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TRIANGULATION ALONG THE WEST COAST
OF FLORIDA

BY

CLARENCE H. SWICK
Computer, U. S. Coast and Geodetic Survey

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TRIANGULATION ALONG THE WEST COAST OF FLORIDA.

By CLARENCE H. SWICK,

Computer, U. S. Coast and Geodetic Survey.

GENERAL STATEMENT.

The main purpose of this publication is to give to the engineering public as complete a list as possible of the results of triangulation along the west coast of Florida from Cape Sable to Alabama and from the inland town of Gainesville to the coast at Cedar Keys, in all more than 1150 triangulation stations. This, together with Appendix 6, United States Coast and Geodetic Survey Report for 1911,¹ gives all the available triangulation data for the State of Florida.

This triangulation presents no unusual geodetic features, is not of primary degree of accuracy, was done under methods now largely superseded (except that which was done since 1900), and consequently offers little or no material for discussion. If its scientific value be small, on the other hand its practical value is large, for it offers to the engineer and to the geographer the positions of a large number of points determined trigonometrically and all correlated on one geodetic datum, known as the United States Standard Datum. (See p. 7.)

The accuracy of this triangulation is comparable with that of other coast triangulation in the United States; that is, it is about the same as the accuracy of triangulation usually classed as tertiary. The probable error of a length is less than 1 part in 5000 except between side points or between intersection points near together determined from distant stations, where the error is likely to exceed this amount.

THE TRIANGULATION.

This publication is mainly taken up with the results of the triangulation, namely, the list of geographic positions, the descriptions of the stations, and the sketches. The details of the field and office work which are always included in United States Coast Survey publications of primary triangulation are not of sufficient importance in work of this character to warrant publication. The index at the end of the book used in connection with the sketches makes it possible to obtain easily and quickly the data for any station or group of stations. As complete descriptions as are available are given for the principal points and for part of the supplementary points. Nearly all of the remaining stations are sufficiently described by their names, as, for example, "Tampa Bay Hotel, north tower."

The observations involved in this triangulation extend over a period of more than 60 years. Ordinarily, triangulation which has been done many years prior to the date of the publication of its results is largely reduced in value to the engineer by the loss of stations, either through the destroying agencies of time or the building agencies of man. In many cases, due to changes in the surrounding topography or to the destruction of the surface and reference marks, the engineer might fail to recover a station which still exists. If he dug at the proper place he would discover the mark and recover the station, but without the guidance of the reference marks or of the local topography he can recover it only by locating a point in the vicinity by means of

¹ Triangulation along the East Coast of Florida and on the Florida Keys, by Hugh C. Mitchell.

triangulation carried from the nearest available triangulation stations. After determining the geographic position of the new point a distance and direction can be computed to the position of the old station and measurements made to the spot indicated by the computations as its probable location.

A considerable portion of the triangulation along the west coast of Florida has been revised in recent years. Many of the old stations, the localities of which were visited, were not recovered. Some of them, it was determined, have been lost or destroyed. Others, it seemed probable, still existed, but the expense of a complete search was too great and the chances of recovery too small to warrant the search. Many stations, however, were recovered, and they were usually re-marked in a more permanent manner. Their descriptions were revised and additions made to them where necessary.

At several places along the coast, principally in the bays and harbors, new triangulation has been executed over the areas covered by the old triangulation. The reason for this apparent duplication is that not enough of the old stations could be recovered in those particular regions to control the hydrography or the topography. In every case the new work starts from two or more of the old stations which were recovered and is tied to as many more of the old stations as it was possible to locate. In St. Andrews Bay and the upper part of Tampa Bay, where nearly all of the old stations have been lost, only those recovered and the new stations have been included in this publication. At other places along the coast, as, for example, in Boca Ceiga Bay, practically all of the old stations have been lost and new triangulation has been executed over the same areas, but it has been necessary to use the old work in carrying forward the United States Standard Datum, and so the results have been included in this book.

It will be seen from the sketches at the end of this publication that the triangulation consists to a large extent of a chain of quadrilaterals with all angles observed. Along two different sections of the coast, from Cape Romano to San Carlos Bay and from St. Andrews Bay to a point opposite the eastern end of Choctawhatchee Bay, beach measures made with long wires were substituted for the triangulation. The horizontal angles were measured and the positions were carried ahead by means of these angles and the measured lengths of the traverse. Between Gainesville and the coast at Cedar Keys a traverse of a high degree of accuracy was measured along the railroad. This section of traverse, together with the section from Gainesville to Baldwin, published in Appendix 6, United States Coast and Geodetic Survey Report for 1911, serves to connect the northern end of the triangulation on the east coast of Florida with the west coast triangulation, and completes the loop around the southern and eastern part of the State.

ADJUSTMENT OF THE TRIANGULATION.

As stated in Appendix 6, Report for 1911, the positions of certain points in Fernandina were held fixed from an adjustment extending from the Eastern Oblique Arc near Atlanta, Ga. The triangulation from Fernandina to Baldwin, part way across the Florida peninsula, and the traverse from Baldwin to the west coast at Cedar Keys, were held fixed after having been adjusted for discrepancies of triangle closures, ratios of sides, and lengths, and having been made to conform to observed azimuths. No discrepancies developed in closing a loop were distributed in this part of the triangulation as it was considered to be of a much higher degree of accuracy than other parts of the loop.

The chain of triangulation (including a small section of measured traverse) along the Gulf coast between Cedar Keys and the Eastern Oblique Arc at Mobile Bay, was then adjusted, holding fixed the triangulation at Mobile Bay, and at Cedar Keys, and all observed azimuths and measured lengths along the coast.

In a similar manner the chain of triangulation, and sections of measured traverse extending down the east coast of Florida, around Cape Sable, and up the west coast to Cedar Keys was adjusted, holding fixed the triangulation at Fernandina, and at Cedar Keys, and all observed azimuths, and measured lengths.

In each of these two pieces of triangulation all observed azimuths were held fixed and the triangulation adjusted to them, it being reasonably certain that the observed azimuths were superior to any that might be computed through the triangulation. All measured lengths were also held. The discrepancies remaining in the triangulation after all conditions noted above had been satisfied were distributed along the weaker sections of the triangulation by means of latitude and longitude equations, it being believed that the character of the triangulation warranted this, and that the corrections fell close to where they belonged. This also made considerable saving in the computation.

THE UNITED STATES STANDARD DATUM.¹

All of the positions and azimuths have been computed upon the Clarke spheroid of 1866, as expressed in meters, which has been in use in the Coast and Geodetic Survey for many years.

After a spheroid has been adopted and all the angles and lengths in a triangulation have been fully fixed, it is still necessary, before the computation of latitudes, longitudes, and azimuths can be made, to adopt a standard latitude and longitude for a specified station and a standard azimuth of a line from that station. For convenience, the adopted standard position (latitude and longitude) of a given station, together with the adopted standard azimuth of a line from that station, is called the geodetic datum.

The primary triangulation in the United States was commenced at various points, and existed at first as a number of detached portions in each of which the geodetic datum was necessarily dependent only upon the astronomic stations connected with that particular portion. As examples of such detached portions of triangulation there may be mentioned the early triangulation in New England and along the Atlantic coast, a detached portion of the transcontinental triangulation centering on St. Louis and another portion of the same triangulation in the Rocky Mountain region, and three separate portions of triangulation in California, in the latitude of San Francisco, in the vicinity of Santa Barbara Channel, and in the vicinity of San Diego. With the lapse of time these separate pieces have expanded until they have touched or overlapped.

The transcontinental triangulation, of which the office computation was completed in 1899, joins all of the detached portions mentioned and makes them one continuous triangulation. As soon as this took place the logical necessity existed of discarding the old geodetic data used in these various pieces and substituting one datum for the whole country, or at least for as much of the country as is covered by continuous triangulation. To do this is a very heavy piece of work, and involved much preliminary study to determine the best datum to be adopted. On March 13, 1901, the Superintendent adopted what is now known as the United States Standard Datum, and it was decided to reduce the positions to that datum as rapidly as possible. The datum adopted was that formerly in use in New England, and therefore its adoption did not affect the positions which had been used for geographic purposes in New England and along the Atlantic coast to North Carolina, nor those in the States of New York, Pennsylvania, New Jersey, and Delaware. The adopted datum does not agree, however, with that used in The Transcontinental Triangulation and in The Eastern Oblique Arc of the United States, publications which deal primarily with the purely scientific problem of the determination of the figure of the earth, and which were prepared for publication before the adoption of the new datum.

As the adoption of such a standard datum is a matter of considerable importance, it is in order here to explain the desirability of this step more fully.

The main objects to be attained by the geodetic operations of the Coast and Geodetic Survey are, first, the control of the charts published by the Survey; second, the furnishing of geographic positions (latitudes and longitudes), of accurately determined elevations, and of distances and azimuths, to officers connected with the Coast and Geodetic Survey and to other organizations; third, the determination of the figure of the earth. The first two of these objects are purely practical; the third is purely scientific. For the first and second objects

¹ After the manuscript for this publication had gone to the printer, the United States Standard Datum was adopted by Canada and Mexico. On account of its international character it will hereafter be known as the North American Datum.

it is not necessary that the reference spheroid should be accurately that which most closely fits the geoid within the area covered, nor that the adopted geodetic datum should be absolutely the best that can be derived from the astronomic observations at hand. It is simply desirable that the reference spheroid and the geodetic datum adopted shall be, if possible, such a close approximation to the truth that any correction which may hereafter be derived from the observations which are now or may become available shall not greatly exceed the probable errors of such corrections. It is, however, very desirable that one spheroid and one geodetic datum be used for the whole country. In fact, this is absolutely necessary if a geodetic survey is to perform fully the function of accurately coordinating all surveys within the area which it covers. This is the most important function of a geodetic survey. To perform this function it is also highly desirable that when a certain spheroid and geodetic datum have been adopted for a country they should be rigidly adhered to without change for all time, unless shown to be largely in error.

In striving to attain the third object, the determination of the figure of the earth, the conditions are decidedly different. This problem concerns itself primarily with astronomic observations of latitude, longitude, and azimuth, and with the geodetic positions of the points at which the astronomic observations were made, but is not concerned with the geodetic positions of other points fixed by the triangulations. The geodetic positions (latitudes and longitudes) of comparatively few points are therefore concerned in this problem. However, in marked contrast to the statements made in preceding paragraphs, it is desirable in dealing with this problem that, with each new important accession of data, a new spheroid fitting the geoid with the greatest possible accuracy, and new values of the geodetic latitudes, longitudes, and azimuths of the highest degree of accuracy, should be derived.

The United States Standard Datum was adopted with reference to positions furnished for geographic positions, but has no reference to the problem of the determination of the figure of the earth. It is adopted with reference to the engineer's problem of furnishing standard positions, and does not affect the scientist's problem of the determination of the figure of the earth.

The principles which guided in the selection of the datum to be adopted were: First, that the adopted datum should not differ widely from the ideal datum for which the sum of the station errors in latitude, longitude, and azimuth should each be zero; second, it was desirable that the adopted datum should produce minimum changes in the publications of the Survey, including its charts; and, third, it was desirable, other things being equal, to adopt that datum which allowed the maximum number of positions already in the office registers to remain unchanged, and therefore necessitated a minimum amount of new computation. These considerations led to the adoption as the United States Standard of the datum which had been in use for many years in the northeastern group of States and along the Atlantic coast as far as North Carolina.

An examination of the station errors available in 1903, on the United States Standard Datum, at 246 latitude stations, 76 longitude stations, and 152 azimuth stations, scattered widely over the United States from Maine to Louisiana and to California, indicated that this datum approaches closely the ideal with which the algebraic sum of the station errors of each class would be zero.¹

The adopted United States Standard Datum, upon which the positions and azimuths given in this publication depend, may be defined in terms of the position of the station Meades Ranch as follows:

$$\begin{aligned} & \circ \quad / \quad '' \\ \phi &= 39 \ 13 \ 26.686 \\ \lambda &= 98 \ 32 \ 30.506 \\ \alpha \text{ to Waldo} &= 75 \ 28 \ 14.52 \end{aligned}$$

¹This is further borne out in the reduction of 765 astronomic stations in connection with the "Supplementary investigation in 1909 of the figure of the earth and isostasy," by J. F. Hayford, published by the Coast and Geodetic Survey.

Points are then said to be upon the United States Standard Datum when they are connected with the station Meades Ranch by a continuous triangulation, through which the corresponding latitudes, longitudes, and azimuths have been computed on the Clarke spheroid of 1866, as expressed in meters, starting from the above data.

The principal lists of geographic positions heretofore published upon the United States Standard Datum throughout the whole United States are contained in the following publications of the Coast and Geodetic Survey and of other organizations:

Appendix 8 of the Report for 1885, positions in Massachusetts and Rhode Island; Appendix 8 of the Report for 1888, positions in Connecticut; Appendix 8 of the Report for 1893, positions in Pennsylvania, Delaware, and Maryland; Appendix 10 of the Report for 1894, positions in Massachusetts; Appendix 6 of the Report for 1901, positions in Kansas and Nebraska; Appendix 3 of the Report for 1902, positions in Kansas, Missouri, Nebraska, and Colorado; Appendix 4 of the Report for 1903, positions in Kansas, Oklahoma, and Texas; Appendix 9 of the Report for 1904, positions in California; Appendix 5 of the Report for 1905, positions in Texas; Appendix 3 of the Report for 1907, positions in California; Appendix 5 of the Report for 1910, positions in California; Appendix 4 of the Report for 1911, positions in Nebraska, Minnesota, North Dakota, and South Dakota; Appendix 5 of the Report for 1911, positions in Texas; Appendix 6 of the Report for 1911, positions in Florida; Special Publication No. 11, positions in Texas, New Mexico, Arizona, and California; Special Publication No. 13, positions in California, Oregon, and Washington; Appendix EEE, pages 2905-3031, Annual Report of the Chief of Engineers, 1902, positions of points on and near the Great Lakes; in publications of the Massachusetts Harbor and Land Commission; and in various bulletins of the United States Geological Survey.

TABLES OF POSITIONS

In the tables of positions the latitude and longitude of each point are given on the United States Standard Datum (see p. 7), also the length and azimuth of each line observed over, whether in one or both ways. This is, in a way, a duplication, as the lengths and azimuths are implicitly contained in the corresponding latitudes and longitudes, while, on the other hand, from the latitude and longitude of a single point all the remaining latitudes and longitudes may be derived by means of the given lengths and azimuths. The amount of computation involved in transforming one of these systems of coordinates into the other is so great that it is necessary to have the double system for the convenient use of the tables. Along with the latitude and longitude of each point the lengths and azimuths are given of lines from that point to other points of the triangulation. No lengths or azimuths are repeated, and for a given line the length and azimuth will generally be found opposite the position of the last mentioned of the two stations involved.

For the convenience of the draftsman a column of "seconds in meters" is given, in which is placed the length (in meters) of each small arc of a meridian or parallel corresponding to the seconds of the given latitude or longitude. To facilitate further the use of the tables, a column is given of the logarithms of the lengths. It must be remembered that it is the logarithm which is derived first in the computation, the lengths given in this table being then derived from the corresponding logarithms.

The rule followed in recent publications of this Office has been to give latitudes and longitudes 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 a footnote as being without check. This note means that the object was pointed on from only two triangulation stations and that therefore an error in either pointing or in the identification of the object from either occupied station would not be detected in the computation.

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 two doubtful figures are given. 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 be cast on the third figure from the right.

These tables may be conveniently consulted by using as finders the sketches and index at the end of this publication. In the third column of the index will be found for each point a reference to the page on which its description will be found, and in the fourth column the number of the sketch on which it appears.

For the convenience of those who wish to convert the distances given in the table from meters into feet the following conversion table is here inserted:

Meters	Feet	Feet	Meters
1	3.280833	1	0.3048006
2	6.561667	2	0.6096012
3	9.842500	3	0.9144018
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

TRIANGULATION ALONG THE WEST COAST OF FLORIDA.

CAPE SABLE TO SAN CARLOS BAY

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Principal points</i>							
Cape Sable west base 1855	25 07 19.512 81 04 08.686	600.2 243.3	249 52 59.3	69 54 30.8	Cape Sable east base	Meters 6431.59	3.808318
Cape Sable latitude station 1886	25 06 59.582 81 05 13.394	1833.3 375.5	251 18 22.8	71 18 50.3	Cape Sable west base	1913.7	3.281876
Quick 1886	25 04 23.696 81 06 51.199	729.1 1434.8	209 44 11.2	29 44 52.7	Cape Sable astronomic station	5524.2	3.742273
Palm Point 1886	25 09 28.230 81 08 23.371	868.6 654.6	220 04 45.2	40 05 54.1	Cape Sable west base	7071.1	3.849489
			288 40 42.0	108 43 05.8	Sandy Key 2	10046.0	4.001992
Cates 1886	25 07 21.785 81 10 58.854	670.3 1592.7	310 40 05.3	130 41 26.0	Cape Sable astronomic station	7016.9	3.846148
			344 35 14.9	164 35 54.0	Quick	9719.6	3.987650
Northwest Cape 1887	25 14 05.088 81 10.24.931	156.6 697.8	227 50 46.6	47 51 51.8	Palm Point	9173.5	3.962537
			274 02 27.7	94 04 53.5	Cates	12441.6	4.094877
Nell 1887	25 13 52.674 81 13 55.942	1620.8 1555.7	206 17 12.7	86 18 42.6	Northwest Cape	5918.3	3.772200
			311 07 46.6	131 10 08.2	Palm Point	12365.6	4.092216
Shark 1887	25 16 11.942 81 10 07.309	367.5 204.5	7 12 05.3	187 11 57.8	Northwest Cape	3934.3	3.594871
			56 12 03.9	236 10 26.4	Nell	7700.8	3.886534
Pinafore 1887	25 16 20.425 81 13 46.261	628.3 1294.3	272 25 35.9	92 27 09.4	Shark	6131.9	3.787595
			306 27 26.1	126 28 52.0	Northwest Cape	7006.0	3.845473
Rodgers 1887	25 23 13.914 81 09 05.443	428.1 152.2	7 35 38.3	187 35 11.8	Shark	13099.0	4.117237
			31 42 08.6	211 40 08.4	Pinafore	14951.9	4.174695
Lucknow 1887	25 22 03.383 81 12 53.195	104.1 1487.2	251 09 51.1	71 11 28.7	Rodgers	6726.7	3.827805
			336 46 05.7	156 47 16.6	Shark	11767.2	4.070674
Fig 1887	25 30 26.523 81 12 33.174	816.1 926.4	336 25 48.7	156 27 17.9	Rodgers	14522.0	4.162026
			2 04 14.3	182 04 05.7	Lucknow	15492.1	4.190110
Tycoon 1887	25 28 56.644 81 16 48.506	1743.0 1354.9	248 47 12.7	68 49 02.6	Fig	7648.7	3.883585
			309 09 14.2	129 12 33.1	Rodgers	16692.6	4.222524
Seminole 1887	25 36 49.779 81 16 20.915	1531.8 583.5	331 39 35.2	151 41 13.5	Fig	13397.5	4.127025
			3 01 48.1	183 01 36.2	Tycoon	14579.3	4.163737
Mikado 1887	25 74 42.205 81 19 40.751	1298.7 1137.4	234 50 38.7	54 52 05.0	Seminole	6819.7	3.833764
			303 21 47.5	123 24 51.9	Fig	14296.3	4.155232
Reef 1887	25 41 56.512 81 19 23.633	1738.9 658.9	331 37 22.2	151 38 41.3	Seminole	10726.6	4.030466
			2 02 50.4	182 02 43.0	Mikado	13372.8	4.126223
Alpha 1887	25 38 59.356 81 23 48.175	1826.5 1343.8	233 31 18.9	53 33 13.5	Reef	9172.9	3.962509
			287 41 42.1	107 44 55.6	Seminole	13098.9	4.117234
Pavillon Key 1887	25 41 26.968 81 21 20.767	829.8 579.0	315 32 41.0	135 34 50.9	Seminole	11945.8	4.077215
			347 22 03.1	167 22 46.5	Mikado	12763.8	4.105980
Freeland 1887	25 44 58.021 81 23 05.841	1785.4 162.8	42 09 18.8	222 08 14.9	Alpha	6126.3	3.787200
			312 01 40.5	132 03 17.0	Reef	8340.5	3.921194
Iroquois 1887	25 45 07.879 81 30 33.648	242.4 937.8	335 43 03.8	155 43 49.4	Pavillon Key	7124.5	3.852754
			6 06 24.5	186 06 06.1	Alpha	11090.7	4.045312
Coral 1887	25 45 05.362 81 28 08.716	165.0 242.8	271 21 55.4	91 25 09.9	Freeland	12483.8	4.066345
			293 46 03.1	113 50 03.1	Pavillon Key	16844.8	4.226466
Pontiac 1887	25 43 40.704 81 25 58.028	1252.5 1617.6	304 19 08.6	124 21 20.3	Freeland	10220.2	4.009461
			36 29 16.9	216 28 13.9	Iroquois	6792.3	3.832019
Fire 1887	25 49 54.745 81 30 47.702	1684.6 1328.5	155 54 55.9	335 53 50.0	Coral	8921.2	3.950425
			243 37 11.5	63 38 26.3	Freeland	5356.6	3.728391
Gomez 1887	25 47 00.012 81 33 36.148	0.4 1007.2	298 00 50.1	118 02 50.4	Pavillon Key	8757.0	3.942357
			307 13 43.1	127 14 52.3	Coral	5562.4	3.745263
Horse Key 1887	25 51 19.345 81 33 57.212	595.3 1593.0	357 27 34.0	177 27 40.1	Iroquois	8836.2	3.946265
			221 05 58.8	41 07 12.2	Fire	7136.4	3.853482
Flossy 1887	25 48 05.826 81 36 57.874	179.3 1612.2	257 32 53.7	77 35 16.2	Coral	9341.2	3.970401
			296 14 44.4	116 16 07.0	Fire	5884.6	3.769717
Coon Key 1887	25 53 50.285 81 38 08.031	1547.4 223.0	301 34 15.5	121 36 47.3	Coral	11394.7	4.056704
			355 47 38.4	175 47 47.5	Gomez	8001.8	3.903190
Cape Romano 1885	25 50 37.382 81 40 58.150	1150.3 1619.3	220 11 05.4	40 12 24.1	Horse Key	7796.2	3.891881
			251 58 11.7	72 00 52.9	Fire	10841.8	4.035103
Cape Romano 1885	25 50 37.382 81 40 58.150	1150.3 1619.3	303 36 56.9	123 38 46.4	Horse Key	8386.5	3.923582
			349 33 10.7	169 33 41.3	Flossy	10778.4	4.032554
Cape Romano 1885	25 50 37.382 81 40 58.150	1150.3 1619.3	218 34 32.4	38 35 46.6	Coon Key	7594.1	3.880477
			263 41 16.7	83 44 20.2	Horse Key	11792.5	4.071805
			304 51 26.5	124 53 11.1	Flossy	8167.1	3.911534

CAPE SABLE TO SAN CARLOS BAY—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Loga-rithm
<i>Principal points—Contd</i>							
Johnson 1887	25 54 46.326	1425.5	286 14 56.1	106 16 28.9	Coon Key Cape Romano	6158.5	3.789473
	81 41 40.442	1125.5	351 15 35.6	171 15 54.1		7760.6	3.889335
Caximbas 1885	25 54 35.300	1086.2	264 30 56.2	84 31 51.8	Johnson Cape Romano	3555.2	3.550862
	81 43 47.597	1324.7	327 11 40.8	147 12 54.8		8709.5	3.939994
Big Maroo 1885	25 57 35.230	1084.1	340 04 04.4	160 04 35.9	Caximbas	5889.6	3.770086
	81 44 59.737	1661.9					
Little Maroo 1885	26 00 56.409	1735.9	345 29 38.8	165 30 04.0	Big Maroo	6394.6	3.805816
	81 45 57.311	1593.7					
Johns Pass 1885	26 04 14.818	456.0	335 12 08.5	155 12 53.0	Little Maroo	6725.5	3.827726
	81 47 38.752	1077.1					
Gordons Pass 1885	26 05 26.338	810.5	340 35 02.4	160 36 23.0	Big Maroo Johns Pass	15370.6	4.186692
	81 48 03.400	94.5	342 42 35.3	162 42 46.1		2305.1	3.362694
Doctors Pass 1885	26 10 35.069	1079.2	351 43 25.0	171 43 46.9	Gordons Pass	9600.7	3.982303
	81 48 53.132	1475.5					
Wiggins Pass 1884	26 17 21.790	670.6	352 23 03.0	172 23 29.6	Doctors Pass	12627.8	4.101327
	81 49 53.399	1481.4					
Big Hickory 1884	26 21 17.142	527.6	341 06 08.0	161 06 47.6	Wiggins Pass	7655.2	3.883950
	81 51 22.770	631.3					
Big Carlos 1884	26 24 18.163	559.0	323 25 10.8	143 26 17.0	Big Hickory	6936.6	3.841144
	81 53 51.861	1437.3					
Little Carlos 1884	26 23 21.158	651.2	326 44 26.3	146 45 06.4	Big Hickory Big Carlos	4563.9	3.659334
	81 52 53.042	1470.3	137 06 09.8	317 05 43.7		2304.9	3.379286
Oyster Key 1884	26 22 18.377	565.6	41 08 18.8	221 07 52.4	Big Hickory Little Carlos	2502.1	3.398302
	81 50 23.403	648.7	114 59 01.6	294 57 55.1		4676.0	3.660486
Bowditch Point 2 1883	26 27 12.309	378.8	311 41 00.6	131 42 37.2	Big Carlos	8056.8	3.906164
	81 57 28.967	802.4					
Mound Key 1884	26 25 15.693	483.0	336 19 55.6	156 20 33.9	Oyster Key Little Carlos Big Carlos Bowditch Point 2	5957.8	3.775084
	81 51 49.673	1376.5	26 29 21.0	206 28 52.8		3938.1	3.595289
			62 24 16.5	242 23 22.3		3821.1	3.582192
			110 54 55.7	290 52 24.9		10062.6	4.002712
Point Ybel 2 1883	26 27 14.385	442.7	270 38 55.6	90 40 24.8	Bowditch Point 2 Big Carlos	5541.2	3.743607
	82 00 48.973	1356.7	295 06 41.2	115 09 46.9		12766.9	4.106986
Summerlin 1884	26 29 22.290	686.0	306 21 49.7	126 23 17.1	Bowditch Point 2 Point Ybel 2	6744.8	3.828972
	82 00 45.021	1246.9	1 35 36.0	181 35 34.2		3937.8	3.595256

CALOOSAHATCHEE RIVER TO CHARLOTTE HARBOR

<i>Principal points</i>							
Middle Point 1858	26 28 09.145	281.4	244 27 03.7	64 28 19.6	Summerlin Point Ybel 2	5221.5	3.717793
	82 03 35.122	972.9	290 06 00.0	110 07 14.0		4901.4	3.690318
Sword Point 1861	26 31 28.730	884.2	323 37 25.2	143 38 11.4	Summerlin Middle Point	4832.6	3.684180
	82 02 28.511	789.3	16 43 12.4	196 42 42.7		6413.3	3.807082
Punta Rasa 1859	26 29 12.127	373.2	67 16 45.9	247 15 31.4	Middle Point Sword Point	5016.2	3.700376
	82 00 48.081	1331.7	146 31 16.4	326 30 31.6		5040.6	3.702483
South End 1884	26 29 48.102	1480.4	207 08 16.6	27 08 42.2	Sword Point Summerlin Point Ybel 2	3480.1	3.541590
	82 03 25.846	715.7	280 06 09.1	100 07 20.9		4524.2	3.655538
			317 26 23.0	137 26 32.9	6423.3	3.807759	
Caloosa 1860	26 29 32.518	1000.8	201 31 14.0	21 31 36.7	Sword Point Middle Point	3844.6	3.584850
	82 03 19.451	538.6	9 36 08.7	189 36 01.7		2602.3	3.415352
White 1860	26 32 09.296	286.1	293 57 51.6	113 58 36.9	Sword Point South End	3072.9	3.487551
	82 04 09.934	275.0	344 18 20.1	164 18 39.8		4513.5	3.654515
Sanibel east base 1858	26 26 51.149	1574.1	122 52 36.1	302 51 36.3	Middle Point Punta Rasa	4422.9	3.645705
	82 01 21.022	582.3	191 52 20.4	11 52 44.1		4433.5	3.646751
Sanibel west base 1868	26 25 58.014	1785.4	169 34 48.4	349 34 36.5	Middle Point Sanibel east base	4103.25	3.613126
	82 03 08.331	230.8	241 10 58.3	61 11 46.1		3393.2	3.530605
Sanibel 1858	26 25 51.855	1595.8	231 47 00.7	51 48 27.0	Middle Point Sanibel west base	6831.6	3.834520
	82 06 48.894	1354.8	268 12 35.6	88 14 13.8		6114.4	3.786356
Havelock 1858	26 30 05.720	176.0	309 53 04.5	129 54 13.6	Middle Point Sanibel	5593.6	3.747695
	82 06 10.078	279.1	7 50 18.7	187 50 01.4		7886.4	3.896877
Blind Pass 1858	26 28 51.801	1594.2	254 32 06.9	74 34 19.5	Havelock Sanibel	8541.3	3.931524
	82 11 07.352	203.6	307 42 14.6	127 44 09.7		9051.7	3.956730
Captiva 1858	26 33 29.591	910.7	301 30 07.8	121 32 52.8	Havelock Blind Pass	11999.5	4.079164
	82 12 19.539	540.8	346 50 12.8	166.50 45.0		8779.6	3.943474

CALOOSAHATCHEE RIVER TO CHARLOTTE HARBOR—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Principal points—Contd</i>							
Lucknow 1858	26 35 31.554 82 08 03.721	971.1 103.0	342 34 33.8 62 05 02.2	162 35 24.6 242 03 07.7	Havelock Captiva	<i>Meters</i> 10509.5 8013.0	4.021584 3.903797
Boca Captiva 1859	26 36 40.539 82 13 28.750	1247.6 795.3	283 15 47.6 341 56 40.5	103 18 13.1 161 57 11.5	Lucknow Captiva	9240.1 6180.8	3.965675 3.791043
Bocillas 1859	26 42 12.381 82 10 08.486	381.0 234.6	344 21 53.2 28 28 57.2	164 22 49.2 208 27 27.4	Lucknow Boca Captiva	12809.3 11617.7	4.107527 4.065122
Boca Grande 1859	26 43 00.210 82 15 48.293	6.5 1334.8	278 53 07.1 341 42 58.1	98 55 39.8 161 44 00.7	Bocillas Boca Captiva	9507.5 12305.4	3.978065 4.090096
Oso 1858	26 46 57.017 82 12 53.344	1753.7 1473.0	332 30 47.6 33 34 03.1	152 32 01.8 213 32 44.4	Bocillas Boca Grande	9873.8 8745.6	3.994485 3.941790
El Gabo 1859	26 47 01.856 82 08 54.505	57.1 1505.6	12 55 43.3 56 59 03.1	192 55 10.0 236 55 56.9	Bocillas Boca Grande Oso	9140.5 13639.7 6599.4	3.960972 4.134804 3.819502
Mound 1860	26 48 19.653 82 10 47.540	604.8 1313.0	307 28 36.1 53 48 26.7	127 29 27.0 233 47 30.0	El Gabo Oso Flat	3934.5 4306.1 0169.3	3.594895 3.634088 3.790233
Torrey 1859	26 46 34.660 82 03 42.276	1060.7 1167.9	52 55 23.0 95 33 43.9	232 52 29.8 275 31 23.2	Bocillas El Gabo	13381.5 8665.8	4.126504 3.937807
Punta Gorda 1859	26 53 32.734 82 05 32.716	1007.5 902.9	346 39 36.8 24 51 48.0	166 40 26.7 204 50 16.9	Torrey El Gabo Mound	13223.4 13257.5 12976.6	4.121343 4.122463 4.113160
Pelican 1859	26 50 14.528 82 03 46.842	447.1 1293.4	55 06 31.7 154 24 28.5	235 04 12.9 334 23 40.6	El Gabo Punta Gorda	10301.4 6764.1	4.015418 3.830213
Dana 1859	26 51 18.920 82 09 25.938	582.3 716.0	237 22 33.3 281 55 51.7	57 24 18.7 101 58 24.8	Punta Gorda Pelican Torrey	7642.1 9569.5 12907.7	3.883211 3.980888 4.110850
Locust Point 1860	26 55 46.553 82 08 04.472	1432.8 123.4	314 30 56.0 325 09 03.9	134 32 04.7 145 11 05.5	Punta Gorda Pelican Dana	5873.4 12449.2 8538.3	3.768890 4.095142 8.931369
Shoal Point 1860	26 55 28.182 82 09 15.909	867.4 438.9	299 58 05.0 316 43 30.0	119 59 46.0 136 45 58.9	Punta Gorda Pelican Dana	7110.2 13254.3 7676.5	3.851880 4.122356 3.885166
Bruce 1860	26 53 46.891 82 10 17.588	1443.2 485.3	208 37 40.4 273 09 15.9	28 38 08.3 93 11 24.7	Shoal Point Punta Gorda Pelican	3551.8 7873.7 12611.8	3.550443 3.896179 4.100776
Palmetto 1860	26 56 02.076 82 09 59.920	63.9 1653.1	310 39 49.9 6 41 02.1	130 40 09.8 186 40 54.1	Shoal Point Bruce	1600.8 4189.1	3.204331 3.622116
Myakka 1860	26 56 10.308 82 11 02.307	317.2 64.6	278 22 13.7 293 49 26.1	98 22 41.9 113 50 14.2	Palmetto Shoal Point Bruce	1739.6 3208.9 4583.2	3.240458 3.500361 3.661166
Eureka 1860	26 54 52.170 82 05 49.846	1605.6 1375.4	42 16 30.4 74 48 14.8	222 14 52.7 254 46 13.6	Dana Bruce Shoal Point Locust Point	8868.2 7656.4 5792.5 4074.1	3.947834 3.884027 3.762864 3.610028
Grassy Point 1860	26 57 10.702 82 05 59.440	329.4 1039.6	356 26 50.4 53 06 19.8	176 26 54.7 233 05 23.1	Eureka Locust Point	4271.8 4313.2	3.630615 3.634799
Cooper 1860	26 55 34.162 82 05 10.080	1051.4 278.1	94 32 34.3 155 22 56.0	274 31 15.3 335 22 33.7	Locust Point Grassy Point	4826.4 3268.4	3.683621 3.514331
Live Oak Point 1860	26 57 09.496 82 03 44.074	292.3 1215.8	38 57 53.2 70 27 08.0	218 57 14.2 250 25 10.0	Cooper Locust Point Grassy Point	3773.3 7623.4 3734.0	3.576727 3.882147 8.572169
Willow Point 1860	26 56 15.488 82 03 02.484	476.7 68.5	70 08 30.6 109 12 20.2	250 07 32.8 289 11 00.1	Cooper Grassy Point Live Oak Point	3742.9 5168.6 2019.7	3.573203 3.713373 3.305285
Piney Point 1860	26 57 58.502 82 02 10.867	1800.6 465.2	21 38 57.4 57 54 54.7	201 38 36.7 237 54 15.2	Willow Point Live Oak Point	3411.0 2839.0	3.532885 3.453172
New Point 1860	26 56 54.888 82 02 00.056	1689.3 1.6	54 51 08.9 98 54 44.6	234 50 40.6 278 53 57.5	Willow Point Live Oak Point Piney Point	2106.2 2904.2 2012.0	3.323497 3.463024 3.303631
Middle 1860	26 57 28.898 82 00 49.777	889.4 1373.0	61 38 10.9 82 55 49.8	241 37 39.0 262 54 30.8	New Point Live Oak Point Piney Point	2203.1 4844.5 2569.0	3.343025 3.685245 3.409764
Trout 1860	26 57 06.565 82 00 59.105	202.0 1630.3	91 08 46.5 126 42 04.9	271 07 31.7 306 41 29.6	Live Oak Point Piney Point Middle	4551.2 2674.9 733.9	3.656130 3.427313 2.865659
Peace Creek 1860	26 58 18.531 82 00 38.419	570.3 1059.5	11 35 21.1 14 26 44.6	191 35 16.0 194 26 35.3	Middle Trout Piney Point	1559.3 2287.2 2784.2	3.192041 3.359308 3.444699

CALOOSAHATCHEE RIVER TO CHARLOTTE HARBOR—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Principal points—Contd</i>							
Darling 1859	26 40 51.489 82 06 44.842	1584.6 1239.9	162 33 23.1 205 31 26.5	342 32 24.8 25 32 48.7	El Gabo Torrey	Meters 11948.5 11704.9	4.077315 4.068368
Belinda 1859	26 42 22.245 82 05 00.300	684.6 8.3	45 59 03.6 87 58 43.4 143 04 09.8	225 58 16.6 267 56 24.9 323 02 24.4	Darling Bocillas El Gabo	4019.2 8524.5 10767.4	3.604142 3.820871 4.032112
Dorr 1861	26 40 37.841 82 05 23.496	1164.6 649.8	100 35 03.0 191 17 07.0	280 34 26.5 11 17 17.4	Darling Belinda	2288.0 3276.5	3.359458 3.515414
Matlacha 1861	26 39 25.931 82 06 17.817	798.1 492.7	164 09 29.5 214 09 43.5	344 09 19.0 34 10 09.5	Darling Dorr	2737.1 2674.7	3.437296 3.427277
Rubber 1861	26 38 43.893 82 05 46.853	1350.8 1295.8	146 30 03.2 157 47 27.8 190 26 03.4	326 29 47.7 337 47 01.8 10 26 13.9	Matlacha Darling Dorr	1651.5 4241.7 3565.8	3.190752 3.627541 3.552162
Gull 1861	26 39 11.175 82 04 52.313	343.9 1447.1	60 54 03.6 100 52 36.3 134 46 55.4	240 53 39.1 280 51 56.2 314 46 04.9	Rubber Matlacha Darling	1720.3 2407.8 4383.3	3.237120 3.381626 3.641805
Owl 1861	26 37 22.993 82 05 06.765	707.6 187.2	155 59 47.1 186 50 42.0	335 59 29.1 6 50 48.5	Rubber Gull	2725.5 3353.3	3.435452 3.525475
Meridian 1860	26 36 57.538 82 03 08.498	1770.7 235.1	103 28 23.5 145 05 03.0	283 27 30.5 325 04 16.5	Owl Gull	3364.2 5016.1	3.526870 3.700362
Lumber 1860	26 35 54.711 82 03 52.366	1683.7 1448.8	142 51 28.4 212 06 46.7	322 50 55.1 32 07 06.4	Owl Meridian	3408.6 2282.9	3.532574 3.358486
Deer 1860	26 35 42.364 82 02 46.969	1303.7 1299.7	101 51 51.3 165 33 48.7	281 51 22.0 345 33 39.1	Lumber Meridian	1848.9 2389.0	3.266921 3.378217
Narrows 1860	26 34 53.667 82 04 07.731	1651.3 213.9	192 44 54.1 236 08 33.2	12 45 01.0 56 09 09.4	Lumber Deer	1926.5 2690.9	3.284768 3.429902
Grape 1860	26 33 57.331 82 03 50.327	1764.4 1392.9	164 28 23.1 208 28 16.6	344 28 15.3 28 28 45.0	Narrows Deer	1799.1 3677.4	3.255007 3.565535
Balley 1860	26 33 38.838 82 04 45.530	1195.2 1260.1	204 25 49.1 249 33 57.1	24 26 06.0 69 34 21.8	Narrows Grape	2529.1 1630.4	3.402967 3.212300
Buttonwood 1860	26 32 53.537 82 03 29.224	1647.6 809.0	327 12 55.3 39 36 53.3 123 26 00.9 163 26 01.2	147 13 22.5 219 36 35.2 303 25 26.8 343 25 51.8	Sword Point White Balley Grape	3104.4 1767.4 2530.7 2048.4	3.491978 3.247241 3.403246 3.311407
Brown 1860	26 39 37.281 82 09 10.533	1147.4 291.2	346 15 46.2 52 43 25.2 161 26 52.2	166 16 16.1 232 41 29.4 341 26 26.1	Lucknow Boca Captiva Bocillas	7785.0 8977.6 5035.1	3.891260 3.953162 3.702011
Las 1859	26 42 02.803 82 10 43.865	86.2 1212.7	101 52 34.5 158 28 47.8 198 10 14.4 253 13 25.2 330 02 38.6	281 50 17.7 338 25 49.5 18 11 03.6 73 13 41.1 150 03 20.6	Boca Grande Oso El Gabo Bocillas Brown	8598.5 9736.1 9687.2 1021.5 5168.8	3.934421 3.988386 3.986199 3.009219 3.713393
Oyster 1892	26 29 23.378 82 01 06.098	719.5 168.7	353 11 13.1 61 02 45.7	173 11 20.7 241 01 39.3	Point Ybel 2 Middle Point	3997.9 4717.7	3.601842 3.673731
Bird Island 1892	26 30 45.389 82 01 57.639	1396.9 1596.2	330 30 22.0 29 19 05.5 147 20 56.4	150 30 45.0 208 18 22.1 327 20 42.7	Oyster Middle Point Sword Point	2899.6 5514.5 1584.2	3.462336 3.741505 3.199819
Pine 1892	26 30 37.116 81 59 14.074	1142.3 389.7	22 51 01.3 53 49 10.9 57 48 36.0 93 13 40.3	202 50 18.8 235 48 20.9 237 46 39.4 273 12 27.3	Point Ybel 2 Oyster Middle Point Bird Island	6770.1 3843.5 8544.3 4536.2	3.830595 3.584725 3.931075 3.656699
A 1892	26 32 01.989 81 59 49.669	61.2 1375.1	14 30 18.8 65 38 32.3	194 30 07.9 245 37 08.4	Pine Bird Island	2698.0 5713.3	3.431040 3.756884
B 1892	26 31 45.908 81 57 06.538	1412.8 181.0	59 03 46.8 99 50 24.5	239 02 49.9 279 49 38.5	Pine A	4117.2 2897.7	3.614599 3.462057
Red Fish Point 1892	26 32 25.103 81 56 51.865	772.6 1435.8	18 36 41.9 49 50 29.2 77 42 08.5	198 36 35.3 229 49 25.7 267 41 15.9	B Pine A	1272.8 5152.3 3337.9	3.104765 3.712003 3.523472
Palmetto Point 1892	26 32 23.804 81 56 15.122	732.6 418.6	50 40 24.3 92 15 14.6	230 40 01.3 272 14 58.2	B Red Fish Point	1840.2 1017.9	3.264856 3.007714
Harney Point 1892	26 33 32.080 81 56 12.695	987.3 351.5	1 49 53.6 27 44 50.3	181 49 52.5 207 44 32.8	Palmetto Point Red Fish Point	2102.3 2329.0	3.322898 3.367172
Harris 1892	26 33 39.333 81 55 14.082	1210.5 406.5	35 44 51.8 82 05 22.5	215 44 24.8 202 04 56.6	Palmetto Point Harney Point	2863.9 1621.1	3.456958 3.209813
C 1892	26 34 17.005 81 55 50.935	523.3 1409.7	319 07 27.6 23 32 20.0	139 07 43.8 203 32 10.3	Harris Harney Point	1533.25 1508.1	3.186614 3.178418
Travers 1892	26 34 09.373 81 54 25.959	288.5 718.4	55 34 08.2 95 42 30.7	235 33 46.4 275 41 52.7	Harris C	1635.0 2363.4	3.213512 3.373545

CALOOSAHATCHEE RIVER TO CHARLOTTE HARBOR—Continued

Station	Latitude and longitude	Sec onds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Principal points—Contd</i>							
Four Mile Point 1892	26 36 27.783	855.0	353 28 26.8	173 28 34.7	Travers C	4287.4	3.632197
	81 54 43.565	1205.3	24 51 22.8	204 50 52.7		4435.5	3.646946
No Name 1892	26 36 12.057	371.0	19 32 20.4	199 31 58.7	Travers C	4006.3	3.602745
	81 53 37.544	1038.7	46 11 55.6	228 10 55.9		5114.8	3.708831
Edison 1892	26 36 12.057	371.0	19 32 20.4	199 31 58.7	Four Mile Point	1889.6	3.276377
	81 53 37.544	1038.7	46 11 55.6	228 10 55.9		No Name	3823.7
Hancock 1892	26 38 54.087	1664.5	318 41 51.2	138 42 09.4	Edison No Name Four Mile Point	4244.3	3.627833
	81 53 44.391	1227.9	357 49 27.6	177 49 30.8		4990.2	3.698120
Sawmill 1892	26 39 43.052	1324.9	14 52 03.2	194 51 51.2	Edison Hancock	2882.2	3.459721
	81 52 37.036	1024.3	51 01 52.4	231 01 22.2		2395.9	3.379477
Experimental 1892	26 39 43.956	1352.8	52 38 37.9	232 37 38.1	Edison Sawmill	4636.0	3.666145
	81 50 50.542	1397.8	89 27 56.1	269 27 08.3		2945.0	3.469090
Marsh Point 1892	26 40 35.088	1079.8	333 41 42.7	153 41 55.3	Experimental Sawmill	1755.4	3.244375
	81 51 18.672	516.3	53 32 17.1	233 31 41.9		2094.4	3.430468
Caloosa 1892	26 41 32.858	1011.2	31 36 54.0	211 36 20.5	Experimental Marsh Point	3935.5	3.594998
	81 49 35.939	993.6	57 57 42.1	237 56 56.0		3350.9	3.525166
Gasparilla Island rear range L. H. 1909	26 43 01.366	42.0	184 33 22.2	4 33 36.4	Coral Brown	10929.3	4.038593
	82 15 39.877	1102.2	300 14 22.5	120 17 17.4		12462.6	4.093609
Useppa Inn 1909	26 39 59.878	1842.8	138 15 15.3	318 13 54.3	Gasparilla Island rear range L. H. Brown	7487.5	3.874337
	82 12 39.509	1092.6	276 50 57.4	96 52 31.2		5820.5	3.764959
Jug Point 1909	26 42 13.745	423.0	335 44 30.8	155 45 12.0	Brown Useppa Inn Gasparilla Island rear range L. H.	5281.4	3.722751
	82 10 28.994	801.4	41 13 18.7	221 12 20.1		5476.7	3.738519
Cape Haze 1909	26 47 00.796	24.5	13 44 40.6	193 44 05.4	Jug Point Useppa Inn Gasparilla Island rear range L. H.	9094.6	3.958786
	82 09 10.825	299.0	24 00 46.8	203 59 13.0		14180.3	4.151684
Charlotte Harbor L. H. 1909	26 45 34.920	1074.7	44 03 42.6	224 01 00.5	Useppa Inn Jug Point Gasparilla Island rear range L. H. Cape Haze	14343.9	4.150667
	82 06 38.769	1071.2	45 47 44.2	225 46 00.0		8877.9	3.948308
Torrey 1909 1909	26 46 33.925	1044.1	72 29 43.6	252 25 40.1	Charlotte Harbor L. H. Cape Haze	15882.4	4.195413
	82 03 41.666	1151.0	122 11 08.9	302 10 00.4		4963.1	3.695753
Melle 1860	26 46 33.925	1044.1	54 35 54.5	234 32 51.2	Jug Point Charlotte Harbor L. H. Cape Haze	13813.8	4.140314
	82 03 41.666	1151.0	69 38 50.2	249 37 36.5		5219.1	3.717592
Demorest 1909	26 35 05.177	159.3	95 13 02.2	275 10 33.9	Useppa Inn Brown Melle	9130.5	3.960494
	82 12 23.747	657.1	177 14 55.7	357 14 48.6		9080.2	3.958093
Captive Pass 1909	26 35 31.838	979.8	212 32 09.6	32 33 36.2	Useppa Inn Brown Melle	9934.5	3.997147
	82 08 03.861	106.8	137 16 11.5	317 14 08.0		11233.2	4.050504
Punta Gorda Hotel cupola 1909	26 36 38.856	1195.8	160 17 00.6	346 16 30.7	Peace Creek Trout	7775.0	3.890734
	82 13 24.562	679.4	231 58 33.6	203 28 29.1		7238.0	3.859616
Live Oak Point 1909 1909	26 56 09.679	297.9	225 35 23.9	45 36 30.4	Peace Creek Trout Punta Gorda Hotel cupola	5668.0	3.753426
	82 03 05.234	144.4	243 16 49.3	03 17 40.5		3895.0	3.590502
Cooper 1909 1909	26 57 11.256	346.4	248 15 15.1	08 16 40.4	Live Oak Point 1909 Punta Gorda Hotel cupola	5591.6	3.747534
	82 03 46.744	1289.4	271 46 40.3	91 47 50.3		4626.2	3.665227
Grassy Point 1909 1909	26 55 33.297	1024.8	328 51 26.9	148 51 45.7	Live Oak Point 1909 Punta Gorda Hotel cupola	2214.2	3.345220
	82 05 09.535	203.1	217 08 23.9	37 09 01.4		3782.3	3.577757
Locust Point 1909 1909	26 55 49.773	1531.9	251 54 31.7	71 55 28.0	Grassy Point 1909 Live Oak Point 1909 Punta Gorda Hotel cupola	3007.4	3.477198
	82 08 06.711	185.1	270 57 47.2	90 58 40.2		3228.0	3.508929
Punta Rasa Hotel cupola 1909	26 57 13.032	401.1	294 01 20.2	114 02 32.0	Cooper 1909	4787.8	3.680136
	82 05 43.755	1206.9	342 54 12.7	102 54 28.2		3211.5	3.506702
Supplementary points	26 55 49.773	1531.9	236 58 30.4	56 59 35.2	Grassy Point 1909 Live Oak Point 1909	4702.9	3.672370
	82 08 06.711	185.1	250 42 31.8	70 44 29.6		7597.2	3.880654
Punta Rasa Hotel cupola 1909	26 57 13.032	401.1	265 46 04.8	85 48 21.4	Punta Gorda Hotel cupola Cooper 1909	8339.0	3.921144
	82 00 47.062	1303.4	275 54 41.2	95 50 01.5		4914.3	3.691463
Point Ybel 2 Oyster South End	26 29 11.718	360.6	0 50 23.3	180 50 22.4	Point Ybel 2 Oyster South End	3011.3	3.477666
	82 00 47.062	1303.4	124 14 58.7	304 14 50.2		037.6	2.804558
			104 17 45.0	284 16 34.2		4537.7	3.656887

CALOOSAHATCHEE RIVER TO CHARLOTTE HARBOR—Continued

Station	Latitude and longitude	Seconds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Supplementary points—Continued</i>							
Middle Point 1909	26 28 08.566	263.6	184 19 29.9	4 19 33.6	South End	Meters 3072.0	3.487424
	82 03 34.211	947.6	240 41 20.3	00 42 26.3	Oyster	4704.4	3.672500
			247 13 00.6	67 14 15.1	Punta Rasa Hotel cupola	5021.0	3.700792
			290 00 18.5	110 01 32.1	Point Ybel 2	4871.6	3.687670
Middle Point (U. S. E.) 1909	26 28 09.144	281.4	241 01 41.4	61 02 47.9	Oyster	4717.9	3.673747
	82 03 35.128	973.0	247 30 54.1	67 32 09.0	Punta Rasa Hotel cupola	5037.6	3.702222
			304 58 59.4	124 58 59.8	Middle Point 1909	31.0	1.491502
Punta Rasa astronomic station 1874	26 29 13.774	423.9	23 38 15.7	203 38 15.3	Punta Rasa Hotel cupola	69.1	1.839257
	82 00 46.082	1275.7	66 41 58.3	240 40 43.4	Middle Point 1909	5071.2	3.705115
			118 02 59.7	298 02 50.8	Oyster	628.6	2.798355
Punta Rasa rear range light 1909	26 29 22.393	689.2	266 36 59.6	86 37 07.9	Oyster	514.0	2.710945
	82 01 24.619	681.8	287 31 32.2	107 31 49.0	Punta Rasa Hotel cupola	1090.8	3.037742
			345 55 37.9	165 55 53.8	Point Ybel 2	4061.3	3.608665
			67 40 27.2	237 39 29.5	Middle Point 1909	4248.0	3.628184
			103 16 07.6	283 15 13.6	South End	3449.2	3.537719
Punta Rasa front range light 1909	26 29 04.876	150.0	181 25 56.9	1 25 57.1	Oyster	569.6	2.755545
	82 01 06.607	183.0	248 44 39.6	68 44 48.3	Punta Rasa Hotel cupola	580.8	2.764036
			351 49 27.8	171 49 35.6	Point Ybel 2	3435.3	3.535963
			67 02 15.8	247 01 10.0	Middle Point 1909	4440.4	3.647425
			109 02 31.2	289 01 29.1	South End	4079.2	3.610570
Sanibel Island L. H. 1909	26 27 09.592	295.2	111 59 33.5	291 58 21.2	Middle Point 1909	4848.5	3.685609
	82 00 51.909	1438.1	138 51 16.1	318 50 07.5	South End	6478.9	3.811503
			174 33 00.9	354 32 54.0	Oyster	4136.0	3.616579
			182 02 44.2	2 02 46.4	Punta Rasa Hotel cupola	3760.8	3.575280
			208 52 23.4	28 52 24.7	Point Ybel 2	168.5	2.226516
Punta Rasa, Schultz' house, flagstaff 1909	26 29 05.604	172.5	12 43 38.9	192 43 26.4	Point Ybel 2	3509.0	3.545178
	82 00 21.068	583.5	71 50 45.3	251 49 19.2	Middle Point 1909	5630.3	3.750530
			104 38 56.2	284 38 44.6	Punta Rasa Hotel cupola	744.1	2.871648
St. James City dock warehouse, east gable ¹ 1909	26 29 30.66	943.6	275 18 14	95 19 55	Punta Rasa Hotel cupola	6289.7	3.79863
	82 04 33.19	919.2	804 00 59	124 02 39	Point Ybel 2	7493.9	3.87471
Harris' house ¹ 1892	26 33 23.85	734.1	54 48 10	234 47 29	Red Fish Point	3136.3	3.490420
	81 55 19.28	533.7	99 43 25	279 43 01	Harney Point	1499.9	3.176061
Rylander's house ¹ 1892	26 37 11.73	361.1	60 46 38	240 45 59	Four Mile Point	2770.0	3.442475
	81 53 16.19	447.8	166 05 32	346 05 19	Hancock	3245.2	3.511248
Edison's house ¹ 1892	26 38 02.76	85.0	136 56 46	316 56 22	Hancock	2161.8	3.334821
	81 52 51.03	1411.4	187 08 43	7 08 49	Sawmill	3110.7	3.492857
Edison's laboratory ¹ 1892	26 38 04.56	140.3	121 24 24	301 24 17	Edison	471.1	2.673134
	81 52 49.24	1362.0	186 21 02	6 21 07	Sawmill	3049.9	3.484290
Fort Myers, Parker's house ¹ 1892	26 38 35.26	1085.2	103 23 58	283 23 18	Hancock	2502.0	3.398288
	81 52 16.39	453.3	164 41 41	344 41 32	Sawmill	2163.3	3.335106
Fort Myers, Methodist Church tower ¹ 1892	26 38 45.25	1392.6	95 21 32	275 20 45	Hancock	2914.8	3.464612
	81 51 59.46	1644.6	149 42 31	329 42 14	Sawmill	2060.1	3.313899
Fort Myers, Caloosa hotel ¹ 1892	26 38 49.87	1634.8	92 25 52	272 25 02	Hancock	3068.3	3.486891
	81 51 53.55	1481.0	143 41 44	323 41 24	Sawmill	2031.0	3.307717
Experimental station house ¹ 1892	26 39 16.85	518.7	108 10 02	288 09 22	Sawmill	2586.0	3.412727
	81 51 08.16	225.7	173 07 04	353 06 59	Marsh Point	2425.2	3.384742
West Jetty 1892	26 41 13.40	412.4	20 23 53	200 23 36	Experimental	2936.7	3.467859
	81 50 13.53	374.0	58 47 50	236 47 21	Marsh Point	2152.7	3.332979
			240 02 18	60 02 36	Caloosa	1199.5	3.078994
East Jetty 1892	26 41 20.40	627.8	23 40 20	203 39 59	Experimental	3240.7	3.510640
	81 50 03.49	96.5	56 09 00	236 08 26	Marsh Point	2503.1	3.398475
			243 16 25	63 16 37	Caloosa	852.8	2.930825
Roche's windmill, Useppa Island 1909	26 39 38.250	1177.2	142 23 34.3	322 22 16.0	Gasparilla Island rear range L. H.	7891.8	3.897178
	82 12 45.638	1262.1	194 17 11.7	14 17 14.4	Useppa Inn	686.9	2.836968
			270 16 26.4	90 18 02.9	Brown	5948.5	3.774409
			355 52 38.0	175 52 47.8	Melle	8425.8	3.925613
Roche's water tank, Useppa Island 1909	26 39 38.351	1181.2	142 25 47.2	322 24 29.1	Gasparilla Island rear range L. H.	7882.9	3.896084
	82 12 45.982	1271.6	195 08 21.5	15 08 24.4	Useppa Inn	685.4	2.835945
			270 18 43.2	90 20 19.9	Brown	5958.0	3.775104
			355 48 52.9	175 49 02.9	Melle	8430.5	3.925854

¹No check on this position.

CALOOSAHATCHEE RIVER TO CHARLOTTE HARBOR—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Loga-rithm
<i>Supplementary points—Continued</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
Roché's house, north gable, Useppa Island 1909	28 39 46.324 82 12 40.615	1425.7 1123.1	184 11 43.8 272 43 46.5 356 54 43.5	4 11 44.2 92 45 20.8 170 54 51.1	Useppa Inn Brown Mellie	418.3 5316.1 8665.1	2.621455 3.724635 3.937774
Lacosta Island, quarantine building flagstaff 1909	28 42 21.787 82 14 45.964	669.9 1270.6	129 16 46.8 177 40 53.8 192 38 18.9 271 58 28.3	309 16 22.6 357 40 49.5 12 38 48.8 92 00 23.9	Gasparilla Island rear range L. H. Pelayo Plow Jug Point	1925.1 6579.8 8361.1 7107.7	3.284457 3.818211 3.922264 3.851727
Lacosta Island, pilot's look-out 1909	26 42 30.819 82 15 03.846	948.5 106.3	133 21 06.0 182 04 23.2 196 25 41.2 273 56 21.0	313 20 49.8 2 04 26.9 16 26 19.1 93 58 24.6	Gasparilla Island rear range L. H. Pelayo Plow Jug Point	1389.6 6299.9 8215.4 7615.8	3.136587 3.799336 3.914029 3.881714
Gasparilla Island, old quarantine building flagstaff 1909	26 43 10.066 82 15 36.144	309.5 999.0	30 30 57.1 192 12 04.2 205 25 23.7 280 55 06.5	210 30 55.6 12 12 22.5 25 26 16.2 100 57 24.6	Gasparilla Island rear range L. H. Pelayo Plow Jug Point	203.3 5300.3 7490.3 8647.1	2.308052 3.724304 3.874500 3.936871
Boca Grande, long railroad pier, end ¹ 1909	26 43 11.80 82 15 22.27	363.2 615.5	203 10 07 282 24 41	23 10 53 102 26 53	Plow Jug Point	7199.5 8301.2	3.85730 3.91914
Kennedy 1859	26 44 10.559 82 04 10.189	325.0 281.0	34 55 08.0 69 51 24.2 123 52 54.4	214 53 58.5 249 48 43.1 303 50 46.4	Darling Bocillas El Gabo	7471.0 10550.4 9461.0	3.873378 4.023268 3.975938
Key Point 1859	26 47 45.009 82 03 46.793	1385.2 1292.5	125 07 40.2 104 43 22.4 179 58 59.5	305 05 07.2 344 42 34.6 359 58 59.5	Dana Punta Gorda Pelican	11447.6 11094.2 4601.7	4.058713 4.045098 3.662916
Alligator 1860	26 52 21.325 82 03 37.166	656.3 1025.9	3 54 58.1 78 44 24.0 121 37 17.0	183 54 53.7 258 41 46.4 301 34 43.7	Pelican Dana Shoal Point	3911.6 9817.3 10975.3	3.592351 3.991994 4.040416
Mangrove Point 1859	26 55 24.268 82 08 30.899	746.9 852.5	282 31 25.7 304 54 36.5 11 22 38.4	102 32 38.6 124 55 67.0 191 22 13.5	Eureka Punta Gorda Dana	4552.1 5996.5 7702.3	3.658212 3.777895 3.886622
Koonty 1860	26 57 01.619 82 06 57.353	49.8 1682.0	280 04 12.7 340 01 55.5 38 42 49.0	80 04 39.0 160 02 33.8 218 42 18.6	Grassy Point Punta Gorda Locust Point	1621.7 6839.0 2960.7	3.209969 3.835047 3.471397
Mangrove Point light 1909	26 53 58.389 82 07 14.755	1797.0 407.1	157 18 33.2 202 43 57.6 224 01 13.0 239 34 29.4	337 18 09.7 22 44 38.8 44 02 47.2 59 36 22.4	Locust Point 1909 Grassy Point 1909 Live Oak Point 1909 Punta Gorda Hotel cupola	3715.7 6495.4 8256.5 7982.8	3.570045 3.812805 3.916796 3.902157
Peace Creek light 1909	26 55 52.788 82 06 14.890	1624.7 410.8	88 17 01.5 199 10 26.3 239 24 35.5 264 18 60.2	268 16 10.8 19 10 40.4 59 25 42.6 84 20 16.1	Locust Point 1909 Grassy Point 1909 Live Oak Point 1909 Punta Gorda Hotel cupola	3086.3 2614.8 4746.9 5257.9	3.489443 3.417434 3.676413 3.720813
Punta Gorda astronomic station 1909	26 56 09.436 82 03 09.245	290.4 254.9	71 28 42.3 114 40 33.6 151 28 16.8 266 07 44.3	251 27 47.8 294 39 23.6 331 27 59.8 86 07 46.1	Cooper 1909 Grassy Point 1909 Live Oak Point 1909 Punta Gorda Hotel cupola	3500.0 4690.1 2165.6 110.9	3.544070 3.671180 3.335598 2.044965
Punta Gorda, Weather Bureau pole 1909	26 56 08.064 82 03 11.101	248.2 306.3	71 52 27.5 115 24 36.3 153 11 03.2 252 55 36.1	251 51 33.9 295 23 27.2 333 10 47.1 72 55 38.8	Cooper 1909 Grassy Point 1909 Live Oak Point 1909 Punta Gorda Hotel cupola	3438.2 4661.6 2179.3 169.3	3.536325 3.668532 3.338311 2.228707
Punta Gorda, Presbyterian church spire 1909	26 56 00.642 82 03 14.777	19.7 407.7	75 07 14.4 118 28 24.2 157 55 03.7 223 25 37.8	255 06 22.4 298 27 16.7 337 54 49.2 43 25 42.1	Cooper 1909 Grassy Point 1909 Live Oak Point 1909 Punta Gorda Hotel cupola	3275.9 4674.6 2345.4 383.0	3.515336 3.669749 3.370212 2.583177
Punta Gorda, cattle dock, end ¹ 1909	26 56 00.57 82 04 01.99	202.2 54.9	191 55 00 268 29 32	11 55 07 86 29 58	Live Oak Point 1909 Punta Gorda Hotel cupola	2034.9 1568.3	3.30854 3.19543
Punta Gorda, City dock end ¹ 1909	26 56 27.10 82 03 34.42	834.0 949.5	165 58 03 303 38 58	345 57 57 123 39 11	Live Oak Point 1909 Punta Gorda Hotel cupola	1400.9 907.5	3.14639 2.95566
Punta Gorda, Phosphate Works, long building, flagstaff ¹ 1909	26 55 52.20 82 03 30.72	1608.4 1013.2	173 30 42 238 18 46	353 30 37 58 19 00	Live Oak Point 1909 Punta Gorda Hotel cupola	2447.0 1020.7	3.38863 3.00891
Charlotte Harbor, cattle dock, end ¹ 1909	26 57 00.86 82 03 33.08	26.5 912.5	334 00 18 130 19 13	154 00 31 310 19 07	Punta Gorda Hotel cupola Live Oak Point 1909	1752.5 494.4	3.24367 2.69406

¹ No check on this position.

CALOOSAHATCHEE RIVER TO CHARLOTTE HARBOR—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Loga-rithm
<i>Supplementary points—Continued</i>							
Charlotte Harbor, church spire ¹ 1909	26 57 33.65	1035.6	322 46 21	142 46 53	Punta Gorda Hotel cupola Locust Point 1909	Meters 3245.6	3.51130
	82 04 16.41	452.6	63 17 58	243 16 14		7111.8	3.85198
Hotel Cleveland, north gable ¹ 1909	26 57 42.79	1316.9	61 45 41	241 45 07	Trout Peace Creek	2355.9	3.37216
	81 59 43.86	1210.0	126 10 22	306 09 57		1864.0	3.27044

GASPARILLA SOUND TO SARASOTA BAY

<i>Principal points</i>							
Gasparilla 1859	26 48 19.909	612.7	292 28 21.4	112 30 02.0	Oso Boca Grande	6670.2	3.824137
	82 16 36.469	1007.2	352 17 33.6	172 17 55.3		9928.8	3.996898
Flat 1860	26 49 37.613	1157.6	335 54 27.6	155 55 03.7	Oso Gasparilla	5414.0	3.733520
	82 14 13.348	368.5	58 49 56.4	238 48 51.8		4619.0	3.664606
Trepador 1860	26 50 14.185	436.6	287 11 10.3	107 12 09.8	Flat Gasparilla	3807.6	3.580648
	82 16 25.080	692.4	5 00 38.8	185 06 33.7		3531.1	3.547908
Boca Nueva 2 1879	26 50 37.354	1149.6	284 44 05.9	104 44 50.2	Trepador Gasparilla	2802.4	3.447530
	82 18 03.238	99.4	330 27 59.1	150 28 38.3		4861.6	3.686777
Hog 1879	26 51 42.727	1315.0	314 08 38.8	134 09 24.7	Trepador Boca Nueva 2	3912.2	3.592426
	82 18 06.757	186.5	357 14 08.2	177 14 09.8		2014.3	3.304129
Bocilla 1879	26 52 16.080	494.9	292 57 08.0	112 57 47.7	Hog Boca Nueva 2	2631.7	3.420233
	82 19 34.543	953.5	320 19 00.8	140 19 42.1		3947.9	3.596331
Lemon 1879	26 52 34.483	1061.3	323 36 44.0	143 37 03.8	Hog Bocilla	1978.6	3.296362
	82 18 49.279	1360.2	65 36 59.1	245 30 38.0		1371.8	3.137286
Buttonwood 1879	26 53 27.013	831.4	340 59 42.8	160 59 51.9	Lemon Bocilla	1709.9	3.232975
	82 19 09.452	280.8	17 36 04.4	197 35 53.1		2290.3	3.359897
Speedwell 1879	26 53 35.835	1102.8	277 09 53.8	97 10 29.2	Buttonwood Bocilla	2175.4	3.337535
	82 20 27.661	763.4	329 08 54.7	149 09 18.8		2859.1	3.456231
Merchant 1879	26 54 46.924	1444.2	327 10 56.3	147 11 22.3	Buttonwood Speedwell	2926.4	3.466328
	82 20 06.920	190.9	14 39 39.4	194 39 30.0		2261.5	3.354401
Stump Pass 1879	26 55 24.458	762.8	294 07 20.9	114 08 03.2	Merchant Speedwell	2825.9	3.451160
	82 21 40.393	1114.4	329 01 04.6	149 01 37.5		3899.2	3.590980
Lopez 1879	26 56 41.497	1277.2	332 19 45.9	152 20 16.2	Merchant Stump Pass	3981.4	3.600040
	82 21 13.929	384.2	17 06 58.1	197 06 46.1		2480.9	3.394608
Jacobs 1879	26 57 09.117	280.6	289 05 07.7	109 05 48.0	Lopez Stump Pass	2599.0	3.414814
	82 22 42.970	1185.3	331 48 29.1	151 48 57.4		3654.5	3.562831
Porpoise 1862	26 58 08.237	253.5	323 09 38.4	143 10 11.3	Lopez Jacobs	3335.5	3.523161
	82 22 26.428	728.9	14 04 39.1	194 04 31.6		1875.9	3.273205
Rocky Point 1882	26 58 41.678	1282.7	294 41 45.3	114 42 22.1	Porpoise Jacobs	2463.0	3.391463
	82 23 47.567	1311.8	327 58 30.4	147 58 59.7		3360.0	3.526339
Horse and Chalse 1882	27 03 48.934	1506.1	331 49 45.4	151 51 08.8	Rocky Point	10726.2	4.030444
	82 26 51.194	1410.7					
Keg 1878	27 10 30.301	932.6	338 23 21.7	158 24 42.0	Horse and Chalse	13286.2	4.123402
	82 29 48.772	1342.6					
Northwest 1878	27 11 25.824	794.8	340 29 57.8	160 30 07.8	Keg	1812.9	3.258371
	82 30 10.755	296.0					
Huckleberry Camp 1878	27 10 51.655	1589.9	46 35 31.8	226 35 20.3	Keg Northwest	956.4	2.980640
	82 29 23.632	647.7	128 58 41.1	308 58 19.5		1672.0	3.223240
Webb 1878	27 12 12.495	384.6	338 48 28.6	158 48 44.6	Huckleberry Camp Northwest	2668.5	3.426273
	82 29 58.570	1612.1	13 08 09.9	193 08 04.3		1475.0	3.168801
Quick 1878	27 13 05.962	183.5	311 53 12.7	131 53 43.2	Webb Northwest	2464.6	3.391743
	82 31 05.244	144.3	334 03 03.9	154 03 28.8		3427.5	3.534983
Clower 1878	27 13 14.815	456.0	351 27 45.7	171 27 50.5	Webb Quick	1939.6	3.287714
	82 30 09.039	248.7	80 00 42.9	280 00 17.2		1570.4	3.196023
Hull 1878	27 15 07.236	222.7	336 01 12.3	156 01 37.9	Clower Quick	3786.9	3.578287
	82 31 04.970	136.7	0 06 56.7	180 06 56.6		3732.7	3.572018
Little Sarasota 1878	27 14 44.310	1363.8	248 41 47.1	68 42 17.2	Hull Quick	1942.6	3.288385
	82 32 10.760	296.0	329 13 16.0	149 13 46.0		3523.1	3.546927
Young 1878	27 16 44.036	1355.4	324 03 05.3	144 03 41.3	Hull Little Sarasota	3680.1	3.565855
	82 32 23.503	646.4	354 33 56.3	174 34 02.1		3701.6	3.568393

¹ No check on this position.

GASPARILLA SOUND TO SARASOTA BAY—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Loga-rithm
<i>Principal points—Contd</i>							
Sarasota 1878	27 16 53.330	1041.4	275 36 54.1	95 37 42.5	Young	Meters 2920.1	3.465402
	82 34 09.160	252.2	320 38 03.1	140 38 57.3	Little Sarasota	5135.9	3.710017
Cedar Point 1878	27 20 04.333	133.4	350 17 38.0	170 17 55.6	Young	6254.4	3.796186
	82 33 01.843	50.7	17 28 58.1	197 28 27.2	Sarasota	6163.4	3.789823
New Pass 1878	27 20 19.707	606.6	277 55 36.8	97 56 33.5	Cedar Point	3427.9	3.535030
	82 35 05.352	147.1	346 19 40.8	166 20 06.6	Sarasota	6537.2	3.815392
Stephens 1878	27 22 25.788	793.7	343 51 19.7	163 51 40.8	Cedar Point	4532.5	3.656342
	82 33 47.091	1310.5	28 48 59.0	28 48 23.3	New Pass	4428.9	3.648296
Mangrove 1878	27 23 37.058	1159.1	289 10 44.2	109 12 30.0	Stephens	6728.6	3.827922
	82 37 38.958	1070.2	310 44 56.8	130 47 04.3	Cedar Point	10055.3	4.002397
			325 16 27.7	145 17 38.3	New Pass	7412.2	3.869948
Bowlegs 1878	27 24 47.571	1464.2	337 18 49.5	157 19 20.0	Stephens	4729.8	3.674841
	82 34 54.076	1485.4	340 30 38.6	160 31 30.2	Cedar Point	9247.3	3.966014
			2 09 11.3	182 09 06.1	New Pass	8250.4	3.916477
			64 36 00.2	244 34 44.3	Mangrove	5014.8	3.700257
Shell 1878	27 25 29.155	897.4	287 57 40.3	107 58 46.4	Bowlegs	4148.6	3.617898
	82 37 17.739	487.3	9 38 28.8	189 38 19.0	Mangrove	3481.0	3.541699
Tom 1878	27 25 07.980	245.6	259 03 40.5	79 04 37.1	Shell	3437.1	3.536193
	82 39 20.601	565.9	274 53 12.9	94 55 15.6	Bowlegs	7348.1	3.866174
			314 52 03.3	134 52 50.1	Mangrove	3940.2	3.595523
Key 1878	27 26 19.630	604.4	294 36 39.7	114 38 23.3	Bowlegs	6800.6	3.832549
	82 38 39.155	1075.3	304 47 19.6	124 47 57.1	Shell	2722.9	3.435038
			341 38 50.3	161 39 18.0	Mangrove	5252.6	3.720378
			27 18 09.7	207 17 50.6	Tom	2482.0	3.394801
Longboat 1878	27 26 39.218	1207.1	277 13 26.8	97 14 46.5	Key	4785.8	3.679954
	82 41 32.031	879.6	307 52 23.8	127 53 24.4	Tom	4573.5	3.660248
Cut 1878	27 27 57.047	1755.9	310 27 34.3	130 28 33.3	Key	4619.7	3.664613
	82 40 47.141	1294.3	335 26 52.7	155 27 32.6	Tom	5720.8	3.757459
			27 13 54.3	207 13 33.6	Longboat	2694.1	3.430410
Anna Maria Key southeast base 1873	27 28 33.317	1025.5	295 49 38.6	115 50 17.3	Cut	2562.0	3.408580
	82 42 11.131	305.6	342 59 56.3	163 00 14.3	Longboat	3672.4	3.564945
Mound 1878	27 28 39.348	1211.1	325 27 43.3	145 27 58.4	Cut	1580.6	3.198812
	82 41 19.778	543.0	5 12 00.0	185 11 54.4	Longboat	3712.8	3.569705
			82 30 07.3	262 29 43.6	Anna Maria Key southeast base	1422.0	3.152904
Coral 1860	26 48 55.303	1703.9	65 50 01.5	245 49 21.8	Gasparilla	2664.7	3.425655
	82 15 08.440	233.1	122 47 56.2	302 46 38.0	Boca Nueva	5693.7	3.755394
			229 28 33.5	49 28 58.4	Flat	2601.4	3.301328
			314 17 55.5	134 18 56.5	Oso	5214.4	3.717207
Boca Nueva 1860	26 50 35.546	1094.0	283 49 33.7	103 50 17.3	Trepador	2749.8	3.439307
	82 18 01.787	49.3	330 33 19.5	150 33 58.0	Gasparilla	4793.4	3.680644
Llano 1860	26 51 00.773	23.8	306 58 07.8	126 58 38.9	Trepador	2394.0	3.377301
	82 17 34.064	940.4	342 11 16.1	162 11 42.1	Gasparilla	5200.0	3.718006
			44 35 35.5	224 35 23.0	Boca Nueva	1090.2	3.037522
Pelayo 1860	26 45 55.385	1704.6	312 46 39.3	132 48 39.2	Jug Point	10040.6	4.001760
	82 14 55.598	1536.1	341 01 07.6	161 02 08.8	Useppa Inn	11589.7	4.063322
			12 52 20.7	192 52 00.8	Gasparilla Island rear range L. H.	5493.7	3.739803
			176 20 11.0	356 20 05.8	Coral	5550.4	3.744326
Plow 1909	26 46 40.853	1442.0	327 53 44.3	147 55 10.1	Jug Point	9921.3	3.996570
	82 13 39.741	1097.8	352 25 31.8	172 25 58.8	Useppa Inn	12635.3	4.101586
			25 34 20.0	205 33 25.9	Gasparilla Island rear range L. H.	7692.8	3.886685
			52 55 17.3	232 54 43.1	Pelayo	2627.0	3.419453
			148 13 48.0	328 13 08.0	Coral	4652.4	3.667677
Gasparilla 1909 1909	26 48 16.040	493.6	245 09 42.6	65 10 25.3	Coral	2881.7	3.459643
	82 16 43.134	1191.3	325 32 05.3	145 32 53.8	Pelayo	5250.1	3.720167
			349 45 57.9	169 46 26.5	Gasparilla Island rear range L. H.	9841.0	3.993040
Placida 1909	26 49 48.641	1497.0	325 11 44.3	145 12 02.9	Coral	1996.9	3.300364
	82 16 49.712	1372.7	348 14 06.9	168 14 31.3	Pelayo	7332.8	3.865269
			27 22 18.3	207 21 54.2	Gasparilla 1909	3206.1	3.506389
Section Post (concrete) quarter corner between Secs. 22 and 27, T. 42 S., R. 20 E.	26 49 06.853	210.9	238 21 51.6	58 22 25.7	Placida	2452.3	3.389569
	82 17 05.325	147.0	276 15 43.2	96 15 35.9	Coral	3247.2	3.511510
			338 35 56.7	168 36 06.7	Gasparilla 1909	1679.7	3.225219
Mound 2 1908	27 28 39.399	1212.7	135 09 13.7	315 08 31.2	Anna Maria Key northwest base	3585.1	3.5545045
	82 41 19.749	542.2	184 51 26.9	4 51 32.2	Perloo 2	3085.3	3.5664784

GASPARILLA SOUND TO SARASOTA BAY—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Principal points—Contd.</i>							
Anna Maria Key southeast base 2 1908	27 28 33.321	1025.6	157 43 27.0	337 43 08.2	Anna Maria Key northwest base	Meters 2948.8	3.4696470
	82 42 11.135	305.7	204 03 03.5	24 03 32.6	Perico 2	4226.2	3.6259524
Cortez 1908	27 27 46.226	1422.8	262 26 33.3	82 26 57.0	Mound 2	1423.1	3.1532395
	82 41 02.091	57.4	127 24 30.2	307 23 58.4	Anna Maria Key southeast base 2	2386.4	3.3777412
Longboat 2 1908	27 26 44.361	1365.4	163 30 01.4	343 29 53.3	Mound 2	1707.0	3.2322212
	82 41 31.537	866.0	162 02 23.1	342 02 04.9	Anna Maria Key southeast base 2	3525.6	3.5472831
Bolees Creek 1908	27 24 38.899	1197.3	185 13 19.8	5 13 25.3	Mound 2	3555.6	3.5509130
	82 34 41.558	1141.6	203 00 21.2	23 00 34.8	Cortez	2068.8	3.3157084
Long Bar Point 1908	27 25 31.592	972.4	96 40 44.9	276 38 36.4	Tom Key	7717.4	3.8874701
	82 37 15.981	439.0	115 25 43.1	295 23 53.7	Key	7225.3	3.8588542
Whale Key 1908	27 23 35.842	1103.2	78 01 25.1	258 00 27.7	Tom Key	3499.4	3.5439965
	82 37 38.986	1071.1	122 55 21.9	302 54 43.6	Bolees Creek	2721.3	3.4347818
Cedar Point 2 1908	27 20 02.542	78.2	290 54 52.4	110 56 03.4	Bolees Creek	5246.6	3.7198776
	82 33 01.023	28.1	248 16 39.7	68 18 01.4	Tom Key	3979.5	3.5998306
New Pass 2 1908	27 20 19.531	601.1	161 51 09.1	341 50 41.4	Key	5305.6	3.7247320
	82 35 05.362	147.4	190 03 26.6	10 03 37.2	Long Bar Point	3618.3	3.5585058
Sarasota 2 1908	27 16 52.785	1624.7	130 41 40.1	310 39 32.3	Whale Key	10072.5	4.0031386
	82 34 09.550	262.6	162 00 46.9	342 00 00.7	Bolees Creek	8943.4	3.9515040
Young 2 1908	27 20 19.531	601.1	145 04 02.5	325 02 51.9	Whale Key	7371.1	3.8675305
	82 32 23.562	648.0	184 40 58.1	4 41 09.0	Bolees Creek	8009.9	3.9036254
Boca Grande, City lookout ¹ 1909	26 45 02.26	69.6	278 41 25.1	98 42 22.2	Cedar Point 2	3457.7	3.5387884
	82 15 39.64	1095.4	166 26 43.0	346 26 17.4	New Pass 2	6545.8	3.8159640
Gasparilla Island Concrete Works water tank 1909	26 47 40.629	1250.4	197 52 33.8	17 53 05.2	Cedar Point 2	6136.9	3.7879495
	82 16 20.590	568.7	207 41 04.0	27 41 25.0	Lone Pine	2711.9	3.4332782
Charlotte Harbor & Northern Ry.: West drawbridge, east end 1909	26 48 56.191	1729.4	95 17 59.0	275 17 10.4	Sarasota 2	2927.5	3.4664941
	82 16 15.261	421.4	148 13 52.1	328 13 24.6	Lone Pine	3142.4	3.4972559
East drawbridge, east end 1909	26 49 32.675	1005.6	170 26 02.1	350 25 44.9	Cedar Point 2	6190.8	3.7921651
	82 16 03.471	95.8	301 06 54	121 09 14.0	Jug Point	10030.2	4.00131
Long trestle, east end 1909	26 49 51.867	1596.3	331 50 23	151 51 44.0	Useppa Inn	10554.3	4.02343
	82 15 57.010	1574.2	150 15 35.0	330 15 24.8	Gasparilla 1909	1255.2	3.0987303
Long trestle, west end 1909	26 48 11.396	350.7	192 12 39.2	12 12 53.1	Placida	4031.0	3.605413
	82 16 29.864	824.8	220 54 01.8	40 54 34.3	Coral	3043.2	3.483327
Section Post (concrete) M. C. Sec. 27, T. 42 S., R. 20 E. 1909	26 48 26.298	809.4	270 47 18.2	90 47 48.3	Coral	1845.5	3.266122
	82 16 36.312	1002.9	31 55 19.8	211 55 07.2	Gasparilla 1909	1455.9	3.163123
Section Post (concrete) M. C. Secs. 22 and 27, T. 42 S., R. 20 E. ¹ 1909	26 49 06.86	211.1	203 36 23.8	23 36 35.3	Placida	1761.7	3.245922
	82 16 58.20	1607.2	217 42 35.0	37 42 41.2	Placida	621.1	2.793168
Lone Pine 1908	27 18 10.807	332.6	307 04 25.3	127 04 50.1	Coral	1904.8	3.279848
	82 33 23.728	652.5	24 54 47.2	204 54 26.3	Gasparilla 1909	2900.6	3.415058
Fishing Point pavilion, north gable 1908	27 18 15.340	472.2	296 13 49.0	116 13 52.3	Placida	224.6	2.351487
	82 33 26.246	721.7	322 21 19.6	142 21 41.5	Coral	2190.2	2.341667
Sarasota Baptist Church spire ¹ 1908	27 20 15.70	485.1	23 21 42.8	203 21 22.0	Gasparilla 1909	3212.5	3.506847
	82 32 32.60	896.2	111 18 29.1	291 18 23.1	Placida	393.4	2.594810
Bell Haven Hotel cupola 1908	27 20 04.866	149.8	200 19 35.8	20 19 53.9	Gasparilla 1909	3191.7	3.504020
	82 32 38.055	1046.1	238 57 31.0	58 58 07.7	Coral	2624.5	3.419044
Sarasota 2 1908	27 18 10.807	332.6	30 49 45.7	210 49 42.5	Gasparilla 1909	307.6	2.505414
	82 33 23.728	652.5	206 55 05.6	26 55 26.6	Placida	2842.3	3.453605
Fishing Point pavilion, north gable 1908	27 20 15.70	485.1	249 45 39.4	69 46 19.0	Coral	2580.4	3.412697
	82 32 32.60	896.2	89 57 33	269 57 30	Section Post (concrete) quarter corner between Secs. 22 and 27, T. 42 S., R. 20 E.	190.8	2.29411
Sarasota 2 1908	27 18 10.807	332.6	235 46 51	55 47 22	Placida	2280.9	3.35925
	82 33 23.728	652.5	144 48 48.0	324 48 01.3	New Pass 2	4948.2	3.6855793
Sarasota 2 1908	27 18 15.340	472.2	190 17 12.0	10 17 22.4	Cedar Point 2	3495.3	3.5434832
	82 33 26.246	721.7	191 52 03.2	11 52 14.7	Cedar Point 2	3371.6	3.527840
Sarasota 2 1908	27 18 15.340	472.2	328 28 38.9	148 29 07.6	Young 2	3297.5	3.518182
	82 33 26.246	721.7	25 06 48.4	205 00 28.5	Sarasota 2	2806.2	3.448113
Sarasota 2 1908	27 20 15.70	485.1	23 06 48	203 06 04	Sarasota 2	6792.1	3.832003
	82 32 32.60	896.2	62 30 06	242 29 53	Cedar Point 2	880.7	2.944836
Sarasota 2 1908	27 20 04.866	149.8	23 03 24.2	203 02 42.2	Sarasota 2	6425.0	3.807874
	82 32 38.055	1046.1	83 32 14.1	263 32 03.6	Cedar Point 2	835.4	2.920308
Sarasota 2 1908	27 20 04.866	149.8	96 22 12.0	276 21 04.4	New Pass 2	4074.3	3.610057
	82 32 38.055	1046.1					

¹ No check on this position.

GASPARILLA SOUND TO SARASOTA BAY—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Loga-rithm
<i>Supplementary points—Con</i>							
Sarasota Methodist Church spire 1908	27 20 09.801	301.7	23 39 44.4	203 39 00.1	Sarasota 2	Meters 6620.2	3.820872
	82 32 32.940	906.6	73 51 34.4	283 51 21.5	Cedar Point 2	803.6	2.905065
			94 05 53.2	274 04 43.2	New Pass 2	4200.5	3.623305
Warehouse on ples, west gable 1908	27 22 20.068	617.7	341 36 44.1	161 37 07.6	Cedar Point 2	4460.6	3.649393
	82 33 52.209	1434.7	28 27 32.0	208 26 58.4	New Pass 2	4219.8	3.625290
			162 23 55.6	342 23 32.9	Bolees Creek	4483.0	3.651572
South end of cut 1908	27 25 19.240	592.2	70 01 43.4	259 01 13.4	Tom	1819.7	3.259992
	82 38 15.571	427.7	100 47 25.4	340 47 14.5	Key	1968.7	3.294175
			256 55 09.6	76 55 37.0	Long Bar Point	1680.4	3.225400
North end of cut 1908	27 26 03.929	120.0	32 43 12.8	212 42 54.2	Tom	2046.7	3.311044
	82 38 40.331	1107.7	183 48 55.6	3 48 50.1	Key	484.6	2.685405
			293 14 37.4	113 15 16.2	Long Bar Point	2521.5	3.401666
Robert's house chimney 1908	27 26 34.432	1059.8	132 10 50.0	312 10 50.3	Longboat 2	455.1	2.658112
	82 41 19.257	528.9	102 02 25.6	12 02 33.5	Cortez	2259.5	3.354012
			275 54 08.2	95 55 22.0	Key	4420.3	3.645456
Fulford's, Wm., house, south chimney ¹ 1908	27 27 58.97	1815.1	343 45 01	103 45 03	Cortez	408.7	2.611442
	82 41 06.26	171.9	16 49 12	196 49 01	Longboat 2	2399.2	3.380069
Bratton's, Mrs., house, south chimney ¹ 1908	27 27 58.17	1790.4	321 43 13	141 43 18	Cortez	468.4	2.670572
	82 41 12.66	347.6	12 51 19	192 51 11	Longboat 2	2330.2	3.367401
Brunsmann's, A. G., house, chimney 1908	27 28 24.493	753.9	158 25 26.9	338 25 00.9	Anna Maria Key northwest base	3226.6	3.508739
	82 42 08.632	237.0	165 48 10.7	345 48 15.5	Anna Maria Key southeast base 2	280.3	2.447608
			251 07 20.8	71 07 43.3	Mound 2	1418.3	3.151770
			341 42 35.1	101 42 52.1	Longboat 2	3246.0	3.511346

TAMPA BAY.

<i>Principal points</i>							
Anna Maria Key north- west base 1873	27 30 01.973	60.7	315 10 06.8	135 10 49.3	Mound	3585.7	3.554570
	82 42 51.850	1423.4	837 43 03.4	167 43 22.2	Anna Maria Key southeast base	2948.96	3.469669
			340 38 38.7	100 39 15.0	Longboat	0614.4	3.820489
Neill 1878	27 29 42.030	1293.7	1 43 55.4	181 43 54.4	Mound	1930.2	3.285604
	82 41 17.653	484.6	34 46 09.5	214 45 44.8	Anna Maria Key southeast base	2574.6	3.410702
			103 21 35.5	283 20 52.0	Anna Maria Key northwest base	2657.7	3.424507
Perico 1873	27 30 35.254	1085.1	24 01 07.5	204 00 39.4	Anna Maria Key southeast base	4108.9	3.613721
	82 41 10.213	280.3	09 50 39.0	249 49 52.1	Anna Maria Key northwest base	2972.0	3.473040
			208 08 03.8	118 09 38.7	Perico	6392.4	3.805665
Palm 1873	27 32 13.227	407.1	324 49 10.5	144 40 58.4	Anna Maria Key northwest base	4942.4	3.693930
	82 44 35.603	976.9	329 37 41.0	149 38 47.8	Anna Maria Key southeast base	7844.7	3.894578
			47 09 21.3	227 07 42.5	Perico	7996.9	3.902921
Terracela 1873	27 33 31.971	984.0	78 07 18.8	258 04 05.0	Palm	11749.2	4.070009
	82 37 36.579	1003.5	289 12 18.1	109 16 01.4	Terracela	14014.6	4.146581
			323 43 53.3	143 45 57.6	Perico	12470.5	4.096884
Egmont Key L. H. 1873	27 36 01.980	60.9	346 07 17.5	166 07 46.8	Palm	7252.6	3.860495
	82 45 39.003	1069.6	337 30 27.7	157 31 44.9	Anna Maria Key northwest base	11922.4	4.0789052
			354 52 09.8	174 52 34.2	Terracela	16185.9	4.209136
Pinelos 1873	27 42 15.719	483.8	45 42 01.7	225 38 42.3	Egmont Key L. H.	16483.3	4.216518
	82 38 29.340	803.8	35 21 20.8	215 18 50.2	Terracela	14480.2	4.161045
Roach 1873	27 39 55.982	1723.1	71 36 46.5	251 30 41.1	Egmont Key L. H.	22773.4	4.357427
	82 32 30.962	848.6	113 40 32.8	293 37 46.4	Pinelos	10721.0	4.030236
			53 00 15.4	232 57 48.3	Anna Maria Key northwest base	10934.8	4.0388117
Terracela 2 1908	27 33 35.853	1103.5	108 42 01.8	288 38 17.1	Egmont Key L. H.	14050.9	4.1477056
	82 37 33.681	924.0	164 15 11.4	344 14 37.7	Egmont Key L. H.	7352.0	3.8664040
Palm 2 1908	27 32 12.094	372.2	257 08 33.2	77 11 44.0	Terracela 2	11609.2	4.0648014
	82 44 26.246	720.2	327 06 02.8	147 06 46.5	Anna Maria Key northwest base	4769.8	3.6784970
			68 18 08.6	248 17 20.8	Anna Maria Key northwest base	3056.9	3.4852866
Perico 2 1908	27 30 38.702	1191.2	117 54 33.0	297 53 01.6	Palm 2	6143.9	3.7884463
	82 41 08.379	230.0	143 17 21.6	323 15 16.4	Egmont Key L. H.	12415.1	4.0939500
			227 11 59.9	47 13 39.2	Terracela 2	8027.4	3.9045727

¹ No check on this position.

TAMPA BAY—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Loga-rithm
<i>Principal points—Contd</i>							
Mullet Key Shoal light 1908	27 37 43.932	1352.2	325 13 49.2	145 15 18.7	Terraceia 2	Meters 9294.2	3.9682133
	82 40 46.887	1285.5	30 30 51.3	210 29 09.8	Palin 2	11854.3	4.0738768
Pineles 2 1908	27 42 15.797	486.2	68 37 27.3	248 35 11.9	Egmont Key L. H.	8602.6	3.9346290
	82 38 30.260	829.1	354 27 37.6	174 28 03.8	Terraceia 2	16079.0	4.2062599
			24 06 57.7	204 05 54.2	Mullet Key Shoal light	9167.7	3.9622614
Cockroach (U. S. E.) 1908	27 40 31.551	971.1	45 37 59.1	225 36 40.1	Egmont Key L. H.	10447.0	4.2160870
	82 32 07.566	207.3	34 58 05.3	214 55 34.1	Terraceia 2	15610.1	4.1934053
			69 35 46.8	249 29 30.3	Egmont Key L. H.	23741.9	4.3755155
			70 08 38.0	250 02 36.9	Mullet Key Shoal light	15141.0	4.1801545
Ant 2 1908	27 43 33.293	1024.8	107 02 19.0	286 59 21.2	Pineles 2	10966.2	4.0400554
	82 37 43.110	1180.9	301 17 55.0	121 20 31.0	Cockroach (U. S. E.)	10761.6	4.0318772
Indian Hill 2 1908	27 41 05.026	154.7	28 26 17.7	208 25 55.8	Pineles 2	2712.6	3.4333911
	82 31 19.542	535.5	51 56 38.6	231 56 16.3	Cockroach (U. S. E.)	1671.4	3.2230816
			100 29 09.0	280 25 49.0	Pineles 2	12001.0	4.0792174
Mangrove (U. S. E.) 1908	27 44 39.712	1222.4	113 20 57.0	293 26 58.8	Ant 2	11456.9	4.0590672
	82 28 48.389	1325.3	32 04 54.7	212 03 44.4	Indian Hill 2	7798.4	3.8920033
			35 33 11.8	215 31 39.3	Cockroach (U. S. E.)	9387.4	3.9725439
			74 30 20.4	254 25 49.8	Pineles 2	16543.0	4.2186145
Cedar Point (U. S. E.) 1908	27 50 08.297	255.4	82 05 16.5	262 01 07.7	Ant 2	14787.9	4.1699064
	82 35 24.177	661.6	313 00 12.1	133 03 16.6	Mangrove (U. S. E.)	14822.2	4.1709112
			338 09 11.3	158 11 05.1	Indian Hill 2	18014.2	4.2556158
			343 06 55.8	163 08 27.3	Cockroach (U. S. E.)	18551.2	4.2683726
Gadsden 2 1908	27 49 17.482	538.1	17 22 51.6	197 21 46.9	Ant 2	12739.7	4.1051597
	82 28 26.669	729.0	3 58 47.3	183 58 37.2	Mangrove (U. S. E.)	8570.7	3.9330160
			17 21 20.3	197 19 59.8	Indian Hill 2	15880.3	4.2008588
Gadsden Point light 1908	27 48 57.372	1766.0	55 13 18.7	235 08 59.4	Ant 2	18557.0	4.2685099
	82 27 15.815	432.8	17 43 42.4	197 42 59.2	Mangrove (U. S. E.)	8326.2	3.9204452
			59 53 35.7	239 48 43.5	Ant 2	19802.2	4.2980344
			99 18 31.7	279 14 43.8	Cedar Point (U. S. E.)	13542.2	4.1316886
Alafia 2 1908	27 50 03.619	111.4	107 42 29.4	287 41 56.3	Gadsden 2	2035.6	3.3086920
	82 23 30.363	830.9	41 08 57.2	221 06 28.9	Mangrove (U. S. E.)	13236.5	4.1217733
			71 43 33.6	251 41 48.4	Gadsden Point light	6498.2	3.8127950
Ball 1908	27 54 19.176	590.3	80 05 07.4	260 02 49.1	Gadsden 2	8232.3	3.9155206
	82 24 54.610	1493.5	343 39 54.7	163 40 34.1	Alafia 2	8197.0	3.9138571
Catfish Point (U. S. E.) 1908	27 50 42.201	1299.0	21 18 53.0	201 17 47.0	Gadsden Point light	10632.2	4.0266232
	82 28 13.623	372.8	32 00 26.4	211 58 47.4	Gadsden 2	10949.7	4.0394029
			219 10 14.8	39 11 47.8	Ball	8616.4	3.9353269
Ballast Point 2 1908	27 53 20.634	635.1	278 41 33.2	98 43 45.5	Alafia 2	7841.5	3.8943966
	82 28 50.386	1378.2	333 52 44.3	153 53 11.3	Gadsden Point light	3503.7	3.5555402
			254 22 16.2	74 24 06.5	Ball	6695.3	3.8257714
Picnic Island 1908	27 51 02.893	89.0	304 41 16.6	124 43 46.2	Alafia 2	10650.4	4.0273640
	82 32 49.785	1362.1	342 17 07.1	162 17 51.4	Gadsden Point light	8506.6	3.9297563
			348 20 42.8	168 21 00.0	Catfish Point (U. S. E.)	4979.4	3.6971765
			330 43 27.9	150 45 20.6	Mangrove (U. S. E.)	13519.6	4.130965
Dave 1908	27 53 46.439	1429.4	30 08 36.6	210 06 19.9	Ant 2	16000.2	4.204125
	82 31 50.822	1390.0	68 19 02.8	248 17 50.7	Cedar Point (U. S. E.)	4546.6	3.657682
Pete 1908	27 52 51.662	1590.2	17 46 08.5	197 45 40.9	Picnic Island	5286.3	3.723149
	82 37 01.585	43.4	41 00 45.0	220 59 05.3	Cedar Point (U. S. E.)	8896.9	3.949239
			258 45 34.4	78 47 59.7	Dave	8665.4	3.937789
Gun 1908	27 54 51.146	1574.3	295 54 18.8	115 56 16.4	Picnic Island	7659.1	3.884175
	82 31 50.213	1373.0	332 04 17.8	152 05 03.3	Cedar Point (U. S. E.)	5691.1	3.755198
			33 55 29.6	213 53 49.6	Cedar Point (U. S. E.)	10490.9	4.020814
Dog 1908	27 54 22.308	686.7	66 39 40.0	246 37 14.3	Pete	9276.0	3.967362
	82 38 26.354	720.7	265 17 23.8	85 20 29.3	Gun	10869.1	4.036195
			275 48 08.5	95 51 13.6	Dave	10873.3	4.036360
			320 16 15.3	140 16 55.0	Pete	3627.8	3.559638
Rocky Point 1906	27 57 47.362	1457.9	7 10 12.9	187 09 42.4	Cedar Point (U. S. E.)	14240.0	4.153570
	82 34 19.216	525.2	26 00 43.2	205 59 27.2	Pete	10127.1	4.005487
			46 57 56.7	228 56 00.8	Dog	9246.2	3.965964
			323 05 03.2	143 06 13.0	Gun	6783.5	3.831455
Johnson's house north ga- ble, Perico Island ¹ 1908	27 29 49.53	1524.5	331 18 27.2	151 19 36.6	Dave	8453.2	3.927023
	82 41 14.91	409.3	98 12 02	278 11 17	Cedar Point (U. S. E.)	10127.1	4.005487
			33 21 03	213 20 37	Anna Maria Key southeast base 2	2808	3.44837
Stake, south end of 40-foot cut 1908	27 30 46.470	1430.3	98 12 02	278 11 17	Anna Maria Key northwest base	2689	3.42952
	82 41 30.678	842.0	58 25 37.7	238 25 00.2	Anna Maria Key northwest base	2615.4	3.417545
			291 20 19.1	111 20 29.4	Perico 2	657.1	2.817596
		355 36 48.4	176 36 53.3	Mound 2	3922.7	3.593584	

¹ No check on this position.

TAMPA BAY—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Loga-rithm
<i>Supplementary points—Continued</i>							
Manatee 2 1908	27 31 54.593	1680.4	93 20 20.2	273 17 43.6	Palm 2	<i>Meters</i> 9309.4	3.968924
	82 38 47.547	1304.7	124 01 52.7	303 58 42.2	Egmont Key L. H.	13615.4	4.134030
			163 04 36.2	343 03 40.9	Mullet Key Shoal light	11239.9	4.050762
Snead Point Shoal light 1908	27 32 08.838	272.0	32 56 30.1	212 55 59.6	Perico 2	3305.7	3.519267
	82 40 02.882	79.1	49 54 43.1	229 53 24.8	Anna Maria Key northwest base	6062.5	3.782649
			90 48 41.1	270 46 39.1	Palm 2	7227.2	3.858972
			127 54 54.3	307 52 18.6	Egmont Key L. H.	11683.7	4.067582
			236 47 40.8	56 48 49.6	Terraceia 2	4891.9	3.689476
Manatee River Cut light 1908	27 31 46.913	1444.0	62 22 42.3	242 20 58.4	Manatee 2	2113.2	3.324932
	82 39 07.080	194.3			Anna Maria Key northwest base	6963.4	3.842824
			95 04 40.9	275 02 13.3	Palm 2	8792.2	3.944098
			128 09 48.1	308 06 46.8	Egmont Key L. H.	13312.7	4.124267
			217 22 55.2	37 23 38.3	Terraceia 2	4220.3	3.625342
Terraceia Point No. 1 light 1908	27 32 44.315	1364.0	54 11 05.5	234 09 09.1	Manatee 2	585.8	2.767747
	82 38 39.683	1088.8			Anna Maria Key northwest base	8635.8	3.931245
			84 04 04.6	264 01 24.4	Palm 2	9560.6	3.980436
			117 54 14.8	297 51 00.7	Egmont Key L. H.	13012.0	4.114345
			228 46 34.3	48 47 04.9	Terraceia 2	2407.4	3.381547
Palmetto Schoolhouse dome 1908	27 31 03.302	101.6	97 26 10.5	277 21 35.9	Palm 2	16444.1	4.216011
	82 34 31.994	878.0	116 43 05.2	296 37 56.6	Egmont Key L. H.	20478.1	4.311289
			133 17 50.4	313 16 26.4	Terraceia 2	6848.4	3.835589
Palmetto Church, tall thin spire 1908	27 30 52.130	1604.6	08 41 44.7	278 37 12.5	Palm 2	16350.1	4.213521
	82 34 37.228	1021.7	117 45 21.8	297 40 15.6	Egmont Key L. H.	20507.8	4.311918
			141 38 39.2	321 34 24.2	Tomlinson	24307.2	4.386735
			136 09 26.6	316 08 05.0	Terraceia 2	6988.4	3.844377
Fogartyville Episcopal Church spire 1908	27 29 49.390	1520.2	123 24 18.2	303 22 39.8	Manatee 2	7902.3	3.845238
	82 35 14.523	398.6	123 50 12.0	303 45 23.2	Egmont Key L. H.	20617.3	4.314232
			146 10 56.2	326 06 58.5	Tomlinson	25265.6	4.402629
Braidentown electric power house stack 1908	27 29 50.396	1551.2	117 36 15.4	297 34 12.2	Manatee 2	8254.7	3.916702
	82 34 20.968	575.6	121 37 39.2	301 32 25.6	Egmont Key L. H.	21837.4	4.339201
			142 42 11.3	322 40 42.2	Terraceia 2	8724.9	3.940768
			163 25 25.7	343 23 30.2	Pinolos 2	23940.4	4.379132
Braidentown standpipe 1908	27 29 31.339	964.6	121 02 38.1	301 00 34.7	Manatee 2	8554.5	3.932194
	82 34 20.451	561.4	122 53 58.9	302 48 45.1	Egmont Key L. H.	22162.6	4.345620
			144 50 43.6	324 49 14.3	Terraceia 2	9206.5	3.964094
			163 46 59.9	343 45 04.2	Pinolos 2	24507.2	4.389293
Southwest Channel light 1908	27 34 48.271	1485.8	146 31 24.9	326 30 59.5	Egmont Key L. H.	2720.1	3.434582
	82 44 44.291	1214.8	280 39 31.8	100 42 51.0	Terraceia 2	12020.5	4.079924
			298 37 15.5	118 40 00.5	Manatee 2	11151.9	4.047348
			322 20 50.7	142 22 30.4	Perico 2	9700.7	3.986802
			354 07 09.1	174 07 17.4	Palm 2	4832.6	3.684177
Battery Page 1908	27 34 50.066	1541.0	189 19 53.0	9 20 00.0	Egmont Key L. H.	2243.2	3.350870
	82 45 52.267	1433.5	279 26 59.8	99 30 50.6	Terraceia 2	13866.1	4.141954
			314 47 22.7	134 49 34.0	Perico 2	10978.6	4.040547
			334 06 20.6	154 07 00.4	Palm 2	5404.8	3.732778
Egmont Key, pilots' look- out 1908	27 35 10.280	316.4	339 20 31	159 21 06	Palm 2	5861.2	3.767990
	82 45 41.605	1141.1	182 34 04	2 34 05	Egmont Key L. H.	1592.9	3.202186
			282 13 14	102 17 01	Terraceia 2	13695.8	4.136588
			318 05 50	138 07 57	Perico 2	11228.1	4.050307
Fort Dade, top of water tank 1908	27 35 41.545	1278.7	196 40 45.1	16 40 48.3	Egmont Key L. H.	656.6	2.817315
	82 45 45.875	1258.1	285 57 32.1	106 01 20.0	Terraceia 2	14043.8	4.147486
			320 44 33.0	140 46 41.3	Perico 2	12035.4	4.080480
			335 26 17.7	155 27 38.2	Anna Maria Key, northwest base	11490.8	4.060351
			341 16 37.7	161 17 14.6	Palm 2	6806.9	3.832950
Fort Dade, power house black stack 1908	27 35 41.442	1275.6	194 47 41.2	14 47 44.0	Egmont Key L. H.	653.9	2.815478
	82 45 45.091	1236.6	285 58 14.3	106 02 01.8	Terraceia 2	14022.3	4.146820
			320 48 44.3	140 50 52.2	Perico 2	12019.3	4.079880
			341 26 24.8	161 27 01.3	Palm 2	6797.0	3.832318
			174 27 36.7	354 27 35.6	Egmont Key L. H.	641.1	2.806932
Fort Dade flagstaff 1908	27 35 41.249	1269.6	286 12 34.2	106 16 17.8	Terraceia 2	13800.8	4.139903
	82 45 36.746	1007.8	301 50 03.1	121 53 12.5	Manatee 2	13216.6	4.121121
			343 16 29.5	163 17 02.1	Palm 2	6722.0	3.827498
			144 20 06	324 20 03	Egmont Key L. H.	264	2.42081
			288 00 08	108 03 50	Terraceia 2	13838	4.14106
Egmont Key landing, tower on pavilion 1908	27 35 55.045	1694.3	303 35 11.8	123 38 19.5	Manatee 2	13369.6	4.126120
	82 45 33.430	916.8	323 13 50.2	143 15 52.8	Perico 2	12152.5	4.084670
			337 47 56.9	157 49 11.6	Anna Maria Key, northwest base	11736.9	4.069552
			344 57 47.8	164 58 18.9	Palm 2	7105.6	3.851600

1 No check on this position.

TAMPA BAY—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Supplementary points—Continued</i>							
North Channel light 1908	27 36 42.550	1309.7	297 24 32.5	117 27 39.4	Terracela 2	12472.3	4.095948
	82 44 17.284	474.0	335 09 22.6	155 10 50.0	Perico 2	12340.1	4.091320
			349 13 55.5	169 14 36.0	Anna Maria Key, northwest base	12550.5	4.098660
Fort de Sota flagstaff 1908	27 36 41.390	1274.0	4 08 45.6	184 08 35.5	Egmont Key L. H.	2655.3	3.409146
	82 44 04.349	119.2	64 57 25.9	244 56 42.0	Palm 2	8310.7	3.919636
			298 01 54.0	118 04 54.9	Egmont Key L. H.	2865.1	3.457136
Fort de Sota, water tank 1908	27 36 50.618	1558.0	3 31 41.6	183 31 32.7	Terracela 2	12141.7	4.084281
	82 44 06.982	191.4	59 19 31.7	239 18 49.1	Perico 2	12162.6	4.085025
			299 02 16.4	119 05 18.5	Palm 2	8589.3	3.933956
Fort de Sota power house black stack 1908	27 36 50.308	1548.5	3 18 55.3	183 18 46.9	Egmont Key L. H.	2934.0	3.467467
	82 44 08.167	223.9	59 09 36.5	239 08 54.4	Terracela 2	12340.9	4.091346
			222 43 46.5	42 46 23.3	Perico 2	12452.0	4.095240
Quarantine building, tower on end of wharf 1908	27 36 53.838	1657.1	9 54 56	189 54 30	Palm 2	8577.8	3.933375
	82 43 31.000	850.0	65 33 16	245 32 16	Egmont Key L. H.	2901.2	3.462583
			301 51 06	121 53 52	Pinelos 2	13643.8	4.134935
Quarantine station, high water tank 1908	27 37 01.974	60.8	9 04 55.8	189 04 31.7	Terracela 2	12384.7	4.092183
	82 43 34.266	939.5	61 38 40.5	241 37 42.7	Palm 2	9036.7	3.955962
			220 45 40.0	40 48 01.1	Egmont Key L. H.	3887.1	3.589624
Quarantine station, low water tank 1908	27 37 02.723	83.8	9 18 08.3	189 17 43.6	Pinelos 2	12756.8	4.105742
	82 43 32.846	900.6	61 37 05.2	241 36 06.7	Terracela 2	11749.7	4.070025
			220 41 46.9	40 44 07.4	Palm 2	9064.7	3.957353
Hospital (Mullet Key) west gable 1908	27 37 10.54	324.4	344 27 02	164 27 58	Egmont Key L. H.	3932.3	3.594647
	82 43 10.65	292.0	12 43 28	192 42 53	Pinelos 2	12713.9	4.104279
					Terracela 2	11729.4	4.069276
Burslem (U. S. E.) 1908	27 35 45.345	1395.7	35 08 13.2	215 07 25.9	Perico 2	12519	4.09756
	82 35 51.439	1410.6	160 05 53.1	340 04 39.4	Palm 2	9417	3.97393
			214 50 58.4	34 52 42.2	Terracela 2	4873.5	3.687840
Point Pinelos light 1908	27 41 47.598	1465.1	6 43 11.9	186 42 41.6	Pinelos 2	12782.5	4.106815
	82 36 28.673	785.6	54 50 37.6	234 46 22.1	Cockroach (U. S. E.)	10738.2	4.030933
			104 36 42.6	284 35 46.1	Indian Hill 2	12344.3	4.091465
St. Petersburg Club House flagstaff 1908	27 41 57.195	1760.5	201 18 17.2	21 18 21.0	Terracela 2	15240.7	4.183004
	82 38 38.411	1052.4	252 45 51.5	72 50 25.9	Egmont Key L. H.	18450.2	4.268212
			263 48 10.7	103 51 12.3	Pinelos 2	3442.5	3.536877
Tampa Bay beacon No. 4 1908	27 43 15.064	463.7	353 26 08.1	173 26 38.2	Ant 2	3839.9	3.584262
	82 36 10.234	280.4	296 39 50.3	116 42 05.4	Indian Hill 2	8571.2	3.933043
			307 06 32.8	127 08 25.6	Cockroach (U. S. E.)	7528.0	3.876682
Indian Hill light 1908	27 41 53.858	1657.7	310 20 07.8	130 20 37.6	Terracela 2	15240.7	4.183004
	82 32 24.135	661.2	349 50 20.2	169 50 27.9	Egmont Key L. H.	18450.2	4.268212
			93 52 29.9	273 49 39.7	Pinelos 2	3442.5	3.536877
Marshall (U. S. E.) 1908	27 42 16.747	515.5	109 19 24.4	289 16 56.0	Ant 2	3839.9	3.584262
	82 30 51.909	1422.2	32 38 01.3	212 37 26.1	Indian Hill 2	8571.2	3.933043
			89 53 46.1	269 50 13.0	Cockroach (U. S. E.)	7528.0	3.876682
Moody's house cupola 1908	27 43 05.357	184.9	101 50 24.5	281 47 13.2	Pinelos 2	614.6	2.788580
	82 28 42.784	1172.1	217 32 53.1	37 33 50.5	Mangrove (U. S. E.)	16919.0	4.228374
					Cockroach (U. S. E.)	11029.5	4.042555
St. Petersburg: Detroit House tower 1908	27 46 16.324	502.5	49 14 09	229 12 56	Terracela 2	15533.2	4.191260
	82 38 09.515	260.5	139 51 20	319 48 13	Indian Hill 2	8913.6	3.950053
			155 18 40	335 16 45	Cockroach (U. S. E.)	8339.0	3.921114
Power house stack 1908	27 46 16.050	494.0	176 58 27	356 58 25	Pinelos 2	4247.7	3.628158
	82 37 59.426	1827.2	224 45 08.3	44 47 37.5	Indian Hill 2	2322.0	3.365864
			250 41 52.5	70 46 24.2	Cockroach (U. S. E.)	2573.8	3.410577
Schoolhouse cupola 1908	27 46 21.720	668.6	280 55 00.2	100 59 21.5	Pinelos 2	10053.9	4.002334
	82 38 27.241	745.9	310 26 46.4	130 29 57.1	Ant 2	9259.0	3.966564
			316 55 21.9	136 58 10.3	Indian Hill 2	2322.0	3.365864
Power house stack 1908	27 46 16.050	494.0	223 48 26.4	43 50 50.8	Indian Hill 2	2322.0	3.365864
	82 37 59.426	1827.2	281 04 55.7	101 09 12.3	Cockroach (U. S. E.)	15378.3	4.186908
			311 07 41.1	131 10 47.1	Indian Hill 2	14547.6	4.162790
Schoolhouse cupola 1908	27 46 21.720	668.6	317 42 28.2	137 45 11.9	Cockroach (U. S. E.)	14329.8	4.156240
	82 38 27.241	745.9	226 50 23.8	46 53 01.2	Picnic Island	12657.7	4.102354
			251 44 44.4	71 49 24.4	Gadsden 2	17307.6	4.238236
		281 10 00.5	101 14 30.1	Mangrove (U. S. E.)	16159.2	4.208421	
		309 44 07.7	129 47 28.7	Indian Hill 2	15240.5	4.182999	
		315 59 54.0	136 02 50.7	Cockroach (U. S. E.)	14978.0	4.175454	

1 No check on this position.

TAMPA BAY—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Logs-rithm
<i>Supplementary points—Continued</i>							
St. Petersburg—Continued	" " "		" " "	" " "		<i>Meters</i>	
Sibley House tower 1908	27 46 07.835 82 38 20.608	241.2 564.3	224 53 33.1 250 12 41.4 279 47 01.1 308 54 53.6 315 20 38.7	44 56 07.4 70 17 18.3 99 51 27.6 128 58 09.5 135 23 32.3	Picnic Island Gadsden 2 Mangrove (U. S. E.) Indian Hill 2 Cockroach (U. S. E.)	12824.9 17275.1 15903.0 14829.2 14545.4	4.108055 4.237421 4.201478 4.171117 4.162727
Waterworks standpipe 1908	27 46 24.397 82 38 24.472	751.0 670.0	226 52 40.8 251 55 39.6 281 30 26.1 310 09 23.3 316 25 34.0	46 55 17.2 72 00 18.4 101 34 54.4 130 12 40.7 138 28 29.0	Picnic Island Gadsden 2 Mangrove (U. S. E.) Indian Hill 2 Cockroach (U. S. E.)	12546.0 17209.8 16101.1 15235.3 14985.1	4.098504 4.235777 4.206856 4.182852 4.175859
South Cut, lower No. 6 light 1908	27 47 39.362 82 34 20.728	1211.6 567.4	337 45 06.2 344 30 36.1 36 12 19.4	157 46 30.4 164 31 38.1 216 10 45.1	Indian Hill 2 Cockroach (U. S. E.) Ant 2	13113.2 13684.1 9385.2	4.117708 4.135581 3.972444
South Cut, upper No. 8 light 1908	27 48 37.006 82 34 22.988	1139.0 629.2	262 41 47.5 340 07 57.2 346 03 05.6 30 23 22.2	82 44 33.8 160 09 22.6 166 04 08.8 210 21 49.1	Gadsden 2 Indian Hill 2 Cockroach (U. S. E.) Ant 2	9831.5 14791.6 15396.1 10836.1	3.992621 4.170016 4.187410 4.034875
North Cut, lower No. 10 light 1908	27 49 50.848 82 34 01.238	1565.2 33.9	318 10 24.7 27 36 38.1 103 19 07.1 221 23 49.0	138 12 50.5 207 34 54.7 283 18 28.4 41 24 22.3	Mangrove (U. S. E.) Ant 2 Cedar Point (U. S. E.) Picnic Island	12848.2 13113.4 2332.3 2956.4	4.108842 4.117134 3.367788 3.470708
Steamer "Cool" wreck beacon 1908	27 48 03.023 82 30 10.222	93.0 279.9	231 01 58.5 340 17 43.7 56 13 38.8 114 11 21.2 141 44 49.3	51 02 46.8 160 18 21.8 236 10 07.9 294 08 54.8 321 43 34.8	Gadsden 2 Mangrove (U. S. E.) Ant 2 Cedar Point (U. S. E.) Picnic Island	3645.1 6647.1 14924.0 9418.2 7051.4	3.561706 3.822633 4.173884 3.973968 3.848277
Lowne (U. S. E. east base) 1908	27 49 33.235 82 30 08.205	1023.0 224.5	346 23 55.5 48 22 30.0 97 08 05.8	166 24 32.7 228 18 58.0 277 05 38.2	Mangrove (U. S. E.) Ant 2 Cedar Point (U. S. E.)	9295.4 16669.8 8713.9	3.968269 4.221930 3.940215
Gadsden (U. S. E.) 1908	27 49 18.497 82 28 21.550	560.4 589.8	211 26 25.4 260 05 38.8 4 53 44.6 77 25 41.7	31 28 02.0 80 07 54.7 184 53 32.1 257 25 39.3	Ball Alafia 2 Mangrove (U. S. E.) Gadsden 2	10849.5 8088.9 8612.7 143.5	4.035410 3.907890 3.935138 2.156916
Young (U. S. E.) 1908	27 48 41.115 82 24 10.320	1265.5 282.5	45 42 49.0 99 04 53.9 203 17 37.0	225 40 39.4 279 02 54.3 23 17 55.7	Mangrove (U. S. E.) Gadsden 2 Alafia 2	10638.4 7104.9 2765.0	4.026877 3.851557 3.441694
Alafia River light 1908	27 50 11.051 82 24 28.699	340.2 785.3	75 48 24.8 98 52 10.0 129 12 04.5 278 09 04.4	255 46 33.7 278 50 24.9 309 10 02.1 98 09 31.6	Gadsden 2 Catfish Point (U. S. E.) Ballast Point 2 Alafia 2	6717.9 6228.9 9236.2 1612.6	3.827232 3.794412 3.965495 3.207540
Old (U. S. E.) 1908	27 51 51.407 82 24 06.100	1582.4 166.9	343 34 37.2 72 33 16.7 109 28 15.4 163 44 25.8	163 34 53.9 252 31 21.0 289 26 02.4 343 44 03.0	Alafia 2 Catfish Point (U. S. E.) Ballast Point 2 Ball	3458.9 7090.3 8247.2 4738.1	3.538941 3.851217 3.916307 3.675607
Long Shoal beacon 1908	27 52 43.307 82 27 15.201	1333.0 415.9	23 12 39.5 113 49 07.5 232 29 12.1 308 36 44.8	203 12 12.2 293 48 23.0 52 30 17.9 128 38 29.9	Catfish Point (U. S. E.) Ballast Point 2 Ball Alafia 2	4056.0 2845.8 4847.1 7874.1	3.608097 3.454201 3.685480 3.896200
Wall's, Judge, house chimney 1908	27 52 39.966 82 29 01.165	1230.2 31.9	245 87 12.0 297 58 47.7 340 15 31.4	65 39 07.3 118 01 22.2 160 15 53.6	Ball Alafia 2 Catfish Point (U. S. E.)	7402.7 10250.5 3851.2	3.868388 4.010746 3.585601
Ballast Point Hotel water tank 1908	27 53 22.022 82 28 52.622	677.9 1439.4	304 41 21.7 304 55 49.2 347 45 40.6	124 43 52.3 124 55 50.2 167 45 58.8	Alafia 2 Ballast Point 2 Catfish Point (U. S. E.)	10726.0 74.6 5033.8	4.030395 1.872806 3.701900
Tampa Yacht Club house flagstaff 1908	27 53 13.316 82 28 51.738	409.9 1415.2	189 19 21.1 252 37 32.1 303 34 04.9 347 21 46.1	9 19 21.7 72 39 23.0 123 36 35.1 167 22 03.9	Ballast Point 2 Ball Alafia 2 Catfish Point (U. S. E.)	228.3 6794.8 10554.6 4767.0	2.358438 3.832175 4.023441 3.678241
Tampa Cut No. 2 light 1908	27 54 17.092 82 26 17.735	553.8 485.1	290 04 33.9 329 40 18.1 25 31 13.6 67 05 10.0	89 05 12.7 149 41 36.3 205 30 19.4 247 03 58.5	Ball Alafia 2 Catfish Point (U. S. E.) Ballast Point 2	2273.5 9070.4 7360.0 4532.8	3.356700 3.957626 3.866880 3.656371
Tampa Cut No. 4 light 1908	27 55 15.927 82 26 49.311	490.2 1348.3	299 06 30.1 15 18 46.3 43 01 19.6	119 07 23.8 195 18 06.9 223 00 23.0	Ball Catfish Point (U. S. E.) Ballast Point 2	3590.2 8735.6 4853.0	3.555113 3.941292 3.686068
Richard's house (The Gables) cupola. 1908	27 55 00.050 82 29 35.061	1.6 958.7	279 17 54.6 312 25 24.2 338 13 59.2	99 20 05.9 132 28 15.0 168 14 20.1	Ball Alafia 2 Ballast Point 2	7771.6 13519.6 3265.1	3.890512 4.130965 3.517864
Spanish Sanitarium south gable 1908	27 55 04.699 82 29 31.761	144.6 868.5	280 27 25.8 313 07 40.3 340 32 31.5	100 29 35.6 133 10 29.4 160 82 50.9	Ball Alafia 2 Ballast Point 2	7707.3 13550.6 3397.3	3.889601 4.131959 3.531129

TAMPA BAY—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Supplementary points—Continued</i>							
Spanish Sanitarium west tank 1908	27 55 04.125	127.0	280 17 09.9	100 19 20.2	Ball	<i>Meters</i> 7750.5	3.888462
	82 29 32.911	899.9	312 58 56.7	133 01 46.3	Alafia 2	13561.5	4.132308
			344 56 19.3	164 56 56.4	Catfish Point (U. S. E.)	8349.0	3.921635
			339 56 30.0	159 56 49.9	Ballast Point 2	3391.3	3.530362
Tampa west base (U. S. E.) 1908	27 54 51.328	1580.0	281 20 19.9	101 21 44.3	Ball	5028.6	3.701445
	82 27 54.901	1501.2	3 49 18.7	183 49 10.0	Catfish Point (U. S. E.)	7685.6	3.885676
			28 31 45.6	208 31 19.7	Ballast Point 2	3177.4	3.502078
Tampa east base (U. S. E.) 1908	27 55 28.576	878.8	301 38 06.4	121 39 05.7	Ball	4071.9	3.609794
	82 27 01.381	37.8	329 59 55.7	160 01 34.3	Alafia 2	11548.6	4.062528
			12 38 21.6	192 37 47.8	Catfish Point (U. S. E.)	9033.8	3.955869
Tampa Bay Hotel electric plant stack 1908	27 56 52.146	1605.2	314 35 48.1	134 37 09.8	Ball	6705.0	3.826401
	82 27 49.197	1344.8	330 36 19.0	150 38 20.0	Alafia 2	14430.7	4.159288
			3 21 32.7	183 21 21.2	Catfish Point (U. S. E.)	11407.0	4.057172
			14 24 58.3	194 24 29.6	Ballast Point 2	6722.2	3.827514
Tampa Bay Hotel north tower 1908	27 56 47.914	1474.9	313 25 40.2	133 27 03.0	Ball	6658.6	3.823383
	82 27 51.439	1406.2	330 08 10.8	150 10 12.9	Alafia 2	14347.9	4.156788
			3 05 11.1	183 05 00.7	Catfish Point (U. S. E.)	11273.5	4.052058
			14 10 52.4	194 10 24.8	Ballast Point 2	6580.8	3.818282
Tampa: Morrison Villa tower 1908	27 56 01.910	58.8	299 35 36.5	119 37 11.8	Ball	6400.8	3.806235
	82 28 18.136	495.9	324 27 55.6	144 30 10.2	Alafia 2	13549.5	4.131923
			359 16 52.2	179 16 54.3	Catfish Point (U. S. E.)	9841.9	3.993078
			10 04 30.9	190 04 15.8	Ballast Point 2	5042.1	3.702609
Hyde Park schoolhouse 1908	27 56 20.467	630.0	305 31 51.8	125 33 21.3	Ball	6422.5	3.807702
	82 28 05.732	156.7	328 59 11.2	147 01 20.0	Alafia 2	13830.6	4.140842
			1 11 16.7	181 11 13.0	Catfish Point (U. S. E.)	10414.5	4.017640
			12 26 32.6	192 26 11.7	Ballast Point 2	5668.6	3.753476
Electric power house stack 1908	27 56 39.118	1204.1	5 15 32.9	185 15 15.7	Catfish Point (U. S. E.)	11032.8	4.042987
	82 27 36.666	1002.4	18 15 53.6	198 15 19.1	Ballast Point 2	6433.6	3.808456
			314 10 52.5	134 12 08.4	Ball	6179.7	3.790968
			331 01 32.1	151 03 27.4	Alafia 2	13913.6	4.143440
Tower, Whiting and Franklin Streets 1908	27 56 43.458	1337.7	317 07 09.5	137 08 20.1	Ball	6059.9	3.782465
	82 27 25.398	694.2	332 24 21.9	152 26 11.8	Alafia 2	13885.3	4.142556
			20 25 20.4	200 24 40.6	Ballast Point 2	6661.7	3.823588
First Presbyterian Church spire 1908	27 57 01.053	32.4	319 57 09.2	139 58 20.9	Ball	6508.2	3.813461
	82 27 27.735	758.2	333 10 43.9	153 12 35.0	Alafia 2	14396.2	4.158248
			18 25 39.6	198 25 00.9	Ballast Point 2	7151.3	3.854388
Courthouse dome 1908	27 56 52.608	1619.4	318 20 36.0	138 21 47.9	Ball	6320.3	3.800738
	82 27 28.224	771.5	332 39 22.9	152 41 14.2	Alafia 2	14170.9	4.151397
			6 13 04.5	186 12 43.3	Catfish Point (U. S. E.)	11469.1	4.059530
			19 00 10.5	198 59 38.0	Ballast Point 2	6900.9	3.838903
Episcopal Church spire 1908	27 56 56.178	1729.3	319 47 44.2	139 48 54.1	Ball	6326.8	3.801183
	82 27 23.952	654.7	333 16 43.0	153 18 32.2	Alafia 2	14215.7	4.152767
			6 44 00.5	186 43 37.2	Catfish Point (U. S. E.)	11591.5	4.064139
			19 36 43.8	199 36 03.3	Ballast Point 2	7043.2	3.847770
Catholic Cathedral dome 1908	27 56 56.818	1749.0	319 25 37.5	139 26 48.9	Ball	6387.4	3.805323
	82 27 26.526	725.1	333 03 40.5	153 05 30.9	Alafia 2	14265.0	4.154271
			6 22 36.4	186 22 14.3	Catfish Point (U. S. E.)	11803.0	4.064569
			19 01 07.0	199 00 27.7	Ballast Point 2	7038.5	3.847479
Convent dome 1908	27 57 01.047	32.2	321 07 25.8	141 08 34.6	Ball	6399.4	3.806141
	82 27 21.482	587.2	333 47 23.0	153 49 11.1	Alafia 2	14319.7	4.155935
			6 58 30.0	186 58 05.6	Catfish Point (U. S. E.)	11748.3	4.069975
			19 43 05.6	199 42 24.0	Ballast Point 2	7207.0	3.857756
Sawmill, Central Avenue and Polk Streets, tall stack 1908	27 57 06.675	205.5	8 12 16.8	188 11 47.7	Catfish Point (U. S. E.)	11056.9	4.077620
	82 27 11.261	307.8	21 17 22.1	201 16 35.7	Ballast Point 2	7467.2	3.873156
			324 03 43.8	144 04 47.8	Ball	6367.3	3.803954
			335 05 49.2	155 07 32.6	Alafia 2	14355.5	4.157018
Post office building, central flagstaff (west pole) 1908	27 56 58.926	1813.9	319 33 18.6	139 34 30.4	Ball	6460.5	3.810266
	82 27 27.864	761.7	6 09 45.4	186 09 24.1	Catfish Point (U. S. E.)	11663.5	4.068329
			18 34 04.9	198 33 26.3	Ballast Point 2	7088.2	3.850533
Methodist Church spire 1908	27 57 08.553	263.3	320 18 05.2	140 19 19.3	Ball	6775.2	3.830919
	82 27 32.858	898.2	333 05 48.9	153 07 42.3	Alafia 2	14665.5	4.166296
			5 21 29.8	185 21 10.7	Catfish Point (U. S. E.)	11944.6	4.077173
			16 40 03.5	196 48 27.2	Ballast Point 2	7329.0	3.865043
Crematory stack 1908	27 57 18.796	578.6	328 22 47.0	148 23 45.3	Ball	6492.3	3.812400
	82 26 59.078	1614.9	336 54 20.2	156 55 57.8	Alafia 2	14560.9	4.163188
			9 29 08.6	189 28 33.7	Catfish Point (U. S. E.)	12378.9	4.092610
			22 33 10.5	202 32 18.4	Ballast Point 2	7937.7	3.899694
Central Avenue Church spire 1908	27 57 46.069	1418.1	328 08 11.9	148 09 19.7	Ball	7497.7	3.874927
	82 27 19.342	528.7	6 29 39.8	186 29 14.4	Catfish Point (U. S. E.)	13131.5	4.118314
			16 57 01.0	196 56 18.4	Ballast Point 2	8541.3	3.931525
Michigan Avenue schoolhouse 1908	27 57 58.892	1812.8	328 16 10.1	148 17 21.7	Ball	7950.9	3.900417
	82 27 27.518	762.1	336 04 31.1	156 06 22.0	Alafia 2	16002.8	4.204197
			14 49 19.8	194 48 41.0	Ballast Point 2	8559.8	3.947426

TAMPA BAY—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm*
<i>Supplementary points—Con</i>							
West Tampa Waterworks standpipe 1908	27 57 25.690	790.8	313 09 35.0	133 11 19.8	Ball	8390.8	3.923805
	82 28 38.425	1050.4	328 12 56.1	148 15 20.2	Alafia 2	18004.8	4.204249
			356 52 20.6	176 52 32.2	Catfish Point (U.S.E.)	12438.5	4.094768
			2 28 59.7	182 28 54.1	Ballast Point 2	7550.3	3.877964
Ybor City Brewery tower 1908	27 57 31.279	962.8	332 50 07.7	152 50 59.7	Ball	6645.9	3.822554
	82 26 45.500	1245.4	10 49 59.8	190 49 18.7	Catfish Point (U.S.E.)	12820.3	4.107897
			23 52 17.3	203 51 18.9	Ballast Point 2	8436.5	3.926160
Ybor City iron water tank, Twelfth Avenue and Twenty-first Street 1908	27 57 47.468	1461.2	342 19 31.5	162 20 06.5	Ball	6729.1	3.827954
	82 26 09.318	254.7	343 03 21.0	163 04 35.5	Alafia 2	14925.1	4.173918
			14 33 56.0	194 32 57.9	Catfish Point (U.S.E.)	13524.6	4.131126
			28 12 34.2	208 11 18.8	Ballast Point 2	9319.7	3.969403
Ybor City water tank (tall iron), Ninth and Fourteenth Streets 1908	27 57 39.770	1224.2	334 41 01.3	154 41 51.3	Ball	6830.2	3.834435
	82 26 41.412	1132.0	339 34 34.2	159 36 03.6	Alafia 2	14981.7	4.175560
			8 14 28.0	188 13 28.7	Mangrove (U.S.E.)	24261.2	4.384913
			11 06 22.2	191 05 39.0	Catfish Point (U.S.E.)	13068.5	4.117220
			23 51 30.2	203 50 29.8	Ballast Point 2	8721.4	3.940585
Ybor City tobacco factory cupola 1908	27 56 51.110	1573.3	337 48 27.1	157 48 59.8	Ball	5050.8	3.703358
	82 26 04.372	119.5	17 17 58.3	197 16 57.9	Catfish Point (U.S.E.)	11893.0	4.075292
			35 01 42.1	215 00 24.4	Ballast Point 2	7910.8	3.898222
Port Tampa west base (U.S.E.) 1908	27 50 19.316	594.6	333 34 53.4	163 36 21.8	Mangrove (U.S.E.)	11671.1	4.067111
	82 31 57.992	1586.9	37 06 44.6	217 04 03.7	Ant 2	15667.5	4.195000
			86 34 22.2	266 32 45.9	Cedar Point (U.S.E.)	5652.3	3.752224
			133 25 40.6	313 25 16.3	Picnic Island	1951.3	3.290320
Port Tampa: Oil tank, top (large yellow, east) 1908	27 51 34.661	1066.9	62 18 08.1	242 16 41.8	Cedar Point (U.S.E.)	5717.0	3.757170
	82 32 19.196	525.2	190 49 47.9	10 50 01.2	Dave	4129.9	3.615942
			40 33 40.7	220 33 26.4	Picnic Island	1287.1	3.109610
Catholic Church spire 1908	27 51 51.379	1581.5	54 10 54.8	234 10 19.5	Picnic Island	2550.0	3.406538
	82 31 34.212	936.0	63 15 13.6	243 13 26.2	Cedar Point (U.S.E.)	7046.8	3.847992
			112 25 28.1	292 22 15.5	Dog	12192.7	4.086101
Electric power house stack 1908	27 51 54.033	1663.2	49 43 58.7	229 43 27.0	Picnic Island	2435.3	3.386545
	82 31 41.870	1145.4	32 42 23.0	212 39 35.4	Ant 2	18312.8	4.262764
			61 51 48.7	241 50 04.8	Cedar Point (U.S.E.)	6898.5	3.838757
Water tank (red iron, head of slip) 1908	27 51 43.511	1339.3	58 20 32.4	238 19 11.3	Cedar Point (U.S.E.)	5582.4	3.746820
	82 32 30.532	835.3	116 41 25.2	296 38 38.0	Dog	10891.1	4.037071
			196 00 50.7	16 01 09.3	Dave	3936.7	3.595136
Long phosphate elevator west gable 1908	27 51 43.129	1327.6	55 31 52.1	235 30 39.6	Cedar Point (U.S.E.)	5156.4	3.712347
	82 32 48.826	1335.8	117 58 40.2	297 56 02.5	Dog	10451.9	4.019194
			202 40 53.1	22 41 20.2	Dave	4113.9	3.614256
			1 12 51.0	181 12 50.5	Picnic Island	1238.8	3.093004
Long phosphate elevator east gable 1908	27 51 43.547	1340.4	56 02 44.5	236 01 30.3	Cedar Point (U.S.E.)	5248.0	3.719900
	82 32 45.099	1233.9	117 39 23.0	297 36 43.6	Dog	10536.0	4.022677
			201 25 31.9	21 25 57.3	Dave	4063.7	3.608923
			5 50 58.2	185 50 56.0	Picnic Island	1257.9	3.099662
East elevator, end of dock 1908	27 51 39.378	1212.1	119 59 30.6	290 57 02.1	Dog	10030.2	4.001698
	82 33 08.406	230.0	208 28 46.4	28 29 22.8	Dave	4449.8	3.648339
			335 35 54.4	155 36 03.1	Picnic Island	1233.2	3.091041
			52 58 01.9	232 58 58.5	Cedar Point (U.S.E.)	4654.1	3.667835
West elevator, end of dock 1908	27 51 40.084	1233.8	120 07 24.6	300 04 57.5	Dog	9956.0	3.998086
	82 33 11.450	313.5	209 33 10.2	29 33 48.0	Dave	4471.3	3.650436
			332 36 52.0	152 37 02.1	Picnic Island	1289.3	3.110339
			52 07 27.8	232 06 25.8	Cedar Point (U.S.E.)	4601.0	3.662850
Frazier's Beach, north house chimney ¹ 1908	27 56 45.14	1389.5	66 22 23	246 19 31	Dog	10959	4.03979
	82 32 19.19	524.6	351 58 16	171 58 29	Dave	5555	3.74460
Rocky Point, house chimney 1908	27 57 43.018	1324.2	7 46 12.4	187 45 39.6	Cedar Point (U.S.E.)	14126.6	4.150037
	82 34 14.382	393.1	48 07 46.6	228 05 48.5	Dog	9253.5	3.966304
			331 39 58.8	151 41 06.0	Dave	8272.8	3.917650
Green Springs, chimney Mrs. Cohen's house ¹ 1908	27 59 22.87	704.0	284 19 00	104 22 17	Rocky Point	11868	4.07437
	82 41 19.03	544.6	332 50 10	152 51 31	Dog	10398	4.01694
Green Springs, top of water tank ¹ 1908	27 59 25.36	780.6	284 45 41	104 48 57	Rocky Point	11818	4.07253
	82 41 17.32	473.3	333 22 41	153 24 01	Dog	10434	4.01843

BOCA CEIGA BAY TO CLEARWATER HARBOR

Principal points	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm*
Turn 1873	27 42 14.710	452.8	260 45 59.9	89 48 21.1	Pinelos	8324.2	3.920341
	82 43 33.168	908.7	16 44 27.7	196 43 29.3	Egmont Key L. H.	11980.1	4.078459

¹ No check on this position.

BOCA CEIGA BAY TO CLEARWATER HARBOR—Continued

Station	Latitude and longitude	Seconds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Principal points—Contd</i>							
Shell Point 1873	27 42 22.809	702.0	33 53 49.0	213 51 35.7	Egmont Key L. H. Turn	Meters 14119.2	4.149810
	82 40 51.865	1420.9	86 46 54.9	286 45 39.9		4926.3	3.646040
Bird 1873	27 40 07.022	216.1	41 03 27.1	221 01 36.0	Egmont Key L. H. Turn	10000.0	4.000012
	82 41 39.486	1082.2	141 36 27.2	321 35 34.4		5015.1	3.700279
Point 1873	27 43 08.782	270.3	197 20 09.1	17 20 31.2	Shell Point Turn	4378.6	3.641331
	82 41 46.237	1266.7	232 44 33.2	52 46 01.5		6545.2	3.815926
Oyster 1873	27 43 24.022	739.4	313 31 42.5	133 32 07.8	Shell Point Turn	2054.6	3.312720
	82 43 43.386	1188.4	358 06 21.8	178 06 25.0		5597.7	3.748013
Sand 1873	27 44 14.345	441.6	60 24 13.2	240 23 23.5	Point Turn	3369.2	3.527533
	82 42 41.943	1148.8	278 18 32.1	98 19 26.5		3243.2	3.510974
Mound 1873	27 44 50.626	1558.3	352 31 28.2	172 31 32.9	Point Turn	2151.8	3.332794
	82 44 52.284	1431.9	322 54 11.6	142 54 37.5		2530.0	3.403123
Crab 1873	27 45 10.413	320.5	20 51 46.4	200 51 22.5	Point Turn	3940.8	3.595579
	82 44 23.352	639.5	52 27 07.1	227 22 12.3		2287.3	3.359324
Queen 1873	27 45 57.987	1784.9	287 21 48.2	107 22 48.8	Sand Oyster	3740.4	3.572917
	82 45 20.050	549.0	324 42 02.2	144 42 34.3		3266.1	3.514030
Cedar 1873	27 46 32.672	1005.7	301 51 01.0	121 51 48.2	Sand Oyster	3269.9	3.514531
	82 44 46.674	1332.7	341 30 52.3	161 31 11.0		3452.9	3.538188
Sague 1873	27 47 13.162	405.1	52 27 07.1	232 26 53.7	Mound	999.4	2.999726
	82 45 11.943	327.0	313 19 15.8	133 19 42.2		2134.2	3.326240
Snake 1873	27 47 18.215	560.6	339 51 38.5	159 51 46.5	Crab Mound	2208.5	3.344088
	82 46 23.993	656.8	344 41 00.8	164 41 12.6		2625.2	3.419167
Turtle Crawl 1873	27 47 51.592	1588.0	1 48 09.2	181 48 07.7	Crab Mound	3142.6	3.497292
	82 46 59.564	1630.5	38 49 28.2	218 49 13.6		1370.4	3.136838
Mast 1873	27 48 00.996	30.7	332 55 28.0	152 55 38.8	Cedar Queen	1399.7	3.146035
	82 46 22.014	602.6	5 28 47.3	185 28 43.5		2324.6	3.366346
Double 1873	27 48 33.692	1037.1	274 30 15.1	94 30 48.7	Sague Cedar	1978.6	3.296360
	82 47 30.632	838.4	298 14 16.4	118 15 00.8		2962.3	3.471935
Pole 1873	27 48 36.600	1001.6	324 39 42.7	144 40 12.5	Queen	3027.1	3.481030
	82 47 47.554	1301.6	307 30 16.1	127 30 48.8		2418.1	3.383460
Stump 1873	27 48 39.146	1205.0	2 21 21.2	182 21 20.3	Sague Snake	1317.9	3.119892
	82 48 33.585	919.3	254 16 11.8	74 16 29.3		1067.9	3.028513
Crow 1873	27 48 52.975	1630.6	291 52 08.0	111 52 58.2	Turtle Crawl Mast	3174.8	3.501713
	82 47 53.274	1458.1	316 31 58.0	136 32 12.6		1415.5	3.150915
Extra 1873	27 48 53.274	1458.1	298 10 46.5	118 11 18.5	Turtle Crawl Mast	2130.9	3.328557
	82 48 33.585	919.3	326 43 24.3	146 43 38.8		1550.0	3.190332
Pass 1873	27 49 09.499	259.9	221 45 11.3	41 45 19.2	Double Turtle Crawl	695.5	2.842315
	82 49 17.726	485.2	281 45 24.5	101 46 04.4		2391.7	3.378703
Faint 1873	27 49 28.640	881.6	300 36 03.8	120 36 28.2	Mast	1526.2	3.183620
	82 49 36.600	1001.6	313 45 51.2	133 46 01.8		858.1	2.933546
Indian 1873	27 49 36.600	1001.6	351 59 19.9	171 59 22.6	Double Pole	1123.4	3.050534
	82 49 36.600	1001.6	248 54 01.7	68 54 20.5		1182.6	3.072841
Fisherman 1873	27 49 39.146	1205.0	275 33 39.8	95 34 09.2	Stump Double	1731.3	3.238360
	82 49 39.146	1205.0	298 35 25.7	118 35 47.2		1435.0	3.156841
Cutter 1873	27 49 52.203	991.3	330 20 29.3	150 20 41.0	Stump Extra	1389.5	3.142861
	82 49 52.203	991.3	14 16 58.5	194 16 51.4		1685.2	3.226664
Twice 1873	27 49 52.203	991.3	266 07 55.3	86 08 23.0	Crow Stump	1627.4	3.211505
	82 49 52.203	991.3	295 24 02.1	115 24 41.4		2558.8	3.408040
Creek 1873	27 50 09.499	259.9	321 34 59.3	141 35 19.9	Extra	1944.4	3.288777
	82 49 52.203	991.3	302 47 46.5	122 48 23.0		2546.1	3.405877
Cute 1873	27 50 17.013	523.7	340 52 04.1	160 52 12.9	Crow Pass	1576.0	3.197560
	82 49 36.600	1001.6	254 16 37.6	74 19 53.0		935.0	2.970820
Cute 1873	27 50 21.387	594.9	290 19 35.3	110 20 27.2	Faint Crow	3242.5	3.510885
	82 50 21.387	594.9	311 06 24.2	131 06 48.4		1880.5	3.274264
Cute 1873	27 50 29.555	909.8	296 37 49.2	116 38 02.4	Faint Indian	861.2	2.935109
	82 50 04.734	129.5	11 32 28.6	191 32 26.4		651.8	2.814192
Cute 1873	27 50 34.642	947.9	248 23 40.6	68 23 48.0	Fisherman Cutter	470.4	2.672473
	82 50 34.642	947.9	279 59 46.6	100 00 07.2		1225.8	3.088431
Cute 1873	27 50 41.950	1291.3	326 35 29.1	146 35 24.3	Faint Indian	557.5	2.746260
	82 50 41.950	1291.3	294 59 34.4	114 59 48.3		902.9	2.955656
Cute 1873	27 50 58.283	1794.0	325 30 54.2	145 31 00.7	Fisherman Cutter	673.0	2.828000
	82 50 58.283	1794.0	332 45 54.6	152 46 02.3		994.5	2.997607
Cute 1873	27 51 09.499	259.9	359 02 14.6	179 02 14.9	Twice	1057.6	3.024327
	82 50 21.387	594.9	35 50 59.0	215 50 52.8		620.2	2.792556
Cute 1873	27 51 20.169	620.8	312 27 26.1	132 27 38.7	Creek Twice	997.9	2.999097
	82 50 48.275	1320.8	342 24 22.7	162 24 29.1		1234.1	3.091359

BOCA CEIGA BAY TO CLEARWATER HARBOR—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Loga-rithm
<i>Principal points—Contd</i>							
Pines 1873	27 51 48.824 82 50 39.161	1502.9 1071.4	342 37 20.3 15 47 09.5	162 37 28.6 195 47 05.2	Creek Cute	Meters 1630.1 916.6	3.212221 2.962198
Narrows 1873	27 52 02.129 82 50 58.993	65.5 1013.9	307 02 45.4 347 12 31.5	127 02 54.7 107 12 30.5	Pines Cute	679.8 1324.5	2.832367 3.122046
Shortest 1873	27 52 16.033 82 50 53.319	512.0 1458.6	335 39 11.0 19 10 20.8	155 39 17.0 199 10 18.1	Pines Narrows	939.5 472.7	2.972915 2.674544
Short 1873	27 52 22.141 82 51 01.825	681.5 49.9	306 04 38.1 352 49 51.2	126 04 42.1 172 49 52.5	Shortest Narrows	287.9 620.8	2.459258 2.792979
Indian Rook 1873	27 52 30.654 82 50 57.396	943.5 1570.1	345 30 33.6 24 48 41.9	165 30 35.5 204 48 39.8	Shortest Short	445.8 288.7	2.649121 2.460452
Polaris 1873	27 52 39.328 82 51 04.003	1210.6 109.5	325 54 13.3 363 34 23.9	145 54 16.4 173 34 24.9	Indian Rock Short	322.4 632.4	2.508407 2.726228
Thompson 1873	27 52 53.568 82 50 42.176	1648.9 1153.0	30 33 09.7 53 43 00.5	210 33 02.6 233 42 50.3	Indian Rock Polaris	819.0 740.7	2.913293 2.869625
Sands 1873	27 53 37.285 82 50 59.725	1147.7 1633.5	340 22 05.9 3 46 11.7	190 22 14.1 183 45 09.7	Thompson Polaris	1428.7 1787.8	3.154945 3.252327
McKays Point 2 1873	27 54 12.930 82 49 59.507	398.0 1627.4	25 32 15.6 56 19 52.5	205 31 55.6 236 19 24.3	Thompson Sands	2707.3 1978.9	3.432539 3.296426
Sand Key south base 1873	27 56 03.134 82 50 29.552	96.5 808.0	346 23 02.5 3 23 11.9 10 24 55.9	166 23 16.6 183 23 06.0 190 24 41.8	McKays Point 2 Thompson Sands	3490.3 5845.3 4504.6	3.542865 3.766809 3.659406
Prickly Point 1873	27 55 27.787 82 49 26.430	855.3 722.7	21 26 02.4 122 13 59.4	201 25 46.9 302 13 29.8	McKays Point 2 Sand Key south base	2475.4 2040.2	3.393641 3.309668
Sand Key north base 1873	27 57 43.068 82 49 55.109	1325.7 1506.3	349 20 08.2 17 01 14.3	169 20 21.7 197 00 58.2	Prickly Point Sand Key south base	4237.4 3217.03	3.627095 3.507455
Clearwater Harbor astro- nomic station 1873	27 56 36.588 82 48 40.107	1126.2 1096.4	30 52 57.4 71 00 55.4 134 57 06.5	210 52 35.7 251 00 04.1 314 58 31.3	Prickly Point Sand Key south base Sand Key north base	2467.6 3164.3 2896.7	3.392275 3.500282 3.461905
Clearwater Bluff 1861	27 57 32.569 82 48 17.480	1002.5 477.8	19 44 47.4 52 40 57.9 96 54 42.6	199 44 36.8 232 39 56.0 276 53 56.8	Clearwater Harbor as- tronomic station Sand Key south base Sand Key north base	1830.8 4540.3 2688.0	3.262852 3.657081 3.429430
Tomlinson 1908	27 41 11.089 82 43 47.684	341.3 1306.6	17 47 22.5 322 08 07.6	197 46 30.8 142 09 31.5	Egmont Key L. H. Mullet Key Shoal light	9991.9 8075.6	3.999649 3.907176
Maximo 1908	27 42 23.772 82 40 52.226	731.7 1430.8	359 01 35.2 33 47 47.7 65 03 20.7	179 01 37.7 213 45 34.6 245 01 59.2	Mullet Key Shoal light Egmont Key L. H. Tomlinson	8614.9 14138.4 5302.5	3.935249 4.150399 3.724483
Oyster 2 1908	27 43 25.120 82 43 44.997	773.2 1232.6	291 44 21.4 1 01 21.0	111 45 41.8 181 01 19.8	Maximo Tomlinson	5095.8 4126.2	3.707214 3.615551
South Point 1908	27 44 39.423 82 44 45.994	1213.5 1259.7	303 05 30.5 323 50 53.7 346 00 30.9	123 07 19.2 143 51 22.0 166 00 58.0	Maximo Oyster 2 Tomlinson	7644.5 2832.4 6608.6	3.883348 3.452147 3.820111
Bear Creek 1908	27 45 10.120 82 44 21.672	311.5 593.5	311 44 09.5 342 43 57.7 352 47 08.6 35 11 02.7	131 45 46.9 162 44 14.7 172 47 24.4 215 10 51.4	Maximo Oyster 2 Tomlinson South Point	7689.6 3384.5 7416.2 1156.1	3.885906 3.529496 3.870184 3.062983
Devils Elbow (U. S. E.) 1908	27 45 39.183 82 45 35.447	1206.1 970.7	293 52 45.2 323 38 06.1	113 53 19.5 143 38 29.1	Bear Creek South Point	2209.5 2284.2	3.344292 3.358740
Between 1908	27 46 33.312 82 44 48.107	1025.4 1317.2	344 12 49.6 359 03 15.7 37 53 08.5	164 13 01.9 179 03 16.7 217 52 46.5	Bear Creek South Point Devils Elbow (U.S.E.)	2661.1 3506.1 2111.0	3.425055 3.544821 3.324482
Johns Pass (U. S. E.) 1908	27 47 11.462 82 46 32.444	352.8 888.2	292 20 25.4 331 12 40.0	112 21 14.0 151 13 06.6	Between Devils Elbow (U.S.E.)	3088.5 3240.9	3.489750 3.510607
Turtle 1908	27 48 01.571 82 46 22.177	48.4 607.1	316 31 28.0 343 43 26.2 10 19 41.2	136 32 11.8 103 43 47.9 190 19 36.4	Between Devils Elbow (U.S.E.) Johns Pass (U. S. E.)	3743.3 4505.7 1567.8	3.573259 3.659511 3.195288
Gulf 1908	27 48 27.510 82 48 42.856	847.0 1173.0	281 42 26.9 303 14 48.1	101 43 32.5 123 15 48.9	Turtle Johns Pass (U. S. E.)	3932.7 4269.0	3.594688 3.630330
Double 2 1908	27 48 34.008 82 47 28.311	1046.8 774.9	298 52 30.5 328 57 12.2 84 24 39.8	118 53 01.3 148 57 38.2 264 24 05.0	Turtle Johns Pass (U. S. E.) Gulf	2067.3 2665.6 2050.2	3.315407 3.472108 3.311789
Wait (U. S. E.) 1908	27 49 34.430 82 49 34.941	1059.8 956.3	298 12 41.1 325 18 33.4	118 13 40.2 145 18 57.7	Double Gulf	3633.2 2504.9	3.564750 3.398786
Oak 1908	27 49 53.983 82 48 44.571	1661.6 1219.7	319 42 10.2 358 59 22.8 66 24 50.1	139 42 45.8 178 59 23.6 246 24 32.6	Double Gulf Wait (U. S. E.)	3227.4 2662.0 1504.1	3.508852 3.425203 3.177279

BOCA CEIGA BAY TO CLEARWATER HARBOR—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Loga-rithm
<i>Principal points—Contd</i>							
Rhodes 1908	° ' " 27 50 01.079 82 50 02.927	33.2 80.1	° ' " 275 48 41.8 316 57 50.7	° ' " 95 49 18.4 136 58 03.8	Oak Wait (U. S. E.)	<i>Meters</i> 2155.3 1122.3	3.333514 3.050090
Fisherman (U. S. E.) 1908	27 50 23.358 82 49 53.099	719.0 1606.2	294 01 14.0 336 38 59.6 9 34 36.3	114 01 48.6 156 39 10.7 189 34 34.3	Oak Wait (U. S. E.) Rhodes	2220.9 1040.4 695.5	3.346524 3.214953 2.842276
Sweet 1908	27 50 23.960 82 50 20.585	737.5 563.3	271 46 17.4 289 20 43.0 325 32 46.4	91 46 27.6 109 21 27.8 145 32 64.6	Fisherman (U. S. E.) Oak Rhodes	599.2 2784.7 854.1	2.777553 3.444779 2.931525
Kay 1906	27 54 12.577 82 49 53.100	387.1 1590.6	26 20 17.7 165 50 44.6	206 19 57.1 345 50 29.9	Thompson Sand Key south base	2713.6 3509.7	3.433553 3.545271
Prickly 1906	27 55 28.037 82 49 25.006	863.0 683.7	21 19 23.9 23 56 20.8 121 28 40.6	201 19 08.4 203 55 44.7 301 28 10.4	Kay Thompson Sand Key south base	2483.5 5202.1 2009.2	3.390801 3.716179 3.315798
Bellevue 1906	27 56 34.116 82 48 42.951	1050.2 1174.1	29 28 53.0 71 53 13.7	209 28 33.3 251 52 23.8	Prickly Sand Key south base	2336.5 3066.4	3.368564 3.486631
<i>Supplementary points</i>							
Plaza Hotel, west flagpole ¹ 1908	27 41 59.025 82 44 14.402	1835.2 394.6	262 20 40.2 333 53 31.0	82 22 14.2 153 53 43.4	Maximo Tomlinson	5588.8 1663.7	3.747320 3.221072
Veteran City pavilion, west gable 1908	27 44 12.314 82 42 28.642	379.0 784.5	21 13 14.7 55 13 18.4 102 30 56.4	201 12 37.9 235 12 42.8 282 29 52.5	Tomlinson Oyster 2 South Point	5983.8 2546.4 3853.3	3.776975 3.405932 3.585532
Veteran City machine shops, west gable 1908	27 44 17.652 82 42 29.172	543.3 799.0	20 32 19.3 52 06 09.0 100 08 53.4	200 31 42.8 232 05 34.3 280 07 49.7	Tomlinson Oyster 2 South Point	6132.1 2632.1 3806.8	3.787610 3.420308 3.580558
Veteran City, flagpole 1908	27 44 37.131 82 42 28.355	1142.9 776.6	18 55 11.3 43 26 52.0 91 04 52.8	198 54 34.4 223 26 16.3 271 03 48.7	Tomlinson Oyster 2 South Point	6704.1 3052.9 3770.3	3.826342 3.484705 3.576373
Veteran City, west electric car pole, end of pier 1908	27 44 10.173 82 42 28.741	313.1 787.2	21 25 37.4 56 25 23.8 103 28 39.9	201 25 00.7 236 24 48.3 283 27 36.0	Tomlinson Oyster 2 South Point	5921.4 2507.2 3885.5	3.772425 3.399185 3.587203
Crawl Point, peak of square roof ¹ 1908	27 48 10.303 82 46 24.093	317.2 659.5	318 38 26.8 7 11 39.7	138 39 11.5 187 11 35.8	Between Johns Pass (U. S. E.)	3977.2 1826.6	3.599578 3.261398
Lone Palmetto 1908	27 48 30.063 82 48 45.499	925.3 1245.4	180 31 58.3 282 35 47.0 303 35 44.7 317 50 52.4	00 31 58.8 102 36 53.8 123 36 46.7 137 50 53.7	Oak Turtle Johns Pass (U. S. E.) Gulf	2595.2 4018.6 4371.5 1105.7	3.414170 3.604071 3.640626 2.024274
Rhodes house, south gable lookout pole 1908	27 50 02.806 82 50 03.677	86.4 100.6	192 09 07.6 277 08 42.4 317 59 59.6 338 52 03.8	12 09 09.9 97 09 19.3 138 00 13.0 158 52 04.1	Fisherman (U. S. E.) Oak Wait (U. S. E.) Rhodes	647.1 2181.7 1175.3 57.0	2.811004 3.338802 3.070146 1.755545
Sweet's fish-camp house, south gable lookout pole. 1908	27 50 21.286 82 50 20.087	655.2 549.6	263 46 35.6 287 49 04.8 319 24 51.1 322 56 48.6	83 46 45.6 107 49 49.4 139 25 12.2 142 56 56.6	Fisherman (U. S. E.) Oak Wait (U. S. E.) Rhodes	588.7 2745.5 1899.1 779.3	2.769911 3.438628 3.278540 2.891714
Bellevue water tower 1906	27 56 15.151 82 48 47.274	466.4 1292.4	26 51 51.4 35 25 42.0 82 28 15.5 191 26 41.3	206 50 57.6 215 25 24.3 202 27 27.6 11 26 43.3	Thompson Prickly Sand Key south base Bellevue	6955.2 1779.7 2820.6 595.6	3.842312 3.250352 3.450339 2.774963
Bellevue Hotel west gable 1906	27 56 36.771 82 48 40.779	1131.9 1114.8	25 47 47.0 29 45 05.0 30 00 06.7 70 48 35.6	205 46 50.2 209 44 44.3 216 00 05.7 250 47 44.7	Thompson Prickly Bellevue Sand Key south base	7030.5 2436.9 101.0 3148.8	3.882551 3.386835 2.004406 3.498147
Bellevue longitude station 1907	27 56 34.14 82 48 42.95	1050.9 1174.1	0	180	Bellevue	0.81	9.9085
Clearwater latitude station 1873	27 56 36.60 82 48 40.34	1126.6 1102.8					
Clearwater water tower, Col. Scott's estate ¹ 1906	27 57 35.22 82 48 14.62	1084.1 399.6	26 10 46 52 28 05	206 10 13 232 27 01	Prickly Sand Key south base	4362.2 4651.9	3.639707 3.667033

GAINESVILLE TO CLEARWATER HARBOR

<i>Principal points</i>							
Odd Fellow 1897	29 38 58.769 82 18 45.817	1809.4 1232.4	210 42 56.2	30 43 07.5	Gainesville	1198.6	3.0786873
Gainesville courthouse spire 1897	29 39 04.711 82 19 28.586	145.0 768.8	244 18 51.3 279 02 00.4	64 19 23.7 99 02 21.6	Gainesville Odd Fellow	1955.7 1164.8	3.291300 3.060235

¹ No check on this position.

GAINESVILLE TO CLEARWATER HARBOR—Continued

Station	Latitude and longitude	Seconds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Principal points—Contd</i>							
Colclough Hill 1898	29 37 29.936 82 19 40.314	921.7 1246.0	189 16 47.4 210 44 49.0	9 18 56.2 30 45 19.5	Gainesville courthouse spire Odd Fellow	<i>Meters</i> 2956.8 3182.6	3.470819 3.502786
Murphy 1898	29 38 18.327 82 20 41.001	564.3 1102.9	233 44 42.4 315 21 37.2	53 45 18.2 135 22 04.2	Gainesville courthouse spire Colclough Hill	2415.2 2093.8	3.382958 3.320938
Day 1898	29 37 23.865 82 22 27.051	734.8 727.7	239 32 47.2 267 30 49.7	59 33 39.0 87 32 09.1	Murphy Colclough Hill	3309.2 4328.3	3.519717 3.636310
Sutherland 1898	29 34 54.871 82 27 11.047	1089.4 297.3	239 00 14.4	59 02 34.7	Day	8913.1	3.9500275
Dutton 1898	29 29 33.282 82 34 33.795	1024.7 910.4	230 15 29.0	50 19 07.3	Sutherland	15497.0	4.1902404
Bronson 1898	29 20 53.868 82 38 13.360	1058.2 360.0	230 18 06.4	50 19 54.4	Dutton	7087.0	3.8857568
Turn 1898	29 25 19.426 82 40 23.369	598.1 629.9	230 18 29.2	50 19 33.1	Bronson	4553.2	3.6583195
Waccasassa 1898	29 20 42.050 82 44 02.900	1294.7 78.4	214 42 57.0	34 44 44.7	Turn	10391.3	4.0166083
Rosewood 1898	29 13 45.877 82 56 33.189	1412.5 896.3	237 37 39.4	57 43 46.4	Waccasassa	23904.5	4.3795076
Oyster Cove 1898	29 10 46.322 83 01 10.118	1420.2 435.5	234 00 10.3	54 08 28.4	Rosewood	9432.6	3.9746298
Cedar Keys L. H. 1874	29 05 46.455 83 03 55.012	1430.3 1503.8	205 01 16.3	25 02 33.9	Oyster Cove	10189.1	4.008130
Black Point 2 1874	29 10 50.527 83 03 47.139	1555.7 1273.0	271 48 25.2 1 24 07.4	91 49 38.8 181 24 03.3	Oyster Cove Cedar Keys L. H.	4082.0 9304.3	3.610938 3.971477
North Key 1874	29 08 02.383 83 05 09.368	73.4 253.2	203 13 39.6 231 18 03.9 334 31 00.2	23 14 19.7 51 19 57.7 154 31 30.2	Black Point 2 Oyster Cove Cedar Keys L. H.	5633.5 8075.4 4635.7	3.750782 3.907104 3.660111
Pelican Shoal 2 1874	29 09 58.281 83 06 14.944	1794.3 403.8	248 03 11.2 333 34 52.0 334 04 46.0	08 04 23.2 163 35 24.5 154 05 54.4	Black Point 2 North Key Cedar Keys L. H.	4305.7 3984.1 8619.5	3.634040 3.600331 3.935481
Lime Point 2 1874	29 08 46.960 83 03 20.630	1445.8 557.6	9 39 38.8 64 58 42.5 115 00 06.5 169 20 14.0	189 39 21.8 244 57 49.4 294 58 41.6 349 20 01.0	Cedar Keys L. H. North Key Pelican Shoal 2 Black Point 2	5637.1 3243.8 5197.0 3871.2	3.751057 3.511059 3.715804 3.587843
Snake Key 2 1874	29 05 55.767 83 01 56.380	1716.9 1524.5	84 55 35.7 126 46 34.7	204 54 37.7 306 46 00.8	Cedar Keys L. H. North Key	3236.9 6513.1	3.510133 3.813785
South Reef 1874	29 07 19.458 82 58 45.219	599.0 1222.5	63 30 59.3 71 10 58.3	243 29 26.3 251 08 27.3	Snake Key 2 Cedar Keys L. H.	5775.3 8987.5	3.761571 3.947803
Cottrell 1874	29 07 27.149 83 01 53.854	835.8 1455.9	1 23 25.9 46 43 44.1 101 36 41.0 123 24 57.4 136 20 07.0 272 38 44.0	181 23 24.9 226 42 44.9 281 35 05.8 303 22 50.3 316 19 24.9 92 40 16.0	Snake Key 2 Cedar Keys L. H. North Key Pelican Shoal 2 Lime Point 2 South Reef	2814.2 4522.0 5395.5 8452.9 3397.0 5105.2	3.449354 3.655330 3.732033 3.927004 3.531098 3.708014
North Reef 1874	29 09 19.703 83 00 03.415	606.6 92.3	330 16 13.1 25 56 44.4 40 46 06.3 43 43 50.7 96 46 17.0	150 16 51.1 205 55 49.4 220 44 12.4 223 41 57.7 276 43 16.0	South Reef Snake Key 2 Cottrell Cedar Keys L. H. Pelican Shoal 2	4202.9 6981.9 4573.8 9083.3 10110.6	3.629708 3.843974 3.690275 3.958245 4.004775
South Point 2 1874	29 07 30.780 83 03 12.098	1132.4 343.3	277 54 50.9 326 25 48.2 18 51 48.8 104 02 25.5 174 20 01.1	97 55 29.2 140 26 25.3 198 51 27.9 284 01 28.7 354 19 57.3	Cottrell Snake Key 2 Cedar Keys L. H. North Key Lime Point 2	2152.0 3732.2 3589.3 3250.9 2171.3	3.332841 3.571961 3.555009 3.512007 3.336710
Way Key south base 1851	29 07 55.567 83 02 18.544	1710.8 501.3	280 25 01.5 322 39 29.6 08 26 41.7	100 28 08.6 142 39 41.6 248 26 15.3	Oyster Reef south 2 Cottrell South Point 2	5832.2 1100.4 1574.1	3.765834 3.041563 3.197020
Way Key north base 1851	29 08 12.078 83 01 43.410	390.3 1173.5	11 23 18.4 60 59 10.1	191 23 13.3 240 58 53.0	Cottrell Way Key south base	1429.8 1086.05	3.155288 3.035848
Harbor Key 2 1874	29 07 04.464 83 02 27.140	137.4 733.8	128 56 03.3 188 24 05.4 232 10 57.0	308 55 41.1 8 24 09.6 52 11 13.7	South Point 2 Way Key south base Cottrell	1583.3 1590.4 1139.1	3.199561 3.201501 3.056571
Way Key south base 2 1877	29 07 55.506 83 02 18.543	1710.8 501.2	8 24 15.6 68 20 47.8	188 24 11.4 248 20 21.4	Harbor Key 2 South Point 2	1590.4 1574.1	3.201495 3.197028
Daughtry Island northeast base 1877	29 08 09.550 83 02 52.547	294.0 1420.5	295 05 40.9 341 04 40.4 28 21 59.3	115 05 57.5 161 04 52.8 208 21 49.5	Way Key south base 2 Harbor Key 2 South Point 2	1015.0 2118.3 1146.6	3.009485 3.325979 3.059393

GAINESVILLE TO CLEARWATER HARBOR—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Principal points—Contd</i>							
Daughtry Island southwest base 1877	29 07 54.277	1671.1	220 36 04.2	46 36 13.1	Daughtry Island northeast base	Meters 684.38	2.835299
	83 03 10.943	295.8	268 23 31.1	88 23 50.6	Way Key south base 2	1417.1	3.151393
Oyster Reef south 2 1856	29 07 21.197 82 58 46.302	652.6 1253.4	322 19 23.2	142 19 44.5	Harbor Key 2	1937.0	3.287260
			5 01 53.7	185 01 52.8	South Point 2	540.8	2.733009
			235 18 19.7	55 20 21.9	Mainland east	8248.0	3.916351
Mainland 1856	29 10 07.237 82 57 30.290	222.8 818.5	280 31 20.0	100 33 35.4	Waccasassa Reef	7652.8	3.883823
			275 03 23.3	95 04 48.5	Mainland east	4744.2	3.676165
			319 58 41.5	140 00 19.9	Waccasassa Reef	8501.7	3.926507
Oyster Reef B 3 1856	29 09 21.758 83 00 03.660	669.9 98.9	21 54 59.7	201 54 22.6	Oyster Reef south 2	5509.9	3.741147
			251 19 24.9	71 20 39.6	Mainland	4374.9	3.640968
			23 40 00.4	83 42 40.3	Mainland east	8924.9	3.950603
Oyster Reef C 1856	29 08 30.597 82 58 59.488	942.0 1608.0	330 37 07.0	150 37 44.6	Oyster Reef south 2	4259.4	3.629349
			219 00 35.2	39 01 18.7	Mainland	3829.4	3.583125
			350 34 12.8	170 34 19.2	Oyster Reef south 2	2165.9	3.335633
Depot Key 1851	29 07 27.095 83 01 54.795	834.2 1481.3	132 14 52.3	312 14 21.1	Oyster Reef B 3	2342.9	3.369759
			143 48 52.9	323 47 17.5	Way Key south base	1086.3	3.035934
			192 24 17.4	12 22 59.1	Way Key north base	1436.7	3.157356
Waccasassa Reef 1856	29 06 35.723 82 54 08.084	1099.8 218.6	220 23 20.1	40 24 14.2	Oyster Reef B 3	4635.3	3.660777
			247 34 11.2	67 35 36.4	Oyster Reef C	5126.4	3.709809
			272 01 43.5	92 03 16.2	Oyster Reef south 2	5097.5	3.707354
Mainland east 1856	29 09 53.624 82 54 35.416	1651.0 957.1	84 35 08.6	204 30 22.8	Cedar Keys L. H.	15959.0	4.203000
			97 11 50.7	277 08 04.1	Cottrell	12691.9	4.103526
			100 12 21.6	280 10 06.7	South Reef	7612.8	3.881545
Grassy Point 1856	29 09 14.134 82 49 58.491	435.2 1580.8	117 44 59.3	297 42 06.3	North Reef	10851.3	4.035481
			353 05 03.2	173 05 16.5	Waccasassa Reef	6137.4	3.787987
			54 54 41.7	234 52 40.1	South Reef	8253.3	3.916030
Middle Marsh 1857	29 04 42.654 82 47 51.286	1313.2 1387.1	69 11 46.1	249 08 12.4	Cottrell	12679.6	4.103107
			83 18 10.3	263 15 30.5	North Reef	8925.5	3.950032
			54 09 22.8	234 07 21.3	Waccasassa Reef	8325.2	3.920395
Basin Rock 1857	29 02 40.067 82 48 02.990	1233.6 81.0	99 14 45.1	279 12 30.2	Mainland east	7582.1	3.879789
			108 53 13.8	288 50 10.6	Waccasassa Reef	10767.7	4.032123
			167 38 32.2	337 37 30.3	Grassy Point	9038.0	3.956072
Crane Island 1857	29 01 13.170 82 45 42.236	405.5 1143.0	126 19 50.7	306 16 53.3	Waccasassa Reef	12253.2	4.088249
			184 47 50.0	4 47 55.7	Middle Marsh	3787.3	3.578334
			126 05 37.6	305 04 29.3	Basin Rock	4054.4	3.667868
Sand Shoal 1 1857	28 59 25.220 82 47 14.690	776.4 397.7	151 34 48.2	331 33 45.6	Middle Marsh	7333.7	3.865324
			167 42 33.2	347 42 09.8	Basin Rock	6139.5	3.788134
			174 13 00.9	354 12 43.1	Middle Marsh	9822.8	3.992236
Marsh Island 1857	28 59 02.111 82 45 04.940	65.0 133.7	216 58 16.4	36 59 01.2	Crane Island	4160.2	3.619109
			101 27 34.4	281 26 31.5	Sand Shoal 1	3583.7	3.554333
			165 57 23.1	345 57 05.0	Crane Island	4159.2	3.619015
Half Moon Bar 1857	28 56 53.840 82 45 21.188	1657.5 573.8	180 21 20.4	6 21 28.3	Sand Shoal 1	5582.4	3.740824
			146 36 25.9	326 35 30.9	Marsh Island	3973.4	3.599166
			86 30 48.3	266 29 42.1	Half Moon Bar	3710.1	3.569383
Little Island 1857	28 57 01.188 82 43 04.439	36.6 120.2	123 13 11.4	303 11 10.2	Sand Shoal 1	8097.5	3.908350
			138° 46 37.4	318 45 39.1	Marsh Island	4950.1	3.694616
			169 53 22.1	349 53 07.9	Half Moon Bar	4532.9	3.656379
Crystal Reef 1857	28 54 28.889 82 44 51.803	889.4 1403.3	211 48 01.3	31 48 53.2	Little Island	5517.3	3.741727
			120 57 51.8	300 56 14.3	Crystal Reef	4815.3	3.682624
			153 20 47.0	333 20 16.6	Half Moon Bar	6368.4	3.804032
Shell Point 1857	28 55 07.452 82 41 59.534	229.4 1612.7	75 44 17.3	255 42 54.0	Little Island	3918.0	3.593064
			120 57 51.8	300 56 14.3	Crystal Reef	4815.3	3.682624
			153 20 47.0	333 20 16.6	Half Moon Bar	6368.4	3.804032
Bear Island 1857	28 52 16.533 82 41 05.090	509.0 154.2	104 30 27.4	344 30 01.4	Shell Point	5460.4	3.737226
			123 38 32.0	303 36 42.8	Crystal Reef	7358.0	3.866757
			164 30 27.4	344 30 01.4	Shell Point	5460.4	3.737226
Bird Key 1857	28 48 44.452 82 45 12.305	1368.5 333.6	182 59 53.8	3 00 03.7	Crystal Reef	10618.4	4.026058
			225 39 37.5	45 41 36.4	Bear Island	9344.0	3.970560
			87 04 01.2	267 02 29.4	Bird Key	5173.0	3.713741
Ragged Island 1858	28 48 53.087 82 42 01.780	1634.3 48.3	165 59 11.6	335 57 49.5	Crystal Reef	11318.5	4.053790
			163 33 11.7	343 32 49.2	Bird Key	4484.9	3.651751
			220 27 51.2	40 29 00.4	Ragged Island	6003.9	3.778430
Tuokers Island 1858	28 46 19.994 82 41 50.549	615.5 1371.2	91 59 57.0	271 58 42.4	Homosassa Point	4205.1	3.623770
			176 18 10.2	356 18 04.8	Ragged Island	4722.9	3.674210
			162 37 31.0	342 36 57.1	Homosassa Point	6525.3	3.814598
Chassahowitzka Point 1858	28 43 02.451 82 43 13.644	75.4 370.3	200 20 09.3	20 20 49.3	Tuckers Island	6465.9	3.811972
			83 45 32.9	203 44 16.8	Chassahowitzka Point	4323.5	3.635837
			132 40 54.2	312 39 03.5	Homosassa Point	8493.9	3.929108
Rocky Ridge 1859	28 43 17.744 82 40 35.285	546.3 957.6	160 00 17.9	339 59 41.7	Tuckers Island	5970.7	3.776020
			165 40 26.2	345 39 58.3	Chassahowitzka Point	6379.5	3.804786
			202 14 01.2	22 14 49.3	Rocky Ridge	7180.4	3.856514

GAINESVILLE TO CLEARWATER HARBOR—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Loga-rithm
<i>Principal points—Contd</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
Herrings Bluff 1859	28 39 42.573 82 39 22.390	1310.6 608.0	89 40 25.6 163 22 19.2	269 39 02.6 343 21 44.2	Little Rock Rocky Rldge	4700.3 6913.4	3.672126 3.839689
Raccoon Point 1859	28 36 24.881 82 39 44.159	765.9 1199.7	145 51 18.9 185 32 51.4	325 50 06.4 5 33 01.8	Little Rock Herrings Bluff	7320.9 6114.6	3.864565 3.788367
New Reef 1859	28 36 43.272 82 42 56.070	1332.1 1523.2	191 20 49.8 177 11 04.1	11 21 09.3 96 12 36.0	Little Rock Raccoon Point	5601.6 5244.5	3.748313 3.719702
Beacon Rock 1859	28 32 53.207 82 42 24.709	1638.0 671.7	173 08 25.9 213 47 40.1	353 08 10.9 33 48 56.9	New Reef Raccoon Point	7133.6 7842.1	3.853306 3.894434
Bayport 1859	28 31 44.800 82 39 31.387	1379.1 853.4	114 05 31.9 177 41 42.6	294 04 09.1 357 41 36.5	Beacon Rock Raccoon Point	5161.2 8629.2	3.712747 3.935968
West Rock 1859	28 29 43.214 82 43 42.033	1330.3 1143.1	199 46 00.5 241 12 35.0	19 46 37.4 61 14 34.6	Beacon Rock Bayport	6215.2 7775.9	3.793457 3.890752
Long Key 1859	28 26 29.722 82 40 30.249	915.0 986.4	139 41 51.2 165 58 39.5 190 18 10.4	319 40 22.6 345 57 47.7 10 18 47.3	West Rock Beacon Rock Bayport	7811.8 12168.3 9858.6	3.892750 4.085229 3.993815
Coral Rock 1860	28 23 54.612 82 45 15.798	1081.2 430.0	193 22 01.7 237 52 11.1	13 22 46.4 57 54 24.1	West Rock Long Key	11030.5 8982.6	4.042595 3.953401
Southeast Point 1860	28 22 15.101 82 42 37.108	464.9 1010.4	125 20 53.9 202 45 37.2	305 19 38.5 22 46 34.7	Coral Rock Long Key	5298.2 8500.6	3.723967 3.929450
Pelican Point 1860	28 19 24.804 82 43 54.812	763.5 1493.1	165 08 05.9 201 58 41.9	345 07 27.4 21 59 18.8	Coral Rock Southeast Point	8593.5 5053.4	3.934169 3.752311
South St. Martin 1860	28 19 54.725 82 48 33.418	1684.6 910.3	245 58 19.5 276 54 05.0	66 01 08.7 96 50 17.2	Southeast Point Pelican Point	10622.5 7045.0	4.026227 3.853376
Deer Island 1860	28 15 15.526 82 45 31.606	477.9 861.6	150 03 06.1 198 57 40.3	330 01 39.9 18 58 32.2	South St. Martin Pelican Point	9920.3 8114.3	3.996526 3.909251
North Anclote 1860	28 12 33.971 82 50 27.946	1045.7 762.1	192 56 54.5 238 22 02.7	12 57 48.7 58 24 22.9	South St. Martin Deer Island	13922.3 9487.5	4.143710 3.977150
Tiger Point 1861	28 11 08.379 82 47 57.008	257.9 1555.0	122 37 51.5 207 30 58.2	302 36 40.2 27 32 07.0	North Anclote Deer Island	4887.6 8579.0	3.689092 3.933439
South Anclote 1860	28 10 00.070 82 50 33.536	2.2 914.8	181 50 35.3 243 40 18.7	1 50 37.9 63 47 30.6	North Anclote Tiger Point	4740.0 4759.6	3.675778 3.677567
Pinney Point 1860	28 09 41.239 82 47 55.742	1269.5 1520.8	97 40 45.9 142 01 41.3	277 39 31.4 322 00 29.4	South Anclote North Anclote	4343.8 5746.0	3.637865 3.829045
Hog Island north 1861	28 04 59.122 82 49 37.047	1819.9 1011.5	170 33 19.1 197 39 12.6	350 32 52.5 17 40 00.4	South Anclote Pinney Point	9391.4 9113.8	3.972728 3.959699
Indian Bluff 1861	28 06 15.976 82 46 56.932	491.7 1554.0	61 35 13.4 139 25 18.1 165 45 07.2	241 33 58.0 319 23 36.0 345 44 39.5	Hog Island north South Anclote Pinney Point	4970.2 9084.3 6519.2	3.696376 3.958290 3.814192
Bayonet Point 1861	28 02 58.128 82 47 19.282	1789.3 526.6	134 43 22.5 185 43 14.2	314 42 17.7 5 43 24.7	Hog Island north Indian Bluff	5293.7 6120.7	3.723763 3.786804
St. Joseph Flat 1861	28 01 48.673 82 48 48.517	1498.2 1325.2	167 15 53.0 228 44 14.7	347 15 30.2 48 44 56.6	Hog Island north Bayonet Point	6010.4 3242.1	3.778904 3.510829
Orange Grove 1861	28 01 26.993 82 47 28.929	830.9 790.3	107 04 12.6 161 49 29.2 185 21 54.8	287 03 35.2 331 48 28.9 5 21 59.3	St. Joseph Flat Hog Island north Bayonet Point	2274.2 7408.2 2817.7	3.356827 3.869711 3.449894
Elbow Key 1861	28 00 21.223 82 48 31.402	653.3 858.0	170 08 52.7 220 07 39.5	350 08 44.7 40 08 08.8	St. Joseph Flat Orange Grove	2732.2 2648.0	3.436517 3.422914
Long Reach 1861	27 59 09.415 82 47 54.292	289.8 1483.7	155 21 33.1 189 17 29.1 12 00 12.0	335 21 15.7 9 17 41.0 192 00 01.1	Elbow Key Orange Grove Clearwater Bluff	2431.9 4291.3 3047.8	3.385943 3.632585 3.483982
Blind Key 1861	27 58 49.500 82 48 57.303	1523.7 1566.0	194 04 14.4 250 23 58.1 335 18 50.0 37 41 33.7	14 04 26.0 70 24 27.7 155 19 08.7 217 41 06.6	Elbow Key Long Reach Clearwater Bluff Sand Key north base	2910.8 1827.8 2606.2 2584.1	3.464010 3.261933 3.416016 3.412314
Cormorant Rock 1857	29 06 11.124 82 50 34.672	342.5 937.5	327 43 22.8 97 29 28.0	147 44 36.5 277 27 44.2	Basin Rock Waccasassa Reef	7684.5 5819.9	3.885616 3.764919
Turtle Creek 1857	29 06 59.688 82 47 28.152	1837.0 761.1	73 30 21.0 86 07 36.7	253 28 50.2 266 04 22.1	Cormorant Rock Waccasassa Reef	5260.0 10838.2	3.720983 4.034958
Harbor Key 3 1910	29 07 04.353 83 02 27.300	134.0 738.1	338 23 51.7 44 52 54.4 112 11 42.9	158 24 06.7 224 52 11.4 292 10 24.0	Snake Key 2 Cedar Keys L. H. North Key	2271.0 3384.3 4731.6	3.356221 3.529469 3.675608
South Point 3 1910	29 07 35.900 83 03 10.346	1105.3 279.4	309 50 40.9 327 01 22.3 19 57 55.9 164 13 41.2	129 51 01.8 147 01 58.3 199 57 33.9 284 12 43.3	Harbor Key 3 Snake Key 2 Cedar Keys L. H. North Key	1515.8 3074.6 3584.9 3319.2	3.180639 3.505214 3.554474 3.521033

GAINESVILLE TO CLEARWATER HARBOR—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Principal points—Contd</i>							
Key North 1910	29 07 12.932	398.1	258 29 51.8	78 30 54.4	South Point 3	<i>Meters</i> 3548.9	3.560088
	83 05 18.984	513.3	293 25 51.4	113 27 30.0	Snake Key 2	5971.0	3.776048
			319 44 20.2	139 45 00.8	Cedar Keys L. H.	3488.5	3.542642
Water 1901	29 02 12.010	369.8	187 51 54.0	7 52 12.3	Cormorant Rock	7431.5	3.871079
	82 51 12.280	332.3	260 24 48.7	80 26 20.6	Basin Rock	5193.7	3.715474
Sand 1901	28 59 24.546	755.7	127 55 21.1	307 53 22.4	Water	8391.8	3.923853
	82 47 07.623	206.4	155 54 17.0	335 52 36.4	Cormorant Rock	13713.5	4.137147
			166 01 26.9	346 01 00.1	Basin Rock	6203.1	3.792612
Hunt 1901	28 59 35.931	1106.2	81 41 53.1	261 41 10.1	Sand	2425.8	3.384862
	82 45 38.946	1054.2	118 03 53.5	298 01 11.8	Water	10220.9	4.009491
			145 29 42.2	325 28 32.2	Basin Rock	6879.9	3.837582
Half Moon 1901	28 56 58.038	1786.8	146 46 16.0	326 45 23.1	Sand	5392.6	3.731795
	82 45 18.457	499.8	157 05 05.3	337 03 45.6	Basin Rock	11433.0	4.058129
			173 29 27.7	353 29 17.8	Hunt	4892.5	3.689531
Little Pass 1910	27 58 02.683	82.5	333 43 59.1	153 44 22.2	Belleview	3040.1	3.482886
	82 49 32.165	879.2	357 38 43.0	177 38 46.4	Prickly	4764.3	3.677997
			23 05 30.4	203 05 03.5	Sand Key south base	4000.3	3.602067
Stevens 1910	27 59 08.020	246.9	15 32 22.3	195 31 59.7	Belleview	4917.1	3.691710
	82 47 54.764	1496.3	52 56 00.3	232 55 14.6	Little Pass	3336.2	3.523258
Big Pass 1910	28 00 18.294	563.1	325 13 34.8	145 14 00.6	Stevens	2633.4	3.420511
	82 48 49.725	1358.5	358 27 40.0	178 27 49.2	Belleview	6903.1	3.839044
			15 31 46.2	195 31 26.3	Little Pass	4332.5	3.636736
Curlew 1910	28 02 58.295	1794.4	8 04 30.3	188 04 13.0	Stevens	7159.3	3.854870
	82 47 17.963	490.5	26 58 45.5	206 58 02.4	Big Pass	5526.3	3.742436
Mud 1910	28 01 53.673	1652.0	231 32 36.0	51 33 19.1	Curlew	3198.9	3.505001
	82 48 49.686	1357.1	343 35 57.0	163 36 22.8	Stevens	5316.3	3.725529
			0 01 17.1	180 01 17.1	Big Pass	2936.0	3.467749
Seaside 1910	28 04 55.864	1719.6	6 57 48.0	186 57 40.4	Curlew	3645.9	3.561809
	82 47 01.778	48.5	27 43 34.6	207 42 43.9	Mud	6335.3	3.801768
North Hog Island 1910	28 04 58.594	1803.6	271 07 36.2	91 08 49.1	Seaside	4233.9	3.626740
	82 49 36.822	1005.4	314 18 46.1	134 19 51.4	Curlew	5300.0	3.724276
			347 15 15.3	167 15 37.5	Mud	5836.0	3.766115
Palmetto Key 1910	28 10 05.605	172.5	348 05 47.3	168 06 22.0	Seaside	9744.0	3.988736
	82 48 15.392	419.9	13 14 17.8	193 13 39.4	North Hog Island	9708.4	3.987147
Anclote L. H. 1910	28 10 00.478	14.7	267 43 14.6	87 44 23.4	Palmetto Key	3985.0	3.600428
	82 50 41.350	1128.0	327 24 13.8	147 25 57.3	Seaside	11128.1	4.046420
			349 15 63.6	169 16 24.0	North Hog Island	9458.2	3.975808
North Anclote 2 1910	28 12 38.941	1198.6	322 33 20.5	142 34 23.1	Palmetto Key	5944.5	3.774126
	82 50 27.872	760.2	4 18 38.3	184 18 32.0	Anclote L. H.	4891.8	3.689466
Bailey's Bluff 1910	28 12 21.358	657.4	26 55 12.3	206 54 35.6	Palmetto Key	4696.5	3.670849
	82 46 57.615	1571.2	54 36 57.9	234 35 12.2	Anclote L. H.	7496.6	3.874283
			95 24 23.0	275 22 43.6	North Anclote 2	5759.3	3.760371
<i>Supplementary points</i>							
Turn beacon 1910	29 06 11.099	341.7	187 37 47.7	7 37 54.0	South Point 3	2634.1	3.420632
	83 03 23.283	629.6	222 42 38.1	42 43 05.3	Harbor Key 3	2231.4	3.348582
			281 21 06.2	101 21 48.5	Snake Key 2	2396.8	3.379638
Dredged day beacon 1910	29 07 36.260	1116.3	349 39 59.9	169 40 40.1	Snake Key 2	3144.9	3.497600
	83 02 17.241	466.1	15 28 27.3	195 28 22.4	Harbor Key 3	1019.3	3.008286
			89 33 41.3	289 33 15.5	South Point 3	1435.7	3.157054
Depot Key azimuth station 1874	29 07 27.402	843.7	280 56 30.2	100 56 30.9	Cottrell	41.1	1.613766
	83 01 55.346	1498.2	46 18 14.8	226 17 16.3	Cedar Keys I. H.	4498.1	3.653028
Outer beacon 1910	28 58 30.294	932.6	201 36 49.6	21 38 44.2	Key North	17309.1	4.238275
	83 09 14.814	401.1	212 43 39.1	32 46 14.0	Cedar Keys I. H.	15905.7	4.203189
			220 49 45.8	40 53 18.6	Snake Key 2	18133.3	4.258478
Taylor ¹ 1901	28 57 56.69	1745.3	165 13 42	345 13 29	Sand	2797.2	3.446717
	82 46 41.28	1117.7	208 54 29	28 54 59	Hunt	3490.2	3.542853
South base (U.S.E.) 1901	28 59 34.411	1059.4	82 45 35.5	262 44 52.7	Sand	2407.9	3.381644
	82 45 39.378	1065.9	194 00 55.1	14 00 55.3	Hunt	48.2	1.683662
North base (U. S. E.) 1901	29 00 19.827	610.4	335 14 36.0	155 14 47.2	Hunt	1488.1	3.172846
	82 46 01.969	53.0	336 22 38.7	156 22 49.7	South base (U. S. E.)	1526.1	3.183570
			46 14 31.9	226 14 00.1	Sand	2460.6	3.391040
Windmill 1901	28 59 40.946	1260.6	354 42 38.0	174 42 46.3	Half Moon	5036.8	3.702152
	82 45 35.604	963.7	78 32 51.0	258 32 06.4	Sand	2541.5	3.405089
			144 07 53.3	324 03 41.8	Basin Rock	6805.8	3.832882
Inglis flagstaff 1901	28 59 39.752	1223.8	354 18 08.3	174 18 17.2	Half Moon	5003.3	3.699256
	82 45 36.801	996.1	79 13 29.4	259 12 46.4	Sand	2502.6	3.398398
			144 31 58.2	324 30 47.4	Basin Rock	6816.8	3.835682
Cage stake 1901	28 59 07.648	235.5	170 57 27.3	350 57 08.7	Basin Rock	6822.0	3.820988
	82 47 24.529	664.0	221 20 13.5	41 20 21.7	Sand	692.9	2.840652
			253 02 56.4	73 03 47.6	Hunt	2987.8	3.475347

¹ No check on this position.

GAINESVILLE TO CLEARWATER HARBOR—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Loga-rithm
<i>Supplementary points—Con</i>							
Barrel stake 1901	28 59 08.391	258.3	170 22 41.1	350 22 21.3	Basin Rock Sand Hunt	<i>Meters</i> 6609.8	3.820188
	82 47 22.161	600.1	218 21 14.4 253 06 43.9	38 21 21.4 73 07 33.9		634.2 2919.8	2.802238 3.465352
Withascoochee River light 1910	28 58 53.810	1656.6	254 14 03.7	74 15 26.0	Hunt Half Moon Basin Rock	4776.0	3.679008
	82 48 28.750	778.3	304 39 40.5 185 42 50.4	124 41 12.7 5 42 55.7		6265.0 7000.6	3.796822 3.845135
Alfred ¹ 1901	28 56 38.27	1178.2	206 04 04	26 05 41	Basin Rock Sand	12401.2	4.093405
	82 51 24.42	661.3	233 37 14	53 39 18		8634.0	3.930211
New Alfred ¹ 1901	28 56 27.75	854.3	205 48 00	25 49 39	Basin Rock Sand	12732.8	4.104922
	82 51 27.82	753.4	232 17 40	52 19 46		8902.7	3.949521
Price ¹ 1901	28 55 37.18	1144.6	214 45 30	34 48 11	Basin Rock Sand	16850.9	4.200055
	82 53 37.01	1002.4	236 23 42	56 26 50		12655.6	4.102283
Pry ¹ 1901	28 55 34.98	1076.9	214 24 22	34 27 03	Basin Rock Sand	15866.2	4.200473
	82 53 34.37	931.0	235 57 32	56 00 39		12633.9	4.101538
New Shoal ¹ 1901	28 56 33.33	1026.1	222 17 00	42 20 04	Basin Rock Sand	15267.1	4.183757
	82 54 22.65	613.4	245 51 43	65 55 13		12904.3	4.110734
Shoal ¹ 1901	28 56 36.80	1132.9	223 39 52	43 43 03	Basin Rock Sand	15466.7	4.189398
	82 54 37.70	1021.0	247 00 12	67 03 50		13235.1	4.121726
Slatts ¹ 1901	28 57 28.00	862.0	219 04 55	39 07 15	Basin Rock Sand	12380.2	4.092728
	82 52 51.48	1393.9	248 53 57	68 56 43		9976.8	3.998993
Cage ¹ 1901	28 57 43.45	1337.7	220 38 31	40 40 51	Basin Rock Sand	12038.1	4.080558
	82 52 52.80	1429.6	251 33 23	71 36 10		9849.7	3.993423
Norwest ¹ 1901	28 57 57.21	1761.3	235 23 26	55 27 12	Basin Rock Sand	15344.2	4.185944
	82 55 49.78	1347.8	259 11 43	79 15 56		14389.5	4.158047
North ¹ 1901	28 58 34.51	1002.4	230 19 17	50 22 00	Basin Rock Sand	11846.1	4.073577
	82 53 39.98	1082.4	261 43 16	81 46 26		10732.8	4.030712
New North ¹ 1901	28 58 30.04	924.8	229 47 58	49 50 41	Basin Rock Sand	11931.0	4.076675
	82 53 39.82	1078.1	260 59 33	81 02 43		10749.0	4.031367

CEDAR KEYS TO ST. MARKS RIVER

<i>Principal points</i>							
Number 6 1877	29 10 25.340	780.2	260 49 58.5	80 51 25.3	Black Point 2 North Key	4873.8	3.687866
	83 06 45.214	1221.7	329 30 50.5	149 31 37.2		5107.0	3.708165
Reef 1876	29 13 33.581	1033.9	304 33 18.6	124 35 30.2	Black Point 2 North Key Number 6	8846.4	3.946768
	83 08 16.785	453.2	333 34 37.1 336 52 44.2	153 36 08.5 156 53 28.9		11385.0 6301.3	4.056331 3.799433
Cabbage 1876	29 13 33.273	1024.4	357 03 13.4	177 03 22.9	North Key Number 6 Reef	10200.7	4.008630
	83 05 28.764	776.9	19 38 56.2 90 07 52.2	199 38 18.9 270 06 30.2		6143.5 4537.9	3.788419 3.656854
Mallard 1876	29 17 13.195	400.3	312 28 14.8	132 30 28.6	Cabbage Reef	10024.2	4.001051
	83 10 02.540	68.6	337 05 54.2	157 06 45.9		7339.6	3.865673
River 1876	29 16 07.105	218.8	31 49 22.2	211 48 20.2	Reef Mallard Cabbage	5562.4	3.745262
	83 06 28.186	761.0	109 23 19.0 341 16 40.5	289 21 34.8 161 17 18.5		6133.6 5000.6	3.787719 3.699018
Number 5 1876	29 15 13.423	413.3	237 16 03.1	57 17 47.0	Mallard Reef	6622.4	3.833935
	83 13 35.160	949.3	289 39 07.8	109 41 43.3		9130.4	3.960492
Ready 1876	29 22 02.515	77.4	336 44 32.8	156 45 42.2	Mallard Number 5	9694.8	3.986537
	83 12 24.365	657.1	8 37 47.2	188 37 12.0		12739.2	4.106142
Number 4 1876	29 18 45.788	1409.7	223 05 02.1	43 06 45.0	Ready Mallard	8295.0	3.918814
	83 15 54.446	1469.3	286 41 01.8	106 43 54.0		9916.0	3.996337
Bird 1876	29 25 43.384	1335.7	311 30 25.9	131 38 45.2	Ready Number 4	10237.1	4.010176
	83 17 08.171	220.2	351 12 13.8	171 12 50.0		13009.9	4.114274
Number 3 1876	29 22 20.932	644.5	222 38 60.7	42 40 35.3	Bird Ready	8476.3	3.928207
	83 20 41.218	1111.6	272 23 20.9	92 27 24.6		13412.1	4.127496
Scaffold 1874	29 28 30.952	953.0	318 49 16.1	138 50 38.4	Bird Number 3	6853.4	3.835908
	83 19 55.578	1497.4	6 09 59.7	186 09 37.3		11458.0	4.059132
Number 2 1876	29 25 54.557	1679.7	227 06 55.2	47 08 29.8	Scaffold Bird	7077.4	3.849876
	83 23 08.057	217.2	272 00 23.1	92 03 19.9		9706.5	3.987064
Horseshoe Point west base 1876	29 27 51.159	1575.1	340 42 34.9	160 43 00.0	Bird Number 2 Scaffold	4107.9	3.619920
	83 17 59.253	1590.6	66 41 11.8 111 21 30.9	246 38 40.0 291 20 33.7		9063.4 3365.2	3.957292 3.527009

¹ No check on this position.

CEDAR KEYS TO ST. MARKS RIVER—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Principal points—Contd</i>							
Horseshoe Point east base 1876	20 26 19.680	605.9	20 11 23.4	200 11 15.9	Bird	1190.7	3.075787
	83 16 52.926	1426.5	85 39 02.9	285 35 58.6	Number 2	10140.4	4.000055
			147 36 15.2	327 35 42.6	Horseshoe Point west base	3335.79	3.523199
Bowlegs Point 1874	29 31 03.812	117.4	305 03 03.6	125 05 06.2	Scaffold	8191.5	3.913361
	83 24 04.476	120.5	350 55 32.8	170 58 00.6	Number 2	9642.1	3.984173
Charybdis 1874	29 29 25.864	796.3	243 22 02.0	63 23 52.6	Bowlegs Point	6731.1	3.828084
	83 27 47.896	1290.2	277 32 10.4	97 36 02.9	Scaffold	12836.2	4.108435
Fog Island azimuth station 1874	29 35 51.053	1571.9	353 69 45.4	174 00 02.4	Bowlegs Point	8892.6	3.949031
	83 24 39.015	1049.9	23 13 21.5	203 11 48.4	Charybdis	12904.0	4.110723
Scylla 1874	29 34 12.713	301.4	240 52 24.8	60 54 04.5	Fog Island azimuth station	6223.3	3.794024
	83 28 01.038	27.9	312 23 05.5	132 25 02.1	Bowlegs Point	8625.2	3.935767
Steinhatchee 1874	29 40 11.556	355.8	350 17 13.9	170 17 39.1	Fog Island azimuth station	8137.3	3.910482
	83 25 30.032	807.5	20 11 57.0	200 10 42.4	Scylla	11771.9	4.070845
Reliable 1874	29 36 21.914	674.7	204 10 58.3	24 11 56.7	Steinhatchee	7751.3	3.889372
	83 27 28.115	756.5	281 47 01.1	101 48 24.6	Fog Island azimuth station	4048.4	3.667302
Lamp 1874	29 37 28.421	875.1	3 49 50.0	183 49 46.3	Fog Island azimuth station	3004.6	3.477790
	83 24 31.556	848.9	66 41 33.9	246 40 06.6	Reliable	5172.9	3.713732
			162 37 01.9	342 36 33.0	Steinhatchee	5263.3	3.721262
Snipe 1874	29 41 14.257	439.0	288 23 50.8	108 25 37.6	Steinhatchee	6112.2	3.786198
	83 29 05.715	153.7	343 44 03.9	163 44 52.2	Reliable	9376.1	3.972024
Neptune 1874	29 38 40.173	1230.9	230 32 12.2	20 32 44.9	Snipe	5066.3	3.704692
	83 30 11.820	318.0	249 36 43.5	09 39 02.9	Steinhatchee	8083.8	3.907617
Point Edwards 1874	29 43 16.194	520.8	308 28 45.4	128 30 13.0	Snipe	6067.8	3.783030
	83 32 02.389	64.2	340 45 30.8	160 46 25.6	Neptune	9024.5	3.955423
Oceanus 1874	29 40 58.187	1791.6	205 02 09.7	25 02 46.5	Point Edwards	4714.5	3.673437
	83 33 16.622	446.9	265 47 16.1	85 49 20.4	Snipe	6764.1	3.830212
Piney Point 1874	29 45 33.901	1043.8	310 29 31.5	130 31 02.6	Point Edwards	6493.8	3.812502
	83 35 06.136	164.9	340 52 11.0	160 53 05.3	Oceanus	8985.0	3.953518
Amphitrite 1874	29 43 23.187	713.9	217 12 46.0	37 13 42.4	Piney Point	5054.1	3.703647
	83 36 59.006	1610.1	271 21 47.8	91 24 15.3	Point Edwards	7998.6	3.903013
Live Oak Point 1874	29 50 31.317	964.3	340 29 51.5	160 30 51.5	Piney Point	9714.4	3.987415
	83 37 06.847	183.8	359 11 21.2	179 11 24.6	Amphitrite	13183.5	4.120031
Narayda 1874	29 47 34.270	1055.2	211 26 03.4	31 30 05.3	Live Oak Point	6393.0	3.805706
	83 39 11.224	301.5	299 21 35.7	119 23 37.4	Piney Point	7555.1	3.878240
Clearwater Creek 1873	29 53 53.937	1660.8	326 31 39.6	146 32 56.1	Live Oak Point	7478.3	3.873801
	83 39 40.491	1086.4	356 09 11.3	176 09 25.9	Narayda	11716.5	4.068798
Triton 1874	29 51 05.313	163.6	199 52 55.2	19 53 30.1	Clearwater Creek	5521.3	3.742041
	83 40 50.479	1355.0	279 62 32.4	99 54 23.7	Live Oak Point	9693.6	3.789876
Soft 1873	29 56 00.523	16.1	308 20 19.4	128 21 51.0	Clearwater Creek	6281.7	3.798079
	83 42 44.137	1183.8	341 26 44.2	161 27 40.8	Triton	9587.7	3.981713
Syrinx 1873	29 53 43.155	1328.8	193 47 18.5	13 47 37.8	Soft	4355.2	3.639007
	83 43 22.839	612.8	266 47 59.5	86 49 50.3	Clearwater Creek	5974.8	3.776324
Sold 1873	29 57 37.023	1140.0	301 21 04.5	121 22 35.3	Soft	5709.0	3.756558
	83 45 45.919	1231.3	331 56 07.8	151 57 19.2	Syrinx	8159.8	3.911678
Doris 2 1873	29 55 10.243	315.4	190 32 25.2	16 32 50.2	Sold	4714.7	3.673454
	83 46 35.978	965.1	256 00 13.1	76 02 08.8	Soft	6-08.3	3.806741
Hard 1873	29 58 59.124	1820.5	291 05 28.1	111 07 30.1	Sold	7019.6	3.846313
	83 49 50.180	1345.1	323 31 28.8	143 33 05.7	Doris 2	8762.8	3.942691
Rock Island 1873	29 58 15.945	490.9	178 18 37.1	358 18 36.4	Hard	1330.1	3.123888
	83 49 48.718	1306.2	280 24 51.6	100 26 52.9	Sold	6619.2	3.820806
			290 05 08.3	110 08 40.4	Soft	12124.8	4.083673
Nereus 1873	29 56 30.182	929.3	191 58 34.1	11 58 52.2	Hard	4688.2	3.671002
	83 50 26.470	709.9	254 40 49.6	74 43 09.7	Sold	7799.5	3.892069
False 1873	30 00 49.744	1531.7	305 14 40.8	125 16 10.7	Hard	5900.6	3.770896
	83 52 49.948	1338.0	314 15 29.1	134 16 59.6	Rock Island	6784.1	3.831493
			334 17 24.0	154 18 35.7	Nereus	8869.6	3.947904
Kelpie 1873	29 58 55.348	1704.2	192 50 55.0	12 57 10.1	False	3614.3	3.558029
	83 53 20.169	540.6	208 48 06.6	88 49 51.6	Hard	5630.4	3.760636
Econfeues 1873	30 02 12.363	380.7	296 43 19.7	116 44 54.0	False	5654.9	3.752423
	83 55 58.425	1565.4	306 16 40.8	126 19 45.5	Rock Island	12295.3	4.089738
			325 01 48.5	145 03 07.6	Kelpie	7401.9	3.868646

CEDAR KEYS TO ST MARKS RIVER—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Loga-rithm
<i>Principal points—Contd</i>							
Undine 1873	30 00 25.006 83 56 54.737	770.0 1467.0	204 31 54.0 263 21 35.8	24 32 22.2 83 23 38.2	Econfence False	<i>Meters</i> 3633.8 6604.3	3.560360 3.819827
Topog 1873	30 03 50.211 83 57 54.201	1546.0 1451.8	314 09 42.7 345 50 38.4	134 10 40.7 165 51 08.2	Econfence Undine	4324.0 6516.3	3.635883 3.814003
Nalad 1873	30 02 17.269 83 59 01.454	531.7 39.0	212 11 12.4 271 45 05.9	32 11 46.1 91 46 37.5	Topog Econfence	3381.7 4908.1	3.529135 3.690733
Ocella River 1850	30 04 37.704 83 59 22.028	1161.0 589.8	301 51 44.3 352 44 09.1	121 52 28.3 172 44 19.4	Topog Nalad	2769.8 4359.2	3.442442 3.639403
Oyster Bar 1873	30 03 42.401 84 00 37.471	1308.4 1003.7	229 55 09.1 266 52 37.2 315 33 50.1	49.55 46.9 80 63 50.0 135 34 44.2	Ocella River Topog Nalad	2640.7 4379.7 3674.5	3.421723 3.641445 3.565200
Marsh 1873	30 06 04.340 84 01 41.790	133.9 1118.9	305 28 24.8 338 28 26.9	125 29 34.9 158 28 59.1	Ocella River Oyster Bar	4596.2 4695.4	3.662401 3.671672
Coral 1873	30 04 41.151 84 02 37.110	1267.1 993.8	210 02 05.1 271 09 01.3 209 24 03.2	30 02 32.8 91 10 39.0 119 25 03.1	Marsh Ocella River Oyster Bar	2059.3 5225.7 3678.4	3.471183 3.718143 3.565655
Torrey 1859	30 05 55.957 84 04 32.601	1723.0 872.9	266 45 16.2 306 40 14.1	86 46 41.9 126 41 12.0	Marsh Coral	4580.8 3856.2	3.660942 3.586159
Grey Mares 1859	30 04 44.078 84 05 23.475	1367.2 628.5	211 36 35.6 247 22 46.0 271 08 51.1	31 37 01.1 67 24 37.3 91 10 14.5	Torrey Marsh Coral	2598.9 6430.3 4456.3	3.414796 3.808230 3.648979
Palmetto Island 1859	30 05 04.004 84 06 57.563	123.3 1541.5	247 35 33.4 283 40 42.8	67 36 46.1 103 41 30.0	Torrey Grey Mares	4198.5 2593.3	3.622089 3.413857
Denham 1859	30 06 44.890 84 07 33.033	1382.2 884.4	267 18 35.6 342 59 50.5	107 20 06.1 163 00 08.3	Torrey Palmetto Island	5060.4 3248.4	3.704183 3.511668
New East River 1859	30 06 34.088 84 00 26.616	1049.6 712.6	263 45 00.5 304 47 21.9	83 45 57.5 124 48 36.6	Denham Palmetto Island	3059.0 4860.3	3.485583 3.686667
St. Marks L. H. 1859	30 04 25.329 84 10 47.158	770.9 1263.0	208 32 23.1 259 01 22.8	28 33 03.5 79 03 17.9	New East River Palmetto Island	4513.4 6263.1	3.654501 3.796787
Port Leon 1855	30 07 30.243 84 11 35.931	931.2 961.8	296 31 55.1 347 04.43.7	116 33 00.0 107 05 08.1	New East River St. Marks L. H.	3869.7 5841.7	3.587674 3.766538
West Bayou Point 1855	30 06 37.180 84 13 07.115	1144.8 100.5	236 11 48.6 317 16 48.2 270 54 29.7	56 12 34.4 137 17 58.4 90 56 20.4	Port Leon St. Marks L. H. New East River	2937.4 5525.2 5904.1	3.467967 3.742349 3.771156
Walker 1855	30 08 28.708 84 13 00.868	884.0 23.2	308 22 05.3 2 47 17.8	128 22 47.9 182 47 14.7	Port Leon West Bayou Point	2899.9 3438.2	3.462383 3.536337
St. Marks south base 1855	30 08 32.132 84 11 58.176	989.4 1557.0	342 38 50.7 27 32 24.3 86 24 31.8	162 39 01.9 207 31 49.7 266 24 00.3	Port Leon West Bayou Point Walker	1996.5 3991.8 1681.2	3.300274 3.601167 3.225619
Fort St. Marks 1855	30 09 00.871 84 12 39.172	26.8 1048.4	308 53 07.4 9 35 48.3 30 23 00.9	128 53 28.0 189 35 34.4 210 22 50.0	St. Marks south base West Bayou Point Walker	1409.6 4487.3 1148.0	3.149091 3.651989 3.059954
St. Marks north base 1855	30 09 08.839 84 12 13.261	272.2 354.9	340 20 34.0 70 31 03.2	160 20 41.6 250 30 50.2	St. Marks south base Fort St. Marks	1200.22 735.5	3.079260 2.866606
Trot 1874	29 29 39.905 83 21 50.249	1228.6 1353.6	87 27 18.7 125 33 29.1 304 29 24.1	267 24 22.6 305 32 23.0 124 30 20.5	Charybdls Bowlegs Point Scaffold	9643.9 4443.5 3748.4	3.984251 3.647721 3.573842
Number 1 1876	29 27 30.308 83 23 18.580	933.2 500.7	169 21 03.4 210 48 23.9 251 08 17.8	349 20 40.8 30 49 07.3 71 09 57.7	Bowlegs Point Trot Scaffold	6688.8 4645.9 5779.7	3.825349 3.667072 3.761903
Gibbs 1907	30 06 50.382 84 13 06.333	1551.3 169.5	243 06 03.5 320 08 57.7	63 06 48.9 140 10 07.5	Port Leon St. Marks L. H.	2713.5 5817.0	3.433537 3.764700
Four Mile 1907	30 06 34.186 84 11 09.087	1052.6 243.3	351 34 47.0 99 02 08.8 157 23 55.8	171 34 57.8 279 01 10.0 337 23 42.3	St. Marks L. H. Gibbs Port Leon	4011.0 3178.3 1869.7	3.603250 3.502195 3.271776
Leon 1907	30 07 43.369 84 11 55.405	1335.4 1483.2	329 47 41.1 49 19 56.3	149 48 04.3 229 19 20.7	Four Mile Gibbs	2464.0 2503.4	3.391793 3.398533
Pan 1907	30 08 20.402 84 12 55.147	628.2 1476.0	256 40 18.2 305 29 21.4 319 01 56.6 6 09 57.4	76 40 46.8 125 29 51.4 139 02 49.7 186 09 51.8	St. Marks south base Leon Four Mile Gibbs	1567.0 1964.0 4331.0 2788.0	3.195067 3.293145 3.636587 3.445296
Fort St. Marks astronomic station 1907	30 09 00.830 84 12 38.864	25.6 1040.1	250 12 22.4 309 03 27.7 334 00 00.9 19 17 43.1	70 12 35.2 129 03 48.1 154 00 22.7 199 17 34.9	St. Marks north base St. Marks south base Leon Pan	728.2 1402.4 2653.7 1318.9	2.862244 3.146872 3.423847 3.120219

CEDAR KEYS TO ST MARKS RIVER—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Loga-rithm
<i>Principal points—Contd</i>							
Stack 1907	30 09 22.645	697.2	341 06 57.4	181 07 07.4	St. Marks south base St. Marks north base Fort St. Marks astro- nomic station	<i>Meters</i> 1643.9 444.1 872.5	3.215866 2.647432 2.940770
	84 12 18.035	483.2	343 12 28.6 39 39 45.3	163 12 31.0 219 39 34.9			
Harrall 1907	30 09 26.943	829.6	331 53 32.2	151 53 33.5	Stack St. Marks north base	150.0 591.9	2.176215 2.772255
	84 12 20.697	553.8	340 21 24.2	160 21 27.9			
Long 1907	30 09 27.672	852.1	4 02 08.3	184 02 08.1	Stack Harrall	155.2 84.6	2.190882 1.927596
	84 12 17.647	472.2	74 36 52.4	254 36 50.9			
<i>Supplementary points</i>							
Mill 1907	30 09 25.819	795.0	30 06 23.9	210 06 22.8	Stack Harrall Long	113.0 132.0 73.1	2.053007 2.120507 1.864159
	84 12 15.937	426.6	105 12 08.4 141 16 48.9	285 12 05.9 321 16 48.0			
Tank 1907	30 09 16.669	513.3	343 42 12.7	163 42 20.2	St. Marks south base St. Marks north base St. Marks astronomic station	1428.8 241.1 843.3	3.154964 2.382221 2.925979
	84 12 13.156	352.1	0 40 11.8 54 40 17.6	180 40 11.7 234 40 04.7			
Aux 1907	30 08 33.637	1035.8	147 28 09.9	327 28 06.1	Harrall Long Mill	375.2 359.5 291.4	2.574314 2.555708 2.464527
	84 11 58.772	1573.0	100 28 16.3 165 12 12.1	340 28 14.0 345 12 10.8			
St Marks magnetic azimuth station 1907	30 09 04.550	140.1	340 59 38.8	160 59 37.2	St. Marks south base Leon Pan	49.1 1550.5 1562.9	1.690726 3.190463 3.193930
	84 12 11.489	307.4	74 53 22.5 127 58 15.2	176 40 04.0 254 52 54.2 307 57 55.1			
St. Marks longitude station 1907	30 09 27.64	851.1	170 13 47.8	170 13 47.8	Fort St. Marks astro- nomic station St. Marks north base	2536.5 1792.5 741.5	3.404237 3.253466 2.870106
	84 12 17.65	472.3	40 40 58.1 81 06 55.3 160 14 48.6	220 40 36.2 261 06 41.6 340 14 47.7			
			182 38	2 38	Long	0.87	9.939519

ST. MARKS RIVER TO ST. ANDREWS SOUND

<i>Principal points</i>							
Shell Point 1859	30 03 26.181	806.1	229 27 53.3	49 30 02.1	West Bayou Point St. Marks L. H.	9052.4 10786.6	3.956765 4.032884
	84 17 24.089	645.2	260 15 06.0	80 18 24.9			
Bald Point 1859	29 56 54.027	1663.6	202 20 39.0	22 22 11.6	Shell Point St. Marks L. H.	13056.3 20894.2	4.115821 4.320027
	84 20 29.389	788.1	228 16 18.8	48 21 10.0			
Porters Island 1859	30 01 21.129	650.6	242 14 24.3	62 16 41.1	Shell Point St. Marks L. H. Bald Point	8272.3 18928.9 8555.8	3.917625 4.274826 3.932261
	84 21 57.364	1537.2	252 25 19.6 343 59 38.4	72 30 55.2 164 00 22.4			
Piccoline Bayou 1859	29 58 39.300	1210.1	200 03 17.6	20 03 51.5	Porters Island Bald Point	5304.7 5288.8	3.724664 3.723354
	84 23 05.250	140.7	307 47 17.4	127 48 35.2			
Chaires 1859	29 57 38.580	1187.9	174 49 15.5	354 49 12.4	Piccoline Bayou Bald Point	1877.3 4238.0	3.273529 3.627164
	84 22 58.929	1580.1	288 52 34.4	108 53 49.1			
Lansing 1859	29 57 52.937	1630.0	244 52 49.4	64 53 46.2	Piccoline Bayou Chaires	3363.8 3245.9	3.526836 3.511333
	84 24 58.861	1578.2	277 49 08.4	97 50 08.3			
Sopchoppy 1859	29 59 02.007	61.8	281 34 09.7	101 35 13.3	Piccoline Bayou Chaires Lansing	3483.7 4408.3 2158.2	3.542036 3.644273 3.334095
	84 25 12.557	336.6	305 37 57.4 350 12 12.1	125 39 04.2 170 12 18.9			
Lansing 2 1873	29 57 52.934	1629.9	244 52 44.4	64 53 41.2	Piccoline Bayou Chaires	3363.9 3245.0	3.526843 3.511334
	84 24 58.861	1578.2	277 49 02.0	97 50 01.9			
Sopchoppy 2 1873	29 59 02.016	62.1	281 34 25.0	101 35 28.6	Piccoline Bayou Chaires Lansing 2	3483.7 4408.5 2158.6	3.542046 3.644291 3.334168
	84 25 12.558	336.7	305 38 06.8 350 12 17.0	125 39 13.6 170 12 23.8			
Robinson 1859	29 58 05.831	179.5	236 59 45.8	57 00 35.5	Sopchoppy Lansing	3176.2 3057.2	3.501907 3.485329
	84 26 51.923	1392.1	277 27 12.9	97 28 09.4			
Houston 1859	29 57 19.343	595.6	127 19 00.6	307 18 25.6	Robinson Sopchoppy	2361.5 3257.4	3.373179 3.512872
	84 25 41.875	1122.9	193 57 40.8	13 57 55.4			
Ellis 1859	29 56 39.063	1202.8	163 05 35.0	343 05 19.9	Robinson Houston	2792.4 1635.5	3.445978 3.213662
	84 26 21.634	580.2	220 40 49.2	40 41 09.1			
Forbes 1859	29 56 08.836	272.1	123 56 42.9	303 56 17.2	Ellis Houston	1666.9 2193.9	3.221909 3.341226
	84 25 30.070	806.6	171 42 15.3	351 42 09.4			
Bailey 1858	29 55 46.151	1421.0	198 07 06.7	16 07 15.5	Ellis Forbes	1695.9 1981.1	3.228395 3.293699
	84 26 39.191	1051.1	249 20 59.0	69 21 33.5			

ST. MARKS RIVER TO ST. ANDREWS SOUND—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Principal points—Contd</i>							
Franklin 1858	29 55 20.356	626.8	104 32 43.0	284 31 46.0	Bailey	3164.2	3.500265
	84 24 44.998	1207.0	141 00 03.1	320 59 40.6	Forbes	1920.9	3.283497
			175 28 34.4	355 28 27.4	Lansing 2	4712.7	3.673271
			213 44 58.1	33 45 51.0	Chaires	5119.2	3.709198
Peninsula Point 1858	29 54 23.875	735.1	143 45 03.2	323 44 28.7	Bailey	3141.5	3.497141
	84 25 29.933	803.1	214 43 24.4	34 43 46.8	Franklin	2116.0	3.325514
Turkey Point 1858	29 54 40.291	1240.6	245 43 57.2	65 45 20.9	Bailey	4936.3	3.693308
	84 29 26.972	723.5	274 31 42.2	94 33 40.4	Peninsula Point	6379.0	3.804754
Southwest Cape 1858	29 53 32.463	999.6	100 49 39.2	280 46 15.8	Turkey Point	11146.3	4.047132
	84 22 38.867	1042.0	109 02 30.5	289 01 05.2	Peninsula Point	4855.0	3.686185
			122 34 28.2	302 32 28.4	Bailey	7849.1	3.893609
			134 28 54.7	314 27 51.9	Franklin	4742.0	3.675960
Dog Island east 1857	29 49 22.869	704.1	221 48 56.4	41 51 38.8	Turkey Point	13118.4	4.117881
	84 34 53.017	1423.5	248 38 34.6	68 44 40.1	Southwest Cape	21150.5	4.325321
St. James Island 1858	29 53 10.147	312.5	252 31 07.0	72 33 51.0	Turkey Point	9251.5	3.968214
	84 34 55.915	1600.4	359 21 46.9	179 21 48.3	Dog Island east	6998.5	3.845002
Palmetto Point 1858	29 51 09.793	301.5	234 49 21.0	54 50 58.6	St. James Island	6434.5	3.808518
	84 38 11.922	320.0	301 38 32.5	121 40 11.5	Dog Island east	6273.1	3.797482
Dog Island A. M. 1858	29 47 00.248	7.6	200 11 25.6	20 12 17.9	Palmetto Point	8187.0	3.913126
	84 39 57.194	1530.3	215 21 36.0	35 24 08.6	St. James Island	13969.2	4.145171
			241 43 02.2	61 45 33.4	Dog Island east	9274.2	3.967277
Crooked River 1856	29 49 55.734	1716.1	276 09 43.3	96 12 36.2	Dog Island east	9390.7	3.972699
	84 40 40.748	1094.0	347 46 59.6	167 47 21.2	Dog Island A. M.	5528.4	3.742599
Royal Bluff 1856	29 47 33.553	1033.1	237 51 43.0	57 53 52.1	Crooked River	8233.6	3.915592
	84 45 00.439	11.8	258 17 55.6	78 22 57.6	Dog Island east	16655.2	4.221550
			277 09 17.9	97 11 48.5	Dog Island A. M.	8209.2	3.914300
St. George Island east base 1856	29 44 56.460	1738.4	140 52 52.6	320 51 39.9	Royal Bluff	6235.3	3.794859
	84 42 33.962	912.6	198 15 16.3	18 16 12.5	Crooked River	9703.5	3.986927
			227 50 39.0	47 51 56.8	Dog Island A. M.	5690.2	3.754363
St. George Island west base 1856	29 43 51.507	1585.9	165 52 50.7	345 52 18.9	Royal Bluff	7049.9	3.848185
	84 43 56.407	1515.9	227 55 17.6	47 55 58.5	St. George Island east base	2984.6	3.474884
Marsh Point 1856	29 46 04.585	141.2	239 20 13.0	59 21 38.5	Royal Bluff	5373.3	3.730238
	84 47 52.530	1411.3	283 44 54.1	103 47 32.2	St. George Island east base	8812.2	3.945086
			302 50 22.1	122 52 19.3	St. George Island west base	7552.6	3.878095
Gap Island 1856	29 42 04.927	151.7	182 08 11.1	2 08 16.2	Marsh Point	7384.2	3.868303
	84 48 02.776	74.6	243 37 18.5	63 39 20.6	St. George Island west base	7390.5	3.868673
Cat Point 1856	29 43 21.075	648.9	239 52 41.0	59 55 21.4	Marsh Point	10038.8	4.001680
	84 53 15.750	423.3	285 33 05.6	105 35 40.7	Gap Island	8733.1	3.941170
Bulkhead Point 1856	29 40 14.417	443.9	153 41 01.3	333 40 08.9	Cat Point	6412.1	3.807000
	84 51 29.983	806.2	238 34 13.1	58 35 55.7	Gap Island	6527.9	3.814776
Cedar Point 1856	29 38 57.310	1764.6	201 04 14.4	21 05 12.0	Cat Point	8703.7	3.939702
	84 55 12.176	327.5	248 18 59.6	68 20 49.5	Bulkhead Point	6429.8	3.808199
Apalachicola 1856	29 43 13.066	402.3	288 28 54.8	88 31 49.2	Cat Point	9458.8	3.975835
	84 59 07.560	203.2	294 03 37.4	114 07 24.2	Bulkhead Point	13475.2	4.129534
			321 11 45.1	141 13 41.7	Cedar Point	10102.6	4.004433
Cape St. George L. H. 1857	29 35 15.109	465.2	202 03 02.9	22 04 52.6	Apalachicola	15879.3	4.200830
	85 02 49.365	1328.6	240 53 08.9	60 56 54.8	Cedar Point	14074.9	4.148446
Green Point 2 1856	29 42 23.763	731.7	209 37 47.7	119 41 13.2	Cedar Point	12846.1	4.108770
	85 02 07.340	197.3	4 53 52.7	184 53 31.9	Cape St. George L. H.	13246.4	4.122097
Shell Bank 1856	29 42 01.094	33.7	286 57 15.5	87 05 35.0	Green Point 2	13900.6	4.133557
	85 10 32.618	876.9	315 03 34.2	135 07 23.3	Cape St. George L. H.	17649.6	4.246736
Cape San Blas L. H. (old tower) 1890	29 39 45.952	1414.8	257 01 33.5	77 07 07.4	Shell Bank	18590.1	4.269492
	85 21 46.824	1250.3	285 09 56.3	105 19 18.7	Cape St. George L. H.	31716.3	4.501282
Dead Oak Point 1890	29 41 06.002	184.8	260 23 24.0	80 26 29.3	Shell Bank	10188.1	4.008092
	85 16 46.286	1244.5	295 34 43.2	115 41 37.1	Cape St. George L. H.	24970.8	4.397433
			73 03 34.3	253 01 05.5	Cape San Blas L. H. (old tower).	8448.8	3.926795
Blacks Island 1860	29 43 37.364	1150.4	313 40 40.2	133 42 10.0	Dead Oak Point	6746.8	3.829097
	85 19 47.773	1284.0	24 11 51.6	204 10 52.6	Cape San Blas L. H. (old tower)	7811.0	3.892704
Eagle Point 1861	29 45 16.890	520.0	297 13 56.3	117 15 46.1	Blacks Island	6693.2	3.825636
	85 23 29.215	785.0	344 52 39.3	164 53 30.0	Cape San Blas L. H. (old tower)	10554.7	4.023445

ST. MARKS RIVER TO ST. ANDREWS SOUND—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Loga-rithm
<i>Principal points—Contd</i>							
St. Joseph 1868	29 47 24.559	756.2	20 57 34.9	200 66 45.4	Blacks Island	Meters 7490.7	3.874620
	85 18 08.072	216.8	22 37 10.7	202 35 22.2	Cape San Blas L. II. (old tower)	15295.4	4.184562
Powell 1868	29 48 07.573	233.2	277 08 55.6	97 12 10.2	St. Joseph	10602.5	4.025408
	85 24 39.757	1067.7	340 10 03.6	160 10 38.6	Eagle Point	6586.5	3.747140
San Carlos 1868	29 51 08.074	248.6	333 24 53.8	153 25 57.6	St. Joseph	7605.2	3.886218
	85 20 16.292	437.3	25 36 51.6	205 35 15.7	Eagle Point	11900.1	4.078824
Consort 1860	29 54 55.236	1700.8	331 04 27.1	151 05 38.8	Powell	8995.8	3.954042
	85 22 40.280	1080.5	14 20 22.8	194 19 23.3	San Carlos	7900.7	3.902583
St. Andrews Point 1869	29 57 46.960	1445.9	297 39 48.4	117 42 55.9	Powell	12955.3	4.112449
	85 28 55.980	1501.0	338 54 20.5	158 56 28.1	Consort	11378.9	4.056100
Pine Point 1869	29 59 24.384	750.8	300 17 08.5	120 18 44.2	St. Andrews Point	5945.9	3.774214
	85 32 07.473	200.3	330 00 32.5	150 04 15.6	Powell	24053.7	4.381182
Franklin Point 2 1869	30 00 24.302	748.3	318 14 38.7	138 15 59.3	St. Andrews Point	6493.2	3.812458
	85 31 37.257	998.5	23 42 09.4	203 41 54.3	Pine Point	2014.9	3.304247
Nigel 1869	30 01 53.229	1639.0	204 29 56.3	114 31 48.4	Franklin Point 2	6599.2	3.819492
	85 35 21.323	571.3	311 24 19.7	131 25 56.7	Pine Point	6927.7	3.840591
Spring Hill 2 1869	30 03 10.413	320.6	311 55 07.0	131 56 53.3	Franklin Point 2	7653.8	3.883877
	85 35 09.769	261.4	324 55 28.6	144 56 59.9	Pine Point	8502.7	3.928559
Hurricane Point 1869	30 04 33.881	1043.3	133 35 53.6	187 25 30.3	Nigel	23961.5	3.379615
	85 39 34.274	917.9	289 55 10.4	313 34 19.8	Laguna	6911.1	3.839545
Cypress Point 1869	30 06 20.934	644.6	305 19 28.1	109 57 22.9	Spring Hill 2	7536.8	3.877185
	85 40 18.611	498.3	315 58 15.5	126 08 52.8	Nigel	8389.5	3.923735
Laurel 1909	29 43 13.076	402.6	321 12 02.5	141 13 59.0	Spring Hill 2	10140.5	4.006061
	84 59 07.528	202.3	22 05 01.3	202 03 11.5	Nigel	11460.7	4.059213
West Pass 2 1909	29 37 32.900	1013.0	225 31 47.0	45 35 04.5	Hurricane Point	3503.7	3.544522
	85 05 44.694	1202.4	311 57 08.5	131 01 28.5	Laguna	4090.9	3.611816
West Pass 1860	29 37 31.979	984.6	230 26 46.1	50 26 46.7	Cedar Point	44.5	1.648360
	85 05 46.968	1236.6	261 11 44.2	81 16 57.7	Cape St. George L. H.	17249.8	4.236783
St. Vincent Point 2 1910	29 40 23.741	731.0	343 54 57.4	131 34 45.9	Cape St. George L. H.	6351.4	3.802868
	85 04 31.170	838.1	20 36 30.0	163 55 47.7	West Pass 2	9889.4	3.995108
New Inlet 2 1910	29 35 57.667	1775.5	73 58 09.3	200 35 53.6	Cape St. George L. H.	5610.5	3.749701
	85 00 00.030	0.8	107 34 11.6	287 31 21.3	West Pass 2	9725.9	3.987932
Cat Point 2 1909	29 43 20.788	640.0	138 20 24.3	318 18 10.3	St. Vincent Point 2	10968.5	4.040148
	84 53 17.276	464.3	20 51 17.3	200 60 20.4	Cedar Point	8680.7	3.938555
Bulkhead 2 1909	29 40 14.063	433.0	45 51 19.6	225 46 36.6	Cape St. George L. H.	21455.8	4.331544
	84 51 27.506	789.6	88 34 45.1	268 81 51.5	Laurel	9416.7	3.973897
Yent 1909	29 45 27.381	843.1	08 29 13.7	248 37 22.5	Cedar Point	6487.8	3.812097
	84 49 25.197	677.0	114 03 11.6	293 59 23.0	Laurel	13539.8	4.131611
Gap Island 2 1909	29 42 05.769	177.3	152 50 12.3	332 49 17.9	Cat Point 2	6462.3	3.810390
	84 47 55.258	1485.4	18 49 35.3	198 48 34.7	Yent	10191.8	4.008251
Marsh Point 2 1909	29 46 06.635	204.3	58 00 36.5	237 58 41.4	Cat Point 2	7354.3	3.866540
	84 47 53.653	1441.4	0 20 00.1	180 19 59.3	Gap Island 2	7416.7	3.870210
Spartan 1909	29 43 01.247	38.4	63 23 10.6	245 22 01.9	Yent	4100.5	3.612837
	84 45 36.582	983.2	126 14 04.8	306 12 11.4	Marsh Point 2	7615.0	3.881668
Royal Bluff 2 1909	29 47 34.226	1053.8	147 10 35.5	327 09 27.5	Marsh Point 2	6703.3	3.832080
	84 45 00.512	13.7	0 34 47.0	186 34 29.1	Spartan	8460.7	3.927408
St. George Island east 1909	29 45 32.261	993.3	59 54 09.1	239 52 43.1	Marsh Point 2	5376.1	3.730471
	84 42 16.805	453.1	49 06 31.8	229 04 52.7	Spartan	7100.9	3.851315
Crooked River 2 1909	29 49 56.442	1737.9	86 41 41.7	278 88 54.5	Marsh Point 2	9109.7	3.959503
	84 40 42.962	1153.4	130 31 03.5	310 29 42.2	Royal Bluff 2	5781.6	3.762046
Dog Island west 1909	29 47 05.213	160.5	17 13 55.8	197 13 09.1	St. George Island east	8516.2	3.930245
	84 40 08.336	223.9	57 40 38.1	237 38 30.0	Royal Bluff 2	8185.6	3.913049
Crooked River 2 1909	29 47 05.213	160.5	50 21 10.5	230 20 06.7	St. George Island east	4484.7	3.651730
	84 40 08.336	223.9	96 30 52.0	276 28 28.8	Royal Bluff 2	7898.2	3.897526
			170 00 01.3	349 59 44.1	Crooked River 2	5353.6	3.728642

ST. MARKS RIVER TO ST. ANDREWS SOUND—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Loga-rithm
<i>Principal points—Contd</i>							
Old outer beacon, Carrabelle 1909	29 50 06.842	210.7	13 02 01.0	193 01 37.0	Dog Island west Crooked River 2	<i>Meters</i> 5740.2	3.758928
	84 39 20.140	540.6	81 48 38.3	261 47 57.1		2246.4	3.351495
Dog Island east 2 1909	29 49 22.225	684.3	03 29 53.9	243 27 17.4	Dog Island west Crooked River 2	9446.9	3.975289
	84 34 53.584	1438.7	96 25 56.7	270 23 02.9		9439.2	3.974937
Palmetto 2 1909	29 51 10.972	337.8	100 53 04.7	280 50 52.1	Old outer beacon, Car- rabelle	7287.2	3.862560
	84 38 11.176	299.9	302 14 51.4	122 16 29.7		6272.9	3.797469
St. James Island 2 1909	29 53 17.641	543.2	22 34 56.1	202 33 57.8	Dog Island east 2 Palmetto 2	8194.9	3.913542
	84 34 33.145	889.4	4 19 46.4	223 08 55.5		2706.7	3.432440
Lands end 1910	30 05 25.677	793.6	56 19 45.5	184 10 36.2	Spanish Shanty Laguna 2	7269.3	3.861494
	85 40 14.903	399.1	119 37 03.1	230 17 56.9		7032.0	3.847081
Wolley 1910	30 06 19.316	594.7	128 15 52.8	290 36 18.9	Lands end Spanish Shanty Laguna 2	4720.3	3.433554
	85 40 13.604	304.2	161 08 50.3	308 14 43.3		2450.7	3.389284
Hurricane West 1910	30 04 44.264	1363.0	1 12 22.8	341 08 35.4	Lands end Wolley	1652.0	3.218011
	85 39 17.513	469.0	82 36 32.8	202 35 48.0		3289.7	3.517158
St. Andrews Bay rear range light 1910	30 05 29.999	923.7	108 46 26.7	288 45 16.7	Hurricane West Lands end	1570.1	3.195914
	85 38 51.591	1381.5	120 41 14.0	309 40 45.2		2234.0	3.349253
Hurricane East 1910	30 04 09.343	287.8	152 50 10.6	332 49 48.5	Hurricane West St. Andrews Bay rear range light	2069.9	3.420492
	85 38 12.054	322.9	26 14 30.0	206 14 17.0		2056.6	3.313153
Sand Bluff 1910	3 04 56.049	1725.7	80 35 31.3	206 34 49.5	Hurricane East Hurricane West St. Andrews Bay rear range light	2699.5	3.431281
	85 38 01.163	31.1	124 40 13.8	304 39 32.6		1467.4	3.166554
Celestine 1910	30 03 32.327	995.5	11 27 55.7	191 27 50.2	Hurricane East Sand Bluff	2076.0	3.317362
	85 36 49.548	1327.2	79 56 28.0	259 55 49.7		1707.7	3.232421
Bayou Bluff 1910	30 04 12.021	370.2	127 44 50.6	307 44 25.3	Celestine Hurricane East Sand Bluff	2486.5	3.395592
	85 36 36.890	987.8	117 17 18.1	297 10 36.8		3213.2	3.509938
Spring 1910	30 03 21.017	647.2	143 21 14.0	323 20 38.9	Celestine Hurricane East Bayou Bluff	1268.5	3.103280
	85 35 15.856	424.7	15 30 59.3	195 30 52.0		2550.4	3.406612
Anchor 1910	30 01 34.043	1048.3	120 50 39.1	300 58 56.9	Celestine Spring	2633.1	3.420461
	85 34 21.089	565.1	97 54 22.9	277 53 36.0		2533.7	3.403763
Astral 1910	30 00 43.692	1345.3	107 30 42.4	287 29 14.1	Hurricane East Anchor Spring	4048.5	3.694476
	85 33 38.334	1027.4	125 53 48.7	305 53 08.1		2678.9	3.427952
Areola 1910	30 01 51.784	1594.6	132 29 28.7	312 28 14.4	Astral Anchor Celestine Spring	5393.0	3.731829
	85 33 08.404	225.2	155 59 34.5	335 59 07.1		3605.9	3.557015
Abbot 1910	30 00 57.107	1758.4	130 49 46.4	310 47 29.4	Hurricane East Anchor Spring	9088.0	3.986274
	85 33 04.879	130.7	143 32 21.3	323 31 59.9		1927.8	3.285053
Agog 1910	30 00 01.575	48.5	151 39 54.4	331 39 05.6	Astral Abbot Areola	5504.0	3.740679
	85 32 51.006	1367.1	20 56 08.3	200 55 53.3		2244.8	3.351180
Arrow 1910	30 01 06.015	185.3	74 20 12.4	254 19 36.0	Agog Abbot Areola	2022.7	3.305938
	85 32 18.941	507.0	117 36 17.3	297 34 26.6		6684.6	3.825075
Atom 1910	29 59 10.378	596.6	128 49 54.9	308 48 51.1	Anchor Areola	4382.7	3.641745
	85 31 54.127	1450.8	119 07 07.3	299 00 29.2		2337.5	3.368754
Asp 1910	30 00 25.927	798.3	176 47 19.0	356 47 17.3	Astral Abbot Areola	1686.2	3.226913
	85 31 36.591	980.6	135 38 13.3	315 37 49.4		1814.0	3.258044
Acorn 1910	29 59 33.948	1045.3	167 44 01.6	347 43 54.7	Agog Abbot Areola	1749.9	3.243002
	85 30 19.829	531.5	172 10 41.3	352 10 32.5		3425.3	3.534704
Apex 1910	29 57 58.527	1802.2	23 25 09.6	203 24 53.0	Atom Asp Acorn	2162.3	3.334914
	85 29 34.984	938.0	77 26 30.7	257 26 07.7		1261.2	3.100792
St. Joseph Point 2 1910	29 51 56.716	1746.3	130 45 35.0	316 45 10.9	Atom Arrow	1834.6	3.286996
	85 23 42.732	1146.9	130 26 35.5	310 26 07.1		2003.1	3.301705
			108 33 07.9	348 32 55.5	Atom Agog Arrow	3350.2	3.525066
			12 55 12.3	192 55 03.5		2102.3	3.322703
			69 24 02.9	249 23 25.7	2130.7	3.328523	
			137 24 24.2	317 24 03.0	1676.8	3.224485	
			79 50 31.3	259 55 44.2	2567.1	3.409450	
			127 53 08.1	307 52 29.7	2606.6	3.416077	
			123 43 42.6	303 42 33.1	4484.6	3.651727	
			144 19 17.2	324 18 16.4	5588.0	3.747253	
			157 45 00.5	357 44 38.1	3174.6	3.501685	
			139 43 14.0	319 40 18.3	14608.0	4.164591	
			196 56 58.7	16 57 29.8	5746.5	3.759403	

ST. MARKS RIVER TO ST. ANDREWS SOUND—Continued

Station	Latitude and longitude	Sec onds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Principal points—Contd</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
San Carlos 2 1910	29 50 59.716 85 20 12.798	1838.7 343.5	107 18 53.7 151 23 16.0	287 17 09.2 331 22 02.5	St. Joseph Point 2 Consort	5901.7 8261.4	3.770979 3.917064
Pompano 1910	29 49 00.102 85 24 26.311	3.1 706.5	192 08 15.8 241 33 48.1 194 34 47.3	12 08 37.5 61 35 54.2 14 35 40.1	St. Joseph Point San Carlos 2 Consort	5562.4 7738.6 11299.0	3.745265 3.888665 4.053040
St. Joseph 2 1910	29 47 24.601 85 18 07.029	757.5 188.8	106 07 45.2 152 59 38.5	286 04 36.7 332 58 36.0	Pompano San Carlos 2	10601.6 7434.7	4.025370 3.871262
Eagle Point 2 1910	29 45 11.727 85 23 30.617	361.1 822.6	167 59 36.9 206 21 33.5 244 46 25.1	347 59 09.2 26 23 11.9 64 49 05.8	Pompano San Carlos 2 St. Joseph 2	7180.1 11959.4 9607.3	3.856673 4.077709 3.982603
Blacks Island A. M. 1910	29 43 36.680 85 19 46.991	1129.4 1262.9	115 58 52.9 200 56 05.6	295 57 01.0 20 56 55.2	Eagle Point 2 St. Joseph 2	6684.0 7514.1	3.825035 3.875875
Cape San Blas L. H. 1910	29 40 00.603 85 21 33.447	18.6 899.5	161 48 30.3 202 04 22.2 203 16 07.2	341 47 32.2 22 06 04.6 23 17 00.0	Eagle Point 2 St. Joseph 2 Blacks Island A. M.	10083.9 14753.4 7242.4	4.003630 4.168891 3.859884
<i>Supplementary points</i>							
Lanark, flag on wharf house 1909	29 52 40.114 84 35 45.365	1235.1 1217.4	239 11 22.2 347 08 46.3 54 57 53.7	59 11 58.2 167 09 12.1 234 56 41.1	St. James Island 2 Dog Island east 2 Palmetto 2	2256.3 6249.6 4779.9	3.353391 3.795854 3.679422
Lanark, bathhouse wharf on reef, north end ¹ 1909	29 52 24.43 84 35 09.20	752.2 246.9	65 09 52 210 33 27	245 08 22 30 33 46	Palmetto 2 St. James Island 2	5382.4 1902.8	3.730973 3.279395
Lanark, bathhouse wharf on reef, south end ¹ 1909	29 52 23.62 84 35 08.62	727.3 231.3	65 28 28 209 46 53	245 26 57 29 47 10	Palmetto 2 St. James Island 2	5386.0 1916.6	3.731264 3.282534
Carabelle: C o l o r e d Methodist Church 1909	29 50 55.066 84 39 30.115	1695.5 808.4	291 02 25.0 8 15 13.3 47 17 49.2 55 08 36.3	111 04 42.6 188 14 54.3 227 17 13.0 235 05 52.0	Dog Island east 2 Dog Island west Crooked River 2 Royal Bluff 2	7955.2 7151.3 2661.3 10813.9	3.900651 3.854383 3.425092 4.033981
Covington's house west chimney 1909	29 50 47.662 84 39 28.567	1467.5 766.8	289 35 38.4 8 51 51.8 51 42 29.1 56 16 13.8	109 37 55.2 188 51 32.0 231 41 52.1 236 13 28.7	Dog Island east 2 Dog Island west Crooked River 2 Royal Bluff 2	7837.1 6932.0 2544.8 10719.8	3.894153 3.840859 3.405647 4.030185
Weather signal 1909	29 50 55.450 84 39 47.874	1707.3 1285.1	289 56 48.4 4 25 59.5 39 08 48.3	109 59 14.8 184 25 49.3 219 08 20.9	Dog Island east 2 Dog Island west Crooked River 2	8406.1 7110.4 2342.7	3.924594 3.851891 3.369711
Carrabelle River Bar rear range light 1909	29 50 39.938 84 40 05.744	1229.7 154.2	285 54 48.8 0 36 12.2 36 43 35.5	105 57 24.1 180 36 10.9 216 43 17.0	Dog Island east 2 Dog Island west Crooked River 2	8715.4 6611.8 1670.9	3.940289 3.820321 3.222952
Carrabelle River Bar front range light 1910	29 50 27.012 84 39 54.846	831.7 1472.3	335 55 37.4 3 20 14.6 53 55 22.7	155 55 41.6 183 20 07.8 233 54 58.8	Timber Island U. S. E. station D Dog Island west Crooked River 2	550.0 6224.0 1598.3	2.740344 3.794069 3.203649
Timber Island U. S. E. station D 1910	29 50 10.703 84 39 46.490	329.5 1248.1	5 51 57.8 73 51 04.1 74 29 16.4	185 51 46.9 253 50 36.0 254 28 08.4	Dog Island west Crooked River 2 Crooked River rear range L. H.	5741.3 1678.4 3809.0	3.759013 3.198213 3.580806
Rear range light, new white 1910	29 50 02.132 84 39 14.095	65.6 378.1	14 58 25.2 85 48 21.7 106 52 55.4	194 57 58.2 265 47 37.5 286 52 39.3	Dog Island west Crooked River 2 Timber Island U. S. E. station D	5638.8 2392.2 908.9	3.751184 3.378804 2.958493
Front range light, new red 1910	29 49 47.145 84 39 18.831	1451.6 505.6	14 55 58.0 97 13 43.0 134 19 49.4	194 55 34.2 277 13 01.1 314 19 35.6	Dog Island west Crooked River 2 Timber Island U. S. E. station D	5160.1 2276.8 1038.0	3.712660 3.357319 3.016218
Crooked River rear range L. H. 1909	29 49 37.599 84 42 03.190	1157.7 85.6	254 55 10.3 272 19 13.2 320 40 22.3 2 47 03.6	74 55 50.2 92 22 46.9 146 41 19.4 182 40 58.8	Crooked River 2 Dog Island east 2 Dog Island west St. George Island east	2230.7 11544.3 5615.0 7562.9	3.348440 4.062368 3.749348 3.878691
Crooked River front range light 1910	29 49 31.830 84 41 59.898	980.0 1608.3	249 50 51.6 251 30 43.8 320 25 20.6	60 51 29.9 71 31 50.2 146 26 16.1	Crooked River 2 Timber Island U. S. E. station D Dog Island west	2200.2 3776.4 5418.0	3.342464 3.577074 3.733842
Six-foot Spot light 1909	29 43 07.791 84 48 17.116	239.9 460.0	43 45 04.0 92 51 38.0 156 56 49.2 186 31 48.1 272 39 44.6 342 53 58.0	223 43 29.7 272 49 09.2 336 56 15.4 6 31 59.7 92 41 04.2 162 54 08.8	Bulkhead 2 Cat Point 2 Yent Marsh Point 2 Spartan Gap Island 2	7403.4 8077.3 4671.2 5542.6 4319.5 1998.3	3.869431 3.907267 3.669420 3.743713 3.635434 3.300655

¹ No check on this position.

ST. MARKS RIVER TO ST. ANDREWS SOUND—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Supplementary points—Continued</i>							
Porter Bar light 1909	29 41 56.810 84 49 12.522	1749.2 336.6	48 55 62.9 111 28 22.4 176 59 35.5 251 06 52.8 262 26 17.6	228 54 46.1 291 26 21.1 356 59 29.2 71 08 39.8 82 26 55.9	Bulkhead 2 Cat Point 2 Yout Spartan Gap Island 2	<i>Meters</i> 4814.5 7068.8 6492.4 6134.3 2095.2	3.682563 3.846344 3.812407 3.787762 3.321233
Bulkhead Cut rear range light 1909	29 42 50.691 84 54 16.410	1560.8 441.1	316 42 40.1 11 47 24.7 95 03 14.4 230 45 05.8	136 44 03.8 191 46 57.1 275 00 50.0 59 45 35.1	Bulkhead 2 Cedar Point Laurel Cat Point 2	6623.9 7340.5 7855.0 1839.8	3.821117 3.865726 3.895144 3.264772
Bulkhead Cut front range light 1909	29 42 37.563 84 53 40.686	1156.6 1003.6	320 58 11.7 19 56 39.3 97 07 03.1 205 18 07.4	140 59 17.7 109 55 54.0 277 04 21.0 25 18 19.0	Bulkhead 2 Cedar Point Laurel Cat Point 2	5687.0 7213.0 8852.8 1472.2	3.754883 3.858170 3.947080 3.167052
St. Marks River east 1910	29 44 49.775 84 50 44.787	1532.6 1203.6	296 09 07.4 20 42 40.4 52 11 32.2	116 10 50.3 206 41 48.7 232 10 21.4	Cat Point 2 Apalachicola Jetty light Laurel	6213.3 6231.0 4855.8	3.793319 3.794568 3.686265
Apalachicola Rear range light 1910	29 44 03.047 84 58 56.555	93.8 1610.8	247 52 39.3 278 05 52.6 349 48 53.2	67 53 44.7 98 08 40.8 169 49 04.8	St. Marks River east Cat Point 2 Apalachicola Jetty light	3822.0 9210.5 4193.7	3.582289 3.964283 3.622000
Front range light 1910	29 43 33.131 84 58 50.682	1020.1 1362.1	170 16 37.4 235 05 39.8 272 24 20.4 349 40 59.6 36 14 59.8	350 16 34.5 55 06 42.3 82 27 05.8 169 41 10.4 216 14 51.5	Apalachicola rear range light St. Marks River east Cat Point 2 Apalachicola Jetty light Laurel	934.5 4124.9 8968.7 3259.2 765.7	2.970596 3.615413 3.952731 3.513114 2.884057
Jetty, north end pole 1910	29 42 45.214 84 58 30.328	1392.1 1057.1	138 32 26.9 168 18 53.0 169 04 00.0 218 44 36.9	318 32 12.9 348 18 47.9 349 03 51.4 38 45 33.7	Laurel Apalachicola front range light Apalachicola rear range light St. Marks River east	1144.7 1506.6 2440.8 4917.8	3.058707 3.178000 3.387533 3.691771
Jetty light 1909	29 41 48.989 84 58 28.970	1508.4 778.8	284 26 01.1 314 57 18.0 30 01 34.5 158 11 07.7	104 29 29.8 134 58 55.3 209 59 25.6 338 10 48.5	Bulkhead 2 Cedar Point Cape St. George L. II. Laurel	11702.7 7479.5 14004.6 2788.8	4.068286 3.873874 4.146272 3.445416
Jetty, south end 1909	29 41 38.213 84 58 26.628	1176.6 715.8	313 26 29.1 30 56 43.7 159 22 34.4	133 28 05.3 210 54 33.7 339 22 14.1	Cedar Point Cape St. George L. H. Laurel	7203.1 13750.7 3120.9	3.857518 4.138324 3.494276
Colored Baptist Church spire 1909	29 43 28.001 84 59 15.890	864.9 427.0	205 46 09.7 238 12 59.4 271 18 42.5	25 46 19.3 58 14 14.4 91 21 40.4	Apalachicola rear range light St. Marks River east Cat Point 2	1195.2 4776.4 9640.8	3.077427 3.679101 3.984115
White Baptist Church spire 1909	29 43 21.280 84 59 14.476	655.2 389.1	235 52 39.8 270 03 57.3 294 37 52.7	55 53 54.0 90 06 54.4 114 41 44.1	St. Marks River east Cat Point 2 Bulkhead 2	4858.6 9600.3 13813.9	3.686509 3.982285 4.140317
Armory flagpole 1909	29 43 34.761 84 59 05.045	1070.0 135.6	194 40 27.1 272 36 35.1 296 38 31.6 323 44 43.8	14 40 31.3 92 39 27.5 116 42 18.3 143 46 30.1	Apalachicola rear range light Cat Point 2 Bulkhead 2 Cedar Point	900.6 9356.5 13784.9 10591.0	2.954533 3.971115 4.138772 4.024939
Episcopal Church spire 1909	29 43 31.828 84 59 09.985	980.0 268.4	200 34 44.0 272 01 45.8 322 52 41.4	20 34 50.7 92 04 40.7 142 54 39.2	Apalachicola rear range light Cat Point 2 Cedar Point	1026.8 9485.5 10598.2	3.011470 3.977062 4.025232
Convent round tower 1902	29 43 18.113 84 59 05.587	557.7 150.2	321 58 33.2 22 02 54.0 45 19 05.9	142 00 28.8 202 01 03.3 225 15 47.7	Cedar Point Cape St. George L. H. West Pass	10191.4 16043.2 15148.9	4.008234 4.205290 4.180380
Catholic Church spire 1902	29 43 27.482 84 59 04.530	846.2 121.8	295 49 43.4 323 04 41.3 21 45 39.2	115 53 29.8 143 06 36.3 201 43 47.0	Bulkhead 2 Cedar Point Cape St. George L. H.	13653.5 10403.1 16321.4	4.135244 4.017161 4.212758
Water tower 1909	29 43 30.051 84 59 08.953	925.3 240.6	271 42 15.1 235 54 31.2 322 49 06.6 21 16 14.0 44 06 09.5	91 45 09.5 115 58 19.9 142 51 05.9 201 14 25.0 224 01 53.6	Cat Point 2 Bulkhead 2 Cedar Point Cape St. George L. H. West Pass 2	9456.0 13795.0 10537.8 16351.5 15302.3	3.975709 4.139721 4.022751 4.213556 4.184756
Franklin Hotel flagpole 1909	29 43 33.201 84 59 00.965	1022.3 25.9	296 40 11.9 324 04 23.7 21 50 36.6	116 43 56.6 144 06 23.0 201 48 43.6	Bulkhead 2 Cedar Point Cape St. George L. H.	13645.5 10487.9 16520.5	4.134988 4.020688 4.218023
Weather signal 1909	29 43 25.469 84 58 58.659	784.2 1576.5	295 53 04.2 323 34 31.3 22 21 23.0	115 56 47.7 143 36 23.4 202 19 29.7	Bulkhead 2 Cedar Point Cape St. George L. H.	13484.5 10259.1 16323.2	4.129834 4.011110 4.212805
St. George light 1902	29 36 18.230 85 02 03.931	561.3 105.8	32 10 37.5 110 49 37.2	212 10 15.1 290 47 47.4	Cape St. George L. H. West Pass	2296.0 6390.9	3.360979 3.805564

ST. MARKS RIVER TO ST. ANDREWS SOUND—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Loga-rithm
<i>Supplementary points—Continued</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
Sand Island Cut front range light 1910	29 36 32.826 85 03 15.377	1010.7 413.7	114 43 57.2 164 00 18.5 281 37 24.0	294 42 43.4 343 59 41.0 101 39 00.4	West Pass 2 St. Vincent Point 2 New Inlet 2	4422.7 7396.3 5366.7	3.645683 3.869014 3.729707
Sand Island Cut rear range light 1910	29 36 21.629 85 02 59.905	665.9 1611.8	116 20 39.5 161 46 43.4 278 39 14.2	296 19 18.0 341 45 58.3 98 40 43.0	West Pass 2 St. Vincent Point 2 New Inlet 2	4947.0 7848.3 4896.1	3.694338 3.894778 3.689846
A (U. S. E.) 1910	29 38 07.356 85 05 52.263	226.5 1405.9	207 26 25.4 349 08 06.8	27 27 05.6 189 08 10.5	St. Vincent Point 2 West Pass 2	4731.8 1080.2	3.675028 3.033517
B (U. S. E.) 1910	29 37 58.136 85 06 07.282	1790.0 195.9	234 54 23.0 321 58 20.6	54 54 30.4 141 58 31.8	A (U. S. E.) West Pass 2	493.76 986.4	2.693516 2.994047
West Pass Cut front range light 1910	29 38 05.832 85 04 58.307	179.6 1568.5	189 45 03.4 298 09 50.3 50 54 27.3 91 51 19.6	9 45 16.8 116 12 17.6 230 54 04.3 271 50 52.9	St. Vincent Point 2 New Inlet 2 West Pass 2 A (U. S. E.)	4308.4 8942.7 1607.9 1452.2	3.634319 3.951469 3.206250 3.162012
West Pass old rear range light 1910	29 38 05.898 85 05 52.268	181.6 1406.0	292 35 34.8 348 39 39.0 59 23 14.7 180 09 26.7	112 38 28.8 168 39 42.7 239 23 07.3 0 09 26.7	New Inlet 2 West Pass 2 B (U. S. E.) A (U. S. E.)	10266.3 1036.2 469.3 44.9	4.011414 3.015452 2.671446 1.652016
West Pass Cut rear range light 1910	29 38 21.602 85 04 15.238	665.1 409.9	302 49 20.3 58 04 38.9 80 27 57.1 173 30 03.0	122 51 26.4 238 03 54.7 260 27 09.2 353 29 55.2	New Inlet 2 West Pass 2 A (U. S. E.) St. Vincent Point 2	8172.1 2835.4 2646.5 3784.9	3.912333 3.452810 3.422870 3.578056
D (U. S. E.) 1910	29 37 24.951 85 05 45.680	768.2 1228.9	150 22 17.5 172 16 30.8 186 10 43.7 199 59 54.8	330 22 06.8 352 16 27.5 6 10 44.1 20 00 31.6	B (U. S. E.) A (U. S. E.) West Pass 2 St. Vincent Point 2	1175.5 1317.6 246.2 5858.3	3.070208 3.119775 2.391247 3.767770
C (U. S. E.) 1910	29 37 37.755 85 05 43.491	1162.4 1170.0	12 13 18.9 134 26 17.0 165 29 03.9	192 13 18.3 314 26 05.2 345 28 59.6	West Pass 2 B (U. S. E.) A (U. S. E.)	152.9 896.3 941.5	2.184513 2.952467 2.973798
Remains of day beacon 1 1910	29 37 12.20 85 02 24.89	375.6 699.6	150 04 09 300 28 45	330 03 06 120 29 56	St. Vincent Point 2 New Inlet 2	6805.7 4523.1	3.83287 3.65544
San Pedro 2 1910	29 42 43.128 85 22 54.743	1328.0 1471.2	221 42 47.3 251 53 33.1	41 45 10.1 71 55 06.2	St. Joseph 2 Blacks Island A. M.	11613.4 5308.8	4.064959 3.724999
Warehouse, outer end 1910	29 48 50.495 85 18 52.789	1554.8 1417.5	335 04 27.1 91 54 53.2 151 38 31.7	155 04 49.0 271 52 07.4 331 37 51.9	St. Joseph 2 Pompano San Carlos 2	2916.3 8960.5 4521.6	3.464829 3.952334 3.655288
Summer house 1910	29 53 47.893 85 21 39.244	1474.6 1052.8	26 51 11.0 44 04 38.1 141 42 21.9	206 49 47.8 224 03 36.6 321 41 51.5	Pompano St. Joseph Point 2 Consort	9931.3 4764.4 2642.1	3.997004 3.678005 3.421951
St. Joseph Point front range light 1910	29 55 05.277 85 22 49.973	162.5 1340.5	330 50 10.3 12 57 23.1 13 42 21.8	160 51 28.6 192 56 35.1 193 41 55.5	San Carlos 2 Pompano St. Joseph Point 2	8657.7 11537.4 5976.0	3.937404 4.062108 3.776411
St. Joseph Point rear range L. H. 1910	29 55 08.343 85 22 43.303	256.9 1161.6	332 10 33.6 13 42 34.4 15 07 37.4 115 25 08.9	152 11 48.6 193 41 43.1 195 07 07.8 285 21 40.6	San Carlos 2 Pompano St. Joseph Point 2 Apex	8655.3 11670.5 6112.0 12220.2	3.937284 4.067090 3.786181 4.087078
A 1910	30 01 47.612 85 34 21.483	1466.0 575.6	358 33 10.6 153 08 31.7 266 14 28.1 291 18 00.3 307 08 30.0	178 33 10.7 333 08 04.4 86 15 04.7 111 19 01.7 127 09 08.3	Anchor Spring Aeola Arrow Abbot	417.9 3223.9 1922.3 3524.6 2576.3	2.621110 3.508367 3.292765 3.547108 3.410820
B 1910	30 02 08.699 85 34 13.649	287.9 365.7	10 34 57.1 143 11 33.7 286 35 11.9 302 07 09.6 320 06 07.7	190 34 53.3 323 11 02.5 106 35 44.6 122 08 07.1 140 06 42.1	Anchor Spring Aeola Arrow Abbot	1085.6 2781.3 1824.1 3629.4 2873.2	3.035662 3.444254 3.261040 3.559832 3.458359
Hog Island 1910	30 03 43.723 85 36 26.609	1346.3 712.8	60 16 12.1 162 28 44.4 290 14 40.1	240 16 00.6 342 28 39.3 110 15 15.6	Celestino Bayou Bluff Spring	707.6 913.7 2020.1	2.849777 2.960813 3.305365
St. Andrews Bar rear range light 1910	30 04 34.443 85 37 19.378	1060.5 519.0	61 17 20.0 120 44 04.0 301 14 11.5	241 16 53.6 300 43 43.1 121 14 32.8	Hurricane East Sand Bluff Bayou Bluff	1608.6 1301.9 1331.2	3.206455 3.114567 3.124250
St. Andrews Bar front range light 1910	30 03 55.275 85 37 31.861	1701.9 853.4	111 55 20.1 157 15 00.1 250 41 50.9	291 54 59.9 337 14 45.4 70 42 18.4	Hurricane East Sand Bluff Bayou Bluff	1160.4 2029.2 1560.3	3.064817 3.307331 3.193202
Fish house gable 1910	30 04 56.185 85 38 13.893	1730.0 372.1	77 50 46.3 105 39 47.3 128 37 02.3	257 50 14.4 285 38 46.6 308 36 02.3	Hurricane West Lands end Welley	1742.9 3365.4 4102.1	3.241266 3.527033 3.613011
St. Andrews Bay front range light 1910	30 05 15.424 85 38 40.601	474.8 1087.4	45 51 21.1 97 07 58.0 128 18 56.4	325 51 02.6 277 07 10.7 308 18 09.8	Hurricane West Lands end Welley	1377.6 2544.9 3173.6	3.139113 3.405670 3.501556

1 No check on this position.

ST. ANDREWS BAY

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Principal points</i>							
St. Andrews Bay west base 1870	30 07 36.688 85 44 17.438	1129.8 466.8	127 06 00.0	307 02 32.1	C	<i>Meters</i> 13873.3	4.142180
Davis Point 2 1869	30 07 14.285 85 41 10.806	440.2 289.3	97 52 15.7	277 50 42.0	St. Andrews Bay west base	5043.3	3.702715
Dyers Point 2 1870	30 10 38.947 85 43 53.541	1199.2 1432.6	325 20 23.2 8 30 09.6	145 21 44.9 186 29 57.6	Davis Point 2 St. Andrews Bay west base	7660.1 5648.4	3.884236 3.751928
St. Andrews Bay east base 1870	30 06 18.191 85 42 45.759	560.2 1225.0	134 34 04.9 235 47 38.5	314 33 18.9 55 48 26.1	St. Andrews Bay west base Davis Point 2	3444.71 3073.5	3.537152 3.487638
Courtney Point 2 1869	30 08 48.923 85 42 36.376	1506.4 973.5	321 49 28.2 3 05 53.5	141 50 11.2 183 05 48.8	Davis Point 2 St. Andrews Bay east base	3706.2 4648.1	3.568930 3.667277
Laguna 1869	30 07 08.621 85 42 41.233	265.5 1103.8	182 24 35.3 265 51 55.3	2 24 37.7 85 52 40.7	Courtney Point 2 Davis Point 2	3091.2 2427.0	3.490131 3.385076
Vista Buena 2 1870	30 09 56.869 85 42 04.587	1751.2 122.7	343 57 16.0 22 07 45.8 113 58 14.5	103 57 43.0 202 07 29.9 293 57 19.8	Davis Point 2 Courtney Point 2 Dyers Point 2	5208.8 2258.5 3190.2	3.716735 3.353824 3.503812
West Bay Point 1870	30 12 57.662 85 44 30.399	1775.6 813.0	347 00 00.0	167 00 18.6	Dyers Point 2	4383.7	3.641836
North Bay Point 1870	30 14 02.705 85 43 16.146	83.3 431.7	44 45 30.0	224 44 52.6	West Bay Point	2820.3	3.450296
Crane Point 1871	30 15 07.423 85 47 39.976	228.6 1068.7	308 13 58.1	128 15 33.7	West Bay Point	6454.6	3.809868
Pelican Point 2 1910	30 14 19.250 85 45 35.472	592.8 948.5	277 46 38.6 325 17 14.7 114 01 38.1	97 47 48.8 145 17 47.5 294 00 35.3	North Bay Point West Bay Point Crane Point	3760.0 3056.1 3644.3	3.575193 3.485163 3.561620
Clio 2 1910	30 15 30.993 85 44 00.806	1139.1 181.9	334 59 13.7 7 19 42.0 44 43 28.8 80 56 13.9	154 59 39.2 187 19 30.7 224 42 44.1 260 54 26.4	North Bay Point West Bay Point Pelican Point 2 Crane Point	3203.7 4946.6 3369.0 5771.0	3.505650 3.694304 3.527495 3.761253
Medway 2 1910	30 17 10.529 85 46 39.020	324.2 1058.8	305 10 45.5 341 59 04.0 23 03 31.7	125 12 02.5 161 59 36.9 203 03 01.2	Clio 2 Pelican Point 2 Crane Point	4997.9 5545.9 4119.8	3.698785 3.743970 3.614874
Orcus 2 1910	30 17 07.207 85 50 05.689	221.9 152.0	268 55 16.9 313 25 50.1	88 57 00.8 133 27 03.5	Medway 2 Crane Point	5508.2 5364.2	3.741009 3.729504
Swan 2 1910	30 14 12.957 85 49 22.562	399.0 603.2	167 52 35.7 218 31 46.4 238 32 52.1	347 52 14.0 38 33 08.6 58 33 43.8	Orcus 2 Medway 2 Crane Point	5488.0 6990.7 3214.9	3.739417 3.844522 3.507165
Iris 2 1910	30 12 18.689 85 42 27.539	575.5 736.5	110 04 17.5 157 54 49.6	290 03 15.7 337 54 25.2	West Bay Point North Bay Point	3498.2 3456.6	3.549348 3.538853
Ceres 2 1910	30 14 55.712 85 40 48.214	1715.6 1289.0	28 47 17.7 67 35 10.0	208 46 27.7 247 83 55.5	Iris 2 North Bay Point	5516.6 4278.8	3.741072 3.631325
Juno Bayou 2 1910	30 15 23.722 85 41 57.135	730.5 1527.4	295 04 46.6 8 07 22.7	115 05 21.3 188 07 07.4	Ceres 2 Iris 2	2034.4 5755.3	3.308442 3.760069
Sulphur Point 2 1910	30 11 08.497 85 43 59.742	261.7 1598.3	166 17 34.0 192 15 37.1 228 45 51.9	346 17 18.6 12 15 59.0 48 46 38.3	West Bay Point North Bay Point Iris 2	3460.0 5489.5 3270.4	3.539079 3.739536 3.515797
Perdita 2 1910	30 12 07.554 85 44 42.746	232.6 1143.3	213 08 42.4 294 34 27.7 327 40 48.5	33 09 25.8 84 35 35.7 147 41 10.1	North Bay Point Iris 2 Sulphur Point 2	4235.1 3632.6 2151.8	3.626867 3.560221 3.332800
Allena 2 1910	30 11 00.810 85 45 07.255	25.0 194.1	197 41 28.9 262 31 44.3	17 41 41.2 82 32 18.2	Perdita 2 Sulphur Point 2	2157.2 1821.6	3.333896 3.260447
Bluff 1910	30 10 08.479 85 44 52.797	261.0 1412.7	166 30 09.4 184 11 37.2 217 31 23.0	346 30 02.1 4 11 42.3 37 31 49.7	Allena 2 Perdita 2 Sulphur Point 2	1657.2 3676.4 2330.3	3.219364 3.565425 3.367411
Dyers Point 3 1910	30 10 39.558 85 43 53.175	1218.1 1422.7	59 02 38.5 108 16 39.3 168 50 50.2 294 20 07.7	239 02 08.6 288 16 02.1 348 50 46.9 114 21 02.3	Bluff Allena 2 Sulphur Point 2 Vista Buena 2	2605.72 2087.1 908.2 3189.0	3.266572 3.319550 2.958203 3.503649
Bear Point 1910	30 09 41.104 85 43 26.753	1265.7 715.8	110 06 51.6 132 23 39.5 158 33 29.2 257 32 39.9	290 06 08.4 312 22 49.0 338 33 15.9 77 33 21.2	Bluff Allena 2 Dyers Point 3 Vista Buena 2	2451.8 3040.0 1933.8 2251.6	3.389483 3.561178 3.286404 3.352496
Courtney Point 3 1910	30 08 49.809 85 42 30.562	1533.8 978.5	139 37 32.2 148 45 44.6 202 30 23.4	319 37 07.0 328 45 06.1 22 30 39.5	Bear Point Dyers Point 3 Vista Buena 2	2673.4 3862.6 2235.2	3.316679 3.590883 3.349310

ST. ANDREWS BAY—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Principal points—Contd</i>							
Red Fish Point 3 1910	30 08 29.978	923.1	98 59 30.4	278 58 17.9	Courtney Point 3 Vista Buena 2	3911.4	3.592334
	85 40 12.206	326.7	131 39 57.2	311 39 00.8		4025.3	3.604797
Drumond 1910	30 09 46.744	1439.4	333 37 20.6	153 37 42.6	Red Fish Point 3 Courtney Point 3	2638.4	3.421343
	85 40 56.004	1498.6	56 55 24.5	236 54 34.0		3211.7	3.506732
Davis Point 3 1910	30 07 23.404	720.7	139 29 51.6	319 29 09.0	Courtney Point 3 Vista Buena 2	3499.3	3.543982
	85 41 11.641	311.6	163 18 41.2	343 18 14.7		4933.4	3.693142
Laguna 2 1910	30 07 00.594	18.3	178 31 59.4	358 31 57.8	Courtney Point 3 Davis Point 3	3364.0	3.528857
	85 42 33.345	892.7	252 11 30.8	72 12 11.8		2297.2	3.361201
Spanish Shanty 1910	30 06 09.223	284.0	139 34 32.5	319 34 07.2	Laguna 2 Courtney Point 3	2078.0	3.317638
	85 41 43.012	1151.7	163 50 12.9	343 40 46.0		5148.3	3.711663
Middle 1910	30 06 40.995	1262.2	58 01 39.0	238 01 09.7	Spanish Shanty E. B. P. Laguna 2	1847.4	3.268553
	85 40 44.482	1191.0	77 59 59.8	257 59 00.0		3284.1	3.513761
Bunkers Point 1910	30 08 41.927	1291.1	73 20 05.5	253 19 42.4	Red Fish Point 3 Courtney Point 3 Drumond	1282.7	3.108129
	85 39 26.293	703.8	92 44 32.2	272 42 56.7		5098.0	3.707396
Palmetto Point 2 1910	30 07 24.942	768.0	129 06 41.1	309 05 54.9	Red Fish Point 3 Bunkers Point	3175.0	3.501739
	85 38 40.100	1075.1	152 29 18.8	332 28 55.6		2672.8	3.428971
Town Point 2 1910	30 08 07.788	239.8	346 43 35.7	166 43 41.5	Palmetto Point 2 Red Fish Point 3 Bunkers Point	1355.5	3.132101
	85 38 51.786	1386.1	107 37 04.1	257 36 23.7		2258.3	3.353777
Cromanton 1910	30 07 17.429	536.7	100 59 12.7	280 58 50.3	Palmetto Point 2 Town Point 2	1399.3	3.145604
	85 37 55.030	1489.3	135 53 41.1	315 53 12.9		1214.3	3.084319
Military Point 2 1910	30 07 31.703	976.2	65 24 44.6	245 24 26.6	Cromanton Palmetto Point 2 Town Point 2	2159.6	3.334382
	85 37 19.751	528.7	84 28 53.0	264 28 13.2		1056.2	3.023762
Watson Point 2 1910	30 08 09.573	294.8	114 17 00.1	294 16 13.9	Military Point 2 Cromanton Palmetto Point 2	2162.5	3.334955
	85 37 51.592	1380.9	3 51 04.5	183 51 02.5		2702.5	3.431767
Parker Point 2 1910	30 07 33.985	1046.5	43 24 48.7	223 24 24.3	Military Point 2 Watson Point 2	1444.4	3.159674
	85 36 38.571	1032.5	86 21 21.7	266 21 01.0		1609.2	3.206621
Gainer 1910	30 08 14.964	460.8	119 16 56.0	299 16 19.3	Parker Point 2 Military Point 2 Watson Point 2	1891.7	3.276859
	85 37 16.767	448.8	320 58 50.6	140 59 09.8		1624.0	3.210593
Ferry Point 1910	30 07 22.759	700.8	3 25 52.2	183 25 50.7	Watson Point 2 Gainer Parker Point 2	946.8	2.976243
	85 37 09.239	247.3	79 54 18.9	259 54 01.4		1833.9	3.263373
Gabel 2 1910	30 06 17.103	526.6	141 49 09.4	321 48 48.1	Ferry Point Parker Point 2	1820.1	3.260532
	85 37 01.323	35.4	172 51 19.7	352 51 15.9		890.8	2.949762
Oyster east 1910	30 06 20.830	641.4	247 09 50.2	67 10 05.6	Gabel 2 Ferry Point	2032.7	3.308083
	85 36 11.501	308.0	174 00 56.8	354 00 52.8		2444.4	3.388179
Oyster west 1910	30 06 29.285	901.7	194 25 37.6	14 25 49.0	Gabel 2 Ferry Point Parker Point 2	1338.8	3.126729
	85 36 19.453	520.8	85 05 09.2	265 04 44.2		2454.7	3.389998
Viola 2 1910	30 05 37.516	1155.2	140 58 32.9	320 58 03.9	Gabel 2 Ferry Point Parker Point 2	1182.1	3.072660
	85 35 46.592	1247.6	71 30 06.1	251 29 45.1		2118.4	3.326009
Shoal Bayou 2 1910	30 05 48.415	1490.8	141 00 50.0	321 00 25.0	Gabel 2 Ferry Point Parker Point 2	2056.9	3.313216
	85 35 13.158	352.4	165 35 35.6	345 35 26.0		2343.0	3.369774
Dixon 2 1910	30 07 04.907	151.1	121 21 16.4	301 20 38.9	Shoal Bayou 2 Oyster east	1491.2	3.173535
	85 34 11.087	296.8	153 26 00.6	333 25 48.1		956.1	2.980496
East Point 2 1910	30 05 37.743	1162.2	69 27 12.6	249 26 55.8	Viola 2 Gabel 2 Oyster east	3027.9	3.481135
	85 33 43.138	1155.1	106 58 12.7	286 57 18.4		1853.8	3.268063
Didi Point 2 1910	30 05 35.501	1093.1	122 34 50.9	302 34 21.6	Shoal Bayou 2 Oyster east Dixon 2	2882.6	3.459784
	85 31 24.147	646.5	35 12 36.2	215 12 05.1		3497.8	3.543795
Laird 1910	30 07 14.545	447.9	67 10 38.8	247 09 38.4	Shoal Bayou 2 Oyster east Dixon 2	2432.7	3.386093
	85 31 58.810	1574.3	97 46 08.9	277 45 23.9		4188.2	3.622026
Drogan 2 1910	30 04 36.168	1113.8	108 28 43.2	288 27 28.8	East Point 2 Laird Didi Point 2	2786.3	3.445026
	85 31 34.197	915.8	164 25 23.9	344 25 09.9		3722.4	3.570827
Supplementary points	30 04 50.269	1548.0	91 04 20.0	271 03 10.3	Laguna Davis Point 2 Hurricane Point	6249.4	3.720111
	85 40 14.433	386.5	121 38 29.5	301 37 05.8		3187.8	3.503491
Old west base 1854	30 04 50.269	1548.0	343 04 20.5	163 04 37.9	Laguna Davis Point 2 Hurricane Point	4084.9	3.611186
	85 40 14.433	386.5	43 08 52.1	223 07 59.8		4921.0	3.692055
			85 13 07.0	265 12 00.6		1840.7	3.266392
			118 46 47.1	298 45 42.4		5796.4	3.763158
			172 18 19.9	352 18 07.6		4684.6	3.670676
			188 22 45.5	8 22 50.5		1188.0	3.074825

ST. ANDREWS BAY—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Loga-rithm
<i>Supplementary points—Contd</i>							
E. B. P. 1910	30 06 18.941	583.3	231 09 19.0	51 10 05.8	Davis Point 3	3185.1	3.500391
	85 42 43.731	1170.8	280 25 27.8	100 25 58.3	Spanish Shanty	1653.0	3.218272
North base (U. S. E.) 1910	30 08 46.425	1429.6	317 45 39.5	137 46 23.0	Davis Point 3	3452.7	3.538153
	85 42 38.344	1026.2	342 53 57.2	162 59 25.0	Spanish Shanty	5062.1	3.704329
			357 38 53.9	177 38 56.4	Laguna 2	3261.5	3.513417
South base (U. S. E.) 1910	30 08 13.556	417.4	296 15 28.2	116 16 26.9	Davis Point 3	3489.6	3.542776
	85 43 08.549	228.8	329 06 36.1	149 07 19.0	Spanish Shanty	4461.0	3.649427
			337 14 31.2	157 14 48.8	Laguna 2	2436.3	3.386723
			218 36 47.5	38 37 02.6	North base (U. S. E.)	1295.3	3.112385
Lowell's house chimney 1910	30 10 11.599	357.2	175 55 43.8	355 55 41.8	Allena 2	1519.1	3.181600
	85 45 03.223	86.2	188 43 16.7	8 43 27.1	Perdita 2	3612.3	3.557782
			224 06 19.0	44 06 51.0	Sulphur Point 2	2440.1	3.387408
			245 19 21.9	65 19 57.1	Dyers Point 3	2062.4	3.314383
Trousdale Boat Works stack 1910	30 10 36.204	1114.7	356 33 36.5	176 33 40.2	Courtney Point 3	3282.0	3.516143
	85 42 43.920	1175.1	34 02 33.4	214 02 11.9	Bear Point	2047.5	3.311219
			70 06 11.0	250 05 06.3	Bluff	3552.3	3.550514
Bay Bottling Works chim- ney 1910	30 10 33.940	1045.1	358 44 15.0	178 44 16.3	Courtney Point 3	3207.2	3.506123
	85 42 39.202	1048.8	38 01 50.7	218 01 26.8	Bear Point	2065.4	3.314997
			77 38 17.7	257 37 10.6	Bluff	3059.4	3.503414
Shepherd's house highest chimney 1910	30 10 20.703	822.2	8 14 01.2	188 13 53.1	Courtney Point 3	3014.6	3.479234
	85 42 20.430	546.0	51 39 13.7	231 38 40.4	Bear Point	2262.9	3.354070
			82 10 23.0	202 09 06.5	Bluff	4158.0	3.618952
Shepherd's residence west chimney 1910	30 10 21.166	651.7	11 09 00.9	191 08 50.5	Courtney Point 3	2867.2	3.457454
	85 42 15.844	423.9	50 58 29.0	230 57 53.4	Bear Point	2263.1	3.354709
			84 41 45.9	264 40 27.1	Bluff	4217.0	3.625069
Ware Mecantile Co. wharf- house flagstaff 1910	30 10 03.401	104.7	304 23 03.1	124 23 08.0	Vista Buena 2	356.2	2.551652
	85 42 15.571	416.0	13 55 24.5	193 55 13.9	Courtney Point 3	1854.5	3.268216
			70 10 59.4	250 10 23.6	Bear Point	2024.7	3.306356
			113 05 47.1	293 04 58.0	Dyers Point 3	2838.9	3.453153
St. Andrews ice plant stack 1910	30 09 53.870	1058.8	281 29 03.7	101 29 24.0	Drumond	1101.8	3.042087
	85 41 30.364	972.8	318 54 50.8	138 55 33.1	Red Fish Point 3	3426.9	3.534905
			39 14 46.7	219 14 16.5	Courtney Point 3	2546.9	3.406017
			82 25 43.1	202 24 47.7	Bear Point	2980.2	3.474241
St. Andrews flag, end of ice plant wharf 1910	30 09 42.803	1318.0	119 32 58.4	299 32 44.1	Vista Buena 2	878.3	2.943020
	85 41 36.033	964.2	203 32 01.1	83 32 21.2	Drumond	1078.0	3.032605
			314 58 58.2	134 59 40.3	Red Fish Point 3	3171.9	3.501320
Fish 1910	30 09 45.089	1388.3	43 27 15.4	223 26 45.1	Courtney Point 3	2344.7	3.370085
	85 41 36.306	971.0	87 37 49.0	267 36 53.5	Bear Point	2958.0	3.471000
			115 30 39.7	295 30 25.5	Vista Buena 2	839.2	2.923849
			267 17 32.3	87 17 52.5	Drumond	1079.6	3.033270
			315 40 30.7	135 47 12.8	Red Fish Point 3	3227.1	3.508818
Panama City ice plant stack 1910	30 09 22.708	699.2	10 06 36.5	196 06 27.7	Red Fish Point 3	1690.0	3.227888
	85 39 54.084	1403.4	76 50 59.6	256 49 38.3	Courtney Point 3	4448.9	3.648250
			114 10 56.9	294 16 26.1	Drumond	1800.1	3.255288
Panama City, U.S. Weather Bureau signal 1910	30 09 18.066	556.3	20 30 30.9	200 30 20.4	Red Fish Point 3	1581.9	3.199189
	85 39 51.402	1375.5	108 32 36.0	288 31 29.7	Vista Buena 2	3758.8	3.575055
			117 03 48.1	297 03 15.6	Drumond	1941.2	3.288071
Railroad wharf, gable of freight house 1910	30 09 13.402	412.7	316 00 15.3	136 00 32.9	Bunkers Point	1347.1	3.129415
	85 40 01.256	33.0	317 22 25.2	137 23 00.1	Town Point 2	2745.7	3.438049
			326 58 25.4	146 59 06.1	Palmetto Point 2	3983.0	3.600214
Crawford's house, center gable 1910	30 09 10.984	338.2	29 58 25.0	209 58 11.3	Red Fish Point 3	1457.0	3.163630
	85 39 44.998	1204.2	81 55 40.7	261 54 20.5	Courtney Point 3	4037.4	3.603278
			98 53 54.8	278 52 03.4	Bear Point	6006.2	3.778603
			110 43 44.7	290 42 34.0	Vista Buena 2	3993.6	3.601383
			120 05 51.5	300 05 15.8	Drumond	2196.1	3.341652
House south of Red Fish Point, chimney 1910	30 07 54.002	1662.7	118 34 22.3	298 33 2.1	Courtney Point 3	3593.9	3.555501
	85 40 38.030	1034.0	148 42 17.9	328 41 34.8	Vista Buena 2	4427.8	3.646184
			172 22 21.7	352 22 13.0	Drumond	3502.5	3.544382
Donaldson house west chimney 1910	30 07 15.768	485.5	98 59 34.7	278 59 09.2	Ferry Point	1377.8	3.139171
	85 36 18.404	492.7	123 35 53.3	303 35 06.5	Watson Point 2	2994.5	3.470325
			130 05 58.9	310 05 48.8	Parkers Point 2	778.5	2.891269
			106 38 25.5	280 37 54.7	Military Point 2	1713.9	3.233996

CHOCTAWHATCHEE BAY TO ST. ANDREWS BAY

<i>Principal points</i>							
Exit 1871	30 23 39.635	1220.5	97 03 18.8	277 02 49.4	Gulf	1561.7	3.193592
	86 35 45.324	1210.0	131 01 53.8	311 01 37.6	Burlison	1134.4	3.054772
Stevens 1871	30 24 21.742	669.5	32 33 40.8	212 33 25.1	Exit	1538.4	3.187006
	86 35 14.309	381.9	65 04 55.5	245 04 10.4	Gulf	2021.9	3.418611

CHICTAWHATCHEE BAY TO ST. ANDREWS BAY—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Loga-rithm
<i>Principal points—Contd</i>							
Choctawhatchee 1871	30 23 33.188	1022.0	94 10 10.2	274 09 18.5	Exit	<i>Meters</i> 2734.9	3.430941
	86 34 03.148	84.0	128 12 36.5	308 12 00.5	Stevens	2417.4	3.383350
Garnier 1871	30 25 51.063	1572.4	14 05 11.5	194 04 51.3	Choctawhatchee	4377.2	3.641194
	86 33 23.242	020.2	47 09 01.6	227 08 05.4	Stevens	4043.8	3.606789
Cobbs Point 1872	30 25 04.660	143.7	69 46 17.9	249 43 53.1	Choctawhatchee	8139.1	3.910576
	86 29 17.074	455.7	102 17 11.9	282 15 07.2	Garnier	6723.2	3.827575
Tripod 1872	30 27 38.469	1184.6	353 13 15.4	173 13 26.1	Cobbs Point	4769.4	3.678496
	86 29 38.168	1018.2	43 07 59.0	223 05 44.8	Choctawhatchee	10346.7	4.014900
			61 10 21.7	241 08 27.6	Garnier	6855.9	3.830603
White Point 1872	30 27 05.979	184.1	59 52 00.9	239 49 58.8	Cobbs Point	7437.5	3.871428
	86 25 16.062	428.5	98 09 38.8	278 07 25.9	Tripod	7063.9	3.849044
Shaker 1872	30 24 37.734	1102.0	99 44 10.7	279 42 38.9	Cobbs Point	4910.4	3.691113
	86 26 15.741	420.1	135 52 11.4	315 50 28.8	Tripod	7765.8	3.889624
			199 13 41.6	19 14 11.8	White Point	4834.8	3.684376
Stake Point 1872	30 27 08.126	250.2	39 35 47.7	219 34 35.0	Shaker	6009.2	3.778815
	86 23 52.244	1393.9	66 20 27.0	246 17 42.4	Cobbs Point	9465.0	3.976120
			88 18 45.9	268 18 03.4	White Point	2237.2	3.349711
Four Mile Point 1872	30 25 23.152	712.9	83 19 00.9	263 15 15.5	Shaker	11961.7	4.077793
	86 18 50.637	1351.5	111 54 14.3	291 51 41.5	Stake Point	8673.0	3.938168
Blunt 1872	30 28 18.080	556.9	12 34 30.9	192 34 08.1	Four Mile Point	5519.2	3.741873
	86 18 05.011	149.7	62 36 45.4	242 32 37.1	Shaker	14733.3	4.168309
			76 54 36.3	256 61 40.6	Stake Point	9494.9	3.977489
Live Oak Point 1872	30 25 44.508	1370.6	83 58 26.9	263 56 29.0	Four Mile Point	6247.5	3.795709
	86 14 57.833	1543.4	133 21 42.3	313 20 07.1	Blunt	6889.5	3.838188
Alaqua 1872	30 28 27.256	839.3	15 49 24.8	195 48 57.8	Live Oak Point	5208.9	3.716744
	86 14 04.610	123.0	53 24 44.8	233 22 19.8	Four Mile Point	9506.8	3.978033
			87 30 06.6	267 28 04.4	Blunt	6434.7	3.808530
La Grange 1872	30 25 54.338	1073.3	88 08 14.0	208 05 19.0	Live Oak Point	9192.6	3.963439
	86 09 13.544	361.5	121 15 08.4	301 12 40.9	Alaqua	9081.7	3.958167
Alligator 2 1872	30 25 08.800	271.0	116 31 40.6	296 30 58.8	Live Oak Point	2462.4	3.391353
	86 13 35.277	941.6	172 42 14.3	352 41 59.4	Alaqua	6101.1	3.789655
			258 37 48.2	78 40 00.7	La Grange	7124.3	3.852740
Crigrar 1872	30 23 15.463	476.2	148 58 54.2	328 57 04.6	Alaqua	11205.0	4.049410
	86 10 28.143	751.3	202 08 27.5	22 09 05.3	La Grange	5281.9	3.722793
Blue Mountain 1872	30 20 50.499	1555.0	167 53 34.8	347 52 37.5	Alaqua	14385.4	4.157922
	86 12 11.497	307.1	206 54 28.1	26 55 58.1	La Grange	10493.2	4.026908
High 1872	30 20 21.859	673.1	188 40 01.0	8 40 03.5	Blue Mountain	892.1	2.950415
	86 12 10.530	441.5					
I 1872	30 18 13.452	414.2	109 48 04.7	289 44 36.8	High	11688.3	4.067753
	86 05 24.812	663.0					
G 1872	30 16 27.619	850.4	112 41 04.6	292 38 37.3	I	8457.4	3.927236
	86 00 32.781	870.1					
E 1872	30 14 37.401	1151.7	115 35 02.1	295 32 48.4	G	7864.6	3.895077
	85 56 07.388	197.5					
C 1872	30 12 08.282	255.0	120 06 55.0	300 04 25.9	E	9157.2	3.961764
	85 51 11.121	297.8					
Alligator Point 2 1910	30 25 17.327	533.6	260 41 19.0	80 43 31.2	La Grange	7057.7	3.848062
	86 13 34.535	921.7	307 00 41.3	127 02 15.6	Crigrar	6231.8	3.794016
Alaqua Point 2 1910	30 28 26.357	811.6	302 08 03.2	122 10 24.7	La Grange	8796.0	3.944284
	86 13 52.664	1404.8	355 14 54.4	175 15 03.6	Alligator Point 2	5840.9	3.766482
Live Oak Point 2 1910	30 25 44.780	1378.9	199 03 52.2	19 04 24.9	Alaqua Point 2	5264.4	3.721348
	86 14 57.128	1524.6	268 08 13.6	88 11 07.7	La Grange	9173.6	3.962539
			290 58 37.4	110 59 19.2	Alligator Point 2	2360.7	3.373048
Blunt 2 1910	30 28 18.514	570.1	267 55 54.0	87 58 02.3	Alaqua Point 2	6750.5	3.829335
	86 18 05.573	148.0	313 15 46.0	133 17 21.5	Live Oak Point 2	6965.7	3.839210
Four Mile Point 2 1910	30 25 23.518	724.2	192 34 31.6	12 34 54.4	Blunt 2	5521.2	3.742035
	86 18 50.038	1351.4	234 40 24.0	54 42 55.6	Alaqua Point 2	9742.0	3.988046
			263 59 09.2	84 01 07.4	Live Oak Point 2	6266.0	3.796990
Stake Point 2 1910	30 27 08.054	248.0	256 46 59.2	76 49 55.1	Blunt 2	9506.9	3.978039
	86 23 52.535	1401.7	291 45 25.6	111 48 08.6	Four Mile Point 2	8675.1	3.938275
Shaker 2 1910	30 24 37.448	1153.2	219 24 13.8	39 25 26.1	Stake Point 2	6002.8	3.778355
	86 26 15.357	409.9	242 27 05.0	62 31 13.1	Blunt 2	14735.5	4.168366
			263 09 10.7	83 12 55.9	Four Mile Point 2	11963.9	4.077608
White Point 2 1910	30 27 05.630	173.4	268 04 13.9	88 04 56.1	Stake Point 2	2223.7	3.347079
	86 25 15.836	422.5	19 11 49.2	199 11 19.1	Shaker 2	4831.6	3.684087

CHOCTAWHATCHEE BAY TO ST. ANDREWS BAY—Continued.

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Principal points—Contd</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
Cobbs Point 2 1910	30 25 05.336 86 29 17.936	104.3 478.7	240 09 13.4 279 58 53.2	60 11 18.0 100 00 25.6	White Point 2 Shaker 2	7447.0 4948.2	3.871980 3.694443
Tripod 2 1910	30 27 40.165 86 29 34.964	1236.8 932.8	278 43 37.0 316 33 19.3 354 33 18.1	98 45 48.3 136 35 00.4 174 33 26.7	White Point 2 Shaker 2 Cobbs Point 2	6994.5 7747.7 4789.3	3.844758 3.889174 3.680272
Garnier 2 1910	30 25 52.828 86 33 20.843	1626.7 556.2	241 14 33.5 282 41 44.9	61 16 28.0 102 43 47.9	Tripod 2 Cobbs Point 2	6873.7 6045.5	3.837188 3.822526
Choctawhatchee 2 1910	30 23 34.070 86 34 10.281	1049.1 274.5	197 09 30.3 224 05 42.2 250 10 24.2	17 09 55.3 44 08 01.6 70 12 52.1	Garnier 2 Tripod 2 Cobbs Point 2	4471.9 10555.1 8294.1	3.650494 4.023403 3.918769
Stevens 2 1910	30 24 18.897 86 35 15.991	581.9 426.8	226 43 38.8 308 11 45.2	46 44 37.1 128 12 18.5	Garnier 2 Choctawhatchee 2	4220.3 2232.1	3.625343 3.348713
Santa Rosa east base 1910	30 23 38.249 86 33 44.952	1177.8 1200.1	79 13 34.8 117 15 25.0 188 49 28.3	259 13 22.0 297 14 38.9 8 49 40.5	Choctawhatchee 2 Stevens 2 Garnier 2	688.3 2733.6 4193.8	2.837788 3.436738 3.622606
Santa Rosa west base 1910	30 23 42.317 86 35 01.934	1303.1 51.6	161 34 37.6 213 52 10.2 273 28 56.4 280 25 51.4	341 34 30.5 33 53 01.4 93 29 35.4 100 28 17.5	Stevens 2 Garnier 2 Santa Rosa east base Choctawhatchee 2	1187.3 4840.6 2058.9 1402.1	3.074552 3.684900 3.313637 3.146785
Exit 2 1910	30 23 42.870 86 35 44.071	1320.1 1176.6	214 02 35.1 276 10 11.6	34 02 49.3 96 10 59.1	Stevens 2 Choctawhatchee 2	1338.9 2518.4	3.126745 3.401129
Lane 2 1910	30 23 42.321 86 30 45.119	1303.2 1204.5	87 21 29.7 98 52 20.8 134 02 45.6	267 19 45.9 278 50 03.7 314 01 27.8	Choctawhatchee 2 Stevens 2 Garnier 2	5482.9 7317.9 6781.5	3.739007 3.864386 3.762039
East Pass 2 1910	30 23 06.527 86 31 02.012	201.0 53.7	99 35 27.6 144 07 08.4 202 15 05.8	279 33 52.3 324 05 58.0 22 15 14.3	Choctawhatchee 2 Garnier 2 Lane 2	5097.3 6321.1 1190.9	3.707340 3.800791 3.075877
Bar 1910	30 23 05.947 86 29 52.518	183.1 1402.4	90 33 24.0 128 34 49.2	270 32 48.9 308 34 22.6	East Pass 2 Lane 2	1855.4 1796.3	3.268447 3.254389
Saddle 1910	30 23 24.831 86 29 29.653	764.6 791.6	46 23 31.8 77 07 50.5 104 58 20.2	226 23 20.2 257 07 03.8 284 57 42.0	Bar East Pass 2 Lane 2	843.1 2529.3 2085.4	2.925866 3.403007 3.319186
<i>Supplementary points</i>							
Choctawhatchee East Pass rear range light 1910	30 23 19.699 86 29 02.172	606.6 58.0	72 31 00.3 82 47 00.9 102 09 29.2 104 18 49.7	252 30 34.8 262 46 00.3 232 09 15.3 234 12 57.6	Bar East Pass 2 Saddle Lane 2	1409.3 3225.1 750.5 2835.2	3.148991 3.508537 2.875352 3.452587
Choctawhatchee East Pass front range light 1910	30 23 17.598 86 29 04.025	541.9 107.5	74 30 51.8 83 49 53.5 108 02 00.3	254 30 27.3 263 48 53.9 288 01 47.3	Bar East Pass 2 Saddle	1343.4 3168.4 719.5	3.128221 3.500837 2.857054
East day beacon 1910	30 23 55.700 86 32 33.376	1715.2 890.9	99 21 21.2 160 38 56.5 278 06 19.7	279 19 58.9 340 38 32.5 98 07 14.6	Stevens 2 Garnier 2 Lane 2	4399.2 3822.8 2987.1	3.643371 3.582379 3.475255
West day beacon 1910	30 23 58.992 86 33 06.328	1816.6 168.8	100 03 05.9 173 41 39.8 277 44 40.5	280 09 00.3 853 41 32.5 97 45 52.1	Stevens 2 Garnier 2 Lane 2	3515.0 3520.7 3804.4	3.545928 3.547374 3.580281
Santa Rosa Sound rear range light 1910	30 24 02.616 86 35 54.703	80.5 1480.2	244 06 58.0 334 58 38.1 68 04 18.1 94 15 36.6	64 07 17.0 154 58 43.5 248 03 54.0 274 15 25.3	Stevens 2 Exit 2 Gulf 2 Burlison 2	1148.0 671.0 1369.8 597.5	3.060152 2.826741 3.136669 2.770311
Santa Rosa Sound front range light 1910	30 24 03.052 86 35 39.071	94.0 1043.0	231 37 09.0 12 07 15.7 91 45 10.5	51 37 20.8 192 07 13.2 271 44 51.3	Stevens 2 Exit 2 Burlison 2	785.9 635.0 1013.6	2.895375 2.803203 3.005849

SANTA ROSA SOUND

<i>Principal points</i>							
Entrance 1870	30 19 31.399 87 11 40.192	906.9 1073.7	86 40 52.3 166 02 28.3	266 29 47.0 346 02 09.4	Pond Fair Point 2	3460.7 4139.4	3.539158 3.616938
Deer Point 2 1870	30 20 33.063 87 10 58.294	1018.1 1550.7	30 31 28.2 65 21 15.4 81 17 45.7 91 04 30.0 135 00 41.3	210 31 07.0 245 19 48.9 261 14 30.0 271 02 03.0 315 00 01.2	Entrance Pond Fort Pickens Navy Yard wharf Fair Point 2	2204.2 5032.9 10469.9 8089.8 2995.4	3.343259 3.701818 4.019944 3.907936 3.470459
Sabine Hill 1870	30 19 43.049 87 09 25.153	1325.0 671.9	84 19 48.8 121 46 01.9	264 18 40.0 301 45 14.9	Entrance Deer Point 2	3625.2 2925.8	3.559335 3.466247

SANTA ROSA SOUND—Continued.

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Loga-rithm
<i>Principal points—Contd</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
Grassy Point 1870	30 21 03.576	110.2	348 56 02.1	168 56 11.3	Sabine Hill	2526.6	3.402538
	87 09 43.307	1156.6	47 44 00.4	227 43 01.4	Entrance	4219.5	3.625259
			64 52 10.9	244 51 33.0	Deer Point 2	2212.0	3.344785
Stumps 1871	30 21 45.301	1395.0	32 12 46.4	212 12 01.6	Sabine Hill	4449.0	3.648267
	87 07 56.372	1505.4	65 47 03.2	245 46 09.2	Grassy Point	3131.5	3.495752
Sharp 1871	30 20 02.918	89.8	161 55 20.3	341 55 00.8	Stumps	3316.4	3.520670
	87 07 17.835	476.4	79 48 39.9	259 47 35.3	Sabine Hill	3455.6	3.538523
			115 41 04.6	295 39 51.1	Grassy Point	4311.1	3.634592
Range 1871	30 20 43.726	1346.5	72 45 17.0	252 44 00.5	Sharp	4236.1	3.626963
	87 04 46.381	1238.8	110 30 11.5	290 28 35.5	Stumps	5416.7	3.733735
Creek 1871	30 22 26.025	801.4	346 40 26.2	166 46 40.2	Range	3235.9	3.509992
	87 05 14.100	370.5	36 52 29.0	216 51 26.5	Sharp	5508.1	3.740998
			73 52 15.5	253 50 53.5	Stumps	4510.9	3.654264
Marah 1871	30 22 39.292	1209.9	33 04 18.8	213 03 34.9	Range	4246.3	3.628012
	87 03 19.625	524.0	82 23 42.9	262 22 45.0	Creek	3083.8	3.489081
Bower 1871	30 21 06.572	202.4	78 12 24.3	258 11 20.6	Range	3439.4	3.539484
	87 02 40.325	1077.0	120 47 40.7	300 46 32.0	Creek	4780.0	3.679430
			159 49 16.8	339 48 57.0	Marah	3041.9	3.483143
			78 12 09.6	258 11 05.8	Range 2	3442.5	3.536867
			121 09 39.9	301 08 22.7	Creek 2	4766.5	3.678204
			160 29 58.9	340 29 39.5	Marah 2	3068.1	3.486866
Sand Hill 1871	30 21 32.425	998.5	80 01 25.5	259 59 59.9	Bower	4590.0	3.661809
	86 59 51.062	1363.6	110 18 17.6	290 16 32.2	Marah	5937.6	3.773614
Ranch 1871	30 23 12.778	393.5	11 02 20.9	191 02 09.5	Sand Hill	3148.4	3.498089
	86 59 28.488	790.5	52 49 38.7	232 48 01.7	Bower	6429.9	3.808203
			80 31 49.4	260 29 52.5	Marsh	6256.7	3.796343
Agassiz 1871	30 21 52.535	1617.7	78 29 17.1	258 28 19.6	Sand Hill	3100.7	3.491455
	86 57 57.291	1529.9	135 25 32.2	315 24 46.1	Ranch	3469.1	3.540219
Two Points 1871	30 23 29.192	898.9	1 58 43.9	181 58 41.9	Agassiz	2978.2	3.473947
	86 57 52.440	-1399.9	41 08 38.9	221 07 38.4	Sand Hill	4774.1	3.678890
			78 44 23.1	258 43 40.0	Ranch	2687.4	3.412856
Peak 1871	30 22 14.469	445.6	81 07 45.8	261 06 24.0	Agassiz	4374.5	3.640632
	86 55 15.433	412.0	118 37 12.4	296 35 52.5	Two Points	4805.4	3.681726
Deserted 1871	30 23 44.913	1383.0	6 45 13.7	186 45 07.4	Peak	2804.5	3.447854
	86 55 03.081	82.3	53 21 49.9	233 20 21.8	Agassiz	5797.4	3.763231
			83 56 10.0	263 54 43.8	Two Points	4573.6	3.660254
Cove 1871	30 22 32.932	1014.1	79 43 16.5	259 42 17.2	Peak	3183.7	3.502929
	86 53 13.117	483.7	128 20 58.0	308 20 04.9	Deserted	3573.0	3.553027
Big River 1871	30 23 51.493	1685.6	358 18 41.6	178 18 42.9	Cove	2420.2	3.383846
	86 53 20.787	554.8	45 42 05.1	226 41 07.0	Peak	4277.3	3.631165
			85 45 49.3	265 44 57.5	Deserted	2738.2	3.437472
John 1871	30 22 50.354	1550.6	79 55 40.6	259 54 43.4	Cove	3065.2	3.486453
	86 51 25.089	669.8	121 22 14.3	301 21 15.8	Big River	3617.3	3.558389
Bluff 1871	30 24 01.621	49.9	355 22 27.6	175 22 30.9	John	2201.7	3.342760
	86 51 31.739	847.2	56 07 41.5	226 06 47.6	Cove	3940.1	3.595502
			83 53 31.5	263 52 36.3	Big River	2927.6	3.466517
Eagle's Nest 1871	30 24 04.199	129.3	47 16 16.4	227 15 29.7	John	3350.8	3.525162
	86 49 52.898	1412.0	88 17 01.7	268 16 11.7	Bluff	2639.6	3.421545
Tuck 1871	30 23 08.326	256.4	83 04 43.3	283 03 17.1	John	4584.5	3.661288
	86 48 34.634	924.7	129 28 32.5	309 27 52.9	Eagle's Nest	2706.6	3.432419
Long 1871	30 24 07.943	244.6	45 33 54.0	225 33 18.5	Tuck	2621.9	3.418624
	86 47 24.509	654.2	88 20 36.1	268 19 21.0	Eagle's Nest	3962.7	3.597995
Beach 1871	30 23 25.900	797.6	82 28 50.3	262 27 32.7	Tuck	4129.4	3.615896
	86 46 01.294	34.6	120 14 20.5	300 13 38.4	Long	2571.2	3.410131
Narrows 1871	30 24 12.019	370.1	44 48 05.9	224 47 39.2	Beach	2001.3	3.301319
	86 45 08.469	226.1	88 01 48.6	268 00 39.8	Long	3633.5	3.560330
Fender 1871	30 23 35.655	1098.0	84 01 12.5	264 00 18.2	Beach	2879.7	3.459346
	86 44 14.014	374.1	127 36 39.8	307 36 12.2	Narrows	1834.9	3.263620
Field 1871	30 24 30.241	931.2	55 35 16.1	235 34 29.6	Fender	2973.7	3.473302
	86 42 42.116	1124.2	81 50 12.2	261 48 58.1	Narrows	3946.6	3.596226
Surf 1871	30 23 41.903	1290.3	87 03 50.8	267 02 39.9	Fender	3743.3	3.573249
	86 41 53.980	1441.0	139 12 05.6	319 11 41.2	Field	1966.4	3.293666
Kitrel 1871	30 24 22.747	700.5	25 46 46.9	205 46 35.4	Surf	1396.7	3.145111
	86 41 31.225	833.5	96 57 29.4	276 56 53.5	Field	1906.2	3.280177
Cut 1871	30 23 46.038	1417.7	87 04 04.3	267 03 17.3	Surf	2483.7	3.395107
	86 40 21.062	562.2	121 07 04.3	301 06 28.8	Kitrel	2187.6	3.339970

SANTA ROSA SOUND—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Principal points—Contd</i>							
						<i>Meters</i>	
Rogers 1871	30 24 23.009 86 39 17.303	708.5 461.8	56 13 30.7 89 52 48.4	236 12 58.4 269 51 40.6	Cut Kital	2047.6 3574.7	3.311249 3.553239
Pirate 1871	30 23 50.098 86 38 42.833	1542.6 1143.4	87 16 41.5 137 45 58.7	267 15 51.8 317 45 41.3	Cut Rogers	2625.2 1368.9	3.419161 3.136363
Davis 1871	30 24 16.042 86 37 55.001	494.0 1468.2	57 58 03.5 95 34 59.8	237 57 39.3 275 34 18.2	Pirate Rogers	1506.2 2207.3	3.177879 3.343865
Small 1871	30 23 50.311 86 37 34.607	1549.3 923.8	89 47 46.4 145 30 31.8	269 47 11.9 325 30 21.5	Pirate Davis	1821.3 961.3	3.260381 2.982870
Payne 1871	30 24 12.911 86 37 07.051	397.6 188.2	46 35 20.4 94 18 39.5	226 35 06.4 274 18 15.2	Small Davis	1012.6 1283.6	3.005440 3.108414
Gulf 1871	30 23 45.860 86 36 43.382	1412.2 1158.1	95 43 38.9 142 49 14.6	275 43 13.0 322 49 02.6	Small Payne	1374.3 1045.5	3.138083 3.019322
Burlison 1871	30 24 03.818 86 36 17.382	117.6 464.0	51 27 21.9 101 55 42.5	231 27 08.8 281 55 17.4	Gulf Payne	887.4 1355.1	2.948122 3.131965
Entrance 2 1910	30 19 31.358 87 11 34.740	985.6 928.1	85 00 28.6 165 44 13.7	264 59 26.3 345 43 54.8	Clapps Woods 2 Fair Point 1910	3310.1 4066.3	3.519847 3.609197
Deer Point beacon 1910	30 20 23.799 87 10 56.442	732.8 1507.6	32 21 31.6 104 23 19.3 93 04 34.1 138 58 03.0	212 21 12.2 246 12 46.5 273 02 00.1 318 57 24.7	Entrance 2 Clapps Woods 2 Navy Yard wharf Fair Point 1910	1911.6 4721.0 8149.3 3083.9	3.281391 3.674036 3.911118 3.489100
Grassy Point 2 1910	30 21 05.519 87 09 43.742	169.9 1168.2	45 38 47.1 56 30 55.2	225 37 51.0 236 30 18.5	Entrance 2 Deer Point beacon	4147.0 2328.3	3.617732 3.367033
Quarantine 1910	30 20 20.835 87 09 26.376	641.6 704.5	66 03 10.1 92 10 43.4 161 22 21.9	246 02 05.3 272 09 57.9 341 22 13.1	Entrance 2 Deer Point beacon Grassy Point 2	3752.2 2407.5 1452.0	3.574282 3.381558 3.161980
Bald 1910	30 21 55.719 87 07 18.197	1715.8 485.9	49 31 42.6 68 19 21.5	229 30 37.8 248 18 07.9	Quarantine Grassy Point 2	4500.6 4182.9	3.653273 3.621482
Sharp Point 1910	30 20 29.462 87 07 01.565	907.2 41.8	86 04 52.7 104 23 19.3 170 30 26.1	266 03 39.5 284 21 57.3 350 30 17.7	Quarantine Grassy Point 2 Bald	3877.1 4471.6 2693.0	3.588504 3.650461 3.430235
Creek 2 1910	30 22 26.645 87 05 13.082	820.5 349.3	38 46 04.1 74 05 56.2	218 45 09.3 254 04 53.0	Sharp Point Bald	4627.5 3473.9	3.665346 3.540822
Range 2 1910	30 20 43.699 87 04 46.490	1345.6 1241.7	83 04 52.0 118 42 20.7 167 22 28.8	263 03 43.8 298 41 04.2 347 22 15.4	Sharp Point Bald Creek 2	3634.3 4618.8 3248.6	3.560425 3.664528 3.511692
Marsh 2 1910	30 22 40.491 87 03 18.683	1246.8 498.8	33 06 38.3 82 03 42.1	213 05 53.9 262 02 44.3	Range 2 Creek 2	4293.3 3084.2	3.632788 3.489136
Sand Hill 2 1910	30 21 31.515 86 59 52.664	970.4 1406.4	80 16 41.4 111 07 31.3	260 15 16.7 291 05 47.2	Bower Marsh 2	4543.0 5897.1	3.657343 3.770635
Ranch 2 1910	30 23 13.216 86 59 31.976	407.0 853.7	10 00 18.7 52 13 24.4 80 33 49.1	190 00 08.2 232 11 49.2 260 31 54.5	Sand Hill 2 Bower Marsh 2	3180.0 6364.2 6136.1	3.502432 3.803743 3.787896
Agassiz 2 1910	30 21 55.692 86 57 48.736	1714.9 1301.4	77 19 49.5 130 53 59.7	257 18 46.9 310 53 07.5	Sand Hill 2 Ranch 2	3392.1 3646.6	3.530474 3.561982
Two Points 2 1910	30 23 29.758 86 57 55.974	916.3 1494.3	356 10 57.0 40 33 45.0 78 45 58.0	176 11 00.6 220 32 45.9 258 45 09.4	Agassiz 2 Sand Hill 2 Ranch 2	2903.0 4792.2 2613.1	3.462847 3.680534 3.417154
Deserted 2 1910	30 23 45.586 86 54 58.222	1403.7 1654.2	53 23 18.7 84 08 52.4	233 21 52.5 264 07 22.5	Agassiz 2 Two Points 2	5672.5 4770.2	3.753777 3.678538
Peak 2 1910	30 22 15.747 86 55 12.001	484.9 320.5	81 37 02.3 117 30 40.9 187 34 25.7	261 35 43.1 297 29 18.0 7 34 32.7	Agassiz 2 Two Points 2 Deserted 2	4230.6 4935.6 2790.8	3.626400 3.693342 3.445723
Cove 2 1910	30 22 37.473 86 53 00.603	1153.9 16.1	79 12 49.6 123 44 54.0	259 11 43.1 303 43 54.5	Peak 2 Deserted 2	3571.7 3776.2	3.552876 3.577059
Big River 2 1910	30 23 52.152 86 53 22.018	1605.9 587.8	346 02 11.4 44 41 42.0 85 30 19.3	166 02 22.2 224 40 46.9 265 29 30.6	Cove 2 Peak 2 Deserted 2	2369.6 4175.5 2576.1	3.374677 3.620710 3.410967
John 2 1910	30 23 01.941 86 51 28.442	69.8 759.3	72 58 54.2 117 01 34.1	252 58 07.6 297 00 36.7	Cove 2 Big River 2	2573.4 3403.6	3.410510 3.531933
Bluff 2 1910	30 24 02.383 86 51 31.898	73.4 851.5	357 09 42.9 42 10 26.9 83 53 24.8	177 09 44.6 222 09 42.0 263 52 29.1	John 2 Cove 2 Big River 2	1863.5 3527.7 2956.4	3.270327 3.547491 3.470766
Eagle's Nest 2 1910	30 24 05.531 86 49 52.224	170.3 1394.1	52 41 15.5 87 55 14.1	232 40 26.8 267 54 23.7	John 2 Bluff 2	3229.9 2662.4	3.509188 3.425280
Tuck 2 1910	30 23 10.109 86 48 27.154	311.3 724.9	87 02 16.2 108 05 19.1 126 55 47.7	267 00 44.5 288 03 45.7 306 55 04.7	John 2 Bluff 2 Eagle's Nest 2	4846.6 5187.9 2840.8	3.685436 3.714994 3.453436

SANTA ROSA SOUND—Continued.

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Loga-rithm
<i>Principal points—Contd</i>							
Long 2 1910	30 24 09.176	282.6	42 24 48.3	222 24 16.8	Tuck 2	<i>Meters</i> 2-63.4	3.391534
	86 47 24.921	665.3	88 22 31.0	268 21 16.5	Eagle's Nest 2	3933.6	3.594795
Beach 2 1910	30 23 25.021	770.5	82 29 13.8	262 28 07.9	Tuck 2	3507.7	3.545022
	86 46 16.897	451.1	126 49 44.7	306 49 10.3	Long 2	2268.5	3.355742
Narrows 2 1910	30 24 13.459	414.4	54 20 00.9	234 19 21.5	Beach 2	2557.8	3.407867
	86 44 59.059	1576.5	88 04 12.1	268 02 58.3	Long 2	3895.8	3.590592
Fender 2 1910	30 23 35.223	1084.6	84 23 49.8	264 22 49.2	Beach 2	3213.1	3.506925
	86 44 17.117	457.0	136 28 36.1	316 26 14.9	Narrows 2	1624.8	3.210789
Field 2 1910	30 24 28.823	887.5	57 55 20.3	237 54 30.4	Fender 2	3107.3	3.492382
	86 42 38.492	1027.4	82 49 23.8	262 48 12.7	Narrows 2	3781.8	3.577701
Surf 2 1910	30 23 42.935	1322.1	86 35 31.6	266 34 16.3	Fender 2	3682.5	3.600160
	86 41 48.200	1286.7	136 28 13.2	316 27 47.8	Field 2	1949.1	3.289831
Kitrel 2 1910	30 24 23.052	709.8	6 43 17.2	186 43 14.4	Surf 2	1243.9	3.094773
	86 41 42.746	1141.0	96 48 54.3	276 48 26.1	Field 2	1496.6	3.176671
Cut 2 1910	30 23 54.870	1689.6	81 06 03.4	261 05 18.9	Surf 2	2374.1	3.375492
	86 40 20.338	542.9	111 32 07.2	291 31 25.5	Kitrel 2	2364.7	3.373782
Rogers 2 1910	30 24 23.411	720.9	62 28 33.1	242 28 01.1	Cut 2	1901.5	3.279107
	86 39 17.167	468.2	89 50 49.5	269 49 35.8	Kitrel 2	3885.9	3.589487
Pirate 2 1910	30 23 49.443	1522.5	93 31 30.6	273 30 39.1	Cut 2	2723.3	3.435098
	86 38 38.513	1028.1	135 23 37.6	316 23 18.0	Rogers 2	1469.3	3.167097
Davis 2 1910	30 24 16.213	499.2	54 47 45.0	234 47 22.8	Pirate 2	1429.8	3.155280
	86 37 54.748	1461.4	95 45 32.3	275 44 50.6	Rogers 2	2211.1	3.344610
Small 2 1910	30 23 48.932	1506.8	90 27 46.6	270 27 09.3	Pirate 2	1967.5	3.293922
	86 37 24.811	662.4	136 25 56.2	316 25 41.1	Davis 2	1159.4	3.064260
Payne 2 1910	30 24 12.323	379.5	274 32 45.7	94 33 07.2	Gulf 2	1138.4	3.050289
	86 36 57.629	1538.3	45 12 46.9	225 12 33.1	Small 2	1022.4	3.006818
Gulf 2 1910	86 20 43.324	1157.5	94 29 46.3	274 29 17.4	Davis 2	1529.4	3.184515
	30 23 46.001	1416.5	283 12 46.5	103 13 06.0	Burlinson 2	1113.5	3.046683
Burlinson 2 1910	86 36 42.305	1129.4	333 12 54.8	153 13 02.5	Gulf 2	908.0	2.958073
	30 24 04.057	124.9	246 15 39.8	66 16 23.5	Stevens 2	2516.9	3.400867
Exit 2	86 36 17.023	454.4	273 32 41.4	93 33 10.9	Exit 2	1567.6	3.192443
	30 24 04.057	124.9	306 33 39.9	126 33 56.6	Exit 2	1095.2	3.039488
Gulf 2	86 36 17.023	454.4	60 81 04.8	230 30 52.0	Gulf 2	874.4	2.941715

PENSACOLA BAY

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Loga-rithm
<i>Principal points</i>							
Bauer Point 1889	30 19 32.363	996.6	54 02 30.9	234 01 33.2	Lagoon II	3772.9	3.576680
	87 21 03.043	81.3	89 27 57.4	269 27 08.8	Red Bluff	2680.5	3.428210
Lagoon I 1889	30 18 48.164	1493.1	76 34 54.6	256 33 47.0	Lagoon II	3681.4	3.568008
	87 20 43.324	1157.5	112 37 04.0	292 36 03.5	Red Bluff	3474.3	3.540870
Fort Pickens 1856	30 19 41.450	1276.4	168 50 30.2	338 50 20.3	Bauer Point	1459.4	3.164174
	87 17 25.702	686.6	72 44 57.7	252 43 17.9	Lagoon I	5528.7	3.742624
Pensacola L. H. 1867	30 20 45.659	1406.0	87 15 21.5	297 13 31.8	Bauer Point	5812.8	3.764384
	87 18 28.811	769.6	319 32 42.5	139 33 14.4	Fort Pickens	2568.2	3.414678
Fort McRee flagstaff 1856	30 19 32.379	997.1	44 48 47.5	224 47 39.6	Lagoon I	5096.2	3.707501
	87 18 45.007	1202.4	61 17 42.1	241 16 24.2	Bauer Point	4697.5	3.671869
Navy Yard wharf 1860	30 20 37.902	1167.1	190 51 08.1	10 51 16.3	Pensacola L. H.	2297.6	3.361274
	87 16 01.112	29.7	262 29 00.2	82 29 40.3	Fort Pickens	2136.9	3.329781
Pickens (U. S. E.) 1901	30 20 37.902	1167.1	52 26 02.0	232 25 19.3	Fort Pickens	2850.8	3.454970
	87 16 01.112	29.7	65 16 05.6	245 14 41.8	Fort McRee flagstaff	4820.5	3.683093
Bight 1870	30 19 33.889	1043.5	93 28 31.2	273 27 16.6	Pensacola L. H.	3932.1	3.596830
	87 17 26.789	715.6	143 08 52.3	323 08 21.0	Pensacola L. H.	2762.0	3.441226
Pond 1870	30 18 59.676	1837.6	229 15 21.5	49 16 04.8	Navy Yard wharf	3020.4	3.480069
	87 15 46.508	1242.6	115 53 57.8	295 53 07.7	Fort Pickens	2945.7	3.469190
Fair Point 2 1870	30 19 24.875	766.0	172 39 05.9	352 38 58.5	Navy Yard wharf	3049.7	3.484260
	87 13 49.515	1322.7	76 03 56.9	256 02 57.8	Bight	3220.4	3.507914
Lagoon 1856	30 21 41.855	1288.9	95 03 56.0	275 02 06.7	Fort Pickens	5797.8	3.763203
	87 12 17.584	469.7	122 36 59.6	302 35 53.1	Navy Yard wharf	4172.9	3.620443
Navy Yard wharf 1856	30 21 41.855	1288.9	30 12 42.2	210 11 55.8	Pond	4880.7	3.688479
	87 12 17.584	469.7	48 11 22.0	228 09 36.5	Bight	7488.8	3.874411
Fort Pickens	65 46 07.9	245 43 32.3	71 45 32.5	251 43 39.6	Fort Pickens	9026.2	3.955505
	30 20 45.087	1388.4	273 42 06.7	93 43 11.2	Navy Yard wharf	6286.2	3.798387
Fort Pickens	87 16 08.833	235.9	329 32 41.7	149 33 03.5	Fort Pickens	2273.1	3.356627

PENSACOLA BAY—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Loga-rithm
<i>Principal points—Contd</i>							
Fort McRee 1856	30 19 32.294	904.4	203 08 49.7	23 09 07.8	Lagoon	2437.8	3.387000
	87 18 44.712	1194.5	245 10 30.0	65 12 01.6	Navy Yard wharf	4814.5	3.682547
			262 23 08.7	82 23 48.6	Fort Pickens	2129.4	3.328250
Warrington west base 1856	30 20 55.098	1696.7	357 17 15.3	177 17 17.3	Fort Pickens	2270.4	3.356099
	87 17 29.724	793.8	38 09 25.3	218 08 47.4	Fort McRee	3242.5	3.510874
Warrington east base 1856	30 20 46.318	1426.3	41 52 44.2	221 52 10.3	Fort Pickens	2682.6	3.428550
	87 16 18.696	498.6	59 42 44.7	239 41 30.9	Fort McRee	4518.2	3.654968
			98 06 46.4	278 06 10.5	Warrington west base	1917.00	3.282623
Santa Rosa 2 1859	30 19 24.690	760.3	94 47 51.6	274 45 55.0	Fort Pickens	6191.2	3.791778
	87 13 34.751	928.4	119 58 45.4	299 57 31.5	Navy Yard wharf	4513.0	3.654468
Fair Point 1857	30 21 42.587	1311.4	25 09 07.3	205 08 20.6	Santa Rosa 2	4600.8	3.671249
	87 12 20.122	537.3	71 21 59.9	251 20 08.2	Navy Yard wharf	6229.0	3.794419
Bayou Grande 1856	30 22 59.292	1825.8	293 10 18.7	113 12 03.1	Fair Point	5999.0	3.778082
	87 15 46.645	1245.4	331 55 51.9	151 56 58.5	Santa Rosa 2	7488.4	3.874389
Barkley Point 1856	30 24 28.645	882.1	358 06 49.2	178 06 52.4	Fair Point	5116.2	3.708946
	87 12 26.429	705.4	62 46 30.3	242 44 49.0	Bayou Grande	6011.5	3.778982
Town Point 1856	30 22 13.021	401.0	58 19 16.8	238 18 47.9	Fair Point	1784.3	3.251469
	87 11 23.261	621.1	101 28 18.8	281 26 05.6	Bayou Grande	7175.4	3.855845
			158 00 55.7	338 00 23.7	Barkley Point	4503.9	3.653591
Emanuel Point 1856	30 25 18.040	555.5	8 25 32.8	188 25 16.8	Town Point	5759.5	3.760381
	87 10 51.656	1378.6	58 59 15.6	238 58 27.6	Barkley Point	2951.6	3.470055
Plantation Hill 1856	30 22 06.319	194.6	92 47 35.0	272 46 14.6	Town Point	4252.2	3.628612
	87 08 44.206	1180.4	126 28 11.1	308 26 18.6	Barkley Point	7376.0	3.867822
			160 03 13.4	330 02 08.9	Emanuel Point	6813.9	3.833398
Town Point 2 1860	30 22 12.740	392.3	188 09 39.2	8 09 54.5	Emanuel Point	5764.4	3.760751
	87 11 22.316	595.8	272 40 14.1	92 41 34.0	Plantation Hill	4226.6	3.625989
Barkley Point 2 1860	30 24 31.126	958.5	240 17 12.8	60 18 00.7	Emanuel Point	2915.2	3.464671
	87 12 26.526	707.9	306 54 02.8	126 55 55.3	Plantation Hill	7423.7	3.870621
			338 04 54.6	158 05 27.1	Town Point 2	4593.2	3.662113
Clapp's Woods 1889	30 19 23.462	722.4	95 09 21.9	275 07 25.5	Fort Pickens	6182.9	3.791190
	87 13 35.188	940.1	107 54 21.7	287 51 53.4	Pensacola L. H.	8241.5	3.916006
			120 28 06.0	300 26 52.3	Navy Yard wharf	4522.0	3.655328
Fair Point 3 1889	30 21 41.844	1238.5	25 38 52.7	205 38 14.0	Clapp's Woods	4726.7	3.674558
	87 12 18.605	496.8	80 06 01.7	280 02 54.6	Pensacola L. H.	10037.2	4.001611
			71 41 01.7	251 39 09.2	Navy Yard wharf	6260.2	3.796586
			65 41 58.4	245 39 23.2	Fort Pickens	9001.2	3.954298
Grande 1889	30 22 40.140	1236.0	286 56 15.3	106 58 06.8	Fair Point 3	6156.2	3.789316
	87 15 59.137	1578.8	327 34 56.6	147 36 09.3	Clapp's Woods	7173.5	3.858730
Chico 1889	30 23 42.197	1299.4	314 49 34.9	134 50 45.5	Fair Point 3	5256.2	3.720689
	87 14 38.203	1019.8	348 04 07.5	168 04 39.3	Clapp's Woods	8143.0	3.910784
			48 31 00.1	228 30 19.2	Grande	2384.5	3.460075
Harbor-master 1890	30 24 15.881	489.0	350 43 55.8	170 44 10.4	Fair Point 3	4806.0	3.681781
	87 12 47.589	1270.3	60 02 56.0	240 01 19.1	Grande	5902.6	3.771047
			70 39 09.4	250 38 13.4	Chico	3129.6	3.495495
Town Point 3 1889	30 22 11.222	345.6	62 33 24.7	242 32 51.7	Fair Point 3	1962.6	3.292822
	87 11 13.384	357.4	96 40 36.5	276 38 12.0	Grande	7981.7	3.898460
			117 08 23.1	297 06 39.4	Chico	6144.3	3.788470
			146 46 26.6	326 45 39.0	Harbor-master	4589.2	3.661736
Hickory 1890	30 23 09.140	281.4	73 23 52.4	253 21 59.2	Town Point 3	6236.2	3.794921
	87 07 29.575	789.5	103 37 50.9	283 35 10.0	Harbor-master	8734.8	3.941251
Emanuel Point 3 1890	30 25 17.157	528.3	305 45 43.6	125 47 27.3	Hickory	6742.9	3.828844
	87 10 54.515	1454.9	5 01 45.5	185 01 35.8	Town Point 3	5747.6	3.759489
			57 59 39.0	237 58 41.8	Harbor-master	3559.3	3.551368
Red Fish Point 3 1890	30 23 58.415	1798.8	67 37 43.6	247 36 33.8	Hickory	3985.0	3.600424
	87 05 11.548	308.2	92 33 42.6	272 29 51.8	Harbor-master	12185.3	4.085535
			104 51 34.5	284 48 40.9	Emanuel Point 3	9469.9	3.976347
Sand String 1890	30 26 46.197	1422.6	342 54 32.7	162 55 02.8	Red Fish Point 3	5405.2	3.732808
	87 06 11.056	295.0	17 24 49.5	197 24 09.8	Hickory	7004.7	3.846591
			70 05 42.8	250 03 19.3	Emanuel Point 3	8045.7	3.905564
			43 38 38.1	223 36 05.1	Town Point 3	11896.9	4.069070
Magnolia Bluff 1891	30 25 51.366	1581.7	256 02 43.0	76 04 52.2	Sand String	7010.3	3.845737
	87 10 26.041	604.9	292 29 07.7	112 31 46.9	Red Fish Point 3	9065.9	3.953368
			316 40 15.7	136 41 45.0	Hickory	6865.9	3.836698
Trout Crawl 1891	30 29 50.097	1542.7	4 13 58.9	184 13 50.9	Sand String	5678.4	3.754224
	87 05 55.347	1476.0	44 30 27.2	224 28 09.9	Magnolia Bluff	10304.8	4.013038
			353 50 16.9	173 50 39.0	Red Fish Point 3	10892.3	4.037121
Devils Point 2 1890	30 29 28.065	864.2	262 12 47.2	82 14 21.8	Trout Crawl	5015.0	3.700325
	87 09 01.692	45.1	317 35 09.1	137 36 35.6	Sand String	6750.1	3.829309
			18 38 27.9	198 37 45.1	Magnolia Bluff	7042.1	3.847703
			328 48 46.6	148 50 43.2	Red Fish Point 3	11863.8	4.074226

PENSACOLA BAY—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Loga-rithm
<i>Principal points—Contd</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
East Escambia 1891	30 31 58.567 87 07 54.647	1803.5 1456.8	321 11 26.8 21 05 51.7	141 12 27.4 201 05 17.7	Trout Crawl Devil's Point 2	5076.3 4967.3	3.705545 3.696124
West Escambia 1891	30 30 53.565 87 09 40.535	1649.4 1080.8	234 39 13.6 288 00 48.1 338 31 19.8	54 40 07.3 108 02 42.4 158 31 39.5	East Escambia Trout Crawl Devil's Point 2	3460.6 6314.7 2829.3	3.539156 3.800356 3.451674
East Head 1891	30 34 49.805 87 10 21.428	1533.7 571.0	323 25 09.2 351 28 33.6	143 26 23.8 171 28 54.4	East Escambia West Escambia	6565.7 7355.9	3.817281 3.866638
West Head 1891	30 32 39.078 87 11 00.663	1203.4 17.7	194 33 28.0 284 06 31.3 326 40 18.5	14 33 48.0 104 08 05.8 146 40 59.2	East Head East Escambia West Escambia	4159.2 5113.0 3888.5	3.619005 3.708679 3.589778
Gurley 1892	30 23 52.477 87 02 52.496	1615.9 1401.3	92 49 46.8 135 17 02.9	272 48 36.4 315 15 22.4	Red Fish Point 3 Sand String	3716.4 7529.8	3.570126 3.876783
White Point 3 1892	30 26 49.325 87 04 04.403	1518.9 117.5	340 34 57.4 18 48 28.0 88 22 34.2	160 35 33.8 198 47 54.0 268 21 30.0	Gurley Red Fish Point 3 Sand String	5774.0 5559.6 3380.6	3.761475 3.745044 3.529000
Rogers 1892	30 25 04.328 86 58 55.629	133.3 1484.7	70 43 46.0 111 26 46.9	250 41 46.1 291 24 10.5	Gurley White Point 3	6698.4 8851.4	3.825973 3.947012
Highland 1892	30 28 15.763 86 57 47.218	485.4 1259.6	17 12 34.9 45 09 30.3 76 12 37.0	197 12 00.2 225 06 55.7 255 09 25.8	Rogers Gurley White Point 3	6171.1 11493.2 10408.7	3.790360 4.060439 4.017395
Lowland 1894	30 26 27.107 86 57 15.581	834.7 415.8	46 20 00.8 165 50 38.6	228 19 10.1 345 50 22.5	Rogers Highland	3691.3 3450.7	3.567182 3.537908
Pond 1894	30 27 15.714 86 56 10.768	483.9 287.3	49 07 37.3 125 42 36.6	229 07 04.5 305 41 47.7	Lowland Highland	2287.1 3168.5	3.359282 3.500858
Guerrilla 1894	30 27 46.688 86 56 38.071	1437.6 1015.7	322 37 47.2 22 12 59.6	142 38 01.0 202 12 40.6	Pond Lowland	1200.1 2647.0	3.079230 3.422761
Middle beacon 1892	30 28 12.220 87 02 21.087	376.3 562.5	316 31 47.2 5 59 04.0 47 12 15.5	136 33 31.3 185 58 48.1 227 11 23.1	Rogers Gurley White Point 3	7970.5 8042.1 3756.7	3.901487 3.905372 3.574812
Escribano Point 2 1892	30 30 15.901 87 01 08.864	489.6 236.4	339 39 45.8 26 49 59.8 36 22 04.0	159 40 53.4 206 49 23.2 216 20 35.0	Rogers Middle beacon White Point 3	10231.7 4268.0 7898.6	4.009946 3.630221 3.897552
Lindsay 1892	30 30 05.419 87 02 49.443	166.9 1318.5	263 07 50.3 328 03 07.5 347 45 24.3 18 19 34.8	83 08 41.3 146 05 06.0 167 45 38.7 198 18 56.8	Escribano Point 2 Rogers Middle beacon White Point 3	2701.4 11174.6 3566.9 6360.9	3.431589 4.048233 3.552292 3.803517
Grass Point 2 1892	30 31 22.004 87 00 43.779	677.6 1167.2	18 11 28.8 54 52 09.5	198 11 16.0 234 51 05.7	Escribano Point 2 Lindsay	2142.6 4097.4	3.330948 3.612508
Eagle Point 2 1892	30 31 46.255 87 02 14.926	1424.4 397.9	287 04 36.3 327 39 33.4 16 30 41.0	107 05 22.6 147 40 06.9 196 30 23.5	Grass Point 2 Escribano Point 2 Lindsay	2542.1 3293.0 3238.6	3.405198 3.517592 3.510360
Weaver Mouth 1892	30 32 44.577 87 00 01.819	1372.7 48.5	23 44 50.3 63 09 44.8	203 44 29.0 243 08 37.2	Grass Point 2 Eagle Point 2	2777.9 3976.8	3.443715 3.599536
Robinson Point 2 1892	30 32 53.047 87 00 54.453	1633.5 1451.4	280 31 41.1 354 12 14.6 46 12 36.7	100 32 07.9 174 12 20.0 228 11 55.8	Weaver Mouth Grass Point 2 Eagle Point 2	1426.9 2818.0 2971.9	3.154403 3.449925 3.473028
Turtle Point 1892	30 33 29.432 87 00 33.198	906.4 884.8	328 48 12.4 26 49 21.6	148 48 28.4 206 49 10.8	Weaver Mouth Robinson Point 2	1614.7 1255.5	3.208094 3.098515
Yellow River 1892	30 33 48.067 86 59 26.724	1480.2 712.1	25 34 11.2 54 04 39.1 72 03 20.5	205 33 53.4 234 03 54.5 252 02 46.7	Weaver Mouth Robinson Point 2 Turtle Point	2187.3 2887.5 1862.2	3.335927 3.460516 3.270022
Bay Point 1892	30 34 11.015 87 00 08.598	339.2 229.1	302 20 30.1 356 07 00.0 26 58 44.1 27 06 44.1	122 20 51.4 176 07 03.5 206 58 20.8 207 06 31.6	Yellow River Weaver Mouth Robinson Point 2 Turtle Point	1320.8 2667.9 2694.1 1438.6	3.120844 3.426168 3.430408 3.157934
Ward's Basin 2 1892	30 34 39.101 86 59 11.789	1204.1 314.2	14 12 43.2 89 57 43.2 60 15 48.1	194 12 35.6 219 56 51.0 240 15 19.2	Yellow River Robinson Point 2 Bay Point	1621.1 4260.4 1743.4	3.209817 3.629450 3.241400
Peterson Point 2 1892	30 34 38.860 86 59 58.136	1196.6 1549.0	269 39 11.1 331 50 36.2 1 35 52.2 18 00 38.6	89 39 34.6 151 50 52.1 181 35 50.3 198 00 33.2	Ward's Basin 2 Yellow River Weaver Mouth Bay Point	1235.0 1774.0 3520.6 901.6	3.091658 3.248957 3.546516 2.956030
Shield's Point 1892	30 34 49.547 87 00 44.771	1625.7 1193.0	284 49 52.3 320 54 33.6	104 50 16.0 140 54 52.0	Peterson Point 2 Bay Point	1285.4 1528.7	3.109054 3.184331
Milligan 1892	30 35 10.611 87 01 04.174	326.8 111.2	299 03 20.7 321 05 44.5 321 26 39.1	119 03 54.3 141 06 12.7 141 26 48.8	Peterson Point 2 Bay Point Shield's Point	2012.9 2358.2 829.4	3.303832 3.372572 2.918787

PENSACOLA BAY--Continued.

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Loga-rithm
<i>Principal points--Contd</i>							
Last Point 1892	30 35 15.195	467.9	323 00 49.2	143 01 05.3	Peterson Point 2 Bay Point Shield's Point Milligan	<i>Meters</i> 1400.7	3.146348
	87 00 29.762	793.0	344 04 22.0	164 04 32.3		2055.2	3.312890
			26 51 20.7	206 51 13.0		885.2	2.947065
			81 15 02.6	261 14 45.1		927.6	2.967370
Clapps Woods 2 1910	30 19 21.988	677.4	108 22 47.5	288 20 20.7	Pensacola L. H. Navy Yard wharf	8179.8	3.912741
	87 13 38.175	1019.9	121 29 10.8	301 27 58.6		4476.9	3.650976
Fair Point 1910 1910	30 21 39.340	1211.4	28 29 26.8	208 28 43.3	Clapp Woods 2 Pickens (U. S. E.) Navy Yard wharf Pensacola L. H.	4812.0	3.682321
	87 12 12.255	327.3	65 19 41.1	245 17 02.2		9246.6	3.965983
			72 49 03.1	252 47 07.4		8398.2	3.806056
			80 41 32.4	260 38 22.1	10191.5	4.008239	
<i>Supplementary points</i>							
Fort McRee water tank 1910	30 19 34.256	1054.8	246 26 26.9	66 27 51.9	Navy Yard wharf Fair Point 1910 Pickens (U. S. E.)	4905.6	3.690698
	87 18 49.470	1321.5	260 01 08.4	70 04 29.1		11286.9	4.052576
			270 17 15.4	90 17 57.1		2208.8	3.344150
Fort McRee Cut-off rear range light 1910	30 19 31.327	964.7	191 26 07.7	11 26 16.5	Pensacola L. H. Navy Yard wharf Pickens (U. S. E.)	2335.2	3.368332
	87 18 46.146	1232.8	245 02 54.9	65 04 18.3		4861.7	3.686789
			267 51 48.5	87 52 28.6		2121.4	3.328628
Caucus Cut front range light 1910	30 19 33.422	1029.2	189 05 32.0	9 05 38.7	Pensacola L. H. Navy Yard wharf Pickens (U. S. E.)	2252.7	3.352701
	87 18 42.139	1125.7	245 12 37.2	65 13 58.5		4737.5	3.675546
			269 35 07.6	89 36 45.6	2013.0	3.303836	
Caucus Cut rear range light 1910	30 20 13.310	409.9	217 33 44.1	37 33 58.6	Pensacola L. H. Navy Yard wharf Clapps Woods 2 Pickens (U. S. E.)	1256.7	3.099214
	87 18 57.494	1535.7	260 51 22.9	80 52 52.0		4771.7	3.678670
			280 28 25.4	100 31 06.7	8675.1	3.938276	
			296 36 15.4	116 37 01.2	2710.0	3.432973	
Pensacola Bay front range light 1910	30 20 09.731	299.6	195 05 21.2	15 05 26.9	Pensacola L. H. Navy Yard wharf Pickens (U. S. E.)	1145.8	3.059121
	87 18 39.979	1067.9	258 26 06.9	78 27 27.2		4331.2	3.636604
			209 26 24.0	110 27 01.0		2245.1	3.351239
Fort Barrancas front range light 1910	30 20 43.352	1334.9	334 06 31.7	154 06 51.3	Pickens (U. S. E.) Pensacola L. H. Navy Yard wharf	2377.5	3.376128
	87 18 05.652	151.0	96 33 16.4	276 33 04.7		622.6	2.794220
			272 52 45.3	92 53 48.2		3330.6	3.522520
Fort Barrancas range tower 1910	30 20 51.858	1596.9	292 15 22.7	112 17 30.5	Clapps Woods 2 Pickens (U. S. E.) Pensacola L. H.	7300.8	3.863371
	87 17 51.100	1364.8	344 51 47.4	164 51 59.7		2487.1	3.395693
			79 16 27.3	259 16 08.3		1025.1	3.010775
Fort Pickens water tank 1910	30 19 41.678	1283.4	142 37 20.7	322 36 52.2	Pensacola L. H. Fair Point 1910 Navy Yard wharf Pickens (U. S. E.)	2479.4	3.394345
	87 17 32.457	867.0	247 01 04.6	67 03 46.4		9288.1	3.967927
			234 38 08.2	54 38 54.3		2991.8	3.475928
			327 44 18.0	147 44 20.8	283.6	2.452761	
Barrancas wharf shed ¹ 1891	30 20 41.38	1274.1	291 38 40	111 40 43	Clapps Woods Fort Pickens	6499	3.81287
	87 17 21.32	569.3	3 38 02	183 38 00		1849	3.26693
Revenue flagstaff ¹ 1891	30 20 44.50	1370.3	294 06 10	114 07 55	Clapps Woods Fort Pickens	6107	3.78583
	87 17 03.86	103.0	16 43 49	196 43 38		2027	3.30691
Fort Barrancas barracks flagstaff 1891	30 20 59.508	1832.4	260 59 29.6	81 02 05.5	Fair Point 3 Clapps Woods Fort Pickens	8345.5	3.921451
	87 17 27.263	728.1	285 29 22.2	115 31 19.4		6868.4	3.836855
			359 00 23.4	179 00 24.2		2404.0	3.380633
Warrington National ceme- tery flagstaff 1891	30 21 12.026	370.3	221 20 07.3	41 21 24.3	Chico Fair Point 3 Clapps Woods	6159.6	3.789553
	87 17 10.596	283.0	263 15 50.0	83 18 17.6		7851.7	3.894964
			300 08 30.2	120 10 19.1		6654.4	3.823112
Warrington Catholic Church spire 1891	30 20 46.380	1428.2	255 39 23.6	75 41 30.2	Fair Point 3 Clapps Woods Fort Pickens	6902.2	3.838990
	87 16 29.016	774.9	298 47 38.3	118 49 08.1		5299.0	3.724192
			37 08 27.4	217 07 58.8		2508.0	3.399333
Commandant's cupola 1891	30 20 55.021	1694.2	256 38 17.2	76 40 12.2	Fair Point 3 Clapps Woods Fort Pickens	6246.2	3.795615
	87 16 06.173	164.9	304 56 43.7	124 58 00.0		4920.8	3.692036
			43 09 48.6	223 09 08.4		3105.6	3.492146
Navy Yard flagstaff 1891	30 20 43.636	1343.7	253 44 45.8	73 46 42.2	Fair Point 3 Clapps Woods Fort Pickens	6410.0	3.806856
	87 16 09.044	241.6	300 58 58.0	121 00 15.7		4794.3	3.680726
			46 55 26.8	226 54 48.0		2803.5	3.447606
Navy Yard tallest big chim- ney 1910	30 20 47.642	1467.0	334 46 32.2	154 46 24.9	Navy Yard wharf Pickens (U. S. E.) Pensacola L. H.	3315.3	3.520521
	87 16 06.401	171.0	43 24 02.2	223 23 21.6		3125.4	3.494910
			89 05 25.5	269 04 13.6		3804.0	3.580245
Navy Yard water tank 1910	30 20 50.669	1560.3	303 28 43.5	123 30 01.6	Clapps Woods 2 Pickens (U. S. E.) Pensacola L. H.	4948.9	3.694506
	87 16 12.688	338.9	39 56 25.9	219 55 48.5		3083.4	3.489033
			87 34 46.9	267 33 38.1		3638.9	3.560971
Navy Yard derrick 1891	30 20 38.609	1188.9	251 40 45.4	71 42 36.8	Fair Point 3 Clapps Woods Fort Pickens	6199.7	3.792868
	87 15 58.995	1575.7	301 03 14.2	121 04 26.8		4484.5	3.651715
			52 46 24.0	232 45 40.3		2908.9	3.463736
Life Saving station flagstaff 1891	30 19 02.810	86.5	139 29 32.8	319 28 45.5	Navy Yard wharf Grande Fair Point 3	3851.6	3.585637
	87 14 27.445	733.2	159 54 24.2	339 53 37.9		7126.2	3.852857
			215 05 17.7	35 06 22.8		5986.4	3.777090

¹ No check on this position.

PENSACOLA BAY—Continued

Station	Latitude and longitude	Seconds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Supplementary points—Contd</i>							
Fair Point beacon 1910	30 21 51.786 87 12 40.690	1594.6 1086.6	18 24 52.6 66 59 10.1 77 40 13.7	198 24 23.5 246 57 28.8 257 37 17.8	Clapps Woods 2 Navy Yard wharf Pensacola L. H.	Meters 4861.5 5816.0 9517.4	3.686771 3.764625 3.978516
Marine railroad stack 1891	30 22 08.086 87 11 13.194	249.0 352.3	65 10 42.4 97 23 10.3 117 54 47.9	245 10 09.3 277 20 45.7 297 53 04.2	Fair Point 3 Grande Chico	1924.6 7698.6 6193.4	3.284333 3.886412 3.791928
Chico flagstaff 1891	30 23 59.458 87 14 23.508	1830.9 627.4	303 16 33.8 321 47 22.9 351 21 47.9	123 18 09.9 141 48 26.1 171 22 12.3	Town Point 3 Fair Point 3 Clapps Woods	6072.4 5392.4 8596.1	3.783361 3.731783 3.934303
Chico white chimney 1891	30 24 00.735 87 14 22.194	22.6 592.4	303 46 06.3 322 20 24.0 351 37 58.2	123 47 41.8 142 21 26.5 171 38 22.0	Town Point 3 Fair Point 3 Clapps Woods	6064.9 5401.8 8629.8	3.782822 3.732542 3.936002
Clump 1891	30 23 52.64 87 14 44.19	1620.9 1179.6	299 00 38 316 00 28	119 02 25 136 01 42	Town Point 3 Fair Point 3	6436 5597	3.80865 3.74798
Pensacola: Stevedores flagstaff 1891	30 24 23.530 87 13 03.317	724.6 88.6	346 30 50.5 5 15 53.2 55 51 49.2 63 19 36.8	166 31 13.1 185 15 37.1 235 50 20.3 243 18 48.8	Fair Point 3 Clapps Woods Grande Chico	5119.9 9279.1 5671.6 2834.7	3.709263 3.967506 3.753707 3.452510
Scandinavian Church spire 1891	30 24 17.615 87 12 47.968	542.4 1280.4	327 01 04.1 350 42 57.3 69 40 18.4	147 01 52.0 170 43 12.1 249 39 22.6	Town Point 3 Fair Point 3 Chico	4639.4 4800.3 3138.3	3.666465 3.686685 3.496690
Post Office north flagstaff 1891	30 24 33.729 87 12 53.490	1038.6 1427.8	328 39 02.5 350 01 03.8 60 25 24.9	148 39 53.1 170 01 21.4 240 24 31.9	Town Point 3 Fair Point 3 Chico	5138.0 5374.2 3214.2	3.710793 3.730311 3.507073
Episcopal Church spire 1856	30 24 32.514 87 12 36.670	1001.2 978.8	354 45 19.3 57 23 12.1 64 28 46.3	174 45 28.4 237 21 29.7 244 27 44.8	Fair Point 3 Grande Chico	5277.5 6417.9 3595.2	3.722429 3.807390 3.557222
Colored Church spire 1856	30 24 39.656 87 12 38.316	1221.1 1022.7	354 30 31.5 8 52 09.3 55 32 42.2 61 04 14.3	174 30 41.4 188 51 40.4 235 31 00.6 241 03 13.6	Fair Point 3 Clapps Woods Grande Chico	5500.06 9854.3 6502.7 3656.8	3.740410 3.993625 3.813094 3.565096
Wright's mill chimney ¹ 1891	30 24 43.29 87 12 11.36	1332.9 303.1	248 29 18 291 03 26	68 32 21 111 05 49	Sand String Hickory	10333 8061	4.01424 3.90641
Muscogee outer gable ¹ 1891	30 24 37.36 87 11 42.86	1150.4 1143.8	276 31 18 291 52 14	96 34 36 111 54 22	Red Fish Point 3 Hickory	10514 7287	4.02176 3.86253
Ice Works tall chimney 1891	30 24 53.484 87 12 45.946	1647.1 1226.3	352 56 48.2 7 22 33.0 51 29 15.5	172 57 02.0 187 22 08.1 231 27 37.8	Fair Point 3 Clapps Woods Grande	5946.1 10247.0 6592.2	3.774234 4.010598 3.819029
Railroad station cupola 1891	30 25 03.088 87 12 48.599	95.1 1297.1	334 20 19.5 352 38 06.6 6 47 12.8	154 21 07.7 172 38 21.8 186 46 49.3	Town Point 3 Fair Point 3 Clapps Woods	5871.1 6248.5 10531.9	3.768717 3.795773 4.022505
Herron's house cupola 1891	30 25 08.871 87 13 01.705	273.2 45.5	332 07 51.4 349 45 56.9 4 48 26.2	152 08 46.2 169 46 18.7 184 48 09.3	Town Point 3 Fair Point 3 Clapps Woods	6187.6 6478.0 10673.7	3.791524 3.811440 4.028313
Standpipe 1891	30 25 17.717 87 13 03.286	545.6 87.7	349 49 26.3 28 52 04.5 44 03 49.0	169 49 48.9 208 50 34.6 224 02 20.1	Fair Point 3 Navy Yard wharf Grande	6753.6 9837.8 6761.3	3.829534 3.992898 3.829889
Wells' chimney ¹ 1891	30 25 21.15 87 12 07.45	651.2 198.8	298 42 16 346 08 01	118 44 36 166 08 28	Hickory Town Point 3	8458 6024	3.92727 3.77987
Oak 1891	30 25 11.891 87 11 43.278	366.1 1155.1	299 09 00.8 351 50 05.7 8 17 55.1	119 11 09.1 271 50 20.8 188 17 37.2	Hickory Town Point 3 Fair Point 3	7755.6 5020.3 6536.4	3.889618 3.749760 3.815337
Jose ¹ 1891	30 25 19.14 87 11 08.15	589.3 217.4	304 26 21 1 23 05	124 28 11 181 23 02	Hickory Town Point 3	7076 5788	3.84976 3.76254
Magnolia wharf ¹ 1890	30 25 55.71 87 10 18.13	1715.5 483.8	318 43 59 12 02 57	138 45 25 192 02 29	Hickory Town Point 3	6823 7068	3.83395 3.84931
Magnolia wharf flagstaff 1890	30 25 55.800 87 10 18.347	1718.3 489.6	197 22 03.3 256 44 53.1 318 42 44.5	17 22 42.0 76 46 58.4 138 44 08.0	Devils Point 2 Sand String Hickory	6848.8 6778.6 6828.7	3.835013 3.831142 3.834336
Bohemia shingle mill stack 1891	30 28 45.872 87 09 45.229	1412.6 1206.4	221 47 02.9 252 06 19.1 320 27 28.9	41 47 24.9 72 08 15.7 140 29 47.5	Devils Point 2 Trout Crawl Red Fish Point 3	1742.6 0442.1 11475.4	3.241186 3.809025 4.059766
Bohemia round brick chimney 1891	30 28 49.967 87 09 44.706	1538.7 1192.4	224 21 24.8 253 08 35.2 303 45 21.3 320 54 33.1	44 21 46.6 73 10 31.5 123 47 09.6 140 56 51.5	Devils Point 2 Trout Crawl Sand String Red Fish Point 3	1640.9 6391.1 6856.4 11564.1	3.215072 3.806574 3.836098 4.063112

¹ No check on this position.

PENSACOLA BAY—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Loga-rithm
<i>Supplementary points—Contd</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
Devils Point red beacon 1891	30 29 17.677 87 08 03.067	544.3 81.8	101 33 59.4 182 35 38.7 253 39 21.3 327 20 59.2 335 01 32.2	281 33 29.7 2 36 43.0 73 40 26.2 147 21 56.0 155 02 58.5	Devils Point 2 East Escambia Trout Crawl Sand String Red Fish Point 3	1595.9 4959.5 3549.4 5539.5 10844.2	3.203002 3.695436 3.550159 3.743474 3.035196
Devils Point old beacon 1891	30 29 27.387 87 08 25.331	843.3 675.5	91 14 12.2 189 57 54.9 260 04 20.4 324 10 31.2	271 13 53.8 9 58 10.5 80 05 36.6 144 11 39.4	Devils Point 2 East Escambia Trout Crawl Sand String	969.0 4726.7 4060.5 6121.0	2.986746 3.674562 3.608582 3.786822
Escambia trestle northeast chimney 1891	30 31 15.145 87 09 03.670	466.4 97.9	55 56 24.2 233 59 26.9 297 31 51.1 359 05 00.4	235 56 05.5 54 00 01.9 117 33 26.7 179 05 01.4	West Escambia East Escambia Trout Crawl Devils Point 2	1186.5 2274.6 5663.4 3297.8	3.074251 3.356912 3.753080 3.518224
Skinner's sawmill stack ¹ 1891	30 31 11.91 87 10 28.15	366.7 750.6	162 06 32 250 38 38	342 06 18 70 39 56	West Head East Escambia	2821 4337	3.45036 3.63722
Skinner's planing mill stack ¹ 1891	30 31 11.62 87 10 21.34	357.9 568.8	158 43 57 249 42 07	338 43 37 69 43 21	West Head East Escambia	2890 4169	3.46090 3.62006
Lone chimney ¹ 1891	30 32 00.00 87 11 21.75	0.0 579.8	205 01 07 270 25 58	25 01 18 90 27 43	West Escambia East Escambia	1329 5521	3.12356 3.74203
Wreck 1891	30 32 23.966 87 10 39.683	738.0 1057.7	186 10 53.4 280 04 08.4 330 28 00.0	6 11 02.7 100 05 32.3 150 28 30.0	East Head East Escambia West Escambia	4517.2 4468.3 3199.4	3.654873 3.650146 3.505062
Leaning chain house, higher gable 1891	30 32 24.216 87 09 48.517	745.7 1293.3	103 23 32.0 168 55 58.7 284 34 36.6 355 38 24.3	283 22 55.4 348 55 42.0 104 35 34.4 175 38 28.4	West Head East Head East Escambia West Escambia	1976.8 4568.3 3136.5 2709.6	3.295964 3.659750 3.496444 3.447092
Chain house, east gable 1891	30 33 03.976 87 09 42.456	122.4 1131.6	69 48 43.2 162 19 30.0 305 01 08.8 359 16 08.5	249 48 03.5 342 19 16.3 125 02 03.6 170 16 09.5	West Head East Head East Escambia West Escambia	2221.0 3420.4 3509.3 4016.2	3.346556 3.534073 3.545219 3.603812
White Point beacon 1892	30 26 01.529 87 02 42.044	47.1 1121.9	286 14 09.4 4 00 58.5 123 49 02.1	106 16 04.1 184 00 53.2 303 48 20.4	Rogers Gurley White Point 3	6293.9 3993.7 2644.9	3.798919 3.600267 3.422415
Escribano Point beacon 1892	30 31 13.913 87 01 44.412	428.4 1184.1	281 14 01.8 332 02 52.1 39 25 42.3 140 45 32.3	81 14 32.6 152 03 10.1 219 25 09.4 320 45 16.8	Grass Point 2 Escribano Point 2 Lindsay Eagle Point 2	1635.6 2022.3 2730.4 1286.0	3.213686 3.305844 3.436233 3.109225
Two Trees 1892	30 31 38.004 87 00 11.778	1170.3 314.0	59 59 40.5 153 47 36.4 187 22 40.2	239 59 24.3 333 47 14.8 7 22 45.3	Grass Point 2 Robinson Point 2 Weaver Mouth	985.2 2575.7 2067.2	2.993521 3.410889 3.315372
Catfish Point 1892	30 31 59.401 87 00 11.486	1829.2 306.2	36 46 57.6 145 16 10.0 190 29 36.1	216 46 41.2 325 15 48.2 10 29 41.0	Grass Point 2 Robinson Point 2 Weaver Mouth	1437.8 2010.1 1414.8	3.157704 3.303228 3.150697
Scaffold 1892	30 33 00.542 86 59 54.527	16.7 1453.4	23 24 02.8 58 34 28.9 81 46 53.8	203 23 37.8 238 83 17.6 261 46 23.4	Grass Point 2 Eagle Point 2 Robinson Point 2	3306.2 4386.3 1613.8	3.519333 3.642098 3.207860
Mill chimney 1892	30 34 10.819 87 00 07.007	333.2 186.7	303 07 39.4 357 01 09.8 27 50 10.8	123.07 59.9 177 01 12.4 207 49 46.6	Yellow River Weaver Mouth Robinson Point 2	1281.9 2659.3 2708.2	3.107854 3.424772 3.432685
Shingle mill stack ¹ 1892	30 35 26.17 87 01 28.62	806.0 762.5	282 09 38 306 20 13	102 10 08 126 20 25	Last Point Milligan	1604 809	3.20527 2.90778
Oak ¹ 1892	30 35 41.98 87 01 43.47	1292.7 1158.1	292 46 48 312 41 45	112 47 26 132.42 05	Last Point Milligan	2130 1424	3.32835 3.15365
Dry dock derrick 1892	30 36 05.303 87 01 33.748	163.2 899.1	312 08 48.3 330 46 35.5 334 55 36.2	132 09 20.8 150 47 00.4 154 55 51.2	Last Point Shields Point Milligan	2299.3 2072.9 1859.3	3.361592 3.426988 3.269361

PERDIDO BAY.

<i>Principal points</i>							
Cotton (Ala.) 1889	30 16 20.852 87 34 02.802	642.1 74.9	74 02 25.4	254 00 48.9	Azimuth V	5321.57	3.726040
Perdido Range (Ala.) 1889	30 16 45.586 87 32 52.994	1403.6 1416.3	67 47 59.7	247 47 24.5	Cotton	2015.3	3.304332
Johnson (Ala.) 1889	30 17 36.265 87 32 45.835	1116.7 1224.8	6 59 25.1 41 32 26.0	186 59 21.5 221 31 47.2	Perdido Range Cotton	1572.2 3102.2	3.196512 3.491667
Perdido III 1889	30 16 56.892 87 30 49.652	1751.9 1327.0	83 58 47.7 111 20 14.9	263 57 45.5 291 19 16.3	Perdido Range Johnson	3314.8 3333.2	3.520460 3.522866

¹ No check on this position.

PERDIDO BAY—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Principal points—Contd</i>							
Bear Point (Ala.) 1889	30 18 03.401 87 30 52.452	104.7 1401.6	357 54 26.9 53 21 56.8 74 35 23.5	177 54 28.3 233 20 56.0 254 34 26.3	Perdido III Perdido Range Johnson	<i>Meters</i> 2049.3 4024.0 3142.9	3.311614 3.604663 3.497334
Perdido II 1889	30 17 18.074 87 28 53.751	556.6 1436.5	78 07 00.4 113 45 29.9	258 06 01.9 293 44 30.0	Perdido III Bear Point	3165.4 3465.5	3.500432 3.539767
Hummock 1889	30 18 50.531 87 28 40.795	1556.0 1090.0	6 56 02.1 44 32 50.4 87 35 26.3	186 55 55.6 224 31 45.4 247 34 19.9	Perdido II Perdido III Bear Point	2867.9 4909.3 3805.4	3.457571 3.691016 3.580397
Goat 1889	30 17 55.764 87 30 12.800	1717.1 342.0	63 13 40.7 102 31 03.3 235 32 35.8	243 12 19.9 282 30 43.3 65 33 22.2	Perdido Range Bear Point Hummock	4795.5 1085.3 2981.2	3.680836 3.035557 3.474390
Perdido I 1889	30 17 29.512 87 27 50.276	908.8 1343.5	78 16 32.2 151 35 11.1	258 16 00.2 331 34 45.6	Perdido II Hummock	1732.5 2836.6	3.238666 3.452796
Nelson 1889	30 18 49.862 87 28 51.527	1535.4 1376.6	32 23 53.0 49 08 07.2 72 48 13.0 90 24 43.2	212 23 23.4 229 07 05.6 252 46 31.5 270 23 48.1	Perdido I Perdido II Goat Hummock	2930.2 4319.1 5630.0 2919.4	3.466894 3.635394 3.750511 3.465300
Lagoon III 1889	30 17 50.644 87 25 17.671	1559.5 472.3	80 56 40.5 126 01 41.3	260 55 23.5 306 00 53.9	Perdido I Nelson	4129.6 3100.7	3.615911 3.491457
Piney 1889	30 18 47.178 87 25 03.147	1452.8 84.1	12 34 05.8 61 50 29.9 91 38 33.9	192 33 58.5 241 49 05.6 271 37 39.2	Lagoon III Perdido I Nelson	1783.5 5065.8 2896.8	3.251285 3.704652 3.461924
Lagoon II 1889	30 18 20.402 87 22 57.340	628.3 1532.2	76 16 40.5 103 47 26.0	256 15 29.7 283 46 22.5	Lagoon III Piney	3860.1 3461.1	3.586599 3.539209
Red Bluff 1889	30 19 31.541 87 22 43.376	971.3 1158.8	9 39 58.2 53 00 27.5 69 54 57.0	189 39 51.1 232 59 09.6 249 53 46.4	Lagoon II Lagoon III Piney	2222.1 5162.1 3976.2	3.346764 3.712828 3.599464
Inerarity west 1889	30 19 00.198 87 29 50.925	6.1 1360.5	16 24 57.5 43 13 54.1	196 24 46.5 223 13 23.1	Goat Bear Point	2068.4 2400.3	3.315637 3.380259
Rockwood (Ala.) 1889	30 18 32.651 87 30 52.836	4005.4 1411.7	242 50 48.8 318 42 50.6 359 20 48.0	62 51 20.0 136 43 10.8 179 20 48.2	Inerarity west Goat Bear Point	1858.9 1560.3 900.7	3.269265 3.193212 2.954603
Ross (Ala.) 1889	30 19 11.426 87 30 59.070	351.8 1602.2	280 36 39.3 331 35 09.6 350 55 47.7	100 37 14.1 151 35 33.4 170 55 51.3	Inerarity west Goat Rockwood	1876.7 2648.9 1209.1	3.273406 3.423062 3.082460
Red Bluff (Ala.) 1889	30 20 36.755 87 29 07.877	1131.8 210.4	312 05 37.2 347 31 34.9 21 08 51.7 30 37 00.6 48 44 27.3	132 06 46.0 167 31 48.6 201 08 30.1 210 36 08.0 228 43 30.9	Nelson Hummock Hummock Inerarity west Bear Point Ross	4909.3 3350.0 3187.9 5486.7 5486.7 3983.7	3.691018 3.525041 3.503499 3.739310 3.739310 3.600282
Manuel (Ala.) 1889	30 21 37.485 87 27 50.363	1154.3 1845.0	343 03 41.5 14 41 11.8 33 37 41.6 36 26 05.0 47 54 46.5	163 04 11.2 194 40 46.3 213 36 40.8 216 24 33.1 227 54 06.4	Nelson Hummock Hummock Inerarity west Bear Point Red Bluff	5395.5 5314.5 5816.2 8192.5 2789.8	3.732035 3.725466 3.764636 3.913417 3.445566
Dupont 1889	30 21 56.308 87 26 25.998	1733.9 694.2	6 46 30.4 32 11 43.3 45 16 51.2 55 15 55.4 60 28 26.2 75 34 41.1	186 46 17.5 212 10 35.3 225 15 07.9 235 13 37.3 240 27 04.5 255 33 58.5	Nelson Hummock Hummock Inerarity west Ross Red Bluff Manuel	5781.6 6759.3 7705.1 8906.6 4969.0 2326.3	3.762045 3.829904 3.896777 3.949709 3.696270 3.366660
Suarez (Ala.) 1889	30 22 54.134 87 27 02.933	1667.0 78.3	331 01 00.5 28 13 14.2	151 01 19.2 208 12 50.2	Dupont Manuel	2035.5 2878.6	3.308671 3.427900
Nix 1890	30 23 26.709 87 25 43.573	822.5 1163.3	23 08 42.8 45 11 45.9 64 40 14.9	202 08 21.4 225 10 41.9 244 39 34.8	Dupont Manuel Suarez	3005.4 4772.1 2344.2	3.477898 3.678710 3.369997
Chagrin (Ala.) 1890	30 24 16.026 87 26 13.626	493.5 363.7	332 09 04.2 4 23 27.5 27 34 02.8	152 09 19.4 184 23 21.3 207 33 37.9	Nix Dupont Suarez	1717.5 4315.0 2844.6	3.234898 3.634981 3.454021
Cummings 1890	30 24 07.334 87 25 24.303	225.8 915.7	11 11 23.0 18 53 17.3 46 23 42.8 104 18 29.4	191 11 18.3 198 52 51.2 226 22 58.0 284 18 09.5	Nix Dupont Suarez Chagrin	1275.2 4264.2 3267.9 1083.2	3.105579 3.629940 3.514270 3.034723
Grassy (Ala.) 1890	30 25 23.150 87 23 58.484	712.9 1560.8	47 01 45.4 47 36 53.6 60 11 41.1	227 00 12.1 227 36 05.1 240 10 32.7	Suarez Cummings Chagrin	6730.4 3462.8 4157.2	3.828038 3.539430 3.618806
Double 1890	30 24 40.782 87 23 29.456	1255.8 786.1	72 50 02.2 80 08 34.8 149 17 57.2	252 48 59.0 260 07 11.8 329 17 42.5	Cummings Chagrin Grassy	3488.0 4447.8 1517.4	3.542575 3.648148 3.181088
River East 1890	30 27 13.511 87 22 57.941	416.0 1545.9	10 08 26.0 25 25 46.9	190 08 10.0 205 25 18.2	Double Grassy	4777.6 3762.8	3.679211 3.575610

PERDIDO BAY—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Loga-rithm
<i>Principal points—Contd</i>							
River West (Ala.) 1890	30 26 47.335 87 23 18.701	1457.6 499.0	214 29 39.8 4 12 46.5 22 16 21.6	34 29 50.3 184 12 41.0 202 16 01.3	River East Double Grassy	978.0 3907.5 2801.3	2.990337 3.591902 3.447353
Boom 1891	30 27 08.692 87 24 00.908	267.7 24.2	264 56 52.9 300 16 54.5	84 57 24.8 120 17 15.9	River East River West	1686.5 1304.1	3.226983 3.115308
Squid (Ala.) 1891	30 27 01.259 87 24 09.194	38.8 245.3	224 00 20.2 258 46 14.1 287 39 04.0	44 00 24.4 78 46 50.2 107 39 29.6	Boom River East River West	318.2 1938.1 1413.8	2.502711 3.287377 3.150387
Juniper (Ala.) 1891	30 27 14.003 87 24 29.765	431.2 796.1	281 59 28.5 305 33 50.7	101 59 43.1 125 34 01.1	Boom Squid	787.1 874.7	2.896016 2.829111
Hirse 1891	30 27 33.054 87 24 33.722	1017.8 899.6	310 35 32.3 326 14 25.8 349 47 53.6	130 35 48.9 146 14 38.2 169 47 55.6	Boom Squid Juniper	1152.9 1177.6 596.1	3.061798 3.071012 2.775302
Hard 1891	30 27 36.924 87 24 54.678	1137.0 1464.2	282 01 55.1 316 43 07.3	102 02 05.7 136 43 19.9	Hirse Juniper	571.6 2.986559	2.757123 2.986559
Wire (Ala.) 1891	30 27 33.799 87 25 03.308	1040.8 88.2	247 18 57.4 271 39 46.8 304 15 34.5	67 19 01.8 91 40 01.8 124 15 51.5	Hard Hirse Juniper	249.5 789.7 1082.8	2.397139 2.897437 3.034553
Steamboat 1891	30 27 58.030 87 25 16.770	1787.0 447.4	317 47 48 334 17 52	137 47 59 154 17 58	Hard Wire	877.3 828.1	2.94317 2.91807
Roots (Ala.) 1891	30 28 08.606 87 25 44.957	265.0 1199.3	293 25 02 306 01 38 313 58 04	113 25 17 126 02 04 133 58 25	Steamboat Hard Wire	819.4 1658.6 1543.8	2.91350 3.21973 3.18858
Kee 1891	30 28 12.344 87 25 40.291	380.1 1074.8	305 05 16 311 52 11 320 15 54 47 14 16	125 05 28 131 52 33 140 16 11 227 14 13	Steamboat Hard Wire Roots	766.8 1634.1 1543.4 169.5	2.88467 3.21327 3.18848 2.22927
Alabama Cut-off (Ala.) 1891	30 28 28.393 87 25 54.199	874.3 1445.7	323 06 12 337 58 15	143 06 19 157 58 19	Kee Roots	618.0 657.3	2.79096 2.81776
Florida Cut-off 1891	30 28 32.796 87 25 45.342	1009.9 1209.5	347 55 25 359 12 35 60 08 43	167 55 28 179 12 35 240 08 39	Kee Roots Alabama Cut-off	644.1 745.0 272.4	2.80892 2.87214 2.43521
Titi (Ala.) 1891	30 28 45.514 87 26 09.699	1401.5 258.7	301 04 51 321 53 53	121 05 03 141 54 01	Florida Cut-off Alabama Cut-off	758.6 670.0	2.88000 2.82607
Bay 1891	30 28 46.825 87 26 05.486	1441.9 146.3	308 47 55 332 03 31 70 14 48	128 48 05 152 03 36 250 14 46	Florida Cut-off Alabama Cut-off Titi	689.4 642.5 119.4	2.83848 2.80786 2.07701
Log (Ala.) 1891	30 28 58.436 87 26 05.795	1799.4 154.6	358 40 41 14 39 52	178 40 41 194 39 50	Bay Titi	357.6 411.3	2.55345 2.61416
Goat 2 1911	30 17 56.004 87 30 15.868	1724.5 424.0	81 23 10.3 200 08 46.6 236 31 49.1 275 08 50.7	261 21 54.6 20 09 20.9 56 32 37.1 95 08 52.3	Johnson Red Bluff Hummock Goat	4053.3 5272.7 3045.1 82.32	3.607809 3.722035 3.483597 1.915505
Ross 2 1911	30 19 12.494 87 31 01.163	384.7 30.8	229 22 47.8 332 48 25.6	49 23 45.0 152 48 48.5	Red Bluff Goat 2	3986.0 2647.9	3.600537 3.422908
Inerarity west 2 1911	30 18 59.392 87 29 50.470	1828.9 1348.4	200 46 45.3 19 10 23.3 102 03 52.6	20 47 06.7 199 10 10.5 282 03 16.9	Red Bluff Goat 2 Ross 2	3206.7 2068.5 1931.0	3.506960 3.315236 3.285784
Bear Point 2 1911	30 18 03.558 87 30 54.114	109.6 1446.0	211 01 31.2 224 40 50.5 247 53 27.0 282 49 11.5 74 17 07.9	31 02 24.7 44 41 22.6 67 54 34.3 102 49 30.8 254 16 11.5	Red Bluff Inerarity west 2 Hummock Goat 2 Johnson	5505.3 2418.2 3844.7 1048.1 3101.5	3.740783 3.383490 3.584857 3.020404 3.491567
Inlet 1911	30 17 03.169 87 31 31.279	97.6 835.9	117 05 39.0 208 06 15.6 216 57 41.2 231 04 50.3	297 05 01.4 28 06 34.4 36 58 32.0 51 05 28.4	Johnson Bear Point 2 Inerarity west 2 Goat 2	2238.0 2108.1 4479.3 2590.0	3.349853 3.323900 3.651211 3.413300
Ala (Ala.) 1011	30 16 43.910 87 33 03.785	1352.1 101.2	196 34 10.7 234 42 08.7 256 30 18.4	16 34 19.7 54 43 14.1 78 31 05.0	Johnson Bear Point 2 Inlet	1682.0 4245.4 2542.5	3.225824 3.627921 3.405255
<i>Supplementary points</i>							
Main Shore 1 1871	30 19 30.375 87 21 04.028	935.3 107.6	240 46 42.7 269 02 18.7	60 48 01.1 89 03 28.9	Pensacola L. H. Fort McRee flagstaff	4750.2 3714.4	3.676711 3.569887
West Beach 2 1871	30 18 27.948 87 22 17.388	860.6 464.6	225 32 59.2 235 12 19.9 250 42 44.6	45 33 36.2 55 14 15.3 70 44 31.8	Main Shore 1 Pensacola L. H. Fort McRee flagstaff	2745.3 7434.2 6011.0	3.438589 3.871286 3.778946
North Range	30 16 41.715 87 32 39.470	1284.5 1054.9	95 56 19.8 174 13 02.7 250 04 14.9	275 56 07.6 354 12 59.5 70 04 49.3	Ala Johnson Inlet	653.4 1688.3 1938.5	2.815164 3.227452 3.287471

PERDIDO BAY—Continued

Station	Latitude and longitude	Sec- onds in meters	Azimuth	Back azimuth	To station	Distance	Loga- rithm
<i>Supplementary points— Continued</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
South Range	30 16 40.737 87 32 38.872	1254.4 1038.9	98 21 02.3 173 47 20.8 249 04 13.0	278 20 49.8 353 47 16.8 69 04 47.1	Ala Johnson Inlet	673.0 1719.9 1934.1	2.828005 3.235315 3.280472
Ono 1911	30 16 56.854 87 32 31.886	1750.7 852.2	64 56 47.7 162 55 29.5 231 49 17.5	244 56 31.6 342 55 22.4 61 50 06.8	Ala Johnson Bear Point 2	941.1 1269.6 3323.5	2.973642 3.103647 3.521597
Tarkill 1889	30 20 05.762 87 25 56.180	177.4 1500.7	62 13 56.6 78 22 18.9 100 34 16.5	242 12 33.5 258 19 45.7 280 32 39.7	Hummock Rosa Red Bluff	4970.5 8296.1 5208.5	3.696398 3.918349 3.716716
Bend 1890	30 22 34.644 87 25 29.448	1066.8 786.2	51 58 00.5 64 56 07.4 103 31 54.5 159 19 27.5	231 57 31.9 244 54 55.2 283 31 07.2 339 19 05.1	Dupont Manuel Suarez Chagrin	1915.8 4153.1 2566.1 3336.8	3.282353 3.618376 3.409279 3.523336
Fell (Ala.) 1890	30 24 00.169 87 26 52.886	5.2 1411.7	263 59 23.3 299 06 19.7 349 20 19.1 7 30 55.6	84 00 03.1 119 06 54.8 169 20 32.8 187 30 50.5	Cummings Nix Dupont Suarez	2109.2 2117.8 3881.0 2051.0	3.324125 3.325895 3.588946 3.311974
May (Ala.) 1890	30 25 04.853 87 25 17.104	140.2 456.5	284 17 08.4 14 36 18.6 45 16 40.0	104 18 02.9 194 36 09.9 225 16 11.4	Double Cummings Chagrin	2964.9 1820.8 2123.4	3.472009 3.260256 3.327035
Cove 1890	30 23 53.43 87 24 19.36	1645.3 516.8	191 24 08 222 24 38	11 24 18 42 25 03	Grassy Double	2818.5 1975.1	3.45002 3.29559
Fish house southeast gable (Ala.) 1890	30 24 59.65 87 25 50.74	1836.7 1354.2	278 45 00 344 46 05	98 46 11 164 46 13	Double Cummings	3815.3 1669.6	3.58153 3.22282
Powell 1890	30 24 59.975 87 21 45.746	1846.7 1221.0	77 57 17.3 101 23 56.4 143 07 28.6 154 54 06.0	257 56 24.8 281 22 49.2 323 06 41.7 334 53 29.5	Double Grassy River West River East	2830.4 3618.8 4133.1 4540.9	3.451853 3.557960 3.616276 3.657143
Head 1890	30 26 51.322 87 21 12.634	1580.4 337.1	14 27 12.8 42 15 33.9 58 28 58.7 87 55 06.9 103 40 32.2	194 26 56.0 222 14 24.6 238 27 34.7 267 54 03.2 283 39 38.8	Powell Double Grassy River West River East	3540.8 5430.5 5192.1 3365.9 2891.5	3.549096 3.734837 3.715343 3.527099 3.461127
Hester 1890	30 24 52.170 87 22 14.553	1606.5 388.4	80 03 24.5 108 59 13.2 154 14 14.0 252 38 15.4	260 02 46.6 288 58 20.6 334 13 41.7 72 38 30.0	Double Grassy River West Powell	2029.7 2933.3 3937.9 805.5	3.307439 3.467356 3.595262 2.906085
Marcus 1890	30 26 10.618 87 20 36.730	327.0 980.2	40 15 32.9 59 02 35.8 74 49 30.7 104 40 17.8	220 14 57.9 239 01 08.2 254 47 48.4 284 38 55.8	Powell Double Grassy River West	2850.4 5376.0 5578.9 4467.3	3.454899 3.730462 3.746550 3.650046
Millview Seminole Mill smokestack 1890	30 25 12.469 87 21 23.325	384.0 622.4	73 50 41.9 94 33 09.3 133 30 12.9 185 21 12.4	253 49 38.0 274 31 50.7 313 29 14.6 5 21 17.8	Double Grassy River West Head	3505.0 4154.0 4244.2 3057.3	3.544685 3.618463 3.627791 3.485344
Millview schoolhouse flag- staff 1890	30 25 23.327 87 20 43.320	718.3 1166.1	121 58 14.5 133 22 30.0 163 53 56.9	301 56 55.8 313 21 21.8 343 53 42.0	River West River East Head	4887.1 4941.2 2820.3	3.689051 3.698633 3.450291

¹ No check on this position.

DESCRIPTIONS OF STATIONS.

This list may be conveniently consulted by reference to the illustrations at the end of this publication or to the index. All azimuths given in these descriptions 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 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 dates and initials given in each description immediately after the county refer to the date of establishment of the station, the man by whom it was established, and the date when the station was last visited.

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 Superintendent, Coast and Geodetic Survey, Washington, D. C.

MARKING OF STATIONS.

The standard triangulation disk station mark referred to in the following notes and descriptions consists of a disk and shank, as shown in illustration No. 1, made of brass and cast in one piece. The disk is 90 mm. in diameter, with a small hole at the center surrounded by a 20 mm. equilateral triangle, and has the following inscribed legend: "U. S. Coast and Geodetic Survey triangulation station. For information write to Superintendent, Washington, D. C. \$250 fine or imprisonment for disturbing this mark." The shank is 25 mm. in diameter and 80 mm. 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 securely in place.

Another type of station mark shown in illustration No. 1 and referred to in the following notes and descriptions is made in the form of a cap to fit a 3-inch pipe instead of with the shank, but in other respects is exactly similar to the disk station mark described above.

GENERAL NOTES IN REGARD TO STATION AND REFERENCE MARKS.

NOTE 1.—The station is marked by a copper nail in the squared top of a live oak stake or an auger hole in the top of a pine scantling stake. The underground mark is a copper tack or diagonal lines in the flat side of a brick 2 or 3 feet below the surface of the ground. Four posts with an iron nail in the top of each form a square about the station.

NOTE 2.—The station is marked by a copper nail in the top of a 4-inch or 6-inch tile which is filled and surrounded with concrete and projects a few inches above the ground. The underground mark is the center of the mouth of a small earthen jug which is filled with cement or is the center of the mouth of a bottle set in cement. Four reference posts with a copper nail in the top of each are each 4 feet from the station, north, east, south, and west, respectively.

NOTE 3.—The surface mark is a block of concrete with the upper part finished in the form of a truncated pyramid 8 or 10 inches square on top in which is set a standard disk station mark. The underground mark is a bottle set in concrete 3 feet below the surface.

NOTE 4.—The surface mark is a round concrete post in the top of which is set a standard disk station mark. The underground mark is a bottle set in concrete 3 feet below the surface.

NOTE 5.—The surface mark is a block of concrete finished at the upper end in the form of a truncated pyramid 6 or 8 inches square on top, marked with diagonal lines with a nail at the intersection or with a bottle embedded flush with the surface of the concrete. No underground mark was used. This type of marking was used chiefly as a reference mark.

NOTE 6.—The surface mark is a round concrete post with a bottle embedded in the center flush with the top. No underground mark was used. This type of marking was used chiefly as a reference mark.

NOTE 7.—The surface mark is a square concrete post with diagonal lines on top or with a bottle or a copper nail embedded in it flush with the surface. No underground mark was used. This type of marking was used chiefly as a reference mark.

NOTE 8.—The surface mark is a concrete post finished square above the surface of the ground with a standard disk station mark set in the top. The underground mark is a bottle set in concrete 3 feet below the ground.

NOTE 9.—The surface mark is a 4-inch tile filled with concrete with a spike in the center of the top, set flange down in a mass of concrete about 20 inches square (or 20 inches in diameter) and about 2 feet deep, with the top projecting a few inches above the surface. On the surface of the concrete is inscribed "C. & G. S.", with the year in which the mark was set. The underground mark is a concrete post 8 inches in diameter and $2\frac{1}{2}$ feet long with a spike in the center of the top, set 2 or 3 feet below the surface of the ground.

NOTE 10.—This is the same as note 9, except that the underground mark is a 4-inch tile with flange down filled and surrounded with concrete with a spike in the center of the top.

NOTE 11.—The surface mark is a concrete post about 10 inches square (or 10 inches in diameter) and 24 inches long, with a spike in the center of the top which projects a little above the surface. No underground mark was used. This type of marking was used chiefly as a reference mark.

NOTE 12.—The surface mark is a standard disk station mark in the top of a 6-inch tile which is filled with concrete and set about level with the surface of the ground. The underground mark is an iron nail, a copper bolt, or a bottle embedded in a block of concrete 12 inches square and 6 inches thick about 30 inches below the surface of the ground.

NOTE 13.—The surface mark is a 3-inch galvanized-iron pipe 4 feet long projecting 12 to 16 inches above the ground with a standard cap station mark screwed to the top. No underground mark was used. This type of marking was used chiefly as a reference mark and should not be confused with the station mark.

CAPE SABLE TO SAN CARLOS BAY.

PRINCIPAL POINTS.

Cape Sable west base (Monroe County, A. D. B., 1855; 1909).—About 40 meters from the shore line at the end of the vista cut through the woods along the base line. The station is marked by a broken screw pile with a pile of stones placed over it. Four smaller screw plies, each surrounded by a bed of shells and marked with a cross and a copper bolt in the top, are at the following distances from the station: South, 15.21 meters; east, 15.15 meters; north, 15.24 meters; and west, 15.24 meters.

Cape Sable latitude station (Monroe County, J. H., 1886; 1909).—In a large grove of coconut trees about 70 meters from the sand beach. The concrete tombstone of Guy M. Bradley is 300 meters east and 80 meters south of the station and a coconut tree marked with a triangular blaze is 41 meters from the station. The north gable of the nearest of several deserted houses is 38 meters south 71° east from the station and an old deep ditch is about 6 meters distant. The station is marked by a brick pier 18 by 24 inches in cross section, which was found leaning to the north in 1909.

Palm Point (Monroe County, J. H., 1886).—On Palm Point, known also as Middle Cape in a grove of coconut trees 50 meters from high water. The station is marked by a cross in the top of a marble post. A tile used as a reference mark is 7.1 meters to the northward of the station in line with a large palmetto tree and another tile is 6.8 meters distant in azimuth $310^\circ 40'$. Four clumps of buttonwood are toward the shore at the following distances from the station: 25 meters, 9 meters, 9 meters, and 12 meters.

Northwest Cape (Monroe County, J. H., 1887).—On open ground on Northwest Cape, 10 meters from the beach line and about 300 meters south of the point where the woods extend to the shore. The station is marked by a cross in the top of a granite post projecting 6 inches above the ground.

Shark (Monroe County, J. H., 1887).—On a sharp sand spit, the only one in the vicinity, on a point about 3 miles north of Northwest Cape and about 5 miles south of the mouth of the Shark River. High-water mark is about 3 meters distant on the north, west, and south sides of the station. The station is marked by a cross in the top of a granite post 4 inches square and 3 feet long.

Rodgers (Monroe County, J. H., 1887).—On the western extremity of Shark Point, about 3 miles northwest of the mouth of Shark River and about 200 meters south of the mouth of a small creek that winds back of the station. There are several dead trees and fallen trunks along the shore and a large number of trees were cut around the station. The station is marked by a cross in the top of a granite post 4 inches square. Two red mangrove trees and a mangrove stump, each marked with a triangular blaze, are at the following distances, respectively, from the station: 21.0 meters, N. 38° E., 13.3 meters N. 80° E., and 1.2 meters N. 15° E.

Fig (Monroe County, J. H., 1887).—On a sand ridge about 5 feet high, on Highland Point on the western shore of Lostmans Key, about 2 miles south of the mouth of Lostmans River and about 100 meters north of the mouth of a small creek. The station is marked by a cross in the top of a stone post 4 inches square and 3 feet long. Two fig trees, each marked with a triangular blaze, are, respectively, 11.1 meters S. 34° E. and 10.4 meters S. 65° E. from the station.

Seminole (Monroe County, J. H., 1887).—On a sand ridge at the edge of the timber on Seminole Point, which is the southwestern end of a small key. A coral reef covered with grass, mangroves, and dead trees extends around the extremity of the point. The station is marked by a cross in the top of a granite post which projects 4 inches above the surface. A red mangrove and two black mangroves, each marked with a triangular blaze and a nail, are at the following distances from the station: 11.9 meters north, 15.2 meters west-northwest, and 19.2 meters east by north.

Reef (Monroe County, S. F., 1887).—On the southeastern part of a small coral island about 2 miles east of Pavilion Key, about 10 meters from the shore line and just southeast of a small pond. There are a few old mangroves on the northern part of the island. The station is marked by a cross in the top of a granite post 4 inches square and 2½ feet long which projects 4 inches above the ground.

Pavilion Key (Monroe County, S. F., 1887).—On the most western part of Pavilion Key, 6 meters inside of high-water line. The station is marked by a cross in the top of a marble post. A blazed buttonwood is 7.05 meters northeast, another 4.79 meters northwest, and a blazed mangrove 7.92 meters west from the station.

Freeland (Monroe County, S. F., 1887).—On a high rocky key, the most westerly one in the vicinity, about 4 miles northwest of Pavilion Key. There is a conspicuous white sand beach at low water on the key just to the eastward of this key. The station is marked by a cross in the top of a marble post.

Coral (Lee County, J. H., 1887).—On the southern extremity of Indian Key, 10 meters back from the rocky bluff that forms the end of the point. The station is marked by a marble post.

Fire (Lee County, J. H., 1887).—On the southwestern extremity of Round Key, about 6 meters back of the high bluff bank and about 200 meters from the point of the coral reef which extends around the end of the key. The station is marked by a tile. Three palmetto trees, each marked with a blaze and a nail, are at the following distances, respectively, from the station: 6.2 meters northeast, 4.3 meters northwest, and 5.8 meters west.

Horse Key (Lee County, J. H., 1887).—On the southwest end of the first key northwest of Panther Key, 10 meters north of the edge of the bluff, below which are many dead trees. The station is marked by a cross on the top of a marble post.

Coon Key (Lee County, J. H., 1887).—On a small hill on the key just north of Coon Key, 200 meters across the east channel into Goodland Point from the west end of Coon Key. The station is marked by a small hole in the top of a marble post. A nail in a gumbo limbo tree is 4.5 meters west, and a nail in a buttonwood tree is 4.9 meters northwest from the station.

Cape Romano (Lee County, J. H., 1885; 1887).—On Cape Romano 6 meters back of high-water line and 315 meters north of the most southern point of the cape. The station is marked by a hole in the top of a marble post. A tile is buried 16.04 meters due north of the station and another 15.50 meters east by north. A large buttonwood tree marked with a blazed cross is at the edge of the woods about 125 meters north-northeast from the station and a large red mangrove tree similarly marked is at the edge of the woods about 160 meters east by north.

Johnson (Lee County, J. H., 1887; 1889).—On Caximbas hill, just north of the house belonging to Charles Johnson. The station is marked by a cross in the top of a marble post. A galvanized tack in the northeast corner of the house is 5.60 meters from the station, and a similar mark in the northwest corner of the house is 3.82 meters distant.

Caximbas (Lee County, J. H., 1885; 1890).—Lost.

Big Marco (Lee County, J. H., 1885; 1890).—Lost.

Little Marco (Lee County, J. H., 1885).—On the west side of the point just south of the entrance to Little Marco Pass. The station is marked by a copper tack in the top of a cedar stub surrounded by three bottles each buried 5 feet from the station, north-northeast, southeast, and west, respectively. There is a pond and a sand ridge west of the station.

Johns Pass (Lee County, J. H., 1885).—A little east and north of the extremity of the point, on the north side of the entrance to Johns Pass. The station is marked with a copper nail in the top of a cedar stub.

Gordons Pass (Lee County, J. H., 1885).—At the edge of the grass about 270 meters south of the entrance to Gordons Pass. The station is marked by a copper tack in the top of a cedar stub, surrounded by three bottles, each buried 5 feet from the station, north, east-southeast, and west-southwest, respectively. Two palmettos, each marked with a triangular blaze, are, respectively, 16.1 meters north and about 20 meters east from the station.

Doctors Pass (Lee County, J. H., 1885).—On the shore on the north side of the entrance to Doctors Pass, 34 meters nearly due west of two prominent palm trees growing very close together. The station is marked by an iron nail in the top of a yellow pine stub.

Wiggins Pass (Lee County, J. H., 1884).—On the shore just north of Wiggins Pass, 18 meters back from the edge of the grass. The station is marked by a cross in the top of a granite post, projecting 6 inches above the surface, and inscribed "U. S. B. M. 1880." Two bottles, each buried 6 inches below the surface, are, respectively, 3.71 meters east and 4.36 meters south from the station.

Big Hickory (Lee County, J. H., 1884).—On the sandy point at the north end of Little Hickory Island just south of Big Hickory Pass, at the northern edge of the woods 8 meters from a creek to the east and about 25 meters from the Gulf shore to the west. The station is marked by a copper tack in the top of a cedar stub and underground by an inverted bottle 5 feet below the surface. A triangular blaze on the middle one of three mangroves near the Gulf shore is 17 meters N. 84° W. from the station and a copper nail in the top of a pine stake is in the woods 12.2 meters S. 30° E.

Big Carlos (Lee County, J. H., 1884).—On Estero Island, on the point just north of the entrance to Big Carlos Pass, 6 meters from the edge of the grass and 18 meters from high-water mark. The station is marked by a cross in the top of an iron screw pile projecting 6 inches above the surface. Two stakes with a copper tack in the top of each are, respectively, 9.1 meters, east-northeast and 8.9 meters due north from the station.

Little Carlos (Lee County, J. H., 1884).—On the key just north of Little Carlos Pass, 27 meters from high water to the south. The station is marked by a copper tack in the top of a cedar post.

Oyster Key (Lee County, J. H., 1884).—On a mangrove point on the eastern side of Estero Bay. An oyster bank bare at low water surrounds the point. The station is marked by a copper tack in the top of a cedar stub. Three trees, each marked with a triangular blaze, with a nail at the center of the blaze, are at the following distances from the station: 5.8 meters N. 40° W., 8.3 meters N. 80° E., and 7.7 meters S. 16° W.

Bowditch Point 2 (Lee County, J. H., 1883; 1888).—On the south side of Bowditch Point, at the western end of Estero Island, 41 meters back from the edge of the grass 65 meters from high-water mark to the west and 140 meters from low-water mark in the same direction. The station is marked by a cross in the top of a marble monument.

Mound Key (Lee County, J. H., 1884).—On the highest mound on Mound Key in Estero Bay. The mound is about 60 feet high and $2\frac{1}{2}$ miles from the mainland shore of the bay. The station is marked by a copper tack in the top of a cedar post, projecting 8 inches above the surface, and underground by a small hole in the top of a granite block 18 inches below the surface.

Point Ybel 2 (Lee County, J. H., 1883; 1909).—East of Sanibel Island lighthouse on the eastern extremity of Sanibel Island, at the edge of the bushes 18 meters from ordinary high-water mark. The station is marked by a cross in the top of a marble post embedded in a mass of concrete which projects 5 inches above the ground and is inscribed "C. & G. S., 1888." The underground mark is 4-inch tile 3 feet below the surface.

Summerlin (Lee County, J. H., 1884).—On the eastern shore of San Carlos Bay on a tower adjoining the house of Mr. Summerlin, and formerly used by the Signal Service as an observatory. The station is marked by a copper tack driven flush with the roof. A copper tack in the northeast corner of the roof is 2.65 meters distant, one in the northwest corner 1.94 meters, and one in the southwest corner 3.37 meters.

CALOOSAHATCHEE RIVER TO CHARLOTTE HARBOR.

PRINCIPAL POINTS.

Middle Point (Lee County, I. C. C., 1858; 1908).—Lost.

Sword Point (Lee County, W. R. T., 1860; 1892).—On Sword Point on the east side of the southern end of Matlacha Pass, 11 meters from high-water mark to the south. The station is marked by a cross in the top of a granite monument 5 inches square and $2\frac{1}{2}$ feet long, surrounded by four stakes, each 2 feet distant, north, east, south, and west, respectively.

Punta Rasa (Lee County, I. C. C., 1859).—Near the south side of Punta Rasa about 100 paces south of the Government storehouse and 18 paces from high-water mark. The station is marked by a cross in the top of a granite monument 5 inches square and $2\frac{1}{2}$ feet long surrounded by four stakes each 2 feet distant, north, east, south, and west, respectively.

South End (Lee County, J. H., 1884; 1909).—On a point covered with a heavy growth of buttonwood and mangroves at the southeastern extremity of Pine Island, near the location of an old fish camp, 11 meters from the shore. The station is marked by a 1-inch iron bolt 12 inches long set in a mass of concrete which projects 8 inches above the ground and is inscribed "C. & G. S., 1909." Four large trees each marked with a triangular blaze, with a spike at the center of the blaze, are at the following distances and azimuths from the station: 11.34 meters, $61^{\circ} 52'$; 14.75 meters, $92^{\circ} 48'$; 5.65 meters; $134^{\circ} 58'$; and 8.91 meters, $169^{\circ} 00'$.

Caloosa (Lee County, W. R. T., 1860).—On a sand bar submerged at high tide about half way between two keys just off the southeastern extremity of Pine Island. The station is marked by a screw pile surrounded by four stakes, each 6 feet distant, north, east, south, and west, respectively.

White (Lee County, W. R. T., 1860).—On a small shell heap between the shore and the edge of the black mangroves at the northeastern extremity of a prominent point on the west side of the southern end of Matlacha Pass. The station is marked by a granite post set in concrete surrounded by four stakes each 6 feet distant, north, east, south, and west, respectively.

Sanibel east base (Lee County, I. C. C., 1858; 1866).—On the south or Gulf shore of Sanibel Island, about half a mile from the southeastern extremity of the island, just back of high-water line. The station is marked by a cross on a plug in the top of an iron screw pile 5 feet long, projecting 10 inches above the surface. It was searched for without success in 1866.

Sanibel west base (Lee County, I. C. C., 1858; 1866).—On the Gulf shore of Sanibel Island, about 3 miles from the southeastern extremity of the island. The station is marked by a

nail in the center of a wooden plug in the top of a screw pile, projecting 6 inches above the surface of the ground. It was searched for without success in 1866.

Sanibel (Lee County, I. C. C., 1858).—On the Gulf shore of Sanibel Island, about 7 miles from the southeastern extremity of the island, and 25 meters from high-water line. The station is marked by a cross in the top of a granite monument 5 inches square and 2 feet long, projecting 2 inches above the surface of the ground. Four stakes, with a copper tack in the top of each, are each 4 feet from the station north, east, south, and west, respectively.

Havelock (Lee County, I. C. C., 1858).—Near the center of a small circular key about 30 meters in diameter, in the eastern part of the southern end of Pine Island Sound, about 1 mile east of Chino Island. The station is marked by a cross in the top of a granite monument 5 inches square and 2 feet long, surrounded by four stakes each 4 feet distant north, east, south, and west, respectively.

Blind Pass (Lee County, I. C. C., 1858).—Near the southern end of Captiva Island, on the west side of Blind Pass, 65 meters from high-water mark of the Pass and 100 meters from the shore line of the Gulf. The station is marked by a cross in the top of a granite monument 5 inches square and 2 feet long, surrounded by four stakes each 4 feet distant north, east, south, and west, respectively. A new channel has been formed through the island in this vicinity and the station is probably lost.

Captiva (Lee County, I. C. C., 1858).—On the narrow part of Captiva Island, about midway between Captiva Pass and Blind Pass, 31 paces from high-water mark of the Gulf shore and 79 paces from high-water mark of the Sound shore. The station is marked by a cross in the top of a granite monument 5 inches square and 2 feet long, projecting 3 inches above the surface and surrounded by four stakes each 4 feet distant north, east, south, and west, respectively.

Lucknow (Lee County, I. C. C., 1858; 1909).—This station has been destroyed.

Boca Captiva (Lee County, W. R. T., 1859; 1895).—On the southern end of Lacosta Island. The station is marked by a diagonal cross in the top of a granite monument, surrounded by four stakes each 2 feet distant north, east, south, and west, respectively. The station was searched for without success in 1895.

Bocillas (Lee County, W. R. T., 1859).—On one of the small keys just north of the north end of Pine Island. The station is marked by a cross in the top of a granite post, which is surrounded by four stakes, each 2 feet distant north, east, south, and west, respectively.

Boca Grande (Lee County, W. R. T., 1859; 1895).—Lost.

Oso (De Soto County, W. R. T., 1858; 1895).—Lost.

El Gabo (De Soto County, W. R. T., 1859).—On a very small key just off Cape Haze, in the northern part of Charlotte Harbor. There are a few mangrove bushes to the south of the station and a sand bar projects to the north from the north side of the island. The station is marked by a granite monument surrounded by four stakes each 4 feet distant north, east, south, and west, respectively.

Mound (De Soto County, W. R. T., 1860).—On a very peculiar and well-known mound about 25 feet above high water, on a small point of land near the center of Shoalwater Bay, an arm of Charlotte Harbor. The station is marked by a granite post surrounded by four stakes each 6 feet distant north, east, south, and west, respectively.

Torrey (De Soto County, W. R. T., 1859; 1909).—Lost.

Punta Gorda (De Soto County, W. R. T., 1859).—On the extremity of Punta Gorda, on the east side of Charlotte Harbor, about 6 paces from high-water mark. The station is marked by a granite post, surrounded by four stakes, each 4 feet distant north, east, south, and west, respectively.

Pelican (De Soto County, W. R. T., 1859).—On the western part of the most western one of a group of small mangrove keys, in the eastern part of Charlotte Harbor. The station is marked by a granite post surrounded by four stakes each 4 feet distant north, east, south, and west, respectively.

Dana (De Soto County, W. R. T., 1859).—On the western shore of the northern end of Charlotte Harbor, on a small mangrove point about 5 miles north of Cape Haze. The station

is marked by a granite post surrounded by four cedar stakes each 4 feet distant north, east, south, and west, respectively.

Locust Point (De Soto County, W. R. T., 1860).—On Locust Point, at the eastern extremity of the island east of the mouth of the Miakka River. The station is probably marked by a granite post. Two mangrove trees, each marked with a triangular blaze, are, respectively, 7.9 meters southwest and 6.9 meters east by north.

Shoal Point (De Soto County, W. R. T., 1860).—On the southwestern extremity of Shoal Point, on the south side of the island, just east of the mouth of the Miakka River. The station is 5 meters from high-water mark and is probably marked by a granite post.

Bruce (De Soto County, W. R. T., 1860).—On a small sand flat, submerged at high water, at the northern end of Charlotte Harbor, on the west side of the entrance to the Miakka River. The station is marked by a granite post, surrounded by four stakes each 6 feet distant north, east, south, and west, respectively.

Palmetto (De Soto County, W. R. T., 1860).—On a sand ridge just above high water on a point on the west side of a large island in the northern part of Charlotte Harbor just east of the mouth of the Miakka River. To the east of the station is a large open space covered with dead mangroves, and to the north are palmetto trees and bushes covering the northern end of the island. The station is marked by a granite post surrounded by four stakes, which are north, east, south, and west, respectively.

Miakka (De Soto County, W. R. T., 1860).—On the first prominent point north of the entrance on the west side of the Miakka River. The station is marked by a granite post surrounded by four stakes, north, east, south, and west, respectively.

Eureka (De Soto County, W. R. T., 1860).—On the east side of the northern end of Charlotte Harbor, about 3 miles southwest of the town of Punta Gorda, on a small oyster-shell bank. The station is marked by a screw pile, surrounded by four stakes, which are north, east, south, and west, respectively.

Grassy Point (De Soto County, W. R. T., 1860).—In about 8 inches of water at the edge of the mangrove bushes at the southern extremity of Grassy Point on the north side of the mouth of the Peace River. The station is marked by a granite post surrounded by four stakes, which are north, east, south, and west, respectively.

Cooper (De Soto County, W. R. T., 1860).—On the south side of the mouth of the Peace River on the first point about 2 miles west of the town of Punta Gorda. The station is marked by a granite post surrounded by four stakes, which are north, east, south, and west, respectively.

Live Oak Point (De Soto County, W. R. T., 1860).—On Live Oak Point, a prominent point on the north side of the Peace River opposite the town of Punta Gorda. The station is marked by a granite post surrounded by four stakes, which are north, east, south, and west, respectively.

Willow Point (De Soto County, W. R. T., 1860).—On a point on the south side of the Peace River in the town of Punta Gorda. The station is marked by a granite post surrounded by four stakes, which are north, east, south, and west, respectively.

Piney Point (De Soto County, W. R. T., 1860).—On Piney Point, a prominent point on the north side of the Peace River northeast of the town of Punta Gorda. The station is marked by a granite post surrounded by four stakes, which are north, east, south, and west, respectively. Two dwarfed pines, each marked with two blazes, are about 50 meters from the station.

New Point (De Soto County, W. R. T., 1860).—On New Point, on the south side of the Peace River, a short distance northeast of the town of Punta Gorda. The station is marked by a granite post, surrounded by four stakes, which are north, south, east, and west, respectively.

Middle (De Soto County, W. R. T., 1860).—At the western extremity of a small key, near the south shore of the Peace River, about 2 miles above the town of Punta Gorda. The station is marked by a granite post surrounded by four stakes, which are north, east, south, and west, respectively.

Trout (De Soto County, W. R. T., 1860; 1909).—At the edge of the mangroves on a point overflowed at high tide on the south shore of Peace River, about 2 miles northeast of the town of Punta Gorda and one-half mile northeast of a long wharf. There is a small creek about 300 meters southwest of the station and another about 15 meters northeast. The station is marked by a cross in the top of a granite post embedded in a mass of concrete projecting 4 inches above the ground and inscribed "C. & G. S. 1909." A reference mark, a 4-inch tile embedded in a mass of concrete inscribed "R. M. 1909," is on a ridge between the creek and the marsh 8.36 meters from the station in azimuth $6^{\circ} 48'$. Two trees marked with triangular blazes are at the following distances from the station: Mangrove, 21.16 meters S. 54° E.; palmetto, 15.20 meters S. 33° E.

Peace Creek (De Soto County, W. R. T., 1860; 1909).—About 3 miles east of the town of Punta Gorda, on the north bank of Peace Creek, at the edge of high marsh grass, not more than 7 meters from deep water and about 25 meters north of a small creek. About 300 meters south of the station is another small, deep creek, near the mouth of which are some bushes and a few palmettos. The station is marked by a cross in the top of a granite post embedded in a mass of concrete, which projects 8 inches above the ground and is inscribed "C. & G. S. 1909." A reference mark, a spike in the top of a concrete post 15 inches square inscribed "R. M. 1909," is 14.73 meters from the station in azimuth $151^{\circ} 31'$.

Darling (Lee County, W. R. T., 1859).—On the point of a mangrove key on the eastern side of Pine Island, and near the northern end of Matlacha Pass. The station is marked only by the signal.

Belinda (Lee County, W. R. T., 1859).—On the eastern shore of Charlotte Harbor, directly east of the northern end of Pine Island. The station is marked by a granite post surrounded by four stakes, each 6 feet distant, north, east, south, and west, respectively.

Dorr (Lee County, W. R. T., 1861).—On a sand spit about 3 feet high on the west side of a small key in the eastern part of the northern end of Matlacha Pass. There are numerous other small keys between this key and the mainland. The station is marked by a granite post set in concrete and surrounded by four stakes, each 6 feet distant, north, east, south, and west, respectively.

Matlacha (Lee County, W. R. T., 1861).—Near the eastern side of a small key just east of Pine Island, in the western part of Matlacha Pass, opposite several well-known oyster bars. The station is on the highest part near the northern end of a mound, the only high ground in this region. It is marked by a granite post set in concrete surrounded by four stakes, each 6 feet distant, north, east, south, and west, respectively.

Rubber (Lee County, W. R. T., 1861).—On the southeastern part of a small key in the western part of Matlacha Pass. The key is overflowed occasionally during storms, but has a growth of grass on it. The station is marked by a granite post set in cement, surrounded by four stakes, each 6 feet distant, north, east, south, and west, respectively.

Gull (Lee County, W. R. T., 1861).—On a sand ridge thrown up by the water on the west side of a key in the eastern part of Matlacha Pass. There is a low place back of the station on which there are some black mangroves and small ponds of salt water. The station is marked by a granite post surrounded by four stakes, each 6 feet distant, north, east, south, and west, respectively.

Owl (Lee County, W. R. T., 1861).—Near the east side of Pine Island, about one-half mile from the shore and about one-fourth mile north of a prominent point of pines. The station is in the long grass near the edge of the palmettos, the nearest of which is about 60 meters distant. It is marked by a granite post set in concrete, with a stake to the east and another to the west.

Meridian (Lee County, W. R. T., 1860).—On a point of the mainland on the east side of Matlacha Pass. The station is marked by a granite post set in concrete, surrounded by four stakes, each 6 feet distant, north, east, south, and west, respectively.

Lumber (Lee County, W. R. T., 1860).—On the southern extremity of a long, narrow key on the west side of Matlacha Pass. The station is marked by a granite post set in concrete surrounded by four stakes, each 6 feet distant, north, east, south, and west, respectively.

Deer (Lee County, W. R. T., 1860).—On the east side of Matlacha Pass, on the flat back of a long narrow key which is covered with a thick growth of mangroves. The station is marked by a granite post set in concrete, surrounded by four stakes, each 6 feet distant.

Narrows (Lee County, W. R. T., 1860).—On the west side of Matlacha Pass, on a prominent point covered with a thick growth of red mangroves. The station is $1\frac{1}{2}$ feet above high-water mark, and is marked by a granite post set in concrete, surrounded by four stakes, each 4 feet distant, north, east, south, and west, respectively.

Grape (Lee County, W. R. T., 1860).—On the western extremity of a prominent point on the east side of Matlacha Pass. The station is marked by a granite post set in concrete and surrounded by four stakes, each 4 feet distant, north, east, south, and west, respectively.

Bailey (Lee County, W. R. T., 1860).—On a shell heap 3 feet high on a point on the east side of Pine Island. The station is marked by a cross in the top of a granite monument set in concrete and surrounded by four stakes, each 6 feet distant, north, east, south, and west, respectively.

Buttonwood (Lee County, W. R. T., 1860).—On the western extremity of a prominent point, on which there is a large number of buttonwood trees, on the east side of Matlacha Pass. The station is marked by a granite post set in concrete, surrounded by four stakes, each 4 feet distant.

Brown (Lee County, W. R. T., 1860; 1909).—At the center of a thicket of large cacti on the highest part of the large shell mound about 35 feet high, known as Brown's mound, in the yard of Mr. Stafford, in the town of Pineland. The station is marked by a cross in the top of a granite post embedded in a mass of concrete which projects 4 inches above the ground and is inscribed "C. & G. S. 1909."

Las (Lee County, W. R. T., 1859).—On the northwest side of one of the Las Bocillas Keys, just west of the northern end of Pine Island. The station is marked by a cedar stake at the center of an iron cone which is 1 foot below the surface. Four cedar stakes are each 6 feet from the station, north, east, south, and west, respectively.

Oyster (Lee County, J. H., 1892; 1909).—On a long oyster reef, submerged at high tide, on the northwest side of the main channel into the Caloosahatchee River and directly opposite the Punta Rasa Hotel. The station is marked by a spike in the top of a concrete post which projects 3 inches above the shells.

Bird Island (Lee County, J. H., 1892).—About 2 miles northwest of Punta Rasa, on an oyster reef covered at high tide, 12 meters northeast of the northeast corner of Bird Island. The station is marked by a nail in the top of a yellow-pine stub.

Pine (Lee County, J. H., 1892).—A pole and flag in the top of a high pine tree situated on the first pine hummock from the entrance on the south side of the Caloosahatchee River. Between the pines and the shore is low ground covered with mangroves and grass. The tree is cleated up from the ground, the cleats nailed on blazed surfaces.

A (Lee County, J. H., 1892).—On a prominent point, covered with a dense growth of mangroves, near the mouth on the north shore of the Caloosahatchee River. The station is on the beach and covered at high tide and is marked by a nail and a triangle in the top of a concrete post. A mangrove tree and a grape bush, each marked with a triangular blaze and a nail, are, respectively, 4.4 meters north and 5.5 meters northwest from the station.

B (Lee County, J. H., 1892).—On a point on the south side of the Caloosahatchee River, almost due south of Red Fish Point. The land around the station is covered with buttonwood and mangrove trees. The station is marked by a nail in the center of a triangle in the top of a concrete post. A brass tack in a triangular blaze on an old buttonwood stump is 1.82 meters north-northwest, and a similar mark on a mangrove tree is 5.58 meters south-southwest from the station.

Red Fish Point (Lee County, J. H., 1892).—On the north side of the Caloosahatchee River, on Red Fish Point, 10 meters from high-water mark, and 21 meters from a single palmetto that stands at the edge of the woods to the north of the station. The station is marked by a nail surrounded by a triangle in the top of a concrete post, and underground by a bottle.

Palmetto Point (Lee County, J. H., 1892).—On Palmetto Point, on the south side of the Caloosahatchee River, 3 meters from high-water mark. The station is marked by a nail and a triangle in the top of a concrete post. Two palm stumps, each marked with a nail, and a palm tree, marked with a triangular blaze and a nail, are at the following distances, respectively, from the station: 0.51 meters north, 2.79 meters east, and 6.19 meters south.

Harney Point (Lee County, J. H., 1892).—At the extremity of Harney Point, on the north side of the Caloosahatchee River, 3 meters from high-water mark. The station is marked by a triangle and nail in the top of a concrete post. Two palm trees, each marked with a triangular blaze and a nail, are, respectively, 4.84 meters northeast and 11.60 meters north-northwest from the station.

Harris (Lee County, J. H., 1892).—On the east end of Dr. Harris's place, about 40 meters east of the end of the cultivated field east of the house, 45 meters from high-water mark, and 50 meters from the line fence running to Nigger Head Point. The station is marked by a triangle and a nail in the top of a concrete block, and underground by a bottle. Two pine stumps, each marked with a nail in the center of a triangular blaze, are, respectively, 5.95 meters south and 10.99 meters northeast from the station.

C (Lee County, J. H., 1892).—In the water at the end of a mangrove point on the northwest side of the Caloosahatchee River, about a mile northeast of Harney Point and about 7 meters outside the mangrove trees. The station is in 6 inches of water at low tide and is marked only by the signal which was left standing. Two old mangrove stumps, each marked with a triangular blaze and a nail, are, respectively, 11.37 meters north-northeast and 9.57 meters west from the station.

Travers (Lee County, J. H., 1892).—On the Travers place, on the southeast side of the Caloosahatchee River, on the bank in front of the house, 1 meter outside of the front fence, 10 meters east of the inner end of the wharf, and 3 meters from high-water mark. The station is marked by a nail and a triangle in the top of a concrete post. Two bottles are buried, one 1.05 meters east and the other 0.72 meter south from the station.

Four Mile Point (Lee County, J. H., 1892).—On the southeastern extremity of Four Mile Island, a prominent mangrove point on the northwest side of the Caloosahatchee River 4 miles below Fort Myers. The station is marked by a nail in the top of a mangrove stump 4 feet high. The signal pole was left standing on the stump.

No Name (Lee County, J. H., 1892).—On the southeast side of the Caloosahatchee River, on the first prominent point, about $1\frac{1}{2}$ miles southwest of Rylander's house. The point is dry and sandy and is covered with palm trees. The station is 3 meters from high-water mark and is marked by a nail at the center of an inscribed triangle in the top of a concrete post, and underground by a bottle. Three palm trees, each marked by a nail at the center of a triangular blaze, are, respectively, 3.58 meters east, 3.27 meters north, and 3.96 meters west from the station.

Edison (Lee County, J. H., 1892).—Near the end of the pier in front of Mr. Edison's house, on the southeast side of the Caloosahatchee River. The station is 8.31 meters from the northwest corner of the pier, 7.04 meters from the northeast corner, and is marked by a galvanized tack at the center of a small inscribed triangle. Two marks similar to the station mark are at the north and south edge of the pier, 2.55 meters north-northeast and 2.84 meters south-southeast from the station, respectively. The east end of a galvanized cleat on the north edge of the pier is 2.48 meters northwest of the station.

Hancock (Lee County, J. H., 1892).—On a point on the northwest side of the Caloosahatchee River, opposite Mr. Edison's house and just southwest of the mouth of Hancock Creek. The station is on a sand ridge 5 meters from high-water mark and is marked by a nail at the center of an inscribed triangle in the top of a concrete block, and underground by a bottle.

Sawmill (Lee County, J. H., 1892).—On a low point on the northwest side of the Caloosahatchee River, opposite Fort Myer, south of a sawmill on the point and 4 meters from high-water mark. There is a shed about midway between the station and the sawmill. The station is marked by a nail at the center of an inscribed triangle in the top of a concrete post and under-

ground by a bottle. Two palm trees, each marked with a triangular blaze, are in range with the station to the northwest and at distances of 19.98 meters and 76 meters, respectively.

Experimental (Lee County, J. H., 1892).—On the southwest side of the Caloosahatchee River, about 1 mile east of the experimental farm, on a sand bank outside of a mangrove point. The station is marked by a nail at the center of an inscribed triangle in the top of a cement post, and underground by a bottle. A nail in a triangular blaze on a mangrove tree is 8.57 meters southeast, and a similarly marked palm is 15.00 meters southwest from the station.

Marsh Point (Lee County, J. H., 1892).—On Marsh Point, on the northwest side of the Caloosahatchee River, on high sandy ground at the edge of the palmettos, just back of the marsh that forms the end of the point. The station is marked by a nail at the center of an inscribed triangle in the top of a concrete post which is very close to a palmetto stump. The underground mark is a nail in a root of the stump. Three palm trees, each marked with a nail, are, respectively, 0.10 meter south, 4.21 meters northeast, and 2.21 meters northwest from the station.

Caloosa (Lee County, J. H., 1892).—On Currys Point, a prominent, sandy, palmetto point on the north side of the Caloosahatchee River, north of the western extremity of Beautiful Island. The station is 8 meters back of high-water mark and is marked by a nail at the center of an inscribed triangle in the top of a cement post and underground by a bottle. Two palm trees, each marked with a nail at the center of a triangular blaze, are, respectively, 6.44 meters north-northeast and 6.16 meters north-northwest from the station.

Useppa Inn (Lee County, W. B. F., 1909).—The center of the square cupola on Useppa Inn, which is on Useppa Island at the northern end of Pine Island Sound. The island is owned by Mr. Roche of Chicago.

Jug Point (Lee County, W. B. F., 1909).—At the northern end of Pine Island, on Jug Point, the second sandy point about 400 meters north of the entrance to Jug Creek, and about $\frac{1}{2}$ mile southwest of Martin's store and Bokeelia post office. The point is covered with a growth of grapes, mangroves and palmettos and the station is on hard ground just inside the wood line, about 12 meters from high-water mark. The station is marked according to note 9,¹ except that a 6-inch granite post takes the place of the tile. Three trees marked with triangular blazes, with a spike at the center of each blaze, are at the following distances and azimuths from the station: Mangrove, 31.68 meters, $63^{\circ} 38'$; grape, 6.05 meters, $288^{\circ} 17'$; and palmetto, 6.54 meters, $27^{\circ} 52'$.

Cape Haze (De Soto County, W. B. F., 1909).—On the highest part of the shell ridge which runs along the shore on the south side of Cape Haze on the northern shore of Charlotte Harbor. The ridge is about 15 feet high and is covered with a growth of large gumbo limbo, cacti and wild fig and just back of the ridge there is a dense growth of mangroves. The station is 25 meters from the shore line and is marked according to note 9,¹ except that there is no underground mark. Three trees, each marked with a triangular blaze, with a spike at the center of the blaze, are at the following distances and azimuths from the station: Gumbo limbo, 4.87 meters, $38^{\circ} 13'$; wild fig, 11.66 meters, $82^{\circ} 55'$; and gumbo limbo, 14.33 meters, $277^{\circ} 22'$.

Torrey 1909 (De Soto County, W. B. F., 1909).—On the east shore of Charlotte Harbor, north of what is known as Burnt Shore Coast, on the south point of the second bayou about $1\frac{1}{4}$ miles south of Key Point. The station is on a sand ridge about 10 meters from the shore line and is marked according to note 9,¹ except that there is no tile in the concrete of the surface mark. Three large black mangrove trees, each marked with a triangular blaze, with a spike at the center of the blaze, are at the following distances and azimuths from the station: 8.13 meters, $126^{\circ} 34'$; 11.03 meters, $257^{\circ} 47'$; and 14.79 meters, $23^{\circ} 14'$.

Mellie (Lee County, I. C. C., 1860, 1909).—On the east side of Captiva Island, on the eastern extremity of the first prominent point south of Captiva Pass. The point is low and covered with a dense growth of mangroves and is overflowed at high tide. The station is 12 meters back from the edge of the mangroves, and is marked by a cross in the top of a

¹ See pp. 61-62.

granite post embedded in a mass of concrete which projects 6 inches above the ground and is inscribed "C. & G. S. 1909." Four black mangrove trees, each marked with a triangular blaze, with a spike at the center of each blaze, are at the following distances and azimuths from the station: 10.48 meters, $157^{\circ} 53'$; 8.28 meters, $330^{\circ} 30'$; 11.41 meters, $26^{\circ} 13'$; and 8.66 meters, $94^{\circ} 08'$.

Demorest (Lee County, W. B. F., 1909).—On the highest part of a high shell mound on Demorest Key, a well known key in the eastern part of Pine Island Sound. There are some lime trees and wild lemon trees on the mound. The station is marked according to note 9.¹ Three large trees, each marked with a triangular blaze, with a spike at the center of the blaze, are at the following distances from the station: Sappadillo, 5.73 meters, S. 39° W.; tamarind, 13.48 meters, N. 56° W.; and gumbo limbo, 8.86 meters, N. 3° E.

Captiva Pass (Lee County, W. B. F., 1909).—On the north shore of Captiva Pass, at the south end of Lacosta Island, 30 meters south of the palmetto growth and 50 meters from high-water mark. The station is marked according to note 9.¹ Three palmetto trees, each marked with a triangular blaze, with a spike at the center of the blaze, are at the following distances from the station: 11.78 meters, N. 68° E.; 31.39 meters, S. 43° W.; and 12.08 meters, N. 63° W.

Punta Gorda Hotel cupola (De Soto County, W. B. F., 1909).—The flagstaff on the cupola of the large hotel at Punta Gorda. The cupola is about 10 feet square with a dome-shaped roof and about 80 feet above the ground.

Live Oak Point 1909 (De Soto County, W. B. F., 1909).—On Live Oak Point, on the north shore of Peace River, opposite the town of Punta Gorda, on a sand ridge at the edge of the marsh, about 80 meters from the extremity of the point. A long cattle dock extends from the point and the station is 16.65 meters west of the prolongation of this dock and 19.62 meters from the northeast corner of a cattle pen. The station is marked according to note 9.¹ The largest of three live oak trees in the cattle pen is marked with a triangular blaze with a spike at the center of the blaze and is 25.56 meters from the station in azimuth $301^{\circ} 47'$.

Cooper 1909 (De Soto County, W. B. F., 1909).—On the south shore of Peace River, on a point about 2 miles west of the town of Punta Gorda, the last point to the westward from which the town is visible. The station is in the mangroves about 15 meters from ordinary high-water mark. It is marked according to note 9,¹ except that there is no underground mark. Three mangrove trees, marked with triangular blazes, with a spike at the center of each blaze, are at the following distances and azimuths from the station: 10.91 meters, $124^{\circ} 52'$; 7.74 meters, $235^{\circ} 56'$; and 9.93 meters, $334^{\circ} 22'$.

Grassy Point 1909 (De Soto County, W. B. F., 1909).—On the north shore of Peace River, in the marsh just back of a sandy ridge on the first small point about 400 meters east of Grassy Point. The station is 25 meters from high water and is marked according to note 9,¹ except that there is no underground mark. Three palmetto trees, marked with triangular blazes, with a spike at the center of each blaze, are at the following distances and azimuths from the station: 13.99 meters, $284^{\circ} 50'$; 10.61 meters, $26^{\circ} 28'$; and 10.16 meters, $38^{\circ} 54'$.

Locust Point 1909 (De Soto County, W. B. F., 1909).—On Locust Point, a sandy grassy point covered with palmetto trees at the north end of Charlotte Harbor, near the mouth of Peace River. The station is near a fishing camp, 12 meters from high-water mark, and is marked according to note 9,¹ except that there is no underground mark. Four palmetto trees marked with triangular blazes, with a spike at the center of each blaze, are at the following distances and azimuths from the station: 21 paces, $324^{\circ} 50'$; 5 paces, $12^{\circ} 18'$; 14 paces, $54^{\circ} 18'$; and 14 paces, $86^{\circ} 59'$.

SUPPLEMENTARY POINTS.

Punta Rasa Hotel cupola (Lee County, W. B. F., 1909).—The flagstaff of the Punta Rasa Hotel.

Middle Point 1909 (Lee County, W. B. F., 1909).—On Sanibel Island on the west side of the north end of San Carlos Bay, on a shell bank just at the edge of the woods at the north-

¹ See pp. 61-62.

eastern extremity of Middle Point, 6 meters from high-water mark and 1 meter west of the trail that runs along the shore. A station of the U. S. Engineers (see *Middle Point (U. S. E.)* below) is in the water 31 meters to the northwest. The station is marked by a cross in the top of a granite post set in a mass of concrete which projects 6 inches above the ground and is inscribed "C. & G. S. 1909." Three large mangroves, each marked with a triangular blaze with a spike at the center of the blaze, are at the following distances and azimuths from the station: 5.81 meters, $329^{\circ} 19'$; 9.14 meters, $7^{\circ} 09'$; and 14.36 meters, $97^{\circ} 17'$.

Middle Point (U. S. E.) (Lee County, W. B. F., 1909).—In the water 31.01 meters from Middle Point 1909 (see p. 72) in azimuth $124^{\circ} 59'$. The station is marked by an iron pipe $2\frac{1}{2}$ inches in diameter.

Punta Rasa astronomic station (Lee County, E. S., 1874; 1909).—The center of the pier in the corner of the cowpen belonging to Mr. George R. Shultz east of the Punta Rasa Hotel.

Shultz' house flagstaff (Lee County, W. B. F., 1909).—The flagstaff on the house of Mr. George Shultz on the shore of San Carlos Bay about one-half mile below the Punta Rasa Hotel.

Harris' house (Lee County, J. H., 1892).—The pinnacle on the north gable of Dr. Harris's concrete dwelling house, on the south side of the Caloosahatchee River, opposite Harney Point.

Rylander's house (Lee County, J. H., 1892).—The west gable of Rylander's house, about 2 miles southwest of Fort Myers, on the southeast side of the Caloosahatchee River.

Edison's house (Lee County, J. H., 1892).—The apex of the northeast gable of Thos. A. Edison's house, just below Fort Myers.

Edison's laboratory (Lee County, J. H., 1892).—The center of the top of the smokestack on Edison's laboratory, just below Fort Myers.

Parker's house (Lee County, J. H., 1892).—The lightning rod on the pinnacle of Parker's house at Fort Myers.

Fort Myers Methodist church (Lee County, J. H., 1892).—The northeast corner of the top of the tower of the Methodist Church at Fort Myers.

Fort Myers, Caloosa hotel (Lee County, J. H., 1892; 1893).—Lost.

Experimental station house (Lee County, J. H., 1892).—The pinnacle on the west end of the house on the experimental station farm about 1 mile east of Fort Myers.

West Jetty (Lee County, J. H., 1892).—A pole nailed to a palmetto pile at the west end of the jetty south of Beautiful Island in the Caloosahatchee River.

East Jetty (Lee County, J. H., 1892).—A pole nailed to a palmetto pile at the east end of the jetty south of Beautiful Island in the Caloosahatchee River.

Kennedy (Lee County, W. R. T., 1859).—A pole fastened to the south gable of the old store of Kennedy & Darling, on the east shore of Charlotte Harbor, a little north of east of the northern end of Pine Island.

Key Point (De Soto County, W. R. T., 1859).—On the northern point of a mangrove key in the eastern part of Charlotte Harbor, directly east of Cape Haze. The station is marked by an iron cone, surrounded by four stakes, each 4 feet distant north, east, south, and west, respectively.

Alligator (De Soto County, W. R. T., 1860).—On a small key in the eastern part of Charlotte Harbor, about one-half mile south of the mouth of the Alligator River. The station is marked by a granite post, surrounded by four stakes, north, east, south, and west, respectively.

Koonty (De Soto County, W. R. T., 1860).—A pole lashed to the top of a tall, live oak tree, which stands on a small sand hill on a point southwest of the entrance to a large lagoon in the northern part of Charlotte Harbor.

Punta Gorda astronomic station (De Soto County, W. H. B., 1909).—The center of the concrete pier on the water front west of the Punta Gorda Hotel.

GASPARILLA SOUND TO SARASOTA BAY.

PRINCIPAL POINTS.

Gasparilla (De Soto County, W. H. T., 1859; 1895).—Lost.

Flat (De Soto County, W. R. T., 1860).—Near the center of a large sand flat southeast of a large bayou on the east side of Gasparilla Sound. The flat is covered at high tide and is about two hundred meters across. The station is marked by a granite post, surrounded by four stakes, each 6 feet distant, north, east, south, and west, respectively.

Trepador (De Soto County, W. R. T., 1860).—On the eastern shore of Gasparilla Sound, nearly due north of Gasparilla Pass. The palmetto and pine trees are near the shore in this vicinity. The station is marked by a granite monument, surrounded by four stakes, each 6 feet distant, north, east, south, and west, respectively.

Hog (De Soto County, J. H., 1879).—In the pine woods, about one-third mile back from the shore on the eastern side of the northern end of Gasparilla Sound. The marking of the station is not given. Three pine trees, each marked with a nail at the center of a triangular blaze, are, respectively, 8.8 meters south, 20.9 meters east, and 12.6 meters northwest from the station.

Bocilla (De Soto County, J. H., 1879; 1882).—On the Gulf beach about 800 meters north of Bocilla Pass, and 22 meters from high-water mark of a cove to the northeast. The station is marked by a brass nail in the top of a cedar stake.

Lemon (De Soto County, J. H., 1879; 1882).—At the southeast end of Lemon Bay, about 75 meters back of high-water mark at the edge of the grass back of the mangrove bushes along the shore, and about 100 meters east of the pine woods. The station is marked by a brass nail in the top of a cedar stub.

Buttonwood (De Soto County, J. H., 1879).—On the east shore of Lemon Bay, on a prominent point on the north side of the entrance to Crooked Creek, about 1½ miles from the south end of the bay. The station is marked by a triangle cut in the top of a buttonwood stump 4 meters from high-water mark.

Speedwell (De Soto County, J. H., 1879).—On the Gulf shore about 2 miles northwest of Bocilla Pass, on the narrow strip of land that separates the Gulf from an arm of Lemon Bay, 20 meters from high-water mark to the west. The station is on a sand hill and is marked by a nail in a wooden plug in the top of a screw pile.

Merchant (De Soto County, J. H., 1879).—On the east side of Lemon Bay on a low mangrove point just south of the mouth of a small creek, 10 meters from high-water mark. The station is marked by a cross in the top of a granite monument.

Stump Pass (De Soto County, J. H., 1879).—On the Gulf shore directly west of the mouth of Oyster Creek, and about one-half mile north of Stump Pass, 22 meters from high-water mark of the Gulf and 150 meters from high-water mark of a deep cove to the east. The station is marked by a cross in the top of a long iron screw pile. Two palm trees, each marked with a triangular blaze, are, respectively, 37.7 meters northeast and 30.1 meters east from the station.

Lopez (Manatee County, J. H., 1879).—On the east shore of Lemon Bay, about 150 meters northwest of Loper's house, 5 meters southeast of a fence line, and 5 meters back of high-water line. The station is marked by a brass nail in the top of an iron screw pile. Three palmetto trees, each marked with a triangular blaze, are, respectively, 8.4 meters north, 4.1 meters east, and 6.5 meters southeast from the station.

Jacobs (Manatee County, J. H., 1879).—On a sand ridge on the narrow strip of land between the Gulf and Lemon Bay about midway between Stump Pass and Rocky Point. The station is just back of Jacob's house and clearing and 20 meters from high-water mark of the Gulf. It is marked by a cross in the top of a long iron screw pile. Three palm trees, each marked by a nail in a triangular blaze, are, respectively, 19.8 meters southeast, 13.6 meters east, and 23 meters northeast from the station.

Porpoise (Manatee County, J. H., 1882).—On a prominent point on the eastern side of Lemon Bay, about a mile almost due north of Jacob's house and clearing, and 10 meters inside of

high-water line. The station is marked by a copper nail in the top of a cedar stake. Two palm trees, each marked with a nail at the center of a triangular blaze, are, respectively, 38.3 meters north and 27.8 meters east from the station.

Rocky Point (Manatee County, J. H., 1882).—On Rocky Point, a prominent point on the Gulf shore of the strip of land between Lemon Bay and the Gulf, about 6 meters from high-water mark. The station is marked by a cross in the top of an iron screw pile. Three palmetto trees, each marked by a nail in a triangular blaze, are, respectively, 19.7 meters northeast, 15.4 meters east, and 20.5 meters southeast from the station.

Horse and Chaise (Manatee County, J. H., 1882).—On Horse and Chaise Point, on the Gulf shore about 3 miles south of Caseys Pass, 25 meters from high water of the Gulf, and 50 meters from the shore of a pond to the east. The station is marked by a cross in the top of a marble monument. Two palm trees, each marked with a nail in a triangular blaze, are, respectively, 54.4 meters northeast and 34.4 meters east from the station.

Keg (Manatee County, J. H., 1878).—On the narrow strip of land between Little Sarasota Bay and the Gulf of Mexico a short distance north of the mouth of South Creek, 20 meters from high-water line of the Gulf. The station is marked by a nail in a wooden plug in the top of an iron screw pile. Triangular blazes on two palmetto trees are, respectively, 36.6 meters east and 35.7 meters north of the station.

Northwest (Manatee County, J. H., 1878).—On the narrow strip of land between Little Sarasota Bay and the Gulf, about 5 meters back of the second line of sand hills, 40 meters from high-water mark of the Gulf, and 100 meters from the shore of the bay. The station is marked by a brass nail in the top of a cedar stub.

Huckleberry Camp (Manatee County, J. H., 1878).—On the east side of the south end of Little Sarasota Bay about 200 meters from high-water line and about west of Mr. Blackburn's house. The station is marked by a brass nail in the top of a cedar stub. A pine tree marked with a triangular blaze is 16 meters west of the station.

Webb (Manatee County, J. H., 1878).—On a prominent point on the east shore of Little Sarasota Bay, near the edge of the bluff 20 meters west of Webb's house. The station is marked by a cross in the top of a block of granite.

Quick (Manatee County, J. H., 1878).—On the narrow strip of beach between Little Sarasota Pass and the Gulf, about $1\frac{1}{4}$ miles south of the mouth of the pass, 5 meters from high-water mark of the Gulf, and 23 meters from the shore of the pass. The station is marked by a brass nail in the top of a cedar stub. There is a prominent clump of pines about 300 meters north of the station on the opposite side of the pass.

Clower (Manatee County, J. H., 1878).—Near the center of a small sand spit 9 meters from the end of a point on the east side of Little Sarasota Bay just north of the mouth of North Creek. The station is marked by a brass nail in the top of a cedar stub.

Hull (Manatee County, J. H., 1878).—At the edge of the pine woods just east of a deep cove on the east side of Little Sarasota Bay, about 200 meters north of the frame of an old house, about 300 meters northwest of Hull's house, and about 300 meters from the shore. The station is marked by a galvanized nail in the top of a cedar stub surrounded by three buried bottles, each 4 feet distant. Three pine trees, each marked by a nail at the center of a triangular blaze, are, respectively, 15.5 meters northwest, 10.6 meters southwest, and 13.9 meters southeast from the station.

Little Sarasota (Manatee County, J. H., 1878).—On Little Sarasota Point, the first prominent point north of Little Sarasota Pass, on the bluff 5 meters from the edge of the bank, and about 40 meters south of the cove in the north part of the point. The station is marked with a nail in the top of a cedar stub. Three bottles are buried, each 2 feet from the station.

Young (Manatee County, J. H., 1878; 1908).—Lost.

Sarasota (Manatee County, H. G. O., 1878; 1908).—This station is in a cluster of Spanish bayonets 19.4 meters from Sarasota 2 (see p. 78), in azimuth $211^{\circ} 01'$. It is marked by an iron screw pile projecting 4 inches above the ground surrounded by three bottles, each 2 feet distant.

Cedar Point (Manatee County, J. H., 1878; 1908).—Lost.

New Pass (Manatee County, J. H., 1878; 1908).—Lost.

Stephens (Manatee County, J. H., 1878).—On Stephens Point on the east side of Sarasota Bay, about 3 meters from the edge of the marsh to the east. The station is marked by a piece of granite surrounded by three buried bottles, each 2 feet distant.

Mangrove (Manatee County, J. H., 1878; 1908).—Lost.

Bowlegs (Manatee County, J. H., 1878; 1908).—Lost.

Shell (Manatee County, J. H., 1878; 1908).—Lost.

Tom (Manatee County, H. G. O., 1878; 1908).—On the west side of Sarasota Bay on a prominent mangrove point nearly opposite Coon Key and about $2\frac{1}{2}$ miles south of Longboat Pass. It is about 3 meters back from the edge of the mangroves and is submerged at high tide. The station is marked according to note 9.¹

Key (Manatee County H. G. O., 1878; 1908).—On the west end of Coon Key, in the eastern part of Sarasota Bay about 2 miles southeast of the town of Cortez. The key is small, covered with mangroves, and is overflowed at high tide. The station is marked according to note 9.¹

Longboat (Manatee County, J. H., 1878; 1908).—Lost.

Cut (Manatee County, J. H., 1878).—On the east side of the northern end of Sarasota Bay, about a mile south of the entrance to Plamasola Sound, in pine woods very near the shore. In front of the station is a sand bar dry at low tide. The station is marked by a nail in the top of a cedar stub. There are two bottles each 2 feet from the station to the east and north, respectively. A nail in a pine stump is 2.8 meters north, and a nail in a pine stub is 1.2 meters to the southeast of the station.

Anna Maria Key southeast base (Manatee County, H. G. O., 1873; 1908).—This station has been destroyed.

Mound (Manatee County, J. H., 1878; 1908).—This station has been destroyed.

Coral (De Soto County, W. R. T., 1860; 1909).—On a small coon-oyster key or coral reef in the eastern part of Gasparilla Bay. The reef is the first one south of the channel into Catfish Bay, and is devoid of all vegetation and submerged at high tide. The station is marked by a cross in the top of a granite post embedded in a mass of concrete which projects a few inches above the surface and is inscribed "C. & G. S. 1909."

Boca Nueva (De Soto County, W. R. T., 1860; 1879).—Lost.

Llano (De Soto County, W. R. T., 1860).—On the eastern side of the northern end of Gasparilla Sound nearly due east of Boca Nueva. Tall grass extends between the station and the narrow strip of mangroves along the shore, which is about 300 meters distant. The station is marked by a granite post surrounded by four stakes which are north, east, south, and west, respectively. A small pine tree with two pieces of board nailed to it is a short distance southeast of the station.

Palayo (Lee County, W. R. T., 1860; 1909).—In the western part of the south end of Gasparilla Sound on a coon-oyster reef, just outside the mangroves on the east side of the southern one of the two keys known as the Two Sisters. The station is marked by a cross in the top of a granite post embedded in a mass of concrete which projects about 1 foot above the surface and is inscribed "C. & G. S. 1909." Three large black mangrove trees marked with triangular blazes with a spike at the center of each blaze, are at the following distances and azimuths from the station: 17.61 meters, $38^{\circ} 15'$; 17.15 meters, $59^{\circ} 21'$; and 24.13 meters, $147^{\circ} 45'$.

Plow (De Soto County, W. B. F., 1909).—On a shell ridge on the most western point of Plow Key, a large mangrove key, owned by Mr. George Collins of Kansas City, in the eastern part of the south end of Gasparilla Sound. The key is just east of the channel leading up the Sound to the fishing camps, the first camp being about one-third mile northwest of the station. The station is 15 meters from high water and is marked by a half-inch iron bolt in the top of a concrete post 16 inches square and 3 feet long, the top of which is marked with diagonal lines and inscribed "C. & G. S. 1909." Four trees marked with triangular blazes with a spike at the center of each blaze are at the following distances and azimuths from the station: 10.26 meters, $91^{\circ} 51'$; 13.30 meters, $246^{\circ} 26'$; 26.24 meters, $266^{\circ} 40'$; and 10.44 meters, $317^{\circ} 11'$.

¹ See pp. 61-62.

Gasparilla 1909 (Lee County, W. B. F., 1909).—Near the northern end of Gasparilla Island, about 400 meters south of Gasparilla Pass, and about 250 meters from high-water mark on the highest hill of the second line of sand hills from the Gulf, which are about 15 feet high and overgrown with grass and bushes. The station is about 300 meters west of the west end of the railroad trestle and about 150 meters north of a lone cluster of mangroves. It is marked by a half-inch iron bolt 15 inches long set in the top of a concrete post 10 inches in diameter and 6 feet long, which projects a few inches above the sand.

Placida (De Soto County, W. B. F., 1909).—The center of the peak of the cupola of the large office building of the Southern Investment Co. at Placida. The building is the only one of any size or importance in the town.

Mound 2 (Manatee County, W. B. F., 1908).—About one-half mile north of the town of Cortez on the highest part and near the middle of a high shell mound on the point on the south side of the entrance to Palma Sola Bay from Sarasota Pass. The station is marked according to note 9.¹ A reference mark, described in note 11,¹ is 28.29 meters from the station.

Anna Maria Key southeast base 2 (Manatee County, W. B. F., 1908).—One of the reference marks of *Anna Maria Key southeast base* (see p. 76) was recovered, and this new station was established as near the location of the old station as possible, probably within a tenth of a meter. The station is on the Gulf side of Anna Maria Key, about the center of the key in a north and south direction, and about 75 meters back from the shore line. It is about 400 meters west of the house of Mr. A. G. Brunzman in lot 1, sec. 4, T. 35, R. 16 E. The station is marked by a cross in the top of a granite monument surrounded by a mass of concrete, and underground by a spike in the top of a 4-inch drain tile filled with concrete. The reference mark, a spike in the top of a 4-inch tile filled and surrounded with concrete, is 20.010 meters from the station in azimuth 157° 43'.

Cortez (Manatee County, W. B. F., 1908).—On the east side of Sarasota Bay about one-fourth mile south of the town of Cortez on the western extremity of Hamilton Key. The key is entirely covered with mangroves and is overflowed at high tide. The station is marked according to note 9.¹

Longboat 2 (Manatee County, W. B. F., 1908).—About 400 meters north of Longboat Pass and about midway between the Gulf and Sarasota Bay on land owned by Mrs. Palmer, 7 meters from the west fence of her garden. The station is marked according to note 9.¹ A reference mark, described in note 11,¹ is 21.06 meters from the station in azimuth 8° 18'.

Bolees Creek (Manatee County, W. B. F., 1908).—On the east side of Sarasota Bay, on a point on the mainland just south of the mouth of Bolees Creek. The station is on hard land among the pines, 10 meters from the bluff shore and 8 meters north of a path leading from a landing to a deserted house, about 65 meters distant. The station is marked according to note 9.¹ A reference mark, described in note 11,¹ is in line to the south gable of the house, 22.66 meters from the station in azimuth 283° 04'.

Long Bar Point (Manatee County, W. B. F., 1908).—On a shell ridge on the south side of the small key that forms the western extremity of Long Bar Point, which is the first prominent point north of Bolees Creek on the east side of Sarasota Bay. The station is just south of a small clump of mangroves, the only mangroves on the point, and is marked according to note 9¹ except that there is no underground mark.

Whale Key (Manatee County, W. B. F., 1908).—In the western part of Sarasota Bay on the east side of Whale or Mangrove Key just at the entrance to Buttonwood Harbor, and about 15 meters from the shore. The key is covered with a dense growth of mangrove, and is completely submerged at high tide. The station is marked according to note 9,¹ except that there is no underground mark.

Cedar Point 2 (Manatee County, W. B. F., 1908).—On Cedar Point, a low narrow sand and shell spit covered with a growth of mangroves and palmettos, between Sarasota Bay and Sarasota Harbor. The station is about 60 meters from the southern end of the point about 10 meters from the shore line to the west and the same distance from the shore line to the east. It is marked according to note 9.¹

¹ See pp. 61-62.

New Pass 2 (Manatee County, W. B. F., 1908).—On the west side of Sarasota Bay just north of the mouth of New Pass and on the north side of Quick Point, which is a low point covered with mangroves and completely submerged at very high tide. The station is about 8 meters from ordinary high water and 100 meters northwest of the mouth of a small bayou. The station is marked according to note 9,¹ except that there is no underground mark.

Sarasota 2 (Manatee County, W. B. F., 1908).—Just south of the second line of sand hills on the north side of Sarasota Point, which is just south of the outer entrance to Big Sarasota Pass. There are some low grassy sand hills west of the station. The station is at the edge of the palmetto growth 150 meters from high water mark, and is marked according to note 9.¹ A reference mark, described in note 11,¹ is 28.18 meters from the station in azimuth 285° 30'.

Young 2 (Manatee County, W. B. F., 1908).—On a shell point on the east side of the south end of Sarasota Bay near the north end of the cut that leads into Little Sarasota Bay. The station is on a shell bank near the shore on land owned by Mr. E. Peck about 150 meters south of his house, 1.3 meters west of the fence running along the shore and 3 meters northwest of an angle in the fence. It is marked according to note 9.¹

SUPPLEMENTARY POINTS.

Long Pine (Manatee County, W. B. F., 1908).—A pole in a very prominent pine tree on Fishing Point on the south side of Big Sarasota Pass. The station is not marked on the ground.

TAMPA BAY.

PRINCIPAL POINTS.

Anna Maria Key northwest base (Manatee County, H. G. O., 1873; 1908).—On the Gulf side of Anna Maria Key about one-half mile southwest of the house of Mr. S. C. Cobb, which is on the Bay side of the key. It is about 100 meters back from the shore line and on land belonging to Capt. Jones, who lives east of the station on the Bay shore of the key. The station is marked by a cross in the top of a granite monument surrounded by a mass of concrete and underground by a spike in the top of a 4-inch tile filled with concrete. The reference mark, a spike in the top of a 4-inch tile filled and surrounded with concrete, is 20.00 meters from the station in azimuth 337° 43'. The diagonal lines from four iron pipes each 4 feet distant intersect at the station.

Nell (Manatee County, J. H., 1878).—On the west shore of Perico Island at the entrance to Sarasota Bay and on the first mangrove point south of Perico Point. The station is at ordinary high water and is marked by a copper nail in a cedar stub. Two reference marks, each a copper nail in a mangrove tree, are at the following distances from the station: 3.8 meters northeast and 2.9 meters southeast.

Perico (Manatee County, H. G. O., 1873; 1908).—On the northwest end of Perico Island. It is marked by a nail in the top of a live oak post surrounded by four iron pipes the diagonals from which intersect at the station. No trace of the station could be found in 1908.

Palm (Manatee County, H. G. O., 1873; 1908).—This station has been destroyed, due to the receding of the shore line.

Terraceia (Manatee County, H. G. O., 1873; 1908).—On the northwest side of Terraceia Island and marked by a nail in the top of a cedar post. No trace of this station could be found in 1908.

Pinelos (Hillsboro County, H. G. O., 1873; 1908).—On Point Pinelos on the north shore of Tampa Bay and marked by a nail in the top of a cedar post. No trace of this station could be found in 1908, and it has probably been destroyed by the receding of the shore line.

Roach (Hillsboro County, H. G. O., 1873; 1908).—On Cockroach Point, a narrow strip of land between Tampa Bay and a creek, and marked by a nail in the top of a cedar post. No trace of the station could be found in 1908.

¹ See pp. 61-62.

Terraceia 2 (Manatee County, W. B. F., 1908).—On a low ridge about 20 meters wide on a shell point on the western side of Terraceia Island, about $1\frac{1}{4}$ miles northeast of the southwest point of the island. The station is about 15 meters from high-water mark and is marked according to note 9.¹

Palm 2 (Manatee County, W. B. F., 1908).—On firm ground at the northern extremity of Anna Maria Key and about 50 meters east of the Bean house, which is the only house on this part of the key. The station is 125 meters from the west or Gulf shore, 150 meters from the north shore, and 75 meters from the east or bay shore, high-water mark being considered the shore line in each case. The station is marked by a spike in the top of a 4-inch tile, which is filled and surrounded with concrete, and underground by a spike in the top of a concrete post buried 3 feet below the surface of the ground. The top of the surface mark is inscribed "C. & G. S. 1908." The reference mark, a spike in the top of a concrete post, is 21.780 meters from the station in azimuth $295^{\circ} 09'$, and the chimney of Bean's house is in azimuth $95^{\circ} 02'$.

Perico 2 (Manatee County, W. B. F., 1908).—On hard ground on the north point of Perico Island about 15 meters from high-water mark. There is a marsh back of the station and beyond the marsh the point is covered with mangroves, pines, and palmettos. The station is marked according to note 10.¹ A reference mark, described in note 11,¹ is 19.22 meters from the station in azimuth $302^{\circ} 09'$.

Pinelos 2 (Hillsboro County, W. B. F., 1908).—On Pinelos Point on the north side of Tampa Bay in the northwest quarter of section 18, T. 32, R. 17 E., on land belonging to the Forest estate. The station is among the pines 40 meters from the bluff shore and 30 meters southeast of the county road from St. Petersburg to Maximo Point. It is marked according to note 9.¹ A reference mark, described in note 11,¹ is in a fence line 23.34 meters from the station in azimuth $161^{\circ} 09'$.

Cockroach (U. S. E.) (Hillsboro County, W. B. F., 1908).—On Cockroach Island, a long narrow island 1 mile from the mainland on the eastern side of Tampa Bay. The island is not more than 25 meters wide and is covered with mangroves and palmettos. The station is about 15 meters from high-water mark, 10 meters outside the palmettos and 400 meters south of the north point of the island. It is marked by a 1-inch iron pipe 4 feet long at the center of a 4-inch tile embedded in a block of concrete 20 inches square and 2 feet deep. The top of the concrete is inscribed "C. & G. S. 1908" and the iron pipe projects 10 inches above the surface.

Ant 2 (Hillsboro County, W. B. F., 1908).—On a point on the west shore of Tampa Bay about midway between Point Pinelos and St. Petersburg and about one-third the distance from Little Bayou to Big Bayou. The station is on firm ground among palmetto trees 40 meters from the low bluff shore and 400 meters south of the most eastern part of the point. It is marked according to note 9.¹ A reference mark, described in note 11,¹ is 20.02 meters from the station in azimuth $118^{\circ} 33'$.

Indian Hill 2 (Hillsboro County, W. B. F., 1908).—On the highest part of a very prominent shell mound on the east side of Tampa Bay about 3 miles south of the Little Manatee River. The mound is about 40 feet high, with no trees growing on it except at its base. There is a deserted house on the north slope of the mound and a grave about 2 meters southeast of the station. The station is marked according to note 9.¹

Mangrove (U. S. E.) (Hillsboro County, W. B. F., 1908).—At the edge of the mangroves at the western extremity of Mangrove Point, which is on the eastern shore of Tampa Bay, about 2 miles north of the Little Manatee River. The station is marked by a 1-inch iron pipe set in cement in a 2-inch iron pipe, which in turn, is at the center of a 4-inch tile, the whole embedded in a block of concrete 20 inches square and 22 inches deep. The top of the concrete is inscribed "C. & G. S. 1908" and the iron pipes project 8 inches above the surface. A reference mark, a 4-inch tile set in concrete, is 22.31 meters from the station in azimuth $325^{\circ} 36'$.

Cedar Point (U. S. E.) (Hillsboro County, W. B. F., 1908).—On the island just north of the entrance to Papys Bayou, about 1500 meters north of Papys Point and 250 meters south of the north end of the island. There is a large pond or bayou west of the station with a fringe of mangroves and palmettos along the shore, and the station is near the middle of the strip of land

¹ See pp. 61-62.

about 25 meters wide which separates this pond from the bay. The station is marked by an iron pipe $1\frac{1}{2}$ inches in diameter at the center of a 4-inch tile embedded in a block of concrete 19 inches square and 24 inches deep. The concrete projects 4 inches above the ground and is inscribed "C. & G. S. 1908" and the iron pipe projects about 8 inches above the concrete. Four 1-inch iron pipes are each $2\frac{1}{2}$ feet from the station north, east, south, and west, respectively.

Gadsden 2 (Hillsboro County, W. B. F., 1908).—On Gadsden Point on the west shore of Hillsboro Bay, on firm ground among pine and palmetto trees, about 40 meters from high-water mark. There is another point about 500 meters west of the station. The station is marked according to note 9.¹ A reference mark, described in note 11¹ is 18.47 meters from the station in azimuth $146^{\circ} 31'$.

Alafia 2 (Hillsboro County, W. B. F., 1908).—On a well-known shell mound on the east shore of Hillsboro Bay, on the south side of the entrance to Bull Frog Creek and just south of the Alafia River. The station is on the highest part and near the west end of the mound, but may soon be destroyed by the digging away of the shells. It is marked according to note 9.¹

Ball (Hillsboro County, W. B. F., 1908).—On a sandy, grassy point on the east side of Hillsboro Bay about $1\frac{1}{2}$ miles south of Dulaneys Creek and about 80 meters from high-water mark. The station is between two round ponds, one about 100 meters north and the other about 150 meters south, the latter being connected with the bay by a deep, narrow slough on the north edge of which 10 meters from high-water mark is the United States Engineers' station *Ball*. There are three tall palmettos on the point, the nearest or north one about 100 meters distant and the farthest or south one 250 meters distant. There are no other trees near the station, the edge of the pines being about 600 meters distant. The station is marked according to note 9.¹ A reference mark, described in note 11,¹ is 17.92 meters from the station in azimuth $216^{\circ} 41'$.

Catfish Point (U. S. E.) (Hillsboro County, W. B. F., 1908).—On Catfish Point on the west shore of Hillsboro Bay just back of where a long shoal makes out into the bay, bare at low water. The station is on firm ground about 300 meters south of the house of Mr. M. T. Jones and about 8 meters from high-water mark. It is marked by an iron pipe $1\frac{1}{2}$ inches in diameter and 3 feet long at the center of a 4-inch tile embedded in a round block of concrete 20 inches in diameter and 2 feet long. The concrete projects 4 inches above the ground and is inscribed "C. & G. S. 1908" and the iron pipe projects 4 inches above the concrete. Two half-inch iron pipes are each 1 foot distant, one north and the other south. A reference mark, described in note 11,¹ is 26.02 meters from the station in azimuth $116^{\circ} 01'$.

Ballast Point 2 (Hillsboro County, W. B. F., 1908).—On the northeast corner of the upper east balcony of the Ballast Point hotel, 3 feet $9\frac{1}{2}$ inches from the north edge and 3 feet 7 inches from the east edge of the balcony and 3 feet 11 inches from the corner post. It is marked with four brass screws in the floor, one for center and three forming a triangle about it.

Picnic Island (Hillsboro County, W. B. F., 1908).—About one-half mile south of Port Tampa dock on the highest part of a sand ridge on the western extremity of Picnic Island about one-half mile south of the north end of the island. The ridge is covered with mangroves and palmettos and there is a pond just back of the ridge. The station is about 300 meters south of an old fish camp, about 15 meters from high-water mark and about 12 meters east of a lone cedar tree. The station is marked according to note 9.¹

Dave (Hillsboro County, W. B. F., 1908).—On the eastern shore of Old Tampa Bay, about 2 miles north of Port Tampa dock. The station is on sandy ground covered with short grass and is 20 meters from high-water mark, 100 meters south of a slough that makes into a small pond nearly dry at low water, and about 100 meters from the edge of the pine and palmetto woods. The station is marked according to note 10.¹ A reference mark, described in note 11,¹ is 29.05 meters from the station in azimuth $345^{\circ} 56'$.

Pete (Hillsboro County, W. B. F., 1908).—On the west side of Old Tampa Bay, about 2 miles southeast of Cedar Point, and on the southern side of the entrance to a large shallow

¹ See pp. 61-62.

bayou. The point is a long narrow sand ridge, covered with mangroves, and separated from firm ground by a wide marsh, which is probably submerged at high tide. The station is 50 meters south of the end of the point, 10 meters from high water, and is marked according to note 9.¹

Gun (Hillsboro County, W. B. F., 1908).—On the east side of Old Tampa Bay about 100 meters south of the mouth of a small stream known as Gun Branch and about 1½ miles south of Frazer's beach. The station is on solid ground just at the edge of the pine woods 25 meters from high-water mark. It is marked according to note 9.¹ A reference mark, described in note 11,¹ is 26.31 meters from the station in azimuth 295° 27'.

Dog (Hillsboro County, W. B. F., 1908).—About one-third of a mile north of the southern end of an island called Cedar Point on the west side of Old Tampa Bay, on the highest point of a strip of land about 12 meters wide between the bay on the east and a pond on the west. The island is covered with mangroves and there are a few cedars north of the station. The station is marked according to note 10.¹

Rocky Point (Hillsboro County, W. H. B., 1906; 1908).—On the western corner of the point of land known as Rocky Point in Old Tampa Bay, 20.0 meters from the end of the main part of the point, 13.0 meters from the north shore line, and 9.5 meters from the southwest shore line. A house on the south side of the point is about 150 meters distant. The station is marked by a nail in the top of a 4-inch tile which is filled and surrounded with concrete and underground by a nail in the cement stopper of a bottle surrounded with concrete. The reference mark, a 4-inch tile which is filled and surrounded with concrete, projects 3 inches above the ground, and is 25.560 meters from the station in azimuth 253° 49'.

SUPPLEMENTARY POINTS.

Manatee 2 (Manatee County, W. B. F., 1908).—On the north point of a low, swampy island covered with mangroves and palmettos and known as Sneeds Island, on the north side of the entrance to the Manatee River. The station is on a shell bank on the river side of the point about 25 meters from high-water mark, 20 meters south of an old fish camp, and about 100 meters from Mr. Emerson's house, which is also on the river side of the point. The station is marked according to note 10.¹

BOCA CEIGA BAY TO CLEARWATER HARBOR.

PRINCIPAL POINTS.

Turn (Hillsboro County, H. G. O., 1873).—On the point on the north side of the inner end of Pass a Grille near the southern end of Boca Ceiga Bay. The station is marked by a nail in the top of a 10-inch cedar post.

Shell Point (Hillsboro County, H. G. O., 1873).—On Maxima Point just east of Bird Island on the east side of the southern end of Boca Ceiga Bay. The station is marked by a nail in the top of a 11-inch cedar post.

Bird (Hillsboro County, H. G. O., 1873).—On the north point of Bush Island at the south end of Boca Ceiga Bay. The station is marked by a nail in the top of a large post.

Point (Hillsboro County, H. G. O., 1873).—On a hook-shaped point on the east side of Boca Ceiga Bay, just across the bay southwest from Veteran City. The station is marked by a nail in the top of a 9-inch live-oak post.

Oyster (Hillsboro County, H. G. O., 1873).—On an oyster shoal about 30 feet in diameter off a prominent point on the west side of Boca Ceiga Bay. The shoal is covered at high water. The station is marked by a pine stake surrounded by four pieces of iron pipe about 1 foot apart. This station could not be recovered in 1908.

Sand (Hillsboro County, H. G. O., 1873).—On a prominent point on the east or mainland shore of Boca Ceiga Bay just west of Veteran City. The station is marked by a pine stub surrounded by four iron pipes each 1 foot distant.

- Mound* (Hillsboro County, H. G. O., 1873).—On the southeast side of Roost Island, a small island in the western part of Boca Ceiga Bay. The station is marked by a pine stub.
- Crab* (Hillsboro County, H. G. O., 1873).—On a prominent point on the east side of Boca Ceiga Bay. The station is marked by a copper tack in a pine stub surrounded by four iron pipes, the diagonal lines from which intersect at the station. A nail in an 8-inch mangrove stump is one-half meter from the station in azimuth $168^{\circ} 44'$.
- Queen* (Hillsboro County, H. G. O., 1873).—On the southeastern side of an island in the western part of Boca Ceiga Bay. The station is marked by a pine stub.
- Cedar* (Hillsboro County, H. G. O., 1873).—On the mainland or eastern shore of Boca Ceiga Bay. The station is marked by a pine stub.
- Sague* (Hillsboro County, H. G. O., 1873).—On a small point extending southward from the mainland or eastern shore of Boca Ceiga Bay just south of the entrance to Long or Four Mile Bayou. The station is marked by a nail in the top of a 7-inch cedar post.
- Snake* (Hillsboro County, H. G. O., 1873).—On the eastern point of an island in Johns Pass in the northeastern part of Boca Ceiga Bay. The station is marked by a pine stub.
- Turtle Crawl* (Hillsboro County, H. G. O., 1873; 1908).—On a point on the mainland or eastern shore of Boca Ceiga Bay just north of the entrance to Long or Four Mile Bayou. The station is marked by a pine stub. No trace of the station could be found in 1908, and it has probably been destroyed by the receding of the shore line.
- Mast* (Hillsboro County, H. G. O., 1873).—On the east side of an island in the western part of Boca Ceiga Bay and directly across the bay from Turtle Crawl Point. The station is marked by a small stub.
- Double* (Hillsboro County, H. G. O., 1873; 1908).—On a flat covered by high water just off a prominent point on the mainland or eastern shore of Boca Ceiga Bay. The station is marked by an old pine stump with two iron pipes each 16 inches distant on opposite sides of the stump. No trace of the station could be found in 1908.
- Pole* (Hillsboro County, H. G. O., 1873).—On the eastern side of a small island in the western part of Boca Ceiga Bay. The station is marked by a mangrove stump, which is surrounded by water at high tide.
- Stump* (Hillsboro County, H. G. O., 1873).—On a small shell island in the eastern part of Boca Ceiga Bay. The station is marked by a pine stub.
- Extra* (Hillsboro County, H. G. O., 1873).—On the northeastern part of a prominent point on the west shore of Boca Ceiga Bay. The station is marked by a hole in the top of a 6 by 6 inch pine post.
- Crow* (Hillsboro County, H. G. O., 1873).—On a shell bank at the end of a curved point on the mainland or eastern shore of the northern part of Boca Ceiga Bay. The station is marked by a small pine stub.
- Pass* (Hillsboro County, H. G. O., 1873).—On the eastern side of an island in the western part of the northern end of Boca Ceiga Bay. The station is marked by a hole in the top of a 6 by 6 inch pine post.
- Faint* (Hillsboro County, H. G. O., 1873).—On a small shell bank on the mainland shore at the north end of Boca Ceiga Bay. The station is marked by a cross in the top of a 6 by 6 inch pine post.
- Indian* (Hillsboro County, H. G. O., 1873).—On a small shifting sand hill on the east neck of Indian Pass. The station is marked by a small pine stub.
- Fisherman* (Hillsboro County, H. G. O., 1873).—On a point of the mainland opposite Indian Pass and near a fish house. The station is marked by a nail in an auger hole in the top of a pine post.
- Cutter* (Hillsboro County, H. G. O., 1873; 1908).—On the narrow neck of land between Indian Pass and the Gulf. The station is marked by a copper tack in the top of a pine stub surrounded by four iron pipes each one foot distant, the diagonal lines from which intersect at the station. No trace of this station could be found in 1908.

Twice (Hillsboro County, H. G. O., 1873).—On the Gulf shore of Sand Key about one-half mile north of Indian Pass. The station is marked by a nail in the top of a live-oak post.

Creek (Hillsboro County, H. G. O., 1873).—On the mainland shore of the Narrows on the point just south of the mouth of a small creek. The station is marked by a nail in the top of a 6-inch live-oak post.

Cute (Hillsboro County, H. G. O., 1873).—On the Gulf shore of Sand Key, just west of some clumps of scrub palms. The station is marked by a nail in the top of a 5-inch live-oak post.

Pines (Hillsboro County, H. G. O., 1873).—On a prominent point on the mainland or eastern shore of the Narrows. The station is marked by a nail in the top of a 9-inch live-oak post.

Narrows (Hillsboro County, H. G. O., 1873).—On the Gulf shore of Sand Key. The station is marked by a nail in the top of a 4-inch mangrove stump.

Shortest (Hillsboro County, H. G. O., 1873).—On a point on the mainland or east shore of the Narrows. The station is marked by a nail in the top of a 9-inch live-oak post which projects 15 inches above the ground.

Short (Hillsboro County, H. G. O., 1873).—On Sand Key about midway between the Gulf and the Narrows. The station is marked by a nail in the top of an 8-inch live-oak post.

Indian Rock (Hillsboro County, H. G. O., 1873; 1906).—On the mainland at the narrowest part of the Narrows on the bank just back of the rocky point. The station is marked by a hole in the top of a 6-inch live-oak post. No trace of the station could be found in 1906.

Polaris (Hillsboro County, H. G. O., 1873).—On a sand ridge on the Gulf side of Sand Key. The station is marked by a hole in the top of a live-oak post. Two pieces of iron pipe are, respectively, 22 paces south and 10 paces north.

Thompson (Hillsboro County, H. G. O., 1873; 1906).—On the mainland shore of Clearwater Harbor at the entrance to the Narrows and about one-fourth mile south of Mears landing and fish house (originally known as Thompson's landing). The station is marked by a nail in the top of a 6-inch live-oak post which in 1906 was within 8 inches of the shore line. Two reference marks, each consisting of a nail in the top of a concrete post which projects 3 inches above the ground and of an underground mark, a bottle with a cement stopper, are located as follows: One 18.457 meters from the station in azimuth $288^{\circ} 47'$ and the other 34.265 meters in azimuth $288^{\circ} 58'$. An 18-inch pine is on the edge of a swamp 45 meters from the station and in line with the reference marks and the station. A blazed pine is 6.20 meters north of the near reference mark, 15.25 meters northwest of the far reference mark, and 21 paces from the station in azimuth $272^{\circ} 13'$.

Sands (Hillsboro County, H. G. O., 1873; 1906).—On the north end of a small sand ridge on the Gulf side of Sand Key. The station is marked by a hole in the top of a large post. No trace of the station could be found in 1906.

Sand Key south base (Hillsboro County, H. G. O., 1873; 1910).—On the Gulf coast of Sand Key about 2 miles south of Little Pass and about one-fourth mile south of a very dense group of palmettos. It is on a sand ridge, 28 paces from low water and about 2 meters east of the crest of the ridge. The station is marked by a standard disc station mark in the top of a 6-inch tile which is filled with concrete and projects about 10 inches above the ground. Below the tile is the original surface mark, a cross in the top of a granite monument. A reference mark, a small drill hole in the top of a concrete post which projects about 5 inches above the ground, is 26.650 meters from the station in azimuth $296^{\circ} 43'$. This reference mark is in line with a large blazed pine tree 42.5 meters from the station, one of the most prominent trees on the key. Another reference mark, a standard cap station mark screwed to the top of a 3-inch iron pipe which projects 1 foot above the ground, is 24.034 meters from the station in azimuth $255^{\circ} 49'$.

Prickly Point (Hillsboro County, H. G. O., 1873; 1906).—On Prickly Point on the east shore of Clearwater Harbor. The station is marked by a nail in the top of a 7-inch live-oak post. No trace of the station could be found in 1906, and it has probably been washed away.

Sand Key north base (Hillsboro County, H. G. O., 1873; 1906).—This station has been destroyed.

Clearwater Harbor astronomic station (Hillsboro County, E. S., 1873; 1906).—This station has been destroyed.

Clearwater Bluff (Hillsboro County, G. H. B., 1861; 1906).—This station has been destroyed.

Tomlinson (Hillsboro County, W. B. F., 1908).—On the west side of Pine Key just opposite the landing at Pass a Grille, among the pine trees 125 meters from high-water mark. The station is directly beneath a 70-foot skeleton observation tower built by Mr. Tomlinson, who owns the land in the vicinity of the station. It is marked according to note 9.¹

Maximo (Hillsboro County, W. B. F., 1908).—On the western extremity of Maximo Point, about 30 meters from high-water mark. The station is marked according to note 9.¹ A reference mark, described in note 11,¹ is 15.12 meters from the station in azimuth 203° 05'.

Oyster 2 (Hillsboro County, W. B. F., 1908).—This station is identical with a station of the United States Engineers. It is on the east point of a small mangrove key on the west side of Boca Ceiga Bay, about midway between Blind Pass and Pass a Grille and about 8 meters from high-water mark. The station is marked by an iron pipe at the center of a 4-inch tile embedded in a mass of concrete 30 inches in diameter and 2 feet deep. The concrete projects 6 inches above the ground and is inscribed "C. & G. S. 1908", and the iron pipe projects 15 inches above the concrete.

South Point (Hillsboro County, W. B. F., 1908).—On the west shore of Boca Ceiga Bay on the first point south of Deadmans Key. The point is low and wet and is covered with a dense growth of mangroves. The station is on a narrow sand ridge near the shore and is marked according to note 9.¹ A reference mark described in note 11¹ is 11.06 meters from the station in azimuth 51° 42'. A station of the United States Engineers marked by a 1-inch iron pipe driven into the sand is close to the water line 6.67 meters from the station in azimuth 298° 38'.

Bear Creek (Hillsboro County, W. B. F., 1908).—On the east side of Boca Ceiga Bay opposite Deadmans Key on the western extremity of a low point covered with grass and a few mangroves just north of Bear Creek. The station is on the most solid part of the point about 20 meters from the shore line and about 100 meters south of a small bayou leading into the marsh back of the point. The station is marked according to note 9.¹

Devils Elbow (U. S. E.) (Hillsboro County, W. B. F., 1908).—On the sand flat on the south side of a mangrove key near the northeast end of the channel known as Blind Pass leading into Boca Ceiga Bay from the Gulf. The channel along the side of the key is very crooked and is known as the Devils Elbow. The station is in the water 200 feet from the edge of the mangroves and is marked by an iron pipe 1½ inches in diameter driven into the sand.

Between (Hillsboro County, W. B. F., 1908).—On the mainland shore of Boca Ceiga Bay on a point nearly opposite Blind Pass and between two bayous 150 meters north and 100 meters south, respectively. The station is on solid ground among scattering pines about 20 meters from high-water mark and is marked according to note 9.¹ A large pine marked with a triangular blaze is 6.71 meters from the station in azimuth 163° 19'. A station established by the United States Engineers marked by a 1-inch iron pipe driven into the ground is near high-water mark 15.92 meters from the station in azimuth 50° 14'.

Johns Pass (U. S. E.) (Hillsboro County, W. B. F., 1908).—On the highest part of the little grassy sand key near a small mangrove key one-half mile east of the mouth of Johns Pass. The station is marked by an iron pipe 1½ inches in diameter at the center of a 4-inch tile embedded in a mass of concrete 3 feet in diameter and 2 feet deep. The concrete projects 4 inches above the ground and is inscribed "C. & G. S. 1908," and the iron pipe projects 18 inches above the concrete.

Turtle (Hillsboro County, W. B. F., 1908).—On the mainland shore of Boca Ceiga Bay at the extremity of Turtle Crawl Point on firm ground among the palmettos and small bushes 60 meters from high-water mark. The station is marked according to note 9.¹

¹ See pp. 61-62.

Gulf (Hillsboro County, W. B. F., 1908).—On a sandy grass-covered plain on the strip of land between Boca Ceiga Bay and the Gulf, about midway between Johns Pass to the south and Indian Pass to the north and about 65 meters from the bluff shore of the Gulf. There is a lone palmetto about 150 meters north of the station about the same distance from the Gulf shore as the station, and on the bay shore there is one tall palmetto and a cluster of three south of it. The station is marked according to note 9.¹ Two reference marks, described in note 11,¹ are in line to the lone palmetto on the bay shore, one 32.85 meters from the station in azimuth $249^{\circ} 22'$ and the other 45.50 meters in azimuth $249^{\circ} 29'$.

Double 2 (Hillsboro County, W. B. F., 1908).—On the extremity of the first sandy point north of Turtle Crawl Point on the east side of Boca Ceiga Bay 15 meters from high-water mark and just clear of the low trees. The station is marked according to note 9.¹ A reference mark, described in note 11,¹ is in a cluster of small oaks 96.42 meters from the station in azimuth $184^{\circ} 48'$.

Wait (*U. S. E.*) (Hillsboro County, W. B. F., 1908).—On the west shore of Boca Ceiga Bay, on the first prominent mangrove point south of Rhodes house. The station is at the edge of the mangroves and is submerged at high tide. It is marked by an iron pipe $1\frac{1}{2}$ inches in diameter at the center of a 4-inch tile embedded in a mass of concrete 20 inches in diameter and 2 feet deep. The concrete is inscribed "C. & G. S. 1908," and the iron pipe projects 15 inches above the surface.

Oak (Hillsboro County, W. B. F., 1908).—On the mainland shore of Boca Ceiga Bay on the first well-defined point northwest of Mears Landing and about one-third mile distant. The station is among the small oaks and palmettos 40 meters from the bluff shore and is marked according to note 9.¹

Rhodes (Hillsboro County, W. B. F., 1908).—This station is identical with a United States Engineers' station, the name of which is not known. It is on the east side of Indian Pass on the narrow strip of land between the pass and Boca Ceiga Bay 25 meters from high-water mark of the pass and about 125 meters south of Rhodes' house. The station is marked by an iron pipe $1\frac{1}{2}$ inches in diameter at the center of a 4-inch tile embedded in a mass of concrete 20 inches in diameter and 2 feet deep. The concrete projects 4 inches above the ground and is inscribed "C. & G. S. 1908."

Fisherman (*U. S. E.*) (Hillsboro County, W. B. F., 1908).—On the east shore of Boca Ceiga Bay opposite the inner end of Indian Pass and the Sweat fish camp. The station is on firm ground at the edge of the palmettos and is marked by an iron pipe $1\frac{1}{2}$ inches in diameter at the center of a 4-inch tile embedded in a mass of concrete 20 inches in diameter and 2 feet deep. The concrete projects 2 inches above the ground and is inscribed "C. & G. S. 1908." A reference mark, described in note 11,¹ is on firm ground among the palmettos 16.99 meters from the station in azimuth $222^{\circ} 01'$.

Sweat (Hillsboro County, W. B. F., 1908).—This station is one of the United States Engineers stations of 1907, the name of which is not known. It is on a sand hill on the west side of Indian Pass on the narrow strip of land between the pass and the Gulf, 150 meters north of the Sweat fish camp and 10 meters southeast of a well with a wooden curb. The station is marked by an iron pipe embedded in a mass of concrete 20 inches in diameter and 2 feet deep which projects 4 inches above the ground and is inscribed "C. & G. S. 1908."

Kay (Hillsboro County, W. H. B., 1906).—On a crescent-shaped sand bar at the extremity of McKays Point, on the east side of the southern end of Clearwater Harbor. The station is marked by a nail in the top of a 4-inch tile which is filled with concrete and projects 10 inches above the sand. A reference mark similar to the station mark is on the mainland shore directly opposite the end of the spit, 6 meters back from the shore line and 159.12 meters from the station in azimuth $292^{\circ} 49' 43''$. A blazed pine is 4.83 meters east of the reference mark in line with the reference mark and the station.

Prickly (Hillsboro County, W. H. B., 1906; 1910).—On the mainland shore of Clearwater Harbor, on a sand spit known as Prickly Point. The spit extends in a southwesterly direction and a narrow strip of it about 5 meters wide and 100 meters long is above high water and is

¹ See pp. 61-62.

covered with grass and a few scrub bayonets. The station is near the outer edge of the grass and is marked by a standard disk station mark in the top of a 6-inch tile which is filled with concrete and underground by a nail in the cement stopper of a bottle. The reference mark, a standard cap station mark, screwed to the top of a 3-inch iron pipe which projects about a foot above the surface of the ground, is 31.899 meters from the station in azimuth $243^{\circ} 17'$.

Belleview (Hillsboro County, W. H. B., 1906; 1910).—About 2 miles south of the town of Clearwater near the center of a circle of palm trees, 100 paces south-southwest of the southwest corner of the Belleview hotel. The station is marked by a nail in the top of a 4-inch tile which is filled and surrounded with concrete and underground by a nail in the cement stopper of a bottle. The top of the surface mark is slightly below the ground. The reference mark is a nail in the top of a 4-inch tile which is filled and surrounded with concrete. It is in the line from the station to the eastern one of the gables on the south side of the hotel and is 43.36 meters from the station in azimuth 252° , approximately. This reference mark is in a small plot of ground, about 10 by 40 feet, which separates the two parts of the roadway along the west side of the hotel, is about 60 paces south of the walk along the south side of the hotel and is 8 paces west of the line of the west gable of the hotel. The foundation of the concrete pier of *Belleview longitude station* is 32 inches north of the station. (See below.)

SUPPLEMENTARY POINTS.

Belleview longitude station (Hillsboro County, O. B. F., 1907; 1910).—Thirty-two inches directly north of *Belleview* (see above). The station is marked by the foundation of the concrete pier, which is just below the surface of the ground.

Clearwater latitude station (Hillsboro County, E. S., 1873; 1906).—Lost.

GAINESVILLE TO CLEARWATER HARBOR.

PRINCIPAL POINTS.

Odd Fellow (Alachua County, H. G. O., 1897).—One-half mile east of the city of Gainesville on the line of the Florida Central & Peninsular Railroad. It is $4\frac{1}{2}$ meters north of the range of the courthouse on the east or north gable of the Odd Fellows' Home and is 6 meters east of the east rail of the track. Marked by a bottle buried underneath a section of gas pipe in the form of an inverted T; the bottle and the lower end of the pipe are set in cement, and the upper end of the pipe projects about 6 inches above the ground.

Colclough Hill (Alachua County, H. G. O., 1898).—About $1\frac{1}{2}$ miles south of the Florida Central & Peninsular Railroad on the land of Charles Colclough, on the east side of the road from Gainesville to Rocky Point. The station is some distance north of the top of the hill known as Colclough Hill and nearly in the prolongation of the first tangent of the railroad northeast of Gainesville. The station is marked by a 2-inch iron pipe which projects 8 inches above the ground, and underground by a bottle. A large live-oak tree with four nails in the side facing the station is 41.1 meters south $81^{\circ} 15'$ west from the station.

Murphy (Alachua County, H. G. O., 1898).—On the north side of the Florida Central & Peninsular Railroad, about $1\frac{1}{2}$ miles southwest of Gainesville. The station is near the intersection of two wagon roads, one of which crosses the railroad in that vicinity. It is across the track from and a short distance to the east of the house of W. W. Murphy and 9.5 meters north of the south rail of the railroad. The station is marked by a copper tack in the top of a pine stub at the center of a 6-inch tile and underground by a bottle.

Day (Alachua County, H. G. O., 1898).—At Dayville, on the Florida Central & Peninsular Railroad, about $3\frac{1}{2}$ miles from Gainesville and very nearly in the prolongation of the south rail of the tangent from Sutherland. The station is on the property of Dutton & Robinson, of Gainesville, and 36.0 meters from the south rail of the track at a point of the curve abreast the station. It is closely on the intersection of the south rail tangent from Archer and the west rail of the short tangent just north of the station. The station is marked by a copper nail in a pine stub at the center of a 6-inch tile and underground by a bottle.

Sutherland (Alachua County, H. G. O., 1898).—At the end of the tangent of the Florida Central & Peninsular Railroad that extends north from Archer to Palmer and nearly in the prolongation of that tangent. The station is 135 meters from the point of curve at the end of the tangent, 347 meters from the station board north of Palmer, and near the wagon road from Archer to Gainesville. The station is the center of a 4-inch iron pipe.

Dutton (Alachua County, H. G. O., 1898).—On the prolongation of the tangent of the Florida Central & Peninsular Railroad from Palmer to Archer and 144.5 meters southwest of the railroad cut for Dutton switch, the measurement being made on the line from Archer. The station is the center of a 6-inch tile.

Bronson (Levy County, H. G. O., 1898).—Three hundred and three meters northeast of the northeast end of the railroad station at Bronson, 16.5 meters north of the south rail of the Florida Central & Peninsular Railroad at a point opposite a curve in the track and in the prolongation of the south rail of the tangent from Turn. The station is 13.8 meters from the southeast corner of J. F. Jackson's lot and 16.8 meters from the southwest corner of Mrs. L. U. Coulter's lot, which is across the street, and 8.1 meters east of the first-mentioned lot. The station is marked by a quarter-inch iron rod at the center of a 6-inch tile, which is filled and surrounded with concrete, and underground by an inverted bottle.

Turn (Levy County, H. G. O., 1898).—About $2\frac{1}{2}$ miles southwest of Bronson, on the north side of the Florida Central & Peninsular Railroad, near a curve of the railroad and on the prolongation of the line of the south rail of the tangent from Bronson. The station is 166 meters west of milepost 125 and is marked by a quarter-inch iron rod in the center of a 6-inch tile which is filled with concrete.

Waccasassa (Levy County, H. G. O., 1898).—On a small island in the Waccasassa River, a short distance south of the Florida Central & Peninsular Railroad. The station is at the intersection of the tangent lines of the railroad from Rosewood through Otter Creek and from *Turn* (see above), and is 98.8 meters from the north rail of the track at a point very near the west end of the trestle over the Waccasassa River. The station is marked by the center of a 4-inch iron pipe which was driven into the ground and filled with concrete. Four blazed trees are at the following distances and magnetic azimuths from the station: Cypress, 20.7 meters, $20^{\circ} 12'$; oak, 14.0 meters, $140^{\circ} 00'$; oak, 19.5 meters, $267^{\circ} 00'$; and sweet gum, 25.6 meters, $322^{\circ} 30'$. The first-mentioned oak and the sweet gum are on the island, the other oak is on the west bank of the river, and the cypress is on the east bank of the river.

Rosewood (Levy County, H. G. O., 1898).—About 1 mile southwest of the village of Rosewood and 10.717 meters north of the south rail of the Florida Central & Peninsular Railroad at a point a short distance west of a curve of the railroad. The station is nearly in the prolongation of the tangent of the railroad between Waccasassa River and Rosewood. It is marked by a quarter-inch iron rod in the center of a 6-inch tile which is filled and surrounded with concrete. The underground mark is a bottle.

Oyster Cove (Levy County, H. G. O., 1898; 1910).—On the mainland near the shore, about 3 miles from Cedar Keys, on the southeast side of the Florida Central & Peninsular Railroad, and near a road crossing. The station is 9.75 meters from a point on the south rail which is 35 meters northeast of the end of a curve of the railroad track and 118 meters southwest of a wood rack that stands beside the track. The station is marked by a quarter-inch iron rod at the center of a 6-inch tile which is filled and surrounded with concrete. The underground mark is a stone bottle 3 feet below the ground.

Black Point 2 (Levy County, A. T. M., 1874; 1910).—On the mainland northwest of Way Key and near the end of what is known as Black Point. It is on land belonging to Mr. Demary, and when the station was established his house stood 100 meters northwest, but it has since been burned or demolished. The station is marked by a marble block 18 inches below the ground. No trace of the station was found in 1910.

North Key (Levy County, H. G. O., 1874; 1910).—On the northern extremity of North Key. The station is marked by a screw pile, and when visited in 1910 was about 6 meters out from the shore line and completely submerged at high tide. At that time an eccentric station was

established back on firm ground, 25.32 meters from the original station, in azimuth $48^{\circ} 41'$. The eccentric station is marked according to note 12,¹ except that the underground mark is an inverted bottle 26 inches below the surface. From the eccentric station it is 17 paces north to the high-water mark, 18 paces east to high-water mark, and 8 paces south to the edge of the marsh. The reference mark, described in note 13,¹ is 29.94 meters from the eccentric station and 53.30 meters from the original station, in azimuth $65^{\circ} 22'$ from the latter.

Pelican Shoal 2 (Levy County, A. T. M., 1874; 1897).—Lost.

Lime Point 2 (Levy County, A. T. M., 1874, 1910).—On the extreme southeastern point of the island called Lime Point, on a narrow tongue of sand extending into the marsh to the eastward from the high shell bank that forms the main part of the island. The station is marked by a standard disk station mark in the top of a 6-inch tile which is filled with concrete and projects 3 inches above the ground. The underground mark is a bottle set in concrete $2\frac{1}{2}$ feet below ground, 6 inches of sand separating it from the surface mark. A reference mark, a standard cap station mark screwed to the top of a 3-inch iron pipe, is 32.660 meters N. 42° W. from the station. Two palmetto trees, each marked with a triangular blaze with a nail at the center and each vertex, are, respectively, 29.071 meters N. 63° W. and 5.460 meters N. 88° W. from the station.

Snake Key 2 (Levy County, A. T. M., 1874; 1910).—On the northwestern end of Snake Key on a high bank covered with palmettos, 7 meters from the north edge of the bank and 36 meters from the west edge. The station is marked according to note 12,¹ except that the underground mark is a bottle 30 inches below the ground. A reference mark, described in note 13,¹ is 13.415 meters from the station in azimuth $56^{\circ} 10'$. Two palmetto trees, marked with triangular blazes with a nail at the center and each vertex of the triangle are, respectively, 10.82 meters from the station in azimuth $299^{\circ} 10'$ and 16.67 meters in azimuth $90^{\circ} 21'$.

South Reef (Levy County, A. T. M., 1874; 1910).—On the extreme southern oyster bank forming Oyster or Cowigans Reef. The bank is very small and is covered at extreme high tides. The station is marked by a screw pile which was found leaning slightly to the northward in 1910.

Cottrell (Levy County, A. T. M., 1874; 1910).—This station has been destroyed.

North Reef (Levy County, A. T. M., 1874; 1910).—This station has been destroyed.

South Point 2 (Levy County, A. T. M., 1874; 1910).—This station has been destroyed.

Way Key south base (Levy County, F. H. G., 1851; 1910).—This station has been destroyed.

Way Key north base (Levy County, F. H. G., 1851; 1898).—On the narrow sand beach north of the railroad at the northeast end of the town of Cedar Keys. The station is marked by a screw pile. No trace of it could be found in 1898.

Harbor Key 2 (Levy County, A. T. M., 1874; 1910).—Lost.

Daughtry Island northeast base (Levy County, F. W. P., 1877; 1910).—On high sandy ground near a bight at the northeastern end of Daughtry Island, about 200 paces from the eastern shore line of the island and 12.6 meters back of the edge of the marsh which borders the shore line of the bight. The station was marked originally by a marble block placed 3 feet underground. In 1910 a surface mark, a standard disk station mark in the top of a 6-inch tile filled with concrete, was placed above the block with 12 inches of sand separating the two marks. A reference mark, a standard cap station mark screwed to the top of a 3-inch iron pipe projecting 15 inches above the ground, is near the edge of the marsh 14.960 meters N. 43° E. from the station. Two blazed pines are at the following distances and azimuths from the station: 14.3 meters, 282° ; and 24.1 meters, 6° .

Daughtry Island southwest base (Levy County, F. W. P., 1877; 1910).—On high sandy ground near the western shore at about the middle of Daughtry Island and about 7 meters from the edge of the marsh that borders the shore. The station was marked originally by a marble block placed 3 feet below the ground. In 1910 a surface mark, a standard disk station mark in the top of a 6-inch tile filled with concrete, was placed above the block with 13 inches of sand

¹ See pp. 61-62.

separating the two marks. A reference mark, a standard cap station mark screwed to the top of a 3-inch iron pipe, which projects 20 inches above the ground, is on the edge of a hard strip of land between the brush and the marsh grass 9.612 meters N. 83° W. from the station. A pine tree having a triangular blaze with a nail at the center and each corner of the triangle is at the western edge of the brush, 8 paces from the edge of the marsh, 23.530 meters N. 10° W. from the station. A palmetto tree with a triangular blaze is 22.8 meters from the station in azimuth 251° 06', and a pine tree stump 31.2 meters, in azimuth 235° 36'.

Oyster Reef south 2 (Levy County, B. H., 1856; 1874).—Lost.

Mainland (Levy County, B. H., 1856).—On a point about 2 miles east of Cedar Keys, on a small hammock 20 paces east and west by 6 paces north and south covered with bushes. The station is marked by a copper tack in the top of a 3 by 4 inch stake. Similar stakes are near the station, one in line with each of the old tripod legs.

Oyster Reef B3 (Levy County, B. H., 1856; 1874).—Lost.

Oyster Reef C (Levy County, B. H., 1856).—East of Cedar Keys on a small Oyster reef, the first one from the southward on which there are any mangrove bushes. The station is about 8 feet north of a small clump of bushes and just east of some mangroves that border a small creek or bayou. It is marked by a nail in the top of a piece of Bermuda stone which is sunk 6 inches below the surface.

Depot Key (Levy County, F. H. G., 1851; 1874).—About the center of Depot Key near the tall pine on the middle of the hill about one-fourth mile east of the settlement. The station is marked by a nail in the top of a large Bermuda stone. The west corner of a house is 15.9 meters distant and a small cabbage tree blazed and marked with copper nails is 16.2 meters in a northerly direction from the station. Four poles marked with copper nails are near the station.

Waccasassa Reef (Levy County, B. H., 1856; 1910).—Lost.

Mainland East (Levy County, B. H., 1856; 1910).—On a point of land about halfway between Cedar Keys and Waccasassa River, at the outer edge of the marsh grass on the south side of a bayou. The station is marked by a nail in a block of Bermuda stone which projects 4 inches above the surface and may be seen from the shore line when landing. Parts of the old tripod legs were found in position in 1910, and between each of these legs and the station and 4 feet from the station is a stake with a nail in the top. In 1910 a reference mark, a standard cap station mark screwed to the top of a 3-inch iron pipe, was set 17.375 meters N. 27° E. from the station.

Grassy Point (Levy County, B. H., 1856; 1910).—This station has been destroyed.

Middle Marsh (Levy County, G. H. B., 1857; 1910).—About 1 mile east of South Mangrove Point, on the eastern side of a bayou at a place where there is a bight in the bayou containing an island. The station is 6 meters from the shore of this bight and about 50 meters from the outer point of the marsh. The station is marked by a screw pile. In 1910 a reference mark, a standard cap station mark screwed to the top of a 3-inch iron pipe, was set 9.372 meters south 21° east from the station.

Basin Rock (Levy County, G. H. B., 1857; 1910).—On a prominent rock about 4 miles north of Withlacoochee River. The station is marked by a screw pile. There is a cup-shaped depression 6 or 8 feet wide in the rock just south of the station.

Crane Island (Levy County, G. H. B., 1857; 1910).—Lost.

Sand Shoal 1 (Levy County, G. H. B., 1857; 1901).—This station has been destroyed.

Marsh Island (Citrus County, G. H. B., 1857; 1901).—This station has been destroyed.

Half Moon Bar (Citrus County, G. H. B., 1857; 1901).—This station has been destroyed.

Little Island (Citrus County, G. H. B., 1857; 1901).—This station has been destroyed.

Crystal Reef (Citrus County, G. H. B., 1857; 1910).—This station has been destroyed.

Shell Point (Citrus County, G. H. B., 1857; 1910).—At the outer edge of the trees at the point of a bold palmetto bluff on the western end of Shell Island about one-half mile south of the entrance to Crystal River. The station is marked by a screw pile which was found well preserved in 1910.

Bear Island (Citrus County, G. H. B., 1857; 1910).—On a high shell mound on the north side of Bear Island about 1 mile south of Mullet Key and near the mouth of Salt River. The station is marked by a screw pile which projects about 23 inches above the ground. In 1910 a reference mark, a standard cap station mark screwed to the top of a 3-inch iron pipe, was set 4.686 meters S. 85° W. from the station. Two palmetto trees, each marked with four nails in the form of a triangle with center nail, are, respectively, 10.278 meters N. 32° E., and 14.758 meters N. 85° E. from the station.

Bird Key (Citrus County, G. H. B., 1857; 1910).—On the western part of a low mangrove key, the northwest one of the Homosassa Islands. The key is about 25 meters wide by 60 meters long and the station is in the mangroves about 10 meters from the west shore of the key and about the same distance from the north shore. The station is marked by a screw pile which projects 19 inches above the ground. In 1910 a reference mark, a standard cap station mark screwed to the top of a 3-inch iron pipe, was set 23.401 meters S. 78° 30' E. from the station.

Ragged Island (Citrus County, G. H. B., 1858; 1910).—On a small island covered with low mangroves about 3 miles north of Homosassa River. The island is about 15 meters north and south by 20 meters east and west and has a hook-shaped spur on the northeast end. The station is about 6 meters from the north side of the island and is marked by a screw pile. In 1910 a reference mark, a standard cap station mark screwed to the top of a 3-inch iron pipe which projects 20 inches above the ground, was set 7.875 meters N. 50° 30' E. from the station.

Homosassa Point (Citrus County, G. H. B., 1858; 1910).—On the west point of the first key north of Homosassa Bay. The station is marked by a screw pile which projects 23 inches above the ground and may be seen from the water in approaching the station from the northwest. In 1910 a reference mark, a standard cap station mark screwed to the top of a 3-inch iron pipe, was set 27.305 meters N. 79° 30' E. from the station.

Tuckers Island (Citrus County, G. H. B., 1858; 1910).—This station has been destroyed.

Chassahowitzka Point (Citrus County, G. H. B., 1858; 1910).—On the west point of the northern part of the key known as Chassahowitzka Point. The station is near the edge of the marsh grass and is marked by a screw pile which projects 22 inches above the ground. In 1910 a reference mark, a standard cap station mark screwed to the top of a 3-inch iron pipe, was set 18.818 meters N. 64° 30' E. from the station.

Rocky Ridge (Citrus County, G. H. B., 1859; 1910).—On a rocky strip of marsh about 3 miles east of Chassahowitzka Point. The station is marked by a screw pile set in Bermuda rock and projecting 2 feet. In 1910 a reference mark, a standard cap station mark screwed to the top of a 3-inch iron pipe which projects 22 inches above the ground, was set 15.854 meters S. 22° W. from the station.

Little Rock (Hernando County, G. H. B., 1859; 1910).—Lost.

Herrings Bluff (Hernando County, G. H. B., 1859; 1910).—Near a high prominent palmetto bluff about 1 mile south of the Chassahowitzka River and 25 meters north of the north bank of a large bayou about 1 mile above its mouth. The station is marked by a screw pile set in the Bermuda rock. A reference mark, a standard cap station mark screwed to the top of a 3-inch iron pipe which projects 20 inches above the ground, is 18.818 meters N. 64° 30' E. from the station.

Raccoon Point (Hernando County, G. H. B., 1859; 1910).—On the northwest side of a prominent sandy point or island about 5 miles north of the village of Bayport. The station is in the water about 3 meters from shore at high tide and is about 300 meters N. 30° W. from the southern extremity of the island. A reference mark, a standard cap station mark screwed to the top of a 3-inch iron pipe which projects 15 inches above the ground, is 6.821 meters S. 63° 30' E. from the station. A triangular blaze on a palmetto tree with a nail at the center and each corner of the triangle is 22.041 meters N. 36° 30' E. from the station.

New Reef (Hernando County, G. H. B., 1859; 1910).—Lost.

Beacon Rock (Hernando County, G. H. B., 1859; 1910).—On a high prominent rock 6 feet east and west by 10 feet north and south about 4 miles west of the village of Bayport on the

north side of the channel. The station is under water at high tide. It was originally marked by a drill hole in the rock and in 1910 a standard disc station mark was cemented in this hole. The reference mark, a crowsfoot drilled in the rock, is 9 inches from the station.

Bayport (Hernando County, G. H. B., 1859; 1910).—This station has been destroyed.

West Rock (Hernando County, G. H. B., 1859; 1910).—About 4 miles south of Beacon Rock on the southeast end of a rock ledge which is about 10 feet east and west by 12 feet north and south. It is under water at high tide. The station was originally marked by a drill hole in the rock and a standard disc station mark was cemented in this hole in 1910.

Long Key (Hernando County, G. H. B., 1859; 1910).—On a narrow marshy key at Gun Point, just north of the mouth of Hammock Creek. It is at the western end of the key about 17 meters west of the edge of the marsh grass and in 1 foot of water at high tide. The station is marked by a screw pile, which in 1910 was found leaning to the north and projecting about 2½ feet above the ground, but in a good state of preservation. A reference mark, a 3-inch pipe with a standard cap station mark screwed to the top, was placed 31.660 meters S. 83° 30' E. from the station. The reference mark is in the marsh grass about 17 meters from the edge of the grass and projects 15 inches above the ground.

Coral Rock (Pasco County, G. H. B., 1860).—In the Gulf about 3 miles west of Cedar Point in about 3 feet of water at low tide. Marking unknown.

Southeast Point (Pasco County, G. H. B., 1860; 1910).—On a prominent point about 2½ miles south of Cedar Point. This station has been destroyed. A new mark was placed near the location of the old station in 1910, but its position was not determined by triangulation. The new mark consists of a standard disc station mark in the top of a 6-inch tile which is filled with concrete, and underground, of a quarter-inch brass bolt in the top of a block of concrete.

Pelican Point (Pasco County, G. H. B., 1860; 1910).—This station has been destroyed, as the screw pile with which the station was originally marked was found lying on top of the ground in 1910. At that time a 3-inch iron pipe with a standard cap station mark screwed to the top was set about 20 feet north of a small creek, near the position of the old station, but the position of this new mark was not determined by triangulation.

Deer Island (Pasco County, G. H. B., 1860; 1910).—This station has been destroyed.

North Anclote (Pasco County, G. H. B., 1860; 1906).—This station has been destroyed.

Tiger Point (Pasco County, G. H. B., 1861; 1906).—On the level grassy point just north of the mouth of the Anclote River, 30 meters from the shore line to the south and 10 meters from the shore line to the west. The station is marked by a screw pile. It could not be recovered in 1906.

South Anclote (Pasco County, G. H. B., 1860; 1906).—On the east side of the south end of the largest one of the Anclote Keys. The station is marked by a screw pile. No trace of it could be found in 1906.

Piney Point (Hillsboro County, G. H. B., 1860; 1906).—On a high sandy wooded point about 1 mile south of the mouth of Anclote River. The station is marked by a screw pile. No trace of it could be found in 1906.

Hog Island north (Hillsboro County, G. H. B., 1861).—On the eastern part of the north end of Hog Island. The station is marked by a screw pile.

Indian Bluff (Hillsboro County, G. H. B., 1861; 1906).—On the north end of a prominent round point on the mainland shore of St. Josephs Sound. The station is marked by a screw pile. No trace of it could be found in 1906.

Bayonet Point (Hillsboro County, G. H. B., 1861; 1906).—On the west side of a small island in the eastern part of St. Josephs Sound. The station is marked by a screw pile. No trace of it could be found in 1906.

St. Joseph Flat (Hillsboro County, G. H. B., 1861; 1906).—On a point on the east coast of Hog Island. The station is marked by three copper nails in the form of a triangle in the top of a cedar post. No trace of the station could be found in 1906.

Orange Grove (Hillsboro County, G. H. B., 1861; 1906).—This station has been destroyed.

Elbow Key (Hillsboro County, G. H. B., 1861).—On the northeastern end of Elbow Key. The station is probably marked by a cedar post.

Long Reach (Hillsboro County, G. H. B., 1861; 1906).—This station has been destroyed.

Blind Key (Hillsboro County, G. H. B., 1861; 1906).—On the northeastern part of Blind Key. The station is marked by a copper nail in a pine stub surrounded by pieces of iron pipe. No trace of the station could be found in 1906.

Cormorant Rock (Levy County, G. H. B., 1857; 1910).—On a rock reef which is covered at high tide about 3 miles southeast of the mouth of Waccasassa River. The station is marked by a screw pile which was found bent toward the south in 1910. A reference mark, a standard cap station mark screwed to the top of a 3-inch iron pipe, is 4.402 meters S. 59° W. from the station.

Turtle Creek (Levy County, G. H. B. 1857; 1910).—About 3 miles south of Waccasassa River on the eastern bank of a bayou about 200 meters north of the junction of the bayou with Turtle Creek. The station is marked by a cross on the top of a 5 by 5 inch granite block which projects 4 inches above the ground, and underground by an iron cone.

Harbor Key 3 (Levy County, G. H. R., 1910).—On a narrow sand ridge on the northeast side of a small key called Grassy Key about 1 mile south of the town of Cedar Keys. Except for the sand ridge the key is low and grassy. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 15.65 meters from the station in azimuth $61^{\circ} 17'$.

South Point 3 (Levy County, G. H. R., 1910).—On a sand ridge 3 or 4 feet high and 10 meters wide which extends along the south and southwest end of the point at the southern extremity of Way Key about 1 mile southwest of the town of Cedar Keys. The station is at the north edge of the small brush that covers the point. From the station it is 25 paces south to high-water mark, 14 paces north to the edge of the hard marsh, 45 paces S. 70° W. to the point of the sand ridge where the beach turns to the northward and 154 paces N. 70° E. to the eastern end of the sand ridge. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 15.361 meters from the station in azimuth $169^{\circ} 41'$.

Key North (Levy County, G. H. R., 1910).—On a sand bank 4 feet above high water on the southern extremity of North Key 14 paces from high-water mark to the south and 20 paces from the edge of the marsh to the north. There are several palmettos and a few live oak trees on the point and a large pond about 70 meters back of the station. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 21.89 meters from the station in azimuth $155^{\circ} 09'$. Two palmetto trees, marked with triangular blazes with a nail at each vertex, are, respectively, 18.14 meters from the station in azimuth $280^{\circ} 04'$ and 12.01 meters in azimuth $135^{\circ} 07'$.

Sand (Levy County, H. L. M., 1901).—On the southern point of a broken shell reef on the northern edge of the channel at the entrance to the Withlacoochee River and about $1\frac{1}{4}$ miles west of Chambers Island. The station is marked by an iron pipe which projects about 2 feet above the shell.

Hunt (Levy County, H. L. M., 1901).—On the southwestern end of Chambers Island near a house occupied by Mr. Hunt. The station is marked by a 3-inch iron pipe which projects 10 inches above the ground. The southwest corner post of Hunt's house marked by 3 nails is 7.41 meters north of the station and the southeast corner post similarly marked is 14.9 meters northeast of the station. *South Base (U. S. E.)* (see p. 94) is 48.23 meters from the station in azimuth $14^{\circ} 01'$.

Half Moon (Citrus County, H. L. M., 1901).—On a small shell reef, one of a long chain of reefs known locally as Half Moon Bar. The station is covered at high tide. It is marked by a 3-inch iron pipe set in cement, the pipe projecting 18 inches above the reef.

Little Pass (Hillsboro County, G. H. R., 1910).—On the sand spit extending northwest and southeast which forms the southern end of the large island between Little Pass and Big Pass on the western side of Clearwater Harbor. High-water mark is at the following distances from the station: Southeastern extremity of spit, 90 paces; southwest shore, 60 paces; and northeast shore, 40 paces. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 31.765 meters from the station in azimuth $103^{\circ} 51'$.

Stevens (Hillsboro County, G. H. R., 1910).—On a prominent point just south of the mouth of Stevens Creek, $1\frac{1}{4}$ miles north of the town of Clearwater. The station is 8 meters from the edge of the bank and 11 meters from high water mark at a point 60 meters south of where the shore line turns sharply to the eastward. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 26.097 meters from the station in azimuth $262^{\circ} 54'$. Two large pine trees, marked with triangular blazes with nails driven in the vertices, are, respectively, 25.96 meters from the station in azimuth $289^{\circ} 18'$ and 20.36 meters in azimuth $30^{\circ} 43'$.

Big Pass (Hillsboro County, G. H. R., 1910).—On the southern extremity of Hog Island just north of the inner end of Big Pass and about 300 meters west of a small island. The station is at the eastern edge of an open sandy space at the edge of the thick hedge of mangroves which borders the shore and is 21 meters from high-water mark to the east and about 120 meters from high-water mark to the south. Several palmetto trees are about 200 meters west of the station. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 28.88 meters from the station in azimuth $99^{\circ} 47'$. A palmetto tree, marked with a triangular blaze with a nail at each vertex, is 56.84 meters from the station in azimuth $47^{\circ} 12'$.

Curlew (Hillsboro County, G. H. R., 1910).—On an island three-eighths of a mile northeast of the mouth of Curlew Creek and $2\frac{1}{4}$ miles north of the town of Dunedin. There are a few scattering pines on the island and the ground is about 3 feet above high-water mark. The station is 25 paces from the edge of the bank to the west, 34 paces from the edge of the bank to the southwest, and 135 paces from high-water mark at the southwestern extremity of the island. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 15.327 meters from the station in azimuth $256^{\circ} 46'$. Two pines marked with triangular blazes with a nail at each vertex, are, respectively, 38.16 meters from the station in azimuth $298^{\circ} 48'$ and 32.74 meters in azimuth $324^{\circ} 41'$.

Mud (Hillsboro County, G. H. R., 1910).—About 2 miles northwest of the town of Dunedin on a prominent point on the eastern shore of Hog Island about 2 miles from the southern extremity of the island. The point forms the northeast side of a small bay in which are several small islands and is covered with mangroves to within 12 meters of the station. At low tide a long mud flat extends out from the end of the point. The station is 12 meters from the southern extremity of the point and is marked according to note 12.¹ A reference mark, described in note 13,¹ is 6 meters back from the edge of the mangroves and 17.64 meters from the station in azimuth $107^{\circ} 40'$.

Seaside (Hillsboro County, G. H. R., 1910).—On the most western point of a peninsula three-fourths of a mile south of the town of Seaside and directly east of the northern end of Hog Island, 12 paces from the edge of the bank along the shore. The ground is about 3 feet above high water and there are a few scattering pine trees near the station. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 18.694 meters from the station in azimuth $274^{\circ} 31'$. Two pine trees, marked with triangular blazes with a nail at each vertex, are respectively 9.94 meters from the station in azimuth $244^{\circ} 03'$ and 19.80 meters in azimuth $293^{\circ} 21'$.

North Hog Island (Hillsboro County, G. H. R., 1910).—On the narrow peninsula covered with mangroves at the northeastern extremity of Hog Island, 8 meters from high-water mark to the east, 20 meters from high-water mark to the west, and 60 meters north of the southern end of the peninsula. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 9.142 meters from the station in azimuth $91^{\circ} 17'$.

Palmetto Key (Hillsboro County, G. H. R., 1910).—On the western side of Palmetto Key about one-half mile south of the entrance to Anclote River and almost directly east of the Anclote River lighthouse. High-water mark is at the following distances from the station: 30 paces south, 40 paces west, and 70 paces north. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 17.764 meters from the station in azimuth $295^{\circ} 44'$.

North Anclote 2 (Hillsboro County, G. H. R., 1910).—On the eastern end of the most northerly of the North Anclote group of islands. High-water mark is at the following distances

¹ See pp. 61-62.

from the station: 17 paces east, 9 paces south, and 14 paces north. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 20.092 meters from the station in azimuth 108° 35'.

Baileys Bluff (Hillsboro County, G. H. R., 1910).—Near the southwestern edge of a point known as Baileys Bluff about 2 miles north of the mouth of the Anclote River. The station is on a bank 8 feet above high water about 30 meters southeast of a barn and from 100 to 200 meters south of some houses. It is 10 paces from high-water mark to the west and 25 paces from high-water mark to the south, and is marked according to note 12.¹ A reference mark, described in note 13,¹ is 11.44 meters from the station in azimuth 247° 37'. A palmetto tree, marked with a triangular blaze with a nail at each vertex, is 19.44 meters from the station in azimuth 196° 50'.

SUPPLEMENTARY POINTS.

Depot Key azimuth station (Levy County, A. T. M., 1874).—This station is 13.53 meters north and 14.33 meters west of *Depot Key* (see p. 89). Marking not stated. ✓

South base (U. S. E.) (Levy County, H. L. M., 1901).—This station is 48.23 meters from *Hunt* (see p. 92) in azimuth 14° 01'. Marking not stated.

Windmill (Levy County, H. L. M., 1901).—The top of the tripod of the iron windmill frame on Chambers Island on the north side of the bungalow belonging to Captain Inglis.

Inglis flagstaff (Levy County, H. L. M., 1901).—The high flagstaff on Chambers Island in front of the bungalow belonging to Capt. Inglis.

CEDAR KEYS TO ST. MARKS RIVER.

PRINCIPAL POINTS.

Number 6 (Levy County, F. W. P., 1877).—In about 1 foot of water at low tide near what is known as No. 4 channel. The station is marked by a copper tack in the top of a stake.

Reef (Levy County, F. W. P., 1876).—On the northeast edge of an oyster reef, just opposite the east mouth of the Suwanee River. The reef is generally partly dry or just awash at high tide, and about 100 meters north of the station there is a deep passage through the reef. The station is marked by a marble block 4 inches below the surface.

Cabbage (Levy County, F. W. P., 1876).—On Cabbage Island in the southern part of Suwanee Sound, on hard sand near the southern end of the island about 25 meters from the edge of the marsh to the south and about 15 meters from the edge of the marsh to the west. The station is marked by a marble block 1½ feet below the surface.

Mallard (Levy County, F. W. P., 1876).—On the western edge of a small marshy island near the western or principal mouth of the Suwanee River. The ground near the station is soft and overflows at high tide. The station is marked by a marble block 8 inches below the surface of the ground.

River (Levy County, F. W. P., 1876).—On the eastern extremity of a hard sandy point just south of the mouth of the East Pass to the Suwanee River. The station is marked by a marble block 8 inches below the surface of the ground.

Ready (La Fayette County, F. W. P., 1876).—At the southeast end of Horseshoe Cove near the mouth of California Creek, on a small marshy island which has a high sandy ridge a few feet wide along the northern side. The station is 30 meters from the grass line to the south and 10 meters from the grass line to the north. It is marked by a marble block 16 inches below the surface of the ground. The east point of the island is 63 meters east by south from the station, and a tree is 37.0 meters west by south.

Bird (La Fayette County, F. W. P., 1876).—On the highest point of Bird Island, a small island about three-fourths of a mile south of the mainland at Horseshoe Point. The southern part of the island is high, shelly ground of great fertility and was once a roosting place for birds. The station is marked by an earthen jar 30 inches below the ground. A peck of bituminous coal

¹ See pp. 61-62.

was mixed with the earth placed above the jar. The following reference marks are near the station: Cedar stump, 14.5 meters southwest; blazed live oak, 35.6 meters northwest; blazed cedar, 30.7 meters directly north; and a blazed palmetto, 9.6 meters northeast of the station.

Scaffold (La Fayette County, F. W. P., 1874; 1876).—Near the southwest end of a prominent rocky point about 1 mile southeast of the mouth of Little Boggy Creek. The soil around the station is sandy and is covered with stub grass. The station is marked by two earthen crocks, one 2 feet below the ground and the other one-half foot below the ground.

Horseshoe Point west base (La Fayette County, F. W. P., 1876).—On a piece of hard land surrounded by marsh about 2 miles north of Horseshoe Point. There is a small creek on the east side of the station and another on the west side. A small boat can ascend the western creek at high tide to within two or three hundred meters of the station. The station is marked by a cross in the top of a marble block which is 5 inches square and 16 inches below the surface of the ground. Three blazed pine trees are at the following distances from the station: 19.6 meters west; 18.5 meters west; and 9.8 meters northeast.

Horseshoe Point east base (La Fayette County, F. W. P., 1876).—On soft marsh 30 meters from the shore line, about 600 or 700 meters from the shore at Horseshoe Point, and a short distance west of a small bayou. The station is marked by a marble block 18 inches below the ground above which is a small mound of earth. A drain was dug around the station and on both sides of the base line.

Bowlegs Point (La Fayette County, F. W. P., 1874; 1876).—On the highest part of Pine Point, near the southwest extremity of the point. The soil around the station is firm, sandy soil and is covered with palmetto shrubs. The marking of the station is not stated. A spike driven in an oak tree is 14.5 meters from the station and a scantling driven in the ground with a row of tacks in the top is 3 feet from the station, both in azimuth 243° .

Fog Island azimuth station (La Fayette County, F. W. P., 1874).—Near the western end of Fog Island, a small island near the entrance to a small creek about 6 miles north of Pine Point. The station is marked by a cedar block 14 inches square and 6 feet long projecting 3 feet 3 inches above the ground. The lower end of the cedar block is in a hole in the solid rock 16 inches square and 14 inches deep, in the center of which a spike was driven for the underground mark.

Steinhatchee (Taylor County, F. W. P., 1874).—On a small piece of firm, grassy land surrounded by marsh on a point just north of the extreme outer entrance to the Steinhatchee River. The station is marked by a stone block which projects 3 inches above the ground. Three stubs surround the station each 2.5 feet distant. A large boiler from a wreck is about $1\frac{1}{2}$ miles from the station in azimuth $49^{\circ} 33'$, and a house at the edge of the woods is in azimuth $179^{\circ} 18'$.

Lamp (La Fayette County, F. W. P., 1874).—Near the north end of a small island which forms a prominent point of land between the Steinhatchee River and Fog Island. The point at the north end of the island is rocky and slopes gradually into the water. The station is marked by an earthen crock, the top of which is level with the surface of the ground.

Snipe (Taylor County, F. W. P., 1874).—Near the outer end of a very prominent point about midway between the Steinhatchee River and Point Edwards. The station is 26 meters from high-water mark to the westward, and is marked by a screw pile sunk in a rock, the top of the pile being level with the surface of the ground. Three stubs were driven near the station and a pile of rocks made over the station and surrounded by a ditch.

Point Edwards (Taylor County, F. W. P., 1874).—Near the southeast extremity of Point Edwards on dry sandy ground which is covered with scrubby brush and a few palmettos. The station is marked by a granite block surrounded by three stubs. Three cedar stumps each marked with a spike are at the following distances and magnetic bearings from the station: 14.6 meters N. 48° W., 19.6 meters N. $38^{\circ} 30'$ W., and 20.3 meters N. $35^{\circ} 45'$ E.

Piney Point (Taylor County, F. W. P., 1874).—Near the southwestern extremity of Piney Point 23.5 meters from the water line and 8 meters back of the edge of the grass. The soil about the station is firm and is covered with grass and a few scattered clumps of bushes. The station is marked by a screw pile $2\frac{1}{2}$ feet long, the top of which is 2 inches below the surface of the ground.

Four pine trees each marked with a triangular blaze with an iron spike at the center of the triangle are at the following distances from the station: 109.1 meters north, 105.5 meters northeast, 119.5 meters east, and 106.1 meters east.

Live Oak Point (Taylor County, F. W. P., 1874).—Near the western extremity of Live Oak Point on a sandy hummock on which there is a scanty growth of coarse grass and nine live oak and eight palmetto trees. The hummock is about 90 meters in diameter and the station is located near the shore line about halfway from the north edge to the south edge of the hummock. The station is marked by a granite block a few inches below the surface of the ground. Four trees, each marked with a triangular blaze with a spike at the center, are at the following distances from the station: Live oak, 18.3 meters southeast; live oak, 5.5 meters northeast; live oak, 25.6 meters northeast; and a palmetto, 9.1 meters north by west.

Clearwater Creek (Taylor County, F. W. P., 1873; 1874).—Near the southern end of a small grassy island at the mouth of Clearwater Creek. The station is marked by a short screw pile, the top of which is level with the general surface of the ground. A triangular pile of earth and rocks is above the station. The following measurements were taken from the station to the shore line: N. 83° W., 7 meters; S. 16° W., 23 meters; and S. 41° E., 16 meters.

Soft (Taylor County, F. W. P., 1873; 1874).—Near the southern end of a marshy point about $1\frac{1}{4}$ miles northwest of the mouth of Warrior River. The station is marked by a stone block, the top of which is level with the general surface of the ground. A triangular mound of earth surrounded by a trench of the same shape is over the station. The following measurements were made from the station to the shore line: S. 8° E., 16 meters, and west, 14 meters.

Solid (Taylor County, F. W. P., 1873).—On a marshy point about $1\frac{1}{2}$ miles southeast of the mouth of Fenholloway River. The station is marked by a spike driven in the limestone bottom $3\frac{1}{2}$ feet below the ground with an earthen jar inverted over the spike. A triangular mound of earth surrounded by a trench of the same shape is over the station. The following measurements were made from the station to the shore line: N. 63° W., 19 meters; S. 9° W., 27 meters; and N. 67° E., 15 meters.

Hard (Taylor County, F. W. P., 1873).—On a point of the mainland nearly north of Rock Island. The end of the point is divided into two parts by a small bight and the station is on the western one of these parts. The station is marked by a spike driven in the solid limestone bottom 1 foot below the surface of the ground, with a stone pot inverted over the spike. A triangular mound of earth surrounded by a trench of the same shape is over the station. A spike in the rock is 13.34 meters S. $53^{\circ} 00'$ W. from the station and the shore line at the end of the point is 20 meters south of the station.

Rock Island (Taylor County, F. W. P., 1873; 1874).—On the southwest side of Rock Island. The station is marked by a spike driven in the solid limestone bottom surrounded by a triangle cut in the rock with a stone pot inverted over the spike. A circular mound of earth surrounded by a circular trench 8 feet in diameter is over the station. Three spikes in the rock near the water's edge are at the following distances and magnetic bearings from the station: 24.11 meters, N. $61^{\circ} 10'$ W.; 26.70 meters, S. $84^{\circ} 20'$ W.; and 35.36 meters, S. $41^{\circ} 50'$ W.

False (Taylor County, F. W. P., 1873).—On a small marshy point between two small creeks about 3 miles southeast of the mouth of the Econfenee River. The station is marked by a short screw pile, the top of which is level with the surface of the ground. A triangular mound of earth surrounded by a trench of the same shape is over the station. The nearest point of the shore line is 13 meters southwest of the station.

Econfenee (Taylor County, F. W. P., 1873).—On the end of the prominent marshy point just west of the mouth of the Econfenee River. The station is marked by an iron screw pile, the top of which is 4 inches below the ground. A circular mound of earth surrounded by a circular trench 8 feet in diameter is over the station. The shore line at the end of the point south by east from the station is 6.5 meters distant and the shore line to the northeast of the station is 9.5 meters distant.

Topog (Taylor County, F. W. P., 1873).—On the western end of a small marshy island about $1\frac{1}{4}$ miles southeast of the mouth of the Aucilla River. The station is marked by a short

iron screw pile, the top of which is level with the surface of the ground. A circular earthen mound surrounded by a circular trench 8 feet in diameter is over the station. The following measurements were made from the station to the shore line: south by east, 12 meters; southwest, 18 meters; and northwest, 14 meters.

Ocilla River (Taylor County, S. C. M., 1859; 1873).—Near the southwest end of the point of marsh just south of the mouth of the Aucilla River. The station is marked by a granite block. In 1873 a circular mound of earth surrounded by a circular trench 8 feet in diameter was placed over the station. It is 31 meters to the shore line at the end of the point south by west from the station, and 15 meters to the shore line west of the station.

Oyster Bar (Jefferson County, F. W. P., 1873; 1910).—On the southeast end of an oyster bar about $1\frac{1}{2}$ miles southwest of the mouth of the Aucilla River. The station is marked by a granite block, the top of which is level with the surface of the bar. A mound of shells was placed over the station when established and the instrument stubs left in place. The station was searched for without success in 1910.

Marsh (Jefferson County, F. W. P., 1873; 1910).—This station is marked by a granite block. It was searched for without success in 1910. The shore line in this vicinity has changed and the station, if not lost, can be located only by triangulation.

Coral (Jefferson County, F. W. P., 1873; 1910).—On one of the central rocks of the group known as Cobb Rocks, in Apalachee Bay, about 3 miles west of the mouth of the Aucilla River. The station is marked by a standard disk station mark, set in concrete in a hole in the rock and surrounded by a circle of rocks 6 feet in diameter. The station is covered by water except at low tide.

Torrey (Jefferson County, S. C. M., 1859; 1910).—About 5 miles west of the mouth of the Aucilla River and 200 meters from the shore of Apalachee Bay, on the south side of a small palmetto hummock and near a small winding bayou on which is a fisherman's landing. The station is marked by a standard disk station mark in the top of a block of concrete which projects 6 inches above the ground. The underground mark is a standard disk station mark set in cement in a hole in the solid rock 2 feet below the surface. A reference mark, a block of concrete built in the shell of a root of a palmetto tree with a bottle at the center and an inscribed arrow pointing to the station, is 5.37 meters distant in a direction $62^{\circ} 50'$ to the right of St. Marks Lighthouse.

Grey Mares (Wakulla County, S. C. M., 1859; 1910).—On the largest of the Grey Mares Rocks in Apalachee Bay, about 5 miles east of St. Marks Lighthouse. The station is about 5 feet from the south edge of the rock, 6 feet 5 inches from the west edge, and 3 feet from the north edge, and is marked by a drill hole in the solid rock 1 foot 6 inches deep and 6 inches in diameter, surrounded by four iron spikes in the form of a square.

Palmetto Island (Wakulla County, S. C. M., 1859; 1910).—Lost.

Denham (Wakulla County, S. C. M., 1859).—About 2 miles inland on the marsh near the northeast side of a deep cove in the woods and about 1 mile east of Stony Bayou. The station is marked by a nail in the top of a live-oak stake. Four stakes are each 3 feet 7 inches from the station, and a mound of earth is over the station. A lone palmetto tree is 24.4 meters N. 10° E. and a corner stake marked 28 is 100 meters S. 10° W. from the station.

New East River (Wakulla County, S. C. M., 1859; 1910).—This station is marked by a stone block. It was searched for without success in 1910, and if it still exists it can be located only by triangulation.

St. Marks L. H. (Wakulla County, S. C. M., 1859; 1910).—The lighthouse at the entrance to St. Marks River, rebuilt in 1867, apparently on the same site.

Port Leon (Wakulla County, S. C. M., 1855; 1910).—On firm ground among scattering pine trees one-fourth of a mile from the St. Marks River at a point three-eighths of a mile below where the old railway grade touches the river. The station is marked by a standard disk station mark in a block of concrete built around and above the top of a stone block which is about $4\frac{1}{2}$ inches square. Two other stone blocks, each with a drill hole in the top and sur-

rounded by a square block of concrete, are in line with the station and 2 feet distant, one to the northwest and the other to the southeast. An old stone foundation is across a pond from the station in azimuth $352^{\circ} 17'$ and a palmetto near a stone pile east of the stone foundation is in azimuth $330^{\circ} 43'$.

West Bayou Point (Wakulla County, S. C. M., 1855; 1907).—Lost.

Walker (Wakulla County, S. C. M., 1855; 1910).—This station is marked by stone blocks. It was searched for without success in 1910 and if it still exists it can be located only by triangulation.

St. Marks south base (Wakulla County, S. C. M., 1855; 1910).—About 1 mile north of Old Port Leon, in the center of the grade of the St. Marks & Port Leon R. R. The station is marked by a standard disk station mark in a block of concrete 1 foot square 6 inches below the surface, and underground by a bottle $2\frac{1}{2}$ feet below the surface. A reference mark, a bottle in a round block of concrete which projects 6 inches above the ground, is on the east side of the railroad grade 6.62 meters from the station in azimuth $348^{\circ} 51'$. Station *Aux* (see p. 99) is 49.06 meters distant in azimuth $161^{\circ} 00'$.

Fort St. Marks (Wakulla County, S. C. M., 1855; 1910).—At a distance of 8.30 meters from *Fort St. Marks astronomic station* (see p. 99) in azimuth $98^{\circ} 50'$. The station is marked by a square block of coral with two similar but smaller blocks 0.60 meters west and 0.53 meter south, respectively.

St. Marks north base (Wakulla County, S. C. M., 1855; 1910).—In the center of the grade of the St. Marks & Port Leon R. R. 105 meters south of the south bank of the St. Marks River. The station is marked by a standard disk station mark in a block of concrete 1 foot square 6 inches below the surface, and underground by a bottle 22 inches below the surface. Two rough granite blocks are in line with the station, one to the north 6 inches below the surface and 0.70 meters distant and the other to the south 2 inches below the surface and 0.67 meters distant. A reference mark, a bottle in a round block of concrete which projects 6 inches above the ground and is inscribed "Ref. 1910 for N. B. 1855," is on the east side of the grade, about 20 paces from the bank of the St. Marks River and 97.93 meters from the station in azimuth $159^{\circ} 36'$. *St. Marks magnetic azimuth station* (see p. 99) is 140.28 meters from the station in azimuth $340^{\circ} 15'$.

Trot (La Fayette County, F. W. P., 1874; 1876).—Near the eastern end of the eastern one of the Pepperfish Keys, a small island 95 meters long by 10 meters wide. The soil around the station is firm and is covered with short grass and small shrubs. The station is marked by a spike in the top of a piece of scantling driven in the center of an earthen crock. The top edge of the crock is level with the surface of the ground.

Gibbs (Wakulla County, W. H. B., 1907).—About 1 mile west of St. Marks River and about 250 meters north of Gibbs Point, near the east side of a small hummock 15 meters in diameter, the most southeastern one of several hummocks about 100 meters east of the hard land. The station is best approached by going up Little West Bayou about as far as possible in a small boat and from there the station is across the marsh to the westward. It is marked by a piece of 4-inch tile projecting 3 inches above the surface and underground by a black bottle 2 feet below the surface.

Four Mile (Wakulla County, W. H. B., 1907).—About 1 mile east of Four Mile Point and 200 meters south of a large "cabbage" hummock, in small bushes near the center of a small hummock about 10 meters in diameter, the eastern one of the two most southern hummocks in the group. The station is marked by two pieces of 4-inch tile, one piece projecting 3 inches above the surface and the other piece 18 inches below the surface.

Leon (Wakulla County, W. H. B., 1907; 1910)—On an embankment parallel to the shore line at Old Port Leon, 50.2 meters south of the intersection of the center line of this embankment with the center line of the railway embankment. The station is marked by a standard disk station mark in a block of concrete built around and above a piece of 4-inch tile. The underground mark is a piece of 4-inch tile 25 inches below the surface.

Pan (Wakulla County, W. H. B., 1907; 1910).—On the west bank of the St. Marks River, on the east end of the second point of trees south of the confluence of the St. Marks and the

Wakulla Rivers, the first prominent point of trees north of Gibbs Point. Fort St. Marks is just visible past the point of trees east of the confluence of the rivers. An old roadway leads to the southeast across the marsh to the river and the station is just southwest of where this road enters the marsh and about 150 meters southwest of the most easterly palmetto hummock in the vicinity. The station is marked by a standard disk station mark in a concrete block built around and above a piece of 4-inch tile and underground by a piece of 4-inch tile 20 inches below the surface. A reference mark, a bottle in a round block of concrete which projects 6 inches above the surface, is 8.71 meters from the station in azimuth $70^{\circ} 38'$. Three trees, each marked with a triangular blaze with a spike at the center of the blaze, are at the following distances and azimuths from the station: Palmetto, 11.95 meters, $14^{\circ} 15'$; oak, 25.16 meters, $27^{\circ} 51'$; oak, 5.39 meters, $136^{\circ} 37'$.

Fort St. Marks astronomic station (Wakulla County, W. H. B., 1907; 1910).—Just south of old Fort St. Marks and just east of the highest part of the open grassy plot on the point at the confluence of the St. Marks and Wakulla Rivers, 5 paces from high-water mark to the southeast, 11 paces from high-water mark to the west, and 11 paces south of where the road grade from the fort enters the grassy plot. The station is marked by a standard disk station mark in a block of concrete which is built around and above a piece of 4-inch tile. The underground mark is a piece of 4-inch tile 2 feet below the surface. Four cedar trees, each marked with from one to four nails, are at the following distances from the station: 10.58 meters east, 13.33 meters southwest, 11.36 meters northwest, and 20.86 meters north.

Stack (Wakulla County, W. H. B., 1907; 1910).—The center of the tall iron smokestack of the ruined mill of the Coast Cypress Lumber Co. in the village of St. Marks.

Long (Wakulla County, W. H. B., 1907; 1910).—In the village of St. Marks, on property belonging to Mellen Bros., 23.68 meters southeast of the southeast corner post of the lot of William H. Harrall and 84.66 meters from the east rail of the railway, measured along the line passing just to the north of Jackson's shanty. The station is marked by a 4-inch tile with top 2 inches below the surface. *St. Marks longitude station* is 0.87 meter south and 0.04 meter west of the station.

SUPPLEMENTARY POINTS.

Tank (Wakulla County, W. H. B., 1907; 1910).—Lost.

Aux (Wakulla County, W. H. B., 1907; 1910).—In the center of the roadbed of the St. Marks & Port Leon Railroad, 49.06 meters from *St. Marks south base* (see p. 98) in azimuth $161^{\circ} 00'$. The station is marked by a standard disk station mark set in a block of concrete which is built around and above the top of a 4-inch tile and which projects 6 inches above the ground.

St. Marks magnetic azimuth station (Wakulla County, W. H. B., 1907; 1910).—In the center of the roadbed of the St. Marks & Port Leon Railroad and 140.28 meters from *St. Marks north base* (see p. 98) in azimuth from the latter $340^{\circ} 15'$. The station is marked by a standard disk station mark in a block of concrete built around and above a piece of a 4-inch tile and underground by a piece of 4-inch tile 2 feet below the surface.

ST. MARKS RIVER TO ST. ANDREWS SOUND.

PRINCIPAL POINTS.

Shell Point (Wakulla County, S. C. M., 1859; 1910).—This station is marked by a stone block. Four oak stakes are north, south, east, and west from the station, each distant 3 feet. The station was searched for without success in 1910, and if it still exists it can be located only by triangulation.

Bald Point (Franklin County, S. C. M., 1859; 1910).—Lost.

Porters Island (Wakulla County, S. C. M., 1859; 1910).—Lost.

Piccoline Bayou (Wakulla County, S. C. M., 1859; 1910).—This station has been destroyed.

Chaires (Franklin County, S. C. M., 1859; 1910).—On the middle point of the south side of Ocklockonee Bay, about 12 meters from ordinary high-water and 6 meters from storm-water mark and about 12 meters in front of the scrub palmetto and oak which cover the point. The station is marked by a standard disk station mark in a round block of concrete built above the top of a granite post 4 inches square and 2 feet long. One reference mark, described in note 7,¹ is at the edge of the scrub 10.18 meters from the station in azimuth $00^{\circ} 09'$. Another reference mark, a bottle in the cone-shaped top of a round block of concrete, is 9.88 meters from the station in azimuth $86^{\circ} 51'$. A small oak and three small pine trees are in azimuths $108^{\circ} 14'$, $114^{\circ} 29'$, $273^{\circ} 49'$, and $335^{\circ} 42'$, respectively, from the station.

Lansing (Franklin County, S. C. M., 1859; 1873).—Lost.

Sopchoppy (Wakulla County, S. C. M., 1859; 1873).—Lost.

Lansing 2 (Franklin County, F. W. P., 1873; 1910).—Lost.

Sopchoppy 2 (Wakulla County, F. W. P., 1873; 1910).—Near the head of Ocklockonee Bay, on a rounded point on the north shore about one-half mile west of the mouth of a small creek, and about 25 meters back from high water. The station is marked according to note 4,¹ except that the underground mark is a stone pot 14 inches below the surface. The station is surrounded by a circle of small clamshells from a shell mound a few meters to the north. A reference mark, a round block of concrete with a sharp-pointed stone in the center, is on the shell mound 12.12 meters from the station in azimuth $201^{\circ} 22'$. Another reference mark, described in note 7,¹ is 9.69 meters from the station in azimuth $289^{\circ} 41'$. Two pine trees, each marked with a triangular blaze, are, respectively, 17.83 meters from the station in azimuth $20^{\circ} 30'$ and 17.28 meters in azimuth $68^{\circ} 12'$.

Robinson (Franklin County, S. C. M., 1859).—On a shell bank west of an oak thicket on St. James Island about 1 mile south of the mouth of the Ocklockonee River. The station is marked by four oak stakes each 3 feet from the station and by the three instrument pegs. Three blazed pine trees are at the following distances from the station: 20.0 meters west, 3.2 meters north by west, and 19.6 meters northeast.

Houston (Franklin County, S. C. M., 1859).—On St. James Island about one-third of a mile inland and $1\frac{1}{2}$ miles southeast of the mouth of the Ocklockonee River. The station is about 32 meters southeast of the southeast edge of a pond. It is marked by four oak stakes each 3 feet from the station, north, south, east, and west, and by the three instrument pegs. Three blazed pine trees are at the following distances from the station: 6.7 meters west, 18.6 meters north by east, and 8.2 meters south. The center of a pine stump is 15.5 meters northwest of the station.

Ellis (Franklin County, S. C. M., 1859).—On the western end of a small hill on St. James Island, about 2 miles south of the mouth of the Ocklockonee River and 60 meters south of the south edge of a pond. There is another small hill a short distance west of the station and a wagon road just beyond this hill. The station is marked by four oak stakes each 3 feet from the center north, south, east, and west, and by the three instrument pegs. Three blazed pine trees are at the following distances from the station: 21.6 meters N. 45° W., 17.1 meters S. 45° W., and 9.4 meters N. 45° E. A pine stump is 10.1 meters from the station in azimuth 304° .

Forbes (Franklin County, S. C. M., 1859).—On St. James' Island, on the western end of a small hill about 25 meters north of the road to Baileys. The station is marked by four oak posts each 3 feet from the center north, south, east, and west and by the three instrument pegs. Three blazed pine trees are at the following distances from the station: 5.5 meters S. 10° E., 7.2 meters S. 80° W., and 25.1 meters N. 60° E.

Bailey (Franklin County, S. C. M., 1858; 1873).—This station is marked by a stone block $2\frac{1}{2}$ feet below the ground. It was searched for without success in 1873, and if it still exists it can be located only by triangulation.

Franklin (Franklin County, S. C. M., 1858; 1910).—On the north shore of Alligator Harbor, opposite Peninsula Point, about 95 meters east of the mouth of a small creek and about 3 meters

¹ See pp. 61-62.

back from the edge of the grass and roots at high-water mark. The station is marked by a standard disk station mark in a square block of concrete built around and above the top of a granite post 4 inches square and 2 feet long, the concrete projecting 8 inches above the ground. One reference mark described in note 6,¹ is 10.07 meters north 12° west from the station, and another, described in note 7,¹ is 11.68 meters north 11° 08' east. Two pine trees, each marked with a triangular blaze and three nails, are, respectively, 11.80 meters N. 40° 40' E. from the station and 19.20 meters N. 76° 07' E. Four other pine trees are near the station, the nearest one being about 1 meter distant.

Peninsula Point (Franklin County, S. C. M., 1858; 1873).—Lost.

Turkey Point (Franklin County, S. C. M., 1858; 1873).—This station has been destroyed.

Southwest Cape (Franklin County, S. C. M., 1858; 1859).—Lost.

Dog Island east (Franklin County, S. C. M., 1857; 1909).—Lost.

St. James Island (Franklin County, S. C. M., 1858; 1909).—This station is marked by a stone block surrounded by four oak posts each 4 feet distant. It was searched for without success in 1909, and if it still exists it can be located only by triangulation.

Palmetto Point (Franklin County, S. C. M., 1858; 1909).—Lost.

Dog Island A. M. (Franklin County, S. C. M., 1858; 1909).—Lost.

Crooked River (Franklin County, S. C. M., 1856; 1909).—Lost.

Royal Bluff (Franklin County, S. C. M., 1856; 1909).—This station has been destroyed.

St. George Island east base (Franklin County, S. C. M., 1856; 1909).—Lost.

St. George Island west base (Franklin County, S. C. M., 1856; 1909).—Lost.

Marsh Point (Franklin County, S. C. M., 1856; 1909).—Lost.

Gap Island (Franklin County, S. C. M., 1856; 1909).—Lost.

Cat Point (Franklin County, S. C. M., 1856; 1909).—Lost.

Bulkhead Point (Franklin County, S. C. M., 1856; 1909).—Lost.

Cedar Point (Franklin County, S. C. M., 1856; 1909).—Near Farleys landing on Cedar Point on the north shore of St. George Island, on hard land nearly surrounded by marsh, about 2 meters from high-water mark and about 40 meters west of a clump of scrub palmettos and oaks. The station is marked by a bottle neck embedded in the top of a mass of concrete which is built around and above the top of a granite post. The underground mark is a 4-inch tile set in concrete 2 feet below the surface. A reference mark, a diagonal cross in the top of a square concrete post at the surface and a bottle set in concrete 2 feet below the surface, is 15.76 meters from the station in azimuth 271° 36'. Another reference mark, a 4-inch tile set in concrete with the top projecting 6 inches above the surface and a bottle 2 feet below the surface, is 33.81 meters from the station in azimuth 271° 25'.

Apalachicola (Franklin County, S. C. M., 1856; 1909).—Lost.

Green Point 2 (Franklin County, S. C. M., 1856; 1895).—Near the outer end of Green Point, a prominent marshy point about 3 miles west of Apalachicola. The station is 4 meters from high-water mark and near a small grove of palmetto bushes. It is marked by a stone block surrounded by four stakes. No trace of the station could be found in 1895, and it has probably been destroyed by the receding of the shore line.

Shell Bank (Franklin County, S. C. M., 1856; 1895).—On the north shore of St. Vincent Sound, about 3 miles northeast of Indian Pass. The stone which originally marked the station was found in the water about 20 meters out from high-water mark in 1895. The stone was placed in an upright position and a stick of timber driven down beside it. The recovery of this station is very doubtful, and it should be used with great caution.

Dead Oak Point (Calhoun County, S. C. M., 1860).—On a sand hillock surrounded by dead oak trees on the mainland shore about halfway between Indian Pass and St. Josephs Bay. The station is marked by a stone monument surrounded by four stakes in the form of a square.

Blacks Island (Calhoun County, S. C. M., 1860; 1910).—Lost.

St. Joseph (Calhoun County, S. C. M., 1868; 1910).—Lost.

Powell (Calhoun County, S. C. M., 1868; 1910).—Lost.

San Carlos (Calhoun County, S. C. M., 1868; 1910).—Lost.

Consort (Calhoun County, S. C. M., 1860; 1910).—On the bluff on the north or mainland shore at the entrance to St. Josephs Bay and just east of the lighthouse reservation. The station is about 9 meters from the edge of the bluff, and the foot of the bluff is about 60 meters from high-water mark. A fine spring is at the foot of the bluff a little west of the station. The station is marked by a standard disk station mark in the top of a round concrete block and underground by a hole in the top of a granite post 5 inches square and 2 feet long. A reference mark, a 6-foot galvanized iron pipe projecting 18 inches above the surface and set in a square block of concrete, is 10.58 meters from the station in azimuth $229^{\circ} 32'$. Another reference mark, similar to the first, except that the concrete is finished round, is 21.07 meters from the station in the same azimuth.

St. Andrews Point (Calhoun County, S. C. M., 1869; 1910).—Lost.

Pine Point (Calhoun County, S. C. M., 1869; 1910).—Lost.

Franklin Point 2 (Calhoun County, S. C. M., 1869; 1910).—Lost.

Nigel (Calhoun County, S. C. M., 1869; 1902).—Lost.

Spring Hill 2 (Calhoun County, S. C. M., 1869; 1910).—Lost.

Hurricane Point (Washington County, S. C. M., 1869; 1910).—Lost.

Cypress Point (Calhoun County, S. C. M., 1869; 1910).—Lost.

Laurel (Franklin County, E. S., 1909).—On a bluff on the shore of Apalachicola Bay near the southeast line of Laurel Street, Apalachicola. The station is marked by the neck of a bottle embedded in the top of a concrete post, which is 18 inches square below the surface and 10 inches square and 4 inches high above the surface, and is inscribed with a diagonal cross and a triangle. The underground mark is a 4-inch tile set in concrete 2 feet below the surface. A reference mark, the neck of a bottle, and a cross in the top of a square concrete block at the surface and a piece of 4-inch tile set in concrete 15 inches below the surface, is near the front fence in the lot of J. E. Grady, 1.5 meters southwest of the line fence of Laurel Street and 39.85 meters from the station in azimuth $90^{\circ} 26'$. Another reference mark, described in note 7,¹ is near the front fence in the lot of J. G. Ruge, 1.9 meters northeast of the line fence of Laurel Street and 30.06 meters from the station in azimuth $134^{\circ} 37'$.

West Pass 2 (Franklin County, E. S., 1909).—On the southern part of the northwest end of Sand Island. The station is marked by a 4-inch tile embedded in a block of concrete 10 inches square, which projects 8 inches above the ground. The underground mark is a bottle embedded in a block of concrete 2 feet below the surface. A reference mark, a 1-inch galvanized iron pipe 6 feet long, projecting 1 foot above the ground and surrounded by a block of concrete 10 inches square, is in line to a pine tree 79 paces beyond, and is 33.13 meters from the station in azimuth $321^{\circ} 45'$. Another reference mark, similar to the first, except that the iron pipe is $1\frac{1}{2}$ inches in diameter, is in line to a pine tree 180 paces beyond and is 39.51 meters from the station in azimuth $252^{\circ} 46'$.

West Pass (Franklin County, S. C. M., 1860; 1909).—On the southern part of the northwest end of Sand Island. The station is marked by a cross in the top of a granite post just below the surface of the ground. *West Pass 2* (see above) is 44.5 meters from the station in azimuth $230^{\circ} 27'$.

St. Vincent Point 2 (Franklin County, E. S., 1910).—On St. Vincent Point, at the northeast corner of St. Vincent Island, near the southern part of an area of firm ground between the sand spit at the eastern end of the point and the marsh to the westward. The station is marked by a standard disk station mark set in concrete at the surface and a similar mark set in concrete 3 feet below the surface. A reference mark, described in note 6,¹ is in line to the only oak tree on the point 13.08 meters from the station in azimuth $198^{\circ} 24'$. The oak and three palmettos, each marked with a triangular blaze, are at the following distances and azimuths from the station: 21.50 meters, $197^{\circ} 08'$; 12.60 meters, $7^{\circ} 26'$; 6.40 meters, $63^{\circ} 32'$; and 15.10 meters, $108^{\circ} 15'$.

¹ See pp. 61-62.

New Inlet 2 (Franklin County, E. S., 1910).—Near the middle of a crescent-shaped sand hill on the ocean side of St. Georges Island, just west of an inlet known as New Inlet, which has been closed for many years. The station is marked by a standard disk station mark set in concrete at the surface and a similar mark set in concrete 3 feet below the surface. A reference mark, described in note 7,¹ is in line to a crooked palmetto tree 42.58 meters from the station in azimuth $96^{\circ} 47'$. Another reference mark, described in note 6,¹ is 33.46 meters from the station in azimuth $171^{\circ} 31'$. Two palmetto trees, each marked with a triangular blaze, are, respectively, 46.20 meters from the station in azimuth $97^{\circ} 04'$ and 72.80 meters in azimuth $172^{\circ} 01'$.

Cat Point 2 (Franklin County, E. S., 1909).—On Cat Point, at the northwest end of Apalachicola Bay, from 50 to 75 meters west of a wharf on the south side of the point and about the same distance from a shell heap north of the wharf. The station is marked by the intersection of the median lines of an inscribed triangle in the top of a concrete post, the top of which is finished in the form of a triangular column 13 inches on a side. The underground mark is a tile set in concrete 2 feet below the surface. A reference mark, a 4-inch tile set in concrete at the surface, and a bottle set in concrete 2 feet below the surface is among some small oaks 15.80 meters from the station in azimuth $165^{\circ} 38'$. Another reference mark, a diagonal cross in the top of a square concrete post at the surface, and a bottle set in concrete 2 feet below the surface is 15.80 meters from the station in azimuth $211^{\circ} 33'$.

Bulkhead 2 (Franklin County, E. S., 1909).—On Bulkhead Point, on the north shore of St. Georges Sound, on a small sand hill 10 feet high, 15 meters from high-water mark. The station is marked by a cross in the top of a concrete post 10 inches square and underground by a 4-inch tile set in concrete 2 feet below the surface. A reference mark, a diagonal cross in the top of a square concrete post at the surface, and a bottle set in concrete 2 feet below the surface is near two small oak trees 68.55 meters from the station in azimuth $292^{\circ} 53'$. Another reference mark, a tile set in concrete with the top 3 inches above the surface and a bottle 2 feet below the surface, is on a small island 159.98 meters from the station in azimuth $224^{\circ} 22'$.

Yent (Franklin County, E. S., 1909).—On Green Point, on the north shore of St. Georges Sound, on a narrow strip of sand separated by a marsh from the pine woods to the north. The station is marked by a 4-inch tile set in concrete. Three pine trees, each marked with a triangular blaze, are at the edge of the woods in azimuths from the station as follows: $109^{\circ} 56'$, $167^{\circ} 44'$, and $199^{\circ} 48'$.

Gap Island 2 (Franklin County, E. S., 1909).—On a sand ridge at the northern extremity of Gap Island, just north of a marsh pond, which separates the ridge from the hard marsh to the south. The station is marked by a cross in the top of a concrete post 10 inches square and underground by a piece of 4-inch tile 2 feet below the surface. A reference mark, a 4-inch tile set in concrete, with the top 5 inches above the surface, and a bottle set in concrete 2 feet below the surface, is 20.58 meters from the station in azimuth $264^{\circ} 34'$. Another reference mark, a diagonal cross in the top of a square concrete post at the surface and a brick set in concrete 2 feet below the surface, is 21.10 meters from the station in azimuth $325^{\circ} 09'$. A pine tree marked with a triangular blaze is in azimuth $312^{\circ} 08'$ from the station and another pine tree marked with three horizontal gashes is in azimuth $314^{\circ} 24'$.

Marsh Point 2 (Franklin County, E. S., 1909).—On Marsh Point, on the north shore of St. Georges Sound. The station is marked by a cross in the top of a concrete post 10 inches square and underground by a 4-inch tile set in concrete 2 feet below the surface. A reference mark, a 4-inch tile set in concrete, with its top projecting 3 inches above the surface, and a bottle set in concrete 2 feet below the surface, is 21.66 meters from the station in azimuth $118^{\circ} 06'$. Another reference mark, a diagonal cross in the top of a concrete post at the surface and a bottle set in concrete 2 feet below the surface, is 56.56 meters from the station in azimuth $152^{\circ} 12'$. Three pine trees, each marked with a triangular blaze, are at the edge of the woods at the following distances and azimuths from the station: 19.70 meters, $91^{\circ} 00'$; 9.15 meters, $166^{\circ} 23'$; and 20.70 meters, $201^{\circ} 15'$.

¹ See pp. 61-62.

Spartan (Franklin County, E. S., 1909).—On low ground just back of a narrow strip of marsh on a rounded point on the north shore of St. George Island, about $2\frac{1}{2}$ miles east of Gap Island. The station is marked by a 4-inch tile set in concrete with the top projecting 5 inches and underground by a similar tile set in concrete 2 feet below the surface. Two reference marks, each described in note 7,¹ are, respectively, 38.32 meters from the station in azimuth $295^{\circ} 04'$ and 28.83 meters in azimuth $328^{\circ} 00'$.

Royal Bluff 2 (Franklin County, E. S., 1909).—On Royal Bluff, on the north shore of St. George Sound. The station is marked by a 4-inch tile set in concrete with the top projecting 3 inches and underground by a piece of 4-inch tile set in concrete 2 feet below the surface. A reference mark, a cross in the top of a concrete post at the surface of the ground and a bottle embedded in concrete 2 feet below the surface, is 10.69 meters from the station in azimuth $96^{\circ} 56'$. Another reference mark, similar to the first, is 9.96 meters from the station in azimuth $164^{\circ} 37'$.

St. George Island east (Franklin County, E. S., 1909).—On a sand hill near the eastern end of St. George Island. The station is marked by a galvanized iron pipe $1\frac{1}{2}$ inches in diameter and 8 feet long at the center of a 4-inch tile embedded in a mass of concrete 5 feet deep, the pipe and the tile projecting 1 foot above the ground. A reference mark, described in note 7,¹ is on a sand hill 20.70 meters from the station in azimuth $261^{\circ} 30'$. Another reference mark, a 4-inch tile set in concrete projecting 6 inches above the surface and a bottle set in concrete 2 feet below the surface, is 37.79 meters from the station in azimuth $17^{\circ} 41'$.

Crooked River 2 (Franklin County, E. S., 1909).—On a sand hill on the point about three-fourths mile west of the mouth of the Crooked River. The station is marked by a 4-inch tile set in concrete, the top of the tile projecting 4 inches above the concrete. The underground mark is a bottle embedded in the top of a concrete post 2 feet long 2 feet below the surface. A reference mark, a diagonal cross in the top of a concrete post at the surface and a bottle embedded in concrete 18 inches below the surface, is on a sand bluff 94.25 meters from the station in azimuth $89^{\circ} 36'$. A pine tree marked with a triangular blaze is at the foot of the hill, 15.90 meters from the station in azimuth 125° .

Dog Island west (Franklin County, E. S., 1909).—On the north side of the point at the west end of Dog Island, about midway between the end of the point and a clump of pine trees consisting of three large trees and one small one. The station is marked by a galvanized iron pipe $1\frac{1}{2}$ inches in diameter and 8 feet long at the center of a 4-inch tile embedded in concrete, the top of the iron pipe projecting 1 foot above the top of the tile and 2 feet above the ground. A reference mark, a 4-inch tile set in concrete with its top projecting 6 inches above the surface and a bottle set in concrete 2 feet below the surface, is in line to the most northerly of the pine trees, 16.19 meters from the station in azimuth $316^{\circ} 09'$. Another reference mark, described in note 7,¹ is 31.36 meters from the station in azimuth $46^{\circ} 09'$. The southwestern one of the four pine trees mentioned above is in azimuth $341^{\circ} 35'$ and the next pine to the northeast is in azimuth $333^{\circ} 51'$.

Dog Island east 2 (Franklin County, E. S., 1909).—On a sand hill near the northeast point of Dog Island and just north of a lone pine tree. The station is marked by a galvanized iron pipe $1\frac{1}{2}$ inches in diameter and 8 feet long at the center of a 4-inch tile embedded in concrete, the iron pipe projecting about 10 inches above the top of the tile. A reference mark, a 4-inch tile set in concrete at the surface and a bottle embedded in concrete 2 feet below the surface, is on the same sand hill 28.10 meters from the station in azimuth $70^{\circ} 18'$. Another reference mark, described in note 7,¹ is on a sand hill 62.21 meters from the station in azimuth $205^{\circ} 36'$. Two pine trees, each marked with a triangular blaze, are, respectively, 19.5 meters from the station in azimuth $258^{\circ} 48'$ and 44.10 meters in azimuth $320^{\circ} 17'$.

Palmetto 2 (Franklin County, E. S., 1909).—On St. James Island, on the second point east of the mouth of the Crooked River. The point is sandy, and there are a few scattered pine trees near the station and a cleared field just to the northwest. The station is marked by a 4-inch tile set in concrete and projecting 3 inches above the surface and underground by a

¹ See pp. 61-62.

bottle set in concrete 2 feet below the surface. A reference mark, a diagonal cross in the top of a concrete post set flush with the surface and a bottle set in concrete 2 feet below the surface, is 16.86 meters from the station in azimuth $192^{\circ} 37'$. Four pine trees, each marked with a triangular blaze, are at the following distances and azimuths from the station: 9.07 meters, 119° ; 29.95 meters, 151° ; 44.60 meters, 178° ; and 16.08 meters, 224° .

St. James Island 2 (Franklin County, E. S., 1909).—On low ground covered with grass and scrubs about 1 mile east of Lanark. The station is marked by a 4-inch tile set in concrete with its top projecting a few inches above the ground. A reference mark, a concrete post 10 inches square inscribed with a diagonal cross and an arrow pointing to the station, is 10.12 meters distant in azimuth $120^{\circ} 11'$. Another reference mark, similar to the first except that there is a bottle embedded in the top of the concrete, is 10.31 meters from the station in azimuth $215^{\circ} 35'$.

Lands end (Washington County, E. S., 1910).—On the south shore of the lower part of St. Andrews Bay, on a sand hill near the extremity of the sand spit known as Lands End. The station is marked according to note 4.¹

Weiley (Calhoun County, E. S., 1910).—This station is identical with the United States Engineers station *D* of 1908. It is on the north shore of the lower part of St. Andrews Bay, about 48 meters from high-water mark and just back of a palmetto tree to which the signal was fastened. The station is marked according to note 3.¹ A reference mark, described in note 6,¹ is 11.28 meters from the station in azimuth $163^{\circ} 41'$, and another, described in note 5,¹ is 13.98 meters distant in azimuth $237^{\circ} 51'$. Three trees marked with triangular blazes, are at the following distances and azimuths from the station: Palmetto, 16.16 meters, $176^{\circ} 46'$; Palmetto, 2.74 meters, 201° ; and pine, 15.70 meters, $206^{\circ} 56'$.

Hurricane West (Calhoun County, E. S., 1910).—This station is identical with the United States Engineers station *F* of 1908. It is on the highest sand hill on the Gulf side of the west end of Hurricane Island. The station is marked by a copper pin in the top of a concrete post 5 inches square.

Hurricane East (Calhoun County, E. S., 1910).—This station is identical with the United States Engineers station *H* of 1908. It is on a sand hill on the east end of Hurricane Island and about midway between St. Andrews Bay and the Gulf. The station is marked by a cross in the top of a concrete post 7 inches square.

Sand Bluff (Calhoun County, E. S., 1910).—On a sand hill rising from a broad stretch of low sand on the north shore of the lower part of St. Andrews Bay and nearly opposite the east end of Hurricane Island. Low grass land is north of the station and beyond the grass is sand and pine trees. The station is marked according to note 3.¹ Two pine trees marked with triangular blazes are, respectively, 36.70 meters from the station in azimuth $164^{\circ} 54'$ and 44.50 meters in azimuth $247^{\circ} 53'$.

Bayou Bluff (Calhoun County, E. S., 1910).—On the west end of a sand bluff opposite the entrance to St. Andrews Bay and a little east of the entrance to a bayou that winds back of the bluff. The underground mark at the station is a well pipe $2\frac{1}{2}$ feet long set in concrete. This concrete extends to the surface and is finished in the form of a truncated pyramid 8 inches square on top, in which is set a standard disk station mark for the surface mark. Three pine trees, the first two marked with three blazes each and the other two with single triangular blazes, are at the following distances and azimuths from the station: 14.9 meters, $109^{\circ} 49'$; 10.95 meters, $137^{\circ} 19'$; 38.30 meters, $292^{\circ} 14'$; and 41.65 meters, $298^{\circ} 15'$.

Spring (Calhoun County, E. S., 1910).—On a low sand hill on the mainland shore of St. Andrews Sound, about 60 meters back from high-water mark in the bight east of Hog Island. The station is marked according to note 3.¹ A reference mark, described in note 5,¹ is 20.35 meters from the station in azimuth $170^{\circ} 45'$, and another, described in note 6,¹ is 28.02 meters distant in azimuth $231^{\circ} 14'$. Three trees marked with triangular blazes are at the following distances and azimuths from the station: 15.75 meters, $139^{\circ} 17'$; 8.78 meters, $191^{\circ} 49'$; and 21.20 meters, $212^{\circ} 05'$.

¹ See pp. 61-62.

Anchor (Calhoun County, E. S., 1910).—On the low shifting sand spit near the southwest end of what is known as Crooked Island and about midway between St. Andrews Sound and the Gulf near where the sand spit bends to the northward. The station is marked according to note 3.¹

Astral (Calhoun County, E. S., 1910).—On the highest of a group of sand hills on the Gulf side of the west end of Crooked Island and about 30 meters from high-water mark. The station is marked according to note 3.¹

Areola (Calhoun County, E. S., 1910).—On a sand hill on the first point east of the entrance on the north or mainland shore of St. Andrews Sound and about 6 meters from high-water mark. The station is marked according to note 3.¹ A reference mark, described in note 6,¹ is on a sand hill 57.73 meters from the station in azimuth $160^{\circ} 22'$. Three pine trees marked with triangular blazes are at the following distances and azimuths from the station: 10.05 meters, $205^{\circ} 43'$; 17.10 meters, $230^{\circ} 46'$; and 10.80 meters, $292^{\circ} 45'$.

Abbot (Calhoun County, E. S., 1910).—On the first point east of the entrance on the southwest shore of St. Andrews Sound, about 25 meters from high-water mark and the same distance from a small sand hill back of the station. The station is marked according to note 3.¹ A reference mark, described in note 6,¹ is under a large pine tree 46.40 meters from the station in azimuth $4^{\circ} 11'$. Two pine trees marked with triangular blazes are, respectively, 52.10 meters from the station in azimuth $8^{\circ} 01'$ and 59.60 meters in azimuth $51^{\circ} 09'$. The distance between the blazed pines is 41.6 meters and from the reference mark to the first-mentioned blazed pine is 6.50 meters.

Agog (Calhoun County, E. S., 1910).—On the Gulf side of the southeast end of the sand bluff on Crooked Island southeast of the entrance to St. Andrews Sound. The station is marked according to note 3.¹

Arrow (Calhoun County, E. S., 1910).—On a sand ridge on a point near the middle of the northeast shore of St. Andrews Sound. The station is marked according to note 3.¹ A reference mark, described in note 5,¹ is 44.27 meters from the station in azimuth $196^{\circ} 09'$, and another, described in note 6,¹ is 40.43 meters distant in azimuth $247^{\circ} 53'$. Three pine trees marked with triangular blazes are at the following distances and azimuths from the station: 19.5 meters, $173^{\circ} 09'$; 17.3 meters, $204^{\circ} 12'$; and 17.1 meters, $250^{\circ} 12'$.

Atom (Calhoun County, E. S., 1910).—On an isolated sand hill about 25 feet high between the Gulf and the southeastern end of St. Andrews Sound. The station is marked according to note 3.¹

Asp (Calhoun County, E. S., 1910).—On a small sand hill near a large pine tree on a point on the northeast shore of St. Andrews Sound and about 40 meters from high-water mark. The station is marked according to note 3.¹ A reference mark, described in note 5,¹ is 38.93 meters from the station in azimuth $178^{\circ} 38'$, and another, described in note 6,¹ is 45.06 meters distant in azimuth $247^{\circ} 56'$. The large pine tree mentioned above is marked with a triangular blaze and is 3.10 meters from the station in azimuth 292° .

Acorn (Calhoun County, E. S., 1910).—On a sand hill on the northeast shore of St. Andrews Sound, on the last point before reaching Goose Bayou, and 68 paces from high-water mark. The station is marked according to note 3.¹ A reference mark, described in note 6,¹ is 24.46 meters from the station in azimuth $239^{\circ} 04'$. Three trees marked with triangular blazes are at the following distances and azimuths from the station: 24 meters, $4^{\circ} 59'$; 14.55 meters, $189^{\circ} 32'$; and 16.14 meters, $287^{\circ} 22'$.

Apex (Calhoun County, E. S., 1910).—On a bluff about 20 feet high a mile or more west of St. Andrews Point and the Bell Shoals. The station is about 2 meters from the edge of the bluff, and at very high water the Gulf washes the foot of the bluff. The station is marked according to note 3.¹ A reference mark, described in note 5,¹ is on the first ridge of sand hills inland, and is 78.67 meters, horizontal distance, from the station in azimuth $171^{\circ} 06'$. Another reference mark, described in note 6,¹ is on this same ridge, 74.04 meters, horizontal distance,

¹ See pp. 61-62.

from the station in azimuth $220^{\circ} 39'$. The distance between the reference marks is 64.13 meters.

St. Joseph Point 2 (Calhoun County, E. S., 1910).—On the highest sand hill on the bay side of St. Josephs Point. The station is marked according to note 4.¹ A reference mark, a 6-foot galvanized iron pipe projecting 18 inches above the surface and set in a mass of concrete which is finished round above the ground, is on the ridge of sand hills back of the station 38.77 meters from the station in azimuth $203^{\circ} 53'$. Another reference mark, similar to the first except that the concrete is finished square above the ground, is on the same ridge 46.10 meters distant in azimuth $149^{\circ} 45'$.

San Carlos 2 (Calhoun County, E. S., 1910.)—On the sand bluff well back from the shore on what is locally known as Six Mile Point. The station is marked according to note 4.¹ A reference mark, a 6-foot galvanized iron pipe projecting 18 inches above the surface and set in a mass of concrete which is finished square above the ground, is on a sand ridge 32.81 meters from the station in azimuth $337^{\circ} 08'$. Another reference mark, similar to the first except that the concrete is finished round above the ground, is on the same ridge 33.82 meters distant in azimuth $34^{\circ} 32'$. The distance between the reference marks is 31.74 meters. Two pine trees marked with triangular blazes are, respectively, 20.25 meters from the station in azimuth $347^{\circ} 19'$ and 25.40 meters in azimuth $58^{\circ} 31'$.

Pompano (Calhoun County, E. S., 1910).—On a point on the west side of St. Josephs Bay on low sand 65 meters from high-water mark. There are some sand hills just back of the station. The station is marked according to note 4.¹ A reference mark, described in note 6,¹ is 27.17 meters from the station in azimuth $82^{\circ} 33'$.

St. Joseph 2 (Calhoun County, E. S., 1910).—In the old railroad grade at the site of the old town of St. Joseph and about 3 meters from high-water mark. The station is marked according to note 8.¹ A reference mark, described in note 6,¹ is 10.65 meters from the station in azimuth $273^{\circ} 30'$.

Eagle Point 2 (Calhoun County, E. S., 1910).—About three-fourths of a mile southeast of Eagle Harbor, on a narrow sand ridge, back of which is a small pond and marsh. The station is marked according to note 4.¹

Blacks Island A. M. (Calhoun County, E. S., 1910).—On the north end of Blacks Island, in St. Josephs Bay, and about 10 meters from high-water mark. The station is marked according to note 8.¹ A reference mark, described in note 7,¹ is 7.52 meters from the station in azimuth $56^{\circ} 50'$. Two palmetto trees marked with triangular blazes are, respectively, 7.08 meters from the station in azimuth $100^{\circ} 56'$ and 9.67 meters in azimuth $55^{\circ} 00'$.

SUPPLEMENTARY POINTS.

St. Marks River east (Franklin County, E. S., 1910).—About 3 miles east of Apalachicola, on the point just east of the west mouth of the St. Marks River, on a bank of sand about 2 feet deep about 30 meters from the water's edge. The station is marked by a standard disk station mark set in concrete level with the surface of the sand.

Catholic church spire, Apalachicola (Franklin County, P. A. W., 1902; 1909).—A cone-shaped spire rising from a square belfry. The belfry is painted white and has green window blinds.

St. George light (Franklin County, P. A. W., 1902; 1910).—A white channel beacon in Apalachicola Bay about $3\frac{1}{2}$ miles east of West Pass and nearly abreast of Cape St. George Lighthouse.

A (U. S. E.) (Franklin County, E. S., 1910).—On St. Vincent Island opposite Sand Island, at the northeast end of a short base line. The station is marked by a copper pin one-fourth inch in diameter in the top of a concrete post 4 inches square on top which projects 1 foot above the ground.

B (U. S. E.) (Franklin County, E. S., 1910).—On St. Vincent Island opposite Sand Island, at the southwest end of a short base line. The station is marked by a copper pin one-

fourth inch in diameter in the top of a concrete post 4 inches square on top which projects 1 foot above the ground.

San Pedro 2 (Calhoun County, E. S., 1910).—About 3 miles north of Cape San Blas Lighthouse, on a high sand hill on the second sand ridge from St. Josephs Bay and about midway between the bay and the Gulf. The station is marked by a standard disk station mark in the top of a round concrete block and underground by a granite post 5 inches square and 2 feet long set 2 feet below the surface.

Hog Island (Calhoun County, E. S., 1910).—In the lower part of St. Andrews Bay, on the most westerly sand hill on what is known as Hog Island. The station is marked according to note 3.¹

ST. ANDREWS BAY.

PRINCIPAL POINTS.

St. Andrews Bay, west base (Washington County, S. C. M., 1870).—Lost.

Davis Point 2 (Calhoun County, S. C. M., 1869; 1910).—Lost.

Dyers Point 2 (Washington County, S. C. M., 1870; 1910).—Lost.

St. Andrews Bay, east base (Washington County, S. C. M., 1870).—Lost.

Courtney Point 2 (Washington County, S. C. M., 1869; 1910).—Lost.

Laguna (Washington County, S. C. M., 1869; 1910).—Lost.

Vista Buena 2 (Washington County, S. C. M., 1870; 1910).—On Buena Vista Point on the north shore of St. Andrews Bay, just below the bluff on which the house of Mrs. L. M. Ware is situated. The station is marked by a cross in the top of a granite post 2 feet long and 6 inches square at the top which is buried 15 inches below the surface of the ground. Around the upper 6 inches of this stone and extending to the surface is a concrete block in the top of which is a standard disk station mark. On the bluff back of the station and just outside the fence surrounding the residence of Mrs. Ware are two reference marks, one, described in note 6,¹ at the west end of the fence 44.29 meters, horizontal distance, from the station in azimuth 149° 22', and the other, described in note 7,¹ at the east end of the fence 37.51 meters, horizontal distance, from the station in azimuth 209°. A cedar tree is 12.26 meters from the station in azimuth 60° 43', and an oak is 43.33 meters distant in azimuth 275° 08'.

West Bay Point (Washington County, S. C. M., 1870; 1910).—At storm water line on West Bay Point, known locally as Shell Point, at the entrance to the west arm of St. Andrews Bay. The station is marked according to note 3,¹ except that the underground mark is a granite block 4 inches square and 2 feet long 18 inches below the surface. A reference mark, described in note 5,¹ is on a shell mound 17.17 meters from the station in azimuth 44° 46'. Another reference mark, described in note 6,¹ is 11.12 meters from the station in azimuth 100° 14'. A cedar tree marked with a triangular blaze is 12.79 meters from the station in azimuth 352° 07'.

North Bay Point (Washington County, S. C. M., 1870; 1910).—On a sand ridge covered by a low bushy growth on the west side of North Bay Point between the north and west arms of St. Andrews Bay, 2 meters south of the crest of the ridge and about 2½ meters from ordinary high-water mark. The station is marked by a standard disk station mark in the top of a concrete block 2 feet in diameter and underground by a granite block 4 inches square and 2 feet long 1 foot below the surface. A reference mark, described in note 7,¹ is 5.26 meters from the station in azimuth 160° 09'. Another reference mark, described in note 6,¹ is 15.105 meters from the station in azimuth 289° 21'. A lone pine tree near the old salt works on the point is in azimuth 254° 43'.

Crane Point (Washington County, S. C. M., 1871; 1910).—On Crane Point on the south shore of the west arm of St. Andrews Bay, about 700 meters northwest of the entrance to a shallow, circular lagoon. The station is at high-water mark near the west end of a strip of

¹ See pp. 61-62.

firm ground which is between the marsh and the bay. It is marked according to note 3,¹ except that the underground mark is a granite block 2 feet below the surface. A reference mark, described in note 7,¹ is 12.33 meters from the station in azimuth $302^{\circ} 46'$, and another, described in note 6,¹ is 5.42 meters distant in azimuth $2^{\circ} 12'$. A small cedar tree near the east end of the ridge is 50.40 meters from the station in azimuth $294^{\circ} 20'$ and a second cedar is 5.7 meters distant in azimuth 21° .

Pelican Point 2 (Washington County, E. S., 1910).—Near the center of a hummock on the western one of two projections of a low rounded point on the south side of the west arm of St. Andrews Bay. The hummock extends to the water's edge and is covered with scrub palmetto. The station is marked according to note 4.¹ A reference mark, described in note 7,¹ is 8.99 meters from the station in azimuth $108^{\circ} 09'$. Another reference mark, described in note 6,¹ is 6.71 meters from the station in azimuth $294^{\circ} 38'$. A lone live oak marked with a triangular blaze is on the hummock 5.90 meters from the station in azimuth $101^{\circ} 30'$.

Olio 2 (Washington County, E. S., 1910).—On the first rounded point north of North Bay Point, on the north shore of the west arm of St. Andrews Bay. It is near the center in a north and south direction of a hummock known locally as Cedar Hummock and about 8 meters from high-water mark. The station is marked according to note 4¹ except that the bottle of the underground mark is replaced by a cedar peg. A reference mark, described in note 7,¹ is 4.23 meters from the station in azimuth $239^{\circ} 22'$. Another reference mark, described in note 6,¹ is near a large live-oak tree, 15.13 meters from the station in azimuth $308^{\circ} 14'$. Two cedar trees and one oak tree, each marked with a triangular blaze, are at the following distances and azimuths, respectively, from the station: 14.75 meters, $164^{\circ} 24'$; 8.05 meters, $238^{\circ} 04'$; and 12.94 meters, $329^{\circ} 45'$.

Medway 2 (Washington County, E. S., 1910).—On the sand ridge at the end of the point on the west side of the mouth of Burnt Mill Creek, on the north side of the west arm of St. Andrews Bay. The station is marked according to note 4.¹ The end of the sand spit is 40 paces from the station in azimuth 41° , and a clump of small cedars near the water's edge is 65 paces distant in azimuth 194° .

Orcus 2 (Washington County, E. S., 1910).—On the high sand ridge near the shore on the north side of the entrance to West Bay Creek, at the head of the west arm of St. Andrews Bay. The station is marked according to note 4.¹ A reference mark, described in note 6,¹ is 9.86 meters from the station in azimuth $127^{\circ} 45'$, and another, described in note 7,¹ is 9.76 meters from the station in azimuth $178^{\circ} 15'$. Five trees, each marked with a triangular blaze, are at the following distances and azimuths from the station: Pine near the water's edge, 14.56 meters, $17^{\circ} 36'$; oak, 15.35 meters, $118^{\circ} 14'$; oak, 15.47 meters, $131^{\circ} 46'$; double oak, 7.20 meters, $154^{\circ} 49'$; oak, 12.18 meters, $177^{\circ} 56'$.

Swan 2 (Washington County, E. S., 1910).—On a rounded point on the east side of the head of the west arm of St. Andrews Bay, on the crest of a long narrow sand ridge on which there are a few cedar trees and back of which are marsh ponds bare at low water. The station is marked according to note 4.¹ A reference mark, described in note 7,¹ is 7.83 meters from the station in azimuth $332^{\circ} 38'$, and a conspicuous, umbrella-shaped cedar tree is 6.23 meters distant in azimuth 78° .

Iris 2 (Washington County, E. S., 1910).—Near the highest point of a shell bank on a rounded point on the east side of St. Andrews Bay a little south of east from West Bay Point. The station is marked according to note 4.¹ A reference mark, described in note 6,¹ is 91.12 meters from the station in azimuth $6^{\circ} 13'$, and another, described in note 7,¹ is 9.22 meters distant in azimuth $164^{\circ} 02'$. Both reference marks are on the shell bank. There are several pine trees with old blazes in the vicinity said to be old landmarks, and one of these is 12.24 meters from the station in azimuth $248^{\circ} 27'$. Three pine trees, each marked with a triangular blaze, are at the following distances and azimuths from the station: 5.34 meters, $150^{\circ} 15'$; 13.83 meters, $271^{\circ} 51'$; and 12.30 meters, $34^{\circ} 21'$.

¹ See pp. 61-62.

Ceres 2 (Washington County, E. S., 1910).—On a long low point known as Little Oyster Bar Point just north of Upper Goose Bayou on the east side of the north arm of St. Andrews Bay. The station is on the crest of a scrub-covered sand ridge which is just back of the bare sand at the tip of the point, and is marked according to note 3.¹ A reference mark, described in note 6,¹ is near a small oak tree 7.60 meters from the station in azimuth 299° 33'. Two oak trees, the first marked with a triangular blaze, are, respectively, 10.60 meters from the station in azimuth 305° 35' and 16.60 meters in azimuth 356° 22'.

Juno Bayou 2 (Washington County, E. S., 1910).—On a point of hummock land south of the entrance to Alligator Bayou on the northwest side of the north arm of St. Andrews Bay. The station is marked according to note 3.¹ A reference mark, described in note 6,¹ is 7.99 meters from the station in azimuth 200° 31'. Two burnt stumps, one near the water and the other on the marsh, are, respectively, 18.80 meters from the station in azimuth 306° 02' and 10.10 meters in azimuth 116° 02'.

Sulphur Point 2 (Washington County, E. S., 1910).—In a clump of bushes just west of the edge of the woods on Sulphur Point, a long, low, sandy point on the northeast side of St. Andrews Bay. The station is marked according to note 3.¹ A reference mark, described in note 6,¹ is under a large crooked oak 15.37 meters from the station in azimuth 267° 52'. Two oak trees are, respectively, 15.20 meters from the station in azimuth 260° 36' and 11.65 meters in azimuth 299° 01'.

Perdita 2 (Washington County, E. S., 1910).—On the first point south of West Bay Point on the west side of St. Andrews Bay, just north of a small bayou and 14 meters from high-water mark. The station is marked according to note 3.¹ A reference mark, described in note 6,¹ is 10.40 meters from the station in azimuth 103° 25'. Other distances and azimuths were measured as follows: Double pine, marked with a triangular blaze, 8.10 meters, 152° 07'; small pine, 10.36 meters, 84°; and two small oaks, 19.80 meters, 350° 29'.

Aliena 2 (Washington County, E. S., 1910).—On a rounded point on the west side of St. Andrews Bay, opposite Sulphur Point, on the property of J. C. Halley, about midway between the shore and a road parallel to the shore. The station is marked according to note 3.¹ A reference mark, described in note 5,¹ is 11.07 meters from the station in azimuth 90° 20', and another, described in note 6,¹ is 11.11 meters distant in azimuth 30° 56'. Three pine trees, marked with old blazes, are at the following distances and azimuths from the station: 21.96 meters, 30° 56'; 18.87 meters, 90° 21'; and 20.93 meters, 186° 44'.

Bluff (Washington County, E. S., 1910).—On a bluff on the southwest shore of St. Andrews Bay, opposite Dyers Point, just east of an old field and the ruins of a house. The station is marked according to note 4.¹ A reference mark, described in note 7,¹ is 7.23 meters from the station in azimuth 26° 20', and another, described in note 6,¹ is 12.55 meters distant in azimuth 106° 53'.

Dyers Point 3 (Washington County, E. S., 1910).—On Dyers Point, on the north side of St. Andrews Bay, on top of the bluff, which is composed of sand and oystershells and is covered with small oak trees. The station is marked according to note 3.¹ A reference mark, described in note 5,¹ is 5.86 meters from the station in azimuth 237° 28', and another, described in note 6,¹ is 12.39 meters distant in azimuth 237° 23'. Five oak trees, each marked with a triangular blaze, are at the following distances and azimuths from the station: 2.92 meters, 32°; 3.49 meters, 135°; 5.91 meters, 224°; 3.85 meters, 241°; and 6.53 meters, 270°.

Bear Point (Washington County, E. S., 1910).—On the low sandy beach at Bear Point, on the southwest side of St. Andrews Bay, about midway between the shore line and the edge of the woods. The station is marked according to note 4.¹ A reference mark, described in note 7,¹ is at the edge of the woods 21.38 meters from the station in azimuth 359° 20'. Two pine trees, each marked with a triangular blaze, are, respectively, 20.02 meters from the station in azimuth 2° 33' and 17.80 meters in azimuth 35° 56'.

Courtney Point 3 (Washington County, E. S., 1910).—On Courtney Point, on the southwest side of St. Andrews Bay, just east of the edge of the woods. The station is marked according

¹ See pp. 61-62.

to note 3.¹ A reference mark, described in note 6,¹ is just within the woods 12.55 meters from the station in azimuth $49^{\circ} 54'$. An old dead oak is 14 meters from the station in azimuth $309^{\circ} 27'$, and an oak marked with a triangular blaze is 11.20 meters distant in azimuth $108^{\circ} 34'$.

Red Fish Point 3 (Calhoun County, E. S., 1910).—On Red Fish Point, on the south side of the entrance to the east arm of St. Andrews Bay, on the northwest side of the point just north of a pond. The station is between two old cedar posts and is marked according to note 3.¹ A reference mark, described in note 5,¹ is 15.96 meters from the station in azimuth $304^{\circ} 28'$, and another, described in note 6,¹ is 18.57 meters distant in azimuth $26^{\circ} 37'$. A lone pine tree is 55 paces from the station in azimuth $239^{\circ} 37'$.

Drumond (Washington County, E. S., 1910).—On a rounded point on the north shore of St. Andrews Bay, a short distance east of the town of St. Andrews, on property laid out in town lots just east of the entrance to a large bayou. North of the station is the St. Andrews and Panama City road, and there is a wire fence along this road and along the shore. The station is marked according to note 3.¹ A reference mark, described in note 5,¹ is 6.02 meters from the station in azimuth $168^{\circ} 18'$, and another, described in note 6,¹ is 7.71 meters distant in azimuth $284^{\circ} 47'$. Three pine trees, each marked with a triangular blaze, are at the following distances and azimuths from the station: 6.55 meters, $31^{\circ} 35'$; 14.25 meters, $284^{\circ} 04'$; and 20.00 meters, $297^{\circ} 44'$.

Davis Point 3 (Calhoun County, E. S., 1910).—This station is identical with the United States Engineers station *B* of 1908. It is south of Red Fish Point, on the west shore of the main part of St. Andrews Bay and is marked by a copper pin in the top of a concrete post 5 inches square. A reference mark, described in note 7,¹ is near an oak tree 12.66 meters from the station in azimuth $238^{\circ} 36'$, and another, described in note 6,¹ is near an oak tree 13.77 meters distant in azimuth $309^{\circ} 28'$. Two trees marked with triangular blazes are at the following distances and azimuths from the station: Oak, 13.45 meters, $229^{\circ} 36'$; and palmetto, 15.98 meters, $310^{\circ} 36'$.

Laguna 2 (Washington County, E. S., 1910).—This station is identical with the United States Engineers station *A* of 1908. It is on a narrow sand ridge on a prominent point on the southern shore of the main part of St. Andrews Bay, and is marked by a copper pin in the top of a concrete post 5 inches square.

Spanish Shanty (Washington County, E. S., 1910).—This station is identical with the United States Engineers station *C* of 1908. It is on Spanish Shanty Point, on the south shore of the lower part of St. Andrews Bay, near an oak tree about 15 meters from high-water mark. The station is marked by a copper pin in the top of a concrete post 5 inches square. A reference mark, described in note 5,¹ is 22.90 meters from the station in azimuth $5^{\circ} 43'$, and another, described in note 6,¹ is 11.64 meters distant in azimuth $68^{\circ} 19'$. An oak marked with a triangular blaze is 2.90 meters from the station in azimuth 36° .

Middle (Calhoun County, E. S., 1910).—On a sand ridge on the north shore of the lower part of St. Andrews Bay and about 12 meters from high-water mark. The land back of the station is marshy and most of the trees are palmetto. The station is marked according to note 3.¹ A reference mark, described in note 6,¹ is 11.80 meters from the station in azimuth $238^{\circ} 02'$. Three palmetto trees, marked with triangular blazes, are at the following distances and azimuths from the station: 7.08 meters, $201^{\circ} 15'$; 8.86 meters, $228^{\circ} 56'$; and 16.03 meters, $276^{\circ} 45'$.

Bunkers Point (Washington County, E. S., 1910).—On the point opposite Redfish Point on the north side of the entrance to the east arm of St. Andrews Bay, and just west of Bunkers Cove. The point is a sand ridge mostly covered with a low growth of oaks and palmettos and back of the ridge is a marsh and pond. The station is marked according to note 3.¹ A reference mark, described in note 5,¹ is 5.97 meters from the station in azimuth $210^{\circ} 05'$, and another, described in note 6,¹ is 9.71 meters distant in azimuth $277^{\circ} 05'$.

Palmetto Point 2 (Calhoun County, E. S., 1910).—On the bluff on Palmetto Point on the south side of the east arm of St. Andrews Bay, and on the property of Mr. Mosher. The station is marked according to note 3.¹ A reference mark, described in note 5,¹ is close to a fence on

¹ See pp. 61-62.

the east and 5.75 meters from the station in azimuth $287^{\circ} 57'$. Another reference mark, described in note 6,¹ is 7.83 meters distant in azimuth $2^{\circ} 12'$. Two palmetto trees are, respectively, 8.75 meters from the station in azimuth $352^{\circ} 59'$, and 2.60 meters, in azimuth 107° .

Town Point 2 (Washington County, E. S., 1910).—On Town Point, the first point east of Bunkers Cove and about one-half mile southwest of Watson Bayou. The station is marked according to note 3.¹ A small oak marked with a triangular blaze is 8.80 meters from the station in azimuth $317^{\circ} 51'$, and an oak marked with three blazes is 10.40 meters distant in azimuth $178^{\circ} 15'$.

Military Point 2 (Calhoun County, E. S., 1910).—On a long sand-spit point on the east side of the east arm of St. Andrews Bay. The station is well in toward the main shore and is marked according to note 3.¹ A reference mark, described in note 6,¹ is near a fence corner 17.43 meters from the station in azimuth $23^{\circ} 17'$. Two oak trees marked with triangular blazes are, respectively, 10.58 meters from the station in azimuth $4^{\circ} 50'$, and 20.65 meters in azimuth $29^{\circ} 07'$.

Watson Point 2 (Washington County, E. S., 1910).—On the point a little east of the entrance to Watson Bayou, in a clump of palmettos below the bluff. The station is marked according to note 3.¹ Two oaks marked with triangular blazes are, respectively, 7.96 meters from the station in azimuth $90^{\circ} 51'$ and 3.93 meters in azimuth $164^{\circ} 48'$.

Parker Point 2 (Washington County, E. S., 1910).—On the low land below the high bluff just opposite Ferry Point. The station is marked according to note 3.¹ A reference mark, described in note 5,¹ is on the bluff 35.55 meters, horizontal distance, from the station in azimuth $207^{\circ} 46'$, and another, described in note 6,¹ is on the bluff 44.76 meters, horizontal distance, from the station in azimuth $271^{\circ} 13'$. The distance between the reference marks is 42.95 meters. Three trees with triangular blazes are at the following distances and azimuths from the station: 1.70 meters, $170^{\circ} 05'$; 31.85 meters, $224^{\circ} 39'$; and 16.3 meters, $265^{\circ} 25'$.

Ferry Point (Calhoun County, E. S., 1910).—On the next point above Military Point on the same side of the Bay and well in toward the woods. The station is marked according to note 3.¹ A reference mark, described in note 5,¹ is 10.35 meters from the station in azimuth $7^{\circ} 06'$, and another, described in note 6,¹ is 5.02 meters distant in azimuth $67^{\circ} 16'$. A triple oak is 3.75 meters distant in azimuth 56° .

Gabel 2 (Calhoun County, E. S., 1910).—On a point a little west of Pearl Bayou, on the sand slope back of the marsh. The station is marked according to note 3.¹ A reference mark, described in note 5,¹ is 6.66 meters from the station in azimuth $46^{\circ} 12'$, and another, described in note 6,¹ is 10.24 meters distant in azimuth $158^{\circ} 06'$. An oak tree marked with a triangular blaze is 18.90 meters from the station in azimuth $166^{\circ} 51'$, and the western one of two pine trees marked with old blazes is 15.3 meters distant in azimuth $225^{\circ} 07'$.

Oyster east (Washington County, E. S., 1910).—On the east side of Oyster Point. The station is marked according to note 3.¹ A reference mark, described in note 5,¹ is 12.85 meters from the station in azimuth $31^{\circ} 10'$, and another, described in note 6,¹ is 12.58 meters distant in azimuth $206^{\circ} 11'$. Two pine trees with old blazes, marked with new triangular blazes in 1910, are, respectively, 10.38 meters from the station in azimuth $39^{\circ} 15'$ and 25.30 meters in azimuth $226^{\circ} 05'$.

Oyster west (Washington County, E. S., 1910).—Below the bluff on the west side of Oyster Point. The station is marked according to note 3.¹ A reference mark, described in note 6,¹ is on the bluff 20.99 meters from the station in azimuth $203^{\circ} 58'$, and another, described in note 5,¹ is on the bluff 15.52 meters distant in azimuth $245^{\circ} 14'$. The distance between the reference marks is 13.85 meters. An old oak tree below the bluff, marked with a triangular blaze, is 20.07 meters from the station in azimuth $172^{\circ} 45'$.

Viola 2 (Calhoun County, E. S., 1910).—Below the bluff on the eastern shore of St. Andrews Bay, about 50 meters southwest from the wharf in front of the house belonging to Mrs. Pain and Miss Young. The station is marked according to note 3.¹ A reference mark, described in note 5,¹ is 6.07 meters from the station in azimuth $334^{\circ} 33'$, and another, described in note 6,¹

¹ See pp. 61-62.

is 11.09 meters distant in azimuth $41^{\circ} 37'$. A large pine, marked with a triangular blaze, is 16.68 meters from the station in azimuth $239^{\circ} 29'$.

Shoal Bayou 2 (Calhoun County, E. S., 1910).—On a point on the eastern shore of St. Andrews Bay northeast of a very shoal bayou. The station is marked according to note 3.¹ A reference mark, described in note 5,¹ is 7.82 meters from the station in azimuth $289^{\circ} 55'$, and another, described in note 6,¹ is 4.96 meters distant in azimuth $349^{\circ} 49'$. An oak tree, marked with a triangular blaze, is 5.22 meters from the station in azimuth $333^{\circ} 40'$.

Dixon 2 (Washington County, E. S., 1910).—On the northern shore of St. Andrews Bay, on a sand ridge about 40 meters from high-water mark. The station is marked according to note 3.¹ A reference mark, described in note 6,¹ is 9.37 meters from the station in azimuth $32^{\circ} 10'$, and another, described in note 5,¹ is 9.95 meters distant in azimuth $227^{\circ} 27'$. A pine tree, marked with a triangular blaze, is 12.54 meters from the station in azimuth $200^{\circ} 57'$. Another pine tree, marked with an old blaze, is 19.88 meters distant in azimuth $269^{\circ} 13'$.

East Point 2 (Calhoun County, E. S., 1910).—About 3 miles east of Oyster Point, on a shell bank on what is locally known both as East Point and as Shell Point. The station is about 15 meters from high-water mark and is marked according to note 3.¹ A reference mark, described in note 5,¹ is 9.01 meters from the station in azimuth $26^{\circ} 48'$, and another, described in note 6,¹ is 12.5 meters distant in azimuth $69^{\circ} 40'$. A small cedar, marked with a triangular blaze, is 10.97 meters from the station in azimuth $9^{\circ} 31'$.

Didi Point 2 (Washington County, E. S., 1910).—On a sand ridge on the west side of Didi Point about 10 meters from high-water mark and just west of a marsh which occupies the middle of the point and which is drained by a small run emptying at the end of the point, about 40 meters south of the station. The station is marked according to note 3.¹ Two reference marks, described in note 5,¹ are, respectively, 9.95 meters from the station in azimuth $179^{\circ} 59'$ and 35.60 meters in azimuth $295^{\circ} 50'$.

Laird (Washington County, E. S., 1910).—On the north shore of the east arm of St. Andrews Bay, just east of the pine woods to the west of Lairds Bayou and about 10 meters from high-water mark. The station is marked according to note 3.¹ A reference mark, described in note 6,¹ is 9.56 meters from the station in azimuth $175^{\circ} 34'$, and another, described in note 5,¹ is 5.61 meters distant in azimuth $243^{\circ} 21'$. Two pine trees, marked with triangular blazes, are, respectively, 10.80 meters from the station in azimuth $118^{\circ} 12'$ and 11.86 meters in azimuth $161^{\circ} 07'$.

Drogan 2 (Calhoun County, E. S., 1910).—On a narrow sand ridge at the end of a point of marsh opposite Didi Point and just west of a thick growth of yupon bushes. The station is marked according to note 3.¹

SUPPLEMENTARY POINTS.

E. B. P. (Washington County, E. S., 1910).—On a sand hill on a narrow neck of land that separates a bight of St. Andrews Bay from the Gulf. The station is marked according to note 4.¹

North base (U. S. E.) (Washington County, E. S., 1910).—On the west shore of the main part of St. Andrews Bay a short distance around the point southwest from Courtney Point 3, see p. 110. The station is marked by a copper pin in the top of a concrete post 5 inches square.

South base (U. S. E.) (Washington County, E. S., 1910).—On the west shore of the main part of St. Andrews Bay and on the north shore of Grand Lagoon. The station is marked by a copper pin in the top of a concrete post 5 inches square.

St. Andrews, ice-plant stack (Washington County, E. S., 1910).—The center of the stack of the ice-plant power house at St. Andrews.

Fish (Washington County, E. S., 1910).—The flagpole on the warehouse about halfway out on the ice-plant wharf at St. Andrews.

¹ See pp. 61-62

CHOCTAWHATCHEE BAY TO ST. ANDREWS BAY.

PRINCIPAL POINTS.

Exit (Santa Rosa County, H. G. O., 1871).—This station is in the shifting sand hills on the Gulf coast of Santa Rosa Island and was not searched for in 1910. It is marked according to note 1¹ except that the reference posts are on a line with the station, two on the east side and two on the west.

Stevens (Santa Rosa County, H. G. O., 1871; 1910).—Lost.

Choctawhatchee (Santa Rosa County, H. G. O., 1871; 1910).—This station is marked according to note 1.¹ It was searched for without success in 1910.

Garnier (Walton County, H. G. O., 1871; 1910).—This station is marked according to note 1.¹ It was searched for without success in 1910.

Cobbs Point (Washington County, H. G. O., 1872; 1910).—This station is marked according to note 1.¹ It was searched for without success in 1910.

Tripod (Walton County, H. G. O., 1872; 1910).—Lost.

White Point (Walton County, H. G. O., 1872; 1910).—This station is marked according to note 1.¹ It was searched for without success in 1910.

Shaker (Washington County, H. G. O., 1872; 1910).—This station is marked according to note 1.¹ It was searched for without success in 1910.

Stake Point (Walton County, H. G. O., 1872; 1910).—This station is marked according to note 1.¹ It was searched for without success in 1910.

Four Mile Point (Washington County, H. G. O., 1872; 1910).—This station is marked according to note 1.¹ It was searched for without success in 1910.

Blunt (Walton County, H. G. O., 1872; 1910).—This station is marked according to note 1.¹ It was searched for without success in 1910.

Live Oak Point (Washington County, H. G. O., 1872; 1910).—This station is marked according to note 1.¹ It was searched for without success in 1910.

Alaqua (Walton County, H. G. O., 1872; 1910).—On Alaqua Point on the north shore of Choctawhatchee Bay. The station is marked by a stone monument inscribed on the top with a cross and the letters "U. S. C. S." It could not be recovered in 1910.

La Grange (Walton County, H. G. O., 1872; 1910).—On the north shore of Choctawhatchee Bay, about 1½ miles south of the mouth of La Grange Bayou. The station is on a narrow point of hard land extending eastward into the marsh and near a log canal which extends from near the station through the marsh southward to the shore of the bay. The station is marked by a standard disk station mark in the top of a 6-inch tile which is filled and surrounded with concrete. The underground mark is a copper nail in a brick surrounded by concrete 2½ feet below the ground. A reference mark, a standard cap station mark screwed to the top of a 3-inch iron pipe 4 feet long which projects 1 foot above the ground, is 27.329 meters from the station in azimuth 198° 10'. Two live oak trees, each marked with a blaze and four iron nails, are at the following distances and azimuths from the station: 33.97 meters, 134° 23'; and 26.46 meters, 249° 11'. The trees were blazed and the reference mark and the surface mark at the station were set in 1910.

Alligator 2 (Washington County, H. G. O., 1872).—On Alligator Point, on the south shore of Choctawhatchee Bay. The station is marked by a nail in the stump of a pine tree. The stump is about 2 feet high and the nail is a little south of the center.

Criglar (Washington County, H. G. O., 1872; 1910).—On the south shore of Choctawhatchee Bay, about 4 miles southeast of Alligator Point, on rising ground about 4 meters east of a small creek. The station is marked by a stone monument inscribed on the top with a cross and the letters "U. S. C. S." A reference mark, consisting of a standard cap station mark screwed to the top of a 3-inch iron pipe which projects 1 foot above the ground, is 13.63 meters from the station in azimuth 122° 18'. Three pine trees, with triangular blazes with a nail at the center and at each vertex of the triangle, are at the following distances and azimuths from the station:

¹ See pp. 61-62.

9.16 meters, $52^{\circ} 16'$; 8.14 meters, $159^{\circ} 29'$; and 2.80 meters, $186^{\circ} 52'$. The trees were blazed and the reference mark set in 1910.

Blue Mountain (Washington County, F. W. P., 1872).—On the top of a high hill known as Blue Mountain, about one-half mile inland from the Gulf coast. The hill is nearly devoid of vegetation in the immediate vicinity of the station. There is a small pond at the foot of the hill on the northern side. The station is marked by a copper nail in a plug in the top of an iron screw pile.

High (Washington County, F. W. P., 1872).—On the top of a very prominent hill which is close to the water line and is covered with a thick growth of scrub oak and chaparral. The station is marked by a copper nail in a plug in the top of an iron screw pile.

I (Washington County, F. W. P., 1872).—On a small grass-covered sand knoll close to the level sand beach. The station is marked by a copper tack in a plug in the top of an iron screw pile.

G (Washington County, F. W. P., 1872).—On a small knoll near the level sand beach a short distance northwest of Pass Icola. The station is marked by a copper nail in the top of a 4 by 4 inch pine stub.

E (Washington County, F. W. P., 1872).—On a small knoll near the level sand beach and about midway between two small runs. The station is marked by a copper nail in the top of a 4 by 4 inch pine stub.

C (Washington County, F. W. P., 1872).—On a small knoll near the level sand beach about 300 meters southeast of the mouth of a small creek which is the outlet for a small fresh-water pond. The station is marked by a copper nail in the top of a 4 by 4 inch pine stub.

Alligator Point 2 (Washington County, G. H. R., 1910).—On Alligator Point, on the south side of the east end of Choctawhatchee Bay, on a narrow sand ridge about 100 meters west of the northeastern extremity of the point, 4 paces from mean high-water mark and 2 paces from the edge of the marsh to the south. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 23.176 meters from the station in azimuth $94^{\circ} 07'$.

Alaqua Point 2 (Walton County, G. H. R., 1910).—On Alaqua Point, on the north shore of Choctawhatchee Bay, 4 paces from mean high-water mark, 45 paces from the mouth of a creek to the west, 17 paces from the edge of a marsh to the north, and about 150 meters from the edge of a dense woods to the east. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 19.86 meters from the station in azimuth $240^{\circ} 03'$. Two live oak trees, each marked with a triangular blaze with a nail at the center and each vertex, are, respectively, 3.71 meters from the station in azimuth $170^{\circ} 45'$ and 14.69 meters in azimuth $219^{\circ} 40'$.

Live Oak Point 2 (Washington County, G. H. R., 1910).—On Live Oak Point, on the south shore of Choctawhatchee Bay, near the eastern end of a narrow level sand ridge surrounded by marsh, 7 paces from mean high-water mark to the north and 17 paces from mean high-water mark to the west. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 36.565 meters from the station in azimuth $67^{\circ} 09'$. Two live oak trees, each marked with a triangular blaze with a nail at the center and each vertex, are, respectively, 19.74 meters from the station in azimuth $69^{\circ} 02'$ and 45.42 meters in azimuth $73^{\circ} 08'$.

Blunt 2 (Walton County, G. H. R., 1910).—On Hammock Point, on the north side of Choctawhatchee Bay, on the sand beach 14 paces from high-water mark. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 42.74 meters from the station in azimuth $168^{\circ} 09'$. A pine tree and a magnolia tree, each marked with a triangular blaze with a nail at the center and each vertex, are, respectively, 39.50 meters from the station in azimuth $85^{\circ} 57'$ and 5.61 meters in azimuth $108^{\circ} 23'$. A house is about 250 meters north 63° west from the station.

Four Mile Point 2 (Washington County, G. H. R., 1910).—On Four Mile Point, on the south side of Choctawhatchee Bay, 13 paces from the edge of the bank to the north and 20 paces from mean high-water mark to the west. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 27.286 meters from the station in azimuth $339^{\circ} 53'$. Two live

¹ See pp. 61-62.

oak trees, each marked with a triangular blaze with a nail at the center and each vertex, are, respectively, 27 meters from the station in azimuth $291^{\circ} 38'$ and 30.38 meters in azimuth $18^{\circ} 44'$.

Stake Point 2 (Walton County, G. H. R., 1910).—On Stake Point on the north side of Choctawhatchee Bay, 8 paces from mean high-water mark and 12 paces from the edge of the thick woods to the north. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 28.945 meters from the station in azimuth $173^{\circ} 38'$. A lone pine tree near the western edge of the point and a live oak on the edge of the woods, each marked with a triangular blaze with a nail at the center and each vertex, are, respectively, 33.92 meters from the station in azimuth $90^{\circ} 06'$ and 20.76 meters in azimuth $224^{\circ} 09'$.

Shaker 2 (Washington County, G. H. R., 1910).—Near the eastern side of Piney Point on the south side of Choctawhatchee Bay, 8 paces from mean high-water mark. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 28.19 meters from the station in azimuth $34^{\circ} 58'$. Two pine trees, each marked with a triangular blaze with a nail at each vertex, are, respectively, 67.06 meters south $1^{\circ} 12'$ west from the station and 27.19 meters south $46^{\circ} 14'$ west.

White Point 2 (Walton County, G. H. R., 1910).—On White Point on the north side of Choctawhatchee Bay, 100 paces from the extremity of the point to the south, 58 paces from mean high-water mark to the east and 52 paces from mean high-water mark to the west. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 31.24 meters from the station in azimuth $192^{\circ} 21'$. A live oak scrub and a pine scrub, each marked with a triangular blaze with a nail at the center and each vortex, are, respectively, 6.16 meters from the station in azimuth $173^{\circ} 41'$ and 22.82 meters in azimuth $200^{\circ} 02'$.

Cobbs Point 2 (Washington County, G. H. R., 1910).—On Cobbs Point, on the south shore of Choctawhatchee Bay, 37 paces from mean high-water mark to the north and about the same distance from mean high-water mark to the east and to the west. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 42.83 meters from the station in azimuth $20^{\circ} 03'$. Two pine trees, each marked with a triangular blaze and three nails, are, respectively, 72.88 meters south 68° east and 128.36 meters south 32° west from the station.

Tripod 2 (Walton County, G. H. R., 1910).—On the north shore of Choctawhatchee Bay, on a bank 5 feet high, 20 paces from mean high-water mark and 12 paces from the edge of a marsh to the north. There is a large pond north of the station and the mouth of a small creek is 60 paces to the west. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 26.28 meters from the station in azimuth $105^{\circ} 17'$. Two magnolia trees, each marked with a triangular blaze with a nail at the center and each vertex, are, respectively, 5.33 meters south 27° west and 28.56 meters north 84° west from the station.

Garnier 2 (Walton County, G. H. R., 1910).—Near the eastern side of Black Point on the north side of the western end of Choctawhatchee Bay, 100 paces from mean high-water mark to the east, 75 paces from mean high-water mark to the south, and 40 paces from the edge of a large pond to the northwest. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is on the bank of the pond 33.10 meters from the station in azimuth $125^{\circ} 42'$. Two pine trees, each marked with a triangular blaze and three nails, are, respectively, 39.02 meters north 12° west and 11.30 meters south 80° west from the station.

Choctawhatchee 2 (Santa Rosa County, G. H. R., 1910).—On a sand hill on the Gulf shore of Santa Rosa Island, about 5 miles west of the eastern end of the island. The hills in this vicinity are all about the same height. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is on level ground 75.08 meters (horizontal distance) from the station in azimuth $182^{\circ} 51'$.

Stevens 2 (Santa Rosa County, G. H. R., 1910).—On the prominent point on the north side of the junction of the Narrows with Choctawhatchee Bay, just east of a large bayou and 33 paces from the high-water mark to the east and 98 paces from high-water mark to the south. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is near the edge of the bayou 42.48 meters from the station in azimuth $133^{\circ} 29'$. Three trees, each

¹ See pp. 61-62.

marked with a blaze and three nails in the form of a triangle, are at the following distances from the station: 29.02 meters N. 20° W., 43.54 meters N. 60° W., and 77.24 meters, S. 77° W.

Santa Rosa east base (Santa Rosa County, G. H. R., 1910).—On the north shore of Santa Rosa Island, about $4\frac{1}{2}$ miles west of the eastern end of the island, on a small sand knoll 10 feet high 125 paces from the shore and about 100 meters west of the western edge of the pine timber. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 32.37 meters from the station in azimuth 25° 13'.

Santa Rosa west base (Santa Rosa County, G. H. R., 1910).—On a small sand hill 10 feet high on Santa Rosa Island, about twice as far from Choctawhatchee Bay as from the Gulf. There is a ridge of sand hills 100 meters south of the station and another 150 meters north. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 32.84 meters, inclined distance, from the station in azimuth 207° 18'.

Exit 2 (Santa Rosa County, G. H. R., 1910).—On Santa Rosa Island, on a prominent sand hill, the highest in the vicinity, almost due south of a point midway between the two range beacons in the Narrows and about 150 meters from the Gulf shore. There are some high sand hills about 125 meters north of the station, but the ground to the eastward is level. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is on level ground 44.72 meters, inclined distance, from the station in azimuth 351° 50'.

Lane 2 (Washington County, G. H. R., 1910).—On the highest and most prominent sand hill on the western end of the peninsula between Choctawhatchee Bay and East Pass, about 125 meters from the shore and about 150 meters northwest of a house. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 38.30 meters, inclined distance, from the station in azimuth 347° 27'.

East Pass 2 (Santa Rosa County, G. H. R., 1910).—On the last prominent sand hill on the east end of Santa Rosa Island, quite close to the Gulf and almost due south of the end of the peninsula on the north side of East Pass. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 53.35 meters, inclined distance, from the station in azimuth 162° 41'.

Bar (Santa Rosa County, G. H. R., 1910).—On a sand spit known as Norriego Point on the south side of East Pass. The station is in shifting sand 12 paces from high-water mark and is marked by a 2 by 4 inch stake. A reference mark, described in note 13,¹ is 92.08 meters from the station in azimuth 190° 05'.

Saddle (Santa Rosa County, G. H. R., 1910).—On the highest point of a sand bluff about 45 feet high on the north side of East Pass, almost due north of the end of the sand spit on the south side of the Pass. The station is 7 meters back from the edge of the bluff and is marked according to note 12.¹ A reference mark, described in note 13,¹ is on a sand ridge 35.25 meters, inclined distance, from the station in azimuth 147° 38'.

SANTA ROSA SOUND.

PRINCIPAL POINTS.

Entrance (Santa Rosa County, H. G. O., 1870; 1910).—On the north shore of Santa Rosa Island, at the western end of the sound. The station is marked according to note 1.¹ It was searched for without success in 1910.

Deer Point 2 (Santa Rosa County, H. G. O., 1870; 1890).—Lost.

Sabine Hill (Santa Rosa County, H. G. O., 1870; 1910).—On a sand hill on the south shore of Little Sabine Bay, near the western end of the bay. The station is marked according to note 1¹ except that the underground mark is a cross in the lead stopper of a large iron powder canister which is filled with sand. The station was searched for without success in 1910.

Grassy Point (Santa Rosa County, H. G. O., 1870; 1910).—On Grassy Point, a prominent point on the mainland shore of Santa Rosa Sound. The station is marked according to note 1.¹ It was searched for without success in 1910.

¹ See pp. 61-62.

Stumps (Santa Rosa County, H. G. O., 1871; 1910).—This station has been destroyed.

Sharp (Santa Rosa County, H. G. O., 1871; 1910).—This station is on the shifting sand hills on the Gulf coast of Santa Rosa Island and could not be recovered in 1910. The station is marked according to note 1.¹

Range (Santa Rosa County, H. G. O., 1871; 1910).—This station is 3.087 meters from *Range 2* (see p. 120). It is marked by a hole in the upper end of a brick 16 inches below the ground.

Creek (Santa Rosa County, H. G. O., 1871; 1910).—Lost.

Marsh (Santa Rosa County, H. G. O., 1871; 1910).—This station has been destroyed.

Bower (Santa Rosa County, H. G. O., 1871; 1910).—On a sand hill just back of a prominent point on the north side of Santa Rosa Island. The station was originally marked according to note 1,¹ but was re-marked in 1910 according to note 12.¹ The eastern end of the long neck of land that forms the end of the point bears N. 5° E. from the station, and the eastern end of a foot-shaped projection on the eastern side of the point bears N. 38° E.

Sand Hill (Santa Rosa County, H. G. O., 1871; 1910).—On the eastern end of a snake-shaped sand hill on Santa Rosa Island. The station is marked according to note 1,¹ except that there are no reference stakes. It was searched for without success in 1910.

Ranch (Santa Rosa County, H. G. O., 1871; 1910).—Lost.

Agassiz (Santa Rosa County, H. G. O., 1871; 1910).—Lost.

Two Points (Santa Rosa County, H. G. O., 1871; 1910).—On the western one of two points near together on the mainland shore of Santa Rosa Sound. The station is marked according to note 1.¹ It could not be recovered in 1910.

Peak (Santa Rosa County, H. G. O., 1871; 1910).—Lost.

Deserted (Santa Rosa County, H. G. O., 1871; 1910).—Lost.

Cove (Santa Rosa County, H. G. O., 1871; 1910).—This station is in the shifting sand hills on the Gulf coast of Santa Rosa Island and could not be recovered in 1910. It is marked according to note 1.¹

Big River (Santa Rosa County, H. G. O., 1871; 1910).—Lost.

John (Santa Rosa County, H. G. O., 1871; 1910).—In the shifting sand hills on the Gulf coast of Santa Rosa Island. The station is marked according to note 1.¹ It could not be recovered in 1910.

Bluff (Santa Rosa County, H. G. O., 1871; 1910).—On a small white bluff on the mainland shore of Santa Rosa Sound. The station is marked according to note 1.¹ It was searched for without success in 1910.

Eagle's Nest (Santa Rosa County, H. G. O., 1871; 1910).—On a prominent point on the mainland shore of Santa Rosa Sound. The station is marked according to note 1.¹ It could not be recovered in 1910.

Tuck (Santa Rosa County, H. G. O., 1871; 1910).—In the shifting sand hills on the Gulf coast of Santa Rosa Island. The station is marked according to note 1.¹ It could not be recovered in 1910.

Long (Santa Rosa County, H. G. O., 1871; 1910).—Near the end of a prominent point, known as Long Pritchard Point, on the mainland side of Santa Rosa Sound. The station is marked according to note 1,¹ except that the underground brick is in two parts, one above the other. It was searched for without success in 1910.

Beach (Santa Rosa County, H. G. O., 1871; 1910).—In the shifting sand hills on the Gulf coast of Santa Rosa Island. The station is marked according to note 1.¹ It could not be recovered in 1910.

Narrows (Santa Rosa County, H. G. O., 1871; 1910).—On a low sand point of the mainland at the western end of the Narrows. The station is marked according to note 1.¹ It could not be recovered in 1910.

Fender (Santa Rosa County, H. G. O., 1871; 1910).—In the shifting sand hills on the Gulf coast of Santa Rosa Island. The station is marked by an iron spike in the top of an old ship

¹ See pp. 61-62.

fender, 18 inches in diameter and 5 feet long, which projects 2 feet above the sand. It could not be recovered in 1910.

Field (Santa Rosa County, H. G. O., 1871; 1910).—On a point on the mainland shore of the Narrows. The station is marked according to note 1.¹ It was searched for without success in 1910.

Surf (Santa Rosa County, H. G. O., 1871).—This station is in the shifting sand hills on the Gulf coast of Santa Rosa Island and was not searched for in 1910. It is marked according to note 1.¹

Kitrel (Santa Rosa County, H. G. O., 1871; 1910).—On a point on the mainland shore of the Narrows. The station is marked according to note 1.¹ It was searched for without success in 1910.

Cut (Santa Rosa County, H. G. O., 1871; 1910).—In the shifting sand hills on the Gulf coast of Santa Rosa Island. The station is marked according to note 1.¹ It could not be recovered in 1910.

Rogers (Santa Rosa County, H. G. O., 1871; 1910).—This station has been destroyed.

Pirate (Santa Rosa County, H. G. O., 1871).—This station is in the shifting sand hills on the Gulf coast of Santa Rosa Island and was not searched for in 1910. The station is marked according to note 1.¹

Davis (Santa Rosa County, H. G. O., 1871; 1910).—Lost.

Small (Santa Rosa County, H. G. O., 1871).—This station is in the shifting sand hills on the Gulf coast of Santa Rosa Island and was not searched for in 1910. The station is marked according to note 1.¹

Payne (Santa Rosa County, H. G. O., 1871).—Among tall pine trees near a small bight on the mainland shore of the Narrows and just west of Payne's house. The station is marked according to note 1,¹ except that there is no underground mark. Three blazed pine trees are near the station. The station was not searched for in 1910, as it was thought impossible of recovery.

Gulf (Santa Rosa County, H. G. O., 1871; 1910).—In the shifting sand hills on the Gulf shore of Santa Rosa Island. The station is marked according to note 1.¹ It could not be recovered in 1910.

Burlison (Santa Rosa County, H. G. O., 1871).—On a small plot of hard land on the mainland shore of the Narrows, about 1 mile east of Choctawhatchee Bay. The station is marked according to note 1.¹

Entrance 2 (Santa Rosa County, G. H. R., 1910).—Near the eastern side of a sand point on the north shore of Santa Rosa Island, 23 paces from mean high-water mark. The station is marked according to note 12,¹ except that there is no underground mark. A reference mark, described in note 13,¹ is 37.54 meters from the station in azimuth 13° 51'.

Grassy Point 2 (Santa Rosa County, G. H. R., 1910).—On a prominent point covered with grass and scattering trees and known as Grassy Point, on the north shore near the western end of Santa Rosa Sound. The station is marked according to note 12,¹ except that there is no underground mark. A reference mark, described in note 13,¹ is 25.56 meters from the station in azimuth 280° 31'. One pine tree and two live oak trees, each marked with a blaze and three copper nails in the form of a triangle, are at the following respective distances from the station: 34.84 meters N. 88° W., 53.89 meters N. 35° E., and 23.93 meters S. 55° E.

Quarantine (Santa Rosa County, G. H. R., 1910).—On made land near the northeastern end of the quarantine station grounds, on the north shore of Santa Rosa Island, 18 paces from the water's edge to the north, 95 paces from the water's edge to the east, and 34.3 meters southwest from the corner of a house. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 24.95 meters from the station in azimuth 271° 36'.

Bald (Santa Rosa County, G. H. R., 1910).—On the north shore of Santa Rosa Sound, 35 paces east of the edge of a hill known locally as Bald Hill, 115 paces east of the center of the hill,

¹ See pp. 61-62.

8 paces from mean high-water mark to the south, and 100 paces west of where the shore line turns to the northward. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is on the slope of the hill, 38.57 meters from the station in azimuth $133^{\circ} 13'$. A pine tree and a live oak tree, each marked with a blaze and three copper nails in the form of a triangle, are, respectively, 17.53 meters N. 48° W. and 42.15 meters due west from the station.

Sharp Point (Santa Rosa County, G. H. R., 1910).—On a prominent timbered point on the north shore of Santa Rosa Island 2 miles east of Sabine Bay, 40 paces from mean high-water mark to the north and 65 paces from mean high-water mark to the west. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 27.70 meters from the station in azimuth $341^{\circ} 33'$. Three pine trees, each marked with a blaze and three copper nails in the form of a triangle, are at the following distances from the station: 12.10 meters S. 73° E., 20.42 meters S. 41° E., and 34.38 meters N. 43° W.

Creek 2 (Santa Rosa County, G. H. R., 1910).—On the north shore of Santa Rosa Sound north about 20° west from Range Point, 90 paces east of a creek and 12 paces from mean high-water mark. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 38.22 meters from the station in azimuth $158^{\circ} 39'$. Two pine trees, each marked with a blaze and three copper nails in the form of a triangle, are, respectively, 37.37 meters N. 65° E. and 21 meters N. 5° W. from the station.

Range 2 (Santa Rosa County, G. H. R., 1910).—On a prominent sand hill covered with small brush on the north and northeast slopes 150 paces from the north shore of Santa Rosa Island, near the cove on the west side of Range Point. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is on level ground 25.60 meters, inclined distance, from the station in azimuth $191^{\circ} 59'$. Station *Range* (see p. 118) is 3.087 meters distant in azimuth $255^{\circ} 24'$.

Marsh 2 (Santa Rosa County, G. H. R., 1910).—On the north shore of Santa Rosa Sound N. 28° W. from Bower Point, 27 paces from high-water mark to the south and 28 paces from high-water mark to the east. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 27.95 meters from the station in azimuth $140^{\circ} 18'$. Three pine trees, each marked with a blaze and three copper nails in the form of a triangle, are at the following distances from the station: 23.84 meters N. 58° E., 30.72 meters N. 48° W., and 24.11 meters S. 80° W.

Sand Hill 2 (Santa Rosa County, G. H. R., 1910).—On the most prominent of several sand hills on Santa Rosa Island about 3 miles east of Bowers Point and a little nearer the south shore of the island than the north shore. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is on level ground 23.21 meters, inclined distance, from the station in azimuth $142^{\circ} 28'$.

Ranch 2 (Santa Rosa County, G. H. R., 1910).—On the north shore of Santa Rosa Sound 25 paces from high-water mark. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 18.43 meters from the station in azimuth $166^{\circ} 40'$. Two live oak trees, each marked with a blaze and three iron nails in the form of a triangle, are, respectively, 21 meters N. 65° E. and 15.18 meters due west from the station.

Agassiz 2 (Santa Rosa County, G. H. R., 1910).—On a very prominent, conspicuous sand hill on Santa Rosa Island about midway between the Gulf and Santa Rosa Sound. The top of the hill is a narrow circular ridge covered with vegetation inclosing a large deep hollow. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is in the hollow mentioned above 21.32 meters, inclined distance, from the station in azimuth $305^{\circ} 04'$.

Two Points 2 (Santa Rosa County, G. H. R., 1910).—On the north shore of Santa Rosa Sound, 80 paces east of a small creek and 7 paces from mean high-water mark. The station is marked according to note 12.¹ A reference mark described in note 13,¹ is 30.42 meters from the station in azimuth $202^{\circ} 48'$. A live oak tree and a magnolia tree, each marked with a blaze and three iron nails in the form of a triangle, are, respectively, 15.36 meters N. 55° W. and 22.62 meters N. 20° E.

¹ See pp. 61-62.

Deserted 2 (Santa Rosa County, G. H. R., 1910).—On the north shore of Santa Rosa Sound about $1\frac{1}{4}$ miles west of Williams Creek and about 150 meters west of a farmhouse which is about 200 meters back from the shore. The station is just back of some small live oak trees, about 3 meters from high-water mark, and is marked according to note 12.¹ A reference mark, described in note 13,¹ is 39.92 meters from the station in azimuth $169^{\circ} 58'$.

Peak 2 (Santa Rosa County, G. H. R., 1910).—On a prominent sand hill on the Gulf shore of Santa Rosa Island opposite a large cove on the north side of the island formed by two rather prominent points. The western point is covered with timber and the eastern edge of this timber is north and a little west of the station. There are some small sharp-pointed sand hills to the westward of the station, but no high hills to the eastward. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is on level ground 57.19 meters, inclined distance, from the station in azimuth $126^{\circ} 04'$.

Cove 2 (Santa Rosa County, G. H. R., 1910).—On a lone sand hill near the Gulf shore of Santa Rosa Island, nearly due south from the mouth of Williams Creek. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is on a small knoll 22.62 meters, inclined distance, from the station in azimuth $2^{\circ} 35'$. A clump of pine trees on the point of an island three-fourths mile distant is north 85° west from the station.

Big River 2 (Santa Rosa County, G. H. R., 1910).—On a timbered point on the north shore of Santa Rosa Sound about 150 meters east of Williams Creek, about 300 meters west of the Woodrack boat landing, and 20 paces from mean high-water mark. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 28.15 meters from the station in azimuth $161^{\circ} 24'$. Two pine trees, each marked with a blaze and three iron nails in the form of a triangle, are, respectively, 10.79 meters N. 15° W. and 24.38 meters N. 86° W.

John 2 (Santa Rosa County, G. H. R., 1910).—On a sand hill covered with shrubs, near the north side of Santa Rosa Island. The hill is the most prominent one in the vicinity and its north edge is 10 paces from mean high-water mark. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is on a small rise of ground near the base of the hill 48.54 meters, inclined distance, from the station in azimuth $318^{\circ} 48'$. The outer edge of the timber on the point one-half mile to the eastward is N. 65° E. from the station and the end of the point five-eighths mile to the westward is S. 81° W.

Bluff 2 (Santa Rosa County, G. H. R., 1910).—On the north shore of Santa Rosa Sound, about 2 miles east of Williams Creek and 15 paces from mean high-water mark. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 32.24 meters from the station in azimuth $209^{\circ} 22'$. Two pine trees, each marked with a blaze and three iron nails in the form of a triangle, are respectively, 26.06 meters N. 32° E. and 21 meters N. 77° W. from the station.

Eagles Nest 2 (Santa Rosa County, G. H. R., 1910).—On a prominent point on the north shore of Santa Rosa Sound, 63 paces from mean high-water mark to the eastward and 58 paces from mean high-water mark to the westward. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 25.52 meters from the station in azimuth $151^{\circ} 17'$. Two pine trees, each marked with a blaze and three iron nails in the form of a triangle, are respectively 4.76 meters N. 32° E. and 6.22 meters S. 4° E. from the station.

Tuck 2 (Santa Rosa County, G. H. R., 1910).—On a sand ridge on the Gulf shore of Santa Rosa Island. To the eastward the ridge is about the same height as at the station, but to the westward there is an abrupt drop of about 8 feet. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is on level ground 52.01 meters inclined distance from the station in azimuth $178^{\circ} 03'$.

Long 2 (Santa Rosa County, G. H. R., 1910).—On a prominent point on the north side of Santa Rosa Sound, about 2 miles west of the western end of the Narrows, 77 paces from the edge of the bank to the south, 45 paces from mean high-water mark to the east, and 40 paces from mean high-water mark to the west. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 38.73 meters from the station in azimuth $172^{\circ} 04'$. Two pine

¹ See pp. 61-62.

trees, each marked with a blaze and three copper nails in the form of a triangle are respectively 21.73 meters S. 25° E. and 14.60 meters N. 47° W. from the station.

Beach 2 (Santa Rosa County, G. H. R., 1910).—On a sand ridge on the Gulf shore of Santa Rosa Island. The ridge is lower to the eastward, but to the westward are two sand hills higher than the station at distances of 30 meters and 60 meters, respectively. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is on level ground 52.76 meters, inclined distance, from the station in azimuth 128° 59'.

Narrows 2 (Santa Rosa County, C. H. R., 1910).—On the north shore of the western end of the Narrows 12 paces from mean high-water mark. The shore line in this vicinity is nearly straight. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 26.07 meters from the station in azimuth 80° 14'.

Fender 2 (Santa Rosa County, G. H. R., 1910).—About 2 meters west of the eastern end of a sand ridge on the Gulf shore of Santa Rosa Island and about 300 meters from the nearest sand hills to the eastward. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is on a spur of the ridge 31.42 meters from the station in azimuth 136° 52'.

Field 2 (Santa Rosa County, G. H. R., 1910).—On the north shore of the Narrows, about 160 meters east of the mouth of a small creek, about 275 meters east of a house and 20 paces from mean high-water mark. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 27.42 meters from the station in azimuth 172° 14'. Two pine trees, each marked with a blaze and three nails in the form of a triangle, are, respectively, 9.63 meters S. 5° W. and 20.06 meters N. 73° W. from the station.

Surf 2 (Santa Rosa County, G. H. R., 1910).—On a sand ridge on the Gulf shore of Santa Rosa Island. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is on level ground, 54.62 meters inclined distance, from the station in azimuth 172° 27'.

Kitrel 2 (Santa Rosa County, G. H. R., 1910).—On the north shore of the Narrows, about 2½ miles west of Mary Esther post office, and 7 paces from high-water mark. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 26.76 meters from the station in azimuth 171° 34'. Two live oak trees, each marked with a blaze and three nails in the form of a triangle, are, respectively, 7.10 meters N. 28° W. and 5.09 meters N. 65° W. from the station. The southeast corner of a house is 55.01 meters N. 34° W. from the station.

Cut 2 (Santa Rosa County, G. H. R., 1910).—On the highest point of a sand ridge on Santa Rosa Island, about midway between the Gulf and Santa Rosa Sound and east and southeast, respectively, of two clumps of small pine trees. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 46.80 meters, inclined distance, from the station, in azimuth 351° 20'.

Rogers 2 (Santa Rosa County, G. H. R., 1910).—On the north shore of the Narrows in the inclosed field just east of the house in which the Mary Esther post office is located, 6 paces from high-water mark and 3 paces north of the fence along the shore. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 30.37 meters from the station in azimuth 158° 23'. Two live oak trees, each marked with a blaze and three nails in the form of a triangle, are, respectively, 23.40 meters N. 33° W. and 36.94 meters N. 18° E. from the station. The southeast corner of the house mentioned above is 29.17 meters N. 48° W. from the station.

Pirate 2 (Santa Rosa County, G. H. R., 1910).—On a sand ridge on the Gulf shore of Santa Rosa Island, about one-half mile east of Pirates Cove. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is on level ground 68.41 meters, inclined distance, from the station in azimuth 184° 56'. The end of Pirates Cove Point is N. 65° W. from the station.

Davis 2 (Santa Rosa County, G. H. R., 1910).—On a point covered with scrubs and scattering pines on the north side of the Narrows, about one mile west of Camp Walton and about 150 meters east of a thick clump of pine trees. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 19.67 meters from the station in azimuth 186° 05'.

¹ See pp. 61-62.

Two pine trees each marked with a blaze and three copper nails in the form of a triangle, are, respectively, 26.37 meters N. 2° W. and 21.22 meters N. 15° W. from the station. The end of Pirates Cove Point is S. 85° W. from the station.

Small 2 (Santa Rosa County, G. H. R., 1910).—On a lone sand hill on the Gulf shore of Santa Rosa Island, about 400 meters from the nearest sand hills to the westward, and about 150 meters from the nearest sand hills to the eastward. The station is marked according to note 12.¹ A reference mark described in note 13,¹ is 48.38 meters, inclined distance, from the station in azimuth 177° 01'.

Payne 2 (Santa Rosa County, G. H. R., 1910).—On the north shore of the Narrows, about 500 meters west of the store at Camp Walton and 2 meters from high-water mark. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 37.03 meters from the station in azimuth 184° 28'. A pine tree, marked with a blaze and three nails in the form of a triangle, is 29.14 meters N. 80° E. from the station.

Gulf 2 (Santa Rosa County, G. H. R., 1910).—On a sand ridge on the Gulf side of Santa Rosa Island. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 45.16 meters, inclined distance, from station in azimuth 157° 18'. The store at Camp Walton is N. 5° W. from the station.

Burlison 2 (Santa Rosa County, G. H. R., 1910).—On the north shore of the Narrows at the eastern end of Camp Walton, about 550 meters from the post office, 3 meters east of a fence and 8 paces from mean high-water mark. The station is marked according to note 12.¹ A reference mark, described in note 13,¹ is 65.90 meters from the station in azimuth 162° 26'. Three pine trees, each marked with a blaze, and three nails in the form of a triangle, are at the following distances from the station: 16.98 meters N. 52° E.; 12.77 meters N. 12° E.; and 15.03 meters N. 48° W.

PENSACOLA BAY.

PRINCIPAL POINTS.

Bauer Point (Escambia County, P. A. W., 1889).—On the first sharp point from the entrance on the north shore of Big Lagoon. The station is on the highest sand hill in the vicinity, about 75 meters from the end of the point, and just at the edge of the timber. It is marked according to note 2.¹

Lagoon I (Escambia County, P. A. W., 1889).—On the neck of land between the Gulf and Big Lagoon, on the first prominent sand hill west of the beacons at Fort McRee. The station is marked according to note 2,¹ except that the north reference post is 2.7 feet from the station, and the other three 2 feet distant.

Fort Pickens (Santa Rosa County, F. H. G., 1856; 1910).—This station has been destroyed.

Navy Yard wharf (Escambia County, F. H. G., 1860; 1910).—Just east of the steps at the outer end of the Navy Yard wharf, at Warrington. The station is the joint of three granite blocks in the wall of the wharf and is 5.01 feet from the south edge of the wall and 4.22 feet east of the east edge of the steps.

Pickens (U. S. E.) (Santa Rosa County, O. B. F., 1901; 1910).—On the southwest corner of Fort Pickens. The station is marked by a half-inch copper bolt set in the top of a square concrete post which projects 6 inches above the ground. The following measurements are from the station to the outer edge of the fort: 10.64 meters south; 22.25 meters southwest (corner of fort); 16.37 meters west; 17.01 meters northwest (angle of wall); and 9.05 meters north (angle of wall).

Bight (Santa Rosa County, H. G. O., 1870; 1891).—Lost.

Pond (Santa Rosa County, H. G. O., 1870).—In a grove of pine trees on a prominent point of Santa Rosa Island, about 3½ miles east of Fort Pickens. The station is marked by a stake, surrounded by four other stakes the diagonal lines from which intersect at the station. The underground mark is a hole drilled in a large, flat conglomerate stone about 2 feet below the ground. Three pine trees, blazed and marked with nails, are south, southwest, and west, respectively, from the station, the one to the south being 14.1 meters distant.

¹ See pp. 61-62.

Fair Point 2 (Santa Rosa County, H. G. O., 1870; 1889).—Lost.

Lagoon (Escambia County, F. H. G., 1856; 1891).—Lost.

Fort McRee (Escambia County, F. H. G., 1856; 1891).—Lost.

Warrington west base (Escambia County, F. H. G., 1856; 1910).—Just north of the military road at a point near a bend in the road opposite the Barrancas Barracks and in the prolongation of the straight part of the road extending from the Navy Yard on which the base line was measured. The station is marked by the center of a wooden plug in the top of an iron screw pile, which was found badly out of plumb in 1910. The southwest corner of the grounds of the Barrancas Barracks is 21.1 meters northeast of the station.

Warrington east base (Escambia County, F. H. G., 1856; 1910).—Near the west Navy Yard gate at Warrington and just opposite the east end of the military road along which the base line was measured. The station is marked by a granite monument. The Navy Yard wall opposite the station is marked by copper nails.

Santa Rosa 2 (Santa Rosa County, F. H. G., 1859; 1890).—Lost.

Fair Point (Santa Rosa County, F. H. G., 1857; 1889).—Lost.

Bayou Grande (Escambia County, F. H. G., 1856; 1891).—Lost.

Barkley Point (Escambia County, F. H. G., 1856; 1891).—Lost.

Town Point (Santa Rosa County, F. H. G., 1856; 1860).—Lost.

Emanuel Point (Escambia County, F. H. G., 1856; 1890).—Lost.

Plantation Hill (Santa Rosa County, F. H. G., 1856; 1891).—Lost.

Town Point 2 (Santa Rosa County, F. H. G., 1860; 1889).—Lost.

Barkley Point 2 (Escambia County, F. H. G., 1860; 1891).—Lost.

Clapps Woods (Santa Rosa County, P. A. W., 1889; 1910).—Lost.

Fair Point 3 (Santa Rosa County, P. A. W., 1889; 1910).—This station is marked according to note 2.¹ It was searched for without success in 1910.

Grande (Escambia County, P. A. W., 1889; 1910).—On the end of the sand point just south of the mouth of Bayou Grande. The station is marked according to note 2.¹ It was found in 1910 that a car line had been built along the point and the station could not be recovered.

Chico (Escambia County, P. A. W., 1889; 1910).—Lost.

Harbor-master (Escambia County, P. A. W., 1890; 1901).—The weather vane on the cupola of the building containing the harbor master's office, on the water front on the west side of Palafox Street, Pensacola. Five tacks in the under side of the roof on the inside of the cupola are directly under the weather vane and mark the station.

Town Point 3 (Santa Rosa County, P. A. W., 1889).—On a sand ridge about 20 meters from high-water mark near the first clump of small pine trees east of the extremity of Town Point. The station is marked according to note 2.¹ The stump of a small tree, blazed and marked with copper nails, is 14.21 meters east of the station. Two small trees, blazed and marked with copper nails, are at the following distances from the station: 11.95 meters south-southeast and 9.96 meters southeast.

Hickory (Santa Rosa County, P. A. W., 1890).—On the north shore of the United States Live Oak Plantation, about 2½ miles southeast of Red Fish Point. The station is just below the bluff, close to high-water mark, and is marked according to note 2.¹ Four trees, blazed and marked with copper nails, are at the following distances from the station: Small pine tree, 10.33 meters east; live oak tree, 13.52 meters southeast; hickory tree, 8.75 meters south; and a hickory tree, 17.26 meters southwest.

Emanuel Point 3 (Escambia County, P. A. W., 1890).—About 1½ miles northeast of Pensacola, on a small green knoll on the first bluff above high-water mark at Emanuel Point. The station is between the Pensacola & Andalusia Railroad track and the shore of Pensacola Bay and is 6.55 meters from the south rail of the track. The station is marked according to note 2.¹ A cypress tree, a live oak tree, and a fence post, each blazed and marked with copper nails, are at the following distances from the station: Cypress tree, 53.5 meters southwest by west; live oak tree, 50.0 meters northeast by north; and the fence post, 23.2 meters northwest by north.

¹ See pp. 61-62.

Red Fish Point 3 (Santa Rosa County, P. A. W., 1890).—On the beach at Red Fish Point. The station is marked according to note 2.¹ Four pine trees, blazed and marked with copper nails, are at the following distances and azimuths from the station: 12.76 meters, 305° 57'; 29.53 meters, 319° 15'; 41.12 meters, 17° 33'; and 52.30 meters, 66° 13'.

Sand String (Santa Rosa County, P. A. W., 1890).—On Hernandez Point, on the east side of Escambia Bay, on a string of hard sand which separates the bay from the salt marsh to the eastward. The station is marked according to note 2.¹

Magnolia Bluff (Escambia County, P. A. W., 1891).—On a sand mound near Magnolia Bluff 4.82 meters east of the east rail of the Pensacola & Andalusia Railroad. The station is marked according to note 2¹ except that the surface mark is a marble post 6 inches square and 28 inches long with diagonal grooves in the upper end, the intersection of which mark the station. A block of wood having a nail in its upper surface to mark the station is between the surface mark and the underground mark. Four trees, blazed and marked with copper nails, are at the following distances and azimuths from the station: Oak, 34.7 meters, 208° 36'; pine, 41.7 meters, 215° 50'; pine, 61.1 meters, 2° 33'; and an oak, 54.1 meters, 37° 07'. A milepost marked F 46 on the north side, L 655 on the west side, and C 159 on the south side is 84.4 meters south by west from the station.

Trout Crawl (Santa Rosa County, P. A. W., 1891).—On the beach on the east side of Escambia Bay, about halfway between the mouths of Trout and Crawl Bayous and about 50 meters south of a wharf. The station is marked according to note 2.¹ Three blazed pine trees are at the following distances and azimuths from the station: 22.93 meters, 218° 47'; 43.10 meters, 275° 21'; and 23.64 meters, 344° 42'.

Devils Point 2 (Escambia County, P. A. W., 1890).—About 100 meters from the end of Devils Point, on a small sand hill near the corner of a picket fence on land belonging to Dr. Brosenham. The station is marked according to note 2.¹ Three blazed oak trees are at the following distances from the station: 14.84 meters west-northwest, 16.92 meters west, and 20.71 meters west-southwest. A copper nail in the post at the corner of the fence is 5.76 meters from the station.

East Escambia (Santa Rosa County, P. A. W., 1891).—On the beach at Live Oak Point, about 15 meters from the shore and about 12 meters north of the north rail of the Pensacola & Andalusia Railroad at the northeast end of the Escambia trestle. The station is marked according to note 2.¹

West Escambia (Escambia County, P. A. W., 1891).—On a sand ridge on Lora Point about 5 meters above high-water mark and 18.1 meters northwest of the inner rail of the Pensacola & Andalusia Railroad at the southwest end of the Escambia trestle. The station is marked by the intersection of diagonal grooves in the upper end of a marble post 6 inches square and 26 inches long which projects about 6 inches above the ground. The underground mark is the center of the mouth of a bottle filled and surrounded with cement about 3 feet below the ground. Four large pine posts with a copper nail in each are, respectively, 3.77 feet northeast, 4.22 feet southwest, 4.00 feet southeast, and 4.00 feet northwest. Three trees, blazed and marked with copper tacks, are at the following distances from the station: Oak, 33.0 meters northwest by north; magnolia, 30.1 meters west by north; and a pine, 52.6 meters southwest by south.

East Head (Santa Rosa County, P. A. W., 1891).—On a point at the north end of Escambia Bay, on land owned by Mr. Murphy, a timber inspector, and near an old fish house which stands on a sand ridge between the beach and a large salt marsh to the northward. The station is marked according to note 2,¹ except that the surface mark is a marble post 6 inches square and 26 inches long with diagonal grooves in the upper end, the intersection of which marks the station. Four blazed trees are at the following distances from the station: pine, 13.6 meters north by east; pine, 12.2 meters northeast by east; cypress, 17.2 meters south; and pine, 14.6 meters west-northwest.

West Head (Escambia County, P. A. W., 1891).—On the north shore of a bight which is just south of the south mouth of the Escambia River and about north by west from Skinner's

¹ See pp. 61-62.

Mill. The station is on a sand ridge which separates the bay from the large salt marsh to the northward, and is marked according to note 2.¹ A blazed pine tree is 5.5 meters west-northwest of the station and another blazed pine tree is west by north from the station a little farther away than the first.

Gurley (Santa Rosa County, P. A. W., 1892; 1910).—On the south shore of East Bay about one-fourth mile east of the house of Mr. Gurley, 6 meters from high-water mark and 3 meters outside the fence which surrounds a small clearing belonging to Mr. Gurley. The station is marked according to note 2,¹ and was found in good condition in 1910.

White Point 3 (Santa Rosa County, P. A. W., 1892; 1910).—Near the end of White Point, on the west shore of East Bay, 6 meters from high-water mark and at the edge of a field of salt wire grass which extends to the edge of the woods three-fourths of a mile distant. The station is marked according to note 2¹ except that there is a standard disk station mark in the top of the tile and the reference posts are northeast, southeast, southwest, and northwest, respectively.

Rogers (Santa Rosa County, P. A. W., 1892; 1910).—On the south shore of East Bay about 4 miles southwest of the mouth of East River, one-fourth mile west of the house of Mr. Rogers and about midway between the mouths of two bayous each about three-eighths mile distant. The station is in a clearing on a small elevation about 10 meters from high-water mark. It is marked according to note 2.¹ A live oak stump, marked with a blaze and three copper nails, is 17.2 meters northeast by north from the station. It was found in 1910 that a live oak tree had grown up from this stump.

Highland (Santa Rosa County, P. A. W., 1892).—On the northeast shore of East Bay, about 1½ miles northwest of the mouth of East River. The station is in a small clearing on a shell bank about 1 meter above high water and about 12 meters from high-water mark. The station is marked by a marble post 8 by 8 by 30 inches, the top of which is dressed down to 6 by 6 inches and marked with deep diagonal grooves in the top surface, the intersection of which marks the station. The post projects a little above the ground and is surrounded with concrete. The underground mark is a bottle set in cement. Four pine reference posts, marked with copper nails, are each 4 feet from the station, northeast, southeast, southwest, and northwest, respectively.

Lowland (Santa Rosa County, P. A. W., 1894).—On the southeast shore of East Bay, about 1½ miles southwest of the mouth of East River. The station is on a mound among palmetto stumps about 5 meters from high-water mark. It is marked according to note 2.¹ Three large pine trees, blazed and with three copper nails in the blaze of each tree, are at the following distances from the station: 18.0 meters south by east, 35.4 meters south by west, and 24.6 meters east.

Pond (Santa Rosa County, P. A. W., 1894).—On the east shore of East Bay, on the point just south of the mouth of East River. The station is on a narrow neck of land 30 meters southwest of the mouth of a small bayou, 6 meters from the nearest point of the bayou, and 3 meters from high-water mark of the bay shore. The station is marked according to note 2,¹ except that the reference posts are at the following distances from the station: 4.62 feet north, 4.13 feet east, 3.87 feet south, and 4.04 feet west.

Guerrilla (Santa Rosa County, P. A. W., 1894).—On the northeast shore of East Bay, about 1 mile from the mouth of East River. The station is 8 meters from high-water mark on a clear stretch of sand near Guerrilla Bayou, which winds around back of the station and approaches within 5 meters of it. The station is marked according to note 2,¹ except that the reference posts are at the following distances from the station: 3.90 feet north, 3.71 feet east, 3.77 feet south, and 4.10 feet west.

Middle beacon (Santa Rosa County, P. A. W., 1892).—The red channel beacon in East Bay, south of Escribano Point.

Escribano Point 2 (Santa Rosa County, P. A. W., 1892).—On Escribano Point, on the east side of the south end of Blackwater Bay, in the center of a small knoll about 1 meter high and

¹ See pp. 61-62.

about 15 meters from high-water mark at the extremity of the point. The station is marked according to note 2,¹ except that the reference posts are at the following distances from the station: south, 4.09 feet; west, 4.18 feet; north, 3.82 feet; and east, 3.84 feet.

Lindsay (Santa Rosa County, P. A. W., 1892).—On the west shore of Blackwater Bay, about 3 meters from high-water mark and about 7½ meters outside the fence line of Mr. Lindsay's land. The station is marked by a copper nail in the cement that fills the top of a screw pile, which in turn is set in cement. Four pine posts marked with copper nails are each 4 feet from the station north, east, south, and west, respectively. The diagonal lines joining these posts intersect at the station. Three blazed pine trees, each marked with three copper nails, are at the following distances from the station: 10.41 meters north by west, 12.30 meters west, and 16.66 meters southwest.

Grass Point 2 (Santa Rosa County, P. A. W., 1892).—On Grassy Point, a prominent point on the east side of Blackwater Bay, on a sand knoll about 6 meters from high-water mark on the outermost spit of marshy land that forms the end of the point. The station is marked according to note 2.¹

Eagle Point 2 (Santa Rosa County, P. A. W., 1892).—On Eagle Point, on the west shore of Blackwater Bay, about 5 meters from high-water mark. The station is marked according to note 2.¹ Two live oak trees, blazed and marked with three copper nails in each, are at the following distances from the station: 11.6 meters west-southwest, and 11.5 meters northwest. A pine stump, also blazed and marked with three copper nails, is 9.4 meters north-northeast of the station.

Weaver Mouth (Santa Rosa County, P. A. W., 1892).—On the south shore of the stream known as Broad Mouth, which is the lower mouth of the Yellow River. The station is on the sand beach, 3 meters from the high-water mark of the river and 50 meters from the high-water mark of Blackwater Bay. The station is marked according to note 2.¹

Robinson Point 2 (Santa Rosa County, P. A. W., 1892).—On Robinson Point, on the west shore of Blackwater Bay, on a small knoll 30 meters from high-water mark. The station is marked according to note 2,¹ except that three of the reference posts are slightly more than 4 feet from the station.

Turtle Point (Santa Rosa County, P. A. W., 1892).—Near high-water line on Turtle Point, on the west shore of Blackwater Bay. The station is marked by a pole held in place by braces.

Yellow River (Santa Rosa County, P. A. W., 1892).—On the east shore of Blackwater Bay, on the south edge of the hard land north of the marshy point which is just north of the north mouth of the Yellow River. The station is 30 meters from the river and 10 meters from high-water mark of the bay, and is marked according to note 2.¹

Bay Point (Santa Rosa County, P. A. W., 1892).—On Bay Point, on the west side of Blackwater Bay just back of the Bay Point sawmill and at the south edge of the road running to the mill. The station is about centrally located on the point, being midway between the high-water marks of Blackwater River to the north and Blackwater Bay to the south. The station is marked according to note 2,¹ except that there are only three reference posts and these are somewhat nearer than 4 feet to the station. The following distances are from the station: Northwest corner of the brick machine shop of the Bay Point sawmill, 25.34 meters east-southeast; northwest corner of the brick blacksmith shop of the Bay Point sawmill, 29.67 meters east; and a large live oak tree, blazed and marked with three copper nails, 37.72 meters west-northwest.

Wards Basin 2 (Santa Rosa County, P. A. W., 1892).—On the east shore of Blackwater Bay, about one-eighth of a mile southeast of the point at the entrance to Wards Basin. The station is 5 meters from high-water mark and at the edge of the first heavy timber south of the entrance to Wards Basin. The station is marked according to note 2.¹ Three trees, blazed and marked with three copper nails in each tree, are at the following distances from the station: Pine, 17.5 meters east by south; cypress, 17.8 meters northeast; and a pine, 18.3 meters south-east by east.

¹ See pp. 61-62.

Peterson Point 2 (Santa Rosa County, P. A. W., 1892).—On Peterson Point, at the north end of Blackwater Bay, on the east side of the mouth of Blackwater River and directly across from Bay Point. The station is on the extremity of the point, just within the high-water line. It is marked by a copper nail, surrounded by three other copper nails in the top surface of a live oak stump.

Shields Point (Santa Rosa County, P. A. W., 1892).—On Shields Point, on the west shore of Upper Blackwater Bay or Blackwater River. The station is about 5 meters from high-water mark and about 5 meters from a bluff back of the station. It is marked according to note 2.¹

Milligan (Santa Rosa County, P. A. W., 1892).—On the west shore of Upper Blackwater Bay or Blackwater River, on land belonging to Mr. Milligan about three-eighths of a mile north of Shields Point. The station is at the base of a small bluff covered with young black oak trees and about 5 meters from high-water mark. It is marked according to note 2.¹

Last Point (Santa Rosa County, P. A. W., 1892).—On the east shore of Upper Blackwater Bay, or Blackwater River, on what is known locally as Graveyard Point, which is the first point south of the mouth of the narrow part of Blackwater River. The point is just south of the mouth of a small stream, and the station is among the trees about 15 meters from high-water mark. The station is marked according to note 2.¹ Three pine trees, blazed and with three copper nails in the blaze of each tree, are at the following distances from the station: 7.7 meters north-northwest, 11.6 meters north-northeast, and 6.6 meters east-northeast.

Clapps Woods 2 (Santa Rosa County, G. H. R., 1910).—On Santa Rosa Island about 150 meters west of the eastern edge of Clapps Woods and about 37 meters from high-water mark. The station is marked according to note 12¹ except that the tile of the surface mark is surrounded with concrete. Three pine trees, each marked with a blaze and with three copper nails in the form of a triangle, are at the following distances from the station: 20.06 meters, N. 41° W.; 48.40 meters, N. 75° W.; and 61.63 meters S. 31° W.

Fair Point 1910 (Santa Rosa County, G. H. R., 1910).—On a long, narrow sand point known as Fair Point, on the south side of Pensacola Bay, about 300 meters from the extremity of the point, about 175 meters from the edge of the woods, 60 paces from high-water mark to the southwest, and 50 paces from high-water mark to the northeast. The station is marked according to note 12.¹ A reference mark, a 3-inch galvanized-iron pipe 4 feet long projecting 1 foot above the ground, is 40.26 meters from the station in azimuth 285° 38'. Two live oak trees, each marked with a blaze and with three iron nails in the form of a triangle, are, respectively, 38.0 meters S. 41° E. from the station and 39.0 meters S. 59° W.

SUPPLEMENTARY POINTS.

Barrancas wharf shed (Escambia County, P. A. W., 1891).—The ventilator of the shed near the end of the Barrancas Wharf.

Revenue flagstaff (Escambia County, P. A. W., 1891).—The flagpole on the Revenue building at Warrington.

Fort Barrancas barracks flagstaff (Escambia County, P. A. W., 1891).—The tall flagpole at the Barrancas Barracks grounds.

Warrington National cemetery flagstaff (Escambia County, P. A. W., 1891).—The tall flagpole in the grounds of the National Cemetery at Warrington.

Warrington Catholic Church spire (Escambia County, P. A. W., 1891; 1901).—The cross on the spire of the Catholic Church at Warrington.

Commandant's cupola (Escambia County, P. A. W., 1891; 1901).—The top of the cupola on the commandant's residence at the Pensacola Navy Yard.

Navy-yard flagstaff (Escambia County, P. A. W., 1891; 1901).—The tall flagpole in the grounds of the Pensacola Navy Yard.

Navy Yard derrick (Escambia County, P. A. W., 1891; 1901).—Lost.

Life saving station flagstaff (Santa Rosa County, P. A. W., 1891).—The top of the tall flagstaff at the life saving station near the eastern end of Santa Rosa Island.

¹ See pp. 61-62.

Marine railroad stack (Santa Rosa County, P. A. W., 1891; 1901).—The iron smokestack on the power house of the marine railroad at Town Point on the United States Live Oak Plantation.

Chico flagstaff (Escambia County, P. A. W., 1891).—The tall flagpole a little south of the bridge that crosses the mouth of Bayou Chico near Brent's mill.

Chico white chimney (Escambia County, P. A. W., 1891).—The white chimney on a residence just opposite Brent's mill at the mouth of Bayou Chico.

Clump (Escambia County, P. A. W., 1891).—A flag in a tree near the mouth of Bayou Chico.

Stevedores flagstaff (Escambia County, P. A. W., 1891; 1901).—Lost.

Scandinavian Church spire (Escambia County, P. A. W., 1891; 1901).—The cross on the Scandinavian Church spire, near the foot of Palafox Street, Pensacola.

Pensacola Post Office (Escambia County, P. A. W., 1891; 1901).—The north flagpole on the post-office building at Pensacola. It is the flagpole used for the United States flag, the other flagpole being used for the flags of the Signal Service.

Episcopal Church spire (Escambia County, F. H. G., 1856; 1891).—The cross of the spire of the Episcopal Church, opposite Savilla Square, at the corner of Adams and Saragossa Streets, Pensacola.

Colored Church spire (Escambia County, F. H. G., 1856; 1891).—The spire of the Colored Church on Intendentia Street between Tarragona and Alconiz Streets, Pensacola.

Wright's mill chimney (Escambia County, P. A. W., 1891; 1901).—The large, round chimney used for burning sawdust at Wright's mill, which is at the eastern end of Intendentia Street, Pensacola.

Muscogee outer gable (Escambia County, P. A. W., 1891; 1901).—Lost.

Pensacola Ice Works (Escambia County, P. A. W., 1891).—The tall brick chimney of the ice works at the corner of Tarragona and Chase Streets, Pensacola.

Pensacola railroad station (Escambia County, P. A. W., 1891; 1901).—The top of the cupola of the station of the Pensacola & Andalusia, and Louisville & Nashville R. R., at the corner of Tarragona and Wright Streets, Pensacola.

Herron's house (Escambia County, P. A. W., 1891; 1901).—The top of the cupola on Mr. Herron's residence at the corner of Palafox and Jackson Streets, Pensacola.

Pensacola standpipe (Escambia County, P. A. W., 1891; 1901).—The center of the top of the waterworks standpipe near the corner of Strong and Palafox Streets, Pensacola.

Well's chimney (Escambia County, P. A. W., 1891).—The brick chimney on the southern end of Mr. Well's residence, at the corner of Fourth Street and Twelfth Avenue, Pensacola.

Oak (Escambia County, P. A. W., 1891).—A flag in a tree near the mouth of Bayou Texas.

Magnolia Wharf (Escambia County, P. A. W., 1890).—On the end of the wharf at Magnolia Bluff, on the east side of the southern end of Escambia Bay. The station is marked by five copper nails.

Magnolia Wharf flagstaff (Escambia County, P. A. W., 1890; 1901).—Lost.

Bohemia shingle mill (Escambia County, P. A. W., 1891).—The smokestack on the shingle mill at Bohemia.

Bohemia, round brick chimney (Escambia County, P. A. W., 1891).—The tall, round, brick chimney at Bohemia.

Escambia Trestle, northeast chimney (Escambia County, P. A. W., 1891).—The chimney on the northeast end of the dwelling house on the Escambia Trestle.

Skinner's sawmill stack (Escambia County, P. A. W., 1891).—The iron smokestack at Skinner's sawmill, Escambia.

Skinner's planing mill stack (Escambia County, P. A. W., 1891).—The iron smokestack at Skinner's planing mill at Escambia.

Lone chimney (Escambia County, P. A. W., 1891).—The round brick chimney standing alone on the west shore of Escambia Bay about $1\frac{1}{2}$ miles northwest of Skinner's mill.

Wreck (Escambia County, P. A. W., 1891).—A flagpole on the wreck of an old scow near the southern entrance to the Escambia River.

Leaving chain house (Escambia County, P. A. W., 1891).—This station has been destroyed. The chain house has been torn down and a new one built about 15 yards east of it.

Chain house, east gable (Escambia County, P. A. W., 1891).—The east gable of the shanty which is used as a chain house near the middle of the bay, about half a mile north of the entrance to the Escambia River.

White Point beacon (Santa Rosa County, P. A. W., 1892).—The red channel beacon in East Bay, off White Point.

Escribano Point beacon (Santa Rosa County, P. A. W., 1892).—The red channel beacon in Blackwater Bay above Escribano Point.

Two Trees (Santa Rosa County, P. A. W., 1892).—On the east shore of Blackwater Bay in the bight between Grassy Point and Catfish Point. The station is marked only by a signal, a 4 by 9 inch stick of timber 25 feet long, to which boards are nailed. It is near two isolated pine trees, to one of which the stick of timber is fastened.

Catfish Point (Santa Rosa County, P. A. W., 1892).—On the east shore of Blackwater Bay, on Catfish Point just south of the entrance to Catfish Bayou. The station is marked only by a signal, a pine sapling 6 inches in diameter and 30 feet long, held firmly erect by means of cross pieces of scantling, with boards nailed the entire length.

Scaffold (Escambia County, P. A. W., 1892).—On the east shore of Blackwater Bay, about 250 yards above the mouth of Broad River, which is the lower mouth of the Yellow River, and about one-half mile below the middle mouth of the Yellow River. The station is about 3 meters from high water, on a slightly elevated strip of sand at the outer edge of the marsh and about 150 meters from the edge of thin woods. The station is marked by a copper nail in the top of a stake surrounded by four pine posts, each 4 feet long, with a copper nail in the top of each, approximately north, south, east, and west from the station, at distances of 4.09, 3.75, 4.22, and 3.55 feet, respectively.

Mill chimney (Santa Rosa County, P. A. W., 1892).—The tall brick chimney of the Bayport sawmill.

Shingle-mill stack (Santa Rosa County, P. A. W., 1892).—The larger iron stack of Carey & Oldinger's shingle mill, north of Shields Point on the west shore of Blackwater River.

Oak (Santa Rosa County, P. A. W., 1892).—A flag at the top of a tall pine tree on the northwest shore of Oakland Basin.

Dry-dock derrick (Santa Rosa County, P. A. W., 1892).—The top of the derrick of the Bagdad Dry Dock.

PERDIDO BAY.

PRINCIPAL POINTS.

Perdido Range (Baldwin County, Ala., A. T. M., 1889).—On a sand hill about 25 feet high on the island south of Perdido Entrance. The station is marked according to note 2,¹ except that the reference posts are each 6 feet distant, northeast, southeast, southwest, and northwest, respectively.

Johnson (Baldwin County, Ala., A. T. M., 1889; 1911).—On the north shore of a small bay north of the old entrance to Perdido Bay, on a sand ridge covered with oak and palmetto scrub about 100 meters from the shore and about 100 meters southwest of the abandoned house belonging to Mr. Johnson. The station is marked by a standard disk station mark in a block of concrete 10 inches square on top and underground by a jug. A reference mark, a square concrete post marked with an inscribed triangle with a nail at each vertex and the center, is on the sand ridge 25.85 meters from the station in azimuth 105° 21'. Another reference mark, a round concrete post marked with an inscribed circle with a nail at the center, is on the sand ridge 10.71 meters from the station in azimuth 285° 05'

¹ See pp. 61-62.

Perdido III (Escambia County, A. T. M., 1889).—On the neck of land between Old River and the Gulf, on the second sand ridge back from the Gulf shore. The station is marked according to note 2,¹ except that the reference posts are each 6 feet distant. A pine tree near the river shore is about 300 meters N. 53° W. from the station and the river shore at the west end of the woods is about 300 meters N. 27° E.

Bear Point (Baldwin County, Ala., A. T. M., 1889; 1911).—Lost.

Perdido II (Escambia County, A. T. M., 1889).—On the neck of land which separates Old River from the Gulf, on the second sand ridge back from the Gulf shore. The station is marked according to note 2,¹ except that the reference posts are each 9 feet distant.

Hummock (Escambia County, A. T. M., 1889; 1911).—On Inerarity Peninsula a few meters south of the highest part of a hill which is about 25 feet high and about one-fourth mile west of the narrow neck of the peninsula. To reach the station, land on the Inner Bay shore of the narrow neck and follow the edge of the woods until a large pine tree marked with a triangular blaze is reached just south of an old road, and then follow a blazed trail up the hill. The station is marked by a standard disk station mark in a mass of concrete 10 inches square on top in the lower part of which is embedded a tile. The underground mark is a stone jug filled and surrounded with concrete. A pine tree and an oak tree, each marked with a triangular blaze, are, respectively, 14.15 meters N. 70° W. and 12.98 meters N. 65° W. from the station.

Goat (Escambia County, A. T. M., 1889; 1911).—This station is 82.32 meters from *Goat 2* (see p. 134) in azimuth 95° 08'. It is marked by a spike at the center of a tile which is filled and surrounded with concrete and underground by a bottle set in concrete. Three pine trees, each marked with a triangular blaze, are at the following distances and azimuths from the station: 41.21 meters, 24° 27'; 31.02 meters, 184° 10'; and 20.77 meters, 215° 06'.

Perdido I (Escambia County, A. T. M., 1889).—On the second ridge of sand hills back of the Gulf shore south of the east end of Ono Island. The station is marked by a spike in the top of a tile which is filled and surrounded with concrete and underground by a bottle set in concrete 3 feet below the surface. Four hard pine posts, each about 7 feet distant, form a square about the station.

Nelson (Escambia County, A. T. M., 1889; 1911).—About 30 paces from the edge of a bluff, which is about 35 feet high and is covered with a dense growth of small trees, on the south shore of Inerarity Peninsula northeast of the eastern end of Ono Island. A little mound, the remains of an old house, is about 6 paces east by north from the station and an oleander is 10 paces north by east. Two magnolias about 150 meters apart can be seen from Old River, and together with the oleander they are the best marks for finding the locality. The station is marked by a standard disk station mark in a block of concrete 10 inches square on top and projecting about 1 foot, in the lower part of which is embedded a tile. The underground mark is a bottle. Three trees, each marked with a triangular blaze, and two old oak stumps are at the following distances from the station: Oak, 19.83 meters N. 39° E.; pine, 7.92 meters N. 46° E.; stump, 26.65 meters S. 62° E.; magnolia, 24.36 meters S. 54° E.; and stump, 12.88 meters S. 37° W.

Lagoon III (Escambia County, P. A. W., 1889).—On one of the numerous sand ridges on the Gulf shore just abreast of the head of Big Lagoon. The station is marked according to note 2.¹

Piney (Escambia County, P. A. W., 1889).—On the north side of the eastern end of Big Lagoon, about 500 meters from the shore, on a heavily timbered sand ridge which is bordered with swamp and water on all sides but the east. The station is marked according to note 2.¹

Lagoon II (Escambia County, P. A. W., 1889).—On one of the low sand hills on the neck of land between Big Lagoon and the Gulf and near the New Inlet which has been cut since the station was established. The station is marked according to note 2.¹

Red Bluff (Escambia County, P. A. W., 1889).—On the highest part of the prominent sand hill known as Red Bluff, on the north shore of Big Lagoon. The hill is covered with a

dense growth of scrub oak and on the top are a few small dead pine trees. The station is marked according to note 2.¹

Inerarity west (Escambia County, A. T. M., 1889; 1911).—This station has been destroyed.

Rockwood (Baldwin County, Ala., A. T. M., 1889).—Near the northeastern extremity of the point just south of the entrance to Bay La Launch, on a bluff just south of a wharf which extends to the northward from the end of the point, and about 300 meters northeast of Mr. Rockwood's house. The station is marked according to note 2,¹ except that there are no reference posts. A live oak tree and two live oak stumps, each marked with a blaze, are at the following distances, respectively, from the station: 4.2 meters S. 87° E., 4.3 meters S. 13° W., and 4.2 meters N. 45° E.

Ross (Baldwin County, Ala., A. T. M., 1889; 1911).—In the water at the end of Ross Point, on the west side of Perdido Bay. The station is marked according to note 2,¹ except that the reference posts are each about 6 feet distant. A stump is in the water 13.5 meters south of the station and another stump is at the water's edge 4.5 meters west.

Red Bluff (Baldwin County, Ala., A. T. M., 1889; 1911).—On the northwest shore of Perdido Bay, on a bluff about 50 feet high known as Red Bluffs, about 4 meters from the edge of the bluff midway between two cottages owned by Mr. M. P. LeGrand. The station is marked by a brass cartridge case in the top of a tile which is filled and surrounded with concrete. A driven well is 68.48 meters from the station in azimuth 130° 41'. A reference mark, a bottle at the center of a square block of concrete, is in line to the well 23.35 meters from the station. Three small pines, each marked with a triangular blaze, are at the following distances and azimuths from the station: 5.61 meters, 122° 07'; 9.34 meters, 125° 39'; and 8.17 meters, 153° 14'.

Manuel (Baldwin County, Ala., A. T. M., 1889; 1911).—Lost.

Dupont (Escambia County, A. T. M., 1889; 1911).—On Dupont Point, a long, sandy point on the east side of Perdido Bay, near the middle of the point about 15 meters west of the woods and grass line. The station is marked according to note 4.¹ A reference mark, a round block of concrete inscribed with a triangle with a nail at the center and each vertex, is on hard land in the palmetto scrub 25.05 meters from the station in azimuth 291° 47'. Another reference mark, a nail at the center of a piece of tile embedded in a round block of concrete, is 46.51 meters from the station in the same azimuth as the first reference mark. Four pine trees, each marked with a triangular blaze, are at the following distances and azimuths from the station: 16.23 meters, 239° 28'; 21.75 meters, 253° 26'; 20.10 meters, 284° 31'; and 20.73 meters, 312° 22'.

Suarez (Baldwin County, Ala., A. T. M., 1889; 1911).—At high-water mark on a sand ridge on Suarez Point, on the west side of Perdido Bay. The station is marked according to note 8.¹ A reference mark, an iron pipe at the center of a round block of concrete, is back of the sand ridge 14.64 meters from the station in azimuth 74° 35'. Another reference mark, a square block of concrete inscribed with a triangle, with a nail at the center and each vertex is back of the sand ridge 20.97 meters from the station in azimuth 123° 43'. A pine tree and a bay tree, each marked with a triangular blaze, are, respectively, 22.65 meters from the station in azimuth 78° 40' and 24.92 meters in azimuth 111° 23'. A dead tree is 15.32 meters distant in azimuth 160° 50', and a stump is 4.28 meters distant in azimuth 324°.

Nix (Escambia County, S. F., 1890; 1911).—Lost.

Chagrin (Baldwin County, Ala., S. F., 1890; 1911).—Lost.

Cummings (Escambia County, S. F., 1890; 1911).—Lost.

Grassy (Baldwin County, Ala., S. F., 1890; 1911).—In the water at the end of Grassy Point, on the northwest side of Perdido Bay. The station is marked by a galvanized iron pipe 7 feet long which projects about 2 feet above low water. A reference mark, a galvanized iron pipe 11 feet long projecting 2 feet above the ground and surrounded by a mass of concrete, is in line to station *Double* 21.20 meters from the station in azimuth 329° 17' 42". Four stumps

¹ See pp. 61-62.

are at the following distances from the station: 1.9 meters N. 74° E, 7.2 meters S. 59° E, 5.7 meters S. 35° W., and 1.7 meters S. 65° W.

Double (Escambia County, S. F., 1890; 1911).—In the water at the end of the western one of two points known as Double Point, on the southeast side of Perdido Bay. Just back of the station is a small area of hard ground on which there are some small trees and palmetto scrub. The station is marked by a galvanized iron pipe 12 feet long projecting 2 feet above high water and surrounded by a square block of concrete from 1 foot below ground to within 1 foot of the top. A reference mark, a galvanized iron pipe 6 feet long projecting 2 feet above the ground and surrounded by a mass of concrete which extends from 6 inches above the ground to 2 feet below, is on hard ground in line with station *Grassy*, 28.02 meters from the station in azimuth $329^{\circ} 17' 42''$. Another reference mark, described in note 7,¹ is on hard ground 36.6 meters from the station in azimuth $358^{\circ} 35'$. Five stumps are at the following distances from the station: 12.6 meters N. 80° E., 1.2 meters S. 5° E., 1.0 meter S. 80° W., 1.7 meters N. 5° W., and 3.7 meters N. 49° W. A pine tree and a pine stump, each marked with a triangular blaze, are, respectively, 2.44 meters and 3.50 meters from the first reference mark.

River East (Escambia County, S. F., 1890; 1911).—Lost.

River West (Baldwin County, Ala., S. F., 1890; 1911).—In the water at the end of the point on the southwest side of the mouth of the Perdido River. The station is marked by a galvanized iron pipe 6 feet long surrounded by concrete. A reference mark, a galvanized iron pipe 12 feet long projecting 2 feet above the ground and surrounded by concrete, is in the marsh 26.45 meters from the station in azimuth $63^{\circ} 57'$. Two old stumps are, respectively, 6.1 meters from the station in azimuth 256° and 3.7 meters in azimuth 355° .

Boom (Escambia County, S. F., 1891; 1911).—On the southern part of a point on the northeast side of Perdido River, about a mile from the mouth of the river. The station is marked by a nail in the top of a cypress stub 6 inches in diameter and 5 feet long which projects 6 inches above the ground. A dead cypress tree, a pine tree, and a cypress stump, each marked with a triangular blaze, are at the following distances, respectively, from the station: 17.86 meters N. 46° W., 25.52 meters N. 7° W., and 4.10 meters S. 12° W.

Squid (Baldwin County, Ala., S. F., 1891; 1911).—Lost.

Juniper (Baldwin County, Ala., S. F., 1891; 1911).—Lost.

Hirse (Escambia County, S. F., 1891; 1911).—On a small point known as Hirse's Landing on the northeast shore of Perdido River, about 2 miles above the mouth. The station is marked by a nail in the top of a 4-inch tile filled with concrete. Three pine trees, each marked with a triangular blaze, are at the following distances from the station: 7.98 meters N. 6° W., 19.10 meters N. 19° E., and 6.55 meters N. 32° E.

Hard (Escambia County, S. F., 1891; 1911).—Lost.

Wire (Baldwin County, Ala., S. F., 1891; 1911).—Lost.

Steamboat (Escambia County, S. F., 1891; 1911).—On a small, narrow point on the northeast shore of Perdido River, opposite the upper end of Steamboat Island. The station is marked by a nail in the top of a juniper stub 6 inches in diameter and about 4 feet long which is surrounded with concrete. A pine stump is 5.5 meters west of the station.

Roots (Baldwin County, Ala., S. F., 1891; 1911).—On the southwest shore of Perdido River, about three-fourths mile above Steamboat Island and about 60 yards above the mouth of a small stream that empties into the river. The station is marked by a nail in the top of a juniper stub 6 inches in diameter and 5 feet long. A pine stump, a cypress tree, and two pine trees, each marked with a triangular blaze, with a nail at the center of the blaze, are at the following distances, respectively, from the station: 1.83 meters, 9.30 meters, 10.67 meters, and 7.92 meters.

Kee (Escambia County, S. F., 1891; 1911).—On soft ground on the northeast side of Perdido River, about three-fourths mile above Steamboat Island. The station is marked by a nail

¹ See pp. 61-62.

in the top of a tile which is filled with concrete. Three small pine trees, each marked with a triangular blaze, with a nail at the center of the blaze, are at the following distances from the station: 5.20 meters northeast, 5.67 meters south-southeast, and 1.98 meters north-northeast.

Alabama Cut-off (Baldwin County, Ala., S. F., 1891; 1911).—On soft ground on the southwest point of the island which is between the main channel of Perdido River and Alabama Cut-off. The station is marked by a nail in the top of a juniper stub 6 inches in diameter and 5 feet long. A pine tree, a pine stump, and a juniper stump, each marked with a triangular blaze, with a nail at the center of the blaze, are at the following distances from the station: 3.35 meters north, 2.13 meters west-northwest, and 1.98 meters east-southeast.

Florida Cut-off (Escambia County, S. F., 1891; 1911).—On firm ground on the northeast side of Perdido River just below the mouth of a creek known as Florida Cut-off. The station is marked by a nail in the top of a tile which is filled with concrete. A pine stump, a dead pine tree, and a juniper tree, each marked with a triangular blaze with a nail at the center of the blaze, are at the following distances, respectively, from the station: 2.01 meters west-northwest, 6.35 meters north-northeast, and 5.60 meters northwest.

Titi (Baldwin County, Ala., S. F., 1891; 1911).—On the west shore of Perdido River just north of the entrance to Alabama Cut-off and about one-fourth mile south of the mouth of Blackwater River. The station is marked by a nail in the top of a tile which is filled with concrete. Two juniper trees and a cypress tree, each marked with a triangular blaze with a nail at the center of the blaze, are at the following distances, respectively, from the station: 4.49 meters north, 4.27 meters northeast, and 5.03 meters southeast.

Bay (Escambia County, S. F., 1891; 1911).—Lost.

Log (Baldwin County, Ala., S. F., 1891; 1911).—On soft ground near the southwest extremity of the point between Blackwater and Perdido Rivers. The station is marked by a nail in the top of a juniper stub 6 inches in diameter and 5 feet long. A pine tree, a juniper stump, and a dead juniper tree, each marked with a triangular blaze with a nail at the center of the blaze, are at the following distances, respectively, from the station: 3.89 meters north, 3.20 meters southeast, and 6.25 meters southwest.

Goat 2 (Escambia County, E. S., 1911).—On the north shore of Ono Island just in front of a clump of small oak trees about 20 meters from the extremity of Goat Point. The station is marked according to note 4.¹ A reference mark, described in note 6,¹ is 10.48 meters from the station in azimuth 280° 43'. Five pine trees and one oak tree, each marked with a triangular blaze, are at the following distances and azimuths from the station: 18.52 meters, 101° 34'; 18.46 meters, 105° 27'; 20.90 meters, 184° 51'; 22.04 meters, 189° 03'; (oak) 12.30 meters, 295° 55'; and 16.89 meters, 3° 55'.

Ross 2 (Baldwin County, Ala., E. S., 1911).—At the western end of Perdido Bay, on a sand ridge just back of the marsh on Ross Point and about one-fourth mile from Josephine post office. The station is marked according to note 8.¹ Three pine trees, each marked with a triangular blaze, are at the following distances and azimuths from the station: 19.75 meters, 29° 05'; 19.77 meters, 51° 17'; and 22.02 meters, 132° 18'.

Inerarity west 2 (Escambia County, E. S., 1911).—At the southwest end of Perdido Bay, on the high part of a hummock about 50 meters from the northwest extremity of Inerarity Peninsula and about midway between the shore to the north and the marsh to the south. The station is marked according to note 8.¹ A reference mark, described in note 6,¹ is 7.39 meters from the station in azimuth 284° 12'. Four pine trees and one magnolia, each marked with a triangular blaze, are at the following distances and azimuths, respectively, from the station: 17.66 meters, 39° 04'; 10.79 meters, 110° 15'; 9.33 meters, 175° 01'; 18.10 meters, 271° 36'; and 38.50 meters, 283° 28'.

Bear Point 2 (Baldwin County, Ala., E. S., 1911).—On a sand ridge near the shore on Bear Point and separated by a marsh from a high sand hill covered with oaks and palmettos back of the station. The station is marked according to note 8.¹ A reference mark, described in note 6,¹ is on the hill mentioned above, 57.90 meters from the station in azimuth 150° 09'.

¹ See pp. 61-62.

Inlet (Escambia County, E. S., 1911).—On a bluff on the south shore of Ono Island directly opposite the inlet to Perdido Bay that was opened in the storm of 1906. The station is marked by a standard disk station mark in the top of a galvanized-iron pipe 7 feet long which projects 6 inches above the ground and is surrounded by a block of concrete 10 inches square and 2 feet deep. Two pine trees, each marked with a triangular blaze, are, respectively, 70 meters from the station in azimuth $152^{\circ} 41'$ and 57 meters in azimuth $180^{\circ} 28'$.

Ala (Baldwin County, Ala., E. S., 1911).—On the most easterly sand hill on Alabama Point. The station is marked by a standard disk station mark in the top of a galvanized-iron pipe 7 feet long which projects 8 inches above the surface and is surrounded at the upper end by a round block of concrete 2 feet deep. The only pine tree on the point, marked with a triangular blaze, is 50.50 meters from the station in azimuth $226^{\circ} 45'$.

SUPPLEMENTARY POINTS.

Tarkill (Escambia County, A. T. M., 1889).—On a rounded point, just south of Tarkill Bay on the east side of Perdido Bay, on a hard sand hill about 5 feet high. The station is marked by a nail in the top of a stake. A burnt stump and a pine stump, each marked with a blaze and a spike, are, respectively, 7.6 meters S. 44° E. and 5.9 meters N. 41° W. from the station.

Bend (Escambia County, S. F., 1890; 1911).—Lost.

Fell (Baldwin County, Ala., S. F., 1890; 1911).—On the west side of Perdido Bay about a mile north of Suarez Point and about one-half mile north of Fells Point, on the beach below a bluff just north of a break in the bluff, and about 15 meters from high-water mark. The station is marked according to note 8¹ except that there is a standard disk station mark in the bottle of the underground mark. It was reported in 1913 that the disk had been removed from the surface mark. A reference mark, a nail in the top of a juniper stake embedded in a square block of concrete, is on the bluff 61.84 meters from the station in azimuth $210^{\circ} 16'$. Another reference mark, similar to the first except that the concrete is finished round, is below the bluff 50.45 meters from the station in azimuth $236^{\circ} 46'$. A pine tree marked with a triangular blaze with a spike at the center of the blaze is on the bluff in azimuth $120^{\circ} 07'$ from the station. A dead juniper tree, similarly marked, is 9.21 meters from the station in azimuth $323^{\circ} 44'$. Other distances and azimuths were measured as follows: Stump, 13.30 meters, $40^{\circ} 15'$; pine tree, 9.16 meters, $219^{\circ} 43'$; and stump, 9.21 meters, $323^{\circ} 44'$.

May (Baldwin County, Ala., S. F., 1890; 1911).—Lost.

Cove (Escambia County, S. F., 1890; 1911).—Lost.

Powell (Escambia County, S. F., 1890; 1911).—Lost.

Head (Escambia County, S. F., 1890; 1911).—Lost.

Hester (Escambia County, S. F., 1890; 1911).—Lost.

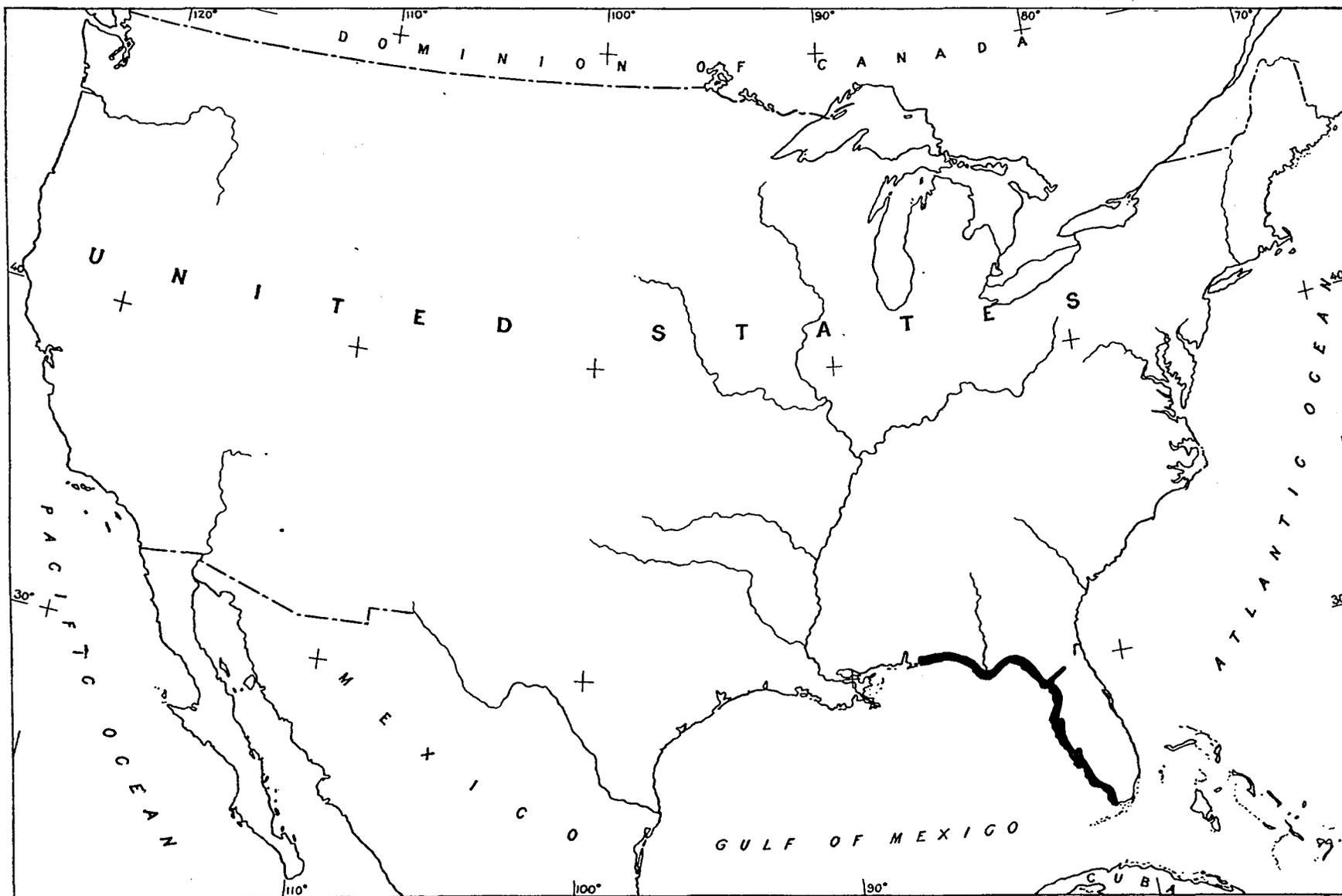
Marcus (Escambia County, S. F., 1890; 1911).—Lost.

SKETCHES.

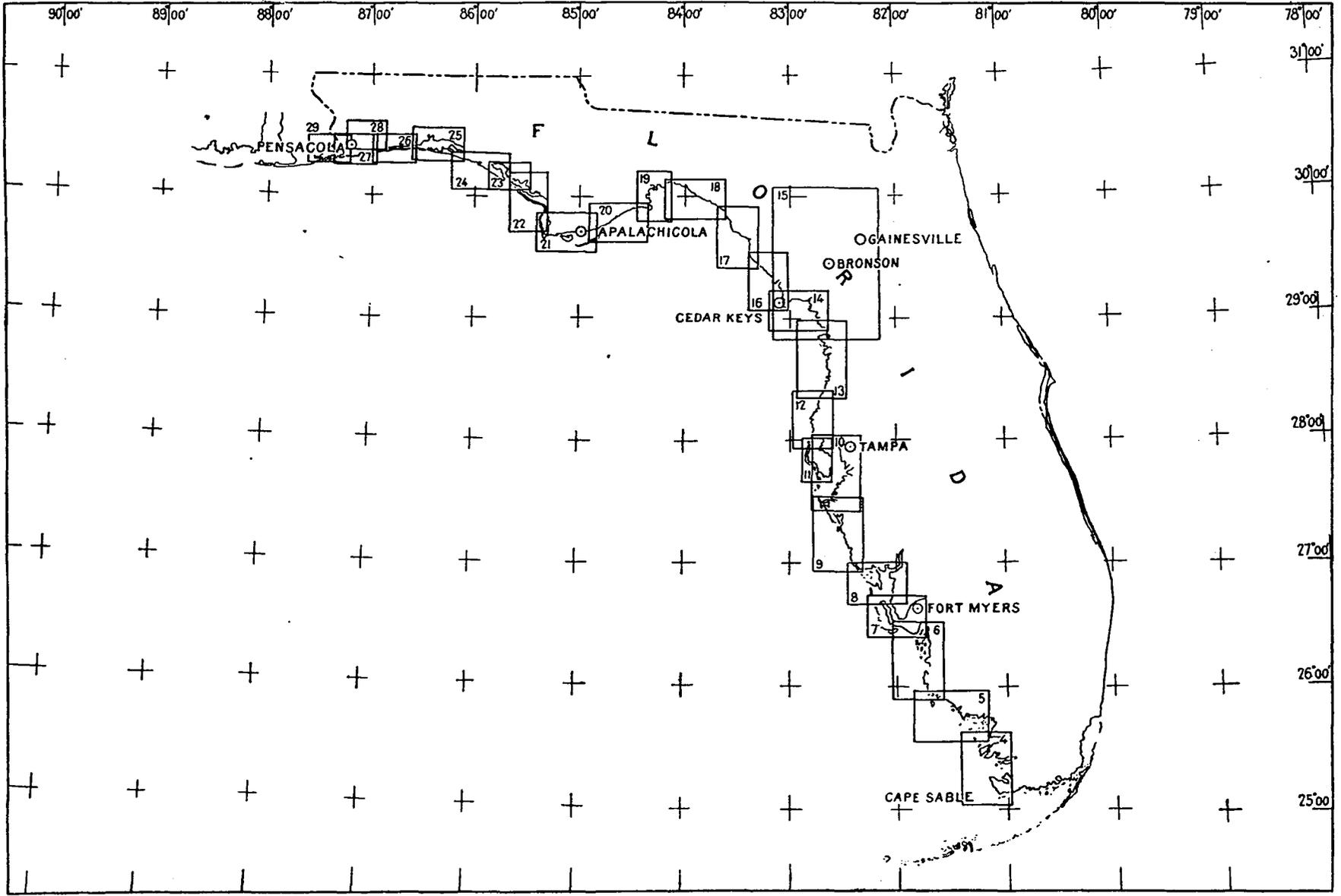
On the following sketches are shown the location of all the triangulation stations given in this publication. The lines of the main scheme are also shown, full lines when observed over from both of the stations connected and broken at one end when observed over only from the station at the full end of the line. Occupied stations are given by triangles and unoccupied or intersection stations are given by circles. On several sketches, where old work and recent work overlap, the recent work has been shown in red to avoid confusion. In case an old station and a new station plot at the same point, a black triangle or circle is shown with both names. In the same way, where a red line of the scheme coincides with a black line, only the black line is shown. The beach measures referred to on page 6 are shown with heavy lines and the measured bases with still heavier lines.

The first two of the following sketches are index sketches, one showing the general location of the whole triangulation and the other showing on a map of Florida the limits of each separate triangulation sketch.

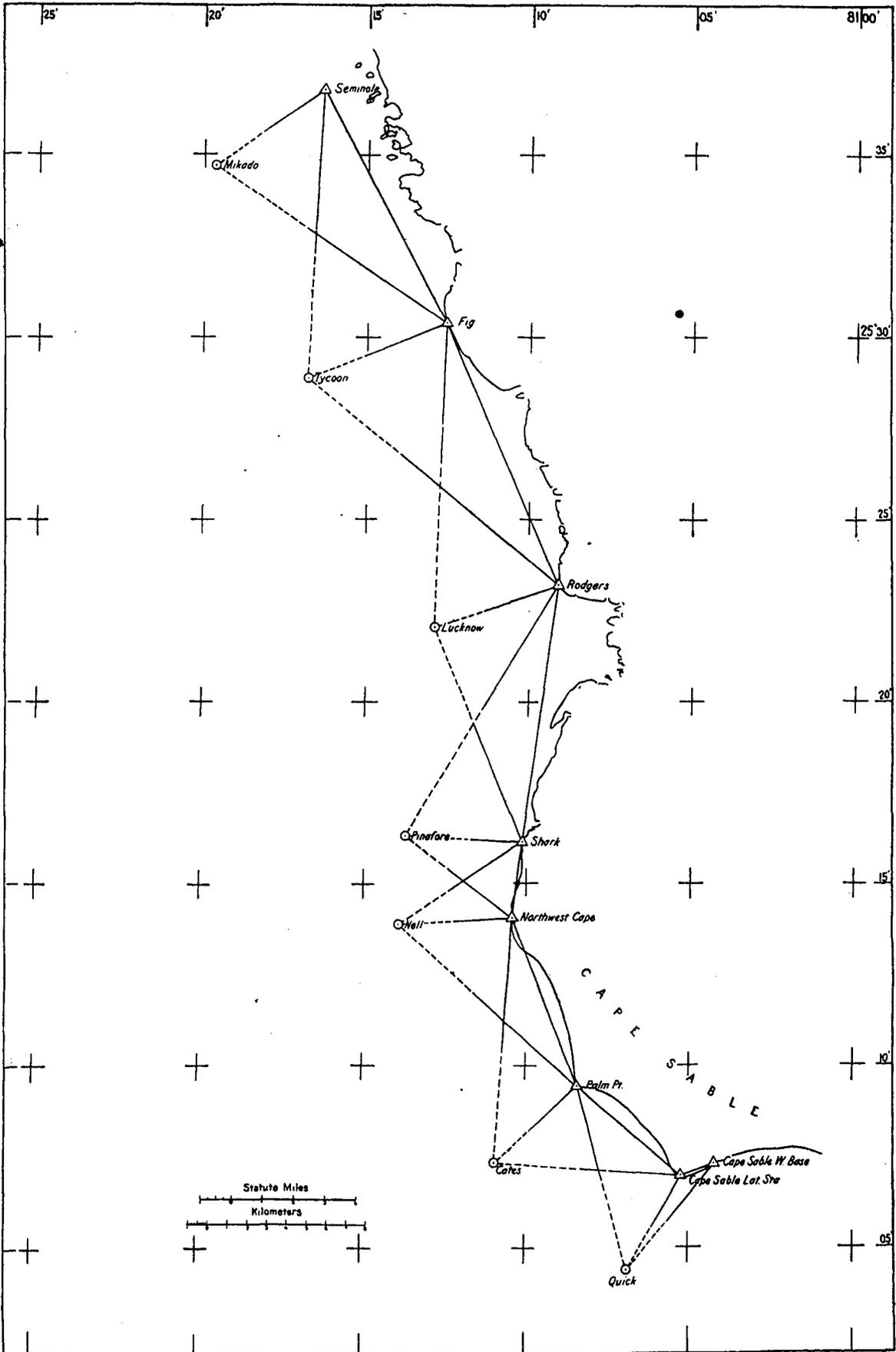
¹ See pp. 61-62.



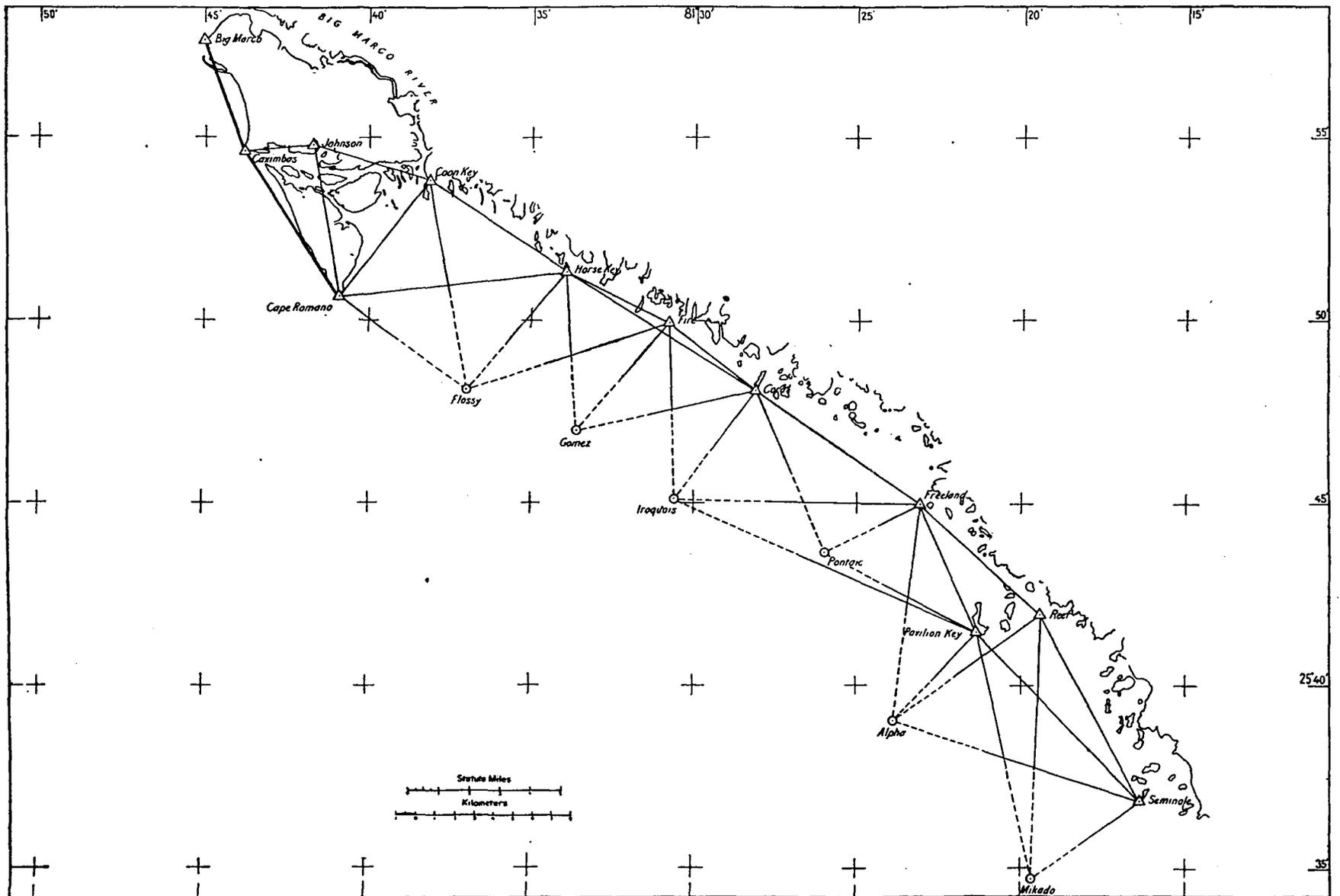
INDEX MAP SHOWING GENERAL LOCATION OF THE TRIANGULATION.



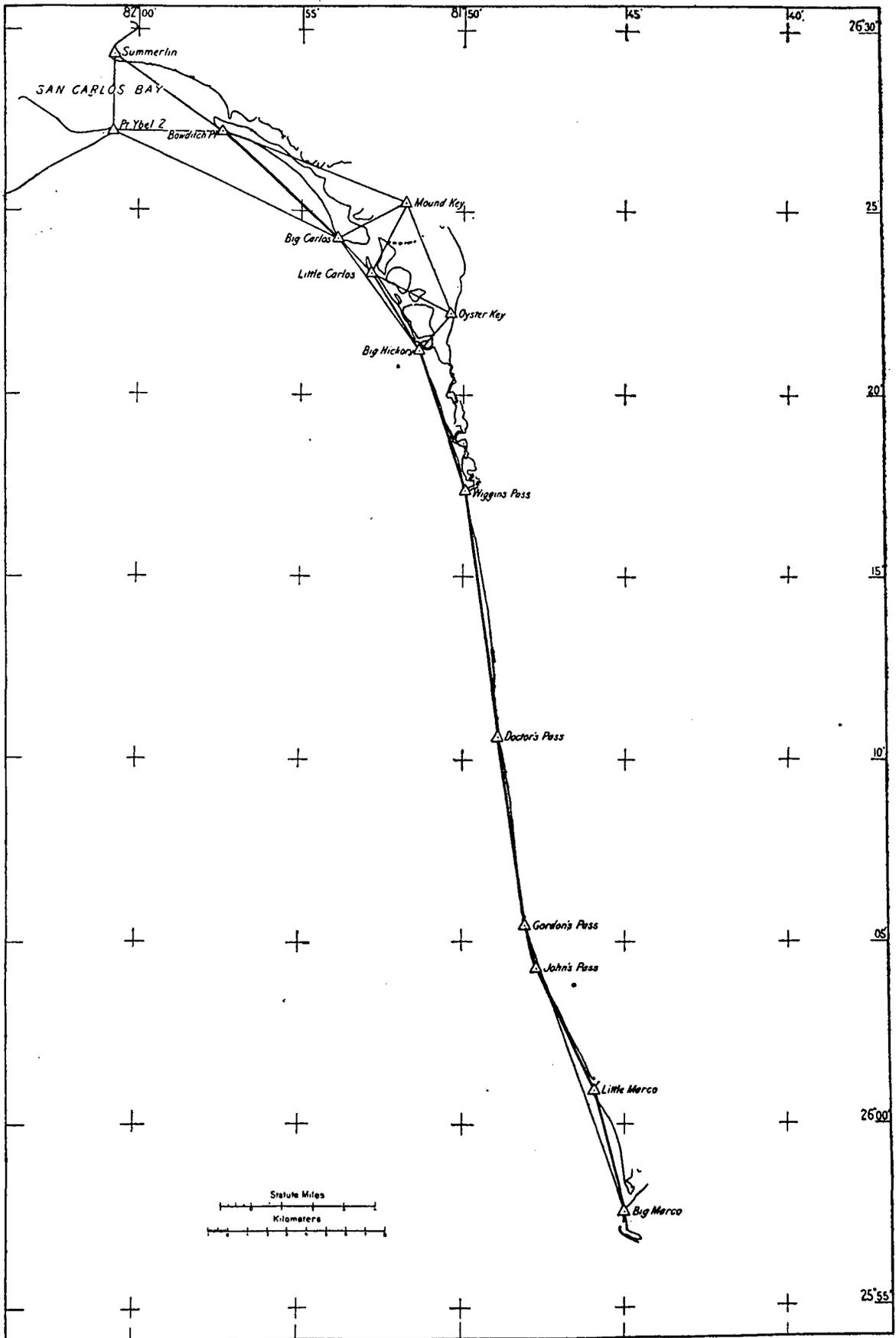
INDEX MAP SHOWING THE LIMITS OF EACH OF THE FOLLOWING SKETCHES.



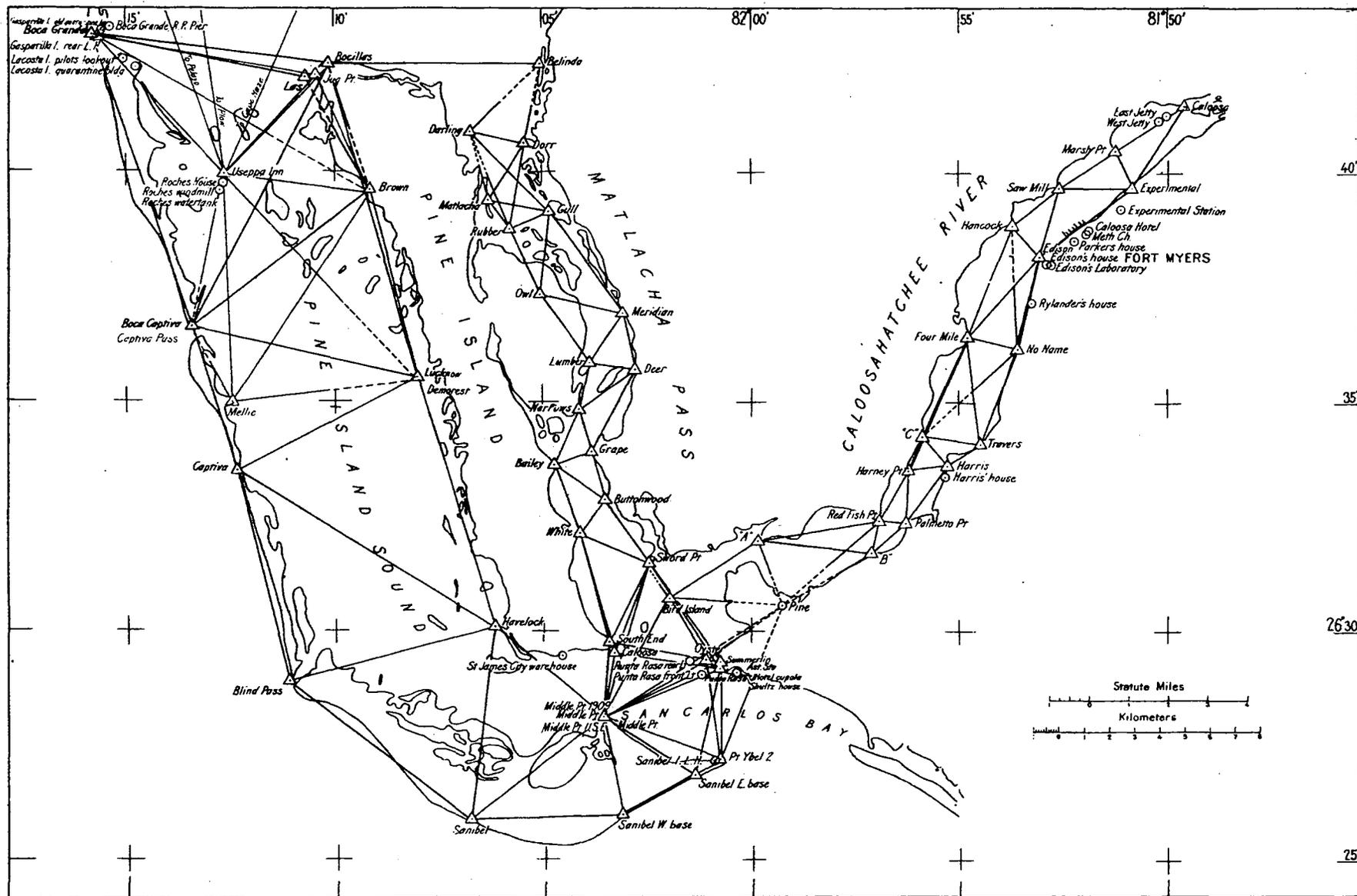
TRIANGULATION, CAPE SABLE TO MIKADO-SEMINOLE.



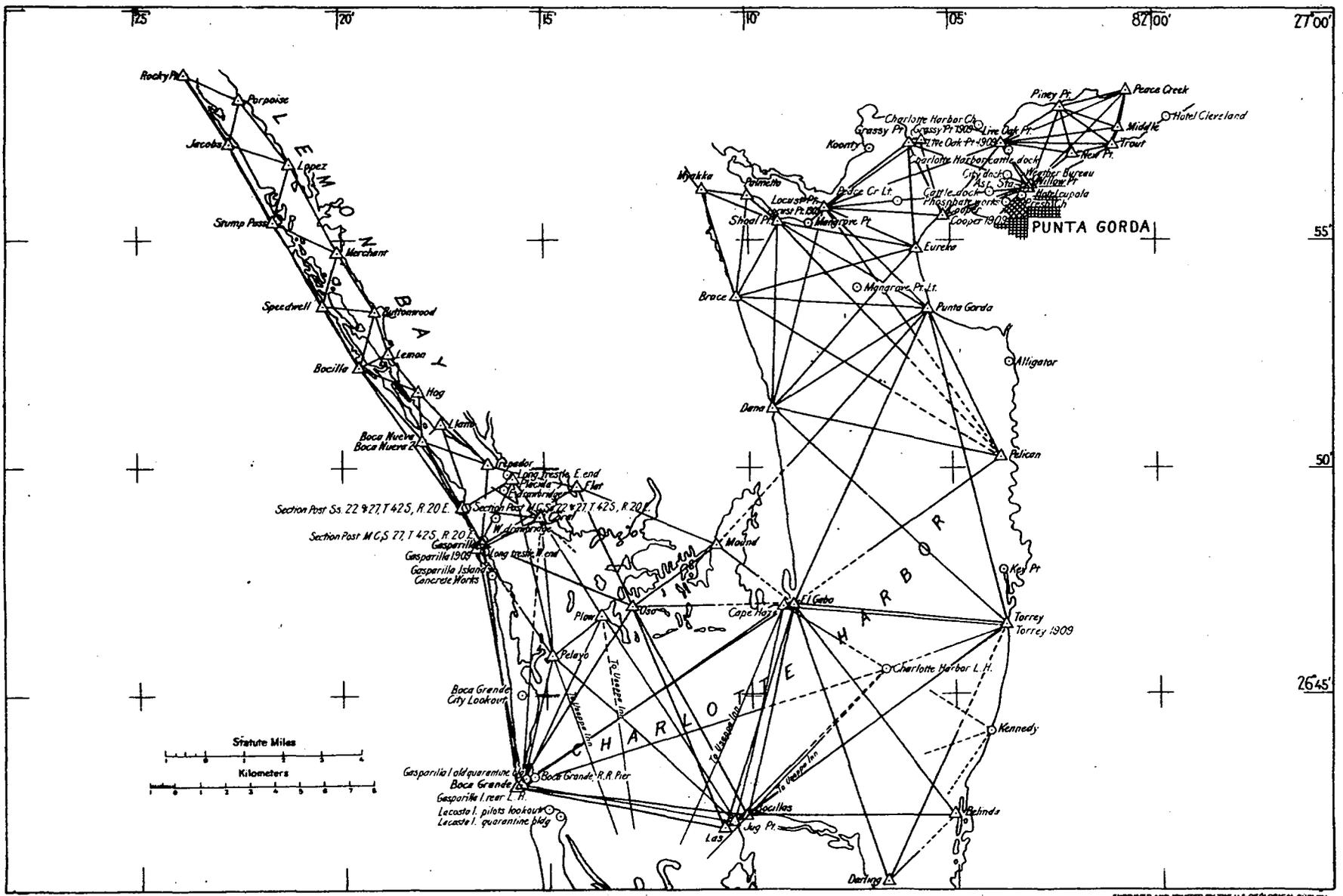
TRIANGULATION, MIKADO-SEMINOLE TO BIG MARCO RIVER.



TRIANGULATION, BIG MARCO RIVER TO SAN CARLOS BAY.

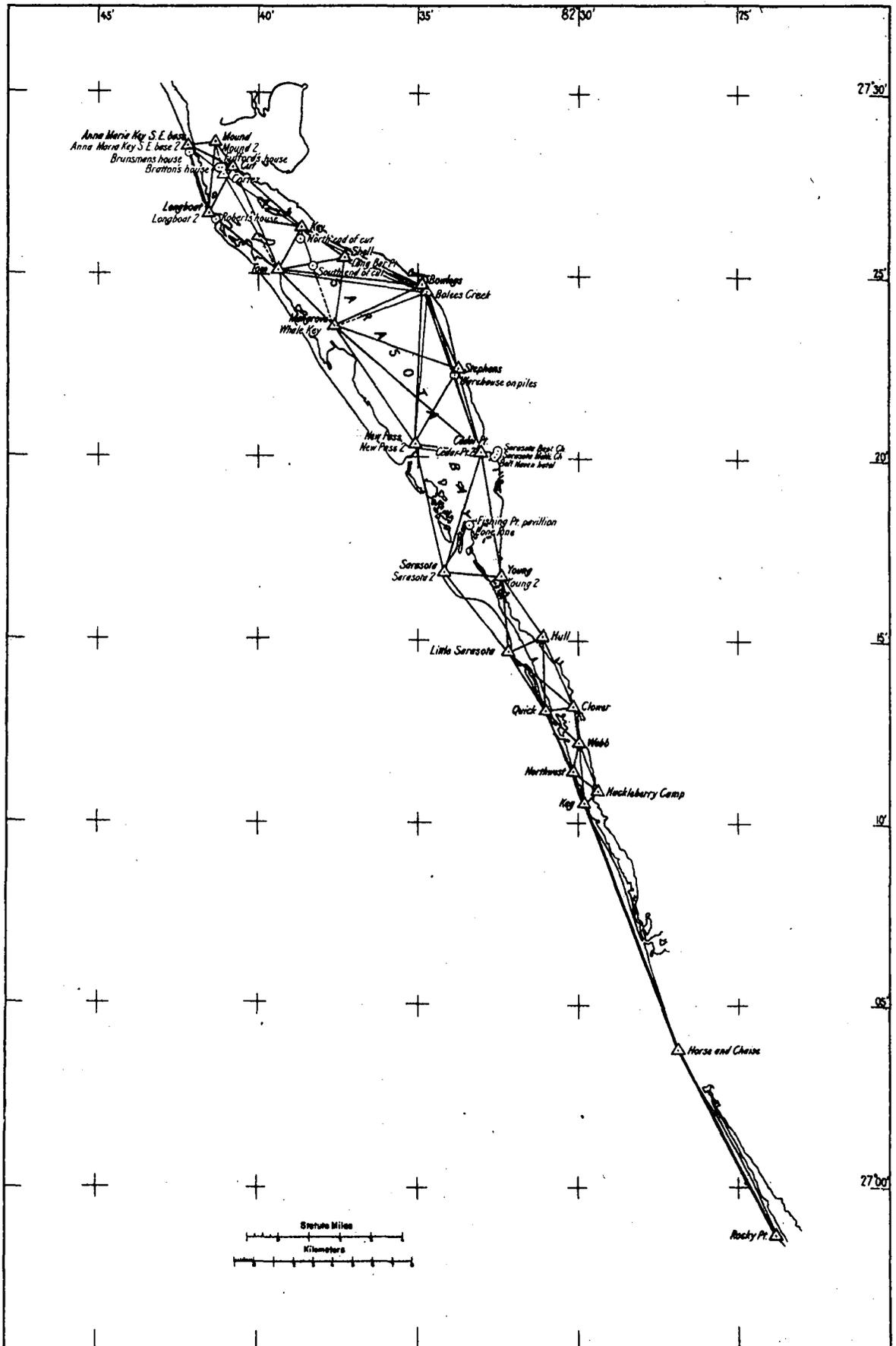


TRIANGULATION, CALOOSAHATCHEE RIVER TO CHARLOTTE HARBOR.



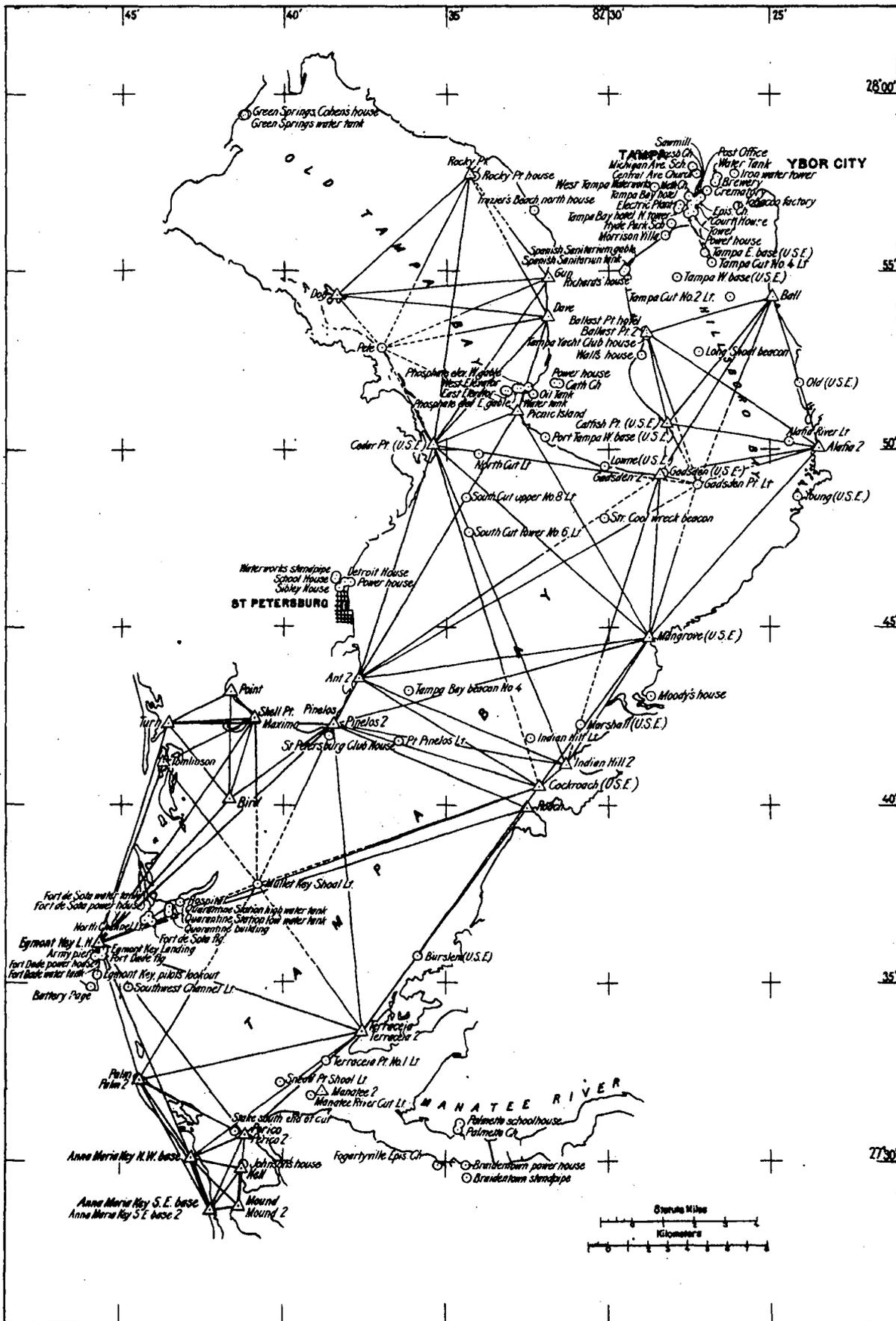
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TRIANGULATION. CHARLOTTE HARBOR.



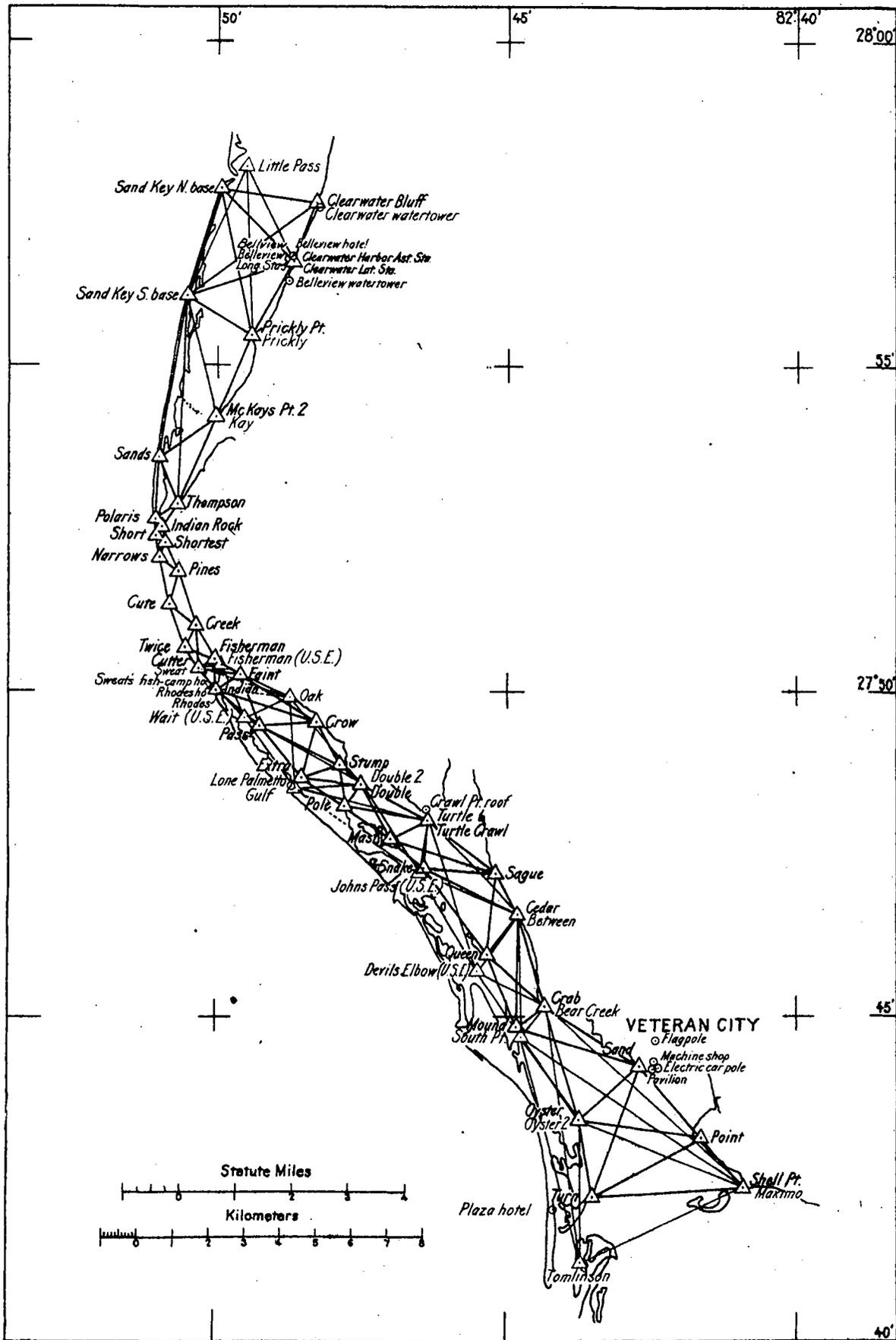
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TRIANGULATION, LEMON BAY TO SARASOTA BAY.

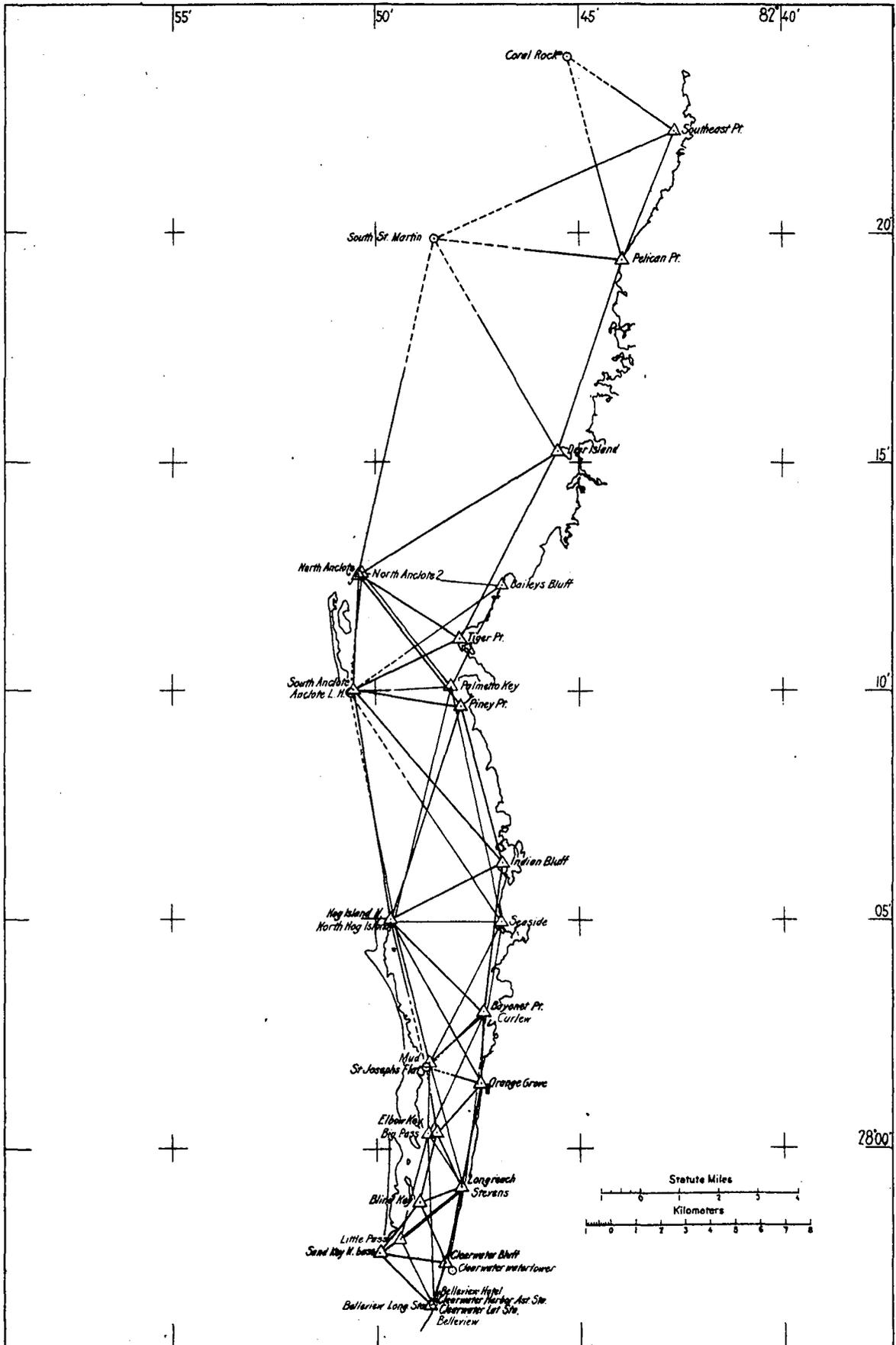


TRIANGULATION, TAMPA BAY.

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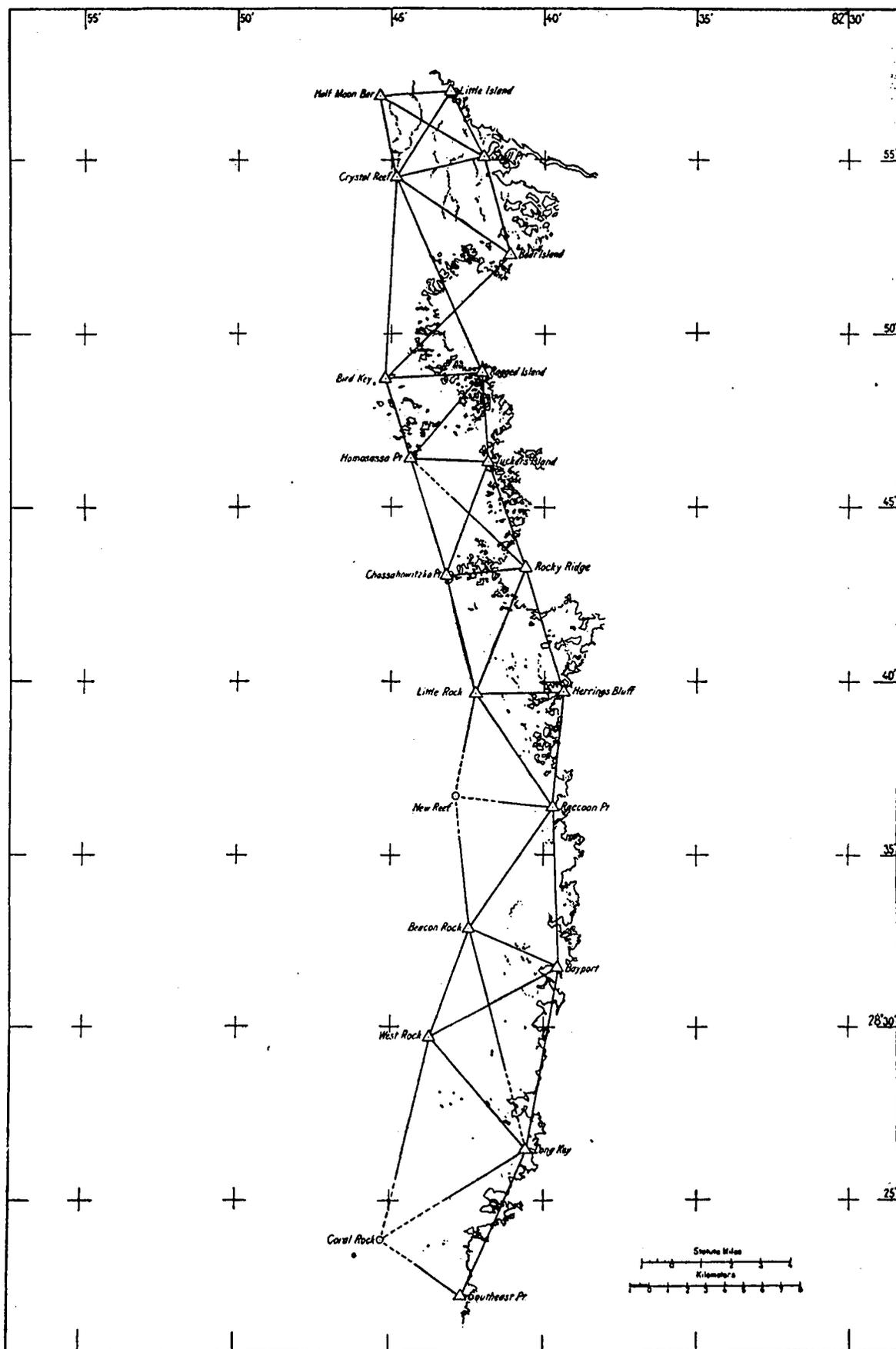


TRIANGULATION, BOCA CEIGA BAY.

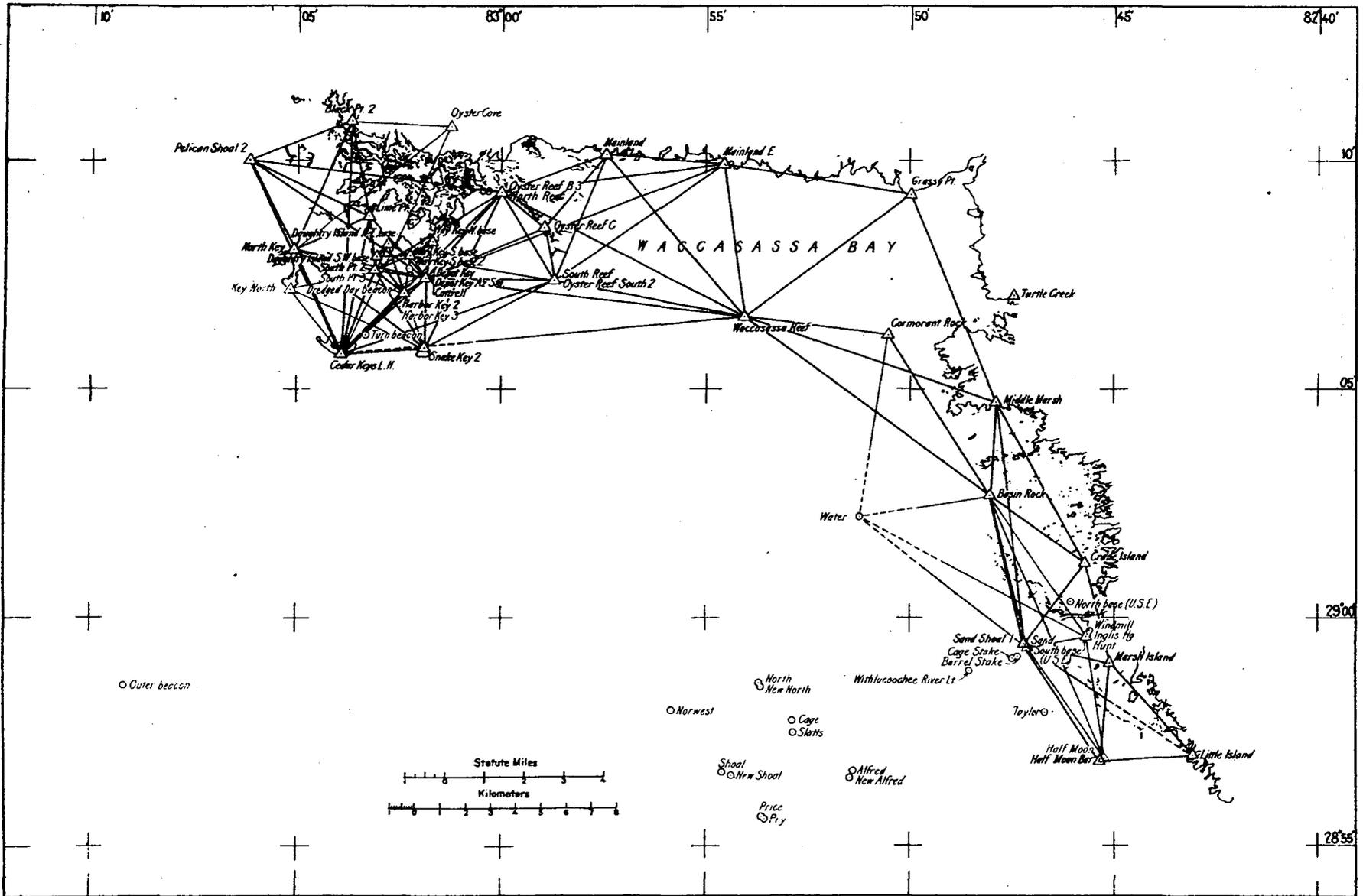


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TRIANGULATION. CLEARWATER HARBOR TO CORAL ROCK. SOUTHEAST POINT.

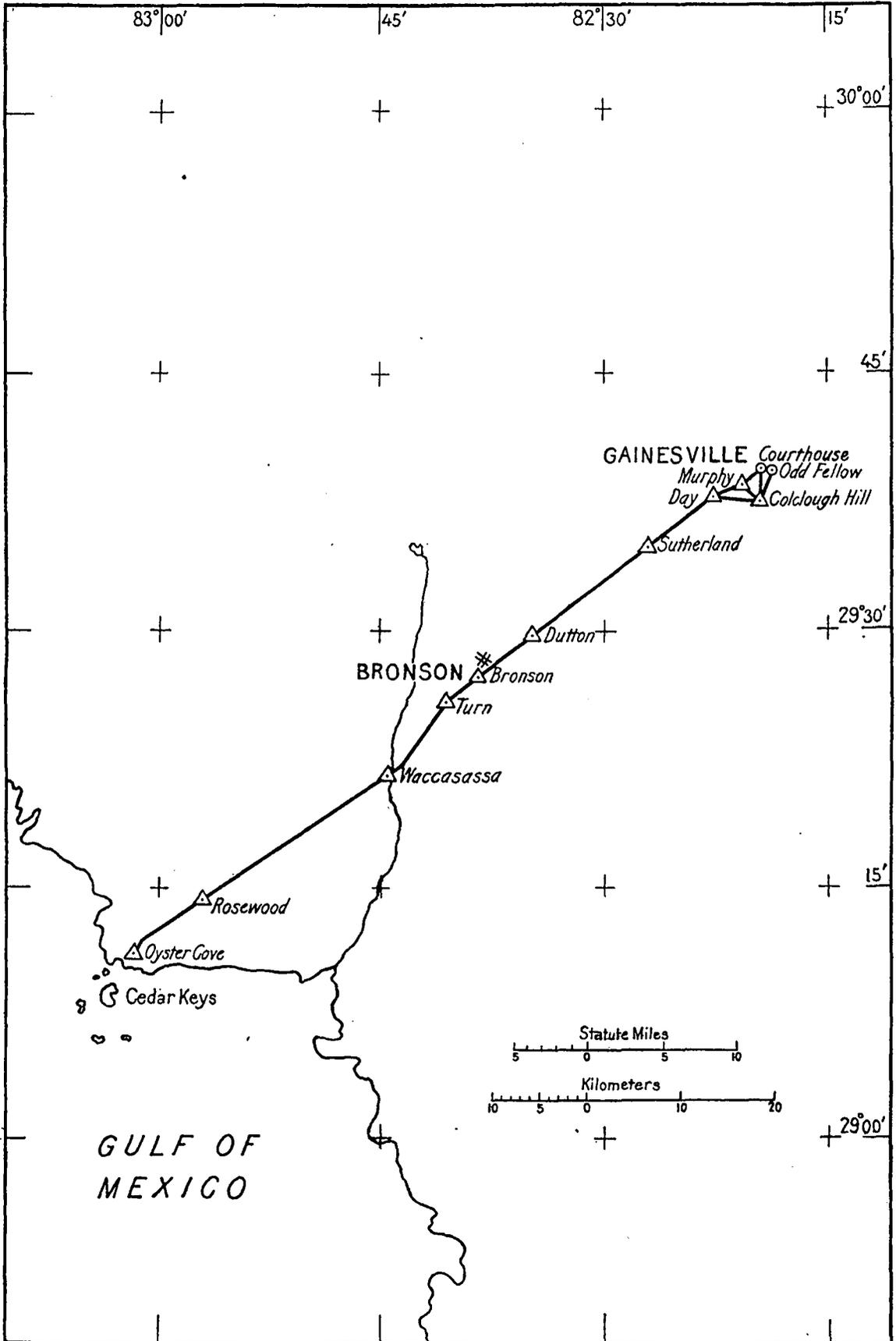


TRIANGULATION, CORAL ROCK-SOUTHEAST POINT TO WITHLACOOCHEE RIVER.

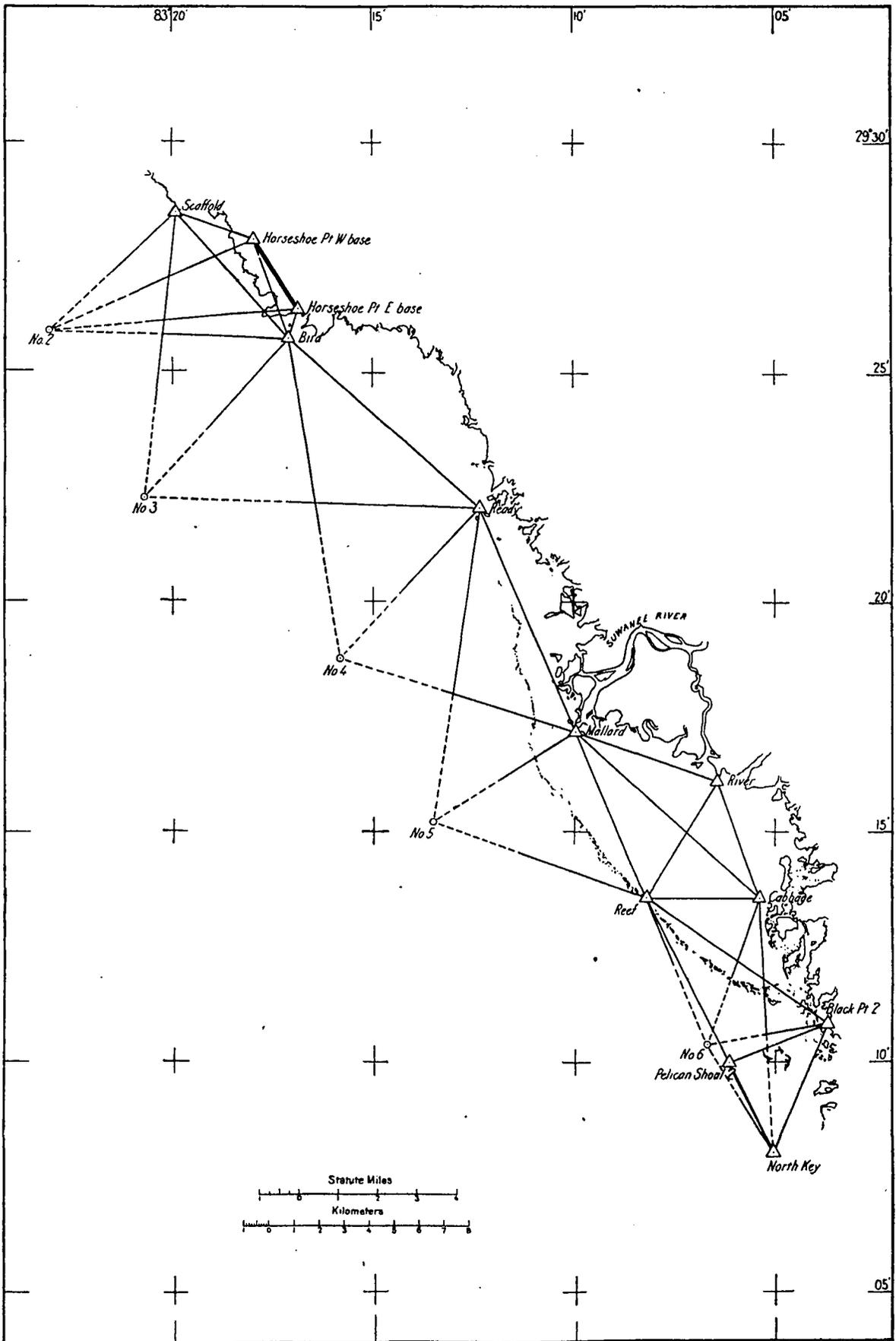


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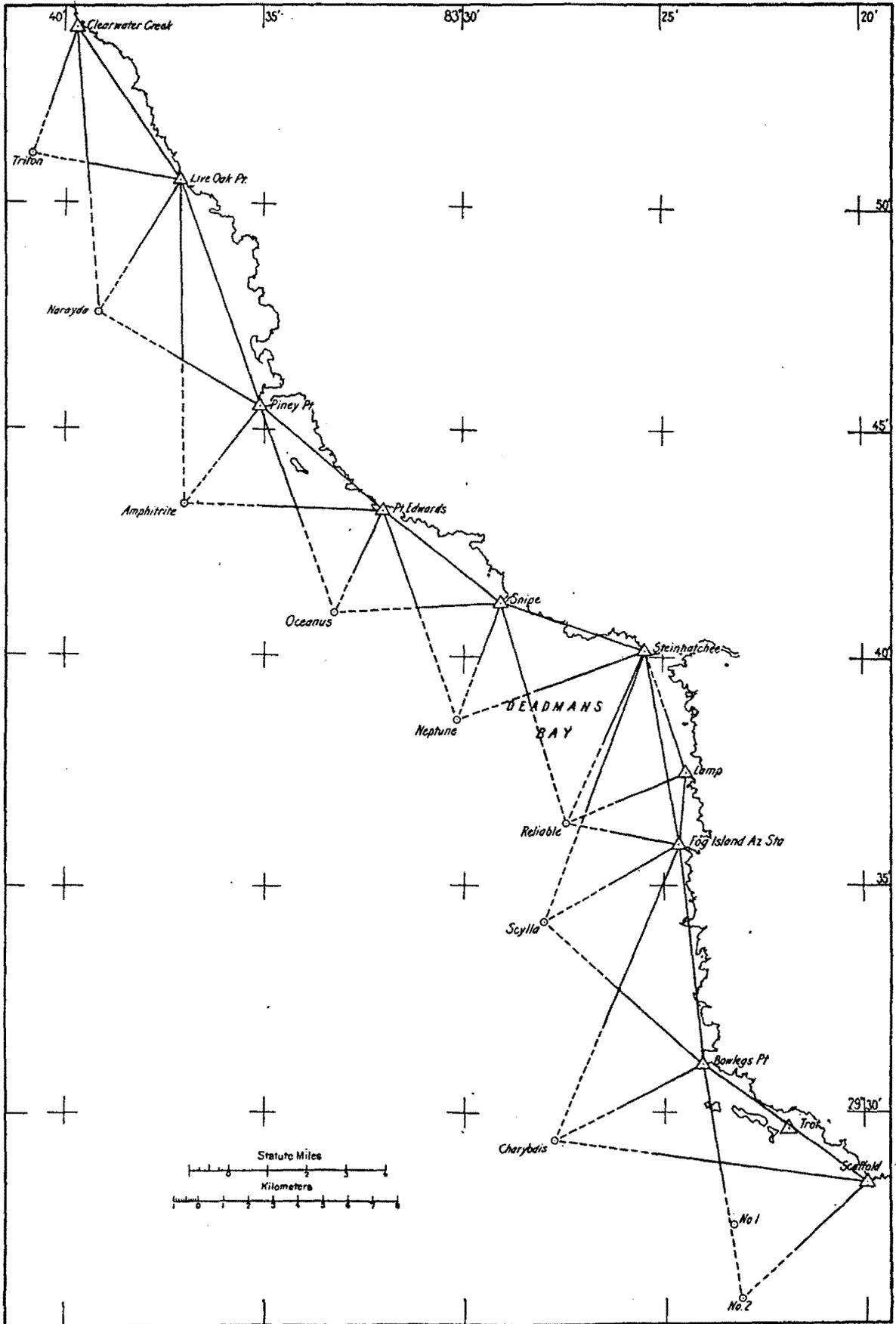
TRIANGULATION, WITHLACOOCHEE RIVER TO CEDAR KEYS.



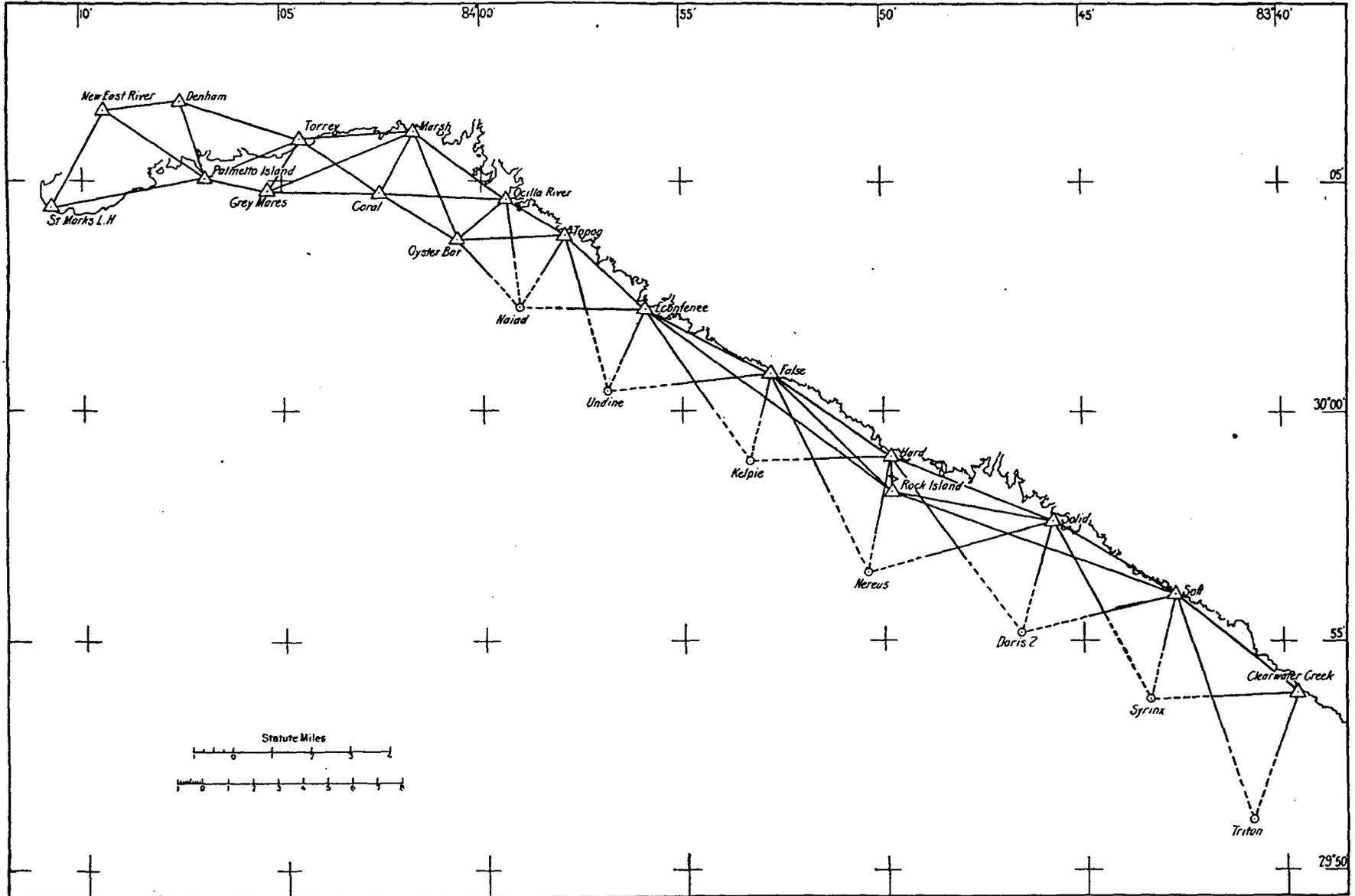
TRIANGULATION, GAINESVILLE TO CEDAR KEYS.



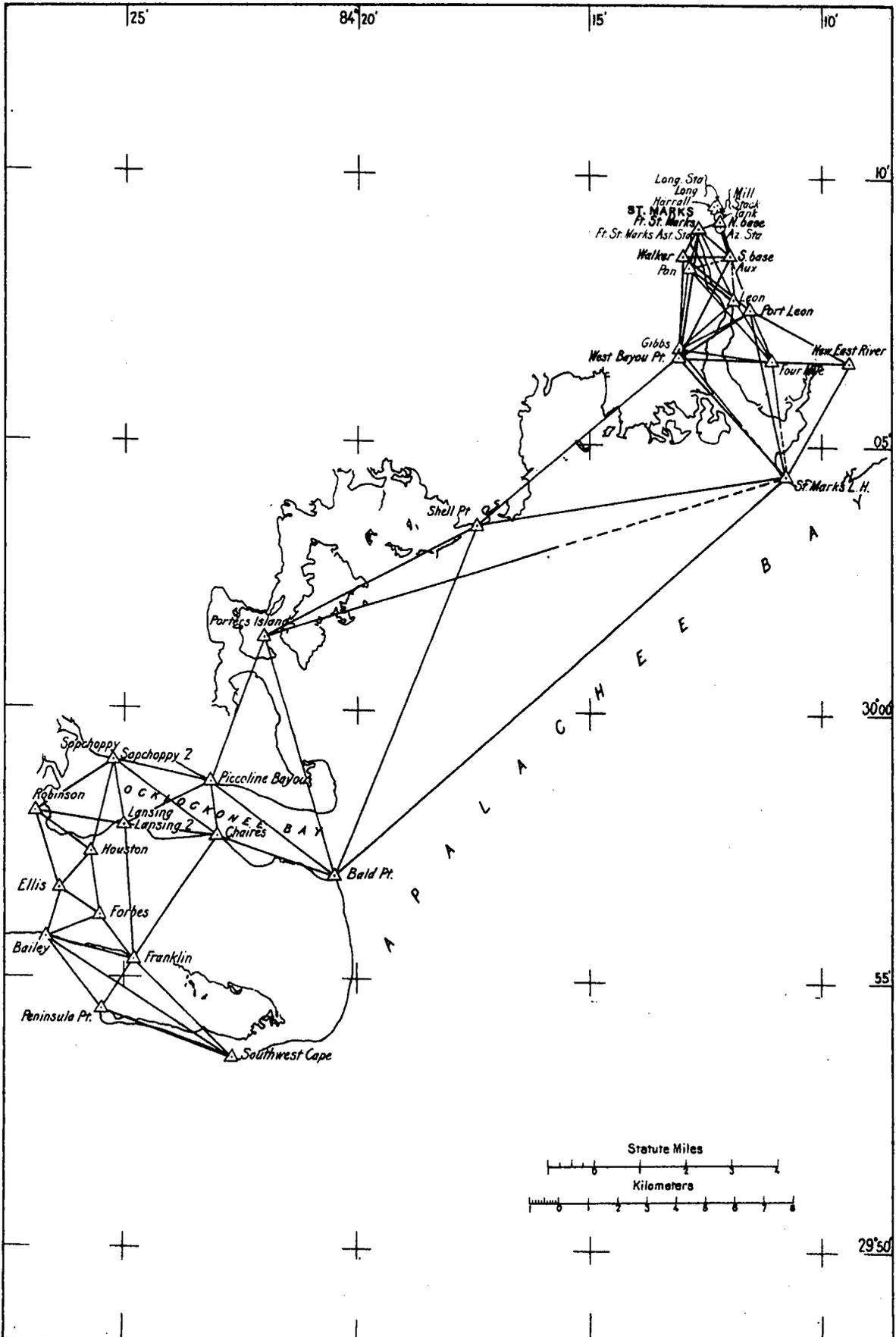
TRIANGULATION, CEDAR KEYS TO NUMBER 2-SCAFFOLD.



TRIANGULATION, NUMBER 2-SCAFFOLD TO TRITON-CLEARWATER CREEK.

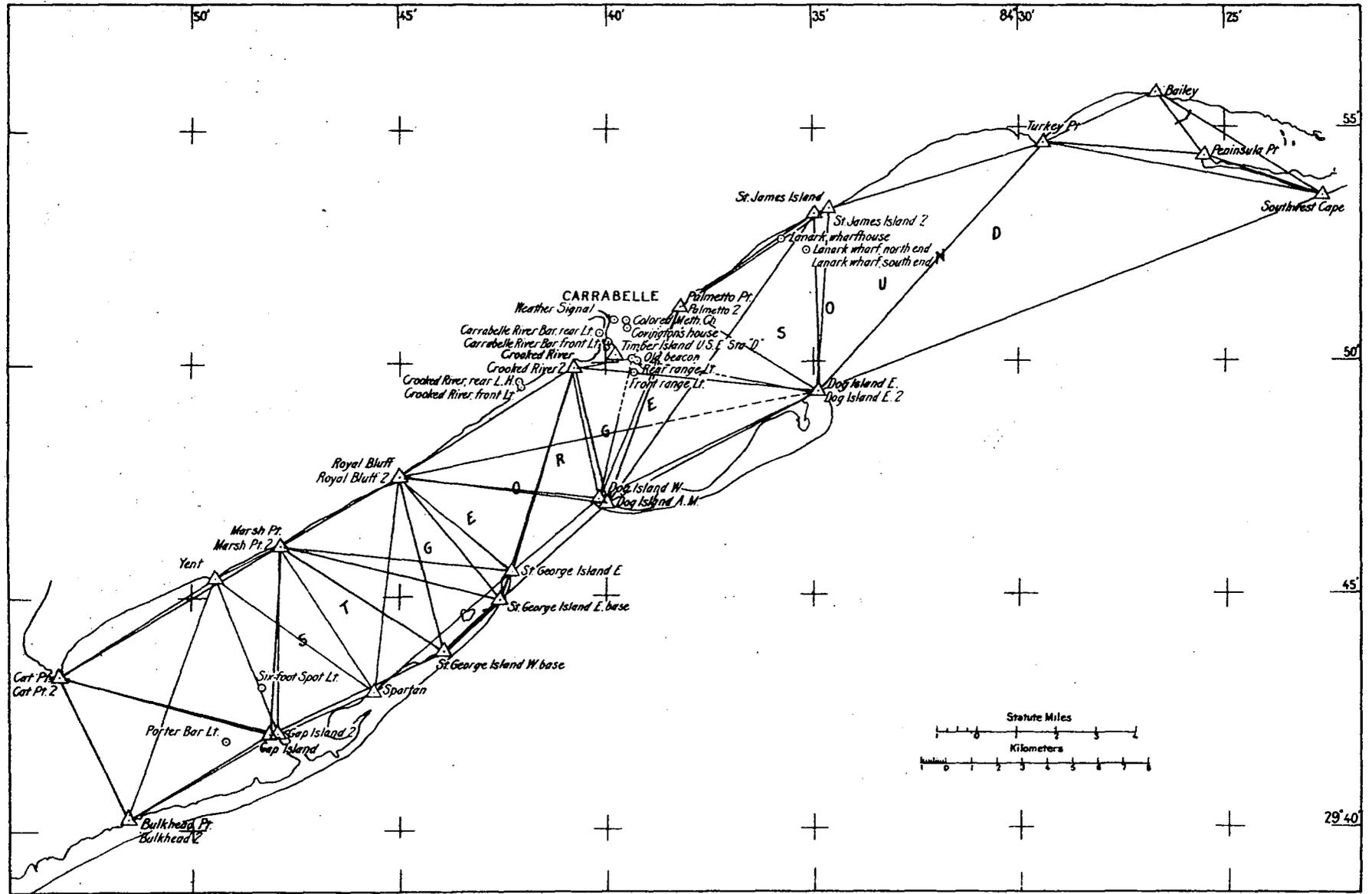


TRIANGULATION, TRITON-CLEARWATER CREEK TO ST. MARKS RIVER.



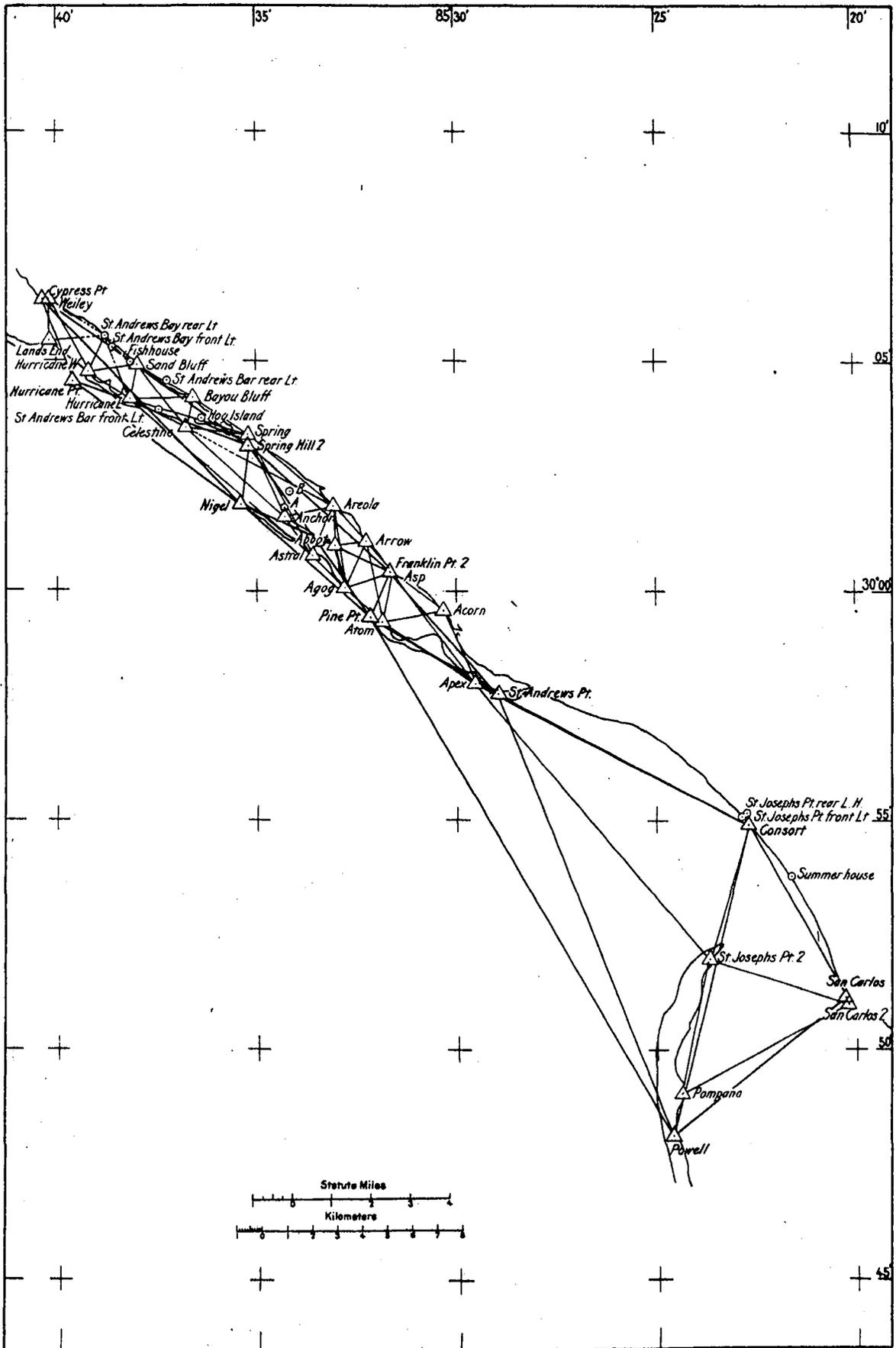
TRIANGULATION, ST. MARKS RIVER TO ST. GEORGE SOUND.

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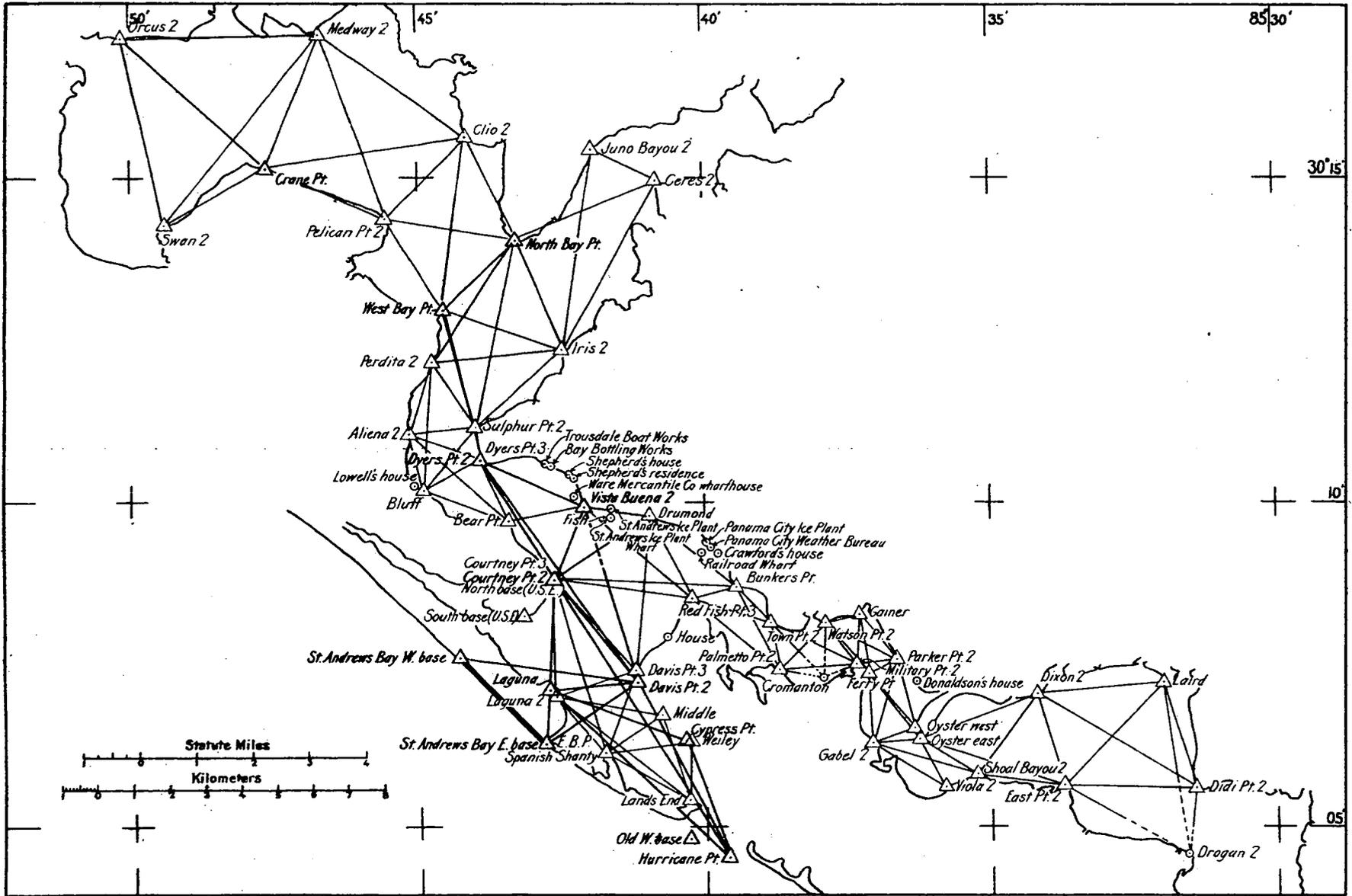


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TRIANGULATION, ST. GEORGE SOUND.

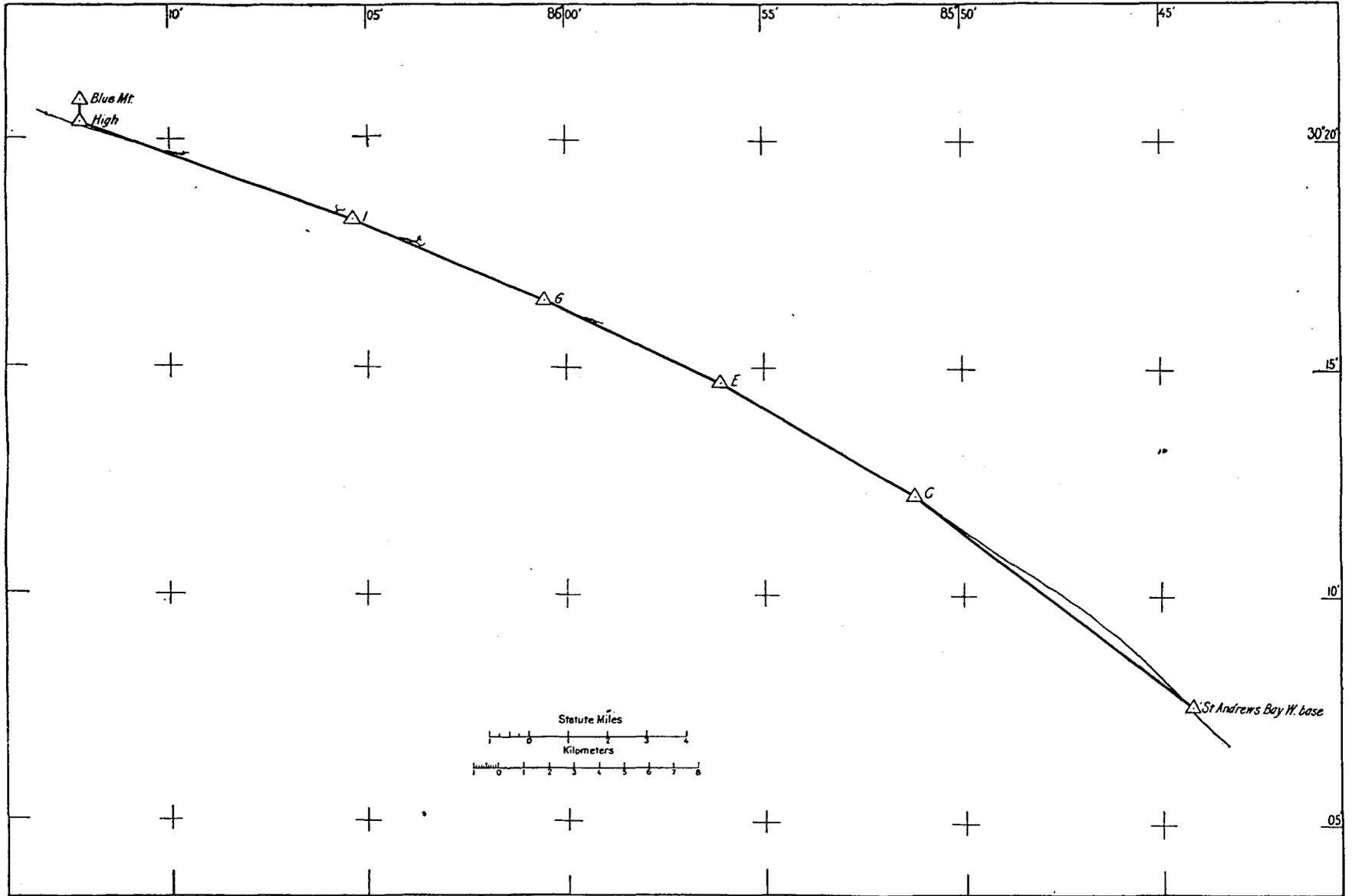


TRIANGULATION, ST. JOSEPHS BAY TO ST. ANDREWS SOUND.

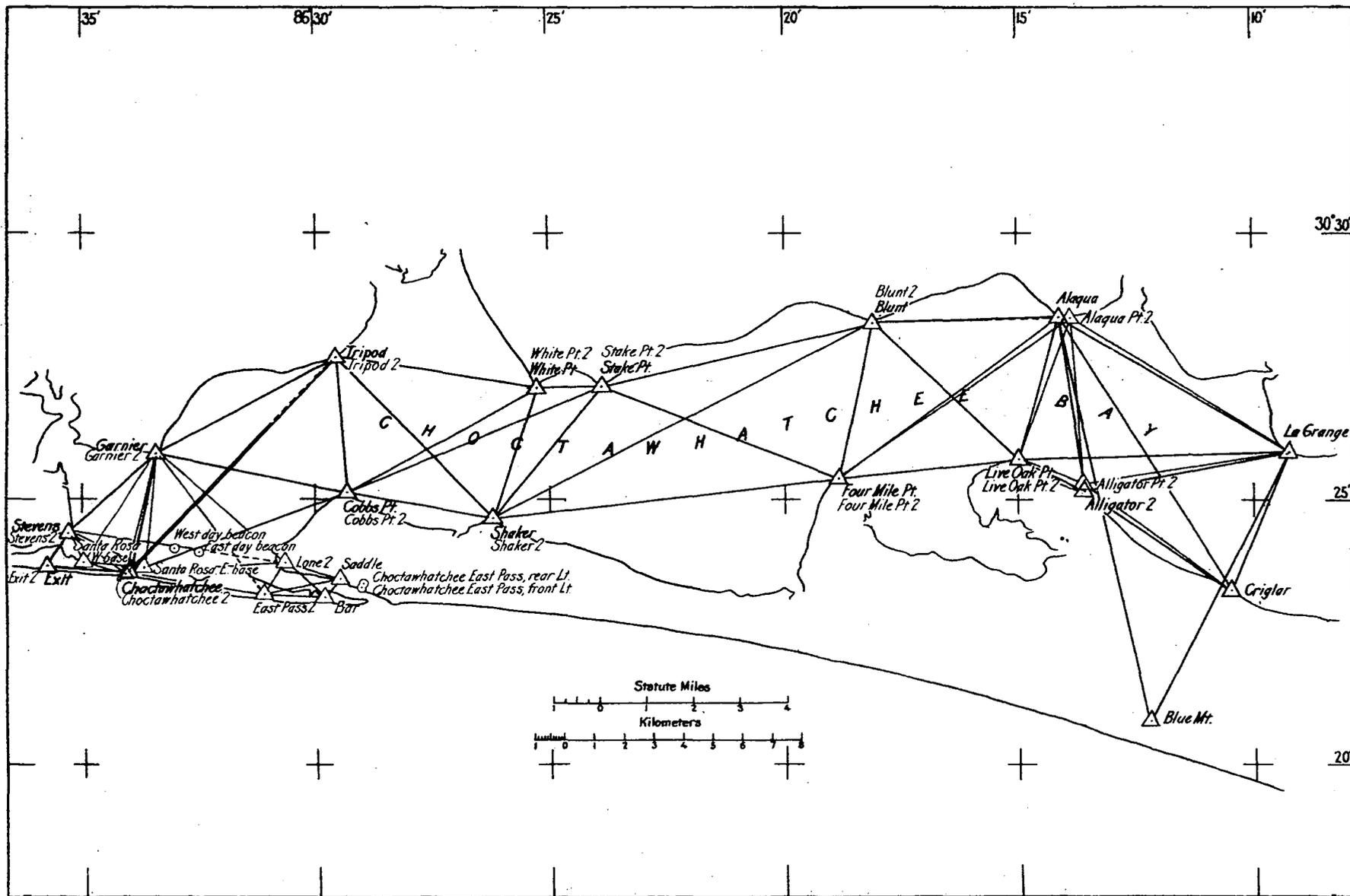


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TRIANGULATION. ST. ANDREWS BAY.

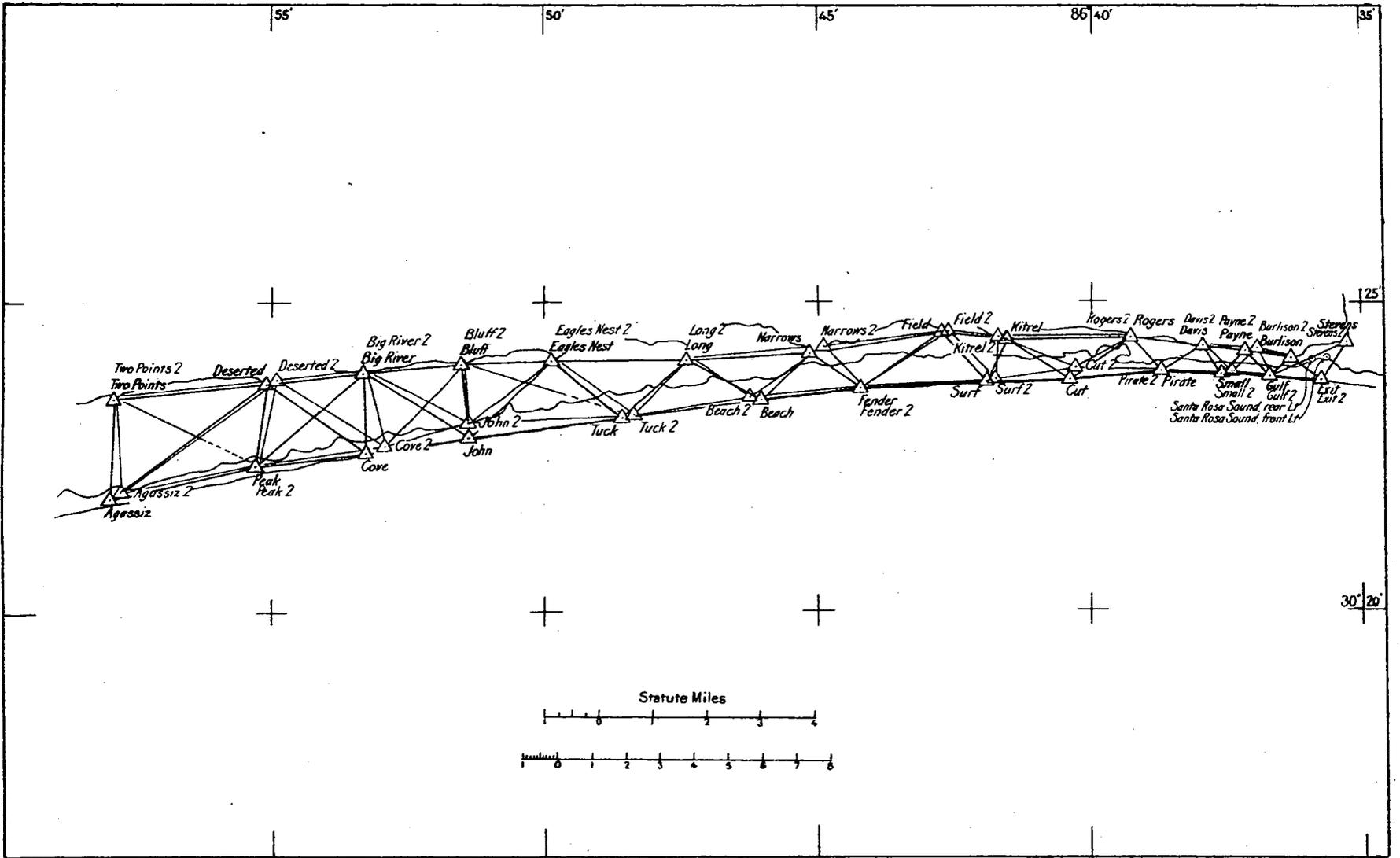


TRIANGULATION, ST. ANDREWS BASE TO BLUE MOUNTAIN.



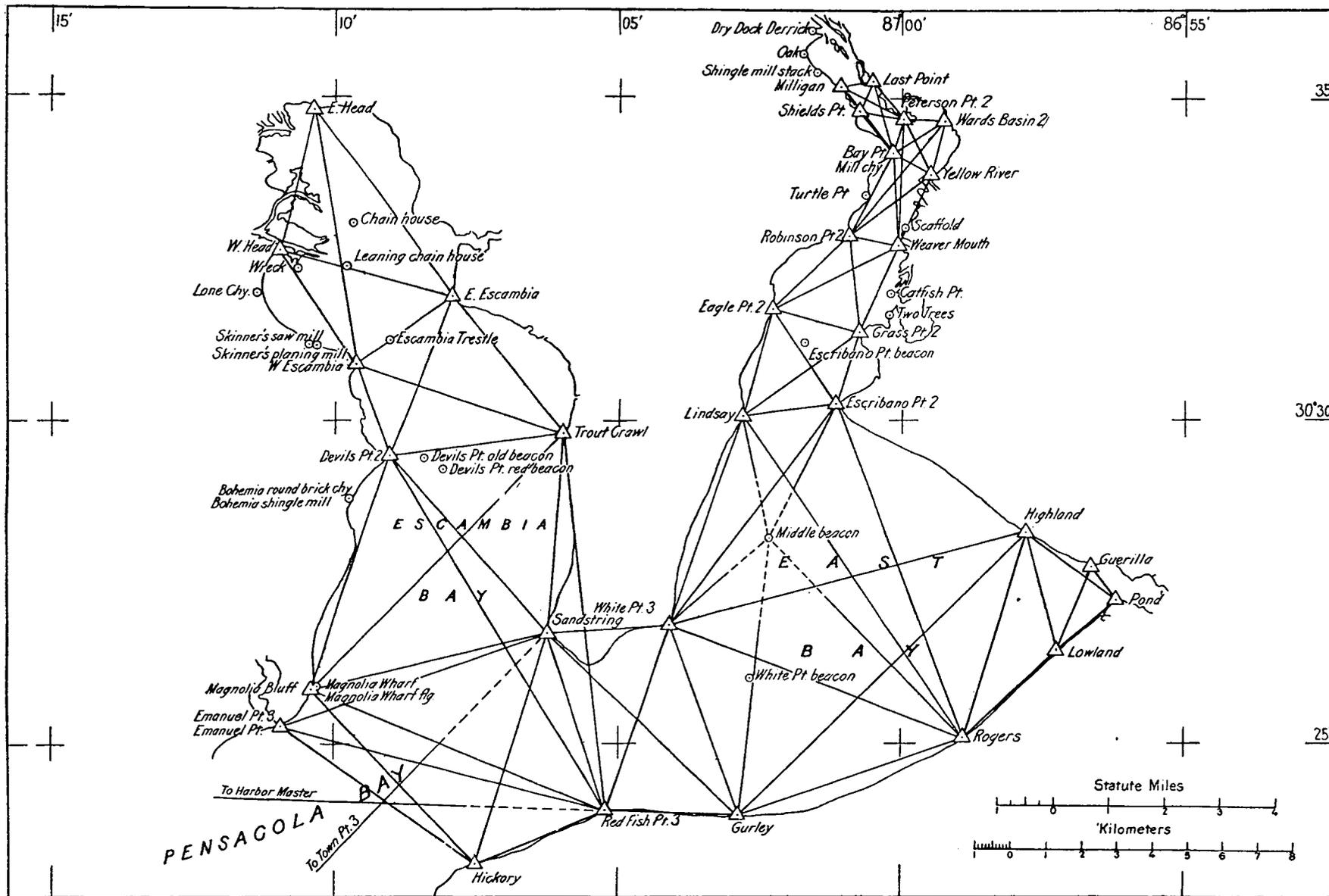
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TRIANGULATION. CHOCTAWHATCHEE BAY.

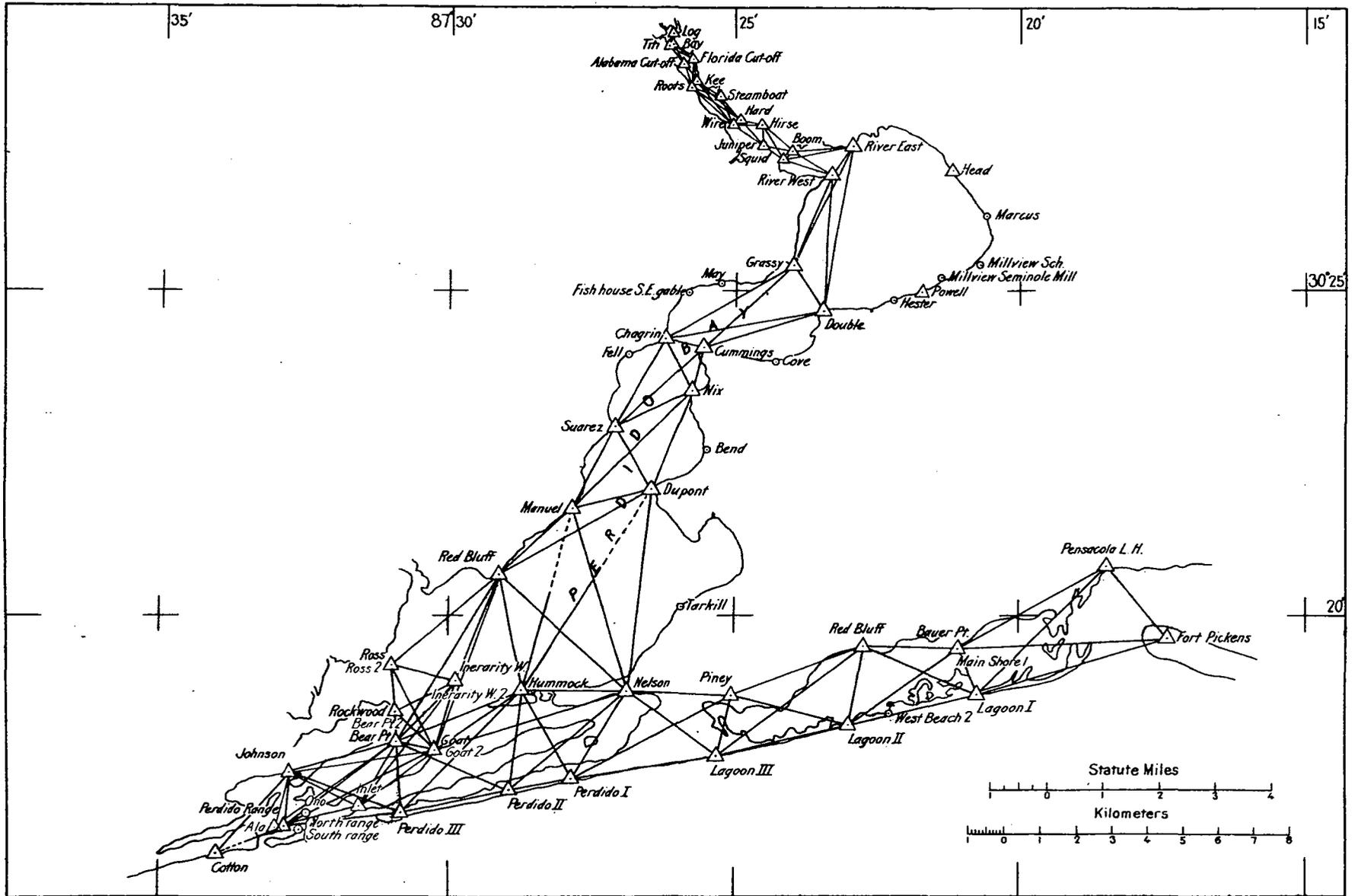


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TRIANGULATION, EASTERN END OF SANTA ROSA SOUND.



TRIANGULATION, ESCAMBIA BAY AND EAST BAY.



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TRIANGULATION, PERDIDO BAY.

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Colored Methodist Church..	42		20	Clearwater water tower, Col.			
Covington's house, west				Scott's estate.....	30		11,12
chimney.....	42		20	Clio 2.....	45	109	23

Station.	Position.	Description.	Sketch.	Station.	Position.	Description.	Sketch.
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Clower.....	18	75	9	Daughtry Island southwest base	32	88	14
Club House flagstaff, St. Petersburg.....	24		10	Dave.....	22	80	10
Clump.....	56	129	27	Davis.....	51	119	26
Cobbs Point.....	48	114	25	Davis 2.....	52	122	26
Cobbs Point 2.....	49	116	25	Davis Point 2.....	45	108	23
Cockroach (U. S. E.).....	22	79	10	Davis Point 3.....	46	111	23
Colclough Hill.....	31	86	15	Day.....	31	86	15
Colored Baptist Church spire, Apalachicola.....	43		21	Dead Oak Point.....	39	101	21
Colored church spire, Pensacola.	56	129	27	Deer.....	14	69	7
Colored Methodist Church, Carrabelle.....	42		20	Deer Island.....	33	91	12
Commandant's cupola.....	55	128	27	Deer Point 2.....	49	117	27
Consort.....	40	102	22	Deer Point beacon.....	51		27
Convent dome, Tampa.....	26		10	Demorest.....	15	72	7
Convent round tower, Apalachicola.....	43		21	Denham.....	37	97	18
Coon Key.....	11	63	5	Depot Key.....	32	89	14
Cooper.....	13	67	8	Depot Key azimuth station.....	34	94	14
Cooper, 1909.....	15	72	8	Deserted.....	50	118	26
Coral.....	11	63	5	Deserted 2.....	51	121	26
Coral (Charlotte Harbor).....	19	76	8	Detroit House tower, St. Petersburg.....	24		10
Coral Rock.....	33	91	12, 13	Devils Elbow (U.S.E.).....	29	84	11
Coral (south of Apalachee).....	37	97	18	Devils Point 2.....	53	125	28
Cormorant Rock.....	33	92	14	Devils Point old beacon.....	57		28
Cortez.....	20	77	9	Devils Point rod beacon.....	57		28
Cotton (Ala.).....	57		29	Didi Point 2.....	46	113	23
Cottrell.....	31	88	14	Dixon 2.....	46	113	23
Courthouse dome, Tampa.....	26		10	Doctors Pass.....	12	64	6
Courtney Point 2.....	45	108	23	Dog.....	22	81	10
Courtney Point 3.....	45	110	23	Dog Island A. M.....	39	101	20
Cove (Perdido Bay).....	60	135	29	Dog Island east.....	39	101	20
Cove (Santa Rosa Island).....	50	118	26	Dog Island east 2.....	41	104	20
Cove 2.....	51	121	26	Dog Island west.....	40	104	20
Covington's house, west chimney, Carrabelle.....	42		20	Donaldson house west chimney.	47		23
Crab.....	28	82	11	Doris 2.....	36		18
Crane Island.....	32	89	14	Dorr.....	14	68	7
Crane Point.....	45	108	23	Double.....	58	133	29
Crawford's house, center gable..	47		23	Double (Boca Ceiga Bay).....	28	82	11
Crawl Point, peak of square roof.	30		11	Double 2.....	29	85	11
Creek.....	28	83	11	Dredged day beacon.....	34		14
Creek (Santa Rosa Sound).....	50	118	27	Drogan 2.....	46	113	23
Creek 2.....	51	120	27	Drumond.....	46	111	23
Crematory stack, Tampa.....	26		10	Dry Dock derrick.....	57	130	28
Criglar.....	48	114	25	Dupont.....	58	132	29
Cromanton.....	46		23	D (U.S.E.).....	44		21
Crooked River.....	39	101	20	Dutton.....	31	87	15
Crooked River 2.....	40	104	20	Dyers Point 2.....	45	108	23
Crooked River front range light .	42		20	Dyers Point 3.....	45	110	23
Crooked River rear range L. H..	42		20	E.....	48	115	24
Crow.....	28	82	11	Eagle Point.....	39		21
Crystal Reef.....	32	89	13	Eagle Point 2.....	42	107	21
Cummings.....	58	132	29	Eagle Point 2.....	54	127	28
Curlew.....	34	93	12	Eagle's Nest.....	50	118	26
C (U. S. E.).....	44		21	Eagle's Nest 2.....	51	121	26
Cut.....	19	70	9	East day beacon.....	49		25
Cut (Santa Rosa Island).....	50	119	26	East drawbridge, east end, Charlotte Harbor & Northern Ry..	20		8
Cut 2.....	52	122	26	East elevator, end of dock, Port Tampa.....	27		10
Cute.....	28	83	11	East Escambia.....	54	125	28
Cutter.....	28	82	11	East Head.....	54	125	28
Cypress Point.....	40	102	22, 23	East Jetty.....	16	73	7
D.....	44		21	East Pass 2.....	49	117	25
Dana.....	13	66	8	East Point 2.....	46	113	23
Darling.....	14	68	7, 8	E. B. P.....	47	113	23
Daughtry Island northeast base	31	88	14	Econfence.....	36	96	18
				Edison.....	15	70	7

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Edison's house.....	16	73	7	Fort Barrancas front range light.	55		27
Edison's laboratory.....	16	73	7	Fort Barrancas range tower.....	55		27
Egmont Key landing, tower on pavilion.....	23		10	Fort Dade flagstaff.....	23		10
Egmont Key lighthouse.....	21		10	Fort Dade, power-house black stack.....	23		10
Egmont Key, pilots' lookout.....	23		10	Fort Dade, top of water tank.....	23		10
Elbow Key.....	33	91	12	Fort de Sota flagstaff.....	24		10
Electric power house stack, Port Tampa.....	27		10	Fort de Sota, power-house black stack.....	24		10
Electric power house stack, Tampa.....	26		10	Fort de Sota, water tank.....	24		10
El Gabo.....	13	86	8	Fort McRee.....	53	124	27
Ellis.....	38	100	19	Fort McRee Cut-off rear range light.....	55		27
Emanuel Point.....	53	124	27, 28	Fort McRee flagstaff.....	52		27
Emanuel Point 3.....	53	124	27, 28	Fort McRee water tank.....	55		27
Entrance.....	49	117	27	Fort Myers:			
Entrance 2.....	51	119	27	Caloosa Hotel.....	16	73	7
Episcopal Church spire, Apalachicola.....	43		21	Methodist Church tower.....	16	73	7
Episcopal Church spire, Pensacola.....	56	129	27	Parker's house.....	16	73	7
Episcopal Church spire, Tampa.....	26		10	Fort Pickens.....	52	123	27, 29
Escambia trestle, northeast chimney.....	57	129	28	Fort Pickens water tank.....	55		27
Escribano Point 2.....	54	126	28	Fort St. Marks.....	37	98	19
Escribano Point beacon.....	57	130	28	Fort St. Marks astronomic station.....	37	99	19
Eureka.....	13	67	8	Four Mile.....	37	98	19
Exit.....	47	114	25, 26	Four Mile Point (Caloosahatchee River).....	15	70	7
Exit 2.....	49	117	25, 26	Four Mile Point (Choctawhatchee Bay).....	48	114	25
Experimental.....	15	71	7	Four Mile Point 2.....	48	115	25
Experimental station house.....	16	73	7	Franklin.....	39	100	19
Extra.....	28	82	11	Franklin Hotel flagpole, Apalachicola.....	43		21
Faint.....	28	82	11	Franklin Point 2.....	40	102	22
Fair Point.....	53	124	27	Frazier's Beach, north house chimney.....	27		10
Fair Point 2.....	52	124	27	Froeland.....	11	63	5
Fair Point 3.....	53	124	27	Front range light, Apalachicola.....	43		21
Fair Point 1910.....	55	128	27	Front range light, new red.....	42		20
Fair Point beacon.....	50		27	Fulford's, William, house south chimney.....	21		9
False.....	36	96	18	G.....	48	116	24
Fell (Ala.).....	60	135	29	Gabel 2.....	46	112	23
Fender.....	50	118	26	Gadsden 2.....	22	80	10
Fender 2.....	52	122	26	Gadsden Point light.....	22		10
Ferry Point.....	46	112	23	Gadsden (U. S. E.).....	25		10
Field.....	50	119	26	Gainer.....	46		23
Field 2.....	52	122	26	Gainesville courthouse spire.....	30		15
Flg.....	11	63	4	Gap Island.....	39	101	20
Fire.....	11	63	5	Gap Island 2.....	40	103	20
First Presbyterian Church spire, Tampa.....	26		10	Garnier.....	48	114	25
Fish.....	47	113	23	Garnier 2.....	49	116	25
Fisherman.....	28	82	11	Gasparilla.....	18	74	8
Fisherman (U. S. E.).....	30	85	11	Gasparilla 1909.....	19	77	8
Fish house gable.....	44		22	Gasparilla Island Concrete Works water tank.....	20		8
Fish house southeast gable (Ala.).....	60		29	Gasparilla Island old quarantine building flagstaff.....	17		7, 8
Fishing Point pavilion, north gable.....	20		9	Gasparilla Island rear range lighthouse.....	15		7, 8
Flagpole, Veteran City.....	30		11	Gibbs.....	37	98	19
Flat.....	18	74	8	Goat.....	58	131	29
Florida Cut-off.....	59	134	29	Goat 2.....	59	134	29
Flossy.....	11		5	Gomez.....	11		5
Fogartyville Episcopal Church spire.....	23		10	Gordon's Pass.....	12	64	6
Fog Island azimuth station.....	36	95	17	Grande.....	53	124	27
Forbes.....	38	100	19	Grape.....	14	69	7
Fort Barrancas, barracks flagstaff.....	55	812	27				

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Grass Point 2.....	54	127	28	I.....	48	115	24
Grassy (Ala.).....	58	132	29	Ice works tall chimney, Pensa-			
Grassy Point (Peace Creek).....	13	67	8	cola.....	56	129	27
Grassy Point 1909.....	15	72	8	Indian.....	28	82	11
Grassy Point (Santa Rosa				Indian Bluff.....	33	91	12
Sound).....	50	117	27	Indian Hill 2.....	22	79	10
Grassy Point 2.....	51	119	27	Indian Hill light.....	24		10
Grassy Point (Waccasassa Bay).....	32	89	14	Indian Rock.....	29	83	11
Green Point 2.....	39	101	21	Inerarity west.....	58	132	29
Green Springs, chimney Mrs.				Inerarity west 2.....	59	134	29
Cohen's house.....	27		10	Inglis flagstaff.....	34	94	14
Green Springs, top of water				Inlet.....	59	135	29
tank.....	27		10	Iris 2.....	45	109	23
Grey Mars.....	37	97	18	Iron water tank, Twelfth Ave.			
Guerrilla.....	54	126	28	and Twenty-first St., Ybor			
Gulf.....	51	119	26	City.....	27		10
Gulf 2.....	52	123	26	Iroquois.....	11		5
Gulf (Boca Ciega Bay).....	29	85	11				
Gull.....	14	68	7	Jacobs.....	18	74	8
Gun.....	22	81	10	Jetty light, Apalachicola.....	43		21
Gurley.....	54	126	28	Jetty, north end pole, Apalachi-			
				cola.....	43		21
Half Moon.....	34	92	14	Jetty, south end, Apalachicola.....	43		21
Half Moon Bar.....	32	89	13, 14	John.....	50	118	26
Hancock.....	15	70	7	John 2.....	51	121	26
Harbor Key 2.....	31	88	14	Johnson.....	12	64	5
Harbor Key 3.....	33	92	14	Johnson (Ala.).....	57	130	29
Harbor-master.....	53	124	27	Johnson's house north gable,			
Hard.....	36	96	18	Perico Island.....	22		10
Hard (Perdido River).....	59	133	29	Johns Pass.....	12	64	6
Harnay Point.....	14	70	7	Johns Pass (U. S. E.).....	29	84	11
Harrall.....	38		19	Jose.....	56		27
Harris.....	14	70	7	Jug Point.....	15	71	7, 8
Harris house.....	16	73	7	Juniper (Ala.).....	59	133	29
Havelock.....	12	66	7	Juno Bayou 2.....	45	110	23
Head.....	60	135	29				
Horrings Bluff.....	33	90	13	Kay.....	30	85	11
Horron's house cupola, Pensa-				Kee.....	59	133	29
cola.....	56	129	27	Keg.....	18	75	9
Hoster.....	60	135	29	Kelpte.....	36		18
Hickory.....	53	124	27, 28	Kennedy.....	17	73	8
High.....	48	116	24	Key.....	19	76	9
Highland.....	54	126	28	Key North.....	34	92	14
Hirse.....	59	133	29	Key Point.....	17	73	8
Hog.....	18	74	8	Kitrol.....	50	119	26
Hog Island.....	44	108	22	Kitrol 2.....	52	122	26
Hog Island north.....	33	91	12	Koonty.....	17	73	8
Homosassa Point.....	32	90	13				
Horse and Chaise.....	18	75	9	Lacosta Island, pilots' lookout..	17		7, 8
Horse Key.....	11	63	5	Lacosta Island, quarantine			
Horseshoe Point east base.....	36	95	16	building flagstaff.....	17		7, 8
Horseshoe Point west base.....	35	95	16	Lagoon.....	52	124	27
Hospital (Mullet Key) west				Lagoon I.....	52	123	27, 29
gable.....	24		10	Lagoon II.....	58	131	29
Hotel Cleveland, north gable.....	18		8	Lagoon III.....	58	131	29
Hotel cupola, Punta Gorda.....	15	72	8	La Grange.....	48	114	25
Hotel cupola, Punta Rasa.....	15	72	7	Laguna.....	45	108	23
House south of Red Fish Point,				Laguna 2.....	46	111	23
chimney.....	47		23	Laird.....	46	113	23
Houston.....	38	100	19	Lamp.....	36	95	17
Huckleberry Camp.....	18	75	9	Lanark, bathhouse wharf on			
Hull.....	18	75	9	reef, north end.....	42		20
Hummock.....	58	131	29	Lanark, bathhouse wharf on			
Hunt.....	34	92	14	reef, south end.....	42		20
Hurricane East.....	41	105	22	Lanark, flag on wharf house..	42		20
Hurricane Point.....	40	102	22, 23	Lands end.....	41	105	22, 23
Hurricane West.....	41	105	22	Lane 2.....	49	117	25
Hyde Park schoolhouse, Tampa				Lansing.....	38	100	19

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Lansing 2.....	38	100	19	Manatee 2.....	23	81	10
Las.....	14	69	7, 8	Manatee River Cut light.....	23		10
Last Point.....	55	128	28	Mangrove.....	19	76	9
Laurel.....	40	102	21	Mangrove Point.....	17		8
Leaning chain house, higher gable.....	57	130	22	Mangrove Point light.....	17		8
Lemon.....	18	74	8	Mangrove (U. S. E.).....	22	79	10
Leon.....	37	98	19	Manuel (Ala.).....	58	132	29
Life Saving Station, flagstaff.....	55	128	27	Marcus.....	60	135	29
Lime Point 2.....	31	88	14	Marine railroad stack.....	56	129	27
Lindsay.....	54	127	28	Marsh.....	50	118	27
Little Carlos.....	12	64	6	Marsh 2.....	51	120	27
Little Island.....	32	89	13, 14	Marsh (Apalachee Bay).....	37	97	18
Little Marco.....	12	64	6	Marsh (U. S. E.).....	24		10
Little Pass.....	34	92	11, 12	Marsh Island.....	32	89	14
Little Rock.....	32	90	13	Marsh Point (Caloosahatchee River).....	15	71	7
Little Sarasota.....	18	75	9	Marsh Point (St. George Sound)	39	101	20
Live Oak Point.....	36	96	17	Marsh Point 2.....	40	103	20
Live Oak Point (Charlotte Harbor).....	13	67	8	Mast.....	28	82	11
Live Oak Point 1909.....	15	72	8	Matlacha.....	14	68	7
Live Oak Point (Choctawhat- chee Bay).....	48	114	25	Maximo.....	29	84	10, 11
Live Oak Point 2.....	48	115	25	May (Ala.).....	60	135	29
Llano.....	19	76	8	McKay's Point 2.....	29		11
Locust Point.....	13	67	8	Medway 2.....	45	100	23
Locust Point 1909.....	15	72	8	Melle.....	15	71	7
Log (Ala.).....	59	134	29	Merchant.....	18	74	8
Lone chimney.....	57	129	28	Meridian.....	14	68	7
Lone Palmetto.....	30		11	Methodist Church spire, Tampa.	26		10
Lone Pine.....	20	78	9	Methodist Church tower, Fort Myers.....	16	73	7
Long.....	50	118	26	Michigan Avenue schoolhouse, Tampa.....	26		10
Long 2.....	52	121	28	Middle.....	46	111	23
Long Bar Point.....	20	77	9	Middle (Peace River).....	13	67	8
Longboat.....	19	76	9	Middle beacon.....	54	126	28
Longboat 2.....	20	77	9	Middle Marsh.....	32	89	14
Longitude station, St. Marks.....	38		19	Middle Point.....	12	65	7
Long Key.....	33	91	13	Middle Point 1909.....	16	72	7
Long phosphate elevator east gable, Fort Tampa.....	27		10	Middle Point (U. S. E.).....	16	73	7
Long phosphate elevator west gable, Fort Tampa.....	27		10	Mikado.....	11		4, 5
Long Reach.....	33	92	12	Military Point 2.....	46	112	23
Long, St. Marks.....	38	99	19	Mill chimney.....	57	130	28
Long Shoal beacon.....	25		10	Milligan.....	54	128	28
Long trestle, east end, Charlotte Harbor & Northern Ry.....	20		8	Mill, St. Marks.....	38		19
Long trestle, west end, Char- lotte Harbor & Northern Ry..	20		8	Millview schoolhouse flagstaff.....	60		29
Lopez.....	18	74	8	Millview Seminole Mill smoke- stack.....	60		29
Lowell's house chimney.....	47		23	Moody's house cupola.....	24		10
Lowland.....	54	126	28	Morrison Villa tower, Tampa.....	26		10
Lowne (U. S. E. east base).....	25		10	Mound (Boca Ceiga Bay).....	28	82	11
Lucknow.....	11		4	Mound (Charlotte Harbor).....	13	66	8
Lucknow (Pine Island).....	13	66	7	Mound Key.....	12	65	6
Lumber.....	14	68	7	Mound (Sarasota Pass).....	19	76	9, 10
				Mound 2 (Sarasota Pass).....	19	77	9, 10
				Mud.....	34	93	12
				Mullet Key Shoal light.....	22		10
				Murphy.....	31	86	15
Machine shops, west gable, Veteran City.....	30		11	Muscogee outer gable, Pensacola.	56	129	27
Magnetic azimuth station, St. Marks.....	38	99	19	Myakka.....	13	67	8
Magnolia Bluff.....	53	125	28				
Magnolia wharf.....	56	129	28	Nalad.....	37		18
Magnolia wharf flagstaff.....	56	129	28	Narayda.....	36		17
Mainland.....	32	89	14	Narrows.....	29	83	11
Mainland east.....	32	89	14	Narrows (Matlacha Pass).....	14	69	7
Main Shore 1.....	59		29	Narrows (Santa Rosa Sound).....	50	118	26
Mallard.....	35	94	16	Narrows 2.....	52	122	26
				Navy Yard derrick.....	55	128	27
				Navy Yard flagstaff.....	55	128	27

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Navy Yard tallest big chimney.	55		27	Oyster Key.....	12	64	6
Navy Yard water tank.....	56		27	Oyster Reef B 3.....	32	89	14
Navy Yard wharf.....	52	123	27	Oyster Reef C.....	32	89	14
Nell.....	11		4	Oyster Reef south 2.....	32	89	14
Noll (Sarasota Pass).....	21	78	10	Oyster west.....	46	112	23
Nelson.....	58	131	29				
Neptune.....	36		17	Palm.....	21	78	10
Nereus.....	36		18	Palm 2.....	21	79	10
New Alfred.....	35		14	Palmetto.....	13	67	8
New East River.....	37	97	18,19	Palmetto 2.....	41	104	20
New Inlet 2.....	40	103	21	Palmetto Church, tall thin spire.....	23		10
New North.....	35		14	Palmetto Island.....	37	97	18
New Pass.....	19	76	9	Palmetto Key.....	34	93	12
New Pass 2.....	20	78	9	Palmetto Point (Caloosahatchoe River).....	14	70	7
New Point.....	13	67	8	Palmetto Point (St. George Sound).....	39	101	20
New Reef.....	33	90	13	Palmetto Point 2.....	46	111	23
New Shoal.....	35		14	Palmetto schoolhouse dome.....	23		10
Nigel.....	40	102	22	Palm Point.....	11	62	4
Nix.....	58	132	29	Pan.....	37	98	19
No Name.....	15	70	7	Panama City, ice-plant stack.....	47		23
North.....	35		14	Panama City, U. S. Weather Bureau signal.....	47		23
North Anclote.....	33	91	12	Parker Point 2.....	46	112	23
North Anclote 2.....	34	93	12	Parker's house, Fort Myers.....	16	73	7
North base, St. Marks.....	37	98	19	Pass.....	28	82	11
North base (U. S. E.).....	34		14	Pavilion Key.....	11	63	5
North base (U. S. E.) (St. Andrews Bay).....	47	113	23	Pavilion west gable, Veteran City.....	30		11
North Bay Point.....	45	108	23	Payne.....	51	119	26
North Channel light.....	24		10	Payne 2.....	52	123	26
North Cut lower No. 10 light.....	25		10	Peace Crook.....	13	68	8
North end of cut.....	21		9	Peace Crook light.....	17		8
North Hog Island.....	34	93	12	Peak.....	50	118	26
North Key.....	31	87	14,16	Peak 2.....	51	121	26
North Range.....	59		29	Pelayo.....	19	76	8
North Reef.....	31	88	14	Pelican.....	13	66	8
Northwest.....	18	75	9	Pelican Point.....	33	91	12
Northwest Cape.....	11	62	4	Pelican Point 2.....	45	109	23
Norwest.....	35		14	Pelican Shoal 2.....	31	88	14,16
Number 1.....	37		17	Peninsula Point.....	39	101	19,20
Number 2.....	35		18,17	Pensacola:			
Number 3.....	35		16	Colored Church spire.....	56	129	27
Number 4.....	35		16	Episcopal Church spire.....	56	129	27
Number 5.....	35		16	Herron's house cupola.....	56	129	27
Number 6.....	35	94	16	Ice Works, tall chimney.....	56	129	27
				L. H.....	52		27,29
Oak (Blackwater Bay).....	57	130	28	Muscogee, outer gable.....	56	129	27
Oak (Boca Ceiga Bay).....	29	85	11	Post Office, north flagstaff.....	56	120	27
Oak (Pensacola Bay).....	56	129	27	Railroad-station cupola.....	56	129	27
Oceanus.....	36		17	Scandinavian Church spire.....	56	129	27
Ocella River.....	37	97	18	Standpipe.....	56	129	27
Odd Fellow.....	30	86	15	Stevadores' flagstaff.....	56	129	27
Oil tank, top (large yellow, east), Fort Tampa.....	27		10	Wells' chimney.....	56	129	27
Old outer beacon, Carrabelle.....	41		20	Wright's mill chimney.....	56	129	27
Old (U. S. E.).....	25		10				
Old west base.....	46		23	Pensacola Bay front range light.....	55		27
Ono.....	60		29	Perdido I.....	58	131	29
Orange grove.....	33	91	12	Perdido II.....	58	131	29
Orous 2.....	45	109	23	Perdido III.....	57	131	29
Oso.....	13	66	8	Perdido Range (Ala.).....	57	130	29
Outer beacon.....	34		14	Perdita 2.....	45	110	23
Owl.....	14	68	7	Perico.....	21	78	10
Oyster.....	28	81	11	Perico 2.....	21	79	10
Oyster (San Carlos Bay).....	14	69	7	Pete.....	22	80	10
Oyster 2.....	29	84	11	Peterson Point 2.....	54	128	28
Oyster Bar.....	37	97	18				
Oyster Cove.....	31	87	14,15	Phosphate Works, long building flagstaff, Punta Gorda.....	17		8
Oyster east.....	46	112	23				

Station.	Position.	Description.	Sketch.	Station.	Position.	Description.	Sketch.
	Page.	Page.	Number.		Page.	Page.	Number.
Piccoline Bayou.....	38	99	19	Punta Gorda—Continued.			
Pickens (U. S. E.).....	52	123	(1)	Hotel cupola.....	16	72	8
Picnic Island.....	22	80	10	Phosphate works, long building flagstaff.....	17		8
Pinafore.....	11		4	Presbyterian Church spire..	17		8
Pine.....	14	89	7	Weather Bureau pole.....	17		8
Pinelos.....	21	78	10	Punta Rasa.....	12	65	7
Pinelos 2.....	22	79	10	Punta Rasa:			
Pine Point.....	40	102	22	Astronomic station.....	16	73	7
Pines.....	29	83	11	Front range light.....	16		7
Piney.....	58	131	29	Hotel cupola.....	15	72	7
Piney Point.....	36	95	17	Rear range light.....	16		7
Piney Point (Clearwater Harbor).....	33	91	12	Shultz' house, flagstaff.....	16	73	7
Piney Point (Peace River).....	13	67	8				
Pirate.....	51	119	26	Quarantine.....	51	119	27
Pirate 2.....	52	122	26	Quarantine building, tower on end of wharf.....	24		10
Placida.....	19	77	8	Quarantine station, high water tank.....	24		10
Plantation Hill.....	53	124	27	Quarantine station, low water tank.....	24		10
Plaza Hotel, west flagpole.....	30		11	Queen.....	28	82	11
Flow.....	19	76	8	Quick.....	11		4
Point.....	28	81	10, 11	Quick (Little Sarasota Bay).....	18	75	9
Point Edwards.....	36	95	17				
Point Pinelos light.....	24		10	Raccoon Point.....	33	90	13
Point Ybel 2.....	12	65	6, 7	Ragged Island.....	32	90	13
Polaris.....	29	83	11	Railroad station cupola, Pensacola.....	56	129	27
Pole.....	28	82	11	Railroad wharf, gable of freight house.....	47		23
Pompano.....	42	107	21, 22	Ranch.....	50	118	27
Pond (East Bay).....	54	126	28	Ranch 2.....	51	120	27
Pond (Pensacola Bay).....	52	123	27	Range.....	50	118	27
Pontiac.....	11		5	Range 2.....	51	120	27
Porpoise.....	18	74	8	Ready.....	35	94	16
Porter Bar light.....	43		20	Rear range light, Apalachicola..	43		21
Porters Island.....	38	99	19	Rear range light, new white.....	42		20
Port Leon.....	37	97	19	Red Bluff.....	58	131	29
Port Tampa:				Red Bluff (Ala.).....	58	132	29
Catholic Church spire.....	27		10	Red Fish Point.....	14	69	7
East elevator, end of dock..	27		10	Red Fish Point 3.....	53	125	28
Electric power house stack	27		10	Red Fish Point 3.....	46	111	23
Long phosphate elevator, east gable.....	27		10	Reef.....	11	63	5
Long phosphate elevator, west gable.....	27		10	Reef (Suwanee Sound).....	35	94	16
Oil tank, top (large yellow, east).....	27		10	Reliable.....	36		17
Water tank (red iron, head of silp).....	27		10	Remains of day beacon.....	44		21
West base (U. S. E.).....	27		10	Revenue flagstaff.....	55	128	27
West elevator, end of dock	27		10	Rhodes.....	30	85	11
Post-office building, central flagstaff (west pole), Tampa.....	26		10	Rhodes house south gable lookout pole.....	30		11
Post-office north flagstaff, Pensacola.....	56	129	27	Richard's house (The Gables) cupola.....	25		10
Powell (Pardido Bay).....	60	135	29	River.....	35	94	16
Powell (St. Josephs Bay).....	40	101	21, 22	River east.....	58	133	29
Power-house stack, St. Petersburg.....	24		10	River west (Ala.).....	59	133	29
Presbyterian Church spire, Punta Gorda.....	17		8	Roach.....	21	78	10
Price.....	35		14	Robert's house chimney.....	21		9
Prickly.....	30	85	11	Robinson.....	38	100	19
Prickly Point.....	29	83	11	Robinson Point 2.....	54	127	28
Pry.....	35		14	Roche's house north gable, Useppa Island.....	17		7
Punta Gorda.....	13	66	8	Roche's water tank, Useppa Island.....	16		7
Punta Gorda:				Roche's windmill, Useppa Island.....	16		7
Astronomic station.....	17	73	8	Rock Island.....	36	96	18
Cattle dock, end.....	17		8				
City dock, end.....	17		8				

¹ This point is not shown on the sketches. It plots just north of Fort Pickens on sketch No. 27.

Station.	Position.	Description.	Sketch.	Station.	Position.	Description.	Sketch.
	Page.	Page.	Number.		Page.	Page.	Number.
Rockwood (Ala.)	58	132	29	St. Vincent Point 2	40	102	21
Rocky Point, house chimney	27		10	San Carlos	40	102	21, 22
Rocky Point (Lemon Bay)	18	75	8, 9	San Carlos 2	42	107	21, 22
Rocky Point (Old Tampa Bay)	22	81	10	Sand	34	92	14
Rocky Ridge	32	90	13	Sand Bluff	41	105	22
Rodgers	11	63	4	Sand (Boca Ceiga Bay)	28	81	11
Rogers (East Bay)	54	128	28	Sand Hill	50	118	27
Rogers (Santa Rosa Narrows)	51	119	26	Sand Hill 2	51	120	27
Rogers 2	52	123	26	Sand Island Cut front range			
Roots (Ala.)	59	133	29	light	44		21
Rosewood	31	87	15	Sand Island Cut rear range light	44		21
Ross (Ala.)	58	132	29	Sand Key north base	29	84	11, 12
Ross 2 (Ala.)	59	134	29	Sand Key south base	29	83	11
Royal Bluff	39	101	20	Sands	29	83	11
Royal Bluff 2	40	104	20	Sand Shoal 1	32	89	14
Rubber	14	68	7	Sand String	53	125	28
Rylander's house	16	73	7	Sanibel	12	66	7
				Sanibel east base	12	65	7
Sabine Hill	49	117	27	Sanibel Island lighthouse	16		7
Saddle	49	117	25	Sanibel west base	12	65	7
Sague	28	83	11	San Pedro 2	44	108	21
St. Andrews Bar front range				Santa Rosa 2	53	124	27
light	44		22	Santa Rosa east base	49	117	25
St. Andrews Bar rear range				Santa Rosa Sound front range			
light	44		22	light	49		26
St. Andrews Bay east base	45	108	23	Santa Rosa Sound rear range			
St. Andrews Bay front range				light	49		26
light	44		22	Santa Rosa west base	49	117	25
St. Andrews Bay rear range				Sarasota	10	75	9
light	41		22	Sarasota 2	20	78	9
St. Andrews Bay west base	45	108	23, 24	Sarasota Baptist Church spire	20		9
St. Andrews flag, end of ice-plant wharf	47		23	Sarasota Methodist Church spire	21		9
St. Andrews, ice-plant stack	47	113	23	Sawmill	15	70	7
St. Andrews Point	40	102	22	Sawmill, tall stack, Central Avenue and Polk Street, Tampa			10
St. George Island east	40	104	20	Scaffold	35	95	16, 17
St. George Island east base	39	101	20	Scaffold (Blackwater Bay)	57	130	28
St. George Island west base	39	101	20	Scandinavian Church spire, Pensacola	56	129	27
St. George light	43	107	21	Schoolhouse cupola, St. Petersburg	24		10
St. James City dock warehouse east gable	16		7	Soylla	36		17
St. James Island	39	101	20	Seaside	34	93	12
St. James Island 2	41	105	20	Section Post (concrete), M. C. sec. 27, T. 42 S., R. 20 E.	20		8
St. Joseph	40	101	21	Section Post (concrete), M. C. secs. 22 and 27, T. 42 S., R. 20 E.	20		8
St. Joseph 2	42	107	21	Section Post (concrete), quarter corner between secs. 22 and 27, T. 42 S., R. 20 E.	19		8
St. Joseph Flat	33	91	12	Seminole	11	63	4, 5
St. Joseph Point 2	41	107	22	Shaker	48	114	25
St. Joseph Point front range				Shaker 2	48	116	25
light	44		22	Shark	11	63	4
St. Joseph Point rear range				Sharp	50	118	27
lighthouse	44		22	Sharp Point	51	120	27
St. Marks:				Shell	19	76	9
Lighthouse	37	97	18, 19	Shell Bank	39	101	21
Long	38	99	19	Shell Point	32	89	13
Longitude station	38		19	Shell Point (Apalachee Bay)	38	99	19
Magnetic azimuth station	38	99	19	Shell Point (Boca Ceiga Bay)	28	81	10, 11
North base	37	98	19	Shepherd's house highest chimney	47		23
South base	37	98	19	Shepherd's residence west chimney	47		23
Stack	38	99	19				
Tank	38	99	19				
St. Marks River east	43	107	21				
St. Petersburg:							
Club House flagstaff	24		10				
Detroit House tower	24		10				
Power house stack	24		10				
Schoolhouse cupola	24		10				
Sibley House tower	25		10				
Waterworks standpipe	25		10				

Station.	Position.	Description.	Sketch.	Station.	Position.	Description.	Sketch.
	Page.	Page.	Number.		Page.	Page.	Number.
Shield's Point.....	54	128	28	Sulphur Point 2.....	45	110	22
Shingle mill stack.....	57	130	28	Summer house.....	44		22
Shoal.....	35		14	Summerlin.....	12	65	6,7
Shoal Bayou 2.....	46	113	23	Surf.....	50	119	26
Shoal Point.....	13	67	8	Surf 2.....	52	122	26
Short.....	29	83	11	Sutherland.....	31	87	15
Shortest.....	29	83	11	Swan 2.....	45	109	23
Shultz' house flagstaff, Punta Rasa.....	16	73	7	Sweet.....	39	85	11
Sibley House tower, St. Petersburg.....	25		10	Sweet's fish-camp house, south gable, lookout pole.....	30		11
Six-foot Spot light.....	42		20	Sword Point.....	12	65	7
Skinner's planing-mill stack.....	57	129	28	Syrinx.....	36		18
Skinner's sawmill stack.....	57	129	28	Tampa:			
Slatts.....	35		14	Catholic Cathedral dome.....	26		10
Small.....	51	119	26	Central Avenue Church spire.....	26		10
Small 2.....	52	123	26	Convent dome.....	26		10
Snake.....	28	82	11	Courthouse dome.....	26		10
Snake Key 2.....	31	88	14	Crematory stack.....	26		10
Snead Point Shoal light.....	23		10	East base (U. S. E.).....	26		10
Snipe.....	36	95	17	Electric power house stack.....	26		10
Soft.....	36	96	18	Episcopal Church spire.....	26		10
Solid.....	36	96	18	First Presbyterian Church spire.....	26		10
Sopchoppy.....	38	100	19	Hyde Park schoolhouse.....	26		10
Sopchoppy 2.....	38	100	19	Methodist Church spire.....	26		10
South Anclote.....	33	91	12	Michigan Avenue schoolhouse.....	26		10
South base, St. Marks.....	37	98	19	Morrison Villa, tower.....	26		10
South base (U. S. E.).....	34	94	14	Post Office building, central flagstaff (west pole).....	26		10
South base (U. S. E.) (St. Andrews Bay).....	47	113	23	Sawmill, tall stack, Central Avenue and Polk Street.....	26		10
South Cut lower No. 6 light.....	25		10	Tower, Whiting and Franklin Streets.....	26		10
South Cut, upper No. 8 light.....	25		10	West base (U. S. E.).....	26		10
Southeast Point.....	33	91	12,13	Yacht Club house flagstaff.....	25		10
South End.....	12	65	7	Tampa Bay beacon No. 4.....	24		10
South end of cut.....	21		9	Tampa Bay Hotel, electric plant stack.....	26		10
South Point.....	29	84	11	Tampa Bay Hotel, north tower.....	26		10
South Point 2.....	31	88	14	Tampa Cut No. 2 light.....	25		10
South Point 3.....	33	92	14	Tampa Cut No. 4 light.....	25		10
South Range.....	60		29	Tank, St. Marks.....	38	99	19
South Reef.....	31	88	14	Tarkill.....	60	135	29
South St. Martin.....	33		12	Taylor.....	34		14
Southwest Cape.....	39	101	19,20	Terracela.....	21	78	10
Southwest Channel light.....	23		10	Terracela 2.....	21	79	10
Spanish Sanitarium, south gable.....	25		10	Terracela Point No. 1 light.....	23		10
Spanish Sanitarium, west tank.....	26		10	Thompson.....	29	83	11
Spanish shanty.....	46	111	23	Tiger Point.....	33	91	12
Spartan.....	40	104	20	Timber Island, U. S. E. Station D.....	42		20
Speedwell.....	18	74	8	Titi (Ala.).....	59	134	29
Spring.....	41	105	22	Tobacco factory cupola, Ybor City.....	27		10
Spring Hill 2.....	40	102	22	Tom.....	10	76	9
Squid (Ala.).....	59	133	29	Tomlinson.....	29	84	10,11
Stack, St. Marks.....	38	99	19	Topog.....	37	96	18
Stake Point.....	48	114	25	Torrey.....	37	97	18
Stake Point 2.....	48	116	25	Torrey (Charlotte Harbor).....	13	66	8
Stake, south end of 40-foot cut.....	22		10	Torrey 1909.....	15	71	8
Standpipe, Pensacola.....	56	129	27	Tower, Whiting and Franklin Sts., Tampa.....	26		10
Steamboat.....	59	133	29	Town Point.....	53	124	27
Steamer "Cool" wreck beacon.....	25		20	Town Point 2.....	53	124	27
Steinhatchee.....	36	95	17	Town Point 2.....	46	112	28
Stephens.....	19	76	9				
Stevedores' flagstaff, Pensacola.....	56	129	27				
Stevens (Choctawhatchee Bay).....	47	114	25,26				
Stevens 2.....	49	116	25,26				
Stevens (Clearwater Harbor).....	34	93	12				
Stump.....	28	82	11				
Stump Pass.....	18	74	8				
Stumps.....	50	118	27				
Suarez (Ala.).....	58	132	29				

Station.	Position.	Description.	Sketch.	Station.	Position.	Description.	Sketch.
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Town Point 3.....	53	124	27	Watson Point 2.....	46	112	23
Travers.....	14	70	7	Way Key, north base.....	31	88	14
Trepador.....	18	74	8	Way Key, south base.....	31	88	14
Tripod.....	48	114	25	Way Key, south base 2.....	31		14
Tripod 2.....	49	116	25	Weather Bureau pole, Punta			
Triton.....	36		17, 18	Gorda.....	17		8
Trot.....	37	98	17	Weather signal, Apalachicola.....	43		21
Trousdale Boat Works stack.....	47		23	Weather signal, Carrabelle.....	42		20
Trout.....	13	68	8	Weaver Mouth.....	54	127	28
Trout Crawl.....	53	125	28	Webb.....	18	75	9
Tuck.....	50	118	26	Welley.....	41	105	22, 23
Tuck 2.....	51	121	26	Wells' chimney, Pensacola.....	56	129	27
Tuckers Island.....	32	90	13	West Bayou Point.....	37	98	19
Turkey Point.....	39	101	20	West Bay Point.....	45	108	23
Turn.....	31	87	15	West Beach 2.....	59		29
Turn beacon.....	34		14	West day beacon.....	49		25
Turn (Boca Ceiga Bay).....	27	81	10, 11	West drawbridge, east end,			
Turtle.....	29	84	11	Charlotte Harbor & North-			
Turtle Crawl.....	28	82	11	ern Ry.....	20		8
Turtle Creek.....	33	92	14	West electric car pole, end of			
Turtle Point.....	54	127	28	pier, Veteran City.....	30		11
Twice.....	28	83	11	West elevator, end of dock,			
Two Points.....	50	118	26, 27	Port Tampa.....	27		10
Two Points 2.....	51	120	26, 27	West Escambia.....	54	125	28
Two Trees.....	57	130	28	West Head.....	54	125	28
Tycoon.....	11		4	West Jetty.....	16	73	7
Undine.....	37		18	West Pass.....	40	102	21
Useppa Inn.....	15	71	7	West Pass 2.....	40	102	21
Useppa Island:				West Pass Cut, front range light.	44		21
Roche's house north gable.....	17		7	West Pass Cut, rear range light.	44		21
Roche's water tank.....	16		7	West Pass, old rear range.....	44		21
Roche's windmill.....	18		7	West Rock.....	33	91	13
Veteran City:				West Tampa Waterworks			
Flagpole.....	30		11	standpipe.....	27		10
Machine shops, west gable.....	30		11	Whale Key.....	20	77	9
Pavilion, west gable.....	30		11	White.....	12	65	7
West electric car pole, end				White Baptist Church spire,			
of pier.....	30		11	Apalachicola.....	43		21
Viola 2.....	46	112	23	White Point.....	48	114	25
Vista Buena 2.....	45	108	23	White Point 2.....	48	116	25
Waccasassa.....	31	87	15	White Point 3.....	54	126	28
Waccasassa Reef.....	32	89	14	White Point beacon.....	57	130	28
Wait (U. S. E.).....	29	85	11	Wiggins Pass.....	12	64	6
Walker.....	37	98	19	Willow Point.....	13	67	8
Wall's, Judge, house chimney.....	25		10	Windmill.....	34	94	14
Ward's Basin 2.....	54	127	28	Wire (Ala.).....	59	133	29
Warehouse on piles, west gable.	21		9	Withlacoochee River light.....	35		14
Warehouse, outer end.....	44		21	Wreck.....	57	130	28
Ware Mercantile Co., wharf-				Wright's mill chimney, Pensa-			
house flagstaff.....	47		23	cola.....	56	129	27
Warrington:				Yacht Club house flagstaff,			
Catholic Church spire.....	55	128	27	Tampa.....	25		10
East base.....	53	124	27	Ybor City:			
National cemetery flagstaff.....	55	128	27	Brewery tower.....	27		10
West base.....	53	124	27	Iron water tank, Twelfth			
Water.....	34		14	Ave. and Twenty-first St.	27		10
Water tank (red iron, head of				Tobacco factory cupola.....	27		10
slip), Port Tampa.....	27		10	Water tank (tall iron),			
Water tank (tall iron), Ninth				Ninth and Fourteenth			
and Fourteenth Sts., Ybor				Sts.....	27		10
City.....	27		10	Yellow River.....	54	127	28
Water tower, Apalachicola.....	43		21	Yent.....	40	103	20
Waterworks standpipe, St. Pe-				Young.....	18	75	9
tersburg.....	25		10	Young 2.....	20	78	9
				Young (U. S. E.).....	25		10