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LEO OTIS COLBERT, Director

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TRIANGULATION IN SOUTH CAROLINA

(1927 DATUM)

PART 1

First- and Second-Order Triangulation in Northwestern Part of State

BY

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TRIANGULATION IN SOUTH CAROLINA (1927 DATUM)

PART 1

FIRST- AND SECOND-ORDER TRIANGULATION IN NORTHWESTERN PART OF STATE

GENERAL STATEMENT

Previous triangulation publications of the U. S. Coast and Geodetic Survey have usually included the control data of a state in one large volume. Because of the inconvenience to the engineer in using a large publication in the field, the triangulation of South Carolina will be published in several parts, this publication being Part 1 of the series. By this method the engineer may obtain data for only that part of the State in which he is particularly interested.

In dividing the State into several parts for publication, the division was made along the county boundary lines. This publication contains complete data for all the control triangulation of the counties in the northwestern part of the State as shown on the index sketch (fig. 3) at the back of this volume. The location of the arcs are shown also on the index sketch. The field observations for this triangulation were completed by the U. S. Coast and Geodetic Survey in 1937.

The geographic and plane-coordinate positions are based on the North American datum of 1927. On page 3 are given instructions on how to find data for a given station or stations in a particular region.

This volume is the nineteenth of a series of publications, each of which contains the geographic positions on the new datum, and the descriptions and other data, for the available first-order (and, in some cases, the second-order) triangulation and traverse of a State, or occasionally of two States. The following volumes have already been published:

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Triangulation in Colorado	160
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ARCS INCLUDED IN THIS PUBLICATION

The triangulation included in this publication consists of four first-order arcs or parts of arcs and three second-order arcs or parts of arcs. The first-order arcs are: the Eastern Oblique arc; the Anderson, S. C., to Augusta, Ga., arc; the Tigerville to Georgetown arc; and the Charlotte, N. C., to Augusta, Ga., arc. The second-order arcs are: the Chappells to Charleston arc; the Osceola to Bucksport arc; and the Gastonia, N. C., to Lowndesville, S. C., arc. Portions of several general arcs are included only so far as they lie within the limits of the northwestern part of the State. These arcs form a complete control survey system for the northwestern part of the State which is nearly an ideal system.

COMPUTATIONS

The Eastern Oblique arc is the only portion of the State system that was included in the original net readjustment of the eastern part of the United States. This adjustment was made under the direction of Dr. O. S. Adams. A subsequent adjustment with junction figures was made for the main arcs in this general area and subsidiary arcs were then fitted in in the usual way. The adjustments were made under the direction of the author. The descriptions of stations and sketches were prepared under the supervision of William M. Gibson. Valuable counsel was given by H. G. Avers and C. H. Swick. In the computation and assembly of data much assistance was rendered by C. N. Claire, J. L. Stearn and D. C. Ritchie.

In this volume are included several stations established by other agencies, namely: U. S. Geological Survey (U. S. G. S.); South Carolina Geodetic Survey (S. C. Geod. S.), and the United States Engineers (U. S. E.). These stations have been occupied or observed by the U. S. Coast and Geodetic Survey.

In addition to the stations which form the main network of triangulation in South Carolina, a number of objects, such as water tanks, stacks, and church spires were observed from stations of the main scheme. The geographic positions of these secondary stations have been computed and the data are included in the tables of geographic positions, pages 6 to 47. These stations are shown on the sketches and in the index, but only a few of them are described, as in most cases the name of the supplementary station is sufficient for its accurate identification by the engineer who may use it. There are several supplementary points on the Eastern Oblique arc whose positions are listed in the tables to whole seconds only and no azimuths or distances are shown to other stations. These stations are mountain peaks, and their positions on the new datum were obtained by applying approximate corrections to the positions on the old datum.

CLASSIFICATION OF TRIANGULATION

Triangulation is divided into different classes according to accuracy. The ultimate criterion applied in classifying the different grades is the actual error in length of any line. This is indicated

by the discrepancy between the measured length of a base line and its length computed through the triangulation from the last preceding base. In first-order triangulation such discrepancies must not exceed 1 part in 25,000, in second-order triangulation 1 part in 10,000, and in third-order triangulation 1 part in 5,000. The adjustment of the triangulation should be carried to the point where the side and angle equations have been satisfied before making the comparison between the computed and measured lengths.

To secure the accuracy indicated above, certain standards are adopted for the field work, the most important of which relates to the closing errors of the triangles or the discrepancy between the sum of the measured angles in a triangle and 180° plus the spherical excess of the triangle. In first-order triangulation the average closing error of the triangles must not appreciably exceed 1 second and the maximum triangle closure must not exceed 3 seconds; in second-order triangulation the average closing error must not exceed 3 seconds, and the maximum 5 seconds; and in third-order triangulation the average closing error must not exceed 5 seconds, and the maximum 10 seconds. The engineer should use only adjusted data with which to connect his work and should evaluate these data according to the class of triangulation by which they were determined.

EXPLANATION OF TABLES OF GEOGRAPHIC POSITIONS

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

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

The rule usually followed in publications of this Office has been to give the latitudes and longitudes of the stations to thousandths of seconds for all points the positions of which are fixed by fully adjusted triangulation. Points, the positions of which are given to hundredths of seconds only, are marked by footnotes as being without check (not occupied and observed from two stations only). Points whose positions are derived from measured distances and azimuths are listed to thousandths of a second and are marked as being without check.

Points, the positions of which are marked as being without check, should be used by the surveyor with extreme caution. Many such positions are of sufficiently high order of accuracy to serve as control for ordinary mapping, but the engineer should by his own observations determine if the position used is free from blunder. When he does this, the accidental errors which remain because of lack of

adjustment will not be of consequence in ordinary cases. When positive accuracy of a definite order is desired, the engineer should use only adjusted data, evaluating them according to the class of triangulation by which they were determined.

In the columns giving azimuths, distances, and logarithms of distances the accuracy is indicated to a certain extent by the number of decimal places given, it being understood that in each case some of the final figures are doubtful. In some cases there is very little doubt of the correctness of the second figure from the right, while in a few cases some doubt may exist as to the correctness of even the third figure from the right.

If the station is described but not marked, the letter "d." is given in the first column of the table; and if described and marked, the letters "d. m." are given. Other letters used in this column are "n. d.", not described; "r.", recovered; and "l.", lost.

The tables may be conveniently consulted by using as finders the sketches and the index at the end of this publication. In the second column of the index will be found for each point a reference to the page on which its geographic position is given, in the third column the page on which the description and/or plane coordinates are given, and in the fourth column the figure number of the sketch on which the station appears.

EXPLANATION OF LENGTHS

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

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

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

AZIMUTH AND BACK AZIMUTH

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

Because of the convergence of the meridians, the azimuth and the back azimuth of a line do not differ by exactly 180°, the amount of the divergence varying with the latitude and the difference of longitude of the two ends of the line. To illustrate from the tables on page 6, the azimuth from Hogback to Wofford is 305°44′13.02″, while the back azimuth, or azimuth from Wofford to Hogback is 125°56′28.16″.

The azimuths of the triangulation lines offer a very convenient and accurate means of testing the deflection of the magnetic needle on a surveyor's transit, and even the azimuth over such short distances as those between a station mark and its reference mark may be used for this purpose with fair accuracy, provided the distance is greater than 100 feet. On all recent triangulation a special azimuth mark has been set for each station at a distance of not less than one-fourth mile. The azimuth of the line from the station to this mark has been determined and may be used as the starting azimuth for traverse lines and other local surveys. Where the distance to the azimuth mark is less than one-fourth mile from the station mark the azimuth is listed to whole seconds. In no case is an azimuth mark listed where the distance is less than one hundred meters from the station mark.

GEOGRAPHIC POSITIONS

Eastern Oblique arc

STATION	LATITUDE AND LONGITUDE	SECONDS IN METERS	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE		
						LOGARITHM (METERS)	METERS	FEET
	° ′ ″		° ′ ″	° ′ ″				
Principal points								
Wofford, 1876, l. 1935 (d.m.)	34 57 31.912 81 56 07.032							
Hogback, 1876, r. 1935 (d.m.)	35 10 11.845 82 17 26.649		305 44 13.02	125 56 28.16	Wofford	4.6020199	39,996.31	131,221.2
Paris, 1875, r. 1935 (d.)	34 56 28.858 82 24 40.346		203 23 42.00 267 18 16.27 356 39 28.2	23 27 51.11 87 34 37.77	Hogback Wofford Azimuth mark, C V 172 (S.C.Geod.S.)	4.4415438 4.6386552	27,640.37 43,516.63	90,683.4 142,770.8
Pinnacle, 1875, r. 1935 (d.m.)	35 02 00.427 82 44 30.323		249 39 13.70 276 10 51.44 288 36 31.34 356 24 11.2	69 54 47.37 96 38 36.56 108 47 53.67	Hogback Wofford Paris Azimuth mark, P 391 (S.C.Geod.S.)	4.6416973 4.8697572 4.5032897	43,822.52 74,089.59 31,863.22	143,774.4 243,075.6 104,537.9
Mauldin, 1875, r. 1935 (d.m.)	34 49 18.039 82 38 05.380		157 26 59.27 219 00 50.91 236 56 13.52 308 00 14.5	337 23 18.87 39 12 41.35 57 03 53.90	Pinnacle Hogback Paris Azimuth mark, P 15 (S.C.Geod.S.)	4.4055857 4.6971958 4.3869644	25,444.02 49,796.15 24,376.11	83,477.6 163,372.9 79,974.0
Rabun (Ga.), 1875, r. 1933 (d.m.)	34 57 55.305 83 17 59.557		261 24 25.84 271 37 30.25 284 30 07.78 33 24	81 43 38.28 92 08 03.13 104 52 57.39	Pinnacle Paris Mauldin Azimuth mark, reference mark no. 3	4.7118761 4.9096436 4.7982773	51,508.17 81,216.38 62,845.96	168,989.7 266,457.4 206,187.1
Currahee (Ga.), 1874, r. 1935 (d.m.)	34 31 44.694 83 22 33.584		188 10 25.05 225 52 32.68 242 21 35.59 244 14 57.93 260 17 53.6	8 13 01.23 46 14 15.17 62 54 34.63 64 40 15.96	Rabun Pinnacle Paris Mauldin Azimuth mark, 15 A 99 (S.C.Geod.S.)	4.6892843 4.9064809 4.9977888 4.8767009	48,897.24 80,627.07 99,492.14 75,283.69	160,423.7 264,524.0 326,417.1 246,993.2
Supplementary points								
Walhalla, spire, 1875 (n.d.)	34 45 55.037 83 04 09.562		47 06 16.5 136 32 22.9 225 05 23.8	226 55 48.8 316 24 28.4 45 16 38.5	Currahee Rabun Pinnacle	4.584701 4.485886 4.625382	38,432.7 30,611.6 42,206.8	126,091 100,432 138,473
Greenville, Baptist Church, 1875 (n.d.)	34 50 59.380 82 24 05.387		81 44 33.2 123 20 07.6 175 00 23.9	261 36 33.4 303 08 26.1 355 00 03.9	Mauldin Pinnacle Paris	4.333862 4.570129 4.008247	21,570.6 37,164.6 10,191.7	70,770 121,931 33,437
Greenville, Furman University, turret, 1875 (n.d.)*	34 50 28.76 82 24 11.64		124 40 14 176 14 41	304 28 36 356 14 25	Pinnacle Paris	4.574732 4.046128	37,560.6 11,120.6	123,230 36,485
Easley, railway depot, 1875 (n.d.)*	34 49 50.44 82 36 08.23		71 28 06 150 30 34	251 26 59 330 25 46	Mauldin Pinnacle	3.496936 4.412521	3,140.0 25,853.6	10,302 84,821
Pickens, court house, 1875 (n.d.)*	34 52 59.63 82 42 25.73		169 16 12 315 53 36	349 15 00 135 56 04	Pinnacle Mauldin	4.229480 3.978021	16,962.1 9,506.5	55,650 31,189
Greenville, white tower, 1875 (n.d.)*	34 50 54.97 82 23 44.63		123 04 14 172 10 34	302 52 21 352 10 02	Pinnacle Paris	4.576112 4.016430	37,680.1 10,385.6	123,622 34,073
Caesars Head Hotel, largest building, east end of roof, 1875, r. 1876 (n.d.)	35 06 17.678 82 37 13.406		256 23 56.6 313 29 05.3 54 25 41.2	76 35 19.6 133 36 17.5 234 21 30.1	Hogback Paris Pinnacle	4.489935 4.420590 4.134049	30,898.3 26,338.4 13,616.0	101,372 86,412 44,672
Glassy Mountain, 1875 (n.d.)	34 54 03 82 39 35							
Rocky Mountain, near Daytonsville, 1876, r. 1877 (n.d.)	35 02 48 81 35 23							

* No check on this position.

GEOGRAPHIC POSITIONS

Eastern Oblique arc - Continued

STATION	LATITUDE AND LONGITUDE	SECONDS IN METERS	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE		
						LOGARITHM (METERS)	METERS	FEET
	° ′ ″		° ′ ″	° ′ ″				
Supplementary points (cont'd)								
Spartanburg, Baptist Church, 1875, r. 1876 (n.d.)	34 57 03.523 81 55 58.094		88 44 12.4 165 28 10.6	268 27 45.9 345 28 05.5	Paris Wofford	4.640632 2.956044	43,715.2 903.7	143,422 2,965
Spartanburg, St. Johns College, east turret, 1876 (n.d.)*	34 56 41.88 81 55 28.98		126 53 02 147 56 53	306 40 25 327 56 31	Hogback Wofford	4.620015 3.259817	41,688.4 1,818.9	136,773 5,968
Taccoa Mountain, 1874, r.1875 (n.d.)	34 42 00 83 15 50							
Thicketty, 1875, l. 1935 (n.d.)	35 06 47.855 81 46 08.525		41 34 21.8 72 09 17.8 97 40 55.1	221 28 38.2 251 47 10.9 277 22 54.1	Wofford Paris Hogback	4.359522 4.789797 4.680859	22,883.5 61,630.7 47,957.8	75,077 202,200 157,342

* No check on this position.

GEOGRAPHIC POSITIONS

Anderson, S. C., to Augusta, Ga., arc

STATION	LATITUDE AND LONGITUDE	SECONDS IN METERS	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE		
						LOGARITHM (METERS)	METERS	FEET
	° ′ ″		° ′ ″	° ′ ″				
Principal points								
Owens (Ga.), 1902, r. 1935 (d.m.)	34 21 33.141		122 38 43.98	302 27 50.02	Currahee	4.5443011	35,018.79	114,890.8
	83 03 17.373		216 47 25.45	37 01 43.83	Mauldin	4.8072676	64,160.48	210,499.8
			21 03 54.1		Azimuth mark			
Little Mountain, 1902, r. 1935 (d.m.)	34 26 28.157		74 34 29.46	254 22 25.69	Owens	4.5309756	33,960.62	111,419.1
	82 41 56.293		99 06 17.50	278 43 17.51	Currahee	4.7989995	62,950.55	206,530.3
			187 54 51.20	7 57 02.43	Mauldin	4.6296080	42,619.47	139,827.4
			125 20 34.0		Azimuth mark			
Beulah, 1902, r. 1935 (d.m.)	34 14 51.355		110 03 09.71	289 50 37.96	Owens	4.5597466	36,286.62	119,050.4
	82 41 03.483		176 24 24.77	356 23 54.97	Little Mountain	4.3326947	21,512.69	70,579.5
			193 05 57		Azimuth mark			
Dewey Rose (Ga.), 1902, r. 1935 (d.m.)	34 10 13.978		156 31 58.32	336 28 38.12	Owens	4.3582826	22,818.26	74,862.9
	82 57 21.790		251 04 53.06	71 14 03.08	Beulah	4.4226348	26,462.74	86,819.8
			166 12 43		Azimuth mark			
Rose Hill (Ga.), 1902, r. 1907 (d.m.)	34 05 01.213		118 01 42.85	297 55 05.59	Dewey Rose	4.3127020	20,544.81	67,404.1
	82 45 33.706		200 49 03.71	20 51 35.46	Beulah	4.2890535	19,456.00	63,831.9
Parsons, 1902, r. 1934 (d.m.)	34 04 58.845		90 13 31.29	270 00 12.11	Rose Hill	4.5630331	36,562.27	119,954.7
	82 21 47.608		121 45 00.18	301 34 11.06	Beulah	4.5413540	34,781.95	114,113.8
			328 13 00.1		Azimuth mark, reference mark no. 2			
Lincoln (Ga.), 1902, r. 1934 (d.m.)	33 44 23.211		150 43 17.23	330 35 31.54	Rose Hill	4.6410516	43,757.41	143,560.8
	82 31 39.013		201 42 35.95	21 48 05.90	Parsons	4.6126781	40,990.02	134,481.4
Williams, 1902, r. 1935 (d.m.)	33 53 40.677		61 13 59.88	241 02 45.47	Lincoln	4.5512518	35,583.75	116,744.4
	82 11 27.240		142 44 22.44	322 38 35.63	Parsons	4.4194639	26,270.23	86,188.2
			156 24 28.3		Azimuth mark			

GEOGRAPHIC POSITIONS

Anderson, S. C., to Augusta, Ga., arc - Continued

STATION	LATITUDE AND LONGITUDE	SECONDS IN METERS	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE		
						LOGARITHM (METERS)	METERS	FEET
	° ′ ″		° ′ ″	° ′ ″				
Principal points (cont'd)								
Appling (Ga.), 1932, r. 1934 (d.m.)	33 36 32.204		134 46 00.18	314 40 44.79	Lincoln	4.3143329	20,622.10	67,657.7
	82 22 10.221		207 31 35.59	27 37 32.83	Williams	4.5532509	35,747.93	117,283.0
			248 46 09.2		Azimuth mark			
Clarks Hill, 1902, r. 1935 (d.m.)	33 40 21.826		68 47 30.33	248 40 59.52	Appling	4.2902142	19,508.07	64,002.7
	82 10 24.759		102 52 05.19	282 40 18.06	Lincoln	4.5269273	33,645.53	110,385.4
			176 16 04.75	356 15 30.01	Williams	4.3920785	24,664.85	80,921.3
			219 48 46.0		Azimuth mark			
Vaughn (Ga.), 1932, r. 1934 (d.m.)	33 29 16.410		120 12 11.04	300 03 55.56	Appling	4.4272240	26,743.85	87,742.1
	82 07 13.661		166 29 52.32	346 28 06.62	Clarks Hill	4.3239662	21,084.64	69,175.2
			281 42 35		Azimuth mark			
Bunch, 1902, r. 1932 (d.m.)	33 35 03.809		50 53 25.12	230 48 43.62	Vaughn	4.2292379	16,952.66	55,618.9
	81 58 44.123		94 24 14.06	274 11 16.00	Appling	4.5605820	36,356.50	119,279.6
			118 32 11.47	298 25 43.45	Clarks Hill	4.3127074	20,545.06	67,404.9
			248 02 00		Azimuth mark			
Supplementary points								
Six Mile Mountain, 1902, l. 1935 (d.m.)	34 49 57.779		274 29 01.32	94 34 48.54	Mauldin	4.1902884	15,498.45	50,847.8
	82 48 13.370		347 30 08.01	167 33 42.33	Little Mountain	4.6482172	44,485.37	145,949.1
			57 27 10.46	237 07 38.17	Currahee	4.7946989	62,330.26	204,495.2
Anderson, standpipe, 1902 (n.d.)	34 30 21.723		32 19 03.0	212 17 22.1	Little Mountain	3.930173	8,514.8	27,936
	82 38 57.986		92 24 01.6	271 59 19.4	Currahee	4.824537	66,763.2	219,039
			182 11 11.6	2 11 41.5	Mauldin	4.544568	35,040.3	114,961
Anderson, court house, 1902 (n.d.)	34 30 11.131		33 08 34.3	213 06 54.9	Little Mountain	3.914038	8,204.2	26,917
	82 39 00.596		92 40 56.9	272 16 16.3	Currahee	4.824198	66,711.1	218,868
			182 16 25.3	2 16 56.7	Mauldin	4.548624	35,369.1	116,040
Anderson, orr mill, stack, 1902 (n.d.)*	34 29 02.56		43 40 10	223 38 30	Little Mountain	3.817953	6,575.9	21,574
	82 38 58.44		94 29 18	274 04 37	Currahee	4.825415	66,898.3	219,482
Hartwell, court house (Ga.), 1902 (n.d.)	34 21 10.526		115 44 27.5	295 29 24.6	Currahee	4.655122	45,198.3	148,288
	82 55 57.167		207 37 41.6	27 47 50.1	Mauldin	4.768907	58,736.4	192,704
			245 26 11.9	65 34 06.9	Little Mountain	4.372972	23,603.3	77,438
Clemson College, top of tower, 1902 (n.d.)*	34 40 47.43		190 17 12	10 18 21	Six Mile Mountain	4.236444	17,236.3	56,549
	82 50 14.50		229 37 50	49 44 45	Mauldin	4.385973	24,320.5	79,792
Bowersville, Baptist Church, spire (Ga.), 1902 (n.d.)*	34 22 27.76		303 48 31	123 49 26	Owens	3.480575	3,024.0	9,921
	83 04 55.70		122 31 08	302 21 09	Currahee	4.505089	31,995.5	104,972
Canon, church spire (Ga.), 1902 (n.d.)*	34 20 42.17		129 56 03	309 47 01	Currahee	4.503148	31,852.8	104,504
	83 06 35.88		252 46 56	72 48 48	Owens	3.725152	5,310.7	17,424
Royston, schoolhouse, cupola (Ga.), 1902 (n.d.)*	34 17 18.88		137 56 13	317 47 19	Currahee	4.556020	35,976.6	118,033
	83 06 48.50		214 32 55	34 34 54	Owens	3.978346	9,513.6	31,213
Easley, Baptist Church, spire, 1902 (n.d.)*	34 49 46.51		70 57 41	250 56 44	Mauldin	3.429526	2,688.6	8,821
	82 36 25.37		91 09 43	271 02 58	Six Mile Mountain	4.255124	17,993.8	59,035
Easley, Glendale, stack, 1902 (n.d.)*	34 50 01.62		73 13 17	253 11 37	Mauldin	3.667259	4,647.9	15,249
	82 35 10.27		89 43 18	269 35 51	Six Mile Mountain	4.298824	19,898.7	65,284
Easley, cotton mill, stack, 1902 (n.d.)	34 49 23.968		11 14 42.7	191 11 35.1	Little Mountain	4.635688	43,220.3	141,799
	82 36 26.156		85 51 48.1	265 50 51.4	Mauldin	3.402809	2,528.2	8,295
			93 22 26.8	273 15 42.9	Six Mile Mountain	4.255308	18,001.5	59,060
Bogg's Mountain, house, cupola, 1902 (n.d.)	34 47 52.550		65 36 25.6	245 12 10.2	Currahee	4.855252	71,655.9	235,091
	82 39 54.659		106 58 22.1	286 53 37.4	Six Mile Mountain	4.122193	13,249.3	43,469
			226 30 24.4	46 31 26.8	Mauldin	3.582985	3,828.1	12,559
Greenville, Brandon, stack, 1902 (n.d.)*	34 50 37.22		82 33 43	262 26 46	Mauldin	4.271919	18,703.3	61,362
	82 25 55.61		88 03 30	267 50 46	Six Mile Mountain	4.531630	34,011.8	111,587
Greenville, Monaghan, stack, 1902 (n.d.)*	34 51 59.96		75 29 54	255 22 42	Mauldin	4.297653	19,845.1	65,108
	82 25 29.37		83 54 27	263 41 28	Six Mile Mountain	4.542278	34,856.0	114,357

* No check on this position.

GEOGRAPHIC POSITIONS

Anderson, S. C., to Augusta, Ga., arc - Continued

STATION	LATITUDE AND LONGITUDE	SECONDS IN METERS	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE		
						LOGARITHM (METERS)	METERS	FEET
Supplementary points (cont'd)	° ′ ″		° ′ ″	° ′ ″				
Greenville, standpipe, 1902 (n.d.)*	34 50 37.97 82 25 01.96		83 00 30 88 06 14	262 53 02 267 52 59	Mauldin Six Mile Mountain	4.302297 4.548695	20,058.4 35,374.9	65,808 116,059
Six Mile Mountain 2 (S.C.Geod.S.), 1935 (d.m.)	34 49 58.669 82 48 13.109		274 35 12.2 347 31 05.6 57 26 05.9	94 40 59.3 167 34 39.8 237 06 33.5	Mauldin Little Mountain Currahee	4.190164 4.648464 4.794841	15,494.0 44,510.7 62,350.7	50,833 146,032 204,562
Abbeyville, standpipe, 1902 (n.d.)*	34 11 01.70 82 23 15.83		348 33 47 104 35 58	168 34 36 284 25 57	Parsons Beulah	4.057147 4.450727	11,406.4 28,231.0	37,422 92,621
Elberton, Baptist Church, spire (Ga.), 1902 (n.d.)*	34 06 31.82 82 51 54.79		227 14 55 273 23 52	47 21 01 93 40 45	Beulah Parsons	4.355947 4.666648	22,695.9 46,413.9	74,461 152,276
Elberton, oil mill, water tank (Ga.), 1902 (n.d.)*	34 06 51.50 82 52 05.60		288 39 33 322 43 42	108 43 12 142 55 07	Rose Hill Lincoln	4.025496 4.717144	10,604.6 52,136.8	34,792 171,052
Elberton, Swift's Mill, stack (Ga.), 1902 (n.d.)	34 06 37.276 82 51 40.224		127 22 10.3 287 27 27.9 323 00 48.3	307 18 58.5 107 30 53.3 143 11 58.6	Dewey Rose Rose Hill Lincoln	4.041687 3.993456 4.710918	11,007.5 9,850.4 51,394.7	36,114 32,318 168,617
Elberton, Methodist Church, spire (Ga.), 1902 (n.d.)	34 06 28.107 82 51 58.330		130 02 57.3 227 11 35.0 285 09 41.4	309 59 55.8 47 17 42.9 105 13 17.0	Dewey Rose Beulah Rose Hill	4.034291 4.358708 4.009326	10,821.6 22,840.6 10,217.1	35,504 74,936 33,521
Elberton, court house, dome (Ga.), 1902 (n.d.)	34 06 35.287 82 52 07.506		129 56 51.7 227 59 52.6 285 59 24.4	309 53 55.3 48 06 05.6 106 03 05.1	Dewey Rose Beulah Rose Hill	4.021174 4.359166 4.021293	10,499.6 22,864.7 10,502.5	34,447 75,015 34,457
McCormick, municipal water tank, finial, 1932 (n.d.)	33 54 53.251 82 17 19.995		283 49 56.5 338 16 20.5 12 26 20.9	103 53 13.3 158 20 11.5 192 23 39.6	Williams Clarks Hill Appling.	3.970097 4.460828 4.540772	9,334.6 28,895.4 34,735.4	30,625 94,801 113,961
McKnight (Ga.), 1902 (d.m.)	33 31 14.396 82 08 34.966		124 22 19.7 170 28 49.1 245 04 36.5	304 09 33.2 350 27 48.4 65 10 03.0	Lincoln Clarks Hill Bunch	4.635118 4.233037 4.225332	43,163.6 17,101.6 16,800.9	141,613 56,107 55,121

* No check on this position.

GEOGRAPHIC POSITIONS

Tigerville to Georgetown arc

STATION	LATITUDE AND LONGITUDE	SECONDS IN METERS	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE		
						LOGARITHM (METERS)	METERS	FEET
Principal points	° ′ ″		° ′ ″	° ′ ″				
Noname, 1935 (d.m.)	34 53 53.906		103 33 27.68	283 25 58.99	Paris	4.3109286	20,461.08	67,129.4
	82 11 36.513		163 37 05.14	343 33 44.15	Hogback	4.4971518	31,416.07	103,070.9
			243 57 36.0		Azimuth mark			
Inman, 1935 (d.m.)	35 04 07.729		22 42 59.43	202 40 00.64	Noname	4.3118071	20,502.51	67,265.3
	82 06 24.675		63 06 45.64	242 56 17.11	Paris	4.4937964	31,174.28	102,277.6
			123 51 06.38	303 44 45.57	Hogback	4.3047324	20,171.23	66,178.4
			328 59 17.7		Azimuth mark			
S P 700 (S.C.Geod.S.), 1935 (d.m.)	34 45 01.994		141 07 59.28	321 03 01.98	Noname	4.3235374	21,063.83	69,106.9
	82 02 55.916		171 28 48.14	351 26 48.67	Inman	4.5526918	35,701.94	117,132.1
			317 59 37.4		Azimuth mark, S P 701 (S.C.Geod.S.)			
Wofford eccentric, 1935 (d.m.)	34 57 32.405		24 14 23.26	204 10 29.38	S P 700 (S.C.Geod.S.)	4.4040375	25,353.47	83,180.5
	81 56 06.678		74 09 00.01	254 00 07.63	Noname	4.3898975	24,541.29	80,515.9
			127 54 50.26	307 48 55.67	Inman	4.2977032	19,847.38	65,115.9
			220 32 58.2		Azimuth mark			
Bagwell, 1935 (d.m.)	34 50 41.414		55 35 18.79	235 29 36.62	S P 700 (S.C.Geod.S.)	4.2668235	18,485.17	60,646.8
	81 52 56.340		101 51 57.87	281 41 17.42	Noname	4.4633236	29,061.87	95,347.2
			159 07 48.89	339 05 59.98	Wofford eccentric	4.1321154	13,555.50	44,473.3
			308 57 12.5		Azimuth mark			
Harrison, 1935 (d.m.)	34 43 28.576		97 24 38.16	277 16 17.66	S P 700 (S.C.Geod.S.)	4.3527372	22,528.76	73,913.1
	81 48 17.579		152 02 13.25	331 59 34.22	Bagwell	4.1790907	15,103.95	49,553.5
			176 01 32.0		Azimuth mark			
Tinsley, 1935 (d.m.)	34 53 56.991		357 18 37.19	177 18 57.60	Harrison	4.2874864	19,385.92	63,602.0
	81 48 53.334		45 42 02.45	225 39 43.51	Bagwell	3.9358255	8,626.32	28,301.5
			121 08 51.68	301 04 43.56	Wofford eccentric	4.1087805	12,846.37	42,146.8
			244 35 15.0		Azimuth mark			

Fowler, 1935 (d.m.)	34 49 25.528		52 59 26.82	232 54 00.07	Harrison	4.2613573	18,253.97	59,888.2
	81 38 44.673		96 14 05.87	276 05 59.40	Bagwell	4.3377856	21,766.35	71,411.8
			118 27 52.34	298 22 04.44	Tinsley	4.2449848	17,578.62	57,672.5
			342 17 55.4		Azimuth mark			
Sardis, 1935 (d.m.)	34 39 12.138		113 54 42.41	293 48 02.89	Harrison	4.2908771	19,537.86	64,100.5
	81 36 35.583		170 09 14.82	350 08 01.26	Fowler	4.2829513	19,184.54	62,941.3
			204 44 35.3		Azimuth mark, U 108 (S.C.Geod.S.)			
Adams, 1935 (d.m.)	34 46 56.839		23 44 26.47	203 42 05.63	Sardis	4.1942635	15,640.96	51,315.4
	81 32 28.301		75 11 24.24	255 02 23.11	Harrison	4.3976357	24,982.49	81,963.4
			115 37 14.36	295 33 39.54	Fowler	4.0256170	10,607.60	34,801.8
			155 55 01.4		Azimuth mark, U 310 (S.C.Geod.S.)			
San, 1935 (d.m.)	34 37 00.934		110 39 30.96	290 35 31.27	Sardis	4.0598409	11,477.33	37,655.2
	81 29 33.852		166 25 16.22	346 23 36.91	Adams	4.2762689	18,891.61	61,980.2
			316 17 44.2		Azimuth mark, U 234 (S.C.Geod.S.)			
White, 1935 (d.m.)	34 43 53.750		31 23 32.42	211 20 39.12	San	4.1731327	14,898.16	48,878.4
	81 24 29.237		64 54 47.20	244 47 53.78	Sardis	4.3101172	20,422.89	67,004.1
			114 53 03.78	294 48 30.67	Adams	4.1279769	13,426.94	44,051.6
			37 12 36.4		Azimuth mark			
Boulware, 1934, r. 1935 (d.m.)	34 33 55.001		118 41 30.94	298 37 37.42	San	4.0772211	11,945.96	39,192.7
	81 22 42.518		171 37 43.64	351 36 42.97	White	4.2706568	18,649.06	61,184.5
			11 07 06		Azimuth mark, reference mark no. 1			
Wilkes, 1934, r. 1935 (d.m.)	34 38 24.550		48 33 15.73	228 29 46.31	Boulware	4.0983372	12,541.14	41,145.4
	81 16 33.747		82 40 25.31	262 33 02.01	San	4.3018449	20,037.56	65,739.9
			130 00 14.96	309 55 44.37	White	4.1984475	15,792.38	51,812.2
			254 40 40		Azimuth mark, reference mark no. 2			

GEOGRAPHIC POSITIONS

Tigerville to Georgetown arc - Continued

STATION	LATITUDE AND LONGITUDE	SECONDS IN METERS	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE		
						LOGARITHM (METERS)	METERS	FEET
Principal points (cont'd)	° ′ ″		° ′ ″	° ′ ″				
Brice, 1934 (d.m.)	34 30 56.857 81 11 15.292		107 26 49.56 149 33 12.68 138 25 08.8	287 20 19.91 329 30 11.95	Boulware Wilkes Azimuth mark, reference mark no. 3	4.2639540 4.2042790	18,363.44 16,005.86	60,247.4 52,512.6
Blackstock, 1934, r. 1935 (d.m.)	34 33 29.574 81 09 04.040		35 25 57.26 92 12 53.71 128 27 24.26 135 21 44.5	215 24 42.84 272 05 09.39 308 23 08.90	Brice Boulware Wilkes Azimuth mark, reference mark no. 3	3.7615264 4.3197315 4.1651348	5,774.66 20,880.05 14,626.31	18,945.7 68,504.0 47,986.5
Salem, 1934 (d.m.)	34 25 25.923 81 17 43.315		154 04 26.66 224 07 48.66 38 38 52.4	334 01 37.21 44 11 28.27	Boulware Brice Azimuth mark, reference mark no. 3	4.2416774 4.1527244	17,445.26 14,214.26	57,235.0 46,634.6
McLurkin, 1934 (d.m.)	34 29 43.876 81 24 31.102		199 40 54.67 263 36 59.16 307 20 07.02 255 18 30	19 41 56.22 83 44 29.98 127 23 57.76	Boulware Brice Salem Azimuth mark, reference mark no. 1	3.9147991 4.3101676 4.1171450	8,218.62 20,425.26 13,096.19	26,963.9 67,011.9 42,966.4
White Oak, 1934 (d.m.)	34 28 06.793 81 07 12.243		72 56 49.17 130 13 06.26 356 19 50.6	252 50 52.22 310 10 48.62	Salem Brice Azimuth mark, reference mark no. 2	4.2267390 3.9094914	16,855.40 8,118.79	55,299.8 26,636.4
Macafee, 1934 (d.m.)	34 20 11.025 81 13 48.460		148 17 11.18 191 06 24.41 214 35 12.91 69 27 04.7	328 14 58.56 11 07 51.00 34 38 56.77	Salem Brice White Oak Azimuth mark, reference mark no. 3	4.0572183 4.3070838 4.2507503	11,408.23 20,280.74 17,813.54	37,428.5 66,537.7 58,443.3
Winnsboro (U.S.C.S.), 1934 (d.m.)	34 23 00.065 81 05 04.911		68 46 09.81 147 15 56.48 161 01 34.33 110 31 59.5	248 41 14.33 327 12 26.97 341 00 22.35	Macafee Brice White Oak Azimuth mark, reference mark no. 2	4.1570652 4.2423141 3.9997746	14,357.05 17,470.85 9,994.81	47,103.1 57,318.9 32,791.3
Lewis, 1934 (d.m.)	34 18 30.733 81 06 47.857		106 04 00.14 197 34 59.34 44 32 32.7	286 00 02.99 17 35 57.42	Macafee Winnsboro (U.S.C.S.) Azimuth mark, reference mark no. 2	4.0487608 3.9398159	11,188.21 8,705.94	36,706.7 28,562.7
Glenn, 1934 (d.m.)	34 14 45.009 81 14 54.975		189 36 22.81 224 38 17.44 240 47 32.24 325 40 54.8	9 37 00.29 44 43 50.08 60 52 06.58	Macafee Winnsboro (U.S.C.S.) Lewis Azimuth mark, reference mark no. 1	4.0081027 4.3315164 4.1544192	10,188.32 21,454.40 14,269.84	33,426.2 70,388.3 46,817.0
Ridgeway, 1934 (d.m.)	34 17 57.075 80 57 09.396		77 50 02.81 94 03 20.81 127 33 57.70 350 07 28.0	257 40 02.75 273 57 54.80 307 29 29.45	Glenn Lewis Winnsboro (U.S.C.S.) Azimuth mark, reference mark no. 3	4.4455007 4.1710917 4.1854254	27,893.35 14,828.31 15,325.88	91,513.4 48,649.2 50,281.7
Douglas, 1934 (d.m.)	34 08 40.077 81 03 28.137		122 38 52.68 143 20 19.28 164 19 36.24 209 25 51.34 255 42 13	302 32 26.67 323 14 30.25 344 17 43.90 29 29 24.34	Glenn Macafee Lewis Ridgeway Azimuth mark, reference mark no. 1	4.3195922 4.4241684 4.2765439 4.2947075	20,873.35 26,556.35 18,903.57 19,710.95	68,482.0 87,127.0 62,019.5 64,668.3

GEOGRAPHIC POSITIONS

Tigerville to Georgetown arc - Continued

STATION	LATITUDE AND LONGITUDE	SECONDS IN METERS	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE		
						LOGARITHM (METERS)	METERS	FEET
Supplementary points	° ′ ″		° ′ ″	° ′ ″				
Spartanburg, airport beacon, 1935 (n.d.)	34 55 05.889		84 10 45.0	264 02 40.2	Noname	4.334904	21,622.4	70,939
	81 57 29.283		140 55 32.2	320 50 25.2	Inman	4.332864	21,521.1	70,607
			24 03 45.2	204 00 38.6	S P 700 (S.C.Geod.S.)	4.309119	20,376.0	66,850
Airway beacon no. 14 (Atlanta to New York), 1935 (n.d.)	34 49 14.737		134 36 03.3	314 32 46.8	Noname	4.088404	12,257.6	40,215
	82 05 52.769		178 19 02.4	358 18 44.0	Inman	4.439807	27,530.1	90,322
			329 59 12.9	150 00 53.8	S P 700 (S.C.Geod.S.)	3.953905	8,993.0	29,505
Metropolitan District B, tank, 1935 (n.d.)	34 59 28.904		127 55 20.1	307 51 10.0	Inman	4.145861	13,991.4	45,903
	81 59 09.068		307 47 44.9	127 49 29.4	Wofford eccentric	3.767602	5,856.0	19,213
			61 30 03.4	241 22 55.1	Noname	4.334335	21,594.1	70,847
Southern Railway Co., tank, 1935 (n.d.)	34 59 16.117		128 35 41.5	308 31 26.2	Inman	4.158868	14,416.8	47,299
	81 58 59.960		306 00 24.1	126 02 03.4	Wofford eccentric	3.735170	5,434.6	17,830
			62 42 45.7	242 35 32.2	Noname	4.334733	21,613.9	70,912
Southern Railway Co., stack, 1935 (n.d.)	34 59 15.476		128 41 38.4	308 37 23.5	Inman	4.158880	14,417.2	47,300
	81 59 00.563		305 44 36.3	125 46 16.0	Wofford eccentric	3.735236	5,435.5	17,833
			62 44 25.9	242 37 12.8	Noname	4.334278	21,591.3	70,837
Lyman, Pacolet Mills, tank, 1935 (n.d.)	34 56 55.107		187 01 53.7	7 02 30.9	Inman	4.128168	13,432.8	44,071
	82 07 29.576		342 25 20.0	162 27 56.5	S P 700 (S.C.Geod.S.)	4.362639	23,048.3	75,618
			48 19 20.7	228 16 59.3	Noname	3.923983	8,394.3	27,540
Lyman, Pacolet Mills, northeast stack, 1935 (n.d.)	34 56 39.540		187 15 07.0	7 15 46.8	Inman	4.143731	13,922.9	45,679
	82 07 34.041		341 46 52.1	161 49 31.1	S P 700 (S.C.Geod.S.)	4.354619	22,626.6	74,234
			50 20 59.2	230 18 40.4	Noname	3.902856	7,995.7	26,233
Lyman, Pacolet Mills, southwest stack, 1935 (n.d.)	34 56 39.341		187 22 06.6	7 22 47.1	Inman	4.144038	13,932.8	45,711
	82 07 35.200		341 42 19.3	161 44 59.0	S P 700 (S.C.Geod.S.)	4.354684	22,630.0	74,245
			50 14 55.4	230 12 37.3	Noname	3.901411	7,969.1	26,145
S P 121 (S.C.Geod.S.), 1935 (d.m.)	34 56 21.276		90 38 10.96	270 29 13.16	Paris	4.3771324	23,830.46	78,183.8
	82 09 01.326		153 27 38.31	333 22 48.08	Hogback	4.4566657	28,619.74	93,896.6
			79 18 09.2		Azimuth mark, S P 122 (S.C.Geod.S.)			
Greenville, 1935 (d.m.)	34 51 17.686		80 26 35.82	260 18 27.00	Mauldin	4.3434491	22,052.06	72,349.1
	82 23 49.685		172 21 49.92	352 21 20.94	Paris	3.9856412	9,674.78	31,741.3
			256 37 49.8		Azimuth mark			
Greenville, Episcopal Church, spire, 1875, r. 1935 (n.d.)	34 51 02.212		122 42 43.3	302 30 47.7	Pinnacle	4.575585	37,634.4	123,472
	82 23 41.096		171 30 16.2	351 29 42.3	Paris	4.007644	10,177.6	33,391
			155 24 51.3	335 24 46.3	Greenville	2.719663	524.4	1,720
Greenville magnetic station, 1935 (d.m.)*	34 51 20.39		3 16 22	183 16 22	Greenville, Episcopal Church, spire	2.748990	561.0	1,841
	82 23 39.84		71 35 38	251 35 32	Greenville	2.421104	263.7	865
Airway beacon no. 13 B (Atlanta to New York), 1935 (n.d.)	34 51 31.764		142 39 57.5	322 37 20.0	Paris	4.061359	11,517.5	37,787
	82 20 05.094		186 37 33.3	6 39 04.2	Hogback	4.540948	34,749.5	114,007
			251 13 35.2	71 18 26.0	Noname	4.134762	13,638.4	44,745
Jonesville, water tank, 1935 (n.d.)	34 49 56.796		121 10 22.2	301 05 46.4	Tinsley	4.155798	14,315.2	46,966
	81 40 50.920		286 42 25.7	106 43 37.8	Fowler	3.525001	3,349.7	10,990
			43 32 49.3	223 28 34.5	Harrison	4.217359	16,495.3	54,118
U 201 (S.C.Geod.S.), 1935 (d.m.)	34 51 42.442		298 39 18.08	118 42 11.52	Fowler	3.9440593	8,791.43	28,843.2
	81 43 48.249		24 14 41.24	204 12 07.56	Harrison	4.2223981	16,687.76	54,749.8
			294 50 29.9		Azimuth mark, U 202 (S.C.Geod.S.)			
Union, 1935 (d.m.)	34 43 49.814		174 48 01.3	354 47 40.1	Fowler	4.016522	10,387.8	34,081
	81 38 07.628		87 38 00.4	267 32 12.9	Harrison	4.191235	15,532.3	50,959
			180 39 07.8		Azimuth mark, U 211 (S.C.Geod.S.)			
Union, standpipe, 1935 (n.d.)	34 43 25.017		90 25 15.5	270 18 53.2	Harrison	4.232439	17,078.1	56,030
	81 37 06.371		167 19 37.0	347 18 40.9	Fowler	4.056402	11,386.8	37,358
			116 07 18.5	296 06 43.7	Union	3.239489	1,735.8	5,695

* No check on this position.

GEOGRAPHIC POSITIONS

Tigerville to Georgetown arc - Continued

STATION	LATITUDE AND LONGITUDE	SECONDS IN METERS	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE		
						LOGARITHM (METERS)	METERS	FEET
Supplementary points (cont'd)	° ′ ″		° ′ ″	° ′ ″				
Transit traverse station no. 143 D.C. (U.S.C.G.S.), 1935 (d.m.)*	34 47 26.728 81 32 29.487		358 07 30.9 109 33 33.8	178 07 51.6 289 33 23.6	Adams U 310 (S.C.Geod.S.)	2.964505 2.682435	921.5 481.321	3,023 1,579.13
Transit traverse station no. 144 D.C. (U.S.C.G.S.), 1935 (d.m.)	34 48 43.529 81 35 37.391		304 21 19.6 4 48 39.0 105 13 35.1 88 21 23.3	124 23 07.5 184 48 05.8 285 11 48.2	Adams Sardis Fowler Azimuth mark, U 304 (S.C.Geod.S.)	3.765191 4.247220 3.693066	5,823.6 17,669.3 4,932.5	19,106 57,970 16,183
U 109 (S.C.Geod.S.), 1935 (d.m.)*	34 39 11.645 81 36 35.880		206 30	26 30	Sardis	1.229503	16.963	55.65
U 310 (S.C.Geod.S.), 1935 (d.m.)*	34 47 31.957 81 32 47.327		335 54 50.5	155 55 01.4	Adams	3.073845	1,185.3	3,889
Fire control tower, 1935 (n.d.)	34 31 19.701 81 35 25.606		173 01 16.9 220 25 41.4 256 07 22.6	353 00 37.2 40 29 01.0 76 14 35.3	Sardis San Boulware	4.166325 4.140464 4.301839	14,666.4 13,818.6 20,037.3	48,118 45,337 65,739
U 233 (S.C.Geod.S.), 1935 (d.m.)•	34 37 01.491 81 29 33.255		41 32	221 32	San	1.360556	22.938	75.26
Winnsboro, silver water tank, 1934 (n.d.)	34 21 29.161 81 04 56.555		79 59 56 164 13 06 298 39 04	259 54 56 344 11 50 118 43 27	Macafee White Oak Ridgeway	4.140069 4.104925 4.133966	13,806.0 12,732.8 13,613.4	45,295 41,774 44,663
Winnsboro, black water tank, 1934 (n.d.)*	34 23 01.17 81 04 56.32		159 46 42 308 06 00	339 45 26 128 10 23	White Oak Ridgeway	4.001574 4.181078	10,036.3 15,173.2	32,927 49,781
Winnsboro, magnetic station, 1934 (d.m.)*	34 23 03.734 81 05 04.523		5 01 03.2	185 01 03.0	Winnsboro (U.S.C.G.S.)	2.054919	113.48	372.3
Blume, 1934 (d.m.)	34 12 25.594 81 06 27.811		108 21 01.2 177 23 29.3 326 28 22.0 142 24 27.8	288 16 15.9 357 23 18.0 146 30 03.0	Glenn Lewis Douglas Azimuth mark, reference mark no. 3	4.135864 4.051632 3.920855	13,673.0 11,262.4 8,334.0	44,859 36,950 27,342
Ridgeway, black water tank, ball on top, 1934 (n.d.)	34 18 25.802 80 57 35.514		313 59 38.2 322 57 47.5 50 51 48.6	134 05 21.5 142 58 02.2 230 46 49.1	Blaney 2 Ridgeway Blume	4.336917 3.044865 4.244742	21,722.9 1,108.8 17,568.8	71,269 3,638 57,640

• No check on this position.

GEOGRAPHIC POSITIONS

Charlotte, N. C. to Augusta, Ga., arc

STATION	LATITUDE AND LONGITUDE	SECONDS IN METERS	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE		
						LOGARITHM (METERS)	METERS	FEET
	° ′ ″		° ′ ″	° ′ ″				
Principal points								
Mineral (N.C.), 1934, r. 1935 (d.m.)	34 55 50.738 80 41 26.436		55 17 54		Azimuth mark, reference mark no. 3			
Providence (N.C.), 1934 (d.m.)	35 03 12.249 80 48 51.313		320 17 50.06 153 05 08.5	140 22 05.18	Mineral Azimuth mark, reference mark no. 3	4.2473595	17,675.00	57,988.7
State (N.C.), 1934, r. 1935 (d.m.)	35 00 53.410 80 51 06.147		218 36 28.57 302 20 21.30 14 13 30.2	38 37 45.97 122 25 53.58	Providence Mineral Azimuth mark, reference mark no. 3	3.7384631 4.2408960	5,476.00 17,413.90	17,965.8 57,132.1
Heath (N.C.), 1934, r. 1935 (d.m.)	34 53 18.883 80 47 01.388		156 06 27.14 171 20 16.18 241 08 54.41 54 55 10.0	336 04 06.92 351 19 13.17 61 12 06.09	State Providence Mineral Azimuth mark, reference mark no. 3	4.1853052 4.2670888 3.9870289	15,321.64 18,496.47 9,705.75	50,267.7 60,683.8 31,842.9
Roddy, 1934 (d.m.)	34 52 16.148 80 56 11.645		205 54 42.05 262 04 47.31 346 23 50.3	25 57 37.03 82 10 01.98	State Heath Azimuth mark, reference mark no. 2	4.2485860 4.1494379	17,724.99 14,107.10	58,152.7 46,283.0
Fort Mill, 1934 (d.m.)	35 00 22.533 80 56 51.448		263 46 11.78 311 02 21.48 356 08 29.12 88 37 03.0	83 49 29.89 131 07 59.48 176 08 51.91	State Heath Roddy Azimuth mark, reference mark no. 3	3.9448136 4.2980850 4.1767358	8,806.71 19,864.84 15,022.28	28,893.3 65,173.2 49,285.6
Winthrop, 1934 (d.m.)	34 56 26.162 81 01 41.171		225 13 57.58 284 25 07.99 312 36 59.76 247 38 36.8	45 16 43.65 104 33 31.54 132 40 08.32	Fort Mill Heath Roddy Azimuth mark, reference mark no. 1	4.0148310 4.3629847 4.0558713	10,347.40 23,066.66 11,372.90	33,948.1 75,677.9 37,312.6
Moore, 1934 (d.m.)	34 50 56.713 81 05 32.831		210 04 08.90 260 12 42.41 217 55 05.1	30 06 21.43 80 18 05.17	Winthrop Roddy Azimuth mark, reference mark no. 1	4.0691100 4.1602761	11,733.02 14,463.59	38,494.1 47,452.6
O'Niel, 1934 (d.m.)	34 49 17.896 80 56 32.840		102 33 20.90 149 20 35.73 185 35 50.16 148 06 54.1	282 28 12.45 329 17 39.41 5 36 02.27	Moore Winthrop Roddy Azimuth mark, reference mark no. 3	4.1478155 4.1859728 3.7418775	14,054.50 15,345.21 5,519.22	46,110.5 50,345.1 18,107.6
Richburg, 1934 (d.m.)	34 44 10.074 81 01 18.619		152 44 15.64 217 25 52.27 350 53 47.1	332 41 50.59 37 28 35.28	Moore O'Niel Azimuth mark, reference mark no. 2	4.1491863 4.0773242	14,098.94 11,948.80	46,256.3 39,202.0
Hennen, 1934 (d.m.)	34 46 32.249 81 08 40.539		210 19 49.72 254 30 58.02 291 15 37.15 72 02 57.9	30 21 36.88 74 37 53.31 111 19 49.08	Moore O'Niel Richburg Azimuth mark, reference mark no. 2	3.9751205 4.2830682 4.0814640	9,443.23 19,189.70 12,065.24	30,981.7 62,958.2 39,577.5
White, 1934 (d.m.)	34 40 07.223 81 05 15.873		25 23 53.30 156 19 07.47 218 52 49.11 28 43 01.1	205 21 43.70 336 17 10.89 38 55 04.18	Blackstock Hennen Richburg Azimuth mark, reference mark no. 3	4.1323276 4.1125023 3.9829746	13,562.12 12,956.93 9,615.56	44,495.1 42,509.5 31,547.0

GEOGRAPHIC POSITIONS

Charlotte, N. C., to Augusta, Ga., arc - Continued

STATION	LATITUDE AND LONGITUDE	SECONDS IN METERS	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE		
						LOGARITHM (METERS)	METERS	FEET
Principal points (cont'd)	° ′ ″		° ′ ″	° ′ ″				
Wade, 1934, r. 1935 (d.m.)	34 43 29.487		243 13 37.78	63 17 48.29	Hennen	4.0975155	12,517.44	41,067.6
	81 16 00.047		266 44 16.93	86 52 39.09	Richburg	4.3514001	22,459.50	73,685.9
			290 45 48.15	110 51 54.83	White	4.2440288	17,539.97	57,545.7
			330 08 53.24	150 12 49.72	Blackstock	4.3285189	21,306.83	69,904.2
			5 13 08.41	185 12 49.23	Wilkes	3.9747668	9,435.54	30,956.4
			11 22 21.0		Azimuth mark, reference mark no. 2			
Bagley, 1934 (d.m.)	34 38 29.347		3 42 31.79	183 42 18.45	Blackstock	3.9664491	9,256.55	30,369.2
	81 08 40.553		89 20 04.64	269 15 35.66	Wilkes	4.0810783	12,052.53	39,542.3
			129 36 52.84	309 32 42.75	Wade	4.1618332	14,515.54	47,623.1
			239 55 40.02	59 57 36.40	White	3.7797230	6,021.75	19,756.4
			309 58 41.3		Azimuth mark, reference mark no. 2			
Suber, 1934 (d.m.)	34 23 06.084		181 14 40.88	1 14 46.78	McLurkin	4.0884942	12,260.10	40,223.3
	81 24 41.541		247 59 56.39	68 03 52.70	Salem	4.0613810	11,518.10	37,789.0
			22 40 50.3		Azimuth mark, reference mark no. 2			
Mawer, 1934 (d.m.)	34 27 48.721		247 53 56.71	67 57 10.82	McLurkin	3.9750603	9,441.92	30,977.4
	81 30 13.992		282 52 19.75	102 59 24.33	Salem	4.2936393	19,662.52	64,509.5
			315 42 22.78	135 45 30.72	Suber	4.0849971	12,161.78	39,900.8
			104 59 27.6		Azimuth mark, reference mark no. 3			
Sondleys, 1934 (d.m.))	34 19 30.821		173 12 14.09	353 11 33.63	Mawer	4.1889425	15,450.50	50,690.5
	81 29 02.356		225 07 10.01	45 09 37.20	Suber	3.9732781	9,403.25	30,850.5
			233 11 25.3		Azimuth mark, reference mark no. 1			
Doolin, 1934, r. 1936 (d.m.)	34 23 39.394		226 31 01.35	46 34 00.52	Mawer	4.0471562	11,146.95	36,571.5
	81 35 30.885		273 32 33.83	93 38 40.60	Suber	4.2206394	16,620.32	54,528.5
			307 40 22.42	127 44 01.70	Sondleys	4.0986081	12,548.97	41,171.1
			22 21 57.6		Azimuth mark, reference mark no. 2			
Church, 1934 (d.m.)	34 15 03.819		173 09 38.70	353 08 56.60	Doolin	4.2045469	16,015.74	52,545.0
	81 34 16.220		224 16 19.52	44 19 16.33	Sondleys	4.0604878	11,494.44	37,711.5
			143 52 03.8		Astronomic azimuth mark, reference mark no. 4			
Ramage, 1934 (d.m.)	34 21 06.860		249 49 32.34	69 54 16.53	Doolin	4.1366696	13,698.39	44,942.1
	81 43 54.254		277 19 33.36	97 27 56.46	Sondleys	4.3615171	22,988.84	75,422.6
			307 04 19.27	127 09 45.02	Church	4.2680406	18,537.05	60,817.0
			276 31 15.9		Azimuth mark, reference mark no. 2			
Blease, 1934 (d.m.)	34 11 27.963		164 12 05.10	344 10 13.89	Ramage	4.2680814	18,538.79	60,822.7
	81 40 36.760		235 38 39.22	55 42 13.23	Church	4.0716811	11,794.54	38,695.9
			246 37 27.4		Azimuth mark, reference mark no. 4			
Brehmer, 1934 (d.m.)	34 17 09.843		227 17 31.62	47 20 26.24	Ramage	4.0323094	10,772.32	35,342.2
	81 49 03.986		279 37 59.15	99 46 19.02	Church	4.3624894	23,040.37	75,591.6
			309 01 14.61	129 05 59.99	Blease	4.2231580	16,716.99	54,845.7
			233 14 39		Azimuth mark, reference mark no. 2			
Chapman (U.S.C.S.), 1934, r. 1935 (d.m.)	34 07 08.445		174 32 36.42	354 31 57.52	Brehmer	4.2698567	18,614.73	61,071.8
	81 47 54.779		234 29 25.66	54 33 31.58	Blease	4.1391902	13,778.13	45,203.7
			74 08 18.1		Azimuth mark, reference mark no. 1			
Connelly, 1934, r. 1935 (d.m.)	34 14 10.130		238 30 09.62	58 33 28.69	Brehmer	4.0255919	10,606.98	34,799.7
	81 54 57.597		282 42 30.41	102 50 34.44	Blease	4.3540242	22,595.62	74,132.5
			320 09 33.82	140 13 31.34	Chapman (U.S.C.S.)	4.2282312	16,913.41	55,490.1
			169 32 37.0		Azimuth mark, reference mark no. 3			

GEOGRAPHIC POSITIONS

Charlotte, N. C., to Augusta, Ga., arc - Continued

STATION	LATITUDE AND LONGITUDE	SECONDS IN METERS	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE		
						LOGARITHM (METERS)	METERS	FEET
Principal points (cont'd)	° ′ ″		° ′ ″	° ′ ″				
Ninety-Six, 1934 (d.m.)	34 09 49.976		228 58 45.40	49 02 07.89	Connelly	4.0870697	12,219.96	40,091.7
	82 00 57.854		283 52 16.61	103 59 36.10	Chapman (U.S.G.S.)	4.3153577	20,670.82	67,817.5
			328 31 18.4		Azimuth mark, reference mark no. 2			
Wertz, 1934, r. 1935 (d.m.)	34 02 09.143		144 39 02.74	324 35 22.21	Ninety-Six	4.2409207	17,414.89	57,135.4
	81 54 24.488		177 48 56.40	357 48 37.82	Connelly	4.3469576	22,230.93	72,936.0
			227 15 54.20	47 19 32.56	Chapman (U.S.G.S.)	4.1334492	13,597.19	44,610.1
			327 40 19		Azimuth mark, reference mark no. 2			
Dorn, 1934 (d.m.)	34 06 38.642		239 59 12.17	60 02 55.98	Ninety-Six	4.0717710	11,796.98	38,703.9
	82 07 36.670		292 10 22.40	112 17 46.22	Wertz	4.3413156	21,943.99	71,994.6
			82 02 32.29	261 54 35.26	Parsons	4.3429841	22,028.46	72,271.7
			11 12 51		Azimuth mark, reference mark no. 2			
Self, 1934 (d.m.)	33 56 35.624		69 03 02.47	248 57 57.30	Williams	4.1774399	15,046.65	49,365.6
	82 02 20.355		117 27 36.36	297 16 43.42	Parsons	4.5279630	33,725.86	110,648.9
			156 25 48.78	336 22 51.78	Dorn	4.3069499	20,274.49	66,517.2
			184 56 04.46	4 56 50.67	Ninety-Six	4.3903380	24,566.20	80,597.6
			229 53 14.60	49 57 40.63	Wertz	4.2030738	15,961.50	52,367.0
			77 12 35.9		Azimuth mark, reference mark no. 2			
Supplementary points								
Rodgers (N.C.), 1934 (d.m.)	34 55 23.365		263 39 16.3	83 42 08.1	Mineral	3.884279	7,660.9	25,134
	80 46 26.437		13 01 38.0	193 01 18.0	Heath	3.595192	3,937.2	12,917
			145 07 12.5	325 04 32.2	State	4.093465	12,401.2	40,686
			304 15 13.4		Azimuth mark, reference mark no. 1			
Waxhaw, cotton mill, stack (N.C.), 1934 (n.d.)	34 55 28.950		86 46 14.7	266 45 06.1	Rodgers	3.483779	3,046.3	9,994
	80 44 26.608		154 50 17.5	334 47 41.9	Providence	4.198012	15,776.5	51,760
			261 37 58.0	81 39 41.2	Mineral	3.664822	4,621.9	15,164
Richardson (N.C.), 1934 (d.m.)	34 49 14.053		113 49 41.89	293 44 55.61	Roddy	4.1433667	13,911.27	45,640.6
	80 47 50.605		189 24 20.04	9 24 48.17	Heath	3.8835133	7,647.39	25,089.8
			10 58 51.8		Azimuth mark, reference mark no. 1			
Boundary monument (N.C.-S.C.), 1813, r. 1934 (d.m.)*	34 49 10.774		194 18 53	14 18 54	Richardson	2.018168	104.272	342.10
	80 47 51.619							
Lancaster, 1934 (d.m.)	34 43 10.026		138 33 58.47	318 28 24.49	Roddy	4.3514618	22,462.69	73,696.3
	80 46 26.375		169 11 47.55	349 10 59.52	Richardson	4.0576702	11,420.11	37,467.5
			177 17 12.96	357 16 52.98	Heath	4.2737659	18,783.04	61,624.0
			139 37 56		Azimuth mark, reference mark no. 3			
Lancaster, municipal tank, 1934 (n.d.)	34 43 12.318		72 36 20.7	252 36 15.6	Lancaster	2.373441	236.3	775
	80 46 17.513		138 01 10.5	317 55 31.5	Roddy	4.353339	22,560.0	74,016
			168 01 03.6	348 00 10.5	Richardson	4.056730	11,395.4	37,386
Lancaster, aluminum water tank, 1934 (n.d.)	34 42 13.510		139 36 29.2	319 30 34.1	Roddy	4.387391	24,400.1	80,053
	80 45 49.098		151 25 33.6	331 25 12.5	Lancaster	3.297340	1,983.1	6,506
			166 35 51.6	346 34 42.4	Richardson	4.124578	13,322.3	43,708
Fort Mill, silver water tank, 1934 (n.d.)	35 00 22.860		246 44 16.8	66 48 52.3	Providence	4.121811	13,237.7	43,431
	80 56 51.211		263 49 51.6	83 53 09.6	State	3.944466	8,799.7	28,870
			356 10 00.6	176 10 23.2	Roddy	4.177015	15,031.9	49,317

* No check on this position.

GEOGRAPHIC POSITIONS

Charlotte, N. C., to Augusta, Ga., arc - Continued

STATION	LATITUDE AND LONGITUDE	SECONDS IN METERS	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE		
						LOGARITHM (METERS)	METERS	FEET
	° ′ ″		° ′ ″	° ′ ″				
Supplementary points (cont'd)								
Fort Mill, standpipe, 1934 (n.d.)*	35 00 13.22 80 56 36.27		357 33 51 126 41 52	177 34 05 306 41 43	Roddy Fort Mill	4.167751 2.681295	14,714.7 480.1	48,276 1,575
Rock Hill, Rock Hill Printing and Finishing Co., chimney, 1934 (n.d.)	34 56 02.151 81 01 51.415		199 20 48.7 223 27 25.3 308 53 21.7	19 20 54.6 43 30 17.2 128 56 36.1	Winthrop Fort Mill Roddy	2.894407 4.043684 4.044796	784.2 11,058.2 11,086.5	2,573 36,280 36,373
Rock Hill, Highland Park Cotton Mills, water tank, 1934 (n.d.)*	34 55 14.42 81 00 35.18		142 51 20 210 51 10	322 50 43 30 53 19	Winthrop Fort Mill	3.443044 4.043829	2,773.6 11,061.9	9,100 36,292
Winthrop College, main building, belfry, tip, 1934 (n.d.)	34 56 17.970 81 01 47.214		211 16 51.2 311 08 58.2 30 04 28.7	31 16 54.7 131 12 10.2 210 02 19.6	Winthrop Roddy Moore	2.470350 4.053791 4.058340	295.4 11,318.6 11,437.7	969 37,134 37,525
Kee, 1934 (d.m.)	34 45 01.111 81 04 29.887		7 22 00.59 80 55 08.95 113 47 49.03 171 41 50.97 236 50 28.51 247 43 05.9	187 21 34.41 260 48 35.69 293 45 26.11 351 41 15.05 56 55 00.67	White Wade Hennen Moore O'Niel Azimuth mark, reference mark no. 1	3.9605326 4.2499958 3.8429624 4.0443078 4.1608140	9,131.30 17,782.62 6,965.66 11,074.08 14,481.52	29,958.3 58,341.8 22,853.2 36,332.2 47,511.5
Frazier, 1934 (d.m.)	34 49 32.414 81 05 30.116		271 50 02.48 349 36 57.74 41 05 59.41 53 43 06.3	91 55 09.29 169 37 32.10 221 04 10.73	O'Niel Kee Hennen Azimuth mark, reference mark no. 3	4.1354804 3.9293811 3.8672110	13,660.93 8,499.25 7,365.65	44,819.2 27,884.7 24,165.5

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Brainerd, 1934, r. 1935 (d.m.)	34 42 27.902 81 11 56.988		107 04 38.3 213 33 22.7 292 58 23.1 202 18 25.1	287 02 19.9 33 35 14.7 113 02 11.4	Wade Hennen White Azimuth mark, reference mark no. 1	3.810863 3.956020 4.045018	6,469.4 9,036.9 11,092.2	21,225 29,649 36,392
Chester, municipal water tank, 1934 (n.d.)	34 42 23.042 81 12 02.399		108 43 26.5 213 45 14.0 222 36 16.2	288 41 11.1 33 47 09.0 42 36 19.2	Wade Hennen Brainerd	3.805117 3.965571 2.308385	6,384.4 9,237.9 203.4	20,946 30,308 667
Chester, cotton mills, stack, 1934 (n.d.)	34 43 07.578 81 11 51.977		96 07 29.6 217 39 22.1 298 50 02.5	276 05 08.3 37 41 11.2 118 53 48.0	Wade Hennen White	3.802628 3.901347 4.061157	6,347.9 7,968.0 11,512.2	20,826 26,142 37,770
Chester, black water tank, 1934 (n.d.)*	34 42 53.97 81 11 35.14		34 41 14 99 14 38	214 41 01 279 12 07	Brainerd Wade	2.989839 3.834334	976.9 6,828.6	3,205 22,403
Chester, standpipe, 1934 (n.d.)*	34 42 04.74 81 13 01.60		246 32 00 286 56 57	66 32 37 107 01 22	Brainerd White	3.253438 4.093276	1,792.4 12,395.8	5,881 40,669
Poag, 1934 (d.m.)	34 38 46.634 81 11 27.239		277 08 20.25 339 30 33.56 85 02 31.23 148 29 13.7	97 09 55.01 159 31 54.88 264 59 36.99	Bagley Blackstock Wilkes Azimuth mark, reference mark no. 2	3.6312832 4.0182424 3.8940790	4,278.42 10,428.99 7,835.72	14,036.8 34,215.8 25,707.7
Whitmire, standpipe, 1934 (n.d.)*	34 30 07.79 81 37 12.77		291 49 05 347 42 54	111 53 02 167 43 52	Mawer Doolin	4.061195 4.087497	11,513.2 12,232.0	37,773 40,131
Newberry, Oakland Cotton Mill, stack, 1934 (n.d.)*	34 17 38.81 81 37 36.99		123 38 24 255 15 46	303 34 51 75 20 36	Ramage Sondleys	4.063748 4.133669	11,581.1 13,604.1	37,996 44,633
Unity, 1934 (d.m.)	34 19 26.095 81 34 27.578		268 58 16.46 357 56 25.47 102 08 33.51 119 02 49.3	89 01 19.84 177 56 31.87 282 03 13.86	Sondleys Church Ramage Azimuth mark, reference mark no. 2	3.9198930 3.9077645 4.1706663	8,315.59 8,086.57 14,813.80	27,282.1 26,530.7 48,601.6

* No check on this position.

GEOGRAPHIC POSITIONS

Charlotte, N. C., to Augusta, Ga., arc - Continued

STATION	LATITUDE AND LONGITUDE	SECONDS IN METERS	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE		
						LOGARITHM (METERS)	METERS	FEET
	° ′ ″		° ′ ″	° ′ ″				
Supplementary points (cont'd)								
Newberry, 1934 (d.m.)	34 17 02.921		224 32 53.41	44 34 29.16	Unity	3.7918088	6,191.68	20,313.9
	81 37 17.478		308 20 40.30	128 22 22.36	Church	3.7718415	5,913.46	19,401.1
			126 34 02.23	306 30 18.53	Ramage	4.1012496	12,625.53	41,422.3
			268 53 10.7		Azimuth mark, reference mark no. 1			
Newberry, magnetic station, 1934 (d.m.)*	34 17 01.78		154 28	334 28	Newberry	1.591176	39.01	128.0
	81 37 16.82							
Smyrna, 1934 (d.m.)	34 16 17.958		290 33 33.13	100 38 01.81	Church	4.0942081	12,422.47	40,756.1
	81 42 13.493		344 30 21.64	164 31 16.05	Blease	3.9671727	9,271.99	30,419.9
			98 41 21.21	278 37 30.01	Brehmer	4.0261632	10,620.95	34,845.6
			170 55 02		Azimuth mark, reference mark no. 3			
Newberry, Oakland Plant, Kendall Mills, silver tank, 1934 (n.d.)	34 17 35.298		312 37 16.2	132 39 07.8	Church	3.838264	6,890.7	22,607
	81 37 34.386		336 33 49.8	156 33 59.3	Newberry	3.036349	1,087.3	3,567
			71 33 45.5	251 31 08.3	Smyrna	3.876575	7,526.2	24,692
Newberry, municipal standpipe, aluminum, 1934 (n.d.)	34 16 19.215		299 07 23.1	119 08 54.8	Church	3.678649	4,771.4	15,654
	81 36 59.122		31 50 08.9	211 48 36.5	Blease	4.023754	10,562.2	34,653
			89 44 55.1	269 41 58.1	Smyrna	3.905365	8,042.0	26,384
Goldville, largest of three tanks, highest, 1934 (n.d.)*	34 24 51.00		326 54 00	146 57 48	Smyrna	4.275630	18,863.8	61,889
	81 48 56.20		0 48 12	180 48 08	Brehmer	4.152626	14,211.0	46,624
Ninety-Six, municipal water tank, 1934 (n.d.)*	34 10 04.34		231 07 02	51 10 28	Connelly	4.081787	12,072.2	39,607
	82 01 04.80		338 05 28	158 05 32	Ninety-Six	2.678411	476.9	1,565
Ninety-Six, Self Cotton Mills, brick stack, 1934 (n.d.)*	34 10 14.20		230 56 11	50 59 28	Connelly	4.062281	11,542.0	37,867
	82 00 47.78		19 04 16	199 04 10	Ninety-Six	2.897567	789.9	2,592
Sandridge, 1934 (d.m.)	34 03 38.123		117 38 30.96	297 34 38.48	Dorn	4.0792331	12,001.43	39,374.7
	82 00 41.852		177 57 04.36	357 56 55.39	Ninety-Six	4.0593614	11,464.66	37,613.6
			285 47 08.59	105 50 39.87	Wertz	4.0025814	10,059.62	33,003.9
			75 19 40.4		Azimuth mark, reference mark no. 2			
Bailey, 1934 (d.m.)	34 10 36.554		276 17 47.41	96 22 30.85	Ninety-Six	4.1140929	13,004.48	42,665.5
	82 09 22.509		313 58 32.08	134 03 24.12	Sandridge	4.2684376	18,554.00	60,872.6
			339 41 31.80	159 42 31.20	Dorn	3.8929781	7,815.88	25,642.6
			338 39 56.1		Azimuth mark, reference mark no. 3			
Greenwood, Matthews Cotton Mills, large brick stack, 1934 (n.d.)	34 09 54.814		147 18 00.5	327 17 42.4	Bailey	3.184220	1,528.3	5,014
	82 08 50.268		270 40 08.0	90 44 33.3	Ninety-Six	4.082823	12,101.0	39,701
			312 47 55.4	132 52 29.4	Sandridge	4.232244	17,070.4	56,005
Greenwood, Panola Cotton Mills, slender stack, 1934 (n.d.)	34 10 07.688		135 30 32.3	315 30 13.1	Bailey	3.095809	1,246.8	4,091
	82 08 48.390		272 33 21.6	92 37 45.8	Ninety-Six	4.081496	12,064.1	39,580
			313 52 15.1	133 56 48.0	Sandridge	4.238238	17,307.6	56,783

* No check on this position.

GEOGRAPHIC POSITIONS

Chappells to Charleston arc

STATION	LATITUDE AND LONGITUDE	SECONDS IN METERS	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE		
						LOGARITHM (METERS)	METERS	FEET
	° ′ ″		° ′ ″	° ′ ″				
Principal points								
Wheeler, 1935 (d.m.)	33 56 07.669 81 48 01.968		138 37 53.2 180 31 06.5 186 15 43.2	318 34 19.3 0 31 10.5	Wertz Chapman Azimuth mark	4.171644 4.308778	14,847.2 20,360.0	48,711 66,798
Transit traverse station no. 11 R (U.S.G.S.) eccentric, 1935 (d.m.)	34 00 19.945 81 38 52.573		61 10 59.4 98 04 56.1 132 11 37.2 94 27 50	241 05 52.4 277 56 14.6 312 06 33.5	Wheeler Wertz Chapman Azimuth mark	4.206934 4.382836 4.273118	16,104.0 24,145.5 18,755.0	52,835 79,217 61,532
Watson, 1935 (d.m.)	33 50 50.718 81 38 15.523		122 59 24.9 176 53 49.1 270 02 10.5	302 53 57.9 356 53 28.4	Wheeler Transit traverse station no. 11 R (U.S.G.S.)eccentric Azimuth mark	4.254224 4.244623	17,956.6 17,564.0	58,913 57,625
L X 1002 (S.C.Geod.S.) eccentric, 1935 (d.m.)	33 54 39.464 81 30 40.986		58 55 52.2 95 53 02.8 129 46 09.7 187 33 51.4	238 51 38.8 275 43 21.8 309 41 35.1	Watson Wheeler Transit traverse station no. 11 R (U.S.G.S.)eccentric Azimuth mark	4.134900 4.429373 4.215166	13,642.7 26,876.5 16,412.2	44,759 88,177 53,846
Supplementary points								
Bird, 1935 (d.m.)	34 11 15.436 81 24 24.606		17 29 30.4 47 50 11.9 119 39 39.2	197 25 59.6 227 42 05.3	L X 1002(S.C.Geod.S.) eccentric Transit traverse station no. 11 R (U.S.G.S.)eccentric Azimuth mark,N 519 (S.C.Geod.S.)	4.507445 4.477828	32,169.6 30,048.9	105,543 98,585
S 404 (S.C.Geod.S.) eccentric, 1935 (d.m.)	34 00 44.542 81 47 39.704		104 07 17.5 178 07 45.5 273 09 57.4 112 59 11.8	284 03 31.0 358 07 37.1 93 14 52.3	Wertz Chapman Transit traverse station no. 11 R (U.S.G.S.)eccentric Azimuth mark, S 405 (S.C.Geod.S.)	4.029675 4.073162 4.131861	10,707.2 11,834.8 13,547.6	35,129 38,828 44,447
S 404 (S.C.Geod.S.), 1935 (d.m.)*	34 00 45.136 81 47 39.509		15 15	195 15	S 404 (S.C.Geod.S.) eccentric	1.278342	18.982	62.28
Saluda, water tank, 1935 (n.d.)*	34 00 08.42 81 46 27.95		268 13 28 18 01 54	88 17 43 198 01 02	Transit traverse station no. 11 R (U.S.G.S.)eccentric Wheeler	4.067858 3.892129	11,691.2 7,800.6	38,357 25,592
Transit traverse station no. 11 R (U.S.G.S.), 1935 (d.m.)*	34 00 18.937 81 38 52.047		156 31	336 31	Transit traverse station no. 11 R (U.S.G.S.)eccentric	1.529623	33.855	111.07

* No check on this position.

GEOGRAPHIC POSITIONS

Osceola to Bucksport arc

STATION	LATITUDE AND LONGITUDE	SECONDS IN METERS	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE		
						LOGARITHM (METERS)	METERS	FEET
Principal points	° ′ ″		° ′ ″	° ′ ″				
Parker, 1935 (d.m.)	34 46 25.081		132 05 46.8	312 00 29.0	Heath	4.279606	19,037.3	62,458
	80 37 45.085		162 08 16.4	342 06 09.9	Mineral	4.262816	18,315.4	60,090
			173 05 26.7		Azimuth mark			
Altan (N.C.), 1935 (d.m.)	34 52 50.175		36 55 58.6	216 52 38.3	Parker	4.171441	14,840.2	48,688
	80 31 54.402		92 16 17.9	272 07 39.1	Heath	4.362651	23,048.9	75,620
			111 00 33.1	290 55 05.7	Mineral	4.191784	15,551.9	51,023
			77 40 08.4		Azimuth mark			
Page, 1935 (d.m.)	34 46 02.373		92 03 05.6	271 55 33.6	Parker	4.304561	20,163.3	66,152
	80 24 32.639		138 15 31.5	318 11 19.2	Altan	4.226618	16,850.7	55,284
			252 58 21.1		Azimuth mark, C F 108 (S.C.Geod.S.)			
Taxahaw, 1935 (d.m.)	34 41 26.459		131 23 23.4	311 19 29.3	Parker	4.143838	13,926.4	45,690
	80 30 54.202		175 50 59.1	355 50 24.8	Altan	4.324779	21,124.1	69,305
			228 45 25.8	48 49 03.2	Page	4.110739	12,904.4	42,337
			262 44 39		Azimuth mark			
Presley, 1935 (d.m.)	34 37 51.298		114 14 27.8	294 08 58.2	Taxahaw	4.208892	16,176.8	53,073
	80 21 14.697		161 36 07.4	341 34 14.7	Page	4.202726	15,948.7	52,325
			212 57 10.6		Azimuth mark			
Holley, 1935 (d.m.)	34 35 00.209		167 40 36.5	347 39 38.4	Taxahaw	4.085755	12,183.0	39,970
	80 29 12.048		199 11 50.6	19 14 29.5	Page	4.334624	21,608.5	70,894
			246 31 38.8	66 36 09.9	Presley	4.122408	13,255.9	43,490
			324 01 41.9		Azimuth mark			
Supplementary points								
Transit traverse station no. 1 B (U.S.G.S.) (N.C.-S.C.), 1934, r. 1935 (d.m.)	34 49 05.086		3 41 36.5	183 41 29.3	Parker	3.693799	4,940.8	16,210
	80 37 32.568		154 36 13.2	334 33 59.4	Mineral	4.141124	13,839.6	45,405
			231 03 24.5	51 06 37.7	Altan	4.043031	11,041.6	36,226
			17 16 23.4		Azimuth mark			
Kershaw, municipal water tank, 1935 (n.d.)*	34 32 37.14		203 12 57	23 15 33	Taxahaw	4.249209	17,750.4	58,236
	80 35 29.10		245 19 55	65 23 29	Holley	4.024269	10,574.7	34,694

* No check on this position.

GEOGRAPHIC POSITIONS

Gastonia, N. C., to Lowndesville, S. C., arc

STATION	LATITUDE AND LONGITUDE	SECONDS IN METERS	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE		
						LOGARITHM (METERS)	METERS	FEET
	° ′ ″		° ′ ″	° ′ ″				
Principal points								
King eccentric (N.C.), 1933, r. 1935 (d.m.)	35 12 27.506 81 18 45.850		81 06 44.9		Azimuth mark, reference mark no. 2			
Jackson (N.C.), 1935, r.1937 (d.m.)	35 12 22.237 81 10 17.029		90 45 48.8 73 07 28.6	270 40 55.5	King eccentric Azimuth mark	4.109624	12,871.3	42,229
Clover, 1935 (d.m.)	35 06 32.901 81 13 58.258		146 21 22.0 207 27 42.4 253 14 30	326 18 36.4 27 29 49.8	King eccentric Jackson Azimuth mark	4.118266 4.084021	13,130.0 12,134.5	43,077 39,811
Smyrna, 1935 (d.m.)	35 02 34.026 81 24 18.879		204 43 31.8 244 51 46.0 346 07 06.1	24 46 43.4 64 57 42.6	King eccentric Clover Azimuth mark	4.304044 4.239581	20,139.3 17,361.3	66,074 56,960
Whitaker, 1935 (d.m.)	35 08 13.212 81 30 10.518		245 36 26.8 277 04 45.6 319 32 07.6 344 44 55.5	65 43 01.2 97 14 05.0 139 35 29.3	King eccentric Clover Smyrna Azimuth mark (S.C.Geod.S.)	4.279107 4.394650 4.137764	19,015.5 24,811.3 13,733.0	62,387 81,402 45,056
Worth, 1935 (d.m.)	34 57 19.812 81 28 35.542		46 40 14.8 78 39 54.7 173 11 25.6 213 53 16.4 252 53 52.5	226 34 23.4 258 28 17.5 353 10 31.1 33 55 43.7	Fowler Tinsley Whitaker Smyrna Azimuth mark	4.327974 4.498781 4.307040 4.066960	21,280.1 31,534.1 20,278.7 11,667.0	69,816 103,458 66,531 38,277
Lloyd, 1935 (d.m.)	35 03 13.955 81 37 56.459		231 57 30.2 273 19 59.8 307 27 14.2 2 44 52.0 44 12 11.9 33 32 57.3	52 01 58.1 93 27 49.4 127 32 36.0 182 44 24.4 224 05 55.4	Whitaker Smyrna Worth Fowler Tinsley Azimuth mark (S.C.Geod.S.)	4.175442 4.317161 4.253522 4.407524 4.378775	14,977.6 20,756.8 17,927.6 25,557.8 23,920.8	49,139 68,100 58,817 83,851 78,480
Liberty, 1935 (d.m.)	34 40 33.588 81 55 34.854		126 25 19.5 192 08 03.0 244 06 51.6 183 30 56.5	306 21 08.3 12 09 33.4 64 11 00.6	S P 700 (S.C.Geod.S.) Bagwell Harrison Azimuth mark	4.144318 4.282372 4.092243	13,941.8 19,159.0 12,366.4	45,741 62,857 40,572
Fountain, 1935 (d.m.)	34 41 37.958 82 12 43.158		247 07 57.8 274 15 07.7 113 07 32.9	67 13 32.3 94 24 52.9	S P 700 (S.C.Geod.S.) Liberty Azimuth mark	4.209799 4.419141	16,210.6 26,250.7	53,184 86,124
Little Knob, 1935 (d.m.)	34 34 35.411 82 04 26.665		135 52 30.4 186 49 01.9 230 47 16.0 44 42 49.8	315 47 48.2 6 49 53.5 50 52 18.2	Fountain S P 700 (S.C.Geod.S.) Liberty Azimuth mark	4.258894 4.288818 4.242386	18,150.7 19,445.5 17,473.7	59,549 63,797 57,328
Sims, 1935 (d.m.)	34 35 37.967 82 18 25.662		218 09 09.7 275 05 06.0 278 46 54.6	38 12 24.4 95 13 02.2	Fountain Little Knob Azimuth mark	4.149577 4.331815	14,111.6 21,469.2	46,298 70,437
Stony, 1935 (d.m.)	34 31 14.711 82 11 35.273		127 49 11.0 174 51 32.6 240 27 37.8 293 48 47.8	307 45 18.2 354 50 54.0 60 31 40.8	Sims Fountain Little Knob Azimuth mark	4.121851 4.285162 4.098876	13,238.9 19,282.4 12,556.7	43,435 63,262 41,196
Black, 1935 (d.m.)	34 30 04.735 82 23 01.852		214 25 17.4 262 55 38.1 210 30 42.5	34 27 54.0 83 02 07.1	Sims Stony Azimuth mark	4.095201 4.246640	12,450.9 17,645.7	40,849 57,893
Kirk, 1935 (d.m.)	34 25 20.427 82 16 54.952		133 07 11.9 173 04 25.9 216 44 48.3 319 32 51.5	313 03 44.3 353 03 34.5 36 47 49.2	Black Sims Stony Azimuth mark	4.108003 4.282593 4.134443	12,823.4 19,168.7 13,628.3	42,071 62,889 44,712

GEOGRAPHIC POSITIONS

Gastonia, N. C., to Lowndesville, S. C., arc - Continued

STATION	LATITUDE AND LONGITUDE	SECONDS IN METERS	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE		
						LOGARITHM (METERS)	METERS	FEET
Principal points (cont'd)	° ′ ″		° ′ ″	° ′ ″				
Honea Path, 1935 (d.m.)	34 26 51.817 82 23 37.189		188 37 23.8 285 18 07.5 142 55 59	8 37 43.8 105 21 54.9	Black Kirk Azimuth mark	3.779054 4.027300	6,012.5 10,648.8	19,726 34,937
Donalds, 1935 (d.m.)	34 22 36.722 82 20 50.822		151 37 12.5 166 23 19.0 230 02 35.1 321 30 06.3	331 35 38.5 346 22 04.9 50 04 48.3	Honea Path Black Kirk Azimuth mark	3.951097 4.152418 3.895286	8,935.0 14,204.2 7,857.5	29,314 46,602 25,779
Transit traverse station no. 35 P (U.S.G.S.), 1935 (d.m.)	34 26 08.684 82 28 57.939		231 17 58.4 260 45 20.7 297 39 35.3 91 47 26.1 10 10 54.0	51 21 19.9 80 48 22.1 117 44 10.5 271 40 05.9	Black Honea Path Donalds Little Mountain Azimuth mark	4.065957 3.918855 4.147714 4.298433	11,640.1 8,295.7 14,051.2 19,880.8	38,139 27,217 46,100 65,226
Erskine, 1935 (d.m.)	34 20 01.429 82 23 18.659		142 34 35.9 177 51 27.7 218 16 55.0 313 02 06.9	322 31 24.3 357 51 17.2 38 18 18.4	Transit traverse station no. 35 P (U.S.G.S.) Honea Path Donalds Azimuth mark	4.153942 4.102231 3.785096	14,254.2 12,654.1 6,096.7	46,766 41,516 20,002
Transit traverse station no. 37 P (U.S.G.S.), 1935 (d.m.)	34 21 44.162 82 31 13.813		49 53 47.4 118 07 10.0 203 03 12.7 284 34 20.6 295 48 43.3	229 48 15.1 298 01 07.0 23 04 29.5 104 38 48.7	Beulah Little Mountain Transit traverse station no. 35 P (U.S.G.S.) Erskine Azimuth mark	4.295057 4.269451 3.947377 4.098634	19,726.8 18,597.3 8,858.8 12,549.7	64,720 61,015 29,064 41,173

Nance, 1935 (d.m.)	34 14 58.902 82 33 12.124		88 55 56.1 147 47 48.2 193 36 34.6	268 51 30.9 327 42 52.5 13 37 41.3	Beulah Little Mountain Transit traverse station no. 37 P (U.S.G.S.)	4.081470 4.399850 4.108845	12,063.4 25,110.2 12,848.3	39,578 82,382 42,153
			197 27 15.5	17 29 38.9	Transit traverse station no. 35 P (U.S.G.S.)	4.335181	21,636.2	70,985
			238 23 49.6 94 40 57.2	58 29 24.0	Erskine Azimuth mark	4.250707	17,811.8	58,438
Supplementary points								
Kings Mountain, airway beacon (200 mile blinker, Atlanta to New York) (N.C.), 1935 (n.d.)	35 12 27.366 81 18 45.798		326 18 16.0 24 47 14.3 65 43 50.0	146 21 01.6 204 44 02.7 245 37 15.6	Clover Smyrna Whitaker	4.118122 4.303972 4.279094	13,125.7 20,135.9 19,014.9	43,063 66,063 62,385
Flagpole at King (N.C.), 1933, r. 1935 (d.)*	35 12 27.480 81 18 45.849		179 04	359 04	King eccentric	9.907411	0.808	2.65
Caroline (N.C.), 1935 (d.m.)	35 09 31.049 81 12 31.790		119 54 35.4 212 51 54.7 335 23 33.4	299 50 59.9 32 53 12.3	King eccentric Jackson Azimuth mark	4.038037 3.798061	10,915.3 6,281.5	35,811 20,609
Kings Mountain, battle monument, tip, 1935 (n.d.)	35 08 32.626 81 22 50.924		11 24 19.1 86 57 28.3 220 34 07.1 285 15 25.4	191 23 28.6 266 53 15.3 40 36 28.3 105 20 31.9	Smyrna Whitaker King eccentric Clover	4.052044 4.047061 3.979164 4.145582	11,273.1 11,144.5 9,531.6 13,982.4	36,985 36,563 31,272 45,874
C K 19 (S.C.Geod.S.) eccentric, 1935 (d.m.)	35 10 03.914 81 27 03.255		250 35 13.2 293 45 09.3 54 16 15.1 12 41 02.1	70 39 59.8 113 47 34.6 234 14 27.3	King eccentric Kings Mountain, battle monument, tip Whitaker Azimuth mark, C K 18 (S.C.Geod.S.)	4.125151 3.843779 3.766407	13,339.9 6,978.8 5,839.9	43,766 22,896 19,160

* No check on this position.

GEOGRAPHIC POSITIONS

Gastonia, N. C., to Lowndesville, S. C., arc - Continued

STATION	LATITUDE AND LONGITUDE	SECONDS IN METERS	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE		
						LOGARITHM (METERS)	METERS	FEET
	° ′ ″		° ′ ″	° ′ ″				
Supplementary points (cont'd)								
C K 19 (S.C.Geod.S.), 1935 (d.m.)*	35 10 05.071 81 27 02.642		23 30	203 30	C K 19 (S.C.Geod.S.) eccentric	1.589659	38.874	127.54
Orphan, 1935 (d.m.)	35 00 30.096 81 14 28.523		74 48 03.6 104 21 45.0 183 55 17.9 16 13 18.7	254 39 57.9 284 16 06.2 3 55 35.3	Worth Smyrna Clover Azimuth mark	4.347713 4.188800 4.049473	22,269.6 15,445.4 11,206.6	73,063 50,674 36,767
Thicketty 2, 1935 (d.m.)	35 06 47.655 81 46 08.448		263 43 10.3 297 48 43.4 9 59 51.3 186 03 53.5	83 52 21.5 117 53 26.2 189 58 16.8	Whitaker Lloyd Tinsley Azimuth mark	4.387344 4.149103 4.382269	24,397.4 14,096.2 24,114.0	80,044 46,247 79,114
Clover, municipal water tank, 1935 (n.d.)	35 06 33.137 81 13 54.874		65 03 35.3 85 08 11.4 207 07 04.4	244 57 36.7 265 08 09.4 27 09 09.8	Smyrna Clover Jackson	4.241596 1.934498 4.082380	17,442.0 86.0 12,088.7	57,224 282 39,661
York, church spire, 1935 (n.d.)*	34 59 40.10 81 14 34.60		184 08 17 165 42 40	4 08 38 5 42 44	Clover Orphan	4.105655 3.189863	12,754.3 1,548.3	41,845 5,080
York, water tank, 1935 (n.d.)	34 59 59.687 81 14 51.086		108 19 45.4 186 18 01.2 211 24 19.4	288 14 19.6 6 18 31.6 31 24 32.4	Smyrna Clover Orphan	4.180698 4.086043 3.040572	15,160.0 12,191.1 1,097.9	49,737 39,997 3,602
Airway beacon no. 18, flashing green, (Atlanta to New York), 1935 (n.d.)	35 07 16.181 81 29 21.508		318 34 21.5 356 22 07.7 60 15 40.3	138 37 15.5 176 22 34.1 240 10 44.3	Smyrna Worth Lloyd	4.064166 4.265165 4.176935	11,592.2 18,414.7 15,029.2	38,032 60,416 49,308
Airway beacon (188 mile, red blinker, Atlanta to New York), 1935 (n.d.)*	35 08 13.14 81 30 10.82		253 37	73 37	Whitaker	0.893595	7.827	25.68
Airway beacon no. 17 (Atlanta to New York), 1935 (n.d.)	35 05 29.193 81 39 47.960		282 50 26.7 325 51 34.0 33 00 08.1	102 59 20.5 145 52 38.0 212 54 55.3	Smyrna Lloyd Tinsley	4.382948 3.701979 4.405214	24,151.7 5,034.8 25,422.3	79,238 16,518 83,406
Gaffney, municipal water tank, 1935 (n.d.)	35 04 09.334 81 38 35.343		309 38 21.1 329 59 48.8 39 45 50.2	129 44 05.2 150 00 11.1 219 39 55.9	Worth Lloyd Tinsley	4.295830 3.294595 4.389710	19,762.0 1,970.6 24,530.7	64,836 6,465 80,481
Airway Beacon no. 16 (Atlanta to New York), 1935 (n.d.)	35 00 17.492 81 47 55.379		250 14 45.8 325 07 30.0 7 09 10.1	70 20 29.5 145 12 45.2 187 08 36.9	Lloyd Fowler Tinsley	4.207546 4.368736 4.072517	16,126.7 24,475.8 11,817.3	52,909 80,301 38,771
Spartanburg, new municipal water tank, 1935 (n.d.)	34 56 54.254 81 55 47.360		339 16 58.2 26 25 02.5 157 22 09.0	159 18 36.1 206 20 57.6 337 21 58.0	Begwell S P 700 (S.C.Geod.S.) Wofford eccentric	4.089284 4.389173 3.105072	12,282.4 24,500.4 1,273.7	40,297 80,382 4,179
G 7 23 (S.C.Geod.S.), 1935 (d.m.)*	34 56 28.111 82 24 40.347		180 02	0 02	Paris	1.362200	23.025	75.54
Woodruff, Mills Mill, water tank, taller of two, 1935 (n.d.)	34 44 18.139 82 02 38.760		8 42 29.9 72 15 14.5 162 06 18.5	188 41 28.6 252 09 30.3 342 06 08.8	Little Knob Fountain S P 700 (S.C.Geod.S.)	4.259242 4.208225 3.152316	18,165.3 16,152.0 1,420.1	59,597 52,992 4,659
Woodruff, Mills Mill, water tank, shorter of two, 1935 (n.d.)	34 44 18.376 82 02 46.827		8 03 46.5 72 00 11.7 170 14 28.4	188 02 49.8 251 54 32.1 350 14 23.3	Little Knob Fountain S P 700 (S.C.Geod.S.)	4.258699 4.203003 3.134759	18,142.6 15,958.9 1,363.8	59,523 52,358 4,474
Woodruff, municipal water tank, 1935 (n.d.)	34 44 18.921 82 02 09.262		304 38 38.0 11 01 20.4 138 12 13.0	124 42 22.6 191 00 02.3 318 11 46.4	Liberty Little Knob S P 700 (S.C.Geod.S.)	4.086527 4.262870 3.250534	12,204.7 18,317.7 1,780.5	40,042 60,097 5,842
Woodruff, Brandon Mills, stack, 1935 (n.d.)	34 44 48.371 82 02 10.002		307 57 02.4 70 02 17.0 109 46 30.8	128 00 47.4 249 56 16.3 289 46 04.6	Liberty Fountain S P 700 (S.C.Geod.S.)	4.105759 4.234150 3.093776	12,757.3 17,145.5 1,241.0	41,855 56,252 4,072

* No check on this position.

GEOGRAPHIC POSITIONS

Gastonia, N. C., to Lowndesville, S. C., arc - Continued

STATION	LATITUDE AND LONGITUDE	SECONDS IN METERS	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE		
						LOGARITHM (METERS)	METERS	FEET
Supplementary points (cont'd)	° ′ ″		° ′ ″	° ′ ″				
Woodruff, Brandon Mills, tank, 1935 (n.d.)	34 44 50.264 82 02 07.571		308 19 43.6 69 55 34.6 106 23 04.6	128 23 27.2 249 49 32.5 286 22 37.0	Liberty Fountain S P 700 (S.C.Geod.S.)	4.105329 4.236122 3.107787	12,744.7 17,223.5 1,281.7	41,813 56,507 4,205
Fountain Inn, municipal water tank, 1935 (n.d.)	34 41 51.856 82 12 28.612		317 34 26.7 38 18 37.9 40 50 24.4	137 39 00.6 218 15 14.9 220 50 16.1	Little Knob Sims Fountain	4.260272 4.166643 2.752919	18,208.4 14,677.2 566.1	59,739 48,153 1,857
L R 121 (S.C.Geod.S.), eccentric, 1935 (d.m.)	34 29 58.593 82 04 28.178		102 10 59.1 180 15 32.8 140 04 50.6	282 06 57.1 0 15 33.6	Stony Little Knob Azimuth mark, L R 120 (S.C.Geod.S.)	4.047049 3.930941	11,144.2 8,529.8	36,562 27,985
L R 121 (S.C.Geod.S.), 1935 (d.m.)*	34 29 57.993 82 04 27.706		146 55	326 55	L R 121 (S.C.Geod.S.) eccentric	1.343487	22.054	72.36
Laurens, 1935 (d.m.)	34 29 58.019 82 00 52.226		90 12 03.3 147 24 28.4 105 55 53.9	270 10 01.0 327 22 26.8	L R 121 (S.C.Geod.S.) eccentric Little Knob Azimuth mark	3.741101 4.006335	5,509.4 10,146.9	18,075 33,290
Laurens, municipal standpipe, 1935 (n.d.)	34 29 47.419 82 01 31.003		94 22 11.9 153 13 48.3 251 43 32.1	274 20 31.6 333 12 08.8 71 43 54.1	L R 121 (S.C.Geod.S.) eccentric Little Knob Laurens	3.656407 3.997411 3.017799	4,533.2 9,940.6 1,041.8	14,873 32,613 3,418
Laurens, Watts Mills, stack, 1935 (n.d.)	34 31 00.928 81 59 47.734		40 19 35.0 74 59 34.9 132 55 20.0	220 18 58.4 254 56 56.0 312 52 41.8	Laurens L R 121 (S.C.Geod.S.) eccentric Little Knob	3.405259 3.869661 3.987164	2,542.5 7,407.3 9,708.8	8,342 24,302 31,853
Laurens, Laurens Mills, stack, 1935 (n.d.)*	34 30 08.88 82 00 18.64		68 39 36 142 25 11	248 39 16 322 22 50	Laurens Little Knob	2.963747 4.015598	919.9 10,365.7	3,018 34,008
Laurens, Laurens Mills, water tank, 1935 (n.d.)*	34 30 11.78 81 59 51.33		74 44 18 139 11 08	254 43 43 319 08 32	Laurens Little Knob	3.206916 4.030883	1,610.3 10,737.0	5,283 35,226
Laurens, Watts Mills, water tank, 1935 (n.d.)*	34 31 03.06 81 59 51.04		37 55 07 91 12 02	217 54 32 271 05 23	Laurens Stony	3.404871 4.254446	2,540.2 17,965.8	8,334 58,943
G V-376 (S.C.Geod.S.) eccentric, 1935 (d.m.)	34 38 00.013 82 23 29.892		247 45 41.5 299 25 47.1 336 41 05.9 357 12 13.2 199 43 10.3	67 51 49.3 119 28 39.9 156 44 49.7 177 12 29.1	Fountain Sims Kirk Black Azimuth mark, G V 375 (S.C.Geod.S.)	4.250026 3.949457 4.406212 4.166209	17,783.9 8,901.4 25,480.7 14,662.5	58,346 29,204 83,598 48,105
G V 376 (S.C.Geod.S.), 1935 (d.m.)*	34 38 00.141 82 23 29.576		63 57	243 57	G V 376 (S.C.Geod.S.) eccentric	0.952550	8.965	29.41
Airway beacon no. 12 (Atlanta to New York), 1935 (n.d.)	34 36 39.828 82 30 15.946		251 00 07.6 256 32 01.4 317 41 36.3	71 10 06.2 76 35 52.1 137 45 42.5	Fountain G V 376 (S.C.Geod.S.) eccentric Black	4.452397 4.026737 4.216238	28,339.8 10,635.0 16,452.7	92,978 34,892 53,979
Airway beacon no. 13 A (Atlanta to New York), 1935 (n.d.)	34 45 37.246 82 16 28.453		317 55 15.6 322 07 17.1 9 11 16.7	138 02 06.1 142 09 25.4 189 10 10.0	Little Knob Fountain Sims	4.438578 3.970322 4.271978	27,452.3 9,339.5 18,705.9	90,066 30,641 61,371
Honea Path, municipal water tank, 1935 (n.d.)	34 27 03.682 82 23 39.218		78 15 34.9 189 41 46.5 332 23 10.4	258 12 34.7 9 42 07.7 152 24 45.6	Transit traverse station no. 35 P (U.S.G.S.) Black Donalds	3.919665 3.752796 3.967650	8,311.2 5,659.7 9,282.2	27,268 18,569 30,453
Honea Path, Chiquola Mills, stack, 1935 (n.d.)	34 27 08.226 82 23 29.597		77 40 46.6 187 24 53.7 334 07 44.1	257 37 40.9 7 25 09.4 154 09 13.8	Transit traverse station no. 35 P (U.S.G.S.) Black Donalds	3.933516 3.739156 3.968329	8,580.6 5,484.7 9,296.7	28,152 17,994 30,501

* No check on this position.

GEOGRAPHIC POSITIONS

Gastonia, N. C., to Lowndesville, S. C., arc - Continued

STATION	LATITUDE AND LONGITUDE	SECONDS IN METERS	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE		
						LOGARITHM (METERS)	METERS	FEET
Supplementary points (cont'd)	° ′ ″		° ′ ″	° ′ ″				
Ware Shoals, water tank, 1935 (n.d.)	34 23 54.317 82 14 53.031		75 22 07.2 112 16 03.1 130 26 42.0	255 18 45.2 292 11 06.9 310 25 33.1	Donalds Honea Path Kirk	3.975322 4.160132 3.611819	9,447.6 14,458.8 4,090.9	30,996 47,437 13,422
Anderson, 1935 (d.m.)	34 30 21.201 82 39 02.758		296 42 17.1	116 47 59.4	Transit traverse station no. 35 P (U.S.G.S.)	4.237684	17,285.6	56,711
			323 02 14.3	143 06 39.4	Transit traverse station no. 37 P (U.S.G.S.)	4.299486	19,929.0	65.384
			31 40 36.1 350 50 37	211 38 57.8	Little Mountain Azimuth mark, A N 205 (S.C.Geod.S.)	3.926168	8,436.6	27,679
Transit traverse station no. 13 S J (U.S.G.S.), 1935 (d.m.)*	34 29 58.117 82 00 52.971		279 01	99 01	Laurens	1.284115	19.236	63.11
G V 396 (S.C.Geod.S.), 1935 (d.m.)	34 29 52.120 82 17 15.870		170 31 31.3 253 38 49.3 347 34 17.8	350 30 51.7 73 42 02.3	Sims Stony Azimuth mark, L R 52 (S.C.Geod.S.)	4.033600 3.956806	10,804.4 9,053.3	35,447 29,702
A 5 (S.C.Geod.S.), 1935 (d.m.)	34 29 28.778 82 20 15.627		46 46 50.3 104 39 18.4 40 54 40.7	226 44 56.2 284 37 44.2	Honea Path Black Azimuth mark, A 4 (S.C.Geod.S.)	3.848844 3.641788	7,060.6 4,383.2	23,165 14,381
Transit traverse station no. 51 P (U.S.G.S.), 1935 (d.m.)*	34 26 49.602 82 23 35.904		154 19	334 19	Honea Path	1.879256	75.728	248.45
Transit traverse station no. 48 P (U.S.G.S.), 1935 (d.m.)*	34 20 00.791 82 23 18.568		173 13	353 13	Erskine	1.296468	19.791	64.93
A 219 (S.C.Geod.S.), 1935 (d.m.)*	34 20 00.905 82 23 18.286		149 29	329 29	Erskine	1.273103	18.754	61.53
A 229 (S.C.Geod.S.), 1935 (d.m.)*	34 22 37.141 82 20 52.115		291 22	111 22	Donalds	1.549898	35.473	116.38
Transit traverse station no. 49 P (U.S.G.S.), 1935 (d.m.)	34 22 37.510 82 20 51.577		321 32	141 32	Donalds	1.491670	31.022	101.78
Belton, stack, 1935 (n.d.)	34 31 47.736 82 30 02.755		286 26 08.7 312 47 46.0 350 59 57.6	106 30 07.3 132 51 24.4 171 00 34.4	Black Honea Path Transit traverse station no. 35 P (U.S.G.S.)	4.049032 4.127544 4.024380	11,195.2 13,413.6 10,577.4	36,730 44,008 34,703
Belton, standpipe, 1935 (n.d.)	34 31 20.120 82 29 31.534		283 07 20.8 312 24 39.4 354 53 32.8	103 11 01.6 132 28 00.0 174 53 51.8	Black Honea Path Transit traverse station no. 35 P (U.S.G.S.)	4.008934 4.088188 3.983833	10,207.8 12,251.5 9,634.6	33,490 40,195 31,610

* No check on this position.

GEOGRAPHIC POSITIONS

Gastonia, N. C., to Lowndesville, S. C., arc - Continued

STATION	LATITUDE AND LONGITUDE	SECONDS IN METERS	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE		
						LOGARITHM (METERS)	METERS	FEET
Supplementary points (cont'd)								
Belton, tank, 1935 (n.d.)*	34 31 46.86 82 29 56.46		320 32 59 351 50 26	140 38 08 171 50 59	Donalds Transit traverse station no. 35 P (U.S.G.S.)	4.341227 4.022300	21,939.5 10,526.9	71,980 34,537
Due West, A.R.P. Church, spire, 1935 (n.d.)	34 20 03.447 82 23 16.174		45 36 20.6 177 33 31.6 218 10 27.5	225 36 19.2 357 33 19.7 38 11 49.5	Erskine Honea Path Donalds	1.948778 4.100180 3.778772	88.875 12,594.5 6,008.6	291.58 41,320 19,713
Due West, silver water tank, 1935 (n.d.)	34 19 54.967 82 23 20.779		178 07 55.2 195 13 30.8 217 32 42.3	358 07 45.9 15 13 32.0 37 34 06.9	Honea Path Erskine Donalds	4.108943 2.314624 3.798452	12,851.2 206.4 6,287.1	42,163 677 20,627
Due West, Erskine University, observatory, dome, 1935 (n.d.)*	34 19 55.08 82 23 31.28		179 19 36 238 45 07	359 19 32 58 45 14	Honea Path Erskine	4.108627 2.576662	12,841.8 377.3	42,132 1,238
Anderson, water tank, 1935 (n.d.)	34 29 00.396 82 39 00.278		178 32 40.4 318 25 04.2 341 02 08.4	358 32 39.0 138 29 27.8 161 05 24.8	Anderson Transit traverse station no. 37 P (U.S.G.S.) Nance	3.396315 4.254303 4.437947	2,490.7 17,959.9 27,412.4	8,172 58,923 89,936
Anderson, stack, 1935 (n.d.)	34 29 02.662 82 38 57.196		176 38 40.2 289 16 03.4 318 45 13.6	356 38 37.1 109 21 42.5 138 49 35.5	Anderson Transit traverse station no. 35 P (U.S.G.S.) Transit traverse station no. 37 P (U.S.G.S.)	3.384571 4.209719 4.254311	2,424.2 16,207.6 17,960.2	7,953 53,174 58,924
Anderson, standpipe, 1935 (n.d.)	34 30 21.764 82 38 57.952		296 56 27.0 323 21 02.2 32 19 05.4	117 02 06.6 143 25 24.6 212 17 24.4	Transit traverse station no. 35 P (U.S.G.S.) Transit traverse station no. 37 P (U.S.G.S.) Little Mountain	4.235124 4.298186 3.930250	17,184.0 19,869.5 8,516.3	56,378 65,189 27,941
Gluck, stack, 1935 (n.d.)	34 27 14.862 82 39 35.782		188 20 48.0 277 05 16.4 308 26 22.3	8 21 06.7 97 11 17.2 128 31 05.9	Anderson Transit traverse station no. 35 P (U.S.G.S.) Transit traverse station no. 37 P (U.S.G.S.)	3.763668 4.215117 4.214219	5,803.2 16,410.3 16,376.4	19,039 53,839 53,728
Iva, stack, 1935 (n.d.)	34 18 37.838 82 39 44.387		16 10 26.3 166 55 07.7 303 53 01.1	196 09 41.8 346 53 53.2 123 56 42.0	Beulah Little Mountain Nance	3.861284 4.172561 4.082442	7,265.8 14,878.6 12,090.4	23,838 48,814 39,667
Iva, lower water tank, 1935 (n.d.)	34 18 39.949 82 39 40.949		16 41 28.3 166 31 54.4 304 22 26.0	196 40 41.8 346 30 37.9 124 26 04.9	Beulah Little Mountain Nance	3.866469 4.171300 4.081137	7,353.1 14,835.4 12,054.2	24,124 48,672 39,548
Iva, higher water tank, 1935 (n.d.)	34 18 40.366 82 39 45.106		246 31 54.4 304 08 25.2 15 51 59.8	66 36 42.8 124 12 06.5 195 51 15.7	Transit traverse station no. 37 P (U.S.G.S.) Nance Beulah	4.153619 4.084549 3.865437	14,243.6 12,149.2 7,335.6	46,731 39,859 24,067
Calhoun Falls, stack, 1935 (n.d.)*	34 05 43.24 82 35 33.40		153 26 06 191 55 20	333 23 00 11 56 40	Beulah Nance	4.276144 4.243020	18,886.2 17,499.3	61,962 57,412
Airway beacon no. 11 (Atlanta to New York), 1935 (n.d.)*	34 32 15.39 82 41 07.01		317 58 59 6 42 25	138 00 10 186 41 57	Anderson Little Mountain	3.675353 4.032342	4,735.4 10,773.1	15,536 35,345

* No check on this position.

DESCRIPTIONS, ELEVATIONS, AND PLANE COORDINATES OF TRIANGULATION STATIONS

Until recently, the plane coordinates of the triangulation stations have been listed in separate tables apart from the descriptions in publications of this Bureau. In this publication, for the convenience of the engineer and others who use the information, the elevation and plane coordinates of a station are given with its description, where the data are readily available. Thus there appears in the description of each station all the information concerning the station except its geographic position, and this may be found in the list of geographic positions.

EXPLANATION OF DESCRIPTIONS

The following descriptions of stations may be conveniently consulted by reference to the illustrations at the end of this publication or to the index. Azimuths given in the descriptions are geodetic azimuths, unless noted otherwise, and are reckoned continuously from true south around by west to 360°, south being 0°, west 90°, north 180°, and east 270°. These azimuths should not be confused with plane-coordinate or "grid" azimuths. (See p. 54.) Where magnetic azimuths are given they are indicated as such. Wherever the name of a point is printed in *italic* in the body of the descriptions, its position may be found in the tables.

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

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

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

MARKING OF STATIONS

The standard station and reference marks referred to in the following descriptions and notes consist of a disk and shank of bronze cast in one piece. The disk of the station mark (see fig. 1) is 90 millimeters in diameter, with a hole at the center surrounded by a 20-millimeter equilateral triangle, and has the following inscribed legend: "U. S. Coast and Geodetic Survey Triangulation Station. For information write to the Superintendent, Washington, D. C. $250 fine or imprisonment for disturbing this mark." On the marks made since March 1921, the word "Director" replaces the word "Superintendent" in the inscription. The shank is 25 millimeters in diameter and 80 millimeters long, with a slit at the lower end into which a wedge is inserted, so that when it is driven into a drill hole in the rock it will bulge at the bottom and hold the mark firmly in place. In recent years the slits in the stems of both station and reference disks have been enlarged so that the two prongs may be spread far apart and set in concrete without the use of a wedge.

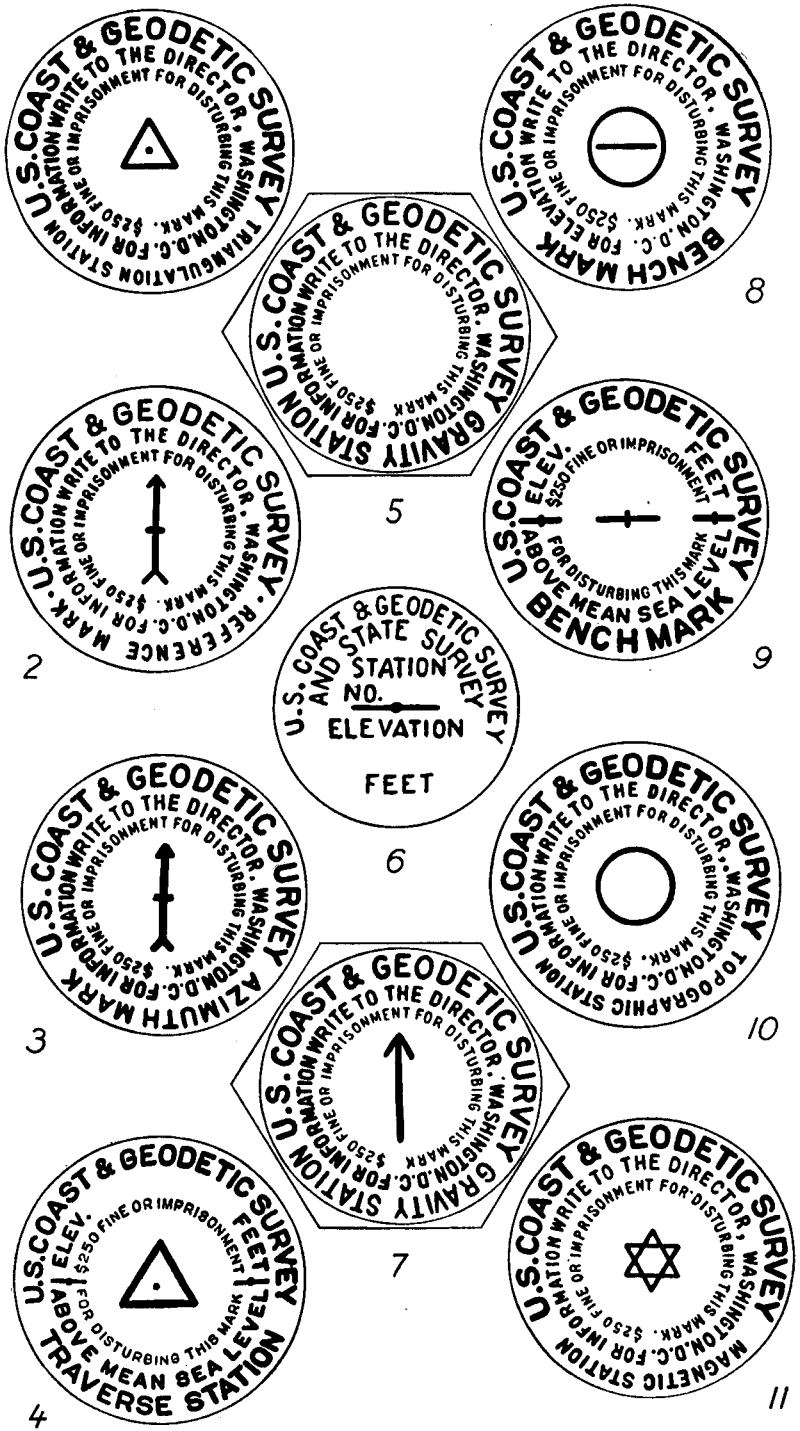

FIGURE 1.—Standard marks of the U. S. Coast and Geodetic Survey

1. Triangulation station mark.
2. Reference mark.
3. Azimuth mark.
4. Traverse station mark.
5. Gravity station mark.
6. State Survey mark.
7. Gravity reference mark.
8. Tidal bench mark.
9. Geodetic bench mark.
10. Topographic station mark.
11. Magnetic station mark.

The marks used between about 1915 and 1920 have grooves cut around the shank instead of the slit.

The old type of station mark used in marking stations 30 or more years ago consists also of a disk and shank made of bronze and cast in one piece. The disk, which is somewhat smaller than the disk of the marks described above, has a polished center with an inscribed triangle. Around the polished part are the letters "U. S. C. & G. S." and a raised flange around the edge.

The standard disk reference mark shown in figure 1 is the same size and shape as the newer type of station mark described above, but instead of a triangle it has an arrow at the center of the disk which, when the mark is properly set, points to the station. The legend is the same as for the station mark except that the words "reference mark" take the place of the words "triangulation station."

The standard disk azimuth mark, referred to on page 51, is also shown in figure 1. It is the same as the reference mark described above except that the words "azimuth mark" take the place of the words "reference mark" in the inscribed legend.

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

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

STANDARD NOTES ON THE MARKING OF STATIONS

Surface marks

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

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

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

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

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

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

Underground marks

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

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

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

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

Reference and azimuth marks

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

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

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

Witness marks

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

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

Additional note on the marking of stations

Note 16.—A large nail embedded in concrete with the point projecting one-half inch at the center of a 4-inch or 6-inch tile which is set in a block of concrete 2½ feet in diameter and about 3 feet long, the top of which is flush with the surface of the ground. The underground mark is the same as the surface mark except that the block of concrete in which the tile is embedded is smaller. The surface mark is inscribed "U. S. C. & G. S. 1902."

ELEVATIONS

The elevations of some of the triangulation stations and bench marks included in this publication have been determined by means of spirit levels. Where the elevation of a station has been determined (only a few are included in this publication) it is given at the end of the description of the station. The elevations are based on mean sea-level datum.

Elevations determined by first- or second-order leveling are given to two decimal places in meters and one decimal place in feet, not because the absolute elevations are certain to this degree of refinement but because differences between adjacent marks are uncertain only in the last decimal place given.

Unless otherwise specified, the point to which the elevation refers is the top of the surface mark.

EXPLANATION OF PLANE-COORDINATE SYSTEM

In order to meet the various demands imposed upon it by engineering and surveying operations, a plane-coordinate system must satisfy

conditions which naturally accompany requirements for accurate computations and exact results. The preservation of angles is one important factor to be considered; another factor of utmost importance is the elimination of variations of scale. Since variations of scale are inevitable, it becomes necessary to select a projection

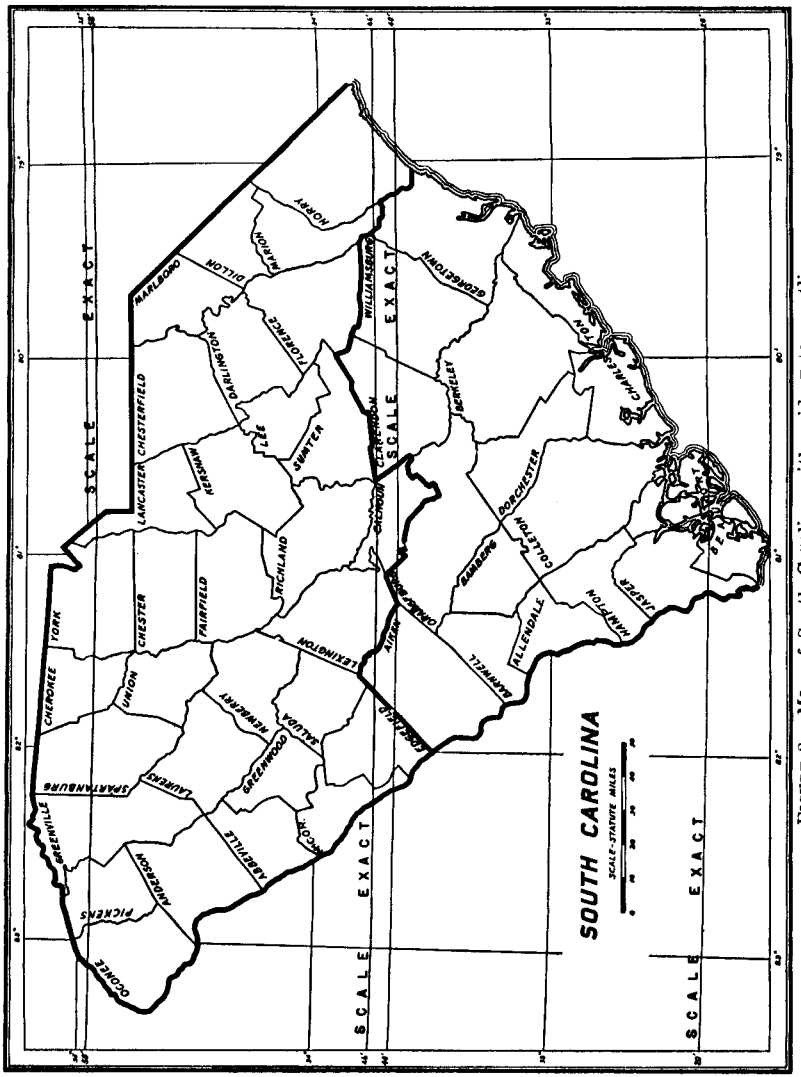

FIGURE 2.—Map of South Carolina with grid system outline.

which will give definite scale values in certain directions, so that scale values may be tabulated, and through their use, when utmost accuracy is desired, one can eliminate the distortions of scale which result from the projection of spheroidal coordinates onto a plane.

These various requirements pointed very definitely to the adoption of one of the conformal projections. After due consideration it was decided to employ the Lambert conformal projection with two standard parallels in States with greatest extent in an east-west direction

and the transverse Mercator projection where the greatest extent was in a north-south direction. Such a rule, however, could be applied only in those States which were of such limited extent in one of these directions that the entire State could be included in a single zone. It therefore became necessary to divide the larger States into a number of zones, using the projection in each which would satisfy the requirements of accuracy indicated by the limiting scale error, and at the same time keep to a minimum the number of zones required.

For these reasons the Lambert conformal projection with two zones was adopted for South Carolina (see fig. 2). It will be noticed that the junction lines between zones follow the county boundary lines; so that all stations in any county will be included in the same zone. Since, however, some surveys will extend across these artificial boundaries, the coordinates of stations which lie within what may be termed the borderland of two contiguous zones are given on both zones. With these data the engineer will not have to go from one zone of coordinates to the other in extending a survey a short distance beyond a boundary. Care must always be taken, however, to use in direct combination only coordinates which are given on the same zone. Where it is necessary to go from one zone or system to another, suitable directions for so doing will be found in Special Publication No. 193.

The geodetic positions in this publication have been reduced to plane coordinates which are given at the ends of the descriptions of the stations. These coordinates are based upon the Lambert conformal projection of South Carolina with two zones. The zone upon which a station has been computed is denoted in the description by either the initial N (north) or S (south) directly preceding the plane coordinates in the second paragraph of each description. Coordinate tables for the State have been prepared by this Bureau as a basis for computing the coordinates (see p. 112). The purpose in view in supplying these coordinates has been to provide for computations of surveys by the usual methods of plane surveying in which the convergence of the meridians is not considered. A State-wide application can now be made of principles ordinarily confined in common practice to very restricted areas.

The x and y coordinates are given in feet to two decimal places. This is one place farther than geodetic positions justify, but it was thought desirable to accept the positions as if they were correct to three decimal places, and carry two decimal places in the coordinates for use in adjusting traverses between fixed points.

The plane coordinates are in all essential features merely the plane representation of the spheroidal coordinates given in the tables of geodetic positions. For definite instructions regarding the use of plane coordinates, reference should be made to the following manuals of this Bureau: Special Publication No. 193, Manual of plane-coordinate computation, cost 35 cents, and Special Publication No. 194, Manual of traverse computation on the Lambert grid, cost 20 cents. These manuals may be procured from the Superintendent of Documents, Washington, D. C.

A few stations, for which geodetic positions are given in this publication, lie so far outside the State that plane coordinates were not computed for them on the grid of this State. If it becomes necessary

to use any of these as control for local surveys, their coordinates should be obtained from the Coast and Geodetic Survey on the grid of the State in which they lie. Computation of traverses tied to them would than have to be made by passing from one grid to the other. The method of accomplishing this is given in Special Publication No. 193. It is not thought that this necessity will arise very often, but when it does occur the method of handling it is not complicated and the necessary computations can easily be made.

Explanation of plane lengths

The length of line between any two stations can be computed from the differences of coordinates just as is done in ordinary plane surveying. The resulting length is affected by the distortion due to the reduction of the actual curved surface of the earth to a plane. It must be corrected for the scale of the grid at that point to reduce it to the sea-level length listed in the geographic-position tables. Should it be desired to obtain the actual ground-level length, a further correction must be applied, as described on page 4 for lines of triangulation.

Explanation of plane or grid azimuths

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

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

The plane azimuth from a triangulation station to an azimuth mark or other triangulation station may be computed in two ways;[1] first, by means of the formula:

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

in which θ is the mapping angle obtained from Table II of the plane-coordinate projection tables (pp. 115 and 121), x_1, x_2, y_1, and y_2 are the coordinates of the stations, and $\frac{1}{2\rho_0{}^2 \sin 1''}$ and y_0 are obtained from table of constants (p. 112) for the zone in which the stations are located: and second, by means of the usual plane-surveying methods using the formula:

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

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

[1] See Special Publication No. 193, Manual of plane-coordinate computation, page 13.

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

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

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

The first formula (neglecting the second term) has been used in computing the plane azimuths to all azimuth marks whose coordinates were not known; this includes practically all special azimuth marks, the distances to such marks being nearly always less than 1 mile, and very rarely known with sufficient accuracy to permit the computation of the position of the mark. The first formula was also used for computing the plane azimuths to stations whose plane coordinates were derived from "no check" geodetic positions, and to other azimuth marks whose coordinates were known, but for which consistent results were not obtained through the use of the second formula. In the descriptions of stations, the plane azimuths computed by means of the first formula are marked by footnotes.

DESCRIPTIONS AND PLANE COORDINATES

EASTERN OBLIQUE ARC

Principal points

Wofford (Spartanburg County, C. O. Boutelle, 1876).—At Spartanburg, on ridge of roof of Wofford College, 49 feet from south end and 32 feet from north end; ridge of roof is 18.97 meters (62.2 feet) above ground. Reference marks are stone posts 1 foot square and 3 feet long, tops flush with surface of ground. Top of each is marked with deep diagonal grooves pointing north-south and east-west, and letters "U. S. C. S." Two posts are in meridian south of station and distant from it 32.23 meters (105.7 feet) and 89.13 meters (292.4 feet). Two posts are east of station and distant from it 21 meters (69 feet) and 87.5 meters (287 feet). North-south and east-west lines through posts intersect at station. In 1935 the station was reported lost and reference marks disturbed. New station, set by A. S. Chase from original measurements, was deemed uncertain, due to rebuilding the roof. Station is considered lost. (See description of *Wofford eccentric.*)

Plane coordinates: (N), x=1,719,738.23 feet; y=714,145.96 feet.

Hogback (Greenville County, C. O. Boutelle, 1876; 1935).—About 15 miles southeast of Hendersonville, N. C., 10.6 miles southwest of Tryon, N. C., and 9 miles west of Landrum, on broad flat surface near northeast end of Hogback Range of mountains, on highest point, on land belonging to J. R. Wetherbee of Putney, Ga. To reach from Tryon, cross tracks at depot and continue about 50 yards; turn left 1 block and turn right on U. S. Highway 176 for 0.5 mile to

For notes in regard to marking of stations, see p. 50.

Hogback Road, thence 13 miles upgrade on mountain road to station. Station mark is a cross in a square 6-inch granite post projecting 4 inches, stamped "U. S." and one letter which could not be identified. There are three reference posts similar to station at the following distances and directions from station: North 9.99 feet; east 5.06 feet; south 5.17 feet. All reference marks have crosses in the top and are set under an observation tower. SP 81 S (S. C. Geod. S.) (azimuth) is a U. S. Coast and Geodetic Survey and State Survey disk set on the southwest edge of cultivated field, 18 feet northeast of center line of farm road, 5 feet northeast of ditch at edge of right-of-way, and about 9 miles (air line) east of station. (No azimuth listed for SP 81 S (S. C. Geod. S.) as no eccentric reduction can be made.) To reach from Tryon, follow U. S. Highway 176 south for 6 miles to Landrum; continue south through town to fork at south edge of village where macadam road bears right and paved road goes left; follow paved road 0.1 mile to T-road and turn right for 75 yards to T-road at right. Mark is about 75 yards west of this point on west slope of hill.

Plane coordinates: (N), x=1,614,208.69 feet; y=792,140.91 feet.

Paris (Greenville County, C. O. Boutelle, 1875; 1935).—About 5 miles north of Greenville, on highest part of northern end of range of mountains (Paris Mountain), between U. S. Highways 25 and 29, about 1 mile east of U. S. Highway 25, and inside of foundations of destroyed hotel surrounded by small trees and vines. In 1935 a standard bronze disk was set over old mark, note 1a. GV 172 (S. C. Geod. S.) (azimuth), a standard U. S. Coast and Geodetic Survey and State Survey disk, set flush with ground, is about 3 miles north of Main Street in Anderson, on south side of U. S. Highway 25, at top of slope of highway cut directly across road from small house, 200 meters (656 feet) south of swimming pool, 11.3 meters (37 feet) north-northwest of telephone pole 1764, and about 2 miles from station in azimuth 356°39′28″.2. GV 23 (S. C. Geod. S.) is a standard U. S. Coast and Geodetic Survey and State Survey disk set in a concrete cylinder 23.025 meters (75.54 feet) from station in azimuth 0°02′.

Plane coordinates: (N), x=1,577,046.06 feet; y=709,420.22 feet; the grid azimuth to GV 172 (S. C. Geod. S.)=357°27′16″.0.[1]

Pinnacle (Pickens County, C. O. Boutelle, 1875; 1935).—About 14.5 miles by road north of Pickens, on highest point of Pinnacle Mountain (known locally as Bald Knob) near North Carolina State line. To reach from Pickens, go north for 8.6 miles on State Highway 14 to Price's store and continue 0.8 mile to T-road; turn right for 0.4 mile to fork and follow left fork for 0.2 mile to old house and mill; cross bridge to left of mill and continue up rocky road for about 2 miles to Camp Adger (end of truck travel); follow blazed trail for 2.5 miles to top of mountain and station, now marked by a U. S. Coast and Geodetic Survey and State Survey standard disk. No reference marks were recovered. P 391 (S. C. Geod. S.) (azimuth mark) is a U. S. Coast and Geodetic Survey and State Survey standard disk set in square 6 x 6 concrete block projecting about 3 inches, and is about 3 miles from station in azimuth 356°24′11″.2. To reach from Pickens, follow State Highway 14 north for about 8.6 miles to Price's store and turn right on dirt road for 0.9 mile to station on right, in cultivated field about 36 paces south of center line of road and 27 feet north-northwest of triangular-blazed small pine tree. *Mauldin* (see description thereof) is in azimuth 337°23′18″.9.

Plane coordinates: (N), x=1,478,560.94 feet; y=744,476.40 feet; the grid azimuth to P 391 (S. C. Geod. S.)=357°23′10″.8.[1]

Mauldin (Pickens County, C. O. Boutelle, 1875; 1935).—About 6 miles southeast of Pickens, 4 miles northeast of Liberty and 1.5 miles southwest of Easley depot on Southern Railway, on top of knob of Mauldin Mountain (highest hill in vicinity). To reach from Easley, follow State Highway 13 southwest 1.5 miles to Mauldin Mountain. Station is in peach orchard, 0.5 mile north of State Highway 13, 150 feet east of bare ledge of rock on west slope and 12.5 meters (41 feet) west-northwest of 14-inch pear tree. Surface mark is granite post in irregular mass of concrete with cross marking center (letters "U. S. C. S." with name "Mauldin" chipped away) projecting 1.5 inches from concrete which is flush with ground. Underground mark is large nail in concrete at center of 4-inch tile set in concrete block 15 inches in diameter, about 3.5 feet below ground. In 1935, station and four reference marks were recovered. Reference marks consist of 4 granite posts marked similar to station mark and set at following distances and directions from station: North, 4.8 feet; east, 4.9

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term. For notes in regard to marking of stations, see p. 50.

feet; south, 5.1 feet; west, 5 feet. P 15 (S. C. Geod. S) (azimuth) is standard U. S. Coast and Geodetic Survey and State Survey disk in cylindrical concrete post flush with ground, in southwest angle formed by dirt road crossing State Highway 13 and is 15 meters (49 feet) northwest of telephone pole, with Coco-Cola cap in base, 7 meters (23 feet) south of center line of highway, 6 meters (20 feet) southwest of center line of dirt road and is 0.6 mile from station in azimuth 308°00′14″.5. Azimuth from station to *Pinnacle* (see description thereof) is 157°26′59″.3.

Plane coordinates: (N), x=1,509,328.47 feet; y=666,870.31; the grid azimuth to P 15 (S. C. Geod. S.)=308°55′36″.8.[1]

Rabun (Rabun County, Ga., C. O. Boutelle, 1875; 1933).—About 16 miles south of Franklin, N. C., 4 miles south-southeast of Scaly, N. C., on north side of summit of second highest peak in Georgia, known locally as Kelly Bald Mt., and 45 feet north of U. S. Forest Service fire tower. To reach from Franklin, take State Highway 23 south for about 14 miles to Georgia State line and continue south for 0.65 mile; turn left (east) on gravel T-road at sign "17 Mi. to Highlands" for 7.35 miles to Scaly post office; continue 1.3 miles and take T-road (*right*) at arrow "Flats and Rabun Bald" for 1.3 miles; take left fork at arrow "Rabun Bald" and continue for 0.85 mile to arrow reading "Rabun Bald 2 Mi."; continue 0.2 mile and take left fork for 1.1 miles to end of truck travel; follow wide government trail to summit about 1 mile distant to station on north side of peak. In 1933 a standard disk station mark was set in old drill hole re-marking center of station, and two reference marks were established. Reference and azimuth marks are standard reference disks cemented in drill holes in outcropping bed rock, note 12a. Reference mark No. 1 is 3 feet east of northeast corner of U. S. Forest Service fire tower and 14.103 meters (46.27 feet) from station in azimuth 344°56′. Reference mark No. 2 is 10 feet west of southwest corner of fire tower and 19.197 meters (62.98 feet) from station in azimuth 9°45′. Reference mark No. 3 (azimuth) is on downward slope of peak and 125 feet from station in azimuth 33°24′. Azimuth from station to Fire Tower, Standing Indian, is 109°40′03″.

Plane coordinates: (N), x=1,310,937.00 feet; y=723,026.87 feet; the grid azimuth to reference mark No. 3=34°42′.[1]

Currahee (Stephens County, Ga., C. O. Boutelle, 1874; 1935).—About 4 miles by road southwest of Tuccoa, Ga., on small isolated peak (most southern) near Savannah River. To reach from Tuccoa depot, follow State Highway 13 southwest for 3.6 miles to Sinclair service station; turn left for 0.3 mile, thence turn right on main road for 0.8 mile to small T-road; turn right for 0.2 mile to end of truck travel and follow trail (25-minute walk) to top of mountain. Station is marked by a standard U. S. Coast and Geodetic Survey and State Survey disk set in large block of concrete, flush with ground, and stamped "Currahee 2." Underground mark is a brass tack in pine plug driven in drill hole in bedrock. Four reference marks (1-inch drill holes 5 inches deep, in solid rock ledge) are at following distances from station: North 1.74 meters (5.7 feet); east 1.46 meters (4.8 feet); south 1.43 meters (4.7 feet) and west 1.55 meters (5.1 feet). Four additional reference marks are stones marked with arrows at following distances and azimuths from station: 6.89 meters (22.6 feet) 38°44′; 6.04 meters (19.8 feet) 186°16′; 6.55 meters (21.5 feet) 186°16′ and 6.89 meters (22.6 feet) 357°38′. 15 A 99 (S. C. Geod. S.) (*azimuth mark*) is a U. S. Coast and Geodetic Survey and State Survey standard disk in concrete, flush with ground, and is about 2 miles (air line) from station in azimuth 260°17′53″.6. To reach from Sinclair service station, turn left off U. S. Highway 13 for 0.3 mile and bear left for about 0.8 mile to 2-story green house. Mark is 33 paces north of barn, 22 paces south of corn shed, 5 paces east of center line of road and 2 paces west of wire fence. Azimuth from station to *Little Mountain* (see description thereof) is 278°43′17″.5.

Plane coordinates: (N), x=1,284,418.73 feet; y=564,815.06 feet; the grid azimuth to 15 A 99 (S. C. Geod. S.)=261°38′22″.1.[1]

Supplementary points

Walhalla, spire (Oconee County, C. O. Boutelle, 1875).—Plane coordinates: (N), x=1,378,518.44 feet; y=648,737.45 feet.

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term. For notes in regard to marking of stations, see p. 50.

Greenville, Baptist Church (Greenville County, C. O. Boutelle, 1875).—Plane coordinates: (N), x=1,579,496.39 feet; y=676,073.12 feet.

Greenville, Furman University, turret (Greenville County, C. O. Boutelle, 1875). Plane coordinates:[2] (N), x=1,578,932 feet; y=672,985 feet.

Easley railway depot (Pickens County, C. O. Boutelle, 1875).—Plane coordinates:[2] (N), x=1,519,146 feet; y=669,996 feet.

Pickens, courthouse (Pickens County, C. O. Boutelle, 1875).—Plane coordinates:[2] (N), x=1,488,002 feet; y=689,633 feet.

Greenville, white tower (Greenville County, C. O. Boutelle, 1875).—Plane coordinates:[2] (N), x=1,581,220 feet; y=675,603 feet.

Caesars Head Hotel, largest building, east end of roof (Greenville County, C. O. Boutelle, 1875–76).—Plane coordinates: (N), x=1,515,306.90 feet; y=769,880.77 feet.

Glassy Mountain (Pickens County, C. O. Boutelle, 1875).—Plane coordinates: (N), x=1,502,328.47 feet; y=695,802.71 feet.

Rocky Mountain, near Daytonsville (Cherokee County, C. O. Boutelle, 1876; 1877).—Plant coordinates: (N), x=1,823,471.94 feet; y=745,324.91 feet.

Spartanburg, Baptist Church (Spartanburg County, C. O. Boutelle, 1875; 1876).—Plane coordinates: (N), x=1,720,455.80 feet; y=711,269.08 feet.

Spartanburg, St. Johns College, east turret (Spartanburg County, C. O. Boutelle, 1876).—Plane coordinates:[2] (N), x=1,722,859 feet; y=709,059 feet.

Taccoa Mountain (Oconee County, C. O. Boutelle, 1874; 1875).—Plane coordinates: (N), x=1,319,563.56 feet; y=626,229.83 feet.

Thicketty (Cherokee County, C. O. Boutelle, 1875).—Plane coordinates: (N), x=1,769,981.00 feet; y=769,934.22 feet.

ANDERSON, S. C., TO AUGUSTA, GA., ARC

Principal points

Owens (Hart County, Ga., W. B. Fairfield, 1902; 1935).—About 7 miles west of Hartwell and 2.5 miles east of Bowersville, Ga. To reach from the railway station at Bowersville, go 2.3 miles south on east side of railway tracks to Y-road; bear left for 0.15 mile to home of W. G. Roe; turn left on west side of house and follow dim field road for 0.3 mile to station at left, set on high ground in cultivated field belonging to Mrs. Elba Brown, about 140 yards west of railway tracks, 125 yards south of J. Sutton's home and 84 feet west of center line of dim field road. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Upper mark is set flush with ground. Reference mark No. 1 (note 13b) is 15 feet east of center line of road and 100.95 feet east-northeast of station in azimuth 256°22′. Reference mark No. 2 (note 11b) is 7 feet west of center line of road and 162.54 feet south-southeast of station in azimuth 337°53′. Azimuth mark (note 11b) is on west edge of cultivated field belonging to W. G. Roe, 5 feet west of center line of road and 0.25 mile south of station in azimuth 21°03′54″.1.

Plane coordinates: (N), x=1,379,880.08 feet; y=500,896.16 feet; the grid azimuth to the azimuth mark=22°13′29″.9.[1]

Little Mountain (Anderson County, W. B. Fairfield, 1902; 1935).—About 6 miles southwest of Anderson, on highest ridge of Little Mountain owned by F. Watson. To reach from post office in Anderson, go 5.8 miles southwest on U. S. Highway 29 (road to Athens) to reverse fork at M. O. Whitfield's filling station and grocery store; turn left for 0.85 mile to reverse "Y" (0.4 mile beyond stone church on right); turn sharp right for 0.45 mile to 8-inch triangular-blazed pine tree at road fork; turn right 0.1 mile on woods road to fork and bear right for 20 yards to another fork; bear right 0.05 mile to dim T-road on ridge and follow T-road to top of hill and station which is located 19 feet north of 12-inch twin oak and 14 feet east of 4-inch pine. In 1935 a standard disk was set in old drill hole in an irregular block of concrete about 2.5 feet in diameter (note 1c) flush with ground. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 is 11 paces east of 8-inch oak, 2 paces west-northwest of 5-inch oak, and 25.632 meters (84.09 feet) east of station in azimuth 262°31′. Reference mark No. 2 is 4 paces east-southeast of 8-inch pine, 3 paces north of 8-inch triple oak, and 25.855 meters (84.83 feet) southwest of station in azimuth 38°18′. Azimuth mark is at north side of Whitfield's filling station, 20 paces southeast of center line of U. S.

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term.
[2] No check of this position.
For notes in regard to marking of stations, see p. 50.

Highway 29, 3 paces southeast of northeast corner of filling station, and about 0.5 mile northwest of station in azimuth 125°20′34″.0. U. S. Coast and Geodetic Survey and State Survey station A N 277 (S. C. Geod. S.) is 16 paces southwest of gasoline pump at Whitfield's filling station, 8 paces southeast of center line of U. S. Highway 29, and about 0.5 mile west-northwest of station in azimuth 124°53′30″.6. *Anderson, standpipe* is in azimuth 212°17′22″.1.

Plane coordinates: (N), x=1,487,760.78 feet; y=528,728.22 feet; the grid azimuth to the azimuth mark=126°18′06″.6.[1]

Beulah (Abbeville County, W. B. Fairfield, 1902; 1935).—About 14.25 miles northeast of Elberton, Ga., 3.3 miles northwest of Lowndesville and 0.5 mile south of Charleston & Western Carolina Railway station Barnes. To reach from Methodist Church in Lowndesville, go north 3.3 miles on State Highway 82 to Abbeville-Anderson County signpost on right and T-road (Craft Ferry Road to Drag Shoals) on left at top of slight grade. Station is at intersection of Lowndesville-Anderson Road with Craft Ferry Road, on property of Luther Grove, 164 feet south of Anderson County line, 133 feet south of center line of Craft Ferry Road, 98 feet north of Beulah Church and 93 feet west of center line of State Highway 82. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Upper mark (stamped "Beulah 1902–1935") is flush with ground. In 1935, two new reference marks and azimuth mark were established, note 11b. Reference mark No. 1 projects 4 inches and is at road intersection, 51 feet north of center line of side road, 24 feet west of center line of State Highway 82, and 198.99 feet northeast of station in azimuth 210°24′. Reference mark No. 2 projects 7 inches and is between State Highway 82 and Charleston & Western Carolina Railway tracks, 130 feet south of center line of T-road junction, 99 feet south-southeast of County line, 35 feet west of center line of railway tracks, 25 feet east of center line of State Highway 82 and 122.21 feet east of station in azimuth 273°16′. Azimuth mark projects 6 inches and is between driveway to J. E. Kelly's house and road, 0.3 mile east of Barnes railway station, 12 paces east-northeast of 18-inch oak tree, 15 feet west-northwest of center line of State Highway 82 and 0.2 mile north-northeast of station in azimuth 193°05′57″. A N 31 (S. C. Geod. S.) is a 6-inch square concrete post with a bronze plug set in the top, stamped AN 31, and U. S. C. & G. S. is in the concrete on top of the post, projecting 4 inches and is on property of J. E. Kelly, at north edge of cultivated field, 9 paces from east face of barn, 5 paces from west face of barn (southwest corner), 2 paces south of barn and 0.2 mile north of station in azimuth 180°00′11″.

Plane coordinates: (N), x=1,491,014.42 feet; y=458,227.53 feet; the grid azimuth to the azimuth mark=194°03′00″.[1]

Dewey Rose (Elbert County, Ga., W. B. Fairfield, 1902; 1935).—About 6.5 miles northwest of Elberton, Ga., 5 miles southeast of Bowman and 0.2 mile northwest of Dewey Rose railroad station. To reach from Elberton, follow State Highway 17 west-northwest (toward Royston) for about 6 miles to Dewey Rose and continue 0.2 mile to home of L. G. Brown. Station is in Brown's back yard about 40 yards southwest of southwest corner of house, 66 feet northwest of fence line and 12 feet southwest of another fence line. Surface mark is a 2½-foot round mass of concrete, with standard disk set in top, inscribed "U. S. C. & G. S., 1902." In 1935 two new reference marks and azimuth mark were established, note 11b. Reference mark No. 1 projects about 4 inches, is in Brown's back yard, 22 feet south of southeast corner of house, 2 feet south-southwest of small outhouse and 163.23 feet (slope) northeast of station in azimuth 257°30′. Reference mark No. 2 projects about 3 inches, is opposite fence corner, 2 feet southwest of fence line and 185.38 feet northwest of station in azimuth 142°31′. Azimuth mark projects about 6 inches, is between railroad tracks and highway, 48 feet northeast of center line of highway, 18 feet southwest of center line of tracks and 200 yards north-northwest of station in azimuth 166°12′43″.

Plane coordinates: (N) x=1,408,361.76 feet; y=431,667.10 feet; the grid azimuth to the azimuth mark=167°18′58″.[1]

Rose Hill (Elbert County, Ga., W. B. Fairfield, 1902; 1907).—About 1 mile south of the railway station of Middleton, on the highest point of the Rose Hill estate, owned by E. B. Heard and about 400 meters (1,312 feet) south of his dwelling house. The station is about 30 meters (98 feet) south of the old Petersburg road. It is marked according to note 16. A reference mark, consisting of a large nail embedded in concrete at the center of a 6-inch tile, which in turn is set in a

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term.
[2] No check on this position.

For notes in regard to marking of stations, see p. 50.

block of concrete 15 inches in diameter, is 28.68 meters (94.1 feet) from the station in azimuth 350°00′. The west gable of Heard's house is in azimuth 230°51′ and the chimney of a negro tenant cabin is 30.0 meters (98.4 feet) from the station in azimuth 104°06′.

Plane coordinates: (N), x=1,467,299.41 feet; y=398,967.80 feet.

Parsons (Abbeville County, W. B. Fairfield, 1902; 1934).—About 6 miles south-southeast of Abbeville, on highest point of Parsons Mountain (also known as Jordans Mountain) among pile of loose rocks. To reach from Abbeville, follow State Highway 20 (highway to McCormick) and from Seaboard Air Line Railway underpass go south 5.5 miles to crossroads in north end of shallow highway excavation; turn left 0.1 mile, thence right 0.1 mile and thence left to large two-story house on right; follow winding road 0.8 mile and turn right on upgrade woods road for 0.1 mile to top of grade, turn right (south-southwest) up ridge 0.2 mile to station. Surface and underground marks (stamped "Parsons 1902-1934") are standard disks in concrete, note 4. Reference and azimuth marks (stamped "Parsons 1934") are standard disks in concrete, notes 12c and 11b. Reference mark No. 1 is 127.3 feet (slope) northeast of station in azimuth 227°54′. Reference mark No. 3 is 135 feet (slope) southwest of station in azimuth 50°35′. Reference mark No. 2 (azimuth) is about 0.75 mile southeast of station in azimuth 328°13′00″.1. To reach azimuth mark, retrace above directions for reaching station to the point where State Highway 20 was left and from here go south 1.45 miles to McCormick-Abbeville county line sign; turn left 0.15 mile to crossroads and continue straight ahead along winding road 1.3 miles to crossroads and mark located 189 feet east of intersection of these crossroads and 21 feet south of center line of the east-west road.

Plane coordinates: (N), x=1,587,230.85 feet; y=396,883.43 feet; the grid azimuth to reference mark No. 2=328°59′10″.4.[1]

Lincoln (Lincoln County, Ga., W. B. Fairfield, 1902; 1934).—About 4.5 miles south-southwest of Lincolnton, on highest point of southwest peak of Lincoln Mountain, about 200 meters (656 feet) north of cliff at end of ridge. Lincoln Mountain, also known as Graves Mountain, is rocky, heavily wooded hill about 350 feet above general level; summit is narrow ridge about one-half mile long in northeast-southwest direction, terminating at each end in rocky peak. To reach from sharp left bend on State Highway 47 just west of graveyard in Lincolnton, follow State Highway 47 southwest 4.8 miles to T-road just before reaching store on left side of road, turn left onto T-road and go 0.3 mile to fork, take left fork and go 0.1 mile to blazed pine and old road leading to left, turn left onto old road and go 50 yards to blazed trail (end of truck travel), thence up blazed trail to station site. Station is on highest point of southwest peak. Station marked by 1-inch drill hole 6 inches deep with triangle chiseled around it in solid rock. In 1932 standard station disk was cemented in old drill hole. Original reference marks were drill holes in large solid boulders, at following distances and azimuths from station: 27.68 feet, 42°32′; 41.60 feet, 116°14′; and 64.57 feet, 293°03′. In 1932, reference marks described as 27.68 feet, 42°32′; and 41.60 feet, 116°14′ were re-marked with standard reference disks stamped No. 1 and No. 2 respectively. Reference mark described as 64.57 feet, 293°03′ was recovered but not re-marked.

Plane coordinates: (N), x=1,535,612.90 feet; y=272,705.91 feet.

Williams (McCormick County, W. B. Fairfield, 1902; 1935).—About 6 miles east of McCormick, 5 miles northeast of Plum Branch, and on land owned by H. N. Coleman of McCormick. To reach from intersection of State Highways 20 and 43 in McCormick, follow State Highway 43 east 4.6 miles (or 0.5 mile east of bridge over Hard Labor Creek) to dirt road leading to right opposite buff-colored house on left; turn right onto main-traveled road and go southeast 2.5 miles to T-road intersection just south of Coleman's house and turn right for 0.15 mile to fork formed by intersection of R. F. D. Route 2 and Plum Branch Road. Station is about 40 meters (131 feet) northeast of this fork, in cleared area at south edge of field, and 6.4 meters (21 feet) northwest of center of road (R. F. D. Route 2). Original surface mark was nail in concrete at center of 4-inch tile in block of concrete 2.5 feet in diameter and 3 feet long inscribed "U. S. C. & G. S. 1902." Underground mark same as surface mark except that block of concrete is smaller. In 1932, nail in surface mark was replaced by standard station disk. Original reference mark (reported

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term. For notes in regard to marking of stations, see p. 50.

destroyed in 1932) was nail in 4-inch tile set in and surrounded by mass of concrete 15 inches in diameter, at above-mentioned fork, and 46.55 meters (152.7 feet) from station in azimuth 293°06′. Reference and azimuth marks (1932) are standard reference disks in concrete, note 11a. No. 1 projects 4 inches above ground, is on west edge of ditch, 32.7 meters (107 feet) from road fork, 4.3 meters (14 feet) west of center line of Plum Branch Road, and 201.48 feet from station in azimuth 261°50′. No. 2 projects 3 inches above ground, is at top of bank, 39.5 meters (130 feet) south of road fork, 5.9 meters (19 feet) west of center line of Plum Branch Road, and 107.40 feet from station in azimuth 338°41′. Azimuth mark (stamped "Williams 1902–1932") projects 6 inches above ground, is on small plot of land bounded by old and present road locations, 5.4 meters (18 feet) east of 6-inch pine tree, 5.2 meters (17 feet) west of 6-inch pine stump, 5 meters (16 feet) north of center line of road, and about 0.25 mile from station in azimuth 156°24′28″.3. Following azimuths are from station: *McCormick, municipal water tank, finial,* 103°53′13″.3, Williams, (1902) barn, south gable, 240°05′.

Plane coordinates: (N), x=1,638,601.92 feet; y=327.681.12 feet; the grid azimuth to the azimuth mark=157°04′48″.4.[1]

Appling (Columbia County, Ga., H. C. Warwick, 1932; 1934).—About 5.5 miles northwest of Appling post office, in north edge of cotton field. To reach from Augusta, follow State Highways 10 and 12 west about 23 miles to intersection with State Highway 47 in Harlem; turn right (north) on Highway 47 and go 9.5 miles to Appling post office; continue on Highway 47 north 4.8 miles to crossroads at a group of stores and turn left and follow main road 2.5 miles to Joe Cummings' farm. Station is about 90 yards southwest of Cummings' house, 22 feet north of center line of road running northeast and southwest, 25 feet west of road running north and south, and about 30 feet northeast of intersection. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Upper mark projects 4 inches above ground. Reference and azimuth marks are standard reference disks in concrete, note 11a. No. 1 projects 5 inches above ground, is at intersection of center line of north-south road and driveway leading to Cummings' farmhouse, 15 feet west of center line of road, 16 feet south of center line of drive to Cummings' house, 60 feet west of old barn, and 99.10 feet from station in azimuth 216°02′. No. 2 projects 6 inches above ground, is at west edge of cotton field, 31 paces south of lane crossing road northeast-southwest, about 50 feet east of pine woods, and 151.60 feet from station in azimuth 103°18′. Azimuth mark projects 3 inches above ground, is on Beard property, on fence line running northwest-southeast, 25 feet north of face of barn, about 80 feet southeast of white frame-house and approximately 0.25 mile from station in azimuth 248°46′09″.2.

Plane coordinates: (N), x=1,583,001.46 feet; y=224,414.51 feet; the grid azimuth to the azimuth mark=249°32′32″.3.[1]

Clarks Hill (McCormick County, W. B. Fairfield, 1902; 1935).—In small village of Clarks Hill, on State Highway 20, about 18 miles northwest of Augusta, Ga., on land owned and occupied by John D. Bunch, 5.10 meters (16.7 feet) north of face of north end of Bunch's house (measured from point under most easterly window), and 32.0 meters (105 feet) south of fence at first pole of high-tension line leading from house (fence and pole are just south of road leading eastward, north of house). To reach from Augusta, follow State Highway 52 northwest out Broad Street 6.5 miles to fork of paved roads, take right fork and go 13.6 miles to Clarks Hill railroad station, turn right and cross tracks, thence left up slight grade 0.2 mile to gate on right, turn in at gate and go to Bunch's house. Original surface mark (not recovered in 1932) was nail in concrete at center of 4-inch tile in block of concrete 2.5 feet in diameter and 3 feet long, inscribed "U. S. C. & G. S. 1902". Underground mark (recovered in 1932) is same as surface mark except that block of concrete is smaller. In 1932 new surface mark was established, standard station disk in concrete block 2 feet in diameter and 30 inches deep set 12 inches below surface of ground. Original reference mark (recovered in 1932) is nail in 4-inch tile set in and surrounded by concrete, projecting 6 inches above ground, at north edge of field, 20 feet south of center of old abandoned road, in line with Bunch's house and station, 5 feet south of fence, and 100.48 meters (329.7 feet) from station in azimuth 329°14′15″. Reference and azimuth marks (1932) are standard

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term. For notes in regard to marking of stations, see p. 50.

reference disks in concrete, note 11a, projecting 6 inches above ground. No. 1 is at top of first rise east of railroad station, 5.4 meters (18 feet) south of center line of road, 1.5 feet south of fence line, and 51.93 meters (170.4 feet) from station in azimuth 78°25′. No. 2 is 5.7 meters (19 feet) south of center line of road, 3.3 meters (11 feet) northeast of east gate post at gate leading to Bunch's house, and 42.00 meters (137.8 feet) from station in azimuth 171°37′. Azimuth mark is 11.6 meters (38 feet) southwest of triple wild-cherry tree in fence line north of road, 8.7 meters (29 feet) south of fence north of road, 4.5 meters (15 feet) south of center line of road at slight curve to northeast, and about 0.25 mile from station in azimuth 219°48′46″.0. Mr. Bunch intends building addition to house which will cover station but will not disturb mark.

Plane coordinates: (N), x=1,642,934.97 feet; y=246,876.10 feet; the grid azimuth to the azimuth mark=220°28′30″.9.[1]

Vaughn (Columbia County, Ga., H. C. Warwick, 1932; 1934).—About 9 miles west of center section of Augusta, in center of lane between two cultivated fields, on south side of cultivated field, on property of W. F. Vaughn who lives on south side of road (hedge surrounds front yard of his farmhouse). To reach from intersection of Greene and Fifteenth Streets in Augusta, follow Fifteenth Street south to Walton Way, follow Walton Way west 2.85 miles to fork at "Forest Hill" sign, take right fork and go 1.15 miles, continuing straight ahead at T-road right, continue 0.9 mile, keeping to main road right at fork, continue 0.3 mile to crossroads just beyond Horseshoe Inn, turn left and go 2.9 miles to station at top of grade. Station is 100 meters (328 feet) north of Vaughn's residence, 118 feet northeast of post at east entrance to Vaughn's property and 30 feet north of center line of Wheeler Road. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Upper mark is 12 inches below surface of ground. Reference and azimuth marks are standard reference disks in concrete, note 11a. No. 1 projects 5 inches above ground, is 165 feet east of east entrance, 17 feet south of center line of road, and 78.10 feet from station in azimuth 308°42′. No. 2 projects 8 inches above ground, is 10 feet east of brick post at east entrance, 13 feet south of center line of road, and 112.80 feet from station in azimuth 62°47′. Azimuth mark projects 2 inches above ground, is at edge of cultivated field, 15 feet south of center line of road which curves to northeast about 75 feet east of mark, and approximately 0.1 mile from station in azimuth 281°42′35″. Azimuth from station to *Augusta, Forest Hill Hotel, air beacon*, is 282°42′32″.5.

Plane coordinates: (N), x=1,658,306.25 feet; y=179,436.04 feet; the grid azimuth to the azimuth mark=282°20′32″.[1]

Bunch (Edgefield County, W. B. Fairfield, 1902; 1932).—About 8 miles north of Augusta, Ga., on highest ground in cultivated field of property owned by Mrs. Ollie Bunch (widow of E. M. Bunch) and son who lived in old house. To reach from Augusta, Ga., follow U. S. Highway 25 north about 8 miles to Jack Reynold's Log Store on left, turn left (west) onto graded dirt road and go 0.3 mile to forks with mail box No. 40 on left, take left fork (ungraded sand road) and go west 0.5 mile to graded red-dirt road, continue west across red graded road onto graded dirt road and go 1.35 miles to fork to right with dead oak and double oak in small triangle about 20 feet on side. Station is across field, about 155 meters (509 feet) south-southwest from this point, and about 300 meters (984 feet) west of Bunch's house. Original surface mark was nail in concrete at center of 4-inch tile in block of concrete 2.5 feet in diameter and 3 feet long inscribed "U. S. C. & G. S., 1902." Underground mark is same as surface mark except that block of concrete is smaller. In 1932, nail in surface mark was replaced by standard station disk. Original reference mark is nail in 4-inch tile set in and surrounded by mass of concrete 15 inches in diameter, inscribed "U. S. C. & G. S.," with an arrow pointing toward station, at above-mentioned triangular plot at road fork, and 154.28 meters (506.2 feet) from station in azimuth 207°36′42″. Reference and azimuth marks (1932) are standard reference disks in concrete, note 11a, projecting about 5 inches above ground. No. 1 is about 0.2 mile west of Bunch's house, 9 feet north of center line of road, and 267.12 feet from station in azimuth 138°02′. No. 2 is 45.7 feet west of double-oak tree in above-mentioned triangular plot, 18 feet north of center line of road, and 475.28 feet from station in azimuth 204°13′01″. Azimuth mark is about 50 feet northwest of Bunch's house, 5.3 meters (17 feet) south of center line of road, and about 0.2 mile from station in azimuth 248°02′00″.

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term. For notes in regard to marking of stations, see p. 50.

Following azimuths are from station: *North Augusta, municipal standpipe,* 353°10′22″.0; *Augusta, Ga., Linwood Hospital dome, finial* 18°42′11″.0; Bunch's house, west chimney, 255°06′18″.2.

Plane coordinates: (N), x=1,701,838.75 feet; y=214,103.90 feet; the grid azimuth to the azimuth mark=248°35′09″.[1]

Supplementary points

Six Mile Mountain (Pickens County, W. B. Fairfield, 1902).—On the highest point of Six Mile Mountain, about 6 miles southwest of Pickens courthouse, and about 1 mile south of the home of W. R. Garrett who owns the hill (1902). The surface and underground marks are nails embedded in concrete. The reference marks, each consisting of a 1-inch drill hole 6 inches deep in the solid rock, are at the following distances and azimuths from the station: 19.62 meters (64.3 feet), 21°35′; 23.82 meters (78.1 feet), 58°17′; and 13.38 meters (43.9 feet), 122°24′. In 1935 it was reported that station was lost and a new station *Six Mile Mountain 2* (see description thereof) was established.

Plane coordinates: (N), x=1,458,716.06 feet; y=671,751.86 feet.

Anderson, standpipe (Anderson County, W. B. Fairfield, 1902).—Plane coordinates: (N), x=1,503,076.33 feet; y=552,089.48 feet.

Anderson, courthouse (Anderson County, W. B. Fairfield, 1902).—Plane coordinates: (N), x=1,502,840.53 feet; y=551,022.45 feet.

Anderson, orr mill, stack (Anderson County, W. B. Fairfield, 1902).—Plane coordinates:[2] (N), x=1,502,908 feet; y=544,089 feet.

Hartwell, courthouse (Hart County, Ga., W. B. Fairfield, 1902).—Plane coordinates: (N), x=1,416,734.32 feet; y=497,885.66 feet.

Clemson College, top of tower (Pickens County, W. B. Fairfield, 1902).—Plane coordinates:[2] (N), x=1,447,613 feet; y=616,305 feet.

Bowersville, Baptist Church, spire (Hart County, Ga., W. B. Fairfield, 1902).—Plane coordinates:[2] (N), x=1,371,752 feet; y=506,584 feet.

Canon, church spire (Franklin County, Ga., W. B. Fairfield, 1902).—Plane coordinates:[2] (N), x=1,363,135 feet; y=496,086 feet.

Royston, schoolhouse cupola (Franklin County, Ga., W. B. Fairfield, 1902).—Plane coordinates:[2] (N), x=1,361,649; y=475,563 feet.

Easley, Baptist Church, spire (Pickens County, W. B. Fairfield, 1902).—Plane coordinates:[2] (N), x=1,517,711 feet; y=669,621 feet.

Easley, Glendale, stack (Pickens County, W. B. Fairfield, 1902).—Plane coordinates:[2] (N), x=1,523,995 feet; y=671,050 feet.

Easley, cotton mill, stack (Pickens County, W. B. Fairfield, 1902).—Plane coordinates: (N), x=1,517,609.69 feet; y=667,343.51 feet.

Bogg's Mountain, house, cupola (Pickens County, W. B. Fairfield, 1902).—Plane coordinates: (N), x=1,500,076.77 feet; y=658,382.94 feet.

Greenville, Brandon, stack (Greenville County, W. B. Fairfield, 1902).—Plane coordinates:[2] (N), x=1,570,279 feet; y=673,961 feet.

Greenville, Monaghan, stack (Greenville County, W. B. Fairfield, 1902).—Plane coordinates:[2] (N), x=1,572,583 feet; y=682,294 feet.

Greenville, standpipe (Greenville County, W. B. Fairfield, 1902).—Plane coordinates:[2] (N), x=1,574,751 feet; y=673,974 feet.

Six Mile Mountain 2 (S. C. Geod. S.) (Pickens County, J. Bowie Jr., 1935).—About 6 miles southwest of Pickens courthouse on highest point of Six Mile Mountain. To reach from post office in Norris, go northwest 8.4 miles on asphalt road to old house on right and turn right (up-hill) to station located 1 mile south of home of W. R. Garrett (owner of hill). Station is a standard U. S. Coast and Geodetic Survey and State Survey disk set in round concrete post, flush with surface of ground. Following azimuths are from station: To *Currahee,* 57°26′05″.9; *Mauldin,* 274°35′12″.2; *Little Mountain,* 347°31′05″.6. A station by this name was established by the U. S. Coast and Geodetic Survey in 1902 but was lost in the course of some construction, and new station was established by U. S. Coast and Geodetic Survey and State Survey on same hill.

Plane coordinates: (N), x=1,458,739.41 feet; y=671,841.44 feet.

Abbeyville, standpipe (Abbeville County, W. B. Fairfield, 1902).—Plane coordinates:[2] (N), x=1,580,313 feet; y=433,659 feet.

Elberton, Baptist Church, spire (Elbert County, Ga., W. B. Fairfield, 1902).—Plane coordinates:[2] (N), x=1,435,420 feet; y=408,697 feet.

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[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term.

[2] No check on this position.

For notes in regard to marking of stations, see p. 50.

Elberton, oil mill, water tank (Elbert County, Ga., W. B. Fairfield, 1902).—Plane coordinates:[2] (N), x=1,434,548 feet; y=410,703 feet.

Elberton, Swift's Mill, stack (Elbert County, Ga., W. B. Fairfield, 1902).—Plane coordinates: (N), x=1,436,654.56 feet; y=409,226.26 feet.

Elberton Methodist Church, spire (Elbert County, Ga., W. B. Fairfield, 1902).—Plane coordinates: (N), x=1,435,113.68 feet; y=408,327.57 feet.

Elberton court house, dome (Elbert County, Ga., W. B. Fairfield, 1902).—Plane coordinates: (N), x=1,434,357.29 feet; y=409,067.38 feet.

McCormick, municipal water tank, finial (McCormick County, H. C. Warwick, 1932).—Plane coordinates: (N), x=1,608,960.69 feet; y=335,379.68 feet.

McKnight (Columbia County, Ga., W. B. Fairfield, 1902).—About 2 miles south of Evans railway station, on the farm of W. J. McKnight, in a cultivated field directly in front of his dwelling house. The station is on the west side of the county road from Evans and is marked according to note 16. A reference mark, consisting of a large nail embedded in concrete at the center of a 4-inch tile which in turn is set in a block of concrete 15 inches in diameter, is in the yard just east of the garden fence line, 6 meters (20 feet) north of the fence on the north side of the lane leading to the barn and 73.98 meters (242.7 feet) from the station in azimuth 113°48′. The southeast corner of the south chimney of McKnight's house is 53.22 meters (174.6 feet) from the station in azimuth 127°06′.

Plane coordinates: (N), x=1,651,590.82 feet; y=191,438.26 feet.

TIGERVILLE TO GEORGETOWN ARC

Principal points

Noname (Spartanburg County, J. H. Brittain, 1935; 1936).—About 3.0 miles southeast of Greer and 0.2 mile south of right-angled turn on State Highway 101, in southeast corner of front yard on property belonging to B. P. Johnson, about 30 meters (98 feet) east of southeast corner of house, 25 meters (82 feet) east of well, 14.8 meters (49 feet) east of twin oaks, 11 meters (36 feet) southwest of center line of dirt road and 4.6 meters (15 feet) west of an oak. To reach from Greer, follow State Highway 101 southeast from junction of U. S. Highway 29 for 3.2 miles to crossroad (store at southeast corner, and sign "Woodruff 17") and continue straight ahead (south) for 0.2 mile to sign "Mossy Lawn" on right and station. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Upper mark projects 3 inches. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 is 5.5 meters (18 feet) southwest of center line of road, 2 meters (7 feet) south of path to house and 23.367 meters (76.66 feet) northwest of station in azimuth 152°22′. Reference mark Nc. 2 is in fence line, 8 meters (26 feet) southeast of well, 7 meters (23 feet) south of twin oaks, and 18.237 meters (59.83 feet) southwest of station in azimuth 33°56′. Azimuth mark is in cultivated field at top of slope of road-cut, 50 meters (164 feet) north of negro cabin, 5 meters (16 feet) northeast of center line of U. S. Highway 101, 4.5 meters (15 feet) east of telephone pole 101, and about 1 mile east of station in azimuth 243°57′36″.0. Azimuth mark destroyed in 1936.

Plane coordinates: (N), x=1,642,115.01 feet; y=692,918.34 feet; the grid azimuth to the azimuth mark=244°38′01″.4.[1]

Inman (Spartanburg County, J. H. Brittain, 1935).—About 13 miles northwest of Spartanburg and 2 miles northwest of Inman, on east edge of woods, west of west edge of cultivated field on property of H. E. Chapman, about 200 feet east of highest point on Windmill Hill, 51 feet south of southeast corner of bungalow and 21 feet west of small oak. To reach from Inman, cross tracks on northwest side of railroad station and go 2.5 miles on first road to left to a five-road intersection and turn left on rough road for 0.25 mile to top of steep hill and station. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Upper mark projects 5 inches. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 projects 4 inches, is 4.5 feet west of bungalow and 46.44 feet north of station in azimuth 188°32′. Reference mark No. 2 is flush with ground and is on east slope of hill and 51.61 feet east of station in azimuth 271°24′. Azimuth mark projects 6 inches, is on south edge of right-of-way of east-west road, 100 feet east of barn,

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term.
[2] No check on this position.

For notes in regard to marking of stations, see p. 50.

69 feet west of center of T-intersection, 15 feet south of center line of road, and 0.9 mile southeast of station in azimuth 328°59′17″.7. To reach from station, go 0.25 mile to Five-corners and take road to Inman for 0.7 mile to T-intersection and mark located 69 feet west of this point. Azimuth from station to Inman, municipal water tank, is 325°03′57″.5.

Plane coordinates: (N), x=1,668,765.73 feet; y=754,679.17 feet; the grid azimuth to the azimuth mark=329°36′47″.0.[1]

SP 700 (S. C. Geod. S.) (Spartanburg County, J. Bowie, Jr., 1935).—About 1 mile northwest of Woodruff. To reach from water tank in Woodruff, go about 0.75 mile northwest on U. S. Highway 221 (road to Spartanburg) to point where highway forks to right and State Highway 101 (road to Greer) goes straight ahead; continue on dirt road for about 0.1 mile to crossroad; turn left (southwest) across railroad tracks for about 0.05 mile to driveway to farmhouse and turn right for about 0.05 mile to house and station located on property belonging to Mrs. W. W. Anderson, at southwest corner of yard in front of house, 16.3 meters (53 feet) south of south corner of house, 15.1 meters (50 feet) south of most southerly of two 30-inch oak trees, 10.4 meters (34 feet) southwest of chinaberry tree and 1.5 meters (5 feet) east of west side of yard. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 9 inches. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 projects 10 inches, is at south edge of peach orchard, 8.9 meters (29 feet) northeast of center line of driveway to house and 30.562 meters (100.27 feet) from the station in azimuth 247°56′. Reference mark No. 2 projects 12 inches, is in front of house, 7.2 meters (24 feet) south of center line of road and 42.787 meters (140.38 feet) south of station in azimuth 329°34′. SP 701 (S. C. Geod. S.) (azimuth) is on property belonging to L. G. Lanford, about 0.1 mile south of junction of U. S. Highway 221 and State Highway 101 (dirt road) 101.31 feet west of center line of U. S. Highway 221, 26 feet east of southeast corner of main part of barn, 4 feet south of 30-inch oak tree and 0.25 mile southeast of station in azimuth 317°59′37″.4. Following azimuths are from station: *Woodruff, Brandon Mills, tank*, azimuth 286°22′37″.0; *Woodruff, Brandon Mills, stack*, azimuth 289°46′04″.6; *Woodruff, municipal water tank*, azimuth 318°11′46″.4.

Plane coordinates: (N), x=1,684,921.64 feet; y=638,667.56 feet; the grid azimuth to SP 701 (S. C. Geod. S.)=318°35′08″.9.[1]

Wofford eccentric (Spartanburg County, J. Bowie, Jr., 1935).—About 0.5 mile north of center of Spartanburg, on Wofford College campus at west rear side of main building in angle formed by north wing and central portion of building, 15.2 feet north of north wall of central portion of building and 15 feet west of west wall of north wing. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 projects 1 inch and is 34.6 feet northeast of 30-inch oak tree (which is directly in line between the two reference marks), 20.1 feet west of northwest corner of north wing, and 22.17 meters (72.7 feet) from the station in azimuth 246°32′. Reference mark No. 2 projects 2 inches and is 113 feet east of dirt road behind campus, 24.3 feet southeast of telephone pole, 2 feet east of 10-inch vitrified ferrule and 28.905 meters (94.83 feet) northwest of station in azimuth 158°29′. Azimuth mark is about 1 mile (air line) northeast of station in azimuth 220°32′58″.2. To reach from station, go northeast around ball park and continue straight ahead for 0.6 mile to pavement (North Liberty Street); continue on North Liberty Street for 0.8 mile to overhead bridge across railroad tracks on left; cross tracks and go 0.2 mile on Fairview Heights to station (left) 4 paces south of center line of dirt road and 3 feet east of telephone pole.

Plane coordinates: (N), x=1,719,768.16 feet; y=714,195.53 feet; the grid azimuth to the azimuth mark=221°04′38″.7.[1]

Bagwell (Spartanburg County, J. Bowie, Jr., 1935).—About 7.75 miles south-southeast of Spartanburg, 2.5 miles east of Stone, 1.5 miles north-northwest of Pauline, on southeast slope of high hill (Gibbs' Mountain), on property of Mrs. Hattie Bagwell, 0.2 mile west of U.S. Highway 176, 0.15 mile northwest of Mrs. Bagwell's house, 13.02 meters (43 feet) north of 24-inch oak with triangular blaze on north side, 5 meters (16 feet) west-northwest of small corncrib, 10 feet lower than top of hill. To reach from junction of U.S. Highway 176 and State Highway 56 at Pauline, go 1.2 miles north on 176 (or 0.2 mile past

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term. For notes in regard to marking of stations, see p. 50.

junction of Roebuck Road) to dirt road at Mrs. Bagwell's house; turn left (south) for 0.2 mile to oak and pine grove (on right); turn right into grove for 0.1 mile to station at northwest edge of grove. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 9 inches. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 projects 8 inches, is at south edge of field, 18.24 meters (59.8 feet) east of triangular-blazed oak, and 18.46 meters (60.6 feet) southeast of station in azimuth 323°18′. Reference mark No. 2 projects 6 inches, is in grove, 17.60 meters (57.7 feet) west-northwest of triangular-blazed oak, 14 meters (46 feet) south of south edge of cultivated field and 23.036 meters (75.58 feet) west-southwest of station, in azimuth 80°47′. Azimuth mark projects 5 inches, is on property of Miss C. C. Hayes, 336 feet east of center line of U.S. Highway 176, 13 feet north of northeast corner of barn and about 0.5 mile southeast of station in azimuth 308°57′12″.5. The following azimuths are from station to: Stack 149°45′33″: *Spartanburg, municipal water tank, new*, pointing on center pipe at bottom of tank 159°18′36″.1.

Plane coordinates: (N), x=1,735,249.70 feet; y=672,504.32 feet; the grid azimuth to the azimuth mark=309°27′05″.5.[1]

Harrison (Union County, J. Bowie, Jr., 1935).—About 10.5 miles air line southwest of Jonesville, 8.5 miles airline south-southeast of Pauline, 6.0 miles east of Cross Anchor and 0.2 mile east of Coleraine School, on highest part of wooded hill (Battemans Mountain), 21.5 meters (71 feet) southwest of large dead tree, 9.4 meters (31 feet) west-southwest of 18-inch red oak, 8.0 meters (26 feet) southwest of oak (one trunk cut off), 6.9 meters (23 feet east of 30-inch chestnut oak leaning to southeast, and 4.5 meters (15 feet) north-northwest of 30-inch chestnut oak (triangular blaze on north side). Surface and underground marks are standard disks in concrete, notes 1a and 7a. Upper mark projects about 10 inches. Reference and azimuth marks are standard disks in concrete, notes 11b and 12c. Reference mark No. 1 is in outcropping rock and is 168.8 feet southeast of station in azimuth 306°45′. Reference mark No. 2 is set in outcropping rock and is 144.17 feet west-southwest of station in azimuth 65°56′. Azimuth mark projects about 6 inches and is in "V" formed by "Y" in dirt roads about 75 meters (246 feet) northeast of road intersection, 70 meters (230 feet) south of farmhouse, 35 meters (115 feet) southeast of driveway to house, 5 meters (16 feet) northeast of center line of main road, and about 0.75 mile north of station in azimuth 176°01′32″.0.

Plane coordinates: (U), x=1,758,137.12 feet; y=628,554.54 feet; the grid azimuth to the azimuth mark = 176°28′47″.7.[1]

Tinsley (Spartanburg County, J. Bowie, Jr., 1935).—About 7.5 miles east-southeast of Spartanburg and 0.25 mile north of Whitestone, on high ground of J. J. Tinsley's property, about 50 meters (164 feet) south-southeast of house, 44.95 meters (147.5 feet) south of southwest corner post in retaining wall of house, 21.2 meters (70 feet) east of southeast corner of fence around Parker cemetery lot, 18.7 meters (61 feet) south of 24-inch oak tree, 17.5 meters (57 feet) north of most northerly cedar tree and 9.2 meters (30 feet) west of center line of road. To reach from Spartanburg, follow State Highway 9 (road to Jonesville) about 8 miles southeast to Whitestone and turn south on road to Glen Springs and Cross Anchor for 0.25 mile to top of grade and station. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 6 inches. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 projects 8 inches and is 16.2 meters (53 feet) southeast of 30-inch oak on west side of road, 8 meters (26 feet) east of center line of road, 1.5 meters (5 feet) southeast of electric line pole and 48.589 meters (159.41 feet) from the station in azimuth 343°31′. Reference mark No. 2 projects 10 inches and is 31.4 meters (103 feet) west of center line of road, 2.4 meters (8 feet) northwest of northeast corner of stone graveyard fence and 23.357 meters (76.63 feet) northwest of station in azimuth 112°27′. Azimuth mark projects about 6 inches and is 115 feet northeast of center line of intersection of dirt road with State Highway 9, 36 feet southeast of center line of dirt road, 23 feet north of center line of State Highway 9 and about 0.5 mile northeast of station in azimuth 244°35′15″.0.

Plane coordinates: (N), x=1,755,662.70 feet; y=692,106.86 feet; the grid azimuth to the azimuth mark=245°02′50″.9.[1]

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[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term. For notes in regard to marking of stations, see p. 50.

Fowler (Union County, J. Bowie, Jr., 1935).—About 7 miles north-northeast of Buffalo and 1.5 miles air line east-southeast of Jonesville, on top of high hill, at west edge of woods, 4 meters (13 feet) southwest of blazed pine. To reach from Jonesville, follow State Highways 9 and 11 south for 1.2 miles to where Highway 9 forks left and becomes dirt road; turn left on Highway 9, crossing railroad, for 1.1 miles (or 0.15 mile beyond Lockhart Junction) to farm road at left and follow farm road (R. L. White mailbox here) for 0.35 mile to top of grade. Station is about 50 meters (164 feet) southeast of this point. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects about 4 inches. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 is at edge of woods and 39.054 meters (128.13 feet) southeast of station in azimuth 324°34′. Reference mark No. 2 is at corner of woods, and 23.640 meters (77.56 feet) northwest of station in azimuth 151°39′. Azimuth mark projects 6 inches and is about 60 meters (197 feet) east-southeast of railroad crossing, 20 meters (66 feet) south-southeast of railroad crossing, 7 meters (23 feet) north of center line of State Highway 9, 6 meters (20 feet) west of railroad sign and 0.25 mile southeast of station in azimuth 342°17′55″.4. Following azimuths are from station: *Jonesville, water tank*, 106°43′37″.8; *Union, standpipe*, 347°18′40″.9; Union stack, 352°28′19″.

Plane coordinates: (N), x=1,806,186.84 feet; y=664,298.27 feet; the grid azimuth to the azimuth mark=342°39′47″.7.[1]

Sardis (Union County, J. H. Brittain, 1935).—About 4 miles by road southeast of Union, in V formed by U. S. Highway 176 and dirt road forking to right at sign "Welcome to Mt. Vernon," in cultivated field at top of slope of deep cut on west side of road, about 45 meters (148 feet) south of center line of dirt road, 16 meters (52 feet) west of center line of highway and 10 meters (33 feet) north of edge of woods. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Upper mark projects about 3 inches. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 is at north edge of field, 12 meters (39 feet) south of center line of dirt road and 33.794 meters (110.87 feet) north of station in azimuth 180°20′. Reference mark No. 2 is at north edge of field, 12 meters (39 feet) south of center line of dirt road and 28.896 meters (94.80 feet) northwest of station in azimuth 115°56′. U 108 (S. C. Geod. S.) (azimuth) is a U. S. Coast and Geodetic Survey and State Survey standard disk set in top of stovepipe filled with concrete, flush with ground and is about 100 meters (328 feet) north of church, at corner of field and woods, 8 meters (26 feet) southeast of center line of highway, in north corner of cultivated field, on outside of a curve in highway and 0.5 mile northeast of station in azimuth 204°44′35″.3.

Plane coordinates: (N), x=1,816,576.62 feet; y=602,222.55 feet; the grid azimuth to U 108 (S. C. Geod. S.)=205°05′14″.7.[1]

Adams (Union County, J. H. Brittain, 1935).—About 8 miles north of Union and 1 mile north of Adamsburg, in cultivated field on highest point of prominent hill on property belonging to Mrs. Bessie C. Adams, about 0.2 mile south of Mrs. Adams' house and 93 feet north of hedgerow marking property line. To reach from Union, follow State Highways 11 and 92 for about 13.5 miles to Adamsburg; turn right across railroad tracks and go southeast for 0.4 mile to side road, and turn right for 0.15 mile to Mrs. Adams' house and station, located about 0.2 mile south of this point. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Upper mark is 12 inches below surface of ground. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 projects 4 inches, is on property line, and 105.38 feet southeast of station in azimuth 311°27′. Reference mark No. 2 projects 4 inches, is in hedgerow marking property line, and 112.67 feet from the station in azimuth 19°03′. *U 310 (S. C. Geod. S.)* (see description thereof) (azimuth) projects 3 inches, is about 100 yards east-southeast of crest of hill, 50 yards south of house, and 0.7 mile north-northwest of station in azimuth 155°55′01″.4.

Plane coordinates: (N), x=1,837,485.33 feet; y=649,083.11 feet; the grid azimuth to *U 310 (S. C. Geod. S.)*=156°13′21″.2.[1]

San (Union County, J. H. Brittain, 1935).—About 2.6 miles northwest of Carlisle and 2.1 miles east of Santuc, on outside of small highway cut where State Highway 215 (paralleling railroad) passes through deep cut, on top of slight hill, 24.6 meters (81 feet) southwest of telephone pole 389 (Coca Cola

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term. For notes in regard to marking of stations, see p. 50.

cap in base), 11.2 meters (37 feet) west of center line of road, 6.3 meters (21 feet) northwest of highway right-of-way marker and 6.0 meters (20 feet) northeast of telegraph pole. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Upper mark projects 6 inches. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 is 26.037 meters (85.42 feet) south of *U 233 (S. C. Geod. S.)*, 20 meters, (66 feet) southwest of railroad, 8.7 meters (29 feet) northeast of center line of highway, and 31.049 meters (101.87 feet) east of station in azimuth 276°47′. Reference mark No. 2 is 18.015 meters (59.10 feet) northwest of *U 233 (S. C. Geod. S.)*, 18.0 meters (59 feet) southwest of railroad, 9.2 meters (30 feet) northeast of center line of road, and 27.795 meters (91.19 feet) north of station in azimuth 183°51′. U 234 (S. C. Geod. S.) (azimuth) projects 6 inches and is outside of first highway curve southeast of station where highway passes through small cut atop slight grade, 24 meters (79 feet) northwest of telegraph pole 437, 18 meters (59 feet) southwest of railroad, 9 meters (30 feet) northeast of center line of road, and 1.3 miles southeast of station in azimuth 316°17′44″.2. *U 233 (S. C. Geod. S.)* (see description thereof) is 22.938 meters (75.26 feet) from station in azimuth 221°32′26″. Elevation: 561.61 feet.

Plane coordinates: (N), x=1,851,744.17 feet; y=588,767.71 feet; the grid azimuth to U 234 (S. C. Geod. S.)=316°34′25″.5.[1]

White (Chester County, J. H. Brittain, 1935).—About 12 miles west of Chester, 12 miles east of Union, and 4 miles south of Lockhart, on land owned by Tom White (occupied by negro tenant farmer), on highest point of prominent hill, about 125 feet south of southwest corner of house, 25 feet south of garden fence and 15 feet north of northeast corner of small barn. To reach from Lockhart, follow State Highway 9 east for 5.9 miles to road just beyond filling station on left (3.7 miles east of Turkey Creek Bridge) and turn right on main-traveled road for 1.6 miles south to house on left and station. Surface and underground marks are standard disks set in concrete, notes 1a and 7a. Upper mark projects 2 inches. Reference and azimuth marks are standard disks set in concrete, note 11a. Reference mark No. 1 projects 6 inches, is 20 feet southwest of southwest corner of house, 1 foot west and 1 foot south of northeast corner post of garden fence and 120.15 feet from station in azimuth 182°31′. Reference mark No. 2 projects 8 inches, is at the southeast corner of garden fence and 76.60 feet from station in azimuth 231°42′. Azimuth mark projects 6 inches, is 0.1 mile west of main-traveled road, 40 feet northeast of northeast corner of house, 25 feet southwest of center line of dirt road (on edge of right-of-way), 2 feet northeast of fence line, and approximately 0.8 mile from station in azimuth 37°12′36″.4.

Plane coordinates: (N), x=1,877,371.08 feet; y=630,387.02 feet; the grid azimuth to the azimuth mark=37°26′25″.8.[1]

Boulware (Fairfield County, R. D. Horne, 1934; 1935).—About 12.5 miles southwest of Chester, 11.0 miles northwest of Salem crossroads, 6.5 miles east-southeast of Carlisle and 6.0 miles northeast of Shelton, on top of open hill on property belonging to W. T. Boulware, about 95 feet east of center line of State Highway 215, 25 yards north of range with north side of Boulware's house, 16 yards west of range with west end of barn and 4 yards southwest of southwest corner of barnyard fence. To reach from Confederate Monument in Chester, follow paved State Highway 7 southwest for 14 miles and turn left on State Highway 215 for 2.7 miles to point about 200 yards beyond where highway crosses Chester-Fairfield County line. Surface and underground marks are standard disks set in concrete, notes 1b and 7a. Upper mark projects about 6 inches. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 (azimuth) is at north edge of some woods at top of hill, 95 yards west-northwest of highway, 15 yards southwest of center line of dirt T-road, 6 yards southwest of center line of old dirt road, and 0.2 mile south of station in azimuth 11°07′06″. Reference mark No. 2 is 30 yards north of highway right-of-way marker, 10 yards east of center line of highway, 4 yards east of top of highway cut, 1 yard south of range with station and tree across road, in wire fence line, and 67.81 feet southwest of station in azimuth 45°04′. Reference mark No. 3 is 27 yards east of center line of highway, 11 yards southeast of 14-inch tree, 1 yard south of northwest corner of barnyard fence, and 20.675 meters (67.83 feet) from station in azimuth 159°42′.

Plane coordinates: (N), x=1,886,052.57 feet; y=569,824.24 feet; the grid azimuth to reference mark No. 1=11°19′55″.[1]

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[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term. For notes in regard to marking of stations, see p. 50.

Wilkes (Chester County, R. D. Horne, 1934; 1935).—About 11 miles northeast of Carlisle, 7.5 miles southwest of Chester and 1.5 miles east of State Highway 7, on property belonging to H. A. Wilkes, on highest point of high wooded hill, in growth of pines, about 20 yards northwest of center line of dim road at edge of field, 38 feet south of center line of east-west dirt road, 25 feet south of 12-inch triangular-blazed pine, and 20 feet southwest of 12-inch triangular-blazed pine. To reach from Confederate Monument at Chester, go south on State Highway 7 for 6.8 miles to dirt T-road and turn left for 1.65 miles to station at top of grade. Station can also be reached from Carlisle by following State Highway 7 for 10.7 miles to T-road mentioned. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 7 inches. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 projects 12 inches, is on east slope of hill, 15 feet north of center line of dirt road, 11 feet east of 12-inch pine and 117.7 feet from the station in azimuth 250°34′. Reference mark No. 2 (azimuth) projects 14 inches, is on top of first hill to the east, 100 feet northwest of house, at south corner of garage and about 0.2 mile east-northeast of station in azimuth 254°40′40″. Reference mark No. 3 projects 1 inch, is 18 feet north of center line of dirt road and 102.58 feet northwest of station in azimuth 127°00′.

Plane coordinates: (N), x=1,916,966.91 feet; y=596,973.62 feet; the grid azimuth to reference mark No. 2=254°50′01″.[1]

Brice (Fairfield County, R. D. Horne, 1934).—About 1.2 miles west of Woodward, about 0.1 mile south of country road from Woodward to Avon, on knoll covered with sparse oak, on property of Homer Brice, 69 paces south-southwest of store on old road connecting Dumpers Creek-Avon and Avon-Woodward roads, 42 paces southwest of tenant house, 11 paces east of center line of north-south road from Dumpers Creek to Avon and 15.3 feet east of 8-inch pine, triangularly blazed. To reach from Woodward, go west from U.S. Highway 21 on first road south of Woodward railroad station for 1.2 miles (passing Gulf filling station on right) to T-road (Dumpers Creek Road) and turn left for 0.1 mile to station in woods on left. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 6 inches. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 projects 12 inches, is in woods west-northwest of northwest corner of log cow shed, 50 paces east-southeast of center line of Dumpers Creek Road, 7 paces southeast of twin 4-inch oak, 7 paces east of 10-inch oak, and is 128.6 feet from station in azimuth 285°13′. Reference mark No. 2 projects 12 inches, is at northeast edge of woods, 11 paces west of Dumpers Creek Road, 5 paces northwest of 10-inch oak, 5.0 feet southeast of 4-inch oak, and 164.7 feet from station in azimuth 26°14′. Azimuth mark projects 8 inches, is 155 feet north of tenant house, 7.0 feet east of road running northwest through field north of station, and 0.25 mile from station in azimuth 138°25′08″.8.

Plane coordinates: (N). x=1,943,491.02 feet; y=551,655.55 feet; the grid azimuth to azimuth mark=138°31′30″.0.[1]

Blackstock (Fairfield County, R. D. Horne, 1934; 1935).—In eastern part of Blackstock, about 10 miles south of Chester on U. S. Highway 21 (Chester-Columbia Highway), about 0.2 mile east-southeast of Southern Railway station, on property belonging to Blackstock Presbyterian Church, 69 feet southwest of northwest corner of church and 59 feet west of southwest corner of church. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 12 inches. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 is 92 feet southwest of southeast corner of church, 84 feet south of southwest corner of church, 3 feet north of north edge of parsonage yard and 118.66 feet southeast of station in azimuth 301°49′. Reference mark No. 2 projects 18 inches, is on west side of hill about 50 feet south of south wall of church extended and 125.49 feet southwest of station in azimuth 51°45′. Azimuth mark is at southeast corner of warehouse, 290 feet north of center line of main railway tracks, 123 feet southwest of 48-inch white oak tree and about 0.25 mile northwest of station in azimuth 135°21′44″.5.

Plane coordinates: (N), x=1,954,498.99 feet; y=567,075.25 feet; the grid azimuth to azimuth mark=135°26′51″.6.[1]

Salem (Fairfield County, R. D. Horne, 1934).—On Monticello Public School grounds at junction of State Highways 22 and 215, 0.3 mile east of Salem cross-

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term. For notes in regard to marking of stations, see p. 50.

roads and 80 feet east of west timber line of pine grove, back of school, on highest part of ground east of school. To reach from Winnsboro, follow State Highway 215 west for 14 miles. To reach from Newberry, follow State Highway 22 northeast for 23 miles to Salem crossroads. Surface and underground marks are standard disks set in concrete, notes 1b and 7a. Reference and azimuth marks are standard disks set in concrete, notes 11b and 12c. Reference mark No. 1 is in clearing in pine grove and 86.72 feet from station in azimuth 212°47′. Reference mark No. 2 is in pine grove and 88.90 feet southeast of station in azimuth 330°46′. Reference mark No. 3 (azimuth) is set in concrete curbing, 3 feet north of column supporting canopy of service station on west side of curbing at crossroads and 0.25 mile southwest of station in azimuth 38°38′52″.4.

Plane coordinates: (N), x=1,910,925.09 feet; y=518,279.53 feet; the grid azimuth to reference mark No. 3=38°48′52″.6.[1]

McLurkin (Fairfield County, R. D. Horne, 1934).—About 3 miles southwest of State Highway 215 and 1 mile east of Southern Railway station at Shelton, on high ground northeast of Broad River, on property belonging to W. M. McLurkin (occupied by R. D. Feaster), about 48 feet south of south corner of McLurkin house, 40 feet north of center line of dirt road and 26 feet northwest of McLurkin tombstone in cemetery. To reach from Newberry, follow State Highway 22 east for 22 miles to Salem crossroads; turn left on State Highway 215 for 8.1 miles to sand-clay road; turn left for 3.1 miles to road with sign "Shivar Springs 1 Mile" and turn left for 0.15 mile to station at top of hill. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 (azimuth) is about 0.2 mile east of crossroads with "Shivar Springs" sign, 100 yards west of old house, 20 yards north of center line of sand-clay road and 0.2 mile east of station in azimuth 255°18′30″. Reference mark No. 2 is 50 yards southwest of McLurkin house, 15 yards east of center line of road to Shivar Springs, 5 yards west of another dirt road and 129.8 feet (slope) from station in azimuth 76°55′. Reference mark No. 3 is 25 yards west of west corner of house, 12 yards east of center line of road to Shivar Springs, 9 feet north of center line of road to house, 3 feet south of garden and 127.25 feet from station in azimuth 157°41′.

Plane coordinates: (N), x=1,876,869.52 feet; y=544,473.65 feet; the grid azimuth to reference mark No. 1=255°32′20″.[1]

White Oak (Fairfield County, R. D. Horne, 1934).—About 7 miles north of Winnsboro, on hill in southwest edge of White Oak, on property owned by First Carolinas Joint Stock Land Bank (occupied by Walter Wilson), 0.15 mile west of Shell filling station, 134.5 feet northwest of 36-inch oak, 80.5 feet north of north corner of dwelling and 7 paces east-southeast of old shed. To reach from Shell filling station at White Oak, go south on U. S. Highway 21 for 0.1 mile and turn right in driveway for 0.1 mile to station north of dwelling on top of hill. Surface and underground station marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 4 inches. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 projects 8 inches and is 17 paces northeast of northeast corner of dwelling, 12 paces north-northwest of 36-inch oak, 3 paces northwest of center of driveway and 97.43 feet (slope) from station in azimuth 282°30′. Reference mark No. 2 (azimuth) projects 12 inches and is 9 paces west of center line of highway, 9 paces southwest of road signpost "U S 21," 2 paces southeast of 16-inch tree at northeast corner of woods and 0.5 mile from station in azimuth 356°19′50″.6. Reference mark No. 3 projects 10 inches and is 10 paces west of west corner of bottom step to dwelling porch, 8 paces southeast of southeast corner of dwelling, 8 paces east-southeast of 40-inch oak, 1 foot west of garden fence, and 115.55 feet from station in azimuth 8°59′. Following azimuths are from station: Church spire, lightning rod on top (white frame, colored Baptist) 188°13′42″; Church spire, finial (A. R. P. white frame), 209°32′10″.

Plane coordinates: (N), x=1,963,809.79 feet; y=534,433.26 feet, the grid azimuth to reference mark No. 2=356°23′54″.6.[1]

Macafee (Fairfield County, R. D. Horne, 1934).—To reach from Monticello, follow State Highway 215 toward Columbia for 2.2 miles to fork; turn left for 0.4 mile to fork; turn left for 0.6 mile to fork; take left fork for 1.9 miles (or 0.7 mile beyond brick church near Little River) to Y-intersection; keep

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term. For notes in regard to marking of stations, see p. 50.

straight ahead for 1.2 miles and turn left at arrow sign to right and granite quarry and proceed 0.5 mile to station located about 200 yards to right in front of two-story house with granite block pillars, 158 feet north-northwest of northeast corner of the most northeast pillar and 154 feet north of the northwest corner of most northwest granite pillar under house. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects about 6 inches. Reference and azimuth marks are standard disks in concrete, notes 12c and 11b. Reference mark No. 1 is cemented into top of large boulder, is 98 feet northeast of northwest corner of northwest pillar of house, 89 feet north-northwest of northeast corner of granite pillar, and 72.11 feet east of station in azimuth 272°39′. Reference mark No. 2 projects about 6 inches, is in range line of station, a power transmission line tower in ravine and some very large boulders southwest of station on slope, and is 148.31 feet from the station in azimuth 15°23′. Reference mark No. 3 (azimuth) is 31 paces south of dim place entrance road, 9 paces west-northwest of center line of main road and about 0.3 mile southwest of station in azimuth 69°27′04″.7.

Plane coordinates: (N), x=1,930,526.90 feet; y=486,396.84 feet; the grid azimuth to reference mark No. 3=69°34′52″.4.[1]

Winnsboro (U. S. G. S.) (Fairfield County, R. D. Horne, 1934).—In town of Winnsboro, on grounds of Mount Zion Institute, 200 feet east of west edge of park in front of school building, 175 feet southwest of monument to Jacob Wilson Hudson which is in park in front of school, and 10 feet north of south edge of lot. Mark is old U. S. Geological Survey mark which is bronze metal disk with arrow pointing north. Mark has been regrouted, does not have dates and names stamped on it, and is 2 inches below surface of ground. Reference mark No. 1 is standard reference disk in southwest corner of third step at foot of monument to Jacob Wilson Hudson, 108.70 feet from station in azimuth 131°51′. Reference mark No. 2 is standard reference disk in stone wall on north side of Garden Street, between seventh and eighth stone posts in wall west from corner, and about 0.5 mile from station in azimuth 110°31′59″.5. Reference mark No. 3 is standard reference disk in concrete, 48 feet west of 36-inch water oak, 21 feet north of center line of walk leading east to monument and school, 6 feet northeast of 3-inch live oak, and 91.63 feet from station in azimuth 236°16′. Standard disk in concrete marking Coast and Geodetic Survey magnetic station is 95 feet south of center of road, 30 feet southwest of corner of wire fence, 6 feet north of northeast edge of football field, and 372.3 feet from station in azimuth 185°01′03″. This mark is reported by director of school to have been moved, but replaced in approximately its original position.

Plane coordinates: (N), x=1,974,444.90 feet; y=503,416.29 feet; the grid azimuth to reference mark No. 2=110°34′51″.6.[1]

Lewis (Fairfield County, R. D. Horne, 1934).—About 6 miles south-southwest of Winnsboro, on land owned by L. B. Lewis. To reach from Rockton railroad station on U. S. Highway 21, turn south onto Greenbriar road and go 3.1 miles to Lewis' store on south side of road, and station on east side of road, 59 feet east of end of concrete abutment wall, 31.7 feet west of southwest corner of Lewis' store, and 30.4 feet south of 10-inch black oak on south edge of Greenbriar road. Surface and underground marks are standard station disks in concrete, notes 1b and 7a. Reference marks are standard reference disks in concrete, note 11b. No. 1 is 13 paces southwest of west end of abutment wall, 9 paces south of center line of road, and 152.00 feet (180.7 feet slope) from station in azimuth 36°56′. No. 2 is 18 paces from southeast corner of frame house, 6 paces northeast of center line of north-and-south dirt road, and about 0.5 mile from station in azimuth 44°32′32″.7. No. 3 is 12 paces west of center line of Greenbriar road, 2 feet west of telephone pole, and 91.63 feet from station in azimuth 162°06′.

Plane coordinates: (N), x=1,965,786.53 feet; y=476,199.13 feet; the grid azimuth to reference mark No. 2=44°36′22″.9.[1]

Glenn (Fairfield County, R. D. Horne, 1934).—About 3 miles southeast of Jenkinsville, on land owned and occupied by Katie Glenn. To reach from intersection of State Highway 215 and U. S. Highway 21 in Columbia, follow State Highway 215 northwest about 22 miles to Glenn's house on north side of highway and station. Station is on top of highest hill in that section, in

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term.

For notes in regard to marking of stations, see p. 50.

south corner of Glenn's front yard, 68 feet south of south corner of house, 51 feet northeast of center line of State Highway 215, and 28 feet northwest of wire fence corner. Surface and underground marks are standard station disks in concrete, notes 1b and 7a. Reference marks Nos. 1 and 2 are standard reference disks in concrete, note 11b. No. 1 is on top of slight rise, about 35 yards east of east corner of Negro farmhouse, 12 yards southeast of center line of dirt road to house, 8 yards southwest of center line of State Highway 215, and about 0.4 mile from station in azimuth 325°40′54″.8. No. 2 is 6 feet east of a telephone pole 29 feet southwest of center line of State Highway 215, and 147.5 feet from station in azimuth 347°23′. Reference mark No. 3 is standard reference disk in northwest end of top step of block of 8 concrete steps in front of Glenn's house and 85.2 feet from station in azimuth 124°06′.

Plane coordinates: (N), x=1,924,868.38 feet; y=453,454.83 feet; the grid azimuth to reference mark No. 1=325°49′20″.0.[1]

Ridgeway (Fairfield County, R. D. Horne, 1934).—About 6.0 miles south of Ridgeway railroad station, on property of Ridgeway Presbyterian Church (colored). To reach from Ridgeway railroad station, follow State Highway 43 south 0.6 mile to church and station. Station is 0.1 mile north of intersection of State Highway 43 and U. S. Highway 21, 51.5 feet east of center of State Highway 43, 59 paces southwest of Ridgeway colored school, 77.0 feet west-southwest of northwest corner of church, and 73.8 feet north of southwest corner of church. Surface mark is standard station disk in concrete, note 1b, projecting 10 inches above ground. Underground mark is nail in concrete, note 7c. Reference marks are standard reference disks in concrete, note 11b, projecting 10 inches above ground. No. 1 is 7 feet north-northwest of southwest corner of church, 2.7 feet west of west side (front) of church, 2.5 feet south of south wall of church vestibule, and 70.80 feet (slope) from station in azimuth 251°39′. No. 2 is 43 paces southwest of southwest corner of church, 21 paces south of center of driveway to church, 9 paces east of center of State Highway 43, and 130.35 feet (slope) from station in azimuth 342°42′. No. 3 is 0.2 mile south of intersection of U. S. Highway 21 and State Highway 43, 28 paces east of center of U. S. Highway 21, 60 feet west of west rail of Southern Railway, 18 feet northeast of northeast corner of Esso filling station, and 0.3 mile from station in azimuth 350°07′28″.0. Azimuth from station to *Ridgeway, black water tank, ball on top* is 142°58′02″.2.

Plane coordinates: (N), x=2,014,312.86 feet; y=472,781.06 feet; the grid azimuth to reference mark No. 3=350°05′51″.7.[1]

Douglas (Richland County, R. D. Horne, 1934).—About 12 miles northwest of Columbia, 3 miles east of Lever Crossroads, on high hill known as Old Camp Grounds Hill. To reach from junction of State Highway 215 and U. S. Highway 21 at Columbia, go north 9.4 miles to Gulf filling station at Lever Crossroads, about 1.5 miles northeast of Montgomery railway station, turn right (east) and go 2.8 miles to Old Camp Grounds Schoolhouse, and station in edge of pine woods, about 75 yards south of dirt country road, 133 feet southeast of southeast corner of schoolhouse, 81 feet northeast of northeast corner of school toilet, and 41 feet west of center line of abandoned trail. Surface and underground marks are standard station disks in concrete, notes 1b and 7a. Reference marks are standard reference disks in concrete, note 11b. No. 1 is about 40 yards east of road that turns north at curve in main road, 8 yards north of center line of dirt road, and about 0.15 mile from station in azimuth 255°42′13″. No. 2 is in woods, 15 paces south of south corner of schoolhouse, 21 feet southeast of 30-inch pipe 9 feet northeast of another 30-inch pine, and 125.4 feet from station in azimuth 27°52′. No. 3 is 1 foot east of southeast brick foundation post of schoolhouse, and 133.33 feet from station in azimuth 154°08′.

Plane coordinates: (N), x=1,982,506.22 feet; y=416,479.16 feet; the grid azimuth to reference mark No. 1=255°44′10″.[1]

Supplementary points

Spartanburg, airport beacon (Spartanburg County, J. H. Brittain, 1935).—Plane coordinates: (N), x=1,712,752.74 feet; y=699,447.47 feet.

Airway Beacon, No. 14, Atlanta-New York (Spartanburg County, J. H. Brittain, 1935).—Plane coordinates; (N), x=1,670,441.21 feet; y=664,373.36 feet.

Metropolitan District B, tank (Spartanburg County, J. H. Brittain, 1935).—Plane coordinates: (N), x=1,704,701.44 feet; y=726,116.91 feet.

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[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term. For notes in regard to marking of stations, see p. 50.

Southern Railway Company, tank (Spartanburg County, J. H. Brittain, 1935).—Plane coordinates: (N), x=1,705,446.71 feet; y=724,816.82 feet.

Southern Railway Company, stack (Spartanburg County, J. H. Brittain, 1935).—Plane coordinates: (N), x=1,705,395.92 feet; y=724,752.50 feet.

Lyman, Pacolet Mills, tank (Spartanburg County, J. H. Brittain, 1935).—Plane coordinates: (N), x=1,662,886.17 feet; y=711,001.74 feet.

Lyman, Pacolet Mills, northeast stack (Spartanburg County, J. H. Brittain, 1935).—Plane coordinates: (N), x=1,662,497.03 feet; y=709,432.13 feet.

Lyman, Pacolet Mills, southwest stack (Spartanburg County, J. H. Brittain, 1935).—Plane coordinates: (N), x=1,662,400.33 feet; y=709,413.08 feet.

S P 121 (S. C. Geod. S.) (Spartanburg County, J. H. Brittain, 1935).—At west edge of Duncan, in V of Y formed by U. S. Highway 29 and dirt road to Highlands, 25 feet north of center line of U. S. Highway 29 and 22 feet west of center line of dirt road, on bank about 3 feet above level of highway. To reach from Spartanburg, go east on U. S. Highway 29 for about 11 miles to Duncan and station. Station is a U. S. Coast and Geodetic Survey and State Survey standard disk in 6-inch concrete post projecting 10 inches. Reference and azimuth marks are standard disks in concrete, Note 11a. Reference mark No. 1 is across U. S. Highway 29 and 15.673 meters (51.42 feet) south of station in azimuth 2°05′. Reference mark No. 2 is 14.823 meters (48.63 feet) northwest of station in azimuth 148°34′. S P 122 (S. C. Geod. S.) (azimuth) projects 4 inches. is on south side of highway, on top of 15-foot embankment, 225 feet east of barn, 40 feet south of center line of U. S. Highway 29, 6 feet south of top of cut, and 0.9 mile west of station in azimuth 79°18′09.2″. Silver tank is about 0.25 mile northwest of station in azimuth 153°02′33″.0.

Plane coordinates: (N), x=1,655,209.85 feet; y=707,667.24 feet; the grid azimuth to S. P. 122 (S. C. Geod. S.)=79°57′07″.0.[1]

Greenville (Greenville County, J. H. Brittain, 1935).—At Greenville, in V-shaped park area formed by Main Street and entrance to Springwood Cemetery, 98.7 feet south-southwest of southwest corner of first step of Confederate Memorial Monument, 40 feet north of north curb of driveway into cemetery and 22 feet east of east curb of Main Street. To reach from Greenville, go one block north from junction of State Highways 25 and 29 (Ottaray Hotel). Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference and azimuth marks are standard disks in concrete. Reference mark No. 1 is set in concrete sidewalk across driveway to cemetery and is 18.892 meters (61.98 feet) south of station in azimuth 13°14′. Reference mark No. 2 is set in concrete sidewalk across Main Street and is 21.14 meters (69.4 feet) west of station in azimuth 87°48′. Azimuth mark is set in concrete post, on point of high ridge, about 25 feet north of Balsom Road, directly east of J. B. Curry's home (No. 1612), 2 feet west of wire fence post (by third post from south end of fence), and 1.5 miles east of station in azimuth 256°37′49″.8. To reach mark from station, go south on Main Street to North Street, turn left and follow U. S. Highway 276 (East North Street) for 0.9 mile to where highway turns right; continue straight ahead across bridge for 0.75 mile to steep dirt road (sign on telephone pole "Balsom Road") and turn right for 0.08 mile to south end of wire fence. Following distances and azimuths are from station: Belfry (south on Main Street), 0.75 mile, 20°20′24″; *Greenville, Episcopal Church, spire*, 335°24′46″.3.

Plane coordinates: (N), x=1,580,830.43 feet; y=677,905.60 feet; the grid azimuth to the azimuth mark=257°25′09.″0.[1]

Greenville, Episcopal Church, spire (Greenville County, C. O. Boutelle, 1875; 1935).—Plane coordinates: (N), x=1,581,524.69 feet; y=676,331.51 feet.

Greenville magnetic station (Greenville County, J. H. Brittain, 1935).—At Greenville, in northeast side of Springwood Cemetery, about 1,900 feet from Christ Episcopal Church, 1000 feet northeast of Ottaray Hotel, 614 feet east of Park School, 214 feet west of pond and 5.7 feet from J. Wattie Bromlett, gravestone. Station is a standard disk in a limestone post 6 by 6 by 30 inches. Following azimuths are from station: Southeast edge of Park Schoolhouse, 92°51′, north corner of Ottaray Hotel, 53°32′30″.

Plane coordinates:[2] (N), x=1,581,655 feet; y=678,168 feet.

Airway beacon No. 13 B, Atlanta-New York (Greenville County, J. H. Brittain, 1935).—Plane coordinates: (N), x=1,599,565.28 feet; y=679,076.84 feet.

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[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term.
[2] No check on this position.
For notes in regard to marking of stations, see p. 50.

Jonesville, water tank (Union County, J. H. Brittain, 1935).—Plane coordinates: (N), x=1,795,682.70 feet; y=667,528.08 feet.

U 201 (S. C. Geod.) (Union County, J. H. Brittain, 1935).—About 3.4 miles northwest by road from Jonesville. To reach from main crossroads in Jonesville, follow State Highways 9 and 11 to overhead bridge across railroad cut, where dirt T-road leads east, in northeast corner of intersection between highway and Southern Railway, 16 meters (52 feet) west of center line of railway, 9 meters (30 feet) east of center line of highway, 4 meters (13 feet) north of center line of dirt road, 3 meters (10 feet) west-northwest of northwest corner of bridge and 1.25 meters (4.1 feet) northeast of "STOP" sign. The surface mark is a U. S. Coast and Geodetic Survey and State Survey standard disk set in concrete, note 1a, projecting about 2 inches above ground. Reference and azimuth marks are standard disks set in concrete, note 11a. Reference mark No. 1 is 8.4 meters (28 feet) west of center line of highway, 1.5 meters (5 feet) south of range with south side of bridge and 20.28 meters (66.5 feet) from station in azimuth 52°38′. Reference mark No. 2 is 35.219 meters (115.55 feet) northeast of No. 1, 16 meters (52 feet) west of center line of railway, 13 meters (43 feet) south-southwest of telephone pole, 9.4 meters (31 feet) east of center line of highway and 21.584 meters (70.81 feet) from station in azimuth 167°06′. Azimuth mark U 202 (S. C. Geod. S.) is 2.3 miles by road northwest of Jonesville, in narrow strip of land between State Highways 9 and 11 and railroad, about 150 meters (492 feet) east of top of grade of highway, 13.7 meters (45 feet) north of center line of highway, 9.8 meters (32 feet) south of south rail of track, 8 meters (26 feet) southeast of telephone pole, at piece of steel rail driven on north side of highway at station, and 1.1 miles from station in azimuth 294°50′29″.9. Azimuth from station to *Jonesville, water tank* is 305°50′24″. Elevation: 728.26 feet.

Plane coordinates: (N), x=1,780,977.01 feet; y=678,311.10 feet; the grid azimuth to U 202 (S. C. Geod. S.)=295°15′13″.5.[1]

Union (Union County, J. Bowie, Jr., 1935).—To reach from Confederate Monument at Union Courthouse, go east on Main Street for 1 block and turn left on U. S. Highway 176 for 1.2 miles; bear left at point where Highway 176 crosses Southern Railway and State Highway 11 turns right and continue on Highway 176 for 0.25 mile to white cottage (Mr. Bishop's house) on left at top of grade. Station is 186 feet south of center line of Highway 176, 80.3 feet southeast of southeast corner of Mr. Bishop's house, 77 feet northeast of northeast corner of sheet-metal barn and garage and 6 paces north of dirt driveway. Surface and underground marks are standard disks in concrete, 1b and 7a. Upper mark is 14 inches below surface of ground. Reference and azimuth marks are standard disks in concrete, notes 11a and 11b. Reference mark No. 1 projects 5 inches, is 5 paces north of dirt driveway and 46.138 meters (151.37 feet) east of station in azimuth 262°03′. Reference mark No. 2 projects 6 inches, is 4.5 feet east of an outhouse and 50.398 meters (165.35 feet) from station in azimuth 22°14′. U 211 (S. C. Geod. S.) (azimuth) is flush with top of bank, 44 feet east of center line of State Highway 11, 35 feet south of telephone pole 10, 23 feet west of center line of Southern Railway tracks, 5 paces south of center line of driveway to small white house and barn on west side of State Highway 11, and about 0.8 mile north of station in azimuth 180°39′07″.8. Following distances and azimuths are from station U 212 (S. C. Geod. S.) about 0.2 mile, 262°02′47″.4, *Union, standpipe*, 1.0 mile, 116°07′18″.5.

Plane coordinates: (N), x=1,809,062.84 feet; y=630,340.28 feet; the grid azimuth to U 211 (S. C. Geod. S.)=181°00′39″.2.[1]

Union, standpipe (Union County, J. H. Brittain, 1935).—Plane coordinates: (N), x=1,814,162.32 feet; y=627,801.92 feet.

Transit traverse station No. 143 D C (U. S. G. S.) (Union County, J. H. Brittain, 1935).—At Adamsburg, on property belonging to E. M. Adams & Sons, about 57 feet north of center line of State Highway 92 and 6 feet west of southwest corner of Adams grocery store. Station is a standard U. S. Geological Survey disk set in 7 x 7 inch concrete post projecting 3 inches. *U 310 (S. C. Geod. S.)* (see description thereof) is 1,579.13 feet from station in azimuth 109°33′33″.8.

Plane coordinates:[2] (N), x=1,837,402.52 feet; y=652,105.24 feet.

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[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term.
[2] No check on this position.

For notes in regard to marking of stations, see p. 50.

Transit traverse station No. 144 D C (U. S. G. S.) (Union County, J. H. Brittain, 1935).—About 8.0 miles north of Union, 0.25 mile east of Kelly, in "V" of "Y" formed by State Highway 92 and dirt road to Kelton, 0.2 mile east of junction of State Highways 92 and 11, about 120 feet west of west edge of Vicks Service Station, 85 feet east of the "V" point, 74.4 feet north of north rail of railroad and 31 feet north of center line of State Highway 92. To reach from Union, go north on U. S. Highway 176 to junction of State Highway 92 and turn east on State Highway 92 to Kelly (station is 0.2 mile east of Kelly). Station is a standard U. S. Geological Survey disk set in 7 x 7 inch concrete post projecting 5 inches. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 projects 4 inches, is in range with south edge of service station and 25.468 meters (83.56 feet) east of station in azimuth 266°29′. Reference mark No. 2 projects 4 inches, is south of center line of highway, 13.6 feet north of north rail of railroad and 18.53 meters (60.8 feet) south of station in azimuth 346°39′. U 304 (S. C. Geod. S.) (azimuth) is 8 miles north of Union, about 195 feet north of junction of State Highways 11 and 92, 127.5 feet south of south rail of tracks, 44 feet south of center line of State Highway 92, 3.5 feet south of edge of ditch on south edge of right-of-way and 0.25 mile west of station in azimuth 88°21′23″.3.

Plane coordinates: (N), x=1,821,775.93 feet; y=659,957.04 feet; the grid azimuth to azimuth mark U 304 (S. C. Geod. S.)=88°41′29″.9.[1]

U 109 (S. C. Geod. S.) (Union County, J. H. Brittain, 1935).—About 4 miles southeast of Union where dirt road forks to right from U. S. Highway 176 at sign "Welcome to Mt. Vernon" just inside north edge of woods, 60 meters (197 feet) south of dirt road, 20 meters (66 feet) west of center line of highway where it curves left (downgrade through deep cut), 3.5 meters (11 feet) east of pine bearing two blazes (upper blaze triangular, lower containing Coca Cola cap), and 1.5 meters (5 feet) southeast of small blazed pine. Station is a U. S. Coast and Geodetic Survey and State Survey standard disk set in top of stovepipe filled with concrete, note 1a, flush with ground and is 16.963 meters (55.65 feet) from *Sardis* (see description thereof) in azimuth 206°30′.

Plane coordinates:[2] (N), x=1,816,551.51 feet; y=602,172.86 feet.

U 310 (S. C. Geod. S.) (Union County, J. H. Brittain, 1935).—About 0.2 mile west of Adamsburg, on south edge of right-of-way of State Highway 92, about 100 yards south-southeast of crest of hill and 50 yards south of a house. Station is State Survey standard disk in concrete, projecting 2 inches. Following distances and azimuths are from station: *Adams* (see description thereof), 1,185.3 meters (3,889 feet), 335°54′50″.5.

Plane coordinates:[2] (N), x=1,835,917.42 feet; y=652,641.84 feet.

Fire control tower (Union County, J. H. Brittain, 1935).—Plane coordinates: (N), x=1,822,144.74 feet; y=554,429.92 feet.

U 233 (S. C. Geod. S.) (Union County, J. H. Brittain, 1935).—About 2.6 miles by road west of Carlisle and 2.1 miles by road east of Santuc on State Highway 215 where highway and paralleling railway on east pass through cuts, about 15 meters (49 feet) west of railway right-of-way, 11.6 meters (38 feet) east of center line of highway, 8.30 meters (27.2 feet) northwest of highway right-of-way marker, and 1.52 meters (5.0 feet) west of telegraph pole 389. Station is a U. S. Coast and Geodetic Survey and State Survey standard disk set in concrete, note 1a, and is 26.037 meters (85.42 feet) northwest of reference mark No. 1, 22.938 meters (75.26 feet) east of *San* (see description thereof), and 17.015 meters (55.82 feet) southeast of reference mark No. 2. Elevation: 563.74 feet.

Plane coordinates:[2] (N), x=1,851,794.34 feet; y=588,823.78 feet.

Winnsboro, silver water tank (Fairfield County, J. H. Brittain, 1934).—Plane coordinates: (N), x=1,975,137.85 feet; y=494,226.59 feet.

Winnsboro, black water tank (Fairfield County, J. H. Brittain, 1934).—Plane coordinates:[2] (N), x=1,975,165 feet; y=503,527 feet.

Winnsboro magnetic station (Fairfield County, R. D. Horne, 1934).—Station is a standard disk in concrete marking, Coast and Geodetic Survey magnetic station 95 feet south of center of road, 30 feet southwest of corner of wire fence, 6 feet north of northeast edge of football field, and 372.3 feet from station in azimuth 5°01′03″. This mark is reported by director of school to have been moved, but replaced in approximately its original position. See description of *Winnsboro* (*U. S. G. S.*).

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[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term.
[2] No check on this position.
For notes in regard to marking of stations, see p. 50.

Plane coordinate:[2] (N), x=1,974,477.81 feet; y=503,787.16 feet; the grid azimuth to *Winnsboro (U. S. G. S.)*=5°03′55″.

Blume (Richland County, R. D. Horne, 1934).—About 13 miles west-northwest of Columbia, in Mr. Blume's farmyard, 38 feet south of southeast corner of house, and 16 feet west of northwest corner of tool shed. To reach from Columbia, follow U. S. Highway 76 to North Eau Claire and intersection with State Highway 215, turn left onto State Highway 215 and go 12.6 miles to Hennon store, turn sharply to right 100 yards southeast of store at forks of paved and dirt roads, follow dirt road 0.7 mile to white church and graveyard, continue 0.5 mile to wooden bridge and T-road, then go 0.7 mile up hill to forks, take left fork and go 1.0 mile to farm lane 200 yards east of forks, turn right onto farm lane and go 0.25 mile to station. Surface and underground marks are standard station disks in concrete, notes 1b and 7a. Reference mark No. 1 is standard reference disk in concrete, note 11a, projecting 9 inches above ground, 50.6 feet southeast of northwest corner of house, 36.5 feet east of southeast corner of house, and 122.20 feet from station in azimuth 220°10′. Reference mark No. 2 is standard reference disk in large flint rock, note 12c, 14 paces northwest of 36-inch white oak, 12 feet east of northeast corner of barn, and 103.84 feet from station in azimuth 76°18′. Reference mark No. 3 is standard reference disk in concrete, note 11a, projecting 9 inches above ground, on east side of farm lane, 6 paces south of center line of main dirt road, 2 feet south of fence corner, and 0.25 mile from station in azimuth 142°24′27″.8. Azimuth from station to *Ridgeway black water tank, ball on top*, is 230°46′49″.1.

Plane coordinates: (N), x=1,967,428.94 feet; y=439,287.48 feet; the grid azimuth to reference mark No. 3=142°28′06″.7.[1]

Ridgeway, black water tank, ball on top (Fairfield County, J. H. Brittain, 1934).—For geographic position of Blaney 2 see South Carolina publication No. 3.

Plane coordinates: (N), x=2,012,120.53 feet; y=475,683.99 feet.

CHARLOTTE, N. C., TO AUGUSTA, GA., ARC

Principal points

Mineral (Union County, N. C., R. D. Horne, 1934; 1935).—8.9 miles southwest of Monroe, 3.2 miles east of Waxhaw and 1.4 miles southwest of Mineral Springs, in the northeast angle of crossroad formed by intersection of State Highway 25 and north-south dirt road, in west edge of woods on property belonging to Davis Griffin, 50 feet east of center line of north-south road, 41.5 feet north of center line of highway and 17.8 feet east of 16-inch pine with two triangular blazes on south side. To reach from Monroe, follow State Highway 25 southwest for 8.9 miles. To reach from Waxhaw, follow State Highway 25 (road to Monroe) east for 3.2 miles. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 10 inches. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 projects 10 inches and is 28.8 feet south of center line of highway, 5 paces east of 14-inch pine, 2 feet north of wire fence line at edge of woods and 83.85 feet (slope) from station in azimuth 306°04′. Reference mark No. 2 projects 6 inches and is at north edge of cultivated field, 23 paces west of junction of highway and dirt road, 25.6 feet south of center line of highway and 40.037 meters (131.35 feet) from station in azimuth 38°31′. Reference mark No. 3 (azimuth) projects 8 inches and is 110 feet south of center line of highway, 10 feet east of east edge of small grove of trees; 2 feet south of southeast corner of small tin-roofed shed and about 0.1 mile from station in azimuth 55°17′54″.

Plane coordinates: (N), x=2,002,722.10 feet; y=702,767.20 feet; the grid azimuth to reference mark No. 3=55°07′25″.[1]

Providence (Mecklenburg County, N. C., R. D. Horne, 1934).—About 12 miles south-southeast of Charlotte, 6 miles east-southeast of Pineville, 4½ miles east-northeast of North Carolina-South Carolina State line, 68 yards south-southwest of Providence School building, on north side of Y-road just south of center line extended of road leading southwest, 13 yards east of road leading northwest, 28 yards northwest of road leading east, and 10 yards north-northeast of twin trees. To reach from Mathews, go west 6.5 miles on route 276 (Pineville

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term.
[2] No check on this position.
For notes in regard to marking of stations, see p. 50.

Road) to T-road on left with sign "Providence School 2½ miles," and follow this road 2.4 miles to Y-intersection with brick school building on north side. Surface and underground marks are standard disk station marks in concrete, notes 1b and 7a. Surface mark projects 3 inches. Reference marks are standard reference disks in concrete, note 11b. No. 1 is 42 yards south of southwest corner of school, 25 yards north of road leading east, 3 yards north of center line of drive leading into school, and 117.27 feet from station in azimuth 239°17'. No. 2 is 25 yards south of drive to school, 6 yards east of road leading northwest, in range with north end of school, and 94.6 feet from station in azimuth 138°39'. No. 3 (azimuth mark) is at top of grade, on outside of curve, 7 yards east of main road, 4 yards south of center line of farm road leading east, 18 yards southwest of 12-inch oak tree, and 0.55 mile from station in azimuth 153°05'08".5.

Plane coordinates: (N), x=2,055,597.30 feet; y=747,314.64 feet; the grid azimuth to reference mark No. 3=152°58'51".0.[1]

State (Mecklenburg County, N. C., R. D. Horne, 1934; 1935).—Near North Carolina-South Carolina boundary line, about 5.2 miles southeast of Pineville. To reach from Pineville, go south for 5.2 miles on U. S. Highway 521 direct to station site at State line, about 68 feet west of highway right-of-way marker pipe on east side of highway, 32 feet west of center line of highway and 16.7 feet north of highway right-of-way marker pipe on west side of highway, and in barbed wire fence line. (Highway right-of-way markers are 2½-inch iron pipes and are distant 66.26 feet center to center from each other.) Surface and underground marks are standard disks in concrete, notes 1b and 7a. Reference marks are standard disks in concrete, note 11b. No. 1 is 22 feet west of center line of highway and 115.47 feet from station in azimuth 201°46'. No. 2 is 56 feet south of pipe on east side of highway, 33 feet east of center line of highway and 97.47 feet from station in azimuth 334°02'. No. 3 (azimuth mark) is about 10 paces east of center line of highway, about half-way up hill which slopes to south, and about 0.35 mile from station in azimuth 14°13'30".2. Mark is not visible from ground without clearing branches from nearby pine trees.

Plane coordinates: (N), x=2,044,407.19 feet; y=733,259.03 feet; the grid azimuth to reference mark No. 3=14°08'28".8.[1]

Heath (Union County, N. C., R. D. Horne, 1934; 1935).—About 15 miles (air line) west-southwest of Monroe, N. C., 12 miles (air line) north of Lancaster, 3 miles (air line) southwest of Waxhaw, N. C., and 2 miles (air line) southeast of Osceola, on west side of churchyard of Heath Memorial Methodist Episcopal Church South, 75 meters (246 feet) south of group of boulders, 40.5 meters (133 feet) southwest of northeast corner of west wing of church, 31.38 meters (103.0 feet) west of southwest corner of church, 20.27 meters (66.5 feet) north of 8-inch hickory tree and 8.75 meters (28.7 feet) southwest of headstone on graves of R. T. and Duncan Niven. To reach from Lancaster follow U. S. Highway 521 north for 12.5 miles to Gulf filling station on right (east) and blacksmith's shop on left, and turn right on dirt roads to church and station. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 8 inches. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 is at southwest corner of west wing of church, and 28.510 meters (93.54 feet) (slope), northeast of station in azimuth 233°54'. Reference mark No. 2 is 5 meters (16 feet) south of center line of road, and 30.727 meters (100.81 feet) southeast of station in azimuth 320°07'. Reference mark No. 1 is 132.96 feet from reference mark No. 2. Reference mark No. 3 (azimuth) projects 8 inches and is 65 meters (213 feet) south of intersection of T-road, 60 meters (197 feet) north of second T-road intersection, 5 meters (16 feet) west of center line of road and 0.25 mile southwest of station in azimuth 54°55'10".0. Station *Richardson* (see description thereof) is visible from ground in azimuth 9°24'48".17.

Plane coordinates: (N), x=2,064,864.74 feet; y=687,342.54 feet; the grid azimuth to reference mark No. 3=54°47'50".5.[1]

Roddy (York County, R. D. Horne, 1934).—About 7 miles east of Rock Hill, about 1 mile east of Leslie, about 200 yards north of State Highway 5, about 200 yards west of Roddy public school, in front yard of W. E. Walker, 113 feet west of brick chimney on west side of Walker's house, 25 feet south of south corner of small wooden shed, and 39 feet north of center line of dirt road. To

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term. For notes in regard to marking of stations, see p. 50.

reach from Rock Hill, go southeast about 7 miles on State Highway 5 to Leslie, continue about 1 mile beyond town to dirt road to left at top of hill, and follow this road about 200 yards to Walker's house and station site. Surface and underground marks are standard disk station marks in concrete, notes 1b and 7a. Reference marks are standard reference disks in concrete, note 11b. No. 1 is 53 feet south of center line of road leading to Walker's house, 105 feet south of chimney on west side of house, 44 feet east of 12-inch cedar tree, and 99.6 feet from station in azimuth 330°10′. No. 2 (azimuth mark) is about 100 yards north of fork at junction of dirt road and State Highway 5, about 30 yards east of center line of highway, 6 paces east of center line of dirt road, and approximately 0.7 miles from station in azimuth 346°23′50″.3. No. 3 is 16 feet east of center line of dirt road, 40 yards west of house, and 106.59 feet from station in azimuth 99°45′.

Plane coordinates: (N), x=2,019,027.81 feet; y=680,936.96 feet; the grid azimuth to reference mark No. 3=346°21′41″.4.[1]

Fort Mill (York County, R. D. Horne, 1934).—On top of highest hill in Fort Mill, in northwest part of town, on property owned by Lancaster Cotton Mill Co., 38½ feet west-southwest of center pipe of large tank, 13.6 feet west of northwest corner of footing of southwest leg of tank, 34 feet southwest of west corner of footing of northwest leg of tank, and 50 feet south of center line of dirt street. Surface and underground marks are standard disk station marks in concrete, notes 1b and 7a. Surface mark projects 8 inches. Reference marks are standard reference disks in concrete, note 11b. No. 1 is on west side of garden fence, 5 yards east of range with the two east legs of tank, 23 yards south of southeast leg, and 101.1 feet (slope) from station in azimuth 284°39′. No. 2 is on north side of yard wire fence, 8 yards east of telephone pole, 2 yards west of range with east side of house across street, and 121.25 feet (slope) from station in azimuth 359°56′. No. 3 (azimuth mark) is 0.15 mile north of paved route 21, 50 yards west of small yellow house, 20 yards north of telephone pole in T-road intersection, 5 paces east of center line of road, and 0.3 mile from station in azimuth 88°37′03″.0. *Fort Mill, standpipe*, is 1,575 feet from station in azimuth 306°41′43″.

Plane coordinates: (N), x=2,015,685.83 feet; y=730,108.88 feet; the grid azimuth to reference mark No. 3=88°35′16″.6.[1]

Winthrop (York County, R. D. Horne, 1934).—In Rock Hill, on south side of campus of Winthrop Industrial Training School which is across U. S. Highway 21 from Winthrop Normal College, 90.7 feet southeast of southeast corner of training school building, 29 yards east of walk leading to south door of building, 17 yards north of center line of street, 8 yards north of wire fence, 6 yards west-northwest of 10-inch oak tree, 12 yards east of 16-inch oak tree, and 10 yards south of 24-inch pine tree. Surface and underground marks are standard disk station marks in concrete, notes 1b and 7a. Surface mark is in 14-inch concrete cylinder, flush with surface of ground. Reference mark No. 1 is standard reference disk in concrete, note 11b, 12 yards south of center line of grass parkway in center of street, 21 yards east-southeast of beginning of parkway, 32 yards west-southwest of culvert, and 0.25 mile from station in azimuth 247°38′36″.8. Reference mark No. 2 is standard reference disk in concrete, note 11c, flush with surface of concrete sidewalk on west side of north-and-south street which leads towards south door of training school, 6 inches west of east edge, 6 yards south of south side of house on same side of street, and 194.3 feet from station in azimuth 357°55′. Reference mark No. 3 is standard reference disk in concrete, note 11b, 21 yards west of walk leading to south door of building, 2 yards southeast of large oak tree, 1 yard north of north edge of paved sidewalk on north side of street, and 157.75 feet from station in azimuth 57°14′. Azimuths from station are: tank Winthrop College farm, 240°22′01″; spire Oakland Avenue Church, 358°06′42″; and *Winthrop College, main building, belfry, tip*, 31°16′54″.7.

Plane coordinates: (N), x=1,991,576.88 feet; y=706,208.47 feet; the grid azimuth to reference mark No. 1=247°39′33″.9.[1]

Moore (York County, R. D. Horne, 1934).—About 7 miles south of Rock Hill, on small wooded knoll, on property of Mrs. Eula Moore (colored) who lives in yellow bungalow on north side of station. To reach from junction of U. S. Highway 21 and State Highway 5 in Rock Hill, go 6.5 miles south on U. S. Highway 21 to point opposite knoll on east side of road. Station is on summit

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term. For notes in regard to marking of stations, see p. 50.

of knoll (dotted with outcrops of limestone and loose boulders), and about 100 yards east of highway. Surface and underground marks are standard station disks in concrete, notes 1b and 7a. Reference mark No. 1 (azimuth mark), standard reference disk in concrete, note 11b, is beside dirt road leading into H. R. Craig's house, 9 paces north of center line of U. S. Highway 21, 3 paces west of telephone pole, and approximately 0.7 mile from station in azimuth 217°55′05″. Reference marks Nos. 2 and 3 are standard reference disks in depressions in outcropping bedrock, note 12b. No. 2 is 90.6 feet from station in azimuth 233°09′. No. 3 is 91.1 feet from station in azimuth 128°04′.

Plane coordinates: (N), x=1,972,250.36 feet; y=672,912.91 feet; the grid azimuth to reference mark No. 1=217°58′13″.0.[1]

O'Niel (Chester County, R. D. Horne, 1934).—In vicinity of Fort Lawn, on top of hill. To reach from Fort Lawn, go north 0.5 mile on State Highway 9 to its junction with State Highway 5; turn left (northwest) on State Highway 5 for 8.8 miles to dirt road to left; turn left for 0.45 mile to mailbox; turn on dirt road and go to top of hill in back of house. Station is 132.40 feet west of southwest corner of west chimney of house and 35 feet south of center line of field road. Surface and underground marks are standard station disks in concrete, notes 1b and 7a. Reference marks are standard reference disks in concrete, note 11b. No. 1 is 2 feet north of northwest corner of shed on northwest side of house, and 140.20 feet from station in azimuth 208°56′. No. 2 is 6 feet north of center line of east-west field road, and 136.75 feet from station in azimuth 94°30′. No. 3 (azimuth mark) is 25 paces east of large farmhouse, 10 paces north of center line of drive to house, and 0.6 mile from station in azimuth 148°06′54″.1.

Plane coordinates: (N), x=2,017,271.95 feet; y=662,915.07 feet; the grid azimuth to reference mark No. 3=148°04′57″.2.[1]

Richburg (Chester County, R. D. Horne, 1934).—About 12 miles east of Chester, near town of Richburg. To reach from main square in Chester, go northeast 12.1 miles on State Highway 9 to dirt road, turn left onto dirt road, and go 0.1 mile up hill on field road to station, 35 feet west of small barn on top of hill, and 10 feet south of center line of road. Surface marks and underground marks are standard station disks in concrete, notes 1b and 7a. Reference marks are standard reference disks in concrete, note 11b. No. 1 is 70 feet east of north corner of barn, 9 feet north of center line of road, and 122.32 feet from station in azimuth 253°43′. No. 2 (azimuth mark) is south of brick schoolhouse, 24 feet east of center line of State Highway 9, and 0.50 mile from station in azimuth 350°53′47″.1. No. 3 is 5 feet north of center line of road, and 81 feet from station in azimuth 104°14′. Azimuth from station to stack, Rock Hill, is 177°49′38″.

Plane coordinates: (N), x=1,993,438.46 feet; y=631,797.81 feet; the grid azimuth to reference mark No. 2=350°54′31″.5.[1]

Hennen (Chester County, R. D. Horne, 1934).—About 12 miles southwest of Rock Hill, 7 miles northeast of Chester, 6 miles east-southeast of Lowry, near Lewis station on Southern Railway where it crosses U. S. Highway 21, and in cultivated field on what is known as "the Hennen place." To reach from Lewis, go west on dirt road (Lewis-York Road), cross railroad and follow right fork 0.6 mile to top of grade, about 80 yards beyond T-road leading right toward large two-story house. Station is about 250 yards southwest of this house, 39 feet north of center line of road, 28 feet west-southwest of 24-inch cedar tree, and 47 feet west-northwest of 6-inch cedar tree. Surface and underground marks are standard station disks in concrete, notes 1b and 7a. Upper mark projects 8 inches above ground. Reference marks are standard reference disks in concrete, note 11b. No. 1 is 55 yards west of T-road mentioned above, 7 yards south of center line of road, 21 yards northwest of wire fence and 100.5 feet (slope distance) from station in azimuth 303°39′. No. 2 (azimuth mark) is around curve from station, 0.2 mile northeast of five-point road intersection, 5 yards southeast of center line of road, 10 yards southeast of fence line and edge of woods and about 0.3 mile from station in azimuth 72°02′57″.9. No. 3 is 33 yards west of top of grade, 6 yards north of center line of road and 98.75 feet (slope distance) from station in azimuth 78°41′. Following distances and azimuths are from station: *Rock Hill, Rock Hill Printing and Finishing Co., chimney*, 210°35′06″.1.; Silo, right tangent at top, 1 mile distant, 10°08′53″.

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[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term. For notes in regard to marking of stations, see p. 50.

Plane coordinates: (N), x=1,956,576.27 feet; y=646,194.83 feet; the grid azimuth to reference mark No. 2=72°07′51″.7.[1]

White (Chester County, R. D. Horne, 1934).—In vicinity of Chester. To reach from Chester, go south on U. S. Highway 21 to junction with State Highway 97, turn left on State Highway 97 for 0.6 mile to dirt road which forks to left and proceed 6 miles on this road to T-road right and station, 54 feet northwest of center line intersection of two roads and 18 feet northwest of 12-inch cedar tree at corner of fence lines. Surface and underground marks are standard station disks in concrete, notes 1b and 7a. Upper mark projects 1 foot above ground. Reference marks are standard reference disks in concrete, note 11b, projecting 1 foot above ground. No. 1 is 15 feet east of center line of road south, on top of bank at south end of small cut in road, and 118.10 feet from station in azimuth 264°06′. No. 2 is 1 foot north of fence line on north side of road running west, 15 feet north of center line of road, and 132.56 feet from station in azimuth 15°07′. No. 3 (azimuth mark) is at top of first grade west of station, 15 feet south of center line of road, 71 paces west of dirt side road junction, and about 0.25 mile from station in azimuth 28°43′01″.1. Azimuth from station to *Chester, municipal water tank* is 112°03′12″. Station *Richburg* (see position and description thereof) is visible from ground in azimuth, 218°52′49″.1.

Plane coordinates: (N), x=1,973,616.00 feet; y=607,251.53 feet; the grid azimuth to reference mark No. 3=28°45′59″.4.[1]

Wade (Chester County, R. D. Horne, 1934; 1935).—About 3 miles west of Chester, on high ground overlooking town, on property owned and occupied by J. H. Wade. To reach from Chester, leave town on State Highway 9 to end of pavement (0.9 mile beyond underpass); continue 1.1 miles to dirt road leading right and turn right (north) for 1.0 mile to top of hill and station site. Station is in cultivated field just north of barn lot, about 75 yards east of small house occupied by Mr. Wade, 82 feet east of center line of dirt road, 38 feet north of north corner of shed, and 13 feet north of fence line. Surface and underground marks are standard station disks in concrete, notes 1b and 7a. Reference marks are standard reference disks in concrete, note 11b. No. 1 is in east side of barn lot, 7 yards east of east side of barn, 6 yards south of pine tree with four distinct trunks, 2 feet west of fence line, and 86.88 feet from station in azimuth 320°02′. No. 2 (azimuth mark) is at northeast corner of Abe Wright's barn, 18 paces north of center line of road, and about 0.3 mile from station in azimuth 11°22′21″.0. No. 3 is in lane next to barn lot, 72 feet east of center line of road, 56 feet north of north corner of barn, 38 feet west of west corner of shed, 1 foot east of fence line, and 98.42 feet from station in azimuth 17°16′. Following azimuths are from station: *Chester, Cotton mills, stack*, 276°05′08″.3; *Chester, black water tank*, 279°12′07″; *Chester, municipal water tank*, 288°41′11″.1.

Plane coordinates: (N), x=1,919,863.73 feet; y=627,792.92 feet; the grid azimuth to reference mark No. 2=11°31′22″.9.[1]

Bagley (Chester County, R. D. Horne, 1934).—About 5.5 miles southeast of Chester on property of James A. Bagley. To reach from Chester, go southwest on U. S. Highway 21 to intersection with State Highway 97 and turn left on State Highway 97 for 4.2 miles to Bagley's Gulf Gas Station on right. Station is 90 paces west of filling station, about 70 yards southwest of State Highway 97, 30 paces northeast of Bagley's residence, 42.9 feet northwest of 8-inch oak beside driveway to residence, 25.9 feet east-northeast of 4-inch oak, and 22.3 feet north-northeast of twin 4-inch oak. Surface and underground marks are standard station disks in concrete, notes 1b and 7a. Upper mark projects 3 inches above ground. Reference marks are standard reference disks in concrete, note 11b. No. 1, projecting 8 inches above ground, is 7 paces east-southeast of center of driveway to Bagley residence, 14 paces southwest of 8-inch oak beside driveway, and 81.50 feet from station in azimuth 278°07′. No. 2 (azimuth mark) projects 6 inches above ground, is on small rise 20 feet west of center of State Highway 97, 45 feet west-northwest of telephone pole on east side of State Highway 97, about 200 feet north of where old State Highway 97 bears east from new State Highway 97, and 0.4 mile from station in azimuth 309°58′41″.3. No. 3, projecting 8 inches above ground, is 4 paces southwest of center of abandoned road, 9 paces east-northeast of 4-inch cedar at fence corner, 6 paces northeast of 3-inch oak, and 79.95 feet from station in

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term. For notes in regard to marking of stations, see p. 50.

azimuth 132°53′. Azimuth from station to two-story frame building, east edge of tallest chimney, is 242°48′31″.

Plane coordinates: (N), x=1,956,505.55 feet; y=597,376.63 feet; the grid azimuth to reference mark No. 2=310°03′35″.2.[1]

Suber (Newberry County, R. D. Horne, 1934).—About 15 miles northeast of Newberry, on top of cultivated knoll, on property of J. S. J. Suber. To reach from State Highway 22 at crossroads about 1 mile west of Broad River bridge and about 15 miles northeast of Newberry, turn south from Route 22 for 0.2 mile to lane opposite Wallace Suber's residence, turn left and follow lane 0.3 mile southeast, passing cotton gin on right, to station on knoll. Station is 30.5 feet southwest of 4-inch pine, 7 paces southeast of center of abandoned road, and 16.7 feet south of 3-inch oak. Surface and underground marks are standard station disks in concrete, notes 1b and 7a. Upper mark projects 6 inches above ground. Reference marks are standard reference disks in concrete, note 11b. No. 1, projecting 8 inches above ground, is on northwest edge of field, on southeast bank of abandoned road, 6 paces southwest of 8-inch cedar, and 115.9 feet (slope distance) from station in azimuth 203°11′. No. 2 (azimuth mark) projects 8 inches above ground, is 17 paces southeast of south stone gatepost in front of Wallace Suber's residence, 11 paces northwest of east gatepost across road from Wallace Suber's residence, 6 paces east of center of road running southeast from Highway 22, 2 paces southwest of farm road running northeast to station, and about 0.3 mile from station in azimuth 22°40′50″.3. No. 3 projecting 6 inches above ground, is 30 paces northwest of center of abandoned road, 23 paces east-southeast of 3-inch locust tree, 17 paces southeast of 3-inch persimmon tree, and 144.17 feet (slope distance) from station in azimuth 90°29′. Azimuth from station to three-story house, west corner of chimney on west end, distant about 1.5 miles, is 214°27′36″.6.

Plane coordinates: (N), x=1,875,832.74 feet; y=504,265.80 feet; the grid azimuth to reference mark No. 2=22°54′46″.6.[1]

Mawer (Newberry County, R. D. Horne, 1934).—About 9 miles south of Carlisle, 7 miles southeast of Whitmire, 5½ miles west-southwest of Shelton, 2 miles west of Maybington, on high ground near Newberry-Union County line, between Endree and Tyger Rivers, on land owned by Dr. Mawer of Newberry and occupied by J. C. Coggins. To reach from Carlisle, go west 9 miles on State Highway 7 (or 3 miles northeast from Whitmire) to T-road leading southeast; turn southeast and go 0.3 miles to county line and continue 0.6 mile to large house on left with large chimneys on north, south, and east sides. Large oak tree with triangular-blaze facing road is about 125 feet south of house. Station is in yard of house, on opposite side of house from tree, about 235 feet northeast of road, 79 feet northeast of northeast corner of chimney on north side of house, 61 feet north-northwest of northeast corner of chimney on east side of house, 48 feet south of large oak tree, and 27 feet east-northeast of 12-inch tree. Surface and underground marks are standard station disks in concrete, notes 1b and 7a. Upper mark projects 8 inches above ground. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 91 feet south of south side of south chimney, 64 feet southwest of southwest side of well, 44 feet southeast of blazed oak, and 177.3 feet from station in azimuth 330°12′. No. 2 is 120 feet southwest of northwest corner of chimney on north side of house, 30 feet east of center line of road, 24 feet south of large partly decayed tree and small cedar tree, 6 feet south of 10-inch tree, and 203.4 feet from station in azimuth 27°24′. No. 3 (azimuth mark) is in edge of old road, 7 yards east of center line of main road, 35 yards east of southeast corner of house, and about 0.3 mile from station in azimuth 104°59′27″.6.

Plane coordinates: (N), x=1,848,112.23 feet; y=532,962.01 feet; the grid azimuth to reference mark No. 3=105°16′31″.6.[1]

Sondleys (Newberry County, R. D. Horne, 1934).—About 10 miles by road from Newberry, on highest part of hill (with frequent and extensive granite outcrops) east of road. To reach from Newberry, go northeast 8 miles on State Highway 22 to Waddlington crossroads and turn right where arrow pointing to "Pomaria" is on right and large frame house is in northwest angle of roads, for 2.1 miles to station site. Station is 100 yards east of road, 125 feet north of small house at southwest corner of wire fence, 50 feet east of wire fence just east of thick growth of underbrush, and east of rock outcrops on hill. Surface mark is standard station disk in outcropping bedrock flush with ground, note 2.

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term. For notes in regard to marking of stations, see p. 50.

Reference mark No. 1 (azimuth), standard reference disk in concrete, note 11b, is 150 paces west of small wooden culvert at bottom of grade, 24 feet north of center line of dirt road, and approximately 0.5 mile from station in azimuth 233°11′25″.3. Reference marks Nos. 2 and 3 are standard reference disks in drill holes in outcropping bedrock, note 12a. No. 2, on rock 8 inches above ground, is on north side of underbrush, 12 feet west of wire fence, and 90.53 feet from station in azimuth 65°58′. No. 3 is on rock 4 feet above ground (largest rock outcrop north of station) and is 136.41 feet from station in azimuth 156°18′.

Plane coordinates: (N), x=1,853,870.35 feet; y=482,602.44 feet; the grid azimuth to reference mark No. 1=233°27′48″.9.[1]

Doolin (Newberry County, R. D. Horne, 1934; 1936).—About 8.5 miles north of Newberry, 0.8 mile west of Long Lane School, on high ground known as Doolin Hill, on property owned by Life Insurance Company of Virginia and occupied by Hillery Felker. Place has appearance of being deserted, since most of sheds are in need of repair. To reach from junction of U. S. Highway 76 and State Highway 176 in Newberry, go north about 7 miles to dirt road to left at Long Lane School at top of hill; turn left on dirt road for 0.8 mile to farm road to right and turn right on farm road for 200 yards to top of hill and station site. Station is 66 feet east of wire fence corner, 56 feet southeast of southeast corner of brick casing of old well, and 50 feet southwest of most southerly of two old brick chimneys in north-and-south line. Surface and underground marks are standard station disks in concrete, notes 1b and 7a. Reference marks are standard reference disks in concrete, note 11a. No. 1 is 78 feet northeast of northeast corner of well casing, 67 feet northwest of most northerly of two chimneys, and 112.23 feet from station in azimuth 204°56′. No. 2 (azimuth mark) is 8 paces east of center line of dirt farm road to south, about 12 yards south of center line of dirt road to Long Lane School, and approximately 0.25 mile from station in azimuth 22°21′57″.6. No. 3 is 37 feet west of wire fence corner mentioned above, 7 feet east of southeast corner of old ramshackle shed, 6 feet north of center line of dim farm road, and 102.01 feet from station in azimuth 76°51′.

Plane coordinates: (N), x=1,821,431.98 feet; y=507,952.48 feet; the grid azimuth to reference mark No. 2 =22°42′00″.5.[1]

Church (Newberry County, R. D. Horne, 1934).—About 3 miles southeast of Newberry. To reach from corner of College and Main Streets in Newberry, go southeast 3 miles on U. S. Highway 76 (Columbia Highway) to dirt road where Texaco tank station on railroad is just ahead to right and turn left (north) on dirt road for 0.1 mile to top of hill. Station is on south side of Metropolitan Church (colored), 73.5 feet southwest of southeast corner of church, 50.5 feet south of southwest corner of church, and 28.7 feet north of center line of dirt road by church. Surface and underground marks are standard station disks in concrete, notes 1b and 7a. Reference marks Nos. 1, 3, and 4 are standard reference disks in concrete, note 11b. Reference mark No. 2 is standard reference disk wedged in drill hole in boulder, note 12c. No. 1 is 100.3 feet southwest of southeast corner of church, 15 feet southwest of center line of dirt road, and 87.22 feet from station in azimuth 292°20′. No. 2 (azimuth mark) is 0.3 mile south of dirt road leading to station, 18 feet northeast of center line of highway, in north abutment of culvert under road, and approximately 0.25 mile from station in azimuth 347°41′15″.7. No. 3 is 100.5 feet west of southwest corner of church, and 90.50 feet from station in azimuth 84°41′. No. 4 (Laplace azimuth) projects about 1 foot above ground. To reach from station, go southwest 0.1 mile to State Highway 192, turn right, go 1.55 miles north-northwest (toward Greenville) to Y-intersection, keep straight and go 0.45 mile to mark which is 63.5 feet southeast of center line of highway at asphalt expansion joint nearest far entrance road, 36.2 feet east of center line of highway, 5.65 feet south of center of iron pipe highway right-of-way marker, and approximately 2 miles from station in azimuth 143°52′03″.8.

Plane coordinates: (N), x=1,827,395.27 feet; y=455,749.87 feet; the grid azimuth to astronomic reference mark No. 4=144°11′24″.5.[1]

Ramage (Newberry County, R. D. Horne, 1934).—About 8 miles northwest of Newberry, just north of Gary, station on Columbia, Newberry & Laurens Railroad, on property owned and occupied by A. P. Ramage. To reach from Newberry, go 10 miles on U. S. Highway 76 to Gary and dirt road leading left

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term. For notes in regard to marking of stations, see p. 50.

about 100 yards east of Ramage's house. Station is 101 feet south of center line of Highway 76, 24 feet east of center line of dirt road, and 20 feet north of northwest corner of field. Surface and underground marks are standard station disks in concrete, notes 1b and 7a. Reference marks are standard reference disks in concrete, note 11b. No. 1 is 7 yards north of center line of Highway 76, 3 yards east of center line of dirt road to north, and 138.12 feet from station in azimuth 230°25'. No. 2 (azimuth mark) is 27 paces south of highway curve sign, 12 paces southwest of center line of road, and approximately 0.25 mile from station in azimuth 276°31'15".9. No. 3 is 27 yards south of center line of Highway 76, 20 yards northeast of northeast corner of Ramage's house, 4 feet east of 30-inch locust tree, 1 foot north of wire fence line, and 213.42 feet from station in azimuth 122°21'.

Plane coordinates: (N), x=1,779,138.84 feet; y=492,760.32 feet; the grid azimuth to reference mark No. 2=276°56'02".9.[1]

Blease (Newberry County, R. D. Horne, 1934).—About 8 miles southwest of Newberry, on property of Judge Eugene Blease. To reach from Newberry, go southwest on State Highway 19 to intersection with State Highway 22; continue 0.4 miles on State Highway 19 to dirt road and turn left on dirt road for 1.9 miles to station on left. Station is 65 paces north-northeast of center of dirt road to Newberry, 57 paces north of center line of dirt road running south from State Highway 19, 52 paces east-southeast of tenant house, 3 paces east of barnyard fence, 65.8 feet south of south corner of barn, and 48.6 feet northeast of center of well. Surface and underground marks are standard station disks in concrete, notes 1b and 7a. Upper mark projects 8 inches above ground. Reference marks Nos. 1, 2, and 3 are standard reference disks in concrete, note 11b, projecting 12 inches above ground. Reference mark No. 4 is standard reference disk in concrete, note 11a. No. 1 is 14 paces northwest of 36-inch oak, 3 feet north of east corner of garden fence, 2 feet east of garden fence, and 112.86 feet from station in azimuth 28°10'. No. 2 is 40 paces east-northeast of two-story frame house of W. H. Nichols, 6 paces west of center of road, 2 paces south of 30-inch oak, 8 feet north of 24-inch oak, and approximately 0.25 mile from station in azimuth 134°40'59".1. No. 3 is 10 paces northwest of barn, 4 paces northwest of barnyard fence, 2 feet west of southwest corner of cow shed, and 92.40 feet from station in azimuth 147°01'. No. 4 (azimuth mark) is 24 paces east of 5-inch oak, 12 paces southeast of 4-inch pine, 7 paces north of dirt road to Newberry, and approximately 0.3 mile from station in azimuth 246°37'27".4. Azimuth from station to two-story house on northeast side of road, west corner of chimney on northwest end, distant 0.3 mile is 315°45'01".

Plane coordinates: (N), x=1,795,306.63 feet; y=434,127.19 feet; the grid azimuth to reference mark No. 4=247°00'22".9.[1]

Brehmer (Newberry County, R. D. Horne, 1934).—About 11 miles west of Newberry, 8 miles north-northeast of Chappells, 7.5 miles northwest of Silverstreet, 6.5 miles southwest of Gary, on land owned and occupied by Joseph Brehmer. To reach from Newberry post office, go northeast 0.8 mile on State Highway 22 to dirt road; turn right on dirt road for 0.15 mile; turn left for 0.1 mile to T-road junction; turn left on this road for 9.1 miles (following right forks at 2.8 miles and 5.9 miles) to junction with State Highway 56 and turn left on Route 56 for 0.65 mile to house and small store on left owned by J. C. Satterwhite. Station is about 150 feet south of store, on top of hill in open field about 75 yards south of road, 148 feet southwest of large oak tree behind store, 106 feet east-northeast of well near two large oak trees, and 93 feet east of nearer of these two trees. Surface and underground marks are standard station disks in concrete, notes 1b and 7a. Upper mark projects 10 inches above ground. Reference marks are standard reference disks in concrete, note 11b. No. 1 is directly behind store, 4 yards west of southeast corner of store, 25 yards south of road, 17 yards west of brick chimney, 15 yards northwest of large white oak, and 170.7 feet from station in azimuth 180°19'. No. 2 (azimuth mark), projecting 8 inches above ground, is 7 yards north of center line of State Highway 56, 14 yards north of curve sign and approximately 0.1 mile from station in azimuth 233°14'39". No. 3 is 90 yards west along road from Satterwhite's store, 8 yards south of center line of road, 27 yards east-northeast of 20-inch oak tree, and 268.9 feet from station azimuth 107°25'.

Plane coordinates: (N), x=1,752,077.76 feet; y=468,998.41 feet; the grid azimuth to reference mark No. 2=233°42'21".[1]

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[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term. For notes in regard to marking of stations, see p. 50.

Chapman (U. S. G. S.) (Saluda County, R. D. Horne, 1934; 1935).—About 15 miles southwest of Newberry and 5 miles (air line) northeast of Saluda. To reach from Saluda, follow State Highway 392 north for 8.3 miles to cross road at two mail boxes; turn right for 0.5 mile to another cross road and turn right for 1.3 miles to another cross road and station, on property belonging to Andrew Chapman, 72 feet north of Chapman's house, 71 feet south of east-west road and 30 feet east of north-south road. Station is U. S. Geological Survey tablet stamped "1933 TT 8R," projecting 3 inches (note 1a). Reference marks are standard disks in concrete, projecting 7 inches (Note 11b). Reference mark No. 1 (azimuth) is 110 paces west of 14-inch black oak on north side of bend in road, 20 paces south of center line of road, and 0.25 mile west of station in azimuth 74°08′18″.1. Reference mark No. 2 projects 7 inches and is 22 feet west of front of building, 1 foot south of large building (formerly store), and 105.15 feet west of station in azimuth 81°18′. Reference mark No. 3 (stamped Chapman 1934) projects 7 inches and is 1 foot south of southwest corner of barnyard fence and 94.48 feet northwest of station in azimuth 159°35′.

Plane coordinates: (N), x=1,758,306.25 feet; y=408,162.53 feet; the grid azimuth to reference mark No. 1=74°35′20″.9.[1]

Connelly (Newberry County, R. D. Horne, 1934; 1935).—About 5 miles northwest of Chappells, about ½ mile south of Vaughansville, on high ground near Laurens County line, on land owned and occupied by M. L. Connelly, of Chappells. To reach from Newberry, go south 19 miles on State Highway 22 to junction with State Highway 392 in town of Chappells; go northwest on Highway 392 for 5.25 miles from junction of Highways 392 and 22 to Laurens County line which is marked by sign post, turn left for 0.3 mile to T-road and turn left for 0.1 mile to station at top of hill. Station is on highest part of hill, 52 feet east of east corner of old deserted house, 51 feet east of north corner of same house, 83 feet east of 30-inch chinaberry tree, and 50 feet north of 24-inch walnut tree. Surface and underground marks are standard station disks in concrete, notes 1b and 7a. Reference marks are standard reference disks in concrete, note 11b. No. 1 is on little grassy spot between two fields, about 35 yards north of road to deserted house, about 40 yards north of deserted house, and 98.57 feet from station in azimuth 195°41′. No. 2 is on lower ground than station, about 60 yards southeast of deserted house, and 177.87 feet (slope distance) from station in azimuth 305°55′. No. 3 (azimuth mark) is in southwest side of graveyard, 12 paces northeast of center line of Highway 392, and approximately 0.5 mile from station in azimuth 169°32′37″.0.

Plane coordinates: (N), x=1,723,144.00 feet; y=451,086.38 feet; the grid azimuth to reference mark No. 3=170°03′38″.5.[1]

Ninety Six (Greenwood County, R. D. Horne, 1934).—About 7 miles west-southwest of Greenwood, near town of Ninety Six, on land owned and occupied by Robert E. Wingard. To reach from junction of Highways 246 and 22 in town of Ninety Six, go south 0.6 miles on Highway 246 to cinder road and turn right on cinder road for 0.2 mile to Wingard's house on north side of road at top of grade. Station is in Wingard's backyard, about 270 feet northwest of center line of road, 70 feet southeast of southeast corner of barn, 32 feet west-southwest of southwest corner of house, and 105 feet northwest of 30-inch oak tree. Surface and underground marks are standard station disks in concrete, notes 1b and 7a. Upper mark projects 6 inches above ground. Reference marks are standard reference disks in concrete, note 11b. No. 1 is 21 yards southwest of lane leading southeast, 18 yards southwest of path bordered by hedges that leads to house, 5 yards northwest of center line of road, and 253.0 feet (slope distance) from station in azimuth 280°23′. No. 2 (azimuth mark), projecting 8 inches above ground, is in northwest corner of cultivated field, on west side of hill, 25 yards southeast of T-road junction, 15 yards east-northeast of north-and-south road, 6 yards south of center line of T-road, and approximately 0.3 mile from station in azimuth 328°31′18″.4. No. 3 is 25 yards northeast of east side of house, 4 yards north of center line of driveway, and 138.5 feet from station in azimuth 207°22′. Following azimuths are from station: *Ninety Six, municipal water tank,* 158°05′32″; *Ninety Six, Self Cotton Mills, brick stack,* 199°04′10″.

Plane coordinates: (N), x=1,692,635.66 feet; y=425,078.26 feet; the grid azimuth to reference mark No. 2=329°05′43″.2.[1]

Wertz (Saluda County, R. D. Horne, 1934; 1935).—About 8.5 miles west-northwest of Saluda, at southeast corner of woods on property belonging to W. F.

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term. For notes in regard to marking of stations, see p. 50.

Wertz, 63 feet north-northeast of road sign (U. S. 178), 46 feet north of center line of U. S. Highway 178, 18 feet north of 12-inch triangular-blazed pine and 16.5 feet north-northeast of 8-inch triangular-blazed pine. To reach from intersection of U. S. Highway 178 and State Highway 19 at Saluda, follow U. S. Highway 178 west for 8.35 miles (or 0.8 mile beyond white school on north side of highway near cemetery) to the two blazed pines at station. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 3 inches. Reference marks are standard disks in concrete, note 11b. Reference mark No. 1 projects 10 inches, is 20 paces southeast of 6-inch dead oak, 12 paces west-southwest of 16-inch dead oak, 11 paces southwest of 12-inch dead oak stump, 7 paces north of center line of highway and 122.6 feet (slope) from station in azimuth 278°27′. Reference mark No. 2 (azimuth) projects 8 inches and is 0.1 mile north-northwest of brick chimney of burned house, 25 paces north of north edge of small patch of pines near bend in road, 7 paces west of dirt road and 0.15 mile from station in azimuth 327°40′19″. To reach from station, follow U.S. Highway 178 east for 0.5 mile and take dirt road south for 0.15 mile to mark. Reference mark No. 3 projects 12 inches and is 19 paces east of 18-inch oak stump 12 feet high, 9 paces south of center line of U. S. Highway 178, 6 paces west of 4-inch oak and 109.87 feet from station in azimuth 42°11′.

Plane coordinates: (N), x=1,725,272.56 feet; y=378,184.81 feet; the grid azimuth to reference mark No. 2=328°11′02″.[1]

Dorn (Greenwood County, R. D. Horne, 1934).—About 7 miles southeast of Greenwood, about 1 mile south of junction of Highways 178 and 25, on high ground, on property owned and occupied by T. E. Dorn. To reach from Greenwood, go about 5.8 miles to improved dirt road, turning to right; turn right for 1.5 miles to road leading left toward white farmhouse at top of hill and turn left on this road for about 0.2 mile to house at top of hill and station site. Station is in yard between house and barn, about 50 yards east of house, 50 feet east of most northerly of row of shade trees, 36 feet southeast of corner of shed, and 19 feet southwest of wooden fence line. Surface and underground marks are standard station disks in concrete, notes 1b and 7a. Reference marks Nos. 1 and 2 are standard reference disks in concrete, note 11b. No. 1 is 17 feet southwest of northwest corner of shed at southeast corner of barnyard, 6 feet northwest of southwest corner of same shed, and 146.2 feet from station in azimuth 318°27′. No. 2 (azimuth mark) is on left side of dirt road, about 80 yards north of red frame house, 60 yards south of frame house, and approximately 0.2 mile from station in azimuth 11°12′51″. Reference mark No. 3 is standard reference disk set in drill hole at south end of bottom concrete step for front porch of house, and is 145.6 feet from station in azimuth 101°25′.

Plane coordinates: (N), x=1,658,910.30 feet; y=406,092.62 feet; the grid azimuth to reference mark No. 2=11°51′01″.[1]

Self (Edgefield County, R. D. Horne, 1934).—About 2 miles from Pleasant Lane. To reach from junction of State Highway 43 and U. S. Highway 25 in Pleasant Lane, go north 1.4 miles on U. S. Highway 25 to dirt side road to right; turn right for 0.4 mile to fork; follow left fork (rough dirt road) 0.2 mile to wire gate on right and proceed on foot about 350 yards to top of hill and station, on highest part of hill, and 100 yards west of house on top of hill. Stone fences run east and west on north and south sides of station to house. Surface and underground marks are standard station disks in concrete, notes 1b and 7a. Reference marks Nos. 1 and 3 are standard reference disks wedged in drill holes in boulders, note 12c; reference mark No. 2 is standard reference disk in concrete, note 11a. No. 1 is on same elevation as station and 59.10 feet from station in azimuth 202°11′. No. 2 (azimuth mark) is in top of concrete culvert in east abutment (4 feet below road grade), 200 feet below station in elevation, 0.3 mile south of dirt road leading from highway to station, and 0.8 mile from station in azimuth 77°12′35″.9. No. 3 is 6 feet below station in elevation, and 76.85 feet from station in azimuth 108°16″.

Plane coordinates: (N), x=1,684,881.53 feet; y=344,857.71 feet; the grid azimuth to reference mark no. 2=77°47′47″.3.[1]

Supplementary points

Rodgers (Union County, N. C., R. D. Horne, 1934).—About 2 miles southwest of Waxhaw, on top of low hill about 0.2 mile north of State Highway 25, in center of rectangular field surrounded by woods, on property belonging to W. D.

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term. For notes in regard to marking of stations, see p. 50.

Rodgers, 79 paces east-northeast of large frame tenant house, opposite small red-and-white frame building on north side of highway, 54.7 feet north-northwest of 6-inch pear tree and 44.7 feet north of 10-inch pear tree. To reach from Waxhaw, go southwest on State Highway 25 and turn right on narrow dirt road just beyond red-and-white building; cross railroad, continue 0.2 mile and turn right beyond frame building above mentioned to station. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Surface mark projects 6 inches. Reference marks are standard reference disks in concrete, note 11b. No. 1 (azimuth mark) projects 8 inches and is 9 paces east of center line of State Highway 25, 26 paces west of southwest corner of two-story frame tenant house, 9 paces south of 16-inch oak tree, 7 paces north of center line of driveway, 8 inches southwest of 24-inch oak tree, and 0.3 mile from station in azimuth 304°15′13″.4. No. 2 projects 8 inches and is 53.1 feet west of 4-inch pine tree in field, 22.2 feet southeast of 6-inch hickory tree on northwest edge of field, 15.8 feet east of 8-inch black oak tree and 123.75 feet (slope) from station in azimuth 52°19′. No. 3 is 24 feet southeast of 8-inch oak tree in woods, 7.8 feet west-southwest of 6-inch pine tree on edge of woods, 5 feet south of edge of woods on northeast side of field, and 106.33 feet (slope) from station in azimuth 149°46′.

Plane coordinates: (N), x=2,067,748.42 feet; y=699,933.92 feet; the grid azimuth to reference mark No. 1=304°07′34″.1.[1]

Waxhaw, cotton mill stack (Union County, N. C., Roland D. Horne, 1934).—Plane coordinates: (N), x=2,077,725.57 feet; y=700,522.41 feet.

Richardson (Union County, N. C., R. D. Horne, 1934).—To reach from Waxhaw, go south to junction of U. S. Highway 521 with State Highway 12 at Osceola; turn left on U. S. Highway 521, cross Waxhaw Creek and continue for 0.4 mile to slanting T-road on left, thence go south 0.8 mile to station on bare-topped hill. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 (azimuth) is 24 paces west-southwest of west corner of J. H. Thompson's house, 24 feet south of center line of dirt road, and 0.25 mile from station in azimuth 10°58′51″.8. Reference mark No. 2 is in top of *Boundary monument (1813)*, on north side of pointed top, 18 feet east of center line of road and 342.74 feet from station in azimuth 14°15′44″. Reference mark No. 3 is at west side of cotton field, 8 feet west of 14-inch forked hickory tree, and 99.13 feet from station in azimuth 138°39′. North corner of *Boundary monument (1813)* (see description thereof) is 104.272 meters (342.10 feet) from station in azimuth 14°18′54″. Station *Heath* (see description thereof) is visible from ground in azimuth 189°24′20″.04.

Plane coordinates: (N), x=2,060,813.98 feet; y=662,582.35 feet; the grid azimuth to reference mark No. 1=10°52′00″.[1]

Boundary monument (1813) (Union County, N. C.; Lancaster County, R. D. Horne, 1934).—On bare-topped hill, 18 feet east of center line of road. Marked by 16-inch square limestone post projecting 3½ feet; marked "N. C." on north side, "S. C." on south side, and "1813" on west side. Top of stone comes to slanting point or gable. Station *Richardson* (see description thereof) is 104.272 meters (342.10 feet) from station in azimuth 194°18′53″. Reference mark No. 2 of station *Richardson* is set on north side of top of monument.

Plane coordinates: (N), x=2,060,730.09 feet; y=662,250.69 feet.

Lancaster (Lancaster County, R. D. Horne, 1934).—In yard of Lancaster Grammar School at corner of West Dunlap and South French Streets in Lancaster, 57.60 feet north of northeast corner of school building, 34.9 feet northwest of 24-inch oak tree, 35.5 feet south of board fence on north side of school playground, and 42.8 feet northeast of 30-inch oak tree. Surface and underground marks are standard disk station marks in concrete, notes 1b and 7a. Reference mark No. 1 is standard reference disk in concrete, note 11c, flush with east end of stone door-step of back door at east end of school building, and 74.91 feet from station in azimuth 324°51′. Reference marks Nos. 2 and 3 are standard reference disks in concrete, note 11b, projecting 6 inches. No. 2 is at northwest corner of school playground, 3 feet east of fence on west side of playground, 28 feet south of north edge, approximately 16 feet east of small barn, and approximately 240.50 feet from station in azimuth 65°54′. Mark is not visible from ground at station, as line of sight is obstructed by large oak tree. No. 3 (azimuth mark) projects 6 inches, is in fence corner in northeast part of West

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term. For notes in regard to marking of stations, see p. 50.

Side Cemetery on North York and West Barr Streets, 4 feet south of 4-inch chinaberry tree, and 0.15 mile from station in azimuth 139°37'56". Azimuth from station to ball on top of *Lancaster municipal water tank* is 252°36'15".6.

Plane coordinates: (N), x=2,067,918.66 feet; y=625,795.88 feet; the grid azimuth to reference mark No. 3=139°30'17".[1]

Lancaster, municipal tank (Lancaster County, Roland D. Horne, 1934).—Plane coordinates: (N) x=2,068,657.91 feet; y=626,029.23 feet.

Lancaster, aluminum water tank (Lancaster County, Roland D. Horne, 1934).—Plane coordinates: (N), x=2,071,043.71 feet; y=620,089.57 feet.

Fort Mill, silver water tank (York County, Roland D. Horne, 1934).—Plane coordinates: (N), x=2,015,705.53 feet; y=730,141.95 feet.

Fort Mill, standpipe (York County, Roland D. Horne, 1934).—Plane coordinates:[2] (N), x=2,016,949 feet; y=729,168 feet.

Rock Hill, Rock Hill Printing and Finishing Co., chimney (York County, Roland D. Horne, 1934).—Plane coordinates: (N), x=1,990,723.26 feet; y=703,781.18 feet.

Rock Hill, Highland Park Cotton Mills, water tank (York County, Roland D. Horne, 1934).—Plane coordinates:[2] (N), x=1,997,070 feet; y=698,954 feet.

Winthrop College, main building, belfry, tip (York County, Roland D. Horne, 1934).—Plane coordinates: (N), x=1,991,073.51 feet; y=705,380.39 feet.

Kee (Chester County, R. D. Horne, 1934).—About 8.7 miles northeast of Chester, on State Highway 9, on property of J. L. Kee. To reach from Chester, go northeast 8.7 miles on State Highway 9. Station is 38 feet north of centerline of highway, on gravel elevation in acute angle between State Highway 9 and old Highway 9 (sand clay road), approximately 250 feet west of their intersection, 119 feet southwest of center of old Highway 9, about 250 feet north-northwest of Kee's residence, and 110 feet northwest of Kee's mail box. Surface and underground marks are standard station disks in concrete, notes 1b and 7a. Upper mark projects 6 inches above ground. Reference marks are standard reference disks in concrete, note 11b. No. 1 (azimuth mark) projecting 8 inches above ground, is 18 feet south of center line of State Highway 9, 80 feet southeast of telephone pole north of old Highway 9, 96 feet southwest of telephone pole north of highway, about 500 feet northeast of old frame church, and 0.55 mile from station in azimuth 247°43'05".9. No. 2, projecting 4 inches above ground, is 6 feet east-southeast of center of dim road connecting old Highway 9 and new State Highway 9, 6 paces north of center line of State Highway 9, 6 feet northeast of east end of concrete pipe on north side of highway, and 79.06 feet (slope distance) from station in azimuth 56°16'. No. 3, projecting 8 inches above ground, is 7 paces south of centerline of old Highway 9, 19 paces southeast of telephone pole No. 309 on north side of old Highway 9, 19 paces east of center of dim road connecting old Route 9 and new Route 9, and 98.09 feet (slope distance) from station in azimuth 174°54'. Azimuth from station to roof peak of barn on north side of highway, distant about 0.9 mile, is 66°15'42".

Plane coordinates: (N), x=1,977,479.03 feet; y=636,958.63 feet; the grid azimuth to reference mark No. 1=247°45'38".3.[1]

Frazier (York County, R. D. Horne, 1934).—About 8.5 miles south of Rock Hill, about 0.5 mile east of U. S. Highway 21, on bare-topped hill surrounded by grove of oak trees, on property owned by John Frazier and occupied by Harvey Hoyles. To reach from Rock Hill, go south 8.5 miles on U. S. Highway 21 to county line, and turn left on dirt road for 0.9 mile to station, 28 feet northwest of center line of road, 54 feet south of south corner of house, and 16 feet southeast of most southern of twin oaks (about 30 inches in diameter). Surface and underground marks are standard station disks in concrete, notes 1b and 7a. Reference marks are standard reference disks in concrete, note 11b. No. 1 is 70 feet south of most southern of twin oaks (about 30 inches in diameter but not ones mentioned above), 39 feet southeast of 30-inch oak tree at east corner of front yard, 15 feet southeast of center line of dirt road, and 117.72 feet from station in azimuth 251°07'. No. 2 is in line with west corner of shed, 19 feet southeast of southeast corner of wooden shed, 14 feet northwest of center line of dirt road, and 89.12 feet from station in azimuth 48°33'. No. 3 (azimuth mark) is 5 paces south of center line of road, 5 paces south of center line of road leading south, 2 feet south of northeast corner of farmhouse yard, and approximately 0.3 mile from station in azimuth 53°43'06".3.

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[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term.
[2] No check on this position.

For notes in regard to marking of stations, see p. 50.

Plane coordinates: (N), x=1,972,477.94 feet; y=664,390.32 feet; the grid azimuth to reference mark No. 3=53°46'12".6.[1]

Brainerd (Chester County, R. D. Horne, 1934; 1935).—In eastern part of Chester, about 1,000 feet northeast of large municipal water tank, on grounds of Brainerd Institute, 84.3 feet east of northeast corner of most westerly building of Institute, 116.3 feet northeast of southeast corner of bottom of concrete steps to same building, and 30 feet south of center line of Bailey Street. Surface and underground marks are standard station disks in concrete, notes 1b and 7a. Upper mark is stamped "Brainerd 1934" and projects 6 inches above ground. Reference marks are standard reference disks in concrete, note 11b, stamped "Brainerd, No. 1934." No. 1 (azimuth mark), projecting 8 inches above ground, is directly opposite Evergreen Cemetery entrance, 96 feet west of center line of Cemetery Street, and approximately 0.3 mile from station in azimuth 202°18'25".1. To reach from station, go east 0.1 mile on Bailey Street to Cemetery Street, and turn left (north) for 0.3 mile. No. 2 is 110 feet south of center line of Bailey Street, 2 feet north of north edge of sidewalk, and 82.84 feet from station in azimuth 352°20'. No. 3, projecting 6 inches above ground, is about 40 feet northeast of northeast corner of most westerly building of Brainerd Institute 15 feet south of center line of Bailey Street, and 61.44 feet from station in azimuth 106°27'. Following azimuths are from station: *Chester, municipal water tank*, 42°36'19".2; *Chester, cotton mills stack*, 185°57'08".

Plane coordinates: (N), x=1,940,139.90 feet; y=621,520.52 feet; the grid azimuth to reference mark No. 1=202°25'09".8.[1]

Chester, municipal water tank (Chester County, R. D. Horne, 1934).—Plane coordinates: (N), x=1,939,687.18 feet; y=621,030.10 feet.

Chester, cotton mills, stack (Chester County, R. D. Horne, 1934).—Plane coordinates: (N), x=1,940,566.07 feet; y=625,530.68 feet.

Chester, black water tank (Chester County, R. D. Horne, 1934).—Plane coordinates:[2] (N), x=1,941,969 feet; y=624,152 feet.

Chester, standpipe (Chester County, R. D. Horne, 1934).—Plane coordinates:[2] (N), x=1,934,741 feet; y=619,190 feet.

Poag (Chester County, R. D. Horne, 1934).—About 4 miles south-southeast of Chester, on high ground owned by W. L. Poag. To reach from Chester, go southwest 2 miles to junction of U.S. Highway 21 and State Highway 97, and turn right on U.S. Highway 21 for 2.8 miles to Poag's house and small store on right. Station is in southeast corner of cultivated field, on line between store and house, 63 feet west of west edge of highway pavement, 29.3 feet south of southwest corner of store, 115 feet north of northeast corner of large chimney on house, and 95 feet northeast of twin pecan tree. Surface and underground marks are standard station disks in concrete, notes 1b and 7a. Upper mark projects 6 inches above ground. Reference marks are standard reference disks in concrete, note 11b. No. 1 is across highway from station, about 40 feet north of range with north side of house, 22.3 feet east of east edge of highway pavement, 8.5 feet south of telephone pole, and 106.5 feet from station in azimuth 249°49'. No. 2 (azimuth mark) is on top of bank of highway cut, 1 yard east of east edge of cut, 7 yards east of center line of highway, 26 yards west of west bank of railroad cut, 13 yards north of telephone pole, 15 yards south of highway curve sign, and about 0.4 mile from station in azimuth 148°29'13".7. No. 3 is in east side of cultivated field, 56 feet west of west edge of highway pavement, 33 yards north of north edge of store, 1 yard west of break in ground, and 144.75 feet (slope distance) from station in azimuth 148°36'.

Plane coordinates: (N), x=1,942,581.52 feet; y=599,147.22 feet; the grid azimuth to reference mark No. 2=148°35'41".6.[1]

Whitmire, standpipe (Newberry County, R. D. Horne, 1934).—Plane coordinates:[2] (N), x=1,813,134 feet; y=547,214 feet.

Newberry, Oakland Cotton Mill, stack (Newberry County, R. D. Horne, 1934).—Plane coordinates:[2] (N), x=1,810,639 feet; y=471,516 feet.

Unity (Newberry County, R. D. Horne, 1934).—About 12 miles south-southwest of Whitmire, 9 miles north-northwest of Prosperity, 4 miles northeast of Newberry, on high ground at what was once known as Garmany Church. To reach from corner of Main and College Streets in Newberry, go northeast on

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term.
[2] No check on this position.
For notes in regard to marking of stations, see p. 50.

State Highway 22 (or straight out Main Street) 1.2 miles to junction with State Highway 192; continue on State Highway 22 for 1.1 miles to fork; follow left fork 1.5 miles to T-road to right; turn right on T-road and go 0.15 mile to white church in pines on left at top of grade. Station is in churchyard, 113 feet east of center line of road, 75 feet southwest of northwest corner of church, 60.6 feet west-southwest of southwest corner of south set of steps, 5 feet south of range with south side of church, 103 feet east-southeast of 24-inch oak tree with triangular blaze on west side, and 39 feet south of 14-inch oak tree. Surface and underground marks are standard station disks in concrete, notes 1b and 7a. Upper mark projects 6 inches above ground. Reference marks Nos. 1 and 3 are standard reference disks in concrete, note 11b. Reference mark No. 2 (azimuth mark) is standard reference disk wedged in drill hole in boulder, note 12c. No. 1 is 28 feet west of center line of road, in south edge of pine grove, about 50 feet south of range with south side of church, and 145.2 feet (slope distance) from station in azimuth 26°56′. No. 2 (azimuth mark) is about 33 yards west of T-road junction mentioned above, 11 yards east of road leading north to house, 10 yards north of center line of main road, and approximately 0.2 mile from station in azimuth 119°02′49″.3. No. 3 is across churchyard from station, in south edge of pine grove, 45 yards east of road, 37 yards northwest of northwest corner of church, 32 feet northeast of blazed oak tree, and 130.48 feet from station in azimuth 142°28′.

Plane coordinates: (N), x=1,826,591.87 feet; y=482,266.92 feet; the grid azimuth to reference mark No. 2=119°22′16″.4.[1]

Newberry (Newberry County, R. D. Horne, 1934).—About 0.6 mile north of Newberry on Newberry College campus, in northeast part of lawn east of Smeltzer Hall. To reach from center of Newberry, go north on U. S. Highway 176 to main entrance to Newberry College; turn left, pass through gate, and follow road around north end of Smeltzer Hall to station across road from east end of Holland Hall. Station is 83.8 feet west of power pole with electric light, 71.55 feet southeast of southeast corner of base of pillar at east end of porch on south side of Holland Hall, and 55.3 feet east of center of concrete walk between Holland Hall and new boys' dormitory. Surface and underground marks are standard station disks in concrete, notes 1b and 7a. Upper mark projects 10 inches above ground. Reference marks are standard reference disks in concrete, note 11c. No. 1 (azimuth mark) is embedded flush in concrete curb on west side of Hunt and McCaughrin Streets, and approximately 0.7 mile from station in azimuth 268°53′10″.7. No. 2 is embedded flush in concrete floor of porch on north side of new boys' dormitory, 22 inches west of pillar at northeast corner of porch, 2 feet south of north edge of porch and 270 feet (slope distance) from station in azimuth 349°39′. No. 3 is embedded flush in southwest corner of concrete base of pillar at southwest corner of porch on south side of Holland Hall, and 97.31 feet (slope distance) from station in azimuth 110°20′. Following distances and azimuths are from station: *Newberry, magnetic station* (see description thereof), 128 feet distant, 334°28′; red brick church spire (left of standpipe), 338°11′16″; and Newberry, brick stack, west corner at top, 8°55′33″.

Plane coordinates: (N), x=1,812,253.87 feet, y=467,878.40 feet; the grid azimuth to reference mark no. 1=269°14′13″.8.[1]

Newberry, magnetic station (Newberry County, R. D. Horne, 1934).—The station is in the southeast corner of the campus of the Newberry College, 146.1 feet from the northeast corner of the men's dormitory, 128.2 feet from the northwest corner of the girls' dormitory, 111.1 feet southwest of the southwest corner of the old gymnasium, 70.6 feet from a walk on the west which leads from Holland Hall to the men's dormitory and 60.5 feet from a road to the east-northeast. Station is marked by a concrete post 6 by 6 by 24 inches, projecting about 2 inches above ground, with a bronze disk in its top. Station *Newberry* (see description thereof) is 39.01 meters (128.0 feet) distant, in azimuth 154°28′.

Plane coordinates: [2] (N), x=1,812,308.39 feet; y=467,762.72 feet.

Smyrna (Newberry County, R. D. Horne, 1934).—About 5 miles south of Newberry, about 0.15 mile south of dirt road to Newberry, on property of Smyrna Church, on highest part of hill 0.2 mile southeast of church. To reach

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term.
[2] No check on this position.
For notes in regard to marking of stations, see p. 50.

from Main Street in Newberry, go southwest 0.8 mile on State Highway 22 to dirt road; turn right on dirt road for 4.9 miles to Smyrna Church on left, and turn left on dim road just west of church and follow around graveyard 0.3 mile to top of knoll and station site. Station is 78.8 feet north-northwest of 8-inch pine, 60.5 feet west of 8-inch pine, 38.8 feet southeast of 4-inch pine, and 22.4 feet east of 5-inch pine. Surface and underground marks are standard station disks in concrete, notes 1b and 7a. Upper mark projects 6 inches above ground. Reference marks are standard reference disks in concrete, note 11b, projecting 6 inches above ground. No. 1 is 14 paces south of 12-inch pine, 4 paces northwest of 8-inch pine, 7 feet east of wire fence, 4 feet east of footpath, and 158.60 feet from station in azimuth 93°16′. No. 2 is 9 paces southeast of clump of china-berry trees in hedgerow, 6 paces west-northwest of 6-inch pine, 3 paces south of hedgerow, and 165.70 feet (slope distance) from station in azimuth 167°40′. Arrow on disk points about 60° to right of station. No. 3 (azimuth mark) is 100 paces east-northeast of house beside church, 33 paces east-northeast of telephone pole, 6 paces north of center of road to Newberry, and approximately 0.15 mile from station in azimuth 170°55′02″. Following azimuths are from station: Church spire, tip 133°17′11″; *Newberry, Oakland Plant, Kendell Mills, silver tank,* 251°31′08″.3.

Plane coordinates: (N), x=1,787,384.20 feet; y=463,495.61 feet; the grid azimuth to reference mark no. 3=171°18′52″.[1]

Newberry, Oakland Plant, Kendell Mills, silver tank (Newberry County, R. D. Horne, 1934).—Plane coordinates: (N), x=1,810,855.34 feet; y=471,159.88 feet.

Newberry, municipal standpipe, aluminum (Newberry County, R. D. Horne, 1934).—Plane coordinates: (N), x=1,813,767.28 feet; y=463,451.09 feet.

Goldville, highest, largest of three tanks (Laurens County, R. D. Horne, 1934).—Plane coordinates: [2] (N), x=1,754,006 feet; y=515,608 feet.

Ninety Six, municipal water tank (Greenwood County, R. D. Horne, 1934).—Plane coordinates: [2] (N), x=1,692,067 feet; y=426,536 feet.

Ninety Six, Self Cotton Mills, brick stack (Greenwood County, R. D. Horne, 1934).—Plane coordinates: [2] (N), x=1,693,507 feet; y=427,518 feet.

Sandridge (Greenwood County, R. D. Horne, 1934).—About 15 miles west-northwest of Saluda, 12 miles southeast of Greenwood. To reach from Greenwood, follow U. S. Highway 178 to Saluda to unmarked crossroads known locally as Sandridge; turn east-northeast for about 100 feet, and turn right for 0.1 mile to farmhouse yard and station site. To reach from intersection of State Highway 19 (highway to Newberry) and U. S. Highway 178 in Saluda, go west-northwest 15 miles on U. S. Highway 178 (3.4 miles beyond intersection of U. S. Highway 178 and State Highway 246) to Sandridge, and proceed to station as mentioned above. Station is about 85 feet west-northwest of 48-inch oak tree directly in front of house, 309 feet east-northeast of pavement of U. S. Highway 178, and 60 feet east-northeast of secondary dirt road. Surface and underground marks are standard station disks in concrete, notes 1b and 7a. Upper mark, stamped "Sandridge, 1934" projects about 1 foot above ground. Reference marks are standard reference disks in concrete, note 11b, stamped "Sandridge, 1934" together with number, and project about 1 foot above ground. No. 1 is 46 feet west-southwest of center of 48-inch oak tree, 18 feet east-northeast of center line of dirt road, and 88.71 feet from station in azimuth 320°00′. No. 2 (azimuth mark) is 520 feet west-southwest of center line of pavement of U. S. Highway 178, 150 feet northwest of center line of secondary road, 12 feet north of northeast corner of small barn, and approximately 0.25 mile from station in azimuth 75°19′40″.4. No. 3 is 24 feet east-northeast of center line of dirt road, and 82.17 feet from station in azimuth 89°36′.

Plane coordinates: (N), x=1,693,605.61 feet; y=387,478.79 feet; the grid azimuth to reference mark No. 2=75°53′56″.2.[1]

Bailey (Greenwood County, R. D. Horne, 1934).—At east edge of Greenwood, on north corner of front lawn of Bailey Military Academy, about 75 yards north of north corner of red brick academy building, 61 feet south of center line of paved street (name unknown), 42 feet east of center line of Academy Street and 25 feet west of center line of gravel path leading to barracks. Surface and underground marks are standard station disks in concrete, notes 1b and 7a. Reference marks are standard reference disks in concrete, note 11b. No. 1 is about 60 yards north of center line of paved street mentioned above, 6 yards

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term.
[2] No check on this position.
For notes in regard to marking of stations, see p. 50.

east of center line of dirt road, 1 foot west of heavy wire fence and 232.38 feet from station in azimuth 247°22′. No. 2 is on north edge of front lawn, in line of trees, about 7 yards south of center line of street in front of academy, 6 feet west of line of trees running from street to academy building and 162.84 feet from station in azimuth 325°26′. No. 3 (azimuth mark) is at second road crossing east of station, 75 feet north of road intersection, 42 feet west of house and approximately 0.3 mile from station in azimuth 338°39′56″.1. Following azimuths are from station: *Greenwood, Panola Cotton Mills, slender stack*, 315°30′13″.1; *Greenwood, Matthews Cotton Mills, large brick stack*, 327°17′42″.4; and Greenwood, Matthews Cotton Mills, black tank, finial, 328°20′35″.

Plane coordinates: (N), x=1,650,285.55 feet; y=430,240.01 feet; the grid azimuth to reference mark no. 3=339°19′05″.8.[1]

Greenwood, Matthews Cotton Mills, large brick stack (Greenwood County, Roland D. Horne, 1934).—Plane coordinates: (N), x=1,652,946.49 feet; y=425,990.32 feet.

Greenwood, Panola Cotton Mills, slender stack (Greenwood County, Roland D. Horne, 1934).—Plane coordinates: (N), x=1,653,119.00 feet; y=427,289.80 feet.

CHAPPELLS TO CHARLESTON ARC

Principal points

Wheeler (Saluda County, J. Bowie, Jr., 1935).—About 14.5 miles (air line) northwest of Batesburg and 4.75 miles (air line) southwest of Saluda, on Persimmon Hill, on property belonging to Wheeler Brothers of Saluda (occupied by J. H. Rowe), 124.5 feet northwest of center line of State Highway 19, 69.7 feet west of west corner of southwest wing of Wheeler's house and 43.5 feet west of center of well. To reach from junction of U. S. Highway 178 and State Highway 19 in Saluda, go south on State Highway 19 for 4.9 miles to station at right on crest of hill, about 0.1 mile beyond two red brick monuments marked "Persimmon Hill Farm" on each side of road. Surface and underground marks are standard disks in concrete, notes 1b and 7b. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 is 5 paces northwest of northeast corner of barnyard fence, 1 foot southwest of fence line on north side of barnyard, and 22.101 meters (72.51 feet) north of station in azimuth 182°04′. Reference mark No. 2 is on west fence line of barnyard, and 22.732 meters (74.58 feet) west-northwest of station in azimuth 116°20′. Azimuth mark is 39 paces southeast of southeast corner of house, 4 paces west of edge of ploughed field, and 0.3 mile (air line) north of station in azimuth 186°15′43″.2. To reach, go north on State Highway 19 for 0.3 mile and turn left at crossroads for 0.2 mile to Bartley's house and mark, in yard.

Plane coordinates: (N), x=1,757,175.15 feet; y=341,376.74 feet; the grid azimuth to the azimuth mark=186°42′50″.1.[1]

Transit traverse station No. 11 R (U. S. G. S.) eccentric (Saluda County, J. Bowie, Jr., 1935).—About 7 miles northwest of Batesburg. To reach from Batesburg, go northwest on U. S. Highway 178 for 7.3 miles to crossroads (sign "Sardis Church") and turn right for 2.8 miles to crossroads at J. A. Ridgell's store and station in northeast corner, about 49 feet east of north-south road, 35 feet west of granary, and 27 feet north of east-west road. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Upper mark is 14 inches below surface of ground. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 projects 7 inches, is about 15 feet south of center line of road and 46.516 meters (152.61 feet) east of station in azimuth 284°18′. Reference mark No. 2 projects 7 inches, is 45 feet south of southeast corner of store, 17 feet west of center line of road, 1 foot north of telephone pole (leaning), 1 foot east of fence line, and 52.608 meters (172.60 feet) from station in azimuth 32°10′. Azimuth mark projects 8 inches and is on crown of first hill west of station, on east-west road, 20 feet north of center line of road, and 498 paces west of station in azimuth 94°27′50″. *Transit traverse station No. 11 R (U. S. G. S.)* (see description thereof) is 33.855 meters (111.07 feet) south of station in azimuth 336°31′.

Plane coordinates: (N), x=1,803,627.40 feet; y=366,546.41 feet; the grid azimuth to the azimuth mark=94°49′47″.[1]

Watson (Saluda County, J. Bowie, Jr., 1935).—About 1.3 miles east of Southern Railway station in Ridge Springs, on property belonging to R. M. Watson

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term. For notes in regard to marking of stations, see p. 50.

(occupied by P. Murphy), 143 feet northwest of center line of State Highway 23, 52.5 feet northwest of northwest corner of Murphy's house, 46 feet southeast of 20-inch pecan tree, 27 feet northwest of 24-inch hickory tree and 16 feet southwest of southwest corner of garage. Surface and underground marks are standard disks in concrete, notes 1b and 7b. Upper mark projects 2 inches. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 projects 12 inches, is 36 feet south of center line of dirt road, 3 feet northwest of telephone pole, 2 feet north-northeast of power pole 1622 and 56.601 meters (185.70 feet) south of station in azimuth 4°34'. Reference mark No. 2 projects 10 inches, is 35.5 feet south of center line of highway, 2 feet west of telephone pole, 2 feet east of power pole 1624, and 87.008 meters (285.46 feet) southwest of station in azimuth 42°53'. Azimuth mark projects 6 inches, is 60 paces southwest of center line of highway, 14 paces south of northwest corner of fence of pigpen, 3 feet west of fence line and 0.25 mile east of station in azimuth 270°02'10".5. Red tank is 0.5 mile from station in azimuth 76°25'35".

Plane coordinates: (N), x=1,806,385.02 feet; y=308,989.41 feet; the grid azimuth to the azimuth mark=270°23'46".3.[1] (S), x=1,806,374.22 feet; y=733,380.85 feet; the grid azimuth to the azimuth mark=270°23'00".8.[1]

L X 1002 (S. C. Geod. S.) eccentric (Lexington County, J. Bowie, Jr., 1935).—About 1 mile south of Leesville. To reach from Leesville railway station, go south 0.15 mile to junction of U. S. Highway 1 and State Highway 245 and turn right (south) 0.4 mile on State Highway 245 to schoolhouse on left and station, located 140 feet southwest of southwest corner of Hampton Junior High School (colored) and 24.7 meters (81 feet) east of center line of pavement. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark is set flush with ground. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 projects 6 inches and is 70 feet south of southwest corner of schoolhouse, 1 foot north of northwest corner of coalhouse and 38.208 meters (125.35 feet) east of station in azimuth 267°28'. Reference mark No. 2 projects 7 inches and is 1 foot west of northwest corner of Calvary M. E. Church, 1 foot north of north vestry, and 34.505 meters (113.21 feet) southeast of station in azimuth 333°31'. L X 1003 (S. C. Geod. S.) (not stamped) is about 12 inches below surface of ground, 8 paces west of center line of road, 4 feet west of west side ditch, directly across road from door of Calvary M. E. Church and 0.4 mile south of station in azimuth 0°44'02".5. L X 1002 (S. C. Geod. S.) (not stamped) is 14 inches below surface of ground, 20 feet east of center line of road, 20 feet southwest of piece of railroad rail used as a property corner, and 37.750 meters (123.85 feet) southwest of station in azimuth 22°05'. Azimuth mark projects 6 inches and is in back-yard of Julius Adams, 12 feet north of east-west fence, 2 feet east of barn, and is 0.5 mile north of station in azimuth 187°33'51".4. To reach from station, go west to U. S. Highway 1 and turn right for 0.15 mile, thence right for 0.1 mile to Mr. Adams' house and mark. Finial of taller of two silver tanks in Leesville is in azimuth 202°21'34".1.

Plane coordinates: (N), x=1,844,838.88 feet; y=331,894.10 feet; the grid azimuth to the azimuth mark=187°51'10".6.[1] (S), x=1,844,826.17 feet; y=756,294.76 feet; the grid azimuth to the azimuth mark=187°50'34".1.[1]

Supplementary points

Bird (Newberry County, J. Bowie, Jr., 1935).—About 0.6 mile (air line) southeast of Little Mountain, on most northeasterly of two peaks of Little Mountain, at old Bird place. To reach from Columbia, go west-northwest on U. S. Highway 76 to Little Mountain, from Columbia, Newberry & Laurens Railroad station, continue east on U. S. Highway 76 for 0.1 mile; turn right on gravel road (brick church on left) for 0.3 mile and continue straight ahead on rough farm road at point where main road bears left for 0.65 mile to abandoned house and barn on summit of mountain and station, 71 feet east from northeast corner of barn, 36.4 feet north of old well and 14 feet west of barnyard fence. Surface and underground marks are standard disks in concrete, notes 1b and 7b. Reference and azimuth marks are standard disks in concrete, note 12c. Reference mark No. 1 projects 4 inches and is set in 36- x 36-inch rectangular boulder, 5 paces northeast of east corner of barn and

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term. For notes in regard to marking of stations, see p. 50.

24.808 meters (81.39 feet) southwest of station in azimuth 45°16′. Reference mark No. 2 projects 6 inches and is set in 24- x 24-inch square boulder, 32.367 meters (106.19 feet) north-northwest of station in azimuth 158°08′. U. S. Coast and Geodetic Survey and State Survey traverse station N 519 (S. C. Geod. S.) (azimuth) projects 3 inches, is 0.5 mile west of railroad station in Little Mountain on U. S. Highway 76, 61 paces west of west town limits, 50 paces east of gravel T-road south, at point of intersection of first curve west from town, 8 paces south of center line of highway, 8 paces west of third telephone pole west of town and about 1 mile northwest of station in azimuth 119°39′39″.2.

Plane coordinates: (N), x=1,876,964.12 feet; y=432,424.95 feet; the grid azimuth to N. 519 (S. C. Geod. S.)=119°53′26″.0.[1]

S 404 (S. C. Geod. S.) eccentric (Saluda County, J. Bowie, Jr., 1935).—About 1.5 miles (air line) north-northwest of Saluda, on strip of cleared land between highway and pine grove, 10.7 meters (35 feet) southwest of center line of U. S. Highway 178 and 4 meters (13 feet) southwest of edge of cut bank. Surface and underground marks are standard disks in concrete, notes 1a and 7b. Upper mark projects 6 inches. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 projects 6 inches, is 7.9 meters (26 feet) northeast of center line of highway and 19.140 meters (62.80 feet) from station in azimuth 188°29′. Reference mark No. 2 projects 2 inches, is 8.4 meters (28 feet) southwest of center line of highway and 29.048 meters (95.30 feet) from station in azimuth 117°13′. S 405 (S. C. Geod. S.) (azimuth mark) is a U. S. Coast and Geodetic Survey and State Survey standard disk, set about 18 inches below surface of ground, and is at point of intersection of north side of pavement of east tangent and south side of pavement of west tangent of U. S. Highway 178, 9.9 feet north of north edge of pavement, and 1.3 miles northwest of station in azimuth 112°59′11″.8. *S 404 (S. C. Geod. S.)* (see description thereof) is 18.982 meters (62.28 feet) northeast of station in azimuth 195°15′.

Plane coordinates: (N), x=1,759,270.03 feet; y=369,347.95 feet; the grid azimuth to S 405 (S. C. Geod. S.)=113°26′06″.1.[1]

S 404 (S. C. Geod. S.) (Saluda County, J. Bowie, Jr., 1935).—About 1.5 miles (air line) north-northwest of Saluda on U. S. Highway 178, 7.7 meters (25 feet) northeast of center line of highway and 1.9 meters (6 feet) southwest of 2-inch iron pipe right-of-way marker. Station is a U. S. Coast and Geodetic Survey and State Survey standard disk set in concrete about 2 feet below surface of ground. *S 404 (S. C. Geod. S.) eccentric* (see description thereof) is 18.982 meters (62.28 feet) south-southwest of station in azimuth 15°15′.

Plane coordinates:[2] (N), x=1,759,286.92 feet; y=369,407.87 feet.

Saluda, water tank (Saluda County, J. Bowie, Jr., 1935).—Plane coordinates:[2] (N), x=1,765,282 feet; y=365,650 feet.

Transit traverse station No. 11 R. (U. S. G. S.) (Saluda County, J. Bowie, Jr., 1935).—About 7 miles northwest of Batesburg. To reach from Batesburg, go northwest on U. S. Highway 178 for 7.3 miles to sign "Sardis Church" at crossroads and turn right for 2.8 miles to Ridgell's crossroads and station, located in J. A. Ridgell's front yard about 100 feet east of north-south road, 45 feet south of center line of east-west road, 30 feet northwest of northwest corner of house and 12 feet northeast of 6-inch pear tree. Station is a U. S. Geological Survey standard disk in 6-inch block of concrete projecting 2 inches. *Transit traverse station No. 11 R (U. S. G. S.) eccentric* (see description thereof) is 33.855 meters (111.07 feet) north of station in azimuth 156°31′.

Plane coordinates: (N), x=1,803,671.03 feet; y=366,444.24 feet.

OSCEOLA TO BUCKSPORT ARC

Principal points

Parker (Lancaster County, J. Bowie, Jr., 1935).—About 15 miles (air line) south-southwest of Monroe, 9 miles (air line) east-northeast of Lancaster and 4.75 miles (air line) west-northwest of Tradesville. To reach from Lancaster post office, go 1.75 miles east on Arch Street and take left fork for 3.8 miles to T-road intersection at filling station; take right fork for 0.2 mile and bear left at fork for 3.8 miles to crossroads at store and schoolhouse; turn left and follow

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term.
[2] No check on this position.
For notes in regard to marking of stations, see p. 50.

road north 1.2 miles to R. W. Parker's house on right and station in northwest corner of yard, about 22 meters (72 feet) northwest of northwest corner of Parker's house, 20.5 meters (67 feet) south-southeast of center line of road leading right to Tabernacle, 7.9 meters (26 feet) west of 12-inch hickory tree and 7.7 meters (25 feet) east of 10-inch cedar tree. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 10 inches. Reference mark No. 1 (note 11a) is 24.4 meters (80 feet) southwest of southwest corner of brick chimney on Negro house, 6 meters (20 feet) south of Tabernacle road, 1.5 meters (5 feet) south-southwest of trunk of large cedar tree, and 50.188 meters (164.66 feet) northeast of station in azimuth 231°23′. Reference mark No. 2 (note 11b) is 7 meters (23 feet) west of center line of road, and 45.755 meters (150.11 feet) northwest of station in azimuth 136°08′. Azimuth mark (note 11b) projects 6 inches and is 24 meters (79 feet) southeast of farmhouse, 12 meters (39 feet) east-northeast of 26-inch red oak tree, 4 meters (13 feet) north of lane, 1.5 meters (5 feet) south of white oak tree, and about 0.4 mile north of station in azimuth 173°05′26″.7.

Plane coordinates: (N), x=2,111,361.98 feet; y=645,642.67 feet; the grid azimuth to the azimuth mark=172°52′53″.1.[1]

Altan (Union County, N. C., J. Bowie, Jr., 1935).—About 7 miles (air line) south of Monroe, N. C. To reach from southwest corner of courthouse in Monroe, go east two blocks to intersection of Franklin and South Church Streets; turn right (south) for 2.6 miles to T-road with large frame house in southwest angle; turn right (southwest) for 4.7 miles to T-road in Altan (which is 0.1 mile past a red brick church on right, west); turn left (east) for 0.2 mile to forked road; take left fork for 0.3 mile (past house on right) to a dim T-road and turn right for 75 yards to station in a cultivated field belonging to Robert McManus, 5.6 meters (18 feet) east of center line of road. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 12 inches. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 projects 10 inches, is 9.9 meters (32 feet) west of fence corner, 3.7 meters (12 feet) north of east-west road, 2 feet south of wire fence and 84.580 meters (277.49) feet northeast of station in azimuth 206°29′. Reference mark No. 2 projects 8 inches, is 2.2 meters (7 feet) north of center line of east-west road and 74.244 meters (243.58 feet) northwest of station in azimuth 156°03′. Azimuth mark projects 10 inches, is 13 paces south of southeast corner of store belonging to J. Rodgers, 7 paces west of center line of road and 0.5 mile southwest of station in azimuth 77°40′08″.4.

Plane coordinates: (N), x=2,140,437.06 feet; y=684,695.01 feet; the grid azimuth to the azimuth mark=77°24′16″.9.[1]

Page (Chesterfield County, J. Bowie, Jr., 1935).—About 1 mile by road southwest of Pageland. To reach from intersection of State Highways 9 and 35 in Pageland, follow State Highway 9 southwest for 1 mile to station at store and filling station at first curve in road, 20.8 meters (68 feet) north of center line of State Highway 9, 11.2 meters (37 feet) east-southeast of northeast corner of store, 10.5 meters (34 feet) south of 10-inch pine with crooked trunk, and 9.2 meters (30 feet) southeast of southeast corner of store. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper is 6 inches and lower mark 36 inches below surface of ground. Reference marks are standard disks in concrete, note 11b. Azimuth mark is reference mark No. 1, projects 8 inches, is 7 meters (23 feet) south of center line of highway and 29.868 meters (98.00 feet) from station in azimuth 310°05″. Reference mark No. 2 projects 8 inches, is 7.3 meters (24 feet) south of center line of highway and 49.610 meters (162.76 feet) from station in azimuth 28°10′. C F 108 (S. C. Geod. S.) (azimuth mark) is U. S. Coast and Geodetic Survey and State Survey standard disk in 6 by 6 inches precast concrete post, 8 inches below surface of ground, and is on southeast corner of intersection of State Highways 9 and 35, 11 paces east of center line of State Highway 35, 10 paces south of center line of State Highway 9, 5 paces northwest of northwest corner of B. C. Moore & Sons' brick clothing store, 3 feet northeast of most northerly of two telephone poles and about 1 mile from station in azimuth 252°58′21″.1. Azimuth from station to water tank of cotton mills, Pageland, is 244°52′15″.2.

Plane coordinates: (N), x=2,177,482.59 feet; y=643,660.24 feet; the grid azimuth to C F 108 (S. C. Geod. S.)=252°38′20″.2.[1]

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term. For notes in regard to marking of stations, see p. 50.

Taxahaw (Lancaster County, J. Bowie, Jr., 1935).—At Taxahaw, about 14 miles east of Lancaster, on outside of first curve in east-west road east of crossroads in Taxahaw, in grassy plot bounded by county road and two farm lands, almost directly in front of two-story house, 40.2 meters (132 feet) west-southwest of northwest corner of this house, 24.4 meters (80 feet) southwest of large sycamore tree, 19.5 meters (64 feet) northeast of northeast corner of McManus' porch and 7 meters (23 feet) southeast of center line of road. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 7 inches. Reference and azimuth marks are standard disks in concrete, notes 11a and 11b. Reference mark No. 1 (note 11b) is 20 meters (66 feet) north-northeast of northeast corner of barn, 9 meters (30 feet) north of northeast corner of shed, 4.5 meters (15 feet) east of northeast corner of corn crib, 2 meters (7 feet) east of center line of farm lane, and 50.015 meters (164.09 feet) south of station in azimuth 325°45′. No 2 (note 11a) is 21 meters (69 feet) northwest of northwest corner of McManus' house, 10 meters (33 feet) east-northeast of 48-inch oak tree, 7 meters (23 feet) west-southwest of west end of hedge, 3.5 meters (11 feet) south of center line of road and 44.068 meters (144.58 feet) west-southwest of station in azimuth 56°26′. Azimuth mark (note 11b) projects 12 inches, is 7 meters (23 feet) north-northwest of 12-inch white oak tree, 4 meters (13 feet) north of 12-inch gum tree, 2 meters (7 feet) north of 10-inch gum tree, 1.10 meters (3.6 feet) southeast of south corner of old house and about 0.2 mile east of station in azimuth 262°44′39″.

Plane coordinates: (N), x=2,145,782.89 feet; y=615,598.58 feet; the grid azimuth to the azimuth mark=262°28′14″.[1]

Presley (Chesterfield County, J. Bowie, Jr. 1935).—About 10 miles (air line) south-southeast of Pageland, and 2.5 miles (air line) southeast of Jefferson, on highest point of hill covered with scrub gum and pine trees, on property belonging to O. G. Presley. To reach from Jefferson Post Office, go south 2.1 miles on State Highway 35 to crossroads (Rollings' Service Station in southwest corner); turn left on ungraded farm road for 0.6 mile to "Y"; take left fork (straight ahead) for 0.8 mile to crossroad at two mail boxes; continue straight ahead for 0.2 mile to crossroad and turn left for 0.3 mile to top of hill and station on left, about 71 feet west of triangular-blazed 14-inch pine tree and 31 feet west of center line of dirt road. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 8 inches. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 projects 8 inches, is 15 feet north of 10-inch gum tree, 9 feet east of center line of dirt road and 104 feet northeast of station in azimuth 229°18′. No. 2 projects 8 inches, is 20 feet south of 14-inch triangular-blazed pine tree, 9 feet east of center line of dirt road, and 85.71 feet southeast of station in azimuth 354°41′. Azimuth mark projects 7 inches and is 0.4 mile northeast of station in azimuth 212°57′10″.6. To reach from station, go straight ahead on dirt road (keeping to left) for 0.2 mile to intersection with another dirt road and turn right for 0.2 mile to mark. Mark is 22 paces northeast of old unpainted house, 12 paces southeast of center line of road, 2 feet west of west wall of outhouse 8 feet by 10 feet and about in line with its north wall. Finial, Jefferson Municipal black water tank, is 2.5 miles from station in azimuth 126°26′17″.4.

Plane coordinates: (N), x=2,104,312.32 feet; y=594,117.49 feet; the grid azimuth to azimuth mark=212°35′18″.0.[1]

Holley (Kershaw County, J. Bowie, Jr., 1935).—About 5.5 miles east-northeast of Kershaw and 0.2 mile south-southeast of Kershaw-Lancaster County line, on top of hill covered with scrub oak, on property belonging to O. W. Holley, 9.68 meters (31.8 feet) southwest of 12-inch pine with triangular blaze on northwest side, and 5.9 meters (19 feet) south of center line of road. To reach from junction of U. S. Highway 521 and State Highway 285 in Kershaw, follow latter northeast for 2.5 miles to top of grade (or 0.5 mile beyond river bridge) and bear right on dirt Y-road for about 100 feet; bear right for 0.7 mile to T-road and turn right for 4 miles to country store (1.6 miles beyond crossroad); turn sharp right for 0.5 mile to dim woods road at county boundary monument and turn left for 0.2 mile to station. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper projects 8 inches. Reference and azimuth marks are standard disks in concrete, notes

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term. For notes in regard to marking of stations, see p. 50.

11b and 11a. Reference mark No. 1 projects 12 inches, is 5.5 meters (18 feet) south of center line of road and 30.586 meters (100.35 feet) from station in azimuth 71°49′. Reference mark No. 2 projects 8 inches, is 23.5 meters (77 feet) north of center line of road and 29.158 meters (95.66 feet) from station in azimuth 148°39′. Azimuth mark (note 11a) projects 3 inches, is on north slope of first hill across valley to south of station, and about 1.75 miles from station in azimuth 324°01′41″.9. To reach from station, go south for 0.5 mile to fork in road and take right fork for 0.3 mile to main road; turn right for 1.2 miles to T-road; turn left for 1.25 mile to crossroad (0.95 mile beyond Savannah school); turn left for 100 feet, thence left at fork for 100 feet and bear right at another fork on winding road for 0.4 mile to mark, about 26 paces northwest of northwest corner of house and 3 paces north of the middle of three oak trees.

Plane coordinates: (N), x=2,154,510.66 feet; y=576,594.38 feet; the grid azimuth to the azimuth mark=323°44′18″.7.[1]

Supplementary points

Transit traverse station No. 1 B (U. S. G. S.) (Lancaster County, J. Bowie, Jr., 1934; 1935).—About 12 miles (air line) northeast of Lancaster, on or near South Carolina-North Carolina State boundary line, 91 feet south of sign "Union County," 40 feet southeast of center line of road, 28 feet southwest of 10-inch black oak and 10.5 feet northeast of wire fence line (nearly in path of dim woods road leading southeast). To reach from post office in Lancaster, follow E. Arch Street east for 1.7 miles to Y; bear left on main-traveled road for 3.8 miles to Plyer's filling station; turn sharp right for 0.2 mile to Y; bear left for 3.8 miles to cross road; bear left (north) on main road for 4.5 miles (passing church on left and school on right at about 0.1 mile) to sign "Union County." Station is a U. S. Geological Survey and State Survey standard disk in 6- by 6-inch concrete post, projecting 6 inches. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 projects 9 inches, is 22 feet northwest of center line of dirt road and 123.45 feet from station in azimuth 32°37′. Reference mark No. 2 projects 9 inches, is 24 feet southeast of center line of road and 140.77 feet from station in azimuth 172°48′. Azimuth mark projects 7 inches, is 7 paces southeast of center line of road, 6 paces northeast of center line of driveway to W. A. Karne's house, and about 0.25 mile from station in azimuth 17°16′23″.4.

Plane coordinates: (N), x=2,112,346.53 feet; y=661,822.26 feet; the grid azimuth to the azimuth mark=17°03′42″.8.[1]

Kershaw, municipal water tank (Kershaw County, J. Bowie, Jr., 1935).—Plane coordinates:[2] (N), x=2,123,043 feet; y=561,989 feet.

GASTONIA, N. C., TO LOWNDESVILLE, S. C., ARC

Principal points

King eccentric (Gaston County, N. C., R. D. Horne, 1933; 1935).—On summit of Kings Mountain, which is 2 miles (air line) east of Kings Mountain, N. C., at northwest corner of 5-foot square platform, 2.65 feet from center of flagpole in center of platform. To reach from First National Bank in Kings Mountain, follow State Highway 215 and U. S. Highways 29 and 74 north for 0.7 mile to cross road where 29 and 74 turn left to Gastonia and 215 turns right; turn right on 215 (past ball ground) for 1.25 miles to Y-intersection; turn left (southeast) on dirt road for 0.2 mile to T-road on left that goes up mountain (azimuth mark here) and follow this road for 0.2 mile to fork; take left fork for 0.2 mile to end of road and follow trail northeast to top of mountain. Station mark (note 1a) is cemented in northwest corner of a 5-foot square platform with flagpole at center. Reference and azimuth marks are standard disks in concrete, note 12a. Reference mark No. 1 is about 10 feet lower than station mark and 95.20 feet northeast of station in azimuth 233°12′. Reference mark No. 2 (azimuth) is in northwest angle of intersection of road up mountain and main north-south dirt road, 10.1 meters (33 feet) north of T-road, 8.7 meters (29 feet) east of center line of north-south road and about 0.5 mile west of station in azimuth 81°06′44″.9. Reference mark No. 3 is about 25

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term.
[2] No check on this position.
For notes in regard to marking of stations, see p. 50.

feet lower than station and 73.63 feet west of station in azimuth 90°16′. Center of *Flagpole at King* is 2.65 feet from station in azimuth 359°04′.

Plane coordinates: (N), x=1,906,565.40 feet; y=803,548.52 feet; the grid azimuth to reference mark No. 2=81°17′08″.6.[1]

Jackson (Gaston County, N. C., J. Bowie, Jr., 1935; 1937).—About 9 miles (air line) east-southeast of town of Kings Mountain, 7 miles (air line) northeast of Clover, 4.5 miles (air line) south of Gastonia and 3 miles north of South Carolina-North Carolina State line, in wooded hill at southwestern end of ridge, along top of hill known locally as Jackson's Knob or Little Mountain, 8.3 meters (27 feet) north of 14-inch ash with triangular blaze on north side, 4.3 meters (14 feet) east of large oak forked about 8 feet above ground and 3.4 meters (11 feet) west of 12-inch pine with triangular blaze on south side. To reach from intersection of U. S. Highways 74 and 29 with U. S. Highway 321 in Gastonia, follow U. S. Highway 321 south for 5.8 miles to dirt T-road across railroad (about 0.25 mile north of brick store and filling station); turn left (east) on dirt road for 1.9 miles to T-road intersection where dirt road comes in from left at curve in main road (see azimuth mark); continue right on main road for 0.55 mile (200 feet beyond power transmission line); turn left on road leading upgrade between church and school for 0.1 mile to end of truck travel and continue on foot to top of hill and station. Surface mark is standard disk in concrete, note 2. Reference and azimuth marks are standard disks in concrete, notes 12a and 11a. Reference mark No. 1 is 29.14 meters (95.6 feet) from the station in azimuth 206°32′. Reference mark No. 2 is 5.5 meters (18 feet) east of 16-inch pine, 4 meters (13 feet) southwest of 12-inch pine and 26.29 meters (86.3 feet) from the station in azimuth 15°02′. Azimuth mark (note 11a) projects 4 inches and is about 1 mile southwest of station in azimuth 73°07′28″.6. Azimuth mark is reached from road intersection (see above) by going west for 0.4 mile and turning right on farm road at white house for 0.2 mile to mark in curve of farm road, 5 meters (16 feet) east-southeast of center line of road and at end of fence line. Following azimuths are from station: Water tank, aluminum, 160°02′02″; Water tank, 27°09′07″; Ball on black water tank, Gastonia, 158°38′51″; *Kings Mountain, airway beacon, 200-mile blinker, Atlanta-New York,* 90°44′40″.

Plane coordinates: (N), x=1,948,791.65 feet; y=802,915.07 feet; the grid azimuth to the azimuth mark=73°13′16″.9.[1]

Clover (York County, J. Bowie, Jr., 1935).—At Clover, S. C., about 11 miles south of Gastonia, N. C., at corner of Smith and Faulkner Streets, in northwest corner of Rev. D. B. Grier's corner lot, 86 meters (282 feet) west of center pipe of municipal water tank, 60 meters (197 feet) west of Smith Street, 36.5 meters (120 feet) north of Faulkner Street, and 30.4 meters (100 feet) west-northwest of northwest corner of Reverend Grier's house. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 8 inches. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 is between two driveways between property line of Reverend Grier and neighbor (Mrs. C. R. Morrow), 16 meters (52 feet) west of center line of Smith Street, 14.6 meters (48 feet) southeast of southeast corner of Morrow's house, 9.4 meters (31 feet) northeast of northeast corner of Grier's house, 1.5 meters (5 feet) south of range with center pipe of municipal tank, and 44.170 meters (144.91 feet) from station in azimuth 266°48′. Reference mark No. 2 is 17.5 meters (57 feet) north-northeast of northeast corner of brick house, 14 meters (46 feet) east of bend in sidewalk, 4.2 meters (14 feet) south of center line of Faulkner Street, 1.2 meters (4 feet) west-southwest of telephone pole, 0.8 meters (3 feet) north of north edge of concrete walk, and 40.636 meters (133.32 feet) from station in azimuth 354°14′. It was reported destroyed in 1939. Azimuth mark projects 5 inches and is in vacant lot at south edge of cultivated field, 150 feet from Esso service station, .32 meters (105 feet) north-northeast of small bungalow, 22 meters (72 feet) southwest of small barn, and 0.15 mile from station in azimuth 253°14′30″. Following distances and azimuths are from station: *Clover, municipal water tank,* 282 feet, azimuth 265°08′; ball on water tank, 0.25 mile, azimuth 328°43′44″.

Plane coordinates: (N), x=1,930,350.43 feet; y=767,630.75 feet; the grid azimuth to the azimuth mark=253°22′23″.[1]

Smyrna (York County, J. Bowie, Jr., 1935).—At Smyrna, on State Highway 5 between Hickory Grove and Blacksburg, about 150 meters (492 feet) east of

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term. For notes in regard to marking of stations, see p. 50.

Esso service station in a V formed by State Highway 5 and dirt road leading east and directly across road from steep timbered hillside, 24 meters (79 feet) east of farm road, 16.1 meters (53 feet) north of northwest corner of barn, 12.5 meters (41 feet) east-northeast of 16-inch tree, 5.5 meters (18 feet) east-northeast of northeast corner of garage, and 4 meters (13 feet) north of wire barnyard fence line, in open field on property belonging to First National Bank of Sharon. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 8 inches. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 is 8 meters (26 feet) south of center line of dirt road, 3 feet southwest of northwest corner of small shed, and 156.87 feet from station in azimuth 227°41′. Reference mark No. 2 is 51 meters (167 feet) east-northeast of center line of State Highway 5, 42.4 meters (139 feet) east-northeast of telephone pole, 11 meters (36 feet) south of center line of dirt road, 2 meters (7 feet) south of 8-inch tree, and 147.15 feet from station in azimuth 97°59′. Azimuth mark projects 4 inches, is in open field on top of hill, midway between woods and a curve to southeast, 3.5 meters (11 feet) north of center line of road, and 1.2 miles south-southeast of station in azimuth 346°07′06.1″. To reach from station, go 1.2 miles south on State Highway 5 to dirt road and turn left on dirt road for 0.2 mile (keeping left at intersections) to mark on north side of farm road. Azimuth from station to *York water tank*, is 288°14′19″.6.

Plane coordinates: (N), x=1,878,687.80 feet; y=743,641.43 feet; the grid azimuth to the azimuth mark=346°20′49″.6.[1]

Whitaker (Cherokee County, J. Bowie, Jr., 1935).—About 1.5 mile northeast of Blacksburg, on highest part of Whitaker Mountain, on east-northeast side of rectangular plot with airway blinker 188, 45 feet south of center line of road over mountain, 7.827 meters (25.68 feet) east-northeast of center of tower and 6.45 meters (21.2 feet) east of southeast leg of tower. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference marks are standard disks in concrete, note 11a. Reference mark No. 1 is 11.9 meters (39 feet) northeast of northeast leg of tower, 3 paces south of center line of road and 11.515 meters (37.78 feet) from station in azimuth 163°01′. Reference mark No. 2 is on east edge of small grove of scrub oak, 8.92 meters (29.3 feet) west of southwest leg of tower and 18.015 meters (59.10 feet) from station in azimuth 69°41′. Azimuth mark (station of the U. S. Coast and Geodetic Survey and State Survey) is 6-inch square monument projecting 8 inches, and is about 0.25 mile southeast of junction of U. S. Highway 29 and State Highway 5, 120 feet southwest of southwest corner of house, 33 paces west of transmission pole with transformer, 8 paces northeast of center line of State Highway 5, and about 1.3 miles from station in azimuth 344°44′55″.5. Following distance and azimuths are from station: Water tank, Blacksburg, 43°52′53″; *Airway beacon (188 mile, red blinker, Atlanta to New York)*, 7.827 meters (25.68 feet), 73°36′; *Kings Mountain Battle Monument, tip* 266°53′15″.3.

Plane coordinates: (N), x=1,849,617.59 feet; y=778,065.61 feet; the grid azimuth to the azimuth mark=345°01′57″.5.[1]

Worth (York County, J. Bowie, Jr., 1935).—About 14 miles east-northeast of Jonesville and 13 miles (air line) southeast of Gaffney, near top (north slope) of hill known locally as Worth Mountain, owned by B. N. Millen. To reach from Hickory Grove, go 0.8 mile west on sandclay road to fork; bear left on main road for 3.3 miles to farm road (between two high banks), which follow as far as possible to station on top of hill, about 30 meters (98 feet) north-northeast of tallest pine on hill, 22 meters (72 feet) west-northwest of large rock, 20 meters (66 feet) north-northwest of hole on top of hill, 10 meters (33 feet) northwest of group of large rocks, and at following distances from triangular-blazed trees: 6.9 meters (23 feet) west-northwest of oak; 5.3 meters (17 feet) northeast of oak; 3.3 meters (11 feet) north-northeast of pine; 3.1 meters (10 feet) west-northwest of oak, and 2.6 meters (9 feet) southeast of 8-inch pine. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 8 inches. Reference and azimuth marks are standard disks in concrete, notes 12c and 11b. Reference mark No. 1 is 6 meters (20 feet) northeast of large hole, 2 meters (7 feet) southwest of large boulder, and 21.645 meters (71.01 feet) from station in azimuth 285°42′. Reference mark No. 2 is 22.723 meters (74.55 feet) from station in azimuth 40°04′. Azimuth mark (note 11b) projects 6 inches, is about 100 meters (328

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term. For notes in regard to marking of stations, see p. 50.

feet) west of two-story house with grove of oaks in front, 19 meters (62 feet) northwest of northwest corner of barn, 10 meters (33 feet) southeast of center line of main road, 4 meters (13 feet) northwest of center line of lane, on outside of curve in main road to Hickory Grove, in V formed by road and lane to house, and about 1 mile from station in azimuth 252°53′52″.5.

Plane coordinates: (N), x=1,857,196.12 feet; y=711,966.59 feet; the grid azimuth to the azimuth mark=253°10′00″.9.[1]

Lloyd (Cherokee County, J. Bowie, Jr., 1935).—About 2 miles (air line) southeast of Gaffney. To reach from post office in Gaffney, follow State Highway 11 (road to Jonesville) southwest for 1.4 miles to point where dirt road forks left; follow dirt road for 0.55 mile to cross road, and turn left on farm road located in southeast angle of intersection for 0.1 mile to station, on high ground in farmyard on property belonging to R. R. Phillips (occupied by Lloyd Welchell), 0.25 mile north-northeast of red brick substation of Bell Telephone Co., 16.15 meters (53.0 feet) north of north corner of house, 15.3 meters (50 feet) northwest of well in front of house, and 5.6 meters (18 feet) south of south corner of most westerly barn. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper projects 10 inches. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 projects 6 inches, is 18.4 meters (60 feet) east of well, 8.8 meters (29 feet) northeast of 12-inch walnut tree, 5 meters (16 feet) south of 14-inch walnut tree and 28.602 meters (93.84 feet) from station in azimuth 296°34′. Reference mark No. 2 (stamped "Tinsley 1935 No. 2") projects 8 inches, is 26.7 meters (88 feet) west of well, 18.3 meters (60 feet) west of southwest corner of house, 12 meters (39 feet) north of 24-inch oak, 3.7 meters (12 feet) northwest of center line of driveway and 26.093 meters (85.61 feet) from station in azimuth 49°17′. Azimuth mark (no name or number stamped thereon) is a U. S. Coast and Geodetic Survey and State Survey standard disk set in 5-inch square concrete post projecting 3 inches, and is 0.2 mile south of dirt cross road, 343.5 feet east-northeast of northeast corner of Bell Telephone substation, 35.4 meters (116 feet) north of concrete post (bearing metal plate marked "A T & T Co."), on west side of road, 33.35 meters (109.4 feet) southeast of 6-inch oak tree, 7.2 meters (24 feet) east of center line of dirt road, and 0.25 mile from station in azimuth 33°32′57″.3. Following azimuths are from station: *Gaffney, municipal water tank*, 150°00′11″.1; municipal standpipe, Gaffney, 201°36′29″; Water tank, Alma Mills, Gaffney, 206°42′35″.

Plane coordinates: (N), x=1,810,728.28 feet; y=748,025.85 feet; the grid azimuth to the azimuth mark=33°54′22″.4.[1]

Liberty (Spartanburg County, J. Bowie, Jr., 1935).—About 7.5 miles (air line) southeast of Woodruff, 5.5 miles north of Tylersville, and 2 miles northeast of Enoree, on low ridge known locally as Liberty Ridge, in strip of scrub-grown land between road and cultivated field, 0.4 mile northwest of schoolhouse, 15 meters (49 feet) north of edge of cultivated field, 12 meters (39 feet) south of center line of road, 7.5 meters (25 feet) north of 12-inch blazed pine, and 5.9 meters (19 feet) south-southwest of 4-inch triangular-blazed pine facing road. To reach from junction of U. S. Highway 221 and State Highway 92 in Enoree, follow State Highway 92 east for 2.3 miles to T-road intersection; turn left for 0.8 mile (0.4 mile beyond Liberty Ridge Schoolhouse) to T-road at unpainted house and turn left for 145 meters (476 feet) to station on left. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 10 inches. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 is at edge of cultivated field, 4 meters (13 feet) north of center line of road and 40.596 meters (133.19 feet) from station in azimuth 248°02′. Reference mark No. 2 is 4 meters (13 feet) north of center line of road and 33.190 meters (108.89 feet) from station in azimuth 124°36′. Azimuth mark projects 4 inches, is at edge of cultivated field in V formed by intersection of two dirt roads, 35 meters (115 feet) northeast of intersection, 20 meters (66 feet) northeast of sign "Cedar Shoal Baptist Church," 17 meters (56 feet) east of left fork, 5 meters (16 feet) west-northwest of right fork and 0.5 mile from station in azimuth 183°30′56″.5. Azimuth from station to *Woodruff, municipal water tank*, is 124°42′22″.6.

Plane coordinates: (N), x=1,721,476.98 feet; y=611,176.45 feet; the grid azimuth to the azimuth mark=184°02′19″.0.[1]

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[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term. For notes in regard to marking of stations, see p. 50.

Fountain (Greenville County, J. Bowie, Jr., 1935).—About 0.75 mile south-southwest of center of Fountain Inn, on high ground on property belonging to J. W. Putnam. To reach station from post office in Fountain Inn, go 0.4 mile north on Northman Street to Craig Street and turn left for 0.55 mile to Mr. Putnam's house; turn left through two red brick gate posts 100 yards to house and station located west of house at edge of cultivated field, 69 feet west of corner of porch, 47 feet west of 24-inch black gum tree, 26 feet south of 24-inch water oak tree, 21 feet west of center line of driveway on west side of house, and 10 feet east of edge of cultivated field. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 9 inches. Reference and azimuth marks are standard disks in concrete, notes 11b, 12a, 11b. Reference mark No. 1 (note 11b) projects 10 inches and is 31 feet south of center line of Craig Street, 18 feet east of center line of drive to house, 4.5 feet south of southwest corner of brick post on east side of drive, and 166.57 feet from station in azimuth 179°19′. Reference mark No. 2 (note 12a) is cemented in southwest end of bottom step to front porch and is 73.97 feet from station in azimuth 293°51′. Azimuth mark (note 11b) projects 10 inches and is on property of Russell Boyd (occupied by Negro tenant). To reach from station, go 0.6 mile northwest on Craig Street to crossroads; turn right (north) 0.75 mile to Y-intersection and turn sharp left 0.2 mile to Negro house and mark on right (west) located in row of 8 oak trees on front side of house, 30 paces west of center line of dirt road, 3 paces southwest of power line and 1.25 miles west of station in azimuth 113°07′32″.9. *Fountain Inn, municipal water tank* is in azimuth 220°50′16″.1

Plane coordinates: (N), x=1,635,675.56 feet; y=618,588.00 feet; the grid azimuth to the azimuth mark=113°48′35″.9.[1]

Little Knob (Laurens County, J. Bowie, Jr., 1935).—About 12 miles south-southwest of Woodruff, 6.5 miles northwest of Laurens, 3.5 miles northeast of Gray Court, on highest point of hill known locally as Little Knob (highest hill in vicinity), at east end of very rocky ridge, 3.5 meters (11 feet) east-northeast of 6-inch tree with triangular blaze on east side, and 2.9 meters (10 feet) northeast of jutting rock, inclined to north, projecting about 3 feet. (Remains of old house is at west end of ridge.) Station is a standard disk in outcropping rock, note 2. Reference marks are standard disks in boulders, note 12c. Azimuth mark is a standard disk in concrete, note 11b. Reference mark No. 1 is 10.783 meters (35.38 feet) north-northeast of station in azimuth 193°46′. Reference mark No. 2 is in top of large boulder lying in northeast-southwest direction and 18.626 meters (61.11 feet) east of station in azimuth 278°39′. Azimuth mark projects 6 inches, is at northwest corner of brick schoolhouse in schoolyard, and about 0.75 mile southwest of station in azimuth 44°42′49″.8. Following azimuths are from station: *Fountain Inn, municipal tank*, 137°39′00″.6: *Laurens Watts Mill, stack*, 312°52′41″.8.

Plane coordinates: (N), x=1,676,679.16 feet; y=575,407.57 feet; the grid azimuth to the azimuth mark=45°10′12″.5.[1]

Sims (Greenville County, J. Bowie, Jr., 1935)—About 8.5 miles (air line) northwest of Princeton. To reach from Kirby's service station at junction of U. S. Highways 25 and 76 (1 mile west of Princeton) follow U. S. Highway 25 northwest for 4.65 miles to dirt crossroads (store in southeast corner); turn right (northeast) for 2.4 miles to T-road; turn left (northwest) for 1.1 miles to driveway on right at top of grade 150 yards east of lone tall tree on left and 0.1 mile west of T-road right; turn right on driveway 0.05 mile to R. L. Sims' house and continue 0.05 mile to tenant house and station, on Sims' property, in middle of lane leading northwest from barn to pasture at point where lane widens, 0.1 mile northwest of Sims' house, 100 yards northeast of tenant house and 37 feet southeast of 24-inch oak (in lane). Surface and underground marks are standard disks in concrete, notes 1b and 7a. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 projects 9 inches, is 1 foot north of south fence of lane and 94.45 feet from station in azimuth 339°38′. Reference mark No. 2 projects 10 inches, is 42.5 feet west of 24-inch hickory tree, 30 feet northwest of northwest corner of tenant house, 23 feet northwest of 18-inch black gum tree in front of house, and 137.64 feet from station in azimuth 86°42′. Azimuth mark projects 8 inches and is on property of Mr. Sims, in barnyard, 10 paces northeast of northeast

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term. For notes in regard to marking of stations, see p. 50.

corner of corn crib, 5 paces northwest of northwest corner of barn, 4 paces south of center line of road, and 0.4 mile east of station in azimuth 278°46′54″.6. To reach from driveway to Sims' house, go 0.1 mile east to T-road, turn left 0.2 mile to fork in road, take right fork 0.2 mile to mark.

Plane coordinates: (N), x=1,606,609.30 feet; y=582,553.77 feet; the grid azimuth to the azimuth mark=279°31′10″.9.[1]

Stony (Laurens County, J. Bowie, Jr., 1935).—About 10.5 miles (air line) west-southwest of Laurens, 8.75 miles south-southwest of Gray Court, and 5 miles east-northeast of Princeton, on property belonging to L. A. Tumbling, near south end of summit of high hill known locally as Stony Knoll, in locality known as Hickory Tavern, 0.2 mile northwest of Hickory Tavern Crossroads, 0.1 mile north of U. S. Highway 76, 30 meters (98 feet) south-southwest of small clearing, 7 meters (23 feet) southwest of triangular-blazed 10-inch oak and 4 meters (13 feet) southwest of small group of outcropping rock. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Reference mark No. 1 is standard disk set in outcropping rock, note 12a. Reference mark No. 2 is standard disk set in concrete, note 11a. Azimuth mark is standard disk set in abutment of school steps, note 11. Reference mark No. 1 is in small clearing and 107.84 feet from station in azimuth 198°14′. Reference mark No. 2 is 118.1 feet from station in azimuth 116°16′. Azimuth mark is in center of top of west abutment of steps of Hickory Tavern Consolidated School (brick building) and about 0.4 mile from station in azimuth 293°48′47″.8.

Plane coordinates: (N), x=1,640,603.11 feet; y=555,520.57 feet; the grid azimuth to the azimuth mark=294°29′12″.5.[1]

Black (Anderson County, J. Bowie, Jr., 1935).—About 4 miles northeast of Honea Path. To reach from municipal building in Honea Path, follow U. S. Highway 76 (road to Princeton) northeast for 3.5 miles to cross road, turn left for 2.2 miles to reversed Y-intersection (filling station in angle of road) and turn right for 0.15 mile to station, in pecan grove on property belonging to Paul Black, between fourth and fifth rows of trees from road, 190 feet southwest of center line of dirt road, 71 feet southeast of southeast corner of chimney at east end of house, 39 feet east of 12-inch black gum tree in yard of house and 14 feet southeast of fence line on northwest side of grove. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper projects 12 inches. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 projects 3 inches, is at north corner of grove, 39 feet southwest of center line of road, 16 feet west-northwest of 4-inch tree (most northerly in grove) and 150.62 feet from station in azimuth 226°27′. Reference mark No. 2 projects 4 inches, is in yard of house, 37 feet west of southwest corner of house, 22 feet southwest of 10-inch red oak, 18 feet northwest of 18-inch hickory tree, and 134.22 feet from station in azimuth 137°15′. Azimuth mark projects 5 inches, is on property belonging to L. P. Gamble estate, at west corner of small barn, 40 paces south of house, 4 paces east of center line of driveway and about 1 mile from station in azimuth 210°30′42″.5. To reach from station, follow road north for 0.2 mile to fork; take right fork for 0.6 mile to cross road; turn right for 0.2 mile to driveway and follow driveway 0.1 mile to mark. Following azimuths are from station: *Honea Path, Chiquola Mills, stack*, 7°25′09″.4; tank, taller of two, Chiquola Mills, 8°18′46″.

Plane coordinates: (N), x=1,583,062.09 feet; y=549,176.72 feet; the grid azimuth to the azimuth mark=211°17′34″.7.[1]

Kirk (Abbeville County, J. Bowie, Jr., 1935).—About 4.6 miles northeast of Donalds, 2.6 miles (air line) northwest of Ware Shoals, on road between Honea Path and Ware Shoals, in grassy plot on property belonging to Dr. John Kirkpatrick, about 0.25 mile northwest of Y in dirt road, 45.7 meters (150 feet) south of most southerly of two large oak trees in front of cabin, 35 meters (115 feet) north-northwest of northwest corner of Negro cabin, 16 meters (52 feet) northwest of center line of dirt road, 15.5 meters (51 feet) southwest of center line of main road, and 15 meters (49 feet) north of center line of well. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 10 inches. Reference and azimuth marks are standard disks in concrete, notes 11b and 11a. Reference mark No. 1 is at southwest corner of barn and 32.262 meters (105.84 feet) from station in azimuth 230°40′. Reference mark No. 2 is at northwest corner of Negro cabin, 21.8

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term. For notes in regard to marking of stations, see p. 50.

meters (72 feet) southeast of center of well, 14.3 meters (47 feet) east-northeast of 20-inch tree, and 34.692 meters (113.82 feet) from station in azimuth 336°25'. Azimuth mark projects 4 inches, is near chinaberry tree, 0.05 mile southwest of intersection of dirt road and Ware Shoals-Honea Path Road, 20 meters, (66 feet) southwest of center line of road, 15 meters (49 feet) northeast of 1-story house, 2 meters (7 feet) southeast of center line of dirt drive, and 0.5 mile from station in azimuth 319°32'51".5. Azimuth from station to *Ware Shoals, water tank*, is 310°25'33".1.

Plane coordinates: (N), x=1,613,403.75 feet; y=520,035.73 feet; the grid azimuth to the azimuth mark=320°16'16".6.[1]

Honea Path (Anderson County, J. Bowie, Jr., 1935).—At Honea Path, on northwest corner of property belonging to city, in range with south end of Southern Railway depot and at front (southwest) end of municipal building, 213 feet north-northeast of northwest corner of building, 59 feet northwest of water oak, 31 feet southwest of 14-inch water oak, 30 feet northeast of northeast curb of main street and 21 feet east of inside angle of sidewalk. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Reference mark No. 1 (note 11b) projects 10 inches, is at south corner of loading platform of Southern Railway, 138 feet northeast of northeast curb of main street and 113.96 feet from station in azimuth 255°23'. Reference mark No. 2 (note 12a) is standard disk cemented in drill hole in northeast curb of main street, at south side of north driveway to filling station between station and municipal building, and 120.46 feet from station in azimuth 345°32'. Azimuth mark projects 8 inches, is 22 paces northeast of center line of highway, 5 paces southwest of center line of Shirley Avenue, 5 paces northeast of northeast rail of Southern Railway double track and about 0.2 mile from station in azimuth 142°55'59". *Transit traverse station No. 51 P (U. S. G. S.)* (see description thereof) is 248.45 feet from station in azimuth 334°19'. . Plane coordinates: (N), x=1,579,837.10 feet; y=629,717.34 feet; the grid azimuth to the azimuth mark=143°43'11".[1]

Donalds (Abbeville County, J. Bowie, Jr., 1935).—At Donalds, directly across U.S. Highway 178 from People's Bank, 40 meters (131 feet) northwest of Gulf service station, 26 meters (85 feet) southeast of center line of State Highway 20, 18 meters (59 feet) north-northwest of well and 9 meters (30 feet) northeast of center line of U.S. Highway 178. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark is flush with ground. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 is at northwest corner of old warehouse, 19 meters (62 feet) west-southwest of west rail of main Southern Railway track, 14 meters (46 feet) southeast of southeast corner of brick warehouse, and 36.200 meters (118.77 feet) from station in azimuth 240°35'. Reference mark No. 2 is at northeast corner of Gulf service station, 122.99 feet (slope) southwest of reference mark No. 1, and 39.679 meters (130.18 feet) from station in azimuth 299°37'. Azimuth mark is 60 meters (197 feet) southwest of electrical substation, 30 meters (98 feet) south-southwest of center line of U.S. Highway 178, 2 meters (7 feet) northwest of telephone pole, and 0.25 mile southeast of station in azimuth 321°30'06".3.

Plane coordinates: (N), x=1,593,426.30 feet; y=603,744.76 feet; the grid azimuth to the azimuth mark=322°15'44".6.[1]

Transit traverse station No. 35 P (U. S. G. S.) (Anderson County, J. Bowie, Jr., 1935).—At Craytonsville, 10 miles (air line) southeast of Anderson, 7 miles (air line) south of Belton, and 5 miles (air line) west-southwest of Honea Path, in southeast angle of two dirt roads (stone well is in southwest angle of crossing, a cotton gin 328 feet west and large house 492 feet north), 13 meters (43 feet) east of center line of Antreville Road, 12.7 meters (42 feet) southeast of wagon wheel supporting mail boxes, and 11 meters (36 feet) southwest of Due West Road. Station is a U.S. Geological Survey standard disk in .8-inch square concrete post, projecting 6 inches. Reference and azimuth marks are standard reference disks in concrete, note 11b. Reference mark No. 1 is 9 meters (30 feet) northeast of center line of Due West Road and 21.090 meters (69.19 feet) east-northeast of station in azimuth 247°00'. Reference mark No. 2 is 13 meters (43 feet) south of road intersection, 11.6 meters (38 feet) southeast of center of stone well, and 27.664 meters (90.76 feet) northwest of station in azimuth 129°14'. Azimuth mark is 20 meters (66 feet) east of

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term. For notes in regard to marking of stations, see p. 50.

farmhouse, 13 meters (43 feet) southeast of small chinaberry tree, 7 meters (23 feet) east of well, and about 0.6 mile by road south of station in azimuth 10°10'54".0.

Plane coordinates: (N), x=1,552,914.15 feet; y=525,738.22 feet; the grid azimuth to the azimuth mark=11°01'07".3.[1]

Erskine (Abbeville County, J. Bowie, Jr., 1935).—At Due West, on property belonging to Associate Reform Presbyterian Church across street (northwest) from girls' campus of Erskine College, in middle path from graveyard to church, southwest of church, 85 feet north-northwest of center line of T-junction of paved roads, 21 feet northeast of center line of driveway and 21 feet south of south corner of gravestone with "Rabb" on southwest face. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark (14 inches in diameter) is flush with ground. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 projects 8 inches and is at northwest edge of sidewalk paralleling southeast side of church and 124.04 feet from station in azimuth 250°29'. Reference mark No. 2 is at northeast corner of small frame shed, 18 feet southwest of center line of driveway, 3 feet northeast of hedge line, and 104.64 feet from station in azimuth 113°20'. Azimuth mark is 33 feet southwest of center line of State Highway 20 (road to Abbeville) and 0.4 mile from station in azimuth 313°02'06".9. Following distances and azimuths are from stations: Spire on Associate Reformed Presbyterian Church, 250 feet, azimuth 225°36', *A 219 (S. C. Geod. S.)* (see description thereof) 61.53 feet, azimuth 329°29', *Transit traverse station No. 48 P (U. S. G. S.)* (see description thereof) 64.93 feet, azimuth 353°13'.

Plane coordinates: (N), x=1,580,821.28 feet; y=488,215.32 feet; the grid azimuth to the azimuth mark=313°49'08".6.[1]

Transit traverse station No. 37 P (U. S. G. S.) (Anderson County, J. Bowie, Jr., 1935).—About 12.3 miles (air line) northeast of Lowndesville and 8 miles (air line) north-northwest of Due West, in south angle of intersection of two dirt roads, 11.4 meters (37 feet) southwest of center line of one road, 10 meters (33 feet) east of center line of other road, 4.1 meters (13 feet) north-northwest of Shell Motor Oil sign and directly in front and east of farmhouse across road. To reach from municipal building in Honea Path, go one block east to center of town and turn right on main road (passing brick building on right with sign "Campbrell and McNinch") for 5.7 miles to Craytonsville; turn sharp left around wagon wheel supporting mail boxes (stone well in south corner of crossroads) and follow Antreville Road southwest for 6 miles to station at road intersection. Station is U. S. Geological Survey standard disk in 8-inch square concrete post, projecting about 4 inches. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 is 28 meters (92 feet) southwest of center line of road, 13 meters (43 feet) east of center line of north-south road, 6 meters (20 feet) south of Y-road, and 34.138 meters (112 feet) south of station in azimuth 0°29'. Reference mark No. 2 is 24.6 meters (81 feet) west of center line of road, 13.2 meters (43 feet) east-northeast of northeast corner of farmhouse, 10.1 meters (33 feet) northeast of 10-inch pecan tree, and 37.877 meters (124.27 feet) northwest of station in azimuth 123°05'. Azimuth mark projects 6 inches, is 18 meters (59 feet) west of farmhouse, 16 meters (52 feet) south-southwest of well, 10 meters (33 feet) northeast of center line of road, 10 meters (33 feet) northwest of 28-inch oak, and about 0.6 mile southeast of station in azimuth 295°48'43".3.

Plane coordinates: (N), x=1,541,134.14 feet; y=499,169.98 feet; the grid azimuth to the azimuth mark=296°40'13".3.[1]

Nance (Abbeville County, J. Bowie, Jr., 1935).—About 10.5 miles (air line) northwest of Abbeville. To reach from Confederate monument at Abbeville, follow State Highway 18 (road to Anderson) northwest for 7.85 miles (or 0.9 mile beyond concrete bridge) to dirt road at left; turn left for 4.85 miles, passing crossroads, to fork and follow left fork for 0.1 mile to Nance home on right. Station is on property belonging to Miss L. E. Nance (which is about 0.35 mile southeast of Bells Chapel Church), in northwest corner of barnyard between barn and granary, 20 feet northeast of northeast corner of barn, 17 feet west of northwest corner of granary, and 6 feet south of north fence line. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark is flush with surface of ground. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 projects 5 inches, is on north slope

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term. For notes in regard to marking of stations, see p. 50.

of hill, about 50 yards north of house and 149.96 feet from station in azimuth 242°59′. Reference mark No. 2 projects 12 inches, is 34 feet south of south barnyard fence line, 18 feet west of southwest corner of mill house, and 109.24 feet from station in azimuth 342°02′. Azimuth mark projects 5 inches, is 7 paces north of center line of road passing station and 0.25 mile from station in azimuth 94°40′57″.2. Following azimuths are from station: *Iva, stack* 123°56′42″.0; *Iva, higher water tank* 124°12′06″.5.

Plane coordinates: (N), x=1,530,590.04 feet; y=458,359.25 feet; the grid azimuth to the azimuth mark=95°33′33″.9.[1]

Supplementary points

Kings Mountain, airway beacon (200 mile blinker, Atlanta to New York) (Cleveland County, N. C., J. Bowie, Jr., 1935).—Plane coordinates: (N), x=1,906,569.66 feet; y=803,534.35 feet.

Flagpole at King (Gaston County, N. C., R. D. Horne, 1933; 1935).—About 26 miles west-southwest of Charlotte and about 3 miles southeast of Kings Mountain railway station on Southern Railway, at highest point of Kings Mountain, and at an elevation of about 1,700 feet. Summit is ridge of broken rocks about 200 yards long, with average width of 15 feet. Height of cliff at station is 97 feet. Owing to uncertainty of recovery, the old station King (1876) was considered lost. In 1933 a flagpole (known now as Flagpole at King) was supposedly set over old station mark. Station *King* eccentric (see description thereof) is 2.65 feet from station in azimuth 179°04′.

Plane coordinates:[2] (N), x=1,906,565.48 feet; y=803,545.89 feet.

Carolina (Gaston County, N. C., J. Bowie, Jr., 1935).—About 3 miles south of Clover, S. C. To reach from Carolina & Northwestern Railway depot in Clover, go 3.3 miles north on U. S. Highway 321 to Bowling Green Post Office (Petty's store), turn left on T-road 0.3 mile to another T-road and turn right 0.1 mile to Mr. Wilson's residence and station, located 41 feet southwest of house, 38 feet east of barn, and garage, 30 feet (measured perpendicularly) north-northeast from reputed position of North Carolina-South Carolina State line and 8 feet southwest of center line of driveway. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Upper mark projects 4 inches. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 projects 3 inches and is 45 feet north of 30-inch pecan tree, 27.5 feet northeast of 20-inch pecan tree, 3 feet southeast of barbed-wire barnyard fence line, and 37.992 meters (124.65 feet) from station in azimuth 218°05′. Reference mark No. 2 is 43.7 feet southeast of house, 6.7 feet northeast of 14-inch pecan tree, and 33.321 meters (109.32 feet) from station in azimuth 302°43′. Azimuth mark projects 1 inch and is 25 paces west of barnyard fence, 11 paces north of dirt road, 4 paces north of telephone pole, and 0.25 mile from station in azimuth 335°23′33″.4. *Jackson* (see description thereof) is 4 miles north-northeast of station in azimuth 212°51′54″.7.

Plane coordinates: (N), x=1,937,571.98 feet; y=785,627.25 feet; the grid azimuth to the azimuth mark=335°30′37″.8.[1]

Kings Mountain, battle monument, tip (Cherokee County, J. Bowie, Jr., 1935).—Plane coordinates: (N), x=1,886,137.63 feet; y=779,869.56 feet.

C K 19 (S. C. Geod. S.) eccentric (Cherokee County, J. Bowie, Jr., 1935).—About 9 miles west of Kings Mountain. To reach from post office in Kings Mountain, go west for 9 miles on U. S. Highway 29 to Grover, N. C., and station at south edge of town on property belonging to C. A. Mullinax, about 50 yards south of North Carolina-South Carolina State line, 86 feet southeast of east rail of north track of Southern Railway, 33 feet west of center line of highway, and 29 feet north of old wood house. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Upper mark projects 3 inches. Reference marks are standard disks in concrete, note 11a. Reference mark No. 1 projects 6 inches and is 12.867 meters (42.21 feet) northeast of station *C K 19 (S. C. Geod. S.)*, 41 feet west of center line of highway, and 50.170 meters (164.60 feet) from station in azimuth 211°34′. Reference mark No. 2 projects 5 inches, and is 24 feet east of east rail of north-bound track of Southern Railway, 3 paces northeast of telephone pole, and 42.743 meters (140.23 feet) from station in azimuth 78°56′. C K 18 (S. C. Geod. S.) (azimuth mark) is a U. S.

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term.
[2] No check on this position.
For notes in regard to marking of stations, see p. 50.

Coast and Geodetic Survey and State Survey standard disk (unstamped) in an 8-inch round post, flush with ground, and is 0.4 mile south of Grover on U. S. Highway 29, in grove of tall pines, 57 feet south of cultivated field, 55 feet west of center line of highway, 4 feet southeast of 10-inch pine tree, 4 feet west of black oak tree, and 0.5 mile from station in azimuth 12°41'02".1. *C K 19 (S. C. Geod. S.)* is a U. S. Coast and Geodetic Survey and State Survey standard disk in 6- x 6-inch concrete post projecting 4 inches, and is 53 feet west of center line of U. S. Highway 29, 22.5 feet east of east rail of north-bound track of Southern Railway, and 38,876 meters (127.55 feet) from station in azimuth 203°30'. *Kings Mountain, battle monument, tip* is 7 miles from station in azimuth 293°45'09".3.

Plane coordinates: (N), x=1,865,221.36 feet; y=789,185.34 feet; the grid azimuth to C K 18 (S. C. Geod. S.)=12°56'18".4.[1]

C K 19 (S. C. Geod. S.) (Cherokee County, J. Bowie, Jr., 1935).—About 9 miles west of Kings Mountain and just south of Grover, N. C., at edge of town, near North Carolina-South Carolina State line. To reach from post office at Kings Mountain, go 9 miles west on U. S. Highway 29 to Grover and station located on property belonging to C. A. Mullinax, about 53 feet west of center line of U. S. Highway 29, 12.867 meters (42.21 feet) southwest of reference mark No. 1 of station *C K 19 (S. C. Geod. S.) eccentric*, 22.5 feet east of east rail of north-bound Southern Railway tracks and 9 feet west of dim road. Station (not occupied) is a U. S. Coast and Geodetic Survey and State Survey standard disk set in octagonal concrete post projecting about 4 inches, and is 38.876 meters (127.54 feet) north of *C K 19 (S. C. Geod. S.) eccentric* (see description thereof) in azimuth 23°30'.

Plane coordinates:[2] (N), x=1,865,272.77 feet; y=789,302.11 feet.

Orphan (York County, J. Bowie, Jr., 1935).—About 1 mile north of post office in York, in cultivated field, on property belonging to York Orphanage, 0.1 mile north of frame house, 0.1 mile south-southeast of brick house, 0.05 mile north of city line, 100 meters (328 feet) northeast of filling station, 218.4 feet east of center line of U. S. Highway 321, 116.9 feet west of southwest corner of red barn, and 8 meters (26 feet) north of road from highway to barn. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark is flush with ground. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 is 66.61 meters (218.5 feet) north-northwest of stone city limit monument with YV 1 on north side and L 40 on south side, 17.5 meters (57 feet) northeast of northeast corner of wire fence around highway garage, 8.5 meters (28 feet) east of center line of highway, 5 meters (16 feet) north of telephone pole 829, and 193.7 feet from station in azimuth 43°19'. Reference mark No. 2 is 35 meters (115 feet) north of center line of road to barn, 7 meters (23 feet) east of center line of highway, 4 meters (13 feet) south of range with center line of dirt road west to brick farmhouse, 1.5 meters (5 feet) east of telephone pole 827, and 236.6 feet from station in azimuth 107°13'. Azimuth mark projects 4 inches. To reach from station, go south on U. S. Highway 321 to first dirt road and turn west for 0.2 mile to mark on left, located 32 meters (105 feet) south of where road turns from west to south, 7 meters (23 feet) east of center line of dirt road, southwest of fence corner and about 0.25 mile from station in azimuth 16°13'18".7. Following distances and azimuths are from station: *York, church spire*, 5°42'44"; standpipe, 5°47'46"; *York, water tank*, 31°24'32".4; chimney, south side of house, 0.1 mile, 143°31'.

Plane coordinates: (N), x=1,927,748.58 feet; y=730,955.34 feet; the grid azimuth to the azimuth mark=16°21'29".0.[1]

Thicketty 2 (Cherokee County, J. Bowie, Jr., 1935).—About 7 miles northwest of Gaffney, on highest point of Thicketty Mountain. To reach from post office in Gaffney, follow State Highway 11 west for 8.5 miles to farm T-road on left (unpainted one-story house, 30 yards north of junction), turn left 0.5 mile to top of mountain and station. Surface mark (1935) is U. S. Coast and Geodetic Survey and State Survey disk set in concrete, note 1a. In 1935 the old mark, believed to be C K 56 (S. C. Geod. S.), was replaced. Surface and underground marks are standard disks set in concrete, notes 1a and 7a. Reference marks are standard reference disks cemented in outcropping rock, note 12b. Reference mark No. 1 projects 5 inches, is 10.470 meters (34.35 feet)

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term.
[2] No check on this position.
For notes in regard to marking of stations, see p. 50.

from station in azimuth 266°30′. Reference mark No. 2 is 13.740 meters (45.08 feet) from station in azimuth 21°13′. C K 55 (S. C. Geod. S.) (azimuth mark) (no number but believed to be C K 55 (S. C. Geod. S.)) is standard disk in 6-inch square concrete post (stamped U. S. C. & G. S. and S. C.) projecting 6 inches, and is 100 yards east of unpainted house, 6.60 meters (21.7 feet) south of center line of State Highway 11, 3 feet south of road bank, and 0.5 mile from station in azimuth 186°03′53″.5. To reach from post office in Gaffney, follow State Highway 11 west for 5.85 miles to end of pavement and continue on dirt road 2.65 miles to mark on left.

Plane coordinates: (N), x=1,769,987.24 feet; y=769,913.95 feet; the grid azimuth to the azimuth mark=186°29′56″.3.[1]

Clover, municipal water tank (York County, J. Bowie, Jr., 1935).—Plane coordinates: (N), x=1,930,631.66 feet; y=767,653.97 feet.

York, church spire (York County, J. Bowie, Jr., 1935).—Plane coordinates:[2] (N), x=1,927,231 feet; y=725,902 feet.

York, water tank (York County, J. Bowie, Jr., 1935).—Plane coordinates: (N), x=1,925,864.10 feet; y=727,885.42 feet.

Airway beacon no. 18, flashing green, Atlanta–New York (Cherokee County, J. Bowie, Jr., 1935).—Plane coordinates: (N), x=1,853,660.57 feet; y=772,279.51 feet.

Airway beacon (188 mile, red blinker, Atlanta–New York) (Cherokee County, J. Bowie, Jr., 1935).—Plane coordinates:[2] (N), x=1,849,593 feet; y=778,058 feet.

Airway beacon no. 17 (Atlanta–New York) (Cherokee County, J. Bowie, Jr., 1935).—Plane coordinates: (N), x=1,801,547.24 feet; y=761,758.03 feet.

Gaffney, municipal water tank (Cherokee County, J. Bowie, Jr., 1935).—Plane coordinates: (N), x=1,807.530.88 feet y=753,645.15 feet.

Airway beacon no. 16, Atlanta–New York (Spartanburg County, J. Bowie, Jr., 1935).—Plane coordinates: (N), x=1,760,792.79 feet; y=730,536.36 feet.

Spartanburg, new municipal water tank (Spartanburg County, J. Bowie, Jr., 1935).—Plane coordinates: (N), x=1,721,340.74 feet; y=710,323.82 feet.

G V 23 (S. C. Geod. S.) (Greenville County, J. Bowie, Jr., 1935).—Near northern end of range of mountains, on second peak (known as Paris Mountain) from the northwest, about 5 miles north of Greenville and 1 mile east of U. S. Highway 25. Station is a U. S. Coast and Geodetic Survey and State Survey standard disk in 6-inch concrete post, flush with surface of ground, and is 23.025 meters (75.54 feet) north of *Paris* (see description thereof) in azimuth 180°02′.

Plane coordinates:[2] (N), x=1,577,044.92 feet; y=709,344.71 feet.

Woodruff, Mills Mill, water tank, taller of two (Spartanburg County, J. Bowie, Jr., 1935).—Plane coordinates: (N), x=1,686,307.55 feet; y=634,219.53 feet.

Woodruff, Mills Mill, water tank, shorter of two (Spartanburg County, J. Bowie, Jr., 1935).—Plane coordinates: (N), x=1,685,634.58 feet; y=634,250.43 feet.

Woodruff, municipal water tank (Spartanburg County, J. Bowie, Jr., 1935).—Plane coordinates: (N), x=1,688,770.06 feet; y=634,273.37 feet.

Woodruff, Brandon Mills, stack (Spartanburg County, J. Bowie, Jr., 1935).—Plane coordinates: (N), x=1,688,738.70 feet; y=637,251.07 feet.

Woodruff, Brandon Mills, tank (Spartanburg County, J. Bowie, Jr., 1935).—Plane coordinates: (N), x=1,688,943.51 feet; y=637,440.36 feet.

Fountain Inn, municipal water tank (Greenville County, J. Bowie, Jr., 1935).—Plane coordinates: (N), x=1,636,906.82 feet; y=619,978.41 feet.

Laurens (Laurens County, J. Bowie, Jr., 1935).—At Laurens, in northeast corner of courthouse square, 129.12 feet east of east curb of street west of square, 57 feet east of drinking fountain, 49 feet north of cornerstone of courthouse, 23 feet south of south curb of U. S. Highway 221 in front of courthouse, and 17.9 feet west of west curb of street east of square. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 6 inches. Reference and azimuth marks are standard disks in concrete, note 12. Reference mark No. 1 is in drill hole in north curb of highway, 28.8 feet west of fireplug, 16.1 feet east of lamp post, and 35.866 meters (117.67 feet) from station in azimuth 202°58′. Reference mark No. 2 is set flush in drill hole in east curb of

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term.
[2] No check on this position.
For notes in regard to marking of stations, see p. 50.

street forming west boundary of courthouse square, 29.5 feet south of south curb line of highway and 39.355 meters (129.12 feet) from station in azimuth 80°56'. Azimuth mark is in drill hole on coping, on east parapet wall of roof of Laurens High School Building, 55.8 feet north of south edge of south parapet wall, 35 feet east of inside corner of parapet wall surrounding inner court, 2 feet above roof, and 0.25 mile from station in azimuth 105°55'53".9. *Transit traverse station No. 13 S. J. (U. S. G. S.)* (see description thereof) is 19.236 meters (63.11 feet) from station in azimuth 99°01'.

Plane coordinates: (N), x=1,694,329.11 feet; y=547,183.11 feet; the grid azimuth to the azimuth mark=106°30'15".6.[1]

L R 121 (S. C. Geod. S.) eccentric (Laurens County, J. Bowie, Jr., 1935).—About 3.5 miles northwest of Madden and 3.4 miles west of Laurens, at southeast side of peach orchard on property belonging to George Bolt, about 0.1 mile east of Bolt's house, 34 meters (112 feet) southwest of northeast side of orchard, and 11.4 meters (37 feet) northwest of center line of road. To reach from Laurens Courthouse, follow U. S. Highway 76 (road to Greenville) west for 3.4 miles to intersection with dirt road to Ware Shoals and turn left on dirt road for 0.25 mile to station at top of grade. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 12 inches. Reference marks are standard reference disks in concrete, note 11b. Reference mark No. 1 projects 8 inches, is in southeast corner of orchard, 7.2 meters (24 feet) northwest of center line of road and 34.161 meters (112.08 feet) from station in azimuth 257°45'. Reference mark No. 2 projects 8 inches, is across road from station, in Bolt's barnyard, at west corner of small house and 46.130 meters (151.34 feet) from station in azimuth 9°51'. Distance between reference marks is 219.63 feet. For azimuth mark, either L R 120 (S. C. Geod. S.) or T T 12 S J (S. C. Geod. S.) can be used. L R 120 (S. C. Geod. S.) is a U. S. Coast and Geodetic Survey and State Survey standard disk (stamped "L R 120") in 6-inch concrete post, flush with ground, and is 4.3 miles by U. S. Highway 76 west of Laurens Courthouse, in southeast angle of intersection of U. S. Highway 76 and dirt road to Chestnut Ridge Baptist Church, 50 paces northeast of two-story brick house south of highway, 11 paces southeast of center line of dirt road, 8 paces south of center line of highway, and about 1 mile from station in azimuth 140°04'50".6. T T 12 S J (S. C. Geod. S.) is a U. S. Geological Survey standard disk in top of 7-inch concrete post (stamped "T T 12 S J elevation 735 feet"), and is 3.4 miles west of Laurens, on lawn of large two-story frame house on property belonging to John Young, 26.2 meeters (86 feet) north of northwest corner of west chimney of house, 12.5 meters (41 feet) west of 36-inch water oak, 6.23 meters (20.4 feet) northeast of 14-inch hickory, 5.1 meters (17 feet) west of center line of path from front gate to house, and 0.25 mile from station in azimuth 256°45'43".4. To reach from Laurens Courthouse, go west on U. S. Highway 76 (road to Greenville) 3.4 miles to intersection with road to Ware Shoals and station in south angle of intersection. *Laurens, municipal standpipe*, is 3.4 miles from station in azimuth 274°20'31".6.

Plane coordinates: (N), x=1,676,256.42 feet; y=547,427.14 feet; the grid azimuth to azimuth mark L R 120 (S. C. Geod. S.)=140°41'14".2.[1]

L R 121 (S. C. Geod. S.) (Laurens County, J. Bowie, Jr., 1935).—About 3.5 miles northwest of Madden and 3.4 miles west of Laurens. To reach from Laurens Courthouse, follow U. S. Highway 76 (road to Greenville) west for 3.4 miles to Y-intersection and turn left on dirt road to Ware Shoals, for 0.25 mile to station, in barnyard on property belonging to George Bolt. *L R 121 (S. C. Geod. S.) eccentric* is 22.054 meters (72.36 feet) from station in azimuth 143°55'. It is 9.4 meters (31 feet) southeast of center line of road, 8.6 meters (28 feet) west of west corner of cotton gin and 4 yards southeast of fence line along road. Station (not occupied) is a standard U. S. Coast and Geodetic Survey and State Survey disk in concrete, note 1a, set flush with surface of ground.

Plane coordinates:[2] (N), x=1,676,295.27 feet; y=547,366.07 feet.

Laurens, municipal standpipe (Laurens County, J. Bowie, Jr., 1935).—Plane coordinates: (N), x=1,691,072.98 feet; y=546,144.25 feet.

Laurens, Watts Mills, stack (Laurens County, J. Bowie, Jr., 1935).—Plane coordinates: (N), x=1,699,789.00 feet; y=553,488.72 feet.

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[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term.
[2] No check on this position.
For notes in regard to marking of stations, see p. 50.

Laurens, Laurens Mills, stack (Laurens County, J. Bowie, Jr., 1935).—Plane coordinates:[2] (N), x=1,697,151 feet; y=548,253 feet.

Laurens, Laurens Mills, water tank (Laurens County, J. Bowie, Jr., 1935).—Plane coordinates:[2](N), x=1,699,439 feet; y=548,524 feet.

Laurens, Watts Mills, water tank (Laurens County, J. Bowie, Jr., 1935).—Plane coordinates:[2] (N), x=1,699,514 feet; y=553,707 feet.

G V 376 (S. C. Geod. S.) eccentric (Greenville County, J. Bowie, Jr., 1935).—About 16 miles southeast of Greenville and 0.3 mile north-northeast of junction of U. S. Highway 25 and State Highway 247. To reach from Poinsett Hotel in Greenville, go 15.8 miles southeast on U. S. Highway 25 (0.8 mile south of Ellen Woodside High School) to small white house on left and station on right, located in orchard row in cultivated field on property belonging to G. A. Tarynham, of Greenville, about 50 feet south of Ottaray Hotel billboard, 52 meters (171 feet) north of Tarynham's house, and 25 meters (82 feet) west of center line of U. S. Highway 25. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Reference and azimuth marks are standard disks in concrete, notes 11b and 11a. Reference mark No. 1 is 21.60 meters (70.9 feet) southwest of southwest corner of house, 7.70 meters (25.3 feet) east of center line of U. S. Highway 25, 1 meter (3 feet) south of telephone pole, and 33.116 meters (108.65 feet) from station in azimuth 264°56′. Reference mark No. 2 is 25.50 meters (83.7 feet) west of center line of U. S. Highway 25, 18.90 meters (62 feet) north of northeast corner of house, and 33.192 meters (108.90 feet) from station in azimuth 6°35′. Azimuth (unmarked) is a mark of U. S. Coast and Geodetic Survey and State Survey, and is supposed to be marked G V 375 (S. C. Geod. S.). It is flush with ground, and about 75 yards west-northwest of yellow house, 40 meters (131 feet) north of center line of junction of dirt T-road and U. S. Highway 25, 7.20 meters (23.6 feet) east of center line of highway, 2.10 meters (6.9 feet) north-northwest of telephone pole, and 0.4 mile from station in azimuth 199°43′10″.3. To reach from Poinsett Hotel in Greenville, go southeast on U. S. Highway 25 for 15 miles to Ellen Woodside High School on left and continue for 0.4 mile to T-road left and mark in southwest angle of intersection. *G V 376 (S. C. Geod. S.)* (see description thereof) is 8.965 meters (29.41 feet) from station in azimuth 243°57′.

Plane coordinates: (N), x=1,581,374.24 feet; y=597,250.13 feet; the grid azimuth to the azimuth mark=200°30′18″.4[1]

G V 376 (S. C. Geod. S.) (Greenville County, J. Bowie, Jr., 1935).—About 16 miles southeast of Greenville. To reach from Poinsett Hotel in Greenville, go southeast for 15.8 miles on U. S. Highway 25 (0.8 mile south of Ellen Woodside High School) to small white house on left and station on right. Station was supposed to be occupied but due to overhead power wires being too close, a tower could not be built over mark. *G V 376 (S. C. Geod. S.) eccentric* (see description thereof) was set 8.965 meters (29.41 feet) west of station in azimuth 63°57′.

Plane coordinates:[2] (N), x=1,581,400.83 feet; y=597,262.70 feet.

Airway beacon No. 12, Atlanta–New York (Anderson County, J. Bowie, Jr., 1935).—Plane coordinates: (N), x=1,547,326.69 feet; y=589,629.08 feet.

Airway beacon No. 13 A, Atlanta–New York (Greenville County, J. Bowie, Jr., 1935).—Plane coordinates: (N), x=1,617,168.12 feet; y=643,007.11 feet.

Honea Path, municipal water tank (Anderson County, J. Bowie, Jr., 1935).—Plane coordinates: (N), x=1,579,683.66 feet; y=530,918.96 feet.

Honea Path, Chiquola Mills, stack (Anderson County, J. Bowie, Jr., 1935).—Plane coordinates: (N), x=1,580,495.59 feet; y=531,367.21 feet.

Ware Shoals, water tank (Greenwood County, J. Bowie, Jr., 1935).—Plane coordinates: (N), x=1,623,509.57 feet; y=511,204.53 feet.

Anderson (Anderson County, J. Bowie, Jr., 1935).—At Anderson, on roof of John Calhoun Hotel, near southwest corner, 15.05 feet northeast of outside edge of southwest corner of building and 2.5 feet east of outside edge of west parapet. Station is a standard disk set in 10- by 10- by 8-inch concrete block, note 1a. Reference marks are standard disks in concrete, note 12a. Reference mark No. 1 is cemented in drill hole in southwest corner of concrete platform of water tank (5 feet above roof) and is 41.68 feet from station in azimuth 215°45′. Reference mark No. 2 is cemented in drill hole in top of parapet at northwest corner of building, and is 84.20 feet from station in azimuth 167°17′. A N 205 (S. C.

[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term.
[2] No check on this position.
For notes in regard to marking of stations, see p. 50.

Geod. S.) (azimuth mark) is a U. S. Coast and Geodetic Survey and State Survey standard disk set in 4-inch depression 1.5 inches below surface of sidewalk, 11.4 feet west of southwest corner of courthouse, 2.6 feet east of east edge of curb, and 2 blocks south-southeast of station in azimuth 350°50'37". Following azimuths are from station: *Gluck stack*, azimuth 8°21'06".7. *Airway beacon No. 11 (Atlanta to New York)*, 138°00'10"; *Anderson stack*, 356°38'37".1; *Anderson, water tank*, 358°32'39".0.

Plane coordinates: (N), x=1,502,676.16 feet; y=552,043.21 feet; the grid azimuth to azimuth mark A N 205 (S. C. Geod. S.)=351°46'32"[1]

Transit traverse station No. 13 S J (U. S. G. S.) (Laurens County, J. Bowie, Jr., 1935).—At Laurens, in central northern portion of courthouse square, in lawn, 7 feet northwest of large drinking fountain and 6.5 feet south of south curb of U. S. Highway 221, which forms northern boundary of square. Station is a U. S. Geological Survey standard disk in concrete, projecting 6 inches, note 1b. Station was not occupied. *Laurens* (see description thereof) is 19.236 meters (63.11 feet) from station in azimuth 279°01'.

Plane coordinates:[2] (N), x=1,694,266.86 feet; y=547,193.65 feet.

G V 396 (S. C. Geod. S.) Greenville County, J. Bowie, Jr., 1935).—At Princeton, between school grounds and cultivated field, about 121 feet south of south corner of Princeton grade school (one-story red brick building, 111.6 feet southeast of telephone pole 126, 71.5 feet northwest of telephone pole 125 on highway right-of-way, 24 feet northeast of center line of U. S. Highway 25 and station. Surface mark (unstamped) is 6-inch by 6-inch concrete post 4 feet long, set flush with ground. (No underground mark.) Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 projects 6 inches and is 3 feet south of corner of unpainted combination wagon shed and coal bin and 38.909 meters (127.65 feet) from station in azimuth 237°49'. Reference mark No. 2 projects 6 inches and is 58.5 feet southwest of southwest wall of schoolhouse, 29 feet northeast of center line of U. S. Highway 25, 21 feet west of telephone pole 126, 2 feet southeast of concrete walk to school, and 39.356 meters (129.12 feet) from station in azimuth 164°04'. Azimuth mark is 300 feet east of white church and graveyard, 58 feet south-southwest of one-story unpainted dwelling, 27 feet north of center line of U. S. Highway 76, and 0.3 mile from station in azimuth 262°09'29".9. L R 52 (S. C. Geod. S.) is a U. S. Coast and Geodetic Survey and State Survey standard disk in 6-inch concrete cylinder (unstamped) flush with ground, 8 paces southwest of center line of U. S. Highway 25, 5 paces west of center line of dirt road to south, and 0.3 mile from station in azimuth 347°34'17".8. L R 52 (S. C. Geod. S.) (not occupied) will serve as better of the two for use as azimuth mark.

Plane coordinates: (N), x=1,611,999.99 feet; y=547,520.52 feet; the grid azimuth to L R 52 (S. C. Geod. S.)=348°17'54".7.[1]

A 5 (S. C. Geod. S.) (Anderson County, J. Bowie, Jr., 1935).—About 4.5 miles north of Honea Path. To reach from intersection of U. S. Highways 76 and 176 at Honea Path, follow U. S. Highway 76 north for 4.3 miles to cross road with house on left, continue 10 yards beyond right branch of cross road to point opposite left branch, and turn right on farm road for 0.1 mile to house and station at top of hill, in small terrace between two cultivated patches, 29 paces northwest of chimney of small unpainted house, 24 paces north of 10- by 12-foot shed and 18 paces west-northwest of 36-inch oak. Station is U. S. Coast and Geodetic Survey and State Survey standard disk (unstamped) in 8-inch concrete post, flush with ground. A 4 (S. C. Geod. S.) (azimuth mark) is a U. S. Coast and Geodetic Survey and State Survey standard disk (unstamped) in 8-inch concrete post, flush with ground and is 3.75 miles north of Honea Path, in terrace in large cultivated field on property belonging to W. E. Davis, 23 paces southeast of center line of U. S. Highway 76 (dirt road), measured from point 82 paces southwest along road, and 0.8 mile from station in azimuth 40°54'40".7. To reach from intersection of U. S. Highways 76 and 176 at Honea Path, follow U. S. Highway 76 north for 3.5 miles to cross road and continue 0.25 mile to mark. Following distances and azimuths are from station: *Honea Path* (see description thereof) 3 miles, 46°46'50".3; *Black* (see description thereof) 2 miles, 104°39'18".4.

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[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term.
[2] No check on this position.
For notes in regard to marking of stations, see p. 50.

Plane coordinates: (N), x=1,596,924.96 feet; y=545,355.71 feet; the grid azimuth to the azimuth mark=41°39′59″.1.[1]

Transit traverse station No. 51 P (U. S. G. S.) (Anderson County, J. Bowie, Jr., 1935).—At Honea Path, in northwest corner of small lawn fronting municipal building and just south of entrance to building. Station is a U. S. Geological Survey standard disk in top of 7-inch square concrete post, projecting 9 inches. *Honea Path* (see description thereof) is 248.45 feet from station in azimuth 154°19′.

Plane coordinates:[2] (N), x=1,579,941.63 feet; y=529,491.97 feet.

Transit traverse station No. 48 P (U. S. G. S.) (Abbeville County, J. Bowie, Jr., 1935.—At Due West. Station is a U. S. Geological Survey standard disk set in 7-inch square concrete post (stamped "TT 48 P 1934 Elev. 703 ft"), projecting 8 inches, and is at southeast corner of old Greer property (first house southwest of Associate Reform Presbyterian Church), 10 feet northwest of inside edge of sidewalk in front of property. *Erskine* (see description thereof) is 64.93 feet from station in azimuth 173°13′.

Plane coordinates:[2] (N(, x=1,580,828.04 feet; y=488,150.73 feet.

A 219 (S. C. Geod. S.) (Abbeville County, J. Bowie, Jr., 1935).—At Due West, in center of driveway on southwest side of Associate Reform Presbyterian Church graveyard (driveway is on extension of State Highway 20, road to Abbeville) and 8 inches northwest of northwest edge of sidewalk that parallels street in front of church. Station is a U. S. Coast and Geodetic Survey and State Survey standard disk in 6-inch square concrete post, flush with surface of ground. A 218 (S. C. Geod. S.) is a U. S. Coast and Geodetic Survey and State Survey standard disk in concrete, projecting 2 inches, and is about 1 mile east of Due West on State Highway 20 (road to Abbeville), 132 feet west of crossroads, 30 feet north of center line of highway and 8 feet north of bank of highway. To reach from intersection of State Highway 20 and paved street at southwest corner of girls' campus of Erskine College in Due West, go east on U. S. Highway 20 for 1 mile to station on left. Following distances and azimuths are from station: *Erskine* (see description thereof), 61.53 feet, 149°29′; A 218 (S. C. Geod. S.) about 1 mile, 311°39′48″.1.

Plane coordinates:[2] (N), x=1,580,851.84 feet; y=488,161.92 feet.

A 229 (S. C. Geod. S.) (Abbeville County, J. Bowie, Jr., 1935).—At Donalds, in front of Esso service station at northwest angle of highway intersection, 9.2 meters (30 feet) northwest of center line of State Highway 20, 8.2 meters (27 feet) west of center line of U. S. Highway 178, 4.64 meters (15.2 feet) northwest of center of manhole, 3.05 meters (10 feet) southwest of center of another manhole, and 2.9 meters (9.5 feet) east of east edge of concrete post of Esso service station. Station is a U. S. Coast and Geodetic Survey and State Survey standard disk set in concrete post 0.5 inch under surface of asphalt pavement. Station was not occupied but was traversed to from *Donalds*. It is 35.473 meters (116.38 feet) west-northwest of *Donalds* and 17.829 meters (58.49 feet) southwest of U. S. Geological Survey bench mark and traverse station *Transit traverse station no. 49 P.*

Plane coordinates:[2] (N), x=1,593,318.50 feet; y=503,788.55 feet.

Transit traverse station No. 49 P (U. S. G. S.) (Abbeville County, J. Bowie, Jr., 1935).—At Donalds, in intersection of U. S. Highway 178 and State Highway 20, about on the extension of center line of State Highway 20, 9.8 meters (32 feet) northeast of center line of U. S. Highway 178, 9.19 meters (30.2 feet) northwest of north brick column in front of gas station, and on south side of wire fence line. Station is a standard U. S. Geological Survey bench mark and traverse disk set in 6-inch concrete post. Station was not occupied but was traversed to from triangulation station *Donalds*. It is 31.022 meters (101.78 feet) northwest of *Donalds* and 17.829 meters (58.49 feet) northeast of station *A 229 (S. C. Geod. S.)*.

Plane coordinates: (N), x=1,593,364.08 feet; y=503,825.25 feet.

Belton, stack (Anderson County, J. Bowie, Jr., 1935).—Plane coordinates: (N), x=1,547,992.55 feet; y=560,088.39 feet.

Belton, standpipe (Anderson County, J. Bowie, Jr., 1935).—Plane coordinates: (N), x=1,550,563.36 feet; y=557,258.51 feet.

Belton, tank (Anderson County, J. Bowie, Jr., 1935).—Plane coordinates:[2] (N), x=1,548,518 feet; y=559,992 feet.

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[1] This azimuth has been computed by the first formula (p. 54), neglecting the second term.
[2] No check on this position.
For notes in regard to marking of stations, see p. 50.

Due West, A. R. P. church spire (Abbeville County, J. Bowie, Jr., 1935).—Plane coordinates: (N), x=1,581,032.45 feet; y=488,416.44 feet.

Due West, silver water tank (Abbeville County, J. Bowie, Jr., 1935).—Plane coordinates: (N), x=1,580,634.58 feet; y=487,564.60 feet.

Due West, Erskine University observatory, dome (Abbeville County, J. Bowie, Jr., 1935).—Plane coordinates:[2] (N), x=1,579,754 feet; y=487,588 feet.

Anderson, water tank (Anderson County, J. Bowie, Jr., 1935).—Plane coordinates: (N), x=1,502,750.89 feet; y=543,872.48 feet.

Anderson, stack (Anderson County, J. Bowie, Jr., 1935).—Plane coordinates: (N), x=1,503,012.57 feet; y=544,097.32 feet.

Anderson, standpipe (Anderson County, J. Bowie, Jr., 1935).—Plane coordinates: (N), x=1,503,079.23 feet; y=552,093.58 feet.

Gluck, stack (Anderson County, J. Bowie, Jr., 1935).—Plane coordinates: (N), x=1,499,604.73 feet; y=533,254.15 feet.

Iva, stack (Anderson County, J. Bowie, Jr., 1935).—Plane coordinates: (N), x=1,498,028.30 feet; y=481,008.94 feet.

Iva, lower water tank (Anderson County, J. Bowie, Jr., 1935).—Plane coordinates: (N), x=1,498,320.14 feet; y=481,217.58 feet.

Iva, higher water tank (Anderson County, J. Bowie, Jr., 1935).—Plane coordinates: (N), x=1,497,972.18 feet; y=481,265.44 feet.

Calhoun Falls, stack (Abbeville County, J. Bowie, Jr., 1935).—Plane coordinates:[2] (N), x=1,517,851 feet; y=402,382 feet.

Airway beacon No. 11, Atlanta–New York (Anderson County, J. Bowie, Jr., 1935).—Plane coordinates:[3] (N), x=1,492,471 feet; y=563,756 feet.

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[3] No check on this position.

Plane-Coordinate Projection Tables

Table of Constants

Constant	Zone	
	North	South
Standard parallel (south).....	33° 46'	32° 20'
Standard parallel (north).....	34° 58'	33° 40'
Central meridian.....	81° 00'	81° 00'
l	0.56449738	0.54465157
log l	9.7516619306-10	9.7361187599-10
log K.....	7.6419678060	7.6521509551
y_o .....feet.....	497,599.22	424,761.35
$\log \frac{1}{2\rho_o^2 \sin 1''}$	0.3731036-10	0.3732337-10

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

Table I, north zone

Latitude		R	y' (y value on the central meridian)	Tabular difference of R for one second of latitude	Scale correction	
					In units of 7th place of logs	Expressed as a ratio
°	'	Feet	Feet	Feet		
33	00	31,127,724.75	0	101.09167	+987.1	1.0002273
	01	121,659.25	6,065.50	09117	957.5	2205
	02	115,593.78	12,130.97	09083	928.3	2137
	03	109,528.33	18,196.42	09033	899.5	2071
	04	103,462.91	24,261.84	09000	871.0	2006
	05	097,397.51	30,327.24	08967	842.9	1941
33	06	31,091,332.13	36,392.62	101.08933	+815.1	1.0001877
	07	085,266.77	42,457.98	08885	787.7	1814
	08	079,201.44	48,523.31	08850	760.6	1751
	09	073,136.13	54,588.62	08833	733.9	1690
	10	067,070.83	60,653.92	08783	707.6	1629
33	11	31,061,005.56	66,719.19	101.08750	+681.6	1.0001569
	12	054,940.31	72,784.44	08733	656.0	1510
	13	048,875.07	78,849.68	08683	630.7	1452
	14	042,809.86	84,914.89	08667	605.8	1395
	15	036,744.66	90,980.09	08633	581.3	1338
33	16	31,030,679.48	97,045.27	101.08600	+557.1	1.0001283
	17	024,614.32	103,110.43	08583	533.3	1228
	18	018,549.17	109,175.58	08550	509.8	1174
	19	012,484.04	115,240.71	08517	486.7	1121
	20	006,418.93	121,305.82	08500	464.0	1068
33	21	31,000,353.83	127,370.92	101.08483	+441.6	1.0001017
	22	30,994,288.74	133,436.01	08450	419.6	0966
	23	988,223.67	139,501.08	08433	398.0	0916
	24	982,158.61	145,566.14	08400	376.7	0867
	25	976,093.57	151,631.18	08400	355.8	0819

Table I, north zone - Continued

Latitude		R	y' (y-value on the central meridian)	Tabular difference of R for one second of latitude	Scale correction	
					In units of 7th place of logs	Expressed as a ratio
°	'	Feet	Feet	Feet		
33	26	30,970,028.53	157,696.22	101.08367	+335.2	1.0000772
	27	963,963.51	163,761.24	.08350	315.0	0725
	28	957,898.50	169,826.25	08317	295.2	0680
	29	951,833.51	175,891.24	08317	275.7	0635
	30	945,768.52	181,956.23	08300	256.6	0591
33	31	30,939,703.54	188,021.21	101.08283	+237.9	1.0000548
	32	933,638.57	194,086.18	08267	219.5	0505
	33	927,573.61	200,151.14	08250	201.4	0464
	34	921,508.66	206,216.09	08233	183.8	0423
	35	915,443.72	212,281.03	08233	166.5	0383
33	36	30,909,378.78	218,345.97	101.08217	+149.6	1.0000344
	37	903,313.85	224,410.90	08200	133.0	0306
	38	897,248.93	230,475.82	08200	116.8	0269
	39	891,184.01	236,540.74	08183	100.9	0232
	40	885,119.10	242,605.65	08183	85.4	0197
33	41	30,879,054.19	248,670.56	101.08167	+ 70.3	1.0000162
	42	872,989.29	254,735.46	08167	55.5	0128
	43	866,924.39	260,800.36	08150	41.1	0095
	44	860,859.50	266,865.25	08150	27.1	0062
	45	854,794.61	272,930.14	08150	13.4	0031
33	46	30,848,729.72	278,995.03	101.08150	0.0	1.0000000
	47	842,664.83	285,059.92	08150	- 12.9	0.9999970
	48	836,599.94	291,124.81	08150	25.5	9941
	49	830,535.05	297,189.70	08133	37.7	9913
	50	824,470.17	303,254.58	08150	49.6	9886
33	51	30,818,405.28	309,319.47	101.08150	- 61.1	0.9999859
	52	812,340.39	315,384.36	08133	72.3	9834
	53	806,275.51	321,449.24	08150	83.1	9809
	54	800,210.62	327,514.13	08167	93.5	9785
	55	794,145.72	333,579.03	08150	103.5	9762
33	56	30,788,080.83	339,643.92	101.08167	-113.2	0.9999739
	57	782,015.93	345,708.82	08167	122.5	9718
	58	775,951.03	351,773.72	08183	131.5	9697
	59	769,886.12	357,838.63	08183	140.1	9677
34	00	763,821.21	363,903.54	08200	148.3	9659
34	01	30,757,756.29	369,968.46	101.08217	-156.2	0.9999640
	02	751,691.36	376,033.39	08217	163.7	9623
	03	745,626.43	382,098.32	08217	170.8	9607
	04	739,561.50	388,163.25	08250	177.6	9591
	05	733,496.55	394,228.20	08250	184.0	9576
34	06	30,727,431.60	400,293.15	101.08267	-190.0	0.9999563
	07	721,366.64	406,358.11	08283	195.7	9549
	08	715,301.67	412,423.08	08300	201.0	9537
	09	709,236.69	418,488.06	08317	205.9	9526
	10	703,171.70	424,553.05	08333	210.5	9515

Table I, north zone - Continued

Latitude		R	y' (y value on the central meridian)	Tabular difference of R for one second of latitude	Scale correction	
					In units of 7th place of logs	Expressed as a ratio
°	'	Feet	Feet	Feet		
34	11	30,697,106.70	430,618.05	101.08350	-214.7	0.9999506
	12	691,041.69	436,683.06	08367	218.6	9497
	13	684,976.67	442,748.08	08400	222.1	9489
	14	678,911.63	448,813.12	08417	225.2	9481
	15	672,846.58	454,878.17	08433	227.9	9475
34	16	30,666,781.52	460,943.23	101.08450	-230.3	0.9999470
	17	660,716.45	467,008.30	08483	232.3	9465
	18	654,651.36	473,073.39	08500	234.0	9461
	19	648,586.26	479,138.49	08533	235.3	9458
	20	642,521.14	485,203.61	08550	236.2	9456
34	21	30,636,456.01	491,268.74	101.08583	-236.8	0.9999455
	22	630,390.86	497,333.89	08617	237.0	9454
	23	624,325.69	503,399.06	08633	236.8	9455
	24	618,260.51	509,464.24	08667	236.3	9456
	25	612,195.31	515,529.44	08700	235.4	9458
34	26	30,606,130.09	521,594.66	101.08733	-234.1	0.9999461
	27	600,064.85	527,659.90	08767	232.5	9465
	28	593,999.59	533,725.16	08800	230.5	9469
	29	587,934.31	539,790.44	08817	228.1	9475
	30	581,869.02	545,855.73	08867	225.4	9481
34	31	30,575,803.70	551,921.05	101.08900	-222.3	0.9999488
	32	569,738.36	557,986.39	08933	218.9	9496
	33	563,673.00	564,051.75	08983	215.1	9505
	34	557,607.61	570,117.14	09000	210.9	9514
	35	551,542.21	576,182.54	09050	206.3	9525
34	36	30,545,476.78	582,247.97	101.09100	-201.4	0.9999536
	37	539,411.32	588,313.43	09133	196.1	9548
	38	533,345.84	594,378.91	09167	190.4	9562
	39	527,280.34	600,444.41	09217	184.4	9575
	40	521,214.81	606,509.94	09267	178.0	9590
34	41	30,515,149.25	612,575.50	101.09300	-171.2	0.9999606
	42	509,083.67	618,641.08	09350	164.1	9622
	43	503,018.06	624,706.69	09383	156.6	9639
	44	496,952.43	630,772.32	09450	148.7	9658
	45	490,886.76	636,837.99	09483	140.5	9676
34	46	30,484,821.07	642,903.68	101.09533	-131.9	0.9999696
	47	478,755.35	648,969.40	09600	122.9	9717
	48	472,689.59	655,035.16	09633	113.6	9738
	49	466,623.81	661,100.94	09683	103.9	9761
	50	460,558.00	667,166.75	09733	93.8	9784
34	51	30,454,492.16	673,232.59	101.09800	- 83.3	0.9999808
	52	448,426.28	679,298.47	09850	72.5	9833
	53	442,360.37	685,364.38	09900	61.3	9859
	54	436,294.43	691,430.32	09950	49.8	9885
	55	430,228.46	697,496.29	10017	37.9	9913

Table I, north zone - Continued

Latitude		R	y' (y value on the central meridian)	Tabular difference of R for one second of latitude	Scale correction	
					In units of 7th place of logs	Expressed as a ratio
°	'	Feet	Feet	Feet		
34	56	30,424,162.45	703,562.30	101.10067	- 25.6	0.9999941
	57	418,096.41	709,628.34	10117	- 13.0	9970
	58	412,030.34	715,694.41	10183	0.0	1.0000000
	59	405,964.23	721,760.52	10250	+ 13.4	0031
35	00	399,898.08	727,826.67	10317	27.2	0063
35	01	30,393,831.89	733,892.86	101.10367	+ 41.3	1.0000095
	02	387,765.67	739,959.08	10417	55.8	0128
	03	381,699.42	746,025.33	10500	70.7	0163
	04	375,633.12	752,091.63	10567	85.9	0198
	05	369,566.78	758,157.97	10617	101.5	0234
35	06	30,363,500.41	764,224.34	101.10683	+117.4	1.0000270
	07	357,434.00	770,290.75	10750	133.8	0308
	08	351,367.55	776,357.20	10833	150.5	0347
	09	345,301.05	782,423.70	10883	167.6	0386
	10	339,234.52	788,490.23	10950	185.0	0426
35	11	30,333,167.95	794,556.80	101.11033	+202.8	1.0000467
	12	327,101.33	800,623.42	11100	221.0	0509
	13	321,034.67	806,690.08	11183	239.6	0552
	14	314,967.96	812,756.79	11233	258.5	0595
	15	308,901.22	818,823.53	11317	277.8	0640
35	16	30,302,834.43	824,890.32	101.11400	+297.4	1.0000685
	17	296,767.59	830,957.16	11467	317.5	0731
	18	290,700.71	837,024.04	11550	337.9	0778
	19	284,633.78	843,090.97	11617	358.7	0826
	20	278,566.81	849,157.94	11700	379.8	0875
35	21	30,272,499.79	855,224.96	101.11783	+401.3	1.0000924
	22	266,432.72	861,292.03	11850	423.2	0974
	23	260,365.61	867,359.14	11950	445.5	1026
	24	254,298.44	873,426.31	12017	468.1	1078
	25	248,231.23	879,493.52	12100	491.1	1131
35	26	30,242,163.97	885,560.78	101.12183	+514.4	1.0001184
	27	236,096.66	891,628.09	12267	538.2	1239
	28	230,029.30	897,695.45	12350	562.3	1295
	29	223,961.89	903,762.86	12450	586.8	1351
	30	217,894.42	909,830.33		611.6	1408

Table II, north zone
(1" of longitude = 0".56449738 of θ)

Longitude		θ	Longitude		θ	Longitude		θ
°	'	° ' "	°	'	° ' "	°	'	° ' "
78	20	+1 30 19.1748						
	21	29 45.3050	78	26	+1 26 55.9558	78	31	+1 24 06.6066
	22	29 11.4352		27	26 22.0859		32	23 32.7367
	23	28 37.5653		28	25 48.2161		33	22 58.8669
	24	28 03.6955		29	25 14.3463		34	22 24.9970
	25	27 29.8256		30	24 40.4764		35	21 51.1272

Table II, north zone - Continued
(1" of longitude = 0".56449738 of θ)

Longitude	θ	Longitude	θ	Longitude	θ
° ′	° ′ ″	° ′	° ′ ″	° ′	° ′ ″
78 36	+1 21 17.2574	79 21	+0 55 53.1144	80 06	+0 30 28.9715
37	20 43.3875	22	55 19.2446	07	29 55.1017
38	20 09.5177	23	54 45.3748	08	29 21.2318
39	19 35.6478	24	54 11.5049	09	28 47.3620
40	19 01.7780	25	53 37.6351	10	28 13.4921
78 41	+1 18 27.9081	79 26	+0 53 03.7652	80 11	+0 27 39.6223
42	17 54.0383	27	52 29.8954	12	27 05.7525
43	17 20.1685	28	51 56.0255	13	26 31.8826
44	16 46.2986	29	51 22.1557	14	25 58.0128
45	16 12.4288	30	50 48.2859	15	25 24.1429
78 46	+1 15 38.5589	79 31	+0 50 14.4160	80 16	+0 24 50.2731
47	15 04.6891	32	49 40.5462	17	24 16.4032
48	14 30.8192	33	49 06.6763	18	23 42.5334
49	13 56.9494	34	48 32.8065	19	23 08.6636
50	13 23.0796	35	47 58.9366	20	22 34.7937
78 51	+1 12 49.2097	79 36	+0 47 25.0668	80 21	+0 22 00.9239
52	12 15.3399	37	46 51.1970	22	21 27.0540
53	11 41.4700	38	46 17.3271	23	20 53.1842
54	11 07.6002	39	45 43.4573	24	20 19.3143
55	10 33.7304	40	45 09.5874	25	19 45.4445
78 56	+1 09 59.8605	79 41	+0 44 35.7176	80 26	+0 19 11.5747
57	09 25.9907	42	44 01.8477	27	18 37.7048
58	08 52.1208	43	43 27.9779	28	18 03.8350
59	08 18.2510	44	42 54.1081	29	17 29.9651
79 00	07 44.3811	45	42 20.2382	30	16 56.0953
79 01	+1 07 10.5113	79 46	+0 41 46.3684	80 31	+0 16 22.2254
02	06 36.6415	47	41 12.4985	32	15 48.3556
03	06 02.7716	48	40 38.6287	33	15 14.4858
04	05 28.9018	49	40 04.7588	34	14 40.6159
05	04 55.0319	50	39 30.8890	35	14 06.7461
79 06	+1 04 21.1621	79 51	+0 38 57.0192	80 36	+0 13 32.8762
07	03 47.2922	52	38 23.1493	37	12 59.0064
08	03 13.4224	53	37 49.2795	38	12 25.1365
09	02 39.5526	54	37 15.4096	39	11 51.2667
10	02 05.6827	55	36 41.5398	40	11 17.3969
79 11	+1 01 31.8129	79 56	+0 36 07.6699	80 41	+0 10 43.5270
12	00 57.9430	57	35 33.8001	42	10 09.6572
13	00 24.0732	58	34 59.9303	43	09 35.7873
14	+0 59 50.2033	59	34 26.0604	44	09 01.9175
15	59 16.3335	80 00	33 52.1906	45	08 28.0476
79 16	+0 58 42.4637	80 01	+0 33 18.3207	80 46	+0 07 54.1778
17	58 08.5938	02	32 44.4509	47	07 20.3080
18	57 34.7240	03	32 10.5810	48	06 46.4381
19	57 00.8541	04	31 36.7112	49	06 12.5683
20	56 26.9843	05	31 02.8414	50	05 38.6984

Table II, north zone - Continued
(1" of longitude = 0".56449738 of θ)

Longitude		θ			Longitude		θ			Longitude		θ		
°	'	°	'	"	°	'	°	'	"	°	'	°	'	"
80	51	+0	05	04.8286	81	36	-0	20	19.3143	82	21	-0	45	43.4573
	52		04	30.9587		37		20	53.1842		22		46	17.3271
	53		03	57.0889		38		21	27.0540		23		46	51.1970
	54		03	23.2191		39		22	00.9239		24		47	25.0668
	55		02	49.3492		40		22	34.7937		25		47	58.9366
80	56	+0	02	15.4794	81	41	-0	23	08.6636	82	26	-0	48	32.8065
	57		01	41.6095		42		23	42.5334		27		49	06.6763
	58		01	07.7397		43		24	16.4032		28		49	40.5462
	59		00	33.8698		44		24	50.2731		29		50	14.4160
81	00		00	00.0000		45		25	24.1429		30		50	48.2859
81	01	-0	00	33.8698	81	46	-0	25	58.0128	82	31	-0	51	22.1557
	02		01	07.7397		47		26	31.8826		32		51	56.0255
	03		01	41.6095		48		27	05.7525		33		52	29.8954
	04		02	15.4794		49		27	39.6223		34		53	03.7652
	05		02	49.3492		50		28	13.4921		35		53	37.6351
81	06	-0	03	23.2191	81	51	-0	28	47.3620	82	36	-0	54	11.5049
	07		03	57.0889		52		29	21.2318		37		54	45.3748
	08		04	30.9587		53		29	55.1017		38		55	19.2446
	09		05	04.8286		54		30	28.9715		39		55	53.1144
	10		05	38.6984		55		31	02.8414		40		56	26.9843
81	11	-0	06	12.5683	81	56	-0	31	36.7112	82	41	-0	57	00.8541
	12		06	46.4381		57		32	10.5810		42		57	34.7240
	13		07	20.3080		58		32	44.4509		43		58	08.5938
	14		07	54.1778		59		33	18.3207		44		58	42.4637
	15		08	28.0476	82	00		33	52.1906		45		59	16.3335
81	16	-0	09	01.9175	82	01	-0	34	26.0604	82	46	-0	59	50.2033
	17		09	35.7873		02		34	59.9303		47	-1	00	24.0732
	18		10	09.6572		03		35	33.8001		48		00	57.9430
	19		10	43.5270		04		36	07.6699		49		01	31.8129
	20		11	17.3969		05		36	41.5398		50		02	05.6827
81	21	-0	11	51.2667	82	06	-0	37	15.4096	82	51	-1	02	39.5526
	22		12	25.1365		07		37	49.2795		52		03	13.4224
	23		12	59.0064		08		38	23.1493		53		03	47.2922
	24		13	32.8762		09		38	57.0192		54		04	21.1621
	25		14	06.7461		10		39	30.8890		55		04	55.0319
81	26	-0	14	40.6159	82	11	-0	40	04.7588	82	56	-1	05	28.9018
	27		15	14.4858		12		40	38.6287		57		06	02.7716
	28		15	48.3556		13		41	12.4985		58		06	36.6415
	29		16	22.2254		14		41	46.3684		59		07	10.5113
	30		16	56.0953		15		42	20.2382	83	00		07	44.3811
81	31	-0	17	29.9651	82	16	-0	42	54.1081	83	01	-1	08	18.2510
	32		18	03.8350		17		43	27.9779		02		08	52.1208
	33		18	37.7048		18		44	01.8477		03		09	25.9907
	34		19	11.5747		19		44	35.7176		04		09	59.8605
	35		19	45.4445		20		45	09.5874		05		10	33.7304

Table II, north zone - Continued
(1" of longitude = 0"56449738 of θ)

Longitude	θ	Longitude	θ	Longitude	θ
° '	° ' "	° '	° ' "	° '	° ' "
83 06	-1 11 07.6002	83 16	-1 16 46.2986	83 26	-1 22 24.9970
07	11 41.4700	17	17 20.1685	27	22 58.8669
08	12 15.3399	18	17 54.0383	28	23 32.7367
09	12 49.2097	19	18 27.9081	29	24 06.6066
10	13 23.0796	20	19 01.7780	30	24 40.4764
83 11	-1 13 56.9494	83 21	-1 19 35.6478	83 31	-1 25 14.3463
12	14 30.8192	22	20 09.5177	32	25 48.2161
13	15 04.6891	23	20 43.3875	33	26 22.0859
14	15 38.5589	24	21 17.2574	34	26 55.9558
15	16 12.4288	25	21 51.1272	35	27 29.8256

Table I, south zone

Latitude	R	y' (y value on the central meridian)	Tabular difference of R for one second of latitude	Scale correction	
				In units of 7th place of logs	Expressed as a ratio
° '	Feet	Feet	Feet		
31 50	32,676,887.65	0	101.06367	+600.7	1.0001383
51	670,823.83	6,063.82	06333	575.4	1325
52	664,760.03	12,127.62	06317	550.5	1268
53	658,696.24	18,191.41	06283	526.0	1211
54	652,632.47	24,255.18	06250	501.8	1155
55	646,568.72	30,318.93	06217	478.0	1101
31 56	32,640,504.99	36,382.66	101.06200	+454.5	1.0001047
57	634,441.27	42,446.38	06167	431.4	0993
58	628,377.57	48,510.08	06133	408.7	0941
59	622,313.89	54,573.76	06117	386.3	0889
32 00	616,250.22	60,637.43	06100	364.3	0839
32 01	32,610,186.56	66,701.09	101.06067	+342.6	1.0000789
02	604,122.92	72,764.73	06050	321.3	0740
03	598,059.29	78,828.36	06033	300.4	0692
04	591,995.67	84,891.98	06000	279.8	0644
05	585,932.07	90,955.58	05983	259.6	0598
32 06	32,579,868.48	97,019.17	101.05983	+239.8	1.0000552
07	573,804.89	103,082.76	05950	220.3	0507
08	567,741.32	109,146.33	05933	201.2	0463
09	561,677.76	115,209.89	05917	182.4	0420
10	555,614.21	121,273.44	05900	164.0	0378
32 11	32,549,550.67	127,336.98	101.05883	+146.0	1.0000336
12	543,487.14	133,400.51	05867	128.3	0295
13	537,423.62	139,464.03	05867	111.0	0256
14	531,360.10	145,527.55	05850	94.0	0216
15	525,296.59	151,591.06	05833	77.4	0178
32 16	32,519,233.09	157,654.56	101.05833	+ 61.2	1.0000141
17	513,169.59	163,718.06	05817	45.4	0105
18	507,106.10	169,781.55	05800	29.9	0069
19	501,042.62	175,845.03	05800	14.8	0034
20	494,979.14	181,908.51	05800	0.0	0000

Table I, south zone - Continued

Latitude		R	y' (y value on the central meridian)	Tabular difference of R for one second of latitude	Scale correction	
					In units of 7th place of logs	Expressed as a ratio
°	'	Feet	Feet	Feet		
32	21	32,488,915.66	187,971.99	101.05783	-14.4	0.9999967
	22	482,852.19	194,035.46	05783	28.4	9935
	23	476,788.72	200,098.93	05783	42.1	9903
	24	470,725.25	206,162.40	05767	55.4	9872
	25	464,661.79	212,225.86	05783	68.4	9842
32	26	32,458,598.32	218,289.33	101.05767	-81.0	0.9999813
	27	452,534.86	224,352.79	05767	93.2	9785
	28	446,471.40	230,416.25	05767	105.1	9758
	29	440,407.94	236,479.71	05767	116.6	9732
	30	434,344.48	242,543.17	05767	127.7	9706
32	31	32,428,281.02	248,606.63	101.05783	-138.5	0.9999681
	32	422,217.55	254,670.10	05783	148.9	9657
	33	416,154.08	260,733.57	05783	159.0	9634
	34	410,090.61	266,797.04	05783	168.7	9612
	35	404,027.14	272,860.51	05783	178.0	9590
32	36	32,397,963.67	278,923.98	101.05800	-187.0	0.9999569
	37	391,900.19	284,987.46	05800	195.6	9550
	38	385,836.71	291,050.94	05817	203.8	9531
	39	379,773.22	297,114.43	05833	211.7	9513
	40	373,709.72	303,177.93	05833	219.2	9496
32	41	32,367,646.22	309,241.43	101.05850	-226.3	0.9999479
	42	361,582.71	315,304.94	05850	233.1	9463
	43	355,519.20	321,368.45	05867	239.5	9449
	44	349,455.68	327,431.97	05883	245.5	9435
	45	343,392.15	333,495.50	05900	251.2	9422
32	46	32,337,328.61	339,559.04	101.05917	-256.5	0.9999409
	47	331,265.06	345,622.59	05933	261.4	9398
	48	325,201.50	351,686.15	05950	266.0	9388
	49	319,137.93	357,749.72	05967	270.2	9378
	50	313,074.35	363,813.30	05983	274.1	9369
32	51	32,307,010.76	369,876.89	101.06000	-277.6	0.9999361
	52	300,947.16	375,940.49	06017	280.7	9354
	53	294,883.55	382,004.10	06050	283.5	9347
	54	288,819.92	388,067.73	06067	285.9	9342
	55	282,756.28	394,131.37	06083	287.9	9337
32	56	32,276,692.63	400,195.02	101.06117	-289.6	0.9999333
	57	270,628.96	406,258.69	06133	290.9	9330
	58	264,565.28	412,322.37	06167	291.8	9328
	59	258,501.58	418,386.07	06183	292.4	9327
33	00	252,437.87	424,449.78	06217	292.6	9326
33	01	32,246,374.14	430,513.51	101.06250	-292.4	0.9999327
	02	240,310.39	436,577.26	06283	291.9	9328
	03	234,246.62	442,641.03	06300	291.0	9330
	04	228,182.84	448,704.81	06333	289.7	9333
	05	222,119.04	454,768.61	06367	288.1	9337

Table I, south zone - Continued

Latitude		R	y' (y value on the central meridian)	Tabular difference of R for one second of latitude	Scale correction	
					In units of 7th place of logs	Expressed as a ratio
°	'	Feet	Feet	Feet		
33	06	32,216,055.22	460,832.43	101.06400	-286.1	0.9999341
	07	209,991.38	466,896.27	06433	283.8	9347
	08	203,927.52	472,960.13	06467	281.1	9353
	09	197,863.64	479,024.01	06500	278.0	9360
	10	191,799.74	485,087.91	06533	274.5	9368
33	11	32,185,735.82	491,151.83	101.06583	-270.7	0.9999377
	12	179,671.87	497,215.78	06600	266.5	9386
	13	173,607.91	503,279.74	06650	261.9	9397
	14	167,543.92	509,343.73	06700	257.0	9408
	15	161,479.90	515,407.75	06733	251.7	9420
33	16	32,155,415.86	521,471.79	101.06767	-246.0	0.9999434
	17	149,351.80	527,535.85	06817	240.0	9447
	18	143,287.71	533,599.94	06850	233.6	9462
	19	137,223.60	539,664.05	06900	226.8	9478
	20	131,159.46	545,728.19	06933	219.7	9494
33	21	32,125,095.30	551,792.35	101.07000	-212.2	0.9999511
	22	119,031.10	557,856.55	07033	204.4	9529
	23	112,966.88	563,920.77	07083	196.2	9548
	24	106,902.63	569,985.02	07117	187.6	9568
	25	100,838.36	576,049.29	07183	178.6	9589
33	26	32,094,774.05	582,113.60	101.07233	-169.3	0.9999610
	27	088,709.71	588,177.94	07283	159.6	9633
	28	082,645.34	594,242.31	07333	149.5	9656
	29	076,580.94	600,306.71	07367	139.1	9680
	30	070,516.52	606,371.13	07433	128.3	9705
33	31	32,064,452.06	612,435.59	101.07500	-117.1	0.9999730
	32	058,387.56	618,500.09	07550	105.6	9757
	33	052,323.03	624,564.62	07600	93.7	9784
	34	046,258.47	630,629.18	07650	81.4	9813
	35	040,193.88	636,693.77	07717	68.7	9842
33	36	32,034,129.25	642,758.40	101.07767	- 55.7	0.9999872
	37	028,064.59	648,823.06	07833	42.3	9903
	38	021,999.89	654,887.76	07900	28.6	9934
	39	015,935.15	660,952.50	07950	14.5	9967
	40	009,870.38	667,017.27	08000	0.0	1.0000000
33	41	32,003,805.58	673,082.07	101.08083	+ 14.9	1.0000034
	42	31,997,740.73	679,146.92	08133	30.1	0069
	43	991,675.85	685,211.80	08217	45.7	0105
	44	985,610.92	691,276.73	08267	61.6	0142
	45	979,545.96	697,341.69	08333	77.9	0179
33	46	31,973,480.96	703,406.69	101.08400	+ 94.6	1.0000218
	47	967,415.92	709,471.73	08467	111.7	0257
	48	961,350.84	715,536.81	08550	129.1	0297
	49	955,285.71	721,601.94	08600	146.9	0338
	50	949,220.55	727,667.10	08683	165.1	0380

Table I, south zone - Continued

Latitude		R	y' (y value on the central meridian)	Tabular difference of R for one second of latitude	Scale correction	
					In units of 7th place of logs	Expressed as a ratio
°	'	Feet	Feet	Feet		
33	51	31,943,155.34	733,732.31	101.08750	+183.6	1.0000423
	52	937,090.09	739,797.56	08817	202.5	0466
	53	931,024.80	745,862.85	08900	221.8	0511
	54	924,959.46	751,928.19	08967	241.5	0556
	55	918,894.08	757,993.57	09050	261.5	0602
33	56	31,912,828.65	764,059.00	101.09117	+281.9	1.0000649
	57	906,763.18	770,124.47	09200	302.6	0697
	58	900,697.66	776,189.99	09267	323.7	0745
	59	894,632.10	782,255.55	09350	345.2	0795
34	00	888,566.49	788,321.16	09433	367.1	0845
34	01	31,882,500.83	794,386.82	101.09517	+389.3	1.0000896
	02	876,435.12	800,452.53	09583	411.9	0948
	03	870,369.37	806,518.28	09683	434.9	1001
	04	864,303.56	812,584.09	09750	458.3	1055
	05	858,237.71	818,649.94	09833	482.0	1110
34	06	31,852,171.81	824,715.84	101.09933	+506.1	1.0001165
	07	846,105.85	830,781.80	10000	530.6	1222
	08	840,039.85	836,847.80	10100	555.4	1279
	09	833,973.79	842,913.86	10183	580.6	1337
	10	827,907.68	848,979.97		606.2	1396

Table II, south zone
(1" of longitude = 0.54465157 of θ)

Longitude		θ	Longitude		θ	Longitude		θ
°	'	° ' "	°	'	° ' "	°	'	° ' "
78	45	+1 13 31.6777	79	06	+1 02 05.4167	79	26	+0 51 11.8349
	46	12 58.9986		07	01 32.7376		27	50 39.1558
	47	12 26.3195		08	01 00.0586		28	50 06.4767
	48	11 53.6404		09	00 27.3795		29	49 33.7976
	49	11 20.9613		10	+0 59 54.7004		30	49 01.1185
	50	10 48.2822						
78	51	+1 10 15.6032	79	11	+0 59 22.0213	79	31	+0 48 28.4394
	52	09 42.9241		12	58 49.3422		32	47 55.7603
	53	09 10.2450		13	58 16.6631		33	47 23.0812
	54	08 37.5659		14	57 43.9840		34	46 50.4021
	55	08 04.8868		15	57 11.3049		35	46 17.7230
78	56	+1 07 32.2077	79	16	+0 56 38.6258	79	36	+0 45 45.0439
	57	06 59.5286		17	56 05.9467		37	45 12.3648
	58	06 26.8495		18	55 33.2676		38	44 39.6857
	59	05 54.1704		19	55 00.5885		39	44 07.0066
79	00	05 21.4913		20	54 27.9094		40	43 34.3275
79	01	+1 04 48.8122	79	21	+0 53 55.2303	79	41	+0 43 01.6484
	02	04 16.1331		22	53 22.5512		42	42 28.9693
	03	03 43.4540		23	52 49.8721		43	41 56.2903
	04	03 10.7749		24	52 17.1930		44	41 23.6112
	05	02 38.0958		25	51 44.5139		45	40 50.9321

Table II, south zone - Continued
(1" of longitude = 0r54465157 of θ)

Longitude	θ	Longitude	θ	Longitude	θ
° '	° ' "	° '	° ' "	° '	° ' "
79 46	+0 40 18.2530	80 36	+0 13 04.2983	81 26	-0 14 09.6564
47	39 45.5739	37	12 31.6192	27	14 42.3355
48	39 12.8948	38	11 58.9401	28	15 15.0146
49	38 40.2157	39	11 26.2610	29	15 47.6937
50	38 07.5366	40	10 53.5819	30	16 20.3728
79 51	+0 37 34.8575	80 41	+0 10 20.9028	81 31	-0 16 53.0519
52	37 02.1784	42	09 48.2237	32	17 25.7310
53	36 29.4993	43	09 15.5446	33	17 58.4101
54	35 56.8202	44	08 42.8655	34	18 31.0892
55	35 24.1411	45	08 10.1864	35	19 03.7683
79 56	+0 34 51.4620	80 46	+0 07 37.5073	81 36	-0 19 36.4474
57	34 18.7829	47	07 04.8282	37	20 09.1265
58	33 46.1038	48	06 32.1491	38	20 41.8056
59	33 13.4247	49	05 59.4700	39	21 14.4847
80 00	32 40.7457	50	05 26.7909	40	21 47.1638
80 01	+0 32 08.0666	80 51	+0 04 54.1118	81 41	-0 22 19.8429
02	31 35.3875	52	04 21.4328	42	22 52.5220
03	31 02.7084	53	03 48.7537	43	23 25.2011
04	30 30.0293	54	03 16.0746	44	23 57.8801
05	29 57.3502	55	02 43.3955	45	24 30.5592
80 06	+0 29 24.6711	80 56	+0 02 10.7164	81 46	-0 25 03.2383
07	28 51.9920	57	01 38.0373	47	25 35.9174
08	28 19.3129	58	01 05.3582	48	26 08.5965
09	27 46.6338	59	00 32.6791	49	26 41.2756
10	27 13.9547	81 00	00 00.0000	50	27 13.9547
80 11	+0 26 41.2756	81 01	-0 00 32.6791	81 51	-0 27 46.6338
12	26 08.5965	02	01 05.3582	52	28 19.3129
13	25 35.9174	03	01 38.0373	53	28 51.9920
14	25 03.2383	04	02 10.7164	54	29 24.6711
15	24 30.5592	05	02 43.3955	55	29 57.3502
80 16	+0 23 57.8801	81 06	-0 03 16.0746	81 56	-0 30 30.0293
17	23 25.2011	07	03 48.7537	57	31 02.7084
18	22 52.5220	08	04 21.4328	58	31 35.3875
19	22 19.8429	09	04 54.1118	59	32 08.0666
20	21 47.1638	10	05 26.7909	82 00	32 40.7457
80 21	+0 21 14.4847	81 11	-0 05 59.4700	82 01	-0 33 13.4247
22	20 41.8056	12	06 32.1491	02	33 46.1038
23	20 09.1265	13	07 04.8282	03	34 18.7829
24	19 36.4474	14	07 37.5073	04	34 51.4620
25	19 03.7683	15	08 10.1864	05	35 24.1411
80 26	+0 18 31.0892	81 16	-0 08 42.8655	82 06	-0 35 56.8202
27	17 58.4101	17	09 15.5446	07	36 29.4993
28	17 25.7310	18	09 48.2237	08	37 02.1784
29	16 53.0519	19	10 20.9028	09	37 34.8575
30	16 20.3728	20	10 53.5819	10	38 07.5366
80 31	+0 15 47.6937	81 21	-0 11 26.2610	82 11	-0 38 40.2157
32	15 15.0146	22	11 58.9401	12	39 12.8948
33	14 42.3355	23	12 31.6192	13	39 45.5739
34	14 09.6564	24	13 04.2983	14	40 18.2530
35	13 36.9774	25	13 36.9774	15	40 50.9321

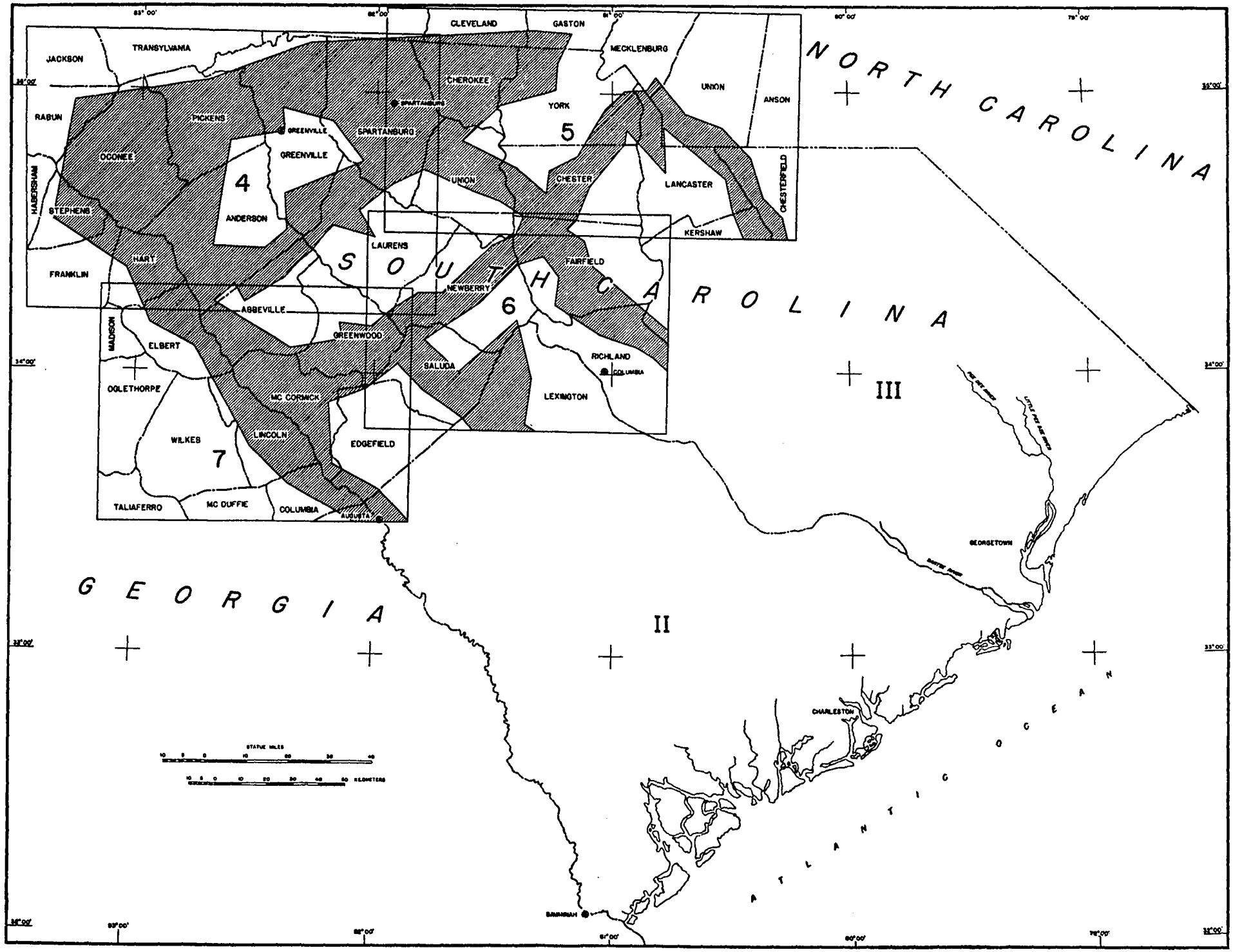

FIGURE 8.—Index map of northwestern South Carolina showing areas covered by each of the following sketches, figures 4 to 7. (186358° (Face p. 122)

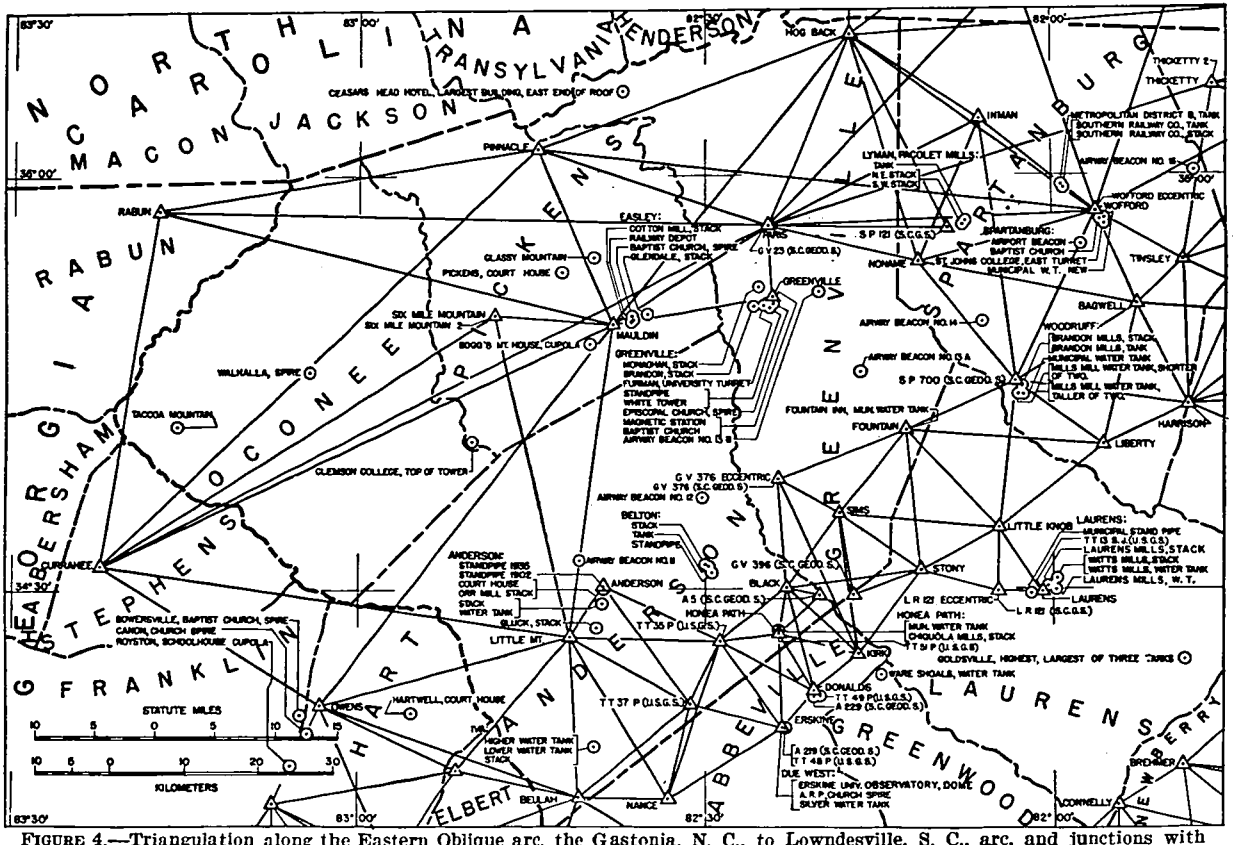

FIGURE 4.—Triangulation along the Eastern Oblique arc, the Gastonia, N. C., to Lowndesville, S. C., arc, and junctions with the Anderson, S. C., to Augusta, Ga., and Tigerville to Georgetown arcs.

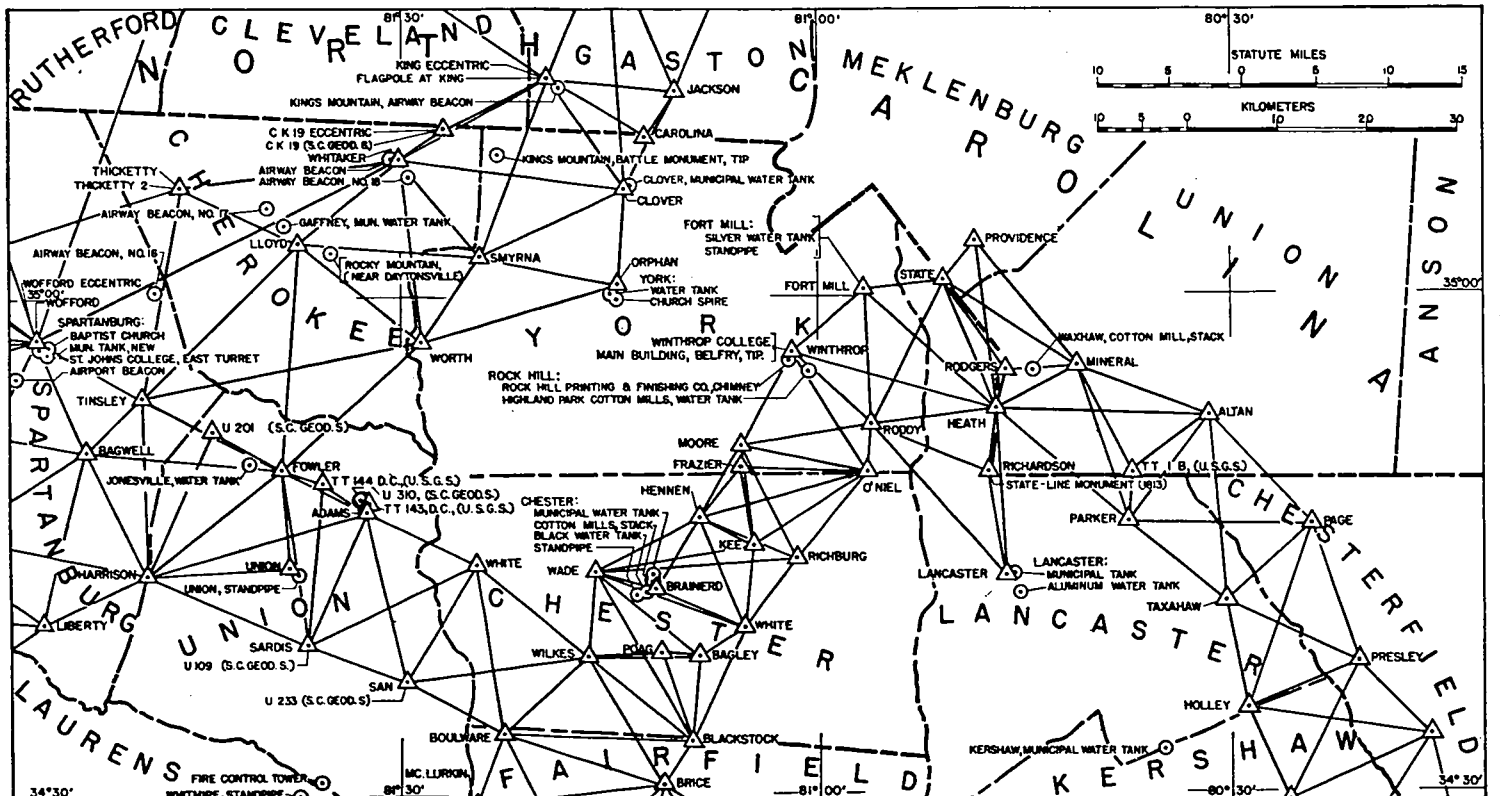

FIGURE 5.—Triangulation along the Osceola to Bucksport arc, the Charlotte, N. C., to Augusta, Ga., arc, the Tigerville to Georgetown arc, and the Gastonia, N. C., to Lowndesville, S. C., arc.

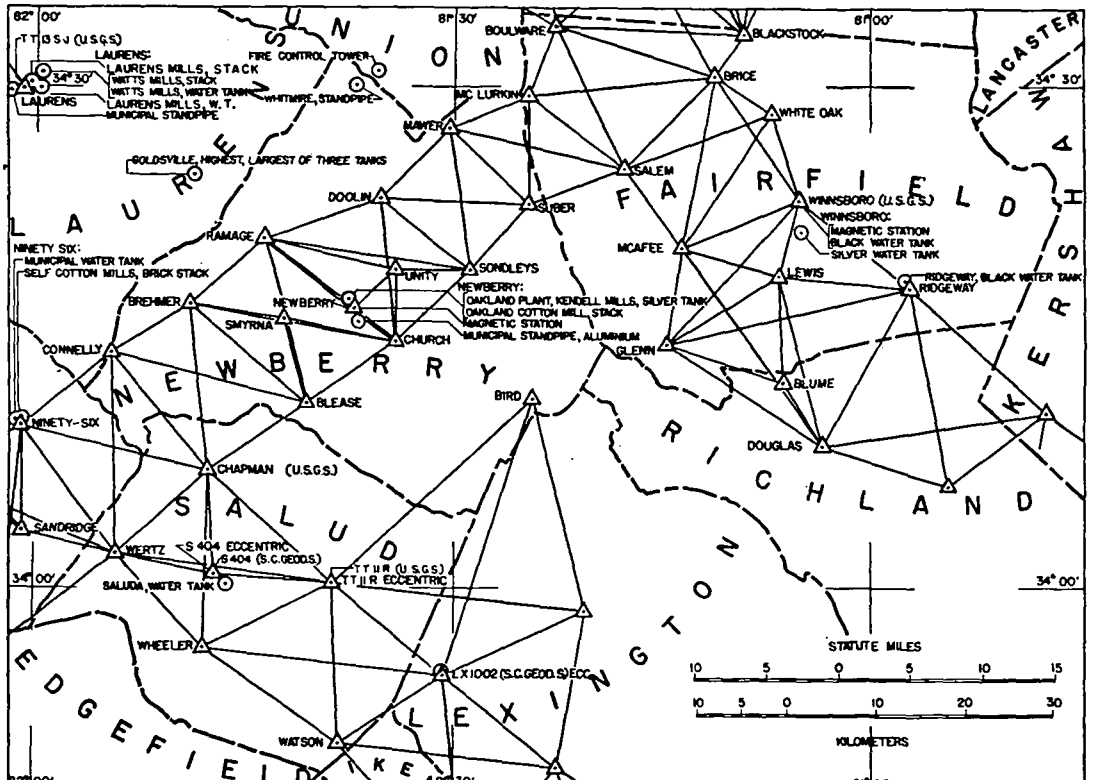

FIGURE 6.—Triangulation along the Tigerville to Georgetown arc, the Charlotte, N. C., to Augusta, Ga., arc, and junction with the Chappells to Charleston arc.

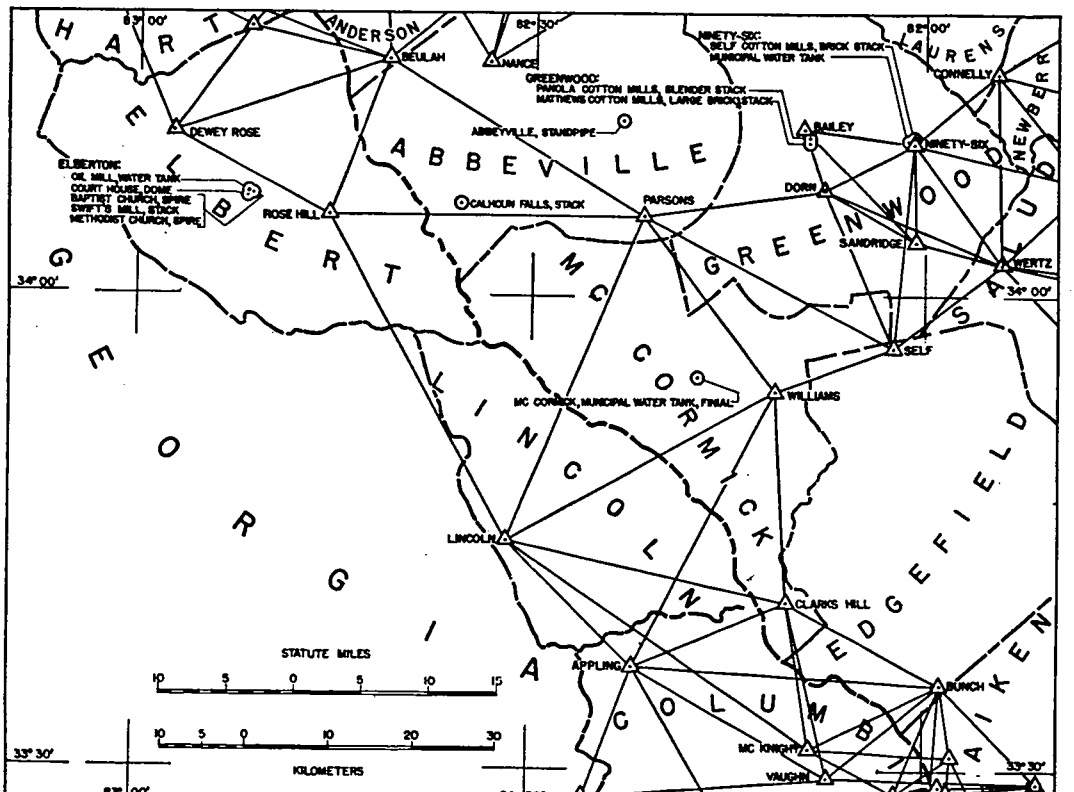

FIGURE 7.—Triangulation along the Anderson, S. C., to Augusta, Ga., arc, and junction with the Charlotte, N. C., to Augusta, Ga., arc.

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