimuth 4°51′.

Pox (San Joaquin County, J. Bowie, Jr., 1932; 1933).—About 5 miles southeast of Stockton, on east side of highway, on west edge of prune grove, about 120 feet north of end of highway, and about 50 feet south of one garage and about 120 feet north of another garage. To reach from Weber and El Dorado Streets in Stockton, go south 1.0 mile on El Dorado Street (or 6 blocks beyond railroad) to Charter Way, turn left onto Charter Way and go 2.0 miles to Pox Lane, turn right between two gasoline stations onto Pox Lane and go 2.0 miles to end of road. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on west side of highway, about 10 feet north of point where power line crosses highway, and one-half mile from station in azimuth 160°58′16″. No. 2 is on east side of highway, on west edge of prune grove, and 83.87 feet from station in azimuth 342°27′.

Cactus (San Joaquin County, J. Bowie, Jr., 1931; 1933).—About 7 miles south of Stockton, 8 feet north of fence line, and about 10 meters (33 feet) north of River Avenue Road. To reach from corner of Weber and El Dorado Streets in Stockton, go south 7.5 miles on El Dorado and Lincoln Highway to River Avenue Road, turn right and go about 90 meters (295 feet) to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is south of River Avenue Road and 14.20 meters (46.6 feet) from station in azimuth 14°08′. No. 2 is in fence corner on north side of River Avenue Road and 0.3 mile from station in azimuth 89°38′24″.

Williams (San Joaquin County, J. Bowie, Jr., 1931; 1934).—About 7 miles southwest of Stockton, about 6 miles due west of French Camp, on crown of east levee of Middle River where it is intersected by extended line of west fence of north road tangent, and 8.0 meters (26 feet) west of road at point where it leaves levee. To reach, go to Union Island bridge where Tracy road crosses Middle River, turn north onto macadam road on east levee of Middle River and go approximately 0.4 mile to point where road turns sharply to right away from levee and goes due north on low ground. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks were standard reference disks in concrete, note 11a. No. 1 was on east side of road and approximately 213 meters (699 feet) from station in azimuth 184°25′25″. No. 2 was on east side of road and 23.87 meters (78.3 feet) from station in azimuth 301°34′. In 1933 and 1934, neither reference mark was recovered. No. 1 appeared to have been scraped out when road was crowned; and no. 2, if still in existence, was under 2 to 4 feet of a new fill on side of road.

Mowry (San Joaquin County, J. Bowie, Jr., 1931; 1933).—About 10 miles southwest of Stockton, on levee, 45.11 meters (148.0 feet) from west end of top chord on north side of Union Island bridge, and 13.49 meters (44.3 feet) from northeast corner of and 12.70 meters (41.7 feet) from southeast corner of galvanized-iron pump house. To reach from Miner and El Dorado Streets in Stockton, go south 6.0 miles on Lincoln Highway to Roberts Island road, turn right and go 3.2 miles to Carlin road, turn left and go 1.8 miles to Crocker road, turn right and follow Crocker road and Union road 2.4 miles to Union Island bridge, cross bridge, turn right through gate onto levee, and go around galvanized-iron pump house on levee to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on levee and 20.31 meters (66.6 feet) from station in azimuth 245°06′. No. 2 is on north side of road, near fence gate, and 0.3 mile from station in azimuth 108°16′00″.

Moss (San Joaquin County, J. Bowie, Jr., 1932; 1933).—About 12 miles south by west of Stockton, on top of west levee of San Joaquin River, about 100 meters (328 feet) north of railroad bridge, and about 25 meters (82 feet) northeast of

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some tall eucalyptus trees. To reach from corner of El Dorado and Weber Streets in Stockton, go south 12.2 miles on El Dorado Street to San Joaquin River bridge, cross bridge and turn right onto south levee, take road under railroad trestle and follow along bank of river to toe of levee and station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on levee and 16.98 meters (55.7 feet) from station in azimuth 187°26′. No. 2 is on west side of main highway and 0.3 mile from station in azimuth 294°11′33″.

Sugar (San Joaquin County, J. Bowie, Jr., 1931; 1934).—About 2½ miles north of Tracy, on crown of levee at south end of Sugar Cut, about 500 feet east of the Holly Sugar Refinery building, about 30 feet east of old irrigation trough, 21 meters (69 feet) from northeast corner of discharge box of pumping plant, 9.8 meters (32 feet) east of concrete lining, and 30.3 meters (99 feet) from northeast corner of pump house. To reach from intersection of Oakland highway and Central Street in Tracy, go north 0.9 mile, turn right and continue 0.6 mile, turn left and go about 1.0 mile, again turn left and go about 0.4 mile to entrance to the Holly Sugar Refinery, turn right into refinery property and go approximately 0.2 mile, again turn right and go east between main refinery and galvanized-iron warehouse, go around southeast corner of refinery and continue north between refinery and storage bins, go east under conveyor at north end of bins, and continue east over levee and around pump house to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is at northeast corner of stucco shed and 27.66 meters (90.7 feet) from station in azimuth 181°10′. No. 2 is at southeast corner of road intersection and 0.4 mile from station in azimuth 313°58′35″.

Grant (San Joaquin County, J. Bowie, Jr., 1931; 1934).—About 13 miles southwest of Stockton, 6 miles north of Tracy, about 300 feet east of north end of Grant Line Canal bridge, on north levee, about 26 feet south of center line of levee road, 8.93 meters (29.3 feet) from southwest corner and 10.12 meters (33.2 feet) from northwest corner of shed on levee, and 4.3 meters (14 feet) west of fence across levee. To reach from Weber and Center Streets in Stockton, go south 0.9 mile to point where Union Island highway turns obliquely to right, turn right and go 1.1 miles to point where road turns to right, turn right and go west 2.1 miles to Garwood bridge over San Joaquin River, continue across bridge to point where first paved road turns left, turn left and go south 1.5 miles, turn right and go 0.3 mile beyond station *Roberts*, turn left and go south 1.8 miles, turn right and go west 2.1 miles to Middle River bridge, continue across bridge and follow highway 6.0 miles to fork of road, take left fork and continue south 1.7 miles to Grant Line Canal bridge, turn left onto north levee and go approximately 300 feet to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on west side of highway and ¼ mile from station in azimuth 158°25′10″. A 4- by 4-inch redwood post, painted white and inscribed "U. S. C. & G. S. B. M.", is 6 feet from reference mark no. 1 in opposite direction to arrow on mark. No. 2 is on levee and 24.76 meters (81.2 feet) from station in azimuth 92°44′.

Trapper (San Joaquin County, J. Bowie, Jr., 1931; 1933).—About 11½ miles southwest of Stockton, on slope of levee at junction of north levee of Trapper Slough and east levee of Middle River. To reach from Weber and El Dorado Streets in Stockton, go south 3 blocks on El Dorado Street to Washington Street, turn right onto Washington Street (Borden Highway) and go west 6.6 miles, take left fork and go 6.2 miles to sheet-iron warehouse, turn to right of warehouse and go about 500 feet on gravel road to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on levee and 34.08 meters (111.8 feet) from station in azimuth 87°39′. No. 2 is on north side of paved highway leading to station and ½ mile from station in azimuth 243°18′22″.

Herd (San Joaquin County, J. Bowie, Jr., 1931; 1933).—About 18 miles southwest of Stockton, 9 miles northwest of Tracy, on east face of west levee, and 6.5 meters (21 feet) east of center line of road. To reach from corner of Weber and Center Streets in Stockton, go south 0.9 mile to point where

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Union Island highway turns obliquely to right, turn right and go south 1.1 miles, turn right and go west 2.1 miles to San Joaquin River bridge, continue across bridge to first paved road turning left, turn left and go south 1.5 miles, turn right past station *Roberts* and go west 0.3 mile, turn left and go south 1.8 miles, turn right and go west 2.1 miles to Middle River bridge, continue across bridge and follow highway 6.0 miles, take right fork and go 6.0 miles to Clifton Court Ferry, cross ferry and turn left along top of levee, and continue 0.3 mile to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on north side of road, in line with barbed-wire fence, and one-fourth mile from station in azimuth 43°06′42″. No. 2 is on west face of levee, in line with barbed-wire fence, and 16.221 meters (53.22 feet) from station in azimuth 151°56′.

Old (San Joaquin County, J. Bowie, Jr., 1931; 1932).—About 17 miles west of Stockton, on west side of Victoria Island, on levee of Old River, and 4.8 meters (16 feet) south of center line of road on levee. To reach from corner of El Dorado and Washington Streets in Stockton, go west 6.6 miles on Washington Street (Borden Highway) to fork in road, take left fork and go 6.2 miles to Middle River bridge, cross bridge and go 4.7 miles to approach of Old River bridge and station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on levee, 4.10 meters (13.5 feet) from center line of levee road, and 23.86 meters (78.3 feet) from station in azimuth 236°29′. No. 2 is on south side of highway near culvert and 1.0 mile from station in azimuth 271°26′37″. Pipe in center of water tank at south end of bridge is 51.00 meters (167.3 feet) from station in azimuth 76°04′.

Bacon (San Joaquin County, J. Bowie, Jr., 1931; 1933).—About 6 miles west of Holt, near southeast corner of Bacon Island, about 1 mile north of Bacon Island ferry crossing, and 19.5 feet east of center line of levee road which turns left about 100 feet beyond station. To reach from Stockton, follow road which crosses Rough and Ready Island to Holt, go through railroad underpass and follow main-traveled road 1.2 miles, turn right at signboard "Bacon Island Ferry 7.0 miles" and follow main road 6.7 miles, go through railroad underpass and continue 0.2 mile, turn left onto bridge and cross on ferry, turn right onto levee road and go 1.1 miles to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 24.34 meters (79.9 feet) from station in azimuth 24°32′. No. 2 is 58.03 meters (190.4 feet) from station in azimuth 144°59′. Azimuth from station to Middle River, eastern one of three latticed steel power poles, is 359°00′43″.

Holt (San Joaquin County, J. Bowie, Jr., 1931; 1932).—About 8½ miles southwest of Stockton, about 0.2 mile west of Holt railway station, on top of fill on right side of road, 46.9 feet south of silver-colored pipe line (48 inches in diameter), and 265 feet west of point where pipe line crosses road. To reach from corner of Weber and El Dorado streets in Stockton, go south 3 blocks on El Dorado Street to Washington Street, turn right onto Washington Street (Borden Highway) and go west 6.6 miles to fork in road, take left fork and go 1.5 miles to subway under railway track, turn right onto gravel road on north of tracks and go 0.5 mile to road crossing tracks on left, cross tracks and go 0.1 mile to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is in concrete base of Atchison, Topeka & Santa Fe Railway signal tower near stockyards and one-fourth mile from station in azimuth 268°30′33″. In 1934 steel structure of signal tower was straightened and reference mark may have been destroyed. No. 2 is 13 feet north of the center line of the road and 22.32 meters (73.2 feet) from the station in azimuth 354°29′. Brass mark stamped "E. B. M. U. D." is in west concrete abutment of road crossing pipe line and 250.18 feet from station in azimuth 258°53′. Station "Holt (U.S.G.S.)", a red tank, is approximately 189.5 meters (622 feet) from station in azimuth 202°42′.

Lacto (San Joaquin County, J. Bowie, Jr., 1931; 1933).—About 3 miles west of Holt, about one-fourth mile west of railway siding Lacto, opposite west end of trestle no. A1133, and 28.20 meters (92.5 feet) north of center line of Atchison, Topeka & Santa Fe Railway. To reach from Stockton, go to Holt

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via Rough and Ready Island, go through railway underpass and follow main-traveled road 1.2 miles, turn right at signboard "Bacon Island Ferry 7 miles" and follow main-traveled levee road 0.7 mile, turn right (away from levee road) and follow main-traveled road 1.7 miles, turn right onto dirt road between cornfield and ditch and go 1.2 miles to railway tracks, turn left and go 0.3 mile to point where road crosses railway track at Lacto siding, and proceed west on foot about one-fourth mile to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on north side of railway, in line with telegraph line, and 62.93 meters (206.5 feet) from station in azimuth 292°35′. No. 2 is 32.69 meters (107.3 feet) from station in azimuth 56°26′. Azimuth from station to left one of two poles, distant about 2 miles, is 141°36′55″. Center line of railway at east end of trestle is 59.1 meters (194 feet) from station in azimuth 301°38′, and center line of railway at west end of trestle is 29.2 meters (96 feet) from station in azimuth 18°59′.

Supplementary points

B. M. 96 (U. S. E.) (Yolo County, J. Bowie, Jr., 1931; 1933).—On west levee of Sacramento River, about 2 miles south of bridge on which Route 40 crosses river, 11.9 meters (39 feet) from center line of levee road, in triangle formed by two roads turning off levee road and leading to house belonging to L. E. Van Tassel, 24.5 meters (80 feet) from nearest corner of house, and 48.6 meters (150 feet) from garage gable at end of road. To reach from west end of bridge, take hard-surfaced road which goes to Clarksburg and follow 0.8 mile to fork, go straight ahead on left fork onto levee, and follow levee road 0.8 mile to station site. (Type of mark is not described, but probably is capped iron pipe set in concrete.)

Reference marks are standard reference disks in concrete, note 11a. No. 1 is against south side of fence, on south side of lawn in front of house, and 24.32 meters (79.8 feet) from station in azimuth 84°16′. No. 2 is 18.7 feet east of center line of levee road at about middle of bend in Sacramento River bank and 0.4 mile from station in azimuth 148°56′30″.

Pier No. 20 (U.S.G.S.) (Yolo County, J. Bowie, Jr., 1931; 1933).—About 4 miles south by west of Sacramento, about 200 yards west of Sacramento River, about 100 yards southeast of farmhouse, and in alfalfa field on land owned by the West Sacramento Co. To reach from west end of M Street Bridge in Sacramento, go southwest 0.8 mile on Clarksburg Avenue, take left fork leading to levee and follow levee road 3.55 miles, turn right leaving levee and go west about 0.3 mile along south side of ditch, turn right at first road crossing ditch and follow 0.1 mile through field, turn right through farmyard and go about 100 yards southeast of farmhouse to station site. Marked by United States Geological Survey tablet in top of pier with copper bolt in its base. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on top of levee, 19.0 feet west of center line of levee road, 250 feet south of large red-roofed barn, and approximately one-fourth mile from station in azimuth 235°40′16″. No. 2 is in southeast corner of farmyard, near large oak tree, and 42.38 meters (139.0 feet) from station in azimuth 126°30′.

B. M. 89 (U. S. E.) (Sacramento County, J. Bowie, Jr., 1931; 1933).—About 5 miles southwest of Sacramento, about 4 miles northwest of Freeport, on top of east lévee of Sacramento River, and 22.0 meters (72 feet) west of southwest corner of large barn at toe of levee. To reach from Freeport, follow highway 1.2 miles toward Sacramento, turn left and go through concrete railroad underpass, follow paved road 3.7 miles to two large yellow buildings on left (one is a church and other a lodge hall), turn left onto dirt road just south of buildings, go through gate and follow road 0.2 mile to base of levee, turn left and follow road past left side of unpainted barn, go through gate at corner of barn and continue onto levee and station site. Marked by capped iron pipe in concrete, projecting about 1½ feet. Reference marks are standard reference disks in concrete, note 11a. No. 1 is about 1 foot from southwest corner of large barn and 21.50 meters (70.5 feet) from station in azimuth 263°01′. No. 2 is at curve in highway, approximately 20 feet west of center line of pavement, about 30 feet north of center line of dirt road intersecting highway, and 0.3 mile from station in azimuth 354°03′40″.

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B. M. 85 (U. S. E.) (Sacramento County, J. Bowie, Jr., 1931; 1933).—About 7 miles south of Sacramento, 1¼ miles northwest of Freeport, on east levee of Sacramento River, and on land belonging to Foster & Perry. To reach from Freeport, follow highway 1.2 miles toward Sacramento, turn left and go through concrete railroad underpass, go 1 mile and turn left into farmyard just south of white barn, and follow road passing barn onto levee and station site. Marked by bronze-capped, 3-inch iron pipe in concrete. Reference marks are standard reference disks in concrete, note 11a. No. 1 is outside of corner of field, on west side of lane leading into the Baumgartiel residence, 9 paces south of pavement, and 230 paces from station in azimuth 194°24′47″. No. 2 is on levee and 16.90 meters (55.4 feet) from station in azimuth 76°03′. Glide Ferry, northern one of two wooden power poles, is 67.48 meters (221.4 feet) from station in azimuth 116°24′. Azimuth from station to *Sacramento, 5 miles south-southwest of, brickyard, west stack,* is 163°24′30″; and to *Sacramento, 5 miles south-southwest of, brickyard, east stack,* 165°02′48″.

Pier No. 15 (U.S.G.S.) (Sacramento County, J. Bowie, Jr., 1931; 1932).—About 5½ miles south of Freeport, about 4½ miles northeast of Courtland, about 0.75 mile north of Hood Ferry, on east side of Sacramento River, in cultivated field on land owned by the Edinger & Johnston Co., 162.4 feet from center line of highway, 208 feet northwest of corner of barn with roof marked "Rosebud Stock Farm", 89.9 feet west of northwest corner of implement shed, 21 meters (69 feet) west of fence line, and 69.5 feet north of fence running east and west on south side of lot. To reach from Courtland, go north 4.8 miles on main highway, turn right and go past house, turn right and go about 100 yards to gate, go through gate and continue about 50 yards to station site. Marked by United States Geological Survey bronze disk in top of concrete pier projecting about 2½ feet. There is a copper bolt in base of pier. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 15.8 feet east of center line of concrete highway, 2 meters (7 feet) southeast of edge of pavement, 102 feet from pump house, and 0.25 mile from station in azimuth 46°24′34″. No. 2 is in fence line, at south side of foot of levee, 58.0 feet from center line of highway, and 31.82 meters (104.4 feet) from station in azimuth 139°27′.

Pier No. 16 (U.S.G.S.) (Yolo County, J. Bowie, Jr., 1931; 1932).—In northern end of Clarksburg, about 300 yards west of Sacramento River levee, in open field, near intersection of roads, 85.8 meters (281 feet) from center line of road on west, 31 meters (102 feet) from center line of road on east, and 39.8 meters (131 feet) from center line of road on north. To reach from Freeport, go south 0.4 mile to Freeport Bridge, turn right and cross bridge, turn left onto levee road and follow about 3½ miles in a southerly direction to Clarksburg, go 1 block west of post office, turn right and go one-fourth mile to station site. Marked by United States Geological Survey disk in concrete pier projecting about 3 feet. There is a copper bolt in base of pier. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on west side of highway and 25.91 meters (85.0 feet) from station in azimuth 235°01′. No. 2 is on north side of highway, in southeast corner of front lawn of high school, and 0.4 mile from station in azimuth 23°14′40″. "B.M. 34 (U.S.E.)", marked by bronze-capped pipe, is at southeast corner of street intersection, 1 block west of Clarksburg post office, and about one-fourth mile from station in azimuth 327°23′23″.

Benson (San Joaquin County, J. Bowie, Jr., 1931; 1933).—About 4 miles east by north of Walnut Grove, on south levee of Mokelumne River, 40 meters (131 feet) east of Benson Drawbridge. The levee adjoins property owned by W. F. Haehnlen. To reach from Walnut Grove Hotel, go west 0.4 mile on Stockton Road, turn left and go 1.0 mile, turn left across bridge and go 0.4 mile, turn left and go 0.6 mile, cross New Hope Bridge and go 1.4 miles to yellow service station, turn left onto hard-surfaced road and go 1.3 miles, turn right and go 1.4 miles, turn left and go 0.7 mile to Benson Bridge and station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference mark no. 1 is standard reference disk in concrete, note 11a, on north side of highway, about 100 feet west of right-angle bend in road, and 263.010 meters (862.89 feet) from station in azimuth 320°08′53″. Reference mark no. 2 is standard reference disk, note 11c, in southeast abutment of Benson Bridge, and 39.456 meters (129.45 feet) from station in azimuth 113°01′.

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Hope (San Joaquin County, J. Bowie, Jr., 1931; 1932).—About 1½ miles southeast of Walnut Grove, on west levee of south fork of Mokelumne River, at north end of Staten Island, and about 200 yards south of New Hope Bridge. To reach from Walnut Grove, follow road toward Stockton about 2.4 miles to New Hope Bridge, turn right onto levee, and go 0.1 mile to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is beside wooden transformer pole on levee and 27.45 meters (90.1 feet) from station in azimuth 179°13′. No. 2 is on north side of highway at fork 0.5 mile west of New Hope Bridge, and one-half mile from station in azimuth 45°10′08″. *Transmission pole, near station Hope*, is 24.6 meters (81 feet) from station in azimuth 130°28′. *Transformer pole, near station Hope*, is 27.6 meters (91 feet) from station in azimuth 180°32′.

Fork (Sacramento Cohnty, J. Bowie, Jr., 1931; 1932).—On east levee of Sacramento River, about 2 miles northeast of Rio Vista, 3.4 miles below Isleton, 255 feet upstream from dirt road leading from highway to river bank, and 20.72 feet north of center line of road. To reach from south end of Rio Vista Bridge, go east 1.2 miles to station site on left-hand side of road. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is about 6 feet north of pavement and about 0.2 mile from station in azimuth 233°59′40″. In June 1933 mark was covered by several feet of spoil bank from rebuilding levee and was not recovered. No 2 is on south side of road, about 5 feet from pavement, and 21.610 meters (70.90 feet) from station in azimuth 14°32′. Azimuths from station to following points are: *Rio Vista, St. Joseph's Catholic Church, spire*, 55°56′08″; *Rio Vista, Del Monte water tank*, 58°50′35″; Howard Landing, western one of two latticed steel power poles, 220°12′37″; and Howard Landing, eastern one of two latticed steel power poles, 221°37′23″.

Rio Vista (Solano County, J. Bowie, Jr., 1931; 1933).—About one-half mile south of Rio Vista, on small knoll, in center of levee on west bank of Sacramento River, 13.1 meters (43 feet) from edge of river bank, about 100 yards north of fence enclosing buildings of United States Engineers, 52.5 meters (172 feet) from center line of road leading to plant of the United States Engineers, and 72.5 meters (238 feet) from nearest corner of shed on property of the United States Engineers. To reach from Second and Main Streets in Rio Vista, go southwest 0.5 mile on Second Street to fork in road, take left fork and go 0.2 mile to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is approximately 400 meters (1,312 feet) from station in azimuth 22°16′18″. No. 2 is 25.250 meters (82.84 feet) from station in azimuth 136°08′. *B. M.* (*U.S.G.S.*) (see description thereof) is 219.76 meters (721.0 feet) from station in azimuth 127°42′45″.

Steamboat (Sacramento County, J. Bowie, Jr., 1931; 1933).—About 4 miles north of Rio Vista, 4½ miles northwest of Isleton, on southeast levee of Steamboat Slough, 4.20 meters (13.8 feet) from center line of levee road, and 34.8 meters (114 feet) south of intersection of levee road and road leading off levee to some farm buildings. To reach from Isleton, go north 1 mile beyond west end of Isleton bridge to road across Grand Island leading to Walker Landing, and go south about 2½ miles on levee road to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on south side of levee road and 13.358 meters (43.83 feet) from station in azimuth 317°11′. No. 2 is on south side of levee road and one-fourth mile from station in azimuth 74°30′17″.

Grand (Sacramento County, J. Bowie, Jr., 1931; 1932).—On west levee of Sacramento River, about 1¾ miles northeast of Isleton, 0.2 mile below road running across Grand Island to Walker Landing, 6.812 meters (22.35 feet) southeast of center line of concrete road, and 91 feet downstream from gable of small galvanized-iron pump house. To reach from Isleton, go north 1 mile to bridge, cross bridge, turn right, and go 0.7 mile to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 37.25 meters (122.2 feet) south of center line of road and 27.830 meters (91.31 feet) from station in azimuth 206°19′. No. 2 is on north side of road,

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8 feet from edge of pavement, and 700 paces from station in azimuth 33°10′01″. Azimuths from station to following points are: *Isleton, southwest transmission tower*, 64°11′17″; *Isleton, northeast transmission tower*, 68°14′23″; Howard Landing, western one of two latticed steel power poles, 164°58′12″; and Howard Landing, eastern one of two latticed steel power poles, 167°47′40″.

Isleton (Sacramento County, J. Bowie, Jr., 1931; 1932).—About one-half mile west of Isleton, about one-half mile east of eastern end of Ida Island, on south side of north levee of Sacramento River, and 4.6 meters (15 feet) southwest of center line of road on top of levee. To reach from Isleton, go north 1 mile to bridge, cross river, turn left and follow levee road 1½ miles to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. A 4- by 4-inch redwood post, painted white and inscribed "U. S. C. & G. S.", is 5.78 feet southeast of station. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 4.0 meters (13 feet) northeast of center line of levee road and approximately one-fourth mile from station is azimuth 117°01′29″. A 4- by 4-inch redwood post, painted white and inscribed "U. S. C. & G. S. AZ. WIT. MARK", is 2.8 feet southeast of reference mark no. 1. No. 2 is 5.5 meters (18 feet) northeast of center line of levee road and 13.61 meters (44.7 feet) from station in azimuth 161°58′. "B. M. 8 (U. S. G. S.)" is 300 feet north of levee road and approximately 1 mile from station in azimuth 264°41′49″. Azimuths from station to following points are: Howard Landing, western one of two latticed steel power poles, 191°10′11″; and Howard Landing, eastern one of two latticed steel power poles, 193°19′02″.

Walker (Sacramento County, J. Bowie, Jr., 1931; 1932).—About 3¾ miles north of Isleton, 3 miles southwest of Ryde, on east levee of Steamboat Slough, and about 15 feet west of center line of levee road. To reach from Isleton, go north 1 mile to bridge, cross bridge and turn right, go north 1 mile and turn left, leave levee at signs "Ryer Island" and "Walker Landing" and follow this road 1.8 miles to T-intersection, turn left and go 0.7 mile to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on east side of levee road and 16.005 meters (52.51 feet) from station in azimuth 210°46′. No. 2 is on south side of road which intersects levee road and one-fourth mile from station in azimuth 314°27′30″.

Pratt (Sacramento County, J. Bowie, Jr., 1931; 1934).—About 4 miles northeast of Isleton, about 2 miles south of Ryde, about 200 yards south of the Pratt Low Cannery, on west levee of Sacramento River, 6.53 meters (21.4 feet) south of center line of pavement, 21.5 meters (71 feet) from northeast corner of large barn, and 31.4 meters (103 feet) from south gable of small house which is between highway and river. To reach from Isleton go north 1.0 mile to bridge, cross bridge, turn right and go north 3.0 miles along main highway to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is about 10 feet from pavement on northwest side of road and 28.890 meters (94.78 feet) from station in azimuth 153°52′. No. 2 is on north side of road, about 2 feet from northeast corner of wire fence, and 700 paces from station in azimuth 3°59′06″. Azimuths from station to following points are *Isleton, southwest transmission tower*, 53°54′30″; *Isleton, northeast transmission tower*, 55°34′38″; Howard Landing, western one of two latticed steel power poles, 122°56′30″; and Howard Landing, eastern one of two latticed steel power poles, 124°50′23″.

Ryde (Sacramento County, J. Bowie, Jr., 1931; 1934).—At north end of Ryde, on west levee of Sacramento River, and 9.54 meters (31.3 feet) east of center line of road. To reach from Isleton, go north 1 mile to bridge, cross bridge and turn right, go 6 miles to Ryde, and continue north about 0.2 mile from the Ryde Hotel to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is about 8 feet from pavement on south side of road and 835 paces from station in azimuth 237°34′03″. No. 2 is by fence on north side of road and 29.71 meters (97.5 feet) from station to azimuth 71°43′. Azimuth from station to *Vorden, 1½ miles northwest of, northeast transmission tower*, is 176°15′59″.

Sutter (Sacramento County, J. Bowie, Jr., 1931; 1932).—About 2½ miles northwest of Ryde, about one-half mile south of junction of Sutter and Steamboat Sloughs, on east levee of Steamboat Slough, and about 18 feet west of

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center line of levee road. To reach from Ryde, go west from Standard Oil station and follow hard-surfaced road 2.4 miles to Steamboat Slough, turn right onto levee and follow road 1.2 miles to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is about 15 feet east of center line of levee road and one-fourth mile from station in azimuth 178°52′16″. No. 2 is about 18 feet east of center line of levee road and 11.03 meters (36.2 feet) from station in azimuth 286°14′.

Slough (Sacramento County, J. Bowie, Jr., 1931; 1933).—About 8 miles northeast of Rio Vista, 3 miles northwest of Ryde, about 2 miles south of northern end of Steamboat Slough, 20 feet north of center line of levee road, and opposite point where road leaves levee. To reach from Isleton, go north on main highway to Ryde, turn left and go to Walker Landing, turn right onto levee at Walker Landing and go 3½ miles to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is approximately 20 feet south of center line of levee road and 22.437 meters (73.61 feet) from station in azimuth 324°32′. No. 2 is approximately 30 feet east of center line of levee road and one-fourth mile from station in azimuth 356°25′11″. Azimuth from station to following points are: *Vorden, 1½ miles northwest of, northeast transmission tower,* 234°03′16″; *Vorden, 1½ miles northwest of, southwest transmission tower,* 235°35′35″; and *Ryde, water tank,* 330°27′52″.

Vorden (Sacramento County, J. Bowie, Jr., 1931; 1933).—About 1¼ miles northwest of Walnut Grove, 1½ miles southeast of Vorden, on southwest levee of Sacramento River, 6.7 meters (22 feet) northeast of center line of concrete highway, opposite house with lawn extending up to pavement and with small hedge about 1 foot high, and 21 meters (69 feet) southeast of steps leading to house as measured along center line of highway. To reach from bridge at Walnut Grove, follow levee road on west side of river 1½ miles to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 14 feet west of center line of highway, 20 inches southeast of south post of brick parapet in front of Arthur B. Rugard's house, and 670 paces from station in azimuth 316°30′07″. No. 2 is beside southeast corner of hedge in front of T. Nielson's residence, 13.2 feet west of center line of highway, and 13.29 meters (43.6 feet) from station in azimuth 81°30′.

B. M. 60 (U. S. E.) (Sacramento County, J. Bowie, Jr., 1931; 1932).—About 5.5 miles northwest of Walnut Grove, 2 miles south of Courtland, on southern side of junction of northern end of Steamboat Slough and Sacramento River, 3.6 meters (12 feet) east of wire fence on east side of highway, 9.85 meters (32.3 feet) east of center line of highway, 9.90 meters (32.5 feet) southeast of southeast corner of southeast lamppost on drawbridge over Steamboat Slough, and 11 meters (36 feet) from center line of bridge extended. To reach from Walnut Grove, go north about 6 miles on Victory Highway to bridge over Steamboat Slough and station site. Marked by capped pipe in concrete block. Pipe projects about 2 feet. Reference marks are standard reference disks in concrete, note 11a. No. 1 is just east of wire fence, 7.2 meters (24 feeet) east of center line of highway, and 16.06 meters (52.7 feet) from station in azimuth 324°45′. No. 2 is on south side of levee road on south bank of Steamboat Slough and three-fifths mile from station in azimuth 48°17′49″.

Courtland (Sacramento County, J. Bowie, Jr., 1931; 1934).—About three-fourths mile north along highway from Shell Oil Co.'s tanks in Courtland, about 630 meters (2,067 feet) north of junction of levee highway and main highway north of Courtland, near southwest end of Randall Island, on east levee of Sacramento River, and about 4 meters (13 feet) west of center line of highway. To reach from bridge at Walnut Grove, go 6.1 miles in a northerly direction on main highway, cross bridge over Steamboat Slough and go 1 mile, turn right and cross bridge over Sacramento River, turn left and go 0.9 mile to Courtland, continue 0.4 mile to point where main highway leaves levee, and continue straight ahead on levee road to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is near right turn, about 2 meters (7 feet) west of highway, on levee, and 387 meters (1,270 feet) from station in azimuth 221°04′53″. No. 2 is on east side of levee highway, at southeast corner of inter-

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section of road to the Stillwater orchard's packing shed, and 20.41 meters (67.0 feet) from station in azimuth 310°01′. *B. M. 41* (*U. S. E.*) (see description thereof) is 21.41 meters (70.2 feet) from station in azimuth 25°49′.

Sherman (Sacramento County, J. Bowie, Jr., 1931; 1934).—About 5 miles south of Rio Vista, on Sherman Island, and on west levee of San Joaquin River at point where Threemile Slough enters San Joaquin River. To reach from east end of Rio Vista bridge, go south 4 miles to bridge over Threemile Slough, cross bridge and turn left onto levee road, and follow Threemile Slough 3.0 miles to San Joaquin River and station site. In 1933, a 4-foot stand and platform, painted white and maintained by the U. S. Engineers, had been placed over station. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 8.14 meters (26.7 feet) south of southeast corner of house and about 175 meters (574 feet) from station in azimuth 8°54′55″. No. 2 is 3.7 meters (12 feet) west of center line of road and 12.192 meters (40.00 feet) from station in azimuth 124°59′.

Emma (Sacramento County, J. Bowie, Jr., 1931; 1933).—On Sherman Island, on southeast levee of Sacramento River, at about middle of Horseshoe Bend, and 5.5 meters (18 feet) south of center line of highway. A 4- by 4-inch redwood post, painted white and inscribed with triangle and "U. S. C. & G. S.", is 2.75 feet south of station. To reach from east end of Rio Vista bridge, go south 4 miles on main highway to bridge over Threemile Slough, cross bridge, turn right, and go 1.9 miles on main highway to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 5.2 meters (17 feet) south of center line of road and 24.80 meters (81.4 feet) from station in azimuth 234°33′. No. 2 is 566 paces along road to west of station, about 5 meters (16 feet) south of center line of road, and 0.4 mile from station in azimuth 69°45′40″.

Webb (Contra Costa County, J. Bowie, Jr., 1931; 1934).—About 9 miles northeast of Oakley, on north side of Webb Tract, on south levee of San Joaquin River, and about 300 yards east of farmhouse. To reach from Oakley, go southeast 0.7 mile on main road, turn left and go east 2.5 miles, turn left and go 1.3 miles to Jersey Island Ferry, cross to island, turn left and go 0.2 mile, turn right (leaving levee road) and go 2.6 miles to Jersey, turn right onto levee road and go 2.2 miles to ferry, cross on ferry to Webb Tract, turn left onto levee road and go 4.2 miles to station site. In 1933, a 4-foot stand, painted white and maintained by U. S. Engineers, had been placed over station. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is approximately 700 meters (2.297 feet) from station in azimuth 290°12′54″. No. 2 is 29.22 meters (95.9 feet) from station in azimuth 93°54′. In 1933, both reference marks were covered by several feet of soil which had been dredged from adjacent slough and placed on levee.

Brad (Contra Costa County, J. Bowie, Jr., 1931; 1934).—About 7 miles northeast of Oakley, on south levee of San Joaquin River, on northeast corner of Bradford Island, 4.91 meters (16.1 feet) from center line of road on levee, and on water side of road. To reach from Oakley, go southeast 0.7 mile on main road, turn left and go east 2.5 miles, turn left and go 1.3 miles to Jersey Island Ferry, cross to island, turn left and go 0.2 mile, turn right (leaving levee) and go 2.6 miles to Jersey, turn right onto levee road and go 2.2 miles to station site at point where road makes sharp turn to left and goes in a northwest direction. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on water side of levee, 4.42 meters (14.5 feet) from center line of road, and 17.77 meters (58.3 feet) from station in azimuth 339°01′. No. 2 is 4.50 meters (14.8 feet) from center line of road on levee and 0.4 mile from station in azimuth 122°17′18″.

Turner (U.S.E.) (San Joaquin County, J. Bowie, Jr., 1931; 1933).—About 10 miles west of Stockton, 2½ miles northwest of Black Slough Landing, on west levee of San Joaquin River, and on east side of McDonald Tract. To reach from Stockton post office, follow road 7.8 miles to Black Slough Landing, continue straight ahead 3.8 miles to McDonald Ferry, cross ferry, turn right and

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follow levee road 3.0 miles to station site. In 1933, a 4-foot stand, painted white and maintained by United States Engineers, had been placed over station. Marked by capped pipe in concrete block. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on east side of road and 17.70 meters (58.1 feet) from station in azimuth 158°36′. No. 2 is on west side of road on levee and 1,321.0 feet from station in azimuth 193°02′02″. In 1934, reference mark no. 2 was reported to have been disturbed and put back in approximately its original position. An open steel tank on wooden structure is 125.9 meters (413 feet) from station in azimuth 2°04′.

Columbia (U.S.E.) (San Joaquin County, J. Bowie, Jr., 1931; 1932).—About 4½ miles west of Black Slough Landing, on point where Columbia Cut and San Joaquin River meet, 14 meters (46 feet) from river bank, on north end of McDonald Tract, about one-third mile west of Camp 7, McDonald Tract, on south levee of San Joaquin River, and 2.8 meters (9 feet) north of road on levee. To reach from Stockton post office, follow road 7.8 miles to Black Slough Landing, continue straight ahead 3.8 miles to McDonald Ferry, cross ferry, turn right and follow levee road 3.4 miles, leave levee and go 0.2 mile, turn right and go about 0.2 mile to levee, and follow levee road 2.0 miles to station site. In 1933 a 4-foot stand, painted white and maintained by U. S. Engineers, had been placed over station. Marked by iron disk in concrete block about 8 inches below surface of ground. A 4- by 4-inch stake, 3 feet high, painted white and bearing the inscription "U. S. E. D." and with triangle cut in side, stands nearby for witness mark. Reference marks are standard reference disks (probably in concrete, note 11a). No. 1 is 22.87 meters (75.0 feet) from station in azimuth 275°11′. No. 2 is one-half mile from station in azimuth 68°20′14″.

Venice (U. S. E.) (San Joaquin County, J. Bowie, Jr., 1931; 1933).—On Venice Island, on north levee of San Joaquin River, and 3 meters (10 feet) east of center line of road. Marked by bronze cap in concrete which is set in steel casing about 1 foot below surface of ground; and by underground mark consisting of copper bolt in concrete 4 feet below surface of ground. Reference mark is standard reference disk in concrete, note 11a, on west side of road, and 41.162 meters (135.05 feet) from station in azimuth 187°14′. "B. M. DW 42 (U. S. E.)" is 14.10 meters (46.3 feet) east of center of road and about 740 feet from station in azimuth 15°19′26″. Station *Red Tower* (*U.S.G.S.*) (see description thereof) is in azimuth 105°29′32″.

Elk (San Joaquin County, J. Bowie, Jr., 1931; 1933).—On east corner of Webb Tract where Old River enters San Joaquin River, about 200 yards north of large farmhouse, and 4.915 meters (16.13 feet) west of center line of levee road. To reach from Oakley, go southeast 0.7 mile on main road, turn left and go east 2.5 miles, turn left and go 1.3 miles to Jersey Island Ferry, cross ferry, turn left and go 0.2 mile, turn right leaving levee road and go 2.6 miles to Jersey, turn right onto levee road and follow 2.2 miles to ferry, cross ferry onto Webb Tract, turn right and follow levee road 4.8 miles to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 32.325 meters (106.05 feet) from station in azimuth 319°11′. No. 2 is on inner slope of levee and about one-fourth mile from station in azimuth 50°55′27″.

Point 18 (U. S. E.) (San Joaquin County, J. Bowie, Jr., 1931; 1933).—About 1½ miles west of Black Slough Landing, on southwest levee of San Joaquin River, at mouth of Turner Cut-off, between levee road and river, 4 meters (13 feet) northeast of center line of levee road, and about 150 feet east of wooden gate. To reach station from Stockton courthouse, go south 2 blocks to Washington Street, turn right and go 6.5 miles across Rough and Ready Island on road to McDonald Ferry, turn right and go 1.3 miles, turn right and go 2.0 miles, turn left and go 0.7 mile, turn right through gate and go 0.5 mile to levee, turn left onto levee and go 0.7 mile to station site. Marked by brass disk of U. S. Engineers in concrete block. Reference mark is standard reference disk in concrete, note 11a, 20.18 meters (66.2 feet) from station in azimuth 301°34′. *B. M.* (*U. S. E.*) (see description thereof) is 60.64 meters (198.9 feet) from station in azimuth 85°55′. Station *Black* (see description thereof) is visible from ground in azimuth 343°59′39″.

Elmwood (San Joaquin County, J. Bowie, Jr., 1931; 1934).—About 6 miles west by north of Stockton, on northeast levee of San Joaquin River, at west corner of Elmwood Tract, and 3.3 meters (11 feet) from center line of levee road. In 1933, a 4-foot stand, painted white and maintained by U. S. Engi-

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neers, had been placed over station. To reach from Oak Park at Stockton, go west 0.7 mile on Alpine Street, turn right onto Pacific Street and go one-half mile across Calaveras River bridge, turn left and follow paved road along levee 2.1 miles to point where road leaves levee and goes west, continue 1.3 miles and turn right just before arriving at levee, go between buildings and proceed 0.2 mile onto levee, take left fork and follow road on top of levee 1.5 miles to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference mark no. 1 is standard reference disk in concrete, note 11a, 1,181.4 feet from station in azimuth 301°54′43″. Azimuths from station to following points are: *Black Slough Landing, steel transmission tower*, 106°47′47″; and Light 35 (green), distant about 246 feet, 110°09′. *B. M.*—(*U. S. E.*) (see description thereof) is 17.09 meters (56.1 feet) from station in azimuth 111°09′.

Lindley (U. S. E) (San Joaquin County, J. Bowie, Jr., 1931; 1933).—About 4 miles west of Stockton, on south levee of San Joaquin River, and near east end of Rough and Ready Island. To reach from old post office at Stockton, go south 1 block on California Street to Washington Street, turn right and follow Washington Street 3.0 miles to bridge crossing onto Rough and Ready Island, continue about 0.2 mile and turn right onto dirt road on east side of levee, go 0.1 mile and cross over levee, continue about 0.2 mile to old house beside levee of San Joaquin River, and proceed on foot about 0.2 mile northwest along levee to station site. Marked by capped pipe concrete block. In 1933 a 4-foot tripod and platform over station was being maintained by U. S. Engineers. Reference mark no. 1 is standard reference disk in concrete, note 11a, on top of levee, and 11.295 meters (37.06 feet) from station in azimuth 85°34′. *B. M.* (*U. S. E.*) (see description thereof) is 208.94 meters (685.5 feet) from station in azimuth 299°13′49″.

Pacific (U.S.E.) (San Joaquin County, J. Bowie, Jr., 1931; 1933).—About 3 miles northwest of Stockton, about one-quarter mile west of Pacific College, on south levee of Calaveras River, 28.22 meters (92.6 feet) north of north rail of Western Pacific Railroad, and 2.70 meters (8.9 feet) south of center line of levee road. In 1933, a 4-foot stand, painted white and maintained by U. S. Engineers, had been placed over station. To reach from post office in Stockton, go north on California Street to end of car line at Oak Park, turn west onto Alpine Street and go 0.7 mile to Pacific Avenue, turn right and go to Calaveras River bridge, leave pavement and turn left onto levee road on south side of river, and follow this road about one-half mile to station site. Marked by capped pipe in concrete block. Reference marks are standard reference disks in concrete, note 11a. No. 1 is between railroad and levee and 22.55 meters (74.0 feet) from station in azimuth 351°40′. No. 2 is on fence line north of railroad and 2,055.0 feet from station in azimuth 70°34′14″. Azimuth from station to following points are: Station *Calaveras* (*U. S. E.*), 84°36′02″; *State Farm, water tank*, 189°46′11″; and *Stockton, courthouse, dome*, 316°28′26″.

Green (U.S.E.) (San Joaquin County, J. Bowie, Jr., 1931; 1933).—About 5 miles west of Stockton, at northwest corner of Rough and Ready Island, on southwest levee of San Joaquin River, about 50 meters (164 feet) from mouth of Burns Cut-off, and 7.45 meters (24.4 feet) west of Light 42 (red). In 1933, a 16-foot observing tripod, painted white and maintained by U. S. Engineers, had been placed over station. To reach from old Stockton post office, go south 1 block on California Street, turn east onto Washington Street and go 3.0 miles to drawbridge crossing onto Rough and Ready Island, continue about 1.6 miles and turn right onto road through field, follow road to north end of field and end of truck travel at levee, proceed 0.1 mile in a westerly direction along levee, turn right up intersecting levee to San Joaquin River levee, and go west along levee to station site. Marked by capped pipe in concrete block. Reference mark no. 1 is standard reference disk in concrete, note 11a, 11.60 meters (38.1 feet) from station in azimuth 35°02′. Reference mark no. 2 is brass plate bench mark, on west levee of river, in concrete pier belonging to the East Bay Pipe Line Co., and about 0.2 mile from station in azimuth 132°55′52″. *B. M. 203 3/4* (*U. S. E. and Debris Commission of California*) (see description thereof) is 29.10 meters (95.5 feet) from station in azimuth 8°13′. A monument of the U. S. Engineers (not described) is 29.48 meters (96.7 feet) from station in azimuth 37°44′. In 1934, station was destroyed by U. S. Engineers and station "Green 2 (U. S. E.)" established on north side of river, opposite old location.

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Star (Sacramento County, J. Bowie, Jr., 1931; 1933).—About 3½ miles northwest of Walnut Grove, about 2 miles southeast of north end of Steamboat Slough, on southwest levee of Sacramento River, 4.5 meters (15 feet) east of center line of highway, and 63.4 meters (208 feet) south of intersection of center line of highway and line between irrigation well and small pump house between river and highway. To reach from Isleton, follow main highway to bridge at Walnut Grove and follow main highway in a northerly direction along west bank of Sacramento River 3½ miles to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on west side of road, about 20 feet from center line of pavement, and 22.52 meters (73.9 feet) from station in azimuth 100°37′. No. 2 is on west side of road, about 20 feet from center line of pavement, and 0.4 mile from station in azimuth 310°57′36″.

B. M. (U. S. E.) (San Joaquin County, J. Bowie, Jr., 1931; 1933).—About 4 miles west of Stockton, near east end of Rough and Ready Island, and on south side of south levee of San Joaquin River. Marked by steel post. Station *Lindley* (*U. S. E.*) (see description thereof) is 208.94 meters (685.5 feet) from station in azimuth 119°13′54″.

B. M. 203 3/4 (U. S. E. and Debris Commission of California) (San Joaquin County, J. Bowie, Jr., 1931; 1933).—About 5 miles west of Stockton, at northwest corner of Rough and Ready Island. Marked by capped pipe projecting 0.5 meter (2 feet). Station *Green* (*U. S. E.*) (see description thereof) was 29.10 meters (95.5 feet) from station in azimuth 188°13′.

B. M. (U. S. E.) (San Joaquin County, J. Bowie, Jr., 1931; 1933).—About 6 miles west by north of Stockton, on northwest levee of San Joaquin River, and at west corner of Elmwood Tract. Marked by U. S. Engineers' mark in concrete block about 3 inches below surface. Station *Elmwood* (see description thereof) is 17.09 meters (56.1 feet) from station in azimuth 291°09′.

B. M. (U. S. E.) (San Joaquin County, J. Bowie, Jr., 1931).—About 1½ miles west of Black Slough Landing, near mouth of Turner cut-off, and near gate. Marked by brass disk in concrete. Station *Point 18* (*U. S. E.*) (see description thereof) is 60.64 meters (198.9 feet) from station in azimuth 265°55′.

B. M. (U.S.G.S.) (Solano County, J. Bowie, Jr., 1931).—About one-half mile south of Rio Vista, on west bank of Sacramento River, and about 3 feet west of fence on west side of road. (Type of mark not described.) Station *Rio Vista* (see description thereof) is 219.76 meters (721.0 feet) from station in azimuth 307°42′41″.

B. M. 41 (U. S. E.) (Sacramento County, J. Bowie, Jr., 1931; 1934).—About three-fourths mile north of Courtland, near southwest end of Randall Island, on east levee of Sacramento River, and near north end of long concrete bulkhead. Marked by cross on bronze-capped pipe. Station *Courtland* (see description thereof) is 21.41 meters (70.2 feet) from station in azimuth 205°49′.

Calaveras (U. S. E.) (San Joaquin County, J. Bowie, Jr., 1931; 1933).—On south bank of Calaveras River, north of levee road, and about 2 miles west of the College of Pacific in Stockton. A 4-foot stand has been placed over mark. To reach from Stockton, follow Pacific Avenue to bridge over Calaveras River, turn left onto south levee, and go about 2 miles along levee road to station site. Marked by standard mark of the U. S. Engineers.

Red Tower (U.S.G.S.) (San Joaquin County, J. Bowie, Jr., 1931; 1933).—On Venice Island, near headquarters buildings. A tank house with finial. Station *Venice* (*U.S.E.*) (see description thereof) is in azimuth 285°28′48″.

Empire (U. S. E.) (San Joaquin County, J. Bowie, Jr., 1931; 1932).—About one-fourth mile north of Venice schoolhouse, on levee of Empire Tract. A 4-foot stand has been placed over mark. Station may be reached by boat from Stockton. Marked by standard mark of U. S. Engineers.

Gar (U. S. E.) (San Joaquin County, J. Bowie, Jr., 1931; 1933).—About 4 miles west of Stockton, on center line of west levee of San Joaquin River, on Roberts Island, 760 feet south of old Garwood bridge crossing San Joaquin River, and 102.0 feet east of southeast gable and 122.4 feet southeast of northeast gable of long barn. The old Garwood bridge is about one-fourth mile south of new bridge which was under construction in 1933. Marked by brass-capped pipe in concrete, about 1 foot below surface. A 4- by 4-inch white guard post is 6.2 feet east of station.

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Dag (U. S. E.) (San Joaquin County, J. Bowie, Jr., 1931; 1932).—About 4.5 miles west of Stockton, on south levee of Burns Cut-off, on Roberts Island, and 600 feet east of south end of Dagget bridge. Upper mark is brass-capped pipe in concrete, about 1 foot below surface. Underground mark is ⅜-inch copper wire in concrete cylinder. A 4- by 4-inch white guard post is 6.0 feet south of station.

Saunders (U. S. E.) (San Joaquin County, J. Bowie, Jr., 1931; 1933).—About 6 miles southwest of Stockton, on center line of west levee of San Joaquin River, on the Saunders Ranch on Roberts Island, and about 350 feet northeast of ranch houses. To reach from intersection of Roberts Island Road and Tracy Road on Roberts Island, follow Roberts Island Road east approximately 0.1 mile, turn onto private road across grain field and follow northeast approximately 0.6 mile to buildings of Saunders ranch, and proceed along levee about 300 feet to station site. Upper mark is brass-capped pipe in concrete, 9 inches below surface. Underground mark is ⅜-inch copper wire in concrete cylinder. A 4- by 4-inch white guard post is 6.3 feet east of station. In 1933, a 3½-foot tripod, painted white, had been placed over station.

Chic (U. S. E.) (San Joaquin County, J. Bowie, Jr., 1931; 1933).—About 7.5 miles west by south of Stockton, on west side of San Joaquin River, on the Bowman Ranch on Roberts Island, on center line of levee, and 49.3 meters (162 feet) from point vertically under southeast gable of twin-ridge barn. To reach from southwest end of Brandt bridge, follow Roberts Island Road southwest approximately 0.1 mile, turn onto private road paralleling power line and follow approximately 0.5 mile to houses of the Bowman Ranch, and proceed south along top of levee to station site. Marked by brass-capped pipe in concrete, 1.5 feet below surface. A 4- by 4-inch white guard post is 5.3 feet east of station. In 1933 a 4-foot tripod and platform had been placed over station.

Lath (U. S. E.) (San Joaquin County, J. Bowie, Jr., 1931; 1933).—About 9 miles south of Stockton, on center line of concave curve to northwest of west levee of San Joaquin River, and on the Ohm Ranch on Roberts Island. To reach from intersection of Crocker and Carlin Roads on Roberts Island, go south 0.1 mile to end of Carlin Road, go east 0.8 mile on graded dirt road, go through gate onto private road and continue east 0.15 mile and southeast 0.65 mile to house and buildings and continue southeast about 0.2 mile to station site. Marked by brass-capped pipe in concrete, 5 inches below surface. In 1933, a 4-foot stand had been placed over station.

Sal (U. S. E.) (San Joaquin County, J. Bowie, Jr., 1931; 1933).—Ten and one-half miles south by west of Stockton, on center line of north levee of Middle River, on the Herman Muller Ranch on Roberts Island, 19.22 meters (63.1 feet) southeast of spike in white-oak tree, 19.00 meters (62.3 feet) from spike in live-oak tree, and 2.90 meters (9.5 feet) east of fence across levee. To reach from Mowry Bridge, cross Middle River on Crocker Road and follow east approximately 1.8 miles, turn south onto private road and go about 1.2 miles to buildings of the Herman Muller ranch, and continue south approximately 600 feet to station site. Upper mark is brass-capped pipe in concrete, about 4 inches below surface. Underground mark is ⅜-inch copper wire in concrete cylinder. A 4- by 4-inch white guard post is 5.8 feet south of station. In 1933 a 4-foot stand and platform had been placed over station.

Para (U. S. E.) (San Joaquin County, J. Bowie, Jr., 1931; 1933).—Approximately 12.5 miles south by west of Stockton, about 0.4 mile east of the Amaral ranch, and on north crown of south levee of Paradise Cut. To reach from junction of paved road and highway approximately 500 feet east of the Banta Grammar School, follow paved road north 0.3 mile, east 1.7 miles, northwest 2.4 miles, and north 1.2 miles to the Amaral ranch, and go east about 0.4 mile along south levee of Paradise Cut to station site. Upper mark is brass-capped pipe in concrete, 1 foot below surface. Underground mark is ⅜-inch copper wire in concrete cylinder. A 4- by 4-inch white guard post is 5.0 feet north of station.

Tom (U. S. E.) (San Joaquin County, J. Bowie, Jr., 1931; 1933).—About 13 miles southwest of Stockton, about 1.3 miles east of the Bronich ranch, about 335 feet west of fork of Old River near point where it turns into Sugar Refinery Cut, on south crown of north levee of Old River, and on El Pescadero Rancho. To reach from north end of Old River bridge on Union Island road, follow north levee of Old River east 2.1 miles to station site. Upper mark

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is brass-capped pipe in concrete, 1 foot below surface. Underground mark is ⅜-inch copper wire in concrete cylinder. A 4- by 4-inch white guard post is 5.9 feet east of station.

Bell (U. S. E.) (San Joaquin County, J. Bowie, Jr., 1931; 1933).—About 15 miles southwest of Stockton, about 5 miles west of the Furgeson ranch, on south crown of north levee of Grant Line Canal, Union Island. To reach from Grant Line bridge on Tracy road, follow north levee of Grant Line Canal 2.7 miles to Union Island and station site. Upper mark is brass-capped pipe in concrete, 9 inches below surface. Underground mark is ⅜-inch copper wire in concrete cylinder. A 4- by 4-inch white guard post is 5.5 feet north of station. In 1933 a 4-foot observing tripod with platform, painted white and maintained by the United States Engineers, had been placed over station. Azimuth from station to "Bridge (U.S.G.S.)", northeastern one of four tall transmission towers, is 90°01′28″.

Fish (U. S. E.) (San Joaquin County, J. Bowie, Jr., 1931; 1933).—About 10 miles west of Stockton, about 0.1 mile east of junction of Victoria Canal and Tract, Roberts Island, and on north face of north levee of Middle River. To reach from east end of Middle River bridge on Borden Highway, follow north levee of Middle River south and east 2.6 miles to station site. Upper mark is brass-capped pipe in concrete, about 1 foot below surface. Underground mark is ⅜-inch copper wire in concrete cylinder. A 4- by 4-inch white guard post is 5.0 feet north of station. In 1933 a 3½-foot tripod, painted white and maintained by the United States Engineers, had been placed over station.

Coney (U. S. E.) (San Joaquin County, J. Bowie, Jr., 1931; 1933).—About 16 miles west of Stockton about 0.1 mile east of junction of Victoria Canal and Old River, about 0.5 mile west of Camp 24, Victoria Island, and on north face of north levee of Victoria Canal. To reach from southeast end of Old River bridge on Borden Highway, go south and east along east levee of Old River 4.2 miles to station site. Upper mark is brass-capped pipe in concrete, about 1 foot below surface. Underground mark is ⅜-inch copper wire in concrete cylinder. A 4- by 4-inch white guard post is 6.0 feet east of station. In 1933 a 3½-foot tripod, painted white and maintained by the United States Engineers, had been placed over station.

Vic (U. S. E.) (San Joaquin County, J. Bowie, Jr., 1931; 1933).—About 15 miles west of Stockton, on south levee of North Victoria Canal on Victoria Island, and approximately 1,250 feet east of Camp 8. To reach from west end of Middle River bridge on Borden Highway, go northwest along west levee of Middle River on Victoria Island and west along south levee of North Victoria Canal 3.9 miles to station site. Upper mark is brass-capped pipe in concrete about 8 inches below surface. Underground mark is three-eighths-inch copper wire in concrete cylinder. A 4- by 4-inch white guard post is 6.0 feet south of station.

SUISUN, SAN PABLO, AND SAN FRANCISCO BAYS

Principal points

May (Sacramento County, J. Bowie, Jr., 1931).—About 7 miles southwest of Rio Vista, on south levee of Sacramento River, about 1½ miles west of west end of Horseshoe Bend, and about 100 yards north of high steel tower supporting power lines crossing river. To reach from east end of Rio Vista Bridge, go south on paved road along Sacramento River to Emmaton, leave pavement and continue south on levee 3.2 miles to several farm buildings, turn left after passing barns and go about 0.1 mile, go to right to steel tower and continue north about 100 yards to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is about 160 yards southwest of farm buildings, 9.4 meters (31 feet) south of small bridge crossing ditch, 1.9 meters (6 feet) west of same ditch, and 0.4 mile from station in azimuth 266°34′56″. No. 2 is on levee and 16.67 meters (54.7 feet) from station in azimuth 32°28′. In 1933 station mark and reference mark no. 2 had been covered by several feet of spoil from dredging in Sacramento River and were not recovered.

Wood (Sacramento County, J. Bowie, Jr., 1931; 1934).—On south levee of Sherman Island, about one-half mile west of Antioch Bridge, at Camp C Landing, and 3.41 meters (11.2 feet) south of center line of road. In 1933 a 16-foot tripod and stand, painted white and maintained by U. S. Engineers, had

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been placed over station. To reach from south end of Rio Vista Bridge, go south 9.7 miles on paved road to Antioch Bridge, take left fork at bridge approach (passing under bridge) and go west on levee road about 0.7 mile to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is near north edge of road and 11.450 meters (37.57 feet) from station in azimuth 242°22′. No. 2 is at bend of road on north side of road and one-fourth mile from station in azimuth 145°18′39″. In 1933 reference mark no. 2 had been covered by several feet of spoil, due to rebuilding of levee.

Antioch (Contra Costa County, J. Bowie, Jr., 1932).—In northeast corner of Antioch, on low sand dune at most western end of dunes along south bank of San Joaquin River, about 100 meters (328 feet) back from river, and in line with and between two oak trees (35 feet from the east one and 86 feet from the west one). A 4-foot stand and platform have been placed over station. To reach from Antioch Bridge, go south 1.1 miles, turn right and go 2.9 miles to Antioch, turn right into A Street and go 0.1 mile to East Sixth Street, turn right and go 0.2 mile, turn left and go 0.3 mile, turn right and go 0.2 mile to sand bunkers and station site just north of sand bunkers. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 10.262 meters (33.67 feet) from station in azimuth 290°27′. No. 2 is at northeast corner of Third and E Streets in Antioch and ½ mile from station in azimuth 87°56′26″.

Blackjack (Solano County, J. Bowie, Jr., 1931; 1932).—About 2 miles east of Collinsville, on north side of Sacramento River, in plowed field a little to south of summit of steep hill, about 130 yards east of windmill, and on land belonging to E. L. Jenkins. To reach from Rio Vista, go northwest on Main Street and continue 7 miles to crossroads, take road leading to Collinsville and follow to Collinsville schoolhouse which is about one-fourth mile north of Collinsville, turn left and go 1.2 miles to the S. O. Stratton Ranch, pass through yard and gate at edge of field, follow road about 0.4 mile through field and along southern edge of hills, go through gate and continue about 0.2 mile to another gate, go 0.1 mile to another gate and continue about 0.1 mile to end of truck travel, and walk up steep hill on left about 100 yards to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is alongside fence and 282 feet (slope) from station in azimuth 338°41′. No. 2 is alongside wooden fence and 0.2 mile from station in azimuth 94°52′40″. "Pier No. 2 (U.S.G.S.)", marked by tablet in concrete block projecting about 20 inches, is on summit of small hill in cultivated field, and 1.0 mile from station in azimuth 109°13′56″.

Pittsburg (Contra Costa County, J. Bowie, Jr., 1932).—Just northwest of Pittsburg, on east side of city dump, and on land belonging to C. A. Hooper & Co. To reach from intersection of Victory Highway and Montezuma Street, go north 0.5 mile on Montezuma Street to dirt road and continue straight ahead about 0.2 mile on dirt road to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is in northeast corner of property belonging to C. Billeci at 100 Montezuma Street and approximately 283 paces from station in azimuth 24°50′32″. No. 2 is in fence line and 24.186 meters (79.35 feet) from station in azimuth 108°00′.

Cattle (Solano County, J. Bowie, Jr., 1932; 1933).—One mile north of Collinsville, about 100 meters (328 feet) northwest of cow barn, and 11 feet south of south right-of-way fence line of road. To reach from Rio Vista, go northwest 7 miles on concrete highway to signboard pointing toward Collinsville, go 9.5 miles toward Collinsville to the B. B. Cattle Co., turn right and go about 0.2 mile beyond company's office to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is near north side of highway, 1 foot south of north fence line, and 21.46 meters (70.4 feet) from station in azimuth 166°14′. No. 2 is in southwest corner of intersection of main highway and road leading to station, almost directly beneath signboard "B. B. Cattle Co.", and one-fourth mile from station in azimuth 257°01′39″.

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McAvoy (Contra Costa County, J. Bowie, Jr., 1932; 1933).—At northwest corner of road intersection, in corner of field, 7.9 meters (26 feet) west of center line of highway, 9.5 meters (31 feet) north of center line of side road, and on land belonging to the Bay Shore Land Co. at McAvoy. To reach from depot at Bay Point, go 3 miles on main highway leading to Pittsburg, to oil tanks of the General Petroleum Co. at McAvoy, turn right and follow main highway 0.2 mile to first road intersection on right and station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 6 paces east of center line of highway, 5 paces south of center line of Southern Pacific tracks, and 460 paces from station in azimuth 181°40′40″. No. 2 is in power line on east side of highway and 15.280 meters (50.13 feet) from station in azimuth 292°07′. Station "McAvoy (U. S. E.)" is 981.52 feet from station in azimuth 89°53′30″.

Kirby (Solano County, O. W. Swainson, 1922; 1932).—On summit of Kirby Hill, one-half mile east of junction of Montezuma and Denverton Sloughs, and 12 meters (39 feet) north of highest point. To reach from Vallejo, follow main highway to Fairfield courthouse, turn right onto Rio Vista road and go 0.2 mile (3½ blocks), turn left with Rio Vista road and go 8.5 miles, turn right on to gravel road at signboard. "Collinsville 11 miles", and follow road 3.7 miles, turn right toward Kirby Hill and go 0.4 mile to gate, go through gate and follow road along fence 1.6 miles to vacant farmhouse, and continue to station site on hill southeast of house. Surface mark is standard station disk in concrete, note 1a. Underground mark is standard station disk cemented in granite block. Two 8-foot lengths of pipe were buried 18 inches deep, one on each side of mark, at right angles to direction of reference mark no. 2. Reference mark no. 1 (1932) is standard reference disk in concrete, note 11a, 17.175 meters (56.35 feet) from station in azimuth 247°25′. Reference mark no. 2 (1922) is standard reference disk in tile, note 13a, 12.33 meters (40.45 feet) from station in azimuth 351°22′.

Lopez (Solano County, J. Bowie, Jr., 1932).—About 5 miles north-northeast of Benicia, on hill about 1,100 feet high, and on land belonging to M. Lopez. To reach from Benicia, go north 1 mile on road leading toward Fairfield and Suisun to cemetery on top of hill, follow main road toward Fairfield 4 miles to point where road turns left between two high hills, continue 0.8 mile and turn left onto dirt road just after crossing culvert and passing farmhouse surrounded by trees, follow main-traveled dirt road 0.9 mile to gate, pass through gate and go west about 1 mile to station site on top of second hill south of summit of ridge. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is on lower side hill and one-fourth mile from station in azimuth 204°53′34″. No. 2 is 22.655 meters (74.33 feet) from station in azimuth 123°56′. Station *Sulphur* (see description thereof) is visible from ground in azimuth 72°38′28″.

Rockville (Solano County, J. Bowie, Jr., 1932).—About 1 mile west of Rockville, on east side of top of grassy hill 555 feet high. To reach from Vallejo, go 14 miles on main highway leading toward Fairfield to Cordelia Junction, turn left onto road at sign "Green Valley Falls 4 miles—Vallejo 15 miles" just before arriving at Cordelia Junction and follow 1.1 miles to base of hill opposite farmhouse with white barns, and continue about 1 mile in a northeasterly direction to station site on highest hill. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in boulders, note 12c, projecting 1½ feet. No. 1 is 45.560 meters (149.47 feet) from station in azimuth 126°06′. No. 2 is 136.35 meters (447.3 feet) from station in azimuth 81°29′ 24″.

Bay Point (U. S. E.) (Contra Costa County, J. Bowie, Jr., 1932).—About 1 mile south of Bay Point, on grassy hill 629 feet high. To reach from depot in Bay Point, go south through town on main street to end of pavement, turn left onto highway and go about 100 yards, leave highway and turn right onto dirt road passing east side of house, follow road up hill to end of truck travel at intersection of fence lines, and continue up hill to station site. Marked by United States Engineers' mark in concrete. Reference marks are standard reference disks in concrete, note 11a. No. 1 is about 40 feet west of fence line and 230 paces from station in azimuth 229°00′50″. No. 2 is 10.060 meters (33.01 feet) from station in azimuth 21°02′.

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Franklin (Contra Costa County, J. Bowie, Jr., 1932).—About 3½ miles west of Martinez, on hill 900 feet high, about 300 yards west of transmission tower on small hill, and on land belonging to F. J. Stewart. There is an artificial lake or reservoir at foot of hill just south of station. To reach from Martinez, go 5.6 miles on Alhambra Avenue to highest point on Franklin Canyon road, go down hill 0.8 mile to farmhouse on left and end of truck travel, and continue up hill about 1 mile in a northerly direction to station site. Marked by standard station disk, note 3, in rock flush with surface. Reference marks are standard reference disks, note 12b, in rocks flush with surface. No. 1 is 16.320 meters (53.54 feet) from station in azimuth 266°21′. No. 2 is 23.970 meters (78.64 feet) from station in azimuth 87°09′. Higher one of two transmission towers on hill is approximately one-fourth mile from station in azimuth 313°45′48″.

Sulphur (Solano County, J. Bowie, Jr., 1932).—About 4 miles east-northeast of Vallejo, on hill 966 feet high which is known as "Sulphur Springs Mountain." To reach from Sonoma and Georgia Streets in Vallejo, go 0.7 mile on Georgia Street, take left fork and follow Blue Rock Springs Road 1.9 miles, take left fork and go 0.8 mile, take right fork and follow Lake Herman Road about 0.8 mile, and continue to station site on second peak to left. Marked by standard station disk in bedrock, note 3. Reference marks are standard reference disks in bedrock, note 12b. No. 1 is 9.400 meters (30.84 feet) from station in azimuth 315°17′. No. 2 is 12.968 meters (42.55 feet) from station in azimuth 18°24′. Station *Lopez* (see description thereof) is visible from ground in azimuth 252°36′48″.

Long Pond 2 (Solano County, F. G. Engle, 1921; 1932).—On north side of San Pablo Bay, about 5½ miles northwest of entrance to Carquinez Strait, about 2.6 miles from toll bridge, and in marsh 60 feet west of highway on levee. Marked by standard station disk in tile, note 6a. Reference mark is standard reference disk in tile, note 13a, 20.36 meters (66.8 feet) from station in azimuth 251°29′. In 1932, station and reference marks were reinforced with concrete placed around tiles. Azimuth mark (1932) is standard reference disk in concrete, note 11a, 20 feet west of highway, and 0.3 mile from station in azimuth 118°03′37″.

Tulucay (Napa-Solano Counties, J. Bowie, Jr., 1932).—About 4 miles southeast of Napa, on or near Napa-Solano County line, on bushy rocky point about 100 yards north of oak grove on top of hill 1,685 feet high, and on land belonging to Mr. Malandrini. To reach from Vallejo, go 11½ miles on Napa Road to the State hospital, continue 0.7 mile and take right fork, go 0.7 mile to sign "Vallejo 14 miles—Monticello 27 miles" and turn right onto paved road, go 2.2 miles to end of pavement and continue 0.3 mile on dirt road to fork, take right fork and go 0.4 mile, take left fork and go 0.5 mile to gate, continue 0.4 mile to farmhouse, go 0.3 mile to another gate, pass through gate and continue 0.3 mile, take right fork and go 0.7 mile, take left fork and go 0.3 mile to gate, continue 0.2 mile to lone building and rock wall, turn left and follow road 0.3 mile to end of truck travel at top of saddle, and continue to top of steep hill to right and station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 23.260 meters (76.31 feet) from station in azimuth 274°31′. No. 2 is 4.662 meters (15.30 feet) from station in azimuth 30°56′.

Rector (Napa County, J. Bowie, Jr., 1932).—About 8½ miles north of Napa, about three-fourths mile east of head of Soda Creek, and on highest part of brush-covered hill about 2,120 feet high. To reach from Vallejo, go 11.5 miles on Napa road to the State hospital, continue straight ahead 0.7 mile and take right fork, go 0.7 mile to sign "Vallejo 14 miles—Monticello 27 miles" and go straight ahead 1.4 miles on Monticello Road, take left fork and go 1.4 miles, leave Monticello Road and turn left onto Stags Leap Road, cross bridge and turn right, follow road 1.2 miles, take right fork and go 3.3 miles, take left fork and go 1.2 miles, take left fork and go 1.3 miles to end of truck travel, and go up hill to right to station site. Marked by standard station disk, note 4, in large flat boulder projecting about 1 foot. Reference mark no. 1 is standard reference disk, note 12c, in boulder projecting 4 feet, and 8.488 meters (27.85 feet) from station in azimuth 35°10′. Reference mark no. 2 is standard reference disk, note 12a, in outcrop projecting about 1 foot, and 7.292 meters (23.92 feet) from station in azimuth 107°17′.

Point Pinole 3 (Contra Costa County, E. F. Dickins, 1897; 1932).—On south side of San Pablo Bay, on southern side of Pinole Point, 1 meter (3 feet) west

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of fence line prolonged, and (in 1932) 3 feet from edge of bluff. Bluff is gradually wearing away and station may be destroyed. Surface mark is sandstone post, 2 feet long by 6 inches square, with lead plug to mark center and projecting 2 inches above ground. Underground mark is bottle. In 1917, standard reference disk in concrete, note 11a, was established 10.337 meters (33.91 feet) from station in azimuth 321°09′. A property boundary monument consisting of a copper bolt in a mass of concrete, was 3.046 meters (9.99 feet) from station in azimuth 337°03′; and 3-inch iron pipe was 9.16 meters (30.1 feet) from station in azimuth 266°12′. In 1921, a 1¼-inch steel rod was driven into ground 11.65 meters (38.2 feet) from station in azimuth 341°10′; and northwest fence corner was 4.82 meters (15.8 feet) from station in azimuth 333°. In 1932, standard reference disk in concrete, note 11a, was established 133.676 feet from station in azimuth 321°08′.

Petaluma Creek (*Marin County, R. D. Cutts, 1851; 1932*).—On top of hill (about 125 feet high) on point forming west side of mouth of Petaluma Creek. Two legs of south tower of transmission line spanning Petaluma Creek are in line with station. Original mark was stone, 3 feet or less below surface, with lead bolt marked by cross in its top. Three stones similarly marked were placed 6 feet from station, two in line with center and third at right angles to that line. In 1887, a sandstone block, 8 inches square on top and 29 inches long, with letters "U. S. C. & G. S." and a drill hole in its upper face was placed over original station mark. In 1921 standard station disk was cemented in drill hole of station mark. Standard reference disk in concrete, note 11a, was established 13.465 meters (44.18 feet) from station in azimuth 173°43′; and a 1¼-inch steel rod, 3 feet long, was driven 1½ feet into ground 4.25 meters (13.9 feet) from station in azimuth 253°03′. Azimuth from station to Petaluma Creek, south transmission tower, is 152°42′53″; and to Petaluma Creek, north transmission tower, 173°49′28″.

Hind (Marin County, J. Bowie, Jr., 1932).—On highest part of timbered hill about 1,060 feet high, about 1½ miles northeast of San Rafael, and 2½ miles west of Point San Pedro. To reach from San Rafael, go east 0.2 mile from Fourth Street and Lincoln Avenue to Grand Avenue, turn left and go 0.3 mile, take right fork, go about 0.1 mile and take right fork, go 0.1 mile to Highland Avenue, go straight ahead 0.2 mile on Highland Avenue, take left fork and go 0.2 mile to crossroads, continue straight ahead 0.2 mile to gate with large concrete posts, take road to left of gate and go 0.2 mile to tank house, continue straight ahead 0.1 mile to gate, continue 0.3 mile and turn left, go 0.3 mile up hill to large water tank and end of truck travel, go up hill to summit, follow ridge to fence, go through fence and follow trail to highest part of third hill and station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 15.67 meters (51.4 feet) from station in azimuth 49°30′. No. 2 is 9.18 meters (30.1 feet) from station in azimuth 121°47′.

Richard (Contra Costa County, J. Bowie, Jr., 1932).—About 1 mile southeast of Standard Oil Co. refineries, on hill known locally as "Nichols Knob", and on land belonging to the Nichols Co. To reach from Twenty-third and McDonald Avenues in Richmond, go west 1.2 miles on McDonald Avenue, turn left onto Gerrard Boulevard and go 0.7 mile, turn right onto Standard Avenue and go 0.1 mile, turn left onto Washington Avenue and go 0.3 mile to top of hill, turn left onto Crest Avenue and go to end of pavement, and continue on dirt road on ridge past water reservoir and up steep hill to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 13.89 meters (45.6 feet) from station in azimuth 7°44′. No. 2 is 18.015 meters (59.10 feet) from station in azimuth 107°04′. Copper bolt in concrete post is 20.53 meters (67.4 feet) from station in azimuth 60°09′. Azimuth from station to *Richmond, Ford Motor Co., water tank*, is 298°10′19″.

Ring (Marin County, J. Bowie, Jr., 1932).—About 4 miles southeast of San Rafael, on hill about 640 feet high which is covered with rocks and few scattered bushes, near northwest end of Tiburon Peninsula, about one-half mile west of California Point, and on the Ring Estate. To reach from Fourth Street and Lincoln Avenue in San Rafael, go south 3.6 miles on Route 101 to foot of hill, take left fork and follow main-traveled road around foot of hill about 2½ or 3 miles to end of truck travel, and go up hill to right to station site. Marked by standard station disk in boulder, note 4. Reference marks are

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standard reference disks in boulders, note 12c. No. 1 is 12.785 meters (41.95 feet) from station in azimuth 275°46′. No. 2 is 11.390 meters (37.37 feet) from station in azimuth 14°08′.

Angel Island Peak 2 (Marin County, L. A. Sengteller, 1881; 1932).—On summit of Angel Island. Surface mark is granite block, 2 feet long and 6 inches square, projecting slightly above ground and marked "U. S. C. AND G. SURVEY, 1881". Underground mark is spike in end of stake, 1 foot long and 5 inches in diameter, buried 2½ feet below surface. Three witness stones were set 6 feet to north, south, and east of station. In 1916 witness stones were not recovered; and a standard reference disk in concrete, note 11c, was established 10.36 meters (34.0 feet) from station in azimuth 264°46′.

Rocky Mound (Contra Costa-Alameda Counties, R. D. Cutts, 1851; 1936).—On summit of Berkeley Hills, 1 mile northeast of University of California, on highest part of hill covered with dark brush and massive boulders, around east, south and west sides of which Grizzly Peak Boulevard makes prominent hairpin curve. Good trail leads from boulevard 200 feet to east. Station is 2 miles southeast along boulevard from Euclid Avenue in north Berkeley and 1 mile west of Grizzly Peak. Marked by lead plug in stone block 1¼ feet underground resting on solid rock. At surface is solid wood hub. Reference marks are as follows, distances and azimuths being from station: No. 1 is lead plug on top of low shelf on south side of large rock, 15 feet, 188°34′; no. 2 is station disk in ground-line boulder, 13.5 feet, 110°14′; no. 3 is reference disk in top of large rock 4 feet above and just south of trail from boulevard, 59 feet, 279°41′.

Red Hill (Alameda County, R. D. Cutts, 1851; 1932).—About 3 miles a little south of east of Alvarado, on Coyote Hills, on the old Briggs ranch, and on spur running off to southwest from high rocky peak at north end of range and about 500 meters (1,640 feet) from it. The Coyote Hills are a range 3¼ miles long and are readily distinguished by their isolated position, being nearly surrounded by marsh and separated from the main Contra Costa Range by 7 or 8 miles of level land. To reach from east end of San Mateo bridge, go east 2.7 miles, turn right (south) onto highway and go 2.8 miles to Alvarado, continue straight ahead at south end of main street where highway makes left turn and go 2.3 miles to 2 water tanks (1 on ground and 1 on stilts), turn right onto dirt road and go 0.5 mile, take right fork and go 0.8 mile, take left fork which is narrow levee road and go 0.2 mile, cross bridge, turn left and follow road along south side of hill 0.2 mile, turn right just before arriving at lone tree near farmhouse and go uphill 0.2 mile, take left fork which is grass-covered road and follow 0.2 mile, go through gate and continue 0.1 mile to top of saddle, turn right uphill and then to left downhill to station site. Original station mark was ⅓-inch lead plug in drill hole in sandstone block which was placed 2 feet below surface. Three similar blocks, flush with surface, were placed 6 feet from station, 2 in line with center and the third at right angles to that line. In 1907, only two of these blocks were recovered, and in 1925 none of them were recovered. Other original reference marks were lead plugs in drill holes in two rocks projecting above surface and in 1925; one was 2.235 meters (7.33 feet) from station in azimuth 65°09′, and other was 2.37 meters (7.8 feet) from station in azimuth 172°42′. In 1907, a concrete pier, 21 inches square by 45 inches high, was built over station mark and a stone block, with drill hole filled with lead and marked by letters "C. & G. S. 1907", was placed on top of pier. In 1925, this pier had been overturned but old station mark had not been disturbed. In 1932, two standard reference disks in bedrock, note 12b, were established. No. 1 is 11.025 meters (36.17 feet) from station in azimuth 259°44′. No. 2 is 15.580 meters (51.12 feet) from station in azimuth 80°39′.

Guano Island (San Mateo County, R. D. Cutts, 1851; 1934).—In center of concrete roadway, 40 feet east of tollgate of the San Mateo Toll Bridge, 30 feet east of west tollhouse, and on prolongation of center line of bridge and of highway approaching from west. Original station mark was established on summit of small island (known as "Little Coyote") on west side of bay. Mark consisted of stone block, with lead bolt and cross lines in top, buried about 3 feet below surface. Three similar blocks, flush with surface, were placed 6 feet from station. In 1895 none of these marks were recovered, and a bottle and cinders were placed under a signal which was erected on approximate site of station. In 1907 bottle was recovered 18 inches below surface and old station mark 3

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feet below surface. Old station mark was 1½ inches N. 22° W. (true) from bottle. Both marks were replaced, and surface mark, consisting of drill hole in stone, was established. A concrete pier 21 inches square by 45 inches high was built over station. A ½-inch iron bolt, 12 inches long, was placed in top of pier, which was marked with letters "C. & G. S. 1907." In 1928 two standard reference disks, in 8-inch drain tiles 26 inches long and projecting 4 inches, were established to aid in relocating station, which was to be destroyed when hill was leveled off for construction of bridge. No. 1 was 10 feet inside of piling at high-water mark and 47.177 meters (154.78 feet) from station in azimuth 192°01′. No. 2 was about 10 feet inside of piling and 63.153 meters (207.19 feet) from station in azimuth 138°47′. In 1929 station was relocated by engineers of the bridge company and re-marked by standard station disk flush with surface of concrete roadway. Reference mark no. 1 was destroyed. Station *Bridge* (see description thereof) is 34.781 meters (114.11 feet) from station in azimuth 334°25′.

Hayward (Alameda County, W. Mussetter, 1925; 1932).—On east side of San Francisco Bay, about 3 miles south of San Lorenzo, 1½ miles west of Russell railroad station, on point at Haywards Landing, 50 feet north of small slough, and in a tin-can dump. Marked by standard station disk in concrete, note 1a. Two standard reference disks in concrete, note 11a, were established in 1932. No. 1 is 30.533 meters (100.17 feet) from station in azimuth 200°54′. No. 2 is just south of south side of barn nearest station, north of road leading to station, and 0.2 mile from station in azimuth 249°49′42″.

Pulgas east base (San Mateo County, R. D. Cutts, 1853; 1925).—In open field on the Cooley ranch, about 1½ miles west of landing called Ravenswood, on north side of road going from Redwood City to Ravenswood, about 300 meters (984 feet) from road, opposite the Cooley house, and plainly visible from road. Original mark was intersection of cross lines on copper bolt in top of block of stone. In 1855 station was remarked by monument of Benicia freestone, consisting of square shaft and pedestal. Shaft was 5 feet high, its top was 1 foot 10 inches square, its base 2 feet square, and it weighed 1½ tons. Pedestal weighed three-fourths ton and was 2 feet 8 inches square and 1 foot 3 inches high, including the inch bevel on top on which shaft rested. Following inscriptions were cut on shaft: North side, "Alex. Dallas Bache, Superintendent"; south side, "United States Coast Survey"; east side, "Measured in July 1853"; and west side, "East end of the Pulgas Base." In 1925 shaft had tipped 1 inch to east. In 1930 mark had evidently been destroyed, as it would have been in center of street of new subdivision.

Pulgas west base (San Mateo County, R. D. Cutts, 1853; 1930).—About 30 miles from San Francisco, on west side of bay, 1 mile north of Redwood City, just west of Wellsley Park, about 2½ miles south of Angelo House, 1½ miles S. 52°30′ W. of embarcadero of the Pulgas ranch, at southern extremity of county, and on hill about 130 feet above high water. Original mark was intersection of cross lines on copper bolt in top of block of stone. In 1855 station was remarked by monument of Benicia freestone, consisting of square shaft and pedestal. Shaft was 5 feet high, its top was 1 foot 10 inches square, its base 2 feet square, and it weighed 1½ tons. Pedestal weighed three-fourths ton and was 2 feet 8 inches square and 1 foot 3 inches high, including the inch bevel on which shaft rested. Following inscriptions were cut on shaft: North side, "Alex. Dallas Bache, Superintendent"; south side, "United States Coast Survey"; east side, "West end of the Pulgas Base"; and west side, "Measured in July 1853."

Pise Hill 2 (San Mateo County, C. H. Sinclair, 1906; 1931).—About 4¾ miles east of Halfmoon Bay, 10½ miles west by north of Palo Alto, on range of hills which lie between Crystal Lake of the Spring Valley Water Co. and coast, about 2½ miles south of point where Halfmoon Bay Road (between San Mateo and Halfmoon Bay) crosses ridge, on east side of road leading along ridge to Kings Mountain House, about 100 feet from road, about 400 meters (1,312 feet) north of point where road enters redwood timber, and about 200 meters (656 feet) north of ranch house on the McFarland ranch. Marked by bottle, buried mouth up, 2½ feet below surface, and covered by 1 foot of dirt and large stone, with drill hole and triangle, which is set flush with surface. Concrete pier, 21 inches square by 45 inches high and resting on foundation 5 feet square and 10 inches thick, was built over stone, which was protected from pier by having box placed over it. Top of pier was marked "C. & G. S.

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1907"; an iron bolt, one-half inch in diameter and 12 inches long, marked station. Drill holes in three fixed rocks are at following distances and azimuths from station: 30.60 feet, 292°29′; 136.76 feet, 12°58′; and 100.25 feet, 66°33′.

Ridge 2 eccentric (San Mateo County, C. H. Sinclair, 1906; 1931).—About 5 miles northeast of Halfmoon Bay, 5 miles southwest of San Mateo, on range of hills between Crystal Lake of Spring Valley Water Co. and coast, about 1½ miles north of Halfmoon Bay Road at point where it crosses summit, about 75 feet east of road which runs from Halfmoon Bay Road along ridge to Carl ranch, and about 400 meters south of Carl ranch house. Station is 0.115 meter (0.38 foot) due north of station "Ridge 2." Station "Ridge 2" is marked by bottle buried mouth up, 2½ feet below ground, and covered by 1 foot of dirt, and large rock, weighing 500 pounds, set flush with surface. True station is marked on surface of rock by drill hole surrounded by triangle, and eccentric station is marked by a cross. Rock is covered by concrete pier, 21 inches square by 45 inches high, resting on concrete foundation, 5 feet square by 10 inches thick. A box was placed over surface rock to protect it from pier. Top of pier is marked with letters "C. & G. S., 1907", and true station is marked by iron bolt, one-half inch in diameter and 12 inches long.

View (Santa Clara County, W. Mussetter, 1925; 1932).—About 39 miles south of San Francisco, 2 miles northeast of Mountain View, and in city dump on right side of road. To reach, follow main southwest-northeast street of Mountain View to gates of dump. Marked by standard reference disk, with triangle marked on it, in concrete pier flush with ground.

Turk (Alameda County, W. Mussetter, 1925; 1931).—About 20 feet east of summit of Union Island which is northernmost of two small islands lying about 3,200 yards to southward of Union City and to northward of Red Hills. To reach from Alvarado, turn off main road into road to the California Salt Works, and continue to station site on hill to right of road. Marked by standard station disk in rock, note 3. Reference mark is standard reference disk in bedrock, note 12b, 14.00 meters (45.9 feet) from station in azimuth 336°15′. In 1932 disk had been removed from station mark. It was re-marked with another standard station disk; and a standard reference disk in concrete, note 11c, was established 14.625 meters (47.98 feet) from station in azimuth 71°12′.

B (B. W. F. D. Co.) (Alameda County, J. Bowie, Jr., 1932).—On property of the Berkeley Water Front Development Co., on highest part of Fleming Point. To reach from corner of San Pablo Avenue and Buchanan Street in Berkeley, go west 0.5 mile on Buchanan Street to end of pavement, continue straight ahead 0.1 mile to bridge and locked gate, go through gate and follow road to old burned building with large stack and end of truck travel, and continue up hill to station site. Marked by iron pin in 6-inch concrete cylinder. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 13.936 meters (45.72 feet) from station in azimuth 340°35′. No. 2 is 11.615 meters (38.11 feet) from station in azimuth 72°08′. Station *Brooks Island 2* (see description thereof) is visible from ground in azimuth 109°37′55″.

Navy (San Francisco County, J. Bowie, Jr., 1932).—On highest part of Yerba Buena (Goat) Island, about midway between two water tanks on top of hill, and 24.8 meters (81 feet) northwest of the Navy lookout tower. (Type of station mark not described.) Reference mark no. 1 (probably standard reference disk) is in old concrete anchor block near water tank and 11.735 meters (38.50 feet) from station in azimuth 72°33′. A square mass of concrete projecting 2 feet above surface of ground and inscribed with letters "U.S.B." is 15.77 meters (51.7 feet) from station in azimuth 314°24′. Reference mark no. 2 (not numbered on disk) is standard reference disk with arrow pointing toward the "U.S.B." mark, and is a few feet southwest of southwest corner of Navy lookout tower, and 27.063 meters (88.79 feet) from station in azimuth 335°22′. A concrete post containing an iron stem or bolt is 14.641 meters (48.03 feet) from station in azimuth 19°49′.

Piedmont (Alameda County, J. Bowie, Jr., 1932).—On hill just north of Piedmont, on land belonging to the Mountain View Cemetery. To reach from corner of Piedmont and Pleasant Valley Avenues in Piedmont, go 0.2 mile on Pleasant Valley Avenue to Moraga Avenue, turn left and go 1.1 miles to Maxewelton Road, go 0.4 mile up hill to its intersection with Hilltop Crescent Road, turn left and go 50 feet, turn left through green rock gateposts and follow dirt road up hill 0.1 mile to fence and end of truck travel, follow fence

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line to left to top of hill, and go north about 200 yards to station site. Marked by standard station disk in concrete, note 1a. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 8 feet west of fence line and 31.32 meters (102.8 feet) from station in azimuth 230°20′. No. 2 is 8.40 meters (27.6 feet) from station in azimuth 102°22′. Center of ball on flagpole on the Oakland Tribune tower is in azimuth 46°55′24″.

Farm 2 (Alameda County, J. Bowie, Jr., 1932).—On Bay Farm Island, about 200 yards south of radio station, and between water tank and high-water line. To reach from Central Avenue and Park Street in Alameda, go east 0.6 mile on Central Avenue, turn right onto High Street and go 0.3 mile, turn left onto San Jose Avenue and go 0.1 mile, turn right and go 0.4 mile, cross bridge, go 0.9 mile and take right fork, and go 0.6 mile to radio station and station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is under water tank and 9.87 meters (32.4 feet) from station in azimuth 155°15′. No 2 is about 2 feet west of row of eucalyptus trees and 10.36 meters (34.0 feet) from station in azimuth 224°06′. Western one of two radio towers is approximately 200 meters (656 feet) from station in azimuth 164°19′29″. Station *Farm* (see description thereof) is 4.170 meters (13.68 feet) from station in azimuth 53°49′.

Point Avisadero (San Francisco County, R. D. Cutts, 1851; 1935).—About 4½ miles south of San Francisco, on summit of symmetrical, round-topped hill about 169 feet high. To reach, go to Hunters Point and follow road up steep hill to left, continue to end of road and climb about 125 meters (410 feet) to station site. Original mark was intersection of cross lines in lead bolt in top of stone block which was placed 3 feet below ground. Three similar stones, flush with surface, were placed 6 feet from station, two in line with center and the third at right angles to that line. In 1895 only the south one of the reference stones was recovered and was used as station "Point Avisadero 2." Excavation over station mark was filled with cinders. In 1916, surface mark, consisting of standard station disk in concrete, note 1c, was established over underground mark; and "Point Avisadero 2" was recovered 1.838 meters (6.03 feet) distant in azimuth 340°52′. Standard reference disk in bedrock, note 12b, was established 14.67 meters (48.1 feet) from station in azimuth 311°11′. In 1932, standard reference disk in concrete, note 11a, was established 18.90 meters (62.0 feet) from station in azimuth 110°57′.

Point San Bruno (San Mateo County, W. Mussetter, 1925; 1932).—About 1½ miles east of south of San Francisco, on hill south of naval radio station at Point San Bruno, and 13.83 meters (45.4 feet) toward bay from east end of large concrete water storage tank. Marked by standard station disk in bedrock, note 2a. Reference mark is standard reference disk in bedrock, note 12b, just off bank, and 11.04 meters (36.2 feet) from station in azimuth 308°10′. In 1932, standard reference disk was established in top of reservoir wall, 20.770 meters (68.14 feet) from station in azimuth 54°59′.

Bridge (San Mateo County, G. C. Jones, 1930; 1934).—About 15 meters (49 feet) southeast of southeast corner of tollgates of San Mateo Toll Bridge, on shoulder of highway. Marked by standard station disk in concrete post about 1 foot in diameter and 1½ feet long. Reference mark no. 1 is standard reference disk, in projecting concrete ledge of tollgate and 6.13 meters (20.1 feet) from station in azimuth 213°50′. Reference mark no. 2 is standard reference disk in large boulder, note 12c, on highway shoulder, and 14.66 meters (48.1 feet) from station in azimuth 90°03′. Station *Guano Island* (see description thereof) is 34.781 meters (114.11 feet) from station in azimuth 154°25.

Palo Alto northwest base (San Mateo County, J. Bowie, Jr., 1932).—In San Carlos, between Route 101 and railroad tracks, northwest of railroad station, in corner of cultivated lot owned by Southern Pacific Company and which is formed by Route 101 and first road north of Standard Oil Co. filling station which crosses railroad tracks, 15.05 meters (49.4 feet) east of east fence along highway, 25.95 meters (85.1 feet) south of concrete curb on south side of road crossing railroad tracks, and about 25 feet southeast of young holly tree. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Upper mark projects about 4 inches. Reference marks are standard reference disks in concrete, note 11a, projecting about 2 inches. No. 1 is just north of gate leading into railroad property, about 4 feet east of east fence, and 112.35 feet from station in azimuth 340°07′. No. 2 is about 6 feet

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east of east fence along highway and about 250 paces from station in azimuth 132°53′43″.

Palo Alto southeast base (Santa Clara County, J. Bowie, Jr., 1932; 1936).—About 250 meters (825 feet) northwest of Southern Pacific depot at Palo Alto, midway between railroad tracks and Highway 101, about 100 feet southeast of northwest end of depot grounds, and about 50 feet northeast of southwest property line. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is near northeast corner of tennis court and 179.4 feet from station in azimuth 323°20′. No. 2 is on mound in northwest corner of railroad property plot and 104.0 feet from station in azimuth 104°52′. Azimuth from station to *Palo Alto, radio mast*, is 268°32′44″.

Palo Alto base, A station (San Mateo County, J. Bowie, Jr., 1932).—About one-fourth mile north of city limits of Redwood City, east of Route 101, and at intersection of line of west rail of west track to southeast and west rail of east track to northwest of Southern Pacific railroad. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is about 1 yard from fence line, close to Union service station and 625.3 feet from station in azimuth 319°33′56″. No. 2 is 1 yard from fence line between railroad tracks and highway and 22.885 meters (75.08 feet) from station in azimuth 19°03′.

Sunnyvale—B. M. G. 111 (Santa Clara County, J. Bowie, Jr., 1932; 1936.)—On north edge of Bayshore Highway, under fence along south boundary of Sunnyvale air base (Moffett Field), and about 750 feet from southwest corner of field. Marked by standard benchmark disk in concrete post. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 66.08 feet from station in azimuth 104°06′; no. 2 is just inside fence, 84.38 feet from station in azimuth 194°11′. *Monument 15* (*U. S. N.*) (*B. M. 4268*) (see description thereof) is 900.0 feet from station in azimuth 269°59′26″.

Goodyear (Solano County, J. S. Lawson, 1864; 1932).—On hill which rises directly from wide belt of marsh on north side of Suisun Bay, northeast of John Monroe's house, and on small flat spot moderately clear of rocks on south slope of hill. Eastern slope of hill is quite steep, especially near top where it is traversed from north to south by ridge of volcanic rocks projecting 2 to 4 feet above surface. Hill is next to round bald hill where trend of range changes to northward, forming south side of Suisun Valley. To reach from Benicia, follow Fairfield road about 1.0 mile to top of hill and cemetery, continue 3.9 miles to hill on left of road and station site. Original station mark was drill hole in stone, 10 by 20 inches, 1⅓ feet below surface. Original reference marks were: A hole in knob of rocky ridge, distant 17.9 feet, in line to mouth of Suisun Creek; and a hole in stone to southward, distant 8 feet. In 1878, the first-mentioned hole was not recovered, as rock had been broken away. In 1922, standard station disk in boulder, note 5, was placed over station mark; and old reference hole was marked by standard reference disk, 2.57 meters (8.4 feet) distant in azimuth 334°15′. Additional standard reference disk in bedrock, note 12b, was established 6.79 meters (22.3 feet) from station in azimuth 281°29′. In 1932 disks had been removed from station and original reference marks. Station was re-marked with standard station disk, note 5, and a standard reference disk (stamped "1886") was established in boulder, note 12d, 9.88 meters (32.4 feet) from station in azimuth 161°00′.

Army Point 2 (Solano County, G. Davidson, 1886; 1932).—On Army Point, on north side of junction of Carquinez Strait and Suisun Bay, on United States Arsenal grounds, about 1 mile northeast of Benicia, east of and on line with outside edge of coping of north wall of reservoir, and 117½ feet from northeast corner of brickwork. To reach from gate at entrance to arsenal, pass through gate, take left-hand road, and go 0.4 mile up hill to station site. Original station mark was drill hole in flat stone, about 1 foot square, set about 15 inches below surface. In 1922 standard station disk in tile, note 6a, was placed over station mark; and standard reference disk was cemented in coping at northeast corner of reservoir, 36.28 meters (119.0 feet) from station in azimuth 109°33′. In 1932 standard reference disk in concrete, note 11a, was established 21.40 meters (70.2 feet) from station in azimuth 194°51′.

Suisun Hill 2 (Solano County, O. W. Swainson, 1922; 1932).—On westernmost of the Potrero Hills, 2 miles southeast of Fairfield. To reach from Fairfield,

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follow Rio Vista road 1.2 miles to signboard pointing to Grizzly Island, turn right and go 1.7 miles to gate on left side of road, go through gate and continue up hill on right to station site. Marked by standard station disk in tile, note 6a, projecting 1 foot. Reference marks are standard reference disks in tile, note 13a, projecting 1 foot. No. 1 is 9.770 meters (32.05 feet) from station in azimuth 42°15′. No. 2 is 9.760 meters (32.02 feet) from station in azimuth 222°19′. In 1922 station "Suisun Hill (1888)", marked by one-half-inch drill hole in 8- by 12-inch oval rock 20 inches below surface, was recovered 2.98 meters (9.8 feet) from station in azimuth 39°11′. Two 8-foot lengths of galvanized-iron pipe were buried, one on each side of "Suisun Hill (1888)", in east-and-west direction at depth of 18 inches.

Thomasson (Solano County, O. W. Swainson, 1922; 1932).—Just west of Thomasson, 1 mile northeast of Cordelia, and at southeast corner of flat area of about 2 or 3 acres on summit of south shoulder of rocky hill. Summit is covered with growth of scrub oak. To reach from depot at Cordelia, follow Suisun road 1.1 miles to row of houses and Pacific Gas & Electric Co. power plant which is 100 yards to right of road, and continue to station site on hill to west of houses. Marked by standard station disk in bedrock, note 3. Original reference mark is standard reference disk in bedrock, note 12b, 26.59 meters (87.2 feet) from station in azimuth 93°41′. In 1932, this reference mark was stamped "No. 2", and standard reference disk in bedrock, note 12b, stamped "No. 1", was established 11.04 meters (36.2 feet) from station in azimuth 167°34′.

Golf (Solano County, J. Bowie, Jr., 1932).—On top of hill about one-fourth mile southeast of Marine barracks on Mare Island, about 60 meters (197 feet) northwest of radio house, and about 40 feet southwest of water tank 40 feet high. To reach from Vallejo, take road to Mare Island, cross bridge and turn right onto first street to left, go to signboard in middle of street reading "For Official Traffic Only", go 1 block to right and turn left onto Railroad Avenue, go 0.1 mile, turn right onto Twelfth Avenue and go 0.2 mile, turn left and go 1 block to Thirteenth Street, turn right and go about 0.1 mile to road forking to left, and follow this road to top of hill and station site. The Mare Island golf course surrounds this hill. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 7.370 meters (24.18 feet) from station in azimuth 211°56′. No. 2 is 18.870 meters (61.91 feet) from station in azimuth 307°12′. Station *Mare Island southeast* (see description thereof) is visible from ground in azimuth 308°20′37″.

Lone Tree Point Iron Rod (U. S. E.) (Contra Costa County, U. S. Engineers, 1903; E. W. Eickelberg, 1917; 1932).—On Lonetree Point in San Pablo Bay, about 10 feet from edge of bluff. Originally marked by three-quarter-inch iron rod, 3 feet long, driven into ground so that only 3 inches projected. In 1911, a bottle was buried 3 feet below surface and below iron rod which was left in place. In 1917, station had been re-marked with a United States Engineers' disk in concrete. In 1932, two standard reference disks in concrete, note 11a, were established. No. 1 is about 20 yards west of bluff, alongside 10-foot cylindrical steel tank, and 297.40 feet from station in azimuth 298°21′. No. 2 is in 2.6- by 3.3-foot concrete block, 7.778 meters (25.52 feet) from station in azimuth 355°05′.

View (Solano County, J. Bowie, Jr., 1932).—Just northwest of Vallejo, on highest knoll of highest flat-topped hill, 11.59 meters (38.0 feet) southeast of south gable of small dwelling house which was formerly a power house, 5.62 meters (18.4 feet) east of road, and on property belonging to Mr. Overmyer. To reach from Sonoma and Georgia Streets in Vallejo, follow Sonoma Street to Nebraska Street, turn left and go 1 block, turn right and go 1 block, turn left and follow Mississippi Street to top of hill, and go to right to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is beside wire fence and 11.550 meters (37.89 feet) from station in azimuth 223°55′. No. 2 is 5.3 meters (17 feet) west of center line of road and 41.670 meters (136.71 feet) from station in azimuth 346°17′.

Slaughterhouse Point 3 (Solano County, F. G. Engle, 1921; 1932).—On highest point of small round hill on Slaughterhouse Point, about 2 meters (7 feet) north of center line of row of transmission towers. Surface mark is standard station disk in tile, note 6a. Underground mark is upper half of bottle, note

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10a, buried 2¾ feet below surface. Reference mark no. 1 was standard reference disk in top of monument of red building bricks, buried 10 inches in ground and projecting 6 inches, 19.35 meters (63.5 feet) from station in magnetic azimuth 350°. Reference mark no. 2 is standard reference disk in tile, note 13a, 25.65 meters (84.2 feet) from station in azimuth 307°42′. In 1932, monument of red bricks was not recovered; and new reference mark no. 1, standard reference disk in concrete, note 11a, was established 16.475 meters (54.05 feet) from station in azimuth 213°25′.

Crockett (Contra Costa County, J. Bowie, Jr., 1932).—About three-fourths of a mile south of Crockett, on round hill 630 feet high. To reach from south end of the Carquinez bridge, go east 0.1 mile to Richfield service station, turn right and follow road leading up hill to Pacific Gas and Electric power plant, pass through gate into pasture in which large black water tank stands just inside fence, follow road up through pasture 0.7 mile to fork in road, turn right leaving road and go 0.1 mile to foot of hill and end of truck travel, and climb hill to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 15.540 meters (50.98 feet) from station in azimuth 230°50′. No. 2 is 27.675 meters (90.80 feet) from station in azimuth 310°43′. Station *Bush Hill* (see description thereof) is visible from ground in azimuth 248°43′54″.

Mare Island southeast (Sonoma County, R. D. Cutts, 1852; 1932).—On highest ground of highest and easternmost of two peaks (250 meters (820 feet) apart) on Mare Island, 10 meters (33 feet) west of barbed-wire fence enclosing the Mare Island magazine, and 30 meters (98 feet) east of road crossing saddle between the peaks. Original station mark was intersection of cross lines on lead bolt in top of 6-inch square sandstone post, buried about 2 feet 8 inches below surface. Original reference marks were three similar stones, flush with surface, placed 6 feet from station in north, south, and east directions. In 1877 the east stone was found to have been broken, but still in place, and the lead had been removed from the other posts. In 1921 standard station disk in tile, note 6a, was established over old station mark; and standard reference disk in tile, note 13a, was established 39.90 meters (130.9 feet) from station in azimuth 68°56′. In 1932 disk had been removed from station mark and station was re-marked with standard station disk in concrete, note 1a. Station *Golf* (see description thereof) is visible from ground in azimuth 128°21′03″.

Vallejo 3 (Solano County, R. D. Cutts, 1852; 1932).—On north side of Carquinez Strait, about 1 mile from entrance of Mare Island Strait, and on high hill northeast of north end of the Carquinez Bridge. Hill is about 370 feet above high water and 510 meters (1,673 feet) from shore. Original station mark was intersection of cross lines on lead bolt in top of stone block, buried 2 feet 4 inches below surface. Original reference marks were three similar stones, flush with surface, placed 6 feet from station. Distances and bearings to other points were round rock, 3½ feet in diameter and projecting out of ground, 121 feet, S. 75° W.; and round rock, 2 feet in diameter and projecting out of ground, 147.7 feet, N. 72° W. In 1886: South and east reference stones were recovered and a triangular-shaped stone, found about 2 feet below surface, was thought to be station mark. Surface was marked with a 2- by 3- by 24-inch pine stub. In 1911 triangular-shaped stone was recovered and original station mark was found 6 inches below and 0.32 foot north of it. An outcropping rock, 10 inches across and 14 inches deep, was found 5.08 feet south-southeast of station and a ¾-inch hole, 1 inch deep, was drilled in it. Holes about 1 inch deep were drilled in above-mentioned outcropping round rocks. In 1921 triangular-shaped stone was found to lie 0.386 meter (1.27 feet) from original station mark in true azimuth 14°30′ (approximate). Station was remarked with standard station disk in top of 5-inch drain tile, 1½ feet long, filled with concrete and projecting 3 inches. Standard reference disk in top of 5-inch drain tile, 2 feet long, filled with concrete and projecting 1 foot was established near fence line which was about 75 meters (246 feet) northeast of station. Line joining station and reference mark formed right angle with fence line. In 1932 reference disk in tile was not recovered and two standard reference disks in boulders, note 12d, were established. No. 1 is 19.55 meters (64.1 feet) from station in azimuth 53°33′. No. 2 is 44.71 meters (146.7 feet) from station in azimuth 123°55′.

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Bush Hill (Contra Costa County, R. D. Cutts, 1851; 1932).—On south shore of Carquinez Strait, inshore from Granger's wharf, and about 1½ miles west of Port Costa. Original station marks were a black bottle with its top 23 inches below surface, a flat stone placed over bottle, and a nail in top of 2- by 3- by 24-inch pine stub resting on stone. A circle of stone was placed around station, distant 18 inches. Witness marks were nails driven into corners of a triangle cut into face of scrub-oak tree, 15 feet 4½ inches distant, in azimuth 44°; and nearest of four scrub oaks 30 paces from station in azimuth 197°. In 1922 a house had been built just north of station. Standard station disk in tile, note 6a, was established over old station mark; and a standard reference disk in bedrock, note 12b, (station "Bush Hill eccentric") was established 19.35 meters (63.5 feet) from station in azimuth 249°57′. Brass disk, marked with letters "52 P and C", in top of 6- by 6-inch concrete post, projecting 6 inches and 2 feet from southeast corner of house, was 7.52 meters (24.7 feet) from station in azimuth 246°49′. In 1932 house mentioned in 1922 was no longer present. Standard reference disk in concrete, note 11a, was established alongside fence and 27.748 meters (91.04 feet) from station in azimuth 346°44′. Station *Crockett* (see description thereof) is visible from ground in azimuth 68°44′45″.

San Pablo Ridge (Contra Costa County, E. F. Dickins, 1897; 1932).—On eastern side of prominent knoll of ridge running up from Point San Pablo, about three-fourths mile from point, and at about 340-foot elevation. Original station marks were a bottle buried 2 feet below surface and a one-half-inch drill hole in upper face of an irregular-shaped stone. In 1917, station was re-marked with standard station disks in concrete, notes 1c and 7a; and a standard reference disk in concrete, note 11a, was established 11.978 meters (39.30 feet) from station in azimuth 335°14′. In 1932, additional reference mark (probably standard reference disk in concrete, note 11a) was established 13.000 meters (42.65 feet) from station in azimuth 68°40′.

California Point 2 (Marin County, E. F. Dickins, 1897; 1932).—On California Point on west side of San Francisco Bay, 3 miles north of Raccoon Strait, on low point which extends from shore and is connected with mainland by marsh only, and on northern part of rather flat top. Original station marks were a drill hole in upper end of a brick buried about 3 feet below surface and a nail in top of 2-by-3-inch pine scantling projecting about 1 foot. In 1916: Surface mark was found lying on ground and station was re-marked with standard station disks in concrete, notes 1c and 7a. Standard reference disk in concrete, note 11a, was established 9.830 meters (32.25 feet) from station in azimuth 64°39′. In 1932, standard reference disk in concrete, note 11c, was established 15.400 meters (50.52 feet) from station in azimuth 182°04′.

Bluff Point 2 (Marin County, E. F. Dickins, 1897; 1932).—About two-thirds mile north of Raccoon Strait, on ridge above road just south of coaling station. Northwest tangent of Molate Point is in range with southeast extremity of Red Rock, and summit of knoll on northeast end of Yerba Buena Island is in range with summit of northeast point of Angel Island. To reach from Fourth Street and Lincoln Avenue in San Rafael, go south 3.6 miles on Route 101, follow left fork around hill 5.5 miles to round white tank with green roof to left of road, and continue 0.6 mile to point of ridge just south of coaling station. Original station marks were a bottle buried about 2 feet below surface and one-half-inch drill hole in upper face of irregular-shaped stone. In 1916: Surface mark, consisting of standard station disk in concrete, note 1c, was established over old stone station mark. Standard reference disk in concrete, note 11c, was established 10.425 meters (34.20 feet) from station in azimuth 304°12′. Arrow on disk points to temporary station site which was 5.5 meters (18 feet) northwest of marked station. In 1932, reference mark (probably standard reference disk in concrete) was established 70 paces from station in azimuth 27°51′. Azimuth from station to California Nautical School, water tank, ball on top, distant about 300 meters (984 feet), is 158°21′19″.

Richardson east (Marin County, A. F. Rodgers, 1895; 1932).—On bare hill west of Sausalito, about 150 meters (492 feet) south of road from Sausalito to Mill Valley, west of most southern point of road before its junction with road from Point Bonita, and at an elevation of about 1,100 feet. Original station marks were a bottle buried neck up about 2½ feet below surface and a stub 2 feet long driven into ground flush with surface. In 1916 stub was replaced by standard station disk in concrete, note 1a. Two standard refer-

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ence disks in bedrock, note 12a, were established. No. 1 is 5.740 meters (18.83 feet) from station in azimuth 204°24′. No. 2 is 7.370 meters (24.18 feet) from station in azimuth 351°06′. In 1932 station and reference mark no. 1 were reinforced with more concrete.

Strawberry Hill 2 (Marin County, A. F. Rodgers, 1895; 1932).—On summit of sharp point which makes down from northward and divides Richardson Bay into two parts, at about 190-foot elevation. To reach from ferry landing at Sausalito, go north 5 miles on Route 101 to crossroads and sign "To Tiburon", turn right and go 0.8 mile, make U-turn to right onto dirt road and go 0.1 mile to gate, turn left through gate and go 0.8 mile to large white house on left of road, go through gate and continue 0.4 mile on road along beach to large white barn, and proceed on foot in southeasterly direction about 0.5 mile to top of southernmost hill and station site. Original station marks were a bottle buried neck up about 2½ feet below surface and a stub 2 feet long driven into ground flush with surface. In 1916 stub was replaced by standard station disk in concrete, note 1c; and standard reference disk in concrete, note 11a. was established 11.63 meters (38.2 feet) from station in azimuth 229°50′. In 1932 standard reference disk in concrete, note 11a, was established 8.170 meters (26.80 feet) from station in azimuth 149°19′.

Baker (Marin County, J. Bowie, Jr., 1932).—On highest part of hills on rocky point west of and overlooking Fort Baker. To reach from San Francisco, take the Sausalito Ferry, turn left at ferry landing and go 1.7 miles on road leading to Forts Barry and Baker, take left fork and follow Lime Point road 0.3 mile, turn right at red building on left of road and follow road up hill 0.9 mile, pass by gate leading into batteries and go about 0.9 mile to saddle of ridge and end of truck travel, and climb hill to right to station site. Marked by standard station disk in bedrock, note 2. Reference mark no. 1 is standard reference disk in bedrock, note 12a, 6.064 meters (19.89 feet) from station in azimuth 311°13′. Reference mark no. 2 is standard reference disk in boulder, note 12c, 15 feet below and 21.498 meters (70.53 feet) from station in azimuth 24°32′.

Alcatraz Lighthouse (San Francisco County, F. Morse, 1910; 1932).—The steel and concrete lighthouse on Alcatraz Island, San Francisco Bay.

Hill (Marin County, E. W. Eickelberg, 1916; 1932).—On level spot just below highest part of bluff above Lime Point fog station, on concrete roof of military building F 1/10. Marked by cross in copper plate placed under 1¼-inch pipe flange secured to roof. Reference mark is standard reference disk in concrete, note 11a, 13.995 meters (45.92 feet) from station in azimuth 200°38′.

Presidio east base (San Francisco County, G. L. Bean, 1931; 1933).—On The Presidio, San Francisco, at northeast end of Crissy Aviation Field, about 80 feet north by east of northwest corner and about 118 feet west of northeast corner of two-story galvanized-iron building of the United States Engineers at east end of aviation field, about 75 meters (246 feet) east of east edge of polo field, about 38½ feet east of northeast corner of small wooden building marked "For Polo Players", and about 122½ feet south of south door of concrete substation belonging to the Pacific Gas and Electric Co., which is at intersection of north and east roads along Crissy Aviation Field. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Upper mark is flush with surface. Reference marks are standard reference disks in concrete, note 11a. No. 1 is flush with surface, at northeast corner of aviation field, 17 feet north of center line of paved road along north side of Crissy Field (Marina Drive), about 125 feet east of airplane light no. 28, 58½ feet west of center line of south door of Pacific Gas and Electric Co. substation house, and 30.480 meters (100.00 feet) from station in azimuth 167°51′. No. 2 was just west of concrete wall between The Presidio and San Francisco Yacht Club grounds, at extreme north end of Crissy Aviation Field, between paved road and wall at end of field, about 70 feet northwest of United States Engineers' building, and 51.635 meters (169.41 feet) from station in azimuth 262°42′. In 1933, reference mark no. 2 had been dug up and was lying on sand of beach.

Presidio west base (San Francisco County, G. L. Bean, 1931; 1934).—On The Presidio, San Francisco, about 0.33 mile east of southeast corner of yard of the Coast Guard crew's quarters on north side of Crissy Aviation Field, about 10 feet south of center line of Marina Drive which runs along north side of aviation field, about 3 meters (10 feet) south of old roadway, about 60 meters (197 feet) west of point where roadway makes short reverse curve, about 30

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feet south of wooden sea-retaining wall along shore line, 36 feet southeast of airplane light no. 11 along north side of aviation field, and almost due north of gasoline storage tanks on south side of field. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 projects about 4 inches, and is about 0.32 mile east of southeast corner of yard of Coast Guard crew's quarters, 14½ feet north of center line of Marina Drive, 3 feet north by east of airplane light no. 11, 2 feet south of sea face of wooden sea-retaining wall on north side of Marina Drive, and 11.000 meters (36.09 feet) from station in azimuth 131°02′. No. 2 projects about 3 inches, and is about 0.32 mile east of southeast corner of yard of the Coast Guard crew's quarters, about 14½ feet north of center line of Marina Drive, about 47 feet east by north of reference mark no. 1, about 49 feet east by north of airplane light no. 11, 1.8 feet south of sea face of wooden sea-retaining wall on north side of Marina Drive, and 10.918 meters (35.82 feet) from station in azimuth 211°58′.

Coyote Ridge 2 (Marin County, E. W. Eickelberg, 1916; 1932).—On southern extremity of highest ridge west of Elk Valley. To reach from ferry landing at Sausalito, go 2.8 miles on Route 101, take right fork at large sign "Mill Valley Road" just before arriving at bridge approach and follow road 0.8 mile, turn left onto Tamalpais road and go 2.4 miles, turn left off Tamalpais road and go 0.4 mile to summit of ridge and west end of grove of trees on left of road, and follow fence line up ridge to south about 1.0 mile to station site on highest and southernmost hill. Marked by standard station disk in concrete, note 1a. Reference mark no. 1 is standard reference disk in bedrock, note 12b, 4.456 meters (14.62 feet) from station in azimuth 260°22′. Reference mark no. 2 is cross on galvanized pipe, 3.930 meters (12.89 feet) from station in azimuth 212°53′.

Fairway (San Francisco County, J. Bowie, Jr., 1932).—On highest hill in The Presidio, San Francisco, about 80 meters (262 feet) west-northwest of reservoir, 30 meters (98 feet) south of tree line, and just south of road. To reach from entrance to The Presidio at Fourteenth Avenue and Lake Street, follow road along northerly edge of The Presidio Golf Course to top of hill known as "Reservoir Hill" and station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is near edge of tree line and 27.98 meters (91.8 feet) from station in azimuth 207°46′. No. 2 is on east side of intersection of two roads and 0.2 mile from station in azimuth 91°52′42″.

Barry (Marin County, J. Bowie, Jr., 1932).—On Point Bonita, 14 meters (46 feet) northeast of Coast Guard lookout tower. To reach from Sausalito, go 1.7 miles on road leading to Forts Baker and Barry, turn right and go 0.1 mile on road leading to Fort Barry, take left fork and follow main-traveled road 2.7 miles to entrance of Fort Barry, follow main-traveled road 1.2 miles or 0.3 mile beyond end of pavement and take right fork, and go about 0.1 mile to Coast Guard lookout tower and station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference mark no. 1 is standard reference disk in concrete, note 11a, 10.24 meters (33.6 feet) from station in azimuth 232°24′. Reference mark no. 2 is standard reference disk, note 11c, on south side of concrete walk leading to entrance of lookout tower and 11.50 meters (37.7 feet) from station in azimuth 34°28′.

Lincoln (San Francisco County, J. Bowie, Jr., 1932).—In San Francisco, on high knoll in southwest corner of Lincoln Park, about 100 yards east of boundary line of Fort Miley, and about 60 feet north of water tank. To reach from San Francisco, follow Geary Street to Thirty-ninth Avenue, turn right and go 1 block to Clement and end of truck travel, and continue about 200 yards to water tank and station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 11.3 feet west of water hydrant and 13.04 meters (42.8 feet) from station in azimuth 242°37′. No. 2 is 7 feet north of concrete water tank and 16.775 meters (55.04 feet) from station in azimuth 338°22′. Center of ball on flagpole is one-fourth mile from station in azimuth 188°33′09″.

Range (Marin County, G. L. Bean, 1931).—On Fort Baker, in southwest corner of concrete wall around range-finding station for Point Cavallo battery. Marked by standard station disk in concrete, note 1a.

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Fort (San Francisco County, G. L. Bean, 1931).—On top of roof of house containing engine for running the Fort Point fog station, and on center line of proposed Golden Gate Bridge. Marked by standard station disk.

Bluff (Marin County, G. L. Bean, 1931).—On bluff above Lime Point, on center line of Golden Gate Bridge. Marked by nail driven in top of pipe. Station will be destroyed in the construction of bridge.

Ridge (Marin County, G. L. Bean, 1931).—About 400 meters (1,312 feet) north of Lime Point, on center line of Golden Gate Bridge. Marked by standard station disk in rock outcrop. Station will be destroyed in the construction of bridge.

Rock (Marin County, G. L. Bean, 1931).—Directly west of Lime Point fog station. Marked by copper bolt in drill hole on top of an offshore rock. Station will be destroyed in the construction of Golden Gate Bridge.

Bay Park (San Francisco County, J. Bowie, Jr., 1932; 1935).—In San Francisco, about 30 meters (98 feet) north-northwest of 30-foot flagpole on highest point of hill in Bay View Park. Hill is the highest in the park and the only one with outcropping rock. The entrance to Bay View Park is 2 short blocks east of intersection of Third Street and Bay View Boulevard. Marked by standard station disk in boulder, note 4. Top of milk bottle was sealed over station mark with cement paddy. Reference marks are standard reference disks in boulders, note 12c. No. 1 is near highest part of hill and 23.52 meters (77.2 feet) from station in azimuth 296°09′. No. 2 is 3.87 meters (12.7 feet) from station in azimuth 90°35′. Station "Visitation Knob (1903)", marked by standard station disk in bedrock, note 3, is in deep crevice of outcropping rocks, 8.980 meters (29.46 feet) from reference mark no. 1, and 31.157 meters (102.22 feet) from station in azimuth 306°01′. In 1935 cement paddy over station mark had been removed. Reference mark no. 1 had been loosened and turned so that arrow now points away from station mark. Both reference marks have been defaced. Station *McKinley* (see description thereof) is visible from ground in azimuth 168°40′05″.

Point San Mateo (San Mateo County, W. Mussetter, 1925; 1935).—About 14 miles south of San Francisco, 1¾ miles east of Burlingame, on most easterly point (known as "Big Coyote Knoll") of Point San Mateo, on the Howard Estate, 20 feet from edge of woods, and 15 feet from edge of 25-foot bluff. To reach from San Mateo municipal golf course, enter gate and follow road around course, turn right at clubhouse and follow most-traveled road along edge of bluff to most northeasterly point of woods and station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference mark no. 1 is standard reference disk in boulder, note 12b, about 60 feet in woods and 103.150 feet from station in azimuth 356°37′. In 1932, reference mark no. 2, standard reference disk in bedrock, note 12a, was established 16.36 meters (53.7 feet) from station in azimuth 39°20′. Azimuth from station to *Point San Mateo, oyster house, east gable,* is 287°07′02″; and to *Millbrae, oyster house, windmill,* 119°51′32″. This station should not be confused with station "Point San Mateo (1852)."

South Twin (San Francisco County, J. Bowie, Jr., 1932).—In San Francisco, on southernmost one of two high peaks to southeast of Golden Gate Park. To reach, go west on Market Street to Portola Drive, continue west on Portola Drive to Twin Peaks Boulevard, turn right onto Twin Peaks Boulevard and drive north up hill to saddle between two peaks, and go up south peak to station site. Marked by standard station disk in bedrock, note 3. Reference marks are standard reference disks in bedrock, note 12b. No. 1 is 17.671 meters (57.98 feet) from station in azimuth 246°23′. No. 2 is 8.721 meters (28.61 feet) from station in azimuth 31°27′. Station *Telegraph* (see description thereof) is visible from ground in azimuth 213°27′41″.

Telegraph (San Francisco County, J. Bowie, Jr., 1932).—Station established and maintained by the California State Engineering Department, at southern end of Telegraph Hill, inside of house about 10 feet square, and on property of the city of San Francisco. To reach from the ferry building in San Francisco, go out Embarcadero to Pier 33, turn left onto Bay Street and go about 0.4 mile, turn left onto Stockton Street and go about 0.2 mile, turn left onto Lombard Street and follow road about 0.2 mile to top of hill and station site. Marked by copper bolt in block of concrete. A flagpole is 19.70 meters (64.6 feet) from station in azimuth 171°25′. Station *South Twin* (see description thereof) is visible from ground in azimuth 33°29′14″.

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McKinley (San Francisco County, J. Bowie, Jr., 1932).—In San Francisco, in McKinley Park, on west side of top of hill at point where road leading off hill on the west side swings to north, and a few feet from concrete sidewalk. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is in top of a concrete sidewalk post about 2 feet high and 8.325 meters (27.31 feet) from the station in azimuth 35°55′. No. 2 is in concrete post 6 inches above surface of ground and 11.345 meters (37.22 feet) from station in azimuth 268°48′. Station *Bay Park* (see description thereof) is visible from ground in azimuth 348°39′40″.

San Bruno Mountain (San Mateo County, F. Morse, 1899; 1932).—On highest peak of the San Bruno Mountains, in outcropping ledge (about 4½ feet long running northwest and southeast, 1 foot wide in middle, and 4 inches above surface), and at point 27 feet south of ledge of rock which projects about 4 feet above ground and forms highest part of peak. To reach from Visitation railroad station, turn off State highway and go through tunnel, continue 1 mile on paved road to gate of large dairy farm, pass through gate and go 2.2 miles over winding clay road to fence at top of summit, cross fence and continue on foot three-fourths mile up hill to station site. To reach from Daly City, go north 2 blocks on Mission Street to Crocker Avenue, turn right and go 0.3 mile, turn left, take right fork and enter Crocker Terrace, go 0.2 mile and take right fork, follow 0.3 mile to radio station, continue 0.1 mile and turn right through gate, turn right again just north of barn and go 0.1 mile, turn left onto road between double row of trees and go 0.2 mile to locked gate, pass through gate and continue 0.6 mile, and proceed on foot three-fourths mile in a southeasterly direction to highest part of hill. Original station mark was ½-inch drill hole, 2 inches deep, in rock ledge. The three original reference marks were ½-inch drill holes in sides of rocks facing station: 5.95 feet north, 12.40 feet east, and 4.82 feet west. In 1916 drill hole marking station was re-marked with standard station disk. In 1929, disk was found to have been removed from station mark leaving only the shank; and the west reference drill hole had been destroyed. In 1932, two standard reference disks in bedrock, note 12b, were established. No. 1 is 12.120 meters (39.76 feet) from station in azimuth 105°12′. No. 2 is 9.770 meters (32.05 feet) from station in azimuth 356°45′.

Flat (San Mateo County, F. Morse, 1899; 1932).—On northern end of Sweeney Ridge which runs north and south between the San Bruno Mountain ridge and the Montara Mountain ridge, about in line between highest peaks of these two ranges, and on little rock shoulder of ridge where best view is obtained toward north and west. Mount Diablo shows about midway between Point San Bruno and outer wireless mast on point. To reach from Colma, go east 1.6 miles to Skyline Boulevard, turn left and follow Skyline Boulevard 4.1 miles to point just beyond small lake on left, turn right onto dirt road and go 0.2 mile to farmyard, take right-hand road and continue 0.1 mile, take left fork going down hill and follow 0.4 mile to gate, pass through gate and continue 0.4 mile to another gate, follow main-traveled road 1.3 miles to top of ridge, leave road and go to right 0.5 mile along top of ridge to fence, and continue west about 150 yards to station site. Marked by ¾-inch drill hole, about 1 inch deep, in rough stone about 15 inches square and 18 inches thick, set with top level with ground. In 1916, standard reference disk was established in projecting ledge, note 12b, 4.150 meters (13.62 feet) from station in azimuth 152°49′. In 1932, standard reference disk in bedrock, note 12b, was established 28.870 meters (94.72 feet) from station in azimuth 318°02′.

Brooks Island 2 (Contra Costa County, B. A. Baird, 1905; 1932).—Opposite Richmond in San Francisco Bay, on highest point of Brooks Island. Original station mark was large wire nail driven into top of 4- by 4-inch pine stub. In 1916, station was re-marked with standard station disks in concrete, notes 1c and 7a; and standard reference mark in concrete, note 11a, was established 12.21 meters (40.1 feet) from station in azimuth 21°02′. In 1932: The Berkeley Water Front Development Co. had erected a 6-foot observing stand and platform over station mark. Standard reference disk was placed in large outcropping rock about 6 feet above ground, note 12a, 21.01 meters (40.1 feet) from station in azimuth 270°08′. Station *B (B.W.F.D. Co.)* (see description thereof) is visible from ground in azimuth 289°36′23″.

Grizzly (Alameda-Contra Costa Counties, J. Bowie, Jr., 1932).—On mountain known as "Grizzly Peak" (1,759 feet high), on or near boundary line of Ala-

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meda and Contra Costa Counties, and 10 meters (33 feet) west of fire lookout tower on top of mountain. To reach from University and Oxford Avenues in Berkeley, go north 0.1 mile on Oxford Avenue, turn right onto Hearst Avenue and go 0.3 mile, turn left onto Euclid Avenue and go 2 miles to point where road makes a right U-turn into Grizzly Peak Boulevard, follow Grizzly Peak Boulevard 1.9 miles to gate, pass through gate and follow road to foot of Grizzly Peak, and climb to summit and station site. Marked by standard station disk in bedrock, note 2a. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 8.570 meters (28.12 feet) from station in azimuth 223°40′. No. 2 is near base of fire lookout tower and 9.070 meters (29.76 feet) from station in azimuth 287°07′.

Farm (Alameda County, W. Mussetter, 1925; 1932).—On Bay Farm Island, about 30 feet from large water tank, just outside of fence line about farm, and about 10 feet above high water. Surface and underground marks were standard station disks in concrete, notes 1a and 7a. Upper mark was flush with ground. Reference mark is standard reference disk in concrete, note 11a, flush with surface, 11.435 meters (37.52 feet) from station in azimuth 176°01′. In 1932 surface station marker had been shifted. It was destroyed and station *Farm 2* (see description thereof) was established 4.170 meters (13.68 feet) from underground mark in azimuth 233°49′.

Bay (Alameda County, E. W. Eickelberg, 1916; 1932).—On marshy point on northwest corner of Bay Farm Island. Point is known locally as "McCartneys Point." Marked by standard station disk in concrete pier, 3 feet deep and 1 foot in diameter, which was fastened to top of an 8-foot, 2- by 4-inch post driven into marsh. Reference mark is standard reference disk in top of similar concrete pier, in range with cupola of barn which is between two windmill tanks and 22.805 meters (74.82 feet) from station in azimuth 296°29′. Azimuth from station to tank of windmill no. 1 is 281°11′; to tank of windmill no. 2, 303°09′; and to north gable of double-gable house, 335°41′.

Supplementary points

Selby (Contra Costa County, H. W. Rhodes, 1911).—On east shore of San Pablo Bay, 12 feet south of perpendicular edge of bluff just south of Selby Smelting Plant, 60 feet from point of bluff, 38 feet from fence corner bearing southwest by south, and 13 feet north of fence. Marked by bottle buried neck up 2½ feet below surface.

Mount Diablo, airway landmark beacon (Contra Costa County, J. Bowie, Jr., 1932; 1935).—In 1935 described as follows: Prominent revolving beacon west of parking space at summit of Mount Diablo, about 215 feet west of observation platform, and 65.51 meters (214.9 feet) in azimuth 81°08′ from station *Mount Diablo* (see description thereof). Beacon is on tall steel tower installed by Standard Oil Company of California and bears letters "SD" vertically on sides.

San Francisco, 450 Sutter Street, building (San Francisco County, J. Bowie, Jr., 1932; 1935).—Described in 1935 as very prominent flagpole on highest part of building at 450 Sutter Street, San Francisco.

San Francisco, Standard Oil Co. Building, chimney (San Francisco County, J. Bowie, Jr., 1932; 1935).—Described in 1935 as short, stubby chimney on building at 225 Bush Street, San Francisco. Chimney is of gray masonry or concrete, with top almost black; it extends about 10 feet above roof, and is approximately 7 feet square with corners so heavily beveled as make it appear octagonal in shape when viewed from some directions.

San Francisco, Park Lane Building, flagpole (San Francisco County, J. Bowie, Jr., 1932; 1935).—In San Francisco, at northwest corner of Sacramento and Sutter Streets. When described in 1935 there were two flagpoles identical in appearance on the Sacramento Street side of this building. These flagpoles were 25 feet apart and extended 25 feet above highest part of building.

San Francisco, Bank of America Building, dome, flagpole (San Francisco County, J. Bowie, Jr., 1932; 1935).—Described in 1935 as very prominent flagpole extending above center of dome of Humboldt Bank Building at 785 Market Street, San Francisco. Large electric sign near dome reads "Bank of America", but Bank of America Building is at 625 Market Street.

San Francisco, Russ Building, flagpole (San Francisco County, J. Bowie, Jr., 1932; 1935).—Described in 1935 as prominent flagpole on top of 32-story office building at 235 Montgomery Street, and on corner of Pine Street.

For notes in regard to marking of stations see p. 290.

San Francisco, Shell Oil Building, flagstaff (San Francisco County, J. Bowie, Jr., 1932; 1935).—Described in 1935 as prominent flagstaff on top of building at 100 Bush Street, San Francisco.

San Francisco, City Hall, steeple (San Francisco County, J. Bowie, Jr., 1932; 1935).—Described in 1935 as dome on top of City Hall, San Francisco.

San Francisco, William Taylor Hotel (San Francisco County, J. Bowie, Jr., 1932; 1935).—Described in 1935 as very prominent flagpole on top of building at corner of Leavenworth and McAllister Streets, San Francisco.

San Francisco, Cathedral Apartments (San Francisco County, J. Bowie, Jr., 1932; 1935).—Described in 1935 as very prominent flagpole on top of building at 1201 California Street, San Francisco.

San Francisco, Mark Hopkins Hotel (San Francisco County, J. Bowie, Jr., 1932; 1935).—Described in 1935 as prominent flagpole on top of Mark Hopkins Hotel, at California and Mason Streets, San Francisco.

San Francisco, Bell Telephone Building (San Francisco County, J. Bowie, Jr., 1932; 1935).—In 1935 described as very prominent flagpole on top of Pacific Telephone and Telegraph Building at 140 Montgomery Street, between Mission and Howard Streets, San Francisco. Reported to have been determined in 1925 as "Flagstaff Telephone Building."

San Francisco, Matson Building, tower (San Francisco County, J. Bowie, Jr., 1932; 1935).—Described in 1935 as prominent tower on top of Matson Building at 215 Market Street, San Francisco.

San Francisco, Pacific Gas & Electric Building, smokestack (San Francisco County, J. Bowie, Jr., 1932; 1935).—Described in 1935 as prominent black smokestack on Pacific Gas and Electric Building at 245 Market Street, San Francisco.

San Francisco, Ferry Building, tower (San Francisco County, J. Bowie, Jr., 1932; 1935).—Described in 1935 as prominent tower on top of Ferry Building at foot of Market Street, San Francisco.

San Francisco, Schmidt Building, tower (San Francisco County, J. Bowie, Jr., 1932; 1935).—Described in 1935 as prominent tower on top of Schmidt Building at Second and Bryant Streets, San Francisco.

San Francisco, Sir Francis Drake Hotel, flagstaff (San Francisco County, J. Bowie, Jr., 1932; 1935).—Sir Francis Drake Hotel is located at Powell and Sutter Streets, San Francisco. In 1935, reported that two flagstaffs on Powell Street side of building were identical in appearance, 40 feet apart, and extended about 20 feet above highest part of building.

Candlestick Point (San Francisco County, A. F. Rodgers, 1894; 1931).—On Candlestick Point, southeast from and under Visitation Knob, about 130 feet above high water, and directly over 8-foot sharp pinnacle rock near high-water mark. Original station marks were bottle buried 2½ feet below surface and wooden stub flush with surface. In 1916, station was found to have been remarked by brass cap with inscription "U. S. E. D. Harbor Mon. Line" on 3-inch galvanized pipe set in concrete pier. Pier is flush with ground and pipe projects 8 inches.

Sierra Point (San Mateo County, R. D. Cutts, 1851; 1931).—On Sierra Point on west side of San Francisco Bay. Original station mark was bottle buried 3 feet below surface and witnessed by copper tacks in tops of three stubs placed two in line with station and third at right angles to that line. In 1895, station was remarked with a new bottle and coal cinders. In 1919: Standard station disk in top of concrete block, 1 foot in diameter by 1½ feet deep, was placed over old station mark with its top about 1 foot below surface. Three standard reference disks in concrete blocks, flush with surface, were established. No. 1 is 4.725 meters (15.50 feet) from station in azimuth 243°35′. No. 2 is 5.602 meters (18.38 feet) from station in azimuth 348°11′. No. 3 is 3.415 meters (11.20 feet) from station in azimuth 93°23′.

Mulford Landing 2 (Alameda County, F. G. Engle, 1919; 1925).—At Mulford Landing on east side of San Francisco Bay, 3½ miles south of Bay Farm Island. Surface mark was standard station disk in concrete, note 1b, flush with surface of marsh. Underground mark was glass bottle embedded in concrete about 3½ feet below surface. Reference marks were standard reference disks in concrete blocks projecting 4 inches. No. 1 was 14.015 meters (45.98 feet) from station in azimuth 65°34′. No. 2 was 9.113 meters (29.90 feet) from station in azimuth 333°45′. In 1925, station was recovered, but had been destroyed by beach erosion in 1930.

For notes in regard to marking of stations see p. 290.

Roberts Landing 2 (Alameda County, F. G. Engle, 1919; 1930).—About 10 meters (33 feet) north of mud dike on north side of slough at Roberts Landing. Surface mark is standard station disk in concrete, note 1b, flush with surface of marsh. Underground mark is bottle in concrete, note 7d. Reference mark is standard reference disk in concrete, note 11b, projecting about 5 inches above marsh and 10.310 meters (33.83 feet) northwest of station.

Palo Alto historical tree (Santa Clara County, J. Bowie, Jr., 1932; 1935).—In 1935 this tree was described as a well-known landmark in north part of town of Palo Alto, on south bank of San Francisquito Creek, and east of Southern Pacific tracks.

Monument 15 (U. S. N.) (B. M. 4268) (Santa Clara County, J. Bowie, Jr., 1932).—At Sunnyvale Air Base. Marked by brass plug in concrete post which projects about 6 inches. Station *Sunnyvale—B.M. G 111* (see description thereof) is 274.32 meters (900.0 feet) from station in azimuth 89°59′32″.

B.M. H 111 (Santa Clara County, J. Bowie, Jr., 1932).—At Sunnyvale Air Base, at south end of center line of dirigible hangar. Marked by standard bench-mark disk. *Sunnyvale, mooring mast*, is 506.0 meters (1,660 feet) from station in azimuth 337°43′00″.

CALIFORNIA—WASHINGTON ARC

Principal points

Soda (Jackson County, Oreg., O. B. French, 1904; 1933).—About 20 miles by road and trail southeast of Ashland, on Soda Mountain in the Siskiyou Mountains, and 5 miles east by north from Pilot Rock which is prominent peak in same range. To reach from State normal school in Ashland, go 5.8 miles to Klamath Junction, turn left toward Klamath Falls and go 2.9 miles, turn right off pavement and go 0.4 mile, take left fork and go 1.6 miles, take left fork and go 2.6 miles, take right fork and go 2.0 miles to gate owned by the C. O. P. Co., go 0.7 mile to another gate, keep straight ahead through gate and continue 2.0 miles to top of ridge, and continue to top of hill and station site. Marked by old-type station disk (see fig. 6) and copper bolt in large boulder. Reference marks are copper bolts in boulders. One is 12.910 meters (42.36 feet) from station in azimuth 299°45′; and other is 23.952 meters (78.58 feet) from station in azimuth 35°39′. Azimuth from station to Old Baldy, fire lookout tower is 217°40′10″.

Sterling (Jackson County, Oreg., O. B. French, 1904; 1932).—About 25 miles southwest of Ashland, on Observation Peak in the Siskiyou Mountains, 2 miles west of Mount Sterling, on northernmost summit of ridge just south of Silver Fork Basin, at western end of long east-and-west valley which is just north of Mount Sterling, about 80 or 90 yards southeast of highest point of summit, and in center of group of small boulders. Marked by old-type station disk (see fig. 6) and copper bolt in large boulder. Reference marks are copper bolts in rocks. One is 34.85 meters (114.3 feet) from station in azimuth 18°13′; and other is 20.44 meters (67.1 feet) from station in azimuth 136°03′.

Spur (Siskiyou County, O. B. French, 1904; 1919).—On west slope of Mount Shasta at an elevation of about 9,100 feet, in a position best identified by approaching summit from Igerna by road leading through Kite Canyon. In ascending this route several prominent peaks are discerned ahead and from the right-hand one a narrow shoulder extends in a westerly direction or toward Black (Wintoon) Butte. Station is about 50 yards below abrupt change of slope of ridge of this shoulder and about 1 mile from the peak mentioned above. Marked by old-type station disk (see fig. 6) and copper bolt in large boulder flush with ground. Reference marks are copper bolts in rock. One is 13.77 meters (45.2 feet) from station in azimuth 165°53′; and other is 8.10 meters (26.6 feet) from station in azimuth 228°47′.

Boliver (Siskiyou County, O. B. French, 1904; 1928).—About 5 miles south of Callahan, about 180 feet northeast of highest part of summit of Mount Scott which is known locally as "Old Craggy" or "Boliver." Marked by old-type station disk (see fig. 6) and copper bolt in rock. Reference marks are copper bolts in rocks. One is 9.88 meters (32.4 feet) from station in azimuth 107°47′; and other is 6.57 meters (21.6 feet) from station in azimuth 272°41′. *Boliver, fire lookout house* is 76.3 meters (250 feet) from station in azimuth 32°48′.

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Gazelle astronomical station (Siskiyou County, O. B. French, 1904; 1908).—About 250 yards north by east from Gazelle railroad station, near center of top of prominent knoll, and about 40 feet northeast of largest boulder on knoll. Marked by old-type station disk (see fig. 6) and copper bolt in underground boulder. Reference marks are copper bolts in rocks at following distances and azimuths from station: 19.20 meters (63.0 feet), 290°12′; 6.40 meters (21.0 feet), 137°39′; and 16.60 meters (54.46 feet), 83°13′. In 1908, latitude pier was constructed 8.72 meters (28.6 feet) east and 0.19 meter (0.6 foot) north of station. Pier consisted of 2- by 3-foot solid block of concrete buried 2 feet below surface of ground and was surmounted by a 16- by 28-inch solid block of concrete which projected 32 inches above surface. Top of pier was marked with an iron spike. The reference mark, 6.40 meters (21.0 feet) distant from station, had been destroyed by blasting. In 1935, latitude pier and reference mark, distant 63 feet, were reported in good condition.

Bally (Shasta County, O. B. French, 1904; 1928).—About 15 miles by road west of Redding, on north side of northernmost of two main peaks on summit of Shasta Bally Mountain, and about 5 or 6 feet below most prominent clump of rocks. To reach from Redding, go west about 10 miles on Weaverville road to Frank Pawnee's ranch near Tower House, follow Mill Creek to 3 forks, and continue up highest ridge to a station site. Marked by old-type station disk (see fig. 6) and copper bolt in rock. Reference marks are copper bolts in rocks. One is 4.29 meters (14.1 feet) from station in azimuth 247°07′, and other is 10.62 meters (34.8 feet) from station in azimuth 154°49′.

Mears (Shasta County, O. B. French, 1904; 1928).—About 4 or 5 miles west by south of Castella, about southwest of Castle Crags, on southern summit of high rocky peak known locally as "Gray Rocks", about 20 feet below highest peak and near bluff on south and east sides. There is a rocky ledge 10 feet southeast and 3 or 4 feet higher than station. To reach from Castella, follow road up Castle Creek to point about 3 miles west of station and climb to summit. Marked by old-type station disk (see fig. 6) and copper bolt in rock. Reference marks are copper bolts in boulders. One is east of high pointed rock and 17.77 meters (58.3 feet) from station in azimuth 143°03′; and other is near trail and 7.92 meters (26.0 feet) from station in azimuth 70°50′.

Round (Shasta County, O. B. French, 1904; 1919).—On highest part of Round Mountain, just north of village of same name. Marked by old-type station disk (see fig. 6) and copper bolt in boulder projecting about 6 inches. Reference marks are copper bolts in rock, note 19. One is in eastern one of prominent group of boulders and 28.72 meters (94.2 feet) from station in azimuth 345°30′; and other is 6.43 meters (21.1 feet) from station in azimuth 57°13′.

Kent (Tehama County, O. B. French, 1904).—About 18 miles northwest of Paskenta, about 9 miles east by south of Mount Linn, on peak known locally as "Bald Rock", on ledge on east side of summit, and about 8 or 9 feet lower than highest part. There is a large, prominent, rocky knob about 500 feet west of and 50 or 60 feet lower than station. Marked by old-type station disk (see fig. 6) and copper bolt in rock. Reference marks are copper bolts in rocks at following distances and azimuths from station: 5.01 meters (16.4 feet), 212°40′; 70.19 meters (230.3 feet), 285°50′; and 47.72 meters (156.6 feet), 5°17′. In 1933 all three reference marks were recovered by the U. S. Geological Survey and connected to a third-order level line. A fire lookout house had been built over rock on which station was located, and station was thought to have been destroyed by blasting off top of rock.

Lyons (Tehama County, O. B. French, 1904).—About 5 miles east of Lyonsville, on ridge known locally as "Bald Hill", about 300 yards from summit on shoulder extending toward Lyonsville, about 50 yards north by west of lone fir tree, and in middle of large group of boulders. Marked by old-type station disk (see fig. 6) and copper bolt in rock. Reference marks are copper bolts in rocks. One is 29.69 meters (97.4 feet) from station in azimuth 126°59′; and other is 20.22 meters (66.3 feet) from station in azimuth 332°22′.

Snow Mountain East (Glenn County, W. Eimbeck, 1876; 1904).—On eastern peak of Snow Mountain, on northernmost rock outcrop at edge of summit. Marked by ½-inch copper bolt cemented in drill hole in rock. In 1904, three ¾-inch drill holes in rock were established at following distances and azimuths from station: 5.16 meters (16.9 feet), 59°57′; 3.33 meters (10.9 feet), 165°39′; and 6.89 meters (22.6 feet), 248°38′.

For notes in regard to marking of stations see p. 290.

Supplementary points

Redding, courthouse (Shasta County, O. B. French, 1904; 1908).—Center of top of dome of courthouse in Redding, upon which the statue of justice stands. Statue is 1½ feet eccentric to center of dome. In 1908, station was marked on floor of dome by means of a hole in center of triangle cut in floor.

Redding astronomical station (Shasta County, O. B. French, 1904; 1908).—On prominent hill about three-fourths mile south by west of railroad station at Redding, nearer south edge of hill than north and not quite on highest point. A 6-inch live oak on edge of hill is on line from station to U. S. Geological Survey bench mark which is near milepost 259 of railroad. A leaning pine tree, about one-fourth mile from station, is on line from station to *Redding, courthouse* (see description thereof). Marked by old-type station disk (see fig. 6) and copper bolt in boulder projecting about 4 inches. Reference marks are copper bolts in boulders. One is 20.22 meters (66.3 feet) from station in azimuth 115°49′; and other is 9.99 meters (32.8 feet) from station in azimuth 188°17′.

Hill (Shasta County, W. H. Burger, 1908).—Near Redding, on east brow of ridge just north of hill on which *Redding astronomical station* (see description thereof) is located, and almost on line between that station and *Redding, courthouse* (see description thereof). Marked by wooden stub and three instrument stubs surrounding it.

Redding south base (Shasta County, W. H. Burger, 1908).—About 15 feet east of railroad track at Redding, opposite large steel oil tank. Marked by nail in top of wooden stub and three instrument stubs.

Redding north base (Shasta County, W. H. Burger, 1908).—About 15 feet east of railroad track at Redding, near northwest corner of cemetery which is south of railroad station. Marked by nail in top of wooden stub and three instrument stubs.

Corning Tower (Tehama County, O. B. French, 1904; 1908).—In Corning, just across street from the Maywood Hotel, and southwest of railroad station. Station is tower on the Maywood colonization building.

Corning astronomical station (Tehama County, W. H. Burger, 1908).—In Corning, on vacant lot just west of the Maywood colonization building. Station is not marked. *Corning Tower* (see description thereof) is 23.41 meters (76.8 feet) distant in azimuth 247°24′. Northwest corner of building known as the "Arcade" is 31.40 meters (103.0 feet) distant in azimuth 207°55′, and southwest corner of same building is 16.64 meters (54.6 feet) distant in azimuth 242°18′.

Greyback (Josephine County, Oreg., O. B. French, 1904; 1935).—In 1935 reported to be highest summit of Grayback Mountain, prominent peak in Siskiyou Mountains, about 25 miles south of Grants Pass, and south of head of Williams Creek. There are two summits to this mountain, southern of which is higher. In summer of 1904 U. S. Geological Survey set bronze disk in bedrock in approximate position of this station, and over it placed rock cairn 9 feet high.

Pilot Rock (Jackson County, Oreg., O. B. French, 1904; 1935).—In 1935 described as the highest tip of Pilot Rock, well-known natural landmark, in Siskiyou Mountains about 12 miles southeast of Ashland, about 2 miles north of the California-Oregon State line, and about same distance east of Pacific Highway.

Black (Wintoon) Butte, cairn (Siskiyou County, O. B. French, 1904.)—This point was determined (but not described) in 1904. In 1931 it was found that top of mountain, including cairn, had been dynamited in building of U. S. Forest Service lookout house.

CALIFORNIA—OREGON ARC

Principal points

Crane (Lake County, Oreg., E. W. Eickelberg, 1920; 1931).—About 8 miles southeast of Lakeview, on highest point of Crane Peak. To reach from post office at Lakeview, follow main road north 6.1 miles to Warner Canyon road; turn right off main road and follow canyon road 7.0 miles to sign "Roggers Sta.—Big Valley", turn right, pass through gate, and follow dirt road along telephone line 4.4 miles to crossroads; keep straight ahead and continue 8.6 miles on road following telephone line to side road on right at a triangle-blazed,

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30-inch pine tree; follow side road to camp site at dilapidated log cabin; proceed about 100 yards west of cabin and follow sheep trail west about 2 miles to top of mountain and station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. One is 9.9 meters (32 feet) from station in azimuth 323°57′; and other is 19.8 meters (65 feet) from station in azimuth 176°44′. Azimuth from station to *Sugar Hill, fire lookout tower* is 13°54′50″.

Yonna (Klamath County, Oreg., E. W. Eickelberg, 1920; 1933).—About 12 miles northeast of Bonanza, on top of Yainax Butte, and about 70 meters (230 feet) east of highest point. To reach from Bonanza, go east on highway to village limits, turn right onto dirt road, and go 2.3 miles to sign "Yainax Butte"; take left fork and go 7.3 miles; take right fork and go 2.0 miles; take right fork straight ahead and go 3.5 miles; take left fork at sign "Yainax Butte" and go 1.4 miles; keep straight ahead 0.7 mile to old ranch buildings and continue 0.2 mile to sign "Yainax Butte"; turn left and go 1.6 miles to another similar sign; turn left and go 4.7 miles to top of mountain and station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. One is 5.035 meters (16.52 feet) from station in azimuth 140°26′, and other is 1.760 meters (5.77 feet) from station in azimuth 354°23′. Yainax Butte, fire lookout house is 62.728 meters (205.80 feet) from station in azimuth 117°30′, and Calimus, fire lookout house is 26 miles from station in azimuth 144°57′19″.

Cougar (Lake County, Oreg., E. W. Eickelberg, 1920).—About 18 miles northwest of Lakeview, 5 miles by road and trail southwest of Thomas Creek ranger station, 3¾ miles by trail from road between Lakeview and Thomas Creek ranger station via Mesman Creek, and 10 meters (33 feet) southeast of Forest Service lookout "Cougar Peak." Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. One is 5.44 meters (17.8 feet) from station in azimuth 6°05′, and other is 11.42 meters (37.5 feet) from station in azimuth 89°58′.

Lakeview—B. M. M 16 (Lake County, Oreg., E. W. Eicklberg, 1920; 1934).—At west edge of Lakeview, on south side (along fence line) of the Klamath Falls-Lakeview Highway, and about 300 yards west of Nevada-California-Oregon Railroad crossing. Marked by standard station disk in concrete, note 1c. Reference mark is standard reference disk in concrete, note 11c, 18.45 meters (60.5 feet) from station in azimuth 186°29′. In 1931 station disk was stamped "M 16 1920."

Dog (Lake County, Oreg., E. W. Eickelberg, 1920; 1935).—About 22 miles south of west from Lakeview, 4 miles by road west of north from Dog Lake ranger station, and 3.85 meters (12.6 feet) north of center of Forest Service lookout, which occupies highest point on Dog Mountain. To reach from post office at Lakeview, go west 17.0 miles on Klamath Falls road to sign "Dog Lake", turn left off main road and go 14.4 miles to Dog Lake and ranger station, thence by road to summit and station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. One is 4.58 meters (15.0 feet) from station in azimuth 182°52′, and other is 3.30 meters (10.8 feet) from station in azimuth 0°14′. In 1931 the last-mentioned reference mark was found to have been either destroyed or covered by the construction of lookout house. Azimuth from station to Lakeview, courthouse, finial, is 255°37′00″.

Hoffman (Siskiyou County, Calif., E. W. Eickelberg, 1920).—About 32 miles northeast of McCloud, 21 miles south of east of Bray, 4 miles northeast of Medicine Lake ranger station, and on highest point of Big Hoffman Mountain. Marked by standard station disk in bedrock, note 2. One reference mark is standard reference disk in bedrock, note 12a, 11.51 meters (37.8 feet) from station in azimuth 107°23′; and other is standard reference disk in large boulder, note 12c, 11.67 meters (38.3 feet) from station in azimuth 329°38′.

Aspen (Klamath County, Oreg., E. W. Eickelberg, 1920; 1933).—Eighteen miles west of Klamath Falls, on highest point of Aspen Butte. To reach from Klamath Falls, go west 10 miles on Route 97 to ranch buildings and sign "¼ mile to Pine Tree Auto Camp" 200 yards before reaching railroad underpass, turn right and go 3.4 miles, pass through timber camp and continue 1.0 mile on main-traveled road, pass through another timber camp and cross railroad tracks, continue straight ahead on main-traveled road where road comes in from left and continue 3.1 miles (following edge of dry lake) to sign "Clover Creek Guard

For notes in regard to marking of stations see p. 290.

Station 9 miles", turn left across tracks and go 1.4 miles to sign "Clover Creek Guard Station 8 miles", follow Clover Creek Guard Station road 0.2 mile, cross railroad tracks and go 1.0 mile, cross railroad tracks and go 0.6 mile, take right fork and go 1.5 miles, take right fork and go 2.2 miles to sign "Clover Creek Guard Station 4 miles", take right fork and go 3.4 miles, take right fork and go 0.6 mile to Clover Creek guard station, continue ahead, keeping to right of corrals, and follow trail one-fourth mile to small gate, continue on foot along trail up Clover Creek in northerly direction to 4-mile mark, turn right, leaving trail, and follow up ridge about 1¼ miles to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 5.335 meters (17.50 feet) from station in azimuth 338°23′. No. 2 is 6.570 meters (21.56 feet) from station in azimuth 110°58′. Azimuth from station to Klamath Falls, courthouse is 290°13′49″.

Goosenest (Siskiyou County, E. W. Eickelberg, 1920; 1933).—About 20 miles east of Montague, 12 miles west of Mount Hebron, on highest point of Goosenest (Goose Nest) Mountain, and at east rim of old crater. To reach from Mount Hebron, go south 0.3 mile, turn right onto gravel road, which later becomes dirt, and go 14.5 miles to sign "Goosenest Trail" on left of road, and follow trail about 5.0 miles to highest point of mountain and station site. Marked by standard station disk in bedrock, note 2. Standard reference disk in bedrock, note 12a, is 31.12 meters (102.1 feet) from station in azimuth 343°14′. Arrow cut in rock is 16.05 meters (52.7 feet) from station in azimuth 171°29′.

Whaleback (Siskiyou County, E. W. Eickelberg, 1920).—About 15 miles east of Weed, on highest point of Black Crater Mountain, and at southeast edge of an old crater. Station is surrounded by a quite heavy growth of timber. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. One is 7.31 meters (24.0 feet) from station in azimuth 188°59′; and other is 8.78 meters (28.8 feet) from station in azimuth 266°13′.

Grizzly (Shasta County, E. W. Eickelberg, 1920).—About 12 miles (3 miles by road and 9 miles by trail) from Henderson, on top of Grizzly Peak, and about 30 meters (98 feet) from lookout house. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. One is 26.58 meters (87.2 feet) from station in azimuth 22°19′; and other is 19.13 meters (62.8 feet) (slope) from station in azimuth 229°59′.

Eddy (Siskiyou County, E. W. Eickelberg, 1920).—About 15 miles by road and trail from Sisson, on top of Eddy Mountain, a little below highest point, and about 18 meters (59 feet) east of lookout house. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. One is 30.02 meters (98.5 feet) from station in azimuth 298°43′; and other is 14.32 meters (47.0 feet) from station in azimuth 117°45′. Azimuth from station to *Weed Lumber Co., east chimney*, is 214°07′35″.

Supplementary points

Soldier (Shasta County, E. W. Eickelberg, 1920).—About 7 miles northwest of Fall River Mills, 2½ miles west of Glenburn, 3 miles northeast of Cayton, on Soldier Mountain, and 5 meters (16 feet) west of Forest Service lookout. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in large boulders, note 12c. One is 7.36 meters (24.1 feet) from station in azimuth 315°21′; and other is 15.40 meters (50.5 feet) from station in azimuth 115°09′.

Turret (Modoc County, E. W. Eickelberg, 1920).—About 20 miles north of Bieber, 13 miles north of Lookout post office, 4 miles (by trail) southeast of Happy Camp ranger station, on highest point of Turret Mountain, and 9 meters (30 feet) west of Forest Service lookout "Happy Camp." Marked by standard station disk in bedrock, note 2. Reference mark no. 1 is standard reference disk in concrete foundation of lookout house, and 9.05 meters (29.7 feet) from station in azimuth 273°54′. Reference mark no. 2 is standard reference disk in bedrock, note 12a, 8.10 meters (26.6 feet) from station in azimuth 106°44′.

Dixie (Lassen County, E. W. Eickelberg, 1920).—About 25 miles southeast of Fall River Mills, 2¼ miles north of the Cox and Clark ranch in Dixie Valley, and on highest point of first range of lava-rock hills lying north of Dixie Valley. Station site is visible from the Cox and Clark ranch house. Marked by stand-

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ard station disk in bedrock, note 2. Station "Dixie (U.S.G.S.)" is 1.05 meters (3.5 feet) in elevation above and 2.68 meters (8.8 feet) from station in azimuth 310°08′.

Bald Mountain (U.S.G.S.) (Shasta County, E. W. Eickelberg, 1920).—About 8 miles east of south from Fall River Mills, 1¼ miles southeast of the St. Johns ranch (W. S. Bernard), and one-half mile east of road leading southward from same ranch. Marked by United States Geological Survey bronze disk in bedrock.

Burney (U.S.G.S.) (Shasta County, E. W. Eickelberg, 1920).—About 5½ miles east of south from Burney, 4 miles east of Dry Lake on Burney-Whitmore (Tamarack) wagon road, 2 miles north of old road leading from Hat Creek to Burney Butte, and on highest point of prominent volcanic mountain known as "Burney Butte." Marked by United States Geological Survey bronze disk in boulder under cairn 7 feet in diameter at base and 8 feet high. A Coast and Geodetic Survey standard station disk was set in a boulder, but its position was not determined.

Crater (U.S.G.S.) (Shasta County, E. W. Eickelberg, 1920).—About 13 miles south of Burney, 16 miles northeast of Whitmore, 5 miles by trail northeast of Cow Creek ranger station, and on Crater Peak. Marked by United States Geological Survey bronze disk in bedrock. Standard Coast and Geodetic Survey station and reference disks were set in rock nearby, but their positions relative to the station were not determined.

Black Fox (Siskiyou County, E. W. Eickelberg, 1920).—A Forest Service lookout point 15 miles northeast of McCloud, on highest point of Black Fox Mountain. Marked by standard station disk in bedrock, note 2.

Bonanza (Trinity County, E. W. Eickelberg, 1920).—About 10 miles north of Trinity Center, a short distance from Bonanza King Mine, and about 25 yards north of *Bonanza fire lookout house*. Marked by standard station disk in bedrock, note 2.

Granite (Trinity County, E. W. Eickelberg, 1920).—Ten miles southwest of Trinity Center, on Granite Peak, and 150 yards northeast of lookout station. Marked by standard station disk in bedrock, note 2.

LAKEVIEW, OREG., TO RENO, NEV., ARC

Principal points

Sugar (Modoc County, J. Bowie, Jr., 1931).—About 25 miles north-northeast of Alturas, on high timbered mountain known as "Sugar Hill", and 18 meters (59 feet) south of south leg of Sugar Hill fire lookout tower. To reach from Alturas, go north 27 miles on Lakeview road to road leading to right with Forest Service signpost "Sugar Hill L.O. 8", and follow this road to fire lookout tower and station site at top of mountain. Marked by standard station disk in bedrock, note 2. Reference mark no. 1 is standard reference disk, note 11a, in top of concrete pier at base of south leg of tower and 17.75 meters (58.2 feet) from station in azimuth 170°11′. Reference mark no. 2 is standard reference disk in bedrock, note 12a, 20.27 meters (66.5 feet) from station in azimuth 298°59′. Azimuth from station to Dog Mountain, fire lookout house is 137°14′47″. *Sugar Hill, fire lookout tower* is 20.31 meters (66.6 feet) from station in azimuth 179°51′.

Blue (Modoc County, John Bowie, Jr., 1931).—About 30 miles north-northwest of Alturas, on small timbered hill known as "Blue Mountain." To reach from post office in Alturas, go west 4.7 miles on Adin road and turn right off main road, follow road 1.4 miles and take right fork, go 4.7 miles and take right fork, go 1.3 miles and take left fork, go 0.6 mile and take left fork, go 1.4 miles and take left fork, go 0.7 mile and turn right at T-intersection, go 0.8 mile and take right fork, go 7.2 miles and take right fork, go 1.2 miles and take left fork, go 5.3 miles and take right fork, go 4.4 miles and take right fork, go 5.5 miles and take left fork to Blue Mountain (sign on tree), go 6.1 miles and take left fork, and go 1.2 miles to fire lookout tower and station site. Marked by standard station disk in bedrock, note 2. Reference mark no. 1 is standard reference disk in boulder, note 12c, 32.88 meters (107.9 feet) from station in azimuth 251°33′. Reference mark no. 2 is standard reference disk in bedrock, note 12a, 19.85 meters (65.1 feet) from station in azimuth 344°39′. *Blue Mountain, fire lookout tower, spike on top*, is 24.08 meters (79.0 feet) from

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station in azimuth 128°42′. Azimuth from station to *Sugar Hill, fire lookout tower* is 273°32′12″.

Schaffer (Modoc County, J. Bowie, Jr., 1931).—About 10 miles north-northeast of Adin, 19 miles southwest of Alturas, on high bare rounded peak known as "Scheffer Mountain", on highest of two rocky points about 150 yards apart, and in middle of ridge. The two rocky knobs can be seen from highway. To reach from Adin, go north 8.0 miles from post office on Alturas road and turn left off highway at road sign "Rush Creek Camp 2½—Tom's Creek 8," follow road to Rush Creek Camp, take trail to north up canyon and follow to head of canyon (keeping out of the Rush Creek Canyon which goes to east and to the lookout), climb ridge to east and head north to highest point and station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 14.21 meters (46.6 feet) from station in azimuth 202°35′. No. 2 is 18.37 meters (60.3 feet) from station in azimuth 277°11′. Azimuth from station to *Hayden Hill, fire lookout tower* is 2°43′01″.

Warren (Modoc County, J. Bowie, Jr., 1931).—About 11 miles south-southeast of Cedarville, 12 miles southeast of Alturas, and on high rocky peak known as "Warren Peak" which is just above Patterson Lake. To reach from Alturas, go south about 14 miles on Susanville road and turn left onto side road at sign "Cantrall Mill 12", follow road in an easterly direction to mill, turn right and follow road about 6 miles to Lower Mill Creek Meadows, go 8 miles up Mill Creek to Government trail, and continue north to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 9.10 meters (29.9 feet) from station in azimuth 48°53′. No. 2 is 9.54 meters (31.3 feet) from station in azimuth 115°53′. *Warren Peak, cairn,* is 2.4 meters (8 feet) from station in azimuth 261°06′. Azimuth from station to *Sugar Hill, fire lookout tower* is 169°21′51″.

Eagle (Modoc County, J. Bowie, Jr., 1931).—About 22 miles southeast of Alturas, about 5 miles west-southwest of Eagleville, and on highest part of Eagle Peak. To reach from Alturas, go south about 14 miles on Susanville road and turn left onto side road at sign "Cantrall Mill 12", follow road in an easterly direction to mill, turn right and follow road about 6 miles to Lower Mill Creek Meadows, and climb about 4 miles to east to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 17.50 meters (57.4 feet) (slope) from station in azimuth 71°40′. No. 2 is on end of ridge and approximately 200 meters (656 feet) from station in azimuth 206°15′14″. *Eagle Peak, cairn* is 2.1 meters (7 feet) from station in azimuth 214°34′.

Spring (Lassen County, J. Bowie, Jr., 1931).—About 5 miles southeast of deserted mining village of Hayden Hill, on east end of brushy ridge known as "Spring Hill", and on highest and flattest part of boulder. There are several scattered pine trees on ridge. To reach from Susanville, go north 14.6 miles on Alturas road, take left fork at signpost pointing to Adin, follow road along east side of Eagle Lake and continue on road marked "Adin and Hayden Hill" to fork and signpost, take road to Hayden Hill and go 4.2 miles to road turning off to left where tree in fork is marked with triangular blaze, follow road to Four Pine Springs to spring and water tank, go 200 yards above tank to 3-foot, triangle-blazed pine tree standing 25 yards to east of road, and follow trail which leads to top of ridge to east and station site. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 13.435 meters (44.08 feet) from station in azimuth 160°23′. No. 2 is 17.80 meters (58.4 feet) from station in azimuth 240°44′. Top of triangular blaze on pine tree about 25 feet high is 30.05 meters (98.6 feet) from station in azimuth 303°00′. Azimuth from station to *Hayden Hill, fire lookout tower* is 143°14′16″.

Observation (Lassen County, J. Bowie, Jr., 1931).—About 35 miles northeast of Susanville, 12 miles east-southeast of Ravendale, and on highest part of high rounded mountain known as "Observation Peak." To reach from Susanville, go east 18 miles to Litchfield, continue east 3.7 miles and take left fork, go 27.4 miles northward on Alturas road, turn right onto side road leading up canyon between Spanish Springs Peak and Shinns Peak and follow canyon road 7.6 miles to small ranch house, go 0.3 mile and take left fork, go 0.6 mile to two houses, and climb about 2 miles via rock slide in center of mountain to station site. Marked by standard station disk in bedrock, note 2. Refer-

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ence marks are standard reference disks in bedrock, note 12a. No. 1 is 23.10 meters (75.8 feet) from station in azimuth 282°13′. No. 2 is 5.53 meters (18.1 feet) from station in azimuth 355°21′. *Observation Peak, cairn* is 3.2 meters (10 feet) from station in azimuth 259°53′. Azimuth from station to *Spanish Springs Peak, highest point,* is 62°19′10″.

Fredonyer (Lassen County, J. Bowie, Jr., 1931).—About 19 miles north of Susanville, on highest point of high-pointed mountain known as "Fredonyer Peak", and about 6 feet northeast of tumbled-down cairn. To reach from Susanville, go north on Alturas road and turn right at T-intersection at north edge of town, go about 3 miles and take right fork, go 11.1 miles and take right fork, go 1.8 miles and take right fork, go 1.6 miles and take right fork, go 11.7 miles and turn left off main road just after crossing small bridge, follow road across Horse Lake 3.6 miles in a northwesterly direction to ranch house in canyon at northwest corner of lake, go 2.5 miles up canyon beyond ranch house, and climb about 2 miles to top of mountain following up canyon. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 24.77 meters (81.3 feet) from station in azimuth 175°45′. No. 2 is 39.88 meters (130.8 feet) from station in azimuth 345°52′. Azimuth from station to Harvey, fire lookout tower is 99°11′30″.

Hot Springs (Lassen County, J. Bowie, Jr., 1931).—About 28 miles east of Susanville, about 7 miles northeast of Wendel, and on highest part of west peak of a triple-peaked mountain known as "Hot Springs Peak." To reach from Wendel, go north 1.2 miles on road paralleling railroad, turn right onto side road and go 2.6 miles through sage to its end, follow horse trail to saddle, turn right and go up ridge to station site, which is about 4 miles distant from end of road. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 8.01 meters (26.3 feet) from station in azimuth 309°59′. No. 2 is 7.39 meters (24.2 feet) from station in azimuth 10°05′. Azimuth from station to *Thompson Peak, fire lookout tower* is 69°31′05″.

Thompson (Plumas-Lassen Counties, J. Bowie, Jr., 1931).—About 12 miles south-southeast of Susanville, on second highest point of Thompson Peak. To reach from Susanville post office, go southeast 15.0 miles on Reno road, turn right onto dirt road just to west of small stream and several small deserted shacks and go 2.9 miles, take right fork and go 1.4 miles, take right fork and go 1.2 miles, take left fork and go 0.9 mile, take right fork which turns back sharply at U. S. Forest Service sign, and continue on this road to top of mountain. Road ends 100 yards from station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 45.76 feet from station in azimuth 122°11′. No. 2 is 132.75 feet from station in azimuth 323°05′. *Thompson Peak, fire lookout tower* is 58.3 meters (191 feet) from station in azimuth 323°41′. Azimuth from station to *Kettle Rock, fire lookout tower* is 47°20′53″.

State Line (Washoe County, Nev., J. Bowie, Jr., 1931).—About 37 miles north-northwest of Reno, 9 miles east of Doyle, Calif., and on highest part of rounded mountain known as "State Line Peak." To reach from Reno, go north 48 miles on Susanville Highway to Doyle, go east across railroad and follow dirt road 21 miles to ranch belonging to John Meece at base of north side of State Line Peak, go about 2½ miles to Old Broadway Mine at base of small canyon, and climb about 3 miles straight up mountain to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 20.50 meters (67.3 feet) from station in azimuth 232°36′. No 2 is 22.16 meters (72.7 feet) from station in azimuth 305°27′. *State Line Peak, cairn* is 36.0 meters (118 feet) from station in azimuth 274°47′. Azimuth from station to *Dixie Mountain, fire lookout tower* is 68°58′08″.

Ingalls (Plumas County, J. Bowie, Jr., 1931).—About 55 miles northwest of Reno, Nev., 17 miles northwest of Beckwith, and on north point of ridge and highest point of Ingalls Peak. To reach from Beckwith, go west 2.0 miles on Portola road, take Walkermine Road and go 25 miles to Walkermine, go 3.0 miles on Ingalls lookout road to point just above the old Walker Mine, follow right fork to end of road, and follow trail to station site. Marked by standard station disk in boulder, note 4. Reference marks are standard reference disks in boulders, note 12c. No. 1 is 29.84 meters (97.9 feet) from station in azimuth

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335°18′. No. 2 is 138.68 meters (455.0 feet) from station in azimuth 271°47′51″. *Ingalls Peak, flagpole* is 2.08 meters (6.8 feet) from station in azimuth 64°16′. Ingalls, fire lookout tower, southeast corner, is 5.28 meters (17.3 feet) from station in azimuth 169°09′. Azimuth from station to *Dixie Mountain, fire lookout tower* is 281°43′01″.

Summit (Plumas-Lassen Counties, J. Bowie, Jr., 1931).—About 22 miles northwest of Reno, Nev., on rocky knob which is highest point of ridge. To reach from Reno, go north 17.6 miles on Susanville road, turn left off main road and cross railroad, turn right onto road along tracks and go 0.3 mile to fork, turn left and go 7.0 miles to sawmill, take right fork at buildings, cross over 4-plank bridge and go 2.6 miles to summit of road (road extends down west side to Loyalton), head for peak about one-half mile north and go around right-hand side, and head for saddle in ridge showing to left of next peak at which point station can be seen on rocky point on ridge about 2 miles north. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 6.37 meters (20.9 feet) from station in azimuth 333°34′. No. 2 is 4.30 meters (14.1 feet) from station in azimuth 64°16′. *Summit Peak, cairn* is 9.75 meters (32.0 feet) from station in azimuth 307°55′. Azimuth from station to *Dixie Mountain, fire lookout tower* is 155°13′02″.

Supplementary points

Brushy (Strawberry) Mountain, fire lookout tower (Lake County, Oreg., J. Bowie, Jr., 1931).—About 30 miles southwest of Lakeview, near summit of Strawberry Mountain. In 1935 reported that station had been center of lookout tower built in a tree. But tree has been cut down leaving stump intact. Center of a new steel lookout tower was reported to be 50.75 meters (166.5 feet) from center of tree in approximate azimuth 12°24′.

G. L. O. Station M 47 (Modoc County, Calif.; Washoe County, Nev., J. Bowie, Jr., 1931).—To reach from Eagleville, Calif., go east 6.8 miles across dry lake bottom and station site is about 50 yards to right of this point. An old dim road forks from main road in immediate vicinity. Marked by bronze cap on 1-inch iron pipe surrounded by pile of rocks. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 15.705 meters (51.53 feet) from station in azimuth 114°22′. No. 2 is about one-fifth mile from station in azimuth 178°16′40″. Azimuth from station to *Squaw Peak, highest point, cairn* is 120°29′28″.

High Rock (Washoe County, Nev., J. Bowie, Jr., 1931).—East of Honey Lake, approximately on Nevada-California State line, and about 70 meters (230 feet) south of road. To reach from Susanville, go to Amedee via Litchfield and Wendel and turn left at large barn, take road leading to Flannigan and go 0.7 mile, cross tracks and continue 7.0 miles, take left fork and go 4.3 miles to High Rock ranch, continue on left side of ranch house and go 0.3 mile, take right fork and go 0.7 mile to boundary-line signboard and Washoe-Lassen County signboard. Road runs northwest and southeast across line. A 4-foot rock cairn is 6 feet east of station. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 12.55 meters (41.2 feet) from station in azimuth 87°51′. No. 2 is 17.61 meters (57.8 feet) from station in azimuth 180°56′.

REDDING TO MENDOCINO ARC (SECOND ORDER)

Principal points

Weaver (Trinity County, G. L. Bean, 1928).—On top of highest and most westerly peak of East Weaver Bally Mountain, on large flat-topped boulder about 15 meters (49 feet) south and 10 feet lower than highest point. To reach, follow Weaver Bally lookout trail to point where Dedrick trail forks away to north, follow Dedrick trail to point about 1 mile south of highest part of saddle between East and West Weaver Bally, leave trail and continue through timber to top. Marked by standard station disk in bedrock, note 2a. Reference mark is standard reference disk in bedrock, note 12a, 7.05 meters (23.1 feet) from station in azimuth 273°55′. *Weaver (U.S.G.S.), cairn* (see

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description thereof) is 12.90 meters (42.3 feet) from station in azimuth 124°00′.

Bully Choop (Trinity County, G. L. Bean, 1928).—On highest point of Bully Choop Mountain. To reach from Douglas City, follow road toward Hayfork to Reading Creek, take road leading to Bully Choop Mine, Indian Creek, etc., and follow about 16 miles to point where it crosses west shoulder of Bully Choop Mountain (top of mountain plainly visible to east from this point), and continue up ridge to station site. Marked by standard station disk in bedrock, note 2a. Reference mark is standard reference disk in bedrock, note 12a, 10.770 meters (35.33 feet) from station in azimuth 40°36′. *Bully Choop* (*U.S.G.S.*), *cairn* (see description thereof) is 3.925 meters (12.88 feet) from station in azimuth 250°06′.

Chaparral (Humboldt County, G. L. Bean, 1928).—On highest point of most northerly of the Mad River Buttes which are known locally as the "Chaparral Mountains." To reach from Maple Creek post office, follow road south and east about 8 miles. Marked by standard station disk in bedrock, note 2a, surmounted by low mound of small rocks. Reference mark is standard reference disk in bedrock, note 12a, 24.417 meters (80.11 feet) from station in azimuth 264°23′.

Mount Lassic (Humboldt County, A. F. Rodgers, 1881; 1928).—About 12 miles by trail from Blocksburg, on most westerly and least prominent of three buttes which rise in sharp conical outlines about 200 feet above general surface of ridge. Highest butte is about three-fourths mile east. The rocks to west of station, for about 20 feet, are about 3 feet higher than at station. Original station mark was 1-inch hole, drilled 3 inches deep in rock, into which a wooden plug was driven. In 1892, rock was badly split and station was remarked by a copper bolt in drill hole in flat top of irregular-shaped rock which was set in concrete, flush with surface. A concrete piece, 20 inches square and 4 feet high, was erected over station mark and a copper bolt placed in its top. Two drill holes filled with lead were made in surface rock; one nearly in line to King Peak, distant 7 feet 8 inches from station, and the other on prolongation of same line to northeast, distant 8 feet 11¼ inches from station. In 1928, reference mark (probably standard reference disk) was established in boulder, 17.020 meters (55.84 feet) from station in azimuth 257°01′.

Bear Ridge (Humboldt County, A. F. Rodgers, 1869; 1928).—About 4 miles south of Ferndale, one-fourth mile east of road from Ferndale to Capetown, on range of hills known locally as "Wild Cat" or "Bear Ridge", and on highest part of round flat summit known locally as "Bunker Hill." To reach, follow Ferndale-Capetown road to Bunker Hill ranch house, follow road to top of hill and continue to station site. Original station mark was redwood stub, 3 feet long, driven into ground with its top flush with surface. In 1883, quart bottles were buried in ground, 6 feet distant from station, in north, south, east, and west directions. In 1919, station was remarked with standard station disk in concrete, note 1b; and two standard reference disks in concrete, note 11a, were established. No. 1 is 26.74 meters (87.7 feet) from station in azimuth 82°55′. No. 2 is 34.76 meters (114.0 feet) from station in azimuth 239°32′.

Mount Pierce 2 (Humboldt County, G. L. Bean, 1928; 1931).—About 4 miles from Scotia, on top of mountain known locally as "Monument Peak", in approximate position of station "Mount Pierce." To reach from Redwood Highway at Wildwood, follow road up Monument Peak to highest point and continue up open ridge to station site. Marked by standard station disk in boulder flush with ground. Reference marks, established for station "Mount Pierce", are standard reference disks in concrete, note 11c. Distances and azimuths from station are not available. Station "Mount Pierce" was established by the General Land Office at the intersection of the Humboldt principal meridian and base line and was marked by a concrete monument and 3 iron rods. In 1919, the above-mentioned reference marks were established; one was 22.63 meters (74.2 feet) and other was 25.29 meters (83.0 feet) from station "Mount Pierce" in unknown azimuths. In 1928 concrete monument had been destroyed and its approximate position was re-marked as described above.

King Peak (Humboldt County, A. F. Rodgers, 1879; 1930).—About 10 miles north of Shelter Cove, on high coast summit. To reach from Redwood Highway at Bull Creek, leave highway and go about 25 miles to fork in road at Honeydew, turn south and go about 8 miles to top of ridge where trail leads to right

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from west side of clearing with sign "Wagon Road Only to Shelter Cove", follow most prominent ridge up mountain keeping to highest part of ridge until a large white boulder is seen, and continue along definitely marked trail north of ridge to station site. Original station mark was a brass candlestick set in cement which was surmounted by a hexagonal concrete pier with a 3-inch diameter wood core. Pier was surrounded with a heavy pine casing, and space between pier and casing was filled with pulverized rock, covering pier 6 to 12 inches. In 1928, concrete pier was not found and station was re-marked (probably standard station disk in concrete). Reference mark in concrete (probably standard reference disk) was established on top of ridge and 5.870 meters (19.26 feet) from station in azimuth 178°28′.

Cahto (Mendocino County, A. F. Rodgers, 1880; 1916).—About 9 miles from Cahto post office, on highest point of range. To reach from Cahto post office, follow Humboldt wagon road about 3 miles or one-fourth mile beyond Roderick ranch, turn left and follow trail to "Big Opening", go to spring at south end of "Big Opening" and follow trail on right up hill about 1 mile to station site. Marked by glass bottle embedded in center of concrete pier and by a nail in wooden core in top of pier, 2.73 feet above bottle. Another bottle was placed at base of pier, 1.38 feet below first bottle. Pier was covered by box filled with earth.

Great Caspar (Mendocino County, B. A. Colonna, 1878; 1919).—About 7 miles northeast of Mendocino, on highest land of ridge between Russian Gulch on south and Caspar Creek on north, and about one-eighth mile north of road between Mendocino and Little Lake. Hill is known locally as "Observatory Hill." To reach from Mendocino, go toward Little Lake, after crossing Russian Gulch continue 3 miles to redwood with triangular blaze and go north one-eighth mile to station site. Station coincided with center of redwood tree and was referenced by four granite blocks as follows: Nos. 1 and 2 were 6 inches square by 15 inches long and were placed 10.0 and 50.0 feet, respectively, from station in azimuth 32°. A claret bottle, 11 inches tall, was placed in an upright position 10 inches below bottom of each of the reference stones. Nos. 3 and 4 were placed 10.0 and 50.0 feet, respectively, from station in azimuth 297°. No. 3 was 16 inches long, and a whisky bottle, 12 inches tall, was placed in an upright position with its tip 10 inches below bottom of stone. No. 4 was 22 inches long, and a whisky bottle, 12 inches tall, was placed in an upright position 6 inches below bottom of stone. Tops of all of the stones were marked with a triangle in the center and nos. 1, 2, and 4 with the letters "U. S. C. S." in the corners. Stone no. 3 was marked with letters "C. S. U. S." Distances and azimuths to triangular blazes on trees, about 2 feet on a side and with a border of wrought-iron spikes driven into edge, were: Redwood tree, 60.5 feet, 48°; pine tree, 48.0 feet, 98°; and redwood tree, 85.5 feet, 284°. In 1919, station tree had been cut and stump, which was badly charred, stood about 5 feet high. Stump was blazed with a triangle. Last-mentioned witness tree was still standing and was then highest tree on hill. All of the granite posts were in place.

Chemise Mountain (Humboldt County, A. F. Rodgers, 1872; 1930).—On northern and highest knob of summit of Chamisal Mountain, and about 100 yards east of trail from Shelter Cove to Bear Harbor. To reach from Garberville, leave Redwood Highway and go west about 21 miles on Shelter Cove road, turn south and go 2.5 miles along Fort Bragg Road to clearing known as "Widow's Place" on east side of road, go north one-fourth mile to overgrown trail and follow to station site. To reach from Sutherlands, go south about 2 miles on Thorn-Usal road to camp ground, and follow faint trail from creek up mountain. Original marks were a stub, 3 feet long, placed with top flush with surface of ground, and 4 witness stubs, placed 6 feet from station in north, south, east, and west directions. In 1878 station was re-marked with a black bottle, 11½ inches tall, placed in an upright position with its top 10 inches below surface and a stone, 7 inches deep, with a ½-inch drill hole about 1 inch deep in its top surface which was placed flush with surface of ground. Three stones with drill holes were placed 5 feet from station; one on line to station *Cahto* and the others approximately 120° from it. The stones formed a triangle with sides 7.7, 8.4, and 9.7 feet. In 1919, station was re-marked with standard station disk in boulder, note 4. In 1930, none of the original reference stones were found, and reference mark (not described) was established 31.15 feet from station in azimuth 36°29′.

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Supplementary points

Granite Peak, fire lookout house (Trinity County, G. L. Bean, 1928).—On southeast peak of Red Mountain, about 3 miles northeast of Weaverville.

Weaver (U.S.G.S.), cairn (Trinity County, G. L. Bean, 1928).—On top of highest and most westerly peak of East Weaver Bally Mountain. Marked by U. S. Geological Survey triangulation tablet set in rock under rock cairn. Station *Weaver* (see description thereof) is 12.90 meters (42.3 feet) from station in azimuth 304°00′.

Bully Choop (U.S.G.S.), cairn (Trinity County, G. L. Bean, 1928).—On highest point of Bully Choop Mountain. Marked by U. S. Geological Survey triangulation tablet set in rock under rock cairn. Station *Bully Choop* (see description thereof) is 3.925 meters (12.88 feet) from station in azimuth 70°06′.

Table (Humboldt County, E. B. Latham, 1919; 1928).—On ridge known locally as "Table Ridge", 1 mile east of State highway, and in corner of field adjoining ranch house. To reach, make sharp turn off State highway at top of ridge and follow road leading up ridge one-half mile to farm lane, follow lane to house and continue to station site in adjacent field. Surface mark is standard station disk in concrete, note 1c. Underground mark is bottle in concrete, note 7d. Reference marks are standard reference disks in concrete, note 11a, on fence line. No. 1 is 28.75 meters (94.3 feet) from station in azimuth 77°58′. No. 2 is 30.00 meters (98.4 feet) from station in azimuth 154°57′.

Table Bluff, highest wireless tower (Humboldt County, G. L. Bean, 1928).—Center of top of highest tower at Table Bluff radio station.

VICINITY OF POINT REYES

Principal points

Petaluma (Sonoma County, G. L. Bean, 1930).—About 6 miles northeast of Petaluma, on highest part of fairly flat ridge and about 20 feet southeast of large cairn. To reach from Petaluma, go north 2.8 miles on Washington Street to crossroad, go west 0.8 mile, and then north 5.5 miles to gate swinging on large oak tree on property of Mrs. Stevens, follow road through ranch yard, and go up hill about one-half mile to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 72.867 meters (239.06 feet) (slope) from station in azimuth 29°59′. No. 2 is 131.140 feet (slope) from station in azimuth 95°16′.

Hooker (Napa-Sonoma Counties, G. L. Bean, 1930; 1932).—About 6 miles north of Sonoma, on highest point of high ridge forming boundary between Napa and Sonoma Counties. The high point is known locally as "Hooker Mountain." Station is just northeast of lone rock about 10 feet high. To reach from courthouse in Sonoma, follow Santa Rosa road west 0.8 mile, turn right (following Santa Rosa road) and go 2.4 miles to Hooker Oak service station and auto camp, continue 0.5 mile to sign on right marked "Private Rd. Keep Out", turn right onto private road and go 0.2 mile to bridge, cross bridge and continue 1.5 miles to left fork at sign marked "Cavedale", take left fork and go 1.8 miles to fork, take right fork and go 0.1 mile to fork at ranch house, take right fork and go 0.7 mile (gates at 0.4 mile and 0.6 mile) to fork, take right fork and go to gate by orchard, which is end of truck travel, continue to house on goat ranch and then proceed in an easterly direction to top of brushy ridge, go through fence on ridge and continue (keeping to right) about one-half mile to highest point and station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 5.605 meters (18.39 feet) from station in azimuth 88°01′. No. 2 is 5.660 meters (18.57 feet) from station in azimuth 196°47′.

Arrowhead (Sonoma County, G. L. Bean, 1930; 1932).—About one-fourth mile west of Sonoma-Napa county line, about 1 mile east of Sonoma, on highest point of Arrowhead Mountain, and on center of ridge. To reach from Sonoma, go south 1 mile on Black Point Cutoff road, turn left onto Napa road and go 3.6 miles, turn left onto road leading to farmyard, pass through farmyard and orchard to foot of Arrowhead Mountain, and climb to summit and station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 12.29 meters (40.3

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feet) (slope) from station in azimuth 176°54′. No. 2 is 16.14 meters (53.0 feet) (slope) from station in azimuth 293°43′.

Hicks (Marin County, G. L. Bean, 1930).—About 8 miles southwest of Petaluma, along Point Reyes Station road, about 2 miles northeast of Pacheco school, and on highest point of Hicks Mountain. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 6.595 meters (21.64 feet) (slope) from station in azimuth 289°19′. No. 2 is 72.955 meters (239.35 feet) (slope) from station in azimuth 342°58′.

Point Reyes Hill (Marin County, G. A. Fairfield, 1855; 1930).—On summit of highest hill to north of road leading from head of Tomales Bay to Point Reyes ranch. To reach from Point Reyes Station at head of Tomales Bay, go northwest along south shore of Tomales Bay through Inverness and continue just beyond town to first road beyond boathouse, turn left and follow road which climbs to deserted farmhouse on top of hill, and continue to highest point and station site. Original station mark was ⅝-inch drill hole in top of flat stone, placed about 15 inches below ground, with letters "U.S.C.S." cut in top. Original reference marks were three similar stones placed 6 feet from station, a drill hole in rock distant 15.58 feet, and a spike driven into a rock distant 14.9 feet. In 1921 copper bolt with cross in top had been placed in concrete over station mark. Two standard reference disks in bedrock were established in 1929. No. 1 is 12.90 meters (42.3 feet) from station in azimuth 321°21′. No. 2 is 6.24 feet from station in azimuth 124°40′. "B.M. 1366 (VA) (U.S. G.S.)", cemented in stone 3 inches above ground, is 7.78 feet from station in azimuth 359°28′.

Point Reyes Head 2 (Marin County, J. F. Pratt, 1907; 1931).—On highest part of Point Reyes, on top of large bare rock on most easterly part of first ridge which runs from extreme point on which lighthouse is located, about 880 meters (2,625 feet) from western extremity of point, exactly on prolongation of base of bluff shore line running north, and 4 inches south of and about 2.5 feet below top of round-topped rock. The letters "U.S.C." are cut in rock above station. To reach from Point Reyes Station at head of Tomales Bay, follow Tomales Bay road through Inverness and continue left along road crossing head of Drakes Estero past Point Reyes school to extreme end of Point Reyes, turn right to get to the East Head, and climb about 200 yards to station site. Marked by cross cut in end of copper bolt cemented in top of flat stone. Reference mark (1921) is standard reference disk in rock, note 12b, 4.13 meters (13.5 feet) from station in azimuth 40°24′. "B.M. 612 (VA) (U.S.G.S.)" is 2.68 meters (8.8 feet) from station in azimuth 313°38′. Hole in rock (probably reference mark of station "Point Reyes Head (1859)") is 0.65 meter (2.1 feet) from station in azimuth 129°28′.

Wittenberg (Marin County, G. L. Bean, 1930).—About 2 miles southwest of Point Reyes Station, on highest point of Mount Wittenberg. The mountain is bare on top and west side, and wooded on east side. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 10.870 meters (35.66 feet) (slope) from station in azimuth 30°58′. No. 2 is 9.77 meters (32.1 feet) (slope) from station in azimuth 278°01′.

Black (Marin County, G. L. Bean, 1930).—About 4 miles east-northeast of Point Reyes Station, on highest point of Black Mountain. To reach from first ranch on southeast side of mountain, pass through barnyard and follow old wagon tracks up ridge about 1 mile, and climb to highest point. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 5.225 meters (17.14 feet) from station in azimuth 42°08′. No. 2 is 7.580 meters (24.87 feet) from station in azimuth 154°01′.

Supplementary points

Sleepy (Sonoma County, G. L. Bean, 1930; 1932).—About 7 miles east of Petaluma, on highest point of ridge. To reach from Petaluma, go east 8.6 miles from intersection of D and Wilson Streets toward Sonoma, turn right through gate and go about one-fourth mile along fence to first fence corner, and follow fence line east about one-half mile to highest point visible on ridge. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 37.055 meters (121.57

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feet) (slope) from station in azimuth 264°17′. No. 2 is 11.270 meters (36.97 feet) (slope) from station in azimuth 143°54′.

Antonio (Marin County, G. L. Bean, 1930).—About 6 miles west-southwest of Petaluma, on mountain known as "Antonio Mountain." To reach from Petaluma, go west 7½ miles to crest of east flank of hill, pass through gate to right and go up ridge to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 24.617 meters (80.76 feet) (slope) from station in azimuth 43°13′. No 2 is 32.562 meters (106.83 feet) (slope) from station in azimuth 19°48′.

Canada (Marin County, G. L. Bean, 1930).—About 3 miles east of Pacheco School, and on high and prominent ridge south of road leading from Petaluma to Point Reyes Station. To reach, leave road at point where it crosses divide about 2 miles east of schoolhouse and follow ridge to south to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 62.940 meters (206.50 feet) (slope) from station in azimuth 162°56′. No. 2 is 17.597 meters (57.73 feet) (slope) from station in azimuth 292°36′.

Madera (Marin County, G. L. Bean, 1930).—About 6 miles south and west of Petaluma, on prominent hill known locally as "Red Hill." To reach from Petaluma, go about 6 miles on road leading toward Point Reyes Station to top of Red Hill grade and follow ridge to south to top. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 37.995 meters (124.66 feet) (slope) from station in azimuth 40°17′. No. 2 is 9.431 meters (30.94 feet) (slope) from station in azimuth 137°59′.

Hammock (Marin County, G. L. Bean, 1930).—About 8 miles southwest of Petaluma, on low ridge near south end of Chileno Valley. To reach, go to Lincoln School and follow up ridge to west. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 8.250 meters (27.07 feet) (slope) from station in azimuth 96°41′. No. 2 is 13.032 meters (42.76 feet) (slope) from station in azimuth 183°12′.

Lincoln (Marin County, G. L. Bean, 1930).—About 5 miles southwest of Petaluma, on prominent hill. To reach, go to Lincoln School, continue beyond schoolhouse, cross bridge, pass through gate, and follow up ridge to northwest about 1½ miles to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 21.365 meters (70.10 feet) (slope) from station in azimuth 304°07′. No. 2 is 9.427 meters (30.93 feet) (slope) from station in azimuth 53°21′.

Marin (Marin County, G. L. Bean, 1930).—About 3 miles south of Petaluma, on summit of hill. To reach from Petaluma, go out C Street about 4 miles to road turning left just before reaching concrete bridge, turn left and go about 1 mile to point where road crosses small creek and bends to east and north, pass through farmyard just beyond bend, and follow up ridge to top and station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 10.287 meters (33.75 feet) (slope) from station in azimuth 151°19′. No. 2 is 17.721 meters (58.14 feet) (slope) from station in azimuth 221°42′.

Pala (Sonoma County, G. L. Bean, 1930).—About 3 miles south of Petaluma, on prominent hill. To reach from Petaluma, go about 3½ miles on main highway leading toward San Rafael to foot of grade on northwest side of prominent hill, enter field on left by passing through gate on road leading to farmhouse on east side of road, and follow up side of ridge about one-half mile to top. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 20.340 meters (66.73 feet) (slope) from station in azimuth 163°55′. No. 2 is 19.296 meters (63.31 feet) (slope) from station in azimuth 249°48′.

Chileno (Sonoma County, G. L. Bean, 1930).—About 4 miles west of Petaluma on low ridge. To reach from Petaluma, go about 4½ miles on Chileno Valley road to top of ridge just before road starts down into Chileno Valley, pass through gate and follow along ridge to west to station site. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is about 24 meters (79 feet) (slope) from

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station in azimuth 73°11′. No. 2 is 9.624 meters (31.58 feet) (slope) from station in azimuth 318°36′.

Sonoma (Sonoma County, G. L. Bean, 1930).—About 2 miles southwest of Petaluma, on crest of hill the top of which is bare and the sides wooded. To reach from Petaluma, go about 5 miles on road leading toward Point Reyes Station to point where dirt road turns to left just before reaching concrete bridge, turn left and go three-fourths mile, and climb to top of wooded hill to southwest. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 8.993 meters (29.50 feet) (slope) from station in azimuth 195°37′. No. 2 is 12.335 meters (40.47 feet) (slope) from station in azimuth 84°08′.

Miseria (Sonoma County, G. L. Bean, 1930).—About 1 mile east of south from Petaluma, on highest point of hill. To reach from intersection of C Street and Redwood Highway in Petaluma, go south 1.8 miles on C Street, turn right through gate, and go one-fourth mile to top of hill. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 22.998 meters (75.45 feet) (slope) from station in azimuth 268°59′. No. 2 is 13.662 meters (44.82 feet) (slope) from station in azimuth 131°08′.

Petal (Sonoma County, G. L. Bean, 1930).—About 3 miles east of Petaluma, 20 feet east of edge of pavement, about 50 feet south of point where road makes right-angle turn from north to east, on highway right-of-way, and 4 feet west of fence. A road sign marked "Lakeville 3.8—Sonoma 12.6—Napa 23.8—Petaluma 3.1" is at turn in highway. To reach from Petaluma, go north on D Street to Wilson Street, and go east 2.5 miles on Wilson Street to Napa-Sonoma road. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is across road and 8.600 meters (28.22 feet) (slope) from station in azimuth 239°20′. No. 2 is on same side of road and 16.711 meters (54.83 feet) (slope) from station in azimuth 132°22′.

Lake (Sonoma County, G. L. Bean, 1930).—About 5 miles east of Petaluma, about 1 mile north of Lakeville School, and on top of highest hill in vicinity. To reach from intersection of D and Wilson Streets in Petaluma, go east 6.6 miles on road leading to Sonoma and Napa to gate on left, pass through gate and go about one-fourth mile to ranch house, and go southwest about one-half mile to top of hill. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 14.892 meters (48.86 feet) (slope) from station in azimuth 278°52′. No. 2 is 9.188 meters (30.14 feet) (slope) from station in azimuth 357°04′.

Adobe (Sonoma County, G. L. Bean, 1930).—About 4 miles northeast of Petaluma, on highest part of knoll. To reach from Petaluma, go northeast 4 miles to the old Adobe Fort, go east 0.8 mile from fort, and turn left through gate onto road leading to farmhouse about one-fourth mile from highway, and go through farmyard to small hill about one-half mile north of house and about 200 meters (656 feet) north of group of small chicken houses. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 12.008 meters (39.40 feet) from station in azimuth 115°44′. No. 2 is 15.455 meters (50.71 feet) from station in azimuth 213°51′.

Lynch (Sonoma County, G. L. Bean, 1930).—About 5 miles northeast of Petaluma, on highest point of high hill. To reach from Petaluma, go northeast about 4 miles to the old Adobe Fort, turn west and go 1.5 miles to point where road leads off at right angles to south and farm road turns off through gate to north, turn right through gate and go 0.3 mile to wire gate on right which is about 50 yards beyond point where road crosses small bridge, pass through gate and follow fence north about one-fourth mile and northeast about one-fourth mile to top of hill. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 11.722 meters (38.46 feet) (slope) from station in azimuth 202°55′. No. 2 is 15.005 meters (49.23 feet) (slope) from station in azimuth 295°38′.

Laurel (Sonoma County, G. L. Bean, 1930).—About 6 miles northeast of Petaluma, about 50 feet east of fence, on crest of ridge at point where ridge drops abruptly to south. To reach from Petaluma, go north 2.8 miles on

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Washington Street to crossroad, go west 0.8 mile and north 5.5 miles to gate swinging on large oak tree on property of Mrs. Stevens, go straight ahead 0.2 mile to fence corner, turn right and follow fence line to top of ridge. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 10.810 meters (35.47 feet) (slope) from station in azimuth 44°28′. No. 2 is 11.140 meters (36.55 feet) (slope) from station in azimuth 110°05′.

Pacheco (Marin County, G. L. Bean, 1930).—On prominent rocky knoll about 500 yards northeast of Pacheco School. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 10.055 meters (32.99 feet) (slope) from station in azimuth 158°27′. No. 2 is 46.040 meters (151.05 feet) (slope) from station in azimuth 281°12′.

Tacloma (Marin County, G. L. Bean, 1930).—About 2½ miles east of Point Reyes Station, about 1 mile north of Olema, 1 mile west of Tocaloma, on prominent hill, about 200 meters (656 feet) south of highest part of hill, close to gate in fence separating pasture land from the cultivated, and on west side of gate and north side of fence. An old road leads to station from farmhouse on top of grade of highway leading from Olema to Tocaloma. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 19.280 meters (63.25 feet) (slope) from station in azimuth 276°32′. No. 2 is 16.75 meters (55.0 feet) (slope) from station in azimuth 183°36′.

Tomasi (Marin County, G. L. Bean, 1930).—About 1 mile north of Point Reyes Station, on highest part of rather flat-topped low hill which is the only hill in vicinity. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 20.001 meters (65.62 feet) (slope) from station in azimuth 124°49′. No. 2 is 7.770 meters (25.49 feet) (slope) from station in azimuth 329°44′.

Garcia (Marin County, G. L. Bean, 1930).—About 1 mile east of Point Reyes Station, on highest point on north end of low ridge. A ranch road leads up west slope of ridge. Marked by standard station disk in bedrock, note 2, in the most prominent outcrop in vicinity. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 7.495 meters (24.59 feet) (slope) from station in azimuth 353°49′. No. 2 is 5.760 meters (18.90 feet) (slope) from station in azimuth 53°07′.

Langdon (Marin County, G. L. Bean, 1930).—About 0.7 mile west of Olema, near north end of hilltop, and about one-fourth mile east of feed shed. To reach from Olema, go west 0.7 mile on county road leading to Colonel Langdon's ranch, pass through gate on right leading into field, and go about 0.2 mile to top of hill. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 13.481 meters (44.23 feet) from station in azimuth 57°49′. No. 2 is 13.668 meters (44.84 feet) from station in azimuth 136°08′.

Faultline E (Marin County, G. L. Bean, 1930).—About one-fourth mile southwest of paved road between Olema and Point Reyes Station, about 200 meters (656 feet) northwest of feed shed on north slope of hill, about 25 meters (82 feet) southwest of grove of live oak trees, and on land owned by Colonel Langdon. To reach from Olema, go west 0.1 mile and follow road leading to Colonel Langdon's ranch 0.5 mile, go 0.2 mile west of ranch house to gate on east side of road, follow road through gate 0.3 mile to large feed shed, and continue northwest to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a.

Faultline F (Marin County, G. L. Bean, 1930).—About 0.9 mile south of Point Reyes Station, on west slope of hill, about 75 yards west of highest point, 150 meters (492 feet) east of concrete highway between Manor and Point Reyes Station, about 50 meters (164 feet) east of high-tension power line, and about one-fourth mile north of point where power line crosses picket fence. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 10.238 meters (33.59 feet) from station in azimuth 185°31′. No. 2 is 9.543 meters (31.31 feet) from station in azimuth 271°43′.

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Faultline A (Marin County, G. L. Bean, 1930).—About 1¼ miles west of Olema, on sloping ground about one-third mile south of road, and about 50 meters (164 feet) from tree line. To reach from Olema, go west 1.2 miles on county road leading to Colonel Langdon's ranch, pass through ranch yard and follow road going through timber to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 19.835 meters (65.08 feet) from station in azimuth 86°24′. No. 2 is 23.362 meters (76.65 feet) from station in azimuth 358°11′.

Faultline D (Marin County, G. L. Bean, 1930).—About 1 mile from Point Reyes Station, on south slope of small knoll, about 50 feet in elevation lower than summit of knoll and 50 meters (164 feet) from top, about 100 meters (328 feet) north of county road, 75 meters (246 feet) west of feed shed, on property of Colonel Langdon, and across road from and about one-half mile northwest of his home. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 20.588 meters (67.55 feet) from station in azimuth 303°50′. No. 2 is 16.470 meters (54.04 feet) from station in azimuth 346°55′.

Faultline B (Marin County, G. L. Bean, 1930).—About 1.2 miles west of Olema, 75 meters (246 feet) south of county road passing Colonel Langdon's home, about 0.5 mile west of his home, and about 40 meters (131 feet) north of small creek. Surface and underground marks are standard station disks in concrete, notes 1a and 7a.

Faultline C (Marin County, G. L. Bean, 1930).—About 1 mile from Point Reyes Station, on property of Colonel Langdon, across road from and about one-half mile northwest of his home, on south slope of small knoll, about 125 meters (410 feet) downhill from summit of knoll, and about 30 meters (98 feet) uphill from county road. Surface and underground marks are standard station disks in concrete, notes 1a and 7a.

S.E.I.C. northeast monument (Marin County, G. L. Bean, 1930).—About 0.6 mile west of Olema, on county road leading to Colonel Langdon's ranch. Station is the northeast monument of four concrete monuments established by the State Earthquake Investigation Committee for the study of earthquake movements. Northeast and southeast monuments are on east side of road about 75 meters (246 feet) north of Colonel Langdon's house, and northwest and southwest monuments are on west side of road. Mark is concrete pier 13 inches square, extending 6 feet into ground and resting on rock or hardpan. Top of pier projects 2 or 3 feet above ground and is topped by thick bronze plate, 13 inches square, with suitable appliance for mounting instrument. Plate is protected by heavy iron cap, 14.5 inches square and locked upon it, with inscription "S.E.I.C. to measure earth movements, 1906."

Drake (Marin County, G. L. Bean, 1930; 1931).—About 4½ miles northeast of Point Reyes Head, about 1 mile northeast of United States Navy radio compass station on Point Reyes Head, about one-half mile east of Point Reyes Lighthouse road, on flat-topped hill about one-half mile west of Drakes Estero, at first point along road where the whole of Point Reyes headlands are visible, about 120 feet northeast of east-and-west fence, and 100 feet west of north-and-south fence. To reach, follow Point Reyes Lighthouse road to point about 4½ miles north of light, turn east through gate and follow trail 0.45 mile around hill to left to first fence, and continue to station site on left of trail. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 27.45 meters (90.0 feet) (slope) from station in azimuth 345°48′. No. 2 is 35.740 meters (117.26 feet) (slope) from station in azimuth 71°17′.

Pacific (Marin County, G. L. Bean, 1930).—On west side of bluff above entrance of Drakes Estero, on last high point of ridge just before it breaks down sharply to southeast, and about 500 yards from edge of sand flats on west side of the Estero entrance. To reach, follow ridge down from road leading to Point Reyes. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 18.300 meters (60.04 feet) (slope) from station in azimuth 244°36′. No. 2 is 20.782 meters (68.18 feet) (slope) from station in azimuth 331°25′.

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Mud (Marin County, O. W. Swainson, 1929; 1930).—At about middle of bight of Drakes Bay, on southern end of first ridge east of Muddy Hollow ranch and third ridge east of Estero de Limantour, at center of flat area on top of hill, 162 feet above sea level, about one-fourth mile from beach, and about one-fourth mile west of fresh-water lagoon. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Surface mark projects about 6 inches. Reference mark no. 1 is standard reference disk in concrete, note 11a, projecting 4 inches and 7.34 meters (24.1 feet) from station in azimuth 77°31′. Reference mark no. 2 is 4-inch square concrete monument with a V marked on its top, 15.44 meters (50.7 feet) from station in azimuth 200°40′. Point of V is reference point.

Estero (Marin County, G. L. Bean, 1930).—To reach from head of Drakes Estero, go northeast about 1 mile on Point Reyes Lighthouse road to blacksmith shop, go east about 2 miles on road leading toward Muddy Hollow ranch, turn south onto road going toward Drakes Head and follow about one-half mile to top of ridge and station site about 15 feet east of center of road. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Surface mark projects 2 inches. Reference marks are standard reference disks in concrete, note 11a. No. 1 is at east edge of road and 10.170 meters (33.37 feet) from station in azimuth 75°03′. No. 2 is on west side of road, in fence line, and 10.890 meters (35.73 feet) from station in azimuth 174°58′.

Muddy (Marin County, G. L. Bean, 1930).—About 2.7 miles southwest of Muddy Hollow ranch, on first ridge east of and about one-third mile from Estero de Limantour, about 200 meters (656 feet) northwest of road near west edge of flat ridge, and about 300 meters (984 feet) south of fence. Station was established in same position as old redwood stake. To reach, go west about one-half mile from Muddy Hollow ranch to top of ridge and follow road through gate on left to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 12.235 meters (40.14 feet) (slope) from station in azimuth 304°58′. No. 2 is 18.92 meters (62.1 feet) (slope) from station in azimuth 201°26′.

Lagoon (Marin County, G. L. Bean, 1930).—On bluff above east side of entrance to Drakes Estero, on highest part of ridge just before it breaks down sharply to beach. To reach, follow road leading to Point Reyes artichoke ranch, pass through gate at ranch which leads up to crest of ridge to west, and follow ridge south and west to station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 10.702 meters (35.11 feet) from station in azimuth 181°28′. No. 2 is 10.745 meters (35.25 feet) from station in azimuth 244°54′.

Cabesa (Marin County, G. L. Bean, 1930; 1931).—On prominent hill on Point Reyes just above point where road leading to Point Reyes lighthouse forks to west from road leading to Point Reyes Coast Guard Station. Marked by standard station disk in bedrock, note 2. Reference marks are standard reference disks in bedrock, note 12a. No. 1 is 12.512 meters (41.05 feet) (slope) from station in azimuth 133°50′. No. 2 is 16.362 meters (53.68 feet) (slope) from station in azimuth 197°51′.

For notes in regard to marking of stations see p. 290.

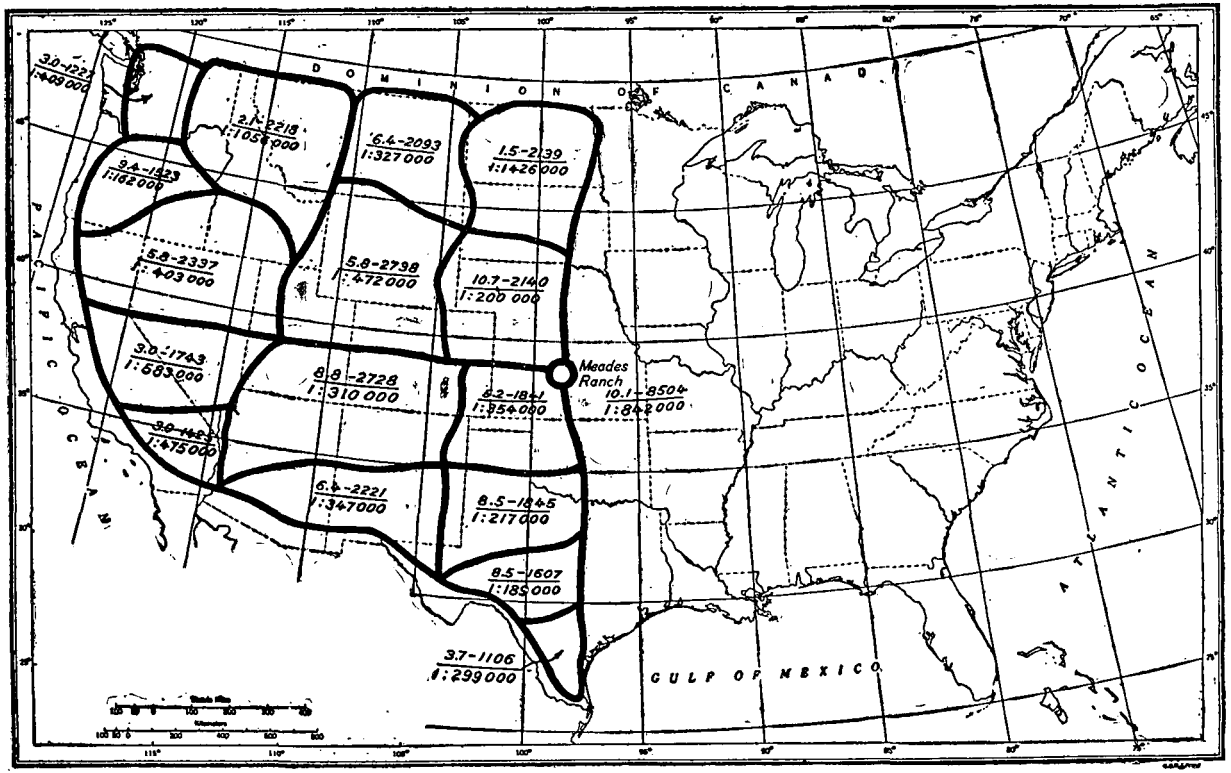

FIGURE 8.—Arcs included in western adjustment and loop closures.

The first number above the line is total closure of the loop in meters and the second number is the approximate length of the loop in kilometers. Below the line is the approximate proportional part of the whole circuit represented by the closure.

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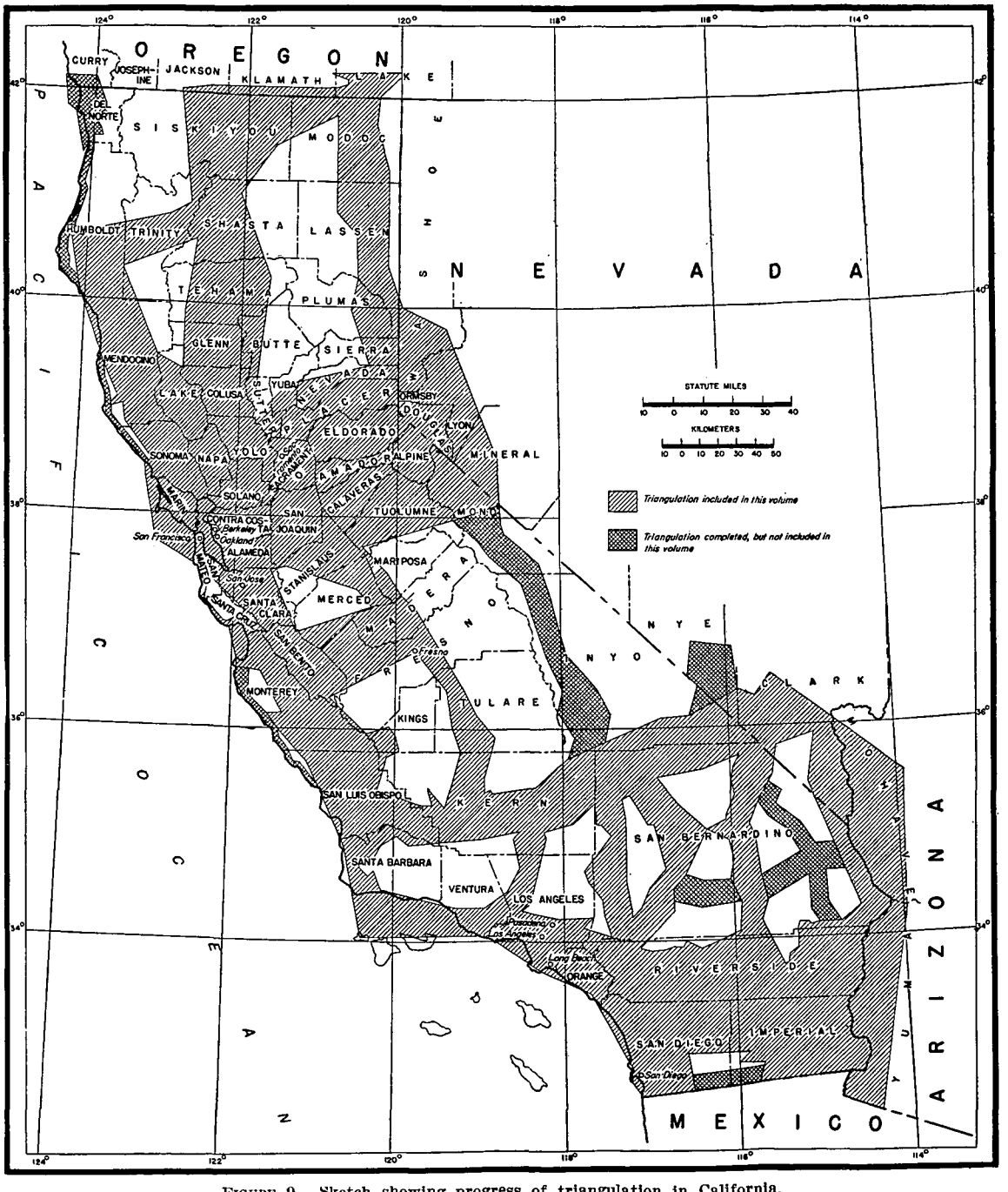

FIGURE 9.—Sketch showing progress of triangulation in California.

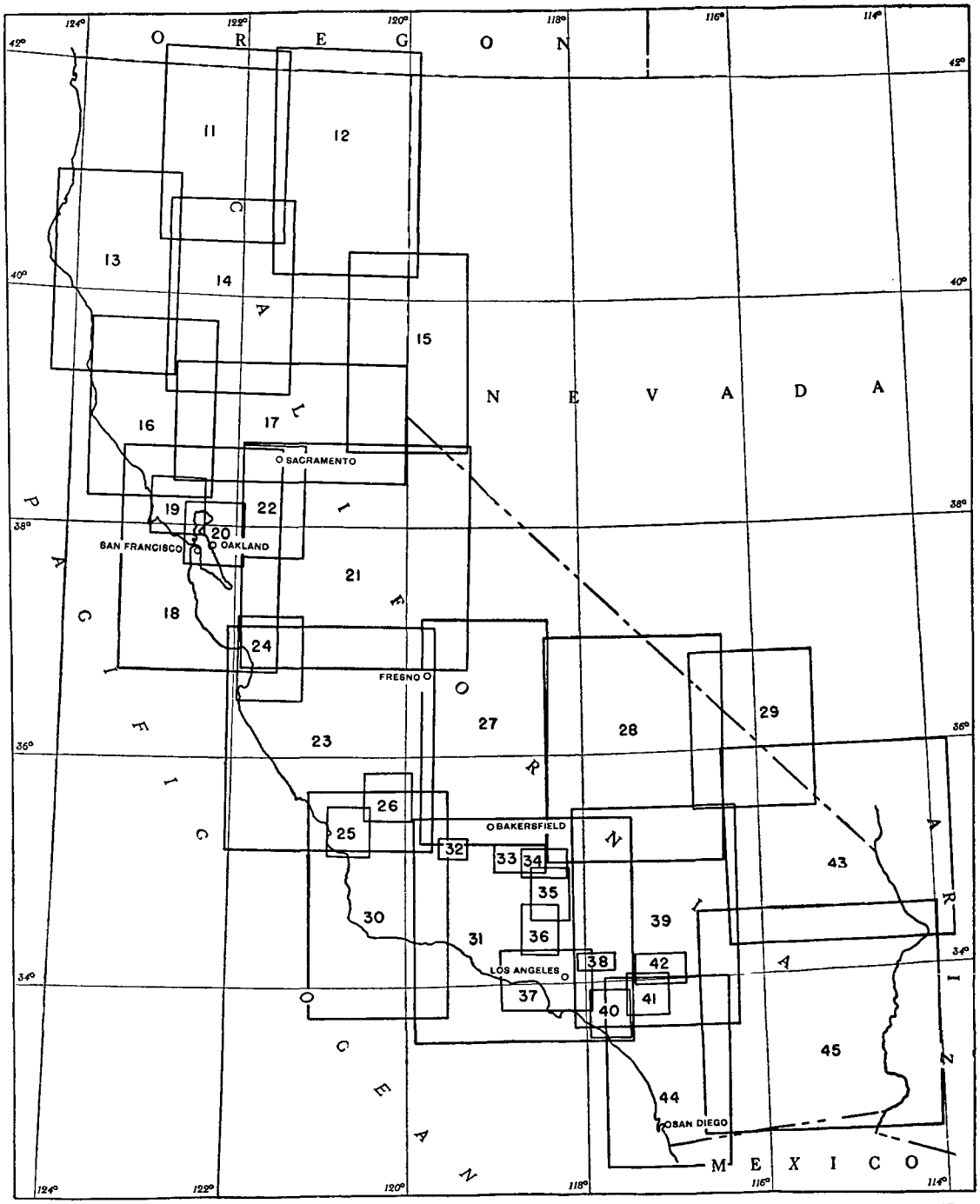

FIGURE 10.—Index map of California showing areas covered by each of the following sketches, figures 11 to 45.

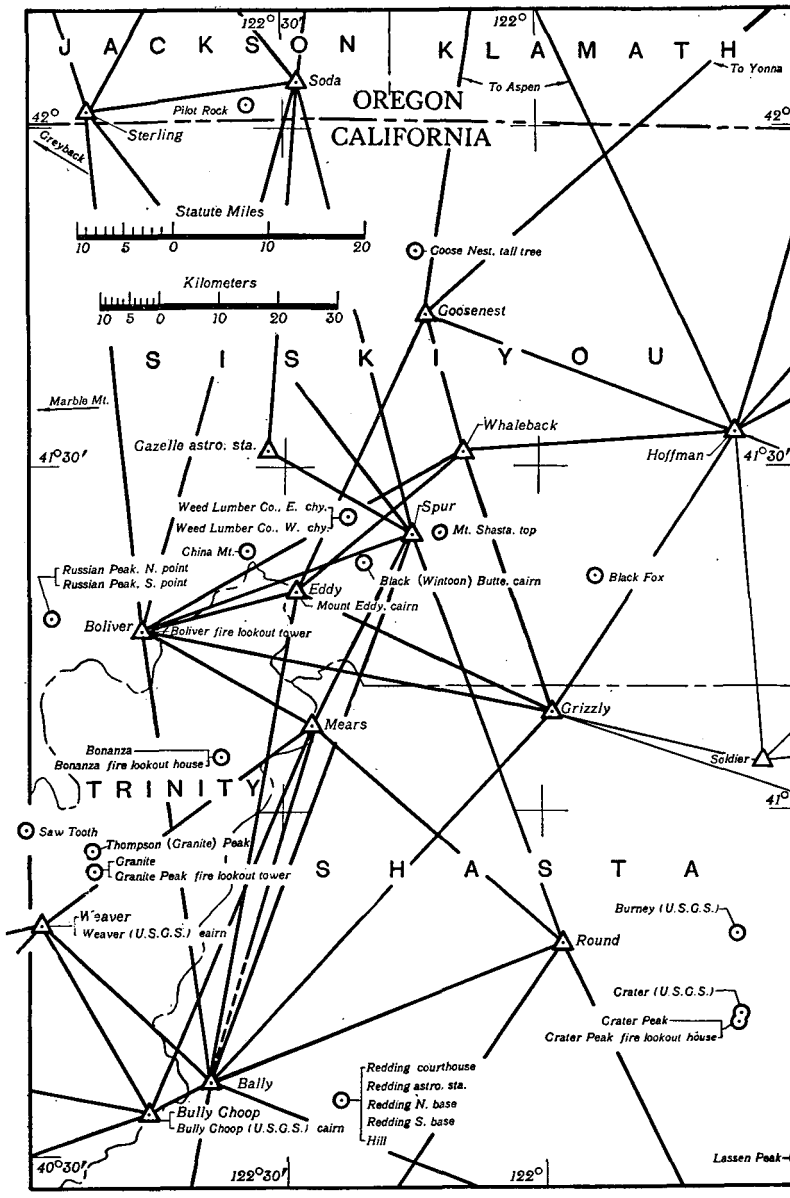

FIGURE 11.—Triangulation in northern California.

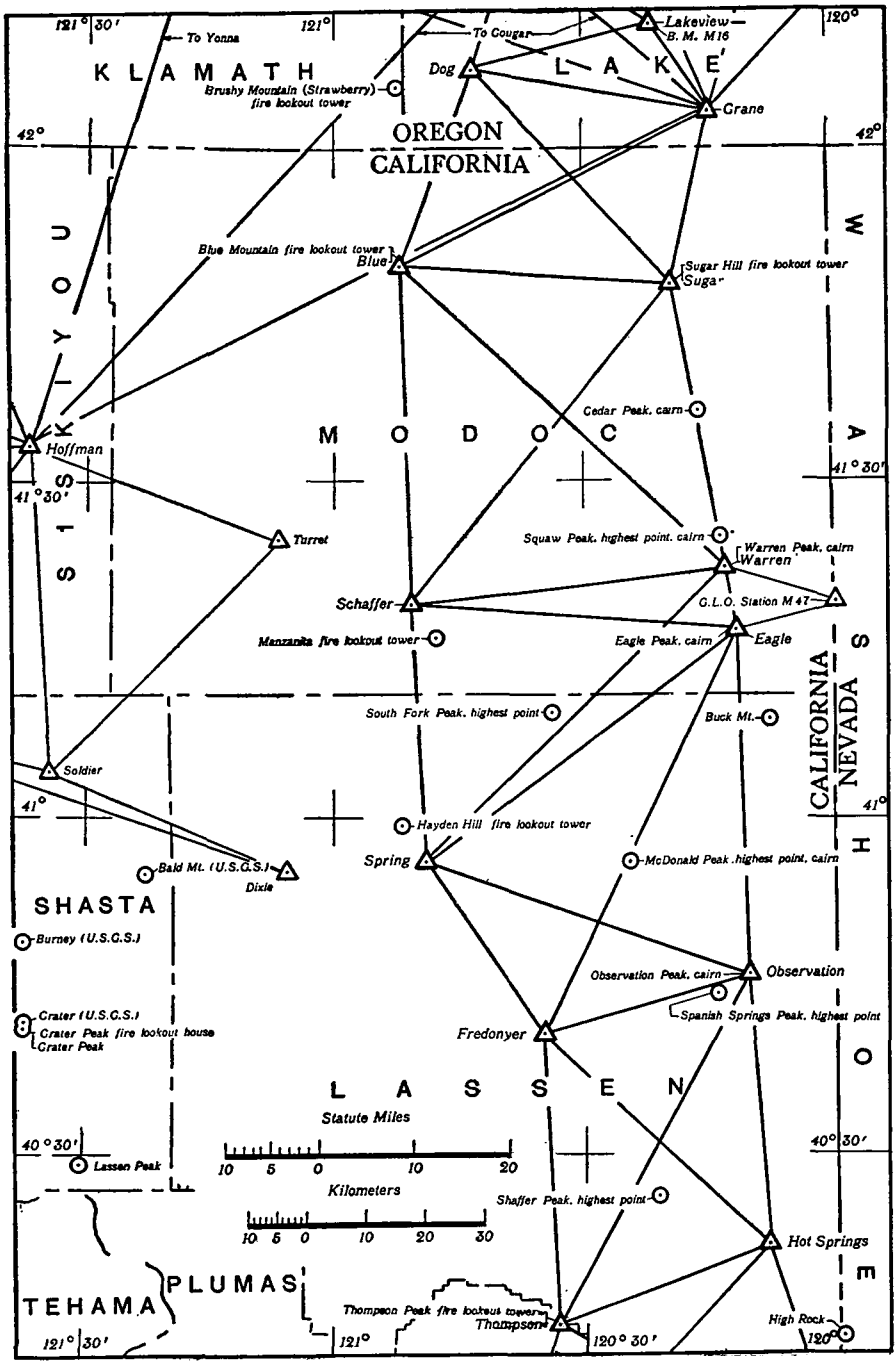

FIGURE 12.—Triangulation in northeastern California.

20650°—36. (Face p. 504.)

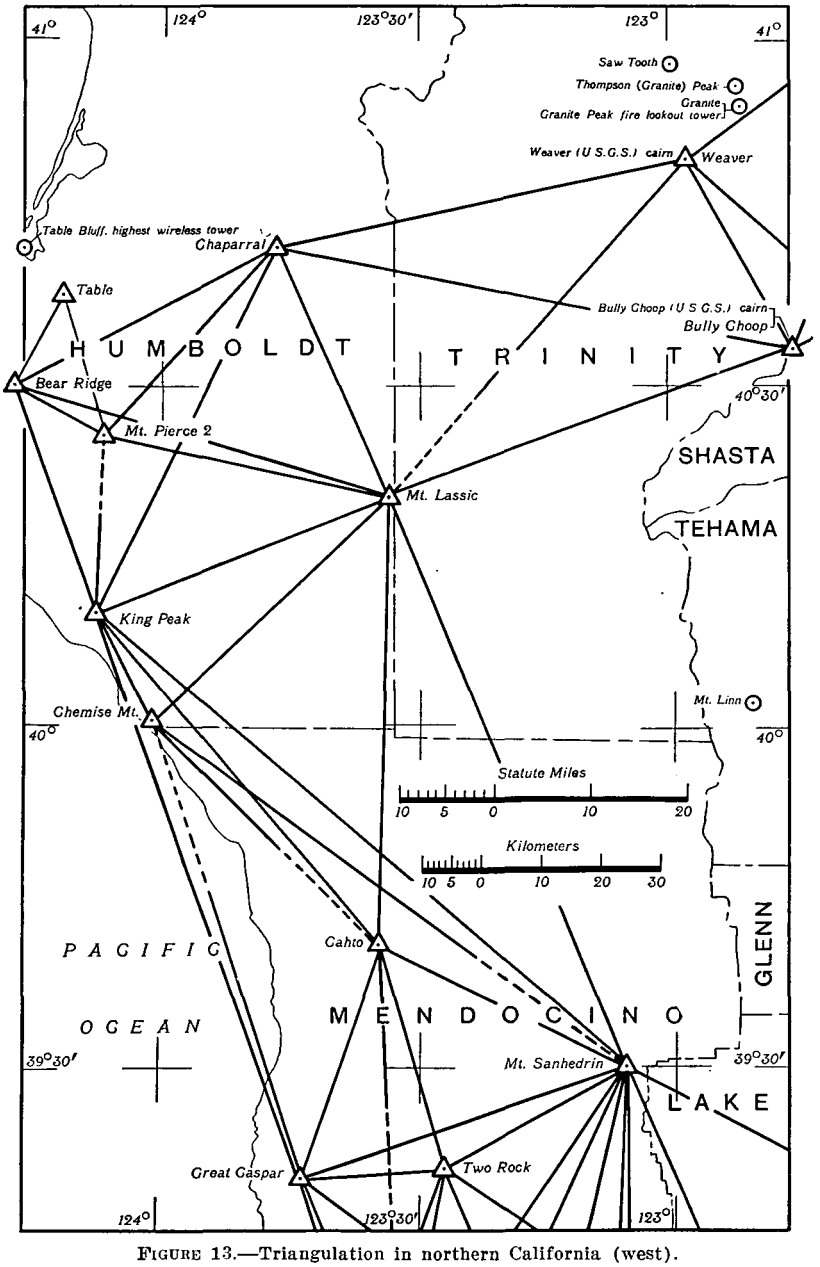

FIGURE 13.—Triangulation in northern California (west).

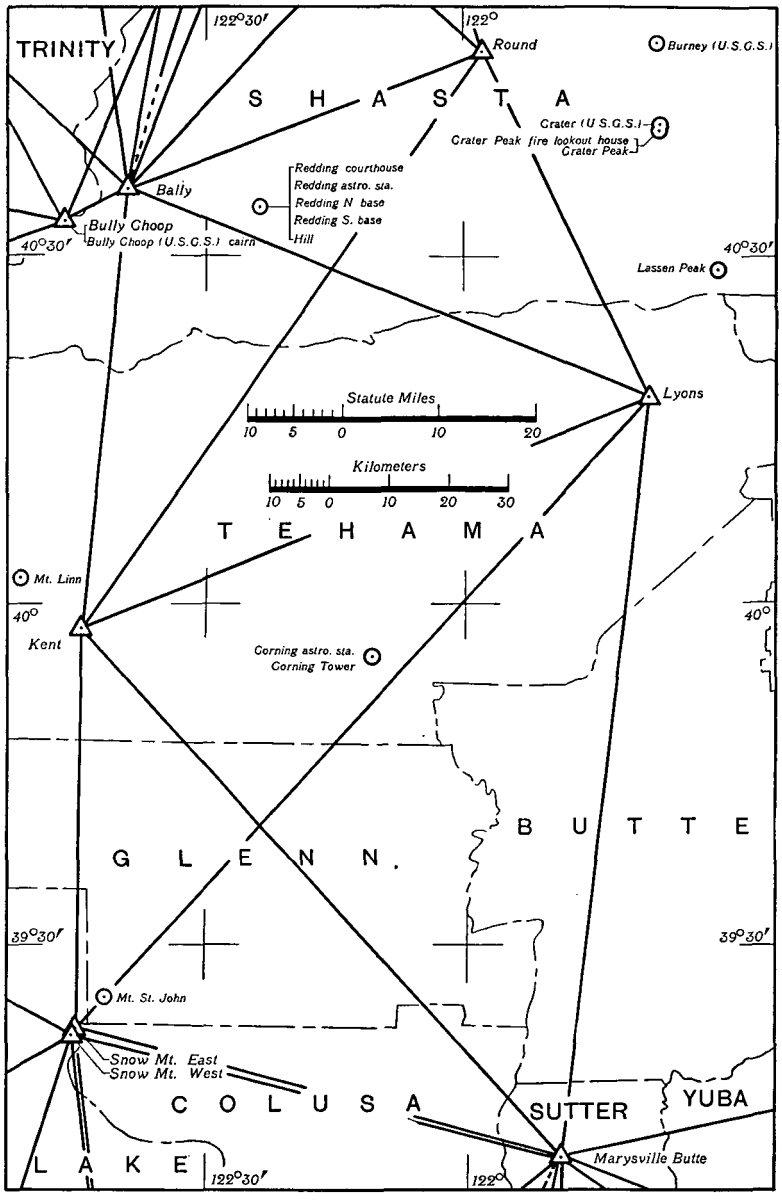

FIGURE 14.—Triangulation in northern California (central).

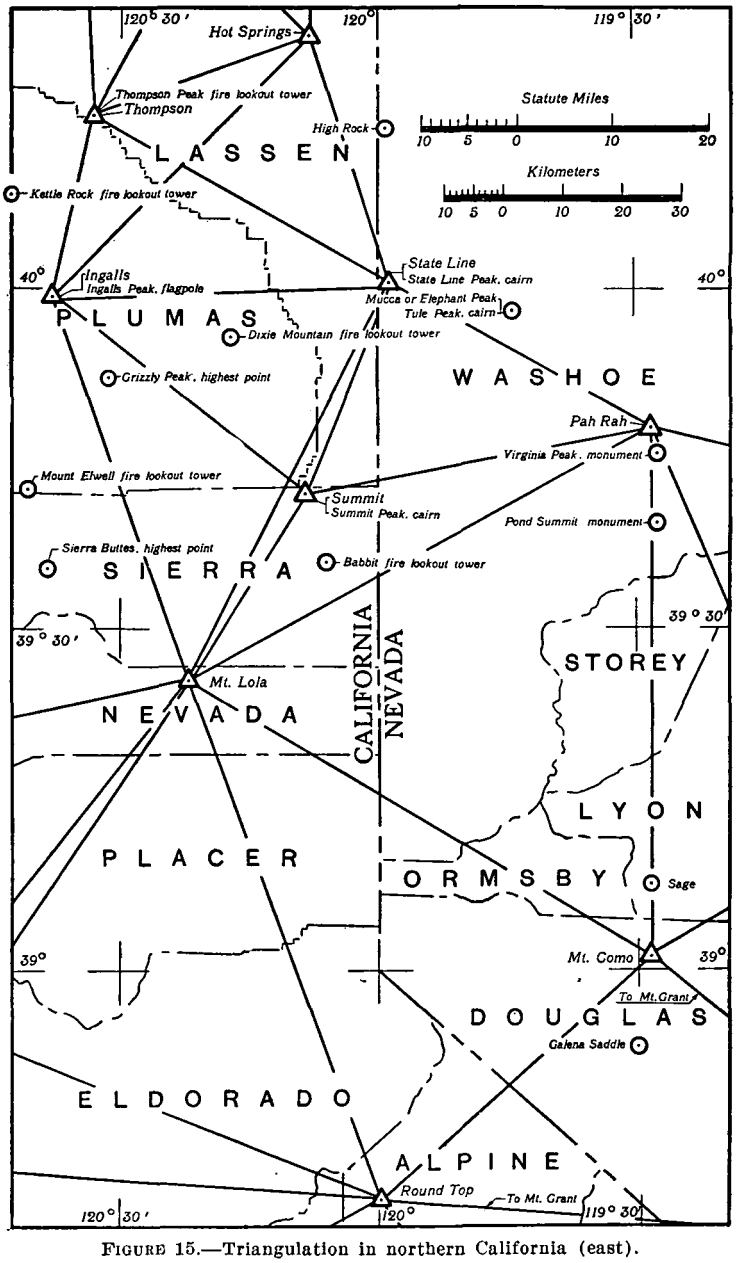

FIGURE 15.—Triangulation in northern California (east).

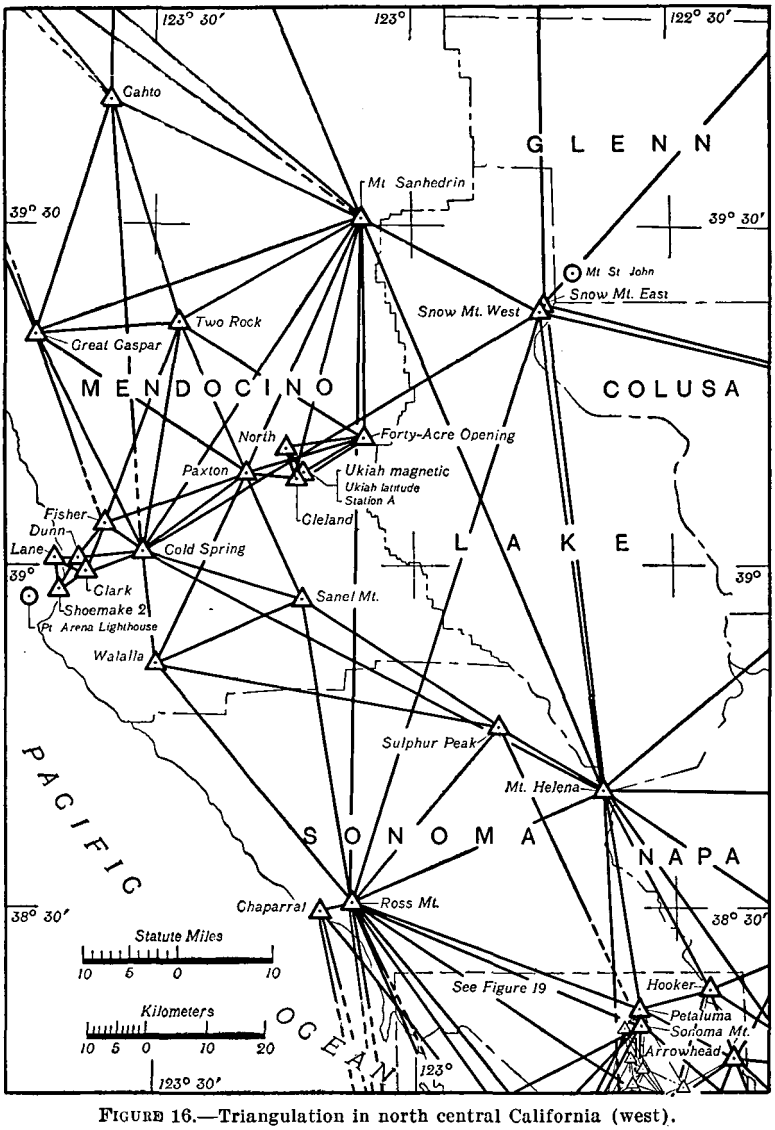

FIGURE 16.—Triangulation in north central California (west).

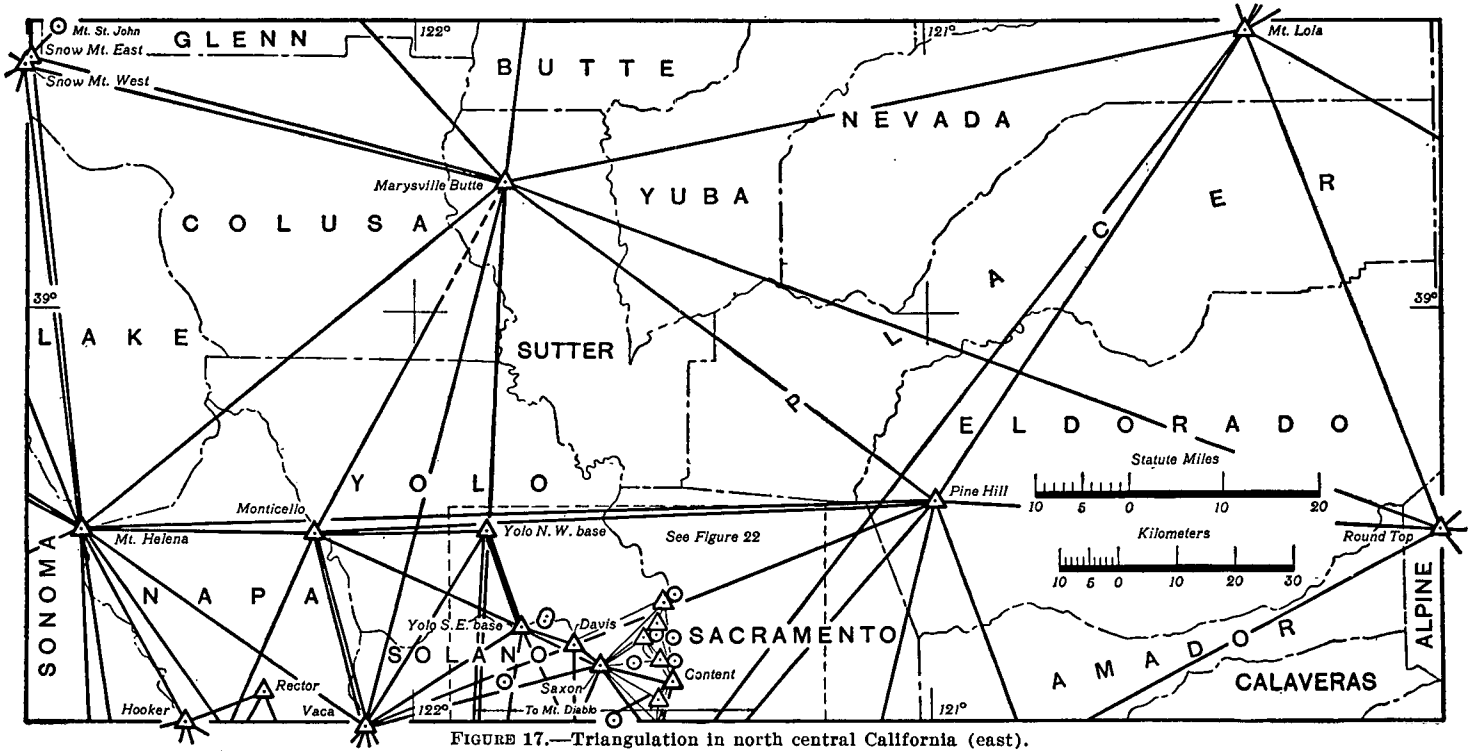

FIGURE 17.—Triangulation in north central California (east).

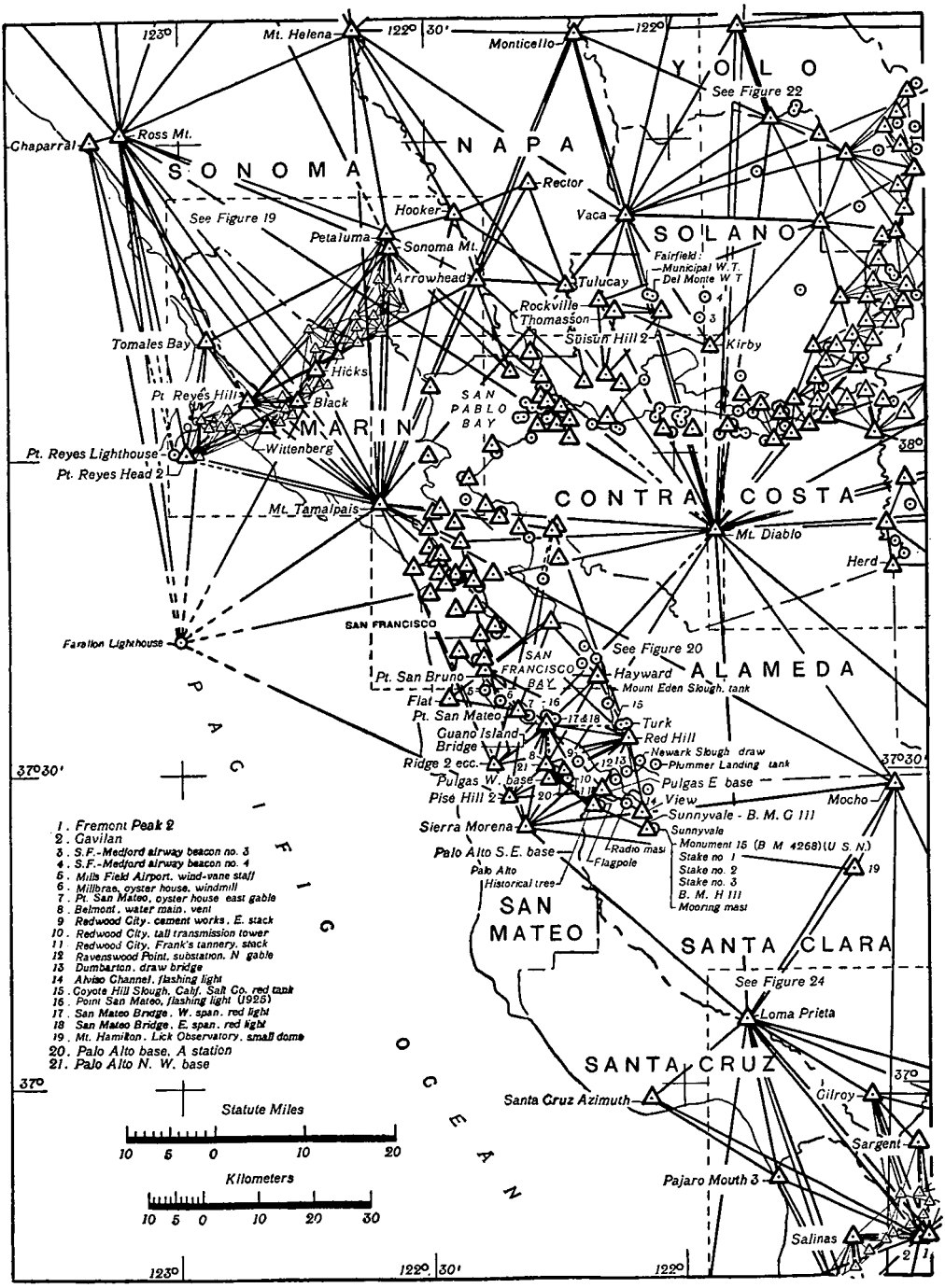

FIGURE 18.—Triangulation in central California (west).

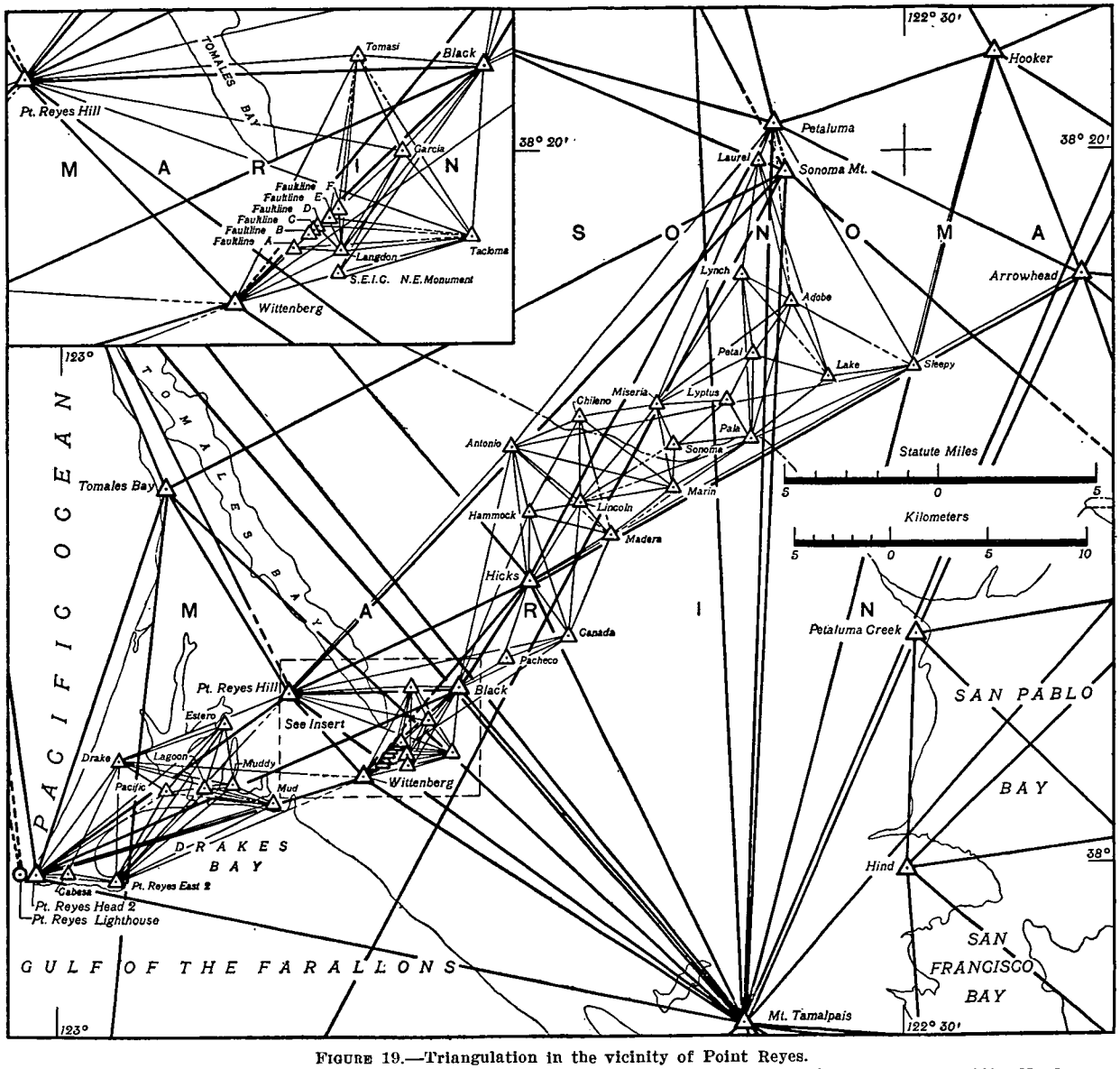

FIGURE 19.—Triangulation in the vicinity of Point Reyes.

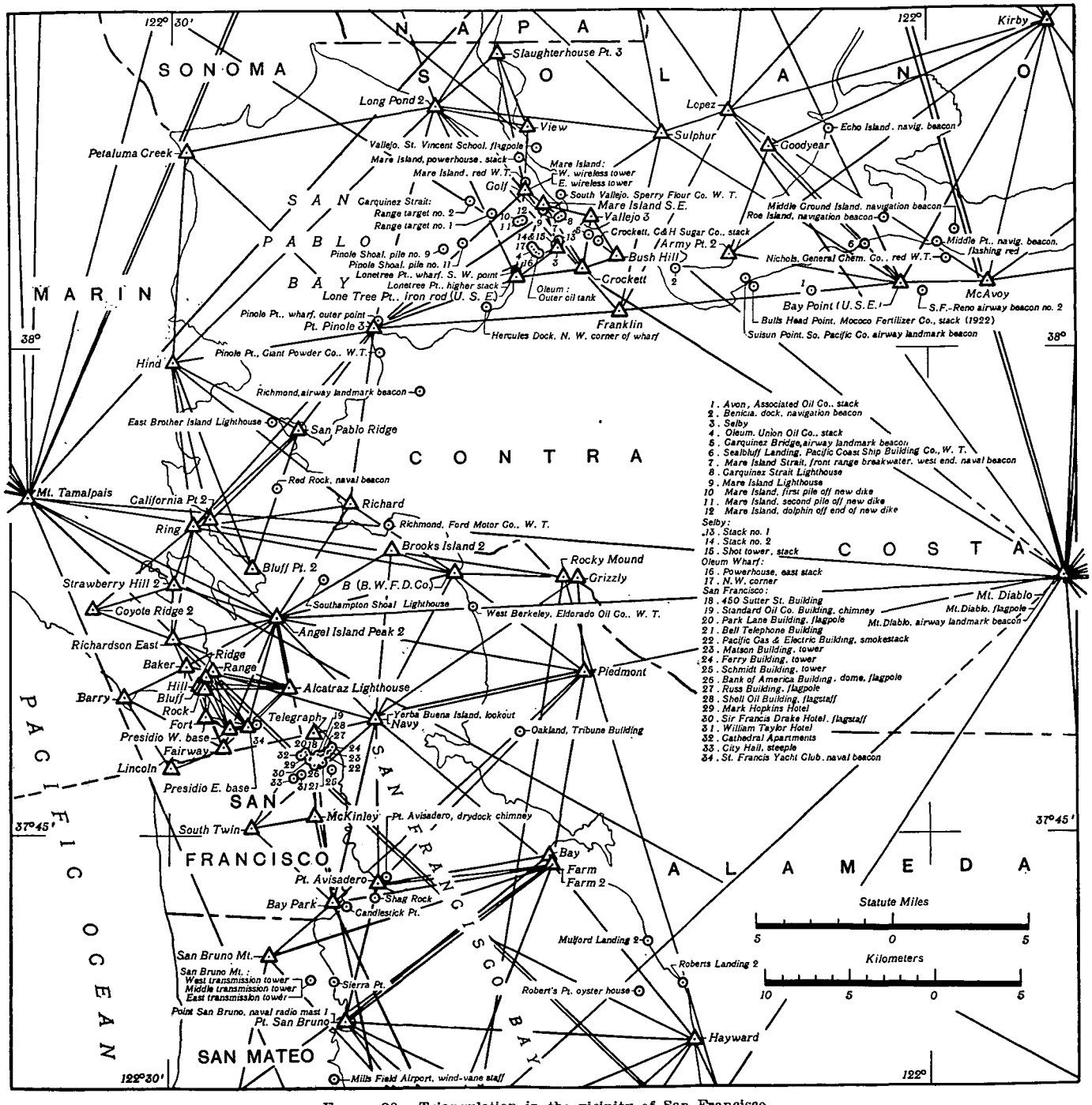

FIGURE 20.—Triangulation in the vicinity of San Francisco.

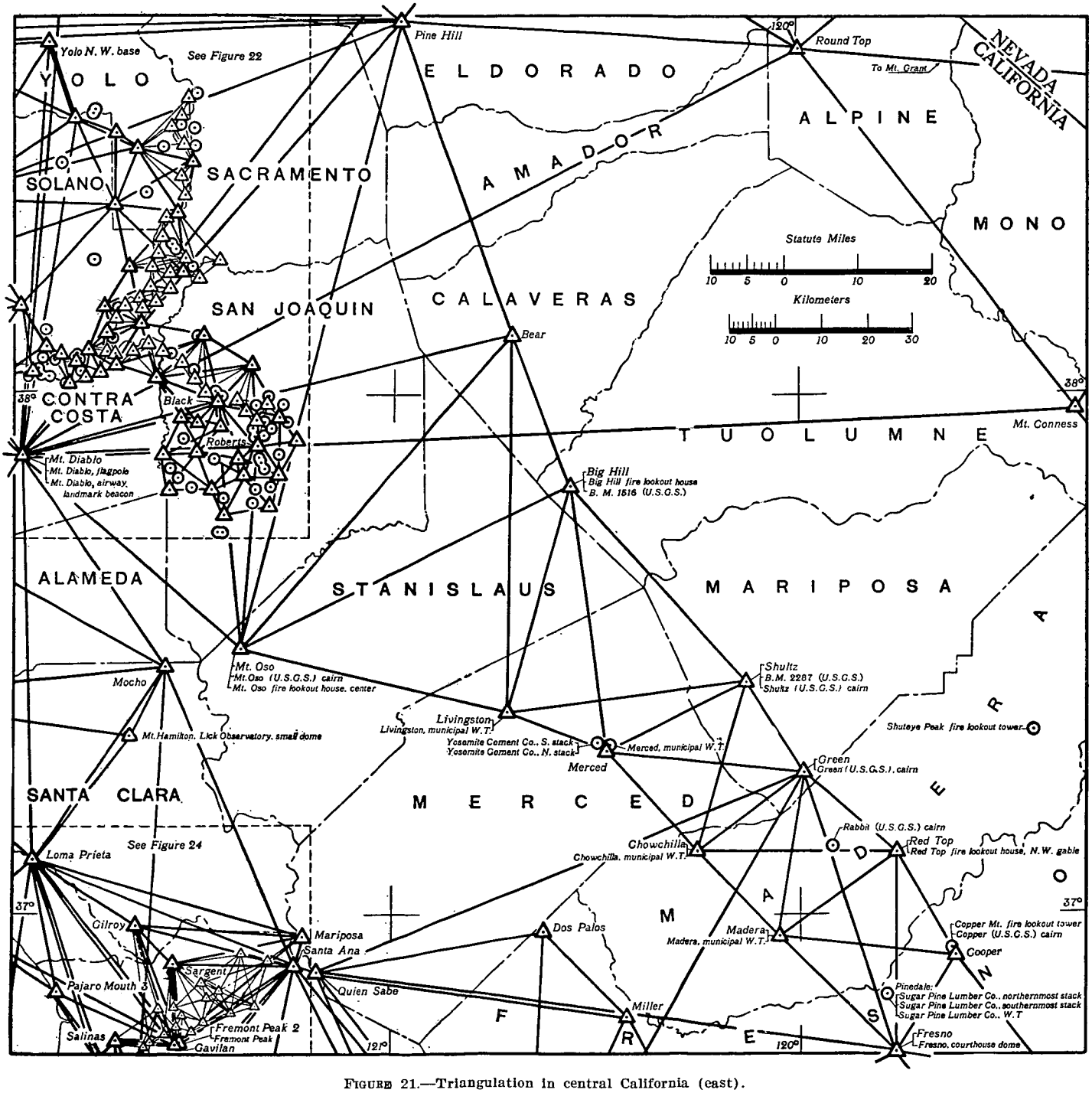

FIGURE 21.—Triangulation in central California (east).

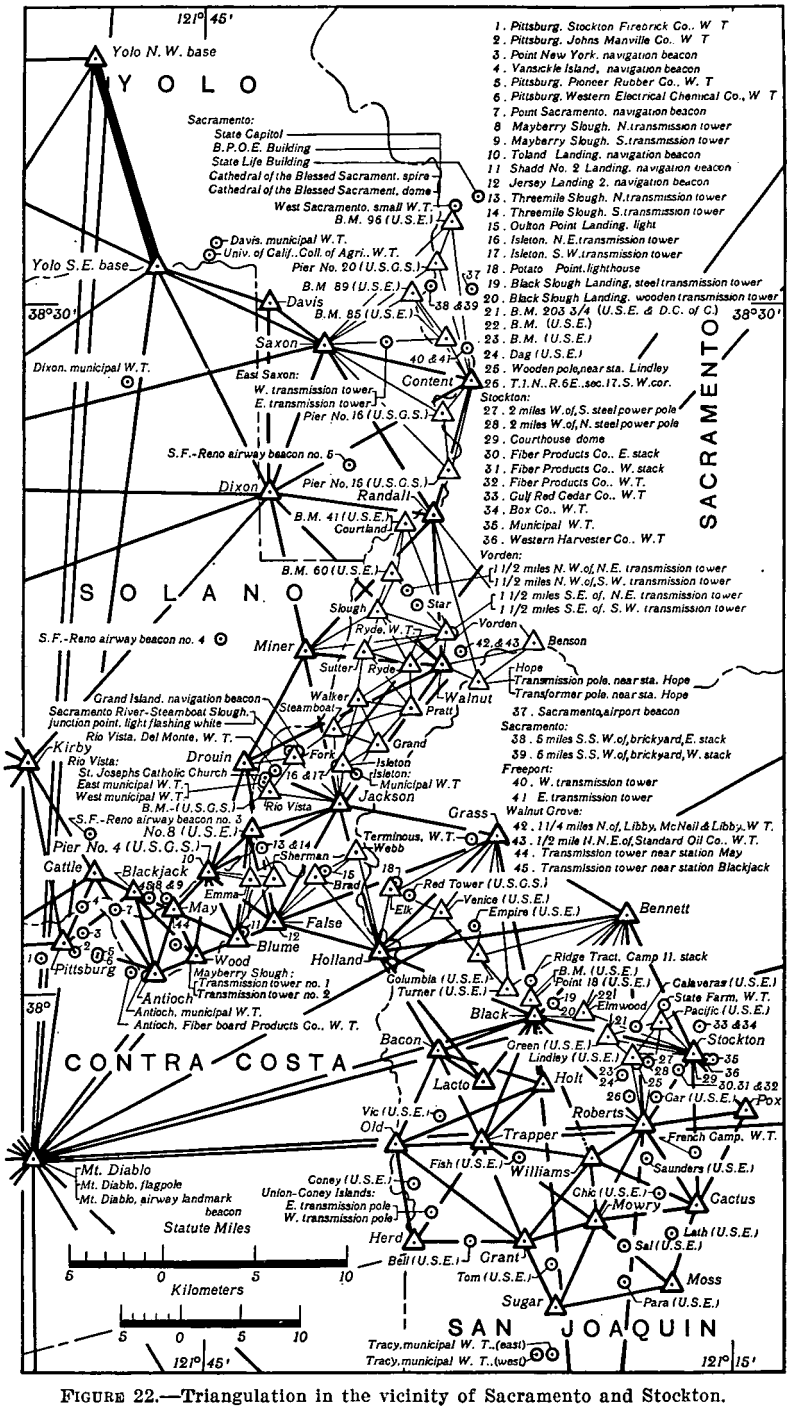

FIGURE 22.—Triangulation in the vicinity of Sacramento and Stockton.

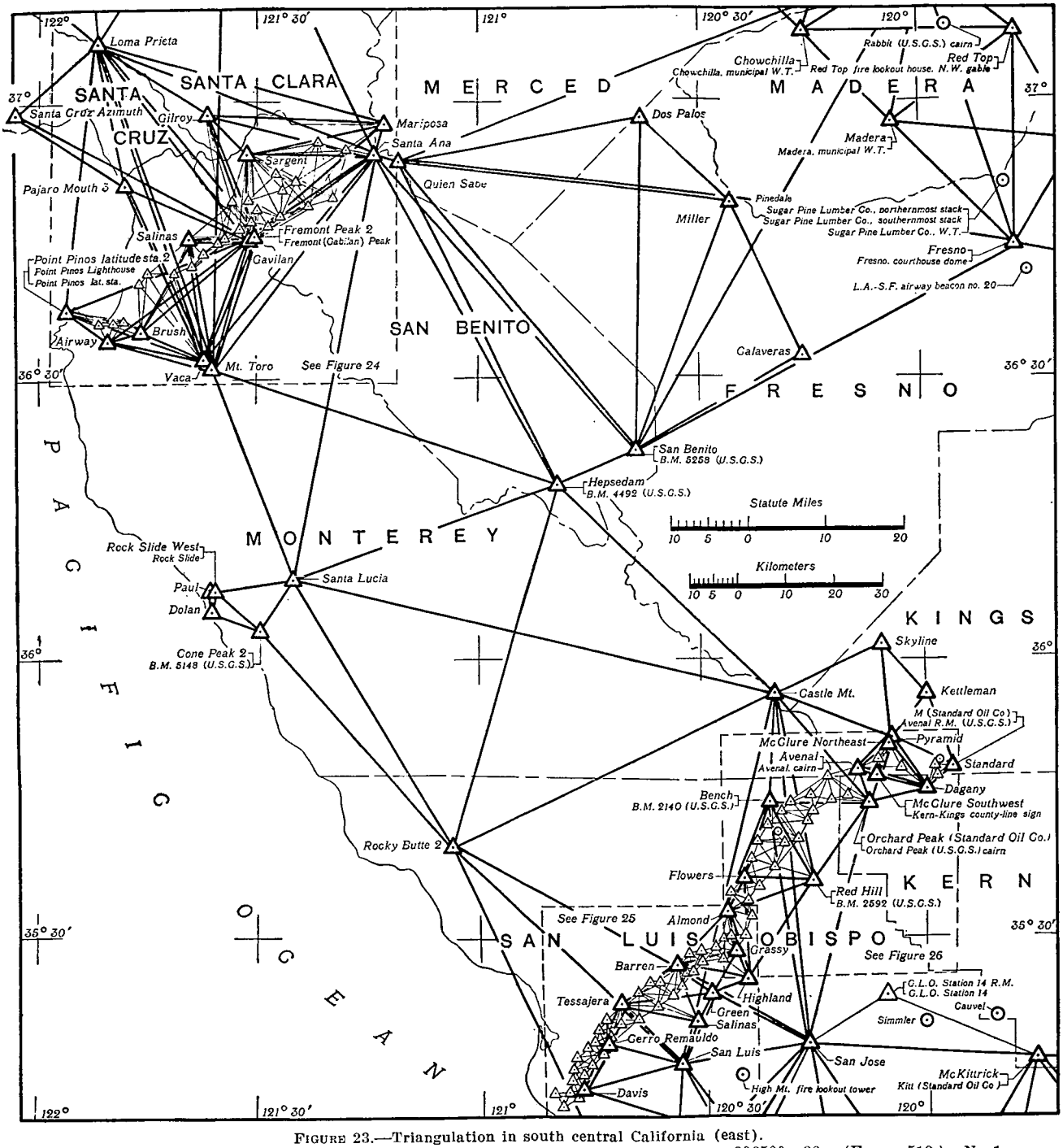

FIGURE 23.—Triangulation in south central California (east).

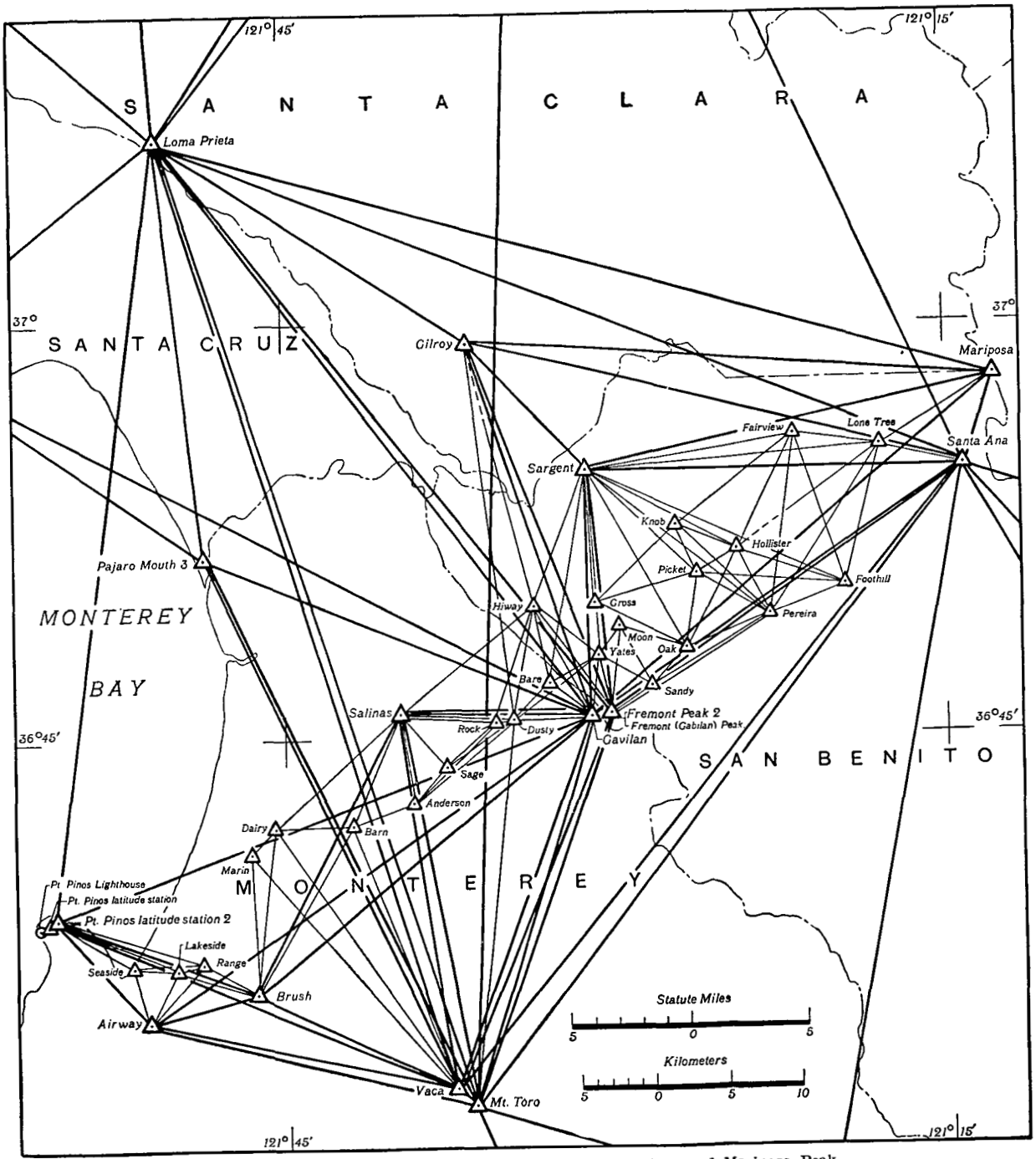

FIGURE 24.—Triangulation in the vicinity of Monterey Bay and Mariposa Peak.

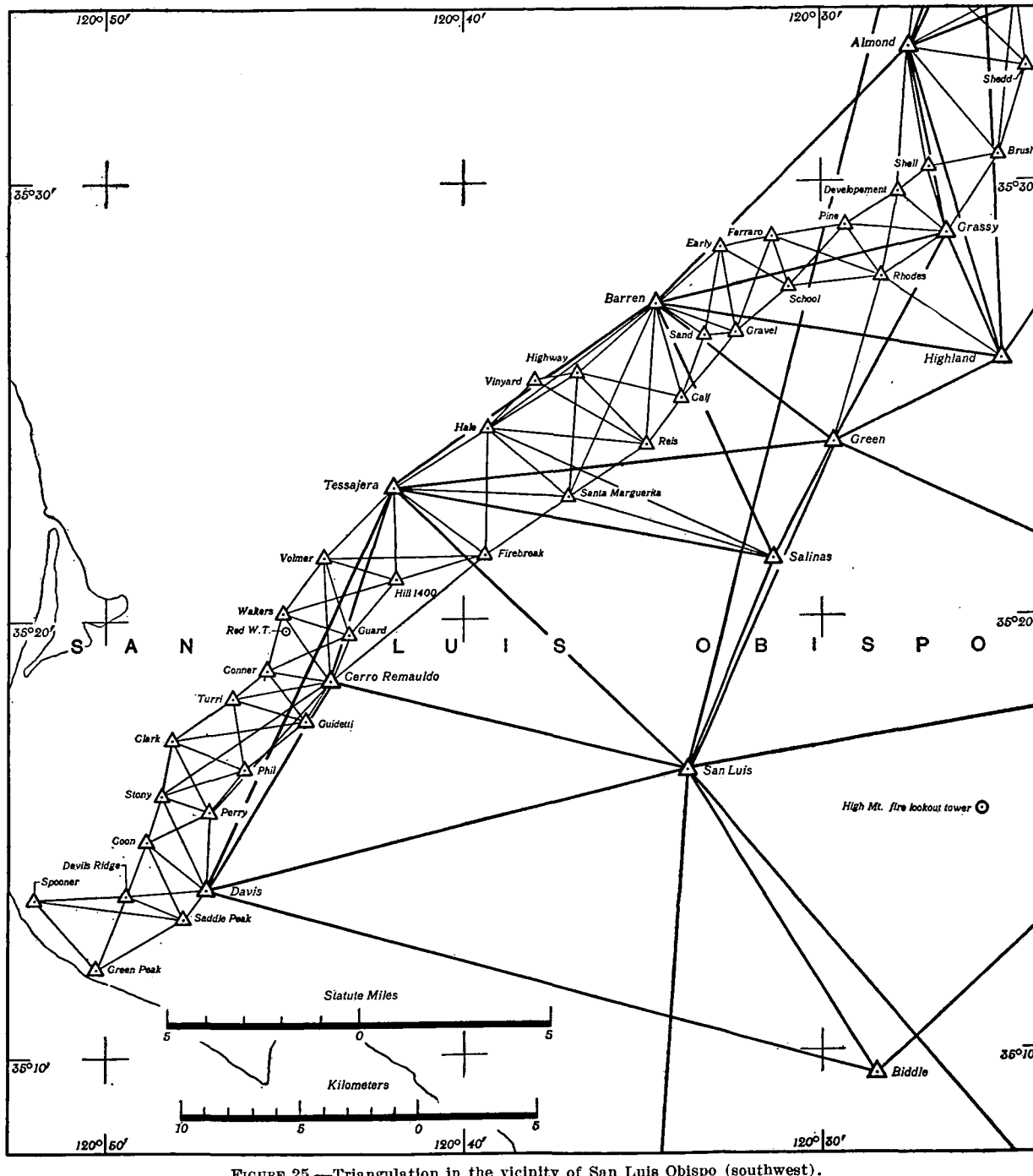

FIGURE 25.—Triangulation in the vicinity of San Luis Obispo (southwest).

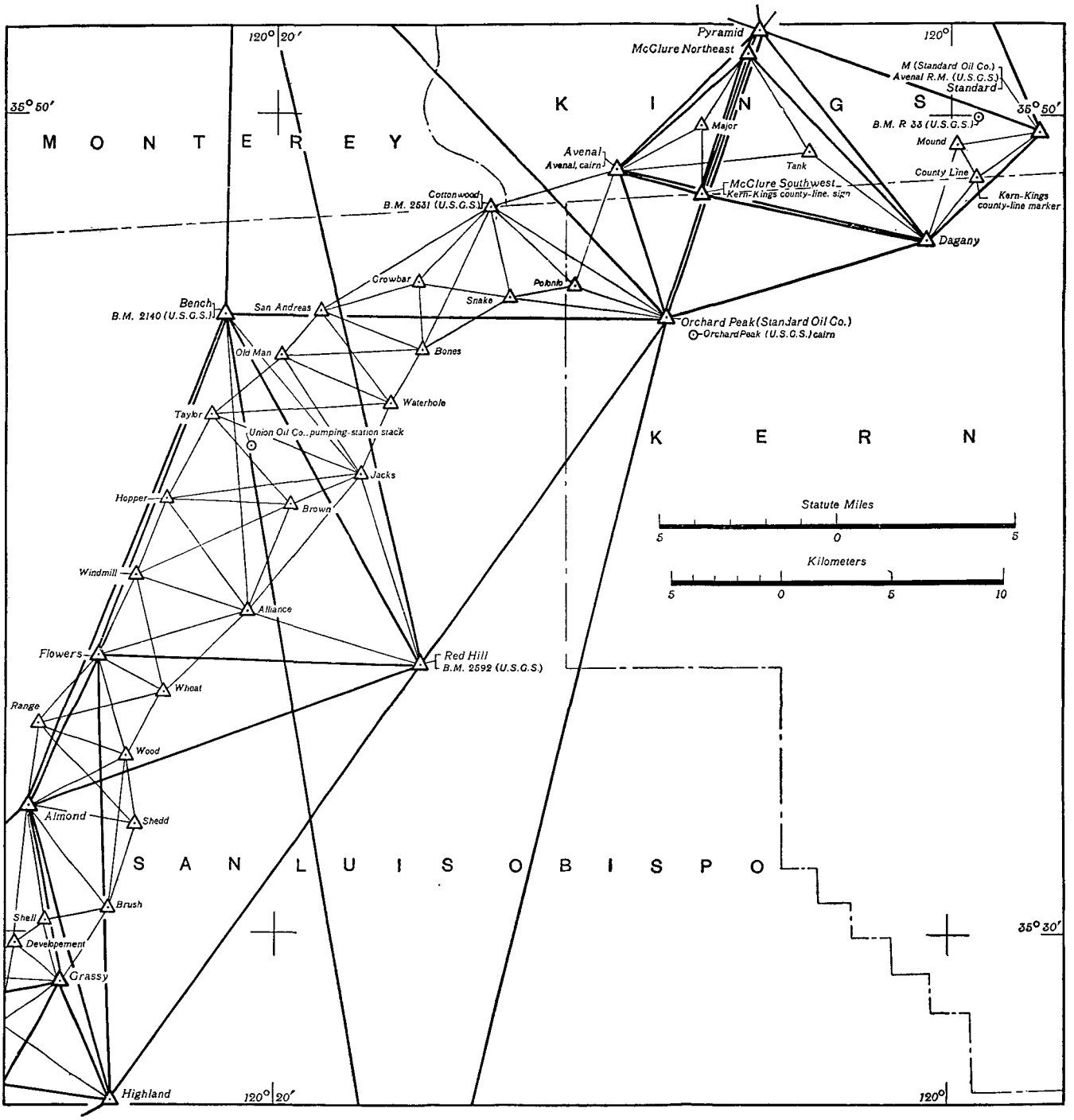

FIGURE 26.—Triangulation in the vicinity of San Luis Obispo (northeast).

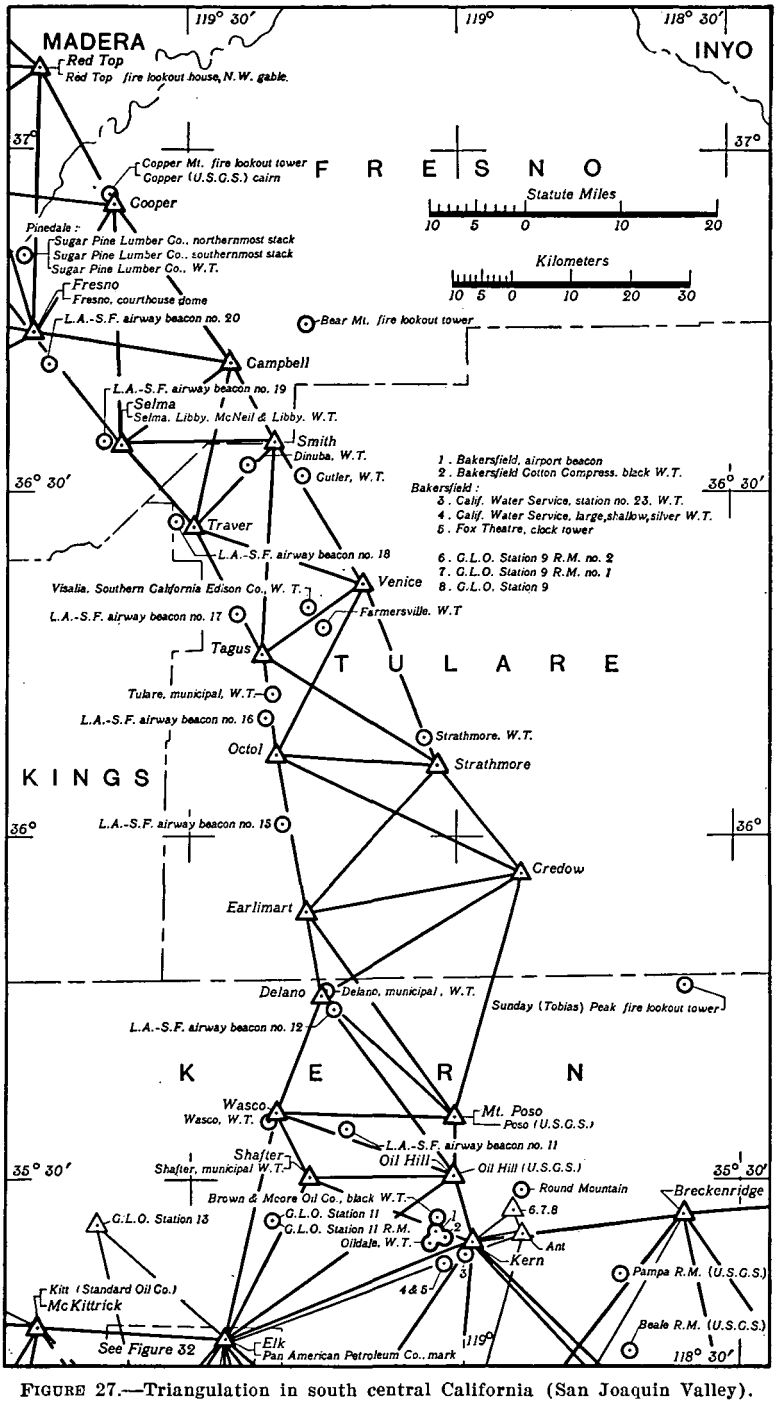

FIGURE 27.—Triangulation in south central California (San Joaquin Valley).

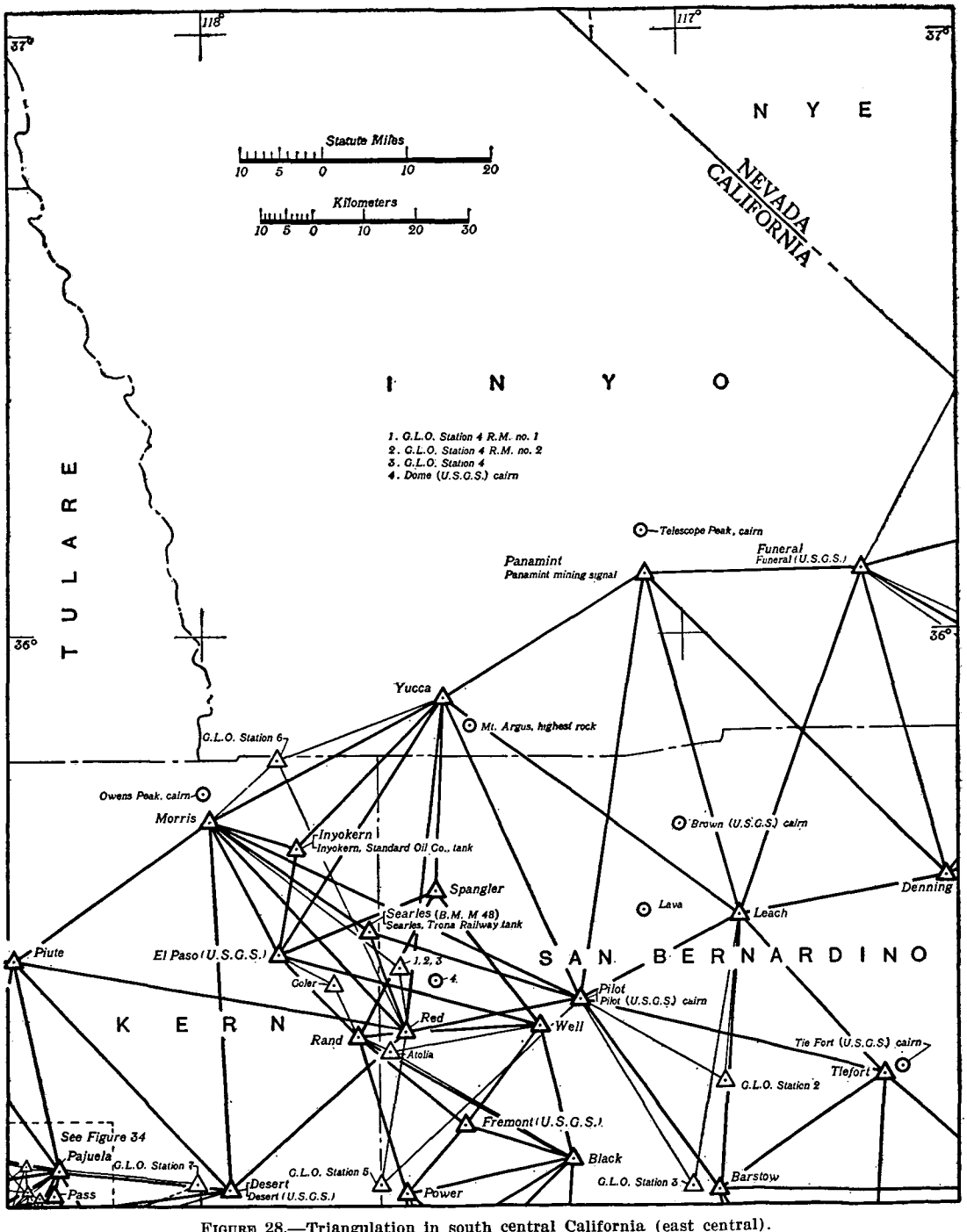

FIGURE 28.—Triangulation in south central California (east central).

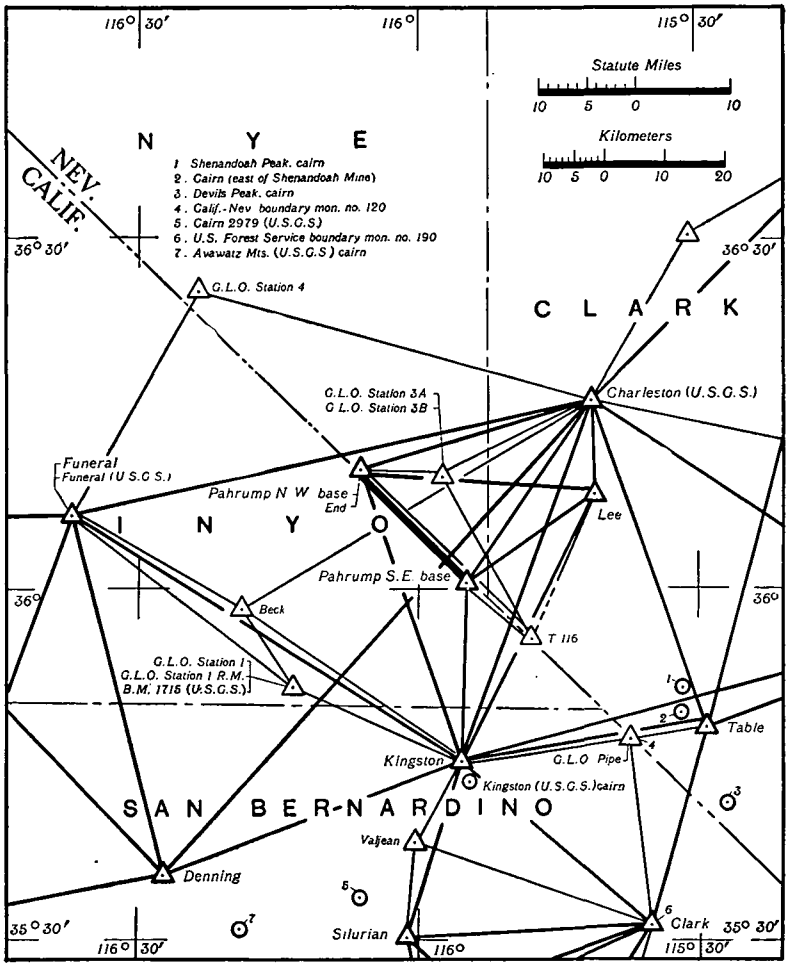

FIGURE 29.—Triangulation in south central California (east).

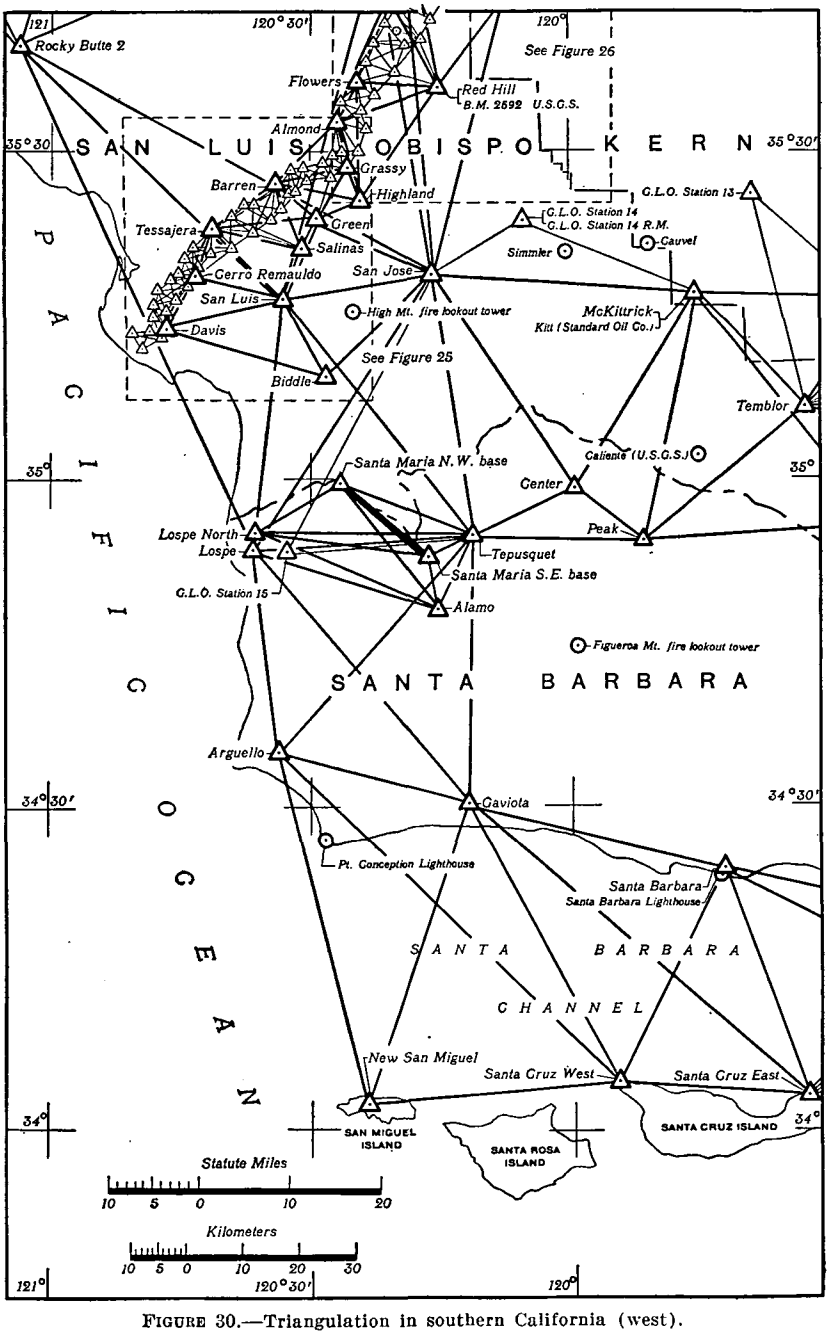

FIGURE 30.—Triangulation in southern California (west).

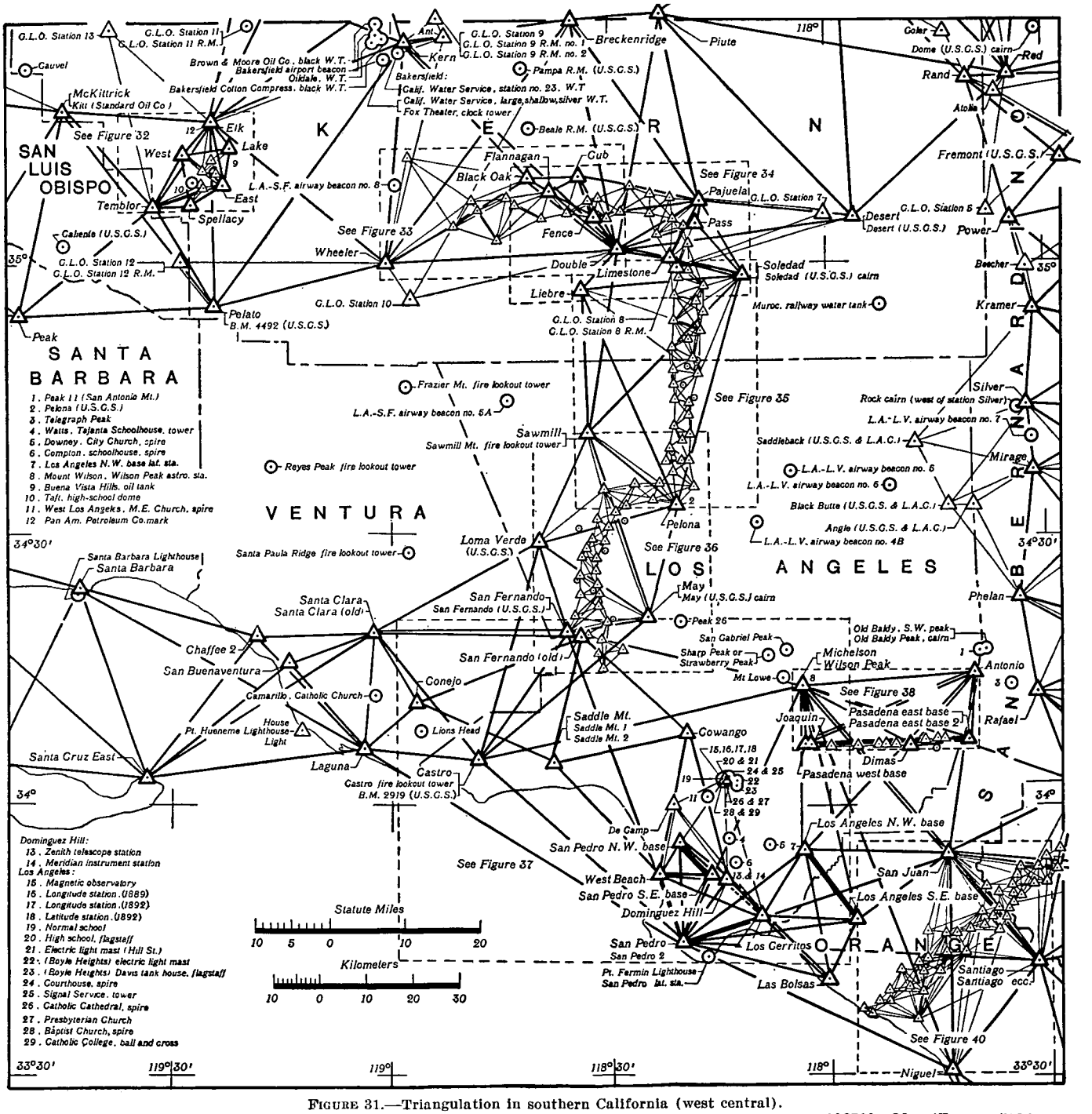

FIGURE 31.—Triangulation in southern California (west central).

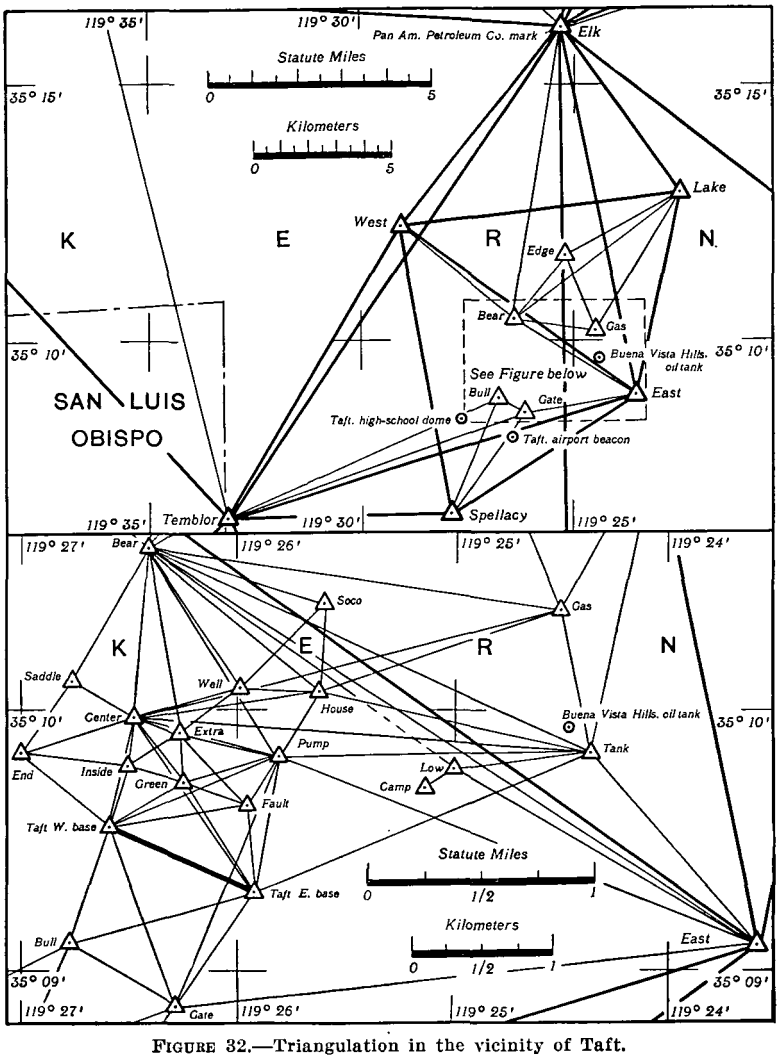

FIGURE 32.—Triangulation in the vicinity of Taft.

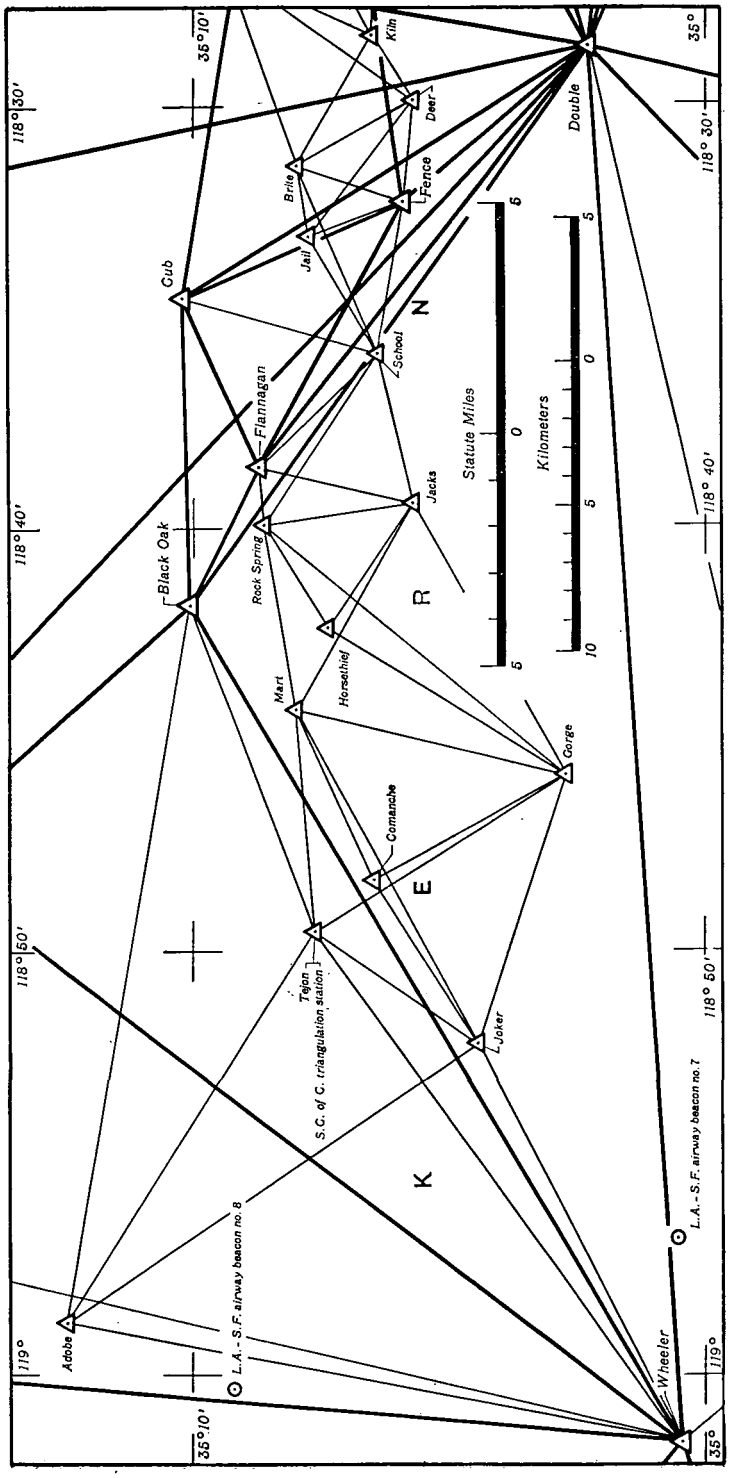

FIGURE 33.—Triangulation from San Fernando to Bakersfield (northwest).

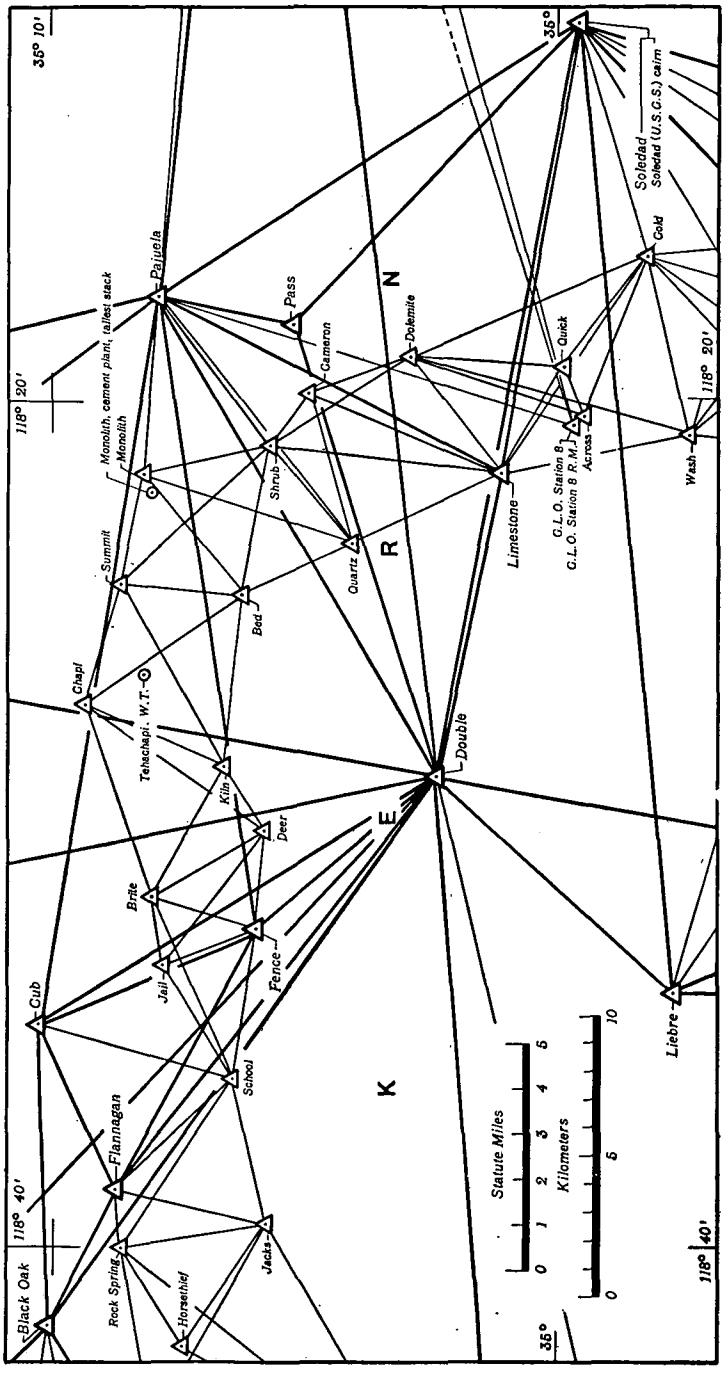

FIGURE 34.—Triangulation from San Fernando to Bakersfield (north).

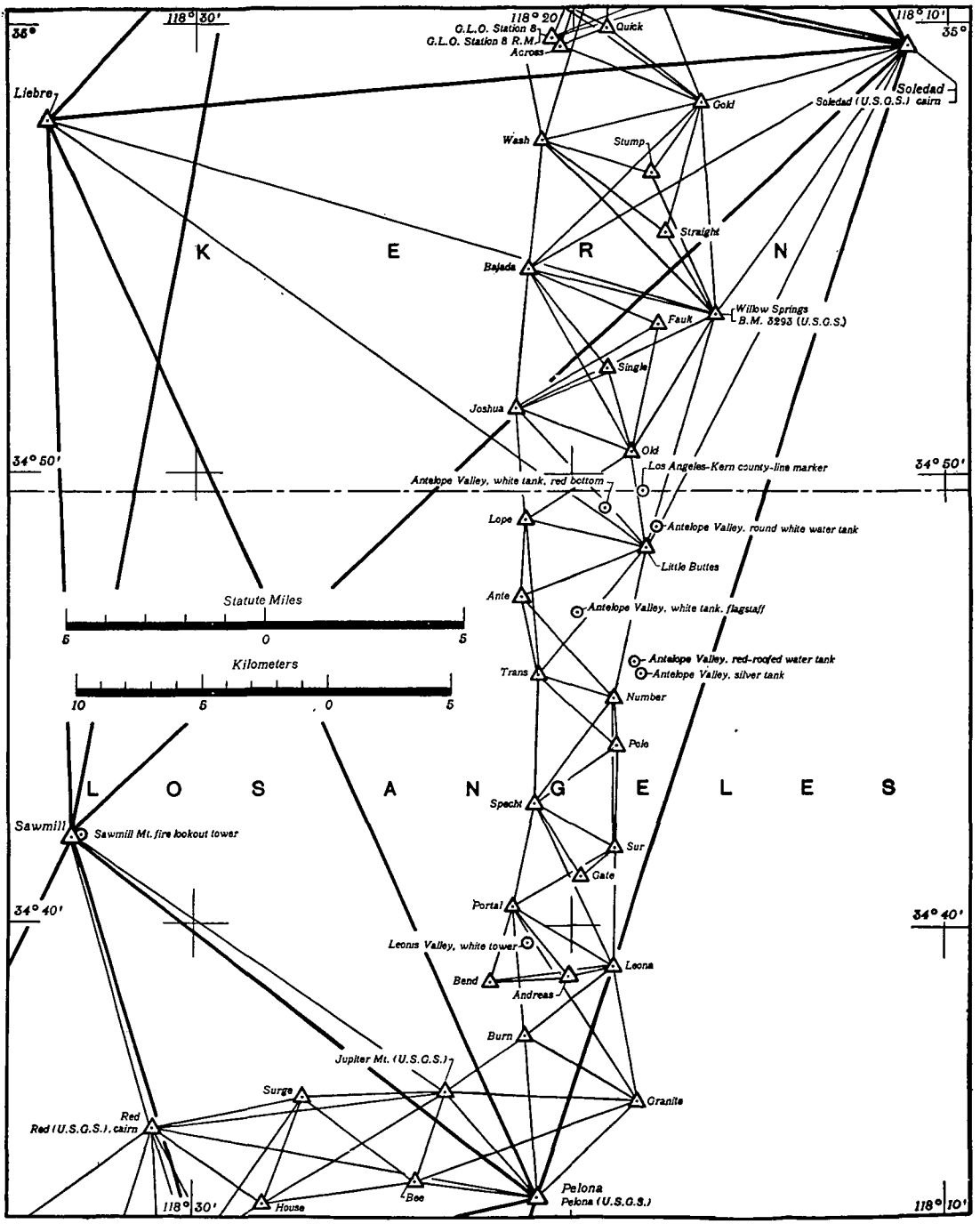

FIGURE 35.—Triangulation from San Fernando to Bakersfield (central).

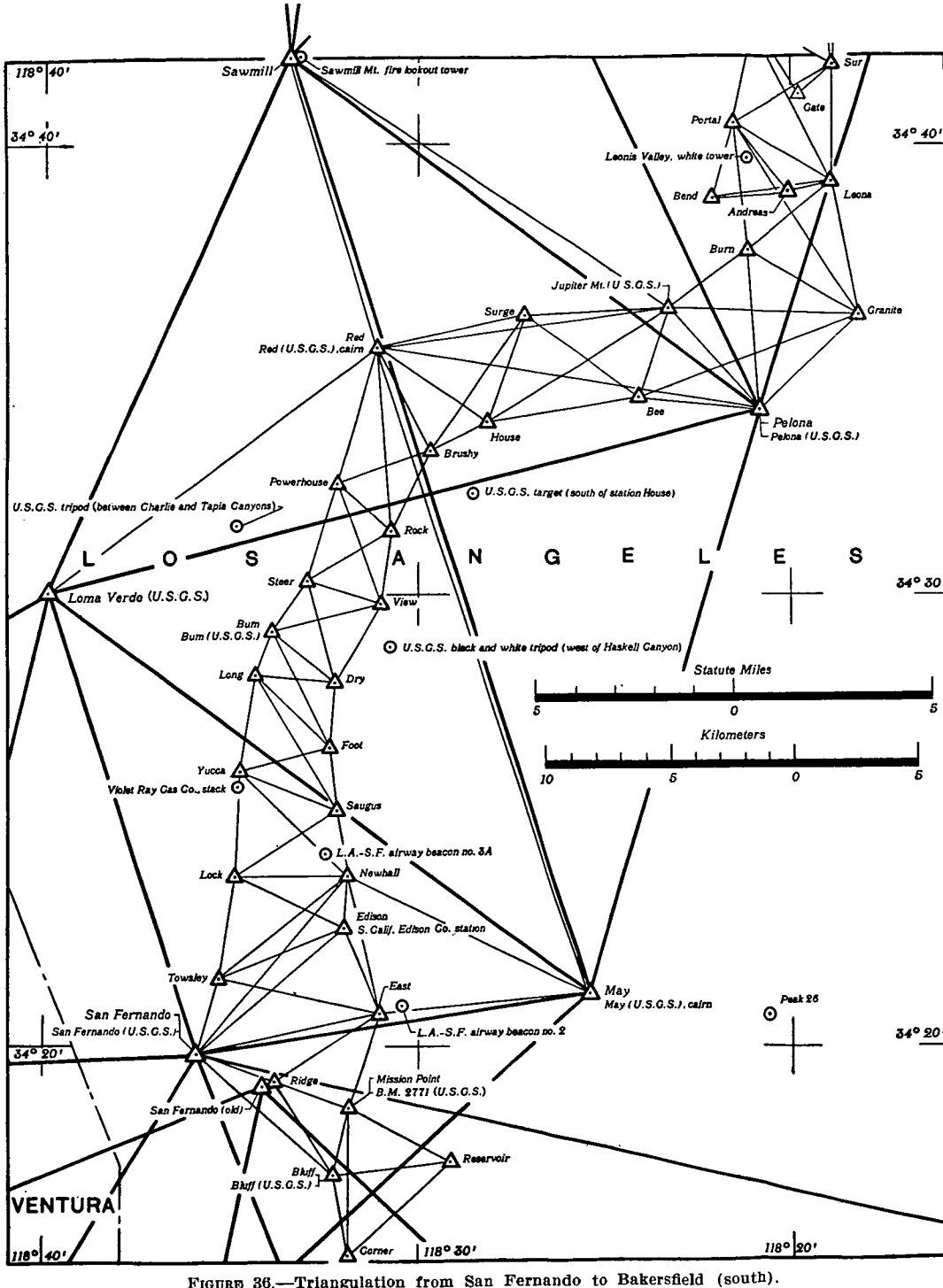

FIGURE 36.—Triangulation from San Fernando to Bakersfield (south).

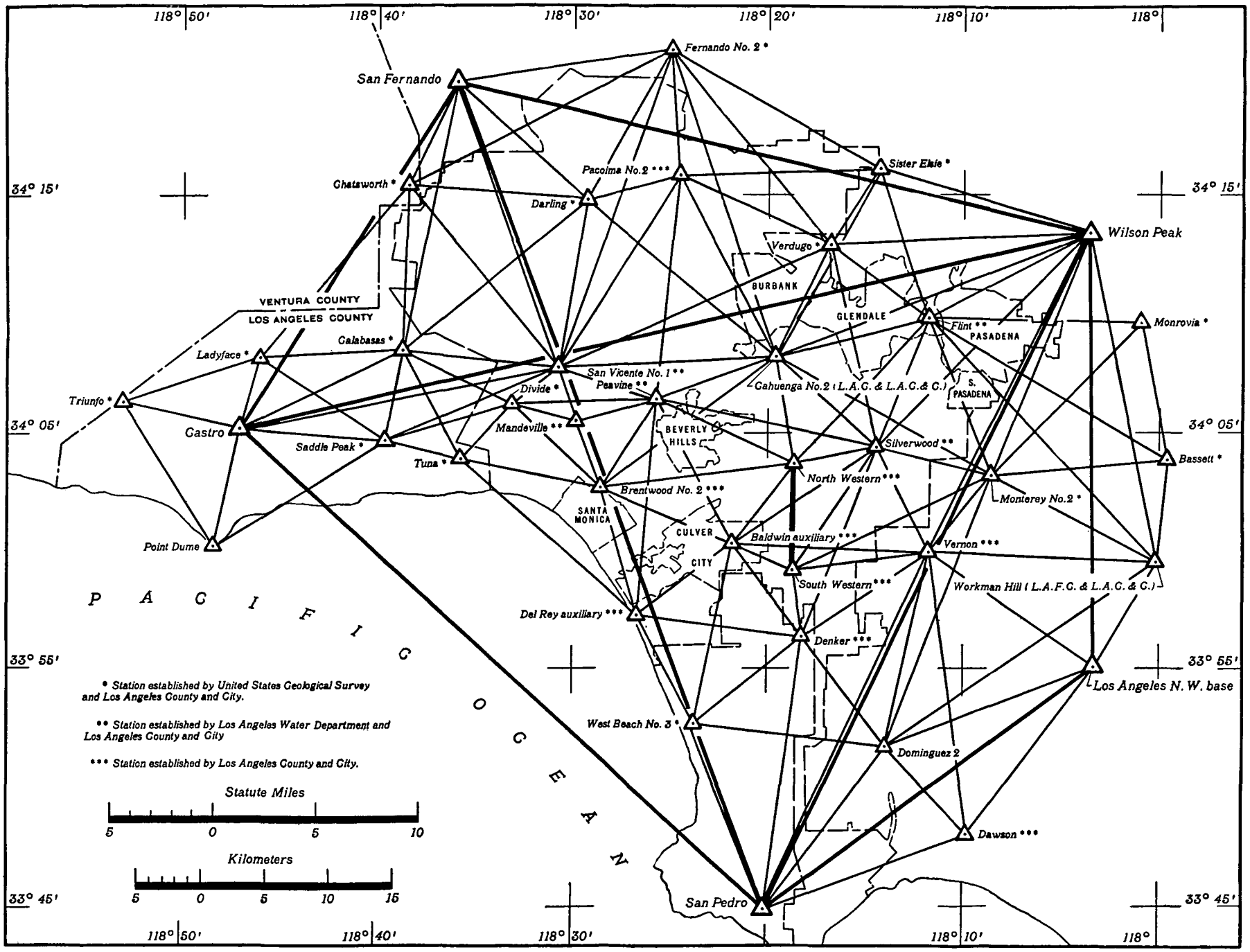

FIGURE 37.—Los Angeles County and City Cooperative Survey Control triangulation in Los Angeles County.

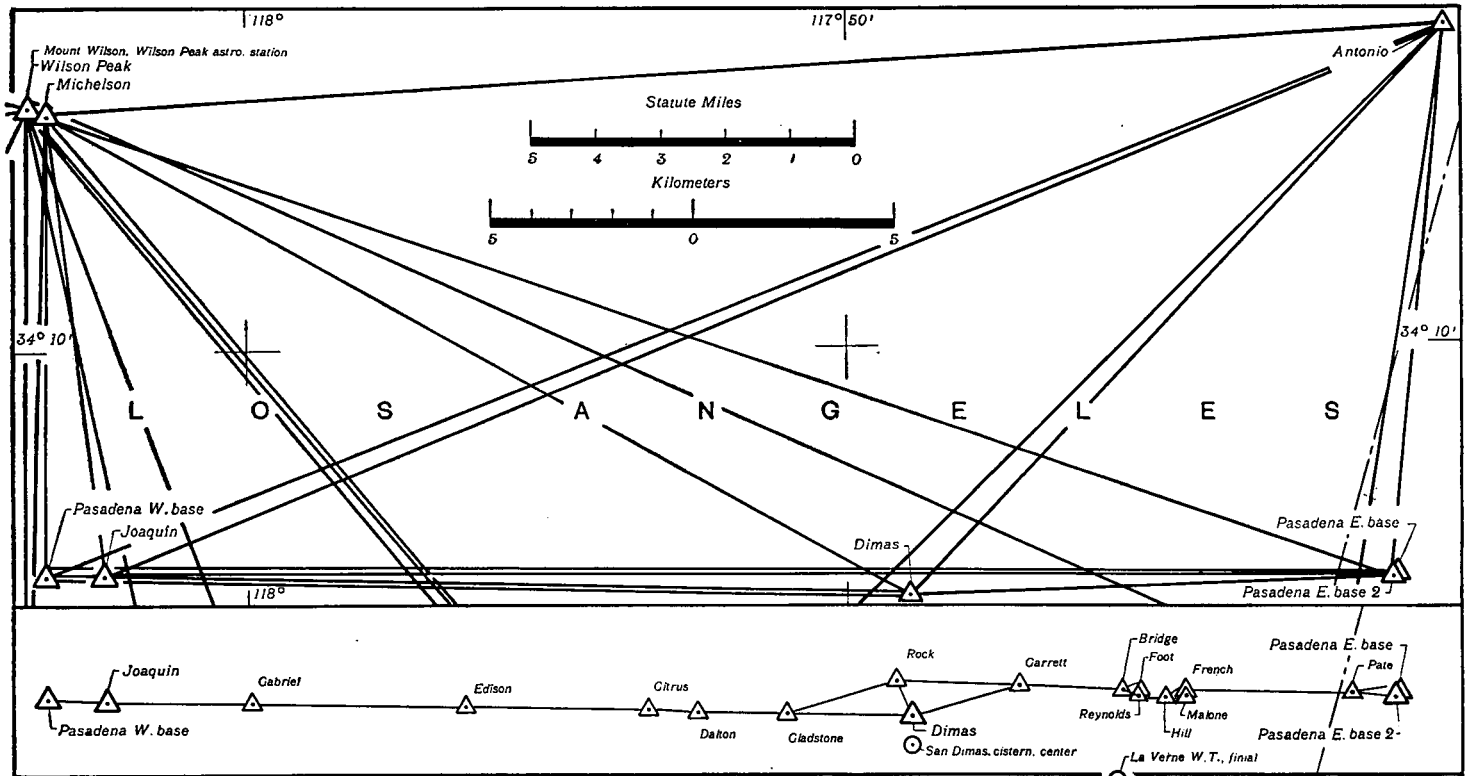

FIGURE 38.—Triangulation along the Pasadena base.

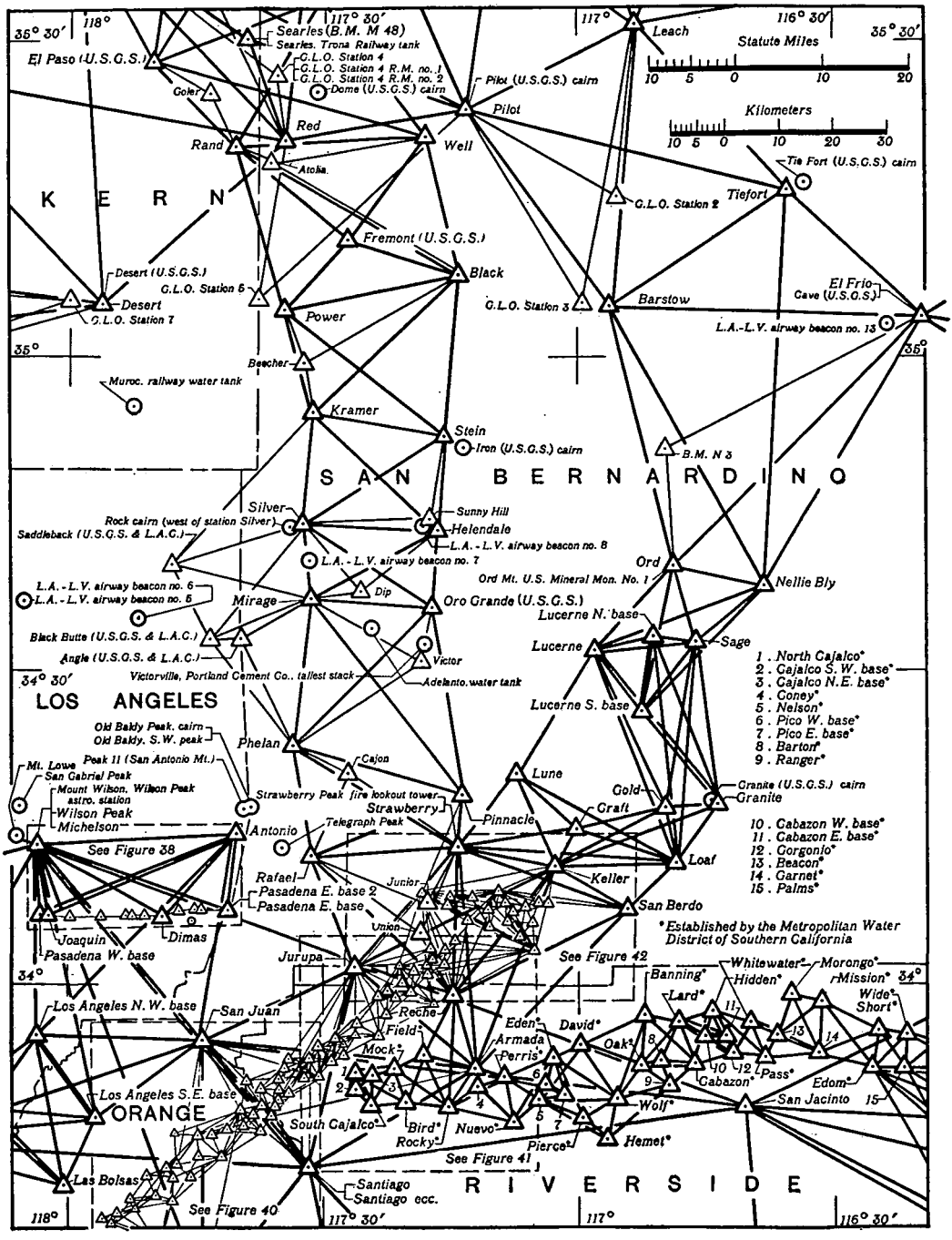

FIGURE 39.—Triangulation in southern California (east central).

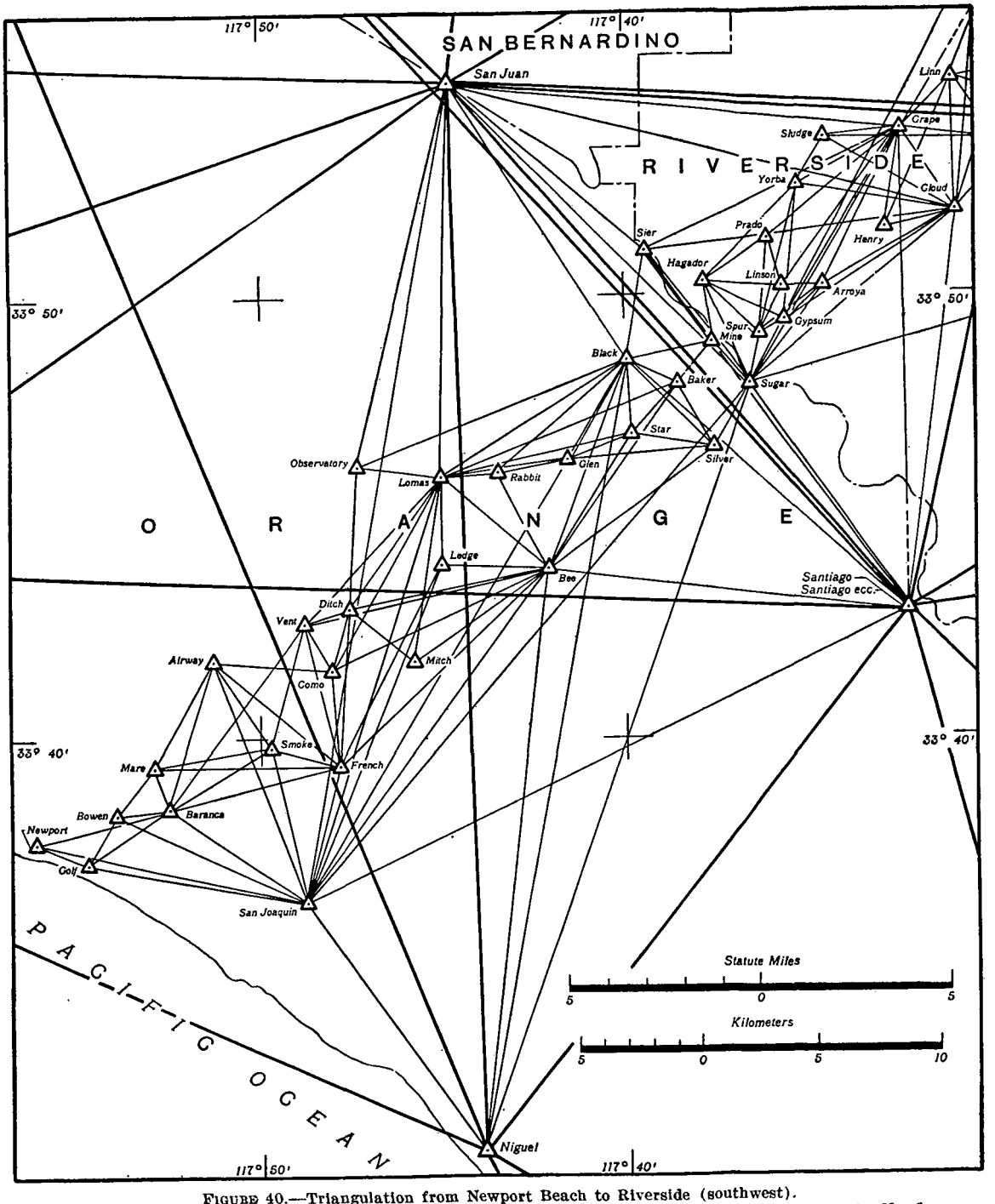

FIGURE 40.—Triangulation from Newport Beach to Riverside (southwest).

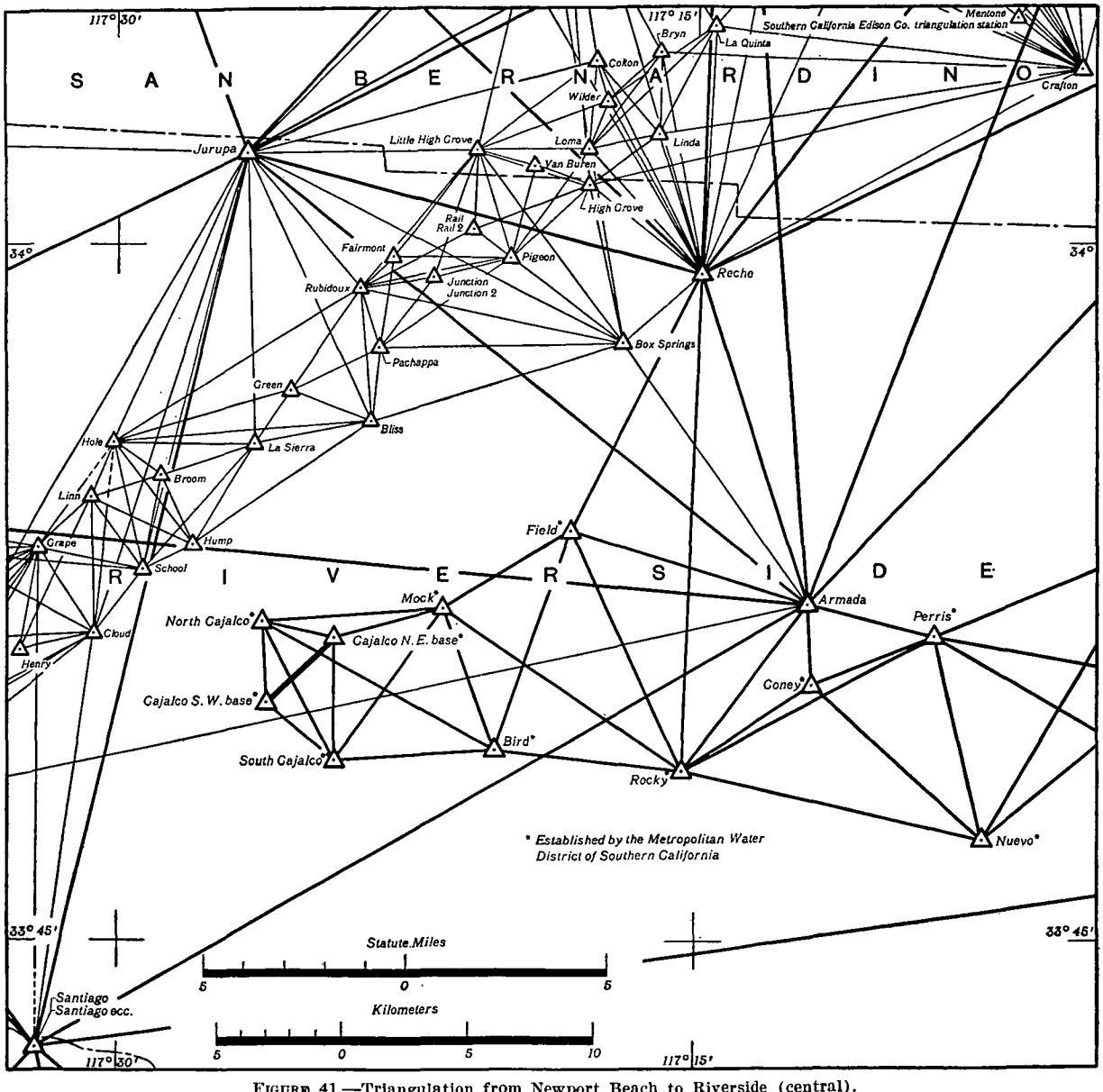

FIGURE 41.—Triangulation from Newport Beach to Riverside (central).

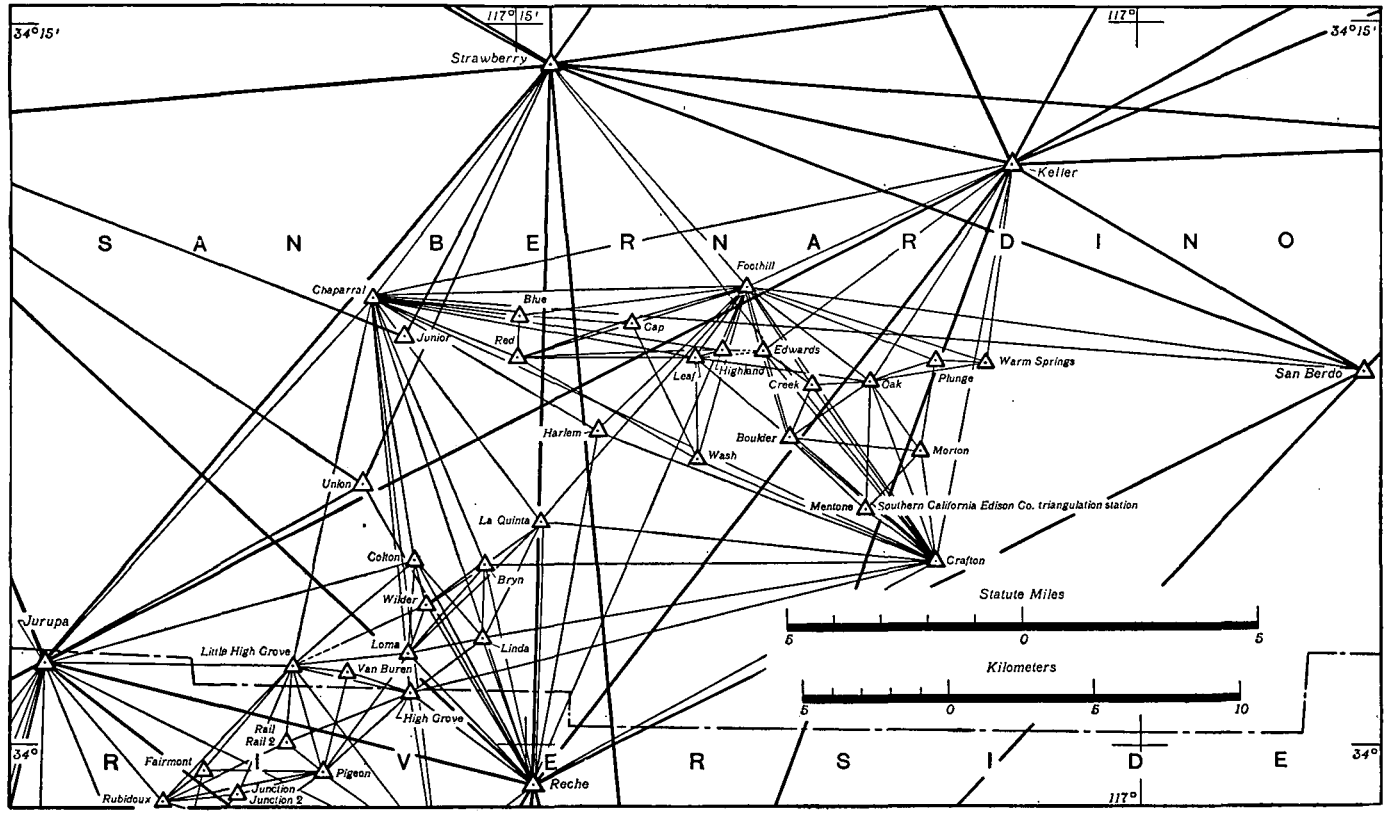

FIGURE 42.—Triangulation from Newport Beach to Riverside (northeast).

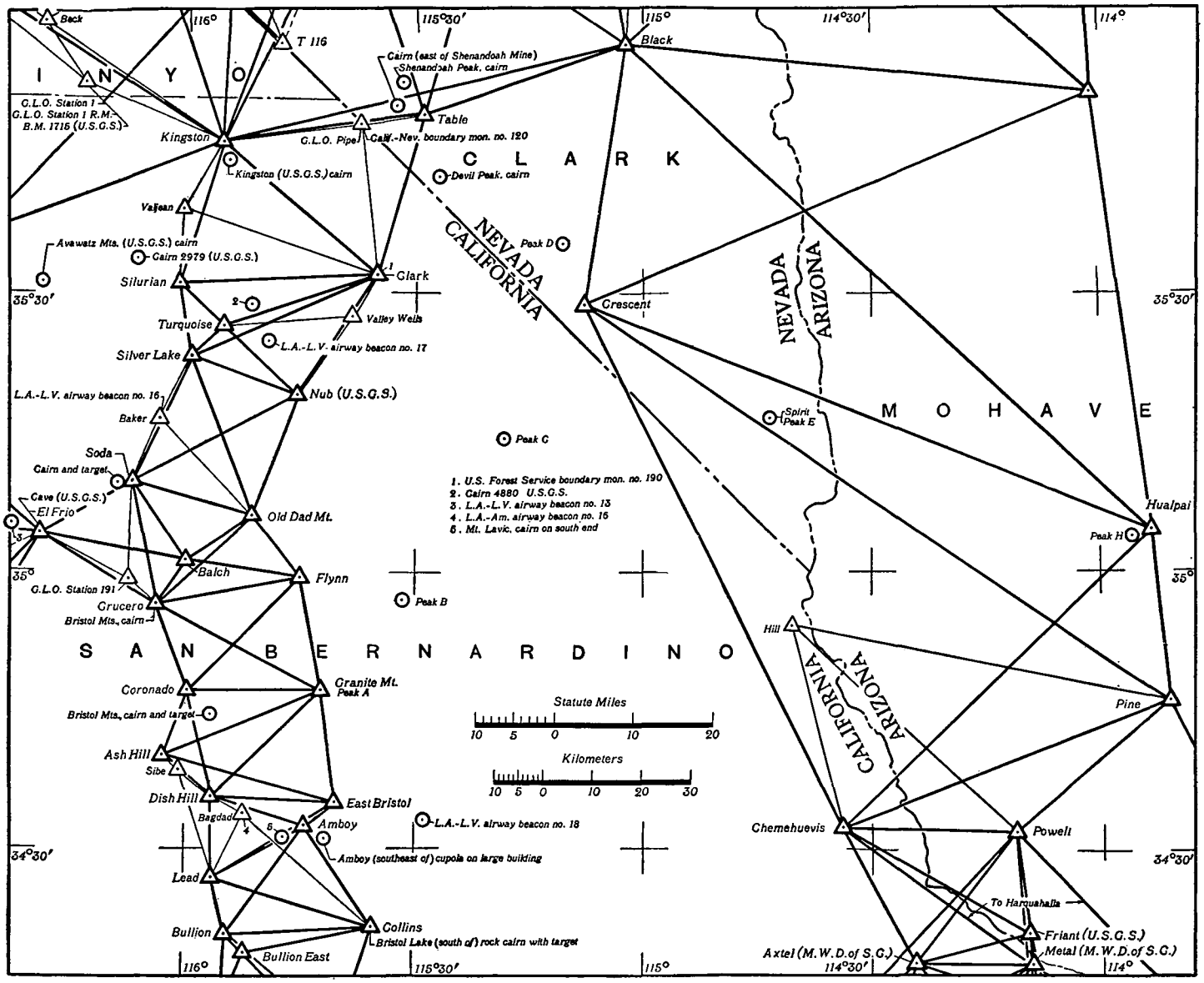

FIGURE 43.—Triangulation in southern California (east).

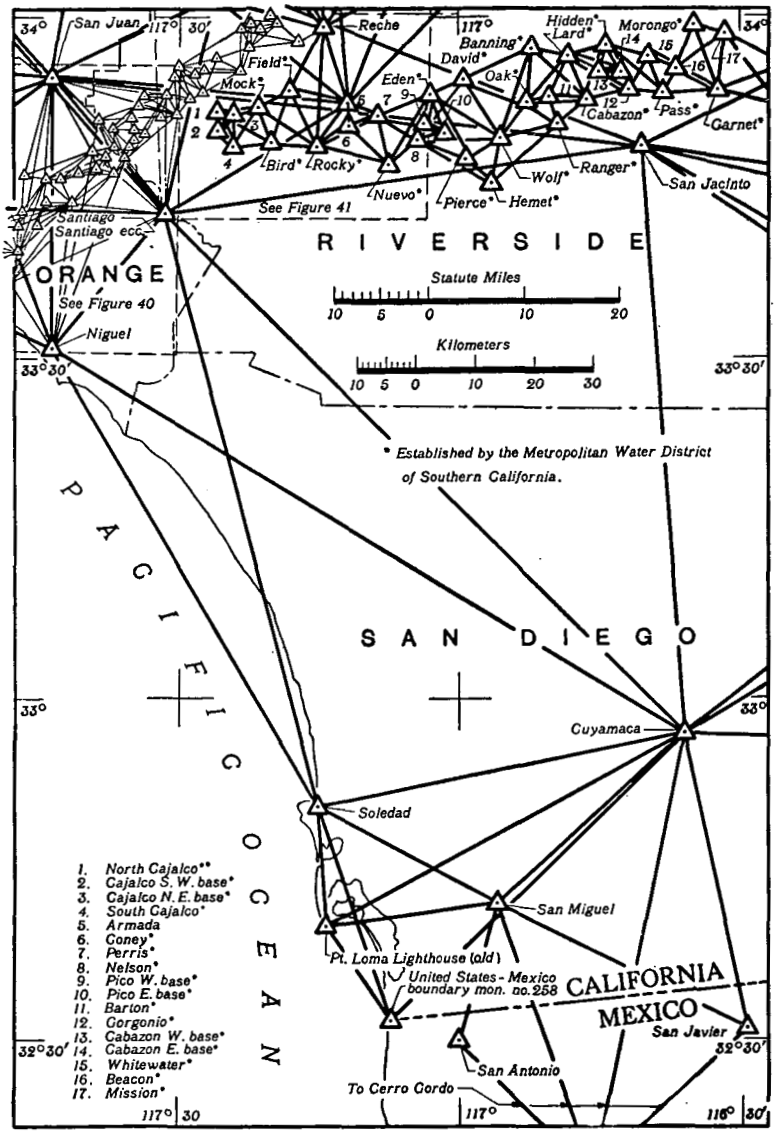

FIGURE 44.—Triangulation in southwestern California.

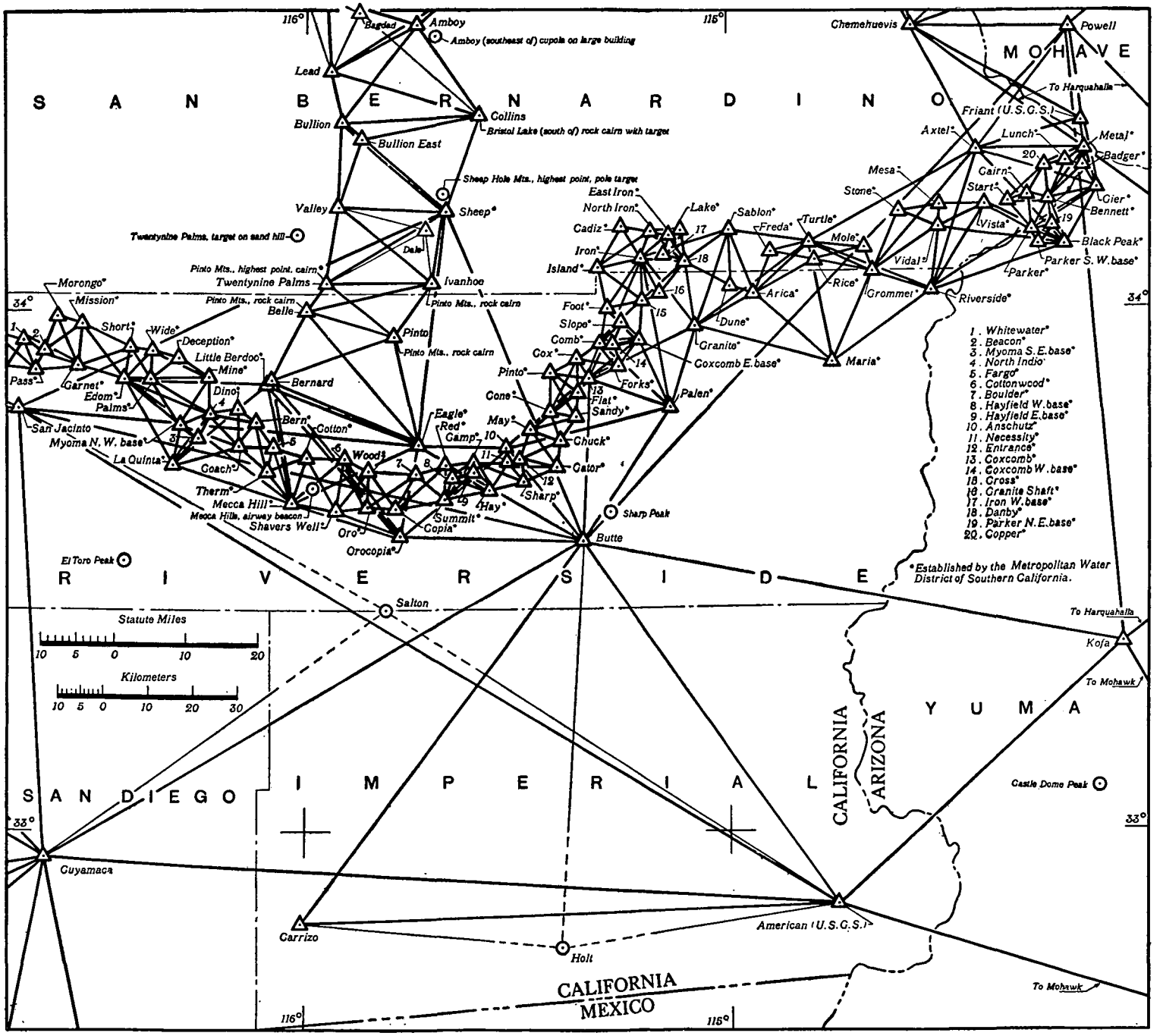

FIGURE 45.—Triangulation in southeastern California.

INDEX TO GEOGRAPHIC POSITIONS, PLANE COORDINATES, ELEVATIONS, DESCRIPTIONS, AND SKETCHES

Station	Geographic position	Plane coordinates	Elevation	Description	Sketch
	Page	*Page*	*Page*	*Page*	*Figure*
Across	87	232		412	34, 35
Adelanto, water tank	96	236			39
Adobe (Kern County)	87	232		413	33
Adobe (Sonoma County)	159	181		497	19
Airport beacon, Bakersfield, (flashing green)	114	239			27, 31
Airport beacon, Taft	93	234			32
Airway (Monterey County)	103	204		433	23, 24
Airway (Orange County)	53	243	285	351	40
Airway beacon (*See name of airway route as follows*):					
Los Angeles-Amarillo.					
Los Angeles-Las Vegas.					
Los Angeles-San Francisco.					
San Francisco-Medford.					
San Francisco-Reno.					
Alamo	25	209		305	30
Alcatraz Lighthouse	135	192		477	20
Alliance	76	227		392	26
Almond	71	225		382	23, 25, 26, 30
Alviso Channel, flashing light	146	197			18
Amboy	98	236		426	43, 45
Amboy (southeast of), cupola on large building	100	237			43, 45
American (U. S. G. S.)	29	240	283	315	45
Anderson	106	205		437	24
Andreas	85	231		409	35, 36
Angel Island Peak 2	131	191		469	20
Angle (U. S. G. S. and L. A. C.)	95	235		423	31, 39
Anschultz (M. W. D. of S. C.)	60	222, 245		362	45
Ant	35	213		327	27, 31
Ante	84	231		408	35
Antelope Valley:					
Red-roofed water tank	89	233			35
Round white water tank	89	233			35
Silver tank	89	233			35
White tank, flagstaff	89	233			35
White tank with red bottom	89	233			35
Antioch	129	176, 190		465	22
Antioch:					
Fiberboard Products Co., water tank	137	177, 193			22
Municipal water tank	137	177, 193			22
Antonio (Los Angeles County)	27	210, 240	283	312	31, 38, 39
Antonio (Marin County)	158	181, 199		496	19
Arguello	25	209	283	306	30
Arica (M. W. D. of S. C.)	61	223, 245		365	45
Armada	48	219, 242	285	343	39, 41, 44
Army Point 2	133	176, 192		473	20
Arrowhead	157	180, 198		494	16, 18, 19
Arroya	55	243	285	354	40
Ash Hill	98	237		427	43
Aspen (Oreg.)	150	167	288	486	11
Atolia	95	235		422	28, 31, 39
Avawatz Mountains (U. S. G. S.), cairn	102	204, 238			29, 43
Avenal	73	202, 226		385	23, 26
Avenal, cairn	79	203, 228		397	23, 26
Avenal reference mark (U. S. G. S.)	79	203, 228		397	23, 26
Avon, Associated Oil Co., stack	139	178, 194			20
Axtel (M. W. D. of S. C.)	62	223, 245		365	43, 45
B (B. W. F. D. Co.)	132	191		471	20
Babbit, fire lookout tower	155	169, 180			15
Bacon	118	186		453	22
Badger (M. W. D. of S. C.)	71	225, 249		381	45
Bagdad	100	238		430	43, 45
Bajada	85	231		408	35
Baker (Marin County)	135	192		477	20
Baker (Orange County)	54	243	285	353	40
Baker (San Bernardino County)	101	238		431	43
Bakersfield:					
Airport beacon (flashing green)	114	239			27, 31
Bakersfield Cotton Compress, black water tank	114	239			27, 31
California water service, on A Street, large shallow, silver-colored water tank	114	239			27, 31
California water service, station no. 23, water tank	114	239			27, 31
Fox Theater, clock tower	114	239			27, 31

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Station	Geographic position	Plane coordinates	Elevation	Description	Sketch
	Page	*Page*	*Page*	*Page*	*Figure*
Balch	99	237		428	43
Bald Mountain (U. S. G. S.)	151	167	288	488	12
Baldwin auxiliary (L. A. C. & C.)	46	218		340	37
Bally	148	165	287	484	11, 14
Banning (M. W. D. of S. C.)	64	223, 246		369	39, 44
Baranca	53	243	285	351	40
Bare	105	205		436	24
Barn	106	205		437	24
Barren	72	225		383	23, 25, 30
Barry	135	193		478	20
Barstow	50	219	285	346	28, 39
Barton (M. W. D. of S. C.)	65	223, 247		370	39, 44
Bassett (U. S. G. S. & L. A. C. & C.)	48	219, 241		342	37
Bay	137	193		481	20
Bay Park	136	193		479	20
Bay Point (U. S. E.)	130	176, 190		466	20
Beacon (M. W. D. of S. C.)	66	224, 247		373	39, 44, 45
Beale reference mark (U. S. G. S.)	35	213		328	27, 31
Bear (Calaveras County)	107	172, 183		439	21
Bear (Kern County)	91	234		416	32
Bear Mountain, fire lookout tower	112	208			27
Bear Ridge	155	169	288	492	13
Beck	37	201, 214		330	29, 43
Bed	86	231		410	34
Bee (Los Angeles County)	83	230		405	35, 36
Bee (Orange County)	51	242	285	347	40
Beecher	95	235		422	31, 39
Bell (U. S. E.)	128	190		464	22
Belle	97	236, 250		424	45
Belmont, water main, vent	146	197			18
Bench	71	202, 225		382	23, 26
Bend	85	231		409	35, 36
Benicia, dock, navigation beacon	139	178, 194			20
Bennett	116	185		450	22
Bennett (M. W. D. of S. C.)	62	223, 245		366	45
Benson	119	173, 186		455	22
Bern (M. W. D. of S. C.)	67	248		374	45
Bernard	97	236, 250		424	45
Biddle	72	226		384	25, 30
Big Hill	107	183		439	21
Big Hill, fire lookout house, center	111	184			21
Bird (M. W. D. of S. C.)	63	246		367	39, 41, 44
Black (Marin County)	157	181, 198		495	18, 19
Black (Nev.)	33	201, 212	284	325	43
Black (Orange County)	51	220, 242	285	347	40
Black (San Bernardino County)	93	235		419	28, 39
Black (San Joaquin County)	116	185		449	21, 22
Black Butte (U. S. G. S. & L. A. C.)	95	235		423	31, 39
Black Fox	151	167	288	488	11
Black Oak	80	229		400	31, 33, 34
Black Peak (M. W. D. of S. C.) (Ariz.)	62	223, 245		366	45
Black Slough Landing:					
Steel transmission tower	126	188			22
Wooden transmission tower	126	188			22
Black (Wintoon) Butte, cairn	149	166	287	485	11
Blackjack	129	176, 190		465	22
Blackjack, transmission tower near station	137	177, 193			22
Bliss	56	221, 244	286	355	41
Blue (Modoc County)	152	167		488	12
Blue (San Bernardino County)	59	222	286	361	42
Blue Mountain, fire lookout tower, spike on top	153	168			12
Bluff (Los Angeles County)	81	229		401	36
Bluff (Marin County)	135	193		479	20
Bluff (U. S. G. S.)	88	232		414	36
Bluff Point 2	134	192		476	20
Blume	116	172, 185		450	22
B. M. (U. S. E.) (near station Elmwood)	125	188		462	22
B. M. (U. S. E.) (near station Lindley (U. S. E.))	125	188		462	22
B. M. (U. S. E.) (near station Point 18 (U. S. E.))	125	188		462	22
B. M. (U. S. G. S.)	125	175, 188		462	22
B. M. 41 (U. S. E.)	125	175		462	22
B. M. 60 (U. S. E.)	120	173		458	22
B. M. 85 (U. S. E.)	118	173		455	22
B. M. 89 (U. S. E.)	118	173		454	22
B. M. 96 (U. S. E.)	118	173		454	22
B. M. 203¾ (U. S. E. and Debris Commission of California)	125	188		462	22

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Station	Geographic position	Plane coordinates	Elevation	Description	Sketch
	Page	*Page*	*Page*	*Page*	*Figure*
B. M. 1516 (U. S. G. S.)	111	184		445	21
B. M. 1715 (U. S. G. S.)	37	202, 214		331	29, 43
B. M. 2140 (U. S. G. S.)	78	203, 228		397	23, 26
B. M. 2287 (U. S. G. S.)	111	184		445	21
B. M. 2531 (U. S. G. S.)	78	203, 228		396	26
B. M. 2592 (U. S. G. S.)	79	228		397	23, 26, 30
B. M. 2771 (U. S. G. S.)	88	232		414	36
B. M. 2919 (U. S. G. S.)	88	232		414	31
B. M. 3293 (U. S. G. S.)	90	233		415	35
B. M. 4268 (Monument 15 (U. S. N.))	147	198		483	18
B. M. 4492 (U. S. G. S.) (Kern County)	34	213		327	31
B. M. 4492 (U. S. G. S.) (San Benito County)	115	208		446	23
B. M. 5148 (U. S. G. S.)	107	206			23
B. M. 5258 (U. S. G. S.)	114	208		446	23
B. M. G 111—Sunnyvale	133	192		473	18
B. M. H 111	147	198		483	18
B. M. M 16—Lakeview (Oreg.)	150	166	288	486	12
B. M. M 48 (Searles)	32	211	284	322	28, 39
B. M. N 3	60	222	285	362	39
B. M. R 33 (U. S. G. S.)	79	203, 228		397	26
Boliver	148	165	287	483	11
Boliver, fire lookout house	151	167	288		11
Bonanza	151	167		488	11
Bonanza, fire lookout house	151	167	288		11
Bones	77	203, 228		395	26
Boulder	59	221	286	359	42
Boulder (M. W. D. of S. C.)	67	248		375	45
Boundary monument no. 120, California-Nevada	102	204, 238		432	29, 43
Boundary monument no. 190, U. S. Forest Service	102	204, 238			29, 43
Boundary monument no. 258, United States-Mexico	28	240		314	44
Bowen	53	243	285	351	40
Box Springs	52	220, 242	285	349	41
Boyle Heights, Los Angeles:					
Davis tank house, flagstaff	43	217			31
Electric-light mast	43	217			31
Brad	121	173, 187		459	22
Breckenridge	32	211	284	321	27, 31
Brentwood No. 2 (L. A. C. & C.)	45	218		339	37
Brickyard, 5 miles south-southwest of Sacramento:					
East stack	122	174			22
West stack	122	174			22
Bridge (Los Angeles County)	39	215		333	38
Bridge (San Mateo County)	133	191		472	18
Bristol Lake (south of), rock cairn with target	100	237, 250			43, 45
Bristol Mountains, cairn	101	238			43
Bristol Mountains, cairn and target	101	238			43
Brite	86	231		411	33, 34
Brooks Island 2	136	193		480	20
Broom	57	221, 244	286	357	41
Brown	77	227		394	26
Brown & Moore Oil Co., black water tank	114	239			27, 31
Brown (U. S. G. S.), cairn	37	201, 214		330	28
Brush (Monterey County)	103	204		433	23, 24
Brush (San Luis Obispo County)	77	227		393	25, 26
Brushy	83	230		405	36
Brushy (Strawberry) Mountain, fire lookout tower (Oreg.)	153	168		491	12
Bryn	58	221, 244	286	358	41, 42
Buena Vista Hills, oil tank	34	212			31, 32
Bull	91	234		417	32
Bullion	97	236, 250		425	43, 45
Bullion East	97	236, 250		426	43, 45
Bulls Head Point, Mococo Fertilizer Co., stack	139	178, 194			20
Bully Choop	155	169		492	11, 13, 14
Bully Choop (U. S. G. S.), cairn	156	170		494	11, 13, 14
Bum	82	230		404	36
Bum (U. S. G. S.)	89	232		414	36
Burn	83	230		406	35, 36
Burney (U. S. G. S.)	151	167	288	488	11, 12, 14
Bush Hill	134	177, 192	287	476	20
Butte	29	240	283	315	45
Cabazon (M. W. D. of S. C.)	65	223, 247		370	39, 44
Cabazon east base (M. W. D. of S. C.)	65	224, 247		371	39, 44
Cabazon west base (M. W. D. of S. C.)	65	224, 247		371	39, 44
Cabesa	161	200		500	19
Cactus	117	186		451	22

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Cadiz (M. W. D. of S. C.)	69	224, 249		379	45
Cahto	156	169, 180	288	493	13, 16
Cahuenga No. 2 (L. A. C. & L. A. C. & C.)	46	218		340	37
Cairn (*see name of station or geographic name of location*)					
Cairn (east of Shenandoah Mine) (Nev.)	102	204, 238			29, 43
Cairn (M. W. D. of S. C.)	71	225, 249		381	45
Cairn 2979 (U. S. G. S.)	102	204, 238			29, 43
Cairn 4880 (U. S. G. S.)	101	204, 238			43
Cairn and target	101	238			43
Cajalco northeast base (M. W. D. of S. C.)	63	246		368	39, 41, 44
Cajalco southwest base (M. W. D. of S. C.)	63	246		368	39, 41, 44
Cajon	96	236, 250		423	39
Calabasas (U. S. G. S. & L. A. C. & C.)	45	218		337	37
Calaveras	110	207		445	23
Calaveras (U. S. E.)	126	188		462	22
Calf	75	227		391	25
Caliente (U. S. G. S.)	34	212		326	30, 31
California-Nevada boundary monument no. 120	102	204, 238		432	29, 43
California Point 2	134	192		476	20
Camarillo, Catholic church, spire	28	210			31
Cameron	87	232		412	34
Camp	93	234		418	32
Camp (M. W. D. of S. C.)	68	248		376	45
Campbell	108	206		441	27
Canada	158	199		496	19
Candlestick Point	145	197		482	20
Cap	59	222	286	361	42
Carquinez Bridge, airway landmark beacon	142	179, 195			20
Carquinez Strait:					
Lighthouse	140	178, 195			20
Range target no. 1 (1929)	141	179, 195			20
Range target no. 2 (1929)	142	179, 195			20
Carrizo	30	241		318	45
Castle Dome Peak (Ariz.)	30	241	283		45
Castle Mount	24	200, 209	283	304	23
Castro	26	209	283	309	31, 37
Castro, fire lookout tower	29	210			31
Cathedral, Los Angeles, Catholic, spire	42	217			31
Catholic College, Los Angeles, ball and cross	43	217			31
Cattle	129	176, 190		465	22
Cauvel	34	212		325	23, 30, 31
Cave (U. S. G. S.)	99	237		428	39, 43
Cedar Peak, cairn	153	168			12
Center (Kern County)	91	234		416	32
Center (Santa Barbara County)	31	211	284	319	30
Cerro Gordo (Mexico)	27	240			44
Cerro Remauldo	72	225		384	23, 25, 30
Chaffee 2	26	209		308	31
Chaparral (Humboldt County)	155	169		492	13
Chaparral (San Bernardino County)	52	220, 242	285	349	42
Chaparral (Sonoma County)	21	171, 182	282	297	16, 18
Chapi	86	231		411	34
Charleston (U. S. G. S.) (Nev.)	33	201, 212	284	324	29
Chatsworth (U. S. G. S. & L. A. C. & C.)	45	218		338	37
Chemehuevis	29	210	283	317	43, 45
Chemise Mountain	156	169, 180	288	493	13
Chic (U. S. E.)	128	189		463	22
Chileno	159	181, 199		496	19
China Mountain	149	166	287		11
Chowchilla	108	183		440	21, 23
Chowchilla, municipal water tank	111	185			21, 23
Chuck (M. W. D. of S. C.)	68	248		377	45
Church (*see geographic name of location*).					
Cistern, San Dimas, center	39	215			38
Citrus	39	215		332	38
Clark (Mendocino County)	23	171	282	300	16
Clark (San Bernardino County)	99	204, 237		430	29, 43
Clark (San Luis Obispo County)	74	226		388	25
Cleland	23	171		300	16
Cloud	51	220, 242	285	348	40, 41
Coach (M. W. D. of S. C.)	67	248		374	45
Cold Springs	22	171	282	298	16
Collins	97	236, 250		425	43, 45
Colton	57	221, 244	286	358	41, 42
Columbia (U. S. E.)	121	187		460	22
Comanche	88	232		414	33
Comb (M. W. D. of S. C.)	61	222, 245		363	45

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Como	53	243	285	350	40
Compton, schoolhouse, spire	43	217			31
Cone (M. W. D. of S. C.)	69	248		377	45
Cone Peak 2	107	206		438	23
Conejo	40	216		334	31
Coney (M. W. D. of S. C.)	63	246		368	39, 41, 44
Coney (U. S. E.)	129	190		464	22
Conner	74	226		387	25
Content	115	172		447	17, 22
Coon	74	226		388	25
Cooper	108	184, 206		441	21, 27
Copia (M. W. D. of S. C.)	67	248		375	45
Copper (M. W. D. of S. C.)	71	225, 249		381	45
Copper (U. S. G. S.), cairn	112	185, 207		446	21, 27
Copper Mountain, fire lookout tower	112	185, 207			21, 27
Corner	81	229		401	36
Corning astronomical station	149	166, 179		485	14
Corning Tower	149	166, 179		485	14
Coronado	98	237		427	43
Cotton (M. W. D. of S. C.)	67	248		374	45
Cottonwood	77	202, 228		394	26
Cottonwood (M. W. D. of S. C.)	67	248		375	45
Couger (Oreg.)	150	166	288	486	12
County Line	78	203, 228		396	26
Courthouse (*see geographic name of location*).					
Courtland	120	173		458	22
Cowango	40	216		334	31
Cox (M. W. D. of S. C.)	69	224, 249		378	45
Coxcomb (M. W. D. of S. C.)	61	222, 245		363	45
Coxcomb east base (M. W. D. of S. C.)	61	222, 245		363	45
Coxcomb west base (M. W. D. of S. C.)	61	222, 245		364	45
Coyote Hill Slough, California Salt Co., red tank	146	197			18
Coyote Ridge 2	135	192		478	20
Craft	49	219	285	344	39
Crafton	51	220, 242	285	348	41, 42
Crane (Oreg.)	150	166	288	485	12
Crater (U. S. G. S.)	151	167	288	488	11, 12, 14
Crater Peak	149	166	287		11, 12, 14
Crater Peak, fire lookout house	151	167			11, 12, 14
Credow	109	207, 239		443	27
Creek	59	222	286	360	42
Crescent (Nev.)	29	210		317	43
Crockett	134	177, 192		475	20
Crockett, C. & H. Sugar Co., stack	139	178, 194			20
Cross	105	183, 205		435	24
Cross (M. W. D. of S. C.)	69	224, 249		378	45
Crowbar	77	202, 228		395	26
Crucero	98	237		428	43
Cub	80	229		399	31, 33, 34
Cutler, water tank	113	208			27
Cuyamaca	27	240	283	313	44, 45
Dag (U. S. E.)	127	189		463	22
Dagney	72	202, 226		385	23, 26
Dairy	106	205		437	24
Dale	100	237, 250		430	45
Dalton	39	215		333	38
Danby (M. W. D. of S. C.)	61	223, 245		364	45
Darling (U. S. G. S. & L. A. C. & C.)	45	218		338	37
David (M. W. D. of S. C.)	64	223, 246		369	39, 44
Davis (San Luis Obispo County)	72	226		384	23, 25, 30
Davis (Yolo County)	115	172		447	17, 22
Davis, municipal water tank	121	174			22
Davis tank house, Los Angeles (Boyle Heights), flagstaff	43	217			31
Dawson (L. A. C. & C.)	47	218, 241		342	37
De Camp	42	216			31
Deception (M. W. D. of S. C.)	66	224, 247		372	45
Deer	86	231		411	33, 34
Del Rey auxiliary (L. A. C. & C.)	46	218		340	37
Delano	109	207, 239		443	27
Delano, municipal water tank	113	208, 239			27
Denker (L. A. C. & C.)	46	218, 241		340	37
Denning	33	201, 212	284	323	28, 29
Desert	32	211	284	321	28, 31, 39
Desert (U. S. G. S.)	36	213		329	28, 31, 39
Developement	75	227		390	25, 26
Devil Peak, cairn (Nev.)	102	204, 238			29, 43

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Devils Ridge	75	226		389	25
Dimas	38	215	284	332	31, 38, 39
Dino (M. W. D. of S. C.)	67	248		374	45
Dinuba, water tank	112	208			27
Dip	95	235		422	39
Dish Hill	98	236		426	43
Ditch	53	242	285	350	40
Divide (U. S. G. S. & L. A. C. & C.)	45	218		338	37
Dixie	151	167	288	487	12
Dixie Mountain, fire lookout tower	154	169, 180			15
Dixon	115	172		446	22
Dixon, municipal water tank	121	173			22
Dog (Oreg.)	150	167	288	486	12
Dolan	107	206		438	23
Dolemite	85	231		410	34
Dome (U. S. G. S.), cairn	36	214		329	28, 31, 39
Dominguez 2	47	218, 241		341	37
Dominguez Hill	40	216, 241		335	31
Dominguez Hill meridian-instrument station	44	217		336	31
Dominguez Hill zenith-telescope station	44	217		336	31
Dos Palos	110	184, 207		445	21, 23
Double	31	211	284	320	31, 33, 34
Downey, city church, spire	44	217			31
Drake	161	200		499	19
Drouin	115	172, 185		448	22
Dry	82	230		403	36
Dumbarton, drawbridge, light	146	197			18
Dune (M. W. D. of S. C.)	70	224, 249		380	45
Dunn	23	171	282	301	16
Dusty	105	183, 205		436	24
Eagle	152	168		489	12
Eagle (M. W. D. of S. C.)	60	222, 245		362	45
Eagle Peak, cairn	153	168			12
Earlimart	109	207, 239		443	27
Early	75	227		391	25
East (Los Angeles County)	81	229		400	36
East (Kern County)	90	233		415	31, 32
East Bristol	98	237		426	43
East Brother Island Lighthouse	142	179, 196			20
East Iron (M. W. D. of S. C.)	70	224, 249		379	45
East Saxon:					
East transmission tower	123	174			22
West transmission tower	123	174			22
Echo Island, navigation beacon	139	178, 194			20
Eddy	151	167	288	487	11
Eden (M. W. D. of S. C.)	64	223, 246		368	39, 44
Edge	92	234		417	32
Edison (Los Angeles County) (lat. 34°07′)	39	215		332	38
Edison (Los Angeles County) (lat. 34°22′)	81	229		402	36
Edom (M. W. D. of S. C.)	65	247		372	39, 45
Edwards	58	221	286	359	42
El Frio	50	219	285	346	39, 43
El Paso (U. S. G. S.)	93	203, 234		419	28, 39
El Toro Peak	30	241			45
Electric-light mast, Los Angeles:					
Boyle Heights	43	217			31
Hill Street	43	217			31
Elephant Peak, Mucca or (Nev.)	23	165, 171			15
Elk (Kern County)	31	211	284	320	27, 31, 32
Elk (San Joaquin County)	121	187		460	22
Elmwood	121	187		460	22
Emma	120	173, 187		459	22
Empire (U. S. E.)	126	189		462	22
End	92	202, 234		418	32
End (Nev.)	38	214		331	29
Entrance (M. W. D. of S. C.)	68	248		377	45
Estero	161	200		500	19
Extra	92	234		417	32
Fairfield:					
Del Monte water tank	139	178, 194			18
Municipal water tank	139	178, 194			18
Fairmont	57	221, 244	286	357	41, 42
Fairview	104	183, 205		434	24
Fairway	135	192		478	20

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False	116	172, 185		449	22
Farallon Lighthouse	21	170, 182			18
Fargo (M. W. D. of S. C.)	67	248		374	45
Farm	137	193		481	20
Farm 2	132	191		472	20
Farmersville, water tank	113	208			27
Fault (Kern County) (long. 118°18′)	85	231		409	35
Fault (Kern County) (long. 119°26′)	92	234		417	32
Faultline A	160	199		499	19
Faultline B	161	199		499	19
Faultline C	161	199		499	19
Faultline D	160	199		499	19
Faultline E	160	199		498	19
Faultline F	160	199		498	19
Fence	80	229		399	31, 33, 34
Fernando No. 2 (U. S. G. S. & L. A. C. & C.)	46	218		339	37
Ferraro	75	227		390	25
Field (M. W. D. of S. C.)	63	223, 246		367	39, 41, 44
Figueroa Mountain, fire lookout tower	33	212			30
Fire lookout house (*see name of station or geographic name of location*).					
Fire lookout tower (*see geographic name of location*).					
Fire lookout tower, Castro	29	210			31
Firebreak	73	226		386	25
Fish (U. S. E.)	129	190		464	22
Fisher	22	171	282	299	16
Flannagan	80	229		400	31, 33, 34
Flat	136	193		480	18
Flat (M. W. D. of S. C.)	69	249		378	45
Flint (L. A. W. D. & L. A. C. & C.)	47	218		341	37
Flowers	71	225		382	23, 26, 30
Flynn	98	237		427	43
Foot (Los Angeles County) (lat. 34°07′)	39	215		333	38
Foot (Los Angeles County) (lat. 34°26′)	82	230		403	36
Foot (M. W. D. of S. C.)	69	234, 249		378	45
Foothill (San Benito County)	104	183, 205		434	24
Foothill (San Bernardino County)	52	220, 242	285	348	42
Fork	119	173, 186		456	22
Forks (M. W. D. of S. C.)	61	222, 245		364	45
Fort	135	193		479	20
Forty-Acre Opening	22	171		300	16
Franklin	130	176, 190		467	20
Frazer Mountain, fire lookout tower	35	213			31
Freda (M. W. D. of S. C.)	70	224, 249		380	45
Fredonyer	152	168		490	12
Freeport:					
East transmission tower	123	174			22
West transmission tower	123	174			22
Fremont (U. S. G. S.)	93	235		419	28, 31, 39
Fremont (Gabilan) Peak	106	183, 206			21, 23, 24
Fremont Peak 2	103	182, 204		432	18, 21, 23, 24
French (Los Angeles County)	39	215		333	38
French (Orange County)	53	243	285	350	40
French Camp, San Joaquin County Hospital, water tank	128	189			22
Fresno	108	184, 206		441	21, 23, 27
Fresno, courthouse, dome	112	185, 208			21, 23, 27
Friant (U. S. G. S.) (Ariz.)	62	223, 246		366	43, 45
Funeral	33	201, 212	284	323	28, 29
Funeral (U. S. G. S.)	37	201, 214		330	28, 29
Gabilan (Fremont) Peak	106	183, 206			21, 23, 24
Gabriel	38	215		332	38
Galena Saddle (Nev.)	23	172			15
Gar (U. S. E.)	127	189		462	22
Garcia	160	199		498	19
Garnet (M. W. D. of S. C.)	66	224, 247		373	39, 44, 45
Garrett	39	215		333	38
Gas	91	234		417	32
Gate (Los Angeles County)	85	231		409	35, 36
Gate (Kern County)	91	234		416	32
Gator (M. W. D. of S. C.)	68	248		377	45
Gavilan	24	182, 200	283	302	18, 21, 23, 24
Gaviota	25	209	283	306	30
Gazelle astronomical station	148	165	287	484	11
Gier (M. W. D. of S. C.) (Ariz.)	62	223, 245		365	45
Gilroy	103	182, 204		432	18, 21, 23, 24
Gladstone	39	215		333	38

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Glen	54	243	285	352	40
G. L. O. Pipe (Nev.)	102	204, 238			29, 43
G. L. O. Station 1	37	202, 214		331	29, 43
G. L. O. Station 1, reference mark	37	202, 214		331	29, 43
G. L. O. Station 2	37	214		330	28, 39
G. L. O. Station 3	37	214		330	28, 39
G. L. O. Station 3A (Nev.)	38	202, 214		331	29
G. L. O. Station 3B (Nev.)	38	202, 214		331	29
G. L. O. Station 4	36	214		329	28, 39
G. L. O. Station 4 (Nev.)	37	202		331	29
G. L. O. Station 4, reference mark no. 1	36	213		329	28, 39
G. L. O. Station 4, reference mark no. 2	36	214		329	28, 39
G. L. O. Station 5	36	214		329	28, 31, 39
G. L. O. Station 6	36	201, 213		329	28
G. L. O. Station 7	36	213		328	28, 31, 39
G. L. O. Station 8	35	213		328	31, 34, 35
G. L. O. Station 8, reference mark	35	213		328	31, 34, 35
G. L. O. Station 9	35	213		327	27, 31
G. L. O. Station 9, reference mark no. 1	35	213		327	27, 31
G. L. O. Station 9, reference mark no. 2	35	213		328	27, 31
G. L. O. Station 10	35	213		327	31
G. L. O. Station 11	35	213		327	27, 31
G. L. O. Station 11, reference mark	34	213		327	27, 31
G. L. O. Station 12	34	212		326	31
G. L. O. Station 12, reference mark	34	212		326	31
G. L. O. Station 13	34	212		326	27, 30, 31
G. L. O. Station 14	34	212		326	23, 30
G. L. O. Station 14, reference mark	34	212		325	23, 30
G. L. O. Station 15	33	212		325	30
G. L. O. Station 191	101	238		431	43
G. L. O. Station M47	153	168		491	12
Gold (Kern County)	83	230		406	34, 35
Gold (San Bernardino County)	49	219	285	344	39
Goler (B. M. U 48)	95	235		422	28, 31, 39
Golf (Orange County)	54	243	285	351	40
Golf (Solano County)	133	176, 192		474	20
Goodyear	133	176, 192		473	20
Goosenest	150	167	288	487	11
Goosenest, tall tree	149	166	287		11
Gorge	87	232		413	33
Gorgonio (M. W. D. of S. C.)	65	224, 247		370	39, 44
Grand	119	173, 186		456	22
Grand Island, navigation beacon	124	175, 187			22
Granite (Los Angeles County)	83	230		406	35, 36
Granite (M. W. D. of S. C.)	61	222, 245		364	45
Granite (San Bernardino County)	49	219	285	345	39
Granite (Trinity County)	151	167	288	488	11, 13
Granite (U. S. G. S.), cairn	60	222		361	39
Granite Mountain	98	237		427	43
Granite Peak, fire lookout tower	156	170		494	11, 13
Granite (Thompson) Peak	149	166	287		11, 13
Granite Shaft (M. W. D. of S. C.)	69	224, 249		379	45
Grant	117	186		452	22
Grape	51	220, 242	285	348	40, 41
Grass	116	172, 185		449	22
Grassy	72	225		383	23, 25, 26, 30
Gravel	75	227		391	25
Great Caspar	156	169, 180	288	493	13, 16
Green (Kern County)	92	234		417	32
Green (Mariposa County)	108	184, 206		440	21
Green (Riverside County)	56	221, 244	286	355	41
Green (San Luis Obispo County)	72	225		383	23, 25, 30
Green (U. S. E.)	121	187		461	22
Green (U. S. G. S.), cairn	111	184, 207		446	21
Green Peak	75	226		389	25
Greyback (Oreg.)	149	166	287	485	11
Grizzly (Alameda County)	137	193		480	20
Grizzly (Shasta County)	150	167	288	487	11
Grizzly Peak, highest point	155	169, 180			15
Grommet (M. W. D. of S. C.)	62	223, 245		365	45
Guano Island	131	191	287	469	18
Guard	73	226		387	25
Guidetti	74	226		388	25
Gypsum	55	220, 243	285	354	40
Hagador	55	220, 243	285	354	40
Hale	76	227		392	25

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Hammock	158	181, 199		496	19
Harlem	58	221, 244	286	358	42
Harquahalla (Ariz.)	29	240	283	316	43, 45
Hay (M. W. D. of S. C.)	68	248		376	45
Hayden Hill, fire lookout tower	153	168			12
Hayfield east base (M. W. D. of S. C.)	68	248		376	45
Hayfield west base (M. W. D. of S. C.)	68	248		376	45
Hayward	131	191		470	18, 20
Helendale	94	235		420	39
Hemet (M. W. D. of S. C.)	64	246		370	39, 44
Henry	57	244	286	357	40, 41
Hepsedam	24	200, 208	283	303	23
Hercules Dock, northwest corner of wharf	141	179, 195			20
Herd	117	186		452	18, 22
Hicks	157	180, 198		495	18, 19
Hidden (M. W. D. of S. C.)	65	224, 247		371	39, 44
High Grove	52	220, 242	285	349	41, 42
HighMountain, fire lookout tower	33	212			23, 25, 30
High Rock (Nev.)	154	169		491	12, 15
High School (*see geographic name of location*).					
Highland (San Bernardino County)	59	222	286	360	42
Highland (San Luis Obispo County)	71	225		382	23, 25, 26, 30
Highway	75	227		391	25
Hill (Los Angeles County)	39	215		333	38
Hill (Marin County)	135	192		477	20
Hill (San Bernardino County)	30	210	283	318	43
Hill (Shasta County)	149	165		485	11, 14
Hill 1400	73	226		387	25
Hind	131	176, 191		468	19, 20
Hiway	105	183, 205		436	24
Hoffman	150	167	288	486	11, 12
Hole	56	221, 244	286	356	41
Holland	116	172, 185		449	22
Hollister	104	183, 205		435	24
Holt (Imperial County)	30	241		318	45
Holt (San Joaquin County)	118	186		453	22
Hooker	157	180, 198		494	16, 17, 18, 19
Hope	119	173, 186		456	22
Hope, transformer pole near station	125	175, 188			22
Hope, transmission pole near station	125	175, 188			22
Hopper	77	227		394	26
Horsethief	88	232		414	33, 34
Hot Springs	152	168		490	12, 15
House (Kern County)	92	234		418	32
House (Los Angeles County)	83	230		405	35, 36
House (Ventura County)	28	210		314	31
Hualpai (Ariz.)	29	210		317	43
Hump	56	244	286	356	41
Ingalls	153	168, 180		490	15
Ingalls Peak, flagpole	154	169, 180			15
Inside	92	234		417	32
Inyokern	93	203, 234		418	28
Inyokern, Standard Oil Co., tank	36	201, 213			28
Iron (M. W. D. of S. C.)	61	223, 245		364	45
Iron (U. S. G. S.), cairn	96	236			39
Iron west base (M. W. D. of S. C.)	70	224, 249		379	45
Island (M. W. D. of S. C.)	69	224, 249		378	45
Isleton	119	173, 186		457	22
Isleton:					
Municipal water tank	124	175, 188			22
Northeast transmission tower	124	175, 188			22
Southwest transmission tower	124	175, 188			22
Ivanhoe	97	236, 250		425	45
Jacks (Kern County)	87	232		412	33, 34
Jacks (San Luis Obispo County)	77	227		393	26
Jackson	115	172, 185		448	22
Jail	86	231		412	33, 34
Jersey Landing 2, navigation beacon	127	175, 189			22
Joaquin	38	215	284	332	31, 38, 39
Joker	87	232		413	33
Joshua	85	231		408	35
Junction	57	221, 244	286	357	41, 42
Junction 2	60	222, 244		361	41, 42
Junior	96	236, 250		424	39, 42
Jupiter Mountain (U. S. G. S.)	81	229		402	35, 36

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Jurupa	48	219, 242	285	343	39, 41, 42
Keller	49	219, 242	285	344	39, 42
Kent	148	165, 179	287	484	14
Kern	31	211	284	320	27, 31
Kern-Kings county-line marker	79	203, 228		397	26
Kern-Kings county-line sign	79	203, 228		397	23, 26
Kern-Los Angeles county-line marker	89	233			35
Kettle Rock, fire lookout tower	154	169			15
Kettleman	73	202		386	23
Kiln	86	231		411	33, 34
King Peak	155	169, 180	288	492	13
Kingston	33	201, 212	284	323	29, 43
Kingston (U. S. G. S.), cairn (1926)	102	204, 238			29, 43
Kirby	130	176, 190		466	18, 20, 22
Kitt (Standard Oil Co.)	34	212		326	23, 27, 30, 31
Knob	104	183, 205		435	24
Kofa (Ariz.)	29	240	283	316	45
Kramer	94	235		420	31, 39
La Quinta	52	220, 242	285	349	41, 42
La Quinta (M. W. D. of S. C.)	65	247		371	45
La Sierra	56	221, 244	286	356	41
La Verne, water tank, finial	39	215			38
Lacto	118	186		453	22
Ladyface (U. S. G. S. & L. A. C. & C.)	44	217		337	37
Lagoon	161	200		500	19
Laguna	26	209	283	308	31
Lake (M. W. D. of S. C.)	70	224, 249		379	45
Lake (Kern County)	91	233		415	31, 32
Lake (Sonoma County)	159	181, 199		497	19
Lakeside	106	205		437	24
Lakeview-B. M. M 16 (Oreg.)	150	166	288	486	12
Lane	23	171		301	16
Langdon	160	199		498	19
Lard (M. W. D. of S. C.)	64	223, 247		370	39, 44
Las Bolsas	40	216, 241	284	335	31, 39
Lassen Peak	149	166	287		11, 12, 14
Lath (U. S. E.)	128	189		463	22
Latitude station (*see name of station*).					
Laurel	159	181		497	19
Lava	37	201, 214		330	28
Leach	32	201, 212	284	322	28, 39
Lead	98	236, 250		426	43, 45
Leaf	58	221	286	359	42
Ledge	52	242	285	350	40
Lee (Nev.)	33	201, 212	284	324	29
Leona	83	230		407	35, 36
Leonis Valley, white tower	89	233			35, 36
Lick Observatory, Mount Hamilton, small dome	24	182, 200	283		18, 21
Liebre	80	229		399	31, 34, 35
Light	28	210		315	31
Lighthouse (*see geographic name of location*).					
Limestone	80	229		399	31, 34
Lincoln (Marin County)	158	181, 199		496	19
Lincoln (San Francisco County)	135	193		478	20
Linda	57	221, 244	286	358	41, 42
Lindley (U. S. E.)	121	187		461	22
Linn	56	221, 244	286	356	40, 41
Linson	55	220, 243	285	354	40
Lions Head	41	216	284		31
Little Berdoo (M. W. D. of S. C.)	65	247		371	45
Little Buttes	83	230		405	35
Little High Grove	52	220, 242	285	349	41, 42
Livingston	108	183		440	21
Livingston, municipal water tank	111	184			21
Loaf	49	219	285	344	39
Lock	81	230		402	36
Loma	58	221, 244	286	358	41, 42
Loma Prieta	24	182, 200	283	302	18, 21, 23, 24
Loma Verde (U. S. G. S.)	79	229		397	31, 36
Lomas	51	220, 242	285	347	40
Lone Tree	104	183, 205		434	24
Lone Tree Point:					
Higher stack	141	179, 195			20
Wharf, southwest point	141	178, 195			20
Lone Tree Point Iron Rod (U. S. E.)	133	176, 192		474	20
Long	82	230		403	36

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Long Pond 2	130	176, 190		467	20
Longitude station (*see name of station*).					
Lope	84	231		408	35
Lopez	130	176, 190		466	20
Los Angeles:					
Baptist Church, spire	42	217			31
Boyle Heights, Davis tank house, flagstaff	43	217			31
Boyle Heights, electric-light mast	43	217			31
Catholic Cathedral, spire	42	217			31
Catholic College, ball and cross	43	217			31
Courthouse, spire	43	217			31
Electric-light mast (Hill Street)	43	217			31
High school, flagstaff	43	217			31
Latitude station	42	217		336	31
Longitude station, 1889	42	216		336	31
Longitude station, 1892	42	216		336	31
Magnetic observatory	42	216		336	31
Normal School	42	216		336	31
Northwest base	26	209, 240	283	311	31, 37, 39
Northwest base latitude station	44	217		336	31
Presbyterian Church	43	217		336	31
Signal service tower	43	217			31
Southeast base	27	209, 240	283	311	31, 39
Los Angeles-Amarillo airway:					
Beacon no. 16	101	238			43
Beacon no. 18 (*this beacon is listed as the Los Angeles-Las Vegas airway beacon no. 18 on sketch no. 43*)	100	238			43
Los Angeles-Kern county-line marker	89	233			35
Los Angeles-Las Vegas airway:					
Beacon no. 4B	95	235			31
Beacon no. 5	95	235			31, 39
Beacon no. 6	95	236			31, 39
Beacon no. 7	96	236			31, 39
Beacon no. 8	96	236			39
Beacon no. 13	101	238			39, 43
Beacon no. 16	101	238			43
Beacon no. 17	101	204, 238			43
Beacon no. 18 (*see Los Angeles-Amarillo airway beacon no. 18*)	100	238			43
Los Angeles-San Francisco airway:					
Beacon no. 2 (flashing red)	88	232			36
Beacon no. 3A (flashing green)	88	232			36
Beacon no. 5A (flashing red)	89	233			31
Beacon no. 7 (flashing green)	90	233			33
Beacon no. 8 (flashing red)	90	233			31, 33
Beacon no. 11 (flashing red)	113	239			27
Beacon no. 12 (flashing green)	113	208, 239			27
Beacon no. 15 (flashing red)	113	208			27
Beacon no. 16 (flashing red)	113	208			27
Beacon no. 17 (flashing green)	113	208			27
Beacon no. 18 (flashing red)	113	208			27
Beacon no. 19 (flashing red)	112	208			27
Beacon no. 20 (flashing red)	112	208			23, 27
Los Cerritos	40	216, 241	284	335	31
Lospe	25	209	283	305	30
Lospe North	25	209		306	30
Low	93	234		418	32
Lucerne	49	219	285	344	39
Lucerne north base	49	219	285	345	39
Lucerne south base	49	219	285	345	39
Lunch (M. W. D. of S. C.)	71	225, 249		381	45
Lune	49	219	285	344	39
Lynch	159	181		497	19
Lyons	148	165, 179	287	484	14
Lyptus	159	181, 199			19
M (Standard Oil Co.)	79	203, 228		397	23, 26
Madera (Madera County)	108	184, 206		441	21, 23
Madera (Marin County)	158	181, 199		496	19
Madera, municipal water tank	112	185, 207			21, 23
Magnetic observatory, Los Angeles	42	216		336	31
Major	78	203, 228		396	26
Malone	39	215		333	38
Mandeville (L. A. W. D. & L. A. C. & C.)	45	218		339	37
Manzanita, fire lookout tower	153	168			12
Marble Mountain	149	166	287		11
Mare	53	243	285	351	40

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Mare Island:					
Dolphin off end of new dike	141	179, 195			20
East wireless tower	140	178, 195			20
First pile off new dike	141	179, 195			20
Lighthouse	140	178, 195			20
Powerhouse, stack	142	179, 196			20
Red water tank	141	179, 195			20
Second pile off new dike	141	179, 195			20
West wireless tower	140	178, 195			20
Mare Island southeast	134	177, 192	287	475	20
Mare Island Strait, front range breakwater, west end, naval beacon	140	178, 195			20
Maria (M. W. D. of S. C.)	61	223, 245		365	45
Marin (Marin County)	158	181, 199		496	19
Marin (Monterey County)	106	205		437	24
Mariposa	103	183, 204		433	21, 23, 24
Mart	87	232		413	33
Marysville Butte	20	170	282	294	14, 17
May (Contra County)	129	176, 190		464	22
May (Los Angeles County)	79	229		398	31, 36
May (M. W. D. of S. C.)	69	248		377	45
May (U. S. G. S.), cairn	88	232		414	31, 36
May, transmission tower near station	137	177, 193			22
Mayberry Slough:					
North transmission tower	127	175, 189			22
South transmission tower	127	175, 189			22
Transmission tower no. 1	137	177, 193			22
Transmission tower no. 2	137	177, 193			22
McAvoy	130	176, 190		466	20
McDonald Peak, highest point, cairn	154	168			12
McClure Northeast	73	202, 226		385	23, 26
McClure Southwest	73	202, 226		385	23, 26
McKinley	136	193		480	20
McKittrick	31	211	284	319	23, 27, 30, 31
Mears	148	165	287	484	11
Mecca Hill (M. W. D. of S. C.)	65	247		371	45
Mecca Hills, airway beacon	99	237, 250			45
Medford airway beacon no. 3, San Francisco	138	177, 194			18
Medford airway beacon no. 4, San Francisco	139	178, 194			18
Mentone	59	221, 244	286	359	41, 42
Merced	108	183		440	21
Merced, municipal water tank	111	184			21
Mesa (M. W. D. of S. C.)	70	225, 249		380	45
Metal (M. W. D. of S. C.)	63	223, 246		367	43, 45
Mexico, United States-, boundary monument no. 258	28	240		314	44
Michelson	27	210, 240	283	312	31, 38, 39
Middle Ground Island, navigation beacon	138	177, 194			20
Middle Point, navigation beacon, flashing red	138	177, 194			20
Milbrae, oyster house, windmill	145	197			18
Miller	110	184, 207		445	21, 23
Mills Field Airport, wind-vane staff	145	197			18, 20
Mine	54	220, 243	285	353	40
Mine (M. W. D. of S. C.)	66	247		372	45
Miner	115	172, 185		447	22
Mirage	94	235		421	31, 39
Miseria	159	181, 199		497	19
Mission (M. W. D. of S. C.)	66	224, 247		373	39, 44, 45
Mission Point	81	229		401	36
Mitch	53	242	285	350	40
Mocho	24	182, 200	283	301	18, 21
Mock (M. W. D. of S. C.)	63	246		367	39, 41, 44
Mohawk (Ariz.)	29	240	283	316	45
Mole (M. W. D. of S. C.)	70	225, 249		380	45
Monolith	86	231		410	34
Monolith, cement plant, tallest stack	90	233			34
Monrovia (U. S. G. S. & L. A. C. & C.)	48	219, 241		342	37
Monterey No. 2 (U. S. G. S. & L. A. C. & C.)	48	219, 241		342	37
Monticello	20	170, 182	282	295	17, 18
Monument 15 (U. S. N.) (B. M. 4268)	147	198		483	18
Monument, Pond Summit (Nev.)	23	165, 171			15
Monument, Virginia Peak (Nev.)	23	165, 171			15
Moon	105	205		436	24
Morongo (M. W. D. of S. C.)	66	224, 247		373	39, 44, 45
Morris	32	200, 211	284	321	28
Morton	59	221, 244	286	360	42
Moss	117	186		451	22
Mound	78	203, 228		396	26
Mount Argus, highest rock	37	201, 214			28

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Mount Como (Nev.)	20	170	282	292	15
Mount Conness	20	170, 181	282	293	21
Mount Diablo	20	170, 182	282	294	17, 18, 20, 21, 22
Mount Diablo:					
Airway landmark beacon	143	179, 196		481	20, 21, 22
Flagpole	110	172, 184		445	20, 21, 22
Mount Eddy, cairn	149	166	287		11
Mount Eden Slough, tank	146	197			18
Mount Elwell, fire lookout tower	155	169, 180			15
Mount Grant (Nev.)	20	170, 181	282	291	15, 21
Mount Hamilton, Lick Observatory, small dome	24	182, 200	283		18, 21
Mount Helena	21	170, 182	282	296	16, 17, 18
Mount Lassic	155	169, 180	288	492	13
Mount Lavic, cairn on south end	100	238			43
Mount Linn	149	166, 179	287		13, 14
Mount Lola	20	165, 170	282	292	15, 17
Mount Lowe	41	216	284		31, 39
Mount Oso	107	183		439	21
Mount Oso (U. S. G. S.), cairn	111	184		445	21
Mount Oso, fire lookout house, center	111	184			21
Mount Pierce 2	155	169		492	13
Mount Poso	109	207, 239		443	27
Mount St. John	149	166, 179	287		14, 16, 17
Mount Sanhedrin	22	165, 171	282	298	13, 16
Mount Shasta, top	149	166	287		11
Mount Tamalpais	21	170, 182	282	296	18, 19, 20
Mount Toro	24	182, 200	283	303	23, 24
Mount Wilson, Wilson Peak, astronomical station	44	217		336	31, 38, 39
Mowry	117	186		451	22
Mucca or Elephant Peak (Nev.)	23	165, 171			15
Mud	161	200		500	19
Muddy	161	200		500	19
Mulford Landing 2	145	197		482	20
Muroc, railway water tank	36	213		328	31, 39
Myoma northwest base (M. W. D. of S. C.)	65	247		372	45
Myoma southeast base (M. W. D. of S. C.)	65	247		372	45
Navy	132	191		471	20
Necessity (M. W. D. of S. C.)	68	248		376	45
Nellie Bly	50	219	285	345	39
Nelson (M. W. D. of S. C.)	63	246		368	39, 44
New San Miguel	25	209	283	307	30
Newark Slough, draw	146	198			18
Newhall	80	229		400	36
Newport	54	243	285	352	40
Nichols, General Chemical Co., red water tank	138	177, 194			20
Niguel	27	210, 240	283	312	31, 40, 44
North	23	171		300	16
North Cajalco (M. W. D. of S. C.)	63	246		367	39, 41, 44
North Indio (M. W. D. of S. C.)	65	247		372	45
North Iron (M. W. D. of S. C.)	69	224, 249		379	45
North Western (L. A. C. & C.)	46	218		340	37
Nub (U. S. G. S.)	99	237		429	43
Nuevo (M. W. D. of S. C.)	63	246		368	39, 41, 44
Number	84	230		407	35
No. 8 (U. S. E.)	117	172, 185		450	22
Oak (M. W. D. of S. C.)	64	246		369	39, 44
Oak (San Benito County)	105	205		435	24
Oak (San Bernardino County)	58	221	286	359	42
Oakland, Tribune Building	143	196			20
Observation	152	168		489	12
Observation Peak, cairn	154	168			12
Observatory	51	220, 242	285	347	40
Octol	109	207		443	27
Oil Hill	110	239		444	27
Oil Hill (U. S. G. S.)	114	239		446	27
Oil Tank (*see geographic name of location*).					
Oildale, water tank	114	239			27, 31
Old (Kern County)	84	231		408	35
Old (San Joaquin County)	117	186		453	22
Old Baldy Peak, cairn	41	216			31, 39
Old Baldy, southwest peak	41	216	284		31, 39
Old Dad Mountain	99	237		428	43
Old Man	78	228		396	26

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Oleum:					
Outer oil tank	140	178, 195			20
Union Oil Co., stack	141	179, 195			20
Wharf, northwest corner	141	178, 195			20
Wharf, powerhouse, east stack	140	178, 195			20
Orchard Peak (Standard Oil Co.)	71	202, 225		381	23, 26
Orchard Peak (U. S. G. S.), cairn	78	203, 228		396	23, 26
Ord	50	219	285	345	39
Ord Mountain, U. S. Mineral Monument No. 1	60	222		362	39
Oro (M. W. D. of S. C.)	67	248		375	45
Oro Grande (U. S. G. S.)	94	235		421	39
Orocopia (M. W. D. of S. C.)	60	245		363	45
Oulton Point Landing, light	126	175, 189			22
Owens Peak, cairn	36	201, 213			28
Pachappa	56	221, 244	286	355	41
Pacheco	159	199		498	19
Pacific	161	200		499	19
Pacific (U. S. E.)	121	187		461	22
Pacoima No. 2 (L. A. C. & C.)	45	218		339	37
Pah Rah (Nev.)	20	165, 170	282	292	15
Pahrump northwest base (Nev.)	33	201, 212	284	324	29
Pahrump southeast base	33	201, 212	284	324	29
Pajaro Mouth 3	103	183, 205		433	18, 21, 23, 24
Pajuela	32	211	284	321	28, 31, 34
Pala	158	181, 199		496	19
Palen (M. W. D. of S. C.)	61	222, 245		363	45
Palms (M. W. D. of S. C.)	66	247		372	39, 45
Palo Alto base, A station	133	191		473	18
Palo Alto:					
Flagpole	147	198			18
Historical tree	147	198		483	18
Northwest base	133	191		472	18
Radio mast	147	198			18
Southeast base	133	191		473	18
Pampa reference mark (U. S. G. S.)	35	213		328	27, 31
Pan American Petroleum Co. mark	34	213		326	27, 31, 32
Panamint	32	201, 212	284	323	28
Panamint mining signal	37	201, 214		330	28
Para (U. S. E.)	128	189		463	22
Parker (M. W. D. of S. C.) (Ariz.)	62	223, 245		366	45
Parker northeast base (M. W. D. of S. C.) (Ariz.)	62	223, 245		366	45
Parker southwest base (M. W. D. of S. C.) (Ariz.)	62	223, 246		366	45
Pasadena east base	39	215	284	333	31, 38, 39
Pasadena east base 2	38	215		332	31, 38, 39
Pasadena west base	38	215	284	332	31, 38, 39
Pass	80	229		399	28, 31, 34
Pass (M. W. D. of S. C.)	66	224, 247		373	39, 44, 45
Pate	39	215		333	38
Paul	107	206		439	23
Paxton	22	171	282	299	16
Peak	31	211	284	319	30, 31
Peak 11 (San Antonio Mountain)	42	216			31, 39
Peak 26	41	216	284		31, 36
Peak A	30	210			43
Peak B	30	210			43
Peak C	30	211	283		43
Peak D (Nev.)	30	211	283		43
Peak E (Nev.)	30	211	283		43
Peak H. (Ariz.)	31	211			43
Peavine (L. A. W. D. & L. A. C. & C.)	45	218		339	37
Pelato	31	211	284	319	31
Pelona	79	229		398	31, 35, 36
Pelona (U. S. G. S.)	89	233		415	31, 35, 36
Pereira	104	205		434	24
Perris (M. W. D. of S. C.)	63	246		368	39, 41, 44
Perry	74	226		388	25
Petal	159	181, 199		497	19
Petaluma	157	180, 198		494	16, 18, 19
Petaluma Creek	131	176, 191	287	468	19, 20
Phelan	94	235		421	31, 39
Phil	74	226		388	25
Picket	104	183, 205		435	24
Pico east base (M. W. D. of S. C.)	64	246		369	39, 44
Pico west base (M. W. D. of S. C.)	64	246		369	39, 44
Piedmont	132	191		471	20
Pier No. 4 (U. S. G. S.)	115	172, 185		448	22
Pier No. 15 (U. S. G. S.)	118	173		455	22
Pier No. 16 (U. S. G. S.)	119	173		455	22

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Pier No. 20 (U. S. G. S.)	118	173		454	22
Pierce (M. W. D. of S. C.)	64	247		370	39, 44
Pigeon	55	220, 243	285	355	41, 42
Pilot	32	201, 211	284	322	28, 39
Pilot (U. S. G. S.), cairn	37	214		330	28, 39
Pilot Rock (Oreg.)	149	166	287	485	11
Pine	75	227		390	25
Pine (Ariz.)	29	210	283	317	43
Pine Hill	20	170, 181	282	294	17, 21
Pinedale, Sugar Pine Lumber Co.:					
Northernmost stack	112	185, 207			21, 23, 27
Southernmost stack	112	185, 207			21, 23, 27
Water tank	112	185, 207			21, 23, 27
Pinnacle	94	235		421	39
Pinole Point:					
Giant Powder Co., water tank	142	179, 196			20
Wharf, outer point	141	178, 195			20
Pinole Shoal:					
Pile no. 9	141	178, 195			20
Pile no. 11	141	179, 195			20
Pinto	97	236, 250		424	45
Pinto (M. W. D. of S. C.)	69	224, 249		378	45
Pinto Mountains:					
Highest Point, cairn (M. W. D. of S. C.)	100	237, 250			45
Rock cairn (near station Belle)	100	237, 250			45
Rock cairn (near station Ivanhoe)	100	237, 250			45
Rock cairn (near station Pinto)	100	237, 250			45
Pise Hill 2	132	191		470	18
Pittsburg	129	176, 190		465	22
Pittsburg:					
Johns Manville Co., water tank	137	177, 193			22
Pioneer Rubber Co., water tank	137	177, 193			22
Stockton Firebrick Co., water tank	138	177, 194			22
Western Electrical Chemical Co., water tank	137	177, 194			22
Piute	32	211	284	321	28, 31
Plummer Landing, tank	146	198			18
Plunge	59	221	286	360	42
Point 18 (U. S. E.)	121	187		460	22
Point Arena Lighthouse	23	172			16
Point Avisadero	133	191	287	472	20
Point Avisadero, drydock, chimney	144	197			20
Point Conception Lighthouse	28	210			30
Point Dume	44	217		336	37
Point Fermin Lighthouse	44	217, 241			31
Point Hueneme Lighthouse	28	210			31
Point Loma Lighthouse (old)	28	240	283		44
Point New York, navigation beacon	138	177, 194			22
Point Pinole 3	131	176, 190		467	20
Point Pinos latitude station	107	206		438	23, 24
Point Pinos latitude station 2	103	183, 204		433	23, 24
Point Pinos Lighthouse	107	183, 206			23, 24
Point Reyes East 2	161	200			19
Point Reyes Head 2	157	181, 198		495	18, 19
Point Reyes Hill	157	180, 198	288	495	18, 19
Point Reyes Lighthouse	21	171, 182			18, 19
Point Sacramento, navigation beacon	138	177, 194			22
Point San Bruno	133	191		472	18, 20
Point San Bruno, Naval Radio Mast 1	145	197			20
Point San Mateo	136	193		479	18
Point San Mateo:					
Flashing light (1925)	145	197			18
Oyster house, east gable	145	197			18
Pole	85	231		409	35
Polonio	77	202, 228		395	26
Pond Summit, monument (Nev.)	23	165, 171			15
Portal	84	230		407	35, 36
Poso (U. S. G. S.)	114	208, 239		446	27
Potato Point Lighthouse	126	175, 189			22
Powell (Ariz.)	29	210	283	317	43, 45
Power	94	235		420	28, 31, 39
Powerhouse	82	230		404	36
Pox	117	186		451	22
Prado	55	220, 243	285	354	40
Pratt	119	173, 186		457	22
Presidio east base	135	192		477	20
Presidio west base	135	192		477	20
Pulgas east base	131	191	287	470	18
Pulgas west base	132	191	287	470	18

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Pump	91	234		416	32
Pyramid	72	202, 226		384	23, 26
Quartz	86	231		410	34
Quick	87	232		412	34, 35
Quien Sabe	110	184, 207		444	21, 23
Rabbit	54	243	285	352	40
Rabbit (U. S. G. S.), cairn	111	184, 207		446	21, 23
Rafael	94	235, 250		421	31, 39
Rail	57	221, 244	286	357	41, 42
Rail 2	60	222, 244		361	41, 42
Rand	93	235		419	28, 31, 39
Randall	115	172, 185		447	22
Range (Marin County)	135	193		478	20
Range (Monterey County)	106	206		438	24
Range (San Luis Obispo County)	76	227		392	26
Ranger (M. W. D. of S. C.)	64	246		370	39, 44
Ravenswood Point, substation, north gable	146	197			18
Reche	49	219, 242	285	343	39, 41, 42, 44
Rector	131	176		467	17, 18
Red (Los Angeles County)	81	229		402	35, 36
Red (M. W. D. of S. C.)	68	248		376	45
Red (San Bernardino County) (long. 117°15′)	59	222	286	360	42
Red (San Bernardino County) (long. 117°35′)	32	200, 211	284	322	28, 31, 39
Red (U. S. G. S.), cairn	89	233		415	35, 36
Red Hill (Alameda County)	131	191	287	469	18
Red Hill (San Luis Obispo County)	71	202, 225		382	23, 26, 30
Red Rock, naval beacon	142	196			20
Red Top	108	184, 206		441	21, 23, 27
Red Top, fire lookout house, northwest gable	111	184, 207			21, 23, 27
Red Tower (U. S. G. S.)	126	175, 189		462	22
Red water tank (south of station Walters)	79	228			25
Redding astronomical station	148	165	287	485	11, 14
Redding:					
Courthouse	148	165	287	485	11, 14
North base	149	166		485	11, 14
South base	149	165		485	11, 14
Redwood City:					
Cement works, east stack	146	197			18
Frank's Tannery, stack	146	198			18
Tall transmission tower	146	198			18
Reis	76	227		391	25
Reservoir	81	229		401	36
Reyes Peak, fire lookout tower	35	213			31
Reynolds	39	215		333	38
Rhodes	75	227		390	25
Rice (M. W. D. of S. C.)	70	225, 249		380	45
Richard	131	191		468	20
Richardson east	134	192		476	20
Richmond:					
Airway landmark beacon	142	196			20
Ford Motor Co., water tank	142	196			20
Ridge (Los Angeles County)	81	229		401	36
Ridge (Marin County)	136	193		479	20
Ridge 2 eccentric	132	191		471	18
Ring	131	191		468	20
Ringe, Tract, Camp 11, stack	126	189			22
Rio Vista	119	173, 186		456	22
Rio Vista:					
Del Monte water tank	124	175, 188			22
East municipal water tank	124	175, 188			22
St. Joseph's Catholic Church, spire	124	175, 187			22
West municipal water tank	124	175, 188			22
Riverside (M. W. D. of S. C.)	62	223, 245		365	45
Roberts	116	185		450	21, 22
Roberts Landing 2	145	197		483	20
Roberts Point, oyster house	145	197			20
Rock (Los Angeles County) (lat 34°07′)	39	215		333	38
Rock (Los Angeles County) (lat. 34°31′)	82	230		404	36
Rock (Marin County)	136	193		479	20
Rock (Monterey County)	105	205		436	24
Rock cairn (west of station Silver)	96	236			31, 39
Rock Slide	107	206	287	439	23
Rock Slide West	107	206		438	23
Rock Spring	87	232		413	33, 34
Rockville	130	176		466	18
Rocky (M. W. D. of S. C.)	63	246		367	39, 41, 44

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Rocky Butte 2	24	200, 209		303	23, 30
Rocky Mound	131	191	287	469	20
Roe Island, navigation beacon	139	178, 194			20
Ross Mountain	21	170, 182	282	297	16, 18
Round	148	165	287	484	11, 14
Round Mountain	35	213			27
Round Top	20	170, 181	282	293	15, 17, 21
Rubidoux	55	220, 243	285	355	41, 42
Russian Peak, north point	149	166	287		11
Russian Peak, south point	149	166			11
Ryde	119	173, 186		457	22
Ryde, water tank	123	174, 187			22
S. C. of C. triangulation station	90	233		415	33
S. E. I. C. northeast monument	161	200		499	19
Sablon (M. W. D. of S. C.)	61	223, 245		364	45
Sacramento:					
5 miles south-southwest of, brickyard, east stack	122	174			22
5 miles south-southwest of, brickyard, west stack	122	174			22
Airport beacon	122	174			22
B. P. O. E. Building, cupola	122	174			22
Cathedral of the Blessed Sacrament, dome	122	174			22
Cathedral of the Blessed Sacrament, spire	122	174			22
State Capitol, dome	122	174			22
State Life Building, chimney	122	174			22
Sacramento River-Steamboat Slough, junction point, light, flashing white	124	175, 187			22
Saddle	92	234		418	32
Saddle Mountain	40	216	284	334	31
Saddle Mountain 1	41	216			31
Saddle Mountain 2	41	216			31
Saddle Peak	75	226	286	389	25
Saddle Peak (U. S. G. S. & L. A. C. & C.)	45	218		337	37
Saddleback (U. S. G. S. & L. A. C. & C.)	95	235		422	31, 37, 39
Sage (Monterey County)	105	205		436	24
Sage (Nev.)	23	171			15
Sage (San Bernardino County)	50	219	285	345	39
Sal (U. S. E.)	128	189		463	22
Salinas (Monterey County)	104	205		434	18, 21, 23, 24
Salinas (San Luis Obispo County)	72	225		384	23, 25, 30
Salton	30	241		318	45
San Andreas	77	203, 228		395	26
San Antonio (Mexico)	28	240			44
San Antonio Mountain (Peak 11)	42	216			31, 39
San Benito	110	207		444	23
San Berdo	49	219, 242	285	344	39, 42
San Bruno Mountain	136	193		480	20
San Bruno Mountain:					
East transmission tower	145	197			20
Middle transmission tower	145	197			20
West transmission tower	145	197			20
San Buenaventura	40	215		334	31
San Dimas	39	215			38
San Fernando	26	209	283	309	31, 36, 37
San Fernando (old)	40	216		334	31, 36
San Fernando (U. S. G. S.)	88	232		414	31, 36
San Francisco:					
450 Sutter Street, building	143	196		481	20
Bank of America Building, dome, flagpole	143	196		481	20
Bell Telephone Building	144	196		482	20
Cathedral Apartments	144	196		482	20
City Hall, steeple	143	196		482	20
Ferry Building, tower	144	197		482	20
Mark Hopkins Hotel	144	196		482	20
Matson Building, tower	144	196		482	20
Pacific Gas & Electric Building, smokestack	144	196		482	20
Park Lane Building, flagpole	143	196		481	20
Russ Building, flagpole	143	196		481	20
St. Francis Yacht Club, naval beacon	143	196			20
Schmidt Building, tower	144	197		482	20
Shell Oil Building, flagstaff	143	196		482	20
Sir Francis Drake Hotel, flagstaff	144	197		482	20
Standard Oil Co. Building, chimney	143	196		481	20
William Taylor Hotel	143	196		482	20
San Francisco-Medford airway:					
Beacon no. 3	138	177, 194			18
Beacon no. 4	139	178, 194			18

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San Francisco-Reno airway:	*Page*	*Page*	*Page*	*Page*	*Figure*
Beacon no. 2	138	177, 194			20
Beacon no. 3	138	177, 194			22
Beacon no. 4 (flashing red)	123	174			22
Beacon no. 5	123	174			22
San Gabriel Peak	41	216	284		31, 39
San Jacinto	27	210, 240	283	313	39, 44, 45
San Javier (Mexico)	27	240			44
San Joaquin	51	220, 242	285	347	40
San Jose	25	209	283	304	23, 30
San Juan	26	209, 240	283	310	31, 39, 40, 44
San Luis	25	209	283	304	23, 25, 30
San Mateo Bridge:					
East span, red light	147	198			18
West span, red light	147	198			18
San Miguel	27	240	283	314	44
San Pablo Ridge	134	192		476	20
San Pedro	26	209, 240	283	310	31, 37
San Pedro 2	29	210		315	31
San Pedro latitude station	44	217		336	31
San Pedro northwest base	41	216		335	31
San Pedro southeast base	41	216		335	31
San Vicente No. 1 (L. A. W. D. & L. A. C. & C.)	45	218		338	37
Sand	75	227		391	25
Sandy	105	205		435	24
Sandy (M. W. D. of S. C.)	69	248		378	45
Sanel Mountain	22	171	282	299	16
Santa Ana	24	182, 200	283	302	21, 23, 24
Santa Barbara	25	209	283	307	30, 31
Santa Barbara Lighthouse	28	210			30, 31
Santa Clara	26	209	283	308	31
Santa Clara (old)	40	215		334	31
Santa Cruz azimuth	103	183, 205	286	433	18, 23
Santa Cruz East	26	209	283	307	30, 31
Santa Cruz West	25	209	283	307	30
Santa Lucia	24	200, 208	283	303	23
Santa Marguerita	73	226		386	25
Santa Maria northwest base	25	209		305	30
Santa Maria southeast base	25	209		305	30
Santa Paula Ridge, fire lookout house	88	232			31
Santiago	27	210, 240	283	312	31, 39, 40, 41, 44
Santiago eccentric	27	210, 240		312	31, 39, 40, 41, 44
Sargent	103	182, 204		432	18, 21, 23, 24
Saugus	82	230		403	36
Saunders (U. S. E.)	128	189		463	22
Saw Tooth	149	166	287		11, 13
Sawmill	79	229		398	31, 35, 36
Sawmill Mountain, fire lookout tower	89	233			31, 35, 36
Saxon	115	172		446	17, 22
Schadd No. 2 Landing, navigation beacon	127	175, 189			22
Schaffer	152	168		489	12
School (*see geographic name of location*).					
School (Kern County)	87	232		412	33, 34
School (Riverside County)	57	221, 244	286	356	41
School (San Luis Obispo County)	75	227		390	25
Sealbluff Landing, Pacific Coast Ship Building Co., water tank	138	177, 194			20
Searles (B. M. M 48)	32	211	284	322	28, 39
Searles, Trona Railway, tank	36	213			28, 39
Seaside	106	206		437	24
Section corner (*see* T. (Township)).					
Selby	140	178, 195		481	20
Selby, shot tower, stack	140	178, 195			20
Selby, stack no. 1 (1911)	139	178, 194			20
Selby, stack no. 2 (1911)	139	178, 194			20
Selma	109	206		442	27
Selma, Libby, McNeill & Libby, water tank	112	208			27
Shaffer Peak, highest point	154	169			12
Shafter	110	239		444	27
Shafter, municipal water tank	114	239			27
Shag Rock	144	197			20
Sharp (M. W. D. of S. C.)	68	248		377	45
Sharp Peak	30	241			45
Sharp Peak or Strawberry Peak	41	216	284		31
Shavers Well (M. W. D. of S. C.)	67	248		375	45
Sheep (M. W. D. of S. C.)	60	222, 245		362	45
Sheep Hole Mountains, highest part, pole target	100	237, 250			45

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Shedd	76	227		393	25, 26
Shell	77	227		393	25, 26
Shenandoah Peak, cairn (Nev.)	102	204, 238			29, 43
Sherman	120	173, 187		459	22
Shoemake 2	23	171		301	16
Short (M. W. D. of S. C.)	66	224, 247		373	39, 45
Shrub	86	231		410	34
Shultz	108	183		440	21
Shultz (U. S. G. S.), cairn	111	184		446	21
Shuteye Peak, fire lookout tower	111	184, 207			21
Sibe	101	238		431	43
Sier	51	220, 242	285	348	40
Sierra Buttes, highest point	155	169, 180			15
Sierra Morena	24	182	283	301	18
Sierra Point	145	197		482	20
Signal service tower, Los Angeles	43	217			31
Silurian	99	204, 237		430	29, 43
Silver (Orange County)	54	243	285	352	40
Silver (San Bernardino County)	94	235		420	31, 39
Silver Lake	99	203, 237		429	43
Silverwood (L. A. C. & C. & L. A. S. W. D.)	47	218		341	37
Simmler	33	212		325	23, 30
Single	85	231		409	35
Sister Elsie (U. S. G. S. & L. A. C. & C.)	47	218		341	37
Skyline	73	202		386	23
Slaughterhouse Point 3	134	177, 192		474	20
Sleepy	157	181, 199		495	19
Slope (M. W. D. of S. C.)	61	222, 245		363	45
Slough	120	173, 186		458	22
Sludge	55	220, 243	285	353	40
Smith	109	207		442	27
Smoke	53	243	285	351	40
Snake	77	202, 228		395	26
Snow Mountain East	148	165, 179	287	484	14, 16, 17
Snow Mountain West	22	165, 171	282	298	14, 16, 17
Soco	93	234		418	32
Soda	99	237		429	43
Soda (Oreg.)	147	165	287	483	11
Soldier	151	167	288	487	11, 12
Soledad (Kern County)	80	229		398	31, 34, 35
Soledad (San Diego County)	27	240	283	313	44
Soledad (U. S. G. S.), cairn	90	233		415	31, 34, 35
Sonoma	159	181, 199		497	19
Sonoma Mountain	21	171, 182	282	297	16, 18, 19
South Cajalco (M. W. D. of S. C.)	63	246		367	39, 41, 44
South Fork Peak, highest point	153	168			12
South Twin	136	193		479	20
South Vallejo, Sperry Flour Co., water tank	139	178, 194			20
South Western (L. A. C. & C.)	46	218		340	37
Southampton Shoal Lighthouse	143	196			20
Southern California Edison Co.:					
Station	88	232		414	36
Triangulation station	60	222, 244			41, 42
Spangler	93	203, 235		419	28
Spanish Springs Peak, highest point	154	168			12
Specht	84	230		407	35
Spellacy	91	233		415	31, 32
Spirt (Nev.)	31	211		318	43
Spooner	75	227		389	25
Spring	152	168		489	12
Spur (Riverside County)	55	220, 243	285	354	40
Spur (Siskiyou County)	148	165	287	483	11
Squaw Peak, highest point, cairn	153	168			12
Stack (*see geographic name of location*).					
Standard	73	202, 226		385	23, 26
Standard Oil Co., Inyokern, tank	36	201, 213			28
Star (Orange County)	54	243	285	352	40
Star (Sacramento County)	123	174, 187		462	22
Start (M. W. D. of S. C.)	71	225, 249		381	45
State Farm, water tank	126	188			22
State Line (Nev.)	152	168, 180		490	15
State Line Peak, cairn (Nev.)	154	169			15
Station A	23	172			16
Steamboat	119	173, 186		456	22
Steer	82	230		404	36
Stein	94	235		420	39
Sterling (Oreg.)	147	165	287	483	11

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Stockton	116	185		450	22
Stockton:					
2 miles west of, north steel power pole, latticed	125	188			22
2 miles west of, south steel power pole, latticed	125	188			22
Box Co., water tank	127	189			22
Courthouse, dome	125	188			22
Fiber Products Co., east stack	125	188			22
Fiber Products Co., water tank	125	188			22
Fiber Products Co., west stack	125	188			22
Gulf Red Cedar Co., water tank	127	189			22
Municipal water tank	127	189			22
Western Harvester Co., water tank	127	189			22
Stone (M. W. D. of S. C.)	70	225, 249		380	45
Stony	74	226		387	25
Straight	85	231		409	35
Strathmore	109	207		443	27
Strathmore, water tank	113	208			27
Strawberry	49	219, 242	285	343	39, 42
Strawberry (Brushy) Mountain, fire lookout tower (Oreg.)	153	168		491	12
Strawberry Hill 2	134	192		477	20
Strawberry Peak, fire lookout tower	96	236, 250			39
Strawberry Peak, Sharp Peak or	41	216	284		31
Stump	85	231		410	35
Sugar (Modoc County)	152	167		488	12
Sugar (Orange-Riverside Counties)	50	220, 242	285	346	40
Sugar (San Joaquin County)	117	186		452	22
Sugar Hill 2	133	176, 192		473	18
Sugar Hill, fire lookout tower	153	168			12
Suisun Point, Southern Pacific Co., airway landmark beacon	139	178, 194			20
Sulphur	130	176, 190		467	20
Sulphur Peak	22	171	282	299	16
Summit (Kern County)	86	231		411	34
Summit (M. W. D. of S. C.)	68	248		376	45
Summit (Plumas-Lassen Counties)	153	168, 180		491	15
Summit Peak, cairn	155	169, 180			15
Sunday (Tobias) Peak, fire lookout tower	35	201, 213			27
Sunny Hill	95	235		422	39
Sunnyvale—B. M. G 111	133	192		473	18
Sunnyvale:					
Mooring mast	147	198			18
Stake no. 1	147	198			18
Stake no. 2	147	198			18
Stake no. 3	147	198			18
Sur	84	230		407	35, 36
Surge	83	230		405	35, 36
Sutter	120	173, 186		457	22
T. 1 N., R. 6 E., sec. 17, southwest corner	125	188			22
T 116 (Nev.)	38	202, 214		331	29, 43
Table	156	170		494	13
Table (Nev.)	33	201, 212	284	324	29, 43
Table Bluff, highest wireless tower	156	170		494	13
Tacloma	160	199		498	19
Taft, airport beacon	93	234			32
Taft east base	91	234		416	32
Taft, high school, dome	34	212			31, 32
Taft west base	91	234		416	32
Tagus	109	207		442	27
Tank (*see geographic name of location*).					
Tank (Kern County)	91	234		416	32
Tank (Kings County)	78	203, 228		396	26
Taylor	77	227		394	26
Tehachapi, water tank	90	233			34
Tejon	87	232		413	33
Telegraph	136	193		479	20
Telegraph Peak	41	216	284		31, 39
Telescope Peak, cairn	37	201, 214			28
Temblor	31	211	284	320	30, 31, 32
Tepusquet	25	209	283	304	30
Terminous, water tank	126	175, 189			22
Tessajera	72	225		383	23, 25, 30
Therm (M. W. D. of S. C.)	67	248		374	45
Thomasson	133	176, 192		474	18
Thompson	152	168		490	12, 15
Thompson (Granite) Peak	149	166	287		11, 13
Thompson Peak, fire lookout tower	154	169			12, 15

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Station	Geographic position	Plane coordinates	Elevation	Description	Sketch
	Page	*Page*	*Page*	*Page*	*Figure*
Threemile Slough:					
North transmission tower	127	175, 189			22
South transmission tower	127	175, 189			22
Tie Fort (U. S. G. S.), cairn	37	214		330	28, 39
Tiefort	50	219	285	346	28, 39
Tobias (Sunday) Peak, fire lookout tower	35	201, 213			27
Toland Landing, navigation beacon	127	175, 189			22
Tom (U. S. E.)	128	190		463	22
Tomales Bay	21	171, 182	282	297	18, 19
Tomasi	160	199		498	19
Tower, Leonis Valley, white	89	233			35, 36
Tower, Los Angeles, signal service	43	217			31
Towsley	81	229		402	36
Tracy, municipal water tank (east)	128	190			22
Tracy, municipal water tank (west)	128	190			22
Trans	84	231		407	35
Transformer pole near station Hope	125	175, 188			22
Transmission pole near station Hope	125	175, 188			22
Transmission tower near station Blackjack	137	177, 193			22
Transmission tower near station May	137	177, 193			22
Trapper	117	186		452	22
Traver	109	207		442	27
Triunfo (U. S. G. S. & L. A. C. & C.)	44	217		337	37
Tulare, municipal water tank	113	208			27
Tule Peak, cairn (Nev.)	154	169, 180			15
Tuluacy	131	176		467	18
Tuna (U. S. G. S. & L. A. C. & C.)	45	218		338	37
Turk	132	191		471	18
Turner (U. S. E.)	121	187		459	22
Turquoise	99	203, 237		429	43
Turret	151	167	288	487	12
Turri	74	226		388	25
Turtle (M. W. D. of S. C.)	61	223, 245		364	45
Twentynine Palms	97	236, 250		425	45
Twentynine Palms, target on sand hill	100	237, 250			45
Two Rock	22	171	282	298	13, 16
Ukiah Latitude	23	172			16
Ukiah magnetic	23	171		300	16
Union	97	236, 250		424	39, 42
Union-Coney Islands:					
East transmission pole	129	190			22
West transmission pole	129	190			22
Union Oil Co., pumping station stack	79	203, 228			26
U. S. Forest Service boundary monument no. 190	102	204, 238			29, 43
U. S. Geological Survey black-and-white tripod (west of Haskell Canyon)	89	232			36
U. S. Geological Survey target (south of station House)	89	233			36
U. S. Geological Survey tripod (between Charlie and Tapia Canyons)	89	233			36
United States-Mexico boundary monument no. 258	28	240		314	44
University of California, College of Agriculture, water tank	122	174			22
Vaca (Monterey County)	103	183, 204		433	23, 24
Vaca (Solano County)	21	170, 182	282	295	17, 18
Valjean	102	204, 238		432	29, 43
Vallejo 3	134	177, 192	287	475	20
Vallejo, St. Vincent School, flagpole	142	179, 195			20
Valley	97	236, 250		425	45
Valley Wells	101	204, 238		431	43
Van Buren	57	221, 244	286	357	41, 42
Van Sickle Island, navigation beacon	138	177, 194			22
Venice	109	207		442	27
Venice (U. S. E.)	121	187		460	22
Vent	53	243	285	350	40
Verdugo (U. S. G. S. & L. A. C. & C.)	47	218		341	37
Vernon (L. A. C. & C.)	47	218, 241		341	37
Vic (U. S. E.)	129	190		464	22
Victor	96	236		423	39
Victorville, Portland Cement Co., tallest stack	96	236			39
Vidal (M. W. D. of S. C.)	70	225, 249		380	45
View (Los Angeles County)	82	230		404	36
View (Santa Clara County)	132	191		471	18
View (Solano County)	134	176, 192		474	20
Vinyard	76	227		392	25
Violet Ray Gas Co., stack	88	232			36
Virginia Peak, monument (Nev.)	23	165, 171			15
Visalia, Southern California Edison Co., water tank	113	208			27

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Station	Geographic position	Plane coordinates	Elevation	Description	Sketch
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Vista (M. W. D. of S. C.)	70	225, 249		380	45
Volmer	73	226		386	25
Vorden	120	173, 187		458	22
Vorden, 1½ miles northwest of:					
Northeast transmission tower	123	174, 187			22
Southwest transmission tower	123	174, 187			22
Vorden, 1½ miles southeast of:					
Northeast transmission tower, latticed	123	174, 187			22
Southwest transmission tower, latticed	123	174, 187			22
Walalla	22	171	282	299	16
Walker	119	173, 186		457	22
Walnut	115	172, 185		448	22
Walnut Grove:					
1¼ miles north of Libby, McNeill & Libby, water tank	124	174, 187			22
1½ miles north-northeast of, Standard Oil Co., water tank	123	174, 187			22
Walters	74	226		387	25
Walters, red water tank south of station	79	228			25
Warm Springs	59	221	286	360	42
Warren	152	168		489	12
Warren Peak, cairn	153	168			12
Wasco	109	239		444	27
Wasco, water tank	113	239			27
Wash (Kern County)	83	230		406	34, 35
Wash (San Bernardino County)	59	222, 244	286	360	42
Water tank (*see geographic name of location*).					
Waterhole	78	228		395	26
Watts, Tajanta Schoolhouse, tower	44	217			31
Weaver	155	169		491	11, 13
Weaver (U. S. G. S.), cairn	156	170		494	11, 13
Webb	120	173, 187		459	22
Weed Lumber Co.:					
East chimney	151	167	288		11
West chimney	151	167	288		11
Well (Kern County)	93	234		418	32
Well (San Bernardino County)	93	235		419	28, 39
West	90	233		415	31, 32
West Beach	40	216		334	31
West Beach No. 3 (U. S. G. S. & L. A. C. & C.)	46	218, 241		340	37
West Berkeley, Eldorado Oil Co., water tank	142	196			20
West Los Angeles, M. E. Church, spire	43	217			31
West Sacramento, small water tank	122	174			22
Whaleback	150	167	288	487	11
Wheat	76	227		392	26
Wheeler	31	211	284	320	31, 33
Whitewater (M. W. D. of S. C.)	67	224, 247		374	39, 44, 45
Wide (M. W. D. of S. C.)	66	224, 247		373	39, 45
Wilder	58	221, 244	286	358	41, 42
Williams	117	186		45	22
Willow Springs	83	230		406	35
Wilson Peak	26	209, 240	283	310	31, 37, 38, 39
Wilson Peak astronomical station, Mount Wilson	44	217		336	31, 38, 39
Windmill	77	228		394	26
Wintoon (Black) Butte, cairn	149	166	287	485	11
Wittenberg	157	181, 198		495	18, 19
Wolf (M. W. D. of S. C.)	64	246		369	39, 44
Wood (Contra Costa County)	129	176, 190		464	22
Wood (M. W. D. of S. C.)	67	248		375	45
Wood (San Luis Obispo County)	76	227		393	26
Wooden pole, near station Lindley	126	188			22
Workman Hill (L. A. C. & C. & L. A. F. C.)	48	219, 241		342	37
Yates	105	205		436	24
Yerba Buena Island, lookout	143	196			20
Yolo northwest base	21	170, 182	282	296	17, 21, 22
Yolo southeast base	21	170, 182	282	295	17, 22
Yonna (Oreg.)	150	166	288	486	11, 12
Yorba	55	220, 243	285	353	40
Yosemita Cement Co.:					
North stack	111	184			21
South stack	111	184			21
Yucca (Inyo County)	32	201, 211	284	322	28
Yucca (Los Angeles County)	82	230		403	36

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