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HARRY L. HOPKINS, Secretary
COAST AND GEODETIC SURVEY
LEO OTIS COLBERT, Director

Special Publication No. 222

TRIANGULATION IN SOUTH CAROLINA
(1927 DATUM)

PART 3

First- and Second-Order Triangulation and
Traverse in Northeastern Part of State

BY

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TRIANGULATION IN SOUTH CAROLINA (1927 DATUM)

PART 3

FIRST- AND SECOND-ORDER TRIANGULATION AND TRAVERSE IN NORTHEASTERN 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 3 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 the several parts for publication the division was made along the county boundary lines. This publication contains complete data for all the control triangulation and traverse of the counties in the northeastern part of the State as shown on the index sketch (fig. 3) at the back of this volume. The locations of the arcs and traverses are shown also on the index sketch. The field observations for this triangulation and traverse were completed by the U. S. Coast and Geodetic Survey in 1935.

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 twenty-first 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. The following volumes have already been published:

	Special pub. No.
Triangulation in Colorado.....	160
First-Order Triangulation in Southeast Alaska.....	164
First- and Second-Order Triangulation in Oregon.....	175
First-Order Triangulation in Kansas.....	179
First-Order Triangulation and Traverse in Louisiana.....	183
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ARCS INCLUDED IN THIS PUBLICATION

The triangulation and traverse included in this publication consist of three first-order arcs, one second-order arc and one second-order traverse. Portions of several general arcs and one traverse are included only so far as they lie within the limits of the northeastern part of the State. These arcs and the traverse form a complete control survey system for the northeastern part of the State which is nearly an ideal system. The following list shows the various arcs of triangulation and traverse, the chiefs of party by whom they were established, and the years in which the work was done.

Arcs	Chief of party	Year
First-order triangulation:		
Beaufort, S. C., to Jacksonville, N. C.-----	C. D. Meaney-----	1932
Goldsboro, N. C., to Little River, S. C., and Marietta to Lincolnton, N. C.-----	{ R. D. Horne----- C. I. Aslakson-----	{ 1933 1933
Tigerville to Georgetown-----	R. D. Horne-----	1934
Second-order triangulation:		
Bucksport to Osceola-----	J. Bowie, Jr.-----	1935
Second-order traverse:		
Norfolk, Va., to Savannah, Ga.-----	{ C. L. Garner----- M. E. Lutz-----	{ 1918 1918

COMPUTATIONS

An adjustment was made for the main arcs in this general area and subsidiary arcs, and traverses were then fitted in. None of these arcs were included in the original net readjustment of the eastern part of the United States. The adjustments were made under the supervision of the author. The descriptions of stations and sketches were prepared under the supervision of William M. Gibson. Valuable counsel was given by C. H. Swick, and in the computations much assistance was rendered by C. N. Claire and J. L. Stearn.

In this volume are included several stations established by other agencies, namely, United States Geological Survey (U. S. G. S.), and the South Carolina Geodetic Survey (S. C. Geod. S.). 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 the northeastern part of the State, 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 supplementary stations have been computed and the data are included in the tables of geographic positions, pages 6 to 54. 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 wish to use it.

CLASSIFICATION OF TRIANGULATION AND TRAVERSE

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.

Traverse is also divided into different classes according to accuracy. The rule applied in classifying the different grades is based upon the position closure, either of closed loops of traverse or of connections to the fixed triangulation net. In first-order traverse the position closure must not exceed 1 part in 25,000, in second-order traverse 1 part in 10,000, and in third-order 1 part in 5,000. The engineer should use only adjusted data with which to connect his work and should evaluate these data according to the class of triangulation or traverse by which they were determined.

EXPLANATION OF TABLE 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. The conversion from seconds of latitude and longitude to meters are given for those positions which are along the Atlantic Coast.

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 a measured distance and azimuth 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; if marked and not described, the letters "m. n. d." are given; and if described and marked, the letters "d. m." are given. Other letters used in this column are "n. d.", not described; "r.", recovered; "l.", lost; and "d. n. m.", described and not marked.

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 plane coordinates (and elevations, if any) are given, and, finally, 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 Waterhorn to Honey is $62^{\circ}09'38''.41$, while the back azimuth, or azimuth from Honey to Waterhorn is $242^{\circ}06'47''.49$.

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 station mark.

GEOGRAPHIC POSITIONS

Beaufort, S.C., to Jacksonville, N.C. arc

U. S. COAST AND GEODETIC SURVEY

TRIANGULATION IN SOUTH CAROLINA, PART 3

STATION	LATITUDE AND LONGITUDE		SECONDS IN METERS	AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE		
											LOGARITHM (METERS)	METERS	FEET
Principal points													
Honey, 1932 (d.m.)	33 10	33.329	1026.8	27	38	19				Azimuth mark, reference mark no. 3			
	79 33	33.576	869.9										
Waterhorn, 1932, r. 1934 (d.m.)	33 12	52.093	1604.8	62	09	38.41	242	06	47.49	Honey Azimuth mark, reference mark no. 2	3.9612715	9,146.85	30,009.3
	79 28	21.388	553.9	30	25	46							
Santee, 1932, r. 1935 (d.m.)	33 09	14.872	458.2	97	34	54.73	277	28	28.60	Honey Waterhorn Azimuth mark, reference mark no. 2	4.2659555 4.0862673	18,448.26 12,197.40	60,525.7 40,017.6
	79 21	47.736	1237.1	123	18	10.97	303	14	35.51				
Burgess, 1932, r. 1934 (d.m.)	33 13	18.366	565.8	348	44	42.74	168	45	14.27	Santee Waterhorn Azimuth mark, reference mark no. 1	3.8835616 3.9415024	7,648.24 8,739.82	25,092.6 28,673.9
	79 22	45.338	1174.0	84	42	42.31	264	39	38.21				
Cooper, 1932, r. 1934 (d.m.)	33 15	58.002	1786.9	0	42	21.13	180	42	17.90	Santee Burgess Waterhorn Azimuth mark, reference mark no. 3	4.0941262 3.7147860 4.0727604	12,420.13 5,185.44 11,823.89	40,748.4 17,012.6 38,792.2
	79 21	41.832	1082.7	18	29	22.45	198	28	47.64				
				61	03	29.58	240	59	50.57				
				35	13	53.6							

Yawkey, 1932, r. 1934 (d.m.)	33 14	13.363	411.7	50	54	09.18	230	50	10.27	Santee Burgess Cooper Azimuth mark, reference mark no. 1	4.1634860 4.1106437 4.0644455	14,570.89 12,901.60 11,599.67	47,804.7 42,328.0 38,056.6
	79 14	31.376	812.3	82	29	29.52	262	24	58.83				
Georgetown, 1932, r. 1935 (d.m.)	33 23	30.168	929.4	329	10	35.55	149	14	12.61	Yawkey Cooper Azimuth mark, reference mark no. 2	4.3003556 4.1448824	19,968.97 13,959.90	65,514.9 45,800.1
	79 21	06.583	170.1	3	44	49.25	183	44	29.88				
Baruch, 1932, r. 1934 (d.m.)	33 20	12.571	387.3	16	17	48.35	196	16	39.77	Yawkey Cooper Georgetown Azimuth mark, reference mark no. 1	4.0617887 4.2140509 4.1691241	11,528.92 16,370.08 14,761.28	37,824.5 53,707.5 48,429.3
	79 12	26.419	683.2	61	25	00.99	241	19	56.04				
Campfield, 1932, r. 1934 (d.m.)	33 29	12.037	370.8	339	27	20.88	159	29	33.49	Baruch Georgetown Azimuth mark, reference mark no. 3	4.2491117 4.1060867	17,746.46 12,766.94	58,223.2 41,886.2
	79 16	27.238	703.2	34	26	09.89	214	23	35.96				
Hagley, 1932, r. 1934 (d.m.)	33 25	48.581	1496.7	28	27	40.15	208	25	40.77	Baruch Georgetown Campfield Azimuth mark, reference mark no. 3	4.0708854 4.2904291 4.1264810	11,772.95 19,517.72 13,380.77	38,625.1 64,034.4 43,900.1
	79 08	49.466	1277.9	77	26	12.10	257	19	26.21				
Planter, 1932, r. 1935 (d.m.)	33 35	28.988	893.1	343	33	15.22	163	35	08.02	Hagley Campfield Azimuth mark, reference mark no. 1	4.2705083 4.1247643	18,642.68 13,327.98	61,163.5 43,726.9
	79 12	13.773	355.2	29	24	13.96	209	21	53.92				
Brookgreen, 1932, r. 1935 (d.m.)	33 30	55.007	1694.7	29	59	32.78	209	57	36.47	Hagley Campfield Planter Azimuth mark, reference mark no. 2	4.0373584 4.2442434 4.1347177	10,898.29 17,548.64 13,636.97	35,755.5 57,574.2 44,740.6
	79 05	18.578	479.4	79	38	11.13	259	32	02.06				
				128	16	23.84	308	12	34.36				
				300	36	59							

GEOGRAPHIC POSITIONS

Beaufort, S.C., to Jacksonville, N.C. arc - Continued

U. S. COAST AND GEODETIC SURVEY

TRIANGULATION IN SOUTH CAROLINA, PART 3

STATION	LATITUDE AND LONGITUDE			SECONDS IN METERS	AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE		
	°	'	"		°	'	"	°	'	"		LOGARITHM (METERS)	METERS	FEET
Principal points (cont'd.)														
Salem, 1932, r. 1935 (d.m.)	33	40	01.919	59.1	354	40	22.82	174	40	56.50	Brookgreen	4.2284682	16,922.64	55,520.4
	79	06	19.454	501.2	47	23	20.66	227	20	04.44	Planter	4.0939063	12,413.85	40,727.8
						159	09	55.3				Azimuth mark, reference mark no. 3		
Floral, 1932, r. 1934 (d.m.)	33	36	40.963	1262.0	42	41	07.59	222	37	37.10	Brookgreen	4.1611505	14,492.74	47,548.3
	78	58	57.853	1491.5	83	53	37.23	263	46	16.76	Planter	4.3147111	20,640.07	67,716.6
					118	34	52.20	298	30	47.57	Salem	4.1124568	12,955.58	42,505.1
					156	46	54.0				Azimuth mark, reference mark no. 1			
Morrison, 1932 (d.m.)	33	45	30.115	927.8	347	59	06.48	168	00	21.13	Floral	4.2218648	16,667.28	54,682.6
	79	01	12.440	320.1	38	02	32.63	217	59	42.23	Salem	4.1083964	12,835.01	42,109.5
					12	10	09.7				Azimuth mark, reference mark no. 1			
Brown, 1932, r. 1934 (d.m.)	33	41	34.801	1072.2	45	56	08.10	225	52	47.14	Floral	4.1142916	13,010.43	42,685.1
	78	52	55.207	1421.9	82	11	50.18	262	04	24.18	Salem	4.3204194	20,913.15	68,612.6
					119	33	46.55	299	29	10.48	Morrison	4.1676647	14,711.76	48,266.8
					302	21	07				Azimuth mark, reference mark no. 2			
Vina, 1932 (d.m.)	33	50	51.822	1596.6	358	23	28.08	178	23	38.48	Brown	4.2347302	17,168.42	56,326.7
	78	53	13.923	357.9	51	11	35.56	231	07	09.34	Morrison	4.1987445	15,803.18	51,847.6
					289	21	21				Azimuth mark, reference mark no. 2			
Vaught, 1932, r. 1934 (d.m.)	33	46	47.532	1464.5	40	55	46.64	220	52	46.55	Brown	4.1054489	12,748.20	41,824.7
	78	47	30.930	795.8	130	29	52.27	310	26	41.40	Vina	4.0643062	11,595.95	38,044.4
					35	59	32				Azimuth mark, reference mark no. 3			
Kettle, 1923, r. 1934 (d.m.)	33	45	38.367	1182.1	49	29	28.85	229	26	19.60	Brown	4.0624470	11,546.41	37,881.8
	78	47	14.348	369.2	168	40	41.75	348	40	32.53	Vaught	3.3371108	2,173.26	7,130.1
					233	06	10.8				Azimuth mark, reference mark no. 3			
Bryant, 1932, r. 1934 (d.m.)	33	49	33.534	1033.2	53	54	05.06	233	50	30.46	Kettle	4.0895114	12,288.86	40,317.7
	78	40	48.510	1247.4	63	44	13.09	243	40	29.21	Vaught	4.0624209	11,545.72	37,879.6
					97	13	50.11	277	06	55.05	Vina	4.2859446	19,317.22	63,376.6
					81	06	28.2				Azimuth mark, reference mark no. 2			
Leon, 1932, r. 1933 (d.m.)	33	55	28.894	889.9	324	58	19.28	145	01	05.57	Bryant	4.1260123	13,366.33	43,852.7
	78	45	46.853	1203.5	9	27	53.32	189	26	55.34	Vaught	4.2117672	16,284.23	53,425.8
					53	25	14.97	233	21	05.71	Vina	4.1557221	14,312.72	46,957.6
					148	07	29.6				Azimuth mark, reference mark no. 3			
Little River, 1932, r. 1934 (d.m.)	33	53	25.510	786.0	50	14	47.03	230	11	40.97	Bryant	4.0480694	11,170.42	36,648.3
	78	35	14.551	373.9	103	13	09.44	283	07	16.71	Leon	4.2222780	16,683.15	54,734.6
					75	00	20.9				Azimuth mark, reference mark no. 3			
Hughes (N.C.), 1932, r. 1933 (d.m.)	33	59	50.859	1567.0	4	08	12.45	184	07	53.79	Little River	4.0756857	11,903.80	39,054.4
	78	34	41.132	1055.6	26	25	08.81	206	21	43.84	Bryant	4.3270079	21,232.83	69,661.4
					64	46	23.01	244	40	11.12	Leon	4.2765127	18,902.21	62,015.0
					213	14	01				Azimuth mark, reference mark no. 1			
Pigott (N.C.), 1932, r. 1934 (d.m.)	33	54	01.378	42.5	85	13	39.93	265	08	55.00	Little River	4.1197207	13,174.09	43,222.0
	78	26	43.636	1121.1	131	19	34.34	311	15	07.68	Hughes	4.2126728	16,318.22	53,537.4
					179	11	38				Azimuth mark, reference mark no. 2			
Supplementary points														
Drew 2, 1925, r. 1934 (d.m.)	33	18	14.943	460.3	21	26	07.87	201	25	05.95	Yawkey	3.9028174	7,994.98	26,250.2
	79	12	38.522	996.6	73	20	16.15	253	15	17.98	Cooper	4.1666672	14,678.01	48,156.1
					184	56	11.80	4	56	18.45	Baruch	3.5607837	3,637.34	11,933.5
					88	20	30				Azimuth mark, reference mark no. 3			

GEOGRAPHIC POSITIONS

Beaufort, S.C., to Jacksonville, N.C. arc - Continued

U. S. COAST AND GEODETIC SURVEY

STATION	LATITUDE AND LONGITUDE			SECONDS IN METERS	AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE		
												LOGARITHM (METERS)	METERS	FEET
Supplementary points (cont'd.)														
Georgetown Lighthouse, 1925, r. 1935 (d.)	33 13 20.878	79 11 07.013	20.878	643.2	107 00 25.51	286 58 33.51	286 58 33.51	Yawkey	3.7429562	5,532.94	18,152.7			
				181.6	165 21 19.52	345 20 29.33	345 20 29.33	Drew 2	3.9714515	9,363.79	30,721.0			
					170 48 12.21	350 47 28.64	350 47 28.64	Baruch	4.1088528	12,848.51	42,153.8			
Georgetown, municipal stand-pipe, 1932, r. 1935 (d.)	33 22 18.976	79 17 23.214	18.976	584.6	110 49 05.2	290 47 02.3	290 47 02.3	Georgetown	3.790712	6,176.1	20,263			
				600.1	166 28 43.1	6 29 13.9	6 29 13.9	Campfield	4.107464	12,807.5	42,019			
					244 01 21.2	64 06 04.0	64 06 04.0	Hagley	4.169183	14,763.3	48,436			
Georgetown, Atlantic Coast Lumber Corp., brick stack, 1932, r. 1935 (d.)	33 21 52.477	79 17 33.148	52.477	1616.7	30 31 09.7	210 28 53.1	210 28 53.1	Cooper	4.102922	12,674.2	41,582			
				857.0	118 37 47.4	298 35 50.0	298 35 50.0	Georgetown	3.798272	6,284.5	20,618			
					187 09 41.8	7 10 18.1	7 10 18.1	Campfield	4.135088	13,648.6	44,779			
Georgetown, Atlantic Coast Lumber Corp., water tank, 1932, r. 1935 (d.)	33 21 56.731	79 17 43.597	56.731	1747.8	29 09 45.2	209 07 34.3	209 07 34.3	Cooper	4.108211	12,653.5	41,514			
				1127.1	118 45 57.3	298 44 05.6	298 44 05.6	Georgetown	3.777037	5,984.6	19,634			
					188 21 43.4	8 22 25.4	8 22 25.4	Campfield	4.132106	13,555.2	44,472			
Myrtle, 1923, r. 1934 (d.m.)	33 41 00.033	78 53 13.620	00.033	1.0	203 55 44.2	23 55 54.4	23 55 54.4	Brown	3.0688953	1,171.913	3,844.85			
				350.8										
Primary traverse station no. 10 (U.S.G.S.), 1932 (d.m.)	33 41 40.710	78 53 03.254	40.710	1254.2	311 17 57	131 18 01	131 18 01	Brown	2.4406821	275.856	905.04			
				83.8										
Myrtle Beach Hotel, water tank, 1932, r. 1934 (n.d.)	33 43 35.942	78 50 31.591	35.942	1107.4	218 12 48.4	38 14 28.7	38 14 28.7	Vaught	3.875882	7,514.2	24,653			
				813.3	233 22 29.1	53 24 18.7	53 24 18.7	Kettle	3.801047	6,324.8	20,751			
					44 44 52.4	224 43 32.7	224 43 32.7	Brown	3.720501	5,254.1	17,238			
Intracoastal Waterway station 891+50.0, 1934 (m.)*	33 46 45.71	78 47 39.23	45.71	1408.3	255 16 25	75 16 29	75 16 29	Vaught	2.344169	220.9	725			
				1009.3										

Intracoastal Waterway station 883+00.0, 1934 (m.)*	33 46 50.66	78 47 31.09	50.66	1560.8	357 31 54	177 31 54	177 31 54	Vaught	1.984048	96.4	316
				799.9	53 57 17	233 57 12	233 57 12	Intracoastal Waterway station 891+50.0	2.413435	259.1	850
Nixon, 1923, r. 1934 (d.m.)	33 49 38.751	78 38 35.707	38.751	1193.9	87 18 55.96	267 17 42.03	267 17 42.03	Bryant	3.5338762	3,418.82	11,216.6
				918.2	216 29 24.16	36 31 16.23	36 31 16.23	Little River	3.9391112	8,691.83	28,516.4
					129 02 22.0			Azimuth mark, reference mark no. 3			
Conway, water tank, 1932 (n.d.)*	33 49 57.62	79 02 45.14	57.62	1775.3	263 28 11	83 33 29	83 33 29	Vina	4.169709	14,781.2	48,495
				1160.7	343 51 21	163 52 13	163 52 13	Morrison	3.933489	8,580.0	28,150
North Carolina-South Carolina boundary monument, 1932, r. 1934 (d.m.)*	33 53 25.540	78 35 14.383	25.540	786.9	78 01	258 01	258 01	Little River	0.6454223	4.42	14.5
				369.6							

Goldboro, N.C. to Little River, S.C. and Marietta to Lincolnton, N.C. arc

Principal points												
Martin (N.C.), 1933 (d.m.)	34 51 46.809	79 47 13.116	46.809		257 24 43.2					Azimuth mark, reference mark no. 2		
Fruitland (N.C.), 1933 (d.m.)	34 55 20.081	79 39 14.614	20.081		61 37 42.05	241 33 08.33	241 33 08.33	Martin	4.1403022	13,813.45	45,319.6	
					66 32 18			Azimuth mark, reference mark no. 2				
Fairview (N.C.), 1933 (d.m.)	34 49 52.799	79 35 35.736	52.799		101 16 16.76	281 09 38.28	281 09 38.28	Martin	4.2567712	18,062.22	59,259.1	
					151 09 18.88	331 07 13.72	331 07 13.72	Fruitland	4.0612926	11,515.76	37,781.3	
					355 44 48			Azimuth mark, reference mark no. 1				
McInnis, 1933 (d.m.)	34 44 36.310	79 42 00.342	36.310		149 05 23.60	329 02 25.08	329 02 25.08	Martin	4.1893719	15,465.78	50,740.6	
					191 58 17.42	11 59 52.08	11 59 52.08	Fruitland	4.3070660	20,279.91	66,535.0	
					225 02 40.48	45 06 19.91	45 06 19.91	Fairview	4.1402031	13,810.30	45,309.3	
					38 35 24.9			Azimuth mark, reference mark no. 2				

* No check on this position

TRIANGULATION IN SOUTH CAROLINA. PART 3

GEOGRAPHIC POSITIONS

Goldboro, N.C., to Little River, S.C. and Marietta to Lincolnton, N.C. arc (Continued)

STATION	LATITUDE AND LONGITUDE			SECONDS IN METERS	AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE		
	°	'	"		°	'	"	°	'	"		LOGARITHM (METERS)	METERS	FEET
Principal points (cont'd.)														
Zion (N.C.), 1933 (d.m.)	34	44	15.824		91	59	07.19	271	52	06.86	McInnis Fairview Azimuth mark, reference mark no. 1	4.2735576	18,774.03	61,594.5
	79	29	42.733		139	11	25.17	319	08	03.79		4.1375114	13,724.97	45,029.3
					184	33	23.1							
Lynch, 1933 (d.m.)	34	38	42.237		131	43	13.51	311	38	39.49	McInnis Fairview Zion Azimuth mark, reference mark no. 3	4.2150250	16,406.84	53,828.1
	79	33	58.920		173	12	37.57	353	11	42.41		4.3182593	20,809.39	68,272.1
					212	22	09.20	32	24	35.01		4.0854008	12,173.09	39,937.9
					100	38	12.8							
Oak Grove (N.C.), 1933 (d.m.)	34	38	51.597		88	50	49.53	268	45	41.06	Lynch Zion Azimuth mark, reference mark no. 3	4.1405529	13,821.43	45,345.8
	79	24	56.319		143	54	19.52	323	51	36.50		4.0922916	12,367.77	40,576.6
					118	17	08.1							
Judson, 1933 (d.m.)	34	33	32.224		136	53	27.80	316	50	08.32	Lynch Zion Oak Grove Azimuth mark, reference mark no. 1	4.1169680	13,090.86	42,948.9
	79	28	07.642		173	02	44.75	353	01	50.69		4.3005804	19,979.31	65,548.8
					206	20	13.33	26	22	01.98		4.0406979	10,982.42	36,031.5
					302	28	34.8							
Salem (N.C.), 1933 (d.m.)	34	36	15.571		68	28	33.37	248	23	49.74	Judson Oak Grove Azimuth mark, reference mark no. 3	4.1365612	13,694.97	44,930.9
	79	19	47.914		121	29	25.47	301	26	30.23		3.9642830	9,210.50	30,218.1
					132	49	26							
Barlow, 1933 (d.m.)	34	29	58.503		140	12	13.19	320	10	11.18	Judson Oak Grove Salem Azimuth mark, reference mark no. 2	3.9331525	8,573.39	28,127.9
	79	24	32.394		177	52	32.70	357	52	19.12		4.2158488	16,437.99	53,930.3
					211	57	07.27	31	59	48.61		4.1366218	13,696.88	44,937.2
					334	10	37.8							
Dillon north base (N.C.), 1933 (d.m.)	34	32	10.697		69	03	23.85	248	59	27.81	Barlow Salem Azimuth mark, Rowland, Methodist Church, spire	4.0560942	11,378.74	37,331.7
	79	17	35.842		155	57	56.13	335	56	41.19		3.9171094	8,262.46	27,107.8
					344	45	07.5							
Dillon south base, 1933 (d.m.)	34	26	06.271		147	07	44.55	327	06	01.95	Barlow Dillon north base Azimuth mark, reference mark no. 1	3.9305048	8,521.28	27,956.9
	79	21	31.109		208	06	37.01	28	08	50.21		4.1049338	12,733.091	41,775.15
					208	15	09.9							
Hammond (N.C.), 1933 (d.m.)	34	29	59.710		52	17	48.72	232	14	22.59	Dillon south base Dillon north base Azimuth mark, reference mark no. 1	4.0701846	11,753.97	38,562.8
	79	15	26.867		140	49	42.43	320	48	29.34		3.7165846	5,206.96	17,083.2
					335	50	41.9							
Hamer, 1933 (d.m.)	34	29	59.569		33	07	09.78	213	05	25.85	Dillon south base Barlow Salem Hammond Azimuth mark, reference mark no. 3	3.9335745	8,581.72	28,155.2
	79	18	27.456		89	49	37.88	269	46	09.18		3.9689626	9,310.28	30,545.5
					169	57	59.45	349	57	11.80		4.0706370	11,766.22	38,603.0
					269	55	53.58	89	57	35.87		3.6634311	4,607.14	15,115.3
					41	51	13							
Oliver, 1933, r. 1935 (d.m.)	34	23	02.927		123	01	20.03	302	58	07.51	Dillon south base Hammond Azimuth mark, reference mark no. 3	4.0159439	10,373.94	34,035.2
	79	15	50.426		182	40	46.27	2	40	59.59		4.1091219	12,856.47	42,179.9
					109	56	57.7							
Pittman (N.C.), 1933 (d.m.)	34	29	13.059		41	47	57.59	221	44	11.99	Oliver Hammond Dillon north base Azimuth mark, reference mark no. 3	4.1844416	15,291.20	50,167.9
	79	09	11.476		98	33	54.72	278	30	22.13		3.9860942	9,684.88	31,774.5
					113	05	13.71	293	00	27.94		4.1455516	13,981.43	45,870.7
					43	15	22							

GEOGRAPHIC POSITIONS

Goldsboro, N.C. to Little River, S.C. and Marietta to Lincolnton, N.C. are - Continued

U. S. COAST AND GEODETIC SURVEY

STATION	LATITUDE AND LONGITUDE			SECONDS IN METERS	AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE		
												LOGARITHM (METERS)	METERS	FEET
Principal points (cont'd.)														
Claybank (N.C.), 1933 (d.m.)	34	26	00.582		68	33	55.89	248	28	48.05	Oliver	4.1746740	14,951.13	49,052.2
	79	06	45.662		147	54	08.05	327	52	45.55	Pittman	3.8452139	7,001.87	22,972.0
					181	51	12.7				Azimuth mark, reference mark no. 2			
Kemper, 1933, r. 1935 (d.m.)	34	19	34.338		137	06	31.75	317	04	19.82	Oliver	3.9432554	8,775.17	28,789.9
	79	11	56.643		193	17	46.63	13	19	19.96	Pittman	4.2630268	18,324.27	60,118.9
					213	42	06.33	33	45	01.93	Claybank	4.1556264	14,309.56	46,947.3
					142	07	53				Azimuth mark, reference mark no. 3			
Nichols, 1933 (d.m.)	34	16	39.892		139	01	45.13	319	00	02.22	Kemper	3.8525078	7,120.46	23,361.0
	79	08	54.019		190	44	26.20	10	45	38.64	Claybank	4.2451428	17,585.02	57,693.5
					354	44	39				Azimuth mark, reference mark no. 1			
Ford (N.C.), 1933 (d.m.)	34	19	30.292		70	04	21.97	249	59	03.57	Nichols	4.1867377	15,372.26	50,433.8
	78	59	29.034		90	25	56.16	270	18	54.59	Kemper	4.2813243	19,112.80	62,705.9
					137	11	07.75	317	07	01.20	Claybank	4.2149252	16,403.07	53,815.7
					77	51	29.2				Azimuth mark, reference mark no. 3			
Floyds, 1933 (d.m.)	34	11	21.535		140	29	19.86	320	26	21.88	Nichols	4.1044542	12,719.04	41,729.0
	79	03	37.660		202	52	47.11	22	55	07.06	Ford	4.2134662	16,348.06	53,635.3
					295	51	56				Azimuth mark, reference mark no. 1			

Wilson (N.C.), 1933 (d.m.)	34	16	25.438		49	39	33.48	229	35	31.43	Floyds	4.1600294	14,455.38	47,425.7
	78	56	27.369		91	23	39.22	271	16	38.72	Nichols	4.2811323	19,104.35	62,678.2
					140	48	45.30	320	47	02.93	Ford	3.8662940	7,350.11	24,114.5
					226	49	21.0				Azimuth mark, reference mark no. 1			
Green Sea, 1933 (d.m.)	34	07	30.722		132	58	20.26	312	55	32.80	Floyds	4.0186063	10,437.74	34,244.5
	78	58	39.405		191	35	05.29	11	36	19.50	Wilson	4.2257962	16,818.85	55,179.8
					254	12	47				Azimuth mark, reference mark no. 1			
Clarendon (N.C.), 1933 (d.m.)	34	12	29.663		53	54	28.12	233	49	51.47	Green Sea	4.1937234	15,621.53	51,251.6
	78	50	26.795		84	08	35.00	264	01	10.48	Floyds	4.3087164	20,357.12	66,788.3
					128	14	31.28	308	11	08.39	Wilson	4.0698101	11,743.84	38,529.6
					112	30	02.5				Azimuth mark, reference mark no. 2			
Iron Hill (N.C.), 1933 (d.m.)	34	08	16.511		85	31	47.11	265	25	16.70	Green Sea	4.2524801	17,884.64	58,676.5
	78	47	03.599		146	18	20.07	326	16	25.94	Clarendon	3.9720507	9,376.71	30,763.4
					260	49	48.3				Azimuth mark, reference mark no. 2			
Loris, 1933 (d.m.)	34	03	09.261		134	21	59.47	314	18	59.25	Green Sea	4.0616814	11,526.07	37,815.1
	78	53	17.857		194	13	49.83	14	15	25.81	Clarendon	4.2507740	17,814.52	58,446.5
					225	21	10.09	45	24	39.88	Iron Hill	4.1296320	13,478.20	44,219.7
					127	18	54.4				Azimuth mark, reference mark no. 2			
Guide (N.C.), 1933 (d.m.)	34	03	56.867		85	12	11.25	265	05	53.68	Loris	4.2393311	17,351.26	56,926.6
	78	42	03.689		136	09	53.78	316	07	05.62	Iron Hill	4.0451214	11,094.85	36,400.4
					303	41	38.73	123	45	46.40	Hughes	4.1351595	13,650.84	44,786.1
					20	07	00.11	200	04	55.33	Leon	4.2218416	16,666.39	54,679.6
					305	14	37.4				Azimuth mark, reference mark no. 2			

TRIANGULATION IN SOUTH CAROLINA, PART 3

GEOGRAPHIC POSITIONS

Goldboro, N.C. to Little River, S.C. and Marietta to Lincolnton, N.C. are - Continued

STATION	LATITUDE AND LONGITUDE			SECONDS IN METERS	AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE		
												LOGARITHM (METERS)	METERS	FEET
Principal points (cont'd.)														
Simpson, 1933 (d.m.)	33	59	11.601		146	39	48.52	326	38	03.43	Loris	3.9428098	8,766.17	28,760.3
	78	50	10.019		195	52	45.74	15	54	30.15	Iron Hill	4.2419616	17,456.68	57,272.5
					234	47	57.95	54	52	30.09	Guide	4.1836076	15,261.87	50,071.7
					267	01	24.04	87	10	03.36	Hughes	4.3778689	23,870.91	78,316.5
					315	25	15.40	135	27	42.39	Leon	3.9836488	9,630.50	31,596.1
					273	35	20				Azimuth mark, reference mark no. 2			
Supplementary points														
Mullins, southerly black water tank, ball on top, 1933 (n.d.)	34	12	17.932		199	03	20.7	19	04	02.9	Kemper	4.153082	14,226.0	46,673
	79	14	58.171		229	04	25.8	49	07	50.7	Nichols	4.090905	12,328.4	40,447
					275	38	33.0	95	44	55.5	Floyds	4.243285	17,510.0	57,447
Mullins, northerly black water tank, ball on top, 1933 (n.d.)	34	12	21.405		201	23	05.4	21	25	00.4	Kemper	4.156172	14,327.6	47,006
	79	15	20.998		231	09	39.7	51	13	17.4	Nichols	4.104087	12,708.3	41,694
					275	47	38.2	95	54	13.5	Floyds	4.257729	18,102.1	59,390
Turner (N.C.-S.C.), 1933 (d.m.)	34	17	32.617		280	22	11.9	100	26	20.1	Wilson	4.059250	11,461.7	37,604
	79	03	48.116		358	39	30.9	178	39	36.8	Floyds	4.058310	11,436.9	37,523
					78	17	38.1	258	14	45.8	Nichols	3.902598	7,990.9	26,217
					222	57	23.3				Azimuth mark, reference mark no. 1			
Bench mark, state line (N.C.-S.C.), 1933 (d.m.)*	34	17	33.081		66	08		246	08		Turner	1.548660	35.372	116.05
	79	03	46.851											

Replacem (N.C.-S.C.), 1933 (d.m.)	34	12	22.113		193	36	20.4	13	37	00.3	Wilson	3.887279	7,714.0	25,308
	78	57	38.307		268	45	35.9	88	49	38.5	Clarendon	4.043339	11,049.4	36,251
					9	53	31.2	189	52	56.9	Green Sea	3.959691	9,113.6	29,900
					300	55	37.0				Azimuth mark, reference mark no. 1			
Tabor, municipal, aluminum water tank (N.C.), 1933 (n.d.)	34	09	03.836		5	42	04.1	185	41	40.3	Loris	4.040570	10,979.2	36,021
	78	52	35.331		72	55	56.7	252	52	32.4	Green Sea	3.989419	9,759.3	32,019
					207	25	14.8	27	26	27.0	Clarendon	3.854019	7,145.3	23,443
Tabor (N.C.-S.C.), 1933 (d.m.)	34	08	26.215		78	57	50.6	258	54	39.2	Green Sea	3.949924	8,911.0	29,236
	78	52	58.095		207	18	28.8	27	19	53.8	Clarendon	3.926485	8,442.8	27,699
					271	51	28.3	91	54	47.3	Iron Hill	3.958444	9,087.5	29,815
					220	22	31				Azimuth mark, reference mark no. 1			
North Carolina-South Carolina state-line monument (N.C.-S.C.), 1933 (d.m.)*	34	08	26.121		137	38		317	38		Tabor	0.591955	3.908	12.82
	78	52	57.992											
Dothan (N.C.-S.C.), 1933 (d.m.)	34	01	33.660		7	26	27.6	187	25	55.7	Leon	4.054397	11,334.4	37,186
	78	44	49.706		61	59	21.7	241	56	22.6	Simpson	3.969058	9,312.3	30,552
					223	58	06.7	43	59	39.7	Guide	3.787602	6,132.0	20,118
					1	32	50				Azimuth mark, reference mark no. 3			
Dillon, Dillon Oil Company, tall slender black water tank, 1933 (n.d.)	34	25	14.670		215	12	08.2	35	12	33.0	Dillon south base	3.289117	1,945.9	6,384
	79	22	15.044		229	50	08.5	49	53	59.4	Hammond	4.134383	13,626.5	44,706
					292	25	17.8	112	28	55.1	Oliver	4.026507	10,629.4	34,875
Dillon, municipal red water tank, 1933 (n.d.)*	34	25	20.04		214	56	32	34	56	54	Dillon south base	3.240060	1,758.0	5,702
	79	22	10.10		293	30	40	113	34	14	Oliver	4.024386	10,577.6	34,703
Marion, municipal water tank, aviation beacon on top (N.C.), 1933 (n.d.)	34	44	18.123		353	07	56.6	173	08	36.6	Salem	4.175419	14,976.8	49,136
	79	20	58.199		31	04	55.5	211	02	39.9	Oak Grove	4.069894	11,746.1	38,537
					89	44	14.2	269	39	15.3	Zion	4.125279	13,343.8	43,779
Rowland, municipal water tank, ball on top (N.C.), 1933 (n.d.)	34	32	31.189		295	16	15.3	115	21	02.1	Pittman	4.154727	14,280.0	46,850
	79	17	37.571		324	27	17.4	144	28	31.5	Hammond	3.758596	5,735.8	18,818
					356	00	19.7	176	00	20.7	Dillon north base	2.801391	633.0	2,077

* No check on this position

GEOGRAPHIC POSITIONS

Goldboro, N.C. to Little River, S.C. and Marietta to Lincolnton, N.C. arc - Continued

STATION	LATITUDE AND LONGITUDE			SECONDS IN METERS	AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE		
	°	'	"		°	'	"	°	'	"		LOGARITHM (METERS)	METERS	FEET
Supplementary points (cont'd.)														
Hamer, Carolina Textile Corporation, stack, 1933 (n.d.)	34	28	49.085		180	09	12.7	0	09	13.5	Salem	4.138553	13,757.9	45,137
	79	19	49.361		208	43	24.4	28	44	40.0	Dillon north base	3.850326	7,084.8	23,244
					251	58	44.0	72	01	12.6	Hammond	3.847705	7,042.1	23,104
Hamer, Carolina Textile Corporation, water tank, ball on top, near stack, 1933 (n.d.)	34	28	49.341		106	32	01.2	286	29	21.6	Barlow	3.874972	7,498.5	24,601
	79	19	50.626		180	17	16.6	0	17	18.1	Salem	4.138308	13,750.2	45,112
					208	58	57.2	29	00	13.5	Dillon north base	3.850857	7,095.4	23,272
McRae (N.C.-S.C.), 1933 (d.m.)	34	37	38.663		7	16	18.7	187	15	57.2	Judson	3.883960	7,655.3	25,116
	79	27	29.633		101	12	25.3	281	08	44.1	Lynch	4.004615	10,106.8	33,159
					240	03	56.2	60	05	23.3	Oak Grove	3.653737	4,505.4	14,781
					264	34	31				Azimuth mark, reference mark no. 1			
North Carolina-South Carolina state-line monument (1905) (N.C.-S.C.), 1933 (d.m.)*	34	37	38.592		147	01		327	01		McRae	0.413300	2.59	8.5
	79	27	29.578											
McColl, municipal, aluminum water tank, 1933 (n.d.)	34	40	12.453		212	19	55.7	32	21	42.0	Zion	3.948258	8,876.8	29,123
	79	32	49.358		281	38	57.3	101	43	26.3	Oak Grove	4.089907	12,300.1	40,355
					329	46	47.0	149	49	27.0	Judson	4.154396	14,269.1	46,815
McColl, Marlboro Cotton Mills, aluminum tank, 1933 (n.d.)*	34	40	07.38		330	37	19	150	39	52	Judson	4.145206	13,970.3	45,834
	79	32	36.47		38	40	29	218	39	42	Lynch	3.526366	3,360.2	11,024
Laurensburg, Dixie Cuano Company, water tank (N.C.), 1933 (n.d.)	34	45	50.496		351	06	49.9	171	07	34.9	Oak Grove	4.116100	13,064.7	42,863
	79	26	15.565		7	05	47.1	187	05	04.9	McRae	4.183906	15,272.4	50,106
					41	49	10.5	221	44	46.7	Lynch	4.247911	17,697.5	58,063

Laurensburg, municipal water tank (N.C.), 1933 (n.d.)	34	46	40.398		342	19	04.1	162	20	47.1	Oak Grove	4.180727	15,161.0	49,741
	79	27	57.141		357	35	46.9	177	36	02.6	McRae	4.222924	16,708.0	54,816
					32	01	34.8	211	58	08.9	Lynch	4.239898	17,373.9	57,001
Airway beacon, east of Clio, flashing red and white, 1933 (n.d.)*	34	35	55.42		184	24	51	4	24	57	McRae	3.503879	3,190.6	10,468
	79	27	39.27		217	23	29	37	25	02	Oak Grove	3.834666	6,833.9	22,421
Bennettsville, black water tank, 1933 (n.d.)*	34	37	00.57		174	34	01	354	33	32	McInnis	4.149425	14,106.7	46,282
	79	41	07.84		253	58	00	74	02	04	Lynch	4.055588	11,365.5	37,288
Clio, white water tank, 1933 (n.d.)*	34	34	45.28		167	09	33	347	08	56	Lynch	3.874426	7,489.0	24,570
	79	32	53.56		237	03	36	57	06	40	McRae	3.992644	9,832.0	32,257
Gibson (N.C.-S.C.), 1933, r. 1937 (d.m.)	34	45	26.555		195	27	38.2	15	28	29.2	Fairview	3.930063	8,512.6	27,928
	79	37	05.041		280	55	44.3	100	59	56.4	Zion	4.059174	11,459.7	37,597
					339	10	06.8	159	11	52.7	Lynch	4.124795	13,328.9	43,730
					78	22	33.6	258	19	45.3	McInnis	3.884735	7,668.9	25,160
					50	22	41				Azimuth mark, reference mark no. 2			
North Carolina-South Carolina state-line monument (N.C.-S.C.), 1933, r. 1937 (d.m.)*	34	45	26.392		137	30		317	30		Gibson	0.632892	6.606	22.3
	79	37	04.860											
Perhealth (N.C.-S.C.), 1933 (d.m.)	34	48	20.373		169	21	53.2	349	21	26.3	Martin	3.811079	6,472.6	21,236
	79	46	26.088		315	35	45.8	135	38	17.3	McInnis	3.985018	9,660.9	31,696
					61	16	24				Azimuth mark, reference mark no. 2			
Hamlet traverse tie (N.C.), 1933 (d.m.)	34	53	15.067		69	04	51.8	249	02	11.8	Martin	3.891355	7,609.5	24,966
	79	42	33.284		232	36	43.3	52	38	37.0	Fruitland	3.802546	6,346.7	20,822
					294	46	49				Azimuth mark, reference mark no. 2			
Rockingham (N.C.), 1918, r. 1933 (d.m.)	34	54	30.941		44	36	49.1	224	35	57.1	Hamlet traverse tie	3.516412	3,284.1	10,775
	79	41	02.453		241	02	27.6	61	03	29.3	Fruitland	3.495315	3,128.3	10,263
					243	20	28.8				Azimuth mark, reference mark no. 1			

* 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														
Lewis, 1934 (d.m.)	34 18 30.733 81 06 47.857			44 32 32.7							Azimuth mark, reference mark no. 2			
Glenn, 1934 (d.m.)	34 14 45.009 81 14 54.975			240 47 32.24 325 40 54.8			60 52 06.58			Lewis	4.1544192	14,269.84	46,817.0	
Ridgeway, 1934 (d.m.)	34 17 57.075 80 57 09.396			77 50 02.81 94 03 20.81 350 07 28.0			257 40 02.75 273 57 54.80			Glenn Lewis	4.4455007 4.1710917	27,893.35 14,828.31	91,513.4 48,649.2	
Douglas, 1934 (d.m.)	34 08 40.077 81 03 28.137			122 38 52.68 164 19 36.24 209 25 51.34 255 42 13			302 32 26.67 344 17 43.90 29 29 24.34			Glenn Lewis Ridgeway	4.3195922 4.2765439 4.2947075	20,873.35 18,903.57 19,710.95	68,482.0 62,019.5 64,668.3	
Blaney 2, 1934 (d.m.)	34 10 15.692 80 47 25.330			83 15 47.44 133 36 32.86 237 47 57.6			263 06 46.85 313 31 04.27			Douglas Ridgeway	4.3951186 4.3144633	24,838.11 20,628.29	81,489.7 67,678.0	
Weddell, 1918, r. 1934 (d.m.)	34 05 51.253 80 54 38.917			111 01 18.46 170 13 50.39 233 42 13.11 28 51 49.8			290 56 21.54 350 12 25.75 53 46 16.35			Douglas Ridgeway Blaney 2	4.1622011 4.3559075 4.1390939	14,527.84 22,693.81 13,775.07	47,663.4 74,454.6 45,193.7	

U. S. COAST AND GEODETIC SURVEY

Mt. Pleasant, 1934 (d.m.)	34 03 04.943 80 49 05.565			120 58 35.88 190 56 49.40 46 53 06.4			300 55 29.17 10 57 45.61			Weddell Blaney 2	3.9984113 4.1309234	9,963.49 13,518.34	32,688.5 44,351.4
Nob, 1918, r. 1937 (d.m.)	34 03 17.653 80 58 51.318			233 48 48.71 271 26 51.85 33 04 39			53 51 10.19 91 32 19.85			Weddell Mt. Pleasant	3.9041459 4.1768991	8,019.47 15,027.93	26,310.5 49,304.1
Jones, 1934 (d.m.)	33 59 06.597 80 51 52.889			125 48 22.14 161 09 52.43 210 17 51.71 181 22 03.3			305 44 28.03 341 08 19.54 30 19 25.32			Nob Weddell Mt. Pleasant	4.1216284 4.1197282 3.9297495	13,232.09 13,174.32 8,506.47	43,412.3 43,222.7 27,908.3
Columbia west base, 1934, r. 1935 (d.m.)	33 57 21.636 80 57 44.887			171 10 17.46 250 16 53.48 288 47 36.0			351 09 40.31 70 20 10.17			Nob Jones	4.0453578 3.9821664	11,100.89 9,597.68	36,420.2 31,488.4
Columbia east base, 1934, r. 1935 (d.m.)	33 56 08.234 80 53 37.173			109 35 27.20 148 40 03.81 205 58 04.33 287 36 12.0			289 33 08.87 328 37 08.16 25 59 02.59			Columbia west base Nob Jones	3.8293799 4.1901552 3.7862575	6,751.183 15,493.70 6,113.04	22,149.51 50,832.2 20,055.9
Blocks, 1934 (d.m.)	34 05 57.002 80 39 57.633			69 22 08.55 89 37 09.64 124 49 42.19 54 51 46.0			249 17 01.55 269 28 55.63 304 45 30.96			Mt. Pleasant Weddell Blaney 2	4.1765573 4.3538861 4.1451466	15,016.10 22,588.43 13,968.40	49,265.3 74,108.9 45,828.0
English, 1934 (d.m.)	34 05 50.633 80 42 11.545			82 28 35.12 221 23 57.66 75 10 08			262 24 43.26 41 25 12.71			Mt. Pleasant Blocks	4.0298223 3.7152205	10,710.81 5,190.63	35,140.4 17,029.6

TRIANGULATION IN SOUTH CAROLINA, PART 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
Principal points (cont'd.)														
McMaster, 1934 (d.m.)	33	56	32.440		134	35	35.07	314	31	07.47	Mt. Pleasant	4.2364540	17,236.69	56,550.7
	80	41	06.984		173	00	33.64	352	59	57.53	English	4.1336349	13,603.01	44,629.2
					185	50	06.47	5	50	45.27	Blocks	4.2426773	17,485.47	57,366.9
					92	49	30.0				Azimuth mark, reference mark no. 2			
Hagood, 1934 (d.m.)	34	03	26.790		39	24	23.97	219	20	35.67	McMaster	4.2178856	16,515.27	54,183.8
	80	34	18.725		93	30	24.49	273	25	59.67	English	4.0844907	12,147.61	39,854.3
					118	04	02.49	298	00	52.59	Blocks	3.9932206	9,845.11	32,300.2
					198	28	35.2				Azimuth mark, reference mark no. 1			
Burgess, 1934 (d.m.)	33	56	37.273		89	28	49.57	269	23	21.32	McMaster	4.1789047	15,097.49	49,532.3
	80	31	19.106		159	56	43.65	339	55	03.21	Hagood	4.1281793	13,433.20	44,072.1
					268	27	26.4				Azimuth mark, reference mark no. 1			
Hillcrest, 1934 (d.m.)	34	02	01.749		28	21	32.35	208	19	34.89	Burgess	4.0553415	11,359.04	37,267.1
	80	27	49.002		63	42	31.38	243	35	05.29	McMaster	4.3590170	22,856.88	74,989.6
					104	43	06.23	284	39	28.04	Hagood	4.0142606	10,333.81	33,903.5
					156	12	30.7				Azimuth mark, reference mark no. 3			
Wedgefield, 1934 (d.m.)	33	53	32.840		109	34	53.65	289	29	14.86	McMaster	4.2187700	16,548.93	54,294.3
	80	30	59.833		175	01	19.10	355	01	08.34	Burgess	3.7561789	5,703.99	18,713.8
					197	20	14.73	17	22	01.34	Hillcrest	4.2155701	16,427.45	53,893.7
					161	05	27.4				Azimuth mark, reference mark no. 3			

U. S. COAST AND GEODETIC SURVEY

Swinton, 1934 (d.m.)	33	59	11.875		44	03	39.75	224	00	00.21	Wedgefield	4.1622346	14,528.96	47,667.1
	80	24	26.618		65	48	49.42	245	44	58.96	Burgess	4.0649080	11,612.03	38,097.1
					135	14	22.96	315	12	29.76	Hillcrest	3.8676528	7,373.15	24,190.1
					313	42	22.6				Azimuth mark, reference mark no. 2			
Harvin, 1934 (d.m.)	33	50	01.662		132	25	50.10	312	23	15.69	Wedgefield	3.9844126	9,647.45	31,651.7
	80	26	22.711		189	58	08.37	9	59	13.15	Swinton	4.2358483	17,212.67	56,471.9
					254	42	31				Azimuth mark, reference mark no. 2			
Sumter, 1934, r. 1935 (d.m.)	33	56	01.198		37	52	42.53	217	49	35.76	Harvin	4.1470355	14,029.28	46,027.7
	80	20	47.711		73	50	20.77	253	44	39.25	Wedgefield	4.2142017	16,375.77	53,726.2
					156	17	06.37	316	15	04.09	Swinton	3.9101127	8,130.41	26,674.5
					194	49	43				Azimuth mark, reference mark no. 1			
Stokes, 1934 (d.m.)	33	46	25.602		130	00	15.99	309	57	24.28	Harvin	4.0153725	10,360.30	33,990.4
	80	21	14.074		182	11	11.38	2	11	26.07	Sumter	4.2491287	17,747.16	58,225.5
					5	43	00				Azimuth mark, reference mark no. 1			
Britton, 1934, r. 1935 (d.m.)	33	50	56.360		51	32	40.72	231	28	53.71	Stokes	4.1272479	13,404.42	43,977.7
	80	14	26.124		84	49	44.59	264	43	05.52	Harvin	4.2671905	18,500.80	60,698.0
					133	47	50.06	313	44	17.28	Sumter	4.1328251	13,577.67	44,546.1
					287	21	42.6				Azimuth mark, reference mark no. 2			
Carson, 1934, r. 1935 (d.m.)	33	41	02.206		130	33	55.51	310	29	44.16	Stokes	4.1856029	15,332.14	50,302.2
	80	13	41.416		176	24	26.19	356	24	01.34	Britton	4.2634421	18,341.81	60,176.4
					242	56	11.7				Azimuth mark, reference mark no. 1			
Harmony, 1934 (d.m.)	33	47	36.426		29	40	33.69	209	38	04.49	Carson	4.1453951	13,976.39	45,854.2
	80	09	12.772		83	20	57.78	263	14	16.69	Stokes	4.2715032	18,685.44	61,303.8
					127	25	08.92	307	22	14.51	Britton	4.0061700	10,143.08	33,277.8
					171	00	30.3				Azimuth mark, reference mark no. 3			

TRIANGULATION IN SOUTH CAROLINA, PART 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
Principal points (cont'd.)														
Bloomville, 1934 (d.m.)	33	38	06.112		131	13	10.87	311	10	57.56	Carson	3.9157340	8,236.33	27,022.0
	80	09	40.894		182	21	27.65	2	21	43.25	Harmony	4.2451662	17,585.96	57,696.6
					114	44	03.2					Azimuth mark, reference mark no. 2		
Cypress Forks, 1934 (d.m.)	33	44	51.729		32	34	33.48	212	31	41.67	Bloomville	4.1710207	14,825.89	48,641.3
	80	04	31.161		63	31	04.85	243	25	59.42	Carson	4.1996108	15,834.73	51,951.1
					125	01	24.43	304	58	47.89	Harmony	3.9467637	8,846.34	29,023.4
					103	30	13.2					Azimuth mark, reference mark no. 3		
Hays, 1934 (d.m.)	33	35	12.159		126	08	44.49	306	06	06.82	Bloomville	3.9586025	9,090.81	29,825.4
	80	04	56.052		182	03	17.49	2	03	31.29	Cypress Forks	4.2520665	17,867.61	58,620.6
					180	14	08.8					Azimuth mark, reference mark no. 1		
Harrington, 1934 (d.m.)	33	41	37.520		37	42	25.19	217	39	08.08	Hays	4.1761281	15,001.27	49,216.7
	79	59	00.243		68	30	51.65	248	24	56.52	Bloomville	4.2490530	17,744.06	58,215.3
					125	06	18.61	305	03	14.90	Cypress Forks	4.0175011	10,411.21	34,157.4
					341	06	54.8					Azimuth mark, reference mark no. 1		
Richmond, 1934 (d.m.)	33	31	35.415		123	20	14.67	303	16	36.89	Hays	4.0849460	12,160.35	39,896.1
	79	58	22.075		176	57	59.98	356	57	38.85	Harrington	4.2689588	18,576.28	60,945.7
					236	18	55					Azimuth mark, reference mark no. 1		

Boyd, 1934 (d.m.)	33	37	27.848		37	19	44.24	217	16	46.84	Richmond	4.1351499	13,650.54	44,785.1
	79	53	01.296		77	16	22.81	257	09	47.21	Hays	4.2763559	18,895.39	61,992.6
					129	46	45.44	309	43	26.49	Harrington	4.0802352	12,029.16	39,465.7
					159	03	29.1					Azimuth mark, reference mark no. 3		
Lane, 1934 (d.m.)	33	31	18.226		93	25	33.60	273	22	22.80	Richmond	3.9508922	8,930.84	29,300.6
	79	52	36.598		176	48	01.12	356	47	47.46	Boyd	4.0571107	11,405.40	37,419.2
					13	03	55					Azimuth mark, reference mark no. 2		
Lawrence, 1934 (d.m.)	33	32	49.151		74	41	35.46	254	37	56.78	Lane	4.0249307	10,590.85	34,746.8
	79	46	00.753		83	17	01.46	263	10	11.90	Richmond	4.2846932	19,261.64	63,194.2
					128	24	12.00	308	20	19.36	Boyd	4.1408898	13,832.15	45,381.0
					290	32	09					Azimuth mark, reference mark no. 1		
Chandler, 1934 (d.m.)	33	27	43.561		124	33	09.27	304	29	27.27	Richmond	4.1005155	12,604.21	41,352.3
	79	51	39.785		167	30	02.68	347	29	31.33	Lane	3.8308538	6,774.13	22,224.8
					173	20	34.75	353	19	49.71	Boyd	4.2582416	18,123.48	59,460.1
					222	52	50.68	42	55	57.83	Lawrence	4.1090225	12,853.53	42,170.3
					127	58	44.2					Azimuth mark, reference mark no. 2		
Trio, 1934, r. 1935 (d.m.)	33	28	43.428		83	36	24.21	263	30	35.30	Chandler	4.2158970	16,439.44	53,935.1
	79	41	07.140		134	59	40.36	314	56	58.25	Lawrence	4.0298430	10,711.32	35,142.1
					311	59	44					Azimuth mark, reference mark no. 1		
Sutton, 1934 (d.m.)	33	24	05.579		125	19	07.94	305	15	45.58	Chandler	4.0653623	11,624.18	38,137.0
	79	45	32.497		177	24	44.84	357	24	29.26	Lawrence	4.2080870	16,146.82	52,975.0
					218	39	53.79	38	42	20.02	Trio	4.0400490	10,966.02	35,977.7
					203	27	12.7					Azimuth mark, reference mark no. 1		
Borrow, 1934 (d.m.)	33	24	30.914		86	49	55.55	266	44	58.96	Sutton	4.1443454	13,942.65	45,743.5
	79	36	33.778		137	47	37.92	317	45	07.27	Trio	4.0214324	10,505.88	34,468.0
					212	25	08					Azimuth mark, reference mark no. 1		

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.)														
Jamestown, 1934 (d.m.)	33	17	52.270		143	25	51.50	328	23	21.13	Sutton	4.1303791	13,501.41	44,295.9
	79	40	58.972		179	23	51.72	359	23	47.23	Trio	4.3023711	20,061.86	65,819.6
					209	09	18.08	29	11	43.88	Borrow	4.1491631	14,065.76	46,147.4
					38	09	30.4				Azimuth mark, reference mark no. 1			
Sampit, 1934 (d.m.)	33	21	34.448		70	21	45.72	250	14	59.46	Jamestown	4.3077383	20,311.33	66,638.1
	79	28	39.569		113	57	21.47	293	53	00.54	Borrow	4.1273755	13,408.35	43,990.6
					313	46	30.37	133	50	19.79	Cooper	4.1753197	14,973.38	49,125.2
					358	19	26.98	173	19	36.96	Waterhorn	4.2068051	16,099.23	52,818.9
					257	38	12.9				Azimuth mark, reference mark no. 1			
Echaw, 1934 (d.m.)	33	16	15.991		111	21	14.67	291	18	33.59	Jamestown	3.9113607	8,153.81	26,751.3
	79	36	05.451		177	15	05.75	357	14	50.18	Borrow	4.1836952	15,264.94	50,081.7
					229	34	50.18	49	38	55.08	Sampit	4.1801814	15,141.94	49,678.2
					271	21	16.29	91	29	10.04	Cooper	4.3494341	22,358.06	73,353.1
					297	34	03.58	117	33	17.98	Waterhorn	4.1321615	13,556.93	44,478.0
					273	42	11				Azimuth mark, reference mark no. 2			
Supplementary points														
Blaney, 1918, r. 1934 (d.m.)**	34	10	18.873		304	04		124	04		Blaney 2	2.242950	174.965	574.03
	80	47	30.939											
Blume, 1934 (d.m.)	34	12	25.594		108	21	01.2	288	16	15.9	Glenn	4.135864	13,673.0	44,859
	81	06	27.811		177	23	29.3	357	23	18.0	Lewis	4.051632	11,262.4	36,950
					326	28	22.0	146	30	03.0	Douglas	3.920855	8,334.0	27,342
					142	24	27.8				Azimuth mark, reference mark no. 3			

U. S. COAST AND GEODETIC SURVEY

Ridgeway, black water tank, ball on top, 1934 (n.d.)	34	18	25.802		313	59	38.2	134	05	21.5	Blaney 2	4.336917	21,722.9	71,269
	80	57	35.514		322	57	47.5	142	58	02.2	Ridgeway	3.044865	1,108.8	3,638
					50	51	48.6	230	46	49.1	Blume	4.244742	17,568.8	57,640
Jackson 2, 1934 (d.m.)	34	01	13.175		306	41	49.2	126	43	43.2	Jones	3.814494	6,523.7	21,403
	80	55	16.678		28	04	46.6	208	03	23.8	Columbia west base	3.907663	8,084.7	26,523
					124	52	39.5	304	50	39.3	Nob	3.826726	6,710.1	22,015
					330	15	56				Azimuth mark, reference mark no. 2			
Observatory, 1934, r. 1935 (d.m.)	33	59	51.394		213	37	28.0	33	39	00.2	Nob	3.882703	7,633.1	25,043
	81	01	36.129		255	27	42.8	75	31	15.1	Jackson 2	4.002493	10,657.6	32,997
					307	50	26.3	127	52	35.6	Columbia west base	3.876126	7,518.4	24,667
					158	46	24.9				Azimuth mark, reference mark no. 3			
Columbia, Melton Memorial Observatory, astronomical instrument, center, 1934, r. 1935 (d.)*	33	59	50.668		158	21		338	21		Observatory	1.381151	24.052	78.91
	81	01	35.783											
Columbia, meridian mark (U.S.G.S.) 1934, r. 1935 (d.m.)*	33	59	50.826		126	31		306	31		Observatory	1.468406	29.404	96.47
	81	01	35.208											
Columbia, United States Veterans Hospital, stack, 1934 (n.d.)	33	58	35.076		199	32	34.5	19	34	18.7	Weddell	4.154177	14,261.9	46,791
	80	57	44.931		217	58	52.0	38	00	14.9	Jackson 2	3.791052	6,180.9	20,279
					263	50	17.9	83	53	34.7	Jones	3.958495	9,088.6	29,818
Columbia, United States Veterans Hospital, tank, 1934 (n.d.)	33	58	33.161		263	30	14.0	83	33	31.9	Jones	3.961154	9,144.4	30,001
	80	57	46.864		304	50	14.2	124	52	33.7	Columbia east base	3.892814	7,812.9	25,633
					358	40	46.3	178	40	47.5	Columbia west base	3.343276	2,204.3	7,232
Columbia, State Capitol, dome, base of flagstaff, 1934 (n.d.)	34	00	00.555		218	31	29.7	38	33	15.2	Nob	3.890081	7,763.9	25,472
	81	01	59.873		298	58	31.6	119	03	12.4	Columbia east base	4.169022	14,757.8	48,418
					294	51	12.8	114	51	26.0	Observatory	2.827095	671.6	2,203

* No check on this position
** Checked by traverse

TRIANGULATION IN SOUTH CAROLINA, PART 3

GEOGRAPHIC POSITIONS

Tigerville to Georgetown arc - Continued

U. S. COAST AND GEODETIC SURVEY

TRIANGULATION IN SOUTH CAROLINA, PART 3

STATION	LATITUDE AND LONGITUDE			SECONDS IN METERS	AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE		
	°	'	"		°	'	"	°	'	"		LOGARITHM (METERS)	METERS	FEET
Supplementary points (cont'd.)														
Columbia, United States Veterans Hospital, dome, 1934 (n.d.)*	33	58	38.27		199	13	10	19	14	51	Weddell	4.150120	14,129.3	46,356
	80	57	40.26		306	30	20	126	32	36	Columbia east base	3.890258	7,767.1	25,483
Columbia, large steel water tank, 1934 (n.d.)*	34	00	31.85		62	07	54	242	07	03	Observatory	3.425884	2,666.1	8,747
	81	00	04.29		200	07	10	20	07	50	Nob	3.735654	5,440.7	17,850
Transit traverse station no. 18 B (U.S.G.S.), 1934 (d.m.)*	34	03	25.607		145	13		325	13		Hagood	1.647324	44.394	145.65
	80	34	17.737											
Sumter, silver standpipe, 1934 (n.d.)*	33	55	22.66		42	49	53	222	46	34	Harvin	4.129680	13,479.7	44,225
	80	20	26.31		155	09	56	335	09	44	Sumter	3.116798	1,308.6	4,293
Sumter, municipal power plant, brick stack, 1934 (n.d.)*	33	54	55.28		45	04	34	225	01	17	Harvin	4.107368	12,804.7	42,010
	80	20	30.12		167	27	18	347	27	08	Sumter	3.318181	2,080.6	6,826
Manning, municipal water tank, 1934 (n.d.)	33	41	36.272		244	39	16.4	64	43	51.0	Cypress Forks	4.148828	14,087.3	46,218
	80	12	45.799		323	38	32.0	143	40	14.5	Bloomville	3.905175	8,038.5	26,373
					53	46	31.8	233	46	00.9	Garson	3.249393	1,775.8	5,826
Line, 1934 (d.m.)	33	36	46.014		54	16	17.4	234	14	51.2	Hays	3.694637	4,950.4	16,241
	80	02	20.209		209	49	40.3	29	51	31.1	Harrington	4.015113	10,354.1	33,970
					327	17	15.5	147	19	27.2	Richmond	4.055785	11,370.6	37,305
					304	10	08				Azimuth mark, reference mark no. 1			
Airway beacon no. 25 (Jacksonville-Richmond), 1934 (n.d.)	33	40	47.668		337	25	22.1	157	27	33.6	Lawrence	4.203145	15,964.1	52,376
	79	49	58.328		13	06	21.4	193	04	53.8	Lane	4.255567	18,012.2	59,095
					37	27	34.1	217	25	52.7	Boyd	3.889534	7,754.1	25,440
Airway beacon no. 24 (Jacksonville-Richmond), 1934 (n.d.)	33	29	00.381		122	19	04.8	302	16	23.1	Richmond	3.951322	8,939.7	29,350
	79	53	29.301		197	45	28.2	17	45	57.2	Lane	3.649271	4,459.3	14,630
					309	55	08.7	129	56	09.1	Chandler	3.566729	3,687.5	12,098
St. Stephen, black water tank, finial, 1934 (n.d.)*	33	24	53.21		159	14	52	339	13	11	Richmond	4.122284	13,252.1	43,478
	79	55	20.11		227	18	07	47	20	09	Chandler	3.888825	7,741.5	25,399
Andrews, aluminum water tank, 1934 (n.d.)	33	27	13.342		103	04	45.7	283	00	29.9	Trio	4.089800	12,297.0	40,344
	79	33	23.212		324	54	33.0	144	57	09.2	Sampit	4.105727	12,756.4	41,852
					44	32	45.0	224	31	00.0	Borrow	3.846315	7,019.6	23,030

* No check on this position

GEOGRAPHIC POSITIONS

Bucksport to Ocoola area

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		173	05	26.7				Azimuth mark			
	80	37	45.085											
Altan (N.C.), 1935 (d.m.)	34	52	50.175		36	25	58.6	216	52	38.3	Parker Azimuth mark	4.171441	14,840.2	48,688
	80	31	54.402			77	40	08.4						
Page, 1935 (d.m.)	34	46	02.373		92	03	05.6	271	55	33.6	Parker Azimuth mark, CP 108 (S.C.Geod.S.)	4.304561	20,163.3	66,152
	80	24	32.639			138	15	31.5	318	11		19.2		4.226618
Taxahaw, 1935 (d.m.)	34	41	26.459		131	23	23.4	311	19	29.3	Parker Altan Page Azimuth mark	4.143838	13,926.4	45,690
	80	30	54.202			175	50	59.1	355	50		24.8		4.324779
Presley, 1935 (d.m.)	34	37	51.298		228	45	25.8	48	49	03.2	Taxahaw Page Azimuth mark	4.110739	12,904.4	42,337
	80	21	14.697			262	44	39						4.208892
Holley, 1935 (d.m.)	34	35	00.209		114	14	27.8	294	08	58.2	Page Azimuth mark	4.202726	15,948.7	52,325
	80	29	12.048			161	36	07.4	341	34		14.7		
Mobley, 1935 (d.m.)	34	35	00.209		167	40	36.5	347	39	38.4	Taxahaw Page Presley Azimuth mark	4.085755	12,183.0	39,970
	80	29	12.048			199	11	50.6	19	14		29.5		4.334624
Mobley, 1935 (d.m.)	34	29	42.960		246	31	38.8	66	36	09.9	Holley Presley Azimuth mark	4.122408	13,255.9	43,490
	80	26	45.511			324	01	41.9						4.019755
	34	29	42.960		159	05	32.7	339	04	09.6		4.236778	17,249.6	56,593
	80	26	45.511			209	14	31.2	29	17		38.9		
					31	38	31.9							

U. S. COAST AND GEODETIC SURVEY

Blakely, 1935 (d.m.)	34	33	13.053		68	07	45.6	248	01	48.1	Mobley Holley Presley Azimuth mark	4.239075	17,341.0	56,893
	80	16	14.739			99	31	19.6	279	23		58.6		4.302925
McBee, 1918, r. 1935 (d.m.)	34	28	19.041		138	18	17.8	318	15	27.5	Azimuth mark, reference mark no. 4	4.060190	11,486.6	37,686
	80	15	04.999			286	37	33.8						
Cassatt, 1918, r. 1935 (d.m.)	34	28	19.041		98	17	11.7	278	10	35.1	Mobley Blakely Azimuth mark, reference mark no. 4	4.256737	18,060.8	59,254
	80	15	04.999			168	53	47.2	348	53		07.7		3.965321
Bethune, 1918, r. 1935 (d.m.)	34	21	34.620		298	36	48.2				Cassatt Bethune McBee Azimuth mark, L 643 (S.C.Geod.S.)	4.179367	15,113.6	49,585
	80	25	50.118			174	38	04.5	354	37		33.2		4.415885
L 642 (S.C.Geod.S.), 1935 (d.m.)	34	21	34.620		214	15	56.0	34	21	21.5	McBee Azimuth mark	4.315061	20,656.7	67,771
	80	25	50.118			232	50	43.8	52	56		48.4		
McKenzie, 1935 (d.m.)	34	24	10.329		147	48	26.3				L 642 (S.C.Geod.S.) McBee Azimuth mark	4.126276	13,374.5	43,880
	80	22	14.327			235	00	22.9	55	04		25.7		3.863820
D 262 (S.C.Geod.S.), 1935 (d.m.)	34	18	44.999		48	59	05.0	228	57	03.2	Cassatt Bethune McBee Azimuth mark, D 263 (S.C.Geod.S.)	4.164090	14,591.2	47,871
	80	16	57.169			250	04	54.7						4.110285
D 17 (S.C.Geod.S.), 1935 (d.m.)	34	18	44.999		111	01	52.0	290	56	51.4	McBee Azimuth mark, D 263 (S.C.Geod.S.)	4.253301	17,918.5	58,788
	80	16	57.169			141	04	05.6	321	01		06.6		
McKenzie, 1935 (d.m.)	34	21	30.508		189	11	34.1	9	12	37.4	L 642 (S.C.Geod.S.) McBee Azimuth mark	3.976266	9,468.2	31,064
	80	11	45.086			176	37	26.8						4.133027
D 262 (S.C.Geod.S.), 1935 (d.m.)	34	16	49.090		157	56	23.9	337	54	30.9	L 642 (S.C.Geod.S.) McKenzie McBee Azimuth mark, D 263 (S.C.Geod.S.)	4.196827	15,733.6	51,619
	80	06	58.002			203	10	01.3	283	04		23.7		4.055399
D 17 (S.C.Geod.S.), 1935 (d.m.)	34	16	49.090		149	41	56.1	329	37	21.1	McBee Azimuth mark, D 263 (S.C.Geod.S.)	4.391513	24,632.8	80,816
	80	05	48.707			214	35	18.6						
D 17 (S.C.Geod.S.), 1935 (d.m.)	34	27	43.152		5	01	34.2	185	00	55.1	D 262 (S.C.Geod.S.) McKenzie McBee Azimuth mark, CP 9 (S.C.Geod.S.)	4.306019	20,231.1	66,375
	80	05	48.707			38	25	50.0	218	22		28.6		4.165897
	34	27	43.152		94	29	51.0	274	24	36.2		4.153527	14,240.6	46,721
	80	05	48.707			169	11	28.3						

TRIANGULATION IN SOUTH CAROLINA, PART 3

GEOGRAPHIC POSITIONS

Bucksport to Osceola arc - Continued

STATION	LATITUDE AND LONGITUDE			SECONDS IN METERS	AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE		
												LOGARITHM (METERS)	METERS	FEET
Principal points (cont'd.)														
Langston, 1935 (d.m.)	34	18	31.618		73	12	56.7	253	09	06.3	D 262 (S.C.Geod.S.)	4.038215	10,919.8	35,826
	80	00	09.274		107	16	21.9	287	09	49.3	McKenzie	4.270004	18,621.0	61,092
					152	59	37.4	332	56	25.6	D 17 (S.C.Geod.S.)	4.280550	19,078.8	62,594
					109	17	29.5				Azimuth mark			
Windham, 1935 (d.m.)	34	12	01.394		139	35	40.8	319	32	54.7	D 262 (S.C.Geod.S.)	4.066146	11,645.2	38,206
	80	02	02.898		193	35	01.6	13	36	05.6	Langston	4.092374	12,370.1	40,584
					228	56	54.8				Azimuth mark, D 311 (S.C.Geod.S.)			
D 301 (S.C.Geod.S.), 1935 (d.m.)	34	16	51.203		53	25	23.7	233	20	59.4	Windham	4.175285	14,972.2	49,121
	79	54	13.276		89	52	08.9	269	44	58.1	D 262 (S.C.Geod.S.)	4.291380	19,560.5	64,175
					108	47	52.2	288	44	31.6	Langston	3.982980	9,615.7	31,548
					226	02	30.1				Azimuth mark			
PT 122 (S.C.Geod.S.) eccentric, 1935 (d.m.)	34	07	15.125		144	32	27.9	324	30	10.0	Windham	4.034686	10,831.4	35,536
	79	57	57.474		197	54	09.4	17	56	15.4	D 301 (S.C.Geod.S.)	4.270797	18,655.1	61,204
					33	06	19.3				Azimuth mark			
Experimental, 1935 (d.m.)	34	12	58.841		57	48	17.1	237	42	09.0	PT 122 (S.C.Geod.S.) eccentric	4.297730	19,848.6	65,120
	79	47	02.037		123	00	38.2	302	56	35.5	D 301 (S.C.Geod.S.)	4.119050	13,153.8	43,155
					312	53	03.0				Azimuth mark, L 254 (S.C.Geod.S.)			
Jones, 1935 (d.m.)	34	04	16.571		120	58	16.9	300	54	56.2	PT 122 (S.C.Geod.S.) eccentric	4.029356	10,699.3	35,103
	79	51	59.493		205	19	04.1	25	21	51.0	Experimental	4.250548	17,805.2	58,416
					229	02	32.6				Azimuth mark			

Howe, 1935 (d.m.)	34	07	32.536		58	51	00.4	238	47	22.2	Jones	4.066785	11,662.3	38,262
	79	45	30.250		88	27	12.6	268	20	13.4	PT 122 (S.C.Geod.S.) eccentric	4.282300	19,155.8	62,847
					166	50	48.4	346	49	56.8	Experimental	4.013898	10,325.2	33,875
Effingham, 1935 (d.m.)	34	03	49.115		94	40	58.2	274	37	11.1	Jones	4.018379	10,432.3	34,227
	79	45	14.001		176	32	18.8	356	32	09.7	Howe	3.838629	6,896.5	22,626
					307	04	12.8				Azimuth mark			
Lynch, 1935 (d.m.)	33	58	10.092		136	14	04.5	316	10	08.5	Jones	4.194348	15,644.0	51,325
	79	44	57.480		177	13	32.9	357	13	14.6	Howe	4.239297	17,349.9	56,922
					177	40	38.9	357	40	29.7	Effingham	4.019291	10,454.2	34,298
					357	35	28.6				Azimuth mark			
Leach, 1935 (d.m.)	34	03	17.619		47	21	06.7	227	17	22.7	Lynch	4.145426	13,977.4	45,858
	79	38	17.017		95	13	03.5	275	09	10.0	Effingham	4.030906	10,737.6	35,228
					125	18	05.5	305	14	02.7	Howe	4.133633	13,602.9	44,629
					330	16	55.5				Azimuth mark			
Gun, 1935 (d.m.)	33	58	56.830		81	36	08.8	261	32	37.2	Lynch	3.992387	9,826.2	32,238
	79	38	38.826		183	58	54.6	3	59	06.8	Leach	3.906045	8,054.6	26,426
					75	38	26.6				Azimuth mark			
FL 520 (S.C.Geod.S.) eccentric, 1935 (d.m.)	33	54	07.329		123	40	47.1	303	36	42.8	Lynch	4.130326	13,499.8	44,291
	79	37	39.892		170	22	28.9	350	21	56.0	Gun	3.956512	9,047.2	29,682
					176	47	09.1	356	46	48.3	Leach	4.229979	16,981.6	55,714
					318	38	52.8				Azimuth mark			
Keefe, 1935 (d.m.)	33	59	11.338		44	08	09.4	224	04	52.0	FL 520 (S.C.Geod.S.) eccentric	4.115448	13,045.1	42,799
	79	31	46.321		87	36	52.2	267	33	01.6	Gun	4.025203	10,597.5	34,769
					127	09	21.3	307	05	42.7	Leach	4.099413	12,372.2	41,247
					150	17	52.8				Azimuth mark			
FL 190 (S.C.Geod.S.) eccentric, 1935 (d.m.)	33	52	57.334		98	37	19.1	276	32	08.9	FL 520 (S.C.Geod.S.) eccentric	4.160076	14,456.9	47,431
	79	28	23.559		155	41	49.5	335	39	56.3	Keefe	4.101928	12,645.3	41,487
					275	21	36.2				Azimuth mark			

GEOGRAPHIC POSITIONS

Bucksport to Osceola arc - Continued

STATION	LATITUDE AND LONGITUDE			SECONDS IN METERS	AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE		
	°	'	"		°	'	"	°	'	"		LOGARITHM (METERS)	METERS	FEET
Principal points (cont'd.)														
Evin, 1935 (d.m.)	34	00	42.403		16	13	50.5	196	12	19.9	FL 190 (S.C.Geod.S.) eccentric	4.173853	14,922.9	48,960
	79	25	41.251		73	21	23.4	253	17	59.3	Keefe Azimuth mark	3.990339	9,780.0	32,087
					359	48	55.6							
Eddy, 1935 (d.m.)	33	49	10.533		118	07	48.3	298	01	36.8	FL 520 (S.C.Geod.S.) eccentric	4.288425	19,427.9	63,740
	79	26	33.041		156	31	27.4	336	28	32.7	Keefe	4.305033	20,185.2	66,224
					157	52	56.7	337	51	55.2	PL 190 (S.C.Geod.S.) eccentric	3.877560	7,543.3	24,748
					183	34	02.1	3	34	31.0	Davis	4.329567	21,358.3	70,073
					37	56	50				Azimuth mark			
Altman, 1935 (d.m.)	33	55	22.241		39	08	03.1	219	04	41.2	Eddy	4.169046	14,756.6	48,421
	79	20	30.841		69	51	10.5	249	46	46.9	PL 190 (S.C.Geod.S.) eccentric	4.111927	12,939.8	42,453
					141	05	25.9	321	02	32.5	Davis	4.103161	12,681.2	41,605
					280	48	01.7				Azimuth mark			
Herdwick, 1935 (d.m.)	33	49	14.779		330	36	20.6	150	39	47.4	Salem	4.291029	19,544.7	64,123
	79	12	31.809		89	43	07.1	269	35	18.8	Eddy	4.335143	21,634.3	70,979
					132	38	15.9	312	33	43.9	Altman	4.223393	16,726.0	54,875
					43	31	25.0				Azimuth mark			
G 402 (S.C.Geod.S.) eccentric, 1935 (d.m.)	33	43	35.478		147	58	46.6	327	56	27.0	Eddy	4.085572	12,177.9	39,954
	79	22	21.965		187	28	03.6	7	29	05.5	Altman	4.341673	21,962.1	72,054
					235	24	37.1	55	30	05.2	Herdwick	4.265658	18,435.6	60,484
					313	40	45.1	133	46	22.1	Planter	4.336146	21,684.3	71,143
					123	51	04.0				Azimuth mark			
Elliott, 1935 (d.m.)	33	38	53.551		133	11	45.6	313	08	26.3	G 402 (S.C.Geod.S.) eccentric	4.103517	12,691.6	41,639
	79	16	22.378		197	13	41.3	17	15	49.5	Herdwick	4.301844	20,037.5	65,740
					262	14	43.8	82	20	18.1	Salem	4.195387	15,681.5	51,448
					314	29	40.3	134	31	58.0	Planter	3.953948	8,993.9	29,507
					66	05	12.0				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		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	Taxabaw	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
McBee, municipal water tank, 1935 (n.d.)	34	28	02.019		55	25	43.3	235	21	54.1	Bethune	4.099381	12,571.3	41,244
	80	15	29.043		173	04	09.2	353	03	43.3	Blakely	3.984737	9,654.7	31,675
					229	28	31.8	49	28	45.4	McBee	2.906996	807.2	2,648
Bethune, municipal, silver water tank, 1935 (n.d.)	34	24	58.884		235	29	42.5	55	33	01.5	McBee	4.037230	10,895.1	35,745
	80	20	56.812		49	59	32.6	229	56	47.0	Cassatt	3.990581	9,785.5	32,105
					52	55	31.6	232	54	47.8	Bethune	3.394709	2,481.5	8,141
D 23 (S.C.Geod.S.), 1935 (d.m.)	34	23	27.610		71	50	39.0	251	46	36.2	McKenzie	4.062915	11,558.9	37,923
	80	04	35.288		166	36	49.9	346	36	08.3	D 17 (S.C.Geod.S.)	3.908170	8,094.1	26,555
					323	16	37.0	143	19	07.1	Langston	4.055968	11,375.4	37,321
					244	48	38.5				Azimuth mark			
Hartsville, municipal water tank, 1935 (n.d.)	34	22	19.618		82	24	26.8	262	20	17.1	McKenzie	4.056935	11,400.8	37,404
	80	04	22.865		171	23	11.6	351	23	04.6	D 23 (S.C.Geod.S.)	3.326119	2,118.9	6,952
					317	17	02.6	137	19	25.7	Langston	3.980397	9,558.7	31,361
Darlington, Darlington Manu- facturing Company, stack, 1935 (n.d.)	34	17	56.015		44	11	22.5	224	10	39.8	D 301 (S.C.Geod.S.)	3.444790	2,784.8	9,136
	79	52	57.388		51	59	19.7	231	54	12.7	Windham	4.248621	17,726.4	58,157
					95	42	24.0	275	38	20.6	Langston	4.045254	11,098.2	36,411
Darlington, First Baptist Church, spire, 1935 (n.d.)*	34	17	59.50		56	03	54	236	02	45	D 301 (S.C.Geod.S.)	3.376206	3,769.8	12,365
	79	52	11.03		94	39	49	274	35	19	Langston	4.088818	12,269.2	40,253

* No check on this position

GEOGRAPHIC POSITIONS

Bucksport to Osceola arc - Continued

STATION	LATITUDE AND LONGITUDE			SECONDS IN METERS	AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE		
	°	'	"		°	'	"	°	'	"		LOGARITHM (METERS)	METERS	FEET
Supplementary points (cont'd.)														
Lamar, black water tank, 1935 (n.d.)*	34	10	08.29		159	55	33	339	53	54	D 262 (S.C.Geod.S.) Windham	4.118901	13,149.3	43,141
	80	04	01.55		221	04	33	41	05	40		3.664963	4,623.4	15,169
D 312 (S.C.Geod.S.), 1935 (d.m.)*	34	12	02.232		7	49		187	49		Windham	1.416058	26.065	85.51
	80	02	02.760											
PT 122 (S.C.Geod.S.), 1935 (d.m.)*	34	07	15.626		31	25		211	25		PT 122 (S.C.Geod.S.) eccentric	1.257294	18.084	59.33
	79	57	57.106											
Bench mark Z 29, 1935 (d.m.)*	34	12	59.027		40	57		220	57		Experimental	0.879325	7.574	24.85
	79	47	01.843											
Experimental reference mark no. 1, 1935 (d.m.)*	34	12	59.052		80	55		260	55		Experimental	1.614827	41.199	135.17
	79	47	00.448											
Florence magnetic station, 1935 (d.m.)*	34	12	40.098		223	07	48	43	08	00	Experimental Experimental refer- ence mark no. 1	2.898364	791.3	2,596
	79	47	23.172		224	53	05	44	53	18		2.916081	824.292	2,704.36
Florence, Hardwood Dimension Company, tank, 1935 (n.d.)	34	12	30.735		100	14	46.2	280	14	11.1	Florence magnetic station D 301 (S.C.Geod.S.) Experimental	3.210147	1,622.4	5,323
	79	46	20.807		123	36	49.1	303	32	23.2		4.161709	14,511.4	47,609
Florence, Atlantic Coast Line Railroad yards, twin stacks, east, 1935 (n.d.)	34	12	01.497		129	22	16.4	309	21	53.2	Experimental	3.135204	1,365.2	4,479
	79	45	36.831		358	50	02.9	178	50	06.6		3.918494	8,288.8	27,194
Florence, Atlantic Coast Line Railroad yards, twin stacks, west, 1935 (n.d.)	34	12	01.486		124	04	35.3	303	59	44.7	D 301 (S.C.Geod.S.) Experimental	4.202712	15,948.2	52,323
	79	45	37.059		129	00	52.1	309	00	04.2		3.448259	2,807.1	9,210
	34	12	01.486		358	47	37.2	178	47	41.0	Howe D 301 (S.C.Geod.S.) Experimental	3.918483	8,288.6	27,194
	79	45	37.059		124	05	21.3	304	00	30.8		4.202587	15,943.6	52,308
					129	05	42.4	309	04	54.6		3.447590	2,802.8	9,196

Florence, municipal water tank, 1935 (n.d.)	34	11	54.408		354	15	10.6	174	15	28.4	Howe D 301 (S.C.Geod.S.) Experimental	3.908991	8,109.4	26,606
	79	46	01.939		126	04	01.2	305	59	24.7		4.191662	15,547.6	51,009
Florence, Atlantic Coast Line Railroad yards, coal elevator, 1935 (n.d.)*	34	12	02.23		142	13	49.3	322	13	15.5	Experimental	3.399963	2,511.7	8,240
	79	45	16.94		2	21	01	182	20	54		3.919959	8,316.9	27,286
Florence, court house, spire, 1935 (n.d.)*	34	11	52.61		122	57	44	302	56	44	Experimental	3.506016	3,206.4	10,520
	79	46	05.13		353	38	08	173	38	28		3.906488	8,062.8	26,453
Florence, South Carolina State Bank Building, flagpole, 1935 (n.d.)	34	11	49.047		144	28	56	324	28	24	Experimental	3.399239	2,507.5	8,227
	79	46	06.985		353	12	28.3	173	12	48.9		3.900877	7,959.3	26,113
FL 418 (S.C.Geod.S.) eccentric, 1935 (d.m.)	34	07	56.897		128	53	24.0	308	52	41.1	Florence magnetic station Experimental	3.398936	2,505.7	8,221
	79	38	49.830		146	45	51.0	326	45	20.0		3.410131	2,571.2	8,436
Transit traverse station no. 108 DS (U.S.G.S.), 1935 (d.m.)*	34	07	55.611		85	50	49.9	265	47	05.3	Howe Experimental	4.012324	10,287.8	33,753
	79	38	51.415		126	28	01.3	306	23	24.8		4.194987	15,667.1	51,401
FL 418 (S.C.Geod.S.), 1935 (d.m.)*	34	07	57.658		225	42		45	42		FL 418 (S.C.Geod.S.) eccentric	1.753997	56.754	186.20
	79	38	49.311		29	33		209	33			1.430865	26.969	88.48
Transit traverse station no. 99 DS (U.S.G.S.), 1935 (d.m.)*	34	04	16.500		199	28		19	28		Jones	0.364739	2.316	7.60
	79	51	59.523											
FL 40 (S.C.Geod.S.), 1935 (d.m.)*	33	58	09.316		213	14		33	14		Lynch	1.456260	28.593	93.81
	79	44	58.090											
Primary traverse station no. 4 J (U.S.G.S.), 1935 (d.m.)*	33	58	11.277		69	13	36	249	13	34	Lynch	2.012436	102.905	337.61
	79	44	53.732											
Airway beacon no. 28 (Jacksonville-Richmond), 1935 (n.d.)	34	03	52.527		280	15	40.3	100	15	53.0	Effingham Lynch Jones	2.770954	590.1	1,936
	79	45	36.646		354	33	22.5	174	33	44.4		4.025244	10,598.5	34,772
					94	20	42.9	274	17	08.5		3.993220	9,845.1	32,300

* No check on this position

GEOGRAPHIC POSITIONS

Bucksport to Osceola arc - Continued

STATION	LATITUDE AND LONGITUDE			SECONDS IN METERS	AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE		
												LOGARITHM (METERS)	METERS	FEET
Supplementary points (cont'd.)														
FL 520 (S.C.Geod.S.), 1935 (d.m.)*	33 54 08.405 79 37 40.883			322 27	142 27	FL 520 (S.C.Geod.S.) eccentric	1.621135	41.796	137.13					
FL 199 (S.C.Geod.S.), 1935 (d.m.)*	33 49 09.614 79 26 33.172			186 47	6 47	Eaddy	1.454921	28.505	93.52					
FL 190 (S.C.Geod.S.), 1935 (d.m.)*	33 52 57.146 79 28 22.489			101 54	281 54	FL 190 (S.C.Geod.S.) eccentric	1.448598	28.093	92.17					
Primary traverse station no. 16 J (U.S.G.S.), 1935 (d.m.)	33 46 37.977 79 19 27.491			174 14 50.7 245 39 15.1 13 28 15.1	354 14 15.4 65 43 06.3	Altman Hardwick Azimuth mark	4.210440 4.069424	16,234.5 11,735.4	53,263 38,495					
Fire tower, 1935 (n.d.)*	33 51 45.36 79 19 47.22			356 55 57 170 28 49	176 56 08 350 28 25	Primary traverse sta- tion no. 16 J (U.S.G.S.) Altman	3.976993 3.830946	9,484.0 6,775.6	31,115 22,230					
G 402 (S.C.Geod.S.), 1935 (d.m.)*	33 43 35.770 79 22 22.105			339 11	158 11	G 402 (S.C.Geod.S.) eccentric	0.986459	9.693	31.80					
Bench mark Q 15, 1932, r. 1935 (d.m.)*	33 35 29.721 79 12 13.292			28 45	208 45	Planter	1.411131	25.771	84.55					

U. S. COAST AND GEODETIC SURVEY

GEOGRAPHIC POSITIONS

Norfolk, Va. to Savannah, Ga. traverse

STATION	LATITUDE AND LONGITUDE			SECONDS IN METERS	AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE		
												LOGARITHM (METERS)	METERS	FEET
Principal points														
Light (N.C.), 1918, r. 1933 (d.m.)	34 49 44.900 79 45 21.613													
Osborne, 1918 (d.m.)	34 47 50.809 79 46 21.218			203 18 24.2	23 18 58.2	Light	3.5829955	3,828.21	12,559.7					
Fulton, 1918 (d.m.)	34 46 10.113 79 48 33.509			227 17 49.1	47 19 04.6	Osborne	3.6605021	4,576.17	15,013.7					
Kollock, 1918 (d.m.)	34 44 57.080 79 49 10.900			202 54 10.7	22 54 32.0	Fulton	3.3879528	2,443.17	8,015.6					
Yadkin, 1918 (d.m.)	34 41 40.538 79 52 42.941			221 40 43.3	41 42 44.1	Kollock	3.9090714	8,110.94	26,610.6					
Cheraw, 1918, r. 1919 (d.m.)	34 41 08.320 79 54 00.117			243 10 59.4	63 11 43.3	Yadkin	3.3426195	2,201.00	7,221.1					
Kalb, 1918 (d.m.)	34 39 11.343 79 58 06.787			240 07 35.5	60 09 55.8	Cheraw	3.8598067	7,241.14	23,757.0					
Gillespie, 1918 (d.m.)	34 37 02.970 79 59 40.774			211 10 25.6	31 11 19.1	Kalb	3.6649344	4,623.64	15,169.4					
Sutter, 1918 (d.m.)	34 35 17.480 80 01 07.716			214 16 05.2	34 16 54.5	Gillespie	3.5948006	3,933.70	12,905.8					
Patrick, 1918 (d.m.)	34 34 33.986 80 02 40.664			240 29 36.8	60 30 29.6	Sutter	3.4348541	2,721.79	8,929.7					

TRANGULATION IN SOUTH CAROLINA, PART 3

GEOGRAPHIC POSITIONS

Norfolk, Va. to Savannah, Ga. traverse - Continued

STATION	LATITUDE AND LONGITUDE			SECONDS IN METERS	AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE		
	°	'	"		°	'	"	°	'	"		LOGARITHM (METERS)	METERS	FEET
Principal points (cont'd.)														
Cane, 1918 (d.m.)	34	33	49.758		225	02	59.8	45	03	30.2	Patrick	3.2853636	1,929.14	6,329.2
	80	03	34.229											
Thierry, 1918 (d.m.)	34	33	53.426		271	43	05.2	91	44	28.5	Cane	3.5734602	3,745.07	12,287.0
	80	06	01.074											
Chateau, 1918 (d.m.)	34	33	18.484		247	55	21.7	67	56	20.8	Thierry	3.4572299	2,865.70	9,401.9
	80	07	45.247											
Mid, 1918 (d.m.)	34	31	56.136		212	20	00.5	32	20	36.2	Chateau McBee	3.4775887 4.0685577	3,003.23 11,710.02	9,853.1 38,418.6
	80	08	48.250											
Shepard, 1918 (d.m.)	34	19	21.968		248	19	37.8	68	23	25.2	Cassatt	4.0446586	11,083.03	36,361.6
	80	32	33.162											
Camden, 1918 (d.m.)	34	16	05.080		221	48	29.5	41	50	29.1	Shepard	3.9106800	8,141.04	26,709.4
	80	36	05.446											
Lugoff, 1918 (d.m.)	34	12	31.143		236	29	45.1	56	33	24.3	Camden Blaney	4.0774187 3.9347640	11,951.40 8,605.26	39,210.6 28,232.4
	80	42	35.000											
Pontiac, 1918 (d.m.)	34	07	08.320		234	11	24.5	54	14	23.0	Blaney Weddell	4.0017630 3.5663246	10,040.68 3,684.04	32,941.8 12,086.7
	80	52	48.921											
Columbia, 1918 (d.m.)	34	00	14.692		221	26	49.8	41	28	38.4	Nob	3.8763567	7,522.41	24,679.8
	81	02	05.469											
Top, 1913, r. 1919 (d.m.)	33	50	07.541		197	26	40.2	17	28	48.1	Columbia	4.2924846	19,610.32	64,338.2
	81	05	54.558											

U. S. COAST AND GEODETIC SURVEY

TRIANGULATION IN SOUTH CAROLINA, PART 3

41

Supplementary points														
Osborne I (N.C.), 1918 (d.m.)	34	49	42.352		166	10	23.1	346	10	22.7	Light	1.9076518	80.85	265.3
	79	45	20.852											
Osborne H (N.C.), 1918, p.l. 1933 (d.m.)	34	49	35.706		214	59	25.6	34	59	28.8	Osborne I	2.3979231	249.99	820.2
	79	45	26.494											
Osborne G (N.C.), 1918, p.l. 1933 (d.m.)	34	49	31.205		204	53	57.5	24	54	01.9	Light	2.6676976	465.26	1,526.4
	79	45	29.322											
	207	23	09.8											
			212	04	01.0	32	04	05.8	Osborne I	2.6078412	405.36	1,329.9		
Osborne F (N.C.), 1918, r. 1933 (d.m.)	34	49	11.254		189	28	50.6	9	28	52.9	Osborne G	2.7946882	623.29	2,044.9
	79	45	33.362											
Osborne E (N.C.), 1918, p.l. 1933 (d.m.)	34	48	58.323		211	26	18.9	31	26	24.4	Osborne F	2.6693768	467.06	1,532.3
	79	45	42.947											
Osborne D (N.C.), 1918, r. 1933 (d.m.)	34	48	51.208		196	54	29.5	16	54	31.0	Osborne E	2.3601327	229.16	751.8
	79	45	45.570											
Osborne C (N.C.), 1918, p.l. 1933 (d.m.)	34	48	39.174		171	46	11.6	351	46	10.4	Osborne D	2.5736654	374.68	1,229.3
	79	45	43.459											
Osborne B (N.C.), 1918, p.l. 1933 (d.m.)	34	48	33.391		180	58	26.9	0	58	27.0	Osborne C	2.2509573	178.22	584.7
	79	45	43.579											
Osborne A, 1918 (d.m.)	34	47	54.468		196	38	16.5	16	38	24.6	Osborne B	3.0975398	1,251.81	4,107.0
	79	45	57.680											
Fulton G, 1918 (d.m.)	34	47	48.436		98	02	01.8	278	01	50.1	Osborne	2.7187955	523.35	1,717.0
	79	46	00.833											
Fulton F, 1918 (d.m.)	34	47	21.627		183	11	58.5	3	11	59.6	Osborne	2.9545629	900.66	2,954.9
	79	46	23.196											
Fulton E, 1918 (d.m.)	34	47	17.247		239	58	05.3	59	58	10.6	Fulton F	2.4308695	269.69	884.8
	79	46	32.380											
Fulton D, 1918 (d.m.)	34	47	14.010		257	18	26.7	77	18	36.7	Fulton E	2.6570342	453.98	1,489.4
	79	46	49.800											

GEOGRAPHIC POSITIONS

Norfolk, Va. to Savannah, Ga. traverse - Continued

U. S. COAST AND GEODETIC SURVEY

STATION	LATITUDE AND LONGITUDE			SECONDS IN METERS	AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE		
	°	'	"		°	'	"	°	'	"		LOGARITHM (METERS)	METERS	FEET
Supplementary points (cont'd.)														
Fulton C, 1918 (d.m.)	34	46	54.160		234	39	40.3	54	39	59.6	Fulton D	3.0243157	1,057.59	3,469.8
	79	47	23.734											
Fulton B, 1918 (d.m.)	34	46	47.006		206	46	26.1	26	46	28.6	Fulton C	2.3925581	246.92	810.1
	79	47	28.109											
Fulton A, 1918 (d.m.)	34	46	20.068		186	52	03.1	6	52	05.3	Fulton B	2.9222496	836.08	2,743.0
	79	47	32.040		78	54	06.2	258	53	31.1	Fulton	3.2021896	1,592.90	5,226.1
Kollock D, 1918 (d.m.)	34	46	07.300		256	21	44.0	76	21	52.1	Fulton	2.5654236	367.64	1,206.2
	79	48	47.559											
Kollock C, 1918 (d.m.)	34	46	03.354		235	31	38.0	55	31	41.9	Kollock D	2.3322153	214.89	705.0
	79	48	54.526											
Kollock B, 1918 (d.m.)	34	45	32.409		215	22	56.5	35	23	11.7	Kollock C	3.0680387	1,169.60	3,837.3
	79	49	21.157		346	31	22.7	166	31	28.5	Kollock	3.0490118	1,119.47	3,672.8
Kollock A, 1918 (d.m.)	34	45	04.521		165	21	07.8	345	21	02.7	Kollock B	2.9485232	888.23	2,914.1
	79	49	12.325		351	00	49.1	171	00	49.9	Kollock	2.3657637	232.15	761.6
Yadkin C, 1918 (n.d.)	34	44	50.305		207	03	27.4	27	03	32.4	Kollock A	2.6918772	491.90	1,613.8
	79	49	21.123		231	14	25.2	51	14	31.0	Kollock	2.5230445	333.46	1,094.0
Yadkin B, 1918, r. 1935 (d.m.)	34	43	31.915		207	03	03.7	27	03	31.3	Yadkin C	3.4333508	2,712.38	8,898.9
	79	50	09.619											
Yadkin A, 1918 (d.m.)	34	42	57.795		245	41	55.8	65	42	48.0	Yadkin B	3.4074816	2,555.53	8,384.3
	79	51	41.161											

Cheraw F, 1918 (d.m.)	34	42	12.698		232	19	05.9	52	19	46.1	Yadkin A	3.3567172	2,273.62	7,459.4
	79	52	51.876											
Cheraw E, 1918 (d.m.)	34	42	00.896		207	25	29.4	27	25	33.6	Cheraw F	2.6125093	409.74	1,344.3
	79	52	59.291		326	26	27.9	146	26	37.2	Yadkin	2.8766770	752.80	2,469.8
Cheraw D, 1918, r. 1919 (d.m.)	34	41	47.296		146	37	46.0	326	37	39.8	Cheraw E	2.7005159	501.78	1,646.3
	79	52	48.446		326	04	10.9	146	04	14.0	Yadkin	2.3997096	251.02	823.6
Cheraw C, 1918 (d.m.)	34	41	35.725		209	54	53.7	29	54	58.3	Cheraw D	2.6142490	411.39	1,349.7
	79	52	56.507											
Cheraw B, 1918, r. 1919 (d.m.)	34	41	26.133		230	55	25.4	50	55	33.5	Cheraw C	2.6710653	468.88	1,538.3
	79	53	10.808											
Cheraw A, 1918 (d.m.)	34	41	20.479		252	28	10.1	72	28	22.4	Cheraw B	2.7622991	578.49	1,897.9
	79	53	32.480		61	57	46.4	241	57	30.7	Cheraw	2.9014702	977.02	3,205.4
Kalb G, 1918 (d.m.)	34	40	38.013		241	18	20.4	61	18	58.6	Cheraw	3.2890171	1,945.44	6,382.7
	79	55	07.158											
Kalb F, 1918 (d.m.)	34	40	14.336		241	05	52.2	61	06	21.7	Kalb C	3.1788862	1,509.68	4,953.0
	79	55	59.074											
Kalb E, 1918 (d.m.)	34	40	16.421		274	51	31.7	94	51	48.6	Kalb F	2.8795612	757.81	2,486.2
	79	56	28.732											
Kalb D, 1918 (d.m.)	34	39	53.364		224	49	19.6	44	49	35.4	Kalb E	3.0007428	1,001.71	3,286.4
	79	56	56.467											
Kalb C, 1918 (d.m.)	34	39	38.160		251	04	41.9	71	05	11.2	Kalb D	3.1423724	1,387.95	4,553.6
	79	57	48.033											
Kalb B, 1918 (d.m.)	34	39	19.718		224	48	16.3	44	48	29.3	Kalb C	2.9175394	827.07	2,713.5
	79	58	10.922		337	48	03.9	157	48	06.2	Kalb	2.4451486	278.71	914.4
Kalb A, 1918 (d.m.)	34	39	12.526		200	31	55.1	20	31	57.0	Kalb B	2.3741047	236.65	776.4
	79	58	14.182		280	56	59.5	100	57	03.7	Kalb	2.2828396	191.80	629.3

TRIANGULATION IN SOUTH CAROLINA, PART 3

GEOGRAPHIC POSITIONS

Norfolk, Va. to Savannah, Ga. traverse - Continued

STATION	LATITUDE AND LONGITUDE			SECONDS IN METERS	AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE		
	°	'	"		°	'	"	°	'	"		LOGARITHM (METERS)	METERS	FEET
Supplementary points (cont'd.)														
Gillespie D, 1918 (d.m.)	34	38	57.932		168	59	50.3	348	59	48.4	Kalb A	2.6609689	458.11	1,503.0
	79	58	10.748		193	43	01.8	13	43	04.1	Kalb	2.6287842	425.39	1,395.6
Gillespie C, 1918 (d.m.)	34	37	55.876		204	11	24.4	24	11	43.6	Gillespie D	3.3214547	2,096.31	6,877.6
	79	58	44.479											
Gillespie B, 1918, r. 1919 (d.m.)	34	37	54.008		230	19	10.1	50	19	28.2	Gillespie C	3.0234150	1,055.40	3,462.6
	79	59	16.368		33	01	42.8	213	01	28.9	Gillespie	3.0571787	1,140.72	3,742.5
Gillespie A, 1918, r. 1919 (d.m.)	34	37	13.120		229	52	30.9	49	52	48.0	Gillespie B	2.9994785	998.80	3,276.9
	79	59	46.349		335	34	21.9	155	34	25.1	Gillespie	2.5359242	343.50	1,127.0
Sutter D, 1918 (d.m.)	34	36	54.848		211	41	55.5	31	42	03.2	Gillespie A	2.8207130	661.78	2,171.2
	79	59	59.999		242	55	49.1	62	56	00.0	Gillespie	2.7404018	550.05	1,804.6
Sutter C, 1918, r. 1919 (d.m.)	34	36	41.639		211	44	38.1	31	44	43.7	Sutter D	2.6799960	478.63	1,570.3
	80	00	09.883											
Geary A, 1918 (d.m.)	34	36	25.916		183	33	20.6	3	33	21.2	Sutter C	2.6861182	485.42	1,592.6
	80	00	11.065											
Sutter A, 1918 (d.m.)	34	35	51.736		214	29	52.8	34	30	08.9	Geary A	3.1065207	1,277.97	4,192.8
	80	00	39.473		34	17	21.3	214	17	05.3	Sutter	3.1063883	1,277.58	4,191.5
Thierry B, 1918 r. 1919 (d.m.)	34	33	52.752		271	38	39.3	91	39	50.4	Cane	3.5046211	3,196.11	10,485.9
	80	05	39.553											
Thierry A, 1918 (d.m.)	34	33	49.951		256	40	44.1	76	40	52.2	Thierry B	2.5735527	374.59	1,229.0
	80	05	53.852		120	11	13.4	300	11	09.3	Thierry	2.3283102	212.97	698.7

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Chateau E, 1918, r. 1919 (d.m.)	34	33	36.135		234	12	46.9	54	13	00.1	Thierry A	2.8621511	728.03	2,388.5
	80	06	17.019		217	20	26.0	37	20	35.1	Thierry	2.8261785	670.16	2,198.7
Chateau D, 1918 (d.m.)	34	33	39.236		281	17	56.6	101	18	07.2	Chateau E	2.6879728	487.50	1,599.4
	80	06	35.771		243	41	29.7	63	41	49.4	Thierry	2.9941895	986.71	3,237.2
Chateau C, 1918, r. 1919 (d.m.)	34	33	35.166		243	29	15.7	63	29	21.3	Chateau D	2.4486352	280.95	921.8
	80	06	45.633											
Chateau B, 1918 (d.m.)	34	33	18.638		221	03	47.4	41	03	57.3	Chateau C	2.8296106	675.48	2,216.1
	80	07	03.038		89	45	03.5	269	44	39.5	Chateau	3.0318599	1,076.12	3,530.6
Chateau A, 1918, r. 1919 (d.m.)	34	33	14.832		253	23	40.6	73	23	49.3	Chateau B	2.6131333	410.33	1,346.2
	80	07	18.462		99	21	29.7	279	21	14.5	Chateau	2.8401701	692.10	2,270.7
Mid E, 1918 (d.m.)	34	33	05.075		236	33	39.2	56	33	49.3	Chateau A	2.7369014	545.63	1,790.1
	80	07	36.320		151	09	14.0	331	09	08.9	Chateau	2.6736742	471.71	1,547.6
Mid D, 1918, l. 1919 (d.m.)	34	32	59.699		236	34	06.2	56	34	11.8	Mid E	2.4780987	300.68	986.5
	80	07	46.162											
Mid C, 1918, r. 1919 (d.m.)	34	32	53.653		249	28	19.7	69	28	30.8	Mid D	2.7253308	531.29	1,743.1
	80	08	05.677											
Mid B, 1918 (d.m.)	34	32	38.656		223	58	13.1	43	58	23.0	Mid C	2.8076196	642.13	2,106.7
	80	08	23.162											
Mid A, 1918 (d.m.)	34	32	08.766		242	10	31.7	62	11	10.5	Mid B	3.2952518	1,973.57	6,474.9
	80	09	31.613											
McBee F, 1918 (d.m.)	34	32	00.631		224	14	53.9	44	14	59.4	Mid A	2.5439638	349.92	1,148.0
	80	09	41.188		275	51	15.1	95	51	45.1	Mid	3.1326054	1,357.08	4,452.4
McBee E, 1918 (d.m.)	34	31	30.593		204	53	39.8	24	53	49.3	McBee F	3.0087751	1,020.41	3,347.8
	80	09	58.031		246	08	10.2	66	08	49.7	Mid	3.2891215	1,945.90	6,384.2
McBee D, 1918 (d.m.)	34	30	57.624		223	10	28.0	43	10	49.1	McBee E	3.1439708	1,393.06	4,570.4
	80	10	35.404											

TRIANGULATION IN SOUTH CAROLINA, PART 3

GEOGRAPHIC POSITIONS

Norfolk, Va. to Savannah, Ga. traverse - Continued

STATION	LATITUDE AND LONGITUDE			SECONDS IN METERS	AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE		
												LOGARITHM (METERS)	METERS	FEET
Supplementary points (cont'd.)														
McBee C, 1918 (n.d.)	34 30 49.520	80 11 14.291		255 51 53.3			75 52 15.4			McBee D	3.0098131	1,022.85	3,355.8	
McBee B, 1918 (d.m.)	34 30 51.916	80 11 53.080		274 15 52.4			94 16 14.4			McBee C	2.9965773	992.15	3,255.1	
McBee A, 1918 (d.m.)	34 29 58.359	80 13 40.818		239 00 30.7			59 01 31.8			McBee B	3.5059282	3,205.74	10,517.5	
Bethune J, 1918 (d.m.)	34 29 22.230	80 14 54.582		239 23 16.7			59 23 58.5			McBee A	3.3397645	2,186.58	7,173.8	
				7 46 30.1			187 46 24.2			McBee	3.2933879	1,965.11	6,447.2	
Bethune I, 1918 (d.m.)	34 28 07.014	80 15 29.806		201 11 41.7			21 12 01.6			Bethune J	3.3954727	2,485.84	8,155.6	
				239 39 17.0			59 39 31.0			McBee	2.8654451	733.58	2,406.8	
Bethune H, 1918 (d.m.)	34 27 45.901	80 15 39.506		200 49 59.9			20 50 05.4			Bethune I	2.8426586	696.08	2,283.7	
Bethune G, 1918, l. 1935 (d.m.)	34 26 44.000	80 16 27.366		212 38 08.7			32 38 35.8			Bethune H	3.3550826	2,265.08	7,431.3	
Bethune F, 1918 (n.d.)	34 26 39.150	80 16 36.362		236 56 38.2			56 56 43.3			Bethune G	2.4377506	274.00	898.9	
Bethune E, 1918 (d.m.)	34 26 35.171	80 17 14.853		262 53 09.2			82 53 31.0			Bethune F	2.9957401	990.24	3,248.8	
Bethune D, 1918, l. 1919 (d.m.)	34 26 02.589	80 18 59.472		249 23 38.8			69 24 30.0			Bethune E	3.4553648	2,853.41	9,361.6	
Bethune C, 1918, p.l. 1919 (d.m.)	34 26 00.936	80 19 02.834		239 13 45.8			59 13 47.7			Bethune D	1.9982550	99.60	326.8	

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Bethune B, 1918 (d.m.)	34 25 31.657	80 19 42.431		228 15 41.4			48 16 03.8			Bethune C	3.1320088	1,355.22	4,446.3
Bethune A, 1918, l. 1935 (d.m.)	34 25 01.503	80 20 38.015		236 47 09.7			56 47 41.1			Bethune B	3.2295403	1,696.45	5,565.8
				57 20 43.3			237 19 48.9			Bethune	3.4656420	2,921.74	9,585.7
Cassatt F, 1918 (d.m.)	34 23 58.335	80 22 35.502		235 39 10.0			55 39 22.0			Bethune	2.8162844	655.07	2,149.2
Cassatt E, 1918 (d.m.)	34 23 30.167	80 23 17.842		231 14 55.4			51 15 19.4			Cassatt F	3.1419791	1,386.69	4,549.5
Cassatt D, 1918 (d.m.)	34 23 22.780	80 24 22.557		262 09 17.4			82 09 53.9			Cassatt E	3.2223882	1,668.74	5,474.9
Cassatt C, 1918, l. 1934 (d.m.)	34 23 05.971	80 24 42.102		223 57 02.3			43 57 13.3			Cassatt D	2.8569849	719.42	2,360.3
Cassatt B, 1918 (d.m.)	34 22 57.809	80 25 05.074		246 48 01.3			66 48 14.3			Cassatt C	2.8051446	638.48	2,094.7
				24 11 00.9			204 10 35.5			Cassatt	3.4486754	2,809.80	9,218.5
Cassatt A, 1918, r. 1919 (d.m.)	34 21 57.035	80 25 52.023		212 38 18.9			32 38 45.4			Cassatt B	3.3471051	2,223.85	7,296.1
				355 58 09.6			175 58 10.7			Cassatt	2.8403483	692.39	2,271.6
Shepard I, 1918 (d.m.)	34 21 42.360	80 26 20.886		238 29 10.8			58 29 27.1			Cassatt A	2.9370854	865.14	2,838.4
				286 52 17.8			106 52 35.1			Cassatt	2.9146768	821.63	2,695.6
Shepard H, 1918, r. 1919 (d.m.)	34 21 25.381	80 26 54.233		238 27 01.4			58 27 20.2			Shepard I	2.9999730	999.94	3,280.6
Shepard G, 1918, r. 1919 (d.m.)	34 21 12.597	80 28 00.500		256 54 01.4			76 54 38.8			Shepard H	3.2402292	1,738.72	5,704.3
Shepard F, 1918, r. 1919 (d.m.)	34 21 01.886	80 28 26.345		243 26 55.0			63 27 09.6			Shepard G	2.8682734	738.37	2,422.5
Shepard E, 1918, r. 1919 (d.m.)	34 20 50.819	80 29 09.987		252 59 47.5			73 00 12.1			Shepard F	3.0668319	1,166.36	3,826.6

TRIANGULATION IN SOUTH CAROLINA, PART 3

GEOGRAPHIC POSITIONS

Norfolk, Va. to Savannah, Ga. traverse - Continued

STATION	LATITUDE AND LONGITUDE			SECONDS IN METERS	AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE		
												LOGARITHM (METERS)	METERS	FEET
Supplementary points (cont'd.)														
Shepard D, 1918, r. 1919 (d.m.)	34 20 47.821 80 29 16.937			242 31 14.7	62 31 18.6	Shepard E	2.3014858	200.21	656.9					
Shepard C, 1918, r. 1919 (d.m.)	34 20 23.995 80 29 52.956			231 25 38.5	51 25 58.8	Shepard D	3.0709550	1,177.48	3,863.1					
Shepard B, 1918 (d.m.)	34 20 16.615 80 31 23.959			263 39 30.9	83 40 22.2	Shepard C	3.3692890	2,340.39	7,678.4					
Shepard A 1918 (d.m.)	34 19 41.073 80 32 07.363			226 11 13.5 48 15 07.6	46 11 38.0 228 14 53.1	Shepard B Shepard	3.1868027 2.9464867	1,537.46 884.07	5,044.2 2,900.5					
Camden E, 1918, r. 1919 (d.m.)	34 18 33.505 80 33 33.110			225 44 32.0	45 45 05.8	Shepard	3.3303896	2,139.88	7,020.6					
Camden D, 1918, r. 1919 (d.m.)	34 17 59.749 80 33 52.351			205 18 52.3	25 19 03.1	Camden E	3.0609252	1,150.60	3,774.9					
Camden C, 1918, r. 1919 (d.m.)	34 17 30.207 80 34 17.536			215 16 47.1	35 17 01.3	Camden D	3.0472990	1,115.06	3,658.3					
Camden B, 1918 (d.m.)	34 17 09.520 80 34 49.926			232 25 13.1	52 25 31.3	Camden C	3.0192298	1,045.27	3,429.4					
Camden A, 1918 (d.m.)	34 16 31.716 80 35 18.950			212 30 31.6 55 23 47.5	32 30 47.9 235 23 21.4	Camden B Camden	3.1402758 3.1598997	1,381.26 1,445.11	4,531.7 4,741.2					
Lugoff J, 1918 (d.m.)	34 16 07.889 80 36 38.313			250 06 45.7 275 52 35.3	70 07 30.5 95 52 53.8	Camden A Camden	3.3342247 2.9269924	2,158.96 845.26	7,082.9 2,773.2					

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Lugoff I, 1918 (d.m.)	34 15 46.975 80 36 59.497			220 03 41.3	40 03 53.2	Lugoff J	2.9253116	842.00	2,762.5
Lugoff H, 1918 (d.m.)	34 15 20.185 80 36 51.708			166 25 43.3	346 25 39.0	Lugoff I	2.9290044	849.19	2,786.1
Lugoff G, 1918 (d.m.)	34 15 07.446 80 37 01.144			211 35 47.1	31 35 52.4	Lugoff H	2.6635294	460.82	1,511.9
Lugoff F, 1918 (d.m.)	34 14 43.259 80 37 52.466			240 25 15.4	60 25 44.3	Lugoff G	3.1789646	1,509.96	4,953.9
Lugoff E, 1918 (d.m.)	34 14 34.471 80 38 11.686			241 09 52.6	61 10 03.4	Lugoff F	2.7492995	561.44	1,842.0
Lugoff D, 1918 (d.m.)	34 14 00.290 80 38 59.863			229 29 27.4	49 29 54.5	Lugoff E	3.2099135	1,621.49	5,319.8
Lugoff C, 1918, r. 1935 (d.m.)	34 13 48.460 80 39 19.413			233 55 22.5	53 55 33.5	Lugoff D	2.7917306	619.06	2,031.0
Lugoff B, 1918 (d.m.)	34 12 38.062 80 41 12.961			233 15 24.7	53 16 28.6	Lugoff C	3.5595036	3,626.63	11,898.4
Lugoff A, 1918 (d.m.)	34 12 20.568 80 42 15.091			251 16 26.5 122 35 32.8	71 17 01.4 302 35 21.6	Lugoff B Lugoff	3.2251513 2.7817080	1,679.39 604.93	5,509.8 1,984.7
Blaney H, 1918, l. 1919 (d.m.)	34 12 36.341 80 42 35.777			312 32 27.6 352 54 56.3	132 32 39.3 172 54 56.7	Lugoff A Lugoff	2.8565972 2.2078712	718.78 161.39	2,358.2 529.5
Blaney G, 1918 (d.m.)	34 12 35.152 80 43 16.540			267 59 13.0 276 37 22.8	87 59 36.0 96 37 46.3	Blaney H Lugoff	3.0187641 3.0296171	1,044.15 1,070.58	3,425.7 3,512.4
Blaney F, 1918 (d.m.)	34 12 04.494 80 43 54.734			225 59 08.2	45 59 29.7	Blaney G	3.1334042	1,359.58	4,460.6
Blaney E, 1918, r. 1919 (d.m.)	34 11 39.724 80 44 16.397			216 00 18.5	36 00 30.7	Blaney F	2.9747249	943.46	3,095.3

TRIANGULATION IN SOUTH CAROLINA PART 3

GEOGRAPHIC POSITIONS

Norfolk, Va. to Savannah, Ga. traverse - Continued

STATION	LATITUDE AND LONGITUDE			SECONDS IN METERS	AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE		
	°	'	"		°	'	"	°	'	"		LOGARITHM (METERS)	METERS	FEET
Supplementary points (cont'd.)														
Blaney D, 1918, r. 1919 (d.m.)	34	10	58.450		208	37	12.7	28	37	27.9	Blaney E	3.1610033	1,448.78	4,753.2
	80	44	43.500											
Blaney C, 1918, r. 1919 (d.m.)	34	10	45.496		248	30	11.4	68	30	33.6	Blaney D	3.0371529	1,099.31	3,573.8
	80	45	23.080											
Blaney B, 1918, r. 1919 (d.m.)	34	10	30.154		247	37	40.8	67	38	06.1	Blaney C	3.0941601	1,242.11	4,075.2
	80	46	07.932											
Blaney A, 1918 (d.m.)	34	10	26.212		266	03	03.5	86	03	42.1	Blaney B	3.2470857	1,766.39	5,795.2
	80	47	16.740											
Pontiac J, 1918 (d.m.)	34	10	00.232		241	54	18.9	61	54	42.5	Blaney	3.0862854	1,219.79	4,001.9
	80	48	13.004											
Pontiac I, 1918 (d.m.)	34	09	54.515		253	37	00.8	73	37	13.9	Pontiac J	2.7955303	624.50	2,048.9
	80	48	36.396											
Pontiac H, 1918 (d.m.)	34	09	15.116		221	36	23.6	41	36	47.2	Pontiac I	3.2104822	1,623.61	5,326.8
	80	49	18.488											
Pontiac G, 1918 (d.m.)	34	08	57.233		235	06	08.0	55	06	25.3	Pontiac H	2.9837043	963.17	3,160.0
	80	49	49.326											
Pontiac F, 1918 (d.m.)	34	08	46.796		208	18	52.8	28	18	56.6	Pontiac G	2.5626438	365.30	1,198.5
	80	49	56.090											
Pontiac E, 1918 (d.m.)	34	08	32.109		224	35	08.5	44	35	18.3	Pontiac F	2.8030670	635.43	2,084.7
	80	50	13.501											

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Pontiac D, 1918 (d.m.)	34	08	03.716		191	43	11.1	11	43	15.1	Pontiac E	2.9510689	893.45	2,931.3
	80	50	20.584											
Pontiac C, 1918 (d.m.)	34	07	58.097		253	10	54.6	73	11	07.1	Pontiac D	2.7770322	598.46	1,963.4
	80	50	42.942											
Pontiac B, 1918 (d.m.)	34	07	46.353		240	07	05.4	60	07	19.2	Pontiac C	2.8611268	726.32	2,382.9
	80	51	07.520											
Pontiac A, 1918 (d.m.)	34	07	41.651		264	45	58.9	84	46	33.6	Pontiac B	3.2013076	1,589.67	5,215.4
	80	52	09.300											
Weddell E, 1918, r. 1919 (d.m.)	34	07	01.640		235	27	01.6	55	27	08.1	Pontiac	2.5593037	362.91	1,190.6
	80	53	00.585											
Weddell D, 1918, r. 1919 (d.m.)	34	06	43.761		243	08	29.6	63	08	53.4	Weddell E	3.0861736	1,219.49	4,000.9
	80	53	43.036											
Weddell C, 1918, r. 1919 (d.m.)	34	06	21.445		226	14	51.8	46	15	07.5	Weddell D	2.9975327	994.34	3,262.3
	80	54	11.061											
Weddell B, 1918, r. 1919 (d.m.)	34	06	06.288		244	54	23.9	64	54	45.7	Weddell C	3.0418887	1,101.26	3,613.1
	80	54	49.971											
Weddell A, 1918, r. 1919 (d.m.)	34	06	05.763		228	57	06.6	48	57	07.0	Weddell B	1.3920811	24.67	90.9
	80	54	50.697											
Nob H, 1918, r. 1919 (d.m.)	34	05	44.559		228	56	19.3	48	56	35.7	Weddell A	2.9976638	994.64	3,263.2
	80	55	19.955											
Nob G Prime, 1918 (d.m.)	34	05	14.727		213	37	37.2	33	37	50.6	Nob H	3.0429439	1,103.94	3,621.8
	80	55	43.804											
Nob G, 1918 (d.m.)	34	04	58.467		235	57	14.6	55	57	51.0	Weddell	3.3032970	2,010.47	6,596.0
	80	56	12.967											
Nob F, 1918 (d.m.)	34	04	21.977		223	05	12.4	43	05	35.3	Nob G	3.1873969	1,539.56	5,051.0
	80	56	53.987											

TRIANGULATION IN SOUTH CAROLINA, PART 3

GEOGRAPHIC POSITIONS

Norfolk, Va. to Savannah, Ga. traverse - Continued

STATION	LATITUDE AND LONGITUDE			SECONDS IN METERS	AZIMUTH			BACK AZIMUTH			TO STATION	DISTANCE		
												LOGARITHM (METERS)	METERS	FEET
Supplementary points (cont'd.)														
Nob E, 1918 (d.m.)	34	04	08.340		211	45	10.6	31	45	16.3	Nob F	2.6938271	494.11	1,621.1
	80	57	04.128											
Nob D, 1918 (d.m.)	34	03	52.894		229	20	13.9	49	20	26.0	Nob E	2.8635745	730.42	2,396.4
	80	57	25.736											
Nob C, 1918 (d.m.)	34	03	34.987		208	37	04.6	28	37	11.2	Nob D	2.7983205	628.52	2,062.1
	80	57	37.475											
Nob B, 1918 (d.m.)	34	03	07.698		225	22	58.4	45	23	16.9	Nob C	3.0749487	1,188.36	3,898.8
	80	58	10.460											
Nob A, 1918 (d.m.)	34	03	01.719		260	57	14.2	80	57	40.3	Nob B	3.0832657	1,211.34	3,974.2
	80	58	57.103											
Richland, 1918, r. 1919 (d.m.)	34	03	23.114		275	38	45.9	95	39	23.0	Nob	3.2326981	1,708.83	5,606.4
	80	59	57.625											
Richland A, 1918, r. 1919 (d.m.)	34	03	20.663		304	40	19.6	124	40	38.0	Nob A	3.0111177	1,025.93	3,365.9
	80	59	30.001											
Jackson, 1918, l. 1921 (d.m.)	34	01	13.192		38	40	11.3	218	34	15.3	Top	4.4191283	26,249.94	86,121.7
	80	55	16.664											
Hyatts, 1918 (d.m.)	34	03	01.198		241	19	05.1	61	19	32.1	Richland	3.1483327	1,407.13	4,616.6
	81	00	45.760											
College, 1918 (d.m.)	34	02	08.862		235	46	27.6	55	47	19.3	Hyatts	3.4574993	2,867.47	9,407.7
	81	02	18.200											
					354	41	38.1	174	41	41.3	Columbia	3.5481252	3,532.85	11,590.7

U. S. COAST AND GEODETIC SURVEY

Elmwood C, 1918 (d.m.)	34	01	41.186		199	50	51.8	19	50	58.5	College	2.9574051	906.58	2,974.3
	81	02	30.200											
Elmwood B, 1918 (d.m.)	34	01	16.402		205	12	07.3	25	12	15.1	Elmwood C	2.9263229	843.96	2,768.9
	81	02	44.208											
Elmwood A, 1918 (d.m.)	34	00	50.578		205	36	43.1	25	36	51.4	Elmwood B	2.9456517	882.37	2,894.9
	81	02	59.074											
Elmwood, 1918 (d.m.)	34	00	49.984		205	11	34.9	25	11	35.1	Elmwood A	1.3064894	20.25	66.4
	81	02	59.410											
					205	36	08.8	25	36	17.4	Elmwood B	2.9555060	902.62	2,961.3
					308	08	57.2	128	09	27.3	Columbia	3.2455573	1,760.18	5,774.8
Columbia E, 1918 (d.m.)	34	00	40.366		154	55	22.0	334	55	18.8	Elmwood A	2.5408310	347.40	1,139.8
	81	02	53.336											
Columbia D, 1918 (d.m.)	34	00	31.009		152	15	23.4	332	15	20.0	Elmwood	2.5248088	334.82	1,098.5
	81	02	49.197											
Columbia C, 1918 (d.m.)	34	00	27.304		159	46	41.3	339	46	39.0	Columbia E	2.4874876	307.25	1,008.0
	81	02	46.294											
Columbia B, 1918 (d.m.)	34	00	22.392		130	08	20.1	310	08	16.2	Columbia C	2.3706426	234.77	770.2
	81	02	39.300											
Columbia A, 1918 (d.m.)	34	00	16.824		119	27	53.9	299	27	47.3	Columbia B	2.5425292	348.76	1,144.2
	81	02	27.467											
					276	38	18.7	96	38	27.5	Columbia	2.7545883	568.31	1,864.5
Congaree B, 1918 (d.m.)	34	00	02.814		159	46	19.2	339	46	15.7	Columbia A	2.6628201	460.07	1,509.4
	81	02	21.268											
Congaree A, 1918 (d.m.)	33	59	29.638		159	31	03.1	339	30	54.8	Congaree B	3.0378805	1,091.14	3,579.8
	81	02	06.390											
Congaree, 1918 (d.m.)	33	59	02.573		159	35	21.2	339	35	14.4	Congaree A	2.9492812	889.78	2,919.2
	81	01	54.300											
					172	38	59.2	352	38	53.0	Columbia	3.3503297	2,240.45	7,350.5
Cayce D, 1918 (d.m.)	33	58	56.582		198	41	09.1	18	41	10.5	Congaree	2.2897517	194.87	639.3
	81	01	56.732											

TRIANGULATION IN SOUTH CAROLINA, PART 3

DESCRIPTIONS AND PLANE COORDINATES OF TRIANGULATION AND TRAVERSE STATIONS

Until recently the plane coordinates of the triangulation and traverse 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. 61). 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

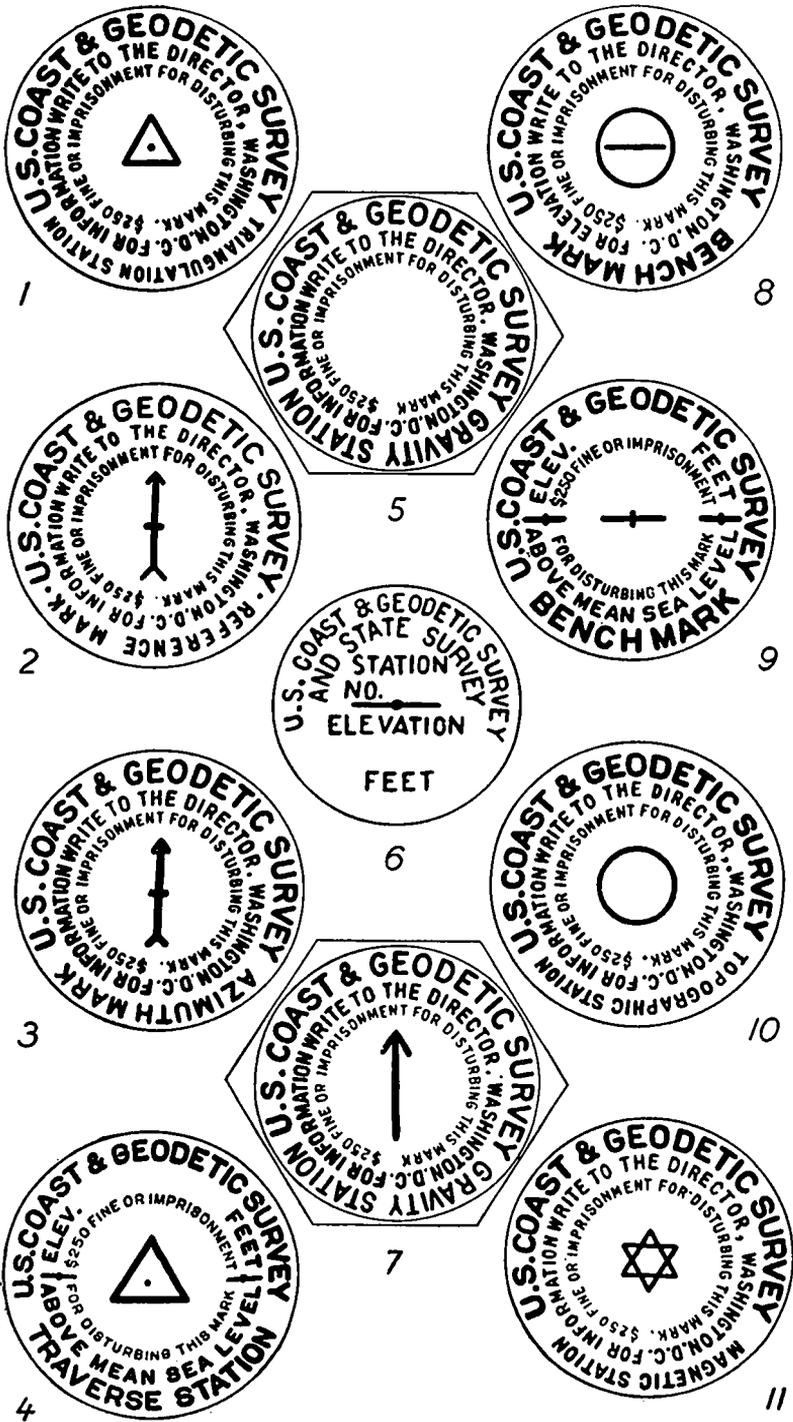


FIGURE 1.—Standard marks of the United States Coast and Geodetic Survey.

- | | | |
|--------------------------------|------------------------------------|-------------------------------|
| 1. Triangulation station mark. | 5. Gravity station mark. | 8. Tidal bench mark. |
| 2. Reference mark. | 6. Local control survey mark. | 9. Geodetic bench mark. |
| 3. Azimuth mark. | 7. Gravity station reference mark. | 10. Topographic station mark. |
| 4. Traverse station mark. | | 11. Magnetic station mark. |

years the slits in the stems of both station and reference disks have been enlarged so that the two prongs may be spread far apart and set in concrete without the use of a wedge. The marks used between about 1915 and 1920 have grooves cut around the shank instead of the slit.

The old type of station mark used in marking stations 20 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 58, 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, 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 concrete in a drill hole or depression, (d) an iron spike set point up in concrete 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 concrete in a drill hole or depression, (d) an iron spike set with concrete 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.

ELEVATIONS

The elevations of some of the triangulation stations and bench marks included in this publication have been determined either by means of spirit levels or by means of vertical angle observations. Where the elevation of a station has been determined (only a few have been 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 and are of varying accuracy.

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 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.

Each geodetic position in this publication has been reduced to plane coordinates which are given at the end of the description of each station. 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. 147). 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 of stations whose geographic positions are listed to three decimal places 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; 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.

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; 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 (pages 150 and 156), x_1 , x_2 , y_1 , and y_2 are the coordinates of the stations, and $\frac{1}{2\rho_0^2 \sin 1''}$ and y_0 are obtained from the table of constants, page 147, for the zone in which the stations are located; and, second, by means of the usual plane-surveying method using the formula

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

*See Special Publication No. 193, Manual of Plane-Coordinate Computation, page 13.

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

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

Inconsistencies between plane azimuths, as computed from the two formulas, may also arise when the coordinates of a triangulation station are derived from a "no check" (see p. 4) 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 one 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

BEAUFORT, S. C., TO JACKSONVILLE, N. C., ARC

Principal points

Honey (Berkeley County, C. D. Meaney, 1932).—About 9 miles northwest of McClellanville and 1.25 miles southeast of Honey Hill Post Office. To reach from intersection of State Highway 40 and south road at McClellanville, cross State Highway 40 and follow dirt road northwest for 0.2 mile to fork; turn on left fork for 2.5 miles and turn right around small store and follow left fork (to Palmers Bridge); continue 6.45 miles, or 2.1 miles beyond Berkeley County line at bridges, and follow main road 0.15 mile beyond sharp right bend, 200 feet beyond T-road on left and station is in field opposite hump in road, 46 feet southeast of center line of dirt State Highway 179 and 30.5 feet southeast of woven wire fence. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 is on north side of field, about 75 feet southeast of State Highway 179, 10 feet south of fence and 199.35 feet from station in azimuth $272^{\circ}25'$. Reference mark No. 2 is at the north edge of timber, about 130 feet southeast of State Highway 179, about 75 feet north of pit and 127.6 feet from station in azimuth $2^{\circ}48'$. Reference mark No. 3 (azimuth) is in open field where road takes sharp bend to north, about 20 feet east of borrow pit, 1 foot east of north-south wire fence and about 0.2 mile from station in azimuth $27^{\circ}38'19''$.

Plane coordinates: (S), $x=2,440,806.39$ feet; $y=491,474.79$ feet; the grid azimuth to reference mark No. 3= $26^{\circ}51'15''$.¹

Waterhorn (Berkeley County, C. D. Meaney, 1932; 1934).—About 8.5 miles north of McClellanville and 6 miles east-northeast of Honey Hill Post Office. To reach from Honey Hill Post Office, follow State Highway 179 east for 100 yards and turn left just before reaching first house on left; at 0.1 mile from post office turn right at garden fence; and go 1.45 miles, turn right at fork (sign on left fork reads "Road closed—Keep out"); and go 1.90 miles, follow left fork 0.3 mile, turn on right fork and go 0.75 mile, turn right at crossroads and continue straight ahead for 4.05 miles, passing crossroads and over bridge to station. Station is in southwest angle of crossroads, 82 feet west-northwest of intersection of roads, 36 feet north-northeast of triangular-blazed 12-inch pine on south side of road to station, 26.5 feet north of center line of timber road and 19.5 feet northwest of triangular-blazed 12-inch pine on north side of road to station. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 projects 6 inches and is in northeast angle of crossroads, about 18 feet south of east-west road and 125.90 feet from station in azimuth $286^{\circ}51'$. Reference mark No. 2 (azimuth) projects about 6 inches, is on slight knoll and about 250 yards from station in azimuth $30^{\circ}25'46''$. Reference mark No. 3 is 10 feet northwest of center line of road and 127.78 feet from station in azimuth $162^{\circ}10'$.

Plane coordinates: (S), $x=2,467,134.56$ feet; $y=505,871.91$ feet; the grid azimuth to reference mark No. 2= $29^{\circ}35'51''$.¹

Santee (Charleston County, C. D. Meaney, 1932; 1935).—About 7.25 miles northwest of McClellanville on grounds of Santee Gun Club, about 90 meters (295 feet) west of gun club office, 30 meters (98 feet) west of ditch, 19 meters (62 feet) south of 30-inch live oak, 6.4 meters (21 feet) south of center line of road and 5.8 meters (19 feet) north of fence line. To reach from intersection of southerly of two roads into McClellanville from State Highway 40, follow State Highway 40 north for 2.8 miles, turn right on topsoil road for 1.65 miles and take dim right fork just beyond T-road (right) and follow main-traveled road along telephone line for 3.7 miles; turn left about 300 feet beyond large symmetrical live oak and continue beyond Negro house for total of 0.1 mile, cross ditch on left just before reaching gate to gun club office and station. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference marks are standard reference disks in concrete, note 11a. Reference mark No. 1 is 16 meters (52 feet) south of bridge over ditch, 3 meters (10 feet) west of dim trail, 3 feet west of telephone pole and 133.80 feet from station in azimuth $301^{\circ}40'$. Refer-

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

For notes in regard to marking of stations see p. 57.

ence mark No. 2 (azimuth) is in cultivated field, 0.1 mile north of symmetrical live oak, 3 meters (10 feet) west of center line of road and about 1,000 feet from station in azimuth $70^{\circ}36'43''$. Reference mark No. 3 is at northwest corner of truck garden, about 45 meters (148 feet) north of brown house just southwest of garden, 11 meters (36 feet) southwest of 30-inch live oak, 12 feet south of center line of road passing north of station, 1 foot north of corner post of garden and 138.68 feet from station in azimuth $105^{\circ}35'$. To reach from Georgetown, go south on U. S. Highway 701 to south end of Santee River Bridge; proceed south and turn as follows (keeping straight ahead at all intersections except as noted): 0.00 south end of bridge; 1.0 turn left at filling station; 2.55 left fork; 5.70 station.

Plane coordinates: (S), $x=2,500,916.20$ feet; $y=484,423.95$ feet; the grid azimuth to reference mark No. 2= $69^{\circ}43'14''.1$

Burgess (Georgetown County, C. D. Meaney, 1932; 1934).—About 11 miles south-southwest of Georgetown. To reach from Georgetown, follow Front Street and U. S. Highway 701 south for 12.35 miles to station, located about 67 yards along U. S. Highway 701 from W. L. Burgess' service station and 15 meters (49 feet) north of center line of highway. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 (azimuth) is 11 meters east of center line of highway and 0.45 mile from station in azimuth $194^{\circ}36'25''.5$. Reference mark No. 2 is 116.55 feet from station in azimuth $233^{\circ}18'$. Reference mark No. 3 is 107.31 feet from station in azimuth $103^{\circ}34'$. Elevation: 30.48 feet.

Plane coordinates: (S), $x=2,495,640.58$ feet; $y=508,954.10$ feet; the grid azimuth to reference mark No. 1= $193^{\circ}43'27''.6.1$

Cooper (Georgetown County, C. D. Meaney, 1932; 1934).—About 8 miles south-southwest of center of Georgetown. To reach from Georgetown, go south on U. S. Highway 701 for about 9 miles to station on right, in pine woods, 100 feet north of center line of U. S. Highway 701, 72 feet northeast of blazed 12-inch pine between highway and old timber road, 36 feet north of center line of old timber road, and 27 feet southeast of 12-inch triangular-blazed pine. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 is between old timber road and U. S. Highway 701, 37.3 feet north of center line of highway, 32 feet south of center line of old timber road, and 146.00 feet from station in azimuth $244^{\circ}24'$. Reference mark No. 2 is between old timber road and U. S. Highway 701, 34 feet south of center line of old timber road, 32.5 feet north of center line of highway, and 106.25 feet from station in azimuth $1^{\circ}12'$. Reference mark No. 3 (azimuth) is not visible from ground on account of woods, is about opposite where old timber road comes into U. S. Highway 701, 40 feet south of center line of highway, and about 0.35 mile from station in azimuth $35^{\circ}13'53''.6$. Elevation 37.67 feet.

Plane coordinates: (S), $x=2,500,783.55$ feet; $y=525,169.64$ feet; the grid azimuth to reference mark No. 3= $34^{\circ}20'21''.2.1$

Yawkey (Georgetown County, C. D. Meaney, 1932; 1934).—About 9 miles south-southeast of Georgetown, on land owned by Thomas A. Yawkey, in cut-over area, and 20 meters (66 feet) northeast of center line of sand road. To reach, follow U. S. Highway 701 in southerly direction 1.7 miles from its intersection with Front Street in Georgetown to Smith's filling station on right; take left dirt fork and continue 0.55 mile; take left-hand of three forks (mileage sign "South Is. 12") and continue straight ahead across all crossroads 9.2 miles or 1.3 miles beyond crossing of canal by ferry, keep main road to right and proceed 0.1 mile or about 400 feet beyond left turn in road to station site. 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 (azimuth) is in same cut-over area as station, about 50 meters (164 feet) northeast of west edge of timber and approximately 0.25 mile from station in azimuth $198^{\circ}43'52''.8$. Reference mark No. 2 is 5.8 meters (19 feet) southwest of center line of sand road and 116.00 feet from station in azimuth $335^{\circ}24'$. Reference mark No. 3 is 5.5 meters (18 feet) southwest of center line of sand road and 161.85 feet from station in azimuth $76^{\circ}45'$.

Plane coordinates: (S), $x=2,537,504.83$ feet; $y=515,185.52$ feet; the grid azimuth to reference mark No. 1= $197^{\circ}46'25''.9.1$

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

For notes in regard to marking of stations see p. 57.

Georgetown (Georgetown County, C. D. Meaney, 1932; 1935).—About 3 miles west-northwest of center of Georgetown. To reach from Georgetown, go west 3.65 miles on U. S. Highway 521 from intersection with U. S. Highway 701 direct to station site, about 700 feet west of yellow cottage (red roof) owned by Mr. A. T. Cambell on south side of road, in wire-fence line between cultivated field and woods, 19.3 feet south of northwest corner post of cultivated field and 53.0 feet south of center line of U. S. Highway 521. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference and azimuth marks are standard reference disks in concrete, note 11a. Reference mark No. 1 is in scrub-pine area, 38 feet north of center line of U. S. Highway 521 and 111.9 feet from station in azimuth $219^{\circ}25'$. Reference mark No. 2 (azimuth) is in northwest angle of crossroads intersection, about 30 feet north of center line of U. S. Highway 521, about 30 feet west of dirt cross road, opposite old house on south side of highway and approximately 0.4 mile from station in azimuth $270^{\circ}43'46''$.¹ Reference mark No. 3 is in scrub-pine area, 38 feet north of center line of U. S. Highway 521 and 120.2 feet from station in azimuth $142^{\circ}25'$. Elevation: 18.15 feet.

Plane coordinates: (S), $x=2,503,060.16$ feet; $y=570,910.79$ feet; the grid azimuth to reference mark No. 2= $269^{\circ}49'54''$.¹

Baruch (Georgetown County, C. D. Meaney, 1932; 1934).—On neck of land north of Winyah Bay, about 5 miles east-southeast of Georgetown, on land owned by B. M. Baruch, in small clearing among tall pines, 9.7 meters (32 feet) north of center line of woods road and about 100 meters (328 feet) west of sharp right bend in road. To reach from Georgetown, take Waccamaw Ferry to landing on east side of bay; proceed 0.8 mile to end of causeway and turn right onto private road marked "Private B. M. Baruch" for 0.65 mile (keep road to right); proceed 1.45 miles and turn sharp left at point with steps over fence on right; continue 0.25 mile, take main left fork for 100 yards and follow main right fork 1.6 miles to station site. Surface and underground marks are standard station 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 (azimuth) is 3 meters (10 feet) east of center line of road, 4 meters (13 feet) north of north end of small plank bridge and approximately 0.2 mile from station in azimuth $316^{\circ}16'33''$. Reference mark No. 2 is 4.3 meters (14 feet) south of center line of road and 110.90 feet from station in azimuth $308^{\circ}43'$. Reference mark No. 3 is 5.3 meters (17 feet) south of center line of road, 2.7 meters (9 feet) south of 24-inch pine tree and 106.72 feet from station in azimuth $69^{\circ}42'$.

Plane coordinates: (S), $x=2,547,498.09$ feet; $y=551,663.79$ feet; the grid azimuth to reference mark No. 1= $315^{\circ}17'58''$.¹

Campfield (Georgetown County, C. D. Meaney, 1932; 1934).—About 8 miles north of center of Georgetown, in V of forks between State Highway 51 and county road, 11.3 meters (37 feet) east of center line of State Highway 51, 14 meters (46 feet) northwest of center line of county road and 15.5 meters (51 feet) southwest of southwest corner of barn in forks. To reach from Front Street in Georgetown, go north on U. S. Highway 701 for 8.05 miles to Sinclair gas station and State Highway 51 on left and go 0.4 mile in northwesterly direction on State Highway 51 to fork in road with old abandoned store on right and station site. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. In 1934 station mark had been sunk several feet, under supervision of State highway engineers, to make way for proposed curve in road. When road is finished mark will be under surface of road. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 is in brush, 5.3 meters (17 feet) southeast of center line of county road and 41.82 meters (137.2 feet) from station in azimuth $203^{\circ}37'$. Reference mark No. 2 is 1 meter (3 feet) north of north face of old abandoned store, 18.3 meters (60 feet) east of center line of State Highway 51 and 51.16 meters (167.8 feet) from station in azimuth $305^{\circ}18'$. Reference mark No. 3 (azimuth) is in pine area, about 4 meters (13 feet) east of center line of State Highway 51 and approximately 0.6 mile from station in azimuth $134^{\circ}58'09''$.² Elevation: 20.81 feet.

Plane coordinates: (S), $x=2,526,175.31$ feet; $y=605,839.40$ feet; the grid azimuth to reference mark No. 3= $134^{\circ}01'45''$.¹

Hagley (Georgetown County, C. D. Meaney, 1932; 1934).—About 9 miles northeast of Georgetown, near intersection of U. S. Highway 17 and road leading to lower end of Pawleys Island, on land owned by Atlantic Coast Lumber Co., 40

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

For notes in regard to marking of stations see p. 67.

meters (131 feet) northwest of center line of U. S. Highway 17, 60 meters (197 feet) north of east-west sand road and 61 meters (200 feet) north of fenced inclosure of highway department. To reach from Georgetown, take Waccamaw Ferry to landing on east side of bay and follow U. S. Highway 17 northeast 8.3 miles to road leading east at fenced inclosure of highway department and station site. Signboard at this fork reads "Murrells Inlet 11, Myrtle Beach 26, Conway 31.5." Road to right leads to Pawleys Island. Surface and underground marks are standard station disks in concrete, notes 1a and 7a. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 is 9 meters (30 feet) northwest of center line of U. S. Highway 17 and 177.11 feet from station in azimuth $273^{\circ}27'$. Reference mark No. 2 is at north of highway inclosure, on southeast side of U. S. Highway 17, 8 meters (26 feet) south of intersection of U. S. Highway 17 and road leading to Pawleys Island and 201.67 feet from station in azimuth $6^{\circ}26'$. Reference mark No. 3 (azimuth) is 7 meters (23 feet) southeast of center line of U. S. Highway 17, 3 meters (10 feet) northeast of 12-inch pine tree, and approximately 0.1 mile from station in azimuth $44^{\circ}02'04''$.

Plane coordinates: (S), $x=2,565,303.56$ feet; $y=585,938.17$ feet; the grid azimuth to reference mark No. 3= $43^{\circ}01'31''$.¹

Planter (Georgetown County, C. D. Meaney, 1932; 1935).—About 18 miles north of Georgetown and 2.7 miles north of filling station and post office in Plantersville. To reach from Conway, follow U. S. Highway 701 from Standard Oil service station for 20.4 miles (or 2.85 miles beyond Youngs crossroads) to dim crossroads at an angle at station, in marshy ground about 100 feet north of clump of tall pines, 71 feet south of center line of old tram railroad grade (now used as road) and 56 feet east of center line of U. S. Highway 701. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Upper mark projects about 4 inches. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 (azimuth) projects 3 inches, is 14 paces northwest of center line of U. S. Highway 701 and about 0.6 mile from station in azimuth $194^{\circ}19'20''$.⁴ Reference mark No. 2 projects 4 inches, is 53 feet east of center line of U. S. Highway 701, 30 feet northwest of center line of old tram railroad grade and 134.04 feet from station in azimuth $195^{\circ}10'$. Reference mark No. 3 projects 4 inches, is 59 feet west of center line of U. S. Highway 701, 27 feet northwest of center line of old tram railroad grade and 117.32 feet from station in azimuth $120^{\circ}32'$. *Bench Mark Q 15* (see description thereof) is 84.55 feet from station in azimuth $208^{\circ}45'$. Elevation: 21.12 feet.

Plane coordinates: (N), $x=2,547,015.20$ feet; $y=220,051.46$ feet; the grid azimuth to reference mark No. 1= $193^{\circ}18'30''$.^{2,1} (S), $x=2,546,989.38$ feet; $y=644,293.66$ feet; the grid azimuth to reference mark No. 1= $193^{\circ}20'38''$.^{6,1}

Brookgreen (Georgetown County, C. D. Meaney, 1932; 1935).—About 15 miles northeast of Georgetown and 5 miles southwest of Murrells Inlet, at Brookgreen Plantation, 11 meters (36 feet) south of center line of paved road, and approximately 200 meters (656 feet) east of fork in pavement. Road opposite station site is in 3-foot cut. To reach from Georgetown, take Waccamaw Ferry to landing on east side of bay; proceed 15.3 miles on U. S. Highway 17 to paved road leading off to left, and follow this private road 0.8 mile to station site. To reach from Conway, follow U. S. Highway 501 towards Myrtle Beach 11.6 miles to point just south of Socastee River Bridge at filling station; turn right on dirt road for 7.1 miles to fork; keep right-hand main fork and follow 3.1 miles to junction with U. S. Highway 17 at point 1 mile north of Murrells Inlet; follow U. S. Highway 17 southwest 5 miles to narrow paved road to right (west) and continue 0.8 mile to station site. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 is 7 meters (23 feet) north of center line of paved road, and 108.11 feet from station in azimuth $271^{\circ}01'$. Reference mark No. 2 (azimuth) is 7 meters (23 feet) north of center line of road, in center of abandoned wagon road that crosses paved road at this point, and approximately 0.15 mile from station in azimuth $300^{\circ}36'59''$. Reference mark No. 3 is 7 meters (23 feet) north of paved road, and 102.75 feet (slope) from station in azimuth $160^{\circ}27'$.

Plane coordinates: (N), $x=2,582,656.44$ feet; $y=193,003.19$ feet; the grid azimuth to reference mark No. 2= $299^{\circ}32'14''$.¹ (S), $x=2,582,610.86$ feet; $y=617,224.30$ feet; the grid azimuth to reference mark No. 2= $299^{\circ}34'31''$.¹

Salem (Horry County, C. D. Meaney, 1932; 1935).—About 11.5 miles south of Conway, on north side of Salem Church yard at Bucksport, 53.3 feet north-northwest of northwest corner of main church, and 77.9 feet northwest of north-

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

For notes in regard to marking of stations see p. 57.

west corner of ell on east end of church. To reach from Conway, follow U. S. Highway 701 toward Georgetown 11.7 miles from Standard Oil station at Main Street and Fourth Avenue; turn left at cross roads at "Buckport" sign and Standard Oil station on right; proceed 0.45 mile and keep straight ahead at cross roads, and continue 1.35 miles or 0.2 mile beyond T-road left to Salem Church about 60 yards east of road. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 projects 3 inches, is on line with west face (front) of church, 32.4 feet south of southwest corner of main church, and 35.549 meters (116.63 feet) from station in azimuth $338^{\circ}39'$. Reference mark No. 2 is flush with ground, about 10 feet south of center line of road leading to church, 123 feet west of southwest corner of main church, and 40.078 meters (131.49 feet) from station in azimuth $41^{\circ}07'$. Reference mark No. 3 (azimuth) is on north side of yard belonging to V. McCrey, 1 foot south of east-west wire fence between cultivated fields, about 150 feet east of road leading to station, and approximately 0.3 mile from station in azimuth $159^{\circ}09'55''.3$.

Plane coordinates: (N), $x=2,576,470.75$ feet; $y=248,180.05$ feet; the grid azimuth to reference mark No. 3= $158^{\circ}05'45''.1$ (S), $x=2,576,461.84$ feet; $y=672,402.41$ feet; the grid azimuth to reference mark No. 3= $158^{\circ}08'00''.5$.¹

Floral (Horry County, C. D. Meaney, 1932; 1934).—About 16 miles south of Conway and 8 miles southwest of Myrtle Beach. To reach from Myrtle Beach, follow U. S. Highway 501 for 1.7 miles to junction with U. S. Highway 17; continue on No. 17 (which is unimproved dirt road) southwest for 7.2 miles to cross road with old sawmill in south corner and old dilapidated house in west corner. To reach from Conway (in dry weather), follow U. S. Highway 501 toward Myrtle Beach for 11.6 miles to a point just south of Socastee River Bridge at filling station; turn right on dirt road for 0.3 mile to road on left with three mail boxes; turn left (southeast) on main road for 4.5 miles to junction with U. S. Highway 17 and follow No. 17 for 1.4 miles to station located on property belonging to Floral Beach Co., on northwest side of highway, in open space 34 meters (112 feet) northwest of intersection of cross roads and 13 meters (43 feet) north of northeast corner of old house. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 (azimuth) is 4 meters (13 feet) west of center line of sand road and about 0.25 mile from station in azimuth $156^{\circ}46'54''.0$. Reference mark No. 2 is 8 meters (26 feet) east of center line of sand road and 106.8 feet from station in azimuth $216^{\circ}27'$. Reference mark No. 3 was 11 meters (36 feet) south of center line of U. S. Highway 17 and 162.6 feet from station in azimuth $343^{\circ}05'$ but in 1934, owing to road construction, it had been moved to a point 52 feet south of center line of road, 35 feet southeast of artesian well on side of road, and 190.07 feet from station in azimuth $343^{\circ}10'$.

Plane coordinates: (N), $x=2,614,193.66$ feet; $y=228,590.28$ feet; the grid azimuth to reference mark No. 1= $155^{\circ}38'34''.5$ (S), $x=2,614,170.33$ feet; $y=652,787.69$ feet; the grid azimuth to reference mark No. 1= $155^{\circ}40'58''.7$.¹

Morrison (Horry County, C. D. Meaney, 1932).—About 6 miles south of Conway. To reach from Conway, follow U. S. Highway 501 toward Myrtle Beach 6.3 miles direct to station site which is 1.2 miles south of old Centenary Church, about 150 feet northeast of Morrison's Texaco station, 60.4 feet north-northeast of Texaco signpost on east side of highway and 56 feet east of center line of U. S. Highway 501. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 (azimuth) is about 30 feet west of center line of highway, on edge of cultivated field, about 30 feet north of T-intersections of ditches, and approximately 0.3 mile from station in azimuth $12^{\circ}10'09''.7$. Reference mark No. 2 is 42 feet south-southeast of southeast corner of Texaco station, 25.5 feet west of center line of highway, 2 feet north of telephone pole and 146.1 feet from station in azimuth $42^{\circ}06'$. Reference mark No. 3 is in pine woods, about 150 feet north of Texaco station, 27 feet west of center line of highway and 128.8 feet from station in azimuth $150^{\circ}04'$.

Plane coordinates: (N), $x=2,601,769.20$ feet; $y=281,843.58$ feet; the grid azimuth to reference mark No. 1= $11^{\circ}03'06''.2$.¹

Brown (Horry County, C. D. Meaney, 1932; 1933).—At Myrtle Beach, on property belonging to Myrtle Beach Estates, about 66 meters (217 feet) northwest of entrance to Seaside Inn, 41 meters (135 feet) east of entrance to Myrtle Lodge, 26 meters (85 feet) southwest of center line of Broadway Street, 18 meters (59

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

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feet) northwest of center line of Chester Street (proposed) and 1.3 meters (4 feet) east of Atlantic Coast Line Railroad property-line marker. To reach from Conway, go 20 miles on U. S. Highway 501 to Myrtle Beach, and just east of railroad track turn right where Broadway Street turns right towards Seaside Inn to station site. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference and azimuth marks are standard disks in concrete, note 11a. Because of street widening and improvements in 1938 the station and underground marks were lowered but are in the exact horizontal position originally set. Station mark is now about 2 inches below the surface, along the dirt walk on the southwest side of Ninth Avenue between Kings Highway and Chester Street, 26.8 feet from the near side of an iron railroad rail set vertically and marking approximately the property corner at the west angle of the intersection of Ninth Avenue and Chester Street. Reference mark No. 1 was moved and now marks the property corner at the east angle of the intersection of Ninth Avenue and Chester Street and is 183.70 feet from station in azimuth $250^{\circ}40'06''$. It was stamped "Reset 1938." Reference mark No. 2 (azimuth) was left undisturbed and is 4 meters (13 feet) northeast of center line of Broadway Street, directly in front of Friends Cafe, now known as "Ocean Front Cafe" and approximately 0.1 mile from station in azimuth $302^{\circ}21'07''$. Reference mark No. 3 was moved and now marks the property corner at the east angle of the intersection of Ninth Avenue and Kings Highway and is 252.07 feet from station in azimuth $167^{\circ}21'06''$. It was stamped "Reset." Station Myrtle (see description thereof) is 1,171.913 meters (3,844.85 feet) from station in azimuth $23^{\circ}55'54.4''$, and Primary traverse station No. 10 (U. S. G. S.) is 905.04 feet from station in azimuth $131^{\circ}18'01''$. Elevation: 32.23 feet.

Plane coordinates: (N), $x=2,644,240.25$ feet; $y=258,910.30$ feet; the grid azimuth to reference mark No. 2 = $301^{\circ}09'23''$.¹

Vina (Horry County, C. D. Meaney, 1932).—About 10 miles east of Conway. To reach from Wampee, follow Conway Road west from junction of State Highways 9 and 90 (Standard Oil station in "V" of forks) for 7.5 miles and take right fork at Gulf filling station on south side of road for 2.4 miles (or 0.35 mile beyond where main road turns left) to station in the northeast angle of cross-road intersection, about 150 feet west of J. D. Collins' house on north side of road leading to station, about 49 feet south of south face of Collins' barn, 36 feet west of dim cross road and 24 feet north of narrow dirt road leading past station. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 is in cultivated field, 10 feet east of center line of dirt road leading north, 3 feet south of east-west ditch, and 191.8 feet from station in azimuth $202^{\circ}19'$. Reference mark No. 2 (azimuth) is at gate in northeast corner of cultivated field, 10 feet south of center line of dirt road, on property belonging to W. H. Parker, and about 0.4 mile from station in azimuth $289^{\circ}21'21''$. Reference mark No. 3 is at northeast corner of garage, 15 feet south of center line of road leading past station, and 152.35 feet from station in azimuth $102^{\circ}11'$.

Plane coordinates: (N), $x=2,641,487.15$ feet; $y=315,169.67$ feet; the grid azimuth to reference mark No. 2 = $288^{\circ}09'47''$.¹

Vaught (Horry County, C. D. Meaney, 1932; 1934).—About 7.5 miles northeast of Myrtle Beach. To reach from Myrtle Beach, follow U. S. Highway 17 northeast for 7.9 miles from railroad crossing and turn off main road to E. F. Taylor's house in northwest angle of this road intersection. Station, is at point where timber begins on northeast side of field about 38 meters (125 feet) northeast of Taylor's house and 14 meters (46 feet) northwest of center line of old Highway 49. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 is 7 meters (23 feet) southeast of center line of old Highway 49, 3.5 meters (11 feet) northwest of fence line on southeast side of road and 107.03 feet from station in azimuth $236^{\circ}27'$. Reference mark No. 2 is 12 meters (39 feet) east-southeast of southeast corner of Taylor's house, 7 meters (23 feet) northwest of center line of old Highway 49 and 114.47 feet from station in azimuth $4^{\circ}42'$. Reference mark No. 3 (azimuth) is at south edge of small grassy plot of ground, about 0.15 mile northeast along U. S. Highway 17 to intersection with old Highway 49, 15 meters (49 feet) west of center line of U. S. Highway 17, and about 0.15 mile from station in azimuth $35^{\circ}59'32''$. Distances and azimuths from station to the following are: *Intracoastal Waterway station No. 891 + 50.0*, 220.9 meters (725 feet)

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

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75°16'29", and to *Intracoastal Waterway station 883+00.0*, 96.4 meters (316 feet), 177°31'54".

Plane coordinates: (N), $x=2,670,947.44$ feet; $y=291,098.06$ feet; the grid azimuth to reference mark No. 3= $34^{\circ}44'45''$.¹

Kettle (Horry County, L. P. Raynor, 1923; 1934).—To reach from Myrtle Beach, follow U. S. Highway 17 northeast for 8.1 miles; turn right on dirt T-road for 1.4 miles to beach, and turn southwest on beach (at low tide only) for about 1 mile. Station is approximately 1.5 miles east of where Singleton Swash now crosses beach, on flat ground about 20 meters (66 feet) back from high-water mark. The sand dunes at this locality are from 300 meters (984 feet) to 400 meters (1,312 feet) from beach. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference mark No. 1 (1923), note 11a, is 21,776 meters (71.44 feet) from station in azimuth 96°36'. Reference mark No. 2 (1923) is a 20-penny nail set in square concrete post and is 28,018 meters (91.92 feet) from station in azimuth 222°05'. Reference mark No. 3 (1932), note 11a, (azimuth) is 15 meters (49 feet) from high-water mark and about 600 yards (1,800 feet) from station in azimuth 233°06'10".

Plane coordinates: (N), $x=2,672,499.24$ feet; $y=284,138.89$ feet; the grid azimuth to reference mark No. 3= $231^{\circ}51'14''$.¹

Bryant (Horry County, C. D. Meaney, 1932; 1934).—About 5.5 miles southwest of Little River. To reach from Conway, follow U. S. Highway 501 to Myrtle Beach, thence on U. S. Highway 17 for about 20 miles to Ocean Drive Road (dirt) and turn right for about 0.3 mile to station located on land belonging to Mary Bryant, 50 meters (164 feet) south of Richard Bryant's house and 37 meters (121 feet) northeast of center line of Ocean Drive Road. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 is on north side of Ocean Drive Road and 121.6 feet from station in azimuth 344°41'. Reference mark No. 2 (azimuth) is on northwest side of U. S. Highway 17 and about 0.25 mile from station in azimuth 81°06'28". Reference mark No. 3 is on north side of Ocean Drive Road and 181.1 feet from station in azimuth 96°49'.

Plane coordinates: (N), $x=2,704,524.76$ feet; $y=308,631.03$ feet; the grid azimuth to reference mark No. 2= $79^{\circ}47'53''$.¹

Leon (Horry County, C. D. Meaney, 1932; 1933).—About 9 miles west-northwest of Little River and 2 miles west-southwest of Longs Post Office. To reach from Little River, take Conway Road for 2.9 miles to Nixon's Crossroads (L. S. Bellamy Texaco station); follow State Highway 9 north across river for 7.15 miles to Long's Crossroads; turn sharp left for 2.25 miles to cross roads and turn right to schoolhouse (about 100 yards north of east side of road). Station is directly behind center of Mount Leon school house, 73.9 feet northeast of its northwest corner and 89.9 feet northwest of its northeast corner. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 is 38.4 feet west-southwest of southwest corner of school, 25 feet east of center line of dirt road leading north, and 134.9 feet from station in azimuth 31°38'. Reference mark No. 2 is in open field and 217 feet from station in azimuth 125°00'. Reference mark No. 3 (azimuth) is at northwest corner of cultivated field, 15 feet east of center line of dirt road leading north past station, 15 feet southwest of T-intersection of ditches, and about 0.35 mile from station in azimuth 148°07'29".¹

Plane coordinates: (N), $x=2,678,569.36$ feet; $y=343,976.65$ feet; the grid azimuth to reference mark No. 3= $146^{\circ}51'43''$.¹

Little River (Horry County, C. D. Meaney, 1932; 1934).—About 2 miles east-northeast of Little River. To reach from Little River Post Office, go northeast on U. S. Highway 17 for 1 mile and take old dirt road to right for 0.8 mile to station, just west of North Carolina-South Carolina boundary monument, 11 meters (36 feet) north of center line of road. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Upper mark is an 8-inch square granite post about 4 feet above ground, with cross in top marking center. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 is 8 meters (26 feet) south of center line of highway and 227.4 feet from station in azimuth 278°07'. Reference mark No. 2 is 15 meters (49 feet) northwest of northwest corner of house, 9 meters (30 feet) south of center line of highway and 184.4 feet from station in azimuth 63°09'. Reference mark No. 3 (azimuth) is 12 meters (39 feet) north of center line of highway and 0.25 mile

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

For notes in regard to marking of stations see p. 57.

from station in azimuth $75^{\circ}00'20''.9$. *North Carolina-South Carolina boundary monument* (see description thereof) is 14.5 feet from station in azimuth $258^{\circ}01'$.

Plane coordinates: (N) $x=2,732,134.74$ feet; $y=332,729.66$ feet; the grid azimuth to reference mark No. 3= $73^{\circ}38'38''.0$ ¹

Hughes (Brunswick County, N. C., C. D. Meaney, 1932; 1933).—About 10 miles west of Shallotte and 2 miles west of Longwood. To reach from Shallotte, follow State Highway 130 west for 7.1 miles to crossroads (arrow—"Longwood 4 miles"); turn north for 4.75 miles to Longwood Post Office; turn left on road leading west opposite post office for 2 miles, and turn left (south) at T-road (sign "Little River 9 miles") for 0.2 mile to station, located in pine trees, 27.7 feet northwest of center line of road, 19.7 feet southwest of lane to Hughes' house and 19.3 feet east of corner where rail fence joins slat fence. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 (azimuth) is about 50 feet west of wood culvert, 15 feet north of center line of road leading past station, and 0.1 mile from station in azimuth $213^{\circ}14'01''$. Reference mark No. 2 is 27 feet south of center line of road, 3 feet north of fence line, and 123.75 feet from station in azimuth $244^{\circ}06'$. Reference mark No. 3 is 22.9 feet south of center line of road, 3 feet north of fence line and 180.85 feet from station in azimuth $24^{\circ}18'$.

Plane coordinates: (N), $x=2,734,021.88$ feet; $y=371,737.38$ feet; the grid azimuth to reference mark No. 1= $211^{\circ}51'59''.1$

Pigott (Brunswick County, N. C., C. D. Meaney, 1932; 1934).—About 6 miles southwest of Shallotte, N. C. To reach from Shallotte Post Office, follow State Highway 130 west for 7.1 miles to sign "Seaside—4"; turn left between two gas stations and follow main road south for 3.6 miles to T-road at sign "Gause Landing—2"; turn left around store and go 2.45 miles; turn left at mileage signs and mail boxes on road to Gause Landing and proceed 0.1 mile to Lillie Pigott's house on left. Station is about 152 feet north of north face of Pigott's house, 29 feet east of sand road leading to station, and 27.65 feet north of north face of small store. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 is in northwest corner of cultivated field, about 16 feet east of center line of road and 50.318 meters (165.08 feet) from station in azimuth $175^{\circ}46'$. Reference mark No. 2 (azimuth) is 0.1 mile north of cross roads, 5 feet west of center line of road leading north, and about 0.20 mile from station in azimuth $179^{\circ}11'38''$. Reference mark No. 3 is in yard, 68.7 feet east-northeast of northeast corner of house and 48.640 meters (159.58 feet) from station in azimuth $321^{\circ}00''$.

Plane coordinates: (N), $x=2,775,101.94$ feet; $y=337,407.91$ feet; the grid azimuth to reference mark No. 2= $177^{\circ}45'07''.1$

Supplementary points

Drew 2 (Georgetown County, E. B. Roberts, 1925; 1934).—About 6 miles southeast of Georgetown, on north side of Winyah Bay. To reach from Georgetown, take Waccamaw Ferry to landing on east side of bay and proceed 0.8 mile to end of causeway; turn right onto private road marked "Private B. M. Baruch" and follow 0.65 mile (keeping road to right); continue 1.45 miles and turn sharp left (steps over fence to right at this point); continue 0.25 mile, take right fork where main road swings left just beyond a number of houses and continue 1.25 miles (crossing a cross road about 100 feet distant); take left fork for 0.55 mile; turn right for 1.35 miles and then left for 0.2 mile to small shack about 100 yards beyond and to end of road at bay. Station is 5 feet back from high-water line on sandy strip of shore about 165 yards east of point of woods on north side of Mud Bay, northeast of Marsh Islands in Winyah Bay. Entrance to Town Creek is 0.25 mile east of station. A slight sand ridge with a few small trees extends about 200 feet back into marsh from point where station is located. Station mark is a standard disk in concrete, note 1a. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 (1924) is 9.183 meters (30.13 feet) from station in azimuth $91^{\circ}18'$. Reference mark No. 2 (1924) is 8.969 meters (29.43 feet) from station in azimuth $233^{\circ}19'$. Reference mark No. 3 (1932) (azimuth) is in the only group of trees along shore at this point, about 40 meters (131 feet) east of ruins of old house (part of fireplace only remains),

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

For notes in regard to marking of stations see p. 57.

20 meters (66 feet) north of high-water line, 4 meters (13 feet) south of dim trail leading to station, and about 0.1 mile from station in azimuth $88^{\circ}20'30''$.

Plane coordinates: (S), $x=2,546,673.60$ feet; $y=539,759.51$ feet; the grid azimuth to reference mark No. 3= $87^{\circ}22'02''$.¹

Georgetown Lighthouse (Georgetown County, E. B. Roberts, 1925; 1935).—The station is at North Island.

Plane coordinates: (S), $x=2,554,951.68$ feet; $y=510,176.57$ feet.

Georgetown, municipal standpipe (Georgetown County, C. D. Meaney, 1932; 1935).—Station is silver standpipe about 110 feet tall, which is the municipal storage tank for Georgetown, and is located on south side of U. S. Highway 701 between Front and Prince streets.

Plane coordinates: (S), $x=2,522,113.67$ feet; $y=564,018.63$ feet.

Georgetown, Atlantic Coast Lumber Corporation, brick stack (Georgetown County, C. D. Meaney, 1932; 1935).—Station is a brick stack about 100 feet high (the most prominent in Georgetown) located at Atlantic Coast Lumber Corporation's plant in northwest section of city.

Plane coordinates: (S), $x=2,521,314.77$ feet; $y=561,327.03$ feet.

Georgetown, Atlantic Coast Lumber Corporation, water tank (Georgetown County, C. D. Meaney, 1932; 1935).—Station is a tall black steel water tank near Atlantic Coast Lumber Corporation's black stack at plant in northwest section of Georgetown.

Plane coordinates: (S), $x=2,520,421.70$ feet; $y=561,742.56$ feet.

Myrtle (Horry County, L. P. Raynor, 1923; 1934).—At Myrtle Beach, on rounded point of beach about 1,500 meters (4,920 feet) southwest of Yacht Club pier, 100 meters (328 feet) south of center line of Second Avenue, 75 meters (246 feet) east of electric power line, 42 meters (138 feet) north of center line of First Avenue, 32.4 meters (106 feet) east of center line of board walk, 10 meters (33 feet) from springtide high-water line and beyond a line of sand dunes. Ocean Forest Hotel ranges just to the right of Yacht Club pier. 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 30 meters (98 feet) from springtide high-water line, 17 meters (56 feet) north of center line of First Avenue, 6.2 meters (20 feet) east of center line of board walk, and 35.530 meters (116.57 feet) from station in azimuth $85^{\circ}51'$. Reference mark No. 2 is about 90 meters (295 feet) south of center line of Second Avenue, 29 meters (95 feet) from springtide high-water line, 2.3 meters (8 feet) east of center line of board walk, and 32.000 meters (104.99 feet) from station in azimuth $148^{\circ}42'$. Station *Brown* (see description thereof) is 1,171.913 meters (3,844.85 feet) from station in azimuth $203^{\circ}55'44''$.²

Plane coordinates: * (N), $x=2,642,757.84$ feet; $y=255,364.24$ feet; the grid azimuth to station *Brown*= $202^{\circ}44'10''.4$.³

Primary traverse station No. 10 (U. S. G. S.) (Horry County, C. D. Meaney, 1932).—At Myrtle Beach. Station is 905.04 feet from *Brown* (see description thereof). Azimuth from station to *Brown* is $311^{\circ}17'57''$.

Plane coordinates: * (N), $x=2,643,547.97$ feet; $y=259,493.28$ feet; the grid azimuth to station *Brown*= $310^{\circ}06'17''.2$

Myrtle Beach Hotel, water tank (Horry County, C. D. Meaney, 1932; 1934).—Station is the ball on top of municipal water tank at Myrtle Beach.

Plane coordinates: (N), $x=2,656,112.65$ feet; $y=271,408.26$ feet.

Intracoastal Waterway Station 891+50.0 (Horry County, K. G. Crosby, 1934).—See description of station *Vaught*. Plane coordinates: * (N), $x=2,670,251$ feet; $y=290,899$ feet.

Intracoastal Waterway Station 883+00.0 (Horry County, K. G. Crosby, 1934).—See description of station *Vaught*. Plane coordinates: * (N), $x=2,670,927$ feet; $y=291,414$ feet.

Nixon (Horry County, L. P. Raynor, 1923; 1934).—About 3.5 miles south-southwest of Little River. To reach from Little River, follow Conway Road west for 2.9 miles to Nixon's Crossroads; turn left on new grade for 0.6 mile and take road to left at "Oysters" sign for 0.3 mile; take right fork at arrow "Cherry Grove Beach" and follow 1.75 miles to road leading onto strand at Cherry Grove Beach. Station is on southwest side of Cherry Grove Inlet, about 160 meters (525 feet) from high-water mark in a westerly direction and in a sand dune about 15 meters (49 feet) above high-water line. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference and azimuth marks are

⁰No check on this position.

¹This azimuth has been computed by the first formula (p. 61), neglecting the second term.

²This azimuth has been computed by the first formula (p. 61), using both terms.

standard disks in concrete, note 11a. Reference mark No. 1 (1923) is between the easterly corner of largest shack and northerly corner of small shanty (the most seaward of group) directly under southeast edge of porch, and 13.638 meters (44.74 feet) from station in azimuth $186^{\circ}37'$. In 1934 reference mark No. 1 (1923) could not be found after a search by distance and direction. Reference mark No. 2 (1932) is 70 meters (230 feet) northwest of high-water mark, 3 meters (10 feet) west of boardwalk leading to beach, 1 meter (3 feet) north of northwest corner of frame building, and 45.918 meters (150.65 feet) from station in azimuth $97^{\circ}53'$. Reference mark No. 3 (1932) (azimuth) is 3 meters (10 feet) west of old Cherry Grove Road and about 1,500 feet from station in azimuth $129^{\circ}02'22''.0$.
 Plane coordinates: (N), $x=2,715,713.67$ feet; $y=309,416.32$ feet; the grid azimuth to reference mark No. 3= $127^{\circ}42'32''.6$ ¹

Conway, water tank (Horry County, C. D. Meaney, 1932).—Plane coordinates:* (N), $x=2,593,423$ feet; $y=308,727$ feet.

North Carolina-South Carolina boundary monument (Horry County, S. C., Brunswick County, N. C., C. D. Meaney, 1932; 1934).—Station is 14.5 feet from *Little River* (see geographic position and description thereof), in azimuth $258^{\circ}01'$.

Plane coordinates:* (N), $x=2,732,148.82$ feet; $y=332,733.02$ feet.

GOLDSBORO, N. C., TO LITTLE RIVER, S. C., AND MARIETTA TO LINCOLNTON, N. C.

Principal points

Martin (Richmond County, N. C., R. D. Horne, 1933).—About 5.5 miles west-southwest of Hamlet and 5.25 miles south of Rockingham. To reach from Rockingham Hotel, go south 0.75 mile on U. S. Highway 1, turn left on slanting cross roads and follow arrow "Route 204—5 miles" straight ahead for 3.7 miles (or 1.5 miles beyond T-road on right with arrow "Cordova 4 Miles"); take right fork for 1.0 mile and turn right on slanting T-road at arrows "Rockingham 5" and "Hamlet 3," for 0.7 mile; take right fork with gas station in "V" and go 0.95 mile; take right fork again for 0.55 mile (or 0.2 mile beyond W. M. Martin's house on south side of road) to station at top of grade on property belonging to W. M. Martin, 42 feet south of center line of road, in cornfield. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 is 15 feet south of center line of road on edge of plowed field and 104.55 feet from station in azimuth $247^{\circ}10'$. Reference mark No. 2 (azimuth) is 250 feet north-northeast of W. M. Martin's house, 16 feet north of center line of road leading to station, in fork formed by this road and road leading northeast through woods, and about 0.25 mile from station in azimuth $257^{\circ}24'43''.2$. Reference mark No. 3 is 15 feet north of center line of road, at edge of field and 91.97 feet from station in azimuth $116^{\circ}47'$.

Plane coordinates: (N), $x=2,363,899.95$ feet; $y=680,139.42$ feet; the grid azimuth to reference mark No. 2= $256^{\circ}43'38''.1$ ¹

Fruitland (Richmond County, N. C., R. D. Horne, 1933).—About 6.75 miles east of Rockingham and 3.5 miles northeast of Hamlet. To reach from Seaboard Air Line Railway crossing in Hamlet, go northwest 0.65 mile on U. S. Highway 74, turn right on State Highway 204 just northwest of High School and go northeast 3.5 miles to top of grade with peach orchard on each side of road and station in peach orchard between highway and railway, on line with row of trees nearest railway, 300 feet northeast of signal 2495, 76 feet southeast of center line of highway and 48 feet northwest of center line of railway at point 135 feet southwest of switch-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 is 20 feet southeast of center line of highway and 70.84 feet from station in azimuth $194^{\circ}37'$. Reference mark No. 2 (azimuth) is 18 feet northeast of Mrs. W. T. Brooks' garden, 16 feet northwest of center line of State Highway 204, 2.5 feet northwest of telephone pole and about 0.2 mile from station in azimuth $66^{\circ}32'18''$. Reference mark No. 3 is 75 feet northeast of center line of lane leading northwest from highway, 24 feet southeast of center line of highway and 148.85 feet from station in azimuth $80^{\circ}53'$.

Plane coordinates: (N), $x=2,403,486.20$ feet; $y=702,201.77$ feet; the grid azimuth to reference mark No. 2= $65^{\circ}46'43''.1$

*No check on this position.

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

For notes in regard to marking of stations see p. 57.

Fairview (Scotland County, N. C., R. D. Horne, 1933).—About 9 miles northwest of Laurinburg and 7 miles southeast of Hamlet. To reach from Seaboard Air Line Railway crossing in Hamlet, go southeast 7.2 miles on U. S. Highway 74 to station at north end of highway bridge over Seaboard Air Line Railway, in southwest corner of cultivated field, on highest ground in vicinity, about 60 feet north of center line of railway track, 46 feet east of center line of highway and 15 feet north of edge of railway cut. 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 (azimuth) is about 300 feet north of cross road, 150 feet northwest of Shell Service Station, 30 feet northwest of culvert, 19 feet south of center line of highway and about 0.2 mile from station in azimuth $355^{\circ}44'48''$. Reference mark No. 2 is across railway cut, about 20 feet south of south end of highway bridge over railway, 15 feet east of center line of highway and 129.90 feet from station in azimuth $38^{\circ}40'$. Reference mark No. 3 is across highway from and west-northwest of station, 75 feet north of center line of railway, 61 feet west of center line of highway, 12 feet east of 8-inch water-oak tree and 110.80 feet from station in azimuth $131^{\circ}22'$. Following distances and azimuths are from station: Hamlet, Hamlet Water Co., water tank, about 7 miles, $120^{\circ}30'07''.9$; Laurinburg, municipal water tank, about 9 miles, $296^{\circ}55'22''.9$; Laurinburg, Dixie Guano Co., water tank, about 9 miles, $297^{\circ}37'35''.1$.

Plane coordinates: (N), $x=2,422,170.08$ feet; $y=669,364.37$ feet; the grid azimuth to reference mark No. 1 = $354^{\circ}57'09''.1$

McInnis (Marlboro County, R. D. Horne, 1933).—About 11 miles south-southeast of Hamlet, N. C., on property belonging to Mr. S. J. McInnis. To reach from Hamlet, follow U. S. Highway 74 south for 0.4 mile from railway crossing or 0.15 mile from Mark River Bridge; turn right and follow dirt road, marked "To Bennettsville," for 0.25 mile through railway underpass; turn right for 50 feet; turn left and continue 9.8 miles to station site. Station is at top of sand hill, in peach orchard with lone dead walnut tree in southeast corner, about 0.1 mile east of State Highway 96, 36 feet north of walnut tree and between second and third rows of peach trees on south side of orchard. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 is in northeast corner of peach orchard, 100 yards east of State Highway 96 and 81.00 feet from station in azimuth $186^{\circ}51'$. Reference mark No. 2 (azimuth) is 125 feet north of house in southeast corner of cultivated field, 14 meters (46 feet) north of small filling station, 6 meters (20 feet) west of center line of State Highway 96 and 0.30 mile from station in azimuth $38^{\circ}35'24''.9$. Reference mark No. 3 is at south edge of peach orchard, 80 feet west of walnut tree and 88.60 feet from station in azimuth $77^{\circ}06'$.

Plane coordinates: (N), $x=2,390,519.92$ feet; $y=636,943.81$ feet; the grid azimuth to reference mark No. 2 = $37^{\circ}51'23''.2$.¹

Zion (Scotland County, N. C., R. D. Horne, 1933).—About 3 miles southwest of Laurinburg, in yard of Zion Church (colored). To reach from intersection of U. S. Highways 74 and 401 (State Highway 24) in Laurinburg, go southwest 3.05 miles on U. S. Highway 401 to dirt road leading south opposite brick school building on right, and turn left for 0.2 mile to station, located 142 feet west of center line of road and 61.5 feet north-northeast of northeast corner of church. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Upper mark projects 8 inches. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 is about 0.1 mile northeast of north-south dirt road leading to station, 25 feet southwest of lane on southeast side of highway, 20 feet northwest of center line of U. S. Highway 401, and about 0.3 mile from station in azimuth $184^{\circ}33'23''.1$. Reference mark No. 2 is at southwest corner of cultivated field, 25 feet east of center line of road, and 176.20 feet from station in azimuth $239^{\circ}06'$. Reference mark No. 3 is 2 feet southeast of southeast corner of church, and 112.42 feet from station in azimuth $1^{\circ}19'$.

Plane coordinates: (N), $x=2,452,100.29$ feet; $y=635,723.47$ feet; the grid azimuth to reference mark No. 1 = $183^{\circ}42'25''.1$.¹

Lynch (Marlboro County, R. D. Horne, 1933).—About 2 miles southeast of Tatum. To reach from Tatum, follow U. S. Highway 15 east for 0.75 mile and turn right for 0.65 mile to old vacant house on north side of road. Station is 44 feet north of center line of dirt road and 27 feet west of southwest corner of

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

For notes in regard to marking of stations see p. 57.

vacant house located in cotton patch on north side of road. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 is at edge of cottonfield, 15 feet north of center line of dirt road, and 92.10 feet from station in azimuth $324^{\circ}14'$. Reference mark No. 2 is at edge of cottonfield on south side of road, 13 feet south of center line of dirt road and 107.00 feet from station in azimuth $94^{\circ}58'$. Reference mark No. 3 (azimuth) is at southeast corner of vacant house, 0.15 mile southwest of road leading to station, 5 meters (16 feet) northwest of center line of northeast-southwest farm road, and about 0.30 mile from station in azimuth $100^{\circ}38'12''8$. Elevation: 200.57 feet.

Plane coordinates: (N), $x=2,431,197.87$ feet; $y=601,694.03$ feet; the grid azimuth to reference mark No. 3= $99^{\circ}49'39''4$.¹

Oak Grove (Robeson County, N. C., R. D. Horne, 1933).—About 10 miles northwest of Rowland and 7.25 miles southwest of Maxton, in yard of Oak Grove Methodist Church. To reach from Rowland, follow State Highway 71 and U. S. Highway 311 northwest 7.6 miles to Raymond; take left fork (U. S. Highway 311) 3.9 miles to cross roads; turn left (west) 1.8 miles to Old Forks Crossroads and turn right 0.25 mile to station in churchyard. To reach from Maxton, follow State Highway 71 south 5 miles to junction with U. S. Highway 311 at Raymond; turn right on U. S. Highway 311 and continue as above. Station is in north corner of churchyard about 200 feet north of church, 56 feet south-southwest of center line of road, and 23 feet northeast of 15-inch oak with triangular blaze on northwest side. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Upper mark projects 5 inches. Reference mark No. 1 is 15 feet south-southwest of center line of road and 120.95 feet from station in azimuth $302^{\circ}28'$. Reference mark No. 2 is on line with east side of church, 72.5 feet north of northeast corner of church, and 122.64 feet from station in azimuth $7^{\circ}51'$. Reference mark No. 3 (azimuth) is about 0.1 mile west of lane leading to residence on south side of road, 12 feet north of center line of road, and about 0.3 mile from station in azimuth $118^{\circ}17'08''1$.

Plane coordinates: (N), $x=2,476,512.82$ feet; $y=603,314.10$ feet; the grid azimuth to reference mark No. 3= $117^{\circ}23'28''4$.¹

Judson (Dillon County, R. D. Horne, 1933).—To reach from junction of State Highway 9 and dirt cross road in Little Rock, follow dirt road east 0.8 mile to road forks and take left fork for 7.2 miles to Judson Baptist Church at cross roads. Station is 176.5 feet from center of intersection of cross roads and 63.5 feet southwest of southwest corner of church. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 (azimuth) is about 150 feet northwest of northwest corner of house on east side of road, 7 meters (23 feet) west of center line of dirt road at northeast corner of barn, and about 0.5 mile from station in azimuth $302^{\circ}28'34''8$. Reference mark No. 2 is at northwest corner of sheet-iron barn, 70 feet southeast of center of intersection of cross roads, and 135.56 feet from station in azimuth $7^{\circ}43'$. Reference mark No. 3 is 38.5 feet northwest of northwest corner of church and 148.35 feet from station in azimuth $141^{\circ}51'$.

Plane coordinates: (N), $x=2,461,017.05$ feet; $y=570,786.79$ feet; the grid azimuth to reference mark No. 1= $301^{\circ}36'43''1$.¹

Salem (Robeson County, N. C., R. D. Horne, 1933).—About 10 miles southwest of Pembroke and 5 miles northwest of Rowland, in yard of Salem colored school. To reach from Rowland Railway Station, follow State Highway 71 northwest 5.3 miles to station located about 120 yards east-northeast of highway, 110.5 feet northwest of northwest side of school and 20 feet southeast of drainage ditch along northwest side of schoolyard. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 is 75.5 feet southeast of south corner of school, 22 feet west-southwest of 30-inch white-oak tree and 185.45 feet from station in azimuth $350^{\circ}18'$. Reference mark No. 2 is about 60 yards east-northeast of highway, 22 feet north-northeast of 24-inch white-oak tree, 12 feet southeast of center line of drive into schoolyard, and 172.17 feet from station in azimuth $50^{\circ}25'$. Reference mark No. 3 (azimuth) is about 380 feet northwest of W. M. Walker's residence, 118 feet northwest of center line of lane with names C. Barnes, W. D. McCullom, and S. McCullom, 20 feet northwest of center line of highway, and about 0.15 mile from station in azimuth $132^{\circ}49'26''$.

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

For notes in regard to marking of stations see p. 57.

Plane coordinates: (N), $x=2,502,535.69$ feet; $y=587,956.42$ feet; the grid azimuth to reference mark No. 3 = $131^{\circ}52'52''$.¹

Barlow (Dillon County, R. D. Horne, 1933).—About 1.5 miles north of Little Rock. To reach from Little Rock, go east on dirt road past church and cemetery for 0.8 mile and take left fork for 1.1 miles to station at fork of Little Rock-McLaurens Mill Road, on property belonging to G. D. Barlow, in cultivated field in front of small Negro tenant house which is between two mulberry trees, 85 feet east of mulberry tree in front of house, 51 feet west of center line of main road and 31 feet south of driveway leading to house. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Upper mark projects about 6 inches. Reference marks are standard disks in concrete, note 11a. Reference mark No. 1 is at east edge of cultivated field, 39 paces south of driveway, 17 feet west of center line of main road and 91.27 feet from station in azimuth $313^{\circ}39'$. Reference mark No. 2 (azimuth) is at northwest corner of woods, 19 feet east of center line of main road and about 0.3 mile by road from station in azimuth $334^{\circ}10'37''$. Reference mark No. 3 is at east edge of cultivated field, 54 feet north of driveway to tenant house, 19 feet west of center line of main road and 89.20 feet from station in azimuth $176^{\circ}17'$.

Plane coordinates: (N), $x=2,479,356.17$ feet; $y=549,461.45$ feet; the grid azimuth to reference mark No. 2 = $333^{\circ}16'44''$.¹

Dillon north base (Robeson County, N. C., C. I. Aslakson, 1933).—At Rowland, near Atlantic Coast Line Railroad depot, 15.84 meters (52.0 feet) west of east rail of north-bound track and 10.8 meters (35 feet) south of south end of depot. Surface mark is standard station disk in concrete, note 1a, stamped "Dillon North Base (1933)." Underground mark is standard reference disk in concrete instead of station disk. Reference marks Nos. 1 and 2 are standard reference disks in concrete, note 11a. Reference mark No. 1 is just across tracks from station, 15.8 meters (52 feet) east of center line of north-bound track, 2.5 meters (8 feet) southeast of telegraph pole, and 31.548 meters (103.50 feet) from station in azimuth $287^{\circ}02'$. Reference mark No. 2 is just across tracks from Atlantic Coast Line Railroad cotton platform, 10.40 meters (34.1 feet) south of center line of dirt street, 10 meters (33 feet) east of center line of north-bound track, 4.5 meters (15 feet) west of telegraph pole, and 45.152 meters (148.14 feet) from station in azimuth $354^{\circ}38'$. Reference mark No. 3 (azimuth) is standard reference disk stamped "Dillon North Base R. M. #3 (1933)" cemented in drill hole in south face (southwest corner) of brick building occupied by Wilson Motor Sales Company, 1.18 meters (3.9 feet) above ground, about 100 meters (328 feet) northeast of depot, 16.25 meters (53.3 feet) east of center line of north-bound track, 1.12 meters (3.7 feet) east of southwest corner of building, and about 140 meters (459 feet) from station in azimuth $221^{\circ}49'55''$. Rowland, Methodist Church, spire is about 0.5 mile from station in azimuth $344^{\circ}45'07''$.⁵

Plane coordinates: (N), $x=2,513,990.47$ feet; $y=563,389.24$ feet; the grid azimuth to Rowland, Methodist Church, spire = $343^{\circ}47'19''$.¹

Dillon south base (Dillon County, C. I. Aslakson, 1933).—About 1.5 miles north of Dillon, at first curve on Atlantic Coast Line Railroad, 189.38 meters (621.3 feet) south along extension of tangent of north point of tangency of east rail of north-bound track, about 425 feet north of automatic semaphores Nos. 2614 and 2615, 12.95 meters (42.5 feet) southwest of telegraph pole, 9.5 meters (31 feet) east of center line of north-bound track, and 4.70 meters (15.4 feet) west of another telegraph pole. To reach from Dillon, go north 1.5 miles on U. S. Highway 301 direct to station site. Surface mark is standard station disk in concrete, note 1a. Underground mark is standard reference disk in concrete. Reference mark No. 1 (azimuth) is standard reference disk, note 11c, in top of south concrete abutment of trestle, 260.50 meters (854.7 feet) north of milepost C-121, 150.22 meters (492.8 feet) south of automatic semaphores Nos. 2604 and 2605, 2 meters (7 feet) east of east rail of north-bound track, and 1,395.55 meters (4,578.6 feet) from station in azimuth $208^{\circ}15'09''$.⁹ Reference marks Nos. 2 and 3 are standard disks in concrete, note 11a. Reference mark No. 2 is 9.8 meters (32 feet) east of center line of north-bound track, 8.25 meters (27.1 feet) southwest of pole, 4.5 meters (15 feet) west of telegraph pole line, and 40.50 meters (132.9 feet) from station in azimuth $31^{\circ}47'$. Reference mark No. 3 is directly across tracks from station, 21.9 meters (72 feet) west of center line of north-bound track, and 31.27 meters (102.6 feet) from station in azimuth $123^{\circ}58'$. Elevation: 123.35 feet.

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

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Plane coordinates: (N), $x=2,494,906.63$ feet; $y=526,230.29$ feet; the grid azimuth to reference mark No. 1 = $207^{\circ}19'34''.3$ ¹

Hammond (Robeson County, N. C., R. D. Horne, 1933).—About 3 miles (air line) east-southeast of Rowland. To reach from intersection of U. S. Highway 301 and State Highway 71 in Rowland, go east 3.35 miles on State Highway 71 direct to station site. Station is on highest ground in vicinity, on property belonging to J. Hammond, about 35 yards southeast of Hammond's house, 86 feet north of center line of highway, and 31.5 feet northwest of northwest corner of ornamental iron fence around small family graveyard. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 (azimuth) is about 100 feet west of small bridge crossing road, at north edge of woods, 36 feet southwest of center line of highway, and about 0.5 mile from station in azimuth $335^{\circ}50'41''.9$. Reference mark No. 2 is at southeast corner of Hammond's yard, 43 feet northeast of center line of highway, 34.7 feet southeast of southwest corner of fence around graveyard, and 85.14 feet from station in azimuth $350^{\circ}57'$. Reference mark No. 3 is in area between road along northwest side of yard and State Highway 71, 43 feet east of center line of highway, 2 feet east of northeast corner of Hammond's garage, and 112.52 feet from station in azimuth $117^{\circ}29'$.

Plane coordinates: (N), $x=2,525,006.15$ feet; $y=550,333.19$ feet; the grid azimuth to reference mark No. 1 = $334^{\circ}51'40''.7$ ¹

Hamer (Dillon County, R. D. Horne, 1933).—About 7 miles northeast of Dillon, on high ground 200 feet southwest of North Carolina-South Carolina State line, 35 feet northwest of center line of U. S. Highway 301 and opposite speed-limit sign. To reach from Dillon, go northeast on U. S. Highway 301 to State line and station site. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Upper mark is 1 foot below surface of ground. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 is opposite Gulf filling station, 27 feet northwest of center line of U. S. Highway 301, and 202.67 feet (slope) from station in azimuth $228^{\circ}00'$. Reference mark No. 2 is 24 feet southwest of center line of U. S. Highway 301, and 168.77 feet (slope) from station in azimuth $20^{\circ}53'$. Reference mark No. 3 (azimuth) is 45 feet north of north corner-post of tobacco barn on property belonging to J. N. Hamilton, 24 feet southeast of center line of U. S. Highway 301, and about 0.5 mile from station in azimuth $41^{\circ}51'13''$. Elevation: 130.15 feet.

Plane coordinates: (N), $x=2,509,894.12$ feet; $y=550,063.20$ feet; the grid azimuth to reference mark No. 3 = $40^{\circ}53'54''.1$

Oliver (Dillon County, R. D. Horne, 1933; 1935).—About 6.5 miles southeast of Dillon and 6 miles northwest of Lake View. To reach, follow State Highway 9 southeast of Dillon for 6.4 miles, or northwest from Lake View for 6.6 miles direct to station site. Station is in hog pasture on south side of highway, 76 feet southwest of center of intersection of highway and north-south dirt road, 36 feet southwest of northeast corner of pasture fence and in line with center of intersection and fence corner. Surface and underground marks are standard-disks in concrete, notes 1a and 7a. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 is in cultivated field, 18 feet west of center line of north-south road, in north-south line of telephone poles, 14 inches south of second pole north of main road, and 218.59 feet from station in azimuth $201^{\circ}57'$. Reference mark No. 2 is 39 feet northwest of small Negro cabin, 19 feet east of center line of north-south road, and 172.19 feet from station in azimuth $1^{\circ}03'$. Reference mark No. 3 (azimuth) is about 30 feet north of center line of State Highway 9, 15 feet northwest of north end of 30-inch concrete culvert across road, 12 feet west of center line of drainage ditch entering culvert, and about one-third mile from station in azimuth $109^{\circ}56'57''.7$.

Plane coordinates: (N), $x=2,523,755.24$ feet; $y=508,174.10$ feet; the grid azimuth to reference mark No. 3 = $108^{\circ}58'09''.8$ ¹

Pittman (Robeson County, N. C., R. D. Horne, 1933).—About 8.5 miles southeast of Rowland and 2.5 miles southwest of Fairmont. To reach from Fairmont, go southwest 3 miles on State Highway 71 direct to station site. To reach from Rowland, go southeast 10.4 miles on State Highway 71. Station is on highest point of cultivated field across highway from Leo T. Bullock's residence, 67 feet northwest of center line of highway and 40 feet southwest of center line of side road just southwest of Bullock's service station. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Upper mark

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

For notes in regard to marking of stations see p. 57.

projects 5 inches. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 is on Mr. Bullock's property, 30 feet southeast of center line of highway, 10 feet northeast of drive into Bullock's yard, and 127.22 feet (slope) from station in azimuth $271^{\circ}47'$. Reference mark No. 2 is about 155 feet along lane south of center line of highway, 100 feet southwest of southwest side of Bullock's house, 5 feet east of center line of lane, 1 foot west of fence line, and 179.26 feet from station in azimuth $341^{\circ}34'$. Reference mark No. 3 (azimuth) is on property belonging to Mrs. R. A. Pittman, about 75 yards west of W. H. Nye's residence, 45 yards southwest of tobacco barn, 40 feet southeast of center line of highway, 14 feet south of center line of side road, and about 0.15 mile from station in azimuth $43^{\circ}15'22''$.

Plane coordinates: (N), $x=2,556,505.53$ feet; $y=546,173.62$ feet; the grid azimuth to reference mark No. 3= $42^{\circ}12'49''$.¹

Claybank (Robeson County, N. C., R. D. Horne, 1933).—About 8 miles northeast of Fair Bluff and 4 miles south of Fairmont, on grounds of Claybank School (colored). To reach from Fairmont, go south 4.1 miles on State Highway 70 direct to station, located in northwest corner of pine grove, 115 feet southwest of southwest corner of school building, 103 feet east-southeast of center line of pavement and 15 feet west of prolongation of center line of pavement north of curve at school. 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 is 96 feet northwest of northwest corner of school building, 38 feet east-southeast of center line of pavement, and 208.40 feet from station in azimuth $180^{\circ}25'$. Reference mark No. 2 (azimuth) is on property belonging to Mrs. Harry Weinstein, 150 feet north of north side of barn, 23 feet east of center line of pavement, and about 0.35 mile from station in azimuth $181^{\circ}51'12''$.⁷ Reference mark No. 3 is at top of 4-foot bank, at south end of curve in highway, 25 feet east-southeast of center line of pavement, and 136.10 feet from station in azimuth $55^{\circ}27'$.

Plane coordinates: (N), $x=2,569,071.06$ feet; $y=526,944.43$ feet; the grid azimuth to reference mark No. 2= $180^{\circ}47'17''$.³

Kemper (Dillon County, J. P. Lushene, 1933; 1935).—At Kemper, about 13 miles southeast of Dillon and 2 miles southwest of Lake View. To reach, follow State Highway 9 to Lake View, thence southwest on dirt road about 2 miles to Kemper. Station is in school yard near property line of Baptist Church, about 180 feet south of center line of county road passing front of school building and 130 feet south of southeast corner of school building. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 projects 5 inches, is near southeast corner of school building, about 90 feet south of center line of county road, 60 feet southwest of school pump, and 129.46 feet from station in azimuth $186^{\circ}57'$. Reference mark No. 2 projects 5 inches, is at northwest corner of church, 120 feet south of road, and 106.11 feet from station in azimuth $290^{\circ}22'$. Reference mark No. 3 (azimuth) projects 6 inches, is 150 feet south of south face of railroad depot, 125 feet west of north-south county road, 12 feet east of railroad tracks, 2 feet north of north face of storehouse, and about 0.15 mile from station in azimuth $142^{\circ}07'53''$.

Plane coordinates: (N), $x=2,543,719.88$ feet; $y=487,433.41$ feet; the grid azimuth to reference mark No. 3= $141^{\circ}06'53''$.¹

Nichols (Dillon County, R. D. Horne, 1933).—About 5 miles southeast of Kemper and 3 miles north of Nichols. To reach from railway depot in Nichols, go north 3.2 miles on State Highway 9 to station located in cultivated field, about 150 yards southeast of E. Horn's dwelling, 54 feet east of State Highway 9 at point where highway curves northeast, 30.2 feet east-southeast of telephone pole 197 and 18 feet west of west side extended of long wooden barn. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Upper mark is about 8 inches below surface of ground. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 (azimuth) is about 0.3 mile north of Marion-Dillon County line, directly across road from telephone pole 188, 112 paces south of lane leading to farm buildings on west side of highway, 9 paces west of center line of State Highway 9, and about 0.4 mile from station in azimuth $354^{\circ}44'39''$. Reference mark No. 2 is on west edge of same cultivated field as station, 38 feet east of center line of road, 33.5 feet north of telephone pole 196, and 157.19 feet from station in azimuth $359^{\circ}07'$. Reference mark

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

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No. 3 is across road from station, on east edge of cultivated field, 32 feet west of center line of State Highway 9, 2 feet south of pole guying telephone pole 197, and 87.16 feet from station in azimuth $95^{\circ}19'$.

Plane coordinates: (N), $x=2,559,355.44$ feet; $y=470,078.05$ feet; the grid azimuth to reference mark No. 1= $353^{\circ}41'56''$.¹

Ford (Columbus County, N. C., R. D. Horne, 1933).—About 2.7 miles east of post office in Fair Bluff. To reach from Fair Bluff, go east 2.7 miles on U. S. Highway 17 direct to station, located on property belonging to C. R. Ford, in pine timber on north side of highway, 93 feet northeast of center of intersection of cross road and highway and 57 feet east of dirt road leading north from highway. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 is 19 feet south of center line of highway, just north of path leading to house, and 120.70 feet from station in azimuth $298^{\circ}05'$. Reference mark No. 2 is 71 feet west of highway and cross-road intersection, 33 feet south of center line of highway, and 160.80 feet from station in azimuth $49^{\circ}25'$. Reference mark No. 3 (azimuth) is 10 meters (33 feet) south of center line of highway, 2 meters (7 feet) west of road leading south along west edge of cultivated field and edge of woods to farmhouse, and about 0.25 mile from station in azimuth $77^{\circ}51'29.2''$. Azimuth from station to aluminum water tank in Chadbourn is $270^{\circ}47'37''$. 4.

Plane coordinates: (N), $x=2,606,417.64$ feet; $y=488,201.09$ feet; the grid azimuth to reference mark No. 3= $76^{\circ}43'27''$. 3.¹

Floyds (Horry County, R. D. Horne, 1933).—About 6 miles northwest of Green Sea and 6 miles southeast of Nichols, on grounds of Floyds Township High School. To reach from Nichols, go southeast 0.75 mile on U. S. Highway 17 to junction with State Highway 9, and follow left fork (State Highway 9) 4.25 miles to station site. Station is at east corner of athletic field, 114 feet northwest of north corner of school building and 52 feet south-southwest of center line of highway. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Upper mark projects about 2 inches. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 (azimuth) is about 150 feet west of small white house belonging to A. M. Small on north side of road, 33 feet north-northeast of center line of highway, and about 0.2 mile from station in azimuth $295^{\circ}51'56''$. Reference mark No. 2 is 115 feet south-southwest of center line of highway, 30 feet east of east corner of school building, and 240.30 feet from station in azimuth $314^{\circ}46'$. Reference mark No. 3 is 32 feet north-northeast of center line of highway, 2 feet west of southwest corner of old wooden building, and 166.87 feet from station in azimuth $153^{\circ}00'$.

Plane coordinates: (N), $x=2,586,513.48$ feet; $y=438,398.89$ feet; the grid azimuth to reference mark No. 1= $294^{\circ}46'14''$.¹

Wilson (Columbus County, N. C., R. D. Horne, 1933).—About 7 miles southwest of Chadbourn. To reach from Tabor, follow Tabor-Fair Bluff Road 10 miles to filling station in forks of road just south of Cherry Grove Church, and turn right on Cerro Gordo Road for 3.2 miles to station. To reach from Clarendon, go east to village of Wards, then southwest on Fair Bluff road to junction with Cerro Gordo Road at Wards Crossroads; turn left at this point and proceed 1.4 miles to station. To reach from Chadbourn, go west on U. S. Highway 17 to concrete highway bridge over Porters Swamp; continue west 0.3 mile and turn left (south) onto dirt road for 0.4 mile to railroad; turn right before crossing tracks and go 0.1 mile to railroad depot at Cerro Gordo, and turn left across tracks at point east of depot for 2.35 miles to station. Station is on property belonging to W. H. Wilson, 56 feet west of center line of dirt road and 42.5 feet south of south-west corner of tobacco barn at south edge of cultivated field south of Mr. Wilson's farmhouse. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 (azimuth) is 13 meters (43 feet) north-northeast of center line of road intersection, 9 meters (30 feet) north of center line of north-east-southwest road, 5 meters (16 feet) east of center line of T-road, and about 0.30 mile from station in azimuth $226^{\circ}49'21''.0$. Reference mark No. 2 is on line of fruit trees on north side of road, 118 feet south of center line of chimney on south side of Mr. Wilson's house, 18 feet north of center line of road, and 234.10 feet from station in azimuth $231^{\circ}15'$. Reference mark No. 3 is 110 feet southeast of center line of dirt side road with $2\frac{1}{2}$ -foot drainage ditch paralleling its north side, 8 feet southwest of center line of dirt road, and 209.55 feet from station in

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

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azimuth $356^{\circ}52'$. Azimuth from station to aluminum water tank in Chadbourn is $242^{\circ}54'23''$.²

Plane coordinates: (N), $x=2,622,029.78$ feet; $y=469,824.27$ feet; the grid azimuth to reference mark No. 1= $225^{\circ}39'36''$.¹

Green Sea (Horry County, R. D. Horne, 1933).—In town of Green Sea, in southwest corner of yard of Green Sea School at southwest corner of intersection of State Highway 9 and U. S. Highway 701. To reach from Tabor, go southwest 0.7 mile on U. S. Highway 701 to State boundary and continue southwest on same highway 6.1 miles to station, located on line of row of trees along south side of schoolyard, 450 feet west of U. S. Highway 701, 300 feet south of State Highway 9, 152 feet south-southwest of southwest corner of school, 28 feet east of fence along west side of schoolyard, and 40 feet north of north side of E. L. Buffkin's house. 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 (azimuth) is in southeast corner of schoolyard, 90 feet southeast of southeast corner of south wing of school building, 90 feet south-southeast of southeast corner of east wing of building, 36 feet north of center line of road which is the extension of State Highway 9, and about 0.2 mile from station in azimuth $254^{\circ}12'47''$. Reference mark No. 2 is in front yard of Buffkin's house, 20 feet east of prolongation of east side of school building, 9 feet south of center line of drive to house, 1 foot north of fence line, and 127.85 feet from station in azimuth $293^{\circ}40'$. Reference mark No. 3 is 88 feet southwest of southwest corner of school building, 1 foot east of fence along west side of schoolyard, and 99.78 feet from station in azimuth $173^{\circ}48'$.

Plane coordinates: (N), $x=2,612,028.38$ feet; $y=415,561.19$ feet; the grid azimuth to reference mark No. 1= $253^{\circ}04'17''$.¹

Clarendon (Columbus County, N. C., R. D. Horne, 1933).—About 0.25 mile from Clarendon, on ground of High School, 187 feet northeast of center line of dirt road, 103 feet south of southeast corner of building, and 31 feet west of fence line on east side of grounds. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 is 71 feet northwest of fence line on east side of school grounds, 24 feet northeast of center line of road, 3 feet northwest of T-pole on north side of road, and 162.80 feet from station in azimuth $33^{\circ}54'$. Reference mark No. 2 (azimuth) is in southwest angle of cross roads in town, 16 meters (52 feet) southwest of center line of intersection of cross roads, 15 meters (49 feet) south of grade crossing, 3 meters (10 feet) east of east rail of railroad track, and about 0.25 mile from station in azimuth $112^{\circ}30'02''.5$. Reference mark No. 3 is in concrete walk at entrance to school, 8 feet east of entrance, 5 feet northeast of east pillar at entrance, 18 inches west of east edge of walk, and 118.50 feet from station in azimuth $161^{\circ}41'$. Azimuth from station to Tabor, municipal, aluminum water tank is $27^{\circ}26'27''.0$.

Plane coordinates: (N), $x=2,652,789.80$ feet; $y=446,625.29$ feet; the grid azimuth to reference mark No. 2= $111^{\circ}16'54''.5$.¹

Iron Hill (Columbus County, N. C., R. D. Horne, 1933).—About 6 miles by road southeast of Tabor and 5.6 miles southeast of Clarendon. To reach from Tabor, go southeast 6 miles on second street south of railway depot, cross tracks and go east about 0.3 mile to end of cement road; turn right on dirt road and follow arrows pointing to Iron Hill. Station is at cross roads, on property belonging to W. A. Inman, southwest of grove of small pines, 111 feet south of center line of east-west road, and 19 feet west of fence line on east side of pasture. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 is in northeast corner of pasture at fence corner, 44 feet south of center line of east-west road, and 123.37 feet from station in azimuth $229^{\circ}03'$. Reference mark No. 2 (azimuth) is about 200 feet west of farm on south side of road, opposite house on north side of road, 6 meters (20 feet) south of center line of east-west road, 1 meter (3 feet) south of fence corner formed by north-south and east-west fence lines on south side of road, 1 foot west of north-south fence line, and about 0.30 mile from station in azimuth $260^{\circ}49'48''.3$. Reference mark No. 3 is 22 feet south of fence line on north side of pasture, and 146.98 feet from station in azimuth $120^{\circ}23'$.

Plane coordinates: (N), $x=2,670,409.98$ feet; $y=421,409.71$ feet; the grid azimuth to reference mark No. 2= $259^{\circ}34'45''.6$.¹

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

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Loris (Horry County, R. D. Horne, 1933).—At Loris, in yard of Loris Public School, 154 feet east-northeast of northeast corner of north wing of grade school building (old high school building), 90 feet south of center line of street along north side of school grounds and 15 feet west of east edge of woods on east side of school grounds. To reach from main street intersection in Loris, go east 1 block, turn right for 1 block, turn left on street along north side of school grounds for 0.1 mile to 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 is across street from edge of woods on east side of school grounds, 18 feet north of center line of street and 104.75 feet from station in azimuth $214^{\circ}38'$. Reference mark No. 2 (azimuth) is 75 feet south-southeast of southwest corner of old Presbyterian Church (occupied by Junior Order of United American Mechanics), 65 feet east of center line of main track of Atlantic Coast Line Railroad, 40 feet east of center line of street parallel to railroad and about 0.25 mile from station in azimuth $127^{\circ}18'54''$. Reference mark No. 3 is 28 feet south of center line of street, 6 feet west of prolongation of east side of east wing of Grade School building and 124.60 feet from station in azimuth $149^{\circ}38'$.

Plane coordinates: (N), $x=2,639,604.66$ feet; $y=389,688.25$ feet; the grid azimuth to reference mark No. 2= $126^{\circ}07'23''$.¹

Guide (Columbus County, N. C., R. D. Horne, 1933).—About 13 miles southeast of Tabor, N. C., 3.5 miles north of Pireway, N. C., on property of Columbus County School Board, part of Guideway Consolidated School, 100 yards southwest of school, 50 yards north of southwest corner of schoolyard, and 20 feet east of west edge of school grounds. To reach from post office in Tabor, follow main street south for 1 block, turn east (left) for about 0.3 mile to end of concrete road, turn right on dirt road and follow arrows pointing to Pireway for 8.5 miles, turn left (northeast as marked by arrows), pass Zion Church on right 2.8 miles from turn and continue 1.4 miles to station. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 is 120 yards south of center line of road, 90 yards west of school, 15 yards southwest of southwest corner of outdoor basketball court, 10 feet east of west edge of school grounds and 126.30 feet from station in azimuth $205^{\circ}07'$. Reference mark No. 2 (azimuth) is 0.15 mile south of crossroads formed by road leading by school and southwest-northeast road, 5 meters (16 feet) south-southeast of center line of southwest-northeast road, in southeast edge of timber and cultivated field on opposite side of road and 0.25 mile from station in azimuth $305^{\circ}14'37''$. Reference mark No. 3 is on edge of school grounds, 120 yards south of school building, 50 yards east of southwest corner of schoolyard and 192.00 feet from station in azimuth $329^{\circ}56'$.

Plane coordinates: (N), $x=2,696,207.36$ feet; $y=395,731.54$ feet; the grid azimuth to reference mark No. 2= $304^{\circ}56'45''$.¹

Simpson (Horry County, R. D. Horne, 1933).—About 16 miles northeast of Conway, 5.5 miles southeast of Loris, 2 miles east of village of Daisy, on land belonging to Simpson Creek County School, 300 feet northeast of school, 300 feet southeast of Simpson Creek Church, 280 feet west of artesian well at north edge of road southwest of church, 32 feet south of center line of road and 20 feet north-northeast of 10-inch pine triangular-blazed on north side. To reach from main street intersection in Loris, go east 0.3 mile; turn right (southeast) for 4.3 miles to T-road intersection; turn right for 0.15 mile to crossroads at Daisy; turn left and follow main road east for 1.15 miles and south for 0.2 mile to Simpson Creek School and continue straight ahead for 250 feet to station. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Upper mark projects 8 inches. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 is 80 feet west of center line of lane, 18 feet south of center line of road and 132.22 feet from station in azimuth $272^{\circ}41'$. Reference mark No. 2 (azimuth) is about 335 feet east of small bridge, 30 feet east of east edge of cultivated field, 18 feet north of center line of road and about 0.1 mile from station in azimuth $273^{\circ}35'20''$. Reference mark No. 3 is 190 feet east of artesian well, 132 feet east-southeast of southeast corner of church, 30 feet north of center line of road and 117.00 feet from station in azimuth $133^{\circ}21'$.

Plane coordinates: (N), $x=2,655,918.13$ feet; $y=366,003.41$ feet; the grid azimuth to reference mark No. 2= $272^{\circ}22'03''$.¹

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

For notes in regard to marking of stations see p. 57.

Supplementary points

Mullins, southerly black water tank, ball on top (Marion County, R. D. Horne, 1933).—Plane coordinates: (N), $x=2,529,258.51$ feet; $y=443,059.76$ feet.

Mullins, northerly black water tank, ball on top (Marion County, R. D. Horne, 1933).—Plane coordinates: (N), $x=2,527,335.56$ feet; $y=443,377.77$ feet.

Turner (Dillon County, S. C., Columbus County, N. C., R. D. Horne, 1933).—About 7 miles northeast of Nichols and 2 miles southwest of Fair Bluff, N. C., on South Carolina-North Carolina State line. To reach from Fair Bluff, follow U. S. Highway 17 southwest for 0.5 mile to curve in highway just north of railroad crossing; turn right on dirt road at curve and continue southwest 1.25 miles to railroad; turn right on dirt road along railroad track for 0.4 mile to where there is a tobacco barn straight ahead at point where road bears right away from track. Station is 93 feet northwest of center line of railroad track and 55 feet southwest of southwest side of tobacco barn. Surface mark is standard disk cemented in top of 8-inch square granite post which is boundary marker with letters "SC" on southwest side and "NC" on northeast side. Post projects 4 feet. Reference mark No. 3 and azimuth mark are standard disks in concrete, note 11a. Reference mark No. 1 (azimuth) is about 200 yards north of curve in road where it leaves railroad track, 35 feet south of tobacco barn, 15 feet west of center line of road and about 0.4 mile from station in azimuth $222^{\circ}57'25''$. 3. Reference mark No. 3 is 25 feet west-southwest of southwest corner of tobacco barn, 6 feet north of center line of road, 1 foot south of fence and 92.71 feet from station in azimuth $150^{\circ}43'$. *Bench mark State line* (see description thereof) is 116.05 feet from station in azimuth $246^{\circ}08'$.

Plane coordinates: (N), $x=2,584,919.62$ feet; $y=475,885.79$ feet; the grid azimuth to reference mark No. 1 = $221^{\circ}51'49''$. 7.¹

Bench mark State line (Columbus County, N. C.; Dillon County, S. C., R. D. Horne, 1933).—About 7 miles northeast of Nichols, 2 miles southwest of Fair Bluff on North Carolina-South Carolina State line, 52 feet northwest of center line of railroad track, and 18 feet southwest of most southerly of two large maple trees between road and railroad. Marked by standard bench-mark disk in top of concrete post. Station *Turner* (see description thereof) is 35.372 meters (116.05 feet) from station in azimuth $66^{\circ}08'$.

Plane coordinates:* (N), $x=2,585,024.84$ feet; $y=475,934.72$ feet.

Replacement (Horry County, S. C., Columbus County, N. C., R. D. Horne, 1933).—About 7 miles northwest of Tabor, N. C., on South Carolina-North Carolina State line at corner of property lines of Fred Lancaster and Sam Herring. To reach from railroad station in Tabor, follow U. S. Highway 701 west for 0.15 mile; turn right on dirt road for 0.25 mile to forks; turn left for 0.35 mile to forks; continue northwest on main road for 6.1 miles to cross roads (Herring's home on left); turn left for about 200 yards and turn right on woods road to station which is 175 feet north of center line of road. Surface mark is standard disk in top of granite post carved on east face "Pine blazed 1735 Standing alive in 1928", on north face "N. C." and on south face "S. C." Post projects about 3.5 feet and is set over center of where blazed pine stood. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 (azimuth) is about 160 feet west of tobacco barn, 6 meters (20 feet) north-northeast of center line of east-west road that crosses road to station, 2 meters (7 feet) north of center line of 3- by 3-foot drainage ditch and 0.25 mile from station in azimuth $300^{\circ}55'37''$. 0. Reference mark No. 2 is 17 feet north of center line of road and 157.68 feet from station in azimuth $319^{\circ}57'$. Reference mark No. 3 is in underbrush, 90.65 feet from station in azimuth $50^{\circ}01'$. Following azimuths are from station: North Carolina-South Carolina boundary marker, said to be exactly 37 miles west of the coast, distant 500 feet, $315^{\circ}20'43''$. *Tabor, municipal, aluminum water tank*, $308^{\circ}11'36''$.

Plane coordinates: (N), $x=2,616,572.00$ feet; $y=445,112.75$ feet; the grid azimuth to reference mark No. 1 = $299^{\circ}46'32''$. 6.¹

Tabor, municipal, aluminum water tank (Columbus County, N. C., R. D. Horne, 1933).—Plane coordinates: (N), $x=2,642,432.25$ feet; $y=425,596.43$ feet.

Tabor (Horry County, S. C., Columbus County, N. C., R. D. Horne, 1933).—About 0.75 mile southwest of Tabor, N. C., in Fred Powell's yard, about 25 yards north of "State line filling station" (Gulf gasoline) and 47 feet west of center line of U. S. Highway 701. Surface and underground marks are standard disks in

*No check on this position.

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

concrete, notes 1a and 7a. Reference marks Nos. 2 and 3 are standard disks in concrete, note 11a. Reference mark No. 1 (azimuth) is standard disk cemented in top of and 1 foot from south end, of $\frac{3}{4}$ - by 6-foot concrete culvert, note 11c, on east side of U. S. Highway 701, and 0.25 mile from station in azimuth $220^{\circ}22'31''$. Reference mark No. 2 is 32 feet west of center line of U. S. Highway 701, in line of north-south power line poles, 2 feet south of first pole north of station and 89.18 feet from station in azimuth $227^{\circ}05'$. Reference mark No. 3 is at southeast corner of F. Powell's house and 80.74 feet from station in azimuth $101^{\circ}15'$. *North Carolina-South Carolina state-line monument* (see description thereof) is 12.82 feet from station in azimuth $317^{\circ}38'$. Another State line monument, lettered "NC" on north face, "SC" on south face and "28" (28 miles from shore line) on east face, is 0.5 mile from station in azimuth $135^{\circ}22'04''$. 6.

Plane coordinates: (N), $x=2,640,598.84$ feet; $y=421,754.44$ feet; the grid azimuth to reference mark No. 1= $219^{\circ}10'48''$.¹

North Carolina-South Carolina state-line monument (Columbus County, N. C.; Horry County, S. C., R. D. Horne, 1933).—On North Carolina-South Carolina State line, 0.75 mile southwest of Tabor, and 10 yards west of center line of U. S. Highway 701. Marked by 6-inch square by $4\frac{1}{2}$ -foot-high granite monument which has "NC" cut on north face and "SC" on south face. Station *Tabor* (see description thereof) is 3.908 meters (12.82 feet) from station in azimuth $137^{\circ}38'$.

Plane coordinates:* (N), $x=2,640,607.70$ feet; $y=421,745.13$ feet.

Dothan (Horry County, S. C., Columbus County, N. C., R. D. Horne, 1933).—About 11.5 miles southeast of Tabor, N. C., on South Carolina-North Carolina State line. To reach from Tabor, follow dirt state highway (road to Fireway) southeast for 8 miles to Standard Oil filling station; turn right and follow arrow "To Dothan" for 3 miles; take left fork for 0.75 mile; turn right, just north of Camp Swamp Methodist Church (at 3 mail boxes) and follow dirt road for 0.5 mile to State line. Station is in cultivated field belonging to A. J. Suggs, 25 yards west of house belonging to H. W. Marlowe (occupied by W. C. Jones) and 26 feet west of center line of road. Surface mark is standard disk cemented in center of top of boundary monument, 6-inch square granite post, lettered "NC" on northeast face and "SC" on southwest face. Post projects 4.5 feet. Reference marks are standard disks in concrete, note 11a. Reference mark No. 1 is 27 feet west of northwest corner of log tobacco barn, 18 feet east of center line of road and 101.95 feet from station in azimuth $207^{\circ}36'$. Reference mark No. 2 is on north edge of driveway to Jones' house, 22 yards from center line of road, 31 feet north of 24-inch deciduous tree and 108.12 feet from station in azimuth $332^{\circ}20'$. Reference mark No. 3 (azimuth) is in southeast corner of cultivated field, 18 feet west of center line of road, 6 feet west of drainage ditch on west side of road, 6 feet north of drainage ditch perpendicular to road and about 0.2 mile from station in azimuth $1^{\circ}32'50''$.

Plane coordinates: (N), $x=2,682,565.51$ feet; $y=380,946.29$ feet; the grid azimuth to reference mark No. 3= $0^{\circ}16'32''$.¹

Dillon, Dillon Oil Company, tall slender black water tank (Dillon County, R. D. Horne, 1933).—Plane coordinates: (N), $x=2,491,310.84$ feet; $y=520,955.48$ feet.

Dillon, municipal red water tank (Dillon County, R. D. Horne, 1933).—Plane coordinates:* (N), $x=2,491,716$ feet; $y=521,505$ feet.

Maxton, municipal water tank, aviation beacon on top (Scotland County, N. C., R. D. Horne, 1933).—Plane coordinates: (N), $x=2,495,868.03$ feet; $y=636,636.27$ feet.

Rowland, municipal water tank, ball on top (Robeson County, N. C., R. D. Horne, 1933).—Plane coordinates: (N), $x=2,513,811.02$ feet; $y=565,458.05$ feet.

Hamer, Carolina Textile Corporation, stack (Dillon County, R. D. Horne, 1933).—Plane coordinates: (N), $x=2,503,157.17$ feet; $y=542,825.54$ feet.

Hamer, Carolina Textile Corporation, water tank, ball on top, near stack (Dillon County, R. D. Horne, 1933).—Plane coordinates: (N), $x=2,503,050.87$ feet; $y=542,849.68$ feet.

McRae (Dillon-Marlboro Counties, S. C., Robeson-Scotland Counties, N. C., R. D. Horne, 1933).—About 7 miles northeast of Clio at South Carolina-North Carolina boundary line. To reach from Clio, follow State Highway 381 northeast for 0.7 mile to fork; follow left for 1.7 miles to where State Highway 381 turns left; continue straight ahead for 1.1 miles to Red Bluff and follow same road for 3.6 miles to station site. Station is 30 feet northwest of center line of Clio-Maxton

*No check on this position.

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

road and 20 feet northeast of dim road through field and 8.5 feet northwest of State line boundary. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 (azimuth) is 125 yards north of Mr. McLean's residence, 100 yards south of two-room tenant house, 41 yards north of junction of Clio-Maxton and Laurinburg Roads, 5 yards east of center line of Laurinburg Road and about 0.3 mile from station in azimuth $264^{\circ}34'31''$. Reference mark No. 2 is at north corner of S. Lockely's yard, 67.3 feet southeast of east corner of his house, 27 feet northwest of center line of Clio-Maxton road and 140.65 feet from station in azimuth $56^{\circ}59'$. Reference mark No. 3 is on northeast side of dim road through field, 5 feet southeast of drainage ditch and 263.46 feet from station in azimuth $131^{\circ}20'$. *North Carolina-South Carolina state-line monument (1906)* (see description thereof) is 8.5 feet from station in azimuth $327^{\circ}01'$.

Plane coordinates: (N), $x=2,463,817.22$ feet; $y=595,744.69$ feet; the grid azimuth to reference mark No. 1= $263^{\circ}42'18''$.¹

North Carolina-South Carolina State-line monument (1905) (Robeson-Scotland Counties, N. C.; Dillon-Marlboro Counties, S. C., R. D. Horne, 1933).—On North Carolina-South Carolina State line, about 7 miles northeast of Clio. Marked by 5- by 5-inch granite post lettered "1905." Station *McRae* (see description thereof) is 2.59 meters (8.5 feet) from station in azimuth $147^{\circ}01'$.

Plane coordinates:* (N), $x=2,463,821.93$ feet; $y=595,737.59$ feet.

McColl, municipal, aluminum water tank (Marlboro County, R. D. Horne, 1933).—Plane coordinates: (N), $x=2,436,878.69$ feet; $y=610,895.87$ feet.

McColl, Marlboro Cotton Mills, aluminum tank (Marlboro County, R. D. Horne, 1933).—Plane coordinates:* (N), $x=2,437,962$ feet; $y=610,398$ feet.

Laurenburg, Dixie Guano Co., water tank (Scotland County, N. C., R. D. Horne, 1933).—Plane coordinates: (N), $x=2,469,240.93$ feet; $y=645,554.39$ feet.

Laurenburg, municipal water tank (Scotland County, N. C., R. D. Horne, 1933).—Plane coordinates: (N), $x=2,460,690.96$ feet; $y=650,469.41$ feet.

Airway beacon, east of Clio, flashing red and white (Dillon County, R. D. Horne, 1933).—Plane coordinates:* (N), $x=2,463,170$ feet; $y=585,297$ feet.

Bennettsville, black water tank (Marlboro County, R. D. Horne, 1933).—Plane coordinates:* (N), $x=2,395,498$ feet; $y=590,932$ feet.

Clio, white water tank (Marlboro County, R. D. Horne, 1933).—Plane coordinates:* (N), $x=2,437,001$ feet; $y=577,820$ feet.

Gibson (Scotland County, N. C., Marlboro County, S. C., R. D. Horne, 1933; 1937).—About 0.4 mile southwest of Gibson, on North Carolina-South Carolina State line, on property belonging to J. C. Hunsucker, on south edge of orchard, at end of pavement, 38.5 feet west of center line of State Highway 203 and 22.33 feet west of center of 4-inch square concrete post (State-line monument) lettered "1905" on top. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Upper mark projects 6 inches. Reference and azimuth marks are probably standard reference disks in concrete, note 11a. Reference mark No. 1 is in line of telephone poles, directly across road from Mr. Hunsucker's two-story house, 16.5 feet southeast of center line of highway, and 190.58 feet from station in azimuth $251^{\circ}59'$. Old reference mark No. 2 (azimuth) was 45 paces south of southeast corner of white bungalow with hedge enclosure, 24 paces southeast of highway, about 9 inches east of third telephone pole from station, and about 0.1 mile by road from station in azimuth $51^{\circ}31'04''$. In 1937 a new azimuth mark (Gibson R. M. 2) was established and the old azimuth mark removed. It is 14.15 feet from the position of the latter, and is in azimuth $50^{\circ}22'41''$. Reference mark No. 3 is 8 feet west of intersection of east-west and north-south ditches which marked old State line, 8 feet south of dirt farm road leading northwest from State Highway 203, and 181.82 feet from station in azimuth $104^{\circ}30'$. *North Carolina-South Carolina State-line monument* (see description thereof) is 6.806 meters (22.33 feet) from station in azimuth $317^{\circ}30'$.

Plane coordinates: (N), $x=2,415,092.33$ feet; $y=642,348.40$ feet; the grid azimuth to reference mark No. 2= $49^{\circ}35'53''$.¹

North Carolina-South Carolina State-line monument (Scotland County, N. C., Marlboro County, S. C., R. D. Horne, 1933; 1937).—On North Carolina-South Carolina State line, 0.4 mile southwest of Gibson. Marked by 4-inch square concrete post lettered "1905." Station *Gibson* (see description thereof) is 6.806 meters (22.33 feet) from station in azimuth $137^{\circ}30'$.

*No check on this position.

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

For notes in regard to marking of stations see p. 57.

Plane coordinates: * (N), $x = 2,415,107.65$ feet; $y = 642,332.13$ feet.

Perhealth (Marlboro County, S. C., Richmond County, N. C., R. D. Horne, 1933).—About 7 miles (air line), southwest of Hamlet, N. C., on South Carolina-North Carolina State line, in grassy area 40 yards south of and in line with 3 brick footings on west side of old filling station, 38 feet southeast of center line of North Carolina Highway 204 at end of pavement and 13 feet south of east post of large "State Line" sign. To reach from Hamlet, follow North Carolina Highway 204 southwest for 7.9 miles to end of pavement at State line. 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 30 paces southwest of old gasoline filling station, 18 feet southeast of center line of North Carolina Highway 204, 2 yards west of line of brick footings and 80 feet from station in azimuth $214^{\circ}37'$. Reference mark No. 2 (azimuth) is at about center of west edge of long field at point of woodland extending into field, 62 paces northwest of center line of North Carolina Highway, directly across highway from Eddie Longley's house and 0.2 mile from station in azimuth $61^{\circ}16'24''$. Reference mark No. 3 is 18 feet northwest of North Carolina Highway 204, directly across highway from south edge of cultivated field and north slope of wooded ravine and 100.65 feet from station in azimuth $83^{\circ}59'$.

Plane coordinates: (N), $x = 2,368,070.78$ feet; $y = 659,317.94$ feet; the grid azimuth to reference mark No. 2 = $60^{\circ}34'52''$.¹

Hamlet traverse tie (Richmond County, N. C., R. D. Horne, 1933).—At Hamlet, on property belonging to Hamlet Water Co., about 0.6 mile west-northwest along Main Street from downtown railway junction, in northwest corner of triangle formed by intersection of Main and Entwistle Streets and Hyland Avenue, 9.418 meters (30.90 feet) east of northwest point of outer edge of low brick wall enclosing triangle and 0.41 meter (1.3 feet) south of line between center of pipe of city water tank (at about center of triangle) and above-mentioned point on wall. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference and azimuth marks are standard disks cemented in street curbing, note 11. Reference mark No. 1 is at southwest corner of intersection of Hyland Avenue and Entwistle Street and 34.266 meters (112.42 feet) from station in azimuth $212^{\circ}38'$. Reference mark No. 2 (azimuth) is 36 feet southwest of intersection of Main Street and northeast-southwest unpaved street, 15 feet south of center line of Main Street (North Carolina Highway 204) and 0.15 mile from station in azimuth $294^{\circ}46'49''$. Reference mark No. 3 is 15.2 feet south of center line of Main Street, 2 feet east of guy pole in telephone line and 25.847 meters (84.80 feet) (slope) from station in azimuth $329^{\circ}18'$. Center of pipe of water tank is 10.134 meters (33.25 feet) from station in azimuth $261^{\circ}55'$. This pipe was used as reference mark for station Hamlet.

Plane coordinates: (N), $x = 2,387,104.14$ feet; $y = 689,349.06$ feet; the grid azimuth to reference mark No. 2 = $294^{\circ}03'06''$.¹

Rockingham (Richmond County, N. C., C. L. Garner, 1918; 1933).—About 2 miles north of Hamlet, N. C., on property belonging to Mr. D. F. Mudd, in grove of small oaks between highway and railway, about 200 yards southwest of white filling station, 156 feet southeast of North Carolina Highway 204, at first curve in Seaboard Air Line Railway south of milepost 251, at intersection of tangents to east rail of south-bound track, 88.8 feet northwest of northwest rail of track and 23.5 feet west by south of 8-inch oak with 6-inch triangular blaze, 5 feet above ground, on side toward station. To reach from junction of North Carolina Highways 74 and 204 in Hamlet, follow North Carolina Highway 204 northeast for 1.6 miles to station. Surface mark is standard disk in concrete, note 1a. Underground mark is copper bolt in concrete, note 7b. In 1933, original reference mark was found to have been disturbed, and three new standard reference disks in concrete, note 11a, were established. Reference mark No. 1 (azimuth) is 112 feet south-southwest of switch for most easterly sidetrack, 18.7 feet east of most easterly rail of this sidetrack, 16 feet west of center line of lane leading to mark and 0.4 mile from station in azimuth $243^{\circ}20'28''$. Reference mark No. 2 is 33.9 feet northwest of northwest rail of track and 83.15 feet from station in azimuth $266^{\circ}13'$. Reference mark No. 3 is 34.4 feet west of west rail of track, 5.4 feet north of short pole backing up telegraph pole and 100.66 feet from station in azimuth $10^{\circ}04'$. Following azimuths are from station: Hamlet, municipal water tank, $44^{\circ}30'40''$; Seaboard Air Line Railway tank, Hamlet, $24^{\circ}45'40''$.

*No check on this position.

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

For notes in regard to marking of stations see p. 57.

Plane coordinates: (N), $x=2,394,571.13$ feet; $y=697,116.39$ feet; the grid azimuth to reference mark No. 1= $242^{\circ}35'54''.5$.¹

TIGERVILLE TO GEORGETOWN ARC

Principal points

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 $36^{\circ}56'$. 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 $44^{\circ}32'32''.7$. 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 $162^{\circ}06'$.

Plane coordinates: (N), $x=1,965,786.53$ feet; $y=476,199.13$ feet; the grid azimuth to reference mark No. 2= $44^{\circ}36'22''.9$.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 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 $325^{\circ}40'54''.8$. 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 $347^{\circ}23'$. 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 $124^{\circ}06'$.

Plane coordinates: (N), $x=1,924,868.38$ feet; $y=453,454.83$ feet; the grid azimuth to reference mark No. 1= $325^{\circ}49'20''.0$.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 $251^{\circ}39'$. 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 $342^{\circ}43'$. 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 $350^{\circ}07'28''.0$. Azimuth from station to *Ridgeway, black water tank, ball on top*, is $142^{\circ}58'02''.2$.

Plane coordinates: (N), $x=2,014,312.86$ feet; $y=472,781.06$ feet; the grid azimuth to reference mark No. 3= $350^{\circ}05'51''.7$.¹

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

For notes in regard to marking of stations see p. 57.

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 $255^{\circ}42'13''$. No. 2 is in woods, 15 paces south of south corner of schoolhouse, 21 feet southeast of 30-inch pine, 9 feet northeast of another 30-inch pine, and 125.4 feet from station in azimuth $27^{\circ}52'$. No. 3 is 1 foot east of southeast brick foundation post of schoolhouse, and 133.33 feet from station in azimuth $154^{\circ}08'$.

Plane coordinates: (N), $x=1,982,506.22$ feet; $y=416,479.16$ feet; the grid azimuth to reference mark No. 1= $255^{\circ}44'10''$.¹

Blaney 2 (Kershaw County, R. D. Horne, 1934).—About 20 miles northwest of Columbia, 12 miles southwest of Camden, in village of Blaney, in northeast corner of yard of Blaney High School, 211.4 feet northeast of northeast corner of school building, 42 feet south-southeast of center line of pavement of U. S. Highway 1 and 24.5 feet north-northwest of projected plane of north wall of school building. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects about 12 inches. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 (azimuth) projects 6 inches, is at top of 5-foot bank, 63 paces east of southeast corner of dwelling house, 55 paces west-southwest of southwest end of highway guardrail, 8 paces northwest of center line of U. S. Highway 1 and 0.25 mile from station in azimuth $237^{\circ}47'57''$. Reference mark No. 2 is 227.8 feet east-northeast of southeast corner of school building, 125 feet south-southeast of center line of U. S. Highway 1 and 83.16 feet from station in azimuth $318^{\circ}39'$. Reference mark No. 3 is 125.8 feet north-northeast of northeast corner of school building, 28 feet south-southeast of center line of U. S. Highway 1 and 92.49 feet from station in azimuth $71^{\circ}14'$. Station *Blaney* (see description thereof) is 574.03 feet from station in azimuth $124^{\circ}03'56''$.

Plane coordinates: (N), $x=2,063,409.52$ feet; $y=426,204.73$ feet; the grid azimuth to reference mark No. 1= $237^{\circ}40'51''$.¹

Weddell (Richland County, C. L. Garner, 1918; 1934).—About 12 miles northeast of Columbia, 4 miles northeast of village of Dents, 1.25 miles northeast of Weddell Railway Station, 0.5 mile east of main line of Seaboard Air Line Railway, 0.12 mile north of milepost 348, 0.25 mile east of highway between Camden and Columbia, on highest point of Round Point Hill, and 50 meters (164 feet) west of 10-inch lone pine. To reach from Columbia, follow U. S. Highway 1 northeast about 7 miles to Dents, continue 4.2 miles (0.2 mile beyond overhead bridge over single-track railroad) to sand trail to right, turn right and go 0.2 mile to fork, turn right and go 0.1 mile to station. Surface mark is standard disk in concrete, note 1b. Underground mark is glass bottle in concrete, note 7d. Reference and azimuth marks (1934) are standard disks in concrete, note 11b. Reference mark No. 1 is 27 paces north of 12-inch pine with large strip of bark torn off, 13 paces south of 6-inch pine, and 102.57 feet (slope) from station in azimuth $265^{\circ}03'$. Reference mark No. 2 is 16 paces southwest of small pine and 114.35 feet (slope distance) from station in azimuth $341^{\circ}19'$. Reference mark No. 3 (azimuth) is on north side of another ridge, about 4 paces north of sand trail through woods, and about 0.4 mile from station in azimuth $28^{\circ}51'49''.8$. Following azimuths are from station: *Columbia, United States Veterans' Hospital, dome*, $19^{\circ}14'51''$; *Columbia, United States Veterans' Hospital, stack*, $19^{\circ}34'18''.7$; *Columbia, United States Veterans' Hospital, tank*, $19^{\circ}40'46''.4$.

Plane coordinates: (N), $x=2,027,010.22$ feet; $y=399,420.85$ feet; the grid azimuth to reference mark No. 3= $28^{\circ}48'48''.5$.¹

Mount Pleasant (Richland County, R. D. Horne, 1934).—About 13 miles south of Columbia and 0.55 mile south of old Columbia-Camden Road, on top of wooded hill, on Camp Jackson Reservation, at site of old Mount Pleasant Church (now destroyed), 61 feet west-southwest of twin 12-inch oak, 46 feet east-northeast

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

For notes in regard to marking of stations see p. 57.

of 8-inch pine with two blazes, 12 paces southwest of road forks, 29 feet west of tombstone of John H. Wise, September 21, 1853–August 21, 1928, and 19 feet southeast of center of woods road. To reach from Gulf and Standard filling stations on U. S. Highway 1 in Pontiac, go 0.8 mile south on dirt road to fork and "Spears Creek Church" sign, bear right and go 0.5 mile to fork, bear left and go 1.0 mile to T-road on right with "Dupre Dairy Farm" sign, turn right and go 3.4 miles to old Columbia-Camden Road and continue across this on woods road 0.55 mile to station at top of hill. Surface mark is standard station disk in concrete, note 1b, projecting 8 inches above ground. Underground mark is nail in concrete, note 7c. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 projects 8 inches above ground, is 9 paces east of 8-inch pine, 6 paces south of woods road, and 111.80 feet (slope distance) from station in azimuth $28^{\circ}11'$. Reference mark No. 2 (azimuth) projects 6 inches above ground, is 30 paces southwest of partly burnt 12-inch pine, 9 paces north-northwest of 4-inch pine, 4 paces east of center of woods road, and about 0.4 mile from station in azimuth $46^{\circ}53'06''$. Reference mark No. 3 projects 4 inches above ground, is 16 paces northwest of road forks, 5 paces south-southwest of 8-inch pine, and 96.70 feet from station in azimuth $152^{\circ}03'$.

Plane coordinates: (N), $x=2,055,065.48$ feet; $y=382,647.28$ feet; the grid azimuth to reference mark No. 2= $46^{\circ}46'57''.0^1$

Nob (Richland County, M. E. Lutz, 1918; 1937).—About 5.25 miles north of Columbia. To reach from Columbia, follow U. S. Highway 1 north to Segar's Puro service station at fork of U. S. Highway 1 and dirt road about 500 feet north of railway bridge and 1.65 miles southeast of Dents Railway Station, take left fork for 0.2 mile to station, 33 feet north of center line of dirt road and 10 feet west of small lane to north. Surface mark is standard disk in concrete, note 1a. Underground mark is glass bottle in concrete, note 7d. Reference marks are probably standard disks in concrete. Reference mark (1918) is 10 paces northeast of telephone pole, 7 paces south of center line of dirt road, 2 feet north of fence line and fence corner and 73.95 feet from station in azimuth $7^{\circ}59'$. Reference mark No. 2 (azimuth) is about 350 feet south of Jolly Pig Roadside Inn, 41 feet south of center line of U. S. Highway 1 and about 0.5 mile from station in azimuth $33^{\circ}04'39''$. Reference mark No. 3 is 7 paces south of center line of dirt road, 3 paces west of telephone pole, 2 paces north of fence and 95.70 feet from station in azimuth $266^{\circ}18'$. Azimuth from station to station *Jackson 2* is $304^{\circ}50'39''.3$. On January 24, 1939, due to road construction, reference mark (1918) and reference mark No. 3 were moved on line to new locations, the distances being 134.25 feet (slope) and 116.10 feet (slope) respectively from the station. The station may be lost due to a slide in an adjacent sand pit.

Plane coordinates: (N), $x=2,005,778.80$ feet; $y=383,883.26$ feet; the grid azimuth to reference mark No. 2= $33^{\circ}04'00''.1$

Jones (Richland County, R. D. Horne, 1934).—About 15 miles due east from Observatory in Columbia. To reach from Columbia, follow U. S. Highway 76 east 5.5 miles (or 0.4 mile east of veterans' hospital) to paved road, turn north onto this road and go 5.5 miles (or 1 mile north of end of pavement) to T-road right and white two-story church on left. Turn right (east) and go 0.4 mile to station in forks of road, 99 feet east of intersection with dirt road, 38 feet north of center line of paved road and 24 feet south of center line of dirt road. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Reference marks are standard disks in concrete, note 11b. Reference mark No. 1 (azimuth) is 1 mile from station in azimuth $181^{\circ}22'08''.3$. To reach reference mark No. 1 from station, go northwest to white church, take dim wagon road on south side of church, go 0.5 mile to T-road, turn right and go 0.3 mile to house on right, continue straight ahead past house to tobacco barn on right, leave road here, turn to right about 45° and go 0.5 mile to edge of small scrub-wood lot. Advisable to inquire at house as to the best way to get to azimuth mark. Reference mark No. 2 is 7 paces east of center line of road, 7 paces south of 5-inch red-oak tree and 104.94 feet from station in azimuth $302^{\circ}00'$. Reference mark No. 3 is in edge of cultivated field, on west side of road, 7 paces west of center line of dirt road, 5 feet north of 6-inch pine tree and 98.40 feet from station in azimuth $47^{\circ}59'$.

Plane coordinates: (N), $x=2,041,018.63$ feet; $y=358,532.81$ feet; the grid azimuth to reference mark No. 1= $181^{\circ}17'33''.3^1$

Columbia west base (Richland County, R. D. Horne, 1934; 1935).—About 6 miles southeast of Columbia, 0.5 mile west-northwest of Simms Railroad Station, on land owned by W. R. Bryant. To reach from capitol at Columbia, follow

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

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U. S. Highway 76 southeast 6.4 miles to dirt T-road on right, at sign "Eastover-18; Sumter-40," turn right (southwest) and go 1.4 miles, almost to second railroad crossing, turn right and go 0.2 mile on farm road parallel to railroad, bear right and go 0.3 mile to main line of Atlantic Coast Line Railroad crossing, bear left instead of crossing tracks and go 135 feet to station, 59 paces northeast of tenant house, 45 paces west-northwest of railroad crossing, 125.3 feet southwest of 18-inch pine with "No Trespassing" sign, 44.3 feet southwest of southwest rail of railroad, 26.7 feet west-southwest of telephone pole and 12.6 feet north of center line of private dirt road. Surface mark is standard disk in concrete, note 1b, projecting about 5 inches. Underground mark is nail in concrete, note 7c. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 projects about 2 inches and is 23 paces southeast of telephone pole, 20 paces northwest of 12-inch oak, 14 paces southeast of railroad crossing, 21.6 feet southwest of southwest rail of railroad, in line with telephone poles, 16.5 feet east of center line of farm road and 197.32 feet (slope) from station in azimuth $284^{\circ}14'$. Reference mark No. 2 (azimuth) is set flush with ground and is 0.2 mile from Simms (loading) station, 83.5 feet south of south corner of section house, 55 feet west of lone elm tree, 42.3 feet southeast of center line of dirt road, 12 paces south of railroad crossing, 23.1 feet west-southwest of southwest rail of railroad, 18.2 feet southwest of switch for Simms siding, 4 paces east of dirt road on west side of railroad and about 0.3 mile from station in azimuth $288^{\circ}47'36''.0$. Reference mark No. 3 projects about 2 inches and is 73.7 feet northeast of southwest rail of railroad, 11 paces northwest of 18-inch pine with "No Trespassing" notice, 10 paces southwest of 14-inch pine, 10 paces southeast of 10-inch pine, 21.2 feet northeast of center line of farm road, 3 paces northwest of 4-inch hickory tree and 136.10 feet from station in azimuth $169^{\circ}35'$. Azimuth from station to Columbia, United States Veterans Hospital, tank, is $178^{\circ}40'47''.5$.

Plane coordinates: (N), $x=2,011,381.51$ feet; $y=347,897.92$ feet; the grid azimuth to reference mark No. 2= $288^{\circ}46'19''.7$ ¹

Columbia east base (Richland County, R. D. Horne, 1934; 1935).—About 10 miles east of Columbia. To reach from Five Points at Columbia, follow U. S. Highway 76 east for 9.6 miles (or 4.4 miles beyond United States veterans' hospital), turn right and go 0.4 mile to Lykes Railroad Station, turn left just across railroad tracks and go 0.55 mile along southwest side of track to station, 65 feet southwest of southwest rail of Atlantic Coast Line Railroad, 61.3 feet east of northeast corner of most northeasterly pillar under main part of dwelling house, 27.5 feet southwest of center line of dirt road and 18.4 feet east of lone pine tree. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects about 7 inches. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 projects about 2 inches and is 51 feet southwest of southwest rail of railroad, 13.9 feet southwest of center line of dirt road and 151.48 feet from station in azimuth $284^{\circ}07'$. Reference mark No. 2 (azimuth) projects about 1 foot and is on top of excavation bank, 30 feet northeast of northeast rail of railroad and about 0.6 mile from station in azimuth $287^{\circ}36'12''.0$. Reference mark No. 3 projects about 4 inches and is 21 feet south of southwest corner of most southwesterly pillar under dwelling house and 108.50 feet from station in azimuth $32^{\circ}23'$.

Plane coordinates: (N), $x=2,032,255.97$ feet; $y=340,493.13$ feet; the grid azimuth to reference mark No. 2= $287^{\circ}32'35''.9$ ¹

Blocks (Kershaw County, R. D. Horne, 1934).—About 2 miles northeast of post office in English and county line between Richland and Kershaw Counties, on summit of Blocks Mound (Dunns Mountain), on land owned by Mrs. Frank Martin. To reach from Columbia, follow U. S. Highway 1 east for 19 miles to town of Blaney, turn right and go 0.1 mile, turn left onto dirt road and go 9 miles to road at right angle, turn right and go 0.3 mile to Negro farmhouse, turn left of house and follow old trail through fields about 0.6 mile to foot of mound. Station is slightly east of center of top of mound which has several pine trees and is 12 feet south of wire fence. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Reference and azimuth marks are standard disks in concrete, notes 12a and 11b. Reference mark No. 1, note 12a, at south edge of mound, is 137.59 feet from station in azimuth $337^{\circ}06'$. Reference mark No. 2 (azimuth), note 11b, is 24 paces west of northwest corner of third house southwest of Negro house at turn, 12 paces south of center line of road to English Post Office and about 0.6 mile from station in azimuth $54^{\circ}51'46''.0$. Reference

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

mark No. 3 (note 12a) is about 6 feet north of wire fence and 132.2 feet from station in azimuth $63^{\circ}29'$.

Plane coordinates: (N), $x=2,101,112.21$ feet; $y=400,156.46$ feet; the grid azimuth to reference mark No. 2= $54^{\circ}40'27''.3$.¹

English (Richland County, R. D. Horne, 1934).—About 22 miles east of Columbia. To reach from Columbia, follow U. S. Highway 76 east 18 miles to its junction with Charleston Road, continue 0.5 mile to dirt road on left, turn left and go 4.4 miles to T-road at Wilson grist mill, turn right and go 100 yards to Y-road and wooden bridge, continue straight ahead 2.8 miles to T-road and large twin oaks and 5 mail boxes, turn left and go 3.6 miles to station, 46 feet west of sandy cross roads and 35 feet north of Leesburg Road. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 10 inches. Reference marks are standard disks in concrete, note 11a. Reference mark No. 1 (azimuth) projects 5 inches and is on highest part of road cut, 7 paces south of center line of Leesburg Road and about 0.1 mile from station in azimuth $75^{\circ}10'08''$. Reference mark No. 2 projects 3 inches and is 28 paces east of center line of sandy cross roads, 7 paces south of center line of Leesburg Road and 138.79 feet from station in azimuth $230^{\circ}54'$. Reference mark No. 3 projects 3 inches and is 52 paces north of center line of Leesburg Road, 2 paces east of sandy cross roads and 126.25 feet from station in azimuth $156^{\circ}14'$.

Plane coordinates: (N), $x=2,089,888.36$ feet; $y=387,349.86$ feet; the grid azimuth to reference mark No. 1= $75^{\circ}00'05''.1$

McMaster (Richland County, R. D. Horne, 1934).—About 25 miles east of Columbia, on high ground, on land owned by S. B. McMasters. To reach from Columbia, follow U. S. Highway 76 east about 20 miles to highway intersection at Bellwood filling station and sign "Eastover 7 miles," turn left, keeping on U. S. Highway 76, and go 5.2 miles to station, in small patch of woods with undergrowth of thorns and bushes, about 200 yards west of Negro farmhouse which is in middle of cultivated field, 64 feet south of center line of U. S. Highway 76, 57 feet west of 24-inch oak and 39 feet southwest of another 24-inch oak. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Reference marks are standard disks in concrete, note 11b. Reference mark No. 1 is 9 paces south of center line of U. S. Highway 76, 5 paces west of northwest corner of cultivated field, 5 paces north of 24-inch oak and 72.44 feet from station in azimuth $247^{\circ}36'$. Reference mark No. 2 (azimuth) is about 75 paces west of combination Gulf filling station and store, 12 paces north of center line of road and about 0.4 mile from station in azimuth $92^{\circ}49'30''.0$. Reference mark No. 3 is 12 paces west of 12-inch pine which is in northeast corner of cultivated field, 10 paces south of center line of U. S. Highway 76 and 93.2 feet from station in azimuth $118^{\circ}37'$.

Plane coordinates: (N), $x=2,095,457.16$ feet; $y=343,071.01$ feet; the grid azimuth to reference mark No. 2= $92^{\circ}38'50''.4$.¹

Hagood (Sumter County, R. D. Horne, 1934).—About 15 miles northwest of Sumter, 12 miles south-southeast of Camden and in village of Hagood. To reach from Camden, follow U. S. Highway 521 toward Sumter 11 miles to Rembert, turn right and go 3.7 miles to Hagood and station. To reach from point 6.0 miles east of bridge over Wateree River on U. S. Highway 76 (between Columbia and Sumter), go north 3.3 miles, turn left and go 2.4 miles (0.4 mile beyond railway crossing at Horatio), turn right along Southern Railway and go 1.6 miles to Hagood and station, 158 feet north-northwest of northwest corner of railway station, 70.6 feet east-northeast of northeast corner of brick building and 39.1 feet west of west rail of main line of railway track. 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, note 11a. Reference mark No. 1 (azimuth) flush with ground, is 59 paces west of chimney of small house, 7 paces east-southeast of center line of pavement and about 0.6 mile from station in azimuth $198^{\circ}28'35''.2$. Reference mark No. 2 is flush with ground and is 139 feet east of east rail of main line of railway, 17 feet south of center line of road leading easterly and 201.10 feet from station in azimuth $287^{\circ}23'$. Reference mark No. 3 is flush with ground and is 17.5 feet west of west rail of main line of railway and 262 feet from station in azimuth $177^{\circ}22'$. *Transit traverse station No. 18 B* (U. S. G. S.) (see description thereof) is 145.65 feet from station in azimuth $325^{\circ}13'$. Church spire is about 2 miles from station in azimuth $198^{\circ}21'15''.2$.

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

For notes in regard to marking of stations see p. 57.

Plane coordinates: (N), $x=2,129,676.34$ feet; $y=385,079.80$ feet; the grid azimuth to reference mark No. 1= $198^{\circ}14'05''.2$.¹

Burgess (Sumter County, R. D. Horne, 1934).—About 10 miles west of Sumter, 7 miles east of center of bridge over Wateree River on U. S. Highway 76, 0.9 mile southeast of Church of the Holy Cross in Statesburg, 0.2 mile southeast of intersection of U. S. Highway 76 and Wedgefield-Statesburg Road. To reach from junction of U. S. Highways 76 and 521 at Sumter, follow U. S. Highway 76 west for 8.5 miles to station, 338 feet south of center line of pavement of U. S. Highway 76 and 67 feet northeast of center line of Wedgefield-Statesburg Road. 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 (azimuth) projects about 6 inches and is on small hillock, 57 feet west of 12-inch chinaberry tree, 25 feet west of southwest corner of barn and about 0.4 mile from station in azimuth $268^{\circ}27'26''.4$. Reference mark No. 2 projects about 6 inches and is 33 feet northeast of center line of Wedgefield-Statesburg Road and 90.57 feet from station in azimuth $334^{\circ}49'$. Reference mark No. 3 projects about 6 inches and is 23 feet northeast of center line of Wedgefield-Statesburg Road and 75.00 feet from station in azimuth $93^{\circ}14'$.

Plane coordinates: (N), $x=2,144,983.56$ feet; $y=343,752.95$ feet; the grid azimuth to reference mark No. 1= $268^{\circ}11'15''.0$.¹

Hillcrest (Sumter County, R. D. Horne, 1934).—About 11 miles northwest of Sumter, 8.2 miles northwest of junction of U. S. Highways 76 and 521, 3.7 miles northwest of railroad crossing in Dalzell, on property of Hillcrest High School. To reach from Myer's store at junction of U. S. Highway 76 and 521, follow U. S. Highway 521 northwest 8.2 miles to station on right, which is 162.9 feet northwest of iron flagpole, 40 paces east-northeast of center line of U. S. Highway 521, 80.4 feet west of west corner of school and 19 feet northeast of west driveway to school. Surface mark is standard disk in concrete, note 1b. Underground mark is nail in concrete, note 7c. Upper mark projects 6 inches. Reference and azimuth marks are standard disks in concrete, notes 11c and 11b. Reference mark No. 1 (note 11c), is set flush with ground and is 6 inches west of east end of bottom concrete step at north end of Hillcrest High School and 108.20 feet from station in azimuth $280^{\circ}12'$. Reference mark No. 2 (note 11c), is set flush in concrete floor of main entrance at center of west side of Hillcrest High School, 10 inches east of west edge of entrance floor, 5 inches north of north edge of base of pillar at south side of entrance and 188.38 feet from station in azimuth $323^{\circ}35'$. Reference mark No. 3 (azimuth) (note 11b) projects 6 inches and is about 225 feet southeast of southeast end of highway guard rail, 9 paces east of center line of U. S. Highway 521, 4 paces north of center line of dirt road to east and about 0.25 mile from station in azimuth $156^{\circ}12'30''.7$. West corner of chimney on north end of house on east side of highway is about 0.25 mile from station in azimuth $157^{\circ}10'26''.0$.

Plane coordinates: (N), $x=2,162,511.13$ feet; $y=376,639.59$ feet; the grid azimuth to reference mark No. 3= $155^{\circ}54'20''.7$.¹

Wedgefield (Sumter County, R. D. Horne, 1934).—In village of Wedgefield which is on Atlantic Coast Line Railroad between Sumter and Columbia, on grounds of public school, about 100 yards west of church, 75 yards north of school, 75 yards south of railroad depot, 127 feet west of southwest corner of deserted ramshackle house, 120 feet south of center line of east-west paved road, and 8 paces east of center line of auto track into schoolyard. To reach from intersection of West Liberty and Main Streets in Sumter, go out West Liberty Street on hard surfaced highway 3.5 miles to fork, bear right and go 2.2 miles to Wedgefield and station. 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 is 17 paces west of northwest corner of deserted house, 9 paces south of center line of paved road, 9 paces east of 18-inch shade tree on south side of road and 105.54 feet from station in azimuth $211^{\circ}06'$. Reference mark No. 2 is about 30 yards east of home plate on school baseball diamond, 5 feet south of southwest corner of old wooden shed and 99.73 feet from station in azimuth $91^{\circ}13'$. Reference mark No. 3 (azimuth) is in yard of small white church, 32 paces east of center line of Kings Highway (dirt road connecting U. S. Highway 76), 20 paces south of southwest corner of church and about 1 mile from station in azimuth $161^{\circ}05'27''.4$. Azimuth from station to church belfry, tip, distance about 1 mile, is $161^{\circ}11'11''.1$.

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term;

For notes in regard to marking of stations see p. 57.

Plane coordinates: (N), $x=2,146,696.07$ feet; $y=325,118.07$ feet; the grid azimuth to reference mark No. 3= $160^{\circ}49'05''.1$ ¹

Swinton (Sumter County, R. D. Horne, 1934).—About 6 miles northwest of Sumter, 2.8 miles northwest of junction of U. S. Highways 76 and 521, on land owned by London Swinton (colored). To reach from Myers' store at junction, follow U. S. Highway 521 northwest 2.8 miles to station, which is 0.1 mile west of highway, at west edge of pine grove, 525 feet east of Northwestern Railroad, 48 paces west-southwest of London Swinton's house, 32 feet southwest of southwest corner of stable, 24 feet south of 36-inch pine, 23.2 feet west of another 36-inch pine and 22.7 feet east of 18-inch mulberry tree. Surface mark is standard disk in concrete, note 1b. Underground mark is nail in concrete, note 7c. Upper mark projects 6 inches. Reference and azimuth marks are standard disks in concrete, notes 11a and 11b. Reference mark No. 1 (note 11a), is set flush with ground, in wire fence line and is 48 paces south of L. Swinton's house, 5 paces south of 24-inch pine, 4 paces south of south bank of east-west drainage ditch, 2 paces west of west bank of north-south drainage ditch and 186.95 feet from station in azimuth $271^{\circ}01'$. Reference mark No. 2 (azimuth) (note 11a), projects 4 inches and is 75 paces northeast of northeast corner of F. M. Johnson's house, 52 paces north of driveway to same house, 8 paces west of center line of U. S. Highway 521, 3 feet north of telephone pole (pine) and about 0.25 mile from station in azimuth $313^{\circ}42'22''.6$. Reference mark No. 3 (note 11b), is set flush with ground and is 6 paces east of east bank of north-south drainage ditch, 6 feet east of 18-inch chinaberry tree, 5 feet north of north bank of east-west drainage ditch and 176.20 feet from station in azimuth $41^{\circ}39'$.

Plane coordinates: (N), $x=2,179,643.66$ feet; $y=359,563.41$ feet; the grid azimuth to reference mark No. 2= $313^{\circ}22'18''.3$ ¹

Harvin (Sumter County, R. D. Horne, 1934).—About 8 miles southwest of Sumter. To reach from intersection of Liberty and Washington Streets in Sumter, go 2.5 miles west on Liberty Street, turn left toward Pinewood and go 6.4 miles (6 miles beyond bridge over railroad) to station, which is 74.5 feet northwest of center of pavement of Sumter-Pinewood Highway and 58 feet south of southeast corner of pillar under church. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects about 1 foot. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 projects about 6 inches and is 94 feet northwest of center line of pavement, 27.5 feet east-northeast of southeast corner of southeast pillar under church and 96.66 feet from station in azimuth $196^{\circ}29'$. Reference mark No. 2 (azimuth) projects about 6 inches and is 11 paces south of center line of secondary road, 5 feet northwest of drainage ditch and about 0.2 mile from station in azimuth $254^{\circ}42'31''$. Reference mark No. 3 projects about 6 inches and is 80 feet south of center line of secondary road, 38.2 feet west-northwest of southwest corner of southwest pillar under church and 113.97 feet from station in azimuth $134^{\circ}34'$.

Plane coordinates: (N), $x=2,170,175.09$ feet; $y=303,892.34$ feet; the grid azimuth to reference mark No. 2= $254^{\circ}23'32''.1$ (S), $x=2,170,183.59$ feet; $y=728,288.37$ feet; the grid azimuth to reference mark No. 2= $254^{\circ}24'12''.1$

Sumter (Sumter County, R. D. Horne, 1934; 1935).—In northeast edge of Sumter, on property of Sumter Water Works. To reach from North Church Street and Broad Street in Sumter, (Texas filling station on southeast corner and tabernacle on northwest corner), leave U. S. Highways 521 and 76 and go 4 blocks north on North Church Street, turn left and go about 25 yards on West Pine Street to entrance of water works and station, in south point of triangular lawn between roads to pump station from West Pine Street, 92.6 feet northeast of 14-inch oak, 84.5 feet northwest of 20-inch mock orange tree, 43.3 feet west-northwest of power-line pole, 29 feet west-northwest of center line of east road to pump station and 25 feet east of center line of west road to pump station. Surface mark is standard disk in concrete, note 1b. Underground mark is nail in concrete, note 7c. Upper mark projects 6 inches. Reference and azimuth marks are standard disks in concrete note 11a. Reference mark No. 1 (azimuth) is set flush with ground and is about 225 feet southeast of 1-story dwelling on Morris College (colored) campus, 16 paces west-southwest of 30-inch sycamore tree, 6 paces west of center line of dirt road running north from station, at end of road 4 paces south of wire fence, 3 paces southeast of 4-inch oak and 0.15 mile from station in azimuth $194^{\circ}49'43''$. Reference mark No. 2 is set flush with ground and is 22 paces northwest of 48-inch oak, 20 paces southeast of 20-inch oak, 19

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

For notes in regard to marking of stations see p. 57.

paces west of 12-inch oak, 6 paces northeast of center line of West Pine Street and 254.68 feet from station in azimuth $67^{\circ}31'$. Reference mark No. 3 is set flush with ground and is 45 paces south of power-line pole, 29 paces east-southeast of dwelling on pump station grounds, 52 feet south of hydrant, 24 feet west of southernmost manhole on lawn in front of pump station, 4 paces east of center line of west road to pump station and 119.49 feet from station in azimuth $159^{\circ}38'$.

Plane coordinates: (N), $x=2,198,200.80$ feet; $y=340,403.00$ feet; the grid azimuth to reference mark No. 1= $194^{\circ}27'35''$.¹ (S), $x=2,198,218.95$ feet; $y=764,795.71$ feet; the grid azimuth to reference mark No. 1= $194^{\circ}28'22''$.¹

Stokes (Sumter County, R. D. Horne, 1934).—About 10 miles south of Sumter, within a few yards of county line, on land owned by James E. Stokes (colored). To reach from Sumter Post Office, follow U. S. Highway 401 south for 10.4 miles to county line. Station is on left in south edge of small pine grove, just north of cultivated field, 114 feet east of center line of U. S. Highway 401 at point where county line crosses it, 17.7 feet west of 6-inch blazed pine, 16 feet north of center line of wagon track and 14.3 feet southeast of 8-inch blazed pine. 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 110 yards south of farmhouse on east side of U. S. Highway 401, 12 paces west of center line of U. S. Highway 401, 5 paces north of tall 15-inch pine and about 250 yards from station in azimuth $5^{\circ}43'00''$. Reference mark No. 2 is 50 paces south of county line, 8 paces west of center line of U. S. Highway 401, 15 feet southwest of "U. S. 401" signpost, 5 feet south of telephone pole and 243.37 feet from station in azimuth $29^{\circ}49'$. Reference mark No. 3 is 34 paces north of county line, 14 paces southwest of center line of "U. S. 401" signpost, 12 paces south of telephone pole, 16 feet west of west edge of U. S. Highway 401 and 145 feet from station in azimuth $112^{\circ}58'$.

Plane coordinates: (N), $x=2,196,349.88$ feet; $y=282,207.85$ feet; the grid azimuth to reference mark No. 1= $5^{\circ}21'07''$.¹ (S), $x=2,196,354.82$ feet; $y=706,597.62$ feet; the grid azimuth to reference mark No. 1= $5^{\circ}21'53''$.¹

Britton (Sumter County, R. D. Horne, 1934; 1935).—About 10 miles north of Manning and 8 miles northwest of Alcolu. To reach from post office in Manning, follow U. S. Highway 521 west 9.7 miles (or 6.5 miles west of Alcolu) to T-road (0.7 mile from county line), turn right (north) onto dirt road and go 0.7 mile to village of Bragdon, continue straight ahead 1.4 miles to T-road left, turn left and follow main road 2 miles to station, 92 feet south of southwest corner of tobacco barn, 52 feet west of center line of north-south dirt road, 39 feet north of center line of farm road and 32 feet south of 18-inch pine. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 5 inches. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 projects 6 inches, is on west edge of right-of-way of dirt road, 79 feet north of northeast corner of tobacco barn and 191.00 feet from station in azimuth $195^{\circ}19'$. Reference mark No. 2 (azimuth) is in edge of pine grove, 5 paces south of dirt road and about 0.25 mile from station in azimuth $287^{\circ}21'42''$.⁶ Reference mark No. 3 projects 8 inches, is in edge of cultivated field, 34 paces south of center line of farm road, 5 paces west of center line of dirt road and 114.6 feet from station in azimuth $350^{\circ}40'$.

Plane coordinates: (N), $x=2,230,582.81$ feet; $y=309,814.14$ feet; the grid azimuth to reference mark No. 2= $286^{\circ}55'59''$.^{3,1} (S), $x=2,230,595.84$ feet; $y=734,196.68$ feet; the grid azimuth to reference mark No. 2= $286^{\circ}56'53''$.^{6,1}

Carson (Clarendon County, R. D. Horne, 1934; 1935).—About 1 mile west of Manning, on property of C. T. Carson. To reach from courthouse in Manning, go south on Brooks Street 0.3 mile, turn right at Harvin Street and go 1.2 miles on U. S. Highway 301 to Carson's house, and station in middle of C. T. Carson's front lawn, in extension of trees in front yard, 177.5 feet southeast of east corner of C. T. Carson's house, 59.6 feet northwest of northwest edge of concrete pavement of U. S. Highway 301, 41.5 feet southwest of wire fence and 38 feet northeast of another wire fence. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Mark is set about 1 foot below surface of ground. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 (azimuth) is about 75 yards northwest of Negro cabin, 16 paces southwest of big sign "Manning, S. C.", 6 paces southeast of southeast edge of U. S. Highway 301, 4 feet southwest of telephone pole and 0.4 mile from station in azimuth $242^{\circ}56'11''$.⁷ Reference mark No. 2 is 25 paces northeast of fence

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

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corner, 21 feet northwest of northwest edge of U. S. Highway 301, 3 feet southeast of wire fence and 127.45 feet from station in azimuth $253^{\circ}27'$. Reference mark No. 3 is 8 paces southeast of southeast edge of U. S. Highway 301, 3 feet northeast of guyed telephone pole and 155.74 feet from station in azimuth $14^{\circ}48'$. Laplace azimuth mark is standard disk in block of concrete stamped "Carson 1934-Azimuth", flush with ground, in vacant field owned by Mr. Harvin, 0.15 mile west of intersection of Harvin and South Brooks Streets, in line with west side of Negro house on south side of U. S. Highway 301, 85 paces west of center line of Butler Street, 162.8 feet southwest of southwest corner of large brick warehouse, 138.2 feet south-southeast of center line of U. S. Highway 301, 95.4 feet southwest of 42-inch oak, 76 feet south of south face of southwest corner brick post of Negro house, 62.1 feet southeast of 30-inch chinaberry tree and about 1 mile from station in azimuth $241^{\circ}57'25''.3$. Following azimuths are from station: Manning, Presbyterian Church, cross on steeple, $221^{\circ}31'13''$; Manning, municipal water tank, $233^{\circ}46'00''.9$.

Plane coordinates: (N), $x=2,234,810.22$ feet; $y=249,786.34$ feet; the grid azimuth to reference mark No. 1= $242^{\circ}30'03''.2$.¹ (S), $x=2,234,807.44$ feet; $y=674,166.44$ feet; the grid azimuth to reference mark No. 1= $242^{\circ}30'58''.3$.¹

Harmony (Clarendon County, R. D. Horne, 1934).—About 7 miles (air line) north-northeast of Manning. To reach from Manning Courthouse, follow U. S. Highway 521 west 1.8 miles to junction with U. S. Highway 301, turn right onto U. S. Highway 301 and go 7.2 miles to fork, turn left onto dirt road and go 1.8 miles to fork, turn right and go 0.2 mile to Harmony Presbyterian Church and station, 76 feet east of northeast corner of church, 36 feet southwest of 14-inch pine, and 36 feet northwest of sandy 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 11a. Reference mark No. 1 projects 12 inches and is 2 feet south of southeast corner of church porch and 92.12 feet from station in azimuth $26^{\circ}35'$. Reference mark No. 2 projects 11 inches and is 11 paces south of cultivated field, 3 feet west of 12-inch pine and 99.12 feet from station in azimuth $146^{\circ}47'$. Reference mark No. 3 (azimuth) projects 11 inches in edge of cultivated field and is 23 paces northeast of northeast corner of Negro shack, 7 paces north of farm lane and about 0.25 mile from station in azimuth $171^{\circ}00'30''.3$. Following azimuth is from station; Alcolu, water tank, Goodman Lumber Co., $26^{\circ}18'47''.0$.

Plane coordinates: (N), $x=2,257,179.74$ feet; $y=289,814.30$ feet; the grid azimuth to reference mark No. 3= $170^{\circ}31'50''.1$.¹ (S), $x=2,257,188.41$ feet; $y=714,188.56$ feet; the grid azimuth to reference mark No. 3= $170^{\circ}32'50''.6$.¹

Bloomville (Clarendon County, R. D. Horne, 1934).—About 6 miles southeast of Manning. To reach from courthouse in Manning, follow U. S. Highway 521 (main highway to Kingtree) east for 2 miles; just before reaching brick house on right, turn on road to right and go 4.5 miles to Atlantic Coast Line Railroad crossing at Bloomville and station, 176 feet east of intersection of railroad and highway and 65.8 feet southeast of southeast rail of railroad. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects about 1 foot. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 projects about 6 inches and is west-southwest of center of old well on east side of road and 144.52 feet from station in azimuth $15^{\circ}14'$. Reference mark No. 2 (azimuth) is 45 paces southeast of chimney of small house, 27 paces west of intersection of drain ditches, 5 paces west-southwest of center line of road and about 0.3 mile from station in azimuth $114^{\circ}44'03''.2$. Reference mark No. 3 is 24.6 feet northwest of northwest rail of railroad, 8 feet east of center line of drainage ditch and 117.38 feet from station in azimuth $173^{\circ}32'$.

Plane coordinates: (S), $x=2,255,274.51$ feet; $y=656,523.09$ feet; the grid azimuth to reference mark No. 2= $114^{\circ}16'38''.8$.¹

Cypress Forks (Clarendon County, R. D. Horne, 1934).—At Cypress Forks, about 16 miles (air line) west-northwest of Kingtree, on land by owned Alderman & Sons Lumber Co. To reach from Kingtree, go 15 miles west of U. S. Highway 521 (or 3.3 miles from Williamsburg-Clarendon County line), to dirt T-road, on right, (about 0.1 mile west of concrete bridge over creek) opposite old wooden church and graveyard, turn right and go 4.7 miles to station, 68.7 feet north of northwest corner of church, 40 feet northeast of 14-inch oak, 38 feet northeast of center line of road to northwest from forks, 36.7 feet east-southeast of 14-inch

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

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oak and 28 feet east of 14-inch hickory tree. Surface and underground marks are standard disks in concrete, notes 1b and 7c. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 is 15 paces southwest of center line of road to northwest from forks, 14 paces northwest of northwest corner of Gillespie's store No. 2, 6 paces east of 14-inch gum tree and 159.22 feet from station in azimuth $343^{\circ}27'$. Reference mark No. 2 is 15 paces west of 10-inch pine, 13 paces northwest of 24-inch oak, 4 paces southwest of center line of road to northwest from forks and 159.42 feet from station in azimuth $109^{\circ}31'$. Reference mark No. 3 (azimuth) is 0.2 mile west of road to northwest from forks, on south edge of pine woods, 14 paces southwest of 14-inch pine, 13 paces south of 16-inch pine, 8 paces east-northeast of 14-inch pine and about 0.3 mile from station in azimuth $103^{\circ}30'13''$.²

Plane coordinates: (S), $x=2,281,102.35$ feet; $y=697,741.09$ feet; the grid azimuth to reference mark No. 3= $103^{\circ}00'00''$.¹

Hays (Clarendon County, R. D. Horne, 1934).—About 3.5 miles south of Foreston, on land owned by Amelia Hayes. To reach from Manning, go southeast about 12 miles on State Highway 261 to railroad station in village of Foreston, turn right onto sandy road and go 3.5 miles to T-road intersection and station, in southeast corner of cultivated field on west side of road from Foreston to Spring Grove (Pine Grove) Church, at junction of farm road (line of gum trees along south side), 67 feet northwest of triangular-blazed pine, 61 feet northwest of mail box, 58 feet north of 12-inch triangular-blazed sweet gum tree, 49 feet west of 12-inch triangular-blazed pine, 14 paces north of center line of east-west farm road and 8 paces west of center line of north-south road. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Upper mark is set about 1 foot below surface of ground. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 (azimuth) is at northwest corner of cultivated field, about 100 yards north of farmhouse, 25 yards southeast of large 20-inch pine, 6 paces east of center line of road to Foreston and about 0.4 mile from station in azimuth $180^{\circ}14'08''$.⁸ Reference mark No. 2 is 7 paces east of center line of road to Foreston, 6 paces west of 27-inch pine, 5 paces south of 15-inch pine and 145.7 feet from station in azimuth $204^{\circ}00'$. Reference mark No. 3 is 30 paces south of center line of farm road to west, 17 paces north of 10-inch pine, 6 paces east of center line of road to Foreston and 116.1 feet from station in azimuth $339^{\circ}45'$.

Plane coordinates: (S), $x=2,279,511.58$ feet; $y=639,142.04$ feet; the grid azimuth to reference mark No. 1= $179^{\circ}44'09''$.³

Harrington (Williamsburg County, R. D. Horne, 1934).—About 11 miles west of Kingtree. To reach from Kingtree, follow U. S. Highways 17 and 521 south 2.5 miles to where they separate, thence right on U. S. Highway 521 and go 9.3 miles to crossroads and station. This is 9.1 miles west of junction of U. S. Highway 521 and State Highway 261. Station is 86 feet north of center line of U. S. Highway 521 and 28 feet east of center line of sandy road. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 1 foot. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 (azimuth) projects 6 inches and is 25 paces northwest of well, 25 paces east-southeast of tall barn and 0.25 mile from station in azimuth $341^{\circ}06'54''$.⁸ Reference mark No. 2 projects 1 foot and is 18 paces west of center line of cross road, 10 paces north of center line of U. S. Highway 521 and 96.50 feet from station in azimuth $32^{\circ}43'$. Reference mark No. 3 projects 10 inches and is 9 paces north of center line (projected) of T-road, 4 paces north of center line of old road and 180.20 feet from station in azimuth $134^{\circ}58'$.

Plane coordinates: (S), $x=2,309,235.43$ feet; $y=678,368.82$ feet; the grid azimuth to reference mark No. 1= $340^{\circ}33'41''$.⁵

Richmond (Williamsburg County, R. D. Horne, 1934).—About 3.5 miles southeast of Greeleyville, 1.5 miles northwest of intersection of U. S. Highway 17 and State Highway 261, on grounds of Old Richmond Church which burned some years ago. To reach from Kingtree, go south on U. S. Highway 521 about 15 miles to intersection with State Highway 261, turn right onto State Highway 261 and go 1.5 miles to dirt cross roads, turn left and go 0.15 mile to station, about 300 yards south of center line of State Highway 261, 111 feet northwest of B. G. Mitchum's tombstone (which is in northeast corner of graveyard), 108 feet south of center line of dirt road, 93 feet west of chimney on small cabin, 79 feet north of northeast corner of frame house (used as shelter during funerals) and just east of

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

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several very tall pine trees. 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 150 yards east of center line of dirt cross roads, 12 paces south of center line of State Highway 261, 6 paces east of telephone pole, 6 feet south of drainage ditch and about 300 yards from station in azimuth $236^{\circ}18'55''$. Reference mark No. 2 is 13 paces east of B. G. Mitchum's tombstone, 10 paces south of 12-inch pine, 5 feet north of 6-inch pine and 149.6 feet from station in azimuth $340^{\circ}43'$. Reference mark No. 3 is about 24 paces west of southwest corner of frame house and 15 yards north of two tall pines close together, 3 paces west of center line of road into woods and 161.2 feet from station in azimuth $64^{\circ}42'$.

Plane coordinates: (S), $x=2,313,054.64$ feet; $y=617,543.59$ feet; the grid azimuth to reference mark No. 1 = $235^{\circ}45'21''$.¹

Boyd (Williamsburg County, R. D. Horne, 1934).—About 5 miles west of Kingstree. To reach from Kingstree, go 2.5 miles northwest to junction of U. S. Highways 521 and 17, follow U. S. Highway 17 southwest 1.0 mile to Belsers crossroads (Texaco service station on left and Standard service station on right), turn left onto dirt road just south of Texaco station and go 1.5 miles to station in southwest angle of T-road intersection, 150 feet west of Negro house (east of T-road intersection) and 44 feet south of intersection. Surface and underground mark are standard disks in concrete, notes 1b and 7a. Upper mark projects 1 foot. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 projects 1 foot and is in edge of plowed field, 15 feet east of center line of dirt road to south and 171.00 feet from station in azimuth $328^{\circ}37'$. Reference mark No. 2 projects 1 foot and is 10 feet south of center line of T-road and 183.75 feet from station in azimuth $83^{\circ}28'$. Reference mark No. 3 (azimuth) projects 1 foot and is 24 feet east of center line of dirt road, 6 feet south of center line of farm road to east and 0.5 mile from station in azimuth $159^{\circ}03'29''.1$.

Plane coordinates: (S), $x=2,339,831.80$ feet; $y=653,440.98$ feet; the grid azimuth to reference mark No. 3 = $158^{\circ}27'00''.3$.¹

Lane (Williamsburg County, R. D. Horne, 1934).—About 10 miles west of Kingstree, in grounds of public school in town of Lane, east of and in back of school, in extended line of northwest sidewalk of street along southeast side of school, 83 paces northeast of center line of street in front of school, 99.9 feet east of east corner of school building proper, 40.2 feet northeast of 12-inch pine, 21.3 feet northeast of 12-inch pine and 20.9 feet west of 24-inch pine. 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 is 36.8 feet northeast of prolongation of front face of school, 20 feet southeast of center line of street on southeast side of school and 125.95 feet from station in azimuth $351^{\circ}50'$. Reference mark No. 2 (azimuth) is 11 paces southeast of center line of dirt road along southeast side of school, 6 paces east-southeast of east end of board culvert to drainage ditch, 4 paces east of road between garage and street and about 0.15 mile from station in azimuth $13^{\circ}03'55''$. Reference mark No. 3 is 67 feet northeast of north corner of school, 1.5 feet southeast of prolongation of northwest face of school building and 188.4 feet from station in azimuth $106^{\circ}49'$.

Plane coordinates: (S), $x=2,342,319.12$ feet; $y=616,105.23$ feet; the grid azimuth to reference mark No. 2 = $12^{\circ}27'13''.1$

Lawrence (Williamsburg County, R. D. Horne, 1934).—About 10 miles southeast of Kingstree, 4.1 miles southeast of Bryan crossroads, on property of St. Lawrence Public School (colored), about 250 feet southwest of U. S. Highway 521, 107.7 feet north of southwest corner of main part of school building, 82.5 feet north-northwest of northwest corner of same building, 81.3 feet south of 18-inch pine, 58 feet southeast of 20-inch pine, 36.5 feet east of 20-inch pine, and 11 paces southeast of wire fence at southeast edge of woods. To reach from Kingstree, go 6.3 miles southeast on U. S. Highway 521 to Bryan crossroads, continue 4.1 miles southeast on same road to station on right. Surface mark is standard disk in concrete, note 1b. Underground mark is nail in concrete, note 7c. Upper mark projects 4 inches. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 (azimuth) projects 6 inches, is 20 paces west of west corner of N. W. Cook's house, 11 paces north of center line of U. S. Highway 521, 9 paces south of small shed, 7 paces northwest of 12-inch oak and about 0.2 mile from station in azimuth $290^{\circ}32'09''$. Reference mark No. 2 projects 12 inches, is 23 paces east of northwest corner of main part of school building, 21

¹This azimuth has been computed by the first formula (p. 61), neglecting the second term.

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paces south of northeast corner of same building, 5 paces east of center line of driveway to school and 112.85 feet from station in azimuth $299^{\circ}15'$. Reference mark No. 3 projects 10 inches, is 21 paces west of southwest corner of school, 8 paces southeast of wire fence on southeast edge of woods, 5 paces north-northeast of northwest corner of outhouse and 108.20 feet from station in azimuth $41^{\circ}56'$.

Plane coordinates: (S), $x=2,375,722.64$ feet; $y=625,670.19$ feet; the grid azimuth to reference mark No. 1= $289^{\circ}51'51''$.¹

Chandler (Williamsburg County, R. D. Horne, 1934).—About 14 miles south of Kingstree, and 2.4 miles southeast of beacon at Gourdin Airport. To reach from Kingstree, follow U. S. Highway 17 (main road to Charleston) 2.5 miles toward Charleston from bridge over Black River, keep to left on U. S. Highway 17, go 12.5 miles, turn left onto State Highway 261, go 1.6 miles, keep straight ahead leaving State Highway 261 and go 2.7 miles to railroad crossing at Gourdin, cross tracks and go 2.5 miles to station at T-road intersection, on southwest side of road, 25 feet west of northwest corner of concrete foundation of tobacco barn and 24.7 feet northwest of southwest corner of same foundation. 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 is 31.8 feet east of northeast corner of most northerly of two chimneys of small house, 21 feet northwest of center line of southwest-northeast road, and 191.91 feet from station in azimuth $218^{\circ}32'$. Reference mark No. 2 (azimuth) is 392 feet southeast of 30-inch cedar tree, 171 feet northwest of center line (projected) of entrance walk to house, 17 feet northeast of center line of road and about 0.25 mile from station in azimuth $127^{\circ}58'44''$. Reference mark No. 3 is 15 feet southwest of center line of northwest-southeast road and 248.17 feet from station in azimuth $130^{\circ}58'$. *Airway beacon No. 24 (Jacksonville-Richmond)*, at Gourdin Landing Field, is about 2.4 miles from station in azimuth $129^{\circ}56'09''$.¹

Plane coordinates: (S), $x=2,347,363.70$ feet; $y=594,461.21$ feet; the grid azimuth to reference mark No. 2= $127^{\circ}21'31''$.¹

Trio (Williamsburg County, R. D. Horne, 1934; 1935).—About 14 miles southeast of Kingstree. To reach from Lane, go east 13 miles on Lane-Andrews Road (or 1.85 miles east of Trio) to station. This is best route in wet weather. In dry weather, from Kingstree, take U. S. Highway 521 southeast 7 miles to junction with State Highway 261, turn left and go 6.5 miles to T-road, turn right onto dirt road and go 4.5 miles to Trio Post Office, turn left onto Lane-Andrews road and go 1.85 miles to station, 221 feet north of old main road between Lane and Andrews and 27 feet east of sandy woods road. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 (azimuth) is 17 paces west of north-south ditch that crosses road, 12 paces south of center line of new Lane-Andrews road and about 759 feet from station in azimuth $311^{\circ}59'44''$. Reference mark No. 2 projects 4 inches and is 21 paces east of T-road and bridge, 12 paces north of old road and 262.48 feet from station in azimuth $330^{\circ}04'$. Reference mark No. 3 is 30 paces west of blazed pine and bridge, 15 paces north of old road and 191.88 feet from station in azimuth $39^{\circ}33'$. Elevation: 52.26 feet.

Plane coordinates: (S), $x=2,400,882.15$ feet; $y=601,136.73$ feet; the grid azimuth to reference mark No. 1= $311^{\circ}16'46''$.¹

Sutton (Williamsburg County, R. D. Horne, 1934).—About 6.5 miles southwest of Trio, 6 miles southeast of Gourdin and Gourdin Landing Field, near Sutton's Church on north side of Santee River on land owned by R. P. Hinnant. To reach from post office in Trio, take county road 2.7 miles southwest to crossroads, turn left and follow main dirt road 4.7 miles to T-intersection with Sutton Church Road and station, which is in cultivated, low field, at northwest corner of T-road intersection, 96 feet southeast of 20-inch pine at south corner of woods, 77 feet northeast of 24-inch rectangular-blazed pine, 58 feet northeast of center line of northwest-southeast dirt road, 35 feet southeast of center line of T-road to northeast and surrounded on all sides except east by tall pines. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Upper mark is about 1 foot below surface of ground. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 (azimuth) is on northwest side of road to northeast from station, 27 paces southwest of 30-inch pine, 18 feet northwest of center line of road, at south corner post of open part of roof of shed

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

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and about 0.65 mile from station in azimuth $203^{\circ}27'12''.7$. Reference mark No. 2 is 55 paces southeast of T-road intersection, 7 paces southeast of 24-inch pine, 6 paces southwest of center line of Sutton Church Road and 156.6 feet from station in azimuth $323^{\circ}15'$. Reference mark No. 3 is 35 paces northwest of T-road intersection, 8 paces southwest of center line of Sutton Road, in line about midway between two large pines and 169.3 feet from station in azimuth $80^{\circ}51'$.

Plane coordinates: (S), $x=2,378,738.28$ feet; $y=572,782.85$ feet; the grid azimuth to reference mark No. 1= $202^{\circ}46'39''.5$.¹

Borrow (Williamsburg County, R. D. Horne, 1934).—About 4.3 miles southwest of Andrews, on property of Cooper River Lumber Co., in edge of pine woods, opposite borrow pit on southeast side of road, 131.2 feet south-southwest of 24-inch pine with charred and spreading base, 59 feet northwest of center line of State Highway 511, 46.8 feet southeast of 16-inch oak, 36.5 feet east-southeast of 12-inch pine and 27.4 feet northeast of 12-inch oak, sawed down but still alive and attached to stump. To reach from Sinclair filling station on U. S. Highway 521 in center of Andrews, follow new State Highway 511 southwest for 4.3 miles to station on right. Surface mark is standard disk in concrete, note 1b, projecting 8 inches. Underground mark is nail in concrete, note 7c. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 (azimuth) projects 12 inches, is 0.1 mile southwest of intersection of old State Highway 511 and new State Highway 511, 19 paces east of south end of 18-inch concrete pipe under State Highway 511, 10 paces northeast of center line of State Highway 511 and 0.2 mile from station in azimuth $212^{\circ}25'08''$. Reference mark No. 2 projects 8 inches, is at northeast edge of borrow pit, 12 paces northwest of 24-inch pine, 12 paces southeast of center line of State Highway 511 and 149.90 feet from station in azimuth $251^{\circ}22'$. Reference mark No. 3 projects 6 inches, is 47 feet southeast of center line of State Highway 511, 16 paces southwest of entrance to borrow pit at its west corner and 212.65 feet from station in azimuth $0^{\circ}42'$.

Plane coordinates: (S), $x=2,424,372.50$ feet; $y=575,914.49$ feet; the grid azimuth to reference mark No. 1= $211^{\circ}39'41''.4$ ¹

Jamestown (Berkeley County, R. D. Horne, 1934).—About 1.05 miles northeast of village of Jamestown, 0.55 mile southwest of southwest end of steel span of railway bridge over Santee River and 141 feet northwest of northwest rail of mail line of Seaboard Air Line Railway tracks at point on rail that is 12 rail-lengths (about 400 feet) northeast of railway sign "Jamestown." Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects about 1 foot above ground. Reference marks are standard disks in concrete, note 11b. Reference mark No. 1 (azimuth) is about 200 feet southwest of highest highway fill in immediate vicinity, 40 feet northwest of center line of highway on bank of excavation and about 0.45 mile from station in azimuth $38^{\circ}09'30''.4$. Reference mark No. 2 is about 300 feet northeast of highway drainage culvert, 39 feet northwest of center line of highway and 158.22 feet from station in azimuth $72^{\circ}26'$. Reference mark No. 3 is 37 feet northwest of center line of highway and 128.03 feet from station in azimuth $168^{\circ}33'$.

Plane coordinates: (S), $x=2,402,397.85$ feet; $y=535,337.50$ feet; the grid azimuth to reference mark No. 1= $37^{\circ}26'28''.2$.¹

Sampit (Georgetown County, R. D. Horne, 1934).—About 9 miles west of Georgetown. To reach from Andrews, follow U. S. Highway 521 east for 8.3 miles to T-road where paved road makes wide curve to left (1.4 miles east of Oak Grove School), turn right for 1.5 miles to fork, follow right fork for 1 mile to cross road and station which is 103 feet northeast of center line of cross road intersection, 80 feet north of main dirt road and 48 feet east of dirt cross road. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 (azimuth) projects 12 inches, is 27 paces east-northeast of frame house, 6 paces north of center line of dirt road, 2 paces south of center line of lane and 0.5 mile from station in azimuth $257^{\circ}38'12''.9$. Reference mark No. 2 is 14 paces north of center line of road, 4 paces south of southeast corner of shed around barn, 1 foot west of fence corner and 256.31 feet from station in azimuth $259^{\circ}55'$. Reference mark No. 3 is 25 paces south of gate, 4 paces east of center line of sandy, north-south road, 1 foot east of fence and 168.86 feet from station in azimuth $161^{\circ}25'$. Azimuth from station to Andrews, aluminum water tank, is $144^{\circ}57'09''.2$.

Plane coordinates: (S), $x=2,464,826.14$ feet; $y=558,637.39$ feet; the grid azimuth to reference mark No. 1= $256^{\circ}48'23''.0$.¹

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

Echaw (Berkeley County, R. D. Horne, 1934).—About 1 mile south of Santee River, halfway between villages of Jamestown and Honey Hill, on large track of wooded land owned by Atlantic Coast Line Corporation. To reach from railroad depot in Jamestown, go southeast on sandy road 3.5 miles to George W. Wiles' house on left (north) side of road; turn in here and pass through gate at back of house into lane, then into sandy trail through woods, and follow trail 3.5 miles from Mr. Wiles' house to station about 100 yards back from (southwest of) fork in dim road through woods, 51 feet east of 14-inch pine burnt at bottom, 39 feet south of 12-inch pine leaning southwest, 27 feet south of 16-inch pine with large triangle blazed on south side, and 8 paces southeast of center line of woods road. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Reference and azimuth marks are standard disks in concrete, note 11b. No. 1 is 17 paces southeast of 15-inch outstanding pine, 3 paces north of center line of trail, and 166.8 feet from station in azimuth $255^{\circ}24'$. No. 2 (azimuth) is 15 paces northeast of 24-inch pine, 8 paces south of 8-inch pine, 7 paces southwest of 12-inch pine with two blazes, 2 paces south of center line of trail, and about 0.2 mile from station in azimuth $273^{\circ}42'11''$. No. 3 is 14 paces east of blazed 12-inch pine, 9 paces west of outstanding 12-inch pine, 9 paces east of center line of road, and 150.9 feet from station in azimuth $56^{\circ}31'$.

Plane coordinates: (S), $x=2,427,438.57$ feet; $y=525,929.18$ feet; the grid azimuth to reference mark No. 2 = $272^{\circ}56'29''.1$

Supplementary points

Blaney (Kershaw County, C. L. Garner, 1918; 1934).—About 20 miles northeast of Columbia, 12 miles southeast of Camden, at village of Blaney, on top of high bank, 300 meters (984 feet) east-northeast of railway station, about 100 meters (328 feet) north-northwest of center line of U. S. Highway 1, directly opposite Blaney High School, and 68.4 feet south-southeast of south-southeast rail of main track of Seaboard Air Line Railway. Surface mark, standard disk in concrete, note 1a, was reported in 1934 as having been removed. Underground mark, recovered in 1934, is bottle in concrete, note 7d, 2 feet below surface of ground. Reference mark, standard disk in concrete, note 11c, is on top of bank. 4.21 meters (13.8 feet) east of east rail of Seaboard Air Line Railway, about 4 meters (13 feet) above roadbed, 3 feet east of edge of cut and 20.78 meters (68.2 feet) from station in azimuth $80^{\circ}05'$. Station *Blaney 2* (see description thereof) is 574.03 feet from station in azimuth $304^{\circ}03'53''$.

Plane coordinates:** (N), $x=2,062,933.37$ feet; $y=426,525.30$ feet.

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 $220^{\circ}10'$. 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 $76^{\circ}18'$. 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 $142^{\circ}24'27''.8$. Azimuth from station to *Ridgeway, black water tank, ball on top*, is $230^{\circ}46'49''.1$.

Plane coordinates: (N), $x=1,967,428.94$ feet; $y=439,287.48$ feet; the grid azimuth to reference mark No. 3 = $142^{\circ}28'06''.7$.¹

Ridgeway, black water tank, ball on top (Fairfield County, R. D. Horne, 1934).—

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

Jackson 2 (Richland County, R. D. Horne, 1934).—About 6 miles east of

**Checked by traverse.

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

Columbia, on Army reservation at Camp Jackson, 0.25 mile south of base hospital and on highest part of Tank Hill. To reach from Columbia, follow U. S. Highway 76 east about 4 miles to macadam road on left at bottom of hill, just east of concrete bridge with sign "Camp Jackson—2 miles"; turn left onto macadam road and go about 2 miles to crossroads; turn left onto main concrete pavement and go 2 miles to two forks; turn right and go to top of hill where pavement ends in sand road; turn right and go 0.3 mile to station, 31.5 feet west of southeast pier (former support for tank "Z 601"), 31 feet south of northwest pier, 17 paces northwest of center line of sand road which circles top of hill and 11.5 feet southwest of southwest tank pier. Surface mark is standard disk in concrete, note 1a; this is surface mark of traverse station *Jackson* (see description thereof), which was reported removed and replaced. It is not known if underground mark of station *Jackson* (bottle in concrete) was disturbed or is still in position. Reference marks are standard disks in concrete, note 11b. Reference mark No. 1 is 25.1 feet southeast of south end of next to most easterly concrete foundation, 23.4 feet southeast of south end of most easterly foundation, 8 feet east of center line of road and 136.8 feet from station in azimuth $246^{\circ}15'$. Reference mark No. 2 (azimuth) is 8 paces southwest of center line of sand road through sparse woods and just across road from large lone pine and about 250 yards from station in azimuth $330^{\circ}15'56''$. Reference mark No. 3 is about 6 yards east of center line of sand road and 133.1 feet from station in azimuth $350^{\circ}34'$. Azimuth from station to *Columbia, United States Veterans' Hospital, stack*, is $38^{\circ}00'14''$.9.

Plane coordinates: (N), $x=2,023,848.05$ feet; $y=371,309.27$ feet; the grid azimuth to reference mark No. 2= $330^{\circ}13'16''$.¹

Observatory (Richland County, R. D. Horne, 1934; 1935).—In Columbia, on grounds of University of South Carolina, near intersection of Bull and Green Streets, on lawn between Davis and Petigru Halls, just north of Melton Memorial Observatory, 78.2 feet west of southwest corner of Davis Hall and 54.5 feet north-northwest of center of inlaid tile compass in steps of observatory. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark is just below surface of ground. Reference mark No. 1 is standard disk cemented in top of curb around cellar window, 14 feet south-southeast of northwest corner of Davis Hall and 133.25 feet from station in azimuth $193^{\circ}42'$. Reference mark No. 2 is standard disk cemented in top step of entrance to lawn of Petigru Hall and 84.05 feet from station in azimuth $123^{\circ}18'$. Reference mark No. 3 (azimuth) is standard disk cemented in top of east curb of Bull Street, 36 paces north-northwest of northwest corner of intersection of Senate and Bull Streets and about 0.3 mile from station in azimuth $158^{\circ}46'24''$.9. Following distances and azimuths are from station: Presbyterian Church, spire (top center) $150^{\circ}12'22''$.8; Shandon Presbyterian Church, spire (highest point), about 1.5 miles, $271^{\circ}04'10''$.4; *Columbia, Meridian Mark* (U. S. G. S.) (see description thereof), 96.47 feet, $306^{\circ}31'$; *Columbia, Melton Memorial Observatory, astronomical instrument, center* (see description thereof), 78.91 feet, $338^{\circ}21'$.

Plane coordinates: (N), $x=1,991,906.37$ feet; $y=363,034.69$ feet; the grid azimuth to reference mark No. 3= $158^{\circ}47'19''$.2.¹

Columbia, Melton Memorial Observatory, astronomical instrument, center (Richland County, R. D. Horne, 1934; 1935).—In Columbia, on grounds of University of South Carolina, near intersection of Bull and Green Streets. Station is bolt set flush with ground on first floor of Melton Memorial Observatory, centered under equatorial pier of telescope on second floor of building, connected by traverse. Station *Observatory* (see description thereof) is 78.91 feet from station in azimuth $158^{\circ}21'$.

Plane coordinates:* (N), $x=1,991,935.48$ feet; $y=362,961.30$ feet.

Columbia, Meridian Mark (U. S. G. S.) (Richland County, R. D. Horne, 1934; 1935).—In Columbia, on grounds of University of South Carolina, near intersection of Bull and Green Streets, 62.8 feet north-northwest of most southerly face of granite memorial monument, 36.9 feet west-northwest of most westerly wall of Observatory Building. Mark is standard United States Geological Survey "Meridian Mark" set in 6-inch square granite post. Station *Observatory* (see description thereof) is 96.47 feet from station in azimuth $126^{\circ}31'$.

Plane coordinates:* (N), $x=1,991,983.90$ feet; $y=362,977.26$ feet.

Columbia, United States Veterans' Hospital, stack (Richland County, R. D. Horne, 1934).—Plane coordinates: (N), $x=2,011,375.07$ feet; $y=355,321.37$ feet.

*No check on this position.

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

For notes in regard to marking of stations see p. 57.

Columbia, United States Veterans' Hospital, tank (Richland County, R. D. Horne, 1934).—Plane coordinates: (N), $x=2,011,212.34$ feet; $y=355,127.73$ feet.

Columbia, State Capitol, dome, base of flagstaff (Richland County, R. D. Horne, 1934).—Plane coordinates: (N), $x=1,989,907.52$ feet; $y=363,961.30$ feet.

Columbia, United States Veterans' Hospital, dome (Richland County, R. D. Horne, 1934).—Plane coordinates: * (N), $x=2,011,768$ feet; $y=355,644$ feet.

Columbia, large steel water tank (Richland County, R. D. Horne, 1934).—Plane coordinates: * (N), $x=1,999,639$ feet; $y=367,123$ feet.

Transit traverse station No. 18 B (U. S. G. S.) (Sumter County, R. D. Horne, 1934).—About 15 miles northwest of Sumter, 12 miles south-southeast of Camden and in village of Hagood. To reach from Camden, follow U. S. Highway 521 toward Sumter 11 miles to Rembert, turn right and go 3.7 miles to Hagood and station is 23.15 feet east of east rail of main line of Southern Railway tracks, 14.6 feet north of northwest corner of railway station. Mark is standard bench mark just below surface of ground. Station *Hagood* (see description thereof) is 145.65 feet from station in azimuth $145^{\circ}13'$.

Plane coordinates: * (N), $x=2,129,759.96$ feet; $y=384,960.58$ feet.

Sumter, silver standpipe (Sumter County, R. D. Horne, 1934).—Plane coordinates: * (N), $x=2,200,029$ feet; $y=336,519$ feet. (S), $x=2,200,047$ feet; $y=760,911$ feet.

Sumter, municipal power plant, brick stack (Sumter County, R. D. Horne, 1934).—Plane coordinates: * (N), $x=2,199,726$ feet; $y=333,750$ feet. (S), $x=2,199,743$ feet; $y=758,141$ feet.

Manning, municipal water tank (Clarendon County, R. D. Horne, 1934).—Plane coordinates: (N), $x=2,239,483.46$ feet; $y=253,265.77$ feet. (S), $x=2,239,481.56$ feet; $y=677,644.59$ feet.

Line (Williamsburg-Clarendon Counties, R. D. Horne, 1934).—About 4 miles northwest of Greeleyville, on or near Williamsburg-Clarendon County line. To reach from railroad station in Greeleyville, follow main street (State Highway 171) south for 0.35 mile; turn right for 0.15 mile; turn right and follow State Highway 261 (road to Manning) for 3.7 miles to sign "County Line, Williamsburg-Clarendon." Station is 85 feet southwest of center line of State Highway 261, 70 feet west-southwest of county line signpost (stenciled 453+90) and 60 feet south of center of short culvert in highway drainage ditch. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects about 12 inches. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 (azimuth) is northeast of center line of State Highway 261, 10 paces northeast of signpost marked "State Highway 261 S. C." and about 0.15 mile from station in azimuth $304^{\circ}10'08''$. Reference mark No. 2 is 94 feet northwest of center of short culvert in highway drainage ditch, 53 feet southwest of center line of State Highway 261 and 122.90 feet from station in azimuth $147^{\circ}39'$. Reference mark No. 3 is in woods, 205 feet southwest of center line of State Highway 261 and 120.08 feet from station in azimuth $29^{\circ}23'$.

Plane coordinates: (S), $x=2,292,608.75$ feet; $y=648,746.00$ feet; the grid azimuth to reference mark No. 1 = $303^{\circ}38'44''$.¹

Airway beacon No. 25 (Jacksonville-Richmond) (Williamsburg County, R. D. Horne, 1934).—Plane coordinates: (N), $x=2,355,083.82$ feet; $y=249,465.59$ feet. (S), $x=2,355,079.35$ feet; $y=673,805.32$ feet.

Airway beacon No. 24 (Jacksonville-Richmond) (Williamsburg County, R. D. Horne, 1934).—Plane coordinates: (N), $x=2,338,036.03$ feet; $y=177,775.71$ feet. (S), $x=2,338,004.21$ feet; $y=602,126.12$ feet.

St. Stephen, black water tank final (Berkeley County, R. D. Horne, 1934).—Plane coordinates: * (N), $x=2,328,915$ feet; $y=152,691$ feet. (S), $x=2,328,875$ feet; $y=577,048$ feet.

Andrews, aluminum water tank (Georgetown County, R. D. Horne, 1934).—Plane coordinates: (S), $x=2,440,300.31$ feet; $y=592,547.48$ feet.

BUCKSPORT TO OSCEOLA. 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 Tradenville. To reach from Lancaster Post Office, go 1.75 miles east on Arch Street and take left fork for 3.8 miles to T-

*No check on this position.

¹This azimuth has been computed by the first formula (p. 61), neglecting the second term.

For notes in regard to marking of stations see p. 57.

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 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 $231^{\circ}23'$. 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 $136^{\circ}08'$. 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 $173^{\circ}05'26''.7$.

Plane coordinates: (N), $x=2,111,361.98$ feet; $y=645,642.67$ feet; the grid azimuth to the azimuth mark= $172^{\circ}52'53''.1$ 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 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 (277.50 feet) northeast of station in azimuth $206^{\circ}29'$. 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 $156^{\circ}03'$. 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 $77^{\circ}40'08''.4$.

Plane coordinates: (N), $x=2,140,437.06$ feet; $y=684,695.01$ feet; the grid azimuth to the azimuth mark= $77^{\circ}24'16''.9$ 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 mark 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 $310^{\circ}05''$. 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 $28^{\circ}10'$. C. F. 108 (S. C. Geod. S.) (azimuth mark) is U. S. C. & G. S. 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 $252^{\circ}58'21''.1$. Azimuth from station to water tank of cotton mills, Pageland, is $244^{\circ}52'15''.2$.

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.)= $252^{\circ}38'20''.2$ ¹

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

For notes in regard to marking of stations see p. 57.

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 cross-roads 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 (29 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 $325^{\circ}45'$. No. 2 (note 11a) is 21 meters (70 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 $56^{\circ}26'$. 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 $262^{\circ}44'39''$.

Plane coordinates: (N), $x=2,145,782.89$ feet; $y=615,598.58$ feet; the grid azimuth to the azimuth mark= $262^{\circ}28'14''$.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 cross-roads (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 cross road at two mail boxes; continue straight ahead for 0.2 mile to cross road 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 $229^{\circ}18'$. 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 $354^{\circ}41'$. Azimuth mark projects 7 inches and is 0.4 mile northeast of station in azimuth $212^{\circ}57'10''$.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. Final Jefferson Municipal black water tank, is 2.5 miles from station in azimuth $126^{\circ}26'17''$.⁴

Plane coordinates: (N), $x=2,194,312.32$ feet; $y=594,117.49$ feet; the grid azimuth to the azimuth mark= $212^{\circ}35'18''$.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 north-west 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 cross road); 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 mark projects 8 inches. Reference and azimuth marks are standard disks in concrete, notes 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 $71^{\circ}49'$. Reference mark No. 2 projects 8 inches, is 23.5 meters (77 feet) north of center line of road

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

For notes in regard to marking of stations see p. 57.

and 29.158 meters (95.66 feet) from station in azimuth $148^{\circ}39'$. 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 $324^{\circ}01'41''$.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 miles to cross road (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 = $323^{\circ}44'18''.7$ ¹

Mobley (Kershaw County, J. Bowie, Jr., 1935).—About 11 miles (air line) northwest of McBee and 7.5 miles (air line) northwest of Bethune. To reach from junction of U. S. Highway 1 and State Highway 341 in Bethune, follow State Highway 341 northwest for 6.8 miles to cross road at store and Bethel Church (colored) and continue for 1.4 miles to station at triangular-blazed oak on right, on property belonging to Mrs. Lena Mobley, 55 meters (180 feet) east-southeast of cross road, 13.4 meters (44 feet) northeast of center line of road, 9.6 meters (31 feet) southeast of Coca-Cola cap in 4-inch blazed oak and 7.4 meters (24 feet) north of triangular-blazed oak facing road. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects about 8 inches. Reference and azimuth marks are standard disks in concrete, note 11b. (No other objects visible from ground). Reference mark No. 1 is 6.3 meters (21 feet) north-northeast of center line of road, 3 feet southwest of 6-inch oak and 42.228 meters (138.54 feet) from station in azimuth $326^{\circ}55'$. Reference mark No. 2 is 17.7 meters (58 feet) northeast of "Stop" sign on south side of road, 15.75 meters (51.7 feet) north-northeast of 4-inch pine marked "TP 432.3," 15.567 meters (51.07 feet) north of station K 786 (S. C. Geod. S.), 11.5 meters (38 feet) south-southeast of "Stop" sign on north side of road, 9 meters (30 feet) southeast of center line of farm cross-road, 7 meters (23 feet) northeast of center line of road, and 44.726 meters (146.74 feet) from station in azimuth $128^{\circ}26'$. Azimuth mark projects about 6 inches, is in cultivated field at point of woods, 10 meters (33 feet) northeast of persimmon tree, 3 meters (10 feet) northeast of farm road, 3 meters (10 feet) southeast of point of woods, and 0.5 mile from station in azimuth $31^{\circ}38'31''.9$. K 786 (S. C. Geod. S.), a U. S. C. & G. S. and State Survey standard disk in concrete post flush with surface of ground, is about 45 meters (148 feet) west of station, 5 meters (16 feet) south of center line of road and 1.5 meters (5 feet) west of blazed tree marked "TP 432.3."

Plane coordinates: (N), $x=2,166,937.85$ feet; $y=544,588.80$ feet; the grid azimuth to the azimuth mark = $31^{\circ}19'46''.0$ ¹

Blakely (Chesterfield County, J. Bowie, Jr., 1935).—About 9 miles (air line) southeast of Jefferson, 6.5 miles (air line) north of McBee and 5.5 miles (air line) northwest of Middendorf. To reach from intersection of U. S. Highway 1 and State Highway 35 at McBee, follow U. S. Highway 1 northeast for 1.8 miles to where State Highway 95 forks left; continue on State Highway 95 for 3.7 miles to where a road forks left through woods at 18-inch snag 15 feet high; turn left on this road through scrub woods for 0.75 mile to Y at railroad crossing (azimuth mark here); continue on road paralleling east side of railroad for 0.5 mile to crossing at houses; turn across track here and immediately take left dim fork at triangular-blazed tree for 0.5 mile to station at top of wooded hill, on land belonging to W. S. Blakely, 0.5 mile southwest of railroad crossing, 31.5 meters (103 feet) east-northeast of large snag 12 feet high, 22 meters (72 feet) south-southwest of scrub oak with large trunk, 17.8 meters (58 feet) south of 10-inch pine blazed on south side, and 9.12 meters (29.9 feet) north-northeast of 10-inch pine triangular-blazed on west side. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects about 8 inches. Reference and azimuth marks are standard disks in concrete, note 11b. (No other objects visible from ground). Reference mark No. 1 projects about 8 inches and is 36.192 meters (118.75 feet) from station in azimuth $207^{\circ}17'$. Reference mark No. 2 projects about 8 inches, is 22.6 meters (74 feet) north of 12-foot snag, 2.6 meters (9 feet) east of 4-foot stump and 32.178 meters (105.57 feet) from station in azimuth $89^{\circ}50'$. Azimuth mark projects about 12 inches, is 30 meters (98 feet) southeast of 6-inch pine marked 39/82, 20.991 meters (68.87 feet) east of U. S. G. S. bench mark TT 11 EN (standard disk in 5-inch concrete post), 20.5 meters (67 feet) east of telegraph pole marked TT 11 EN 17/1, 11.798 meters (38.71 feet)

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

For notes in regard to marking of stations see p. 57.

east of east rail of railroad where "B M" is painted in white on cross-tie, 1.64 meters (5.4 feet) north-northwest of blazed 8-inch oak with Xs painted in white on north and south sides and RM 467.6 on west side, and about 1 mile from station in azimuth $286^{\circ}37'33''.8$.

Plane coordinates: (N), $x=2,219,579.78$ feet; $y=566,160.09$ feet; the grid azimuth to the azimuth mark= $286^{\circ}12'51''.8$.¹

McBee (Chesterfield County, C. L. Garner, 1918; 1935).—At McBee, about 0.4 mile northeast of Seaboard Air Line Railway station, on flat ridge on property belonging to Dr. B. L. Norwood, about 60 meters (197 feet) northeast of road leading to Norwood's house and 29.2 meters (96 feet) northeast of northeast corner of house. Surface mark (note 1a) is standard disk in 12-inch concrete post, stamped "McBee 1918." Underground mark (note 7a) is glass bottle with neck projecting a little above concrete. Reference mark, note 11b, (no number) is a round concrete post with mark cemented in top and stamped "McBee 1918". It is 24.4 meters (80 feet) south of southeast corner of front porch of house, 13 meters (43 feet) southeast of post in southwest end of curb fronting house, and 69.826 meters (229.09 feet) from station in azimuth $21^{\circ}34'$. In 1935 one close reference mark, an azimuth mark and a Laplace azimuth mark were established. Close reference mark is a standard disk in concrete, note 11b, stamped "McBee 1918, 1935 No. 2" projects 6 inches, is at east side of garden fence, 17.1 meters (56 feet) north of northwest corner of house and 33.891 meters (111.19 feet) from station in azimuth $84^{\circ}17'$. CF 1 (S. C. Geod. S.) is 0.3 mile from station in azimuth $2^{\circ}06'02''.5$. Laplace azimuth mark is a standard disk in concrete cylinder, note 11b, stamped "McBee 1918, 1935 Az Mark No. 4," projects 12 inches, and is visible from ground at station. It is on McBee-Hartsville Road (State Highway 35), 3.2 miles southeast of intersection of U. S. Highway 1 and State Highway 35 in McBee, at curve in road at crest of a rise in road grade, about 0.5 mile northwest of where an old road forks northwest from pavement, 99.6 feet southeast of 14-inch pine with blaze on side facing paved road, 21.5 meters (71 feet) northeast of center line of paved road, 12.4 meters (41 feet) northeast of highway survey stake 566, 12 meters (39 feet) southwest of center line of old road, and about 3 miles (air line) from station in azimuth $298^{\circ}36'48''.6$. The following azimuths are from station: *McBee, Municipal water tank*, $49^{\circ}28'45''.4$; *Bethune, municipal silver water tank*, $55^{\circ}33'01''.5$; McBee, Methodist Church, spire, $71^{\circ}14'54''$.

Plane coordinates: (N), $x=2,225,632.01$ feet; $y=536,482.07$ feet; the grid azimuth to the Laplace azimuth mark= $298^{\circ}11'27.3''$.¹

Cassatt (Kershaw County, C. L. Garner, 1918; 1935).—About 0.25 mile east of Cassatt. To reach from junction of U. S. Highway 1 and State Highway 341 at Bethune, follow U. S. Highway 1 southwest for 6.3 miles to Shell service station in Cassatt; turn left (southwest) for 0.1 mile across tracks of Seaboard Air Line Railway to Y; continue straight ahead on left fork for 0.4 mile along sandy road to small T-road and follow for 0.1 mile (passing transmission tower on left) to cross roads and station, located about 55 yards southwest of transmission tower, 105 feet east of road intersection and 77 feet southeast of straight-ahead road. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Upper mark projects 3 inches. Reference mark No. 1 is standard disk in 18-inch circular concrete mound, note 11c, projecting 4 inches, and is 23 paces southeast of road to station, 13 paces east of crossing road and 90.19 feet from station in azimuth $89^{\circ}34'$. Reference mark No. 2, note 11b, projects 6 inches, is 11 paces northwest of dirt road to station, 10 paces east of crossing road and 109.19 feet from station in azimuth $181^{\circ}38'$. Azimuth mark, note 11b, projects 8 inches, is at Cassatt, about 100 yards northeast of Esso gas station, 25 paces northwest of center line of U. S. Highway 1, 22 paces southeast of southeast corner of old wooden community house and 0.4 mile from station in azimuth $147^{\circ}48'26''.3$.

Plane coordinates: (N), $x=2,171,851.09$ feet; $y=495,250.38$ feet; the grid azimuth to the azimuth mark= $147^{\circ}29'09''.1$.¹

Bethune (Kershaw County, C. L. Garner, 1918; 1935).—About 1.25 miles southwest along railway tracks from Bethune Railway Station, in sandy soil on property belonging to Seaboard Air Line Railway, 0.15 mile northeast of overhead crossing of Seaboard Air Line Railway and U. S. Highway 1, 150 meters (492 feet) south of milepost 308, 300 feet southwest of railway crossing of sand farm road, 49 feet north of north rail of railway and 21 feet northeast of third telephone pole southwest of grade crossing. To reach from junction of U. S. Highway 1 and

¹This azimuth has been computed by the first formula (p. 61), neglecting the second term.

State Highway 341 in Bethune, follow U. S. Highway 1 southwest for 1.4 miles to T-road to right just before passing Gulf gas station on right, and turn right for 0.1 mile to grade crossing and station on left. In 1935, station mark was found partly washed out and was replaced by new marks, notes 1b and 7a. Upper mark projects 6 inches. In 1935, old reference mark was found washed out and two new reference marks and azimuth mark were established, note 11b. Reference mark No. 1 projects 10 inches, is set in sand bank 50 feet northwest of center line of railway, 20 feet northwest of sand bank and 39.270 meters (128.84 feet) from station in azimuth $236^{\circ}21'$. Reference mark No. 2 projects 6 inches, is across railway tracks, 80 feet south of railway tracks, 60 feet south of bank, and 53.230 meters (174.64 feet) from station in azimuth $336^{\circ}16'$. Azimuth mark projects 8 inches and is 0.3 mile from station in azimuth $250^{\circ}04'54''.7$. To reach from T-road mentioned above, go northeast on U. S. Highway 1 for 0.25 mile. Mark is on right side of road, 14 paces southeast of center line of U. S. Highway 1. Azimuth from station to final, *Bethune municipal silver water tank*, is $232^{\circ}54'47''.8$.

Plane coordinates: (N), $x=2,189,844.02$ feet; $y=511,096.94$ feet; the grid azimuth to the azimuth mark= $249^{\circ}43'35''.7$.¹

L 642 (S. C. Geod. S.) (Lee County, J. Bowie, Jr., 1935).—About 9 miles by road northwest of Bishopville and 8 miles by road southeast of Bethune. To reach from Bethune, follow State Highway 341 southeast for 8 miles. To reach from Bishopville, follow U. S. Highways 15 and 401 north for about 1 mile to dirt road left (State Highway 341) at gas station and turn left for about 8 miles to station located on west side of road, on outside of road-cut on top of brush-covered hill, about 0.4 mile south of wooden bridge and 0.5 mile north of pine grove with two small stores, one on each side of road, 22.5 meters (74 feet) west of 3-inch blazed pine and 9.5 meters (31 feet) west of center line of road. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Upper mark is flush with ground. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 projects about 8 inches, is 14 meters (46 feet) north of dim farm road leading east, 8.8 meters (29 feet) east of center line of road and 47.33 meters (155.3 feet) from station in azimuth $328^{\circ}02'$. Reference mark No. 2 projects 8 inches, is 11.5 meters (38 feet) west of center line of road and 39.19 meters (128.6 feet) from station in azimuth $170^{\circ}10'$. L 643 (S. C. Geod. S.) (azimuth mark) is a standard U. S. C. & G. S. and State Survey disk set in center of square concrete post flush with surface of ground and is about 42 meters (138 feet) south of farm road leading west, 40 meters (131 feet) east of 30-inch blazed pine with Coca Cola cap, 11.6 meters (38 feet) west of center line of road, 5 feet northwest of 10-inch blazed white oak with Coca Cola cap and 0.25 mile from station in azimuth $176^{\circ}37'26''.8$.

Plane coordinates: (N), $x=2,216,651.20$ feet; $y=478,387.82$ feet; the grid azimuth to L 643 (S. C. Geod. S.)= $176^{\circ}13'08''.1$.

McKenzie (Darlington County, J. Bowie, Jr., 1935).—About 6.5 miles west of Hartsville. To reach from junction of U. S. Highway 401 and State Highway 35 at Hartsville, follow State Highway 35 west for 2.6 miles; turn left off pavement at Center Point service station and follow Ashland road for 1.8 miles; take right fork at Kellyton School for 2.7 miles; turn right on red clay T-road just before reaching small unpainted house on left for 0.7 mile to large farm; continue right on main road for 0.3 mile to G. W. McKenzie's house and proceed north for 0.25 mile; turn left on farm road for about 100 yards and turn left again along west edge of cultivated field for 0.2 mile to old woods road. Station is about 100 yards south of this point along dim woods road, in patch of sparse woodland on broad, domelike highland on property belonging to G. W. McKenzie, about 200 yards northwest of his house, 27 paces west of west edge of cultivated field, 24.7 feet east of 12-inch dogwood tree and 19.7 feet northeast of triangular-blazed 4-inch hickory tree. 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, is 7 paces west of west edge of cultivated field, 4.5 feet southwest of 14-inch dogwood tree and 128.54 feet from station in azimuth $199^{\circ}18'$. Reference mark No. 2 projects 10 inches and is 142.07 feet from station in azimuth $63^{\circ}49'$. Azimuth mark projects 7 inches, is 25 paces east of old house, 7 paces west of main road and 0.3 mile from station in azimuth $206^{\circ}23'59''.1$.

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

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Plane coordinates: (N), $x=2,242,696.06$ feet; $y=495,314.08$ feet; the grid azimuth to the azimuth mark = $205^{\circ}56'44''.9^1$

D 262 (S. C. Geod. S.) (Darlington County, J. Bowie, Jr., 1935).—About 9 miles by road north of Bishopville, 8 miles south of Hartsville and about 0.5 mile southwest of Lydia, in angle formed by dirt road leading southwest from main highway, outside of curve in highway, 32.31 meters (106 feet) south-southeast of southwest corner of Will Jose's house, in front of and 29.5 meters (97 feet) northwest of northeast corner of Mrs. L. Baker's home, 12.67 meters (41.6 feet) north of 12-inch oak, 9.60 meters (31.5 feet) west-northwest of 10-inch oak and 6.4 meters (21 feet) southeast of center line of U. S. Highway 15. Surface mark is standard U. S. C. & G. S. and State survey disk in concrete cylinder, note 1b, 6-inches below surface of ground. Reference marks are standard disks in concrete, note 11a and 11b. Reference mark No. 1 (note 11a) is in south edge of cultivated field, 36.58 meters (120.0 feet) east-southeast of southeast corner of Jose's house, 5.00 meters (16.4 feet) north-northwest of center line of highway and 44.74 meters (146.8 feet) from station in azimuth $206^{\circ}36'$. Reference mark No. 2 (note 11b) is about 75 meters (246 feet) east along highway from concrete culvert, about 50 meters (164 feet) northeast of tobacco barn, 10.10 meters (31.4 feet) north-northwest of center line of highway and 45.73 meters (150.0 feet) from station in azimuth $64^{\circ}33'$. **D 263 (S. C. Geod. S.)** (azimuth mark) is a U. S. C. & G. S. and State Survey standard disk in center of top of concrete cylinder, about 12 inches below surface of ground. It is at Lydia, about 157 meters (515 feet) southwest of Standard Oil service station, 79 meters (259 feet) southwest of frame house on north side of road, 25 meters (82 feet) southwest of private road over culvert leading to frame house on northwest side of road, 8.8 meters (29 feet) northwest of center line of highway at west edge of town and 0.45 mile from station in azimuth $214^{\circ}35'18''.6$.

Plane coordinates: (N), $x=2,267,010.98$ feet; $y=467,068.09$ feet; the grid azimuth to D 263 (S. C. Geod. S.) = $214^{\circ}05'22''.4^1$

D 17 (S. C. Geod. S.) (Darlington County, J. Bowie, Jr., 1935).—About 6.5 miles north of Hartsville on Hartsville-Middendorf Road. To reach from Hartsville Post Office, follow U. S. Highway 401 (Hartsville-Society Hill Road) north for 0.95 mile to where road turns right (northeast) and a dirt road continues straight ahead and continue on dirt road (road to Middendorf) for 5.55 miles to station, located 0.2 mile south of cross roads at top of grade, on thinly wooded land and 22 meters (72 feet) west of center line of road. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 5 inches. Reference marks are standard disks in concrete, note 11b. Reference mark No. 1 projects 8 inches, is 8.1 meters (27 feet) west of center line of road and 34.303 meters (112.54 feet) from station in azimuth $184^{\circ}23'$. Reference mark No. 2 is 8 meters (26 feet) west of center line of road and 22.865 meters (75.03 feet) from station in azimuth $305^{\circ}42'$. **CF 9 (S. C. Geod. S.)** (azimuth mark) is a U. S. C. & G. S. and State Survey standard disk in top of 5- by 5-inch concrete post, 9.4 meters (31 feet) west of center line of Hartsville-Middendorf Road, at crest of slight raise in grade of road at east edge of cultivated field, and 0.7 mile from station in azimuth $169^{\circ}11'28''.3$. To reach from station, go north 0.2 mile to cross road and continue straight ahead for 0.5 mile to mark.

Plane coordinates: (N), $x=2,272,237.29$ feet; $y=533,233.23$ feet; the grid azimuth to CF 9 (S. C. Geod. S.) = $168^{\circ}40'53''.0^1$

Langston (Darlington County, J. Bowie, Jr., 1935).—About 7 miles west-northwest of Darlington and 6.3 miles southeast of Hartsville. To reach from Hartsville Post Office, go southeast 2 blocks to main street, turn left (northeast) for 1 block, turn right and continue on State Highway 35 (Hartsville-Darlington Road) southeast for 6.3 miles to station, on property belonging to Mr. B. E. Langston, at south edge of patch of brush and second-growth trees, 102 meters (335 feet) north of center line of highway, about 100 meters (328 feet) southwest of house and 82.1 meters (269 feet) west of center line of driveway to house. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark is 12 inches below surface of ground. Underground mark is 48 inches below surface of ground. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 projects 4 inches, is 61.0 meters (200 feet) west of center line of driveway to house, 8.1 meters (27 feet) north of center line of highway and 95.825 meters (314.39 feet) from station in azimuth $344^{\circ}41'49''$. Reference mark No. 2 projects 6 inches, is at southwest corner of garden fence, 26.4 meters (87 feet) northwest of northwest corner of house and 106.39 meters (349.0 feet) from station in azimuth $208^{\circ}40'45''$. Azimuth mark projects 6 inches,

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

For notes in regard to marking of stations see p. 57.

is at north edge of cultivated field, 100 meters (328 feet) northwest of frame house on south side of highway, 90 paces west of dirt T-road to north, 87 feet southeast of 4- by 4-foot culvert under highway, 29 feet south of center line of highway and 0.65 mile from station in azimuth $109^{\circ}17'29''.5$.

Plane coordinates: (N), $x=2,301,205.70$ feet; $y=477,749.48$ feet; the grid azimuth to the azimuth mark = $108^{\circ}43'42''.5$.¹

Windham (Darlington County, J. Bowie, Jr., 1935).—About 13 miles south of Hartsville, 12 miles southwest of Darlington, 8 miles northwest of Timmonsville and 3 miles northeast of Lamar (all distances by road), at Windham's Crossroads, in southeast angle formed by intersection of State Highways 403 and 763 (residence is in southeast angle, gas station in northeast and small store "Windham's Place" in northwest), 27.2 meters (89 feet) southwest of center line of State Highway 403, 12.2 meters (40 feet) southeast of center line of State Highway 763, 9.2 meters (30 feet) west of 48-inch oak and 7.70 meters (25.3 feet) east-northeast of 24-inch tree. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects about 10 inches. Reference marks are standard disks in concrete, note 11a. Reference mark No. 1 is in northwest corner of Windham's front yard, 26 meters (85 feet) south-southeast of gas pump at service station, 11.8 meters (39 feet) south of center line of State Highway 763, 11.7 meters (38 feet) west-northwest of northwest corner of Windham's house, 8.9 meters (29 feet) east of center line of State Highway 403 and 35.783 meters (117.40 feet) from station in azimuth $228^{\circ}31'$. Reference mark No. 2 is 25 meters (82 feet) north of center line of State Highway 763, 22.7 meters (74 feet) west-southwest of center line of State Highway 403, 7.6 meters (25 feet) west-southwest of northwest corner of small store, 5.1 meters (17 feet) east-northeast of 30-inch tree, 3.9 meters (13 feet) south west of 24-inch tree and 37.256 meters (122.23 feet) from station in azimuth $142^{\circ}17'$. D 311 (S. C. Geod. S.) (azimuth mark) is about 9.75 miles southwest of junction of State Highways 35 and 763, 300 feet north of intersection of county road from west, 68 paces southwest of farm road to right, 16.3 feet east of center line of State Highway 763 and 0.9 mile from station in azimuth $228^{\circ}56'54''.8$. Station D 312 (S. C. Geod. S.) is 26.065 meters (85.51 feet) from station in azimuth $187^{\circ}49'$.

Plane coordinates: (N), $x=2,292,050.07$ feet; $y=438,213.55$ feet; the grid azimuth to D 311 (S. C. Geod. S.) = $228^{\circ}24'12''.0$.¹

D 301 (S. C. Geod. S.) (Darlington County, J. Bowie, Jr., 1935).—About 2 miles southwest of Darlington. To reach from Darlington Courthouse, follow Pearl Street southwest for 0.85 mile to junction of State Highways 35 and 763 (Y intersection) and take left fork (road to Timmonsville and Sumter) for 1.25 miles to station, about 55 meters (180 feet) northwest of W. P. Bowle's house, 12 meters (39 feet) southeast of center line of State Highway 763 at point where road curves to southwest and 3.7 meters (12 feet) northwest of line of telephone poles. In 1935 old mark was removed and new mark established in the same position, notes 1b and 7a. Upper mark projects 8 inches. Reference marks were also established, note 11b. Reference mark No. 1 projects 6 inches, is 5.5 meters (18 feet) southeast of center line of highway and 37.865 meters (124.23 feet) from station in azimuth $222^{\circ}14'$. Reference mark No. 2 projects 6 inches, is at east corner of garden, 16 meters (52 feet) north of 12-inch pecan tree, 12.3 meters (40 feet) northwest of northwest corner of house south of station and 53.880 meters (176.77 feet) from station in azimuth $345^{\circ}55'$. Azimuth mark is set according to note 1b and is 2 feet underground. Mark was not numbered and at time station was occupied it was stamped "U. S. C. & G. S. Az Mark." It is 112 feet northeast of edge of pavement at southwest edge of V of Y of intersection of State Highways 35 and 763, 22 feet north of center line of State Highway 763, at edge of cut and 1.25 miles from station in azimuth $226^{\circ}02'30''.1$. To reach from Darlington Courthouse, follow Pearl Street southwest for 0.85 mile to intersection of State Highways 35 and 763. Following azimuths are from station: Darlington, Darlington Manufacturing Company, stack $224^{\circ}10'39''.8$; Darlington, Darlington Manufacturing Company, tank, $224^{\circ}38'38''$; Darlington, Darlington Water Service Company, tank $229^{\circ}33'08''$; Darlington, First Baptist Church, spire $236^{\circ}02'45''$; Darlington, Imperial Tobacco Company, tank, $240^{\circ}14'08''$; Darlington, Daniels Lumber Company, stack, $240^{\circ}16'26''$; Darlington, Southern Oil Company, tank, $242^{\circ}06'38''$.

Plane coordinates: (N), $x=2,331,176.87$ feet; $y=467,907.64$ feet; the grid azimuth to the azimuth mark = $225^{\circ}25'22''.2$.¹

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

For notes in regard to marking of stations see p. 67.

PT 122 (S. C. Geod. S.) eccentric (Florence County, J. Bowie, Jr., 1935).—About 2.5 miles by road or 1.5 miles by railroad southwest of Timmonsville, on top of hill between Atlantic Coast Line Railroad and U. S. Highway 76, about 0.2 mile north of highway near where dirt road crosses railroad, 35 meters (115 feet) west-southwest of milepost C 69, 28 meters (92 feet) west of dirt road, 24.3 meters (80 feet) southwest of switch signal, 14.3 meters (47 feet) south of south rail of main track of railroad and 5.3 meters (17 feet) south of telegraph pole with Coca Cola cap nailed to its east side. 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 11a. Reference mark No. 1 is at east edge of cultivated field, 5 meters (16 feet) west-southwest of dirt road and 58.067 meters (190.51 feet) from station in azimuth $296^{\circ}21'$. Reference mark No. 2 is 16.50 meters (54.1 feet) south of south rail of main track of railroad, 6.75 meters (22.1 feet) south of Coca Cola cap nailed to south side of telegraph pole about 1 foot above ground and 45.912 meters (150.63 feet) from station in azimuth $53^{\circ}36'$. Azimuth mark is at edge of cultivated field belonging to H. V. Oliver, 0.4 mile along U. S. Highway 76 west from dirt T-road leading to station, 125 meters (410 feet) southeast of bungalow, 100 meters (328 feet) south of tobacco barn, in front of and about 75 meters (246 feet) north-northwest of Oliver's house, 18.3 meters (60 feet) southwest of standard U. S. Highway sign, 8.8 meters (29 feet) south of center line of highway, at point of tangency of west tangent of highway, and about 0.5 mile from station in azimuth $33^{\circ}06'19''.3$. PT 123 (S. C. Geod. S.) is 1.5 miles from station in azimuth $236^{\circ}27'13''$. PT 122 (S. C. Geod. S.) (see description thereof) is 18.084 meters (59.33 feet) from station in azimuth $211^{\circ}25'$.

Plane coordinates: (N), $x=2,312,957.92$ feet; $y=409,481.16$ feet; the grid azimuth to the azimuth mark = $32^{\circ}31'17''.9$.¹

Experimental (Florence County, J. Bowie, Jr., 1935).—About 1.5 miles northwest of Florence, in northeast corner of front lawn of main residence at Pee Dee Experimental Station (branch of Clemson College), 93.4 meters (306 feet) northeast of northeast corner of front porch of residence, 15 meters (49 feet) southwest of southwest rail of branch line of Atlantic Coast Line Railroad, 12.9 meters (42 feet) west of center line of driveway to residence and 4.5 meters (15 feet) west of 5-inch pecan tree. To reach from Florence Post Office, go west 1 block and turn right (north) on U. S. Highway 52 (main road to Darlington) for 1.6 miles to experimental station on left. 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 12a. *Experimental reference mark No. 1* projects 6 inches, is 16.4 meters (54 feet) northeast of northeast rail of Atlantic Coast Line Railroad, between railroad and highway, 11.0 meters (36 feet) southwest of center line of highway, 10.5 meters (34 feet) east of center line of drive to residence and 41.199 meters (135.17 feet) from station in azimuth $260^{\circ}55'$. Reference mark No. 2 projects 8 inches, is in northwest corner of lawn in front of residence, 10.2 meters (33 feet) southwest of southwest rail of Atlantic Coast Line Railroad, 3.6 meters (12 feet) east of center line of drive on west side of lawn and 47.290 meters (155.15 feet) from station in azimuth $139^{\circ}34'$. L 254 (S. C. Geod. S.) (azimuth mark), is a U. S. C. & G. S. and State Survey standard disk cemented in south curb of Darlington-Florence Highway (road running past station), about 1 mile north of Florence Post Office, opposite Hardwood-Dimension Co. plant, 0.05 mile northwest of point where highway turns northwest after crossing railroad, 70 paces southeast of point where railroad crosses highway to Hardwood-Dimension Co. plant, 17 paces east of switch post, 6 paces northeast of northeast rail of railroad and 0.7 mile from station in azimuth $312^{\circ}53'03''.0$. *Bench mark Z 29*, (U. S. C. & G. S.) is 7.574 meters (24.85 feet) from station in azimuth $220^{\circ}57'$. *Florence magnetic station* (see description thereof) is 791.3 meters (2,596 feet) from station in azimuth $43^{\circ}08'00''$. Following azimuths are from station: *Florence, Hardwood-Dimension Company, tank*, $309^{\circ}21'53''.2$; *Florence, municipal, water tank*, $322^{\circ}13'15''.5$; *Florence, courthouse spire*, $324^{\circ}28'24''.1$; *Florence, South Carolina State Bank Building, flagpole*, $326^{\circ}45'20''.0$.

Plane coordinates: (N), $x=2,367,642.70$ feet; $y=444,833.39$ feet; the grid azimuth to L 254 (S. C. Geod. S.) = $312^{\circ}11'51''.7$.¹

Jones (Florence County, J. Bowie, Jr., 1935).—About 10 miles (air line) west-southwest of Florence and 7.5 miles west of Effingham, at Jones' Crossroads, about 0.25 mile east of Glenwood schoolhouse, in west corner of cultivated field, in southeast angle of intersection of two dirt roads, diagonally across intersection

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

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from large country store, 33 meters (108 feet) east of southeast corner of store, 18 meters (59 feet) east of north-south road, 8 meters (26 feet) south of east-west road, 5 meters (16 feet) northeast of brick pillar at northwest corner of filling station and 3.8 meters (12 feet) north of brick chimney on filling 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 is in front yard of house, 22.8 meters (75 feet) northwest of northwest corner of house, 17 meters (56 feet) west-southwest of 12-inch tree, 5.5 meters (18 feet) south of center line of road and 61.265 meters (201.00 feet) from station in azimuth $229^{\circ}26'$. Reference mark No. 2 is directly in front of farmhouse, 36.6 meters (120 feet) west-southwest of brick pillar at southwest corner of house, 25.6 meters (84 feet) southwest of 48-inch oak, 15 meters (49 feet) north of range with north side of brick schoolhouse, 9 meters (30 feet) southwest of 8-inch oak, 8.5 meters (28 feet) west of another 8-inch oak, 2 meters (7 feet) south of mail box and 100.28 meters (329.0 feet) from station in azimuth $134^{\circ}33'05''$. Azimuth mark projects about 6 inches, is in north-south fence line skirting west side of woods, about 6 meters (20 feet) south of east-west road and 0.5 mile from station in azimuth $229^{\circ}02'32''$. 6. *Transit traverse station No. 99 DS (U. S. G. S.)* (see description thereof) is 2.316 meters (7.60 feet) from station in azimuth $19^{\circ}28'$.

Plane coordinates: (N), $x=2,343,254.24$ feet; $y=391,754.93$ feet; the grid azimuth to the azimuth mark $=228^{\circ}24'09''.2^1$

Howe (Florence County, J. Bowie, Jr., 1935).—About 4.5 miles south-southeast of Florence, 0.6 mile south of Howe Railroad Station (small shed at road crossing), on right-of-way of Atlantic Coast Line Railroad, opposite telephone pole 200, 0.15 mile north of point where farm road crosses railroad, 0.1 mile north-northeast of small house with two large oaks in front yard, 75 yards south of S curve in road, 11.1 meters (36 feet) east of east rail of east track and 3.7 meters (12 feet) east of top of east bank of railroad cut. To reach from post office in Florence, follow Irby Street (U. S. Highways 17, 52, and 301) south for 4.4 miles to cross road at top of rise in road grade (church in northeast angle and country store in southeast angle); turn left (east) for 0.7 mile to T-road (right) about 200 feet west of railroad crossing at Howe Railroad Station and turn right (south) for 0.6 mile to 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 6 inches, is 13.3 meters (44 feet) east of east rail of east track, 5.2 meters (17 feet) east of top of east bank of railroad cut and 30.265 meters (99.29 feet) from station in azimuth $180^{\circ}44'$. Reference mark No. 2 projects 8 inches, is 7.2 meters (24 feet) west of west rail of west track, 6.5 meters (21 feet) east of center line of road, 4 feet south of telephone pole 201 and 24.045 meters (78.89 feet) from station in azimuth $77^{\circ}41'$. Azimuth mark projects 8 inches, is in southeast angle of crossing of Atlantic Coast Line Railroad and road, 134 feet south of southwest corner of railroad station, 14.5 feet south of center line of road and 0.6 mile from station in azimuth $176^{\circ}16'12''.9$.

Plane coordinates: (N), $x=2,375,753.68$ feet; $y=411,945.20$ feet; the grid azimuth to the azimuth mark $=175^{\circ}34'09''.7^1$

Effingham (Florence County, J. Bowie, Jr., 1935).—About 10 miles south of Florence. To reach from Florence, follow U. S. Highway 17 south for 10 miles (0.1 mile past junction with State Highway 4), turn left on dirt road at Gulf pump, passing *Airway beacon No. 28 (Jacksonville-Richmond)*, for 0.3 mile, cross Atlantic Coast Line Railroad tracks and turn left for 0.1 mile to station on right, about 78 feet north of northeast corner of Effingham Railroad Station, 46 feet south of east corner and 40 feet east of south corner of old sheet-metal store, 39 feet northeast of center line of dirt road and 36 feet northwest of center line of farm road. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 3 inches. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 projects 8 inches, is 33 feet south of south wall of railroad station, 23 feet southwest of center line of dirt road to station and 179.52 feet from station in azimuth $16^{\circ}08'$. Reference mark No. 2 is across railroad tracks, 22 feet west of west bank of railroad, 20 feet west of telephone pole, 1 foot east of wire fence line and 210.77 feet from station in azimuth $117^{\circ}13'$. Azimuth mark projects 4 inches, is 30 yards east of center line of dirt road, 30 paces northeast of Y formed by

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

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two dirt roads, 9 paces northwest of center line of another dirt road, 1 foot south of wire fence line and 0.25 mile from station in azimuth $307^{\circ}04'12''$.⁸

Plane coordinates: (N), $x=2,377,396.85$ feet; $y=389,379.67$ feet; the grid azimuth to the azimuth mark = $306^{\circ}22'00''$.⁵

Lynch (Florence County, J. Bowie, Jr., 1935).—At Cowards, about 16 miles south of Florence and 9 miles west-southwest of Hyman, in cultivated field in southeast angle of intersection of U. S. Highway 52 and dirt road leading east through Cowards, directly in front of and across highway from Mr. Lynch's home, 63 meters (207 feet) southwest of southwest corner of brick store (post office), 24.6 meters (81 feet) southeast of north one of two concrete posts in Lynch's yard fence, 24.5 meters (80 feet) south of dirt road and 8.2 meters (27 feet) east of center line of U. S. Highway 52. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark is about 14 inches below surface of ground to allow cultivation of field. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 is across highway from Standard Oil service station and blacksmith shop, in garden fence line, 18.6 meters (61 feet) north of north one of two concrete posts, 12.7 meters (42 feet) west of center line of U. S. Highway 52, 2 meters (7 feet) north of range with south side of brick store and 36.975 meters (121.31 feet) from station in azimuth $236^{\circ}40'$. Reference mark No. 2 is 50 meters (164 feet) east of highway, 50 meters (164 feet) west of railroad, 9.3 meters (31 feet) north of center line of dirt road, 1.42 meters (4.7 feet) west-northwest of southwest corner of brick store and 63.078 meters (206.95 feet) from station in azimuth $149^{\circ}20'$. Azimuth mark projects about 12 inches, is 0.2 mile north of first culvert under highway south of Cowards, near two trees with triangular blazes facing highway, 13 meters (43 feet) west of highway, 9.5 meters (31 feet) northeast of blazed pine, 5.5 meters (18 feet) north of blazed oak, 4 meters (13 feet) west-northwest of north end of concrete pipe in drainage ditch and 1.7 miles from station in azimuth $357^{\circ}35'28''$.⁶ Station FL 39 (S. C. Geod. S.) is about 0.25 mile from station in azimuth $188^{\circ}30'52''$. Station FL 40 (S. C. Geod. S.) is 28.593 meters (93.81 feet) from station in azimuth $33^{\circ}14'$. Primary traverse station No. 4 J (U. S. G. S.) (see description thereof) is 102.905 meters (337.61 feet) from station in azimuth $249^{\circ}13'34''$. Following distances and azimuths are from station: Chimney on house, 60 meters (197 feet), $268^{\circ}18'$; water tank, 100 meters (328 feet), $294^{\circ}23'55''$; flagpole, schoolhouse, 0.25 mile, $130^{\circ}41'21''$.

Plane coordinates: (N), $x=2,379,208.93$ feet; $y=355,130.24$ feet; the grid azimuth to the azimuth mark = $356^{\circ}53'06''$.⁹ (S), $x=2,379,249.78$ feet; $y=779,464.72$ feet; the grid azimuth to the azimuth mark = $356^{\circ}54'36''$.³

Leach (Florence County, J. Bowie, Jr., 1935).—About 13 miles southwest of Florence and 6 miles northwest of Pamplico, near east corner of some woods and northeast corner of cultivated field on property belonging to John Leach, about 0.25 mile northwest of school building (McKnight of Tabernacle colored school), about 0.1 mile north of house, 10.8 meters (35 feet) southwest of center line of road where road curves south and 8.9 meters (29 feet) north of south edge of timber. To reach from post office in Florence, follow Irby Street (U. S. Highways 17, 52, and 301) south for 1.7 miles to intersection with State Highway 51 (road to Pamplico); turn left on State Highway 51 for 8.75 miles to cross road known as Evergreen (church and graveyard in northwest angle); take right one of two roads that fork left at cross roads (2-story frame schoolhouse in angle of fork) and follow 2.05 miles to cross road; turn right (south) for 0.35 mile to T-road with church and graveyard in southwest angle and turn left on T-road for 0.6 mile to 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 projects 8 inches, is 32.3 meters (106 feet) southwest of center line of road, 17.8 meters (58 feet) northwest of north edge of cultivated field and 23.432 meters (76.88 feet) from station in azimuth $55^{\circ}58'$. Reference mark No. 2 projects 8 inches, is 10.4 meters (34 feet) southwest of center line of road and 29.363 meters (96.34 feet) from station in azimuth $121^{\circ}58'$. Azimuth mark projects 6 inches, is in McKnight Schoolyard, 40 paces northeast of center line of road, 12 paces north of northwest corner of school building and 0.25 mile from station in azimuth $330^{\circ}16'55''$.⁵

Plane coordinates: (N), $x=2,412,517.46$ feet; $y=386,646.97$ feet; the grid azimuth to the azimuth mark = $329^{\circ}30'47''$.⁸

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

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Gun (Florence County, J. Bowic, Jr., 1935).—About 16 miles (air line) southeast of Florence. To reach from Florence, follow U. S. Highway 17 south for about 2 miles to junction with State Highway 51 (left); follow State Highway 51 southeast for about 18 miles to point 0.15 mile west of Hyman; bear sharp right on dirt road for 0.2 mile to Y at old church and continue on right fork straight ahead for 2.55 miles to station on left, about 65 feet southeast of triangular-blazed 20-inch pine, 38 feet southeast of center line of dirt road and 32 feet southwest of center line of dim logging trail on southwest edge of plowed strip of ground about 100 feet wide. 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 11a. Reference mark No. 1 projects 5 inches, is 27 feet northwest of center line of dirt road and 151.93 feet from station in azimuth 227°47'. Reference mark No. 2 projects 4 inches, is 2 paces east of dim logging trail and 121.50 feet from station in azimuth 347°21'. Azimuth mark projects 4 inches, is 14 paces northwest of center line of dirt road, 5 paces northwest of 12-inch pine and 0.3 mile from station in azimuth 75°38'26".6.

Plane coordinates: (N), $x=2,411,034.78$ feet; $y=360,263.67$ feet; the grid azimuth to the azimuth mark = 74°52'31".2.¹

FL 520 (S. C. Geod. S.) eccentric (Florence County, J. Bowic, Jr., 1935).—About 11 miles (air line) northwest of Johnsonville, 9 miles east of Lake City, 7 miles south-southwest of Hyman and 7 miles west-northwest of Salem, at Sand Hill Church, in northeast corner of cultivated field, in range with fence line along east side of churchyard, 12.3 meters (40 feet) east of southeast corner of church and 9.75 meters (32.1 feet) west of center line of road. To reach from Lake City follow Johnsonville road (via Sand Hill Church) about 9 miles to church on west side of road. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects about 10 inches. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 is on south side of wire fence, 33.4 meters (113 feet) east-northeast of northeast corner of tobacco barn, 21.3 meters (70 feet) southwest of southwest corner of church and 45.208 meters (148.32 feet) from station in azimuth 53°21'. Reference mark No. 2 is 16.103 meters (52.83 feet) east-northeast of FL 520 (S. C. Geod. S.), 40.8 meters (134 feet) north of northeast corner of church, 9 meters (30 feet) east of center line of road, 2.7 meters (9 feet) southeast of Coca Cola cap nailed to blaze in pine and 44.681 meters (146.59 feet) from station in azimuth 163°34'. Azimuth mark projects about 8 inches, is 0.08 mile south of FL 521 (S. C. Geod. S.), about 12 meters (39 feet) southwest of center line of road, on outside of curve, 3 feet northwest of northeast corner of barn across road from farmhouse, and 1.2 miles from station in azimuth 318°38'52.8". Station FL 519 (S. C. Geod. S.) is about 1.25 miles from station in azimuth 139°56'15". Station FL 521 (S. C. Geod. S.) is 1.1 miles from station in azimuth 318°48'49". Station FL 520 (S. C. Geod. S.) (see description thereof) is 41.796 meters (137.13 feet) from station in azimuth 142°28'.

Plane coordinates: (N), $x=2,416,392.85$ feet; $y=331,069.80$ feet; the grid azimuth to the azimuth mark = 317°52'24".1 (S), $x=2,416,426.19$ feet; $y=755,385.17$ feet; the grid azimuth to the azimuth mark = 317°54'02".2.¹

Keefe (Florence County, J. Bowic, Jr., 1935).—About 12 miles north-northwest of Jonesville and 2 miles southeast of Pamplico, in brush covered pasture on property belonging to S. E. Keefe, about 75 yards southeast of his residence, 0.05 mile south of road, 38 meters (125 feet) east of north-south wire fence paralleling drainage ditch and 35 meters (115 feet) south of east-west drainage ditch. To reach from Pamplico City Market (red brick building at west end of main street in southwest angle of intersection of cross roads), go east 0.1 mile to another cross road; turn right (south) and follow main road for 2.25 miles to S. E. Keefe's home on right; turn right through two gates between house and barns, cross ditch about 100 feet south of south gate, and bear right about 100 feet to station. 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 8 inches, is 19 meters (62 feet) southeast of more south-easterly barn, 15 meters (49 feet) north of east-west drainage ditch (measured in line with north-south wire fence), 1 foot west of north-south wire fence running from southeast corner of barn, and 55.740 meters (182.87 feet) from station in azimuth 226°13'. Reference mark No. 2 projects 8 inches, is 3 feet east of ditch, 1 foot east of wire fence paralleling north-south drainage ditch and 38.032 meters (124.78 feet) from station in azimuth 102°54'. Azimuth mark projects 4 inches,

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

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is at northeast corner of tobacco barn on northwest side of north-south road that makes T-intersection with road to station, 0.25 mile north of this intersection, 15 feet northwest of center line of road, 2 feet northeast of northeast corner of barn, and 0.5 mile (by road) from station in azimuth $150^{\circ}17'52.8''$.

Plane coordinates: (N), $x=2,445,747.50$ feet; $y=362,213.65$ feet; the grid azimuth to the azimuth mark= $149^{\circ}28'04''.5$ ¹

FL 190 (S. C. Geod. S.) eccentric (Florence County, J. Bowie, Jr., 1935).—About 8.5 miles north of Hemingway. To reach from Hemingway, follow State Highway 51 north (through Johnsonville) for 7.4 miles to Y at Kingburg (separation of State Highways 51 and 175) and continue on State Highway 51 (left) for 1.2 miles to station on right, 90 feet northwest of metal mail box, 38 feet west of center line of farm road and 36 feet northeast of center line of State Highway 51. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 5 inches. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 is 13 paces northeast of center line of State Highway 51, 9 feet northeast of top of bank, and 210.76 feet from station in azimuth $95^{\circ}46'$. Reference mark No. 2 projects 6 inches, is 15 feet west of center line of farm road, 3.5 feet southeast of 14-inch tree, 3 feet northeast of 8-inch tree and 125.27 feet from station in azimuth $160^{\circ}02'$. Azimuth mark projects about 6 inches, is about 50 yards northeast of State Highway 51, 26 paces southwest of oiled road joining State Highway 51, 3 feet southeast of southeast wall of old wooden store, 2 feet southeast of northwest side of store and about 1 mile from station in azimuth $275^{\circ}21'36''.2$. Bench mark SY 22 (U. S. G. S.) is about 0.25 mile from station in azimuth $91^{\circ}10'48''$. Station FL 191 (S. C. Geod. S.) is 0.9 mile from station in azimuth $274^{\circ}55'13''.9$. Station FL 190 (S. C. Geod. S.) (see description thereof) is 92.17 feet from station in azimuth $281^{\circ}54'$.

Plane coordinates: (N), $x=2,463,388.21$ feet; $y=324,665.07$ feet; the grid azimuth to the azimuth mark= $274^{\circ}29'53''.5$ ¹ (S), $x=2,463,421.83$ feet; $y=748,956.37$ feet; the grid azimuth to the azimuth mark= $274^{\circ}31'42''.6$ ¹

Davis (Marion County, J. Bowie, Jr., 1935).—About 6 miles northeast of Pamplico. To reach from Pamplico, follow State Highway 51 southeast for 12 miles to junction with State Highway 175; turn left (northeast) on State Highway 175 for 3.6 miles to where highway turns right and narrow dirt road continues straight ahead (this point is 1.95 miles northeast of bridge over Pee Dee River); continue ahead on narrow dirt road for 0.45 mile to cross road in Gresham; continue north on road to Euclonia for 11.95 miles to narrow T-road opposite to and a little south of country store (0.4 mile south of Euclonia school); turn east on T-road through narrow strip of woods for 0.1 mile to station, at east end of woods on S. J. Davis estate, 0.4 mile south of Euclonia school, 9.95 meters (32.6 feet) northeast of 6-inch oak triangular-blazed on northeast side, 6.90 meters (22.6 feet) southeast of 24-inch pine triangular-blazed on southeast side and 7 meters (23 feet) south of center line of road. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 1 foot. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 projects 8 inches, is at southeast edge of woods, 7.6 meters (25 feet) north of center line of road, 7 meters (23 feet) south of 30-inch twin oak and 28.540 meters (93.63 feet) from station in azimuth $259^{\circ}23'$. Reference mark No. 2 projects 10 inches, is about midway of narrow strip of woods between road and cultivated field to north, 18 meters (59 feet) north of center line of road, 5.4 meters (18 feet) northwest of 30-inch pine and 31.610 meters (103.71 feet) from station in azimuth $159^{\circ}05'$. Azimuth mark projects 6 inches, is 24 feet east of center line of road, 11.5 feet northwest of northwest corner of tobacco barn on east side of road and 0.4 mile from station in azimuth $359^{\circ}48'55''.6$.

Plane coordinates: (N), $x=2,476,342.83$ feet; $y=371,878.27$ feet; the grid azimuth to the azimuth mark= $358^{\circ}55'41''.3$ ¹

Eaddy (Florence County, J. Bowie, Jr., 1935).—About 30 miles by road northwest of Kingtree and 5 miles north of Hemingway, at east side of Jonesville, on property belonging to Mrs. S. E. Eaddy, in cultivated field in northeast angle of intersection of State Highway 341 and State Highways 51 and 175, 41.2 meters (135 feet) east of southeast corner of east wing of church across State Highways 51 and 175, 18.4 meters (60 feet) west of nearest of three trees standing in row, 17 meters (56 feet) east of center line of State Highways 51 and 175, 16.5 meters (54 feet) north of range with center line of State Highway 341, and 12.6 meters (41

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

For notes in regard to marking of stations see p. 57.

feet) east-southeast of 20-inch tree standing in fence line. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark is about 16 inches below surface of ground. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 is 26 meters (85 feet) west of center line of State Highways 51 and 175, 9 meters (30 feet) south of center line of State Highway 341, 2.5 meters (8 feet) south of range with north side of Gulf Refining station in southeast angle of intersection of roads, 2 meters (7 feet) west of range with east side of south wing of church across State Highway 341, and 52.137 meters (171.05 feet) from station in azimuth $39^{\circ}58'$. Reference mark No. 2 is in wire fence line on west side of same field as station, 50 meters (164 feet) north of center line of State Highway 341, about 31 meters (102 feet) east-northeast of northeast corner of east wing of church, 20 meters (66 feet) east-northeast of large pine in northeast part of churchyard, 15 meters (49 feet) east-southeast of 30-inch tree, 6 meters (20 feet) east of center line of State Highways 51 and 175, 2 meters (7 feet) south-southeast of 24-inch oak in range with hedgerow on north side of churchyard and 41.140 meters (134.97 feet) from station in azimuth $146^{\circ}54'$. Azimuth mark projects about 12 inches, is 0.1 mile south of State Highway 341, about 12 meters (39 feet) east of center line of street, 2 meters (7 feet) west of 5-foot ditch and 0.1 mile from station in azimuth $37^{\circ}56'50''$. Station FL 451 (S. C. Geod. S.) is about 0.25 mile from station in azimuth $67^{\circ}23'53''.5$. Station FL 200 (S. C. Geod. S.) is about 0.12 mile from station in azimuth $347^{\circ}08'07''$. Station FL 199 (S. C. Geod. S.) (see description thereof) is 28.505 meters (93.52 feet) from station in azimuth $6^{\circ}47'$.

Plane coordinates: (N), $x=2,473,056.69$ feet; $y=301,883.97$ feet; the grid azimuth to the azimuth mark= $37^{\circ}04'05''$.¹ (S), $x=2,473,078.69$ feet; $y=726,168.81$ feet; the grid azimuth to the azimuth mark= $37^{\circ}05'56''$.¹

Altman (Marion County, J. Bowie, Jr., 1935).—About 14 miles north-northeast of Johnsonville. To reach from Main Street and Ninth Avenue in Conway, follow Ninth Avenue west for 0.9 mile to cross roads in colored section of town; turn right (north) onto Potato Bed Ferry Road for 9.3 miles to cross road; continue straight ahead for 3.7 miles to T-road right and continue straight ahead for 7.75 miles to station on east side of road, 0.35 mile north of Brittonneck High School, in cultivated field on property belonging to Mrs. W. S. Altman, 0.1 mile south of T-road with country store in southeast angle, 156 feet southeast of southeast corner of Mrs. Altman's house, 42 feet east of center line of road, 33 feet northeast of 6-inch pecan tree at northwest corner of tobacco shed, 31 feet north-northeast of northwest corner of shed around more northerly of two tobacco sheds on east side of road, 19 feet east of wire fence line and 19 feet southeast of 6-inch pecan tree. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark is 1 foot and underground mark is 4 feet below surface of ground. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 projects 6 inches, is in edge of same cultivated field as station, 135 feet east-southeast of center line of road, 127 feet east of southwest corner and 12 feet west of southeast corner of fence around country store, and 224.32 feet from station in azimuth $196^{\circ}56'$. Reference mark No. 2 projects 6 inches, is 53 feet southeast of southeast corner of house, 23 feet west of center line of road, 13 feet south of southeast corner of yard fence and 104.17 feet from station in azimuth $136^{\circ}03'$. Azimuth mark projects 6 inches, is 0.3 mile east of intersection of T-road (east) and Potato Bed Ferry Road, at north edge of cultivated field, 200 feet south-southeast of Negro house on north side of road, 5 paces south of center line of road, 6 feet west of center of gate into field and 0.3 mile from station in azimuth $280^{\circ}48'01''.7$.

Plane coordinates: (N), $x=2,502,998.95$ feet; $y=339,935.81$ feet; the grid azimuth to the azimuth mark= $279^{\circ}51'52''.1$ (S), $x=2,503,044.07$ feet; $y=764,206.45$ feet; the grid azimuth to the azimuth mark= $279^{\circ}53'50''.6$.¹

Hardwick (Horry County, J. Bowie, Jr., 1935).—About 11 miles west-southwest of Conway and about 2.5 miles east of Potato Bed Ferry Bridge. To reach from intersection of Main Street and Fourth Avenue in Conway, go north on Main Street to Ninth Avenue and turn left (west) for 0.9 mile to cross roads in colored section of town; turn right (north) and follow main road (Potato Bed Ferry Road) for 9.3 miles to cross road (country store in northwest angle and tobacco barn in southwest angle); turn left (southeast) for 1.5 miles to station on property of Mrs. Frances Smith (occupied by Early Hardwick), at west corner of woods at northeast side of cultivated field, east-northeast of house and barns, 347 feet east of center line of road, 69.8 feet northwest of 14-inch sweet-gum tree with

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

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triangular blaze on northwest side and 59.7 feet west-southwest of 24-inch water-oak triangular-blazed on southwest side. 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, is at southwest edge of angle in woods, 139 feet north of 24-inch water-oak triangular-blazed on southwest side, 1 yard west of drainage ditch and 180.15 feet from station in azimuth $212^{\circ}08'$. Reference mark No. 2 projects 8 inches, is at east corner of barn on northeast side of road, 38 feet northeast of center line of road and 326.90 feet from station in azimuth $72^{\circ}15'59''$. Azimuth mark projects 8 inches, is at northeast edge of woods, on southwest edge of cultivated field, 0.25 mile southwest of road, 57 paces south-southeast of tobacco barn, 10 paces northwest of gate near edge of woods and 0.3 mile from station in azimuth $43^{\circ}31'25''.0$.

Plane coordinates: (N), $x=2,544,016.61$ feet; $y=303,483.88$ feet; the grid azimuth to the azimuth mark= $42^{\circ}30'45''.0$ ¹ (S), $x=2,544,042.64$ feet; $y=727,727.64$ feet; the grid azimuth to the azimuth mark= $42^{\circ}32'53''.0$ ¹

G 402 (S. C. Geod. S.) eccentric (Georgetown County, J. Bowie, Jr., 1935).—About 24 miles (air line) north-northwest of Georgetown, 21 miles (air line) southwest of Conway and 4.5 miles (air line) east-southeast of Hemingway, at Outland Crossroads. To reach from Hemingway, go 5 miles southeast on State Highway 51 to intersection of State Highways 51 and 511 with another road leading west-northwest and station located in cultivated field in southeast angle of road intersection, 11.7 meters (38 feet) east of center line of State Highway 511, 11 meters (36 feet) south of center line of State Highway 51, 9.5 meters (31 feet) south-southeast of signpost "S. C. 511, Union, Rhems, Andrews", 7.8 meters (26 feet) south-southeast of center of south end of culvert, and 4.6 meters (15 feet) south of signpost "Georgetown-Williamsburg Counties." Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark is 12 inches below surface of ground. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 is in angle formed by State Highway 511 and road leading north-northwest, 28 meters (92 feet) north of road intersection, 21.7 meters (71 feet) north of "Stop" sign, 21.7 meters (71 feet) west of northwest corner of old cabin, 10 meters (33 feet) west of center line of State Highway 511, 5 meters (16 feet) northeast of center line of dirt road and 42.514 meters (139.48 feet) from station in azimuth $187^{\circ}13'$. Reference mark No. 2 is 47 meters (154 feet) east of road intersection, 26.2 meters (86 feet) east of sign "Rt. 51", 6 meters (20 feet) north of center line of State Highway 51 and 40.679 meters (133.46 feet) from station in azimuth $274^{\circ}26'$. Azimuth mark projects about 8 inches, is along State Highway 51, about 150 meters (492 feet) southwest of house, 125 meters (410 feet) west of tobacco barn, 75 meters (246 feet) east of another house, 8.5 meters (28 feet) south of center line of road and about 0.3 mile from station in azimuth $123^{\circ}51'04''.0$. Station $\frac{G}{W}$ 1032 (S. C. Geod. S.) is about 0.3 mile from station in azimuth $42^{\circ}57'34''.7$. Station W 301 (S. C. Geod. S.) is about 0.4 mile from station in azimuth $125^{\circ}03'54''.7$. Station *G 402* (S. C. Geod. S.) (see description thereof) is 9.693 meters (31.80 feet) from station in azimuth $158^{\circ}11'$. Elevation: 61.46 feet.

Plane coordinates: (N), $x=2,494,781.04$ feet; $y=268,352.79$ feet; the grid azimuth to the azimuth mark= $122^{\circ}55'57''.2$ ¹ (S), $x=2,494,785.05$ feet; $y=692,624.83$ feet; the grid azimuth to the azimuth mark= $122^{\circ}57'53''.4$ ¹

Elliott (Georgetown County, J. Bowie, Jr., 1935).—About 19.5 miles (air line) southwest of Conway, 19 miles (air line) north of Georgetown and 12 miles (air line) southeast of Hemingway. To reach from intersection of U. S. Highways 701 and 521 in Georgetown, go 18.5 miles north on U. S. Highway 701 to T-road on left (0.1 mile beyond swamp creek bridge) at large wooden mail box marked "Ellis Harrison Watts"; turn left and go 1.25 miles to intersection with improved road; bear left 4.75 miles to cross roads and turn sharp left 0.75 mile to station located on property belonging to G. E. Elliott, about 0.8 mile east of cross roads at home of Ossie Grier, 250 meters (820 feet) west of G. E. Elliott's house, 150 meters (492 feet) west-southwest of barn, across east-west dirt road from new tobacco barn, 14.9 meters (49 feet) north-northeast of new tobacco barn, 12.8 meters (42 feet) east-northeast of 4-inch twin oak in southwest corner of field, 9 meters (30 feet) north of center line of dirt road, 4.6 meters (15 feet) north of east-west wire fence line and 4.3 meters (14 feet) east of north-south fence line. Surface and

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

For notes in regard to marking of stations see p. 57.

underground marks are standard disks in concrete, notes 1b and 7a. Mark is 14 inches under surface of ground to allow cultivation of field. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 is on east-west fence line, about 48 meters (157 feet) east of southwest corner of field, 13.7 meters (45 feet) west-northwest of northwest corner of old tobacco barn, 6.7 meters (22 feet) west of 8-inch oak, 4.9 meters (16 feet) north of center line of road and 43.671 meters (143.28 feet) from station in azimuth $246^{\circ}46'$. Reference mark No. 2 is on north-south fence line, about 44 meters (144 feet) north of center line of road, 8.5 meters (28 feet) southwest of nearest of three peach trees, 2 meters (7 feet) east of lane north to negro cabin and 35.293 meters (115.79 feet) from station in azimuth $150^{\circ}35'$. Azimuth mark projects 6 inches, is along east-west road, in yard of S. B. Grier, 50 meters (164 feet) west of house, 27 meters (89 feet) south of center line of road, 20 meters (66 feet) south of oak tree, 14 meters (46 feet) north of barnyard fence, 15 yards northwest of 18-inch tree and about 0.4 mile from station in azimuth $66^{\circ}05'12''.0$.

Plane coordinates: (N), $x=2,525,617.45$ feet; $y=240,370.92$ feet; the grid azimuth to the azimuth mark = $65^{\circ}06'42''.3$.¹ (S), $x=2,525,604.85$ feet; $y=664,625.38$ feet; the grid azimuth to the azimuth mark = $65^{\circ}08'45''.7$.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 postoffice 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 $32^{\circ}37'$. Reference mark No. 2 projects 9 inches, is 24 feet southeast of center line of road and 140.77 feet from station in azimuth $172^{\circ}48'$. 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 $17^{\circ}16'23''.4$.

Plane coordinates: (N), $x=2,112,346.53$ feet; $y=661,822.26$ feet; the grid azimuth to the azimuth mark = $17^{\circ}03'42''.8$.¹

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

McBee, municipal water tank (Chesterfield County, J. Bowie, Jr., 1935).—Plane coordinates: (N), $x=2,223,631.60$ feet; $y=534,746.61$ feet.

Bethune, municipal silver water tank (Kershaw County, J. Bowie, Jr., 1935).—Plane coordinates: (N), $x=2,196,307.56$ feet; $y=516,046.07$ feet.

D 23 (S. C. Geod. S.) (Darlington County, J. Bowie, Jr., 1935).—About 1 mile northwest of center of Hartsville, on road to Middendorf, about 0.1 mile northwest of fork formed by intersection of tangents of Middendorf Road and U. S. Highway 15 (401), 235 feet south of T-road west and 25 feet west of center line of Middendorf Road. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 1 inch. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 projects 4 inches, is 23 feet south of center line of T-road west, 21 feet west of center line of Middendorf Road and 209.85 feet from station in azimuth $186^{\circ}26'$. Reference mark No. 2 projects 5 inches, is 56 feet east of center line of Middendorf Road, 46 feet east of center line of U. S. Highway 15 and 160.67 feet from station in azimuth $335^{\circ}03'$. Azimuth mark projects 4 inches, is 100 feet south of Shell gas station, 10 paces east of center line of U. S. Highway 15, 5.5 feet west of telephone pole 551 and about 0.4 mile from station in azimuth $244^{\circ}48'38''.5$. D 22 (S. C. Geod. S.) is 0.4 mile from station in azimuth $187^{\circ}16'39''.7$. Following distances and azimuths are from station: Center of red brick stack, Hartsville

*No check on this position.

¹This azimuth has been computed by the first formula (p. 61), neglecting the second term.

For notes in regard to marking of stations see p. 57.

(H. P. & D. W.) 1 mile, $274^{\circ}55'11''$; final, silver water tank (tallest of three), Hartsville, $311^{\circ}35'04''$; center of red brick stack, Hartsville, $332^{\circ}16'19''$; final, old municipal black water tank, Hartsville, $334^{\circ}53'47''$.

Plane coordinates: (N), $x=2,278,619.68$ feet; $y=507,457.63$ feet; the grid azimuth to the azimuth mark = $244^{\circ}17'21''.7$ ¹

Hartsville, municipal water tank (Darlington County, J. Bowie, Jr., 1935).—Plane coordinates: (N), $x=2,279,723.51$ feet; $y=500,594.36$ feet.

Darlington, Darlington Manufacturing Company, stack (Darlington County, J. Bowie, Jr., 1935).—Plane coordinates: (N), $x=2,337,472.39$ feet; $y=474,528.19$ feet.

Darlington, First Baptist Church, spire (Darlington County, J. Bowie, Jr. 1935).—Plane coordinates:* (N), $x=2,341,357$ feet; $y=474,924$ feet.

Lamar, black water tank (Lee County, J. Bowie, Jr., 1935).—Plane coordinates:* (N), $x=2,282,190$ feet; $y=426,688$ feet.

D 312 (S. C. Geod. S.) (Darlington County, J. Bowie, Jr., 1935).—About 12 miles by road southwest of Darlington and 8 miles by road north of Timmons ville, at Windham's Crossroads, in roadway in northwest angle formed by intersection of State Highways 763 and 403, about 30 meters (98 feet) southwest of gas station, 23.370 meters (76.67 feet) west of reference mark No. 1 for station *Windham*, 16.65 meters (54.6 feet) east of southeast corner of small store (Windham's place), 6 meters (20 feet) southwest of center line of State Highway 403, and 4 meters (13 feet) north-northwest of State Highway 763. Station is a U. S. C. & G. S. and State Survey standard disk in concrete about 8 inches below surface of ground. Station *Windham* (see description thereof) is 26.065 meters (85.51 feet) from station in azimuth $7^{\circ}49'$.

Plane coordinates:* (N), $x=2,292,060.86$ feet; $y=438,298.37$ feet.

PT 122 (S. C. Geod. S.) (Florence County, J. Bowie, Jr., 1935).—About 2.5 miles by road southwest of Timmons ville or 1.5 miles by railroad, on right-of-way of Atlantic Coast Line Railroad near crossing of country road 25.8 meters (85 feet) west-southwest of milepost C69, 15.12 meters (49.6 feet) east-northeast of Coca-Cola cap nailed to east side of telephone pole, 10.2 meters (33 feet) west of center line of dirt road, 6.55 meters (21.4 feet) south of south rail of main track and 5.4 meters (18 feet) southwest of west end of pipe culvert. "PT 122" is painted on rail opposite mark. Station *PT 122 (S. C. Geod. S.) eccentric* (see description thereof) is 18.084 meters (59.33 feet) from station in azimuth $31^{\circ}25'$.

Plane coordinates:* (N), $x=2,312,988.33$ feet; $y=409,532.11$ feet.

Bench mark Z 29 (Florence County, J. Bowie, Jr., 1935).—About 1.5 miles northwest of Florence on Florence-Darlington Road, in northeast corner of front lawn of Pee Dee Experimental Station of Clemson College, 13.5 meters (44 feet) west of center line of driveway to house and 7.45 meters (24.4 feet) southwest of southwest rail of Atlantic Coast Line Railroad tracks. Station is a U. S. C. & G. S. bench mark in top of 6-inch square concrete post, stamped "Z 29 Elevation 144.199 ft.", and projects 3 inches above ground. Station *Experimental* (see description thereof) is 7.574 meters (24.85 feet) from station in azimuth $40^{\circ}57'$. Elevation: 144.30 feet.

Plane coordinates:* (N), $x=2,367,658.75$ feet; $y=444,852.39$ feet.

Experimental reference mark No. 1 (Florence County, J. Bowie, Jr., 1935).—About 1.5 miles northwest of Florence, between railroad and highway, 16.4 meters (54 feet) northeast of northeast rail of railroad, 11 meters (36 feet) southwest of center line of highway and 10.5 meters (34 feet) east of center line of driveway to house. Mark projects 6 inches and was used as reference mark No. 1 for Station *Experimental* (see description thereof) which is 41.199 meters (135.17 feet) from station in azimuth $80^{\circ}55'$.

Plane coordinates:* (N), $x=2,367,775.87$ feet; $y=444,856.32$ feet.

Florence magnetic station (Florence County, J. Bowie, Jr., 1935).—A magnetic station of U. S. C. & G. S. located about 1 mile west of Florence, on Pee Dee Experimental Farm (branch of Clemson College). To reach from post office in Florence, go west 1 block, turn right (north) onto U. S. Highway 52 (Florence-Darlington Road) and follow for 1.5 miles to Pee Dee Experimental Station; turn left (south) across railroad and go south 4 miles on farm road (passing two dwellings and outhouses on right and two tobacco barns on left); turn sharp right for 0.05 mile and take left fork for 286 feet to station on right, on west side of north-south road through open field, about 850 yards south of triangulation station *Experimental*, 826 feet south of forks in road and 9 feet west of center line of

*No check on this position.

¹ This azimuth has been computed by the first formula (p. 61), neglecting the second term.

For notes in regard to marking of stations see p. 57.

road. No reference marks established at this station. Following distance and azimuths are from station: *Experimental reference mark No. 1* (see description thereof), 824.292 meters (2,704.36 feet), $224^{\circ}53'05''$; *Florence, Hardwood Dimension Company, tank*, $280^{\circ}14'11''$.1; *Florence, South Carolina State Bank Building, flagpole*, $308^{\circ}52'41''$.1.

Plane coordinates:* (N), $x=2,365,890.55$ feet; $y=442,917.70$ feet.

Florence, Hardwood Dimension Company, tank (Florence County, J. Bowie, Jr., 1935).—Plane coordinates: (N), $x=2,371,139.22$ feet; $y=442,034.23$ feet.

Florence, Atlantic Coast Line Railroad yards, twin stacks, east (Florence County, J. Bowie, Jr., 1935).—Plane coordinates: (N), $x=2,374,868.39$ feet; $y=439,123.85$ feet.

Florence, Atlantic Coast Line Railroad yards, twin stacks, west (Florence County, J. Bowie, Jr., 1935).—Plane coordinates: (N), $x=2,374,849.25$ feet; $y=439,122.50$ feet.

Florence, municipal water tank (Florence County, J. Bowie, Jr., 1935). Plane coordinates: (N), $x=2,372,768.33$ feet; $y=438,381.63$ feet.

Florence, Atlantic Coast Line Railroad yards, coal elevator (Florence County, J. Bowie, Jr., 1935).—Plane coordinates:* (N), $x=2,376,538$ feet; $y=439,218$ feet.

Florence, court house spire (Florence County, J. Bowie, Jr., 1935).—Plane coordinates:* (N), $x=2,732,503$ feet; $y=438,197$ feet.

Florence, South Carolina State Bank Building, flagpole (Florence County, J. Bowie, Jr., 1935).—Plane coordinates: (N), $x=2,372,351.11$ feet; $y=437,834.62$ feet.

FL 418 (S. C. Geod. S.) eccentric (Florence County, J. Bowie, Jr., 1935).—About 8 miles (air line) southeast of Florence. To reach from post office in Florence, go south 1.9 miles on U. S. Highway 52 to intersection with State Highway 51; turn left 2.7 miles on State Highway 51 to Birch's Crossroads and turn left 4.8 miles to Hopewell School (district No. 5) and station on right, about 60 yards northeast of northeast corner of schoolhouse, 72 feet south of center line of road, 68 feet southeast of eastern driveway to school and 23 feet west of drainage culvert which passes under road. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 10 inches. Reference marks are standard disks in concrete, note 11b. Reference mark No. 1 projects 4 inches, is 38 feet east of drainage ditch, 6 paces south of center line of road and 94.70 feet from station in azimuth $246^{\circ}26'$. Reference mark No. 2 projects 5 inches, is 27 feet northwest of east driveway to schoolhouse, 22 feet south of center line of road and 95.80 feet from station in azimuth $131^{\circ}24'$. No azimuth mark placed. Station **FL 417 (S. C. Geod. S.)** is about 0.8 mile west of station in azimuth $97^{\circ}48'50''$. Mark is not visible from ground. *Transit traverse station no. 108 DS (U. S. G. S.)* (see description thereof) is 186.20 feet from station in azimuth $45^{\circ}42'$. Station **FL 418 (S. C. Geod. S.)** (see description thereof) is 88.48 feet from station in azimuth $209^{\circ}33'$.

Plane coordinates: (N), $x=2,409,380.62$ feet; $y=414,837.67$ feet.

Transit traverse station No. 108 DS (U. S. G. S.) (Florence County, J. Bowie Jr., 1935).—About 8 miles (air line) southeast of Florence. To reach from post office in Florence, go south 1.9 miles on U. S. Highway 52 to intersection with State Highway 51; turn left 2.7 miles on State Highway 51 to Birch's Crossroads and turn left 4.8 miles to Hopewell School (district No. 5) and station, 9.9 feet north of north wall of schoolhouse, 5.7 feet east of east foundation wall of porch in front of building located 50 yards south of road. Station is a U. S. Geological Survey standard disk set in 6- by 6-inch concrete post projecting 6 inches. Station **FL 418 (S. C. Geod. S.) eccentric** (see description thereof) is 186.20 feet from station in azimuth $225^{\circ}42'$.

Plane coordinates:* (N), $x=2,409,249.13$ feet; $y=414,705.92$ feet.

FL 418 (S. C. Geod. S.) (Florence County, J. Bowie, Jr., 1935).—About 8 miles (air line) southeast of Florence. To reach from post office in Florence, go south 1.9 miles on U. S. Highway 52 to intersection with State Highway 51; turn left 2.7 miles on State Highway 51 to Birch's Crossroads and turn left 4.8 miles to Hopewell School (district No. 5) and station, located 34.8 feet north of 20-inch blazed pine, 33.7 feet north-northeast of Coca-Cola cap nailed to blazed 24-inch pine, 15 feet north of center line of dirt road and 7 feet west of culvert. Station is U. S. C. & G. S. and State Survey standard disk set in shoulder of road about 1 foot below surface of ground. Station **FL 418 (S. C. Geod. S.) eccentric** (see description thereof) is 88.48 feet from station in azimuth $29^{\circ}33'$.

*No check on this position.

For notes in regard to marking of stations see p. 57.

Plane coordinates:* (N), $x=2,409,423.22$ feet; $y=414,915.17$ feet.

Transit traverse station No. 99 DS (U. S. G. S.) (Florence County, 1935).—About 10 miles (air line) west-southwest of Florence and 7.5 miles (air line) west of Effingham, at Jones' Crossroads, 1.25 miles east of Glenwood schoolhouse, in southeast angle of intersection of two dirt roads, in west corner of cultivated field, on north side of small filling station with one gas pump diagonally across intersection from country store, 16 meters (52 feet) east of north-south road, 9 meters (30 feet) south of east-west road and 2 meters (7 feet) north of chimney on north side of filling station. Station is a U. S. Geological Survey standard disk set in center of top of 5-inch square concrete post projecting about 4 inches. Station *Jones* (see description thereof) is 2.316 meters (7.60 feet) from station in azimuth $199^{\circ}28'$.

Plane coordinates:* (N), $x=2,343,251.79$ feet; $y=391,747.73$ feet.

FL 40 (S. C. Geod. S.) (Florence County, J. Bowie, Jr., 1935).—At Cowards, in angle formed by U. S. Highway 52 and dirt road forking southwest at point where highway curves, in front of bungalow, about 50 meters (164 feet) south of dirt road leading east through town, 12.9 meters (42 feet) east of the southerly of two concrete posts and 6.9 meters (23 feet) west of center line of U. S. Highway 52. Station is a U. S. C. & G. S. and State Survey standard disk, flush with surface of ground. Station *Lynch* (see description thereof) is 28.593 meters (93.81 feet) from station in azimuth $213^{\circ}14'$. Elevation: 88.44 feet.

Plane coordinates:* (N), $x=2,379,158.51$ feet; $y=355,051.17$ feet. (S), $x=2,379,199.34$ feet; $y=779,385.66$ feet.

Primary traverse station No. 4 J (U. S. G. S.) (Florence County, 1935).—At Cowards, about 75 meters (246 feet) south-southwest of Atlantic Coast Line Railroad station, 24.25 meters (79.6 feet) north of northeast corner of concrete base of railroad signal, 18.6 meters (61 feet) south of railroad switch, 17.9 meters (59 feet) east of southeast corner of brick store, 6 meters (20 feet) north of center line of dirt road and 1.30 meters (4.0 feet) west of west rail of double track. Station is a U. S. Geological Survey standard disk set in center of top of square concrete post. *Lynch* (see description thereof) is 337.61 feet from station in azimuth $69^{\circ}13'36''$.

Plane coordinates:* (N), $x=2,379,523.09$ feet; $y=355,253.90$ feet. (S), $x=2,379,564.04$ feet; $y=779,588.25$ feet.

Airway beacon No. 28 (Jacksonville-Richmond) (Florence County, J. Bowie, Jr., 1935).—Plane coordinates: (N), $x=2,375,487.66$ feet; $y=389,701.20$ feet.

FL 520 (S. C. Geod. S.) (Florence County, J. Bowie, Jr., 1935).—About 11 miles (air line) northwest of Johnsonville, 9 miles (by road) east of Lake City, 7 miles (air line) south-southwest of Hyman and 7 miles (air line) west-northwest of Salem, at Sand Hill Church. To reach from Lake City, follow Johnsonville Road about 9 miles to church and station located 31.70 meters (104.0 feet) north of northeast corner of church, 22.35 meters (73.3 feet) southwest of pine with Coca-Cola cap nailed in blaze, 17.34 meters (56.9 feet) west-southwest of another pine similarly marked, 16.103 meters (52.83 feet) west-southwest of reference mark No. 2 of station *FL 520* (S. C. Geod. S.) *eccentric*, 13.87 meters (45.5 feet) south-southwest of third blazed pine and 7 meters (23 feet) west of center line of road. Station is a U. S. C. & G. S. and State Survey standard disk in concrete about 5 inches below surface of ground. Station *FL 520* (S. C. Geod. S.) *eccentric* (see description thereof) is 41.796 meters (137.13 feet) from station in azimuth $322^{\circ}28'$.

Plane coordinates:* (N), $x=2,416,307.86$ feet; $y=331,177.42$ feet. (S), $x=2,416,341.23$ feet; $y=755,492.84$ feet.

FL 199 (S. C. Geod. S.) (Florence County, J. Bowie, Jr., 1935).—On east side of Johnsonville, at intersection of State Highways 51, 175 and 341, diagonally opposite church across from triangulation station *Eaddy*, in front of Gulf service station, in range with sidewalk along south side of State Highway 341, 11.2 meters (37 feet) east of tree in southwest corner of intersection, 9.6 meters (31 feet) south of center line of State Highway 341, 8.3 meters (27 feet) west-southwest of north-west corner of Gulf service station, 6.73 meters (22.1 feet) west of center of gas pump, 4.6 meters (15 feet) east of center line of State Highways 51 and 175, 2.13 meters (7.0 feet) west-northwest of telephone pole and 0.6 meter (2 feet) south of range with north side of Gulf station. Station is a U. S. C. & G. S. and State Survey standard disk in concrete about 8 inches below surface of ground. Station *Eaddy* (see description thereof) is 93.52 feet from station in azimuth $186^{\circ}47'$.

*No check on this position.

For notes in regard to marking of stations see p. 57.

Plane coordinates:* (N), $x=2,473,047.07$ feet; $y=301,790.92$ feet. (S), $x=2,473,069.01$ feet; $y=726,075.76$ feet.

FL 190 (S. C. Geod. S.) (Florence County, J. Bowie, Jr., 1935).—About 8.5 miles north of Hemingway. To reach from Hemingway, go north on State Highway 51 for 7.4 miles (through Johnsonville) to Y at Kingsburg (where State Highways 51 and 175 separate) and continue on State Highway 51 (left) for 1.2 miles to station on right, opposite two farm roads converging at different angles to highway, 25 feet northeast of center line of State Highway 51 and 4 feet east of metal mail box. Station is a U. S. C. & G. S. and State Survey standard disk set in 6-inch circular concrete post about 12 inches below surface of ground. Station *FL 190 (S. C. Geod. S.) eccentric* (see description thereof) is 92.17 feet from station in azimuth $101^{\circ}54'$.

Plane coordinates:* (N), $x=2,463,478.69$ feet; $y=324,647.42$ feet. (S), $x=2,463,512.30$ feet; $y=748,938.67$ feet.

Primary traverse station No. 16 J (U. S. G. S.) (Williamsburg County, J. Bowie, 1935).—About 7 miles (air line) northeast of Hemingway. To reach from Hemingway, follow State Highway 51 east for about 5 miles to junction with State Highway 341 (county line road which is the easterly of two connecting with State Highway 51 at this point) and turn north on this road for 4.4 miles to cross roads; bear right on main road (passing cabin on left and mail box No. 27 on right) for 0.4 miles to Y and follow left fork (leaving main road) for 0.1 mile to station, located 9.08 feet southeast of 10-inch triangular-blazed tree and 3 paces north (left) of center line of road (old road to Smith's Mills). Station mark is a U. S. Geological Survey brass disk stamped "Prim Trav Sta No. 16 1918" in concrete, note 1b, and projects 4 inches. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 projects 6 inches, is 5 paces south of center line of road and 97.30 feet from station in azimuth $282^{\circ}04'$. Reference mark No. 2 projects 8 inches and is 88.85 feet from station in azimuth $19^{\circ}22'$. Azimuth mark projects 5 inches, is 7 paces west of center line of main road and about 0.25 mile from station in azimuth $13^{\circ}28'15''.1$.

Plane coordinates: (N), $x=2,509,211.59$ feet; $y=287,037.32$ feet; the grid azimuth to the azimuth mark = $12^{\circ}31'29''.8$.¹ (S), $x=2,509,226.52$ feet; $y=711,301.41$ feet; the grid azimuth to the azimuth mark = $12^{\circ}33'29''.5$.¹

Fire Tower (Marion County, J. Bowie, Jr., 1935).—Plane coordinates:* (N), $x=2,507,035$ feet; $y=318,076$ feet. (S), $x=2,507,068$ feet; $y=742,343$ feet.

G 402 (S. C. Geod. S.) (Georgetown County, J. Bowie, Jr., 1935).—About 5 miles southeast of Hemingway. To reach from Hemingway, go 5 miles southeast on State Highway 51 to intersection of State Highways 51 and 511 with another road leading northwest (known as Outland Crossroads). Station is in roadway in southeast angle of road intersection across State Highway 51 from old house, 1 meter (3 feet) north of southwest end of culvert headwall, and 0.6 meter (2 feet) northeast of signpost "Rhem-11 Andrews-24 Union-7". Station is a U. S. C. & G. S. and State Survey standard disk set in center of 10-inch round concrete post about 10 inches below surface of ground. Station *G 402 (S. C. Geod. S.) eccentric* (see description thereof) is 9.693 meters (31.80 feet) from station in azimuth $338^{\circ}11'$. Elevation: 63.78 feet.

Plane coordinates:* (N), $x=2,494,768.75$ feet; $y=268,382.12$ feet. (S), $x=2,494,772.77$ feet; $y=692,654.17$ feet.

Bench mark Q 15 (Georgetown County, C. D. Meaney, 1932; 1935).—About 18 miles north of Georgetown and 2.7 miles north of filling station and post office in Plantersville. To reach from Conway, follow U. S. Highway 701 from Standard Oil service station for 20.4 miles (or 2.85 miles beyond Young's Crossroads) to dim cross roads at angle and station located 76 feet east of center line of U. S. Highway 701 and 20 feet southeast of center line of old tram railroad grade. Mark is standard bench mark disk in concrete projecting about 4 inches. Station *Planter* (see description thereof) is 84.55 feet from station in azimuth $28^{\circ}45'$. Elevation: 22.06 feet.

Plane coordinates:* (N), $x=2,547,054.57$ feet; $y=220,126.27$ feet. (S), $x=2,547,028.80$ feet; $y=644,368.43$ feet.

*No check on this position.

¹This azimuth has been computed by the first formula (p. 61), neglecting the second term.

For notes in regard to marking of stations see p. 57.

NORFOLK, VA., TO SAVANNAH, GA., TRAVERSE

Principal points

Light (Richmond County, N. C., C. L. Garner, 1918; 1933).—About $1\frac{1}{2}$ miles north of Osborne, at first curve of Seaboard Air Line Railway south of milepost 258, in deep cut with spring in west bank, at edge of cultivated field, and about 40 meters (131 feet) west of west rail. Surface mark is standard disk station mark in concrete, note 1a. Underground mark is copper bolt in concrete, note 7b. Station Light A is visible from ground in azimuth $232^{\circ}52'39''.5$.

Plane coordinates: (N), $x=2,373,342.28$ feet; $y=667,928.09$ feet; the grid azimuth to station Hamlet= $212^{\circ}46'10''.2$.

Osborne (Marlboro County, C. L. Garner, 1918).—About $\frac{1}{2}$ mile west of main track of Seaboard Air Line Railway, opposite first curve south of Osborne, N. C., and first curve north of milepost 261, and on highest point of hill covered with second-growth oak trees. Surface mark is standard disk station mark in concrete, note 1a. Underground mark is copper bolt in concrete, note 7b. Reference mark is standard reference disk in concrete, note 11c, 19.89 meters (65.3 feet) from station in azimuth $228^{\circ}48'$.

Plane coordinates: (N), $x=2,368,512.95$ feet; $y=656,334.29$ feet; the grid azimuth to station Light= $202^{\circ}36'50''.0$.

Fulton (Marlboro County, C. L. Garner, 1918).—About 200 meters (656 feet) north of station shed at Fulton, on Seaboard Air Line Railway right-of-way, about 400 meters (1,312 feet) south of milepost 254, on bank about 15 meters (49 feet) west of west rail and 5 meters (16 feet) from edge of cut. Surface mark is standard station disk in concrete, note 1a. Underground mark is iron nail with point projecting above concrete, note 7c. Reference mark, bench mark N 4 (U. S. C. & G. S.), is at road crossing and about 200 meters (656 feet) from station in azimuth $66^{\circ}49'12''$.

Plane coordinates: (N), $x=2,357,600.23$ feet; $y=646,023.64$ feet; the grid azimuth to station Osborne= $226^{\circ}37'29''.8$.

Kollock (Marlboro County, C. L. Garner, 1918).—About 0.25 mile east of Seaboard Air Line Railway at third curve south of Fulton and opposite milepost 266, about 10 meters (33 feet) north of road that crosses railway at south end of curve, and 3 meters (10 feet) north of 7-inch pine stump 2 feet high. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is just north of cluster of eight saplings and 21.04 meters (69.0 feet) from station in azimuth $93^{\circ}34'$. Following azimuths are from station: Pee Dee Baptist Church, spire, Cheraw, $42^{\circ}29'49''$; Cotton mills water tank, Cheraw, $44^{\circ}39'51''$; city water tank, Cheraw, $46^{\circ}11'33''$.

Plane coordinates: (N), $x=2,354,566.94$ feet; $y=638,604.39$ feet; the grid azimuth to station Fulton= $202^{\circ}14'12''.2$.

Yadkin (Chesterfield County, C. L. Garner, 1918).—At Cheraw, just east of cemetery near Atlantic Coast Line Railroad crossing at Front Street, about 200 meters (656 feet) north of Atlantic Coast Line Railroad depot and 11.07 meters (36.3 feet) east of more easterly railroad spur leading to cotton mill. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is at edge of cemetery just west of Front Street, 10 meters (33 feet) south of large oak, 4.00 meters (13.1 feet) north of fire hydrant and 42.88 meters (140.7 feet) from station in azimuth $120^{\circ}34'$. Following azimuths are from station: Semaphore, Atlantic Coast Line Railroad station, $25^{\circ}53'55''$; Pee Dee Baptist Church, spire, $192^{\circ}51'16''$.

Plane coordinates: (N), $x=2,337,093.34$ feet; $y=618,535.75$ feet; the grid azimuth to station Kollock= $221^{\circ}02'45''.0$.

Cheraw (Chesterfield County, C. L. Garner, 1918; 1919).—About 1 mile south of Cheraw, on Seaboard Air Line Railway right-of-way, about 600 meters (1,968 feet) north of milepost 273, 300 meters (984 feet) south of Atlantic Coast Line Railroad grade crossing, 50 meters (164 feet) east of lumber mill and 7 meters (23 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 6.91 meters (22.7 feet) west of west rail and 17.66 meters (57.9 feet) from station in azimuth $234^{\circ}36'$. Following azimuths are from station: City water tank, Cheraw, $226^{\circ}28'20''$; Cotton mills water tank, Cheraw, $354^{\circ}19'53''$.

Plane coordinates: (N), $x=2,330,684.77$ feet; $y=615,208.51$ feet; the grid azimuth to station *Yadkin* = $242^{\circ}33'44''.2$.

Kalb (Chesterfield County, C. L. Garner, 1918).—At first curve on Seaboard Air Line Railway south of Kimberly, about 0.25 mile east of railway, in pine thicket on hill which is about 0.25 mile east of W. F. Davidson's house and 15 meters (49 feet) east of top of hill. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is on highest point of hill and 21.10 meters (69.2 feet) from station in azimuth $106^{\circ}42'$. Following azimuths are from station: City water tank, Cheraw, $237^{\circ}15'45''$; Cotton mills water tank, Cheraw, $242^{\circ}50'05''$.

Plane coordinates: (N), $x=2,310,206.57$ feet; $y=603,167.31$ feet; the grid azimuth to station *Cheraw* = $239^{\circ}32'40''.0$.

Gillespie (Chesterfield County, C. L. Garner, 1918).—About 0.75 mile south of Gillespie, 0.25 mile east of Seaboard Air Line Railway at first curve south of Gillespie, in scrub-oak thicket on hill just north of S. T. Thomas' residence and 10 meters (33 feet) east of road leading from Seaboard Air Line Railway to Thomas' residence. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is about 12 meters (39 feet) north of road, 1 foot west of small pine and 21.37 meters (70.1 feet) from station in azimuth $352^{\circ}06'$.

Plane coordinates: (N), $x=2,302,483.61$ feet; $y=590,111.79$ feet; the grid azimuth to station *Kalb* = $210^{\circ}36'22''.8$.

Sutter (Chesterfield County, C. L. Garner, 1918).—About 1.5 miles north of Patrick, on Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of east rail from the south and west rail from the north, about 75 meters (246 feet) north of milepost 283, 25 meters (82 feet) west of main highway leading to Cheraw and 22.67 meters (74.4 feet) east of east rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is about 25 meters (82 feet) north of milepost 283, 10 meters (33 feet) north of public road crossing, 6.75 meters (22.1 feet) east of east rail and 35 meters (115 feet) from station.

Plane coordinates: (N), $x=2,295,320.56$ feet; $y=579,377.04$ feet; the grid azimuth to station *Gillespie* = $213^{\circ}42'51''.4$.

Patrick (Chesterfield County, C. L. Garner, 1918).—About 200 meters (656 feet) north of Patrick, on Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of east rail at first curve north of Patrick and 6.74 meters (22.1 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, bench mark C 4 (U. S. C. & G. S.), is about 200 meters (656 feet) from station in azimuth $48^{\circ}36'11''$. Following azimuths are from station: Semaphore at railway station, Patrick, $44^{\circ}24'43''$. Seaboard Air Line Railway water tank, Patrick, $46^{\circ}36'39''$.

Plane coordinates: (N), $x=2,287,591.12$ feet; $y=574,906.22$ feet; the grid azimuth to station *Sutter* = $239^{\circ}57'15''.4$.

Cane (Chesterfield County, C. L. Garner, 1918).—About 1 mile south of Patrick, on Seaboard Air Line Railway right-of-way, at first curve north of milepost 286, at intersection of prolongation of tangents of west rail from the south and east rail from the north, and about 35 meters (115 feet) east of east rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark is standard disk in irregular mass of concrete, note 11c, and is 8.39 meters (27.5 feet) east of east rail, on a bank about 2 meters (7 feet) above rail, and 17.78 meters (58.3 feet) from station in azimuth $109^{\circ}18'$. The following azimuths are from station: Seaboard Air Line Railway water tank, Patrick, $224^{\circ}46'58''$; top of semaphore, Patrick, $225^{\circ}07'25''$.

Plane coordinates: (N), $x=2,283,153.65$ feet; $y=570,393.62$ feet; the grid azimuth to station *Patrick* = $224^{\circ}31'08''.6$.

Thierry (Chesterfield County, C. L. Garner, 1918).—Between Middendorf and Patrick, about 300 meters (984 feet) west of Seaboard Air Line Railway right-of-way, at first curve just south of milepost 287, on hill about 3 meters (10 feet) south of wagon road. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above

concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is on open ground surrounded by scrub oak, about 10 meters (33 feet) north of wagon road and 24.05 meters (78.9 feet) from station in azimuth $160^{\circ}17'$.

Plane coordinates: (N), $x=2,270,870.03$ feet; $y=570,653.13$ feet; the grid azimuth to station *Cane* = $271^{\circ}12'37''.0$.

Chateau (Chesterfield County, C. L. Garner, 1918).—About 2 miles north of Middendorf, 0.5 mile west of Seaboard Air Line Railway at point 45 meters (148 feet) north of milepost 290, on edge of old field grown over with scrub oaks, about 300 meters (984 feet) north of road crossing and 50 meters (164 feet) north of cluster of 15 pines. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is in scrub oak thicket, about 10 meters (33 feet) east of 8-inch pine, 1.6 feet from small oak and 22.20 meters (72.8 feet) from station in azimuth $312^{\circ}17'$. Bare round-topped nob "Sugar Loaf Mountain" is 2 miles from station in azimuth $194^{\circ}00'46''$.

Plane coordinates: (N), $x=2,262,188.59$ feet; $y=567,044.94$ feet; the grid azimuth to station *Thierry* = $247^{\circ}25'52''.3$.

Mid (Chesterfield County, C. L. Garner, 1918).—About 1 mile east of Middendorf, on top of hill, on edge of red-oak thicket, about 10 meters (33 feet) north of public road leading to Middendorf from the east and 35 meters (115 feet) south of tall burnt pine tree. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete. Reference mark is standard disk in irregular mass of concrete, note 11c, 3 meters (10 feet) north of public road and 26.29 meters (86.3 feet) from station in azimuth $281^{\circ}29'$.

Plane coordinates: (N), $x=2,256,989.13$ feet; $y=558,675.98$ feet; the grid azimuth to station *Chateau* = $211^{\circ}51'06''.6$.

Shepard (Kershaw County, C. L. Garner, 1918).—About 150 meters (492 feet) south of Shepard, on Seaboard Air Line Railway right-of-way, about 400 meters (1,312 feet) north of milepost 320, 150 meters (492 feet) north of road crossing, and 21.92 meters (71.9 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, bench mark L 3 (U. S. C. & G. S.), is at road crossing and 150 meters (492 feet) from station in azimuth $36^{\circ}31'06''.0$. Azimuth from station to city standpipe, Camden, is $215^{\circ}45'40''.7$.

Plane coordinates: (N), $x=2,138,122.68$ feet; $y=481,670.39$ feet; the grid azimuth to station *Cassatt* = $248^{\circ}04'08''.1$.

Camden (Kershaw County, C. L. Garner, 1918).—About 1 mile north of Camden and 0.25 mile east of Seaboard Air Line Railway, on top of hill at city power plant. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 27.11 meters (88.9 feet) from station in azimuth $203^{\circ}00'$. City standpipe, Camden, is about 40 meters (131 feet) from station in azimuth $100^{\circ}06'$.

Plane coordinates: (N), $x=2,120,396.41$ feet; $y=461,693.03$ feet; the grid azimuth to station *Shepard* = $221^{\circ}34'59''.6$.

Lugoff (Kershaw County, C. L. Garner, 1918).—About 2 miles south of Lugoff, about 110 meters (361 feet) east of Seaboard Air Line Railway right-of-way, at third curve south of Lugoff, on top of bank directly opposite milepost 333, and 8 meters (26 feet) above roadbed. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is about 60 meters (197 feet) east of railway right-of-way at milepost 333, and 84.00 meters (275.6 feet) from station in azimuth $251^{\circ}06'$. Azimuth from station to city standpipe, Camden, is $206^{\circ}19'$.

Plane coordinates: (N), $x=2,087,764.62$ feet; $y=439,956.58$ feet; the grid azimuth to station *Camden* = $236^{\circ}19'54''.9$.

Pontiac (Richland County, C. L. Garner, 1918).—About 1.2 miles south of railway station in Pontiac, on Seaboard Air Line Railway right-of-way, about 150 meters (492 feet) south of point of tangency on prolongation of tangent of east rail from the north at first curve south of milepost 345 and 5.06 meters (16.6 feet) east of east rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, bench mark X 2 (U. S. C. & G. S.), is 48.72 meters (159.8 feet) from station in azimuth $50^{\circ}32'$. Azimuth from station to water tank Z-601, Camp Jackson, is $19^{\circ}06'$.

Plane coordinates: (N), $x=2,036,242.85$ feet; $y=407,220.50$ feet; the grid azimuth to station *Blaney* = $234^{\circ}07'20''$.7.

Columbia (Richland County, M. E. Lutz, 1918).—At Columbia, near northwest corner of roof of Palmetto Building, 3.31 meters (10.9 feet) from north edge of coping, 3.00 meters (9.8 feet) from west edge of coping, and 2.11 meters (6.9 feet) west of west side of penthouse. Station is marked by standard disk set in tile roof of building.

Plane coordinates: (N), $x=1,989,436.85$ feet; $y=365,390.40$ feet; the grid azimuth to station *Nob* = $221^{\circ}28'00''$.1.

Top (Lexington County, M. E. Lutz, 1918; 1919).—About 1 mile north of Gaston Railway Station, on Seaboard Air Line Railway right-of-way, on east bank of cut, 900 meters (2,953 feet) south of milepost 373, 0.25 mile south of curve in railway, 300 meters (984 feet) south of public road crossing, about 10 meters (33 feet) east of railway tracks and 6 meters (20 feet) above tracks. Surface mark is standard disk in concrete, note 1a. Underground mark is copper bolt in concrete, note 7b. Reference mark, standard disk in concrete, note 11c, is 325 meters (1,066 feet) south of private road crossing, 10 meters (33 feet) east of east rail of tracks, about 6 meters (20 feet) above tracks and 25.23 meters (82.8 feet) from station.

Plane coordinates: (N), $x=1,970,090.55$ feet; $y=304,031.36$ feet; the grid azimuth to station *Columbia* = $197^{\circ}29'59''$.6.

Supplementary points

Osborne I (Richmond County, N. C., C. L. Garner, 1918).—About one-half mile south of milepost 258 of Seaboard Air Line Railway, 250 meters (820 feet) northeast of station *Osborne H*, and about 25 meters (82 feet) south of spring in big cut. Marked by file mark on west rail.

Plane coordinates: (N), $x=2,373,408.82$ feet; $y=667,671.34$ feet; the grid azimuth to station *Light* = $165^{\circ}28'15''$.

Osborne H (Richmond County, N. C., C. L. Garner, 1918).—About $2\frac{1}{4}$ miles north of railway station at Osborne, 10 telegraph poles from milepost 259 of Seaboard Air Line Railway, on prolongation of tangent to west rail from north, 25 meters (82 feet) south of point of tangency, and 0.35 meter (1.1 feet) west of west rail. Surface mark was standard disk station mark in concrete, note 1a. Underground mark was copper bolt in concrete, note 7b. Station was not recovered in 1933.

Plane coordinates: (N), $x=2,372,946.77$ feet; $y=666,993.72$ feet; the grid azimuth to station *Osborne I* = $214^{\circ}17'20''$.

Osborne G (Richmond County, N. C., C. L. Garner, 1918).—About 2 miles north of railway station at Osborne, 5 telegraph poles northwest of milepost 259 of Seaboard Air Line Railway, on prolongation of tangent to east rail to north, 100 meters (328 feet) northwest of point of tangency, and 5.22 meters (17.1 feet) west of west rail. Surface mark was standard disk station mark in concrete, note 1a. Underground mark was copper bolt in concrete, note 7b. Station was not recovered in 1933.

Plane coordinates: (N), $x=2,372,716.61$ feet; $y=666,535.80$ feet; the grid azimuth to station *Osborne H* = $206^{\circ}41'06''$.

Osborne F (Richmond County, N. C., C. L. Garner, 1918; 1933).—About $1\frac{1}{2}$ miles north of railway station at Osborne, N. C., 25 telegraph poles north of milepost 260 of Seaboard Air Line Railway, at intersection of tangents to west rail to south and east rail to north, and 10.83 meters (35.5 feet) east of east rail. Surface mark is standard disk station mark in concrete, note 1a. Underground mark is copper bolt in concrete, note 7b. Reference mark is standard reference disk in concrete, note 11c, 7.75 meters (25.4 feet) from rail, and 20.58 meters (67.5 feet) from station in azimuth $29^{\circ}12'$.

Plane coordinates: (N), $x=2,372,404.47$ feet; $y=664,514.91$ feet; the grid azimuth to station *Osborne G* = $188^{\circ}46'49''$.2.

Osborne E (Richmond County, N. C., C. L. Garner, 1918).—About 1 mile north of railway station at Osborne, 15 telegraph poles north of milepost 260 of Seaboard Air Line Railway, on prolongation of tangent to west rail to north, 60 meters (197 feet) north of point of tangency, and 2.70 meters (8.9 feet) west of west rail. Surface mark was standard disk station mark in concrete, note 1a. Underground mark was copper bolt in concrete, note 7b. Station was not recovered in 1933.

Plane coordinates: (N), $x=2,371,621.24$ feet; $y=663,197.88$ feet; the grid azimuth to station *Osborne F* = $210^{\circ}44'22''$.9.

Osborne D (Richmond County, N. C., C. L. Garner, 1918; 1933).—About three-fourths mile north of railway station at Osborne, 10 telegraph poles north of milepost 260 of Seaboard Air Line Railway, on prolongation of tangent to east rail to north, 125 meters (410 feet) north of point of tangency, and 12.28 meters (40.3 feet) west of west rail. Surface mark is standard disk station mark in concrete, note 1a. Underground mark is copper bolt in concrete, note 7b. Reference mark is standard reference disk in concrete, note 11c, 22.06 meters (72.4 feet) from rail, and 14.26 meters (46.8 feet) from station in azimuth $133^{\circ}49'$.

Plane coordinates: (N), $x=2,371,411.37$ feet; $y=662,475.96$ feet; the grid azimuth to station *Osborne E* = $196^{\circ}12'35''$.

Osborne C (Richmond County, N. C., C. L. Garner, 1918).—About 500 meters (1,640 feet) north of railway station at Osborne, 3 telegraph poles north of milepost 260 of Seaboard Air Line Railway, on prolongation of tangent to west rail to south, 30 meters (98 feet) south of point of tangency, and 0.38 meter (1.2 feet) from rail. Surface mark was standard disk station mark in concrete, note 1a. Underground mark was copper bolt in concrete, note 7b. Station was not recovered in 1933.

Plane coordinates: (N), $x=2,371,602.16$ feet; $y=661,261.61$ feet; the grid azimuth to station *Osborne D* = $171^{\circ}04'15''.9$.

Osborne B (Richmond County, N. C., C. L. Garner, 1918).—About 300 meters (984 feet) north of railway station at Osborne, 1 telegraph pole south of milepost 260 of Seaboard Air Line Railway, 55 meters (180 feet) north of point of tangency on prolongation of tangent to east rail, and 3.26 meters (10.7 feet) east of east rail. Surface mark was standard disk station mark in concrete, note 1a. Underground mark was copper bolt in concrete, note 7b. Reference mark was standard reference disk in concrete, note 11c, 11.72 meters (38.5 feet) from rail, and 17.79 meters (58.4 feet) from station in azimuth $69^{\circ}04'$. Station was not recovered in 1933.

Plane coordinates: (N), $x=2,371,599.35$ feet; $y=660,676.92$ feet; the grid azimuth to station *Osborne C* = $180^{\circ}16'31''.3$.

Osborne A (Marlboro County, C. L. Garner, 1918).—About 0.5 mile south of Osborne railway station, on Seaboard Air Line Railway right-of-way, about 50 meters (164 feet) south of point of tangency of east rail, 1.19 meters (3.9 feet) east of east rail, and six telegraph poles north of milepost 261. Surface mark is standard station disk in concrete, note 1a. Underground mark is copper bolt projecting slightly above concrete, note 7b.

Plane coordinates: (N), $x=2,370,471.38$ feet; $y=656,727.97$ feet; the grid azimuth to station *Osborne B* = $195^{\circ}56'28''.9$.

Fulton G (Marlboro County, C. L. Garner, 1918).—About 0.75 mile south of railway station in Osborne, on Seaboard Air Line Railway right-of-way, about 60 meters (197 feet) north of point of tangency on prolongation of tangent of west rail to the south, 2 telegraph poles north of milepost 261 and 3.78 meters (12.4 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is copper bolt projecting slightly above concrete, note 7b. Reference mark, standard disk in concrete, note 11c, is 14.67 meters (48.1 feet) from west rail and 24.23 meters (79.5 feet) from station in azimuth $158^{\circ}58'$.

Plane coordinates: (N), $x=2,370,215.88$ feet; $y=656,115.00$ feet; the grid azimuth to station *Osborne A* = $202^{\circ}37'39''.0$.

Fulton F (Marlboro County, C. L. Garner, 1918).—About 1 mile south of railway station at Osborne, on Seaboard Air Line Railway right-of-way, about 70 meters (230 feet) south of point of tangency on prolongation of tangent of west rail to the north, south of milepost 261, and 9.08 meters (29.8 feet) east of east rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is copper bolt projecting slightly above concrete, note 7b. Reference mark, standard disk in concrete, note 11c, is 10.75 meters (35.3 feet) from rail and 19.83 meters (65.1 feet) from station in azimuth $125^{\circ}55'$.

Plane coordinates: (N), $x=2,368,383.70$ feet; $y=653,382.27$ feet; the grid azimuth to station *Fulton G* = $213^{\circ}50'24''.7$.

Fulton E (Marlboro County, C. L. Garner, 1918).—About 3.25 miles north of railway station at Fulton, on Seaboard Air Line Railway right-of-way, on prolongation of tangent of west rail to the south, 60 meters (197 feet) north of point of tangency, 10 telegraph poles north of milepost 262, and 1.50 meters (4.9 feet) east of east rail of track. Surface mark is standard station disk in concrete, note 1a. Underground mark is copper bolt projecting slightly above concrete, note 7b.

Plane coordinates: (N), $x=2,367,623.09$ feet; $y=652,930.24$ feet; the grid azimuth to station *Fulton F* = $239^{\circ}16'37''$.

Fulton D (Marlboro County, C. L. Garner, 1918).—About 2 miles south of railway station in Osborne, on Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of west rail to the south and west rail to the north, about 20 meters (66 feet) south of milepost 262 and 13.93 meters (45.7 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is copper bolt projecting slightly above concrete, note 7b. Reference mark, standard disk in concrete, note 11c, is 8.69 meters (28.5 feet) from rail and 22.87 meters (75.0 feet) from station in azimuth $326^{\circ}24'$.

Plane coordinates: (N), $x=2,366,174.14$ feet; $y=652,585.56$ feet; the grid azimuth to station *Fulton E* = $256^{\circ}37'08''.5$.

Fulton C (Marlboro County, C. L. Garner, 1918).—About 2.5 miles north of railway station in Fulton, on Seaboard Air Line Railway right-of-way, about 60 meters (197 feet) south of point of tangency on prolongation of tangent of west rail to the north, 11 telegraph poles north of milepost 263 and 8.36 meters (27.4 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is copper bolt projecting slightly above concrete, note 7b. Reference mark, standard disk in concrete, note 11c, is 9.45 meters (31.0 feet) from rail and 22.73 meters (74.6 feet) from station in azimuth $274^{\circ}04'$.

Plane coordinates: (N), $x=2,363,367.90$ feet; $y=650,545.07$ feet; the grid azimuth to station *Fulton D* = $233^{\circ}58'41''.3$.

Fulton B (Marlboro County, C. L. Garner, 1918).—About 2 miles north of railway station at Fulton, on Seaboard Air Line Railway right-of-way on prolongation of tangent of west rail to the south, 60 meters (197 feet) from point of tangency, six telegraph poles north of milepost 263, and 1.98 meters (6.5 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is copper bolt projecting slightly above concrete, note 7b.

Plane coordinates: (N), $x=2,363,011.62$ feet; $y=649,817.54$ feet; the grid azimuth to station *Fulton C* = $206^{\circ}05'30''$.

Fulton A (Marlboro County, C. L. Garner, 1918).—About 1.5 miles north of railway station in Fulton, on Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of west rail to the south and west rail to the north, 15 telegraph poles north of milepost 264 and about 300 feet from rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is copper bolt projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is in azimuth $151^{\circ}40'40''$ from station.

Plane coordinates: (N), $x=2,362,716.06$ feet; $y=647,090.54$ feet; the grid azimuth to station *Fulton B* = $186^{\circ}11'08''.6$.

Kollock D (Marlboro County, C. L. Garner, 1918).—About 0.25 mile south of railway station at Fulton, near Seaboard Air Line Railway right-of-way, about 60 meters (197 feet) south of point of tangency on prolongation of tangent of west rail to the north, 17 telegraph poles north of milepost 265 and 4.82 meters (15.8 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is copper bolt projecting slightly above concrete, note 7b. Reference mark, standard disk in concrete, note 11c, is 16 meters (52 feet) from rail and 25.7 meters (84 feet) from station in azimuth $8^{\circ}40'$.

Plane coordinates: (N), $x=2,356,431.51$ feet; $y=645,725.57$ feet; the grid azimuth to station *Fulton* = $255^{\circ}41'32''.3$.

Kollock C (Marlboro County, C. L. Garner, 1918).—About 0.25 mile south of railway station at Fulton, on Seaboard Air Line Railway right-of-way, about 60 meters (197 feet) north of point of tangency on the east rail of track, 15 telegraph poles north of milepost 265 and about 2 meters (7 feet) northwest of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is copper bolt projecting slightly above concrete, note 7b.

Plane coordinates: (N), $x=2,355,855.02$ feet; $y=645,319.78$ feet; the grid azimuth to station *Kollock D* = $234^{\circ}51'30''$.

Kollock B (Marlboro County, C. L. Garner, 1918).—About 1 mile south of railway station in Fulton, a few feet outside Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of west rail to the south and east rail to the north, 11 telegraph poles south of milepost 265 and 45.57 meters (149.5 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is copper bolt projecting slightly above concrete, note 7b. Reference mark, standard disk in concrete, note 11c, is 12.04 meters (39.5 feet) from rail and 33.53 meters (110.0 feet) from station in azimuth $278^{\circ}12'$.

For notes in regard to marking of stations see p. 67.

Plane coordinates: (N), $x=2,353,669.63$ feet; $y=642,165.76$ feet; the grid azimuth to station *Kollock C* = $214^{\circ}43'03''.8$.

Kollock A (Marlboro County, C. L. Garner, 1918).—About 3 miles north of railway station in Kollock on Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of east rail to the south and west rail to the north, on wooded hill southeast of deep cut, three telegraph poles north of milepost 266 and 63.80 meters (209.3 feet) east of east rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is copper bolt projecting slightly above concrete, note 7b. Reference mark, standard disk in concrete, note 11c, is 25.26 meters (82.9 feet) from station in azimuth $27^{\circ}48'$.

Plane coordinates: (N), $x=2,354,439.24$ feet; $y=639,355.22$ feet; the grid azimuth to station *Kollock B* = $164^{\circ}41'09''.9$.

Yadkin C (Marlboro County, C. L. Garner, 1918).—Plane coordinates: (N), $x=2,353,721.87$ feet; $y=637,909.64$ feet; the grid azimuth to station *Kollock A* = $206^{\circ}23'34''.6$.

Yadkin B (Marlboro County, C. L. Garner, 1918; 1935).—About 3.5 miles north of railway station at Cheraw, on edge of Seaboard Air Line Railway right-of-way, on point of intersection of prolongation of tangents of east rail to the north and east rail to the south, north of milepost 268, in low swampy area. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. In 1935 it was reported that surface mark was very loose in ground.

Plane coordinates: (N), $x=2,349,766.09$ feet; $y=629,938.67$ feet; the grid azimuth to station *Yadkin C* = $206^{\circ}23'38''.3$.

Yadkin A (Marlboro County, C. L. Garner, 1918).—About 0.25 mile south of railway station in Kollock, on Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of east rail to the south and east rail to the north, 16 telegraph poles from milepost 272 and 10.40 meters (34.1 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is copper bolt or glass bottle in concrete, note 7b or 7d. Reference mark, standard disk in concrete, note 11c, is 13.12 meters (43.0 feet) from rail and 20.0 meters (66 feet) from station in azimuth $58^{\circ}04'$.

Plane coordinates: (N), $x=2,342,164.15$ feet; $y=626,402.90$ feet; the grid azimuth to station *Yadkin B* = $245^{\circ}03'22''.3$.

Cheraw F (Chesterfield County, C. L. Garner, 1918).—About 0.5 mile north of railway station at Cheraw, on Seaboard Air Line Railway right-of-way, on prolongation of tangent of east rail to the north, 6 telegraph poles north of milepost 271, in line with city water tank and station *Cheraw E*, about 200 meters (656 feet) south of Yadkin River, 100 meters (328 feet) south of signboard "Kollock," 50 meters (164 feet) east of city power plant and 2.25 meters (7.4 feet) east of rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 2.02 meters (6.6 feet) from rail and 36.97 meters (121.3 feet) from station in azimuth $227^{\circ}40'$.

Plane coordinates: (N), $x=2,336,311.51$ feet; $y=621,778.56$ feet; the grid azimuth to station *Yadkin A* = $231^{\circ}41'12''.2$.

Cheraw E (Chesterfield County, C. L. Garner, 1918).—At Cheraw, about 0.25 mile north of Seaboard Air Line Railway Station, 75 meters (246 feet) northeast of Atlantic Coast Line Railway freight depot, in center of Front Street, in front of property belonging to John Harley (colored), opposite House No. 236 and 3.38 meters (11.1 feet) west of electric power line pole. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 15.78 meters (51.8 feet) from station in azimuth $353^{\circ}33'$.

Plane coordinates: (N), $x=2,335,705.54$ feet; $y=620,578.65$ feet; the grid azimuth to station *Cheraw F* = $206^{\circ}47'39''.7$.

Cheraw D (Chesterfield County, C. L. Garner, 1918; 1919).—About 300 meters (984 feet) north of railway station at Cheraw, on Seaboard Air Line Railway right-of-way, on tangent to east rail of first curve north of railway station, on north side of Front Street at railway crossing, about 275 meters (902 feet) south of milepost 271, and 1.7 meters (6 feet) east of east rail of track. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting a little above concrete, note 7a.

Plane coordinates: (N), $x=2,336,626.15$ feet; $y=619,213.93$ feet; the grid azimuth to station *Cheraw E* = $145^{\circ}59'50''.2$.

Cheraw C (Chesterfield County, C. L. Garner, 1918).—About 50 meters (164 feet) southwest of Cheraw passenger station, on Seaboard Air Line Railway right-of-way, on tangent to east rail looking north from the curve at depot, about 500 meters (1,640 feet) north of milepost 272, about 20 meters (66 feet) south of depot and 2.458 meters (8.06 feet) east of east rail of main track. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d.

Plane coordinates: (N), $x=2,335,965.99$ feet; $y=618,036.77$ feet; the grid azimuth to station *Cheraw D* = $209^{\circ}17'02''.5$.

Cheraw B (Chesterfield County, C. L. Garner, 1918; 1919).—About 0.25 mile south of Cheraw Railway Station, on Seaboard Air Line Railway right-of-way, on prolongation of tangent to the west rail looking south at milepost 272, about 75 meters (246 feet) north of milepost 272, about 35 meters (115 feet) north of Huger Street, Cheraw, and 1.32 meters (4.3 feet) east of east rail of main track. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting a little above concrete, note 7d.

Plane coordinates: (N), $x=2,334,782.53$ feet; $y=617,054.07$ feet; the grid azimuth to station *Cheraw C* = $230^{\circ}17'42''.2$.

Cheraw A (Chesterfield County, C. L. Garner, 1918).—About 0.5 mile south of Cheraw, on Seaboard Air Line Railway right-of-way, on point of intersection of first curve south of milepost 272 and first curve north of Atlantic Coast Line Railroad grade crossing, about 600 meters (1,968 feet) south of milepost 272, about 200 meters (656 feet) north of grade crossing, 3.53 meters (11.6 feet) west of west rail of Seaboard Air Line Railway main track, and 0.68 meters (2.2 feet) west of east rail of Seaboard Air Line Railway side track. Station is marked by nail in a 2- by 4-inch stub set in concrete.

Plane coordinates: (N), $x=2,332,979.15$ feet; $y=616,462.69$ feet; the grid azimuth to station *Cheraw B* = $251^{\circ}50'39''.1$.

Kalb G (Chesterfield County, C. L. Garner, 1918).—About 2 miles south of railway station at Cheraw, on Seaboard Air Line Railway right-of-way, at edge of cultivated field about 25 meters (82 feet) north of whistle post, 7.85 meters (25.8 feet) west of milepost 274, and 5.16 meters (16.9 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 5.00 meters (16.4 feet) from rail and 19.51 meters (64.0 feet) from station in azimuth $61^{\circ}28'$.

Plane coordinates: (N), $x=2,325,119.13$ feet; $y=612,084.62$ feet; the grid azimuth to station *Cheraw* = $240^{\circ}41'43''.1$.

Kalb F (Chesterfield County, C. L. Garner, 1918).—At Kimberly, on Seaboard Air Line Railway right-of-way, on point of intersection of first curve north of milepost 275, on tangent to the west rail looking south and the east rail looking north, about 100 meters (328 feet) north of milepost 275, and 25.67 meters (84.2 feet) east of east rail. Station is marked by nail in a 2- by 4-inch stub set in concrete.

Plane coordinates: (N), $x=2,320,808.60$ feet; $y=609,645.40$ feet; the grid azimuth to station *Kalb G* = $240^{\circ}29'44''.1$.

Kalb E (Chesterfield County, C. L. Garner, 1918).—About 1.25 miles north of railway station at Kimberly, on Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of west rail to the north and west rail to the south, in cultivated field, 18 telegraph poles north of milepost 276, 6 telegraph poles northeast of trestle crossing Pee Dee River, and 46.07 meters (151.1 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 20.40 meters (66.9 feet) from rail and 34.16 meters (112.1 feet) from station in azimuth $19^{\circ}37'$.

Plane coordinates: (N), $x=2,318,329.32$ feet; $y=609,830.13$ feet; the grid azimuth to station *Kalb F* = $274^{\circ}15'40''.3$.

Kalb D (Chesterfield County, C. L. Garner, 1918).—About 0.75 mile north of railway station at Kimberly, on Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of west rail to the north and west rail to the south, about 25 meters (82 feet) south of milepost 276, and 14.37 meters (47.1 feet) east of east rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete,

note 11c, is 7.05 meters (23.1 feet) from rail and 13.98 meters (45.9 feet) from station in azimuth $218^{\circ}04'$.

Plane coordinates: (N), $x=2,316,037.03$ feet; $y=607,475.29$ feet; the grid azimuth to station *Kalb E* $=224^{\circ}13'43''.9$.

Kalb C (Chesterfield County, C. L. Garner, 1918).—About 0.25 mile south of railway station at Kimberly, on Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of west rail to the north and east rail to the south, in cultivated field, three telegraph poles north of milepost 277 and 20.01 meters (65.6 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, bench mark F 4 (U. S. C. & G. S.) is 4.88 meters (16.0 feet) from rail and 24.21 meters (79.4 feet) from station in azimuth $287^{\circ}09'$.

Plane coordinates: (N), $x=2,311,744.96$ feet; $y=605,954.81$ feet; the grid azimuth to station *Kalb D* $=250^{\circ}29'35''.3$.

Kalb B (Chesterfield County, C. L. Garner, 1918).—About 1 mile south of Kimberly, on Seaboard Air Line Railway right-of-way, at north end of first curve south of milepost 277, on tangent to the east rail, about 900 meters (2,953 feet) south of milepost 277 and 6.43 meters (21.1 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d.

Plane coordinates: (N), $x=2,309,852.53$ feet; $y=604,010.34$ feet; the grid azimuth to station *Kalb C* $=224^{\circ}13'22''.6$.

Kalb A (Chesterfield County, C. L. Garner, 1918).—At Kimberly, on Seaboard Air Line Railway right-of-way, at south end of first curve south of milepost 277, on tangent to west rail, about 500 meters (1,640 feet) north of milepost 278, 15.4 meters (50 feet) on slope west of west rail, and about 6 meters (20 feet) above the rail. Station is marked by nail in a 2- by 4-inch stub set in concrete.

Plane coordinates: (N), $x=2,309,587.62$ feet; $y=603,280.56$ feet; the grid azimuth to station *Kalb B* $=199^{\circ}57'03''$.

Gillespie D (Chesterfield County, C. L. Garner, 1918).—About 1.5 miles north of Gillespie Railway Station, on Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of west rail to the north and east rail to the south, in pine grove, seven telegraph poles north of milepost 278, 20.10 meters (65.9 feet) east of east rail, and about 15 meters (49 feet) south of road crossing. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 6.34 meters (20.8 feet) from rail and 24.11 meters (79.1 feet) from station in azimuth $150^{\circ}07'$.

Plane coordinates: (N), $x=2,309,889.42$ feet; $y=601,808.26$ feet; the grid azimuth to station *Kalb A* $=168^{\circ}24'56''.4$.

Gillespie C (Chesterfield County, C. L. Garner, 1918).—About 0.5 mile north of Gillespie Railway Station, on Seaboard Air Line Railway right-of-way, at point of intersection of tangency of east rail to the north and east rail to the south, between second and third telegraph poles south of milepost 279, about 50 meters (164 feet) north of road crossing, 15.79 meters (51.8 feet) east of east rail, and 10 meters (33 feet) north of oak tree. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, bench mark E 4 (U. S. C. & G. S.), is 3.41 meters (11.2 feet) from rail and about 75 meters (246 feet) from station in azimuth $50^{\circ}18'$.

Plane coordinates: (N), $x=2,307,134.57$ feet; $y=595,506.79$ feet; the grid azimuth to station *Gillespie D* $=203^{\circ}36'49''.6$.

Gillespie B (Chesterfield County, C. L. Garner, 1918; 1919).—At Gillespie, on Seaboard Air Line Railway right-of-way, 20.64 meters (67.7 feet) south of southeast corner of railway station, opposite old gin mill, seven telegraph poles north of milepost 280, and 2.21 meters (7.3 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 3.39 meters (11.1 feet) from rail and 31.26 meters (102.6 feet) from station in azimuth $227^{\circ}56'$.

Plane coordinates: (N), $x=2,304,492.01$ feet; $y=593,269.55$ feet; the grid azimuth to station *Gillespie C* $=229^{\circ}44'53''.3$.

Gillespie A (Chesterfield County, C. L. Garner, 1918; 1919).—About 0.75 mile south of railway station in Gillespie, on Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of east rail to the north and

south, 11 telegraph poles south of milepost 280, at edge of dense woods, about 50 meters (164 feet) north of road crossing, and 6.36 meters (20.9 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 8.44 meters (27.7 feet) from rail and 21.26 meters (69.8 feet) from station in azimuth $46^{\circ}33'$.

Planes coordinates: (N), $x=2,302,007.47$ feet; $y=591,133.16$ feet; the grid azimuth to station *Gillespie B* = $229^{\circ}18'31''.1$.

Sutter D (Chesterfield County, C. L. Garner, 1918).—About 1.1 miles south of railway station at Gillespie, on Seaboard Air Line right-of-way, 6 telegraph poles north of milepost 281 and about 100 meters (328 feet) south of whistle post. A rail station.

Plane coordinates: (N), $x=2,300,884.92$ feet; $y=589,274.80$ feet; the grid azimuth to station *Gillespie A* = $211^{\circ}08'03''.3$.

Sutter C (Chesterfield County, C. L. Garner, 1918; 1919).—About 1.4 miles south of railway station at Gillespie, on Seaboard Air Line Railway right-of-way, on point of intersection of prolongation of tangents of east rail to the north and east rail to the south, on edge of wooded ridge, two telegraph poles south of milepost 281, and 17.06 meters (56 feet) west of west rail of track. Station is marked by nail driven in a 2- by 4-inch stub set in concrete.

Plane coordinates: (N), $x=2,300,071.95$ feet; $y=587,931.42$ feet; the grid azimuth to station *Sutter D* = $211^{\circ}10'51''.5$.

Geary A (Chesterfield County, C. L. Garner, 1918).—About 1.5 miles south of Gillespie Railway Station, on Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of east rail to the north and west rail to the south, on edge of wooded lowland, ten telegraph poles south of milepost 281, and 16.34 meters (53.6 feet) east of east rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note, 7d. Reference mark, standard disk in concrete, note 11c, is 15.10 meters (49.5 feet) from rail and 16.15 meters (53.0 feet) from station in azimuth $194^{\circ}55'$.

Plane coordinates: (N), $x=2,299,988.80$ feet; $y=586,341.08$ feet; the grid azimuth to station *Sutter C* = $182^{\circ}59'34''.6$.

Sutter A (Chesterfield County, C. L. Garner, 1918).—About 2.25 miles south of railway station in Gillespie, on Seaboard Air Line Railway right-of-way, 5 telegraph poles south of milepost 282, about 20 meters (66 feet) south of whistle post, 3 meters (10 feet) south of road crossing and 1.72 meters (5.6 feet) northwest of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting a little above concrete, note 7d. Reference mark, bench mark D 4 (U. S. C. & G. S.), is 2.43 meters (8.0 feet) from east rail and 6.06 meters (19.9 feet) from station in azimuth $323^{\circ}52'$.

Plane coordinates: (N), $x=2,297,647.98$ feet; $y=582,862.78$ feet; the grid azimuth to station *Geary A* = $213^{\circ}56'22''.9$.

Thierry B (Chesterfield County, C. L. Garner, 1918; 1919).—About 4.25 miles north of railway station at Middendorf, on Seaboard Air Line Railway right-of-way, on prolongation of tangent of west rail to the north, 6 telegraph poles north of milepost 288, about 150 meters (492 feet) north of road crossing, 20 feet south of edge of small cultivated field and 1.235 meters (4.05 feet) west of west rail. Station is marked by nail driven in a 2- by 4-inch stub set in concrete. Reference mark, bench mark B 4 (U. S. C. & G. S.), is 150 meters (492 feet) from station in azimuth $78^{\circ}48'52''$.

Plane coordinates: (N), $x=2,272,670.32$ feet; $y=570,600.96$ feet; the grid azimuth to station *Cone* = $271^{\circ}07'59''.0$.

Thierry A (Chesterfield County, C. L. Garner, 1918).—About 4 miles north of railway station at Middendorf, on Seaboard Air Line Railway right-of-way, on prolongation of west rail to the south, on edge of pine woods, 3 telegraph poles south of milepost 288 and 11.125 meters (36.50 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting a little above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 15.46 meters (50.7 feet) from station in azimuth $147^{\circ}18'$.

Plane coordinates: (N), $x=2,271,477.05$ feet; $y=570,307.20$ feet; the grid azimuth to station *Thierry B* = $256^{\circ}10'11''.6$.

Chateau E (Chesterfield County, C. L. Garner, 1918; 1919).—About 3.5 miles north of Middendorf Railway Station, about 30 feet outside of Seaboard Air Line Railway right-of-way, on point of intersection of prolongation of tangents of

west rail to the north and west rail to the south, 14 telegraph poles north of milepost 289, and 38.96 meters (127.8 feet) from east rail of track. Station is marked by nail driven in a 2- by 4-inch stub set in concrete.

Plane coordinates: (N), $x=2,269,551.95$ feet; $y=568,893.47$ feet; the grid azimuth to station *Thierry A* = $233^{\circ}42'27''.6$.

Chateau D (Chesterfield County, C. L. Garner, 1918).—About 3.25 miles north of railway station at Middendorf, about 20 feet outside of Seaboard Air Line Railway right-of-way, on prolongation of tangent of west rail to the north, on clay mound, six telegraph poles north of milepost 289, and 19.6 meters (64 feet) from rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 15.65 meters (51.3 feet) from rail and 27.62 meters (90.6 feet) from station in azimuth $275^{\circ}00'$.

Plane coordinates: (N), $x=2,267,980.94$ feet; $y=569,193.06$ feet; the grid azimuth to station *Chateau E* = $280^{\circ}47'47''.8$.

Chateau C (Chesterfield County, C. L. Garner, 1918; 1919).—About 3 miles north of Middendorf Railway Station, on Seaboard Air Line Railway right-of-way, on prolongation of tangent of east rail to the south, one telegraph pole north of milepost 289, about 35 meters (115 feet) south of whistle post, and 2.458 meters (8.06 feet) west of west rail of track. Station is marked by a nail driven in a 2- by 4-inch stub set in concrete.

Plane coordinates: (N), $x=2,267,159.78$ feet; $y=568,774.42$ feet; the grid azimuth to station *Chateau D* = $242^{\circ}59'12''$.

Chateau B (Chesterfield County, C. L. Garner, 1918).—About 2.5 miles north of railway station at Middendorf, on Seaboard Air Line Railway right-of-way, on point of intersection of prolongation of tangents of east rail to the north and east rail to the south, 13 telegraph poles east of milepost 289, and 18.983 meters (62.28 feet) east of east rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 23.945 meters (78.56 feet) from station in azimuth $73^{\circ}25'$.

Plane coordinates: (N), $x=2,265,718.68$ feet; $y=567,090.98$ feet; the grid azimuth to station *Chateau C* = $220^{\circ}33'54''.0$.

Chateau A (Chesterfield County, C. L. Garner, 1918; 1919).—About 2.25 miles north of railway station in Middendorf, on Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of east rail to the north and east rail to the south, at edge of deep gully, 11 telegraph poles north of milepost 290, about 75 meters (246 feet) north of road crossing and 5.19 meters (17.0 feet) west of west rail. Station is marked by nail driven in a 2- by 4-inch stub set in concrete. Reference mark, bench mark A 4 (U. S. C. & G. S.), is 4.85 meters (15.9 feet) from rail and about 50 meters (164 feet) from station in azimuth $62^{\circ}05'$.

Plane coordinates: (N), $x=2,264,432.04$ feet; $y=566,695.13$ feet; the grid azimuth to station *Chateau B* = $252^{\circ}53'55''.9$.

Mid E (Chesterfield County, C. L. Garner, 1918).—About 2 miles north of Middendorf railway station, on east rail of Seaboard Air Line Railway tracks about 35 meters (115 feet) north of milepost 290. A rail station.

Plane coordinates: (N), $x=2,262,946.84$ feet; $y=565,695.91$ feet; the grid azimuth to station *Chateau A* = $236^{\circ}04'04''.6$.

Mid D (Chesterfield County, C. L. Garner, 1918).—About 1.75 miles north of railway station in Middendorf, on Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of east rail to the north and east rail to the south, under wooden bridge crossing railway tracks, six telegraph poles south of milepost 290, and 7.937 meters (26.04 feet) southeast of east rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 4.65 meters (15.3 feet) from rail and 21.18 meters (69.5 feet) from station in azimuth $104^{\circ}26'$. In 1919 the station was reported lost.

Plane coordinates: (N), $x=2,262,128.32$ feet; $y=565,145.41$ feet; the grid azimuth to station *Mid E* = $236^{\circ}04'37''$.

Mid C (Chesterfield County, C. L. Garner, 1918; 1919).—About 1.25 miles north of Middendorf railway station, on edge of Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of east rail to the north and west rail to the south, in cultivated field, 15 telegraph poles north of

milepost 291, and 14.38 meters (47.2 feet) west of west rail. Station is marked by nail driven in a 2- by 4-inch stub set in concrete.

Plane coordinates: (N), $x=2,260,501.28$ feet; $y=564,520.32$ feet; the grid azimuth to station *Mid D* = $248^{\circ}59'01''.7$.

Mid B (Chesterfield County, C. L. Garner, 1918).—About 1 mile north of railway station in Middendorf, on Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of west rail to the north and west rail to the south, 5 telegraph poles north of milepost 291, about 100 meters (328 feet) southwest of gin mill and 7.887 meters (25.88 feet) east of east rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 13.855 meters (45.46 feet) from rail and 24.845 meters (81.51 feet) from station in azimuth $243^{\circ}51'$.

Plane coordinates: (N), $x=2,259,051.60$ feet; $y=562,991.86$ feet; the grid azimuth to station *Mid C* = $223^{\circ}29'05''.0$.

Mid A (Chesterfield County, C. L. Garner, 1918).—About 250 meters (820 feet) north of Middendorf railway station, on Seaboard Air Line Railway right-of-way, on prolongation of tangent of west rail to the north, at edge of small cultivated field, four telegraph poles south of milepost 292, 6.41 meters (21.0 feet) west of west rail, and 8 feet south of telegraph pole. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d.

Plane coordinates: (N), $x=2,253,350.81$ feet; $y=559,922.38$ feet; the grid azimuth to station *Mid B* = $241^{\circ}42'02''.2$.

McBee F (Chesterfield County, C. L. Garner, 1918).—About 25 meters (82 feet) southeast of southeast corner of railway station in Middendorf, on Seaboard Air Line Railway right-of-way, on prolongation of tangent of west rail to the south, about 300 meters (984 feet) west of red-roofed brick schoolhouse, 200 meters (656 feet) north of church and 7.82 meters (25.7 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, bench mark Z 3 (U. S. C. & G. S.), is 7.42 meters (24.3 feet) from rail and 76.81 meters (252.0 feet) from station in azimuth $216^{\circ}52'$.

Plane coordinates: (N), $x=2,252,556.62$ feet; $y=559,093.48$ feet; the grid azimuth to station *Mid A* = $223^{\circ}46'29''.7$.

McBee E (Chesterfield County, C. L. Garner, 1918).—About 1 mile south of railway station in Middendorf, on Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of west rail to the north and west rail to the south, one telegraph pole north of milepost 293, about 25 meters (82 feet) north of road crossing and 9.96 meters (32.7 feet) from rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 8.27 meters (27.1 feet) from rail and 34.12 meters (111.9 feet) from station in azimuth $38^{\circ}07'$.

Plane coordinates: (N), $x=2,251,172.44$ feet; $y=556,045.42$ feet; the grid azimuth to station *McBee F* = $204^{\circ}25'25''.2$.

McBee D (Chesterfield County, C. L. Garner, 1918).—About 1.75 miles south of railway station in Middendorf, 40 feet outside Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of west rail to the north and west rail to the south, in marshy woodland, about 75 meters (246 feet) north of road crossing and 35.78 meters (117.4 feet) east of east rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 20.36 meters (66.8 feet) from rail and 61.612 meters (202.14 feet) from station in azimuth $75^{\circ}48'$.

Plane coordinates: (N), $x=2,248,072.57$ feet; $y=552,687.25$ feet; the grid azimuth to station *McBee E* = $222^{\circ}42'34''.5$.

McBee C (Chesterfield County, C. L. Garner, 1918).—Plane coordinates: (N), $x=2,244,825.20$ feet; $y=551,841.74$ feet; the grid azimuth to station *McBee D* = $255^{\circ}24'21''.8$

McBee B (Chesterfield County, C. L. Garner, 1918).—About 3 miles south of railway station in Middendorf, near Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of west rail to the north and west rail to the south, on side of highway at edge of large cultivated field, 2 telegraph poles south of milepost 295 and 34.56 meters (113.4 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is

glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, bench mark (U. S. C. & G. S.), is 150 meters (492 feet) from station in azimuth $276^{\circ}23'32''$.

Plane coordinates: (N), $x=2,241,577.49$ feet; $y=552,058.13$ feet; the grid azimuth to station *McBee C* = $273^{\circ}48'42''$.8.

McBee A (Chesterfield County, C. L. Garner, 1918).—About 3 miles northeast of McBee, on Seaboard Air Line Railway right-of-way, two telegraph poles south of milepost 297, 75 meters (246 feet) southeast of highway and 10.55 meters (34.6 feet) east of east rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d.

Plane coordinates: (N), $x=2,232,603.34$ feet; $y=546,574.43$ feet; the grid azimuth to station *McBee B* = $238^{\circ}34'22''$.0.

Bethune J (Chesterfield County, C. L. Garner, 1918).—About 1.5 miles northwest of McBee, 30 meters (98 feet) west of Seaboard Air Line Railway right-of-way, on first curve on main line north of McBee, at point of intersection of prolongation of tangents to east rail from the south and west rail from the north. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 24.92 meters (81.8 feet) from station in azimuth $288^{\circ}37'$. Azimuth from station to city water tank, McBee, is $19^{\circ}34'30''$.

Plane coordinates: (N), $x=2,226,456.86$ feet; $y=542,875.96$ feet; the grid azimuth to station *McBee A* = $238^{\circ}57'49''$.6.

Bethune I (Chesterfield County, C. L. Garner, 1918).—At McBee, opposite northeast corner of Seaboard Air Line Railway freight station, about 100 meters (328 feet) north of milepost 300 and 2.16 meters (7.1 feet) west of west rail of track. Station is standard disk in concrete, note 1a. Underground mark is copper bolt projecting slightly above concrete, note 7b.

Plane coordinates: (N), $x=2,223,564.06$ feet; $y=535,251.08$ feet; the grid azimuth to station *Bethune J* = $200^{\circ}46'34''$.4.

Bethune H (Chesterfield County, C. L. Garner, 1918).—About 0.5 mile south of railway station in McBee, on Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of east rail from the north and west rail from the south, 12 telegraph poles south of milepost 300 and about 75 meters (246 feet) east of sawmill. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 16.013 meters (52.54 feet) from station in azimuth $124^{\circ}00'$. Azimuth from station to McBee water tank is $208^{\circ}17'02''$.

Plane coordinates: (N), $x=2,222,767.46$ feet; $y=533,110.93$ feet; the grid azimuth to station *Bethune I* = $200^{\circ}24'58''$.0.

Bethune G (Chesterfield County, C. L. Garner, 1918).—About 1.75 miles southwest of McBee Railway Station, on Seaboard Air Line Railway right-of-way, 23 telegraph poles south of milepost 301, in line with east rail to the north and 110 meters (361 feet) south of the point of tangency. Marked by standard station disk in concrete, note 1a. In 1935 the station was reported lost.

Plane coordinates: (N), $x=2,218,804.83$ feet; $y=526,824.73$ feet; the grid azimuth to station *Bethune H* = $212^{\circ}13'33''$.9.

Bethune F (Chesterfield County, C. L. Garner, 1918).—Plane coordinates: (N), $x=2,2180,54.94$ feet; $y=526,329.06$ feet; the grid azimuth to station *Bethune G* = $236^{\circ}32'08''$.

Bethune E (Chesterfield County, C. L. Garner, 1918).—About 2.5 miles south of railway station in McBee, on Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of west rail to the north and west rail to the south, 14 telegraph poles north of milepost 303 and 6.315 meters (20.72 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 8.35 meters (27.4 feet) from rail and 22.77 meters (74.7 feet) from station in azimuth $81^{\circ}06'$.

Plane coordinates: (N), $x=2,214,834.22$ feet; $y=525,904.11$ feet; the grid azimuth to station *Bethune F* = $262^{\circ}29'01''$.2.

Bethune D (Chesterfield County, C. L. Garner, 1918).—About 2 miles north of Bethune, on fill of Seaboard Air Line Railway right-of-way, in line with west rail to the north, opposite telegraph pole 211, 8 telegraph poles south of milepost

305 and about 50 meters (164 feet) northwest of Bethune mill pond. Marked by standard station disk in concrete, note 1a. In 1919 the station was reported lost.

Plane coordinates: (N), $x=2,206,094.55$ feet; $y=522,550.33$ feet; the grid azimuth to station *Bethune E* = $249^{\circ}00'21''.9$.

Bethune C (Chesterfield County, C. L. Garner, 1918).—About 2 miles north of Bethune, on fill of Seaboard Air Line Railway right-of-way, in line with east rail to the south, opposite telegraph pole 209, about 85 meters (279 feet) west of mill on Bethune mill pond, about 15 meters (49 feet) from grade post and 1.09 meters (3.6 feet) from rail. Marked by standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. In 1919 the surface mark was reported destroyed.

Plane coordinates: (N), $x=2,205,814.93$ feet; $y=522,381.28$ feet; the grid azimuth to station *Bethune D* = $238^{\circ}50'39''$.

Bethune B (Kershaw County, C. L. Garner, 1918).—About 1.5 miles north of railway station in Bethune, on Seaboard Air Line Railway right-of-way, at point of intersection of tangents of southeast rail to the southwest and southeast rail to the northeast at curve at Mieklejohn switch, south of milepost 305 and 0.25 mile from Lynches River (Kershaw-Chesterfield County line). Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 17.30 meters (56.8 feet) from station in azimuth $315^{\circ}53'$.

Plane coordinates: (N), $x=2,202,517.02$ feet; $y=519,399.55$ feet; the grid azimuth to station *Bethune C* = $227^{\circ}52'56''.7$.

Bethune A (Kershaw County, C. L. Garner, 1918).—About 0.5 mile north of railway station in Bethune, on Seaboard Air Line Railway right-of-way on edge of large cultivated field at top of grade leading north, opposite telegraph pole 154, about 50 meters (164 feet) north of north end of sidetrack and 3.69 meters (12.1 feet) east of east rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 4.23 meters (13.9 feet) from rail and 20.183 meters (66.22 feet) from station. Following distances and azimuths are from station: Church, 0.25 mile, $96^{\circ}45'09''$; church, 150 meters (492 feet), $152^{\circ}32'23''$. In 1935 station was reported lost.

Plane coordinates: (N), $x=2,197,880.59$ feet; $y=516,320.94$ feet; the grid azimuth to station *Bethune B* = $236^{\circ}24'56''.4$.

Cassatt F (Kershaw County, C. L. Garner, 1918).—About 2 miles south of Bethune Railway Station, on Seaboard Air Line Railway right-of-way, about 0.75 mile northeast of Lynches River, at point of intersection of northwest rail to the southwest and northwest rail to the northeast, 4 telegraph poles south of northwest end of railway spur leading to Lynches River Lumber Company logging camp, about 50 meters (164 feet) south of road crossing leading to lumber camp, and 1.260 meters (4.13 feet) from rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting a little above concrete, note 7d.

Plane coordinates: (N), $x=2,188,077.18$ feet; $y=509,873.56$ feet; the grid azimuth to station *Bethune* = $235^{\circ}18'03''.0$.

Cassatt E (Kershaw County, C. L. Garner, 1918).—About 2.5 miles south of railway station in Bethune, outside of Seaboard Air Line Railway right-of-way, at point of intersection of tangents of northwest rail to the southwest and northwest rail to the northeast, on edge of cornfield about 250 meters (820 feet) southwest of railway bridge crossing Lynches River, 20.515 meters (67.31 feet) east of east rail and 5 feet southeast of highway. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 7.917 meters (35.97 feet) from rail and 15.61 meters (51.2 feet) from station in azimuth $192^{\circ}37'$.

Plane coordinates: (N), $x=2,184,546.58$ feet; $y=507,004.67$ feet; the grid azimuth to station *Cassatt F* = $230^{\circ}54'12''.3$.

Cassatt D (Kershaw County, C. L. Garner, 1918).—About 2 miles north of railway station in Cassatt, outside of Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of northwest rail to the southwest and northwest rail to the northeast, at first curve south of milepost 310, in cultivated field and 70.075 meters (229.90 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard

disk in concrete, note 11c, is 38.40 meters (126.0 feet) from rail and 31.675 meters (103.92 feet) from station in azimuth $348^{\circ}30'$.

Plane coordinates: (N), $x=2,179,127.73$ feet; $y=506,225.70$ feet; the grid azimuth to station *Cassatt E* = $261^{\circ}49'10''.8$.

Cassatt C (Kershaw County, C. L. Garner, 1918).—About 1.5 miles north of *Cassatt Railway Station*, on Seaboard Air Line Railway right-of-way, at point of intersection of southeast rail to the southwest and northwest rail to the northeast, 5 telegraph poles north of milepost 311, 7.89 meters (25.9 feet) east of east rail, and 3 feet south of large black burnt stump. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. In 1934 the monument was found out of place near its original location. It was put back into place.

Plane coordinates: (N), $x=2,177,499.55$ feet; $y=504,517.05$ feet; the grid azimuth to station *Cassatt D* = $223^{\circ}37'06''.7$.

Cassatt B (Kershaw County, C. L. Garner, 1918).—About 1 mile north of railway station in *Cassatt*, on Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of west rail to the south and east rail to the north, in small scrub-oak thicket, 8 telegraph poles south of milepost 311 and 19.719 meters (64.69 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 7.255 meters (23.80 feet) from rail and 12.473 meters (40.92 feet) from station in azimuth $317^{\circ}48'$.

Plane coordinates: (N), $x=2,175,579.07$ feet; $y=503,680.88$ feet; the grid azimuth to station *Cassatt C* = $246^{\circ}28'18''.7$.

Cassatt A (Kershaw County, C. L. Garner, 1918; 1919).—About 450 meters (1,476 feet) northwest of railway station in *Cassatt*, a few feet outside Seaboard Air Line Railway right-of-way, on edge of cultivated field, at point of intersection of prolongation of northward tangent to curve of west rail and southward tangent to curve of east rail, 630 meters (2,067 feet) north of milepost 313, 295 meters (968 feet) south of north end of *Cassatt sidetrack* and 22.12 meters (72.6 feet) east of east rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 5.51 meters (18.1 feet) from rail and 22.644 meters (74.29 feet) from station in azimuth $239^{\circ}28'$.

Plane coordinates: (N), $x=2,171,678.73$ feet; $y=497,515.31$ feet; the grid azimuth to station *Cassatt B* = $212^{\circ}19'26''.7$.

Shepard I (Kershaw County, C. L. Garner, 1918).—About 0.25 mile south of *Cassatt*, on Seaboard Air Line Railway right-of-way, on east rail at kilometer mark, 5 rails south of road crossing and 0.3 meter (1 foot) from south end of fifth rail from crossing. A rail station.

Plane coordinates: (N), $x=2,169,267.34$ feet; $y=496,018.42$ feet; the grid azimuth to station *Cassatt A* = $238^{\circ}10'11''.0$.

Shepard H (Kershaw County, C. L. Garner, 1918; 1919).—At first curve south of railway station in *Cassatt*, on Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of east rail, 400 meters (1,312 feet) north of milepost 314 and 11.62 meters (38.1 feet) east of east rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 9.14 meters (30.0 feet) east of east rail and 15.15 meters (49.7 feet) from station in azimuth $77^{\circ}40'$.

Plane coordinates: (N), $x=2,166,481.15$ feet; $y=494,286.80$ feet; the grid azimuth to station *Shepard I* = $238^{\circ}08'20''.4$.

Shepard G (Kershaw County, C. L. Garner, 1918; 1919).—About 2 miles south of railway station in *Cassatt*, on Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangent to east rail, at first curve about 300 meters (984 feet) north of milepost 315, and 10.88 meters (35.7 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 9.62 meters (31.6 feet) west of west rail and 30.42 meters (99.8 feet) from station in azimuth $252^{\circ}49'$.

Plane coordinates: (N), $x=2,160,932.32$ feet; $y=492,964.82$ feet; the grid azimuth to station *Shepard H* = $256^{\circ}35'57''.8$

Shepard F (Kershaw County, C. L. Garner, 1918; 1919).—About 2.5 miles south of railway station in *Cassatt*, on Seaboard Air Line Railway right-of-way,

at point of intersection of prolongation of tangents of west rail from the south and east rail from the north, at first curve about 500 meters (1,640 feet) south of milepost 315 and 2.13 meters (7.0 feet) east of east rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 2.84 meters (9.3 feet) east of east rail and 27.81 meters (91.2 feet) from station in azimuth $247^{\circ}50'$.

Plane coordinates: (N), $x=2,158,771.10$ feet; $y=491,870.82$ feet; the grid azimuth to station *Shepard G* = $243^{\circ}09'06''.0$.

Shepard E (Kershaw County, C. L. Garner, 1918; 1919).—About 3 miles south of railway station at Cassatt, on Seaboard Air Line Railway right-of-way, about 70 meters (230 feet) south of point of tangency of west rail of curve at milepost 316, 45 meters (148 feet) south of milepost 316, 15 meters (49 feet) north of railway water tank, and 1.38 meters (4.5 feet) west of west rail of track. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting a little above concrete, note 7d.

Plane coordinates: (N), $x=2,155,117.66$ feet; $y=490,732.35$ feet; the grid azimuth to station *Shepard F* = $252^{\circ}42'23''.2$.

Shepard D (Kershaw County, C. L. Garner, 1918; 1919).—About 3 miles south of railway station at Cassatt, on Seaboard Air Line Railway right-of-way, at first curve south of milepost 316, on prolongation of tangent of west rail from the south, about 200 meters (656 feet) south of milepost 316, 150 meters (492 feet) south of railway water tank, 50 meters (164 feet) north of point of tangency, and 2.31 meters (7.6 feet) west of west rail. Station is marked by nail driven in a 2- by 4-inch stub set in concrete.

Plane coordinates: (N), $x=2,154,536.48$ feet; $y=490,427.34$ feet; the grid azimuth to station *Shepard E* = $242^{\circ}13'54''$.

Shepard C (Kershaw County, C. L. Garner, 1918; 1919).—About 3 miles north of railway station in Shepard, on Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of east rail from the south and west rail from the north, about 190 meters (623 feet) north of milepost 317, 50 meters (164 feet) north of public road crossing and 17.75 meters (58.2 feet) east of east rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, bench mark M 3 (U. S. C. & G. S.), is 3.40 meters (11.2 feet) east of east rail and 34.24 meters (112.3 feet) from station in azimuth $94^{\circ}26'$.

Plane coordinates: (N), $x=2,151,528.33$ feet; $y=488,003.88$ feet; the grid azimuth to station *Shepard D* = $231^{\circ}08'38''.4$.

Shepard B (Kershaw County, C. L. Garner, 1918).—At first curve north of railway station in Shepard, on Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangent of east rail, in scrub-oak thicket about 600 meters (1,968 feet) south of milepost 318 and 47.36 meters (155.4 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 20.07 meters (65.8 feet) west of west rail, about 15 meters (49 feet) south of tall burnt pine and 27.40 meters (89.9 feet) from station in azimuth $347^{\circ}35'$.

Plane coordinates: (N), $x=2,143,901.35$ feet; $y=487,119.99$ feet; the grid azimuth to station *Shepard C* = $263^{\circ}23'22''.2$.

Shepard A (Kershaw County, C. L. Garner, 1918).—About 600 meters (1,968 feet) north of railway station in Shepard, on Seaboard Air Line Railway right-of-way, about 350 meters (1,148 feet) south of milepost 319, 75 meters (246 feet) south of more northerly switch-stand in Shepard and 5.53 meters (18.1 feet) east of east rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is at edge of oak thicket, 13.25 meters (43.5 feet) east of east rail and 26.59 meters (87.2 feet) from station in azimuth $29^{\circ}26'$.

Plane coordinates: (N), $x=2,140,277.70$ feet; $y=483,611.47$ feet; the grid azimuth to station *Shepard B* = $225^{\circ}55'29''.3$.

Camden E (Kershaw County, C. L. Garner, 1918; 1919).—At first curve south of Shepard on Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of west rail from the south and east rail from the north, about 200 meters (656 feet) south of milepost 321, and 14.22 meters (46.7 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete,

note 7d. Reference mark, standard disk in concrete, note 11c, is 17.91 meters (58.8 feet) west of west rail, 3 feet north of a tall pine, and 20.10 meters (65.9 feet) from station in azimuth $209^{\circ}54'$.

Plane coordinates: (N), $x=2,133,116.08$ feet; $y=476,749.28$ feet; the grid azimuth to station *Shepard* = $225^{\circ}29'36''.2$.

Camden D (Kershaw County, C. L. Garner, 1918; 1919).—About 2 miles south of railway station in Shepard, on Seaboard Air Line Railway right-of-way, at intersection of prolongation of east rail from the south and west rail from the north, about 250 meters (820 feet) north of milepost 322 and 3.62 meters (11.9 feet) east of east rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, bench mark K 3 (U. S. C. & G. S.), is 10.07 meters (33.0 feet) west of west rail and 18.25 meters (59.9 feet) from station in azimuth $82^{\circ}19'$.

Plane coordinates: (N), $x=2,131,516.71$ feet; $y=473,330.13$ feet; the grid azimuth to station *Camden E* = $205^{\circ}04'07''.3$.

Camden C (Kershaw County, C. L. Garner, 1918; 1919).—About 2.75 miles south of railway station in Shepard, on Seaboard Air Line Railway right-of-way, at intersection of prolongations of east rail, about 750 meters (2,460 feet) north of milepost 323, 6.57 meters (21.6 feet) east of east rail and about 3 feet above rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is on sand mound, 12.30 meters (40.4 feet) east of east rail, about 2.5 meters (8 feet) above rail and 31.93 meters (104.8 feet) from station in azimuth $232^{\circ}27'$.

Plane coordinates: (N), $x=2,129,416.51$ feet; $y=470,334.95$ feet; the grid azimuth to station *Camden D* = $215^{\circ}02'16''.4$.

Camden B (Kershaw County, C. L. Garner, 1918).—About 4 miles north of railway station in Camden, outside Seaboard Air Line Railway right-of-way, at point of intersection of southwest tangent of southeast rail and northeast tangent of southeast rail of only curve between milepost 323 and 324, and 11.81 meters (38.7 feet) from rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 11.92 meters (39.1 feet) from rail and 39.83 meters (130.7 feet) from station in azimuth $223^{\circ}56'$.

Plane coordinates: (N), $x=2,126,707.53$ feet; $y=468,232.40$ feet; the grid azimuth to station *Camden C* = $232^{\circ}11'00''.6$.

Camden A (Kershaw County, C. L. Garner, 1918).—About 3 miles north of railway station in Camden, on Seaboard Air Line Railway right-of-way, at point of intersection of southwest tangent of northwest rail and northeast tangent of southeast rail, about 100 meters (328 feet) southwest of milepost 324 and 33.28 meters (109.2 feet) east of east rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 20.48 meters (67.2 feet) from rail and 24.63 meters (80.8 feet) from station in azimuth $81^{\circ}34'$. Smoke stack, City Power Plant, Camden, is 0.75 mile from station in azimuth $68^{\circ}30'13''.5$.

Plane coordinates: (N), $x=2,124,287.71$ feet; $y=464,401.15$ feet; the grid azimuth to station *Camden B* = $212^{\circ}16'35''.5$.

Lugoff J (Kershaw County, C. L. Garner, 1918).—About 1.5 miles northeast of railway station in Camden, on Seaboard Air Line Railway right-of-way, about 100 meters (328 feet) southwest of point of tangency, between first and second telegraph poles southwest of second road crossing southwest of milepost 325, 6.175 meters (20.26 feet) west of west rail and 4.5 feet from edge of bank of railway cut. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 8.393 meters (27.54 feet) from rail and 59.54 meters (195.3 feet) from station in azimuth $63^{\circ}43'$. Following azimuths are from station: Camden, Kirkwood Hotel, northwest chimney, $20^{\circ}27'40''$; Camden, brick stack, city water plant, $252^{\circ}40'32''$; Camden, peak of standpipe, city water tank, $275^{\circ}35'22''$.

Plane coordinates: (N), $x=2,117,636.89$ feet; $y=461,966.36$ feet; the grid azimuth to station *Camden A* = $249^{\circ}53'34''.4$.

Lugoff I (Kershaw County, C. L. Garner, 1918).—About 0.33 mile northeast of railway station in Camden, near Seaboard Air Line Railway right-of-way, on prolongation of tangent of west rail, 125 meters (410 feet) north of milepost 326,

110 meters (361 feet) north of railway viaduct and 75.05 meters (246.2 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 17.95 meters (58.9 feet) from rail and 49.55 meters (162.6 feet) from station in azimuth $243^{\circ}30'$. Following distance and azimuths are from station: Peak, city standpipe, Camden, $246^{\circ}53'19''$; Camden, Kirkwood Hotel, northwest chimney, about 250 meters (820 feet), $255^{\circ}01'34''$.

Plane coordinates: (N), $x=2,115,867.04$ feet; $y=459,845.51$ feet; the grid azimuth to station *Lugoff J* = $219^{\circ}50'42''.0$.

Lugoff H (Kershaw County, C. L. Garner, 1918).—At railway station in Camden, on Seaboard Air Line Railway right-of-way, 35.4 meters (116 feet) east of east rail, 32.44 meters (106.4 feet) east of east edge of gutter at northeast corner of gutter at northeast corner of railway depot and 18.77 meters (61.6 feet) east of east corner of railway depot. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 29.58 meters (97.0 feet) from station in azimuth $322^{\circ}15'$.

Plane coordinates: (N), $x=2,116,531.05$ feet; $y=457,139.90$ feet; the grid azimuth to station *Lugoff I* = $166^{\circ}12'39''.7$.

Lugoff G (Kershaw County, C. L. Garner, 1918).—About 0.25 mile southwest of railway station at Camden, on Seaboard Air Line Railway right-of-way, at prolongation of east rail to the south, eight telegraph poles north of milepost 327, and 8.815 meters (28.92 feet) from rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 9.19 meters (30.2 feet) from rail and 29.063 meters (95.35 feet) from station in azimuth $51^{\circ}33'$.

Plane coordinates: (N), $x=2,115,743.84$ feet; $y=455,849.24$ feet; the grid azimuth to station *Lugoff H* = $211^{\circ}22'48''.7$.

Lugoff F (Kershaw County, C. L. Garner, 1918).—About 1 mile southwest of railway station in Camden, on Seaboard Air Line Railway right-of-way, about 10 telegraph poles northeast of milepost 328, 8.815 meters (28.92 feet) east of east rail and 4.5 feet from edge of bank of cut. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 9.085 meters (29.81 feet) from rail and 21.21 meters (69.6 feet) from station in azimuth $246^{\circ}42'$.

Plane coordinates: (N), $x=2,111,444.68$ feet; $y=453,388.36$ feet; the grid azimuth to station *Lugoff G* = $240^{\circ}12'46''.0$.

Lugoff E (Kershaw County, C. L. Garner, 1918).—About 1.5 miles south of railway station in Camden, on Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of east rail to the south and east rail to the north, 8.2 meters (27 feet) from northeast corner of milepost 328 and 1.95 meters (6.4 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 3.45 meters (11.3 feet) from rail and 28.47 meters (93.4 feet) from station in azimuth $39^{\circ}30'$.

Plane coordinates: (N), $x=2,109,834.37$ feet; $y=452,494.26$ feet; the grid azimuth to station *Lugoff I'* = $240^{\circ}57'34''.0$.

Lugoff D (Kershaw County, C. L. Garner, 1918).—On Seaboard Air Line Railway right-of-way, at curve just north of Lugoff Railway Station, at point of intersection of east rail, about 5 meters (16 feet) almost due east of milepost 329 and 0.80 meter (2.6 feet) east of east rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d.

Plane coordinates: (N), $x=2,105,801.84$ feet; $y=449,024.92$ feet; the grid azimuth to station *Lugoff E* = $229^{\circ}17'36''.0$.

Lugoff C (Kershaw County, C. L. Garner, 1918; 1935).—About 0.75 mile northeast of railway station at Lugoff, on Seaboard Air Line Railway right-of-way, 15 telegraph poles southwest of milepost 329, 4.42 meters (14.5 feet) west of west rail and 4.5 feet from west edge of cut. In 1935 surface mark was reported lost due to ditching operations. The underground mark, apparently a $\frac{3}{16}$ -inch inverted bolt, was not disturbed. Reference mark, standard disk in concrete,

note 11c, is 5.27 meters (17.3 feet) from rail and 43.99 meters (144.3 feet) from station in azimuth $54^{\circ}19'$.

Plane coordinates: (N), $x=2,104,164.47$ feet; $y=447,823.40$ feet; the grid azimuth to station *Lugoff D* = $233^{\circ}43'42''.1$.

Lugoff B (Kershaw County, C. L. Garner, 1918).—About 1.25 miles southwest of railway station in Lugoff, on Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of east rail to the south and east rail to the north, 56 rails northeast of milepost 332 and 11.8 meters (39 feet) east of east rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 23.21 meters (76.1 feet) from station in azimuth $244^{\circ}14'$.

Plane coordinates: (N), $x=2,094,652.48$ feet; $y=440,676.43$ feet; the grid azimuth to station *Lugoff C* = $233^{\circ}04'48''.4$.

Lugoff A (Kershaw County, C. L. Garner, 1918).—About 2 miles south of railway station in Lugoff, on Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of east rail from the north and west rail from the south, at first curve north of milepost 333 and about 150 meters (492 feet) east of rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is on prolongation of tangent of west rail from the south, and 13.87 meters (45.5 feet) from station in azimuth $133^{\circ}06'$.

Plane coordinates: (N), $x=2,089,439.79$ feet; $y=438,892.44$ feet; the grid azimuth to station *Lugoff B* = $251^{\circ}06'25''.2$.

Blaney H (Kershaw County, C. L. Garner, 1918).—About 2.5 miles southwest of railway station in Lugoff, outside Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of southeast rail to the southwest and northwest rail to the northeast, between third and fourth telegraph poles southwest of milepost 333, and 38.27 meters (125.6 feet) northwest of northwest rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 26.74 meters (87.7 feet) from station in azimuth $85^{\circ}43'$. In 1919 station was reported lost.

Plane coordinates: (N), $x=2,087,697.82$ feet; $y=440,481.81$ feet; the grid azimuth to station *Lugoff A* = $312^{\circ}22'38''.1$.

Blaney G (Kershaw County, C. L. Garner, 1918).—About 5.75 miles northeast of railway station in Blaney, outside Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of southeast rail to the southwest and northwest rail to the northeast, opposite seventh telegraph pole northeast of milepost 334, and 126.55 meters (415.2 feet) northwest of rail. Surface mark is standard disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 25.72 meters (84.4 feet) from station in azimuth $46^{\circ}00'$.

Plane coordinates: (N), $x=2,084,274.76$ feet; $y=440,352.08$ feet; the grid azimuth to station *Blaney H* = $267^{\circ}49'46''.5$.

Blaney F (Kershaw County, C. L. Garner, 1918).—About 5 miles northeast of Blaney Railway Station, on edge of roadbed of Seaboard Air Line Railway right-of-way, 15 telegraph poles northeast of milepost 335, at point of intersection of prolongation of tangent of northwest rail to the southwest and southeast rail to the northeast, and 2.25 meters (7.4 feet) northwest of northwest rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting a little above concrete, note 7d.

Plane coordinates: (N), $x=2,081,075.25$ feet; $y=437,244.41$ feet; the grid azimuth to station *Blaney G* = $225^{\circ}50'03''.2$.

Blaney E (Kershaw County, C. L. Garner, 1918; 1919).—About 4 miles northeast of railway station in Blaney, on Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of southeast rail to the southwest and northwest rail to the northeast, 24 rails south of milepost 335 and 1.04 meters (3.4 feet) northwest of northwest rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, bench mark C 3 (U. S. C. & G. S.), is 35.52 meters (116.5 feet) from station in azimuth $208^{\circ}01'$.

Plane coordinates: (N), $x=2,079,262.19$ feet; $y=434,735.82$ feet; the grid azimuth to station *Blaney F* = $215^{\circ}51'25''.8$.

For notes in regard to marking of stations see p. 57.

Blaney D (Kershaw County, C. L. Garner, 1918; 1919).—About 3 miles north-east of railway station in Blaney, a few feet outside Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of northwest rail to southwest and southeast rail to northeast, $6\frac{1}{2}$ rails southwest of milepost 336 and 36.88 meters (121.0 feet) southeast of southeast rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 26.65 meters (87.4 feet) from station in azimuth $146^{\circ}42'$.

Plane coordinates: (N), $x=2,076,995.98$ feet; $y=430,557.89$ feet; the grid azimuth to station *Blaney E* = $208^{\circ}28'35''$.3.

Blaney C (Kershaw County, C. L. Garner, 1918; 1919).—About 2.25 miles north of Blaney Railway Station, on Seaboard Air Line Railway right-of-way, about 0.75 mile north of second curve from railway station, on highest point between curve and *Blaney D*, about 200 meters (656 feet) southeast of an old shack with tall pine tree in yard, 50 meters (164 feet) south of railway crossing and 7.21 meters (23.7 feet) west of west rail of track. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting a little above concrete, note 7d.

Plane coordinates: (N), $x=2,073,674.05$ feet; $y=429,240.34$ feet; the grid azimuth to station *Blaney D* = $248^{\circ}21'56''$.3.

Blaney B (Kershaw County, C. L. Garner, 1918; 1919).—About 1.5 miles north of railway station in Blaney, on Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of west rail to the south and east rail to the north, $8\frac{1}{2}$ rails northeast of railway crossing in front of John Albert's residence, and 7.01 meters (23.0 feet) east of east rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 17.51 meters (57.4 feet) from rail and 23.51 meters (77.1 feet) from station in azimuth $282^{\circ}32'$.

Plane coordinates: (N), $x=2,069,909.35$ feet; $y=427,680.76$ feet; the grid azimuth to station *Blaney C* = $247^{\circ}29'51''$.1.

Blaney A (Kershaw County, C. L. Garner, 1918).—About 0.5 mile north of railway station in Blaney, on Seaboard Air Line Railway right-of-way, on first curve between second and third telegraph poles north of Blaney whistle post, at point of intersection of prolongation of tangents of east rail to the south and west rail to the north, and 13.43 meters (44.1 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 11.19 meters (36.7 feet) west of rail and 19.87 meters (65.2 feet) from station in azimuth $64^{\circ}57'$.

Plane coordinates: (N), $x=2,064,129.02$ feet; $y=427,269.59$ feet; the grid azimuth to station *Blaney B* = $265^{\circ}55'52''$.5.

Pontiac J (Kershaw County, C. L. Garner, 1918).—On main line of Seaboard Air Line Railway, at first curve south of Blaney, at intersection of prolongation of tangents to east rail, about 400 meters (1,312 feet) south of milepost 339 and 5.54 meters (18.2 feet) east of east rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark is standard disk in irregular mass of concrete, note 11c, is on top of fill, 8.94 meters (29.3 feet) east of east rail, about 3 meters (10 feet) above top of rail, and 23.13 meters (75.9 feet) from station in azimuth $253^{\circ}15'$.

Plane coordinates: (N), $x=2,059,406.81$ feet; $y=424,633.93$ feet; the grid azimuth to station *Blaney E* = $241^{\circ}47'39''$.8.

Pontiac I (Kershaw County, C. L. Garner, 1918).—On main line of Seaboard Air Line Railway, at second curve south of Blaney, at point of intersection of tangents to east rail, about 35 meters (115 feet) north of milepost 340 and 30.20 meters (99.1 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark, is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 21.50 meters (70.5 feet) west of west rail and 22.49 meters (73.8 feet) from station in azimuth $41^{\circ}31'$.

Plane coordinates: (N), $x=2,057,442.31$ feet; $y=424,052.38$ feet; the grid azimuth to station *Pontiac J* = $253^{\circ}30'34''$.9.

Pontiac H (Kershaw County, C. L. Garner, 1918).—On main line of Seaboard Air Line Railway between Pontiac and Blaney, at curve opposite milepost 341,

at intersection of prolongations of tangents of west rail from the south and east rail from the north, and 5.24 meters (17.2 feet) east of east rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark is bench mark Z 2 (U. S. C. & G. S.), 3.13 meters (10.3 feet) west of west rail and 14.67 meters (48.1 feet) from station in azimuth $90^{\circ}10'$.

Plane coordinates: (N), $x=2,053,912.42$ feet; $y=420,063.40$ feet; the grid azimuth to station *Pontiac I* = $221^{\circ}30'21''$.4.

Pontiac G (Kershaw County, C. L. Garner, 1918).—On main line of Seaboard Air Line Railway between Pontiac and Blaney, at second curve north of milepost 342, at intersection of prolongation of tangents of west rail from the north and east rail from the south, 12 meters (39 feet) west of west rail and about 5 meters (16 feet) above roadbed on top of bank. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark is standard disk in irregular mass of concrete, note 11c, is 15 meters (49 feet) west of west rail and 19.95 meters (65.5 feet) from station in azimuth $251^{\circ}02'$.

Plane coordinates: (N), $x=2,051,323.81$ feet; $y=418,251.27$ feet; the grid azimuth to station *Pontiac H* = $235^{\circ}00'23''$.2.

Pontiac F (Kershaw County, C. L. Garner, 1918).—About 2 miles north of Pontiac, on main line of Seaboard Air Line Railway, at first curve north of milepost 342, at point of intersection of east rail, on same level with rail, and 6.25 meters (20.5 feet) east of east rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d.

Plane coordinates: (N), $x=2,050,757.13$ feet; $y=417,195.30$ feet; the grid azimuth to station *Pontiac G* = $208^{\circ}13'11''$.9.

Pontiac E (Richland County, C. L. Garner, 1918).—About 1.5 miles north of Pontiac, on main line of Seaboard Air Line Railway right-of-way, at second curve north of milepost 343, at point of intersection of east rail, and 17.10 meters (56.1 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 11.27 meters (37.0 feet) west of west rail and 19.29 meters (63.3 feet) from station in azimuth $9^{\circ}17'$.

Plane coordinates: (N), $x=2,049,296.15$ feet; $y=415,708.27$ feet; the grid azimuth to station *Pontiac F* = $224^{\circ}29'37''$.4.

Pontiac D (Richland County, C. L. Garner, 1918).—On main line of Seaboard Air Line Railway between Pontiac and Blaney, opposite first curve north of milepost 343, at point of intersection of east rail, 60 meters (197 feet) west of west rail, and in field about 3 meters (10 feet) below roadbed. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark is standard disk in irregular mass of concrete, note 11c, is 30 meters (98 feet) west of west rail and 29.87 meters (98.0 feet) from station in azimuth $132^{\circ}55'$.

Plane coordinates: (N), $x=2,048,705.32$ feet; $y=412,837.32$ feet; the grid azimuth to station *Pontiac E* = $191^{\circ}37'44''$.0.

Pontiac C (Richland County, C. L. Garner, 1918).—About 0.25 mile north of Pontiac, on main line of Seaboard Air Line Railway, at first curve south of milepost 343, at intersection of prolongation of tangents of east rail from the north and west rail from the south and 3.33 meters (10.9 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d.

Plane coordinates: (N), $x=2,046,826.82$ feet; $y=412,266.39$ feet; the grid azimuth to station *Pontiac D* = $253^{\circ}05'40''$.1.

Pontiac B (Richland County, C. L. Garner, 1918).—About 350 meters (1,148 feet) north of Pontiac, on main line of Seaboard Air Line Railway, at first curve north of milepost 344, at point of intersection of west rail, 12.42 meters (40.7 feet) east of east rail and about 7 meters (23 feet) west of center line of highway leading from Columbia to Camden. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark is standard disk in irregular mass of concrete, note 11c, is 9.32 meters (30.6 feet) east of east rail and 25.13 meters (82.4 feet) from station in azimuth $277^{\circ}51'$.

Plane coordinates: (N), $x=2,044,762.52$ feet; $y=411,076.23$ feet; the grid azimuth to station *Pontiac C* = $240^{\circ}02'04''$.8.

Pontiac A (Richland County, C. L. Garner, 1918).—On main line of Seaboard Air Line Railway between Pontiac and Weddell, at first curve north of milepost 345, at intersection of prolongation of tangents of east rail from the south and west rail from the north, and about 40 meters (131 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark is standard disk in irregular mass of concrete, note 11c, is 13.81 meters (45.3 feet) west of west rail and 31.43 meters (103.1 feet) from station in azimuth $15^{\circ}18'$.

Plane coordinates: (N), $x=2,039,569.67$ feet; $y=410,593.82$ feet; the grid azimuth to station *Pontiac B* = $264^{\circ}41'33''.1$.

Weddell E (Richland County, C. L. Garner, 1918; 1919).—About 1.7 miles south of railway station at Pontiac, on Seaboard Air Line Railway right-of-way, at first curve north of milepost 346, on prolongation of east rail from the south, about 50 meters (164 feet) north of point of tangency, 12 meters (39 feet) west of highway leading from Columbia to Camden, and 1.52 meters (5.0 feet) east of east rail of track. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting a little above concrete, note 7d.

Plane coordinates: (N), $x=2,035,263.00$ feet; $y=406,544.16$ feet; the grid azimuth to station *Pontiac B* = $235^{\circ}23'04''.8$.

Weddell D (Richland County, C. L. Garner, 1918; 1919).—About 2.67 miles north of railway station in Weddell, on Seaboard Air Line Railway right-of-way, at first curve north of milepost 347, about 30 meters (98 feet) north of road crossing and 8.36 meters (27.4 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 5.91 meters (19.4 feet) from east rail and 28.80 meters (94.5 feet) from station in azimuth $268^{\circ}51'$.

Plane coordinates: (N), $x=2,031,695.68$ feet; $y=404,732.98$ feet; the grid azimuth to station *Weddell E* = $243^{\circ}04'56''.8$.

Weddell C (Richland County, C. L. Garner, 1918; 1919).—About 2 miles north of railway station in Weddell, on Seaboard Air Line Railway right-of-way, at point of intersection of tangents to east rail, at second curve north of milepost 348, 23.51 meters (77.1 feet) east of east rail and about 7 meters (23 feet) east of Columbia-Camden highway. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, bench mark W 2 (U. S. C. & G. S.), is 5.05 meters (16.6 feet) east of east rail and 18.04 meters (59.2 feet) from station in azimuth $153^{\circ}54'$.

Plane coordinates: (N), $x=2,029,341.50$ feet; $y=402,474.85$ feet; the grid azimuth to station *Weddell D* = $226^{\circ}11'34''.8$.

Weddell B (Richland County, C. L. Garner, 1918; 1919).—About 1.3 miles north of railway station at Weddell, on Seaboard Air Line Railway right-of-way, at first curve north of milepost 348, at intersection of prolongation of tangents of west rail from the south and east rail from the north, and 8.28 meters (27.2 feet) from west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 9.71 meters (31.9 feet) from west rail, 3 feet above roadbed, about 3 feet from telephone pole, and 36.50 meters (119.8 feet) from station.

Plane coordinates: (N), $x=2,026,070.91$ feet; $y=400,939.87$ feet; the grid azimuth to station *Weddell C* = $244^{\circ}51'28''.8$.

Weddell A (Richland County, C. L. Garner, 1918; 1919).—About 1.33 miles north of railway station in Weddell, on Seaboard Air Line Railway right-of-way, about 75 meters (246 feet) north of point of tangency on prolongation of tangent of west rail from the south, at first curve about 220 yards north of milepost 348, 180 meters (591 feet) north of private road crossing and 5.22 meters (17.1 feet) west of rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is on bank 9.71 meters (31.9 feet) west of rail, 3 feet above roadbed, 3 feet from telephone pole and 12.90 meters (42.3 feet) from station in azimuth $171^{\circ}28'$.

Plane coordinates: (N), $x=2,026,009.93$ feet; $y=400,886.68$ feet; the grid azimuth to station *Weddell B* = $228^{\circ}54'$.

For notes in regard to marking of stations see p. 57.

Nob H (Richland County, C. L. Garner, 1918; 1919).—About 0.75 mile north of railway station in Weddell, on Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of east rail from the south and west rail from the north, at first curve north of milepost 349, and 3.89 meters (12.8 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 10.91 meters (35.8 feet) from west rail, 3 feet from telegraph pole and 45.84 meters (150.4 feet) from station in azimuth $216^{\circ}02'$.

Plane coordinates: (N), $x=2,023,551.18$ feet; $y=398,741.38$ feet; the grid azimuth to station *Weddell A* = $228^{\circ}53'41''.2$.

Nob G Prime (Richland County, C. L. Garner, 1918).—About 50 meters (164 feet) south of railway station at Weddell, on Seaboard Air Line Railway right-of-way, at point of intersection of prolongation of tangents of east rail of curve, 41.40 meters (135.8 feet) east of milepost 349 and 17.49 meters (57.4 feet) east of east rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, bench mark V 2 (U. S. C. & G. S.), is 49.32 meters (161.8 feet) from station in azimuth $207^{\circ}03'$.

Plane coordinates: (N), $x=2,021,547.67$ feet; $y=395,724.35$ feet; the grid azimuth to station *Nob H* = $213^{\circ}35'12''.6$.

Nob G (Richland County, M. E. Lutz, 1918).—About 10 miles north of Columbia, on Seaboard Air Line Railway right-of-way, at curve about 700 meters (2,297 feet) north of milepost 350, at intersection of tangents to curve of the east rail, 2.77 meters (9.1 feet) west of west rail and 0.5 meter (2 feet) below track level. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark is standard disk in irregular mass of concrete, note 11c, and is about the same elevation as track, 8.10 meters (26.6 feet) east of east rail and 20.64 meters (67.7 feet) from station.

Plane coordinates: (N), $x=2,019,095.91$ feet; $y=394,079.18$ feet; the grid azimuth to station *Nob G Prime* = $236^{\circ}08'15''.9$.

Nob F (Richland County, M. E. Lutz, 1918).—About 1.25 miles south of Weddell railway station and at second curve about 0.75 mile north of Dentsville railway station, on Seaboard Air Line Railway right-of-way, at intersection of tangents to curve of the east rail of main track, and 2.44 meters (8.0 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, a piece of rail standing upright and projecting 2 feet above ground with concrete about the base, is 9.91 meters (32.5 feet) west of west rail, and 12.31 meters (40.4 feet) from station.

Plane coordinates: (N), $x=2,015,647.54$ feet; $y=390,388.70$ feet; the grid azimuth to station *Nob G* = $223^{\circ}03'27''.3$.

Nob E (Richland County, M. E. Lutz, 1918).—About 9 miles north of Columbia railway station, on Seaboard Air Line Railway right-of-way, at curve about 250 meters (820 feet) north of milepost 351, at intersection of prolongation of southward tangent to the curve of west rail and northward tangent to the curve of east rail, about 5 meters (16 feet) east of east rail and 2.5 meters (8 feet) below track level. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark is standard disk in irregular mass of concrete, note 11c, is 21.09 meters (69.2 feet) east of east rail, about the same elevation as tracks, and 31.32 meters (102.8 feet) from station.

Plane coordinates: (N), $x=2,014,795.12$ feet; $y=389,009.88$ feet; the grid azimuth to station *Nob F* = $211^{\circ}43'31''.3$.

Nob D (Richland County, M. E. Lutz, 1918).—About 8 miles north of Columbia on Seaboard Air Line Railway right-of-way, at curve at Dentsville railway station at intersection of prolongation of southward tangent to curve of the east rail and northward tangent to curve of the west rail, about 5 meters (16 feet) west of west rail and 4.5 meters (14.8 feet) below track level. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, bench mark U 2 (U. S. C. & G. S.), is 110 meters (361 feet) from station.

Plane coordinates: (N), $x=2,012,978.05$ feet; $y=387,447.67$ feet; the grid azimuth to station *Nob E* = $229^{\circ}18'46''.8$.

Nob C (Richland County, M. E. Lutz, 1918).—About 8 miles north of Columbia Railway Station, on Seaboard Air Line Railway right-of-way, at curve about 520

meters (1706 feet) north of milepost 352, at intersection of tangents to curve of the east rail of main track, 10.27 meters (33.7 feet) east of east rail and 2 meters (7 feet) above track level. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark is standard disk in irregular mass of concrete, note 11c, is 12.96 meters (42.5 feet) east of east rail, about 2.5 meters (8 feet) above track level, and 19.17 meters (62.9 feet) from station.

Plane coordinates: (N), $x=2,011,991.13$ feet; $y=385,637.20$ feet; the grid azimuth to station *Nob D* = $208^{\circ}35'44''.2$.

Nob B (Richland County, M. E. Lutz, 1918).—About 7.5 miles north of Columbia, on Seaboard Air Line Railway right-of-way, at first curve 0.5 mile north of milepost 353, on cultivated land at intersection of tangents to curve of the east rail, and 22.05 meters (72.3 feet) east of east rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is on prolongation of southward tangent of curve of east rail, 27.5 meters (90 feet) east of east rail, about 1 meter (3 feet) below track level, and 16.77 meters (55.0 feet) from station.

Plane coordinates: (N), $x=2,009,216.82$ feet; $y=382,898.08$ feet; the grid azimuth to station *Nob C* = $225^{\circ}21'56''.5$.

Nob A (Richland County, M. E. Lutz, 1918).—About 7 miles north of Columbia Railway Station, on Seaboard Air Line Railway right-of-way, at curve about 200 meters (656 feet) south of milepost 353, at intersection of tangents to curve of the east rail of main track and about 4 meters (13 feet) above track. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark is standard disk in irregular mass of concrete, note 11c, and is on east bank of railway cut at curve, about 20 meters (66 feet) east of east rail, 4 meters (13 feet) above track level, and 31.45 meters (103.2 feet) from station.

Plane coordinates: (N), $x=2,005,292.31$ feet; $y=382,272.57$ feet; the grid azimuth to station *Nob B* = $260^{\circ}56'38''.6$.

Richland (Richland County, M. E. Lutz, 1918; 1919).—About 5 miles north of Columbia, on Seaboard Air Line Railway right-of-way, at first curve about 1,250 meters (4,101 feet) north of milepost 355, about 300 meters (984 feet) north of Southern Railway crossing, at intersection of prolongation of northward tangent to curve of the east rail and the southward tangent to curve of west rail, about 40 meters (131 feet) west of west rail and 3 meters (10 feet) below track level. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d.

Plane coordinates: (N), $x=2,000,199.84$ feet; $y=384,434.77$ feet; the grid azimuth to station *Richland A* = $276^{\circ}05'00''.5$.

Richland A (Richland County, M. E. Lutz, 1918; 1919).—About 6 miles north of Columbia Railway Station, on Seaboard Air Line Railway right-of-way, at intersection of prolongation of southward tangent to curve of east rail and northward tangent to curve of west rail, about 330 meters (1,083 feet) north of milepost 354, and 18.09 meters (59.4 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 8.52 meters (28.0 feet) west of west rail of main track, 0.5 meter (2 feet) south of first telegraph pole north of station, and 24.59 meters (80.7 feet) from station.

Plane coordinates: (N), $x=2,002,524.07$ feet; $y=384,187.06$ feet; the grid azimuth to station *Nob A* = $304^{\circ}40'02''.6$.

Jackson (Richland County, M. E. Lutz, 1918).—On highest part of hill about 0.25 mile south of base hospital at Camp Jackson, Columbia. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 9.83 meters (32.3 feet) from station in azimuth $265^{\circ}03'$. Water tank Z-601 is 8.63 meters (28.3 feet) from station in azimuth $226^{\circ}42'$. In 1921 the station was reported to have been removed and later replaced approximately by the United States Engineers. In 1934 *Jackson 2* (see description thereof) was established in about the same location as station.

Plane coordinates: (N), $x=2,023,849.17$ feet; $y=371,311.21$ feet; the grid azimuth to station *Columbia* = $80^{\circ}14'15''.2$.

Hyatts (Richland County, M. E. Lutz, 1918).—About 600 meters (1,968 feet) north of railway station at Hyatts, on Seaboard Air Line Railway right-of-way,

at curve about 150 meters (492 feet) south of milepost 355, at intersection of tangents to curve of west rail of main track, and 2.12 meters (7.0 feet) west of west rail. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, bench mark T 2 (U. S. C. & G. S.), is 200 meters (656 feet) from station.

Plane coordinates: (N), $x=1,996,149.64$ feet; $y=382,219.67$ feet; the grid azimuth to station *Richland* = $241^{\circ}19'30''$.9.

College (Richland County, M. E. Lutz, 1918).—About 3 miles north of railway station at Columbia, just west of Seaboard Air Line Railway right-of-way, at curve about 200 meters (656 feet) north of milepost 357, at intersection of tangents to curve of west rail of main track, about 30 meters (98 feet) west of track and 2 meters (7 feet) below track level. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is about 170 meters (558 feet) north of milepost 357, 5.37 meters (17.6 feet) east of east rail of track, 1 meter (3 feet) from private road crossing, and 46.08 meters (151.2 feet) from station.

Plane coordinates: (N), $x=1,988,369.39$ feet; $y=376,931.41$ feet; the grid azimuth to station *Hyatts* = $235^{\circ}47'45''$.4.

Elmwood C (Richland County, M. E. Lutz, 1918).—About 3 miles north of Columbia, on Seaboard Air Line Railway right-of-way, at curve about 700 meters (2,297 feet) south of milepost 357, at intersection of tangents to curve of west rail of main track and 0.4 meter (1 foot) west of east rail. Station is marked by nail driven in a 2 by 4 inch wooden stub set in concrete between rails.

Plane coordinates: (N), $x=1,987,358.43$ feet; $y=374,134.28$ feet; the grid azimuth to station *College* = $199^{\circ}52'16''$.5.

Elmwood B (Richland County, M. E. Lutz, 1918).—About 2 miles north of railway passenger station at Columbia, on Seaboard Air Line Railway right-of-way, about 70 meters (230 feet) north of milepost 358, 25 meters (82 feet) south of signboard "Yard Limit" and 1.54 meters (5.1 feet) east of east rail of main track. Surface mark is standard disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d.

Plane coordinates: (N), $x=1,986,178.32$ feet; $y=371,629.57$ feet; the grid azimuth to station *Elmwood C* = $205^{\circ}13'40''$.0.

Elmwood A (Richland County, M. E. Lutz, 1918).—About 1 mile north of railway station at Columbia, just west of Seaboard Air Line Railway right-of-way, at curve, at intersection of tangent to curve of west rail of main track, about 35 meters (115 feet) west of west rail, 20.4 meters (67 feet) from station *Elmwood* on opposite side of a public road, and 2 meters (7 feet) above track level. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark is standard disk in irregular mass of concrete, note 11c, stamped "Elmwood and A" and is 37.48 meters (123.0 feet) from station.

Plane coordinates: (N), $x=1,984,925.69$ feet; $y=369,019.81$ feet; the grid azimuth to station *Elmwood B* = $205^{\circ}38'24''$.1.

Elmwood (Richland County, M. E. Lutz, 1918).—About 1 mile north of passenger station at Columbia, just west of Seaboard Air Line Railway right-of-way, on prolongation of northward tangent to curve of west rail of main track, about 170 meters (558 feet) from point of tangency, at east side of cultivated tract and on west side of public road, 20.4 meters (67 feet) from station *Elmwood A*, and about 3 meters (10 feet) above track level. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark is standard disk in concrete, note 11c, stamped "Elmwood and A" and is 54.13 meters (177.6 feet) from station, 1.87 meters (6.1 feet) west of west rail of main track, and 0.4 meter (1 foot) south of signboard "Columbia."

Plane coordinates: (N), $x=1,984,897.38$ feet; $y=368,959.70$ feet; the grid azimuth to station *Elmwood A* = $205^{\circ}13'$.

Columbia E (Richland County, M. E. Lutz, 1918).—At Columbia, on Seaboard Air Line Railway right-of-way, about 80 meters (262 feet) north of Elmwood Avenue, at intersection of tangents to curve of west rail of main track and 0.43 meter (1.4 feet) west of east rail. Station is marked by nail driven in a 2- by 4-inch wooden stub set in concrete between rails. Reference mark, bench mark R 2 (U. S. C. & G. S.), is 77.03 meters (252.7 feet) from station.

For notes in regard to marking of stations see p. 57.

Plane coordinates: (N), $x=1,985,408.26$ feet; $y=367,987.29$ feet; the grid azimuth to station *Elmwood* = $152^{\circ}17'01''.3$.

Columbia D (Richland County, M. E. Lutz, 1918).—At Columbia, on Seaboard Air Line Railway, at north end of curve about 165 meters (541 feet) north of milepost 359, on prolongation of northward tangent to curve of west rail of main track, 60 meters (197 feet) south from an overhead road crossing and 2 meters (7 feet) west of west rail of track. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting a little above concrete, note 7d.

Plane coordinates: (N), $x=1,985,756.24$ feet; $y=367,041.27$ feet; the grid azimuth to station *Columbia E* = $159^{\circ}48'16''.8$.

Columbia C (Richland County, M. E. Lutz, 1918).—At Columbia, at curve in cut, about 0.5 mile north of railway station, on Seaboard Air Line Railway right-of-way, on prolongation of southward tangent to curve of the east rail of main track, about 25 meters (82 feet) north of milepost 359 and 2.63 meters (8.6 feet) west of west rail of track. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting a little above concrete, note 7d.

Plane coordinates: (N), $x=1,986,000.39$ feet; $y=366,666.68$ feet; the grid azimuth to station *Columbia D* = $146^{\circ}54'16''$.

Columbia B (Richland County, M. E. Lutz, 1918).—At Columbia, about 0.5 mile north of passenger depot, on Seaboard Air Line Railway right-of-way, on prolongation of northward tangent to curve of east rail of main track, about 20 meters (66 feet) south of first switch north of water tank, and 0.3 meter (1 foot) west of east rail. Station is marked by nail driven in a 2- by 4-inch wooden stub set in concrete.

Plane coordinates: (N), $x=1,986,588.99$ feet; $y=366,169.91$ feet; the grid azimuth to station *Columbia C* = $130^{\circ}09'50''$.

Columbia A (Richland County, M. E. Lutz, 1918).—About 400 meters (1,312 feet) north of railway station at Columbia, on Seaboard Air Line Railway right-of-way, at first curve, on prolongation of southward tangent to curve of west rail of main track, and 7.76 meters (25.46 feet) east of east rail of track. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting a little above concrete, note 7d. Reference mark is center of fire plug, the top of which is 2 feet above ground, and is 12.65 meters (41.5 feet) from station.

Plane coordinates: (N), $x=1,987,584.96$ feet; $y=365,606.69$ feet; the grid azimuth to station *Columbia B* = $119^{\circ}29'17''.2$.

Congaree B (Richland County, M. E. Lutz, 1918).—In Columbia, at corner of Lincoln and Lady Streets, 19.24 meters (63.1 feet) northwest of northwest corner of express room of Seaboard Air Line Railway passenger station, about 15 meters (49 feet) south of center line of Lady Street, and 7.55 meters (24.8 feet) west of west rail of main track. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, bench mark O 2 (U. S. C. & G. S.) is 65.01 meters (213.3 feet) from station.

Plane coordinates: (N), $x=1,988,106.28$ feet; $y=364,190.23$ feet; the grid azimuth to station *Columbia A* = $159^{\circ}47'38''.9$.

Congaree A (Richland County, M. E. Lutz, 1918).—About 0.5 mile south of railway station at Columbia, on Seaboard Air Line Railway right-of-way, on steel trestle about 15 meters (49 feet) south of south end of bridge. Station is marked by a scratch on west rail of track.

Plane coordinates: (N), $x=1,989,357.74$ feet; $y=360,836.38$ feet; the grid azimuth to station *Congaree B* = $159^{\circ}32'14''.6$.

Congaree (Richland County, M. E. Lutz, 1918).—About 1 mile south of railway station at Columbia, on Seaboard Air Line Railway right-of-way, at north end of first curve, on prolongation of northward tangent to curve of west rail of main track, about 30 meters (98 feet) south of south end of steel trestle, and 10 meters (33 feet) below track level. Surface mark is standard station disk in concrete, note 1a. Underground mark is glass bottle with neck projecting slightly above concrete, note 7d. Reference mark, bench mark N 2 (U. S. C. & G. S.) is 22.63 meters (74.2 feet) from station.

Plane coordinates: (N), $x=1,990,374.92$ feet; $y=358,100.22$ feet; the grid azimuth to station *Congaree A* = $159^{\circ}36'25''.7$.

Cayce D (Richland County, M. E. Lutz, 1918).—About 1 mile south of Columbia Railway Station, at curve on Seaboard Air Line Railway right-of-way,

37 meters (121 feet) north of milepost 361 and 3.42 meters (12.4 feet) east of east rail of main track. Station mark is nail driven in 2- by 4-inch wooden stub set in concrete, note 1a.

Plane coordinates: (N), $x=1,990,169.90$ feet; $y=357,494.66$ feet; the grid azimuth to station *Congaree* = $198^{\circ}42'15''$.

Cayce C (Richland County, M. E. Lutz, 1918).—About 1 mile south of Columbia Railway Station, on Seaboard Air Line Railway right-of-way, at curve, about 110 meters (361 feet) south of milepost 361, 80 meters (262 feet) north of Olympia Avenue and 2.65 meters (8.7 feet) east of east rail of main track. Station mark is nail driven in 2- by 4-inch wooden stub set in concrete, note 1a.

Plane coordinates: (N), $x=1,989,829.78$ feet; $y=357,122.51$ feet; the grid azimuth to station *Cayce D* = $222^{\circ}25'31''$.

Cayce B (Richland County, M. E. Lutz, 1918).—About 1 mile south of Columbia Railway Station, at south end of trestle across Olympia Avenue, on Seaboard Air Line Railway right-of-way at south end of curve at milepost 361 and between rails of main track and on prolongation of southward tangent to curve of west rail. Station mark is nail driven in 2- by 4-inch wooden stub set in concrete between cross ties, note 1a.

Plane coordinates: (N), $x=1,989,490.93$ feet; $y=356,971.81$ feet; the grid azimuth to station *Cayce C* = $246^{\circ}01'24''$.

Cayce A (Richland County, M. E. Lutz, 1918).—1 mile north of Cayce Railway Station, on Seaboard Air Line Railway right-of-way at curve 0.5 mile north of steel bridge across Congaree River, at intersection of prolongation of southward tangent to curve of east rail of main track and northward tangent to curve of west rail, and 12.97 meters (42.6 feet) west of west rail of track. Surface mark is standard disk in concrete, note 1a. Underground mark is glass bottle in concrete, note 7d. Reference mark, standard disk in concrete, note 11c, is 20 meters (66 feet) south of switch leading to Olympia Cotton Mill, 16.88 meters (55.4 feet) east of east rail of track and 37.77 meters (123.9 feet) from station.

Plane coordinates: (N), $x=1,987,865.53$ feet; $y=356,563.76$ feet; the grid azimuth to station *Cayce B* = $255^{\circ}54'26''.5$.

Cayce (Lexington County, M. E. Lutz, 1918).—On Seaboard Air Line and Southern Railway right-of-way, near connecting track, about 0.75 mile west of Cayce Railway Station. Seaboard Air Line main track makes large curve just east of station; storage track is on prolongation of southward tangent to this curve and station is on prolongation of northward tangent to curve of east rail. Station is about 200 meters (656 feet) east of American Agricultural Chemical Company's plant, 6 meters (20 feet) east of storage track and 3.5 meters (11 feet) above track. Surface mark is standard disk in concrete, note 1a. Underground mark is copper bolt in concrete, note 7b. Reference mark, standard disk in concrete, note 11c, is on west edge of cultivated land, 6 meters (20 feet) east of storage track, 3.5 meters (11 feet) above track, and 27.20 meters (89.2 feet) from station.

Plane coordinates: (N), $x=1,982,352.93$ feet; $y=352,838.44$ feet; the grid azimuth to station *Cayce A* = $235^{\circ}56'59''.5$.

Kid (Lexington County, M. E. Lutz, 1918).—About 1 mile south of southern limit of yard at Cayce Railway Station, on Seaboard Air Line Railway right-of-way at curve at milepost 364, at intersection of prolongation of northward tangent to curve of west rail of main track and southward tangent to curve of east rail and 20.21 meters (66.3 feet) east of east rail of track. Surface mark is standard disk, stamped "Logan," in concrete, note 1a. Underground mark is copper bolt in concrete, note 7b. Reference mark, standard disk stamped "Picardy B," in concrete, note 11c, is 8.35 meters (27.4 feet) west of west rail of track and 32.81 meters (107.64 feet) from station. In 1919 station was reported lost.

Plane coordinates: (N), $x=1,984,585.69$ feet; $y=345,594.13$ feet; the grid azimuth to station *Cayce* = $162^{\circ}52'12''.9$.

For notes in regard to marking of stations see p. 57.

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_0	497,599.22	424,761.35
$\log \frac{2\rho_0^2 \sin^2 l}{3}$	0.3731036-10	0.3732337-10

$$\text{Geodetic azimuth-grid azimuth} = + \theta - \frac{X_2 - X_1}{2\rho_0^2 \sin^2 l} (y_1 - y_0 + \frac{y_2 - y_1}{3})$$

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	08883	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 dif- ference 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	387,755.67	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 = 0r56449738 of θ)

Longi- tude	θ	Longi- tude	θ	Longi- tude	θ
78 20	+1 30 19r1748				
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 = 0756449738 of θ)

Longi- tude	θ	Longi- tude	θ	Longi- tude	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 = 0r56449738 of θ)

Longi- tude	θ			Longi- tude	θ			Longi- tude	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	37.0540	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	17.3989	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 = 0r56449738 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 20.1683	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	101.06357	+600.7	1.0001383
51	670,823.83	6,083.82	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 dif- ference of R for one second of latitude	Scale correction	
				In units of 7th place of logs	Expressed as a ratio
32 21	Feet	Feet	Feet		
	32,488,915.66	187,971.99	101.05783	-14.4	0.9999967
	482,852.19	194,035.46	05783	28.4	9935
	476,788.72	200,098.93	05783	42.1	9903
	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
	452,534.86	224,352.79	05767	93.2	9785
	446,471.40	230,416.25	05767	105.1	9758
	440,407.94	236,479.71	05767	116.6	9732
	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
	422,217.55	254,670.10	05783	148.9	9657
	416,154.08	260,733.57	05783	159.0	9634
	410,090.61	266,797.04	05783	168.7	9612
	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
	391,900.19	284,987.46	05800	195.6	9550
	385,836.71	291,050.94	05817	203.8	9531
	379,773.22	297,114.43	05833	211.7	9513
	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
	361,582.71	315,304.94	05850	233.1	9463
	355,519.20	321,368.45	05867	239.5	9449
	349,455.68	327,431.97	05883	245.5	9435
	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
	331,265.06	345,622.59	05933	261.4	9398
	325,201.50	351,686.15	05950	266.0	9388
	319,137.93	357,749.72	05967	270.2	9378
	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
	300,947.16	375,940.49	06017	280.7	9354
	294,883.55	382,004.10	06050	283.5	9347
	288,819.92	388,067.73	06067	285.9	9342
	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
	270,628.96	406,258.69	06133	290.9	9330
	264,565.28	412,322.37	06167	291.8	9328
	258,501.58	418,386.07	06183	292.4	9327
	252,437.87	424,449.78	06217	292.6	9326
33 00	32,246,374.14	430,513.51	101.06250	-292.4	0.9999327
	240,310.39	436,577.26	06283	291.9	9328
	234,246.62	442,641.03	06300	291.0	9330
	228,182.84	448,704.81	06333	289.7	9333
	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
33 06	Feet	Feet	Feet		
	32,216,055.22	460,832.43	101.06400	-286.1	0.9999341
	209,991.38	466,896.27	06433	283.8	9347
	203,927.52	472,960.13	06467	281.1	9353
	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
	179,671.87	497,215.78	06600	266.5	9386
	173,607.91	503,279.74	06650	261.9	9397
	167,543.92	509,343.73	06700	257.0	9408
	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
	149,351.80	527,535.85	06817	240.0	9447
	143,287.71	533,599.94	06850	233.6	9462
	137,223.60	539,664.05	06900	226.8	9478
	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
	119,031.10	557,856.55	07033	204.4	9529
	112,966.88	563,920.77	07083	196.2	9548
	106,902.63	569,985.02	07117	187.6	9568
	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
	088,709.71	588,177.94	07283	159.6	9633
	082,645.34	594,242.31	07333	149.5	9656
	076,580.94	600,306.71	07367	139.1	9680
	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
	058,387.56	618,500.09	07550	105.6	9757
	052,323.03	624,564.62	07600	93.7	9784
	046,258.47	630,629.18	07650	81.4	9813
	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
	028,064.59	648,823.06	07833	42.3	9903
	021,999.89	654,887.76	07900	28.6	9934
	015,935.15	660,952.50	07950	14.5	9967
	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
	31,997,740.73	679,146.92	08133	30.1	0069
	991,675.85	685,211.80	08217	45.7	0105
	985,610.92	691,276.73	08267	61.6	0142
	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
	967,415.92	709,471.73	08467	111.7	0257
	961,350.84	715,536.81	08550	129.1	0297
	955,285.71	721,601.94	08600	146.9	0338
	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 = 0r54465157 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 12.5648
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)

Longi- tude	θ			Longi- tude	θ			Longi- tude	θ		
79 46	+0	40	18.2530	80 36	+0	13	04.2983	61 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	61 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	61 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	61 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	61 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	61 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	61 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	62 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	62 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	62 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

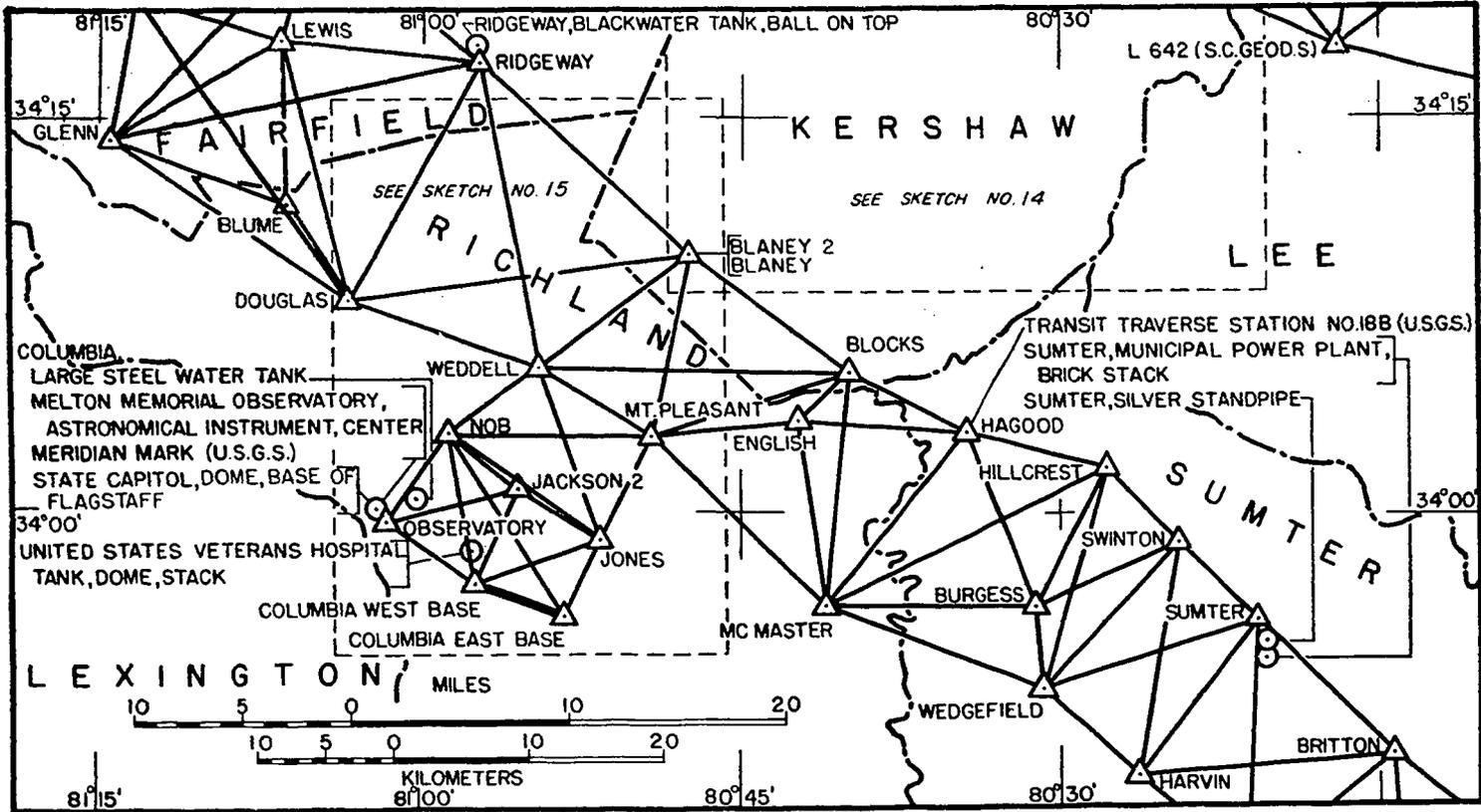


FIGURE 4.—Triangulation along the Tigerville to Georgetown arc and the Bucksport to Osceola arc.

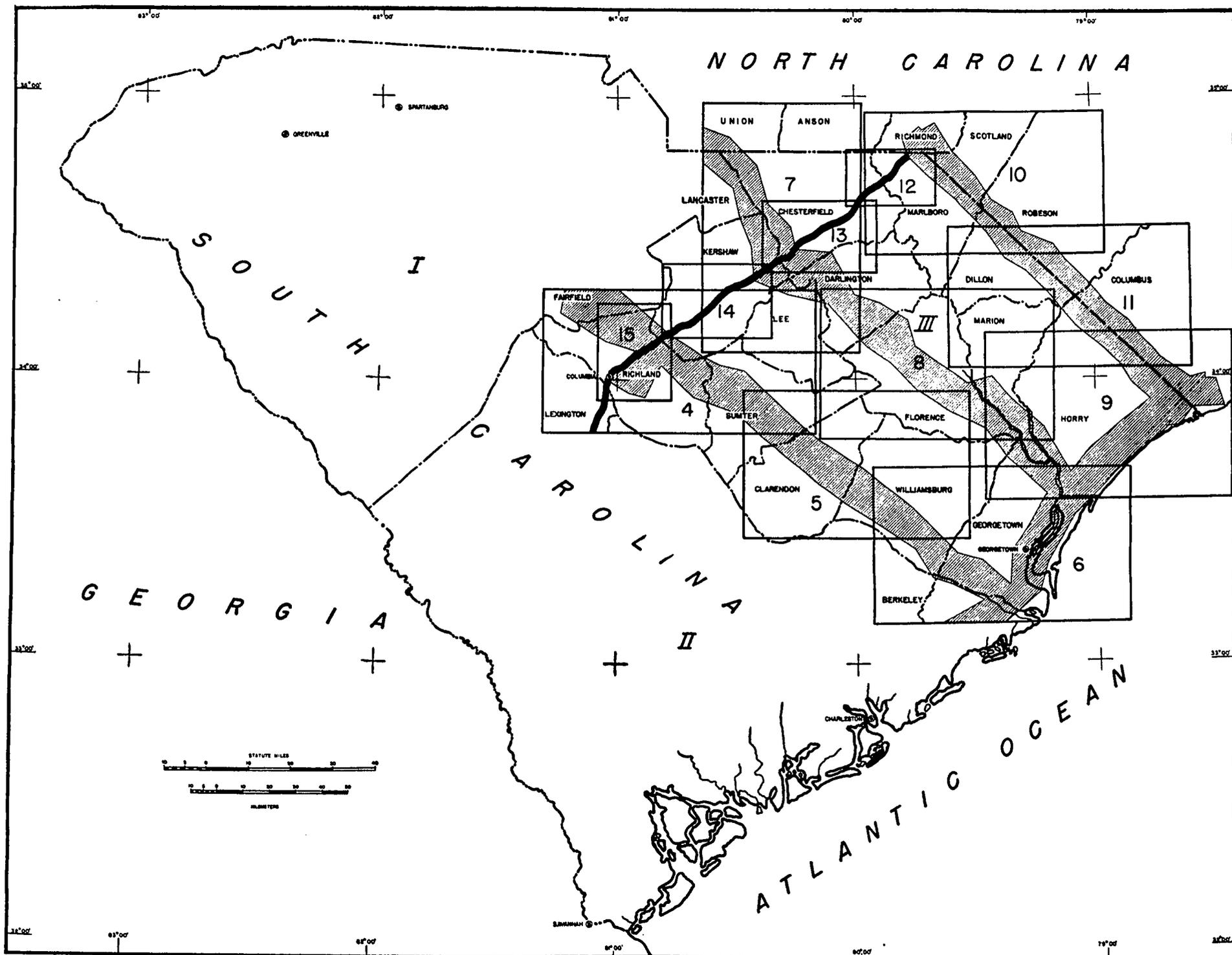


FIGURE 3.—Index map of northeastern South Carolina showing areas covered by each of the following sketches 4 to 15.

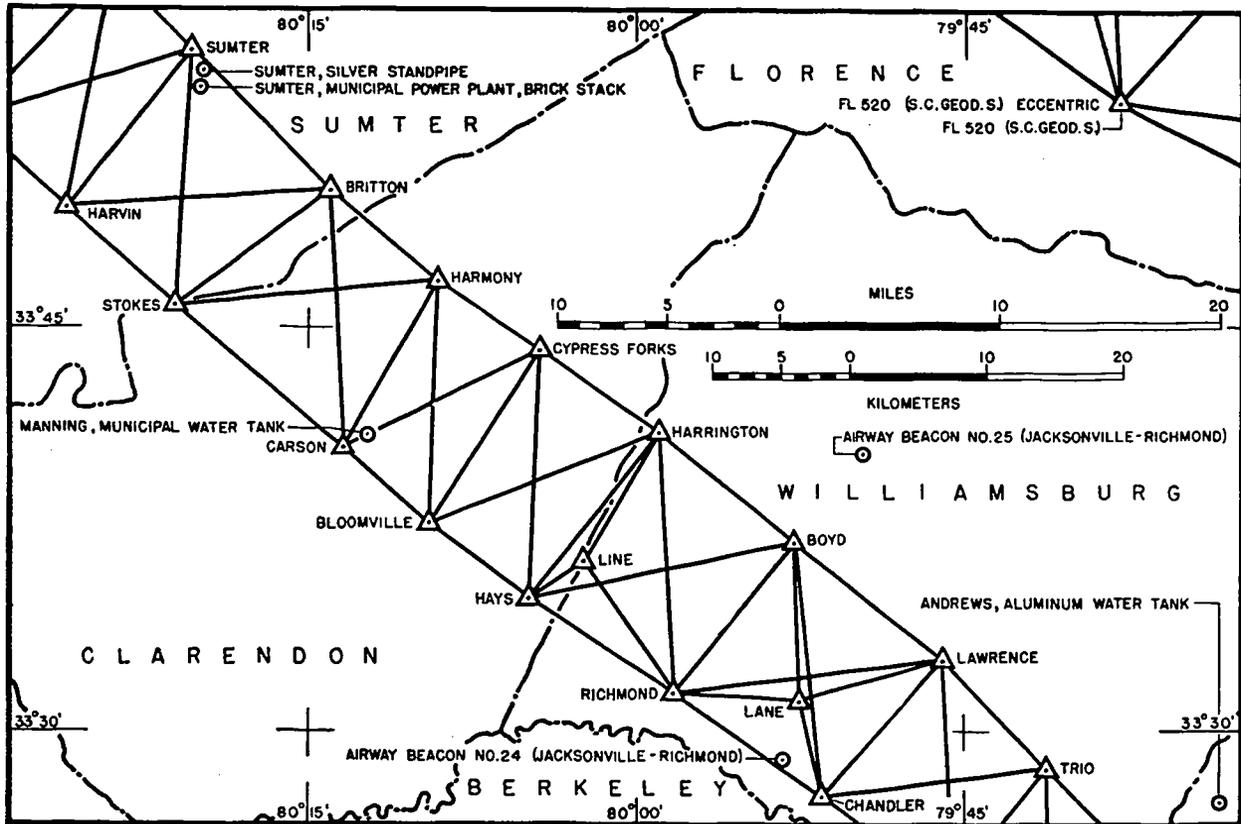


FIGURE 5.—Triangulation along the Tigerville to Georgetown arc and the Bucksport to Osceola arc.

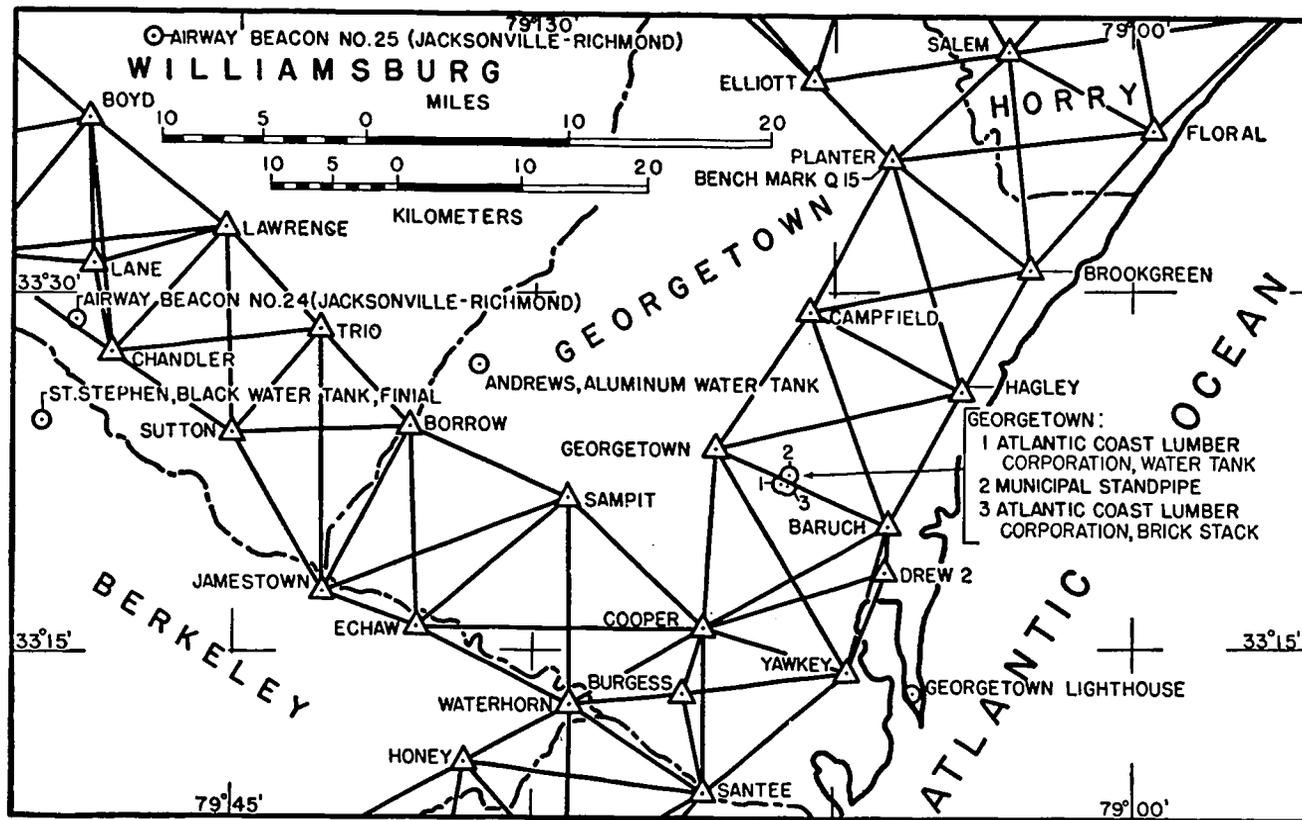


FIGURE 6.—Triangulation along the Tigerville to Georgetown arc, the Beaufort, S. C., to Jacksonville, N. C., arc, and the Bucksport to Osceola arc.

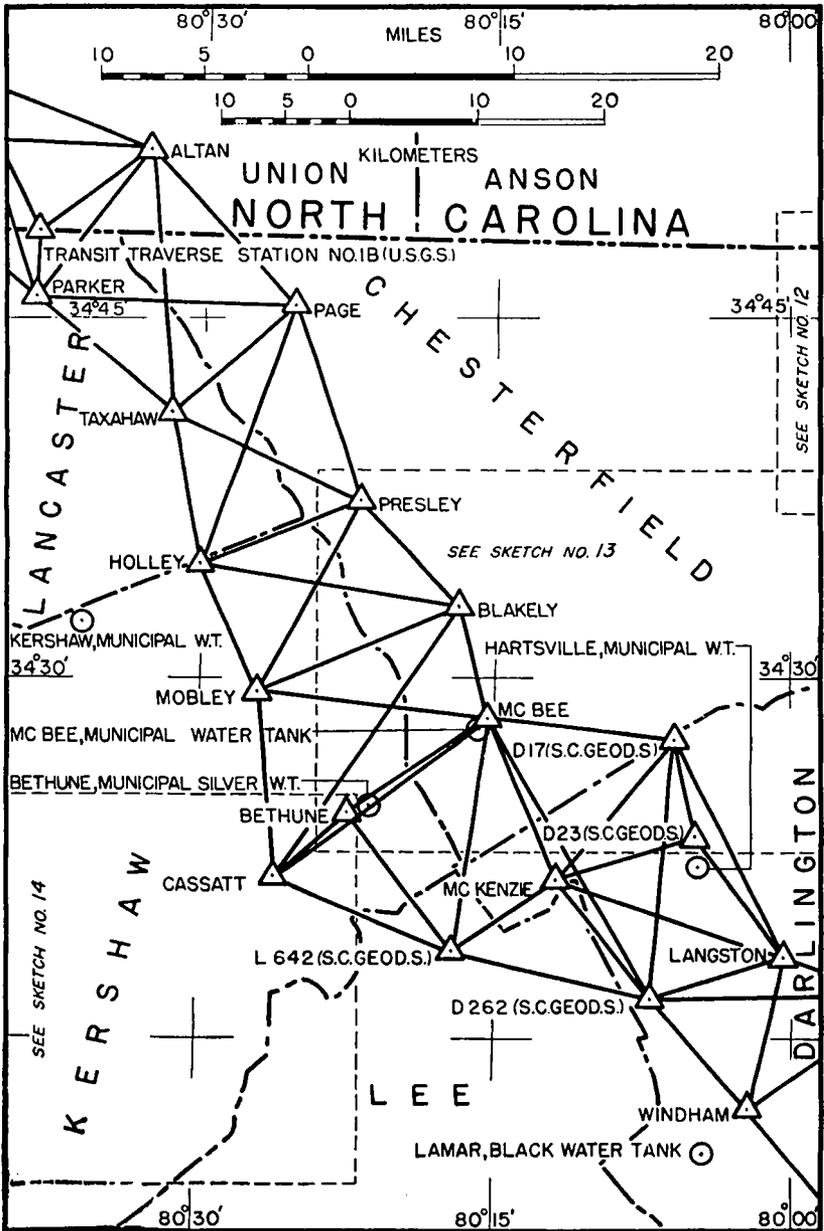


FIGURE 7.—Triangulation along the Bucksport to Osceola arc.

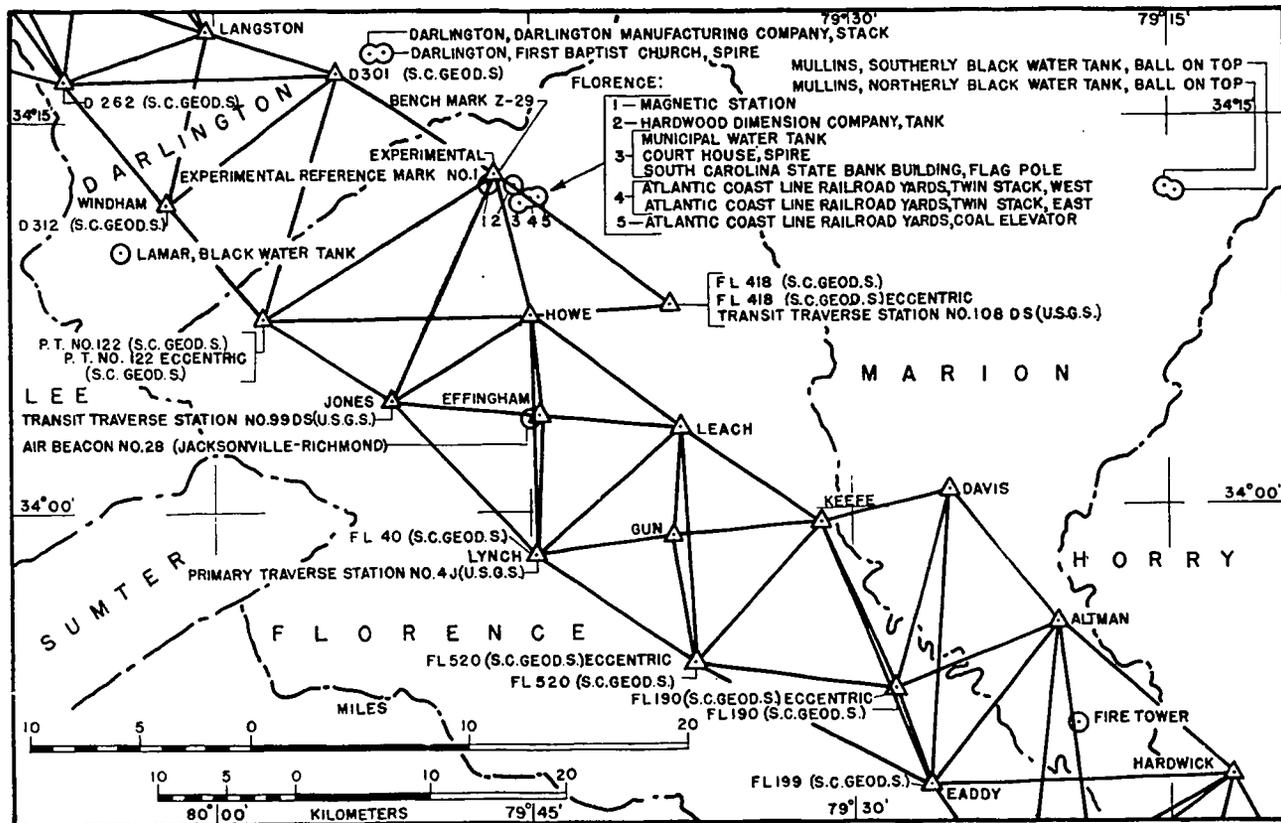


FIGURE 8.—Triangulation along the Bucksport to Osceola arc.

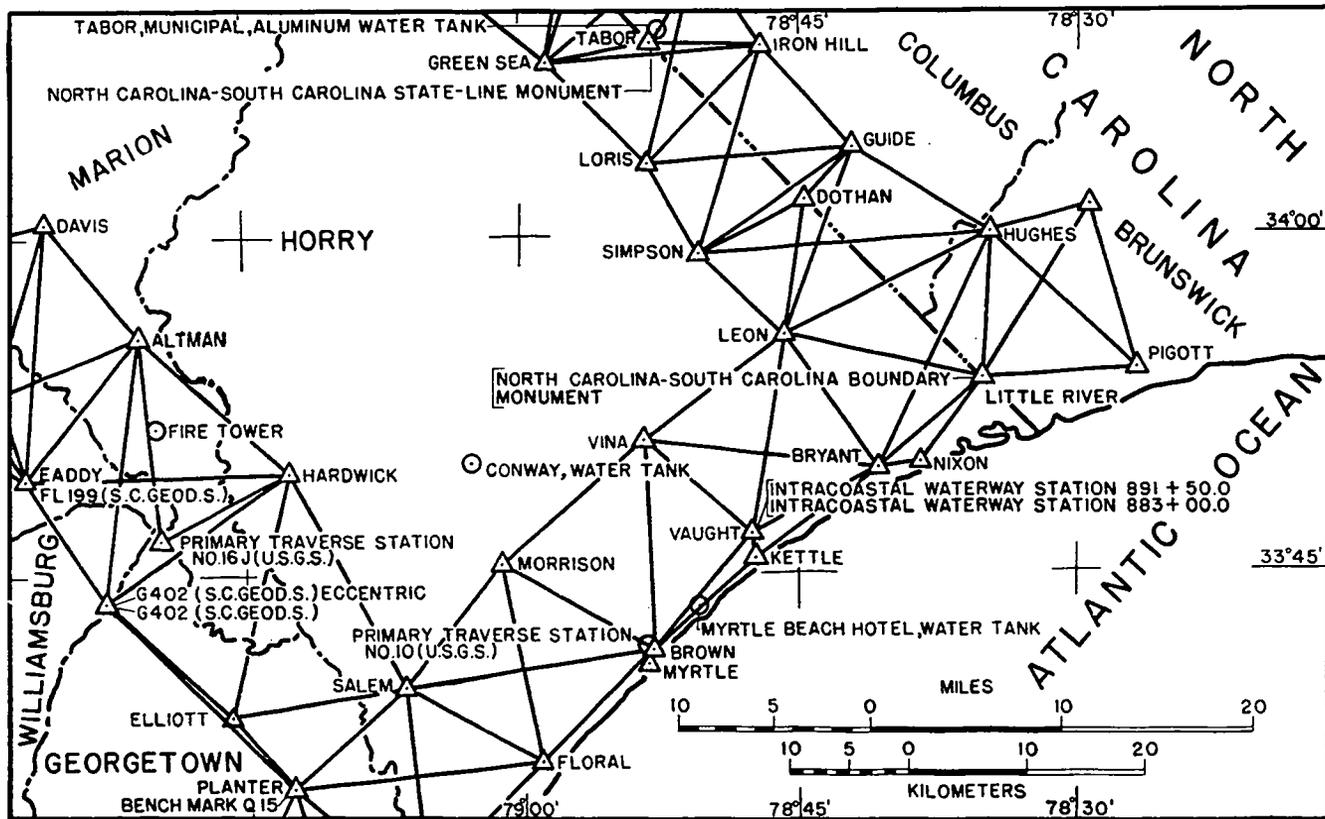


FIGURE 9.—Triangulation along the Goldsboro, N. C., to Little River, S. C., and Marietta to Lincolnton, N. C., arc, the Bucksport to Osceola arc, and the Beaufort, S. C., to Jacksonville, N. C., arc.

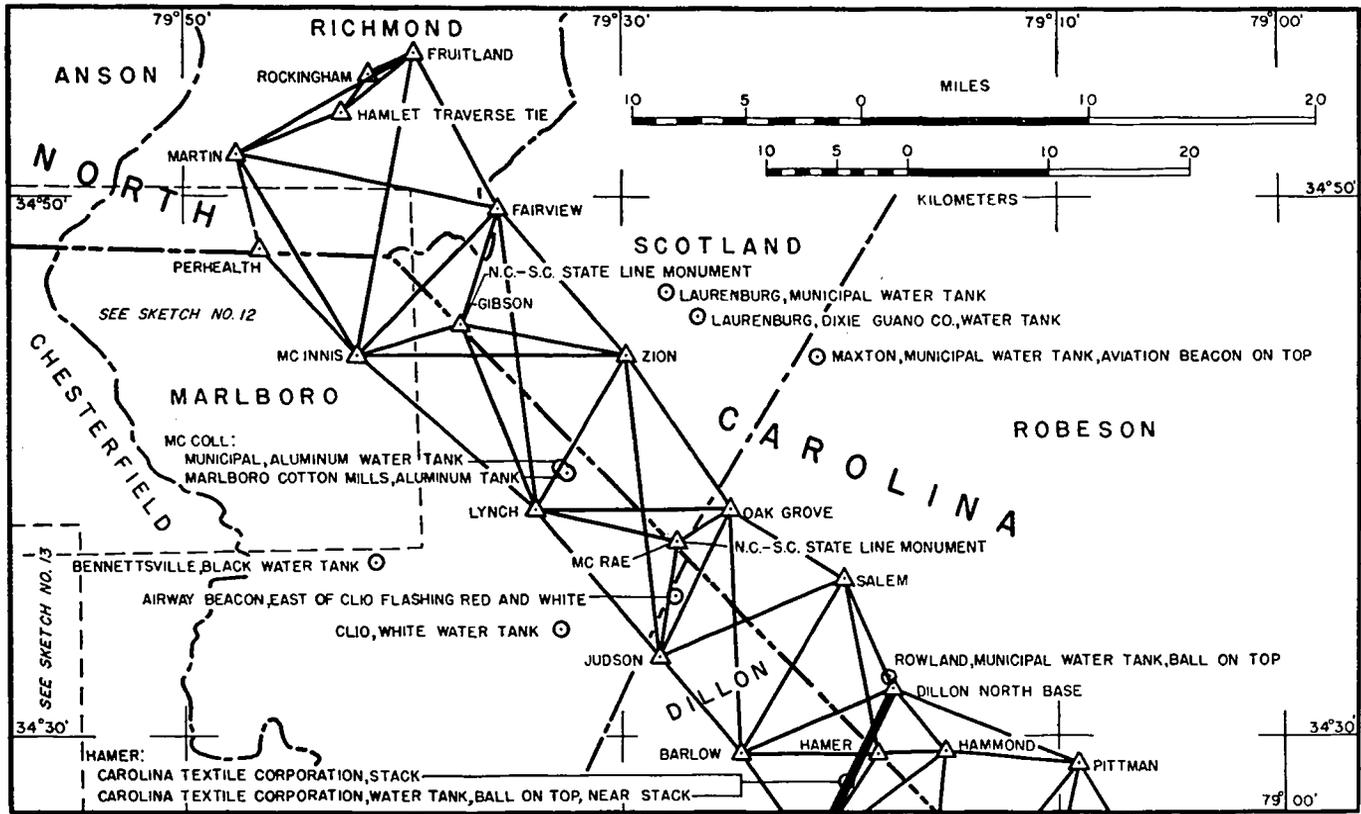


FIGURE 10.—Triangulation along the Goldsboro, N. C., to Little River, S. C., and Marietta to Lincolnton, N. C., arc.

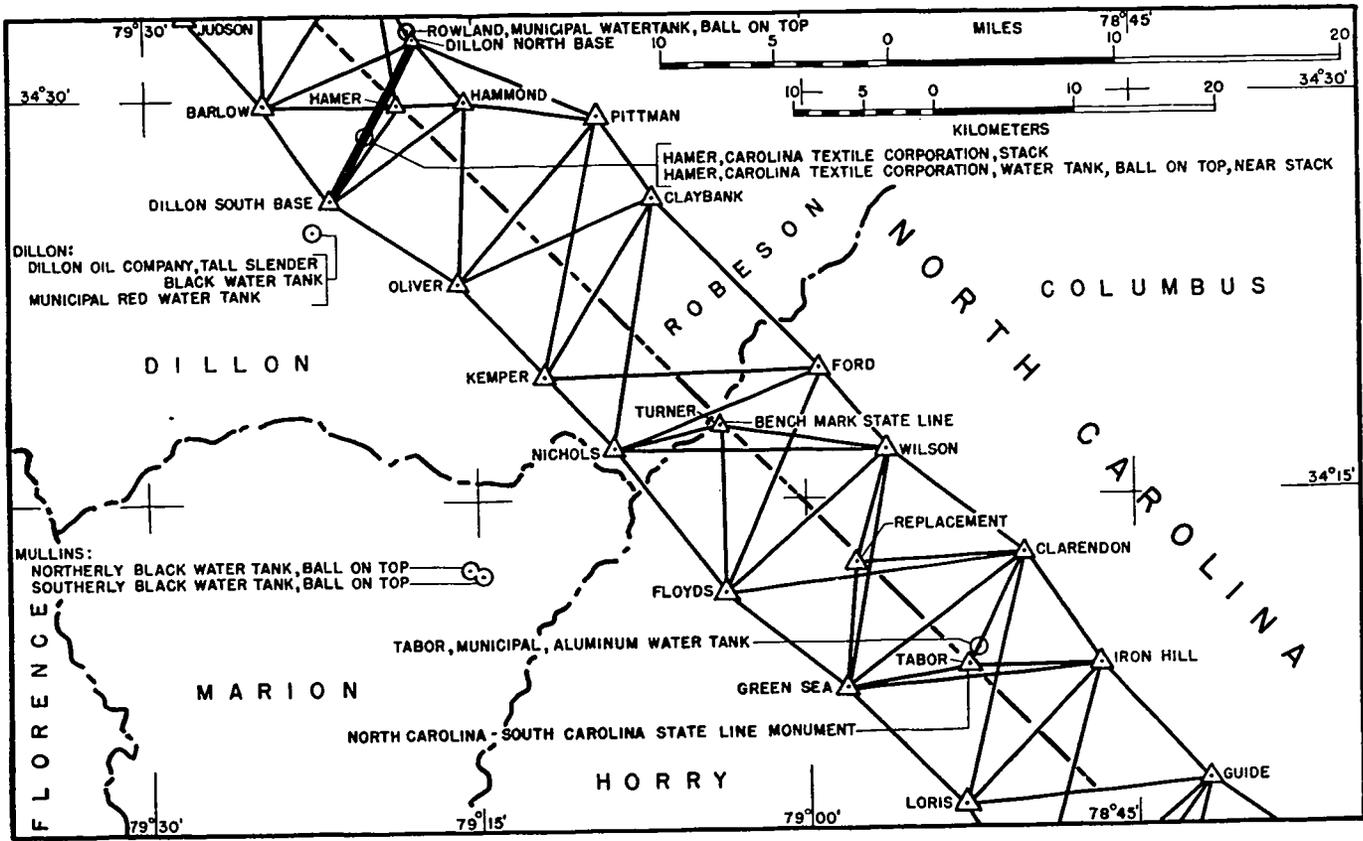


FIGURE 11.—Triangulation along the Goldsboro, N. C., to Little River, S. C., and Marietta to Lincolnton, N. C., arc.

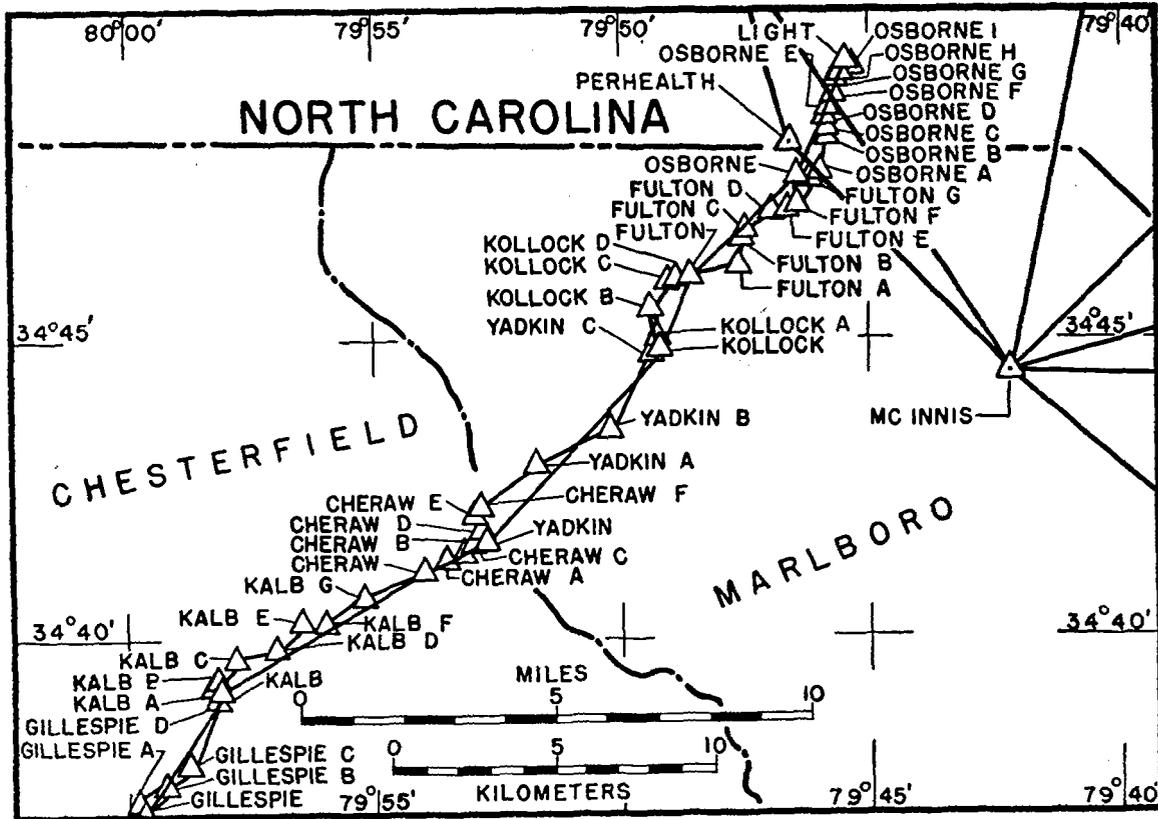


FIGURE 12.—Norfolk, Va., to Savannah, Ga., traverse and triangulation along the Goldsboro, N. C., to Little River, S. C., and Marietta to Lincoln, N. C., arc.

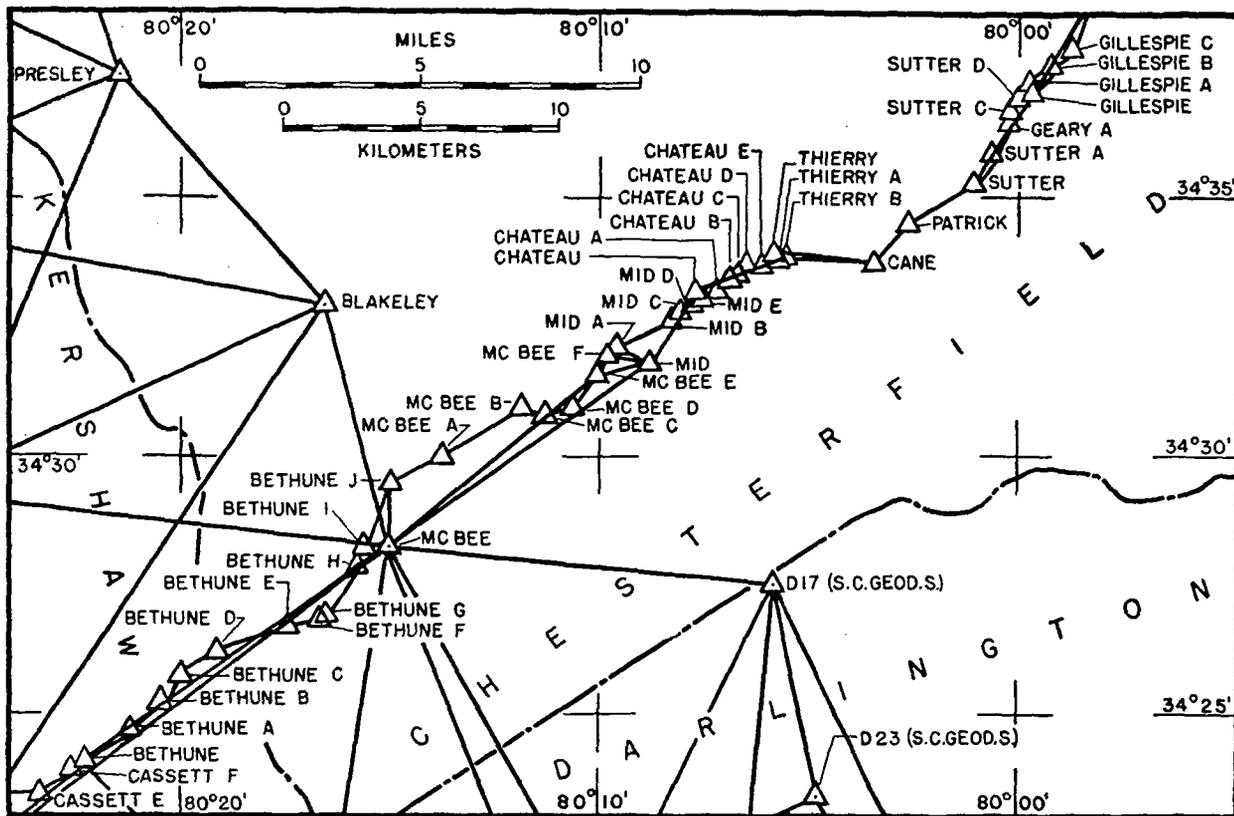


FIGURE 13.—Norfolk, Va., to Savannah, Ga., traverse, and triangulation along the Tigerville to Georgetown arc and the Bucksport to Osceola arc.

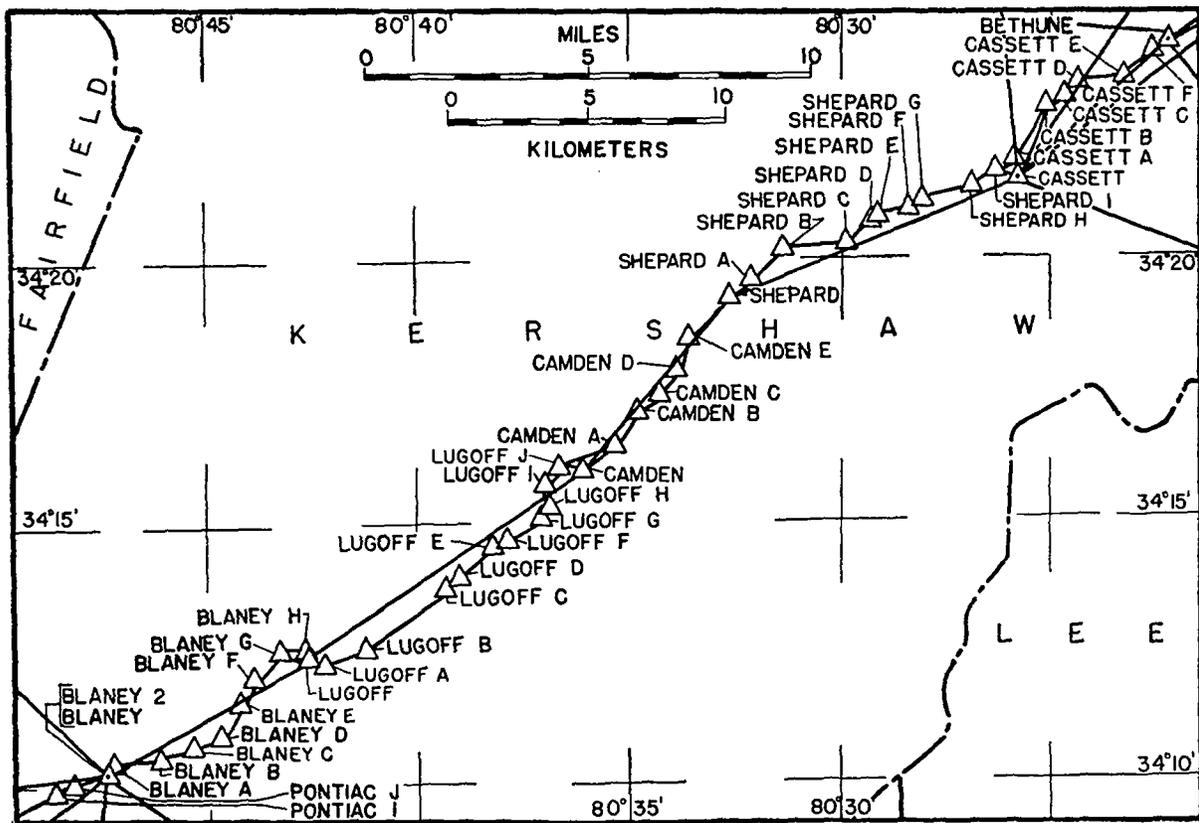


FIGURE 14.—Norfolk, Va., to Savannah, Ga., traverse, and triangulation along the Bucksport to Osceola arc.

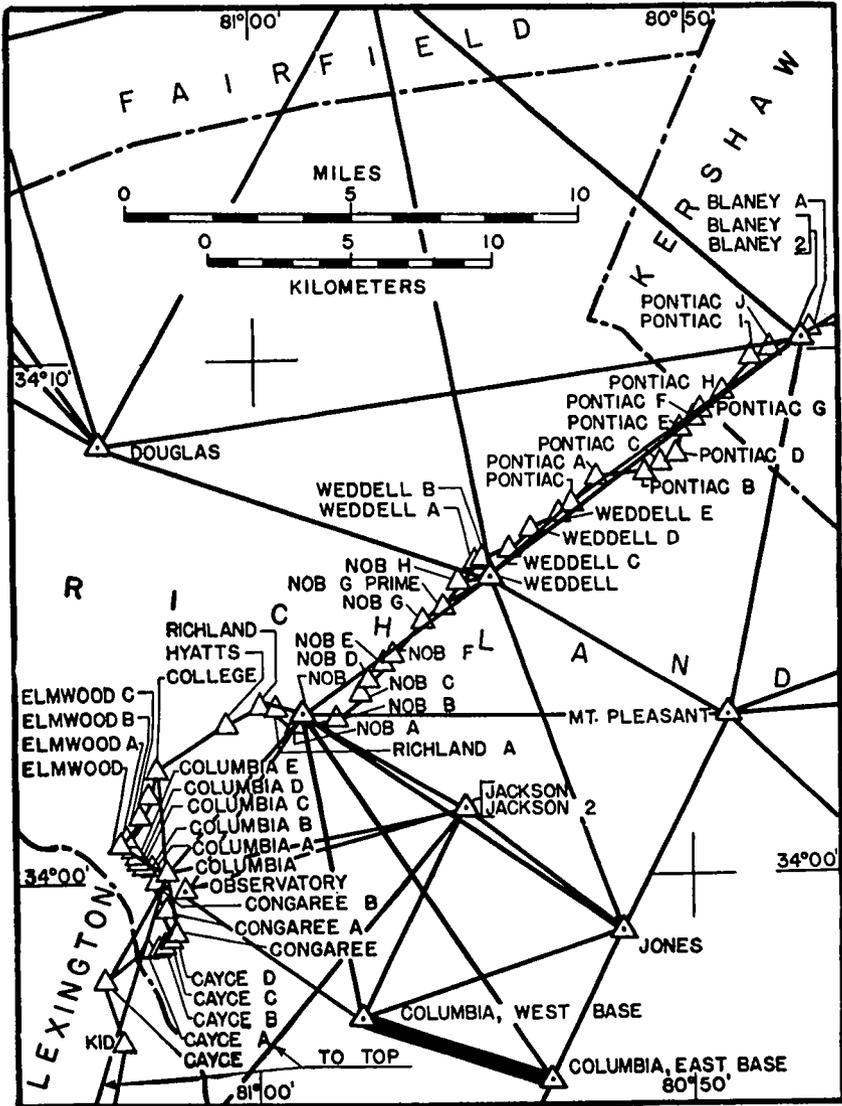


FIGURE 15.—Norfolk, Va., to Savannah, Ga., traverse, and triangulation along the Tigerville to Georgetown arc.

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Airway beacon:			
East of Clio, flashing red and white	19	83	10
No. 24 (Jacksonville-Richmond)	29	100	5, 6
No. 25 (Jacksonville-Richmond)	28	100	5, 6
No. 28 (Jacksonville-Richmond)	37	118	8
Altan (N. C.)	30	101	7
Altman	34	113	8, 9
Andrews, aluminum, water tank	29	100	5, 6
Astronomical instrument, Columbia, Melton Memorial Observa- tory, center	27	99	4
Atlantic Coast Line Railroad Yards, Florence:			
Coal elevator	37	117	8
Twin stacks, east	36	117	8
Twin stacks, west	36	117	8
Atlantic Coast Lumber Corporation, Georgetown:			
Brick stack	10	71	6
Water tank	10	71	6
Aviation beacon, Maxton, on top municipal water tank (N. C.)	17	82	10
Baptist Church, Darlington, First, spire	35	116	8
Barlow	13	75	10, 11
Baruch	7	65	6
Base:			
Columbia east	21	88	4, 15
Columbia west	21	87	4, 15
Dillon north (N. C.)	13	75	10, 11
Dillon south	13	75	11
Beacon. (See Airway beacon and Aviation beacon.)			
Bench mark:			
Q 15	38	119	6, 9
State line (N. C.-S. C.)	16	81	11
Z 29	36	116	8
Bennettsville, black water tank	10	83	10
Bethune	31	104	7, 13, 14
Bethune A	47	133	13
Bethune B	47	133	13
Bethune C	46	133	13
Bethune D	46	132	13
Bethune E	46	132	13
Bethune F	46	132	13
Bethune G	46	132	13
Bethune H	46	132	13
Bethune I	46	132	13
Bethune J	46	132	13
Bethune, municipal, silver water tank	35	115	7
Blakely	31	103	7, 13
Blaney	28	98	4, 14, 15
Blaney 2	20	86	4, 14, 15
Blaney A	50	139	14, 15
Blaney B	50	139	14
Blaney C	50	139	14
Blaney D	50	139	14
Blaney E	49	138	14
Blaney F	49	138	14
Blaney G	49	138	14
Blaney H	49	138	14
Blocks	21	88	4
Bloomville	24	93	5
Blume	26	98	4
Borrow	25	97	6
Boundary Monument, North Carolina-South Carolina (Brunswick County, N. C.-Horry County, S. C.)	11	72	9
Boyd	25	95	5, 6
Britton	23	92	4, 5
Brookgreen	7	66	6
Brown	8	67	9
Bryant	9	69	9
Burgess (Georgetown County)	6	84	6
Burgess (Sumter County)	22	90	4

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Camden A.....	48	136	14
Camden B.....	48	136	14
Camden C.....	48	136	14
Camden D.....	48	136	14
Camden E.....	48	135	14
Campfield.....	7	65	6
Cane.....	40	121	13
Carolina Textile Corporation, Hamer: Stack.....	18	82	10, 11
Water tank, ball on top, near stack.....	18	82	10, 11
Carson.....	23	82	5
Cassatt.....	31	104	7, 14
Cassatt A.....	47	134	14
Cassatt B.....	47	134	14
Cassatt C.....	47	134	14
Cassatt D.....	47	133	14
Cassatt E.....	47	133	13, 14
Cassatt F.....	47	133	13, 14
Cayce.....	54	140	15
Cayce A.....	54	140	15
Cayce B.....	54	140	15
Cayce C.....	54	140	15
Cayce D.....	53	145	15
Chandler.....	25	96	5, 6
Chateau.....	40	122	13
Chateau A.....	45	130	13
Chateau B.....	45	130	13
Chateau C.....	45	130	13
Chateau D.....	45	130	13
Chateau E.....	45	129	13
Cheraw.....	39	120	12
Cheraw A.....	43	127	12
Cheraw B.....	43	127	12
Cheraw C.....	43	127	12
Cheraw D.....	43	126	12
Cheraw E.....	43	126	12
Cheraw F.....	43	126	12
Church spire, Darlington, First Baptist.....	35	116	8
Clarendon (N. C.).....	15	79	11
Claybank (N. C.).....	14	77	11
Clio, airway beacon, east of, flashing red and white.....	19	83	10
Clio, white water tank.....	19	83	10
Coal elevator, Florence, Atlantic Coast Line Railroad Yards.....	37	117	8
College.....	52	144	15
Columbia.....	40	123	16
Columbia A.....	53	145	15
Columbia B.....	53	145	15
Columbia C.....	53	145	15
Columbia D.....	53	145	15
Columbia E.....	53	144	15
Columbia: East base.....	21	88	4, 15
Large steel water tank.....	28	100	4
Melton Memorial Observatory, astronomical instrument, center.....	27	99	4
Meridian mark (U. S. G. S.).....	27	99	4
State Capitol, dome, base of flagstaff.....	27	100	4
United States Veterans' Hospital, dome.....	28	100	4
United States Veterans' Hospital, stack.....	27	99	4
United States Veterans' Hospital, tank.....	27	100	4
West base.....	21	87	4, 15
Congaree.....	53	145	15
Congaree A.....	53	145	15
Congaree B.....	53	145	15
Conway, water tank.....	11	72	9
Cooper.....	6	64	6
Cotton Mills, McCoil, Marlboro, aluminum tank.....	18	83	10
Courthouse, Florence, spire.....	37	117	8
Cypress Forks.....	24	93	5
D 17 (S. C. Geod. S.).....	31	106	7, 13
D 23 (S. C. Geod. S.).....	35	115	7, 13
D 262 (S. C. Geod. S.).....	31	106	7, 8
D 301 (S. C. Geod. S.).....	32	107	8
D 312 (S. C. Geod. S.).....	36	116	8

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Dillon Oil Company, tall slender black water tank.....	17	82	11
Municipal red water tank.....	17	82	10, 11
North base (N. C.).....	13	75	11
South base.....	13	75	11
Dixie Guano Co., Laurensburg, water tank (N. C.).....	18	83	10
Dome, Columbia:			
State Capitol, base of flagstaff.....	27	100	4
United States Veterans' Hospital.....	28	100	4
Dothan (N. C.-S. C.).....	17	82	9
Douglas.....	20	86	4, 15
Drew 2.....	9	70	6
Eaddy.....	34	112	8, 9
East base, Columbia.....	21	88	4, 15
Echaw.....	26	98	6
Effingham.....	33	109	8
Elliott.....	35	114	6, 9
Elmwood.....	53	144	15
Elmwood A.....	53	144	15
Elmwood B.....	53	144	15
Elmwood C.....	53	144	15
English.....	21	89	4
Experimental.....	32	108	8
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F L 100 (S. C. Geod. S.).....	38	119	8
F L 100 (S. C. Geod. S.) eccentric.....	33	112	8
F L 169 (S. C. Geod. S.).....	38	118	8, 9
F L 418 (S. C. Geod. S.).....	37	117	8
F L 418 (S. C. Geod. S.) eccentric.....	37	117	8
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F L 520 (S. C. Geod. S.) eccentric.....	33	111	5, 8
Fairview (N. C.).....	11	73	10
Fire tower.....	38	119	8, 9
First Baptist Church, Darlington, spire.....	35	116	8
Flag pole, Florence, South Carolina State Bank Building.....	37	117	8
Flagstaff, Columbia, State Capitol, dome, base of.....	27	109	4
Floral.....	8	67	6, 9
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Atlantic Coast Line Railroad Yards, coal elevator.....	37	117	8
Atlantic Coast Line Railroad Yards, twin stacks, east.....	36	117	8
Atlantic Coast Line Railroad Yards, twin stacks, west.....	36	117	8
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Hardwood Dimension Company, tank.....	36	117	8
Magnetic station.....	36	116	8
Municipal water tank.....	37	117	8
South Carolina State Bank Building, flagpole.....	37	117	8
Floyds.....	14	78	11
Ford (N. C.).....	14	78	11
Fruitland (N. C.).....	11	72	10
Fulton.....	39	120	12
Fulton A.....	42	125	12
Fulton B.....	42	125	12
Fulton C.....	42	125	12
Fulton D.....	41	125	12
Fulton E.....	41	124	12
Fulton F.....	41	124	12
Fulton G.....	41	124	12
G 402 (S. C. Geod. S.).....	38	119	9
G 402 (S. C. Geod. S.) eccentric.....	34	114	9
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Georgetown.....	7	65	6
Georgetown:			
Atlantic Coast Lumber Corporation, brick stack.....	10	71	6
Atlantic Coast Lumber Corporation, water tank.....	10	71	6
Lighthouse.....	10	71	6
Municipal standpipe.....	10	71	6
Gibson (N. C.-S. C.).....	19	83	10
Gillespie.....	39	121	12, 13
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Gillespie B.....	44	128	12, 13

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Green Sea.....	15	79	9, 11
Guide (N. C.).....	15	80	9, 11
Gun.....	33	111	8
Hagley.....	7	65	6
Hagood.....	22	80	4
Hamer.....	13	76	10, 11
Hamer:			
Carolina Textile Corporation, stack.....	18	82	10, 11
Carolina Textile Corporation, water tank, ball on top, near stack.....	18	82	10, 11
Hamlet traverse tie (N. C.).....	19	84	10
Hammond (N. C.).....	13	76	10, 11
Hardwick.....	34	113	8, 9
Hardwood Dimension Company, Florence, tank.....	36	117	8
Harmony.....	23	93	5
Harrington.....	24	94	5
Hartsville, municipal water tank.....	35	116	7
Harvin.....	23	91	4, 5
Hays.....	24	94	5
Hillcrest.....	22	90	4
Holley.....	30	102	7
Honey.....	6	63	6
Hospital, Columbia, United States Veterans':			
Dome.....	28	100	4
Stack.....	27	99	4
Tank.....	27	100	4
Howe.....	33	109	8
Hughes (N. C.).....	9	70	9
Hyatts.....	52	143	15
Intracoastal Waterway station 883+00.0.....	11	71	9
Intracoastal Waterway station 801+50.0.....	10	71	9
Iron Hill (N. C.).....	15	79	9, 11
Jackson.....	52	143	15
Jackson 2.....	27	98	4, 15
Jacksonville-Richmond Airway:			
Beacon No. 24.....	20	100	5, 6
Beacon No. 25.....	28	100	5, 6
Beacon No. 28.....	37	118	6
Jamestown.....	26	97	6
Jones (Florence County).....	32	108	8
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Kalb.....	30	121	12
Kalb A.....	43	128	12
Kalb B.....	43	128	12
Kalb C.....	43	128	12
Kalb D.....	43	127	12
Kalb E.....	43	127	12
Kalb F.....	43	127	12
Kalb G.....	43	127	12
Keele.....	33	111	8
Kemper.....	14	77	11
Kershaw, municipal water tank.....	35	115	7
Kettle.....	9	60	9
Kid.....	54	146	15
Kollock.....	30	120	12
Kollock A.....	42	125	12
Kollock B.....	42	125	12
Kollock C.....	42	125	12
Kollock D.....	42	125	12
L 642 (S. C. Geod. S.).....	31	105	4, 7
Lamar, black water tank.....	36	116	7, 8
Lanc.....	25	95	5, 6
Langston.....	32	106	7, 8
Laurenburg:			
Dixie Guano Co., water tank (N. C.).....	18	83	10
Municipal water tank (N. C.).....	19	83	10
Laurinburg. (Sec Laurenburg.).....			
Lawrence.....	25	95	5, 6

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Lewis.....	20	85	4
Light (N. C.).....	30	120	12
Lighthouse, Georgetown.....	10	71	6
Line.....	28	100	5
Little River.....	9	69	9
Loris.....	15	80	9, 11
Lugoff.....	40	122	14
Lugoff A.....	49	138	14
Lugoff B.....	49	138	14
Lugoff C.....	49	137	14
Lugoff D.....	40	137	14
Lugoff E.....	40	137	14
Lugoff F.....	49	137	14
Lugoff G.....	49	137	14
Lugoff H.....	49	137	14
Lugoff I.....	49	136	14
Lugoff J.....	48	136	14
Lynch (Florence County).....	33	110	8
Lynch (Marlboro County).....	12	73	10
McBee.....	31	104	7, 13
McBee A.....	46	132	13
McBee B.....	46	131	13
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McBee D.....	45	131	13
McBee E.....	45	131	13
McBee F.....	45	131	13
McBee, municipal water tank.....	35	115	7
McColl:			
Marlboro Cotton Mills, aluminum tank.....	18	83	10
Municipal, aluminum water tank.....	18	83	10
McInnis.....	11	73	10, 12
McKenzie.....	31	105	7
McMaster.....	22	89	4
McRae (N. C.-S. C.).....	18	82	10
Magnetic station, Florence.....	36	116	8
Manning, municipal water tank.....	28	100	5
Marlboro Cotton Mills, McColl, aluminum tank.....	18	83	10
Martin (N. C.).....	11	72	10
Maxton, municipal water tank, aviation beacon on top (N. C.).....	17	82	10
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Morrison.....	8	67	9
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Municipal standpipe, Georgetown.....	10	71	6
Municipal water tank:			
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Dillon, red.....	17	82	11
Florence.....	37	117	8
Hartsville.....	35	116	7
Kershaw.....	35	115	7
Laurenburg (N. C.).....	19	83	10
McBee.....	35	115	7
McColl, aluminum.....	18	83	10
Manning.....	28	100	5
Maxton, aviation beacon on top.....	17	82	10
Rowland, ball on top (N. C.).....	17	82	10, 11
Tabor, aluminum (N. C.).....	17	81	9, 11
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Myrtle Beach Hotel, water tank.....	10	71	9
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Osborne.....	39	120	12
Osborne A.....	41	124	12
Osborne B (N. C.).....	41	124	12
Osborne C (N. C.).....	41	124	12
Osborne D (N. C.).....	41	124	12
Osborne E (N. C.).....	41	123	12
Osborne F (N. C.).....	41	123	12
Osborne G (N. C.).....	41	123	12
Osborne H (N. C.).....	41	123	12
Osborne I (N. C.).....	41	123	12
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Pittman (N. C.).....	13	76	10, 11
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Pontiac A.....	51	141	15
Pontiac B.....	51	140	15
Pontiac C.....	51	140	15
Pontiac D.....	51	140	15
Pontiac E.....	50	140	15
Pontiac F.....	50	140	15
Pontiac G.....	50	140	15
Pontiac H.....	50	139	15
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Richland A.....	52	143	15
Richmond.....	24	94	6
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Ridgeway, black water tank, ball on top.....	27	88	4
Rockingham (N. C.).....	19	84	10
Rowland, municipal water tank, ball on top (N. C.).....	17	82	10, 11
St. Stephen, black water tank, final.....	20	100	6
Salem.....	8	66	6, 9
Salem (N. C.).....	12	74	10
Sampt.....	20	97	6
Santee.....	6	63	6
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Shepard A.....	48	135	14
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South Carolina-North Carolina:			
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State-line monument (Scotland County, N. C.-Marlboro County, S. C.).....	19	83	10
State-line monument (1905) (Robeson-Scotland Counties, N. C.—Dillon-Marlboro Counties, S. C.).....	18	83	10
South Carolina State Bank Building, Florence, flagpole.....	37	117	8
Spire:			
Darlington, First Baptist Church.....	35	116	8
Florence, courthouse.....	37	117	8
Stack:			
Columbia, United States Veterans' Hospital.....	27	99	4
Darlington, Darlington Manufacturing Company.....	35	116	8
Georgetown, Atlantic Coast Lumber Corp., brick.....	10	71	6
Hamor, Carolina Textile Corporation.....	18	82	10, 11
Sumter, municipal power plant, brick.....	28	100	4, 5
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West.....	36	117	8
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Georgetown, municipal.....	10	71	6
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State-line monument, North Carolina-South Carolina (Scotland County, N. C.-Marlboro County, S. C.).....	19	83	10
State-line monument (1905), North Carolina-South Carolina (Robeson-Scotland Counties, N. C.—Dillon-Marlboro Counties, S. C.).....	18	83	10
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Sumter:			
Municipal power plant, brick stack.....	28	100	4, 5
Silver standpipe.....	28	100	4, 5
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Sutter C.....	44	129	13
Sutter D.....	44	129	13
Sutton.....	25	96	6
Swinton.....	23	91	4
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Tabor, municipal, aluminum water tank (N. C.).....	17	81	9, 11
Tank. (See also Water tank.)			
Tank:			
Columbia, United States Veterans' Hospital.....	27	100	4
Florence, Hardwood Dimension Company.....	36	117	8
McColl, Marlboro Cotton Mills, aluminum.....	18	83	10
Taxahaw.....	30	102	7
Thierry.....	40	121	13
Thierry A.....	44	129	13
Thierry B.....	44	129	13
Top.....	40	123	15
Transit traverse station:			
No. 1 B (U. S. G. S.) (N. C.-S. C.).....	35	115	7
No. 18 B (U. S. G. S.).....	28	100	4
No. 99 DS (U. S. G. S.).....	37	118	8
No. 108 DS (U. S. G. S.).....	37	117	8
Trio.....	25	96	5, 6
Turner (N. C.-S. C.).....	16	81	11
United States Veterans' Hospital, Columbia:			
Dome.....	28	100	4
Stack.....	27	99	4
Tank.....	27	100	4

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Bennettsville, black.....	19	83	10
Bethune, municipal, silver.....	35	115	7
Clio, white.....	19	83	10
Columbia, large steel.....	28	100	4
Conway.....	11	72	9
Dillon, Dillon Oil Company, tall slender black.....	17	82	11
Dillon, municipal, red.....	17	82	11
Florence, municipal.....	37	117	8
Georgetown, Atlantic Coast Lumber Corporation.....	10	71	6
Hammer, Carolina Textile Corporation, ball on top, near stack.....	18	82	10, 11
Hartsville, municipal.....	35	116	7
Kershaw, municipal.....	35	115	7
Lamar, black.....	36	110	7, 8
Laurens, Dixie Guano Co. (N. C.).....	18	83	10
Laurens, municipal (N. C.).....	19	83	10
McBee, municipal.....	35	115	7
McColl, municipal, aluminum.....	18	83	10
Manning, municipal.....	28	100	5
Maxton, municipal, aviation beacon on top (N. C.).....	17	82	10
Mullins, northerly, black, ball on top.....	16	81	8, 11
Mullins, southerly, black, ball on top.....	16	81	8, 11
Myrtle Beach Hotel.....	10	71	9
Ridgeway, black, ball on top.....	27	98	4
Rowland, municipal, ball on top (N. C.).....	17	82	10, 11
St. Stephen, black, final.....	29	100	6
Tabor, municipal, aluminum (N. C.).....	17	81	9, 11
Weddell.....	20	80	4, 15
Weddell A.....	51	141	15
Weddell B.....	51	141	16
Weddell C.....	51	141	15
Weddell D.....	51	141	15
Weddell E.....	51	141	15
Wedgefield.....	22	90	4
West base, Columbia.....	21	87	4, 15
Wilson (N. C.).....	15	78	11
Windham.....	32	107	7, 8
Yadkin.....	39	120	12
Yadkin A.....	42	120	12
Yadkin B.....	42	126	12
Yadkin C.....	42	120	12
Yawkey.....	7	64	6
Zion (N. C.).....	12	73	10

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