U. S. DEPARTMENT OF COMMERCE
HARRY L. HOPKINS, Secretary

COAST AND GEODETIC SURVEY
LEO OTIS COLBERT, Director

Special Publication No. 218

FIRST AND SECOND ORDER TRIANGULATION AND TRAVERSE IN NORTH CAROLINA

(1927 DATUM)

VOLUME II

By

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UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1940

For sale by the Superintendent of Documents, Washington, D. C. - Price 40 cents (paper cover)

National Oceanic and Atmospheric Administration

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January 1, 2006

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NOTE—This publication supplements the information contained in Special Publication No. 192, bearing the same title. It contains the data for additional arcs, revised data for certain other arcs, and plane coordinates for all stations in both volumes.

FIRST AND SECOND ORDER TRIANGULATION AND TRAVERSE IN NORTH CAROLINA, VOLUME II

GENERAL STATEMENT

This publication is a supplement or appendix to Special Publication No. 192, First and Second Order Triangulation and Traverse in North Carolina. When certain arcs of triangulation in South Carolina were laid out for adjustment, it was found that their junctions to fixed arcs in North Carolina evinced errors of closure that were too large to be absorbed in the adjustments. To obviate this difficulty it was decided that certain arcs that were published in Special Publication No. 192 should be readjusted to absorb part of the error of closure. This absorption would have happened if the arcs in the two States had been adjusted at the same time, and so it was considered a perfectly justifiable procedure. The geodetic positions of stations due to this readjustment are given in this publication, together with the results for other arcs that had been adjusted after Special Publication No. 192 appeared in 1935. This publication, therefore, includes all of the additional triangulation and traverse that has been adjusted to date.

The positions and plane coordinates in this publication are based on the North American datum of 1927. This volume is the seventeenth 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:

	Spec. 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
First-Order Triangulation in Missouri	186
First-Order Triangulation and Traverse in Arkansas'	187
Triangulation in Texas	189
Triangulation in Oklahoma	190
First- and Second-Order Triangulation and Traverse in North Carolina	192
First- and Second-Order Triangulation in Tennessee	198
First- and Second-Order Triangulation in California	202
First- and Second-Order Triangulation and Traverse in Minnesota	203
Triangulation in Utah	209
Triangulation in Wyoming	212
First- and Second-Order Triangulation in Michigan	214

PLANE COORDINATES

No plane coordinates of the triangulation stations were published in Special Publication No. 192 since the publication was prepared before the computation of the coordinates had been completed. We

have, therefore, included in this publication the plane coordinates for all of the adjusted work in the State. (For a discussion of plane coordinates, see pp. 9, 59, and 126.)

ARCS OF SPECIAL PUBLICATION NO. 192 REPUBLISHED HEREIN

(The pages of Special Publication No. 192 that are superseded are noted.)

Washington to Pamlico Sound, pages 65–68.
Goldsboro to Little River, S. C., and Marietta to Lincolnton, starting with the fixed line Dublin to Griffin on page 82; pages 82–95, excepting the first three supplementary points on page 88.
Charlotte to South Carolina boundary, pages 95–97.
Traverse line, Sanford to Osborne, pages 124 and 125 ending with station Osborne; beginning on page 128 with Quentin E and including pages 128–131 ending with Osborne A; on page 132 beginning with Southern Pines, Congregational Church steeple, and including the remainder of the page.

NEW ARCS

Complete data for the following new arcs are included in this publication: Chowan River; Albemarle, Croatan and Roanoke Sounds; Cape Romain, S. C., to Cape Fear; Upper Neuse River; a few stations of Bucksport, S. C., to Osceola, S. C.; and a few stations of Lowndesville, S. C., to Gastonia, N. C. No sketches are given for those arcs that appeared in Special Publication No. 192 since the sketches are shown there. There are two exceptions to this procedure. The arc Washington to Pamlico Sound and Core Sound is given in full because some further stations were added to it, and the arc Charlotte to South Carolina boundary is also given in full. On the various sketches that are included, there are several stations shown that were held in position as given in Special Publication No. 192. For these stations no geodetic positions are given in this publication. These stations are indicated on the sketches by solid triangles. No descriptions are given in this publication that are already published in No. 192, but the descriptions of all additional stations are given. This publication and Special Publication No. 192, taken together, give all the data that was adjusted at the time of publication of this volume.

NORTH AMERICAN DATUM OF 1927

The original adjustment of the triangulation included in this publication was computed upon the Clarke spheroid of 1866, on what was called at that time the United States standard datum. In the readjustment of the triangulation in the western part of the United States, and later in the eastern part, the same spheroid was used as surface of reference, but only one station was held in position. The station Meades Ranch, in Kansas, was assigned the same position that it had in the original United States standard datum, later called the North American datum. This position of Meades Ranch is as follows:

Latitude =39° 13′ 26″ .686
Longitude=98° 32′ 30″ .506

This position was held in the new datum because it had been found to be best in accord with the country as a whole in the extensive investigation that was carried out at the time of the adoption of the original datum. If any are interested in the procedure followed in the establishment of this former datum, an account of it can be

found in any one of the following publications, which contain triangulation and traverse data based on the datum in use prior to 1927: Special Publications Nos. 11, 13, 16, 17, 19, 24, 30, 31, 43, 46, 54, 62, 70, 74, 76, 78, 79, 86, 88, 101, and 114.

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

GENERAL DESCRIPTION OF TABLES AND SKETCHES

The tables of geographic positions, on pages 13 to 58, also contain the distances between contiguous triangulation stations in meters and feet, the logarithms of the distances in meters, and the azimuths of the lines joining these stations. The distances are corrected for elevation above mean sea level, and the azimuths are referred to the true south. Anyone who wishes to obtain the actual distances between the triangulation stations should use the formula given on page 12, by which the true distance at the mean elevation of the stations can be derived from the distance at sea level. The descriptions of the stations, given on pages 137 to 173, are designed to enable the engineer to recover and identify the station mark after he has visited the general locality of the station. There will be times when the description, so far as witness and other marks are concerned, will have become out of date from changes by nature or by the work of man. Any engineer who may visit a station and find that the description does not truly represent the present conditions, or who finds the mark destroyed or mutilated, should report the facts to the Director of the Coast and Geodetic Survey, at Washington, D. C., in order that the files of this office may be kept up to date. The engineer should realize that the triangulation extended over the country by the Coast and Geodetic Survey is a public survey, made for the use of the people. The stations really belong to the States in which they are located, and the engineer who is so fortunate as to find one of these stations located near his work should help to perpetuate the monuments in order that they may be of continuous service and value to his locality. The Coast and Geodetic Survey officials will, from time to time, visit the stations established and will re-mark and redescribe them if necessary.

At most of the stations there are reference and witness marks that were established to assist in locating the station. The distance and azimuth from the station to each of these additional marks are usually given in the description of the station, and the measurements are supposed to be so carefully made, at least to the reference marks, that if the station mark becomes lost or destroyed the station can be relocated accurately enough for use in third-order and local surveys.

Near the back of this publication will be found a number of sketches which show graphically the approximate locations of the stations, especially with reference to State and county boundaries, and the

lines over which the main-scheme observations were made. It is suggested that if one should wish to learn whether there are triangulation stations in the vicinity of his work he should first consult the sketches. He can obtain from them the names of the stations that may be of help to him; then he should turn to the index on page 181 of this volume, from which he can find the pages upon which the descriptions and geographic positions of the stations appear.

OTHER PUBLICATIONS OF VALUE TO THE ENGINEER

If an engineer wishes to compute geographic positions for the stations of any triangulation that he may execute, he should procure a copy of Coast and Geodetic Survey Special Publication No. 8 from the Superintendent of Documents, Washington, D. C. The cost of this publication is 30 cents. If he is interested in knowing the length in meters of the degrees, minutes, and seconds of latitude and longitude in the region in which he is working, he can obtain them from Special Publication No. 5, which can be purchased at a cost of 30 cents from the Superintendent of Documents.

The Coast and Geodetic Survey has issued a number of manuals on the various classes of its work. The ones that would be of value to an engineer in connection with triangulation, including base measurements, are Special Publication No. 120, Manual of First-Order Triangulation, cost 20 cents; Special Publication No. 145, Manual of Second- and Third-Order Triangulation and Traverse, cost 35 cents; and Special Publication No. 137, Manual of First-Order Traverse, cost 30 cents. An engineer, interested in the determination of azimuth to a high degree of accuracy, should procure a copy of Special Publication No. 14, Determination of Time, Longitude, Latitude, and Azimuth, cost 45 cents. If he is interested only in the determination of approximate azimuths, he should secure a copy of Serial No. 166, Directions for Magnetic Measurements, cost 65 cents.

In computing his triangulation the engineer will find that Special Publication No. 138, Manual of Triangulation Computation and Adjustment, cost 60 cents, will be of great assistance to him.

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

CLASSIFICATION OF TRIANGULATION

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

The ultimate criterion applied in classifying the different grades of triangulation is the actual error in the length of any line. This is indicated by the discrepancy between the measured length of a base line and its length as computed through the triangulation from the last preceding base. In first-order triangulation such discrepancies must not exceed 1 part in 25,000, in second-order triangulation 1

part in 10,000, and in third-order triangulation 1 part in 5,000. Before making the comparison between the computed and measured lengths the adjustment of the triangulation should be carried to the point where the side and angle equations have been satisfied. It is also necessary to take into consideration the maximum actual error in the measurement of the base lines.

To secure the accuracy indicated above, certain standards are adopted for the field work, the most important one of which relates to the closing errors of the triangles or the discrepancy between the sum of the measured angles in a triangle and 180° plus the spherical excess of the triangle. In first-order triangulation the average closing error of the triangles must not be greatly in excess of 1 second, in second-order it should not be more than 3 seconds, and in third-order not more than about 5 seconds. The shape of the figures in the triangulation scheme, the frequency of bases, the size and type of instrument, and the number and kind of observations are all selected with due regard to the accuracy desired.

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

CHARACTERISTICS OF FIRST-ORDER TRIANGULATION

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

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

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

If one is interested in the accuracy with which the triangulation of the Coast and Geodetic Survey is done and the reliability of the geographic positions which are given in this publication, he should refer to Special Publication No. 159, The Bowie Method of Triangulation Adjustment as Applied to the First-Order Net in the Western Part of the United States.

CHARACTERISTICS OF SECOND-ORDER TRIANGULATION

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

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

SECONDARY STATIONS

In addition to the stations which form the main network of triangulation in North Carolina, a number of objects, such as beacons, church spires, and tanks, were observed upon from stations of the main scheme. The geographic positions of these secondary stations have been computed and the data are included in the tables on pages 13 to 58. These stations are shown on the sketches and in the index, but only a few of them are given in the descriptions of stations, as in most cases the name of the object is all the description that is available. Ordinarily the name of the secondary station is sufficient for its accurate identification by the engineer who may wish to use it.

In the list of plane coordinates will be found a table of coordinates of mountain peaks. The positions of these were obtained by applying mean corrections to the old positions that had been based on the North American datum in use previous to 1927. The mean corrections were obtained for each peak by noting how much change had been made by the change of datum in the positions of the main-scheme stations from which the peak was determined.

USE OF HORIZONTAL CONTROL DATA

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

One other factor must be taken into consideration by the engineer of today. As the States develop industrially they will undoubtedly follow the lead of one of the Eastern States, Massachusetts, which with splendid foresight has extended its triangulation control over the entire State for the purpose of defining property boundaries in terms of latitude and longitude. The advantage of such a system is well stated in the following extracts from the report on the Maryland oyster survey:

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

With the establishment of a plane-coordinate system for each of the States, it became possible for surveyors to use geodetic control for local surveys without recourse to geodetic methods. The advantages of such procedure have been recognized by legislative acts in several States: New Jersey (1935), Pennsylvania (1937), New York (1938), North Carolina (1939), and Maryland (1939). The North Carolina act (House Bill No. 603), was enrolled and ratified by the General Assembly on March 24, 1939, and is entitled "An act to describe define, and officially adopt a system of coordinates for designating the positions of points on the surface of the earth within the State of North Carolina; to designate the administrative agency for said system; and to define the powers and duties of this agency." These various State acts conform in a general way to the recommendations contained in "Land Surveys and Titles," the "First Progress Report of the Joint Committee of the Real Property Division, American Bar Association, and the Surveying and Mapping Division, American Society of Civil Engineers." [1]

There are a number of instances where corporations owning large tracts of land have attempted to make surveys of their boundaries

[1] Proceedings, American Society of Civil Engineers, November 1938.

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

In a section of the country covered by adequate geodetic control the data are available to the engineer for any of the following operations, in addition to their possible future use as a basis for cadastral surveys:

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

2. Boundary lines.—If it is desired to locate or to delimit accurately and permanently the boundaries of political subdivisions, such as States, counties, or cities, the methods indicated in the preceding paragraph may be followed. Whenever possible, a line of the adjusted triangulation or traverse should be used as a basis for local surveys rather than a point, since a line gives the three essentials of position, length, and direction.

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

While it may be noted in the preceding paragraphs that the azimuth and length of one line and the geographic position of one end of that line constitute the essential data for the complete utilization of old work as a basis for new work, there is always grave danger in depending upon this minimum of data. There may be failure to identify the true station mark, or the mark, though genuine, may have been tampered with or otherwise disturbed in position. This will, of course, introduce an error into the new work based on these stations. It is the present practice in this survey, unless unusual conditions render it unnecessary, to establish the integrity of the recovered points by using at least three old stations as a basis for new work, the third station serving as a check for the two stations on which the new work may actually depend.

PLANE-COORDINATE SYSTEMS

It has been the practice of the local cadastral surveyor and the engineer making surveys for public works or for projects of a private character to make the computations as if the region involved were a plane and the results would thus be based on a local plane-coordinate system. This is satisfactory when the work is limited to a very restricted area, but when extensions of the surveys are made to surrounding areas trouble is apt to arise. Two adjoining local systems can be coordinated only with a great deal of extra computation. It seemed advisable, therefore, to give study to the possibility of establishing plane-coordinate systems for more extended areas so as to provide the advantages of plane coordinates and at the same time to make possible a perfect coordination of the work of different engineers throughout the whole region for which one system is adequate.

As a result of these studies State-wide systems of plane coordinates were devised for the various States, many States being covered by a system of plane coordinates consisting of a single zone, while for the larger States, systems having several zones were required.

DIFFICULTIES IN USING SPHERICAL COORDINATES

The surface of the earth is not a plane but is very irregular. For purposes of mapping, an ideal surface is assumed that approaches very nearly to what the earth's surface would be if it were entirely covered with water. This assumed surface is not a sphere, but is an ellipsoid of revolution of the form that approaches most nearly the sea-level surface. This spheroidal shape introduces complications in the calculations of survey work when it is extended over a large area. Geodetic surveying is such exact and extensive work that all computations arising in it have to take into consideration this assumed spheroidal shape which fits closely the actual shape of the earth. All geodetic stations on the earth have to be located by latitude and longitude; that is, each one is referred to a definite place in the network of meridians and parallels that are assumed to cover the surface of the earth in a definite and standardized way. The longitude and latitude of a place on the curved surface of the earth thus correspond in a general way to the x and y coordinates of a place on the usual system of plane coordinates which presupposes a flat surface. But the x and y coordinates of a local plane system have no relation to anything but the assumed origin and the assumed directions of the X and Y axes. Much has therefore been gained through the establishment of State-wide systems of plane coordinates (see pp. 59 to 61), which not only make unnecessary the further use of local independent systems, but which permit the establishment of a definite relationship, for points over a wide area, between plane coordinates on a single plane and geographic positions referred to the meridians and parallels of the earth.

USEFULNESS OF THE SYSTEMS

The establishment of a plane-coordinate system not only simplifies the use of control data but it gives a permanent general grid for large parts of a State. County boundaries, township boundaries, property boundaries, intersections of roads and streets, and any

prominent features of a region can be accurately located with definite x and y coordinates. In the general system these plane coordinates can readily be transformed into latitude and longitude, and the point can thus be definitely located in the network of meridians and parallels that serve to locate points on the earth's surface. If the marker at such a point should in some way be destroyed, it could be definitely relocated on the ground from its relation to other marked points. This is a very important characteristic and one that should be given due consideration by all engineers and surveyors.

IMPORTANCE OF PLANE COORDINATES

The establishment of these general systems of plane coordinates is of the utmost importance to State, city, county, and private engineers. Such systems immediately make the general control network of the country easily available for actual use by the field surveyor. This should convince any who are interested in such matters that they constitute an important advance in the execution of local surveys.

Anyone interested in plane-coordinate systems should refer to Special Publication No. 193, Manual of Plane-Coordinate Computation, and Serial No. 562. The Coast and Geodetic Survey has also published two manuals on coordinate systems dealing particularly with traverse. They are Special Publication No. 194, Manual of Traverse Computation on the Lambert Grid, and Special Publication No. 195, Manual of Traverse Computation on the Transverse Mercator Grid.

CONVERSION TABLE

In a number of triangulation publications of this bureau complete tables have been printed for the conversion of feet to meters and meters to feet. As these tables require eight pages, it seemed advisable in the interests of economy to substitute for them the condensed table shown below. This table can be used readily for converting a rather large number of one unit to the corresponding number in the other unit by simply taking the conversion value for each digit of the first number, moving the decimal point if necessary, and adding the values together. For example, to convert 24.6 feet to meters we take from the table the value in meters corresponding to 2 feet and move the decimal point one number to the right. We then take the value for 4 feet as given in the table, and next the value for 6 feet and move the decimal point one number to the left. This gives, by rounding off the third decimal place, $6.096+1.219+0.183=7.498$ meters.

Meters	Feet	Feet	Meters
1	3.280833	1	0.3048006
2	6.561667	2	0.6096012
3	9.842500	3	0.9144018
4	13.123333	4	1.2192024
5	16.404167	5	1.5240030
6	19.685000	6	1.8288037
7	22.965833	7	2.1336043
8	26.246667	8	2.4384049
9	29.527500	9	2.7432055
10	32.808333	10	3.0480061

EXPLANATION OF TABLES OF POSITIONS

In the tables of positions the latitude and longitude of each point are given on the North American datum of 1927, and there are also given for all except the intersection points, the length and azimuth of each line observed over, whether in one or both directions. Along with the latitude and longitude of each point the lengths and azimuths are given of lines from that point to other points of the scheme. No lengths and azimuths are repeated, and for a given line the length and azimuth will be found opposite the position of one or the other of the two stations involved.

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

The rule followed in recent publications of this office has been to give the latitudes and longitudes of the stations to thousandths of a second for all points, the positions of which are fixed by fully adjusted triangulation. The positions of points not occupied, and observed from two stations only, are given to hundredths of a second only and are marked by footnotes as being without check. The positions of points determined by measured distance and azimuth from a fixed station are listed to thousandths of a second although the points are without check. These points are considered to be more accurately determined than the unoccupied points observed from two stations only. Being without check, however, they should be used with caution.

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.

It will be noted in the tables of plane coordinates (pp. 62–126) that some of the stations, especially mountain peaks, have two names, the second one being in parentheses. The first name in each case is the name given to the station when it was established. This name may now be wrong, because the observer did not identify the peak correctly or because the name of the geographic feature has since been changed. The name in parentheses is considered at the present time to be the correct one. The original name has been retained, however, in order to prevent confusion if at any time it should become necessary to look up the station in the old field records.

The tables may be conveniently consulted by using as finders the sketches and the index at the end of this publication. In the third column of the index will be found for each point a reference to the page on which its description is given, in the fourth column the page on which the plane coordinates of the station are given, and finally in the fifth column the number of the sketch on which it 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 13 the azimuth from James to Shaw is 161°09′02″.98 while the back azimuth, or the azimuth from Shaw to James, is 341°06′30″. 38.

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 very accurately determined and may be used as the starting azimuth for traverse lines and other local surveys.

GEOGRAPHIC POSITIONS

WASHINGTON TO PAMLICO SOUND, CORE SOUND

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points	° ′ ″	° ′ ″	° ′ ″				
James, 1933	35 26 12.054	86 12 17.01	266 07 45.82	Chocowinity	4.0728191	11,825.49	38,797.5
	76 59 53.543	161 09 02.98	341 06 30.38	Shaw	4.3109038	20,459.92	67,125.6
		179 45 45.24	359 45 44.09	Smaw	4.0826905	12,097.36	39,689.4
		82 15 08		Azimuth mark, R. M. No. 1.			
Fort, 1931	35 28 23.239	68 53 40.47	248 48 53.05	Chocowinity	4.1270652	13,398.78	43,959.2
	76 59 25.776	174 40 59.87	354 40 42.58	Smaw	3.9079044	8,089.18	26,539.3
		344 47 34.10	164 48 45.21	Orr	4.0721393	11,806.99	38,736.8
		16 56 47		Azimuth mark, R. M. No. 3.			
Core eccentric, 1931	35 25 25.339	59 40 55.58	239 37 03.85	Orr	4.0681648	11,699.43	38,383.9
	76 50 43.010	95 57 46.63	275 52 27.48	James	4.1449351	13,961.60	45,805.7
		112 37 20.76	292 32 17.58	Fort	4.1546774	14,278.33	46,844.8
		134 13 43.56	314 08 22.83	Smaw	4.2883068	19,422.58	63,722.2
		65 14 09		Azimuth mark, R. M. No. 3.			
Reka, 1933	35 32 09.973	0 32 16.74	180 32 14.04	Core eccentric	4.0958920	12,470.73	40,914.4
	76 50 38.368	51 47 58.23	231 42 35.94	James	4.2508848	17,819.06	58,461.4
		94 23 28.80	274 18 04.93	Smaw	4.1484693	14,075.68	46,180.0
		337 41 37		Azimuth mark, R. M. No. 2.			
Spring, 1933	35 27 00.837	77 13 15.75	257 08 18.46	Core eccentric	4.1226576	13,263.48	43,515.3
	76 42 10.267	126 41 12.38	306 36 17.38	Reka	4.2030837	15,961.87	52,368.2
		137 43 23		Azimuth mark, R. M. No. 3.			
Rose, 1933	35 34 23.239	5 17 30.17	185 17 01.08	Spring	4.1364817	13,692.47	44,922.7
	76 41 20.193	40 35 55.67	220 30 28.85	Core eccentric	4.3388134	21,817.92	71,581.0
		73 45 34.17	253 40 09.61	Reka	4.1657169	14,645.93	48,050.9
		40 58 34		Azimuth mark, R. M. No. 2.			
Makleyville, 1933	35 27 38.693	85 21 50.38	265 16 22.67	Spring	4.1551566	14,294.09	46,896.5
	76 32 45.317	133 54 05.67	313 49 06.56	Rose	4.2551111	17,993.31	59,033.1
		331 06 37		Azimuth mark, R. M. No. 3.			
Way, 1933	35 33 51.452	6 18 45.25	186 18 15.97	Makleyville	4.0628794	11,557.91	37,919.6
	76 31 54.918	50 50 02.30	230 44 04.90	Spring	4.3013642	20,015.40	65,667.2
		93 58 57.30	273 53 28.49	Rose	4.1543708	14,268.25	46,811.8
		264 05 41		Azimuth mark, R. M. No. 1.			

161516°—40—2

WASHINGTON TO PAMLICO SOUND, CORE SOUND—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points	° ′ ″	° ′ ″	° ′ ″				
Scranton, 1933	35 29 45.966	65 15 58.06	245 12 42.28	Makleyville	3.9715054	9,364.95	30,724.8
	76 27 07.991	136 19 37.96	316 16 51.22	Way	4.0196928	10,463.88	34,330.2
		221 35 26		Azimuth mark, R. M. No. 1.			
Swan, 1933	35 24 39.534	105 45 40.82	285 38 09.26	Makleyville	4.3097553	20,405.88	66,948.3
	76 19 46.482	130 20 24.88	310 16 08.79	Scranton	4.1643391	14,599.54	47,898.7
		132 52 08.51	312 45 05.64	Way	4.3984497	25,029.36	82,117.2
		45 57 51		Azimuth mark, R. M. No. 3.			
Post, 1933	35 31 35.657	5 00 36.78	185 00 10.92	Swan	4.1096916	12,873.35	42,235.3
	76 19 01.923	74 36 37.55	254 31 55.21	Scranton	4.1040317	12,706.67	41,688.5
		102 11 34.52	282 04 05.14	Way	4.2991946	19,915.66	65,340.0
		34 37 13		Azimuth mark, R. M. No. 2.			
New Holland, 1933	35 26 34.587	76 14 51.61	256 09 19.85	Swan	4.1722020	14,866.27	48,773.8
	76 10 14.166	124 56 09.74	304 51 03.38	Post	4.2100429	16,219.71	53,214.2
		78 55 54		Azimuth mark, R. M. No. 2.			
Jones, 1933	35 32 25.662	1 14 19.37	181 14 13.99	New Holland	4.0343130	10,822.14	35,505.6
	76 10 04.890	45 37 59.77	225 32 22.24	Swan	4.3123204	20,526.76	67,344.9
		83 32 41.97	263 27 29.86	Post	4.1340754	13,616.81	44,674.5
		53 03 38		Azimuth mark, R. M. No. 2.			
Mount Pleasant, 1933	35 24 56.502	110 52 20.71	290 49 18.29	New Holland	3.9291123	8,494.00	27,867.4
	76 04 59.484	150 56 28.88	330 53 31.62	Jones	4.1997429	15,839.55	51,966.9
		20 58 19		Azimuth mark, R. M. No. 2.			
Englehard, 1933	35 32 31.241	37 29 49.80	217 25 42.56	Mount Pleasant	4.2468903	17,655.92	57,926.1
	75 57 53.493	59 34 19.14	239 27 09.12	New Holland	4.3357474	21,664.44	71,077.4
		89 31 27.66	269 24 22.51	Jones	4.2654054	18,424.91	60,449.1
		45 48 14		Azimuth mark, R. M. No. 3.			
Gull Shoal beacon, 1933	35 21 57.885	115 51 22.35	295 47 01.28	Mount Pleasant	4.1016957	12,638.50	41,464.8
	75 57 28.691	178 10 00.15	358 09 45.76	Englehard	4.2906803	19,529.01	64,071.4
Durant, 1933	35 13 39.750	119 59 02.66	299 45 11.41	Mount Pleasant	4.6219862	41,878.03	137,394.8
	75 41 01.752	121 41 46.27	301 32 16.00	Gull Shoal beacon	4.4666143	29,282.91	96,072.3
		143 51 57.55	323 42 11.68	Englehard	4.6356873	43,220.25	141,798.4
		57 31 12		Azimuth mark, R. M. No. 2.			

Salvo, 1933	35 32 02.888	29 07 27.14	209 00 13.71	Durant	4.5898832	38,894.05	127,604.9
	75 28 33.180	91 16 15.40	270 59 12.22	Englehard	4.6469243	44,353.13	145,515.2
		189 39 57		Azimuth mark, R. M. No. 1.			
Metropolitan, 1933	35 41 47.626	303 36 50.53	123 47 15.76	Salvo	4.5116000	32,478.80	106,557.5
	75 46 26.827	45 16 38.15	225 09 58.23	Englehard	4.3863987	24,344.38	79,869.9
		50 17 59		Azimuth mark, R. M. No. 2.			
Long Shoal Lighthouse, 1933	35 33 22.950	86 12 46.95	266 03 42.13	Englehard	4.3739504	23,656.49	77,613.0
	75 42 16.422	157 57 59.54	337 55 33.68	Metropolitan	4.2248336	16,781.61	55,057.7
		276 43 08.70	96 51 07.29	Salvo	4.3197924	20,882.98	68,513.6
Pea Island, 1874	35 42 37.512	350 37 25.55	170 38 40.21	Salvo	4.2971661	19,822.85	65,035.5
	75 30 41.372	45 42 52.38	225 36 07.44	Long Shoal Lighthouse	4.3883346	24,453.14	80,226.7
		86 22 32.18	266 13 20.42	Metropolitan	4.3769038	23,817.92	78,142.6
		340 28 39		Azimuth mark, R. M. No. 3.			
Ocracoke, 1933	35 07 02.460	164 23 37.18	344 20 05.57	Mount Pleasant	4.5361926	34,371.03	112,765.6
	75 58 52.982	184 24 34.31	4 25 22.94	Gull Shoal Beacon	4.4421139	27,676.68	90,802.6
		245 36 28.23	65 46 45.30	Durant	4.4734019	29,744.17	97,585.7
		304 10 13		Azimuth mark, R. M. No. 3.			
Bluff Shoal Lighthouse, 1935	35 12 37.357	177 46 00.52	357 45 40.17	Mount Pleasant	4.3578592	22,796.03	74,790.0
	76 04 24.276	320 52 59.42	140 56 10.22	Ocracoke	4.1237518	13,296.94	43,625.0
Southwest Point Lighthouse, 1932	35 07 06.941	189 19 45.89	9 21 49.82	Mount Pleasant	4.5238055	33,404.54	109,594.7
	76 08 34.122	211 49 09.01	31 51 32.90	Bluff Shoal Lighthouse	4.0786696	11,985.87	39,323.6
		270 29 28.17	90 35 02.48	Ocracoke	4.1677972	14,716.25	48,281.6
Whale, 1933	35 01 16.629	168 14 48.21	348 13 57.24	Southwest Point Lighthouse	4.0424492	11,026.79	36,177.1
	76 07 05.418	229 27 29.03	49 32 11.97	Ocracoke	4.2150771	16,408.81	53,834.6
Harbor Island Bar Lighthouse, 1932	35 00 26.117	210 09 11.23	30 11 54.06	Southwest Point Lighthouse	4.1549747	14,288.11	46,876.9
	76 13 17.558	260 36 08.56	80 39 42.09	Whale	3.9805831	9,562.76	31,373.8
Brant Island Shoal Lighthouse, 1932	35 08 09.279	247 33 56.13	67 41 33.07	Bluff Shoal Lighthouse	4.3365788	21,705.95	71,213.6
	76 17 37.497	277 54 20.33	97 59 32.99	Southwest Point Lighthouse	4.1427406	13,891.23	45,574.8
		335 12 34.14	155 15 03.50	Harbor Island Bar Lighthouse	4.1964286	15,719.13	51,571.8
North, 1920	35 02 08.671	208 42 15.21	28 44 33.39	Brant Island Shoal Lighthouse	4.1028432	12,671.94	41,574.5
	76 21 37.901	245 05 53.62	65 13 24.04	Southwest Point Lighthouse	4.3400655	21,880.91	71,787.6
		283 57 00.73	104 01 47.87	Harbor Island Bar Lighthouse	4.1163538	13,072.35	42,888.2
Atlantic, 1935	34 53 17.422	170 20 30.06	350 19 27.07	North	4.2202822	16,606.66	54,483.7
	76 19 47.983	216 50 09.37	36 53 53.02	Harbor Island Bar Lighthouse	4.2178143	16,512.56	54,175.0
		52 41 42.73	232 38 37.04	Stacy	4.0161480	10,378.82	34,051.2
		86 53 50.59	266 47 16.61	Nowhere	4.2435417	17,520.31	57,481.2
		98 13 16		Azimuth mark.			

WASHINGTON TO PAMLICO SOUND, CORE SOUND—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points—Continued	° ′ ″	° ′ ″	° ′ ″				
Extra, 1932	34 57 47.346	219 47 41.92	39 50 13.76	North	4.0205357	10,484.21	34,396.9
	76 26 02.636	311 08 49.39	131 12 23.88	Atlantic	4.1015324	12,633.75	41,449.2
		355 03 14.16	175 03 42.63	Stacy	4.1663194	14,666.26	48,117.6
		40 41 42.07	220 38 42.19	Nowhere	4.0877405	12,238.85	40,153.6
		230 39 17		Azimuth mark, New Tump Shoal Beacon.			
Supplementary points							
Day, 1933	34 59 57.502	235 33 43.6	55 35 57.1	North	3.854372	7,151.1	23,462
	76 25 30.580	11 27 44.4	191 27 26.0	Extra	3.611981	4,092.4	13,426
Salter, 1935	34 53 27.015	12 49 32.0	192 48 58.3	Stacy	3.829816	6,758.0	22,172
	76 24 13.836	83 20 26.3	263 16 24.4	Nowhere	4.034072	10,816.1	35,486
		161 00 50.2	340 59 48.0	Extra	3.928613	8,484.2	27,835
		272 29 10.7	92 31 42.9	Atlantic	3.829762	6,757.1	22,169
		40 12 27		Azimuth mark.			
Belhaven, municipal water tank, black, 1933	35 32 22.786	122 29 11.0	302 26 56.3	Rose	3.839803	6,915.2	22,688
	76 37 28.541	251 57 31.6	72 00 45.6	Way	3.946260	8,836.1	28,990
		320 47 13.7	140 49 58.2	Makleyville	4.052940	11,296.4	37,062
Belhaven, Interstate Cooperage Co., yellow brick stack, 1933.	35 32 41.829	121 02 59.0	301 00 59.1	Rose	3.782640	6,062.3	19,889
	76 37 53.932	256 37 18.0	76 40 46.8	Way	3.968169	9,293.3	30,490
		288 21 57.0	108 28 12.3	Scranton	4.234374	17,154.3	56,280
New Holland, New Holland Corp., water tank, 1933	35 27 08.780	295 53 27.7	115 56 40.5	Mount Pleasant	3.969734	9,326.8	30,600
	76 10 32.058	336 49 07.0	156 49 17.4	New Holland	3.059305	1,146.3	3,761
		71 50 21.8	251 45 00.4	Swan	4.167968	14,722.0	48,300
New Holland, New Holland Corp., stack, 1933	35 27 05.808	295 31 19.9	115 34 31.5	Mount Pleasant	3.965668	9,239.9	30,315
	76 10 29.981	337 28 59.1	157 29 08.3	New Holland	3.017695	1,041.6	3,417
		72 14 28.8	252 09 06.2	Swan	4.168603	14,743.6	48,371
Hatteras Inlet Lighthouse, 1933	35 15 47.693	51 13 04.1	231 05 26.3	Ocracoke	4.411717	25,805.8	84,665
	75 45 38.561	120 04 26.2	299 53 14.7	Mount Pleasant	4.529505	33,845.8	111,042
		299 22 27.0	119 25 06.7	Durant	3.904862	8,032.7	26,354
Cape Hatteras Lighthouse, 1933	35 15 17.026	70 09 15.8	249 53 21.0	Ocracoke	4.649413	44,608.0	146,351
	75 31 15.980	78 36 16.1	258 30 38.1	Durant	4.179289	15,110.9	49,576
		128 27 32.8	308 12 07.4	Englehard	4.710883	51,390.5	168,604
		187 32 11.9	7 33 46.1	Salvo	4.495125	31,269.8	102,591
Core, 1914 [1]	35 25 25.98	62 45 33	242 45 32	Core eccentric	1.638469	43.498	142.71
	76 50 41.48						
Fort (U. S. E.), 1914 [1]	35 28 23.72	58 16	238 16	Fort	1.445589	27.899	91.53
	76 59 24.84						
Primary traverse station No. 5 (U. S. G. S.), 1933 [1]	35 33 52.95	280 31 31	100 31 37	Way	2.401866	252.268	827.65
	76 32 04.77						
Bluff Shoal Lighthouse, 1933	35 12 37.352	177 46 00.8	357 45 40.4	Mount Pleasant	4.357862	22,796.2	74,791
	76 04 24.277	266 47 04.6	87 00 33.4	Durant	4.550508	35,522.9	116,545
		320 52 57.8	140 56 08.5	Ocracoke	4.123748	13,296.8	43,625
Gull Shoal Lighthouse, 1935 [1]	35 21 57.88	31 19 45	211 15 45	Bluff Shoal Lighthouse (1935)	4.305684	20,215.5	66,324
	75 57 28.71	115 51 25	295 47 04	Mount Pleasant	4.101682	12,638.1	41,463

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

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points							
Mason, 1933	34 38 37.682	258 56 52.00	78 59 59.57	Dublin	3.9324239	8,559.02	28,080.7
	78 49 05.416	329 09 19.57	149 12 23.97	Griffin	4.2085029	16,162.29	53,025.8
		280 36 42		Azimuth mark, R. M. No. 1.			
Freeman, 1933	34 31 20.628	178 00 53.79	358 00 43.39	Mason	4.1295418	13,475.40	44,210.5
	78 48 47.088	207 42 20.12	27 45 17.00	Dublin	4.2320836	17,064.11	55,984.5
		272 59 50.58	93 02 44.31	Griffin	3.8937514	7,829.81	25,688.3
		243 17 12		Azimuth mark, R. M. No. 1.			
Allenton, 1933	34 35 31.837	239 55 35.32	59 59 16.13	Mason	4.0583664	11,438.43	37,527.6
	78 55 34.088	306 41 28.03	126 45 18.89	Freeman	4.1121144	12,945.37	42,471.6
		283 27 21		Azimuth mark, R. M. No. 3.			
Long Branch, 1933	34 33 06.856	220 24 14.04	40 25 38.73	Allenton	3.7684658	5,867.67	19,250.8
	78 58 03.332	233 19 09.07	53 24 14.51	Mason	4.2325445	17,082.23	56,043.9
		282 57 02.04	103 02 17.40	Freeman	4.1630776	14,557.19	47,759.7
		137 25 17		Azimuth mark, R. M. No. 2.			
Fields, 1933	34 27 03.243	152 22 59.30	332 20 49.06	Long Branch	4.1019850	12,646.93	41,492.5
	78 54 13.390	172 31 27.34	352 30 41.61	Allenton	4.1988267	15,806.17	51,857.4
		226 21 57.41	46 25 02.17	Freeman	4.0606468	11,498.65	37,725.2
		271 29 11		Azimuth mark, R. M. No. 2.			
Byrd, 1933	34 27 47.338	214 07 37.56	34 10 05.86	Long Branch	4.0754188	11,896.49	39,030.4
	79 02 25.111	276 08 23.54	96 13 01.74	Fields	4.1012108	12,624.40	41,418.6
		343 37 12.47	163 38 51.94	Ford	4.2030926	15,962.19	52,369.3
		63 42 17.25	243 39 49.87	Claybank	3.8704141	7,420.17	24,344.3
		218 39 56		Azimuth mark, R. M. No. 1.			

[1] No check on this position.

GOLDSBORO TO LITTLE RIVER, S. C., AND MARIETTA TO LINCOLNTON—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points—Continued	° ′ ″	° ′ ″	° ′ ″				
Williamson, 1933	34 21 33.877	136 29 30.35	316 25 28.35	Byrd	4.2007173	15,875.13	52,083.7
	78 55 16.893	168 45 37.54	348 44 03.37	Long Branch	4.3378867	21,771.42	71,428.4
		189 04 29.62	9 05 05.49	Fields	4.0118873	10,277.50	33,718.8
		59 26 30.40	239 24 08.16	Ford	3.8742252	7,485.58	24,558.9
		115 05 29.57	294 59 00.48	Claybank	4.2882055	19,418.04	63,707.4
		288 42 23		Azimuth mark, R. M. No. 2.			
Baker, 1933	35 39 37.819	65 48 51.31	245 39 48.41	Benn	4.4105709	25,737.77	84,441.3
	81 24 05.542	207 13 54.68	27 22 30.69	Poore	4.6829814	48,192.71	158,112.2
King eccentric, 1933	35 12 27.506	141 33 35.70	321 21 30.67	Benn	4.7051381	50,715.20	166,388.1
	81 18 45.850	188 35 03.53	8 40 30.51	Poore	4.9737400	94,132.59	308,833.3
		81 06 33		Azimuth mark, R. M. No. 2.			
Pasour, 1933	35 21 50.272	20 08 00.68	200 05 35.50	King eccentric	4.2664525	18,469.39	60,595.0
	81 14 34.515	120 37 01.50	300 22 29.26	Benn	4.6433680	43,991.42	144,328.5
		156 25 23.09	336 19 51.40	Baker	4.5552088	35,909.45	117,812.9
		97 00 49		Azimuth mark, Cherryville municipal water tank.			
Anderson 2, 1933	35 33 57.084	31 41 47.56	211 36 29.81	Pasour	4.4201760	26,313.34	86,329.7
	81 05 26.874	90 04 59.31	269 45 06.38	Benn	4.7130665	51,649.55	169,453.6
		110 32 42.66	290 21 51.25	Baker	4.4778302	30,049.01	98,585.8
		173 38 02.97	353 35 43.92	Poore	4.7296312	53,657.59	176,041.6
		231 53 15		Azimuth mark, R. M. No. 1.			
Spencer, 1933	35 17 49.603	61 07 13.11	241 00 23.20	King eccentric	4.3120768	20,515.25	67,307.1
	81 06 55.652	122 39 20.39	302 34 55.03	Pasour	4.1385937	13,759.22	45,141.7
		184 17 17.19	4 18 08.66	Anderson 2	4.4756716	29,900.03	98,097.0
Huntersville, 1933	35 24 40.390	63 13 50.01	243 04 16.89	Spencer	4.4476234	28,030.02	91,961.8
	80 50 25.169	81 57 36.89	261 43 37.57	Pasour	4.5676466	36,952.74	121,235.8
		127 07 08.86	306 58 25.39	Anderson 2	4.4544984	28,477.27	93,429.2
		84 56 25		Azimuth mark, R. M. No. 3.			
Charlotte, 1933	35 13 37.503	87 14 27.43	266 58 14.54	King eccentric	4.6306480	42,721.65	140,162.6
	80 50 38.811	107 32 38.27	287 23 14.32	Spencer	4.4130527	25,885.27	84,925.3
		112 49 49.81	292 36 00.26	Pasour	4.5946809	39,326.10	129,022.4
		180 57 55.02	0 58 02.90	Huntersville	4.3103005	20,431.51	67,032.4
		197 55 57		Azimuth mark, R. M. No. 3.			
Concord, 1933	35 22 41.097	52 38 25.79	232 30 05.14	Charlotte	4.4403264	27,562.99	90,429.6
	80 36 12.466	99 45 49.15	279 37 35.26	Huntersville	4.3390666	21,830.65	71,622.7
		221 42 21		Azimuth mark, R. M. No. 1.			
Mint Hill, 1933	35 11 20.013	103 19 32.17	283 12 42.62	Charlotte	4.2662443	18,460.54	60,566.0
	80 38 48.458	190 37 27.82	10 38 57.92	Concord	4.3295246	21,356.23	70,066.2
		60 09 27		Azimuth mark, R. M. No. 3a			
Jackson, 1933	35 21 49.770	13 14 03.72	193 12 19.54	Mint Hill	4.2996333	19,935.78	65,406.0
	80 35 48.064	56 05 22.74	235 56 48.08	Charlotte	4.4336400	27,141.89	89,048.0
		103 25 56.98	283 17 29.04	Huntersville	4.3570301	22,752.55	74,647.3
		158 43 27.44	338 43 13.31	Concord	3.2298087	1,697.50	5,569.2
		181 30 21		Azimuth mark, R. M. No. 2.			
Locust, 1933	35 15 44.487	67 58 03.80	247 50 25.89	Mint Hill	4.3358045	21,667.28	71,086.7
	80 25 34.585	128 36 01.13	308 29 52.34	Concord	4.3139116	20,602.10	67,592.1
		43 55 03		Azimuth mark, R. M. No. 3.			
Advance, 1933	35 06 53.207	119 33 11.24	299 27 40.77	Mint Hill	4.2225478	16,693.52	54,768.7
	80 29 14.479	160 08 42.78	340 04 41.56	Concord	4.4922588	31,064.10	101,916.1
		198 45 00.47	18 47 07.19	Locust	4.2378412	17,291.84	56,731.6
		226 43 34		Azimuth mark, R. M. No. 1.			
Fountain, 1933	35 04 43.765	102 16 02.57	282 09 04.09	Advance	4.2755824	18,861.77	61,882.3
	80 17 06.638	147 46 36.37	327 41 43.79	Locust	4.3816428	24,079.24	79,000.0
		312 47 54		Azimuth mark, R. M. No. 2.			
Aquadale, 1933	35 13 56.656	21 03 02.04	201 00 33.01	Fountain	4.2613617	18,254.16	59,888.9
	80 12 47.827	62 29 04.23	242 19 35.86	Advance	4.4498106	28,171.54	92,426.1
		99 47 19.66	279 39 57.16	Locust	4.2937567	19,667.84	64,526.9
		255 03 56		Azimuth mark, R. M. No. 2.			
McKay, 1933	35 09 22.360	69 21 44.65	249 13 08.75	Fountain	4.3852121	24,277.96	79,651.9
	80 02 09.822	117 41 33.71	297 35 26.00	Aquadale	4.2605479	18,219.98	59,776.7
		352 06 18		Azimuth mark, R. M. No. 1.			
Wadesboro, 1933	34 58 24.434	121 49 02.12	301 41 54.56	Fountain	4.3465377	22,209.44	72,865.5
	80 04 41.708	156 50 25.76	336 45 46.22	Aquadale	4.4949179	31,254.88	102,542.1
		190 44 09.05	10 45 36.31	McKay	4.3146442	20,636.89	67,706.2
		259 33 45		Azimuth mark, R. M. No. 1.			
Lenzton, 1933	35 03 10.978	67 32 52.14	247 24 50.17	Wadesboro	4.3627781	23,055.69	75,641.9
	79 50 41.704	123 20 53.65	303 14 17.93	McKay	4.3190913	20,849.29	68,403.0
		342 54 19		Azimuth mark, R. M. No. 3.			
Ingram, 1933	35 01 04.357	67 43 39.82	247 39 08.20	Wadesboro	4.1133396	12,981.94	42,591.6
	79 56 48.117	152 03 24.52	332 00 19.59	McKay	4.2399541	17,376.17	57,008.3
		247 10 56.07	67 14 26.42	Lenzton	4.0032022	10,074.01	33,051.1
		69 24 50		Azimuth mark, R. M. No. 2.			

GOLDSBORO TO LITTLE RIVER, S. C., AND MARIETTA TO LINCOLNTON—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points—Continued	° ′ ″	° ′ ″	° ′ ″				
Hinson, 1933	34 55 47.708	108 55 57.70	288 50 39.00	Wadesboro	4.1737348	14,918.83	48,946.2
	79 55 25.397	167 52 13.83	347 51 26.42	Ingram	3.9991679	9,980.86	32,745.5
		207 45 13.08	27 47 55.77	Lenzton	4.1886110	15,438.71	50,651.8
		127 23 02		Azimuth mark, R. M. No. 2.			
Sandy, 1933	35 00 32.268	54 38 58.47	234 34 19.58	Hinson	4.1801733	15,141.65	49,677.2
	79 47 18.795	93 57 51.47	273 52 24.82	Ingram	4.1604259	14,468.58	47,469.0
		133 34 25.12	313 32 28.65	Lenzton	3.8511120	7,097.61	23,286.1
		72 39 53		Azimuth mark, R. M. No. 3.			
Martin, 1933	34 51 46.809	120 44 44.52	300 40 02.89	Hinson	4.1624869	14,537.40	47,694.8
	79 47 13.116	179 29 25.80	359 29 22.55	Sandy	4.2093272	16,193.00	53,126.5
		257 24 43		Azimuth mark, R. M. No. 2.			
Fruitland, 1933	34 55 20.081	61 37 42.05	241 33 08.33	Martin	4.1403022	13,813.45	45,319.6
	79 39 14.614	92 03 21.88	271 54 06.09	Hinson	4.3918931	24,654.32	80,886.7
		128 06 24.64	308 01 47.17	Sandy	4.1931840	15,602.13	51,188.0
		66 32 18		Azimuth mark, R. M. No. 2.			
Fairview, 1933	34 49 52.799	101 16 16.76	281 09 38.28	Martin	4.2567712	18,062.22	59,259.1
	79 35 35.736	151 09 18.88	331 07 13.72	Fruitland	4.0612926	11,515.76	37,781.3
		355 44 48		Azimuth mark, R. M. No. 1.			
McInnis (S. C.), 1933	34 44 36.310	149 05 23.60	329 02 25.08	Martin	4.1893719	15,465.78	50,740.6
	79 42 00.342	191 58 17.42	11 59 52.08	Fruitland	4.3070660	20,279.91	66,535.0
		225 02 40.48	45 06 19.91	Fairview	4.1402031	13,810.30	45,309.3
		38 35 25		Azimuth mark, R. M. No. 2.			
Zion, 1933	34 44 15.824	91 59 07.19	271 52 06.86	McInnis	4.2735576	18,774.03	61,594.5
	79 29 42.733	139 11 25.17	319 08 03.79	Fairview	4.1375114	13,724.97	45,029.3
		184 33 23		Azimuth mark, R. M. No. 1.			
Lynch (S. C.), 1933	34 38 42.237	131 43 13.51	311 38 39.49	McInnis	4.2150250	16,406.84	53,828.1
	79 33 58.920	173 12 37.57	353 11 42.41	Fairview	4.3182593	20,809.39	68,272.1
		212 22 09.20	32 24 35.01	Zion	4.0854008	12,173.09	39,937.9
		100 38 13		Azimuth mark, R. M. No. 3.			
Oak Grove, 1933	34 38 51.597	88 50 49.53	268 45 41.06	Lynch	4.1405529	13,821.43	45,345.8
	79 24 56.319	143 54 19.52	323 51 36.50	Zion	4.0922916	12,367.77	40,576.6
		118 17 08		Azimuth mark, R. M. No. 3.			

Judson (S. C.), 1933	34 33 32.224	136 53 27.80	316 50 08.32	Lynch	4.1169680	13,090.86	42,948.9
	79 28 07.642	173 02 44.75	353 01 50.69	Zion	4.3005804	19,979.31	65,548.8
		206 20 13.33	26 22 01.98	Oak Grove	4.0406979	10,982.42	36,031.5
		302 28 35		Azimuth mark, R. M. No. 1.			
Salem, 1933	34 36 15.571	68 28 33.37	248 23 49.74	Judson	4.1365612	13,694.97	44,930.9
	79 19 47.914	121 29 25.47	301 26 30.23	Oak Grove	3.9642830	9,210.50	30,218.1
		132 49 26		Azimuth mark, R. M. No. 3.			
Barlow (S. C.), 1933	34 29 58.503	140 12 13.19	320 10 11.18	Judson	3.9331525	8,573.39	28,127.9
	79 24 32.394	177 52 32.70	357 52 19.12	Oak Grove	4.2158488	16,437.99	53,930.3
		211 57 07.27	31 59 48.61	Salem	4.1366218	13,696.88	44,937.2
		334 10 38		Azimuth mark, R. M. No. 2.			
Dillon north base, 1933	34 32 10.697	69 03 23.85	248 59 27.81	Barlow	4.0560942	11,378.74	37,331.7
	79 17 35.842	155 57 56.13	335 56 41.19	Salem	3.9171094	8,262.46	27,107.8
		221 49 55		Azimuth mark, R. M. No. 3.			
Dillon south base (S. C.), 1933	34 26 06.271	147 07 44.55	327 06 01.95	Barlow	3.9305048	8,521.28	27,956.9
	79 21 31.109	208 06 37.01	28 08 50.21	Dillon north base	4.1049338	12,733.091	41,775.15
		208 15 10		Azimuth mark, R. M. No. 1.			
Hammond, 1933	34 29 59.710	52 17 48.72	232 14 22.59	Dillon south base	4.0701846	11,753.97	38,562.8
	79 15 26.867	140 49 42.43	320 48 29.34	Dillon north base	3.7165846	5,206.96	17,083.2
		335 50 42		Azimuth mark, R. M. No. 1.			
Hamer (S. C.), 1933	34 29 59.569	33 07 09.78	213 05 25.85	Dillon south base	3.9335745	8,581.72	28,155.2
	79 18 27.456	89 49 37.88	269 46 09.18	Barlow	3.9689626	9,310.28	30,545.5
		169 57 59.45	349 57 11.80	Salem	4.0706370	11,766.22	38,603.0
		269 55 53.58	89 57 35.87	Hammond	3.6634311	4,607.14	15,115.3
		41 51 13		Azimuth mark, R. M. No. 3.			
Oliver (S. C.), 1933	34 23 02.927	123 01 20.03	302 58 07.51	Dillon south base	4.0159439	10,373.94	34,035.2
	79 15 50.426	182 40 46.27	2 40 59.59	Hammond	4.1091219	12,856.47	42,179.9
		109 56 58		Azimuth mark, R. M. No. 3.			
Pittman, 1933	34 29 13.059	41 47 57.59	221 44 11.99	Oliver	4.1844416	15,291.20	50,167.9
	79 09 11.476	98 33 54.72	278 30 22.13	Hammond	3.9860942	9,684.88	31,774.5
		113 05 13.71	293 00 27.94	Dillon north base	4.1455516	13,981.43	45,870.7
		43 15 21		Azimuth mark, R. M. No. 3.			
Claybank, 1933	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 13		Azimuth mark, R. M. No. 2.			
Kemper (S. C.), 1933	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, R. M. No. 3.			

GOLDSBORO TO LITTLE RIVER, S. C., AND MARIETTA TO LINCOLNTON—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points—Continued	° ′ ″	° ′ ″	° ′ ″				
Nichols (S. C.), 1933	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, R. M. No. 1.			
Ford, 1933	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		Azimuth mark, R. M. No. 3.			
Floyds (S. C.), 1933	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 55		Azimuth mark, R. M. No. 1.			
Wilson, 1933	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		Azimuth mark, R. M. No. 1.			
Green Sea (S. C.), 1933	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 R. M. No. 1.			
Clarendon, 1933	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		Azimuth mark, R. M. No. 2.			
Iron Hill, 1933	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		Azimuth mark, R. M. No. 2.			
Loris (S. C.), 1933	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		Azimuth mark, R. M. No. 2.			
Guide, 1933	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		Azimuth mark, R. M. No. 2.			
Simpson (S. C.), 1933	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, R. M. No. 2.			
Supplementary points							
Bladenboro, aluminum water tank, 1933	34 32 12.321	59 44 44.8	239 43 44.1	Freeman	3.499775	3,160.6	10,369
	78 47 00.044	164 57 00.8	344 55 49.6	Mason	4.089792	12,296.8	40,344
		281 21 50.9	101 26 15.8	Rogers	4.084783	12,155.8	39,881
Bladenboro Cotton Mill, brick stack, 1933	34 32 37.368	21 45 39.5	201 45 18.5	Freeman	3.405863	2,546.0	8,353
	78 48 10.079	115 26 32.1	295 22 20.1	Allenton	4.097955	12,530.1	41,109
		172 45 57.6	352 45 26.1	Mason	4.048902	11,191.9	36,719
Bladenboro Cotton Mill, aluminum water tank, 1933	34 32 42.876	14 23 55.7	194 23 41.3	Freeman	3.417725	2,616.5	8,584
	78 48 21.578	115 18 43.4	295 14 38.0	Allenton	4.086092	12,192.5	40,002
		174 10 09.1	354 09 44.2	Mason	4.040993	10,989.9	36,056
Chadbourn, aluminum water tank, 1933	34 19 22.971	62 58 17.4	242 54 21.4	Wilson	4.080048	12,024.0	39,449
	78 49 28.660	90 53 20.4	270 47 41.9	Ford	4.186117	15,350.3	50,362
		114 24 20.8	294 21 04.3	Williamson	3.989988	9,772.1	32,061
Fairmont, ball on top of municipal water tank, 1933 [1]	34 29 49.17	1 26 56	181 26 52	Claybank	3.847925	7,045.7	23,116
	79 06 38.68	74 04 59	254 03 31	Pittman	3.607887	4,054.0	13,300
Mullins, ball on top of southerly black water tank (S. C.), 1933.	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
Astronomic telescope, 1933 [1]	34 39 21.453	166 09 29	346 09 28	White Lake	1.649880	44.656	146.51
	78 29 19.407						
Magnetic station (N. C. G. S. and U. S. G. S. (1898)), 1933. [1]	34 37 39.622	78	238	Elizabethtown	9.563481	0.366	1.20
	78 36 20.443						
Mullins, ball on top of northerly black water tank (S. C.), 1933.	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	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 25		Azimuth mark, R. M. No. 1.			
B. M. State Line (N. C.–S. C.), 1933 [1]	34 17 33.081	66 08 02	246 08 01	Turner	1.548660	35.372	116.05
	79 03 46.851						

[1] No check on this position.

GOLDSBORO TO LITTLE RIVER, S. C., AND MARIETTA TO LINCOLNTON—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Replacement (N. C.–S. C.), 1933	34 12 22.113 78 57 38.307	193 36 20.4 268 45 35.9 9 53 31.2 300 55 37	13 37 00.3 88 49 38.5 189 52 56.9	Wilson Clarendon Green Sea Azimuth mark, R. M. No. 1.	3.887279 4.043339 3.959691	7,714.0 11,049.4 9,113.6	25,308 36,251 29,900
Tabor, municipal water tank, aluminum, 1933	34 09 03.836 78 52 35.331	5 42 04.1 72 55 56.7 207 25 14.8	185 41 40.3 252 52 32.4 27 26 27.0	Loris Green Sea Clarendon	4.040570 3.989419 3.854019	10,979.2 9,759.3 7,145.3	36,021 32,019 23,443
Tabor (N. C.–S. C.), 1933	34 08 26.215 78 52 58.095	78 57 50.6 207 18 28.8 271 51 28.3 220 22 31	258 54 39.2 27 19 53.8 91 54 47.3	Green Sea Clarendon Iron Hill Azimuth mark, R. M. No. 1.	3.949924 3.926485 3.958444	8,911.0 8,442.8 9,087.5	29,236 27,699 29,815
State-line monument (N. C.–S. C.), 1933 [1]	34 08 26.121 78 52 57.992	137 38 19	317 38 19	Tabor	0.591955	3.908	12.82
Dothan (N. C.–S. C.), 1933	34 01 33.660 78 44 49.706	7 26 27.6 61 59 21.7 223 58 06.7 1 32 49	187 25 55.7 241 56 22.6 43 59 39.7	Leon Simpson Guide Azimuth mark, R. M. No. 3.	4.054397 3.969058 3.787602	11,334.4 9,312.3 6,132.0	37,186 30,552 20,118
Dillon, Dillon Oil Co., tall, slender, black water tank (S. C.), 1933.	34 25 14.670 79 22 15.044	215 12 08.2 229 50 08.5 292 25 17.8	35 12 33.0 49 53 59.4 112 28 55.1	Dillon south base Hammond Oliver	3.289117 4.134383 4.026507	1,945.9 13,626.5 10,629.4	6,384 44,706 34,873
Dillon, municipal water tank, red (S. C.), 1933 [1]	34 25 20.04 79 22 10.10	214 56 32 293 30 40	34 56 54 113 34 14	Dillon south base Oliver	3.240060 4.024386	1,738.0 10,577.6	5,702 34,703
Maxton, aviation beacon on municipal water tank, 1933.	34 44 18.123 79 20 58.199	353 07 56.6 31 04 55.5 89 44 14.2	173 08 36.6 211 02 39.9 269 39 15.3	Salem Oak Grove Zion	4.175419 4.069894 4.125279	14,976.8 11,746.1 13,343.8	49,136 38,537 43,779
Rowland, municipal water tank, ball on top, 1933	34 32 31.189 79 17 37.571	295 16 15.3 324 27 17.4 356 00 19.7	115 21 02.1 144 28 31.5 176 00 20.7	Pittman Hammond Dillon north base	4.154727 3.758596 2.801391	14,280.0 5,735.8 633.0	46,850 18,818 2,077
Hamer, Carolina Textile Corporation, stack (S. C.), 1933.	34 28 49.085 79 19 49.361	180 09 12.7 208 43 24.4 251 58 44.0	0 09 13.5 28 44 40.0 72 01 12.6	Salem Dillon north base Hammond	4.138553 3.850326 3.847705	13,757.9 7,084.8 7,042.1	45,137 23,244 23,104
Hamer, Carolina Textile Corporation, water tank, near stack, ball on top (S. C.), 1933.	34 28 49.341 79 19 50.626	106 32 01.2 180 17 16.6 208 58 57.2	286 29 21.6 0 17 18.1 29 00 13.5	Barlow Salem Dillon north base	3.874972 4.138308 3.850857	7,498.5 13,750.2 7,093.4	24,601 45,112 23,272
McRae (N. C.–S. C.), 1933	34 37 38.663 79 27 29.633	7 16 18.7 101 12 25.3 240 03 56.2 264 34 31	187 15 57.2 281 08 44.1 60 05 23.3	Judson Lynch Oak Grove Azimuth mark, R. M. No. 1.	3.883960 4.004615 3.653737	7,655.3 10,106.8 4,505.4	25,116 33,159 14,781
State-line monument (1905) (N. C.–S. C.), 1933 [1]	34 37 38.592 79 27 29.578	147 01	327 01	McRae	0.413300	2.59	8.5
McColl, municipal water tank, aluminum (S. C.), 1933.	34 40 12.453 79 32 49.358	212 19 55.7 281 38 57.3 329 46 47.0	32 21 42.0 101 43 26.3 149 49 27.0	Zion Oak Grove Judson	3.948258 4.089907 4.154396	8,876.8 12,300.1 14,269.1	29,123 40,355 46,815
McColl, Marlboro Cotton Mills, tank, aluminum (S. C.), 1933. [1]	34 40 07.38 79 32 36.47	330 37 19 38 40 29	150 39 52 218 39 42	Judson Lynch	4.145206 3.526366	13,970.3 3,360.2	45,834 11,024
Laurinburg, Dixie Guano Co., tank, 1933	34 45 50.496 79 26 15.565	351 06 49.9 7 05 47.1 41 49 10.5	171 07 34.9 187 05 04.9 221 44 46.7	Oak Grove McRae Lynch	4.116100 4.183906 4.247911	13,064.7 15,272.4 17,697.5	42,863 50,106 58,063
Laurinburg, municipal water tank, 1933	34 46 40.398 79 27 57.141	342 19 04.1 357 35 46.9 32 01 34.8	162 20 47.1 177 36 02.6 211 58 08.9	Oak Grove McRae Lynch	4.180727 4.222924 4.239898	15,161.0 16,708.0 17,373.9	49,741 54,816 57,001
Airway beacon, flashing red and white, east of Clio (S. C.), 1933. [1]	34 35 55.42 79 27 39.27	184 24 51 217 23 29	4 24 57 37 25 02	McRae Oak Grove	3.503879 3.834666	3,190.6 6,833.9	10,468 22,421
Bennettsville, black water tank (S. C.), 1933 [1]	34 37 00.57 79 41 07.84	174 34 01 253 58 00	354 33 32 74 02 04	McInnis Lynch	4.149425 4.055588	14,106.7 11,365.5	46,282 37,288
Clio, white water tank (S. C.), 1933 [1]	34 34 45.28 79 32 53.56	167 09 33 237 03 36	347 08 56 57 06 40	Lynch McRae	3.874426 3.992644	7,489.0 9,832.0	24,570 32,257
Gibson (N. C.–S. C.), 1933	34 45 26.555 79 37 05.041	195 27 38.2 280 55 44.3 339 10 06.8 78 22 33.6 50 22 41	15 28 29.2 100 59 56.4 159 11 52.7 258 19 45.3	Fairview Zion Lynch McInnis Azimuth mark, R. M. No. 2.	3.930063 4.059174 4.124795 3.884735	8,512.6 11,459.7 13,328.9 7,668.9	27,928 37,597 43,730 25,160
State-line monument (N. C.–S. C.), 1933 [1]	34 45 26.392 79 37 04.860	137 30 13	317 30 13	Gibson	0.832892	6.806	22.33
Perhealth (N. C.–S. C.), 1933	34 48 20.373 79 46 26.088	169 21 53.2 315 35 45.8 61 16 24	349 21 26.3 135 38 17.3	Martin McInnis Azimuth mark, R. M. No. 2.	3.811079 3.985018	6,472.6 9,660.9	21,236 31,696

[1] No check on this position.

GOLDSBORO TO LITTLE RIVER, S. C., AND MARIETTA TO LINCOLNTON—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Hamlet traverse tie, 1933	34 53 15.067 79 42 33.284	69 04 51.8 151 45 15.8 232 36 43.3 294 46 49	249 02 11.8 331 42 32.3 52 38 37.0	Martin Sandy Fruitland Azimuth mark, R. M. No. 2.	3.881355 4.184606 3.802546	7,609.5 15,297.0 6,346.7	24,966 50,187 20,822
Rockingham, 1918	34 54 30.941 79 41 02.453	44 36 49.1 139 24 57.2 241 02 27.6 243 20 29	224 35 57.1 319 21 21.5 61 03 29.3	Hamlet traverse tie Sandy Fruitland Azimuth mark, R. M. No. 1.	3.516412 4.166368 3.495315	3,284.1 14,667.9 3,128.3	10,775 48,123 10,263
Cordova, 1933	34 53 46.085 79 48 24.383	187 34 05.1 333 46 42.2 109 21 29.0 41 35 12	7 34 42.7 153 47 22.9 289 17 28.1	Sandy Martin Hinson Azimuth mark, R. M. No. 2.	4.101299 3.612463 4.054062	12,627.0 4,097.0 11,325.6	41,427 13,442 37,157
Pee Dee, 1933	34 57 23.818 79 51 19.300	64 38 47.5 129 12 12.7 234 59 30	244 36 26.6 309 09 04.1	Hinson Ingram Azimuth mark, R. M. No. 1.	3.839581 4.031733	6,911.6 10,758.0	22,676 35,295
Astronomic station, 1933[1]	35 00 33.113 79 47 18.319	24 51 08	204 51 08	Sandy	1.457882	28.700	94.16
Entwistle, 1933	34 57 35.369 79 41 08.879	14 57 37.1 120 11 13.4 253 50 29	194 56 48.8 300 07 41.3	Hamlet traverse tie Sandy Azimuth mark, R. M. No. 2.	3.919209 4.035469	8,302.5 10,851.0	27,239 35,600
Ellerbe, 1933	35 04 27.102 79 45 32.176	332 13 45.2 20 29 05.9 73 22 21.8 39 47 56	152 16 16.4 200 28 04.7 253 19 24.0	Entwistle Sandy Lenzton Azimuth mark, R. M. No. 1.	4.156456 3.887886 3.913091	14,336.9 7,724.8 8,186.4	47,037 25,344 26,858
Hamlet, city water tank, 1933	34 53 15.113 79 42 32.889	69 05 52.9 81 54 47.6 232 34 02.1	249 03 12.7 261 54 47.4 52 35 55.6	Martin Hamlet traverse tie Fruitland	3.881918 1.005781 3.801941	7,619.4 10.134 6,337.8	24,998 33.25 20,793
Rockingham, municipal water tank, aluminum, 1933	34 56 18.277 79 46 19.981	169 12 46.5 253 13 35.2 314 26 02.1	349 12 12.8 73 16 33.4 134 28 11.8	Sandy Entwistle Hamlet traverse tie	3.901342 3.916120 3.906428	7,967.9 8,243.7 8,061.7	26,141 27,046 26,449
Ellerbe, municipal water tank, black, 1933	35 04 27.561 79 45 32.170	20 26 58.2 43 14 45.6 73 16 41.8	200 25 57.0 223 09 05.4 253 13 44.0	Sandy Hinson Lenzton	3.888634 4.341938 3.913315	7,738.1 21,975.5 8,190.6	25,387 72,098 26,872
Marston, Marston Training School, black water tank, 1933.	35 01 18.846 79 36 23.513	46 26 40.2 85 06 51.8 112 41 24.5	226 23 56.7 265 00 35.8 292 36 09.4	Entwistle Sandy Ellerbe	3.999573 4.222083 4.178020	9,990.2 16,675.7 15,066.8	32,776 54,710 49,432
East Rockingham, Hannah Picket Mill No. 2, tall black water tank, ball on top, 1933.	34 55 30.150 79 46 06.497	47 31 01.2 168 51 39.5 242 54 46.2	227 29 42.3 348 50 58.1 62 57 36.8	Cordova Sandy Entwistle	3.676442 3.977218 3.928449	4,747.2 9,488.9 8,481.0	15,575 31,131 27,825
East Rockingham, short aluminum water tank, red top, 1933.[1]	34 56 26.42 79 46 13.32	316 32 05 33 57 51	136 34 11 213 56 36	Hamlet traverse tie Cordova	3.909673 3.774995	8,122.2 5,956.6	26,648 19,543
Wadesboro, municipal water tank, aluminum, 1933	34 57 55.634 80 04 35.506	169 56 47.2 245 14 52.1 285 43 35.6	349 56 43.6 65 22 50.5 105 48 50.7	Wadesboro Lenzton Hinson	2.954891 4.366757 4.161510	901.3 23,267.9 14,504.7	2,957 76,338 47,588
Wadesboro, church spire, cross on top, 1933[1]	34 57 38.37 80 05 18.64	213 25 19 245 10 58	33 25 40 65 19 21	Wadesboro Lenzton	3.230642 4.388889	1,700.8 24,484.4	5,580 80,329
Mount Gilead, water tank, higher of two, 1933	35 13 08.209 80 00 19.067	321 29 51.8 21 56 20.4 94 34 06.9	141 35 24.1 201 55 16.6 274 26 54.0	Lenzton McKay Aquadale	4.371119 3.875228 4.278613	23,502.8 7,502.9 18,993.9	77,109 24,616 62,316
Mount Gilead, water tank, lower of two, 1933[1]	35 13 08.23 80 00 23.01	321 18 30 21 13 39	141 24 04 201 12 38	Lenzton McKay	4.372274 3.873129	23,565.4 7,466.7	77,314 24,497
Ansonville, 1933	35 06 32.007 80 06 24.318	144 43 21.2 230 48 27.3 350 10 18.2 213 56 13	324 39 40.2 50 50 53.8 170 11 17.2	Aquadale McKay Wadesboro Azimuth mark, R. M. No. 1.	4.225086 3.919658 4.183229	16,791.4 8,311.1 15,248.6	55,090 27,267 50,028
Marshville, 1933	34 59 56.959 80 21 23.962	137 07 44.8 216 24 18.2 276 19 12.3 204 33 49	317 03 14.5 36 26 45.9 96 28 46.9	Advance Fountain Wadesboro Azimuth mark, R. M. No. 3.	4.243359 4.040772 4.407887	17,512.9 10,984.3 25,579.2	57,457 36,038 83,921
Marshville, black water tank, west one, ball on top, 1933.	34 59 14.769 80 21 50.323	141 29 20.5 207 12 38.0 215 19 28.2	321 25 05.4 27 12 53.1 35 22 11.1	Advance Marshville Fountain	4.256796 3.164930 4.094459	18,063.3 1,461.9 12,429.7	59,263 4,796 40,780
Marshville, black water tank, east one, ball on top, 1933.	34 59 20.118 80 21 15.102	139 00 43.9 168 48 22.6 212 15 05.9	318 56 08.6 348 48 17.5 32 17 28.6	Advance Marshville Fountain	4.267355 3.063449 4.071722	18,507.8 1,157.3 11,795.7	60,721 3,797 38,700
Charlotte, Presbyterian Church, spire, 1933[1]	35 13 43.79 80 50 39.13	283 47 22 357 35 43	103 54 12 177 35 43	Mint Hill Charlotte	4.267492 2.287437	18,513.6 193.8	60,740 636

[1] No check on this position.

GOLDSBORO TO LITTLE RIVER, S. C., AND MARIETTA TO LINCOLNTON—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Sloop, 1933	35 20 47.832	257 47 02.1	77 50 24.7	Jackson	3.956235	9,041.4	29,663
	80 41 38.091	45 53 56.8	225 48 44.5	Charlotte	4.279696	19,041.3	62,471
		47 15 51		Azimuth mark, R. M. No. 3.			
Allen, 1933	35 13 32.982	35 21 09.0	215 20 02.8	Mint Hill	3.701010	5,023.5	16,481
	80 36 53.571	183 30 53.6	3 31 17.4	Concord	4.228489	16,923.5	55,523
		319 39 21		Azimuth mark, R. M. No. 3.			
Locke, 1933	35 25 09.584	5 32 11.1	185 31 57.4	Jackson	3.791459	6,186.7	20,298
	80 35 24.421	14 50 35.7	194 50 07.9	Concord	3.675225	4,734.0	15,531
		87 48 19.4	267 39 37.4	Huntersville	4.356854	22,743.3	74,617
		93 44 14		Azimuth mark, R. M. No. 2.			
Jackson Training School for Boys, water tank, 1933	35 21 48.502	6 24 06.8	186 23 27.6	Allen	4.186571	15,366.4	50,415
	80 35 45.818	157 27 46.8	337 27 31.4	Concord	3.244255	1,754.9	5,758
		184 58 42.9	4 58 55.3	Locke	3.793820	6,220.4	20,408
Kannapolis, tall silver water tank, 1933	35 29 35.733	336 47 44.3	156 49 05.1	Locke	3.950532	8,923.4	29,276
	80 37 43.785	349 46 28.2	169 47 21.1	Concord	4.113417	12,984.3	42,599
		19 59 12.7	199 56 56.7	Sloop	4.238284	17,309.5	56,790
Kannapolis, tall brick stack, 1933	35 30 06.602	341 47 15.2	161 48 24.5	Locke	3.983888	9,635.8	31,613
	80 37 23.793	352 31 45.2	172 32 26.6	Concord	4.141357	13,847.0	45,430
		358 34 12.8	178 34 30.3	Allen	4.486158	30,630.8	100,495
Concord, Presbyterian Church, spire (tall white), 1933	35 24 44.714	12 44 14.5	192 43 46.6	Jackson	3.742517	5,527.4	18,134
	80 34 59.791	89 44 50.9	269 35 54.7	Huntersville	4.368256	23,348.3	76,602
		140 58 05.1	320 57 50.9	Locke	2.994185	986.7	3,237
Huntersville, municipal water tank, 1933	35 24 40.792	298 19 56.9	118 25 01.8	Sloop	4.179175	15,106.9	49,563
	80 50 24.692	44 08 33.4	224 08 33.1	Huntersville	1.237217	17.267	56.65
Bench mark 41 (1932), 1933 [1]	35 24 40.902	23 44 28	203 44 28	Huntersville	1.236058	17.221	56.50
	80 50 24.894						
City, 1933 [1]	35 13 45.77	329 38 17	149 38 21	Charlotte	2.470117	295.2	969
	80 50 44.71						
Mayor, 1933 [1]	35 13 38.95	227 03 36	47 03 41	City	2.489327	308.551	1,012.30
	80 50 53.64	276 46 05	96 46 13	Charlotte	2.577182	377.7	1,239

Alexis, 1933	35 24 37.184	356 19 34.2	176 19 52.7	Spencer	4.099908	12,586.6	41,295
	81 07 27.572	64 30 56.5	244 26 49.2	Pasour	4.077011	11,940.2	39,174
		335 39 00		Azimuth mark, R. M. No. 2.			
Stanly, 1933	35 21 36.118	13 12 57.1	193 12 19.6	Spencer	3.855545	7,170.4	23,525
	81 05 50.771	91 55 53.6	271 50 50.5	Pasour	4.121552	13,229.8	43,405
		203 48 19		Azimuth mark, R. M. No. 1.			
Gastonia, 1933	35 15 50.423	62 03 42.9	241 59 14.3	King eccentric	4.124855	13,330.8	43,736
	81 11 00.245	154 00 02.8	333 57 59.0	Pasour	4.091319	12,340.1	40,486
Gastonia base reference mark No. 1, 1933 [1]	35 15 52.312	41 28 25.7	221 28 24.5	Gastonia	1.890480	77.7	255
	81 10 58.209						
Gastonia base, 1933 [1]	35 15 51.886	262 27 02.2	82 27 04.5	Gastonia base reference mark No. 1	1.999826	99.960	327.95
	81 11 02.129	313 26 01.8	133 26 02.9	Gastonia	1.816827	65.6	215
Cherryville, 1933	35 22 38.300	276 42 41.2	96 47 27.9	Pasour	4.100043	12,590.5	41,307
	81 22 49.818	341 50 48.9	161 53 09.9	King eccentric	4.296816	19,806.9	64,983
		345 04 01		Azimuth mark, R. M. No. 2.			
Dallas, water tank, tall black, near white factory, 1933. [1]	35 17 31.98	126 34 03	306 29 57	Pasour	4.126179	13,371.5	43,870
	81 07 29.12	180 10 14	0 10 15	Alexis	4.117399	13,103.9	42,992
Charlotte airport beacon, revolving white light, 1933 [1]	35 12 02.62	124 19 55	304 09 47	Pasour	4.507587	32,180.1	105,578
	80 57 01.90	203 11 50	23 15 39	Huntersville	4.405052	25,412.8	83,375
Denver, 1933	35 31 43.625	16 53 14.7	196 50 15.8	Spencer	4.429070	26,857.8	88,116
	81 01 46.864	126 36 02.3	306 33 54.4	Anderson 2	3.838929	6,901.3	22,642
		191 41 37		Azimuth mark, R. M. No. 2.			
Statesville, 1933	35 46 57.266	36 29 50.4	216 22 58.7	Anderson 2	4.475506	29,888.6	98,060
	80 53 40.938	141 08 14.8	320 59 01.3	Poore	4.575696	37,644.0	123,504
		68 16 13		Azimuth mark, R. M. No. 2.			
Newton, 1933	35 39 46.940	312 12 46.3	132 17 20.9	Anderson 2	4.205096	16,036.0	52,611
	81 13 18.514	89 03 46.1	268 57 28.9	Baker	4.211570	16,276.8	53,401
		210 41 14		Azimuth mark, R. M. No. 3.			
Penelope, 1933	35 43 41.304	303 09 36.8	123 20 13.0	Anderson 2	4.516402	32,839.9	107,742
	81 23 38.571	5 09 56.6	185 09 40.9	Baker	3.877066	7,534.7	24,720
		67 40 01		Azimuth mark, R. M. No. 3.			
Catlin, 1933	35 34 03.163	339 08 23.3	159 14 11.6	King eccentric	4.630598	42,716.7	140,146
	81 28 47.207	89 08 14.2	269 01 55.8	Benn	4.214507	16,387.3	53,764
		40 24 53		Azimuth mark, R. M. No. 2.			
Lincolnton, 1933	35 28 15.292	148 06 43.0	328 01 40.3	Baker	4.394185	24,784.8	81,315
	81 15 25.014	235 00 07.2	55 05 54.7	Anderson 2	4.264528	18,387.7	60,327
		341 53 13		Azimuth mark, R. M. No. 2.			

[1] No check on this position.

GOLDSBORO TO LITTLE RIVER, S. C., AND MARIETTA TO LINCOLNTON—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Primary traverse station No. 10 (U. S. G. S.), 1933 [1]	35 21 36.573 81 05 48.181	77 53 12.3	257 53 10.8	Stanly	1.825348	66.888	219.45
Gastonia, black water tank, 1933 [1]	35 15 39.74 81 10 50.48	143 08 39 153 39 14	323 08 33 333 37 05	Gastonia Pasour	2.614221 4.105317	411.4 12,744.3	1,350 41,812
Elizabethtown 2, 1938 [1]	34 37 40.859 78 36 20.453	0 09	180 09	Elizabethtown	1.581859	38.182	125.27
CHARLOTTE TO SOUTH CAROLINA BOUNDARY							
Principal points							
Pleasant, 1934	35 05 02.645 80 42 19.891	204 41 55.22 260 13 05.62 107 02 11	24 43 56.89 80 20 37.22	Mint Hill Advance Azimuth mark, R. M. No. 3	4.1072771 4.3049716	12,801.98 20,182.34	42,001.2 66,214.9
Monroe, 1934	34 58 56.684 80 32 33.842	127 15 03.62 157 31 36.33 198 58 15.17 198 54 30	307 09 27.20 337 28 00.99 19 00 09.66	Pleasant Mint Hill Advance Azimuth mark, R. M. No. 1	4.2707027 4.3943581 4.1911588	18,651.03 24,794.66 15,529.55	61,190.9 81,347.1 50,949.9
Mineral, 1934	34 55 50.738 80 41 26.436	175 26 52.04 246 58 42.36 55 17 54	355 26 21.37 67 03 47.51	Pleasant Monroe Azimuth mark, R. M. No. 3	4.2320178 4.1666549	17,061.52 14,677.59	55,976.0 48,154.7
Providence, 1934	35 03 12.249 80 48 51.313	251 02 06.97 320 17 50.06 153 05 08	71 05 51.86 140 22 05.18	Pleasant Mineral Azimuth mark, R. M. No. 3	4.0205613 4.2473595	10,484.83 17,675.00	34,399.0 57,988.7
State, 1934	35 00 53.410 80 51 06.147	218 36 28.57 302 20 21.30 14 13 30	38 37 45.97 122 25 53.58	Providence Mineral Azimuth mark, R. M. No. 3	3.7384631 4.2408960	5,476.00 17,413.90	17,965.8 57,132.1
Heath, 1934	34 53 18.883 80 47 01.388	156 06 27.14 171 20 16.18 241 08 54.41 54 55 10	336 04 06.92 351 19 13.17 61 12 06.09	State Providence Mineral Azimuth mark, R. M. No. 3	4.1853052 4.2670888 3.9870289	15,321.64 18,496.47 9,705.75	50,267.7 60,683.8 31,842.9
Roddy (S. C.), 1934	34 52 16.148 80 56 11.645	205 54 42.05 262 04 47.31 346 23 50	25 57 37.03 82 10 01.98	State Heath Azimuth mark, R. M. No. 2	4.2485860 4.1494379	17,724.99 14,107.10	58,152.7 46,283.0
Fort Mill (S. C.), 1934	35 00 22.533 80 56 51.448	263 46 11.78 311 02 21.48 356 08 29.12 88 37 03	83 49 29.89 131 07 59.48 176 08 51.91	State Heath Roddy Azimuth mark, R. M. No. 3	3.9448136 4.2980850 4.1767358	8,806.71 19,864.84 15,022.28	28,893.3 65,173.2 49,285.6
Red Hill, 1934	35 03 58.632 80 38 55.287	110 51 02.10 180 43 39.94 249 52 03.86 313 52 02.10 44 57 55	290 49 04.54 0 43 43.87 69 57 37.76 133 55 41.03	Pleasant Mint Hill Advance Monroe Azimuth mark, R. M. No. 1	3.7440058 4.1336344 4.1949273 4.1277437	5,546.33 13,602.99 15,664.89 13,419.73	18,196.6 44,629.1 51,393.9 44,027.9
Meckun, 1933	35 08 46.590 80 37 48.577	284 59 07.85 336 17 16.88 44 53 36.67 162 14 01.05 302 16 14	105 04 03.68 156 20 17.69 224 51 00.61 342 13 26.55	Advance Monroe Pleasant Mint Hill Azimuth mark, R. M. No. 2	4.1295872 4.2977846 3.9884723 3.6959129	13,476.81 19,851.10 9,738.06 4,964.93	44,215.2 65,128.1 31,949.0 16,289.1
Richardson, 1934	34 49 14.053 80 47 50.605	113 49 41.89 189 24 20.04 10 58 52	293 44 55.61 9 24 48.17	Roddy Heath Azimuth mark, R. M. No. 1	4.1433667 3.8835133	13,911.27 7,647.39	45,640.6 25,089.8
Lancaster (S. C.), 1934	34 43 10.026 80 46 26.375	138 33 58.47 169 11 47.55 177 17 12.96 139 37 56	318 28 24.49 349 10 59.52 357 16 52.98	Roddy Richardson Heath Azimuth mark, R. M. No. 3	4.3514618 4.0576702 4.2737659	22,462.69 11,420.11 18,783.04	73,696.3 37,467.5 61,624.0
Rodgers, 1934	34 55 23.365 80 46 26.437	263 39 16.3 13 01 38.0 145 07 12.5 304 15 13	83 42 08.1 193 01 18.0 325 04 32.2	Mineral Heath State Azimuth mark, R. M. No. 1	3.884279 3.595192 4.093465	7,660.9 3,937.2 12,401.2	25,134 12,917 40,686
Supplementary points							
Monroe, municipal water tank, 1934	34 58 57.485 80 32 36.259	127 18 15.8 156 28 19.2 291 56 31.5	307 12 40.8 336 25 19.8 111 56 32.9	Pleasant Meckun Monroe	4.269216 4.296751 1.820175	18,587.3 19,803.9 66.096	60,982 64,973 216.85
Monroe, courthouse spire, 1934	34 58 58.102 80 33 00.512	65 49 18.9 128 26 00.7 158 05 57.0	245 44 29.0 308 20 39.6 338 03 11.5	Mineral Pleasant Meckun	4.148447 4.257439 4.291122	14,075.0 18,090.0 19,548.9	46,178 59,350 64,137
Waxhaw, cotton mill, stack, 1934	34 55 28.950 80 44 26.608	86 46 14.7 154 50 17.5 261 37 58.0	266 45 06.1 334 47 41.9 81 39 41.2	Rodgers Providence Mineral	3.483779 4.198012 3.664822	3,046.3 15,776.5 4,621.9	9,994 51,760 15,164
Fort Mill, silver water tank (S. C.), 1934	35 00 22.860 80 56 51.211	246 44 16.8 263 49 51.6 356 10 00.6	66 48 52.3 83 53 09.6 176 10 23.2	Providence State Roddy	4.121811 3.944466 4.177015	13,237.7 8,799.7 15,031.9	43,431 28,870 49,317

CHARLOTTE TO SOUTH CAROLINA BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Fort Mill, standpipe (S. C.), 1934 [1]	35 00 13.22 80 56 36.27	357 33 51 126 41 52	177 34 05 306 41 43	Roddy Fort Mill	4.167751 2.681295	14,714.7 480.1	48,276 1,575
Lancaster, municipal tank (S. C.), 1934	34 43 12.318 80 46 17.513	72 36 20.7 138 01 10.5 168 01 03.6	252 36 15.6 317 55 31.5 348 00 10.5	Lancaster Roddy Richardson	2.373441 4.353339 4.056730	236.3 22,560.0 11,395.4	775 74,016 37,386
Lancaster, aluminum water tank (S. C.), 1934	34 42 13.510 80 45 49.098	139 36 29.2 151 25 33.6 166 35 51.6	319 30 34.1 331 25 12.5 346 34 42.4	Roddy Lancaster Richardson	4.387391 3.297340 4.124578	24,400.1 1,983.1 13,322.3	80,053 6,506 43,708
Boundary monument (1813) (N. C.–S. C.), 1934 [1]	34 49 10.774 80 47 51.619	194 18 53.5	14 18 54.1	Richardson	2.018168	104.272	342.10

SANFORD TO OSBORNE (TRAVERSE)

Principal points							
Carr, 1918	35 02 35.348 79 30 28.660	217 38 55.8	37 43 04.0	Foch	4.2525843	17,888.93	58,690.6
Hoffman, 1918	35 02 03.824 79 32 37.100	253 22 27.9	73 23 41.6	Carr	3.5311403	3,397.35	11,146.1
Broadacre, 1918	35 01 27.304 79 33 42.854	235 58 04.7	55 58 42.4	Hoffman	3.3034512	2,011.18	6,598.3
Marston, 1918	34 59 44.552 79 34 03.983	189 36 04.7 54 22 35	9 36 16.8	Broadacre Azimuth mark	3.5066959	3,211.41	10,536.1
Cognac, 1918	34 58 30.029 79 36 14.036	235 08 35.8 228 16 27	55 09 50.3	Marston Azimuth mark	3.6041425	4,019.23	13,186.4
Oise, 1918	34 56 47.180 79 36 45.535	194 08 58.9	14 09 16.9	Cognac	3.5143559	3,268.56	10,723.6
Ainse, 1918	34 56 02.948 79 37 38.052	224 21 04.6	44 21 34.7	Oise	3.2801958	1,906.32	6,254.3

Vesle, 1918	34 55 19.680 79 39 15.033	241 32 53.2 61 09 46.2	61 33 48.8 241 08 44.7	Ainse Rockingham	3.4470569 3.4931883	2,799.35 3,113.07	9,184.2 10,213.5
Hamlet, 1918	34 53 14.749 79 42 33.214	169 45 224 27 26.1	349 45 44 28 18.0	Hamlet traverse tie Rockingham	0.998422 3.5171716	9.96 3,289.82	32.7 10,793.4
Light, 1918	34 49 44.900 79 45 21.613	213 28 17.6	33 29 53.9	Hamlet	3.8894910	7,753.38	25,437.5
Osborne (S. C.), 1918	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
Quentin E, 1918	35 10 10.147 79 23 56.640	233 10 07.6 261 58 00.2 233 46 29	53 10 24.7 81 58 23.2	Foch A Foch Foch B azimuth mark.	2.9719675 3.0071339	937.49 1,016.56	3,075.7 3,335.2
Quentin D, 1918	35 09 37.669 79 24 15.742	205 46 47.7 232 30 28.1 55 06 09	25 46 58.7 52 31 02.0	Quentin E Foch Quentin B azimuth mark.	3.0459083 3.2736706	1,111.50 1,877.89	3,646.6 6,161.0
Quentin C, 1918	35 09 29.637 79 24 29.273	234 08 24.1	54 08 31.9	Quentin D	2.6258863	422.56	1,386.3
Quentin B, 1918	35 09 21.726 79 24 34.581	208 51 21.8 237 20 52	28 51 24.8	Quentin C Azimuth mark.	2.4445616	278.33	913.2
Quentin A, 1918	35 09 00.468 79 24 36.756	184 48 11.3	4 48 12.5	Quentin B	2.8178502	657.43	2,156.9
Quentin, 1918	35 08 50.723 79 24 40.996	199 39 55.8 219 25 22.2 37 55 20	19 39 58.3 39 26 10.7	Quentin A Foch Azimuth mark.	2.5036531 3.5253850	318.90 3,352.62	1,046.3 10,999.4
Aberdeen, 1918	35 08 03.791 79 25 30.188	220 43 29.9 32 31 59	40 43 58.2	Quentin Azimuth mark.	3.2807024	1,908.54	6,261.6
Griffin, 1918	35 06 40.008 79 26 28.247	209 39 06.3	29 39 39.7	Aberdeen	3.4729163	2,971.09	9,747.7
Pond A, 1918	35 06 07.700 79 27 10.727	227 12 48.4	47 13 12.9	Griffin	3.1660862	1,465.84	4,809.2
Keyser A, 1918	35 05 55.640 79 27 17.564	204 58 59.1	24 59 03.1	Pond A	2.6127828	410.00	1,345.1
Keyser, 1918	35 05 09.248 79 27 22.725	185 13 27.9	5 13 30.8	Keyser A	3.1570386	1,435.62	4,710.0

[1] No check on this position.

SANFORD TO OSBORNE (TRAVERSE)—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points—Continued	° ′ ″	° ′ ″	° ′ ″				
Pond, 1918	35 06 04.254 79 27 07.294	12 59 09.0 44 25 05.2 140 41 09.4 221 54 19.0	192 59 00.1 224 24 59.2 320 41 07.4 41 54 41.5	Keyser Keyser A Pond A Griffin	3.2404479 2.5701446 2.1374554 3.1704081	1,739.59 371.66 137.23 1,480.50	5,707.3 1,219.4 450.2 4,857.3
Erie, 1918	35 03 33.819 79 28 35.257	211 59 43.1	32 00 24.8	Keyser	3.5400430	3,467.71	11,377.0
Ratle, 1918	35 03 04.799 79 29 04.296	219 26 52.1	39 27 08.8	Erie	3.0637652	1,158.15	3,799.7
Alexander, 1918	35 03 03.630 79 29 33.757	267 14 08.4	87 14 25.3	Ratle	2.8735938	747.47	2,452.3
Richmond, 1918	35 02 56.953 79 29 55.591	249 36 03.7 51 32 23.3	69 36 16.2 231 32 04.3	Alexander Carr	2.7711059 3.0295396	590.34 1,070.38	1,936.8 3,511.7
Carr A, 1918	35 02 45.299 79 30 05.654	62 15 43.5 215 22 49.9	242 15 30.3 35 22 55.7	Carr Richmond	2.8187437 2.6439509	658.78 440.50	2,161.3 1,445.2
Hoffman A, 1918	35 02 33.493 79 30 35.547	73 28 52.1 244 20 52.0 251 51 56.1	253 27 42.3 64 21 09.1 71 52 00.1	Hoffman Carr A Carr	3.5070116 2.9245067 2.2640406	3,213.75 840.44 183.67	10,543.8 2,757.3 602.6
Hamlet F, 1918	34 53 58.793 79 41 21.813	206 23 14.5	26 3 25.5	Rockingham	3.0437068	1,105.88	3,628.2
Hamlet E, 1918	34 53 20.923 79 41 29.114	189 01 30.5	9 01 34.7	Hamlet F	3.0724758	1,181.61	3,876.7
Hamlet D, 1918	34 53 16.830 79 41 37.206	238 27 34.4	58 27 39.0	Hamlet E	2.3822141	241.11	791.0
Hamlet C, 1918	34 53 06.558 79 41 59.326	240 35 38.6	60 35 51.2	Hamlet D	2.8093899	644.75	2,115.3
Hamlet B, 1918	34 53 00.580 79 41 55.311	151 02 11.8	331 02 09.5	Hamlet C	2.3233722	210.56	690.8
Hamlet A, 1918	34 52 50.987 79 42 09.029	229 41 02.3 140 00 47.5	49 41 10.1 320 00 33.7	Hamlet B Hamlet	2.6597977 2.9803173	456.88 955.69	1,498.9 3,135.5

Light I, 1918	34 52 11.135 79 43 10.260	205 38 06.5 231 41 48.1	25 38 37.7 51 42 23.1	Hamlet Hamlet A	3.3373308 3.2969962	2,174.36 1,981.51	7,133.7 6,501.0
Light H, 1918	34 51 44.328 79 43 40.486	211 30 36.0 222 54 04.3	31 31 14.4 42 54 21.1	Hamlet Light I	3.5143432 3.0522167	3,268.46 1,127.76	10,723.3 3,700.0
Light G, 1918	34 50 51.026 79 44 42.258	223 41 14.6	43 41 49.9	Light H	3.3563336	2,271.61	7,452.8
Light F, 1918	34 50 44.154 79 45 00.589	245 32 47.4	65 32 57.9	Light G	2.7089192	511.59	1,678.4
Light J, 1918	34 52 14.757 79 43 05.147	231 55 18.5 49 19 36.2	51 55 49.8 229 19 33.3	Hamlet A Light I	3.2577822 2.2336020	1,810.43 171.24	5,939.7 561.8
Light E, 1918	34 50 44.457 79 45 00.777	246 43 08.4 332 54 43.5 48 28 01.0 50 34 36.7	66 43 19.0 152 54 43.6 228 27 55.5 230 34 34.4	Light G Light F Light C Light D	2.7094192 1.0208478 2.5090241 2.1259852	512.18 10.49 322.87 133.66	1,680.4 34.4 1,059.3 438.5
Light D, 1918	34 50 41.703 79 45 04.840	235 02 09.5	55 02 11.9	Light F	2.1199573	131.81	432.5
Light C, 1918	34 50 37.510 79 45 10.290	226 58 35.0	46 58 38.2	Light D	2.2773040	189.37	621.3
Light B, 1918	34 49 57.526 79 45 11.990	182 00 28.5 212 08 53.0	2 00 29.5 32 08 58.4	Light C Light	3.0909186 2.6623098	1,232.87 459.53	4,044.9 1,507.6
Light A, 1918	34 49 48.799 79 45 15.366	197 41 36.7 52 52 43.0	17 41 38.7 232 52 39.5	Light B Light	2.4506736 2.2990102	282.28 199.07	926.1 653.1
Osborne I, 1918	34 49 42.352 79 45 20.852	166 10 23.1	346 10 22.7	Light	1.9076518	80.85	265.3
Osborne H, 1918	34 49 35.706 79 45 26.494	214 59 25.6	34 59 28.8	Osborne I	2.3979231	249.99	820.2
Osborne G, 1918	34 49 31.205 79 45 29.322	204 53 57.5 207 23 09.8 212 04 01.0	24 54 01.9 27 23 11.4 32 04 05.8	Light Osborne H Osborne I	2.6676976 2.1937262 2.6078412	465.26 156.22 405.36	1,526.4 512.5 1,329.9
Osborne F, 1918	34 49 11.254 79 45 33.362	189 28 50.6	9 28 52.9	Osborne G	2.7946882	623.29	2,044.9
Osborne E, 1918	34 48 58.323 79 45 42.947	211 26 18.9	31 26 24.4	Osborne F	2.6693768	467.06	1,532.3
Osborne D, 1918	34 48 51.208 79 45 45.570	196 54 29.5	16 54 31.0	Osborne E	2.3601327	229.16	751.8
Osborne C, 1918	34 48 39.174 79 45 43.459	171 46 11.6	351 46 10.4	Osborne D	2.5736654	374.68	1,229.3

SANFORD TO OSBORNE (TRAVERSE)—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points—Continued	° ′ ″	° ′ ″	° ′ ″				
Osborne B, 1918	34 48 33.391 79 45 43.579	180 58 26.9	0 58 27.0	Osborne C	2.2509573	178.22	584.7
Osborne A (S. C.), 1918	34 47 54.468 79 45 57.680	196 38 16.5 79 19 50.1	16 38 24.6 259 19 36.7	Osborne B Osborne	3.0975398 2.7845474	1,251.81 608.90	4,107.0 1,997.7
Supplementary points							
Southern Pines, Congregational Church, steeple, 1918[1]	35 10 30.39 79 23 32.68	320 16 13 44 11 09	140 16 22 224 10 56	Foch Quentin E	2.796831 2.939419	626.4 869.8	2,055 2,854
Southern Pines, water tank, 1918	35 10 18.695 79 22 58.565	75 18 26.6 214 03 42.6 216 17 14.4	255 18 16.1 34 04 41.0 36 18 21.4	Foch Foch E Niagara	2.680028 3.621890 3.696235	478.7 4,186.9 4,968.6	1,571 13,737 16,301
Aberdeen, Seaboard Air Line Ry., water tank, 1918[1]	35 08 04.76 79 25 28.81	49 33 53 220 30 31	229 33 52 40 30 58	Aberdeen Quentin	1.661198 3.270283	45.8 1,863.3	150 6,113
Hoffman, Seaboard Air Line Ry., semaphore, 1918[1]	35 01 48.70 79 33 04.55	236 11 06 55 49 25	56 11 22 235 49 03	Hoffman Broadacre	2.923042 3.069513	837.6 1,173.6	2,748 3,850
Hamlet, Seaboard Air Line Ry., water tank, 1918[1]	34 53 00.47 79 41 53.07	113 21 19 204 44 45	293 20 56 24 45 14	Hamlet Rockingham	3.045429 3.487135	1,110.3 3,070.0	3,643 10,072

CHOWAN RIVER (SECOND-ORDER)

Principal points							
House, 1932	36 02 32.955 76 42 25.318	111 54 28.9 163 20 55.8 239 12 26	291 54 26.5 343 20 13.9	Eden 2 Lawrence Line of bridge.	2.040127 3.793401	109.68 6,214.4	359.8 20,388
Main, 1932	36 03 12.923 76 41 02.146	59 23 37.9 61 23 58.0 140 43 47.9	239 22 48.9 241 23 06.6 320 42 17.0	House Eden 2 Lawrence	3.383641 3.395724 3.785348	2,419.0 2,487.3 6,100.3	7,936 8,160 20,014
Chowan River Bridge, center of draw, 1932	36 02 51.486 76 41 46.813	59 21 13.9 152 59 23.8 239 24 53.2	239 20 51.2 332 58 19.2 59 25 19.5	House Lawrence Main	3.049360 3.781178 3.113498	1,120.4 6,042.0 1,298.7	3,676 19,823 4,261
Cow Island 3, 1932	36 13 52.903 76 43 25.916	227 09 34.5 20 42 35.9	47 11 23.4 200 41 35.3	Cannon Bull Pond	3.797071 3.860543	6,267.2 7,253.4	20,562 23,797
Thicket, 1932	36 12 00.281 76 43 08.182	42 14 15.3 172 43 46.5	222 13 04.2 352 43 36.0	Bull Pond Cow Island 3	3.650817 3.543996	4,475.2 3,499.4	14,682 11,481
Cole, 1932	36 11 49.647 76 44 54.322	210 09 38.1 262 56 42.5 6 47 29.1	30 10 30.3 82 57 45.2 186 47 20.7	Cow Island 3 Thicket Bull Pond	3.642879 3.426820 3.478157	4,394.2 2,671.9 3,007.2	14,417 8,766 9,866
Bass, 1932	36 10 56.644 76 43 12.628	64 59 04.5 122 44 49.3 176 30 17.0 183 14 28.4	244 57 56.1 302 43 49.3 356 30 09.2 3 14 31.1	Bull Pond Cole Cow Island 3 Thicket	3.504753 3.480121 3.735825 3.293268	3,197.1 3,020.8 5,442.8 1,964.6	10,489 9,911 17,857 6,446
White, 1932	36 09 58.059 76 43 21.194	2 49 23.3 99 35 53.9 145 55 29.8 186 45 38.7	182 49 14.2 279 34 50.5 325 54 34.8 6 45 43.7	Lawrence Bull Pond Cole Bass	3.890678 3.434755 3.618330 3.259680	7,774.6 2,721.2 4,152.7 1,818.4	25,507 8,928 13,624 5,966
Fore 2, 1932	36 13 21.987 76 42 38.719	49 58 23.3 128 57 27.7	229 57 03.2 308 56 59.8	Cole Cow Island 3	3.645842 3.180615	4,424.3 1,515.7	14,515 4,973
Harbor, 1932	36 15 17.113 76 42 33.785	243 10 57.0 1 59 20.9 26 38 16.6	63 12 15.1 181 59 18.0 206 37 45.8	Cannon Fore 2 Cow Island 3	3.567164 3.550302 3.462945	3,691.2 3,550.6 2,903.7	12,110 11,649 9,527
Montrose, 1874	36 15 06.449 76 41 17.583	32 11 12.5 54 44 03.3 99 48 31.7	212 10 24.5 234 42 47.4 279 47 46.6	Fore 2 Cow Island 3 Harbor	3.580260 3.593857 3.285697	3,804.2 3,925.2 1,930.6	12,481 12,878 6,334
Tree, 1932	36 12 51.879 76 44 43.368	253 23 30.6 303 46 05.9 327 26 38.2	73 24 44.2 123 47 02.1 147 27 31.7	Fore 2 Thicket Bass	3.511709 3.456459 3.624652	3,248.7 2,860.6 4,213.6	10,658 9,385 13,824
Mt. Pleasant, 1932	36 18 57.814 76 43 44.753	315 23 53.4 29 47 56.6	135 25 53.5 209 46 33.4	Cannon Newsome	3.858184 3.848961	7,214.1 7,062.5	23,668 23,171
Turn, 1932	36 16 17.902 76 41 54.040	275 10 51.0 337 32 44.4 27 54 18.7	95 11 45.6 157 33 06.0 207 53 55.2	Cannon Montrose Harbor	3.363905 3.377124 3.326367	2,311.6 2,383.0 2,120.2	7,584 7,818 6,956
Cat, 1932	36 18 09.953 76 41 29.174	335 20 26.6 10 11 15.2	155 21 06.5 190 11 00.5	Cannon Turn	3.605318 3.545187	4,030.1 3,509.0	13,222 11,512
Woodley, 1932	36 16 05.737 76 41 28.996	47 11 07.2 120 57 37.3 264 20 37.0 351 08 14.5	227 10 28.9 300 57 22.5 84 21 16.8 171 08 21.3	Harbor Turn Cannon Montrose	3.343402 2.862689 3.226658 3.267050	2,205.0 728.9 1,685.2 1,849.5	7,234 2,391 5,529 6,068

[1] No check on this position.

CHOWAN RIVER (SECOND-ORDER)—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points—Continued	° ′ ″	° ′ ″	° ′ ″				
Beak, 1932	36 17 40.000	214 23 53.5	34 24 08.5	Cat	3.048803	1,118.9	3,671
	76 41 54.510	359 44 03.4	179 44 03.7	Turn	3.403209	2,530.5	8,302
Taylor, 1932	36 18 06.549	267 11 22.9	87 12 13.7	Cat	3.331512	2,145.4	7,039
	76 42 55.059	298 26 13.3	118 26 49.1	Beak	3.235069	1,718.2	5,637
		141 53 11.6	321 52 42.2	Mt. Pleasant	3.302862	2,008.5	6,590
Stump, 1932	36 18 45.621	320 37 57.2	140 38 36.5	Beak	3.417650	2,616.1	8,583
	76 43 01.010	352 58 18.5	172 58 22.0	Taylor	3.084015	1,213.4	3,981
		109 00 27.6	289 00 01.7	Mt. Pleasant	3.062260	1,154.1	3,786
Swamp, 1932	36 19 28.768	311 24 11.1	131 24 46.9	Stump	3.303350	2,010.7	6,597
	76 44 01.466	318 00 18.9	138 02 28.9	Cannon	3.913531	8,194.7	26,885
		326 49 19.0	146 49 58.3	Taylor	3.481108	3,027.7	9,933
		336 23 45.8	156 23 55.7	Mt. Pleasant	3.017529	1,041.2	3,416
Sand, 1932	36 21 43.74	100 36 25	280 36 00	Mark	3.031296	1,074.7	3,526
	76 48 57.35	123 55 14	303 55 02	Bend	2.772229	591.9	1,942
Barnes, 1932	36 21 51.65	62 21 23	242 21 12	Sand	2.720674	525.6	1,724
	76 48 38.68	70 08 07	250 07 48	High	2.915984	824.1	2,704
		88 16 09	268 15 32	Mark	3.182604	1,522.7	4,996
River, 1932	36 21 50.05	79 19 52	259 19 27	Sand	3.021721	1,051.3	3,449
	76 48 15.91	80 14 49	260 14 17	High	3.134257	1,362.3	4,469
		94 57 24	274 57 10	Barnes	2.755573	569.6	1,869
Bluff, 1932	36 21 35.44	133 21 19	313 21 06	Barnes	2.862004	727.8	2,388
	76 48 17.45	184 51 34	4 51 35	River	2.655188	452.1	1,483
Eure, 1932	36 21 25.21	109 06 25	289 06 03	Bluff	2.983702	963.2	3,160
	76 47 40.95	131 17 38	311 17 17	River	3.064565	1,160.3	3,807
Point, 1932	36 21 44.46	0 44 00	180 44 00	Eure	2.773365	593.4	1,947
	76 47 40.64	73 08 28	253 08 06	Bluff	2.981780	958.9	3,146
Sarem, 1932	36 21 49.08	63 19 49	243 19 15	Eure	3.214567	1,639.0	5,377
	76 46 42.20	84 25 22	264 24 48	Point	3.165488	1,463.8	4,802
Island, 1932	36 21 49.40	270 38 48	90 39 09	Sarem	2.939940	870.8	2,857
	76 47 17.13	38 31 48	218 31 34	Eure	2.979150	953.1	3,127
Hodges, 1932	36 21 31.96	118 22 35	298 22 12	Island	3.053586	1,131.3	3,712
	76 46 37.21	166 42 57	346 42 54	Sarem	2.734204	542.3	1,779
Cane, 1932	36 21 21.01	115 17 26	295 17 09	Hodges	2.897668	790.1	2,592
	76 46 08.56	135 53 12	315 52 52	Sarem	3.081054	1,205.2	3,954
Creek, 1932	36 20 57.59	128 28 00	308 27 28	Hodges	3.231333	1,703.5	5,589
	76 45 43.71	139 22 30	319 22 16	Cane	2.978349	951.4	3,121
Marsh, 1932	36 20 30.00	124 34 30	304 34 00	Creek	3.175706	1,498.7	4,917
	76 44 54.22	130 18 59	310 18 15	Cane	3.385720	2,430.6	7,974
		325 06 43	145 07 14	Swamp	3.361867	2,300.7	7,548
		328 37 08	148 37 49	Mt. Pleasant	3.522192	3,328.1	10,919
Wiccacon, 1932	36 20 16.46	145 24 51	325 24 30	Creek	3.187435	1,539.7	5,051
	76 45 08.66	220 47 39	40 47 48	Marsh	2.741190	551.0	1,808
Flag, 1932	36 21 01.93	349 05 46	169 05 53	Wiccacon	3.154474	1,427.2	4,682
	76 45 19.49	77 30 28	257 30 14	Creek	2.791494	618.7	2,030
		115 32 22	295 31 37	Hodges	3.331956	2,147.6	7,046
Goose, 1932	36 19 46.49	145 36 32	325 36 17	Wiccacon	3.049098	1,119.7	3,674
	76 44 43.30	168 31 08	348 31 02	Marsh	3.136246	1,368.5	4,490
		297 37 35	117 38 00	Swamp	3.071070	1,177.8	3,864
		306 19 04	126 20 05	Stump	3.500660	3,167.1	10,391
Wharf, 1932	36 19 00.21	133 59 37	313 59 02	Goose	3.312558	2,053.8	6,738
	76 43 44.06	153 44 51	333 44 41	Swamp	2.991860	981.4	3,220
		292 43 05	112 43 30	Stump	3.066080	1,164.3	3,820
Pile, 1932	36 22 39.50	114 07 42	294 07 21	Stand	2.980430	955.9	3,136
	76 51 51.00	158 42 13	338 42 08	Horn	2.774540	595.0	1,952
Buck, 1932	36 22 48.84	58 50 19	238 50 07	Pile	2.745305	556.3	1,825
	76 51 31.91	111 03 49	291 03 32	Horn	2.870207	741.7	2,433
Oak, 1932	36 22 29.23	117 23 31	297 23 16	Pile	2.838016	688.7	2,260
	76 51 26.47	167 22 33	347 22 30	Buck	2.792162	619.7	2,033
Root, 1932	36 22 21.77	101 39 27	281 39 00	Oak	3.055884	1,137.3	3,731
	76 50 41.79	123 44 39	303 44 09	Buck	3.176762	1,502.3	4,929
Spikes, 1932	36 22 37.85	330 45 50	150 45 57	Root	2.754234	567.9	1,863
	76 50 52.91	72 22 35	252 22 15	Oak	2.943358	877.7	2,880
Ray, 1932	36 22 35.96	45 04 15	225 04 04	Root	2.791931	619.3	2,032
	76 50 24.20	94 38 37	274 38 20	Spikes	2.856210	718.1	2,356
Water, 1932	36 22 25.51	84 46 32	264 46 02	Root	3.101387	1,263.0	4,144
	76 49 51.33	111 28 49	291 28 30	Ray	2.944644	880.3	2,888
Pettys, 1932	36 22 02.74	144 00 39	324 00 21	Ray	3.102316	1,265.7	4,153
	76 49 54.36	186 08 11	6 08 13	Water	2.848662	705.8	2,316

CHOWAN RIVER (SECOND-ORDER)—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points—Continued	° ′ ″	° ′ ″	° ′ ″				
Bend, 1932	36 21 54.45	105 21 56	285 21 34	Pettys	2.984313	964.5	3,164
	76 49 17.05	138 14 47	318 14 26	Water	3.108298	1,283.2	4,210
Mark, 1932	36 21 50.15	136 45 50	316 45 42	Pettys	2.726438	532.6	1,747
	76 49 39.72	256 48 10	76 48 24	Bend	2.763825	580.5	1,905
High, 1932	36 21 42.562	107 23 35	287 23 18	Mark	2.893600	782.7	2,568
	76 49 09.764	151 03 38.3	331 01 39.9	Parker	4.011124	10,259.4	33,659
		153 37 31	333 37 27	Bend	2.611764	409.0	1,342
		229 30 42.1	49 32 51.9	Gatesville	3.855604	7,171.4	23,528
		340 08 36.9	160 08 52.2	Piland	3.279059	1,901.3	6,238
Pole, 1932	36 23 04.218	54 46 53.6	234 46 37.1	Tunis	2.929640	850.4	2,790
	76 52 54.513	108 27 03.5	288 25 19.8	Winton	3.662319	4,595.4	15,077
Horn, 1932	36 22 57.491	82 11 13.3	262 10 24.3	Tunis	3.318258	2,080.9	6,827
	76 51 59.675	98 37 49.9	278 37 17.4	Pole	3.140641	1,382.4	4,535
Stand, 1932	36 22 52.181	117 34 29.9	297 34 13.0	Pole	2.903926	801.5	2,630
	76 52 26.006	255 59 41.7	75 59 57.3	Horn	2.830204	676.4	2,219
Tun, 1932	36 23 02.659	277 08 33.5	97 09 03.7	Horn	3.107365	1,280.5	4,201
	76 52 50.650	297 44 03.8	117 44 18.4	Stand	2.841338	694.0	2,277
		60 47 02.2	240 46 43.4	Tunis	2.957298	906.4	2,974
Tank, 1932	36 23 04.526	274 38 15.3	94 38 32.2	Tun	2.852107	711.4	2,334
	76 53 19.099	286 02 18.7	106 02 50.2	Stand	3.138909	1,376.9	4,517
		9 18 32.6	189 18 30.7	Tunis	2.704708	506.6	1,662
Rail, 1932	36 23 14.745	16 36 12.5	196 36 06.7	Tunis	2.929627	850.4	2,790
	76 53 12.638	106 07 31.0	286 05 58.0	Winton	3.609327	4,067.5	13,345
Road, 1932	36 23 27.470	316 00 25.7	136 00 34.7	Rail	2.736551	545.2	1,789
	76 53 27.832	353 35 09.1	173 35 12.3	Tunis	3.084502	1,214.8	3,986
Mill, 1932	36 23 19.511	247 18 51.0	67 19 05.0	Road	2.803572	636.2	2,087
	76 53 51.383	278 38 47.8	98 39 10.8	Rail	2.989785	976.8	3,205
Mud, 1932	36 23 29.391	272 50 24.5	92 50 52.9	Road	3.076675	1,193.1	3,914
	76 54 15.646	286 02 01.2	106 02 38.6	Rail	3.213231	1,633.9	5,361
		296 43 44.5	116 43 58.9	Mill	2.830616	677.0	2,221
Harrell, 1932	36 23 20.724	239 32 58.2	59 33 09.0	Mud	2.721936	527.2	1,730
	76 54 33.881	272 01 05.9	92 01 31.1	Mill	3.025228	1,059.8	3,477
Snake, 1932	36 23 31.939	274 24 49.2	94 25 13.4	Mud	3.008612	1,020.0	3,346
	76 54 56.454	301 34 09.2	121 34 22.6	Harrell	2.819740	660.3	2,166
Knee, 1932	36 23 46.416	321 11 46.8	141 12 02.0	Harrell	3.006969	1,016.2	3,334
	76 54 59.432	350 33 30.5	170 33 32.3	Snake	2.655474	452.3	1,484
Riv, 1932	36 23 52.988	290 01 42.1	110 01 55.3	Knee	2.771908	591.4	1,940
	76 55 21.730	315 50 44.4	135 50 59.4	Snake	2.956293	904.3	2,967
		85 51 53.5	265 51 37.1	Winton	2.840319	692.3	2,271
Cliff, 1932	36 23 46.407	230 15 44.9	50 15 50.7	Riv	2.501475	317.3	1,041
	76 55 31.521	269 58 42.5	89 59 01.5	Knee	2.902913	799.7	2,624
East, 1932	36 24 02.425	292 14 22.2	112 14 39.1	Riv	2.885649	768.5	2,521
	76 55 50.275	316 34 18.2	136 34 29.3	Cliff	2.832404	679.8	2,230
		356 30 23.9	176 30 24.4	Winton	2.533365	341.5	1,120
Cy, 1932	36 24 27.184	311 39 23.0	131 39 43.4	East	3.059987	1,148.1	3,767
	76 56 24.699	321 28 59.7	141 29 20.6	Winton	3.149508	1,410.9	4,629
Slide, 1932	36 24 41.444	307 06 35.9	127 06 49.8	Cy	2.862408	728.5	2,390
	76 56 48.014	309 53 21.9	129 53 56.2	East	3.273044	1,875.2	6,152
		316 35 50.9	136 36 25.7	Winton	3.327220	2,124.3	6,969
Chowan, 1932	36 24 59.447	320 39 08.4	140 39 27.9	Cy	3.109217	1,285.9	4,219
	76 56 57.421	321 05 03.2	141 05 43.6	Winton	3.430849	2,696.8	8,848
		337 06 14.5	157 06 20.1	Slide	2.779874	602.4	1,976
Flax, 1932	36 25 54.080	1 55 03.7	181 55 01.9	Slide	3.350278	2,240.2	7,350
	76 56 45.006	10 24 28.7	190 24 21.3	Chowan	3.233538	1,712.1	5,617
		132 01 43.7	312 01 24.4	Meherrin	3.037741	1,090.8	3,579

ALBEMARLE, CROATAN AND ROANOKE SOUNDS (SECOND-ORDER)

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points							
Debt, 1933	35 59 41.471	162 59 27.0	342 57 57.4	Stevenson Point 3	4.114339	13,011.8	42,690
	76 08 57.850	194 06 04.9	14 07 39.2	Frog Island	4.215930	16,441.1	53,941
Lewis, 1933	35 59 26.262	93 29 56.9	273 26 55.7	Debt	3.888507	7,735.8	25,380
	76 03 49.581	138 16 57.0	318 12 26.0	Stevenson Point 3	4.238209	17,306.5	56,780
		167 17 28.9	347 16 01.7	Frog Island	4.225994	16,826.5	55,205

ALBEMARLE, CROATAN AND ROANOKE SOUNDS (SECOND-ORDER)—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points—Continued	° ′ ″	° ′ ″	° ′ ″				
Snake, 1933	36 06 12.440	57 05 29.7	236 57 56.0	Lewis	4.361793	23,003.4	75,470
	75 50 58.600	99 41 33.8	279 32 32.0	Frog Island	4.367554	23,310.6	76,478
Haulover, 1933	35 58 36.736	94 47 54.5	274 40 42.6	Lewis	4.266660	18,478.2	60,624
	75 51 34.484	129 08 10.5	308 59 30.6	Frog Island	4.454350	28,467.5	93,397
		183 39 23.5	3 39 44.6	Snake	4.148421	14,074.1	46,175
Coll, 1933	36 00 12.642	75 54 26.6	255 49 51.2	Haulover	4.083058	12,107.6	39,723
	75 43 45.757	135 42 14.1	315 37 59.4	Snake	4.190418	15,503.1	50,863
Mashoe, 1933	35 57 31.408	114 15 30.6	294 13 45.8	Haulover	3.690502	4,903.5	16,088
	75 48 36.046	167 28 53.6	347 27 29.7	Snake	4.216185	16,450.7	53,972
		235 37 49.4	55 40 39.9	Coll	3.944879	8,808.0	28,898
Croat, 1933	35 56 00.614	138 56 25.4	318 55 28.3	Mashoe	3.569570	3,711.7	12,177
	75 46 58.756	211 53 18.4	31 55 11.7	Coll	3.961422	9,150.0	30,020
Hill, 1933	35 56 04.818	89 02 57.8	268 59 59.6	Croat	3.881451	7,611.2	24,971
	75 41 55.166	104 54 30.4	284 50 35.0	Mashoe	4.016850	10,395.6	34,106
		160 04 10.2	340 03 05.2	Coll	3.909838	8,125.3	26,658
Fleet, 1933	35 52 58.684	151 21 52.5	331 20 40.8	Croat	3.805448	6,389.2	20,962
	75 44 56.606	218 24 06.3	38 25 52.7	Hill	3.864620	7,321.8	24,022
Wanch, 1933	35 52 09.120	99 47 36.1	279 44 08.7	Fleet	3.954584	9,007.1	29,551
	75 39 02.749	149 15 11.3	329 13 30.2	Hill	3.927048	8,453.7	27,735
Bodie Island north base, 1849	35 53 56.932	55 08 56.3	235 07 04.8	Wanch	3.764366	5,812.5	19,070
	75 35 52.613	113 28 17.5	293 24 44.8	Hill	3.995977	9,907.8	32,506
Manns Point R. M., 1903	35 58 17.088	35 35 13.0	215 34 04.7	Hill	3.700041	5,012.3	16,445
	75 39 58.802	68 14 58.4	248 10 51.8	Croat	4.054380	11,333.9	37,185
		122 05 00.8	302 02 47.4	Coll	3.826637	6,708.7	22,010
Seven, 1933	35 56 37.443	331 23 12.0	151 24 15.2	Bodie Island north base	3.750880	5,634.8	18,487
	75 37 40.217	14 03 22.9	194 02 34.5	Wanch	3.930690	8,524.9	27,969
		81 04 42.7	261 02 13.1	Hill	3.810836	6,469.0	21,224
		131 29 54.9	311 28 33.5	Manns Point R. M	3.666146	4.636.0	15,210
Roanoke Marshes Lighthouse, 1933	35 48 38.960	302 55 49.2	123 02 28.6	Pea Island	4.310934	20,461.3	67,130
	75 42 04.573	151 40 32.3	331 38 51.6	Fleet	3.958789	9,094.7	29,838
		180 58 59.3	0 59 04.9	Hill	4.138100	13,743.6	45,090
		215 08 59.3	35 10 45.8	Wanch	3.898900	7,923.2	25,995
Cedar, 1933	35 49 48.507	48 07 55.1	228 06 59.3	Roanoke Marshes Lighthouse	3.506652	3,211.1	10,535
	75 40 29.327	131 10 29.9	311 07 53.3	Fleet	3.949722	8,906.8	29,222
		206 37 04.5	26 37 55.2	Wanch	3.685547	4,847.8	15,905
Creek, 1933	35 51 12.879	117 53 30.5	297 52 14.0	Wanch	3.568980	3,706.6	12,161
	75 36 52.163	196 27 16.7	16 27 51.7	Bodie Island north base	3.721997	5,272.3	17,298
Bodie Island south base, 1849	35 48 34.413	342 24 27.7	162 25 48.8	Pea Island	4.062154	11,538.6	37,856
	75 33 00.108	129 59 59.6	309 57 43.7	Creek	3.880877	7,601.1	24,938
		156 28 59.1	336 27 18.1	Bodie Island north base	4.035098	10,841.72	35,569.9
Club, 1933	35 47 52.782	321 49 57.5	141 52 55.0	Pea Island	4.091829	12,354.6	40,533
	75 35 45.090	98 31 35.1	278 27 53.0	Roanoke Marshes Lighthouse	3.983793	9,633.7	31,607
		116 34 50.3	296 32 03.9	Cedar	3.901862	7,977.4	26,173
		164 44 08.7	344 43 29.4	Creek	3.805687	6,392.7	20,973
		179 02 13.1	359 02 08.7	Bodie Island north base	4.050180	11,224.8	36,827
		252 46 35.0	72 48 11.5	Bodie Island south base	3.637142	4,336.5	14,227
Bodie Island Lighthouse, 1875	35 49 06.178	52 07 20.3	232 06 12.6	Club	3.566268	3,683.6	12,085
	75 33 49.297	86 10 49.5	266 05 59.6	Roanoke Marshes Lighthouse	4.095586	12,462.0	40,886
		125 39 27.7	305 36 24.1	Wanch	3.985794	9,678.2	31,753
		160 57 41.4	340 56 29.2	Bodie Island north base	3.976821	9,480.3	31,103
		308 24 12.7	128 24 41.5	Bodie Island south base	3.197526	1,575.9	5,170
Roots, 1933	35 41 34.103	185 37 16.6	5 37 46.5	Roanoke Marshes Lighthouse	4.119170	13,157.4	43,167
	75 42 55.907	222 48 41.5	42 52 53.2	Club	4.201891	15,918.1	52,225
		263 53 58.4	84 01 07.1	Pea Island	4.268798	18,569.4	60,923
Supplementary points		356 14 28.4	176 14 51.4	Long Shoal Lighthouse	4.180973	15,169.6	49,769
Wade Point Lighthouse, 1909	36 09 22.074	296 48 14.2	116 52 46.5	Snake	4.112090	12,944.6	42,469
	75 58 40.506	331 46 25.6	151 50 36.4	Haulover	4.353481	22,567.4	74,040
		22 51 49.1	202 48 47.1	Lewis	4.299419	19,925.9	65,374
Long Shoal Point, 1914	35 57 25.255	188 33 01.9	8 34 20.1	Wade Point Lighthouse	4.349130	22,342.4	73,302
	76 00 53.400	222 27 23.4	42 33 13.2	Snake	4.343219	22,040.4	72,311
Gator, 1933	35 57 33.636	87 33 39.7	267 31 18.8	Long Shoal Point	3.779754	6,022.2	19,758
	75 56 53.304	173 00 12.7	352 59 09.6	Wade Point Lighthouse	4.342409	21,999.3	72,176
		209 01 02.2	29 04 30.8	Snake	4.262230	18,290.7	60,009
Shellbank 2, 1915	36 03 22.085	349 30 05.9	169 30 31.3	Coll	3.773655	5,938.2	19,482
	75 44 28.959	29 48 44.4	209 46 19.2	Mashoe	4.095319	12,454.3	40,860
Harbor, 1933	36 04 43.306	299 40 15.8	119 41 59.1	Shellbank 2	3.703715	5,054.9	16,584
	75 47 24.446	326 42 28.8	146 44 37.4	Coll	3.999048	9,978.1	32,736
		7 40 35.7	187 39 53.6	Mashoe	4.128135	13,431.8	44,067

ALBEMARLE, CROATAN AND ROANOKE SOUNDS (SECOND-ORDER)—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Guite, 1933	36 05 51.086	355 47 11.5	175 47 19.5	Shellbank 2	3.663219	4,604.9	15,108
	75 44 42.477	62 44 24.7	242 42 49.4	Harbor	3.658867	4,559.0	14,957
Pig, 1933	36 07 04.131	294 55 47.1	114 57 41.0	Guite	3.727390	5,338.1	17,513
	75 47 55.990	322 51 49.2	142 53 51.1	Shellbank 2	3.933635	8,582.9	28,159
		349 41 38.1	169 41 56.7	Harbor	3.644596	4,411.6	14,474
High, 1933	36 05 57.203	70 35 41.8	250 33 09.7	Harbor	3.835572	6,848.1	22,467
	75 43 06.300	105 54 55.1	285 52 04.4	Pig	3.877000	7,533.6	24,716
Sand, 1933	36 08 29.399	333 56 51.5	153 57 45.5	High	3.717766	5,221.1	17,130
	75 44 37.970	30 52 19.8	210 50 41.7	Harbor	3.909436	8,117.8	26,633
		62 03 28.7	242 01 32.0	Pig	3.748632	5,605.7	18,391
Cross, 1933	36 06 00.800	78 01 11.0	258 00 58.7	High	2.727537	534.0	1,752
	75 42 45.418	148 26 11.4	328 25 05.1	Sand	3.730446	5,375.8	17,637
		323 46 25		Azimuth mark.			
0+00 (N. C. D. C. & D.), 1933	36 07 43.496	337 29 08.7	157 29 39.6	Cross	3.534827	3,426.3	11,241
	75 43 37.867	346 26 54.6	166 27 13.2	High	3.527620	3,369.9	11,056
		133 16 41.2	313 16 05.8	Sand	3.314705	2,064.0	6,772
Mill Creek, 1909	35 49 42.433	283 04 16.6	103 06 08.6	Bodie Island Lighthouse	3.693266	4,934.8	16,190
	75 37 00.782	330 38 42.7	150 39 27.0	Club	3.588505	3,877.1	12,720
		75 38 14.4	255 35 16.5	Roanoke Marshes Lighthouse	3.896140	7,873.0	25,830
917+29.2 (N. C. D. C. & D.), 1933	35 54 05.911	19 58 47.6	199 58 02.3	Creek	3.753908	5,674.2	18,616
	75 35 34.895	55 23 38.9	235 21 37.1	Wanch	3.801771	6,335.4	20,785
		58 05 08.7	238 04 58.4	Bodie Island north base	2.718872	523.4	1,717
Ash, 1933	35 52 37.179	5 50 20.1	185 50 07.7	Cedar	3.718140	5,225.6	17,144
	75 40 08.147	21 42 35.0	201 41 26.8	Roanoke Marshes Lighthouse	3.897738	7,902.0	25,925
		95 15 25.9	275 12 36.9	Fleet	3.861296	7,266.0	23,839
Bryan, 1933	35 54 09.882	345 23 43.4	165 24 32.4	Cedar	3.920354	8,324.4	27,311
	75 41 52.953	1 38 18.8	181 38 11.9	Roanoke Marshes Lighthouse	4.008741	10,203.3	33,475
		64 32 29.1	244 30 41.4	Fleet	3.707742	5,102.0	16,739
Baum Point, 1915	35 55 08.691	173 56 45.0	353 56 30.5	Manns Point R. M	3.766350	5,839.2	19,157
	75 39 34.222	226 14 41.2	46 15 48.1	Seven	3.597254	3,956.0	12,979
		351 52 49.9	171 53 08.4	Wanch	3.747450	5,590.5	18,341
Sir, 1933	35 56 21.208	165 55 17.4	345 54 35.4	Coll	3.866530	7,354.1	24,128
	75 42 34.330	227 29 12.8	47 30 44.1	Manns Point R. M	3.723166	5,286.5	17,344
		266 05 34.9	86 08 27.6	Seven	3.868572	7,388.8	24,241
Lunch, 1915	35 59 38.444	310 59 10.4	131 00 18.1	Manns Point R. M	3.582335	3,822.4	12,541
	75 41 53.964	0 15 44.2	180 15 43.5	Hill	3.818506	6,584.2	21,602
		110 38 13.3	290 37 07.6	Coll	3.475938	2,991.8	9,816
Wright Memorial Monument, 1933	36 00 50.801	17 16 36.9	197 15 32.7	Hill	3.965218	9,230.3	30,283
	75 40 05.805	64 21 47.4	244 16 47.6	Mashoe	4.151748	14,182.3	46,530
		123 10 01.1	303 05 43.0	Harbor	4.117649	13,111.4	43,016
Croatan Lighthouse, 1903	35 56 42.043	117 53 57.6	297 52 50.3	Mashoe	3.512232	3,252.6	10,671
	75 46 41.335	159 53 52.7	339 51 21.4	Snake	4.272383	18,723.3	61,428
		195 02 24.1	15 03 41.9	Shellbank 2	4.106114	12,767.7	41,889
		214 06 42.0	34 08 25.1	Coll	3.894375	7,841.1	25,725
		232 14 13.7	52 18 06.1	Wright Memorial Monument	4.097909	12,528.8	41,105
1320+00 (N. C. D. C. & D.), 1933	35 47 56.984	88 27 49.4	268 25 58.0	Club	3.679733	4,783.4	15,694
	75 32 34.660	138 42 02.8	318 41 19.1	Bodie Island Lighthouse	3.453146	2,838.9	9,314
		151 01 15.0	331 01 00.1	Bodie Island south base	3.120139	1,318.7	4,326
Hawk, 1933 [1]	36 01 20.08	138 28 17	318 26 07	Harbor	3.922689	8,369.3	27,458
	75 43 42.68	162 52 50	342 52 23	Shellbank 2	3.594920	3,934.8	12,909
Croix, 1933	35 48 21.494	161 03 22.2	341 02 13.7	Fleet	3.955824	9,032.8	29,635
	75 42 59.697	186 27 45.8	6 28 23.6	Hill	4.157498	14,371.4	47,150
		220 16 02.5	40 18 21.2	Wanch	3.963638	9,196.8	30,173
		234 35 47.5	54 37 15.5	Cedar	3.665624	4,630.5	15,192
		248 44 29.9	68 45 02.1	Roanoke Marshes Lighthouse	3.171716	1,485.0	4,872
Oregon Inlet Coast Guard Station, cupola, 1933 [1]	35 46 03.80	64 24 38	244 17 55	Roots	4.283424	19,205.4	63,010
	75 31 26.98	117 24 41	297 22 10	Club	3.863370	7,300.8	23,953
Oregon Inlet Coast Guard Station, flag pole, 1933 [1]	35 46 03.15	117 27 52	297 25 20	Club	3.865190	7,331.5	24,053
	75 31 26.02	153 07 50	333 06 56	Bodie Island south base	3.718212	5,226.5	17,147
Pea Island Coast Guard Station, 1933 [1]	35 41 01.01	92 49 11	272 40 58	Roots	4.327280	21,246.1	69,705
	75 28 51.91	137 13 48	317 12 44	Pea Island	3.607667	4,052.0	13,294
Bodie Island Coast Guard Station, 1933 [1]	35 50 14.34	344 47 16	164 47 35	Bodie Island south base	3.504015	3,191.6	10,471
	75 33 33.47	113 12 16	293 09 03	Wanch	3.953659	8,987.9	29,488
Nags Head Coast Guard Station, 1933	35 55 56.560	345 15 35.1	165 15 57.8	Bodie Island north base	3.581201	3,812.4	12,508
	75 36 31.293	28 27 44.3	208 26 15.5	Wanch	3.901604	7,972.7	26,157
		72 10 52.6	252 09 05.2	Baum Point	3.682814	4,817.4	15,805
Paul Gamiels Hill Coast Guard Station, 1933	36 08 41.873	337 50 28.4	157 50 45.7	0+00 (N. C. D. C. & D.)	3.288418	1,942.8	6,374
	75 44 07.171	343 17 59.8	163 18 35.7	High	3.724177	5,298.8	17,384
		63 28 04.3	243 27 46.2	Sand	2.934826	860.6	2,823

[1] No check on this position.

ALBEMARLE, CROATAN AND ROANOKE SOUNDS (SECOND ORDER)—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Currituck Bridge, center of draw span, 1933	36 05 22.635	129 03 28.5	309 01 57.7	Pig	3.696014	4,966.1	16,293
	75 45 21.795	228 16 43.8	48 17 06.9	Guite	3.119831	1,317.7	4,323
		340 24 29.9	160 25 01.0	Shellbank 2	3.595910	3,943.8	12,939
Burnside, church spire, 1933	35 54 11.640	351 28 06.9	171 28 35.3	Cedar	3.913843	8,200.6	26,905
	75 41 17.796	6 32 02.6	186 31 35.1	Roanoke Marshes Lighthouse	4.013692	10,320.3	33,859
		67 44 12.9	247 42 04.6	Fleet	3.773092	5,930.5	19,457
Beacon No. 1, 1933	35 56 28.861	78 22 35.0	258 21 10.7	Hill	3.565165	3,674.2	12,054
	75 39 31.595	168 27 00.4	348 26 44.4	Manns Point R. M.	3.532070	3,404.6	11,170
		264 34 41.4	84 35 46.7	Seven	3.447793	2,804.1	9,200
Collington Shoal, beacon light, 1933	35 57 22.555	93 13 51.7	273 11 57.8	Mashoe	3.687102	4,865.2	15,962
	75 45 22.205	204 44 16.6	24 45 13.2	Coll	3.761350	5,772.3	18,938
		294 46 01.7	114 48 03.2	Hill	3.757054	5,715.5	18,752
Blockade Shoal Beacon, 1933	35 53 59.571	348 45 07.6	168 45 53.4	Roanoke Marshes Lighthouse	4.003230	10,074.7	33,053
	75 43 22.847	51 25 01.2	231 24 06.2	Fleet	3.478352	3,008.5	9,870
		124 35 25.5	304 33 18.8	Croat	3.817853	6,574.4	21,570
Wanchese Beacon, 1933	35 50 24.366	25 45 03.5	205 44 51.1	Cedar	3.088856	1,227.0	4,026
	75 40 08.087	41 59 53.3	221 58 45.1	Roanoke Marshes Lighthouse	3.640552	4,370.7	14,340
		123 19 46.5	303 16 57.5	Fleet	3.937595	8,661.5	28,417
Methodist Church, spire, 1933 [1]	35 54 34.55	226 49 44	46 51 19	Seven	3.743324	5,537.6	18,168
	75 40 21.35	228 18 33	48 19 01	Baum Point	3.199314	1,582.4	5,192
Beacon, 1933	35 55 04.841	98 24 36.6	278 24 17.8	Baum Point	2.909297	811.5	2,662
	75 39 02.202	215 45 03.0	35 45 51.1	Seven	3.546176	3,517.0	11,539
		293 44 48.3	113 46 39.6	Bodie Island north base	3.715526	5,194.3	17,042
Dare County Courthouse, spire, 1933	35 54 34.915	222 43 13.0	42 43 35.5	Baum Point	3.151380	1,417.0	4,649
	75 40 12.566	225 18 39.1	45 20 08.5	Seven	3.730059	5,371.0	17,621
		338 42 13.2	158 42 54.2	Wanch	3.683283	4,822.6	15,822
Duck Island R. M., 1909	35 47 42.632	120 22 32.5	300 22 20.1	Club	2.791412	618.6	2,030
	75 35 23.836	222 39 45.4	42 40 40.7	Bodie Island Lighthouse	3.544315	3,502.0	11,489
		246 07 56.3	66 09 20.4	Bodie Island south base	3.596146	3,945.9	12,946
Dare R. M, 1909	35 50 12.367	244 29 51.0	64 32 47.3	Wanch	3.922471	8,365.1	27,444
	75 44 03.699	277 45 55.1	97 48 00.6	Cedar	3.734838	5,430.5	17,817
		313 54 10.1	133 55 19.8	Roanoke Marshes Lighthouse	3.618134	4,150.8	13,618
Fort Raleigh, flagstaff, 1933	35 56 19.642	190 36 40.5	10 36 40.7	Sir	1.691114	49.1	161
	75 42 34.691	227 10 11.4	47 11 42.9	Manns Point R. M.	3.726388	5,325.8	17,473
		294 45 18.5	114 45 41.7	Hill	3.037829	1,091.0	3,579
Beacon, 1933 [1]	36 03 28.34	166 52 12	346 51 59	Harbor	3.375245	2,372.7	7,784
	75 47 02.90	272 51 04	92 52 34	Shellbank 2	3.586335	3,857.8	12,657
Middle Grounds Beacon, 1933 [1]	35 56 47.24	118 49 58	298 49 08	Long Shoal Point	3.385611	2,430.0	7,972
	75 59 28.45	249 47 43	69 49 14	Gator	3.617292	4,142.8	13,592
Sandy Point Shoal, beacon light, 1933 [1]	35 54 52.54	168 16 59	348 16 36	Long Shoal Point	3.681880	4,807.1	15,771
	76 00 14.44	225 25 20	45 27 18	Gator	3.849800	7,076.2	23,216
Derrick mast on fish house, 1933 [1]	35 57 29.67	95 58 23	275 58 11	Mashoe	2.712210	515.5	1,691
	75 48 15.59	233 21 47	53 24 26	Coll	3.925402	8,421.7	27,630
Raleigh, 1909	35 56 21.765	95 27 58.1	275 25 24.5	Croatan Lighthouse	3.818671	6,586.7	21,610
	75 42 19.726	202 01 07.2	22 02 25.9	Wright Memorial Monument	3.951583	8,945.1	29,347
105+60 (N. C. D. C. & D.) 1933 [1]	36 06 08.25	1 51 32	181 51 31	Cross	2.361142	229.692	753.58
	75 42 45.12						
R. M. Tillet 2, 1914 [1]	36 06 11.99	223 07 51	43 07 51	Snake	1.280578	19.080	62.60
	75 50 59.12						
Pal, 1909 [1]	35 59 42.72	346 18 40	166 18 40	Debt	1.598955	39.715	130.30
	76 08 58.23						
Alligator, 1914 [1]	35 57 33.96	292 16 57	112 16 58	Gator	1.419625	26.28	86.2
	75 56 54.27						

CAPE ROMAIN, S. C., TO CAPE FEAR (SECOND-ORDER)

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points							
Evert (S. C.), 1934	33 52 40.109	261 16 59.5	81 20 18.0	Little River	3.966564	9,259.0	30,377
	78 41 10.719	354 19 34.6	174 19 47.0	Bryant	3.761679	5,776.7	18,952
		68 04 13.1	248 01 24.4	Jessie	3.923893	8,392.5	27,534
		170 19 49		Azimuth mark, R. M. No. 3.			
Ward (S. C.), 1934	33 51 23.758	26 26 19.1	206 25 42.6	Bryant	3.578927	3,792.5	12,443
	78 39 42.846	136 10 20.2	316 09 31.3	Evert	3.513369	3,261.1	10,699
		241 25 56.9	61 28 26.4	Little River	3.894856	7,849.8	25,754
		185 23 05		Azimuth mark, R. M. No. 1.			

[1] No check on this position.

CAPE ROMAIN, S. C., TO CAPE FEAR (SECOND ORDER)—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points—Continued	° ′ ″	° ′ ″	° ′ ″				
Lewis (S. C.), 1934	33 51 01.615	56 24 39.9	236 23 16.7	Nixon	3.664021	4,613.4	15,136
	78 36 06.256	69 31 07.9	249 28 30.8	Bryant	3.889189	7,748.0	25,420
		97 00 08.2	276 58 07.6	Ward	3.748925	5,609.5	18,404
		196 40 55.4	16 41 24.2	Little River	3.665423	4,628.3	15,185
State line monument (N. C.-S. C.), 1934	33 55 35.119	315 34 35.6	135 36 00.5	Little River	3.747432	5,590.3	18,341
	78 37 46.830	21 03 44.1	201 02 39.4	Ward	3.918997	8,298.4	27,226
		44 11 14.9	224 09 21.2	Evert	3.876084	7,517.7	24,664
Blane, 1934	33 52 44.862	65 33 42.0	245 31 10.5	Lewis	3.885518	7,682.8	25,206
	78 31 34.182	102 29 15.2	282 27 12.4	Little River	3.763413	5,799.8	19,028
		252 27 11.3	72 29 53.3	Pigott	3.893721	7,829.3	25,687
Goat (S. C.), 1934	33 51 31.197	74 04 41.5	254 03 32.3	Lewis	3.521198	3,320.5	10,894
	78 34 02.050	152 07 28.0	332 06 47.6	Little River	3.600378	3,984.5	13,072
		239 08 37.7	59 10 00.0	Blane	3.646078	4,426.7	14,523
Metcalf, 1934	33 54 08.101	331 51 00.0	151 51 29.7	Blane	3.463679	2,908.6	9,543
	78 32 27.577	73 00 21.5	252 58 48.4	Little River	3.651904	4,486.5	14,719
		259 09 24		Azimuth mark, R. M. No. 3.			
Grissett, 1934	33 56 28.625	310 49 08.9	130 51 02.9	Pigott	3.841244	6,938.2	22,763
	78 30 07.997	17 48 40.1	197 47 52.0	Blane	3.859800	7,241.0	23,757
		39 38 19.6	219 37 01.7	Metcalf	3.749842	5,621.4	18,443
		54 24 16.4	234 21 25.4	Little River	3.986202	9,687.3	31,782
		356 53 39		Azimuth mark, R. M. No. 1.			
Seaside, 1934	33 53 43.731	63 19 19.8	243 18 01.5	Blane	3.606194	4,038.3	13,249
	78 29 13.775	164 40 22.6	344 39 52.3	Grissett	3.721640	5,267.9	17,283
		261 57 55.7	81 59 19.4	Pigott	3.590590	3,895.7	12,781
Sylvia, 1934	33 55 29.206	332 49 40.4	152 50 10.5	Pigott	3.483101	3,041.6	9,979
	78 27 37.697	37 13 28.9	217 12 35.3	Seaside	3.610746	4,080.8	13,388
		115 23 04.8	295 21 40.9	Grissett	3.630661	4,272.3	14,017
		63 00 36		Azimuth mark, R. M. No. 3.			
Sauce, 1934	33 56 31.795	289 43 14.6	109 45 35.5	Boon	3.838000	6,886.5	22,593
	78 24 38.570	34 44 20.5	214 43 10.7	Pigott	3.751201	5,639.0	18,501
		67 16 19.4	247 14 39.4	Sylvia	3.697956	4,988.3	16,366
		38 30 39		Azimuth mark, R. M. No. 2.			
Brick, 1934	33 54 21.157	82 41 32.6	262 39 49.6	Pigott	3.679579	4,781.7	15,688
	78 23 39.040	108 53 54.4	288 51 41.2	Sylvia	3.811531	6,479.3	21,258
		159 12 10.9	339 11 37.7	Sauce	3.634042	4,305.7	14,126
		251 03 16.8	71 05 04.4	Boon	3.719098	5,237.2	17,182
		186 14 27		Azimuth mark, R. M. No. 1.			
Tar, 1934	33 57 24.619	332 19 50.6	152 20 35.7	Boon	3.649701	4,463.8	14,645
	78 21 46.894	27 00 36.6	206 59 34.0	Brick	3.802371	6,344.1	20,814
		69 44 57.1	249 43 21.2	Sauce	3.672023	4,699.2	15,417
		266 22 48		Azimuth mark, R. M. No. 1.			
Hewett, 1934	33 57 27.182	274 17 49.0	94 21 13.0	Howell	3.973411	9,406.1	30,860
	78 18 36.172	35 01 39.1	215 00 37.7	Boon	3.692310	4,923.9	16,154
		89 05 26.8	269 03 40.3	Tar	3.689983	4,897.6	16,068
		211 57 48		Azimuth mark, R. M. No. 1.			
Holden, 1934	33 55 23.227	88 21 51.8	268 19 11.7	Boon	3.867718	7,374.3	24,194
	78 15 39.230	130 03 35.2	310 01 56.4	Hewett	3.773483	5,935.9	19,475
		237 14 53.1	57 16 38.2	Howell	3.759698	5,750.4	18,866
		9 56 30		Azimuth mark, R. M. No. 1.			
Lockwood, 1934	33 57 53.725	287 49 36.0	107 51 19.2	Howell	3.697640	4,984.7	16,354
	78 15 35.692	1 07 20.8	181 07 18.8	Holden	3.666316	4,637.8	15,216
		80 00 18.3	259 58 37.5	Hewett	3.672594	4,705.4	15,438
		27 02 00		Azimuth mark, R. M. No. 1.			
Bonham, 1934	33 55 19.544	91 27 24.0	271 25 46.1	Holden	3.653758	4,505.7	14,782
	78 12 43.874	137 07 36.0	317 06 00.0	Lockwood	3.811805	6,483.4	21,271
		185 54 24.8	5 54 32.0	Howell	3.510602	3,240.4	10,631
		221 39 34.0	41 41 32.3	Southport west base	3.912551	8,176.2	26,825
Waterway, 1934	33 55 38.464	83 54 37.4	263 52 39.0	Bonham	3.738809	5,480.4	17,980
	78 09 11.722	117 19 05.8	297 17 14.6	Howell	3.760126	5,756.1	18,885
		179 53 01.9	359 53 01.7	Southport west base	3.742255	5,524.0	18,123
		254 23 32.4	74 27 03.8	Southport east base	4.004196	10,097.1	33,127
		197 53 29		Azimuth mark, R. M. No. 3.			
Hick, 1933	33 55 30.979	92 52 03.1	272 50 22.6	Waterway	3.665808	4,632.4	15,198
	78 06 11.591	141 09 19.6	321 07 38.8	Southport west base	3.868648	7,390.1	24,246
		240 00 17.4	60 02 08.2	Southport east base	3.769974	5,888.1	19,318
Pond, 1934	33 54 15.840	143 24 30.7	323 23 53.4	Hick	3.459929	2,883.6	9,461
	78 05 04.670	212 44 35.1	32 45 48.6	Southport east base	3.795964	6,251.2	20,509
		286 21 02.4	106 22 43.0	R (U. S. E.)	3.683524	4,825.3	15,831
Creek, 1923	33 55 09.263	62 43 03.1	242 41 53.8	Pond	3.555060	3,589.7	11,777
	78 03 00.491	97 46 36.4	277 44 49.8	Hick	3.694963	4,954.1	16,254
		183 03 03.8	3 03 08.0	Southport east base	3.558284	3,616.5	11,865
		334 24 35.9	154 25 07.2	R (U. S. E.)	3.522740	3,332.3	10,933

CAPE ROMAIN, S. C., TO CAPE FEAR (SECOND-ORDER)—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points	° ′ ″	° ′ ″	° ′ ″				
Tubbs, 1934	33 53 13.610	78 58 53.9	258 57 15.3	Blane	3.665444	4,628.5	15,185
	78 28 37.398	134 47 51.1	314 47 30.8	Seaside	3.119646	1,317.2	4,322
		243 15 58.2	63 17 01.6	Pigott	3.514908	3,272.7	10,737
Shallotte, 1934	33 55 45.735	49 35 21.5	229 34 15.0	Brick	3.604127	4,019.1	13,186
	78 21 39.927	176 38 20.7	356 38 16.7	Tar	3.484572	3,051.9	10,013
		295 34 58.8	115 35 39.9	Boon	3.322153	2,099.7	6,889
Chadwick, 1934	33 54 23.390	87 48 09.2	267 47 30.3	Brick	3.253017	1,790.7	5,875
	78 22 29.392	206 35 58.3	26 36 25.9	Shallotte	3.452935	2,837.5	9,309
		242 44 11.3	62 45 20.0	Boon	3.551440	3,559.9	11,679
R. M. 15 (U. S. E.), 1934	33 54 51.076	6 46 28.4	186 46 26.2	Chadwick	2.933992	859.0	2,818
	78 22 25.448	64 00 45.0	244 00 03.9	Brick	3.322914	2,103.4	6,901
R. M. 14 (U. S. E.), 1934	33 54 36.080	70 19 25.0	250 19 01.3	Chadwick	3.064829	1,161.0	3,809
	78 21 46.840	80 56 43.5	260 55 40.9	Brick	3.465225	2,918.9	9,576
		114 58 51.6	294 58 30.1	R. M. 15 (U. S. E.)	3.039073	1,094.1	3,590
Folly, 1934	33 57 01.139	114 59 26.1	294 58 10.4	Lockwood	3.583951	3,836.6	12,587
	78 13 20.244	265 47 53.5	85 48 21.0	Howell	3.104074	1,270.8	4,169
		343 22 54.7	163 23 15.0	Bonham	3.514093	3,266.6	10,717
Intracoastal Waterway, beacon No. 38, 1934	33 54 14.474	206 21 13.6	26 21 15.7	Brick	2.361270	229.8	754
	78 23 43.010	249 20 24.0	69 22 13.7	Boon	3.732628	5,402.9	17,726
		261 43 49.1	81 44 30.1	Chadwick	3.281308	1,911.2	6,270
Intracoastal Waterway, beacon No. 55, 1934 [1]	33 54 31.46	290 36 08	110 36 22	Chadwick	2.848843	706.1	2,317
	78 22 55.12	74 17 53	254 17 29	Brick	3.068998	1,172.2	3,846
Intracoastal Waterway, beacon No. 53, 1934	33 54 43.639	253 33 07.7	73 34 21.8	Boon	3.551008	3,556.4	11,668
	78 22 38.984	338 26 40.8	158 26 46.2	Chadwick	2.826576	670.8	2,201
		65 49 33.9	245 49 00.4	Brick	3.228201	1,691.2	5,549
Little River, beacon No. 8, (S. C.) 1934 [1]	33 52 32.15	226 50 28	46 51 37	Metcalf	3.635746	4,322.6	14,182
	78 34 30.30	338 51 23	158 51 39	Goat	3.303957	2,013.5	6,606
Intracoastal Waterway, beacon No. 46 (S. C.), 1934 [1]	33 51 54.02	244 59 41	65 00 54	Blane	3.569078	3,707.5	12,164
	78 33 44.92	32 03 19	212 03 09	Goat	2.918827	829.5	2,721
Intracoastal Waterway, beacon No. 71, 1934 [1]	33 53 19.73	37 01 25	217 01 22	Tubbs	2.373388	236.3	775
	78 28 31.86	77 05 57	257 04 16	Blane	3.681858	4,806.8	15,770
Intracoastal Waterway, beacon No. 51, 1934	33 54 46.698	253 24 02.2	73 25 08.7	Boon	3.504401	3,194.5	10,481
	78 22 25.378	8 10 14.3	188 10 12.1	Chadwick	2.860624	725.5	2,380
		67 25 33.1	247 24 52.0	Brick	3.311645	2,049.5	6,724
Intracoastal Waterway, beacon No. 34, 1934	33 54 33.591	73 51 00.9	253 50 37.4	Chadwick	3.052916	1,129.6	3,706
	78 21 47.159	82 25 01.7	262 23 59.3	Brick	3.462358	2,899.7	9,513
		237 40 13.5	57 40 58.7	Boon	3.391137	2,461.1	8,074
Intracoastal Waterway, beacon No. 35, 1934	33 54 57.059	80 24 48.2	260 22 35.1	Chadwick	3.793566	6,216.8	20,396
	78 18 30.788	101 19 07.1	281 18 02.7	Boon	3.480478	3,023.3	9,919
		259 37 08.4	79 38 44.1	Holden	3.651279	4,480.0	14,698
Intracoastal Waterway, beacon No. 32, 1934	33 54 58.495	94 51 10.9	274 48 50.0	Boon	3.813679	6,511.5	21,363
	78 16 13.610	229 12 30.6	49 12 49.8	Holden	3.066859	1,166.4	3,827
		263 07 11.1	83 09 08.2	Bonham	3.734515	5,426.4	17,803
Intracoastal Waterway, beacon No. 14, 1934 [1]	33 55 16.62	92 36 09	272 34 32	Holden	3.654040	4,508.6	14,792
	78 12 43.88	180 10 10	0 10 10	Bonham	1.955172	90.2	296
Intracoastal Waterway, beacon No. 30, 1934 [1]	33 55 07.01	125 45 21	305 45 06	Holden	2.931964	855.0	2,805
	78 15 12.22	264 12 09	84 13 32	Bonham	3.583198	3,830.0	12,566
Intracoastal Waterway, beacon No. 23, 1934 [1]	33 55 08.66	94 25 25	274 23 19	Holden	3.766702	5,843.9	19,173
	78 11 52.40	104 14 25	284 13 56	Bonham	3.134881	1,364.2	4,476
Intracoastal Waterway, beacon No. 29, 1934 [1]	33 55 03.93	191 11 00	11 11 03	Holden	2.782508	606.0	1,988
	78 15 43.81	264 02 38	84 04 18	Bonham	3.667162	4,646.9	15,246
Intracoastal Waterway, beacon No. 57, 1934 [1]	33 54 13.04	249 58 16	69 58 31	Brick	2.863391	730.1	2,395
	78 24 05.74	262 39 08	82 40 02	Chadwick	3.397209	2,495.8	8,188
Intracoastal Waterway, beacon No. 42, 1934 [1]	33 53 24.63	67 45 56	247 45 38	Tubbs	2.952829	897.1	2,943
	78 28 05.08	77 10 17	257 08 21	Blane	3.741249	5,511.2	18,081
Intracoastal Waterway, beacon No. 73, 1934 [1]	33 53 15.64	274 47 08	94 47 24	Tubbs	2.874466	749.0	2,457
	78 29 06.44	75 59 18	255 57 56	Blane	3.592534	3,913.2	12,839
Intracoastal Waterway, beacon No. 36, 1934 [1]	33 54 19.35	94 57 03	274 56 49	Brick	2.808967	644.1	2,113
	78 23 14.06	263 48 37	83 49 02	Chadwick	3.062342	1,154.4	3,787
Intracoastal Waterway, beacon No. 45, 1934 [1]	33 54 36.50	76 56 52	256 56 14	Chadwick	3.252399	1,788.1	5,866
	78 21 21.59	82 23 03	262 21 47	Brick	3.551783	3,562.7	11,689
Intracoastal Waterway, beacon No. 61, 1934 [1]	33 53 57.94	252 24 46	72 25 35	Brick	3.374509	2,368.7	7,771
	78 25 06.93	259 01 17	79 02 45	Chadwick	3.615188	4,122.8	13,526
Intracoastal Waterway, beacon No. 59, 1934 [1]	33 54 05.18	251 54 50	71 55 23	Brick	3.200388	1,586.3	5,204
	78 24 37.74	260 19 54	80 21 05	Chadwick	3.524367	3,344.8	10,974

[1] No check on this position.

CAPE ROMAIN, S. C., TO CAPE FEAR (SECOND-ORDER)—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Intracoastal Waterway, beacon No. 75, 1934 [1]	33 53 09.66 78 29 30.42	264 53 16 76 30 13	84 53 46 256 29 04	Tubbs Blane	3.136068 3.514670	1,367.9 3,270.9	4,488 10,731
Intracoastal Waterway, beacon No. 77, 1934 [1]	33 53 02.31 78 30 00.00	260 40 55 77 28 58	80 41 41 257 28 06	Tubbs Blane	3.332618 3.394355	2,150.9 2,479.4	7,057 8,134
R. M. 26 (U. S. E.), 1934 [1]	33 52 43.33 78 31 34.97	203 21 30	23 21 30	Blane	1.709842	51.3	168
Right-of-way monument 25 (U. S. E.), 1934 [1]	33 55 17.53 78 12 42.57	151 37 33	331 37 32	Bonham	1.847458	70.381	230.91
UPPER NEUSE RIVER (SECOND-ORDER)							
Principal points							
Great Island eccentric, 1932	34 55 48.133 76 44 49.059	99 15 04.9 155 58 20.3 233 35 21.6	279 12 49.3 335 57 28.3 53 36 41.8	Cherry Point 2 eccentric Piersons Point 2 eccentric Great Neck Point eccentric	3.784430 3.752425 3.645207	6,037.4 5,654.9 4,417.8	19,972 18,553 14,494
Wilkinson 2, 1932	34 57 56.577 76 48 15.644	247 39 47.5 307 02 20.4 14 24 10.5	67 40 53.9 127 04 18.8 194 23 53.2	Piersons Point 2 eccentric Great Island eccentric Cherry Point 2 eccentric	3.501867 3.817463 3.488284	3,175.9 6,568.5 3,078.1	10,420 21,550 10,099
Hancock, 1932	34 56 50.412 76 52 02.243	250 27 18.4 280 41 28.3	70 29 28.2 100 43 20.8	Wilkinson 2 Cherry Point 2 eccentric	3.785335 3.705254	6,100.1 5,072.9	20,013 16,643
Crock, 1932	34 58 18.639 76 49 15.674	294 03 10.8 348 18 25.3 57 15 29.5	114 03 45.2 168 18 42.4 237 13 54.1	Wilkinson 2 Cherry Point 2 eccentric Hancock	3.222115 3.572732 3.701138	1,667.7 3,738.8 5,025.0	5,471 12,266 16,486
Whisk, 1932	35 00 09.367 76 52 26.978	305 06 07.3 354 09 17.5	125 07 57.0 174 09 31.7	Crock Hancock	3.773173 3.789791	5,931.6 6,163.0	19,461 20,220
Tucker, 1932	34 57 28.847 76 53 50.067	203 04 12.2 257 32 51.6 293 24 01.2	23 04 59.8 77 35 28.8 113 25 03.0	Whisk Crock Hancock	3.730525 3.852982 3.474389	5,376.8 7,128.2 2,981.2	17,640 23,386 9,781
Dixon, 1932	35 01 39.261 76 55 41.100	299 21 26.1 339 56 38.1	119 23 17.5 159 57 41.8	Whisk Tucker	3.751876 3.914578	5,647.8 8,214.4	18,529 26,950
Seal, 1932	34 59 19.816 76 57 15.393	209 05 01.2 258 11 05.1 303 16 14.0	29 05 55.3 78 13 50.5 123 18 11.7	Dixon Whisk Tucker	3.691744 3.873427 3.794536	4,917.5 7,471.8 6,230.7	16,133 24,514 20,442
River, 1932	35 00 54.695 76 58 52.443	254 10 37.9 319 54 17.1	74 12 27.7 139 55 12.8	Dixon Seal	3.702565 3.582249	5,041.6 3,821.6	16,541 12,538
Broad, 1932	35 02 40.219 76 56 46.179	318 42 26.8 6 50 29.7 44 33 21.4	138 43 04.2 186 50 13.0 224 32 09.0	Dixon Seal River	3.397933 3.793783 3.659230	2,500.0 6,219.9 4,562.8	8,202 20,406 14,970
West, 1932	35 03 23.380 76 58 22.543	298 33 57.9 9 23 40.5	118 34 53.2 189 23 23.4	Broad River	3.444177 3.666907	2,780.8 4,644.2	9,123 15,237
Johnson Point Lighthouse, 1932	35 02 36.504 76 59 02.624	215 06 39.1 268 05 34.7 355 17 48.1	35 07 02.1 88 06 53.0 175 17 54.0	West Broad River	3.246971 3.539086 3.498029	1,765.9 3,460.1 3,148.0	5,794 11,352 10,328
Rench, 1933	35 03 15.256 76 59 55.489	263 55 30.9 311 42 26.7	83 56 24.3 131 42 57.1	West Johnson Point Lighthouse	3.374498 3.253999	2,368.6 1,794.7	7,771 5,888
Green, 1933	35 03 56.421 76 59 17.786	306 01 38.6 351 07 53.0 36 59 14.0	126 02 10.3 171 08 01.7 216 58 52.3	West Johnson Point Lighthouse Rench	3.238290 3.396643 3.200877	1,731.0 2,492.5 1,588.1	5,679 8,177 5,210
Fir, 1933	35 04 35.741 76 59 55.332	321 51 42.5 0 05 30.9	141 52 04.1 180 05 30.8	Green Rench	3.187659 3.394497	1,540.5 2,480.3	5,054 8,137
Spring, 1933	35 04 46.975 77 01 01.418	281 40 38.4 300 40 25.8 329 24 38.3	101 41 16.4 120 41 25.4 149 25 16.2	Fir Green Rench	3.232910 3.484728 3.516296	1,709.7 3,053.0 3,283.2	5,609 10,016 10,772
Perry, 1932	35 05 28.079 77 00 26.477	333 55 51.0 34 56 53.6	153 56 08.9 214 56 33.5	Fir Spring	3.254185 3.189012	1,795.5 1,545.3	5,891 5,070
Upper Green Spring Light, 1933	35 05 18.160 77 01 31.953	259 33 10.4 298 05 49.6 321 10 02.1	79 33 48.1 118 06 45.2 141 10 19.7	Perry Fir Spring	3.226983 3.443244 3.091192	1,686.5 2,774.9 1,233.6	5,533 9,104 4,047
Duck Creek, 1932	35 06 10.472 77 01 09.712	320 01 33.9 19 15 50.2	140 01 58.8 199 15 37.4	Perry Upper Green Spring Light	3.231642 3.232406	1,704.7 1,707.7	5,593 5,603
James, 1932	35 05 33.720 77 02 25.193	239 21 04.5 273 17 58.0 335 08 36.2	59 21 47.9 93 19 06.3 155 08 57.5	Duck Creek Perry New Bern north base	3.346763 3.478870 3.350404	2,222.1 3,012.1 2,240.8	7,290 9,882 7,352
Norfolk, 1933	35 06 09.012 77 02 32.264	268 45 38.1 291 35 24.0 315 43 33.6 350 38 54.7 207 23 58	88 46 25.6 111 36 36.4 135 44 08.3 170 38 58.8	Duck Creek Perry Upper Green Spring Light James First Baptist Church, spire.	3.320408 3.534867 3.340138 3.042268	2,091.3 3,426.6 2,188.5 1,102.2	6,861 11,242 7,180 3,616

[1] No check on this position.

UPPER NEUSE RIVER (SECOND-ORDER)—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points—Continued	° ′ ″	° ′ ″	° ′ ″				
New Bern, 1932	35 06 12.825	272 53 11.2	92 53 43.8	Duck Creek	3.157700	1,437.8	4,717
	77 02 06.410	298 34 23.1	118 35 20.6	Perry	3.459753	2,882.4	9,457
		332 36 34.1	152 36 53.9	Upper Green Spring Light	3.278125	1,897.3	6,225
Supply, 1932	35 06 12.811	269 55 25.0	89 55 32.7	New Bern	2.526058	335.8	1,102
	77 02 19.668	324 19 57.0	144 20 24.5	Upper Green Spring Light	3.316584	2,072.9	6,801
		346 05 20.7	166 05 38.9	New Bern north base	3.523190	3,335.7	10,944
		6 37 34.6	186 37 31.5	James	3.083768	1,212.7	3,979
		69 50 54.6	249 50 47.4	Norfolk	2.531230	339.8	1,115
Bridge, 1932	35 07 03.907	353 48 55.2	173 48 59.2	Duck Creek	3.219144	1,656.3	5,434
	77 01 16.757	38 37 16.9	218 36 48.3	New Bern	3.304215	2,014.7	6,610
Just, 1933	35 06 37.855	236 41 59.3	56 42 27.1	Bridge	3.165082	1,462.5	4,798
	77 02 05.029	301 03 28.9	121 04 00.7	Duck Creek	3.213634	1,635.4	5,365
		2 35 51.1	182 35 50.3	New Bern	2.887682	772.1	2,533
Blades, 1932	35 07 25.783	323 49 56.9	143 50 08.1	Bridge	2.921718	835.1	2,740
	77 01 36.219	26 17 17.2	206 17 00.6	Just	3.216782	1,647.3	5,405
Land, 1932	35 07 14.274	256 46 52.9	76 47 27.2	Blades	3.190774	1,551.6	5,091
	77 02 35.874	279 03 16.4	99 04 01.9	Bridge	3.307212	2,028.7	6,656
		325 09 40.9	145 09 58.6	Just	3.135887	1,367.4	4,486
Ferry (Lewis), 1933	35 08 09.859	326 35 48.0	146 36 08.3	Blades	3.211380	1,627.0	5,338
	77 02 11.594	19 44 38.7	199 44 24.7	Land	3.260049	1,819.9	5,971
Rowe, 1933	35 07 54.629	250 08 50.7	70 09 20.3	Ferry (Lewis)	3.140606	1,382.3	4,535
	77 03 02.950	292 01 52.8	112 02 42.7	Blades	3.374572	2,369.0	7,772
		331 07 52.1	151 08 07.7	Land	3.152301	1,420.0	4,659
Open, 1933	35 08 38.466	291 16 03.8	111 16 55.3	Ferry (Lewis)	3.385542	2,429.6	7,971
	77 03 41.029	324 29 09.9	144 29 31.8	Rowe	3.220002	1,659.6	5,445
Trent, 1932	35 05 30.239	198 04 19.9	18 04 28.7	Norfolk	3.099285	1,256.9	4,124
	77 02 47.658	259 19 22.5	79 19 35.4	James	2.762729	579.1	1,900
Blinds, 1932	35 05 36.258	217 00 07.2	37 00 24.4	Norfolk	3.101719	1,263.9	4,147
	77 03 02.298	274 45 16.2	94 45 37.5	James	2.974566	943.1	3,094
		296 34 22.4	116 34 30.8	Trent	2.617665	414.6	1,360
Eel, 1932	35 05 10.830	205 44 10.3	25 44 18.9	Blinds	2.939494	869.9	2,854
	77 03 17.212	231 22 20.9	51 22 37.9	Trent	2.981476	958.2	3,144
Bluff, 1932	35 04 56.486	187 41 00.2	7 41 01.5	Eel	2.649337	446.0	1,463
	77 03 19.566	199 38 21.3	19 38 31.2	Blinds	3.114396	1,301.4	4,270
		217 50 49.6	37 51 07.9	Trent	3.119678	1,317.3	4,322
Ferry, 1932	35 04 49.114	206 00 52.7	26 01 00.1	Eel	2.871931	744.6	2,443
	77 03 30.104	229 36 17.5	49 36 23.5	Bluff	2.544741	350.5	1,150
Supplementary points							
Wilkinson Point Beacon, 1933	34 57 37.370	235 00 12.8	55 01 10.9	Piersons Point 2 eccentric	3.496423	3,136.3	10,290
	76 48 01.122	275 01 20.9	95 04 31.3	Great Neck Point eccentric	3.927423	8,461.0	27,759
		25 23 29.8	205 23 04.2	Cherry Point 2 eccentric	3.422420	2,645.0	8,678
Clubfoot Beacon, 1933 [1]	34 55 16.53	169 04 32	349 04 05	Piersons Point 2 eccentric	3.796005	6,251.8	20,511
	76 45 33.12	232 25 08	52 26 53	Great Neck Point eccentric	3.770643	5,897.2	19,348
Hampton Shoal Beacon, 1933	35 01 23.534	49 40 42.3	229 40 18.6	River	3.137775	1,373.3	4,506
	76 58 11.146	222 20 19.7	42 21 08.4	Broad	3.504789	3,197.3	10,490
		262 43 36.9	82 45 03.0	Dixon	3.583707	3,834.5	12,580
Fort Point Beacon, 1933	35 04 47.176	135 07 05.5	315 06 05.8	New Bern	3.571192	3,725.6	12,223
	77 00 22.608	155 04 26.2	335 03 59.1	Duck Creek	3.451886	2,830.6	9,287
		175 33 16.9	355 33 14.7	Perry	3.101843	1,264.3	4,148
Beacon No. 1, 1933	35 07 28.821	146 50 55.4	326 50 43.6	Rowe	2.977689	949.9	3,116
	77 02 42.433	273 11 29.0	93 12 07.1	Blades	3.225085	1,679.1	5,509
		328 54 20.4	148 54 41.9	Just	3.263425	1,834.1	6,017
Beacon No. 3, 1933	35 08 17.048	332 17 08.1	152 17 44.5	Just	3.538167	3,452.8	11,328
	77 03 08.437	348 37 56.1	168 37 59.2	Rowe	2.848004	704.7	2,312
		128 39 43.1	308 39 24.3	Open	3.023908	1,056.6	3,467
Beacon No. 2, 1933	35 07 58.402	297 32 10.9	117 32 54.7	Blades	3.337233	2,173.9	7,132
	77 02 52.348	334 13 45.6	154 14 12.8	Just	3.440319	2,756.3	9,043
		66 34 38.9	246 34 32.8	Rowe	2.466157	292.5	960
New Bern, standpipe, 1933	35 06 17.557	289 08 10.2	109 09 49.9	Perry	3.667267	4,648.0	15,249
	77 03 19.834	330 47 51.6	150 48 10.1	Trent	3.222833	1,670.4	5,480
		359 50 40.3	179 50 40.5	Bluff	3.397651	2,498.3	8,197
New Bern, steel stack, 1933	35 05 28.303	206 16 00.4	26 16 15.7	Supply	3.184567	1,529.6	5,018
	77 02 46.396	242 02 20.1	62 03 15.7	Duck Creek	3.442840	2,772.3	9,095
		270 06 01.2	90 07 21.7	Perry	3.549516	3,544.2	11,628
New Bern Cotton Oil Co., water tank, 1933	35 07 03.875	156 10 02.2	336 09 46.5	Rowe	3.232971	1,709.9	5,610
	77 02 35.660	179 02 01.0	359 02 00.9	Land	2.505857	320.5	1,052
		245 50 09.1	65 50 43.3	Blades	3.217381	1,649.6	5,412

[1] No check on this position.

UPPER NEUSE RIVER (SECOND-ORDER)—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Beacon No. 4, 1933 [1]	35 08 39.87	327 25 22	147 25 42	Rowe	3.218674	1,654.5	5,428
	77 03 38.14	59 22 07	239 22 05	Open	1.929708	85.1	279
Bridgeton, white spire, 1933	35 07 12.771	50 58 27.5	230 57 57.3	Just	3.232659	1,708.7	5,606
	77 01 12.613	91 15 55.9	271 15 08.0	Land	3.324034	2,108.8	6,919
		114 47 34.2	294 46 30.7	Rowe	3.488144	3,077.1	10,095
Bridgeton, Christian Church, spire, 1933	35 07 09.012	56 57 05.2	236 56 31.7	Just	3,245610	1,760.4	5,776
	77 01 06.762	94 07 04.6	274 06 13.4	Land	3.354545	2,262.3	7,422
		115 33 00.1	295 31 53.3	Rowe	3.513282	3,260.5	10,697
Bridgeton, stack, 1933	35 07 15.298	336 46 31.9	156 46 35.3	Bridge	2.582048	382.0	1,253
	77 01 22.706	89 01 48.7	269 01 06.6	Land	3.267866	1,853.0	6,079
		133 21 42.3	313 21 34.5	Blades	2.672666	470.6	1,544
Slocum Creek Beacon, 1933 [1]	34 57 07.93	194 45 08	14 45 41	Whisk	3.762073	5,781.9	18,969
	76 53 25.04	284 24 06	104 24 54	Hancock	3.336279	2,169.1	7,116
Otter Creek Beacon, 1933	34 59 58.952	205 42 34.2	25 43 07.8	Dixon	3.535405	3,430.9	11,256
	76 56 39.812	267 06 50.5	87 09 15.5	Whisk	3.807495	6,419.4	21,061
		317 02 19.7	137 03 57.0	Tucker	3.800672	6,319.3	20,733
John, 1932	35 02 35.292	144 56 26.5	324 56 06.9	Rench	3.177412	1,504.6	4,936
	76 59 21.384	182 05 19.6	2 05 21.7	Green	3.398248	2,501.8	8,208
		225 10 29.8	45 11 03.6	West	3.322698	2,102.3	6,897
Lower Green Spring Light, 1933	35 04 49.034	145 28 09.1	325 27 28.7	New Bern	3.496177	3,134.6	10,284
	77 00 56.253	172 15 55.5	352 15 47.7	Duck Creek	3.403580	2,532.7	8,309
		212 04 52.7	32 05 09.8	Perry	3.152317	1,420.1	4,659
Great Island 2, 1911 [1]	34 55 48.32	293 04 42	113 04 42	Great Island eccentric	1.170848	14.820	48.62
	76 44 49.60						
Reed, 1866 [1]	34 56 51.14	9 00 47	189 00 47	Hancock	1.358316	22.82	74.9
	76 52 02.10						
Slocum Creek, 1911 [1]	34 57 28.90	80 32 11	260 32 11	Tucker	0.975891	9.460	31.04
	76 53 49.70						

LOWNDESVILLE, S. C., TO GASTONIA (SECOND-ORDER)

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Principal points							
Jackson, 1935	35 12 22.237	90 45 48.8	270 40 55.5	King eccentric	4.109624	12,871.3	42,229
	81 10 17.029	159 37 50.5	339 35 21.8	Pasour	4.271273	18,675.5	61,271
		206 45 37.9	26 47 34.1	Spencer	4.053088	11,300.2	37,074
		73 07 29		Azimuth mark.			
Clover (S. C.), 1935	35 06 32.901	146 21 22.0	326 18 36.4	King eccentric	4.118266	13,130.0	43,077
	81 13 58.258	178 08 44.0	358 08 23.1	Pasour	4.451567	28,285.7	92,801
		207 27 42.4	27 29 49.8	Jackson	4.084021	12,134.5	39,811
		253 14 30		Azimuth mark.			
Smyrna (S. C.), 1935	35 02 34.026	204 43 31.8	24 46 43.4	King eccentric	4.304044	20,139.3	66,074
	81 24 18.879	244 51 46.0	64 57 42.6	Clover	4.239581	17,361.3	56,960
		346 07 06		Azimuth mark.			
Whitaker (S. C.), 1935	35 08 13.212	245 36 26.8	65 43 01.2	King eccentric	4.279107	19,015.5	62,387
	81 30 10.518	277 04 45.6	97 14 05.0	Clover	4.394650	24,811.3	81,402
		319 32 07.6	139 35 29.8	Smyrna	4.137764	13,733.0	45,056
		344 44 55		Azimuth mark (S. C. Geod. S.).			
Supplementary points							
Flagpole at King, 1933 [1]	35 12 27.480	179 04	359 04	King eccentric	9.906874	0.807	2.65
	81 18 45.849						
Carolina, 1935	35 09 31.049	119 54 35.4	299 50 59.9	King eccentric	4.038037	10,915.3	35,811
	81 12 31.790	212 51 54.7	32 53 12.3	Jackson	3.798061	6,281.5	20,609
		335 23 33		Azimuth mark.			
Kings Mountain, Battle Monument, tip (S. C.), 1935	35 08 32.626	11 24 19.1	191 23 28.6	Smyrna	4.052044	11,273.1	36,985
	81 22 50.924	86 57 28.3	266 53 15.3	Whitaker	4.047061	11,144.5	36,563
		220 34 07.1	40 36 28.3	King eccentric	3.979164	9,531.6	31,272
		285 15 25.4	105 20 31.9	Clover	4.145582	13,982.4	45,874
C. K. 19 (S. C. Geod. S.) eccentric (S. C.), 1935	35 10 03.914	250 35 13.2	70 39 59.8	King eccentric	4.125151	13,339.9	43,766
	81 27 03.255	293 45 09.3	113 47 34.6	Kings Mountain Battle Monument, tip	3.843779	6,978.8	22,896
		54 16 15.1	234 14 27.3	Whitaker	3.766407	5,839.9	19,160
		12 41 02		C. K. 18 (S. C. Geod. S.).			
C. K. 19 (S. C. Geod. S.) (S. C.), 1935 [1]	35 10 05.071	23 30 22.2	203 30 21.8	C. K. 19 (S. C. Geod. S.) eccentric	1.589659	38.874	127.54
	81 27 02.642	13 18 54		C. K. 18 (S. C. Geod. S.).			
Thicketty 2 (S. C.), 1935	35 06 47.655	263 43 10.3	83 52 21.5	Whitaker	4.387344	24,397.4	80,044
	81 46 08.448	297 48 43.4	117 53 26.2	Lloyd	4.149103	14,096.2	46,247
		9 59 51.3	189 58 16.8	Tinsley	4.382269	24,114.0	79,114
		186 03 54		Azimuth mark.			
Kings Mountain, airway beacon, 200 mile blinker, Atlanta–New York, 1935.	35 12 27.366	326 18 16.0	146 21 01.6	Clover	4.118122	13,125.7	43,063
	81 18 45.798	24 47 14.3	204 44 02.7	Smyrna	4.303972	20,135.9	66,063
		65 43 50.0	245 37 15.6	Whitaker	4.279094	19,014.9	62,385
Clover, municipal water tank (S. C.), 1935	35 06 33.137	65 03 35.3	244 57 36.7	Smyrna	4.241596	17,442.0	57,224
	81 13 54.874	85 08 11.4	265 08 09.4	Clover	1.934498	86.0	282
		207 07 04.4	27 09 09.8	Jackson	4.082380	12,088.7	39,661

[1] No check on this position.

LOWNDESVILLE, S. C., TO GASTONIA (SECOND-ORDER)—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance		
					Logarithm (meters)	Meters	Feet
Supplementary points—Continued	° ′ ″	° ′ ″	° ′ ″				
Airway beacon No. 18, flashing green, Atlanta–New York (S. C.), 1935.	35 07 16.181 81 29 21.508	318 34 21.5 356 22 07.7 60 15 40.3	138 37 15.5 176 22 34.1 240 10 44.3	Smyrna Worth Lloyd	4.064166 4.265165 4.176935	11,592.2 18,414.7 15,029.2	38,032 60,416 49,308
Airway beacon, 188-mile, red blinker, Atlanta–New York (S. C.), 1935.[1]	35 08 13.140 81 30 10.815	253 36 37.9	73 36 38.1	Whitaker	0.893595	7.827	25.68

BUCKSPORT, S. C., TO OSCEOLA, S. C. (SECOND-ORDER)

Principal points							
Parker (S. C.), 1935	34 46 25.081 80 37 45.085	132 05 46.8 162 08 16.4 173 05 27	312 00 29.0 342 06 09.9	Heath Mineral Azimuth mark.	4.279606 4.262816	19,037.3 18,315.4	62,458 60,090
Altan, 1935	34 52 50,175 80 31 54.402	36 55 58.6 92 16 17.9 111 00 33.1 77 40 08	216 52 38.3 272 07 39.1 290 55 05.7	Parker Heath Mineral Azimuth mark.	4.171441 4.362651 4.191784	14,840.2 23,048.9 15,551.9	48,688 75,620 51,023
Page (S. C.), 1935	34 46 02.373 80 24 32.639	92 03 05.6 138 15 31.5 252 58 21	271 55 33.6 318 11 19.2	Parker Altan Azimuth mark, C. F. 108 (S. C. Geod. S.).	4.304561 4.226618	20,163.3 16,850.7	66,152 55,284
Taxahaw (S. C.), 1935	34 41 26.459 80 30 54.202	131 23 23.4 175 50 59.1 228 45 25.8 262 44 39	311 19 29.3 355 50 24.8 48 49 03.2	Parker Altan Page Azimuth mark.	4.143838 4.324779 4.110739	13,926.4 21,124.1 12,904.4	45,690 69,305 42,337
Supplementary point							
Transit traverse station No. 1 B (U. S. G. S.) (S. C.), 1935.	34 49 05.086 80 37 32.568	3 41 36.5 154 36 13.2 231 03 24.5 17 16 23	183 41 29.3 334 33 59.4 51 06 37.7	Parker Mineral Altan Azimuth mark.	3.693799 4.141124 4.043031	4,940.8 13,839.6 11,041.6	16,210 45,405 36,226

[1] No check on this position.

EXPLANATION OF TABLES OF PLANE COORDINATES

In order to meet the various demands imposed upon it by engineering and surveying operations (see p. 9), a plane-coordinate system must satisfy the requirements for accurate computations and exact results. The preservation of angles is one important factor to be considered; another factor of utmost importance is the elimination of variations of scale. Since such variations of scale are inevitable, it becomes of the utmost importance to select a projection which will give definite scale values in certain directions, so that such scale values may be tabulated, and through their use, when utmost accuracy is desired, the distortions of scale which result from the projection of the spheroidal coordinates onto the plane may be eliminated.

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 conic 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. In the larger States more than one zone was required and certain other factors at times entered into consideration in the adoption of the system.

For the State of North Carolina a single zone was adopted to meet the request of certain engineers in the State. To provide for the possible need of carrying surveying operations beyond the State boundaries, the plane coordinates of the stations adjacent to the boundary in neighboring States have been computed on the State grid. The policy has been to extend the grid some 10 or 15 miles into the adjacent State. With these data the engineer will not have to go from the North Carolina system of coordinates to another State system in extending a survey a short distance beyond the boundary of the State. Care must be taken, however, to use in direct combination only coordinates on this North Carolina system. When it is necessary to go from this State system to another State system, suitable directions for so doing will be found in Special Publication No. 193.

The geodetic positions in North Carolina have been reduced to plane coordinates which are given in the following tables. Coordinate tables on the Lambert conformal projection have been computed by this Bureau as a basis for computing the coordinates in the State. These tables are given on pages 128 to 133. The purpose in view in supplying these coordinates has been to provide for computations of surveys by the usual methods of plane surveying in which the convergence of the meridians is not considered. A State-wide application can now be made of principles ordinarily confined in common practice to very restricted areas.

In the tables, the x and y coordinates are given in feet to two places of decimals. On "no check points," which have only two places of decimals in the geodetic positions, the coordinates are given to even feet. The hundredths of feet give one place farther than the positions justify, but it was thought desirable to accept the positions as if they were exactly 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 geodetic positions given in the tables of geo-

graphic positions. For definite instructions regarding the use of such plane coordinates reference should be made to the following special publications of this Bureau: No. 193, Manual of Plane Coordinate Computation; No. 194, Manual of Traverse Computation on the Lambert Grid; and No. 195, Manual of Traverse Computation on the Transverse Mercator Grid.

A few stations, for which geographic positions are given either in this publication or in No. 192, lie so far outside the State that plane coordinates were not computed for them on the grid of this State. If it becomes necessary to use any of these stations as control for local surveys, their coordinates should be obtained from the Coast and Geodetic Survey on the grid of the State in which they lie. Computations of traverses tied to them would then have to be made by passing from one grid to the other. Of course, if the station in this State lies near the boundary, the coordinates of both stations can be procured on the grid of the neighboring State and the computation made on that grid. After the traverse is adjusted any stations within the State can be transferred to the grid of this State. The method of accomplishing this is given in Special Publication No. 193. It is not thought that this necessity will arise very often, but when it does occur the method of handling the computations is not very complicated and the change can easily be made.

EXPLANATION OF PLANE LENGTHS

The tables of plane coordinates do not give the lengths of lines, but any such length can be computed from the differences of coordinates just as is done in ordinary plane surveying. The resulting length is affected by the distortion due to the reduction of the actual curved surface of the earth to a plane. It must be corrected for the scale of the grid at that point to reduce it to the sea-level length listed in the geographic-position tables. If it should be desired to obtain the actual ground-level length, a further correction must be applied, as described on page 12.

EXPLANATION OF PLANE OR GRID AZIMUTHS

The plane or grid azimuths given in the tables of plane coordinates are based upon the central meridian of the zone which in this State is the seventy-ninth meridian. They, therefore, differ from the geodetic azimuths which appear in the lists of geographic positions and in the descriptions. The back azimuth of a line differs from the forward azimuth by exactly 180°, hence, it is necessary to list the grid 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 in such places as to be visible from the ground at the stations, and thus are readily available as starting azimuths for local surveys such as traverses. Since 1927 it has been the custom to establish these azimuth marks at most of the first-order stations established by this Bureau.

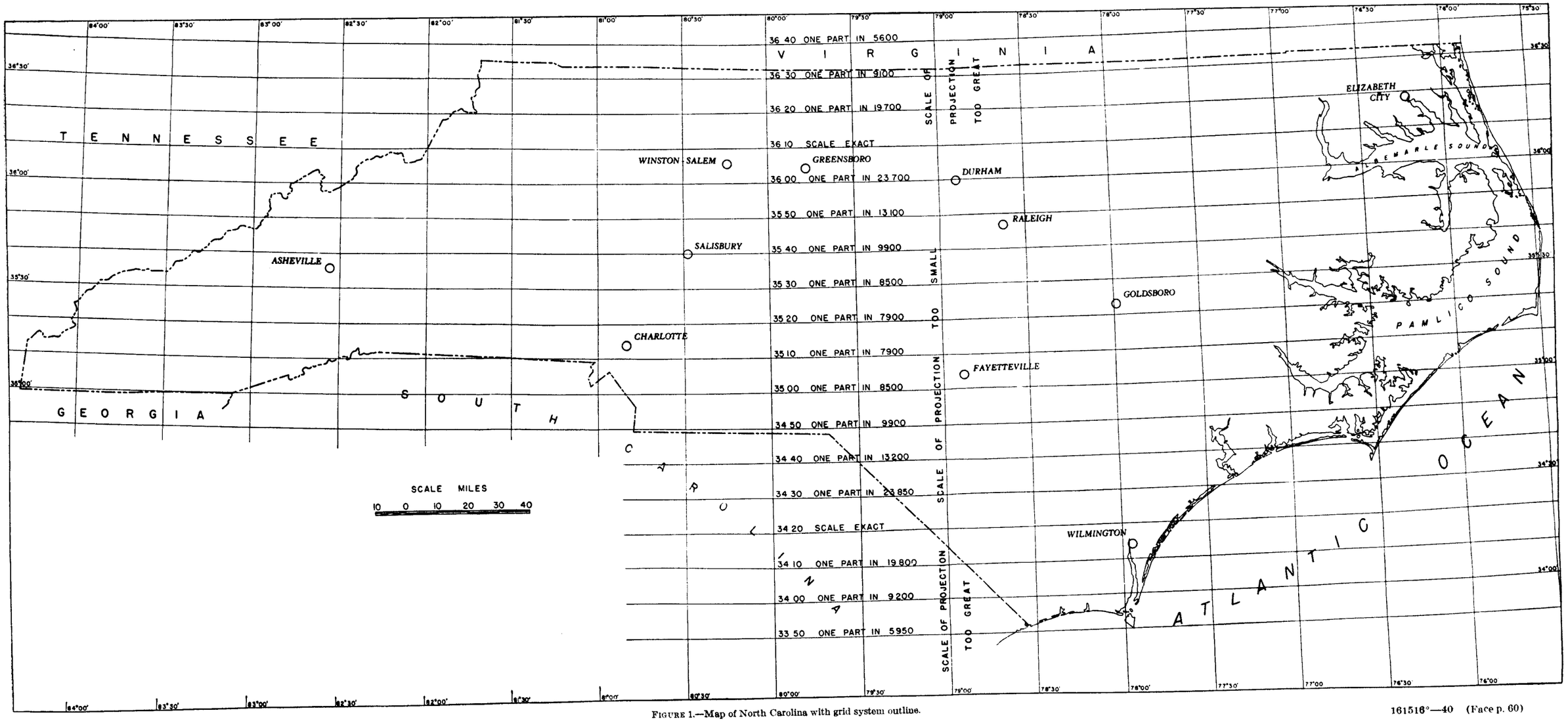

FIGURE 1.—Map of North Carolina with grid system outline.

The plane azimuth from a triangulation station to an azimuth mark or to another 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 131 to 133), 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 on page 128; and, second, by means of the usual plane-surveying method using the formula:

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

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

Since the second quantity in the right-hand member 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 exact.

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

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

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

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

161516°—40——5

PLANE COORDINATES

EASTERN OBLIQUE ARC

Station	x coordinate; y coordinate	Plane azimuth	Mark
Principal points	*Feet*	° ′ ″	
Moore, 1876	1, 622, 304. 34 966, 248. 45	129 17 10*	R. J. Reynolds school cupola.
Poore, 1877	1, 362, 416. 49 842, 716. 61	64 07 01*	Reference mark No. 5.
Young, 1876	1, 511, 055. 47 727, 292. 81	124 54 25*	Reference mark No. 1.
Benn, 1877	1, 208, 854. 32 671, 212. 12	206 06 15*	Reference mark No. 3.
King, 1876	1, 309, 216. 65 538, 527. 14		
Rogers (Va.), 1894	1, 253, 400. 11 1, 068, 714. 00		
Roan High Bluff, 1894	1, 070, 713. 69 867, 476. 44		
Fork (Tenn.), 1930	1, 063, 595. 01 925, 676. 73		
Big Knob (Va.), 1893	971, 648. 25 1, 078, 990. 17	13 40 52*	Kingsport, stack.
Big Butt, 1893	927, 993. 34 860, 770. 05	134 16 03*	Reference mark No. 3.
Hogback (S. C.), 1876	1, 016, 744. 22 533, 066. 84		
Pinnacle (S. C.), 1875	880, 169. 42 488, 197. 34		
Cockspur (Tenn.), 1885	506, 307. 50 705, 031. 06		
Supplementary points			
Lincolnton, courthouse, yellow cupola, 1877.	1, 327, 982. 12 634, 061. 00		
Mount Mitchell, 1876	1, 031, 474. 76 749, 191. 46		
Grandfather Mountain, 1877	1, 169, 670. 39 871, 204. 57		
Crowder Mountain, 1877	1, 320, 228. 88 547, 207. 40		
Spencer Mountain, 1877	1, 368, 839. 82 569, 777. 12		
Silver Creek Knob, 1877	1, 168, 476. 03 679, 014. 58		
Blackstock Knob, 1877	1, 015, 349. 33 739, 835. 55		
Hanging Bluff, 1877	1, 630, 172. 42 965, 311. 06		
Hangover tree (Geological Survey), 1884.	519, 398 632, 403		
Little Bald (N. C.-Tenn.), 1885	552, 617 679, 856		
Big Fodderstack (N. C.-Tenn.), 1887	502, 604 642, 867		
Little Fodderstack (Tenn.), 1885	506, 655 656, 616		

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

EASTERN OBLIQUE ARC—Continued

Station	x coordinate; y coordinate	Plane azimuth	Mark
Supplementary points—Continued			
	Feet	° ′ ″	
Caesars Head Hotel, largest building, east end of roof (S. C.), 1875–76.	917, 423. 54 512, 838. 88		
Anderson, 1878	1, 378, 227. 07 667, 386. 44		
Simonton College, center of cupola, 1879.	1, 438, 188. 70 745, 121. 57		
Statesville longitude, 1879 [1]	1, 438, 112. 60 744, 981. 96		
Fisher's Peak, 1877 [1]	1, 464, 382 1, 027, 489		
Bull Head Mountain, 1877 [1]	1, 391, 967 987, 775		
Bakers Knob, 1877 [1]	1, 286, 696 703, 933		
Dallas, courthouse, cupola 1877 [1]	1, 350, 722 577, 000		
Mona Mountain, 1874–75	656, 790 484, 568		
Rocky Mountain, near Daytonsville (S. C.), 1876–77.	1, 224, 979 482, 009		
Mount Clingman, 1876 [1]	1, 024, 959 738, 373		
Thicketty (S. C.), 1875–76	1, 172, 006. 57 507, 695. 24		
Devils Courthouse Mountain	844, 575 596, 757		
Warrior Mount	1, 452, 418 1, 001, 286		
Hibriten Mountain	1, 262, 834 794, 247		
Carleton Knob	1, 157, 769 645, 149		
East Drowning Creek Mountain	1, 255, 810 718, 164		
West Drowning Creek Mountain	1, 250, 312 722, 551		
Hickory Knob	1, 186, 402 690, 567		
Propst Mountain	1, 182, 262 690, 176		
Little Pisgah Mountain	1, 008, 388 653. 630		
Mount Pisgah	881, 191 630, 961		
Sugarloaf Mountain	1, 026, 189 618, 950		
High Pinnacle (Blue Ridge)	1, 027, 696 727, 338		
Pinnacle Mountain (Bald Mountain)	1, 034, 695 641, 025		
Big Craggy Mountain	1, 000, 764 728, 847		

[1] No check on this position.

EASTERN OBLIQUE ARC—Continued

Station	*x* coordinate; *y* coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Bowlens Pyramid (one of the northernmost summits of the Black Mountains).	1,041,538 777,364		
Long Ridge, middle summit	1,036,955 768,206		
Tryon Mountain, northeast summit	1,040,927 572,850		
Great Hogback Mountain	809,346 526,826		
Chimney Top Mountain	785,178 517,182		
Whitesides Mountain	762,358 510,335		
Little Bald Mountain (Nantahala)	651,922 529,517		
Pickens Nose	665,902 492,759		
Standing Indian Mountain, north summit of Nantahala.	642,035 498,799		
Hawksbill Mountain	1,145,390 799,754		
Table Rock Mountain	1,146,142 791,640		
Big Yellow Mountain	1,090,838 869,070		
Grassy Ridge	1,091,047 867,849		
Bright Yellow Mountain	1,095,002 828,374		
Mount Hallback	1,035,222 742,973		
Mount Gibbs	1,028,065 743,512		
Cold Mountain 1	809,098 539,280		
Cold Mountain 2	851,123 626,550		
Mount Hardy (Tennessee Bald Mountain).	828,407 588,389		
Richland Balsam Mountain	808,249 608,923		
Humpback Mountain (Blue Ridge)	1,126,419 806,583		
Flat Top Mountain (Blue Ridge)	1,209,831 888,584		
Elk Knob (Smoky Range)	1,202,295 955,151		
Sauratown Mountain	1,596,237 958,484		
Tryon Mountain	1,031,797 567,584		
Fodderstack Mountain (Terrapin Mountain).	775,945 498,945		

EASTERN OBLIQUE ARC—Continued

Station	*x* coordinate; *y* coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Saddleback Mountain	745, 554 494, 548		
Black Brother Mountain	1, 034, 398 758, 073		
Balsam Cone	1, 032, 523 753, 683		
Bear Wallow Mountain	1, 000, 545 639, 430		
Sitting Bull Mountain (Ridge Pole), middle summit of Nantahala.	645, 987 485, 058		

COASTAL CONTROL ARC

Principal points			
Blossom (Va.), 1931	2, 868, 646. 88 1, 062, 812. 74	198 09 57*	Reference mark No. 2.
Hickory (Va.), 1931	2, 820, 257. 94 1, 063, 936. 32	305 47 57*	Reference mark No. 3.
Old, 1931	2, 854, 160. 24 1, 031, 776. 19	10 17 52*	Reference mark No. 3.
Moyock, 1931	2, 808, 124. 74 1, 027, 147. 34	16 04 50*	Reference mark No. 1.
Guinea, 1931	2, 844, 022. 69 1, 005, 482. 73	11 18 20*	Reference mark No. 2.
Tar, 1931	2, 798, 061. 46 1, 003, 499. 75	114 20 12*	Reference mark No. 3.
Gregory, 1931	2, 846, 296. 94 971, 668. 09	329 03 58*	Reference mark No. 1.
Burnt, 1931	2, 804, 805. 41 973, 356. 45	126 21 48*	Reference mark No. 1.
Camden, 1931	2, 848, 452. 81 933, 606. 68	255 40 44*	Reference mark No. 2.
Elizabeth, 1931	2, 806, 857. 18 935, 653. 78	131 53 54*	Reference mark No. 3.
Toxey, 1931	2, 845, 912. 53 917, 610. 49	25 22 05*	Reference mark No. 3.
Weeks, 1931	2, 833, 103. 13 897, 610. 47	14 05 54*	Reference mark No. 3.
Woodville, 1931	2, 781, 133. 94 912, 440. 28	232 13 34*	Reference mark No. 2.
Durant, 1931	2, 797, 725. 68 879, 392. 41	171 50 00*	Reference mark No. 3.
Hertford, 1931	2, 740, 250. 49 894, 741. 40	161 49 44*	Reference mark No. 3.
Yeopin, 1931	2, 763, 835. 00 867, 274. 36	240 50 43*	Reference mark No. 1.
Barber, 1931	2, 710, 939. 10 871, 833. 04	96 21 06*	Reference mark No. 2.
Byrum, 1931	2, 731, 632. 93 839, 239. 99	296 01 24*	Reference mark No. 1.
Mavaton, 1931	2, 695, 423. 42 890, 348. 48	21 47 16*	Reference mark No. 1.

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

COASTAL CONTROL ARC—Continued

Station	x coordinate; y coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*	° ′ ″	
Edenton, 1931	2,689,230.36 848,963.39	305 35 56*	Reference mark No. 2.
Perry, 1931	2,649,930.73 882,001.04	350 49 08*	Reference mark No. 1.
Capehart, 1931	2,653,154.86 845,562.78	198 49 24*	Reference mark No. 2.
White, 1931	2,630,143.88 875,126.24	47 04 11*	Reference mark No. 3.
Askew, 1931	2,612,828.22 863,574.38	322 37 43*	Reference mark No. 2.
Cooper, 1931	2,641,517.93 808,460.84	74 21 43*	Reference mark No. 2.
Windsor, 1931	2,599,391.62 829,263.56	316 00 23*	Reference mark No. 3.
Jamesville, 1931	2,624,402.08 756,117.83	295 34 11*	Reference mark No. 2.
Williamston, 1931	2,573,446.52 765,918.30	15 51 39*	Reference mark No. 2.
Green, 1931	2,571,057.86 738,144.65	208 25 11*	Reference mark No. 1.
Woolard, 1931	2,574,036.85 712,895.83	248 24 13*	Reference mark No. 1.
Carson, 1931	2,523,268.61 732,831.95	292 49 36*	Reference mark No. 1.
Shaw, 1931	2,573,277.07 682,920.04	114 13 17*	Reference mark No. 3.
Boyd, 1931	2,523,497.14 673,642.83	273 18 39*	Reference mark No. 2.
Smaw, 1931	2,595,273.24 659,524.84	116 30 42*	Reference mark No. 3.
Chocowinity, 1931	2,557,589.84 616,503.99	124 50 08*	Reference mark No. 2.
Orr, 1931	2,609,180.71 595,995.59	164 03 30*	Reference mark No. 3.
Vance, 1931	2,560,650.03 583,396.63	0 39 00*	Reference mark No. 1.
Turnstall, 1931	2,613,801.60 563,821.95	232 58 55*	Reference mark No. 1.
Askin, 1931	2,581,059.22 532,033.09	341 21 03*	Reference mark No. 1.
Pipkin, 1931	2,624,754.50 509,659.34	271 19 37*	Reference mark No. 2.
New Bern north base, 1931	2,589,384.57 487,830.40	335 18 14*	Reference mark No. 1.
Arapahoe, 1931	2,650,923.60 470,470.08	155 48 26*	Reference mark No. 3.
New Bern south base, 1931	2,602,951.47 459,433.85	154 23 13*	Reference mark No. 3.
Temple, 1931	2,670,705.34 431,392,70	1 39 15*	Reference mark No. 2.
Havelock, 1931	2,622,441.14 418,827.94	24 52 34*	Reference mark No. 2.

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

COASTAL CONTROL ARC—Continued

Station	*x* coordinate; *y* coordinate	Plane azimuth	Mark
Principal points—Continued			
	Feet	° ′ ″	
Harlowe, 1931	2,671,941.50 406,644.45	146 18 37*	Reference mark No. 2.
Newport, 1931	2,642,286.84 380,210.52	345 35 17*	Reference mark No. 2.
Knoll, 1931	2,620,376.02 361,338.16	256 01 32*	Reference mark No. 2.
Verona, 1932	2,457,596.51 328,763.30	191 21 51*	Reference mark No. 1.
Truesdale, 1932	2,499,102.26 356,181.01	148 28 13*	Reference mark No. 3.
Duck Creek, 1932	2,512,004.00 307,798.89	57 24 10*	Reference mark No. 3.
Grant, 1932	2,477,818.91 287,730.01	187 41 38*	Reference mark No. 2.
Bryan, 1931	2,603,829.80 403,020.03	290 14 26*	Reference mark No. 1.
Simkins, 1932	2,584,000.08 350,577.65	312 59 34*	Reference mark No. 2.
Pelletier, 1932	2,563,404.75 382,936.79	115 46 33*	Reference mark No. 2.
Russell, 1932	2,542,692.02 335,278.66	248 01 17*	Reference mark No. 1.
Hubert, 1932	2,530,733.61 370,177.15	149 02 54*	Reference mark No. 3.
Bryant (S. C.), 1932	2,097,165.41 27,811.27	80 55 24*	Reference mark No. 2.
Leon (S. C.), 1932	2,071,904.83 63,666.18	147 59 18*	Reference mark No. 3.
Little River (S. C.), 1932	2,125,248.04 51,367.74	74 46 04*	Reference mark No. 3.
Hughes, 1932	2,127,900.22 90,337.10	212 59 25*	Reference mark No. 1.
Pigott, 1932	2,168,306.02 55,203.75	178 52 26*	Reference mark No. 2.
Piver, 1932	2,156,130.06 94,985.95	124 38 10*	Reference mark No. 3.
Boon, 1932	2,200,075.74 62,972.83	187 49 55*	Reference mark No. 2.
Gore, 1932	2,205,427.21 104,149.25	42 09 25*	Reference mark No. 3.
Howell, 1932	2,240,049.48 74,169.23	314 11 27*	Reference mark No. 2.
Supply, 1932	2,233,147.86 105,464.85	267 46 11*	Reference mark No. 2.
Southport west base, 1932	2,256,712.14 83,769.23	283 15 40*	Reference mark No. 2.
Harvell, 1932	2,255,824.92 105,249.93	0 21 36*	Reference mark No. 3.
Southport east base, 1932	2,288,735.74 74,830.90	111 45 38*	Reference mark No. 3.
Mill, 1932	2,275,756.60 127,027.26	215 01 20*	Reference mark No. 1.

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

COASTAL CONTROL ARC—Continued

Station	x coordinate; y coordinate	Plane azimuth			Mark
Principal points—Continued	*Feet*	°	′	″	
Cypress, 1932	2,315,137.31 99,375.16	239	36	05*	Reference mark No. 2.
Johnson, 1932	2,305,177.55 157,475.38	195	01	25*	Reference mark No. 1.
Keyes, 1932	2,337,231.40 132,103.07	3	25	14*	Reference mark No 2.
Wilmington, 1932	2,318,272.97 186,539.10	119	03	18**	Bridge (△ Station).
Pilgrim, 1932	2,354,968.66 173,431.90	127	59	35*	Reference mark No. 3.
Perry, 1932	2,330,978.46 221,358.11	304	08	29*	Reference mark No. 1.
Kirkland, 1932	2,368,913.06 205,980.48	216	34	32*	Reference mark No. 3.
Bloodworth, 1932	2,360,256.97 257,131.03	91	11	39*	Reference mark No. 3.
Hampstead, 1932	2,390,513.44 228,405.75	202	39	52*	Reference mark No. 1.
Pender, 1932	2,428,022.95 266,038.76	219	50	34*	Reference mark No. 1.
Onslow, 1932	2,425,817.59 300,309.57	159	31	23*	Reference mark No. 3.
Bethea, 1932	2,448,531.43 267,056.20	112	02	02*	Reference mark No. 3.
Supplementary points					
Boundary monument (N. C.-Va.), 1931.	2,824,533.34 1,030,896.17				
Lee, 1911	2,871,974.30 1,009,988.05	152	34	36*	Reference mark No. 3.
Bell, 1911	2,885,126.95 991,313.63	113	41	34*	Reference mark No. 2.
Currituck Beach lighthouse, 1875	2,932,876.24 970,832.07				
Elizabeth City, municipal water tank, 1931.	2,818,585.05 939,917.62				
Shiloh eccentric, 1931	2,854,340.01 925,456.20	310	21	34*	Reference mark No. 3.
Brickhouse Point 2, 1931	2,839,511.64 926,746.52	128	38	44.3	Cobb Point Light.
Cobb Point light, 1931	2,828,389.52 935,639.71				
Miller Point light, 1931	2,858,717.39 916,009.81				
Long Point eccentric, 1931	2,812,014.85 893,770.69				
Stevenson Point 3, 1931	2,829,508.78 869,554.89	35	15	37*	Reference mark No. 2.
Griffin, 1931	2,822,728.17 865,901.23	52	56	58*	Reference mark No. 2.
Frog Island, 1931	2,854,797.66 881,778.49	102	51	40*	Reference mark No. 3.

* This azimuth has been computed by the first formula (p. 61), neglecting the second term.
** This azimuth has been computed by the first formula (p. 61), using both terms.

COASTAL CONTROL ARC—Continued

Station	x coordinate; y coordinate	Plane azimuth	Mark
Supplementary points—Continued			
	Feet	° ′ ″	
Reed Point light, 1931 [1]	2,823,365 858,007		
Sutton 2, 1931	2,767,051.92 890,045.76	225 53 21*	Reference mark No. 1.
Halsey, 1915	2,771,871.89 876,325.30	35 54 29*	Reference mark No. 2.
Whitehat, 1915	2,772,679.65 883,137.38	183 23 37*	Reference mark No. 3.
Grassy Point lighthouse, 1931	2,775,432.23 878,472.85		
Cactus, 1909	2,735,205.35 830,416.28	213 53 06*	Reference mark No. 1.
Laurel Point lighthouse, 1931 [1]	2,771,185 829,629		
Lawrence, 1874	2,671,565.51 861,563.98	331 39 44**	Chowan River toll bridge, green light on top.
Bull Pond, 1874	2,663,402.51 888,348.34		
Eden 2 reference mark No. 1, 1909	2,677,413.18 842,243.22		
Eden 2, 1909	2,677,520.36 842,297.59		
Chowan River toll bridge, green light on top, 1931.[1]	2,680,975 844,117		
Mackay Creek light, 1931 [1]	2,706,641 806,645		
Edenton, highest water tank, 1931	2,708,662.31 849,306.02		
Plymouth, stack, 1931	2,669,084.46 780,614.25		
Plymouth, water tank, 1931 [1]	2,665,216 780,043		
Williamston, municipal water tank, 1931.	2,574,591.68 769,773.39		
Water tower, 1931	2,517,243.06 758,097.66		
Washington, municipal water tank, 1931.	2,577,173.86 659,306.73		
Martin-Beaufort County line, marker post, 1931.[1]	2,573,984.72 712,920.91		
Washington, brick stack, 1931	2,573,540.49 662,581.64		
Pamlico Fertilizer Co., water tank, 1931.	2,586,996.67 652,362.05		
New Bern, water tank, 1931	2,585,115.35 503,532.20		
New Bern, municipal standpipe, 1931 [1]	2,581,539 498,778		
New Bern, municipal incinerator, weather vane, 1931.[1]	2,563,968 505,080		
New Bern, Christ Episcopal Church, spire, 1931.	2,586,295.59 499,593.05		

[1] No check on this position.
*This azimuth has been computed by the first formula (p. 61), neglecting the second term.
**This azimuth has been computed by the first formula (p. 61), using both terms.

COASTAL CONTROL ARC—Continued

Station	*x* coordinate; *y* coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
New Bern, U. S. Post Office, dome, 1931.	2,586,539.94 499,518.71		
Great Neck Point eccentric, 1931	2,686,709.13 445,982.66	359 04 45*	Reference mark No. 2.
Piersons Point 2 eccentric, 1931	2,667,308.07 453,885.44	40 12 54.0	Cherry Point 2 eccentric.
Cherry Point 2 eccentric, 1931	2,655,466.56 439,880.35	98 18 32*	Reference mark No. 3.
Cherry Point 2, 1911 [1]	2,655,430.33 440,046.49		
Piersons Point 2, 1911 [1]	2,667,323.22 453,833.59		
Guthrie, 1908	2,592,305.17 345,223.58	123 21 43*	Reference mark No. 2.
Broad Creek 2, 1908	2,617,363.29 356,337.10	146 36 26*	Reference mark No. 2.
Spooners eccentric, 1931	2,658,869.69 362,234.04	253 49 28*	Water tank.
Spooners, 1915 [1]	2,658,763.05 362,224.21		
Camp Glen, steel tower (Glen), 1927	2,674,243.42 361,786.76		
Morehead City, Villa Hotel, water tank (Vi), 1927.	2,664,933.38 363,993.43		
Morehead City, water tank, 1913	2,688,384.74 361,402.94		
Dome supported by pillars, 1931 [1]	2,702,202 361,140		
Morehead City, pole on dome-shaped building, 1931.[1]	2,665,372 362,491		
Channel light No. 13, flashing white, 1932.	2,613,743.97 354,397.73		
Queen, 1914	2,559,735.73 340,126.94	152 37 09*	Reference mark No. 3.
Free, 1914	2,526,585.19 313,517.45	164 48 16*	Reference mark No. 3.
Swan Point eccentric, 1932	2,493,062.52 292,861.72	42 03 45*	Reference mark No. 3.
Swan Point (U. S. E.), 1914 [1]	2,493,654.78 292,577.69		
Long Point, 1917 [1]	2,811,996.30 893,736.09		
Shiloh, 1916 [1]	2,854,338.73 925,410.74		
Nixon (S. C.), 1923	2,108,369.71 28,376.89	128 50 01*	Reference mark No. 3.
Oak Island, U. S. Coast Guard, flagpole, 1932.[1]	2,293,329 53,440		
Boundary monument (N. C.-S. C.), 1932.[1]	2,125,262.20 51,370.83		
Fish, 1923	2,216,048.93 59,788.69	265 08 51*	Reference mark No. 2.

[1] No check on this position.
* This azimuth has been computed by the first formula (p. 61), neglecting the second term.

COASTAL CONTROL ARC—Continued

Station	*x* coordinate; *y* coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Southport, water tank, 1932	2,297,268.62 63,857.15		
Fort 2, 1923	2,328,627.75 81,820.50	195 57 46*	Reference mark No. 1.
Bald Head Lighthouse, 1851	2,303,400.47 46,422.37		
R (U. S. E.), 1923	2,293,034.46 53,159.68		
Cape Fear Lighthouse, 1905	2,313,967.13 36,742.41		
Southport, white spire, 1932	2,297,422.84 63,142.87		
Fort Caswell, stack, 1932	2,298,621.49 53,752.30		
Cape Fear River, channel light, 1932 [1]	2,322,565 118,760		
Cape Fear River, channel light, 1932 [1]	2,324,714 119,105		
Bend, 1918	2,334,258.10 111,137.09	44 03 33*	Reference mark No. 2.
Ruins, 1917	2,320,047.18 107,081.89	7 46 10*	Reference mark No. 1.
Sprunt, 1917	2,319,162.25 114,795.20	12 00 42*	Azimuth mark.
St. James Church, 1854	2,318,557.67 178,271.82		
Mason, 1914	2,372,616.99 191,413.94	207 07 10*	Reference mark No. 2.
Wrightsville northwest base eccentric, 1932.	2,358,066.22 172,892.63	236 23 40*	Reference mark No. 1.
Stake A, 1932 [1]	2,358,206.58 173,009.36		
Wrightsville northwest base, 1918 [1]	2,358,576.85 172,633.35		
Union, 1918	2,317,545.26 180,389.00		
Bridge, 1918	2,317,958.16 186,713.99	3 44 06.0 96 59 17.8	Union. Yadkin.
Wrightsville Beach, Oceanic Hotel, observation tower, flagpole, 1932.	2,364,118.51 168,896.98		
Wrightsville Beach, water tank, 1932	2,362,405.86 166,167.98		
Wilmington, Catholic Church, western one of twin domes, 1932.	2,319,346.85 177,172.27		
Atkinson, 1914	2,417,499.60 239,120.16	134 01 04*	Reference mark No. 3.
Wilmington, silver water tank with scale on side and ball on top, 1932.	2,319,466.65 186,259.81		
Wilmington, silver water tank with black writing, 1932.	2,327,479.00 175,598.47		
Wilmington, water tank, 1932	2,316,165.04 189,875.77		

[1] No check on this position.
* This azimuth has been computed by the first formula (p. 61), neglecting the second term.

COASTAL CONTROL ARC—Continued

Station	x coordinate; y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Wilmington, black water tank, 1932	2,318,200.56 186,541.97		
Wilmington, church spire with broad base, 1932.	2,318,814.51 179,712.37		
Wilmington, low church spire with broad base, 1932.	2,320,411.14 176,283.65		
Wilmington, low church spire with weather vane, 1932.	2,320,112.52 176,724.79		
Wilmington, Presbyterian Church, tall spire with cross, 1932.	2,319,605.57 176,431.46		
Wilmington, Baptist Church, tall spire with cock weather vane, 1932.	2,318,643.21 177,539.56		
Wilmington, Lutheran Church, spire, 1932.	2,319,233.87 178,494.15		
Wilmington, sharp spire with weather vane, 1932.	2,319,802.14 178,568.54		
Wilmington, spire, 1932	2,318,677.87 180,797.72		
Wilmington, First Baptist Church, spire, 1932.	2,319,153.36 180,545.68		
Wilmington, stack, 1932	2,327,320.20 175,629.90		
Wilmington, high stack, 1932	2,321,172.80 181,854.00		
Wilmington, highest stack, 1932	2,317,236.17 175,551.93		

EASTERN OBLIQUE ARC TO JACKSONVILLE

Principal points			
Cedder Mountain, 1918	1,723,249.80 975,762.96	273 48 21*	Reference mark No. 1.
Chestnut (Va.), 1932	1,730,499.98 1,043,449.50	229 03 29*	Reference mark No. 1.
James (Va.), 1932	1,804,954.89 1,054,392.64	34 20 22*	Reference mark No. 3.
Smith, 1932	1,802,588.41 976,038.72	298 12 36*	Reference mark No. 2.
Pelham, 1932	1,860,474.16 1,002,148.70	43 59 24*	Reference mark No. 2.
Mount Cross (Va.), 1932	1,854,328.55 1,056,112.08	170 15 09*	Reference mark No. 3.
Kentuck (Va.), 1932	1,916,009.40 1,058,633.61	204 27 33*	Reference mark No. 1.
Estelle, 1932	1,926,330.59 994,995.19	222 17 05*	Reference mark No. 1.
Semora, 1932	1,956,427.07 999,050.98	229 33 11*	Reference mark No. 2.
White Oak (Va.), 1932	1,951,862.90 1,054,133.84	316 54 52*	Reference mark No. 1.
Crawley (Va.), 1933	2,005,439.43 1,037,454.65	322 43 23*	Reference mark No. 1.

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

EASTERN OBLIQUE ARC TO JACKSONVILLE—Continued

Station	x coordinate; y coordinate	Plane azimuth	Mark
Principal points—Continued			
	Feet	° ′ ″	
Hagers Mount, 1933	2,008,921.40 988,184.83	298 47 04*	Reference mark No. 2.
Leasburg, 1933	1,952,678.23 962,068.41	215 56 17*	Reference mark No. 3.
Roxboro, 1933	2,001,731.34 957,930.72	265 18 38*	Reference mark No. 2.
Allen, 1932	2,002,702.69 941,395.73	47 46 36*	Reference mark No. 2.
Laws, 1933	1,964,368.41 906,487.07	45 32 16*	Reference mark No. 2.
Red Mount, 1933	2,025,702.76 904,847.44	5 26 34*	Reference mark No. 3.
Hillsboro, 1933	1,963,913.18 841,349.59	327 08 31*	Reference mark No. 3.
Hunt, 1933	2,016,182.03 862,037.41	7 44 57*	Reference mark No. 2.
Durham, 1933	2,028,929.71 817,555.82	119 38 07**	Durham, Chesterfield Cigarette Factory, aluminum tank.
Chapel Hill, 1933	1,985,294.13 776,118.97	180 18 15.3	University of North Carolina, bell tower.
Durham north base, 1932	2,035,629.11 803,281.85	14 26 53*	Reference mark No. 2.
Durham south base, 1932	2,030,959.01 779,337.40	339 37 35*	Reference mark No. 3.
Durham middle base, 1932	2,032,730.56 791,680.66		
Carpenter, 1933	2,037,953.14 756,447.80	342 22 44*	Reference mark No. 2.
Tippers, 1933	2,102,618.51 784,459.59	49 33 04*	Reference mark No. 3.
Cary High, 1933	2,064,765.32 739,707.45	239 28 23*	Reference mark No. 1.
Raleigh 2, 1933	2,106,984.78 737,878.81	144 44 59*	Raleigh, Edenton Methodist Church, tall spire.
Garner, 1933	2,123,065.01 709,245.75	143 00 57*	Reference mark No. 3.
Knight, 1933	2,156,158.79 748,283.91	93 53 50*	Reference mark No. 2.
Clyde, 1933	2,180,660.34 720,397.29	119 37 17*	Reference mark No. 3.
Clayton, 1933	2,152,056.99 689,524.81	92 56 53*	Reference mark No. 3.
Hocutt, 1933	2,202,355.14 706,879.38	310 09 40*	Reference mark No. 1.
Hall, 1933	2,173,589.53 675,618.78	170 28 01*	Reference mark No. 3.
Albert, 1933	2,170,180.63 635,055.57	172 17 19*	Reference mark No. 1.
Selma, 1933	2,212,065.22 666,178.21	145 44 15*	Reference mark No. 2.
Sanders, 1933	2,188,541.74 593,225.53	354 54 54*	Reference mark No. 2.

*This azimuth has been computed by the first formula (p. 61), neglecting the second term.
**This azimuth has been computed by the first formula (p. 61), using both terms.

EASTERN OBLIQUE ARC TO JACKSONVILLE—Continued

Station	x coordinate; y coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*	° ′ ″	
Braswell, 1933	2,228,462.21 627,850.06	347 13 27*	Reference mark No. 1.
Flowers, 1933	2,214,737.83 572,471.30	269 59 33*	Reference mark No. 1.
Worley, 1933	2,251,868.63 605,645.17	265 58 27*	Reference mark No. 2.
Dudley, 1933	2,288,119.15 553,481.26	271 55 55*	Reference mark No. 2.
Goldsboro, 1933	2,298,432.90 596,056.67	63 41 37**	Goldsboro eccentric.
Beston, 1933	2,343,301.60 580,775.04	182 50 53*	Reference mark No. 1.
Whitehall, 1933	2,338,297.06 532,320.61	26 35 47*	Reference mark No. 2.
Brewer, 1933	2,383,337.95 560,600.74	154 14 00*	Reference mark No. 1.
Deep Run, 1933	2,387,162.81 508,574.82	210 59 12*	Reference mark No. 2.
Kinston, 1933	2,431,695.51 554,583.78	316 39 04*	Reference mark No. 1.
Williams, 1933	2,437,715.82 510,512.52	318 57 21*	Reference mark No. 2.
Hargett, 1933	2,407,486.34 477,542.60	173 17 12*	Reference mark No. 3.
Humphrey, 1933	2,423,295.53 467,749.63	273 29 38*	Reference mark No. 2.
Duplin, 1933	2,377,207.90 463,180.26	161 17 20*	Reference mark No. 1.
Huffman, 1933	2,428,927.27 449,859.32	174 29 49*	Reference mark No. 1.
Sandlin, 1933	2,385,247.49 427,004.00	278 11 35*	Reference mark No. 1.
Richlands, 1933	2,435,731.83 421,454.06	320 23 00*	Reference mark No. 2.
Fountain, 1933	2,400,128.06 399,074.39	115 27 13*	Reference mark No. 3.
Harris, 1933	2,429,487.94 361,488.81	257 06 35*	Reference mark No. 2.
Roper, 1933	2,468,472.24 385,501.93	342 32 05*	Reference mark No. 2.
Supplementary points			
Reidsville, most northerly of three Lucky Strike tobacco storage water tanks, 1933.	1,811,510.41 962,119.90		
Reidsville, Lucky Strike Cigarette factory, tall stack, 1933.	1,804,148.14 952,806.48		
Spray (Va.), 1932	1,783,694.67 1,017,117.55	180 53 48*	Reference mark No. 3.
Leak, 1933	1,725,734.21 1,017,618.35	224 29 35*	Reference mark No. 1.
Russell, 1932	1,848,124.53 1,002,514.28	346 29 53*	Reference mark No. 1.

*This azimuth has been computed by the first formula (p. 61), neglecting the second term.
** This azimuth has been computed by the first formula (p. 61), using both terms.

EASTERN OBLIQUE ARC TO JACKSONVILLE—Continued

Station	x coordinate; y coordinate	Plane azimuth			Mark
Supplementary points—Continued					
	Feet	°	′	″	
G. S. Tie (Va.), 1932	1,849,801.23 1,042,176.38	150	40	05*	Reference mark No. 2.
Primary traverse station No. 25 (U. S. G. S.) (Va.), 1932.[1]	1,849,671.08 1,042,382.58				
White (Va.), 1932	1,870,847.22 1,016,852.97	272	49	03*	Reference mark No. 2.
Williams (N. C.-Va.), 1932	1,904,129.86 1,016,127.95	254	31	55*	Reference mark No. 1.
Cunningham (Va.), 1933	1,980,832.84 1,016,610.44	250	37	12*	Reference mark No. 2.
Lebanon, 1933	1,958,314.11 1,003,981.99	41	48	17*	Reference mark No. 1.
Airway beacon No. 33, 1933	1,897,323.87 983,496.30				
Airway beacon No. 35 (Va.), 1933	1,983,281.29 1,048,608.71				
Milton, airway beacon No. 34 (Va.), 1933	1,940,710.34 1,024,490.17				
Schoolfield, Dan River cotton mills, water tank (Va.), 1933.	1,873,842.27 1,027,358.84				
Schoolfield, Dan River cotton mills, tallest and most westerly of three stacks (Va.), 1933.	1,874,678.22 1,027,058.07				
Danville, church spire (Va.), 1933 [1]	1,881,320 1,029,884				
Roxboro, municipal water tank, 1933	2,003,918.77 959,243.33				
Somerset Turkish towel mills, black water tank, ball on top, 1933.[1]	2,005,794 946,921				
Garrard, 1933	2,008,057.98 859,688.18	329	22	40*	Reference mark No. 3.
University, 1933	1,984,905.87 786,480.80	241	39	47*	Reference mark No. 1.
Nelson, 1933	2,044,798.28 776,823.31	22	59	50*	Reference mark No. 2.
Barbee, 1933	2,031,164.64 770,940.70	233	19	09*	Reference mark No. 1.
Duke, 1933	2,017,811.90 817,140.39	88	58	57*	Reference mark No. 2.
Durham, Duke University, chapel tower, northwest corner, 1933.	2,017,702.27 819,464.65				
University of North Carolina, bell tower, 1933.	1,985,344.26 785,553.29				
Durham, Chesterfield Cigarette Factory, tall brick stack, 1933.	2,027,851.74 819,064.42				
Durham, Chesterfield Cigarette Factory, aluminum tank, 1933.[1]	2,027,520 818,358				
Chapel Hill, black water tank, 1933	1,983,409.13 785,555.63				
Durham, Durham Cotton Mill, tall stack, 1933.[1]	2,022,143 822,025				

[1] No check on this position.
*This azimuth has been computed by the first formula (p. 61), neglecting the second term.

EASTERN OBLIQUE ARC TO JACKSONVILLE—Continued

Station	x coordinate; y coordinate	Plane azimuth	Mark
Supplementary points—Continued			
	Feet	° ′ ″	
East Durham, Lucky Strike Tobacco Storage, northeasterly one of two water tanks, 1933.	2,038,057.82 808,117.61		
East Durham, Lucky Strike Tobacco Storage, southwesterly one of two aluminum water tanks, 1933.	2,037,774.83 806,562.73		
Apex, municipal water tank, 1933	2,044,201.09 720,944.76		
Cary, municipal water tank, 1933	2,065,080.30 741,016.38		
Fair, 1933	2,086,397.96 743,863.61	246 03 40*	Reference mark No. 2.
Airport, 1933	2,103,519.16 722,156.59	193 21 14*	Reference mark No. 1.
Briggs, 1933	2,113,437.82 759,016.52	3 51 22*	Reference mark No. 2.
State College, 1933	2,093,757.94 740,509.23	259 07 17*	Reference mark No. 1.
Raleigh, Carolina Hotel, revolving red beacon, 1933.	2,105,746.48 738,420.82		
Roxboro, black water tank, 1933 [1]	2,001,726.43 958,056.84		
Raleigh, State College, brick stack, 1933.	2,098,444.41 740,570.13		
Raleigh, Berry Kelly Training School, black water tank, ball on top, 1933.	2,090,422.97 743,632.22		
Raleigh, Meredith College, tall brick stack, 1933.	2,092,360.29 746,207.89		
Raleigh, Meredith College, black water tank, ball on top, 1933.	2,092,413.28 746,381.15		
Raleigh, Edenton Methodist Church, tall spire, 1933.	2,105,851.76 739,481.92		
Moriah, 1933	2,146,757.60 701,294.00	108 59 43*	Reference mark No. 2.
Cary reference mark, 1918	2,064,822.75 739,782.81		
Raleigh reference mark, 1918	2,107,045.04 737,849.71		
Raleigh airway beacon, green and white flashing, 1933.	2,103,279.46 722,266.56		
Clayton, municipal water tank, 1933	2,159,838.63 692,807.05		
Clayton Cotton Mills, water tank, 1933.	2,163,558.24 690,541.47		
Clayton, Liberty Cotton Mills, water tank, 1933.	2,158,150.19 695,485.60		
Wendell, black water tank, 1933	2,187,044.44 740,378.05		
Selma, municipal water tank (black), 1933.	2,214,267.34 649,917.78		

[1] No check on this position.
*This azimuth has been computed by the first formula (p. 61), neglecting the second term.

EASTERN OBLIQUE ARC TO JACKSONVILLE—Continued

Station	x coordinate; y coordinate	Plane azimuth	Mark
Supplementary points—Continued			
	Feet	° ′ ″	
Oakland, Cleveland High School, water tank, 1933.	2, 140, 098. 22 661, 588. 06		
Smithfield, municipal water tank, 1933	2, 194, 272. 54 642, 760. 22		
Dail, 1933	2, 202, 402. 41 644, 256. 10	55 54 33*	Reference mark No. 3.
Smithfield Cotton Mill, yellow brick stack, 1933.	2, 198, 743. 18 641, 845. 47		
Smithfield, concrete stack, 1933 [1]	2, 194, 306 636, 601		
Benson, water tank, 1933	2, 134, 407. 19 594, 974. 90		
Samway, 1933	2, 210, 722. 70 555, 384. 46	261 58 06*	Reference mark No. 2.
Edmondson, 1933	2, 257, 305. 98 620, 515. 60	277 35 52*	Reference mark No. 1.
Goldsboro, State Hospital, stack, 1933	2, 289, 691. 69 598, 389. 24		
Goldsboro, Farmers Cotton and Storage Warehouse Co., water tank, 1933.	2, 299, 317. 20 600, 124. 21		
Goldsboro, St. Paul Methodist Church, spire, 1933.	2, 299, 190. 47 595, 086. 78		
Goldsboro, aluminum standpipe, 1933	2, 298, 765. 29 598, 906. 53		
Goldsboro, Durham Hosiery Mills, aluminum water tank, higher of two, 1933.	2, 299, 422. 30 596, 905. 00		
Watson, 1933	2, 274, 511. 60 568, 942. 58	231 08 27*	Reference mark No. 2.
Goldsboro, Vinson Lumber Co., water tank, 1933.[1]	2, 297, 715 593, 233		
Goldsboro eccentric reference mark No. 4, 1933.[1]	2, 296, 765. 90 596, 938. 60		
Goldsboro eccentric, 1933 [1]	2, 296, 074. 17 594, 890. 54		
Duplin-Lenoir Counties, boundary monument, 1933.[1]	2, 377, 273. 39 463, 171. 18		
Lenway, 1933	2, 349, 205. 17 569, 903. 85	252 42 42*	Reference mark No. 2.
Kinston, yellow brick stack, 1933	2, 419, 937. 27 554, 632. 37		
Kinston, Caswell Training School, brick stack, 1933 [1].	2, 413, 033 558, 605		
Liddell, 1933	2, 348, 246. 00 521, 629. 77	300 24 37*	Reference mark No. 1.
La Grange, municipal water tank, 1933.	2, 358, 183. 37 570, 105. 52		
Kinston, Caswell Training School, water tank, 1933.	2, 413, 036 . 25 558, 723. 79		
Paradise eccentric, 1933	2, 482, 316. 57 353, 245. 57	298 08 34*	Reference mark No. 2.

[1] No check on this position.
*This azimuth has been computed by the first formula (p. 61), neglecting the second term.

EASTERN OBLIQUE ARC TO JACKSONVILLE—Continued

Station	x coordinate; y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Town Point eccentric, 1933	2,486,660.05 336,527.37	6 08 37*	Reference mark No. 1.
Kinston, municipal standpipe, green, 1933.	2,423,758.26 557,098.52		
Jodup, 1933	2,391,950.77 451,573.99	46 23 30*	Reference mark No. 2.
Walton, 1933	2,465,215.88 368,293.33	97 58 01*	Reference mark No. 3.
Town Point (U. S. E.), 1933 [1]	2,486,768.37 336,549.66		
Paradise (U. S. E.), 1933 [1]	2,482,230.36 353,098.38		
Malone, 1933 [1]	1,943,821.94 909,617.46		

NORTH CAROLINA-VIRGINIA BOUNDARY ARC

Principal points			
Vultare, 1933	2,358,817.06 1,012,867.76	118 01 25*	Reference mark No. 3.
Rawlings (Va.), 1933	2,404,935.01 1,059,042.55	354 18 48*	Reference mark No. 2.
Stancell (N. C.–Va.), 1933	2,370,422.26 1,019,747.62	51 20 53*	Reference mark No. 3.
Jordon, 1933	2,409,041.14 1,001,888.82	200 15 42*	Reference mark No. 2.
Lilly, 1933	2,774,785.26 1,019,149.90	334 44 44*	Reference mark No. 3.
Wallaceton (Va.), 1933	2,771,797.52 1,066,842.88	5 11 48*	Reference mark No. 2.
Corapeake, 1933	2,719,818.68 1,020,282.30	156 56 08*	Reference mark No. 2.
Harrell (Va.), 1933	2,692,592.17 1,052,018.82	128 51 32*	Reference mark No. 3.
Morgan (Va.), 1933	2,674,316.49 1,058,654.59	234 50 53*	Reference mark No. 2.
Vann, 1933	2,673,846.90 1,013,751.69	228 56 02*	Reference mark No. 1.
Quay (Va.), 1933	2,625,092.53 1,049,771.96	355 57 15*	Reference mark No. 2.
Gatling, 1933	2,638,024.55 1,009,143.44	91 20 58*	Reference mark No. 3.
Camp (Va.), 1933	2,606,427.93 1,055,105.29	330 08 03*	Reference mark No. 2.
Como, 1933	2,585,448.95 1,006,976.74	35 56 25*	Reference mark No. 3.
Beale (Va.), 1933	2,572,869.18 1,053,514.68	154 59 12*	Reference mark No. 3.
Severn, 1933	2,530,753.64 1,007,117.70	31 02 15*	Reference mark No. 2.
Shiloh (Va.), 1933	2,529,013.99 1,051,360.02	274 02 55*	Reference mark No. 1.

[1] No check on this position.
* This azimuth has been computed by the first formula (p. 61), neglecting the second term.

NORTH CAROLINA-VIRGINIA BOUNDARY ARC—Continued

Station	x coordinate; y coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*	° ′ ″	
Woodard, 1933	2,486,154.20 1,006,070.30	293 29 49*	Reference mark No. 2.
Ellis (Va.), 1933	2,483,840.53 1,052,234.68	214 21 08*	Reference mark No. 1.
Daniel, 1933	2,445,490.32 1,006,916.52	50 40 06*	Reference mark No. 2.
Emporia (Va.), 1933	2,430,961.17 1,056,284.68	54 10 38*	Reference mark No. 3.
Bethel Hill, 1933	2,023,795.17 1,002,380.70	9 30 42*	Reference mark No. 1.
Halloway, 1933	2,059,011.83 994,871.05	205 03 17*	Reference mark No. 2.
Moon (Va.), 1933	2,070,643.07 1,054,198.24	307 11 31*	Reference mark No. 2.
Averett (Va.), 1933	2,104,658.11 1,028,891.83	262 11 13*	Reference mark No. 1.
Bullock, 1933	2,133,311.02 997,095.13	33 05 10*	Reference mark No. 3.
Clarksville (Va.), 1933	2,139,929.07 1,051,447.19	27 02 54*	Reference mark No. 2.
Townsville, 1933	2,169,426.69 999,770.68	284 19 08*	Reference mark No. 1.
Anderson (Va.), 1933	2,171,126.72 1,047,515.52	289 52 47*	Reference mark No. 1.
Buchanan, 1933	2,204,707.24 1,001,807.45	180 12 02*	Reference mark No. 1.
Bethany (Va.), 1933	2,216,062.96 1,060,361.36	13 44 46*	Reference mark No. 1.
Oakville, 1933	2,264,204.31 1,001,988.72	280 33 09*	Reference mark No. 1.
Hagood (Va.), 1933	2,259,297.64 1,056,207.69	18 44 01*	Reference mark No. 2.
Howard, 1933	2,298,424.83 998,833.71	224 46 22*	Reference mark No. 1.
Lynch (Va.), 1933	2,310,481.47 1,050,147.34	86 43 46*	Reference mark No. 2.
Supplementary points			
Callahan, 1933	2,105,294.16 1,015,435.56	48 27 30*	Reference mark No. 2.
Virgilina, 1933	2,064,007.13 1,012,258.05	193 49 38*	Reference mark No. 3.
Woody, 1933	2,029,096.80 1,015,304.63	22 19 42*	Reference mark No. 2.
Buffalo (Va.), 1933	2,090,432.54 1,059,159.96		
Clarksville, municipal water tank, aluminum, finial (Va.), 1933.	2,130,216.78 1,046,242.42		
Walker, 1933	2,185,657.82 1,016,773.47	181 38 33*	Reference mark No. 3.
Drewry, 1933	2,203,010.62 987,297.68	314 43 19*	Reference mark No. 2.
Daz eccentric, 1933	2,181,648.50 945,912.46	75 56 34*	Reference mark No. 1.

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

NORTH CAROLINA-VIRGINIA BOUNDARY ARC—Continued

Station	x coordinate; y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Daz, 1918	2,181,612.21 945,878.15	53 25 53.7	Deb.
Henderson, church spire, 1933 [1]	2,176,324 938,940		
Henderson Cotton Mills, tank, aluminum, 1933.	2,178,916.56 942,169.80		
Henderson, American Agricultural Chemical Co., tank, tall, black, 1933.	2,182,794.22 946,572.81		
Airway beacon No. 47, 1933	2,276,827.33 1,019,475.01		
Wise, 1933	2,243,122.84 999,932.42	153 17 25*	Reference mark No. 3.
Paschal, 1933	2,247,278.14 1,018,054.83	266 10 04*	Reference mark No. 1.
Sykes (N. C.-Va.), 1933	2,323,158.48 1,018,939.91	34 01 54*	Reference mark No. 1.
Roanoke Rapids, high, large globular water tank, 1933.	2,396,118.12 986,031.82		
Camp, 1933	2,398,248.61 1,003,700.49	173 10 14*	Reference mark No. 3.
Roanoke Rapids, Rosemary Mills, red brick stack on west side, 1933.	2,393,617.63 986,873.01		
Primary traverse station No. 11 (U. S. G. S.), 1933.[1]	2,398,248.40 1,003,626.55		
Mason (N. C.-Va.), 1933	2,413,848.53 1,020,221.58	257 01 29*	Reference mark No. 1.
Concord (N. C.-Va.), 1933	2,446,807.07 1,020,399.20	184 48 28*	Reference mark No. 1.
Pit, 1933	2,428,829.74 1,005,656.92	207 12 57*	Reference mark No. 1.
Can eccentric (Va.), 1933	2,541,512.50 1,045,342.54	228 30 36*	Azimuth mark.
Cal eccentric (Va.), 1933	2,562,604.23 1,055,486.63	252 10 56*	Reference mark No. 3.
Primary traverse station No. 12 eccentric (Va.), 1933.	2,523,448.87 1,058,893.97		
Can (Va.), 1918	2,541,558.99 1,045,404.51		
Primary traverse station No. 12 (U. S. G. S.) (Va.), 1918.[1]	2,523,451.50 1,058,929.32		
Boykins, black water tank (Va.), 1933	2,529,209.80 1,036,619.18		
Knight (Va.), 1933	2,531,217.43 1,022,553.99	150 14 22*	Reference mark No. 3.
Statesville (N. C.-Va.), 1933	2,567,385.71 1,022,452.51	60 02 49*	Reference mark No. 2.
Futrell, 1933	2,543,501.23 983,328.44	108 46 11*	Reference mark No. 3.
Winton, 1932	2,609,139.45 969,970.86		
Parker, 1932	2,625,165.09 986,740.96	209 32 15*	Reference mark No. 3.

[1] No check on this position.
*This azimuth has been computed by the first formula (p. 61), neglecting the second term.

NORTH CAROLINA-VIRGINIA BOUNDARY ARC—Continued

Station	x coordinate; y coordinate	Plane azimuth	Mark
Supplementary points—Continued			
	Feet	° ′ ″	
Gatesville, 1932	2,659,652.48 973,314.16	334 13 50*	Azimuth mark.
Primary traverse station No. 9 (U. S. G. S.), 1933.[1]	2,585,619.82 1,007,139.50		
Primary traverse station No. 11 (U. S. G. S.), 1933.[1]	2,655,682.00 1,009,472.12		
Freeman (N. C.-Va.), 1933	2,659,289.87 1,026,775.24	8 37 56*	Reference mark No. 3.
Gates, 1933	2,655,563.70 1,009,473.91	65 30 53*	Reference mark No. 3.
Boundary monument No. 20 (N. C.-Va.), 1933.[1]	2,659,352.04 1,026,773.00		
Saunders, 1933	2,712,182.60 1,027,971.89	165 24 27*	Reference mark No. 3.
Virginia-North Carolina boundary monument No. 14, 1933.[1]	2,712,130.08 1,028,003.39		
Primary traverse station No. 3P (U. S. G. S.), (N. C.-Va.), 1918.[1]	2,712,130.56 1,028,003.40		
Drummond (N. C.-Va.), 1933	2,770,495.80 1,029,442.72	333 56 14*	Reference mark No. 2.
Boundary monument (N. C.-Va.), 1933.[1]	2,770,504.66 1,029,450.54		

JACKSONVILLE NORTHWARD TO VIRGINIA BOUNDARY

Principal points			
Greenville, 1933	2,478,253.67 681,889.48	83 20 10*	Reference mark No. 2.
Moore, 1933	2,486,851.77 728,015.83	349 02 55*	Reference mark No. 1.
Eureka, 1933	2,458,006.01 726,744.75	6 26 48*	Reference mark No. 1.
Farmville, 1933	2,427,957.11 695,156.51	264 57 55*	Reference mark No. 1.
Mosley, 1933	2,418,322.33 734,044.84	312 48 18*	Reference mark No. 2.
Owens, 1933	2,396,355.06 703,160.53	269 48 33*	Reference mark No. 2.
Shackleford, 1933	2,379,368.63 696,177.23	159 16 09*	Reference mark No. 2.
Wooten, 1933	2,368,692.22 733,721.44	117 50 32*	Reference mark No. 2.
Brown, 1933	2,384,189.49 770,423.26	279 31 48*	Reference mark No. 2.
Rocky Mount east base, 1932	2,414,656.93 789,959.30	264 51 25*	Reference mark No. 1.
Rocky Mount west base, 1933	2,364,472.83 794,284.85	97 46 14*	Reference mark No. 2.
Battleboro, 1933	2,369,600.15 838,840.38	359 23 24*	Reference mark No. 3.
O'Neal, 1933	2,415,046.72 840,452.88	257 36 31*	Reference mark No. 1.

[1] No check on this position.
*This azimuth has been computed by the first formula (p. 61), neglecting the second term.

JACKSONVILLE NORTHWARD TO VIRGINIA BOUNDARY—Continued

Station	*x* coordinate; *y* coordinate	Plane azimuth	Mark
Principal points—Continued			
	Feet	° ′ ″	
Mann, 1933	2,366,046.35 864,054.22	256 42 27*	Reference mark No. 2.
Chapel, 1933	2,415,679.02 872,903.01	256 24 14*	Reference mark No. 2.
Haywood, 1933	2,409,553.59 906,206.16	39 15 42*	Reference mark No. 2.
Pettitt, 1933	2,356,002.36 906,447.57	267 31 54*	Reference mark No. 1.
Taylor, 1933	2,357,621.38 932,452.37	18 21 49*	Reference mark No. 2.
Halifax, 1933	2,405,657.94 934,261.52	35 57 24*	Reference mark No. 3.
Alston, 1933	2,354,126.60 967,846.33	346 48 30*	Reference mark No. 2.
Adams, 1933	2,397,709.83 970,452.14	191 17 29*	Reference mark No. 1.
Roanoke eccentric, 1933	2,394,209.47 984,663.98	329 30 14*	Reference mark No. 1.
Supplementary points			
Dawson, 1933	2,406,591.41 583,313.65	170 05 33*	Reference mark No. 3.
Arba, 1933	2,386,414.54 597,945.34	3 43 42*	Reference mark No. 1.
Eason, 1933	2,434,944.30 601,171.12	354 26 25*	Reference mark No. 1.
Flanigan, 1933	2,380,743.79 650,564.93	348 46 24*	Reference mark No. 3.
Carr, 1933	2,428,862.18 646,337.85	89 02 23*	Reference mark No. 2.
Cox eccentric, 1933	2,321,855.33 980,307.34	85 42 56*	Reference mark No. 2.
Littleton, municipal water tank, black, 1933.[1]	2,321,342 979,720		
Cox (B. M. N 3), 1918	2,321,977.74 980,279.96		
Roanoke (B. M. Z 1), 1918	2,394,026.70 984,703.29		
Weldon, Eastern Cotton Oil Co., water tank, black, 1933.	2,409,711.98 972,205.05		
Roanoke Rapids, large, squat, aluminum water tank, in east side, 1933.	2,396,118.83 986,032.74		
Ruggles, 1933	2,413,429.01 923,460.45	326 51 51*	Reference mark No. 2.
Enfield, municipal water tank, squat, black, 1933.	2,393,581.83 886,958.43		
Enfield, brick stack, 1933	2,391,134.32 884,791.98		
Leggett, 1933	2,419,787.36 818,238.63	42 17 14*	Reference mark No. 2.
Penelo, 1933	2,388,670.54 796,454.21	262 00 45*	Reference mark No. 3.
Rocky Mount, municipal power plant, high, yellow, brick stack, 1933	2,349,219.70 803,417.51		

[1] No check on this position.
*This azimuth has been computed by the first formula (p. 61), neglecting the second term.

JACKSONVILLE NORTHWARD TO VIRGINIA BOUNDARY—Continued

Station	*x* coordinate; *y* coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Sharpsburg, 1933	2,347,044.94 772,404.62	200 16 46*	Reference mark No. 1.
Rocky Mount, Atlantic Coast Line R. R. shops, red brick stack, 1933.	2,355,289.67 793,910.50		
Rocky Mount, Planters Oil Co., water tank, black, 1933.[1]	2,358,447 795,091		
Pinetops, water tank, aluminum, 1933	2,403,633.76 745,197.13		
Wilson, municipal power plant, tall brick stack, 1933.[1]	2,325,522 723,393		
Crisp, 1933	2,406,660.38 731,357.15	99 18 39*	Reference mark No. 3.
Greenville, Imperial Tobacco Co., taller of two tanks, 1933.[1]	2,481,760 680,537		
Greenville, Imperial Tobacco Co., taller of two stacks, 1933.[1]	2,481,611 680,426		
Snow Hill, 1933	2,391,014.12 622,409.93	122 47 39*	Reference mark No. 3.
Snow Hill, municipal water tank, aluminum, 1933.[1]	2,393,685 621,832		
Primary traverse station No. 9 eccentric, 1933.	2,445,833.46 597,974.65		
Primary traverse station No. 9 (U. S. G. S.), 1933.[1]	2,445,852.13 598,020.72		
Primary traverse station No. 13 eccentric, 1933.	2,382,536.40 590,452.25		
Primary traverse station No. 13 (U. S. G. S.), 1933.[1]	2,382,481.53 590,436.48		
Glenfield, 1933	2,412,235.66 600,367.22	329 41 49*	Reference mark No. 1.
Hookerton, water tank, aluminum, 1933.	2,419,994.18 612,263.47		
Heath, 1933	2,435,477.40 565.742.27	223 46 47*	Reference mark No. 1.
Monk, 1933	2,418,952.67 676,379.40	124 25 10*	Reference mark No. 3.

NEWPORT TO CORE SOUND

Principal points			
Park eccentric, 1933	2,681,519.54 361,074.27	150 00 15*	Reference mark No. 3.
Park, 1927	2,681,530.81 361,096.47		
Adam, 1931	2,692,896.90 400,316.44	185 14 30*	Reference mark No. 1.
Gaskill, 1933	2,730,397.53 362,822.77	159 52 40*	Reference mark No. 3.
Simpson, 1933	2,719,728.02 390,976.30	334 52 24*	Reference mark No. 2.
Shore, 1933	2,762,347.36 388,731.93	185 47 26*	Reference mark No. 3.

[1] No check on this position.
*This azimuth has been computed by the first formula (p. 61), neglecting the second term.

NEWPORT TO CORE SOUND—Continued

Station	x coordinate; y coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*	° ′ ″	
Nowhere, 1933	2,743,305.73 420,334.04	267 01 38*	Reference mark No. 2.
Stacy, 1933	2,774,074.51 403,631.22	162 50 21*	Reference mark No. 3.
Russell, 1933	2,701,890.98 374,543.22	229 10 47*	Reference mark No. 3.
White, 1933	2,682,577.85 381,567.46	115 44 52*	Reference mark No. 3.
Supplementary points			
Cape Lookout Lighthouse, 1933	2,744,574.32 326,851.55		
Beaufort, Tidewater Power Co., water tank, ball on top, 1933.	2,701,951.25 360,877.28		
Near, 1913 [1]	2,730,554.16 362,744.71		
Stack (highest of 3), 1933 [1]	2,694,360 373,860		

EASTERN OBLIQUE ARC TO SANFORD

Principal points			
Ogburn, 1918	1,727,920.84 909,288.88	21 15 34*	Reference mark No. 2.
Kernersville, 1918	1,682,409.88 866,222.14	25 07 31*	Reference mark No. 2.
Guilford, 1918	1,738,187.94 850,236.13	43 24 57*	Reference mark No. 2.
High Point, 1918	1,702,265.57 805,193.47	267 31 37*	Reference mark No. 3.
Greensboro, 1918	1,766,326.93 846,944.51		
Climax, 1918	1,794,610.20 786,051.34	20 13 28*	Reference mark No. 2.
Asheboro, 1918	1,748,653.00 724,244.95	250 30 57*	Reference mark No. 3.
Liberty, 1918	1,818,322.70 750,870.03	33 48 02*	Reference mark No. 2.
Ramsure, 1918	1,798,444.34 696,913.56		
Siler, 1918	1,857,261.02 710,471.48	65 17 58*	Reference mark No. 2.
Ore Hill, 1918	1,873,006.94 696,242.67		
Paul Beck, 1918	1,849,666.11 662,360.28		
Jonesboro, 1918	1,955,869.56 622,036.53	174 55 50*	Reference mark No. 2.
Carthage, 1918	1,886,138.84 580,468.53	267 01 45*	Reference mark No. 2.
Lemon, 1918	1,935,518.22 588,583.75	280 59 52*	Reference mark No. 2.

[1] No check on this position.
*This azimuth has been computed by the first formula (p. 61), neglecting the second term.

EASTERN OBLIQUE ARC TO SANFORD—Continued

Station	*x* coordinate; *y* coordinate	Plane azimuth	Mark
Principal points—Continued			
	Feet	° ′ ″	
Foch, 1918	1,884,042.55 517,289.01		
Sanford, 1918	1,948,234.09 619,318.66	249 04 36*	Reference mark No. 2.
Allenby, 1918	1,952,066.86 644,613.88	1 05 25.2	Sanford, red steel standpipe.
Swan, 1918	1,964,580.72 594,715.10		
Swan eccentric, 1933 [1]	1,964,583.20 594,706.81		
Supplementary points			
Winston-Salem, water tank, 1918 [1]	1,623,173 857,733		
Greensboro, white water tank, 1918 [1]	1,753,004 842,311		
Greensboro, city water tank, 1918 [1]	1,766,035 847,275		
Flat Shoal Mountain, 1918 [1]	1,596,174 958,152		
Greensboro, Vicks Chemical Company, water tank, 1918. [1]	1,756,312 843,980		
Pilot Mountain, 1918	1,565,634.72 945,852.63		
High Point, higher tank, 1918	1,702,991.00 805,434.98		
Stokesdale, 1918 [1]	1,707,165 911,154		

WESTERN NORTH CAROLINA

Principal points			
Bowman (Va.), 1933	1,551,492.10 1,057,310.60	172 19 18*	Reference mark No. 1.
Turner, 1933	1,511,718.77 978,272.01	9 44 26*	Azimuth mark.
Saddle, 1933	1,433,544.28 1,006,831.75	218 08 37*	Azimuth mark.
Felt (Va.), 1933	1,464,469.83 1,050,660.36	53 38 43*	Azimuth mark.
Bryant, 1933	1,415,916.38 966,078.43	226 17 30*	Reference mark No. 1.
Star, 1933	1,470,772.66 899,741.62	208 11 52*	Reference mark No. 1.
Owen, 1933	1,349,898.71 872,550.94	333 36 35*	Moravian Falls, Methodist Church, spire.
Mulberry, 1933	1,344,588.16 963,191.80	215 45 54*	Reference mark No. 1.
Thomkins, 1933	1,269,399.62 915,408.14	127 40 32*	Reference mark No. 1.
Hickory, 1933	1,311,223.74 825,680.53	301 46 46**	Taylorsville, Methodist Church, spire.

[1] No check on this position.
*This azimuth has been computed by the first formula (p. 61), neglecting the second term.
** This azimuth has been computed by the first formula (p. 61), using both terms.

WESTERN NORTH CAROLINA—Continued

Station	*x* coordinate; *y* coordinate	Plane azimuth			Mark
Principal points—Continued	*Feet*	°	′	″	
Hibriten, 1933	1,262,713.48 794,231.37	103	58	08.6	Lenoir, First Baptist Church, spire.
Grandfather, 1933	1,166,183.92 867,697.08	257	06	27*	Blowing Rock, Mayview Manor, cupola.
Jonas, 1933	1,142,208.63 816,717.75	6	02	37*	Reference mark No. 3.
High Peak, 1933	1,225,730.72 728,204.62	99	33	45*	Morganton, North Carolina State Hospital, dome.
Pogue, 1933	1,124,105.35 694,405.29	120	35	41*	Mount Mitchell, observation tower.
Mitchell, 1933	1,031,493.83 749,162.11	306	56	11*	Azimuth mark.
Pinnacle, 1933	1,095,384.73 662,718.91	334	07	40*	Spindale, standpipe.
Bearwallow, 1933	1,000,456.18 639,494.03	94	46	57*	Azimuth mark.
Gerton, 1933	1,008,194.52 653,587.94	332	44	14*	Fire tower.
Britten, 1933	959,377.27 735,820.42				
Pisgah, 1933	881,025.59 631,009.42	208	12	54*	Spivey, fire tower.
Sandymush, 1933	847,229.44 724,839.21	31	25	38*	Reference mark No. 3.
Water Rock (U. S. G. S.), 1933	768,243.54 649,462.43				
Sentell, 1933	831,223.80 654,963.39	228	40	39*	Reference mark No. 2.
Guyot (U. S. G. S.) (Tenn.-N. C.), 1933.	736,357.70 738,670.50				
Max Patch, 1933	826,863.00 768,434.15	14	31	15*	Reference mark No. 1.
English (Tenn.), 1891	727,478.81 810,406.72	57	58	58*	Azimuth mark.
Black Mountain, 1933	828,547.74 588,824.70				
Hogback Mountain, 1933	737,833.39 538,985.18	20	28	32*	Fire tower.
Rattlesnake Cliff, 1933	687,520.38 624,135.60	34	34	48.4	Wayah Bald, fire tower.
Cheoah (U. S. G. S.), 1933	604,279.61 606,284.37	328	31	26.6	Wayah Bald, fire tower.
Standing Indian, 1933	642,017.35 498,812.82	145	51	29*	Reference mark No. 3.
Rabun 2 (Ga.), 1933	712,148.33 470,249.40	112	08	58**	Standing Indian, fire tower.
Tatham (U. S. G. S.), 1933	569,039.67 583,129.20	26	04	37*	Andrews, high school, spire.
Lance (Ga.), 1933	501,745.53 486,133.71				
Laurel, 1933	501,789.61 600,748.16				

* This azimuth has been computed by the first formula (p. 61), neglecting the second term.
** This azimuth has been computed by the first formula (p. 61), using both terms.

WESTERN NORTH CAROLINA—Continued

Station	x coordinate; y coordinate	Plane azimuth	Mark
Principal points—Continued			
	Feet	° ′ ″	
Pack Mountain (U. S. G. S.), 1933	418,656.09 515,185.31	114 54 20*	Sassafras Mountain, fire tower.
Supplementary points			
Johnstown, 1933	1,588,607.99 998,532.79	97 24 12*	Azimuth mark.
Brim (N. C.-Va.), 1933	1,570,743.27 1,022,701.21	165 50 14*	Azimuth mark.
Mount Airy, standpipe next to water tank, 1933.	1,526,865.46 1,008,892.58		
Alberta, 1933	1,492,746.10 942,706.35	272 45 25*	Reference mark No. 2.
State Road, 1933	1,449,783.49 942,529.89	129 14 30*	Reference mark No. 1.
Mount Airy, 1933	1,526,340.94 1,001,594.96	71 44 27*	Azimuth mark.
Greystone Hotel, water tank, Roaring Gap, 1933.	1,421,735.24 975,550.70		
B. M. Fairview, 1933 [1]	1,493,170.48 942,909.57		
Wilkes, 1933	1,365,059.00 888,465.73	3 18 33*	Pores Knob, fire tower.
North Wilkesboro, red brick house of Mrs. Claudill, spire, 1933. [1]	1,364,783 886,349		
Taylor, 1933	1,351,748.77 798,535.52	278 55 46**	Taylorsville, Methodist Church, spire.
Taylorsville, Methodist Church, spire, 1933. [1]	1,356,157 797,843		
Taylorsville, prison camp, water tower, 1933.	1,354,876.82 792,673.31		
Blowing Rock, 1933	1,211,861.66 873,275.10	318 31 51*	Azimuth mark.
Hartland, 1933	1,215,723.03 775,191.04	185 47 42*	Reference mark No. 1.
Lenoir, 1933	1,247,865.51 797,365.20	48 27 46*	Lenoir Furniture Corporation water tank.
Circle, 1933	1,247,937.57 797,444.78	163 47 15**	Lenoir, First Baptist Church, spire.
Lenoir, First Baptist Church, spire, 1933.	1,247,792.67 797,942.99		
Bridgewater, 1933	1,148,871.04 726,263.37	265 17 54*	Reference mark No 1.
Burke-Caldwell county-line stone, 1933. [1]	1,215,728.55 775,169.85		
Grant, 1933	1,110,696.90 708,092.44	155 27 40*	Marion, First National Bank, dome.
Marion, 1933	1,106,676.23 717,392.65	55 49 31*	Marion, black standpipe.
Lawn, 1933 [1]	1,106,617.02 717,252.53		

[1] No check on this position.
* This azimuth has been computed by the first formula (p. 61), neglecting the second term.
**This azimuth has been computed by the first formula (p. 61), using both terms.

WESTERN NORTH CAROLINA—Continued

Station	x coordinate; y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Marion A, 1933 [1]	1,106,527.72 717,420.83		
Spivey, 1933	914,655.73 693,575.08	3 00 28*	Enka Rayon Plant, chimney.
Asheville, 1933	943,216.11 690,363.43	63 26 23*	West Asheville, black water tank.
Alley, 1933 [1]	943,239.39 690,584.66		
Asheville A, 1933 [1]	943,061.77 690,509.89		
Waynesville, 1933	812,108.40 655,067.01	186 38 11*	Reference mark No. 3.
Carver, 1933	758,981.79 618,813.29		
Dillsboro, 1933	721,822.84 611,139.71		
Sylva, 1933	735,334.33 617,554.85	69 54 35*	Reference mark No. 3.
Bryson, 1933	688,189.27 646,729.45	36 26 10*	Reference mark No. 1.
Wayah, 1933	637,662.12 551,789.77	355 18 20**	Standing Indian, fire tower.
Wayah Bald, fire tower, 1933	637,645.75 551,784.45		
Standing Indian, fire tower, 1933 [1]	642,014 498,799		
Franklin, 1933	689,426.90 551,311.72	82 29 12*	Reference mark No. 2.
Welch, 1933	611,348.06 587,437.19	211 17 38*	Reference mark No. 2.
Topton, 1933	600,746.58 587,626.83	73 56 25*	Reference mark No. 1.
Hayesville, 1933	558,884.07 503,556.62	293 16 01*	Reference mark No. 2.
Fain (U. S. G. S.), 1933	495,873.92 537,469.47	215 52 30*	Reference mark No. 2.
Murphy, 1933	495,184.95 525,231.54	237 46 22*	Reference mark No. 2.

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

Principal points			
Mount Olive, 1933	2,276,865.60 529,182.43	251 33 44*	Reference mark No. 1.
Alphin, 1933	2,309,731.84 499,955.86	9 28 18*	Reference mark No. 2.
Ireland, 1933	2,247,759.08 497,680.36	278 18 54*	Reference mark No. 2.
Everton, 1933	2,285,559.08 469,982.55	286 55 54*	Reference mark No. 2.
Warsaw, 1933	2,271,118.80 455,659.26	327 04 56*	Reference mark No. 2.

[1] No check on this position.
*This azimuth has been computed by the first formula (p. 61), neglecting the second term.
**This azimuth has been computed by the first formula (p. 61), using both terms.

GOLDSBORO TO LITTLE RIVER, S. C., AND MARIETTA TO LINCOLNTON—Continued

Station	x coordinate; y coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*	° ′ ″	
Robinson, 1933	2,224,723.10 458,788.05	5 45 10*	Reference mark No. 2.
More, 1933	2,278,469.29 433,468.75	345 47 03*	Reference mark No. 1.
Canady, 1933	2,205,346.47 419,290.83	139 03 59*	Reference mark No. 2.
Camp, 1933	2,251,063.13 402,660.17	262 06 06*	Reference mark No. 2.
Ingold, 1933	2,195,999.10 391,819.61	60 14 40*	Reference mark No. 3.
Hall, 1933	2,240,714.73 361,708.59	106 00 54*	Reference mark No. 2.
Garland, 1918	2,181,820.04 376,873.49	325 14 00*	Reference mark No. 3.
Kerr, 1918	2,213,908.65 335,066.83	338 43 35*	Reference mark No. 3.
Beard, 1933	2,166,916.86 352,276.12	214 17 49*	Reference mark No. 1.
Tussock, 1933	2,190,363.03 315,203.43	133 40 53*	Reference mark No. 2.
White Lake, 1933	2,153,721.60 330,250.33	78 36 59*	Reference mark No. 3.
Monroe, 1933	2,152,111.06 292,201.50	66 54 06*	Reference mark No. 2.
Elizabethtown, 1933	2,118,625.31 319,653.74	301 42 48*	Reference mark No. 2.
Rogers, 1933	2,104,364.45 278,630.86	187 11 48*	Reference mark No. 1.
Dublin, 1933	2,082,238.15 330,771.09	171 11 38*	Reference mark No. 3.
Griffin, 1933	2,081,959.15 279,864.52	133 51 13*	Reference mark no. 2.
Supplementary points			
Mount Olive, municipal water tank, aluminum, 1933.	2,277,626.91 527,011.52		
Warsaw, aluminum water tank, 1933	2,269,962.89 456,635.22		
Clinton, silver-colored water tank, 1933.[1]	2,202,651 453,458		

NORTHWEST CORNER OF NORTH CAROLINA

Supplementary points			
Damascus (Va.-Tenn.), 1895	1,170,284.06 1,054,286.11		
White Top 2 (Va.), 1933	1,235,446.13 1,060,137.37	325 44 56*	Reference mark no. 3.
N. C. corner (N. C.-Va.-Tenn.), 1894	1,213,815.03 1,043,564.93	36 06 45*	Reference mark no. 2.

[1] No check on this position

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

CHOWAN RIVER (SECOND ORDER)

Station	x coordinate; y coordinate	Plane azimuth	Mark
Principal points	*Feet*	° ′ ″	
Meherrin, 1932	2,601,632.86 984,624.92		
Tunis, 1932	2,621,295.92 963,847.80		
Piland, 1932	2,644,344.29 951,827.70	248 24 41*	Azimuth mark.
Mason, 1932	2,659,804.87 941,444.12		
Cotton, 1932	2,649,997.86 936,425.15	95 42 26*	Reference mark no. 1.
Newsome, 1932	2,658,004.85 921,220.43	109 32 55*	Azimuth mark, chimney.
Cannon, 1932	2,686,058.24 925,118.43	83 00 44*	Woodley Pier, beacon.
Saunders, 1932	2,661,640.52 899,505.54		

NEW RIVER (SECOND ORDER)

Principal points			
Amos, 1932	2,503,553.38 289,482.63		
Samworth, 1932	2,493,469.88 302,836.48		
Cedar Point, 1914	2,500,477.32 296,011.58		
Hatch (U. S. E.), 1932	2,493,249.72 295,926.51		
Hall (U. S. E.), 1932	2,489,590.84 299,367.43		
Court, 1932	2,487,410.02 305,379.23		
Poverty, 1932	2,486,235.71 301,854.98		
Ferry eccentric, 1932	2,482,583.89 305,110.21		
Covil, 1932	2,480,924.35 307,599.58		
Stone eccentric, 1932	2,475,453.89 303,869.43		
Gin eccentric, 1932	2,469,908.26 312,385.95		
Water, 1932	2,480,330.09 311,429.88		
Hines, 1932	2,483,499.72 317,702.75		
Gillette (U. S. E.), 1932	2,483,929.11 313,989.64		
Fish (U. S. E.), 1932	2,493,335.10 320,523.30		
Grey (U. S. E.), 1932	2,489,652.49 323,035.95		

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

NEW RIVER (SECOND ORDER)—Continued

Station	x coordinate; y coordinate	Plane azimuth	Mark
Principal points—Continued			
	Feet	° ′ ″	
Rhodes (U. S. E.), 1931	2,490,108.86 327,529.66		
French (U. S. E.), 1931	2,498,523.47 326,128.68		
Bluff (U. S. E.), 1931	2,494,098.27 335,275.59		
Spring (U. S. E.), 1931	2,489,634.10 329,696.48		
Hadnot (U. S. E.), 1931	2,487,574.88 340,338.19		
Little Ragged (U. S. E.), 1932	2,480,928.42 342,100.83		
High, 1932	2,488,657.35 349,323.47		
North base (U. S. E.), 1932	2,496,686.84 295,498.04		
South base (U. S. E.), 1932	2,499,117.46 292,562.35		
View, 1932	2,495,404.15 285,370.48		
Fish, 1932	2,490,495.49 282,176.38		
Passet, 1932	2,509,046.21 293,173.64		
Crag, 1914	2,506,327.54 296,420.00		
Vim, 1932	2,511,600.67 295,635.24		
Bay, 1914	2,509,011.74 297,869.72		
Sea, 1914	2,513,782.46 297,114.52		
Williams, 1914	2,512,418.80 298,716.66		
Camp, 1932	2,472,002.26 320,294.87		
Ragged (U. S. E.), 1933	2,477,290.06 349,422.94		
Montford (U. S. E.), 1932	2,475,903.36 355,680.83		
Southwest (U. S. E.), 1933	2,472,325.48 352,734.06		
Jarman, 1933	2,472,581.67 348,526.23		
Stump, 1933	2,472,656.46 344,437.47		
Bog, 1933	2,470,964.43 344,716.64		
Swamp, 1933	2,481,530.58 356,978.40		
Northeast, 1933	2,480,360.37 360,462.81		
Moss (U. S. E.), 1933	2,472,151.40 357,634.13		

NEW RIVER (SECOND ORDER)—Continued

Station	x coordinate; y coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*	° ′ ″	
Brier (U. S. E.), 1933	2,472,660.01 360,328.05		
Pine (U. S. E.), 1933	2,471,508.60 361,424.97		
Wilson (U. S. E.), 1933	2,471,479.32 362,253.84		
Marsh (U. S. E.), 1933	2,470,694.47 363,258.93		
Mill (U. S. E.), 1933	2,470,630.30 364,102.82		
Supplementary points			
Beacon (U. S. E.), 1933[1]	2,469,582 364,365		
Stone (U. S. E.), 1932[1]	2,475,724.97 303,672.55		
Ferry (U. S. E.), 1932[1]	2,482,580.76 305,143.33		
Gin (U. S. E.), 1932[1]	2,469,982.58 312,354.25		
Beacon No. 4, 1932[1]	2,493,776 293,331		
Light No. 2, 1932[1]	2,493,829 294,944		
Beacon No. 10, 1932[1]	2,492,088 286,778		
Beacon No. 6, 1932	2,493,736.14 291,633.42		
Light No. 8, 1932	2,493,699.60 289,975.13		

BOONE NORTHWARD (SECOND-ORDER)

Principal points			
Glenn, 1934	1,213,904.45 1,041,068.42	168 08 05*	Azimuth mark.
Bald Knob (U. S. G. S.) (Tenn.), 1934	1,199,939.66 1,016,579.75	231 02 29*	Azimuth mark.
Trout, 1934	1,221,930.95 976,023.04	15 12 45*	Azimuth mark.
Doe (Tenn.), 1934	1,156,584.81 986,392.04		
Bald of Rich (U. S. G. S.), 1934	1,199,563.35 943,490.54	59 50 32*	Azimuth mark.
Stone (N. C.–Tenn.), 1934	1,151,837.12 945,594.59	267 41 03*	Azimuth mark.
Supplementary points			
Luciuda (Tenn.), 1934	1,178,830.91 960,165.51	275 45 50*	Azimuth mark.
Green, 1934	1,158,608.47 936,701.03	231 09 14*	Azimuth mark.

[1] No check on this position.
*This azimuth has been computed by the first formula (p. 61), neglecting the second term.

SANFORD TO VIRGINIA BOUNDARY (TRAVERSE)

Station	x coordinate; y coordinate	Plane azimuth	Mark
Principal points	*Feet*	° ′ ″	
Osgood, 1918	1,964,257.79 655,990.33	46 58 45.7	Allenby.
Davis, 1918	1,964,205.84 659,829.58	359 13 29.1 208 49 52*	*Osgood.* Azimuth mark.
Gibbons, 1918	1,966,187.43 663,622.11	27 35 13.2	Davis.
Esprey, 1918	1,968,950.34 668,049.09	31 58 06.9	Gibbons.
Farley, 1918	1,969,608.79 670,385.63	15 44 17.3	Esprey.
Dro, 1918	1,975,245.44 679,594.73	31 28 11.0 260 15 41*	Farley. Azimuth mark.
Moncure, 1918	1,979,527.20 680,844.14	73 43 58.2 285 50 34*	Dro. Azimuth mark.
Dri, 1918	1,980,582.65 680,464.20	109 47 52.2	Moncure.
Dre, 1918	1,981,976.59 679,191.34	132 24 01.5 127 23 00*	Dri. Azimuth mark.
Dra, 1918	1,986,720.97 677,338.05	111 20 13.3 169 00 00*	Dre. Azimuth mark.
Doz, 1918	1,991,152.81 681,222.15	48 46 06.3 209 30 23*	Dra. Azimuth mark.
Doy, 1918	1,992,544.69 684,514.99	22 54 49.4	Doz.
Dox, 1918	1,993,592.32 685,552.20	45 17 10.9 235 01 46*	Doy. Azimuth mark.
Dow, 1918	2,002,806.89 691,661.73	56 27 16.0	Dox.
Dov, 1918	2,025,583.47 706,563.42	56 48 18.3	Dow.
Dot, 1918	2,032,796.58 709,884.12	65 16 48.3	Dov.
Dos, 1918	2,033,885.51 710,805.82	49 45 16.3	Dot.
Dor, 1918	2,036,749.72 714,259.65	39 40 06.3	Dos.
Dop, 1918	2,038,446.91 717,252.13	29 33 35.3 264 51 40*	Dor. Reference mark.
Don, 1918	2,041,455.64 717,491.76	85 26 46.7	Dop.
Baldwin, 1918	2,042,942.30 718,106.43	67 32 13.2	Don.
Apex, 1918	2,044,820.73 721,903.62	26 19 16.0 29 38 45*	Baldwin. Reference mark.
Dom, 1918	2,048,559.06 729,512.38	26 09 56.8	Apex.
Dol, 1918	2,050,542.10 731,334.32	47 25 27.9	Dom.
Dok, 1918	2,056,006.40 733,373.16	69 32 18.4	Dol.
Doi, 1918	2,056,934.14 734,063.13	53 21 41.2	Dok.

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

SANFORD TO VIRGINIA BOUNDARY (TRAVERSE)—Continued

Station	*x* coordinate; *y* coordinate	Plane azimuth	Mark
Principal points—Continued			
	Feet	° ′ ″	
Doh, 1918	2,059,493.69	23 10 09.2	Doi.
	740,043.88	21 00 50*	Aximuth mark.
Dog, 1918	2,061,120.02	51 44 23.7	Doh.
	741,326.44		
Dof, 1918	2,063,098.13	84 08 39.7	Dog.
	741,529.31		
Cary, 1918	2,064,804.49	135 10 36.3	Dof.
	739,812.39		
Raleigh, 1918	2,106,983.79	92 37 31.9	Cary.
	737,878.20		
Hilltop, 1918	2,122,099.94	24 50 59.9	Raleigh.
	770,517.75	201 24 50*	Azimuth mark.
Dob, 1918	2,139,620.35	33 09 46.8	Hilltop.
	797,329.53		
Diz, 1918	2,140,048.02	27 41 22.6	Dob.
	798,144.48		
Dix, 1918	2,141,585.74	30 11 02.6	Diz.
	800,788.24		
Div, 1918	2,142,880.53	24 30 49.5	Dix.
	803,627.59	184 25 09*	Azimuth mark.
Dit, 1918	2,143,345.96	5 14 59.5	Div.
	808,692.97	232 04 07*	Reference mark.
Dis, 1918	2,144,466.16	42 11 51.6	Dit.
	809,928.48		
Forrest, 1918	2,145,162.65	15 43 03.0	Dis.
	812,403.42		
Dir, 1918	2,146,033.94	33 36 44.7	Forrest.
	813,714.20		
Dip, 1918	2,148,862.44	55 30 02.2	Dir.
	815,658.13		
Dim, 1918	2,150,286.14	36 51 07.3	Dip.
	817,557.63		
Wake, 1918	2,155,195.93	44 20 21.0	Dim.
	822,582.00		
Youngsville, 1918	2,155,562.49	15 47 26.0	Wake.
	823,878.21		
Dil (B. M. M 9), 1918	2,153,806.25	348 18 46.3	Youngsville.
	832,368.36		
Dik, 1918	2,153,459.32	338 19 32.8	Dil (B. M. M 9).
	833,241.30		
Dig, 1918	2,152,800.21	327 52 16.4	Dik.
	834,290.84		
Tank, 1918	2,152,254.22	337 40 52.4	Dig.
	835,620.86		
Dif, 1918	2,151,497.80	348 22 52.6	Tank.
	839,299.75		
Did, 1918	2,151,874.79	16 06 47.3	Dif.
	840,604.74		
Dic, 1918	2,152,481.95	40 09 49.5	Did.
	841,324.14	65 23 50*	Reference mark.
Dib, 1918	2,156,831.70	50 28 36.4	Dic.
	844,912.76		

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

SANFORD TO VIRGINIA BOUNDARY (TRAVERSE)—Continued

Station	*x* coordinate; *y* coordinate	Plane azimuth			Mark
Principal points—Continued					
	Feet	°	′	″	
Dez, 1918	2,157,357.78 845,557.69	39	12	16.9	Dib.
Dey, 1918	2,157,706.80 846,850.47	15	06	29.9	Dez.
Dex, 1918	2,157,447.56 848,983.71	353 354	04 14	16.0 47*	Dey. Reference mark.
Dew, 1918	2,157,540.92 849,875.51	5 202	58 24	34.9 54*	Dex. Azimuth mark.
Franklinton, 1918	2,161,289.98 858,235.40	24	09	15.2	Dew.
Deter, 1918	2,161,297.69 862,381.50	0 188	06 46	23.6 57*	Franklinton. Azimuth mark.
Det, 1918	2,162,381.44 867,778.08	11 183	21 27	18.7 52*	Deter. Reference mark.
Des, 1918	2,162,529.80 869,892.54	4 174	00 08	48.8 41*	Det. Azimuth mark.
Der, 1918	2,162,157.87 874,263.28	355 191	08 26	10.0 01*	Des. Azimuth mark.
Dep, 1918	2,162,956.18 875,989.07	24 203	49 01	26.9 56*	Der. Azimuth mark.
Deo, 1918	2,163,435.44 877,120.46	22	57	27.5	Dep.
Den, 1918	2,163,771.89 884,380.12	2	39	12.5	Deo.
Dem, 1918	2,163,381.50 885,653.62	342	57	25.7	Den.
Del, 1918	2,162,763.22 887,240.09	338	42	29.2	Dem.
Dek, 1918	2,161,965.51 889,085.97	336	37	41.1	Del.
Kittrell, 1918	2,161,912.52 890,512.49	357	52	21.5	Dek.
Deg, 1918	2,165,996.53 906,030.88	14 208	44 50	39.6 50*	Kittrell. Azimuth mark.
Def, 1918	2,167,073.83 907,511.98	36	01	51.0	Deg.
Ded, 1918	2,174,102.18 914,109.45	46	48	40.4	Def.
Dec, 1918	2,175,787.43 921,338.62	13 15	07 05	20.4 11*	Ded. Azimuth mark.
Mobile, 1918	2,174,311.34 935,543.16	354	04	02.3	Dec.
Mill, 1918	2,174,561.52 936,713.98	12	03	41.5	Mobile.
Henderson, 1918	2,175,180.17 937,653.31	33	22	09.2	Mill.
Daya, 1918	2,176,751.69 938,965.51	50	08	18.7	Henderson.
Dare, 1918	2,177,678.97 940,085.16	39 205	37 29	52.0 24*	Daya. Azimuth mark.
Deb, 1918	2,179,875.77 944,590.04	25 324	59 31	46.0 18*	Dare. Reference mark.

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

SANFORD TO VIRGINIA BOUNDARY (TRAVERSE)—Continued

Station	*x* coordinate; *y* coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*	° ′ ″	
Day, 1918	2,183,586.93 946,112.20	83 14 26.4	Daz.
Das, 1918	2,186,348.23 946,472.73	82 33 40.5 1 21 30*	Day. Reference mark.
Dar, 1918	2,187,203.44 946,972.54	59 41 48.2 221 08 49*	Das. Azimuth mark.
Dap (B. M. R 6), 1918	2,192,888.96 952,979.22	43 25 35.8	Dar.
Daw (B. M. Q 6), 1918	2,193,165.27 953,589.10	24 22 23.5 184 16 27*	Dap (B. M. R 6). Azimuth mark.
Dan (B. M. O 6), 1918	2,193,234.28 954,426.58	4 42 38.3	Daw (B. M. Q 6).
Dal, 1918	2,192,269.51 957,050.70	339 48 49.7 339 49 05*	Dan (B. M. O 6). Daw azimuth mark.
Dag, 1918	2,192,387.62 958,236.12	5 41 23.7	Dal.
Daf, 1918	2,193,270.28 960,254.65	23 37 07.4	Dag.
Middleburg, 1918	2,195,694.58 962,688.78	44 53 02.7 235 58 06*	Daf. Azimuth mark.
Dad, 1918	2,207,988.37 970,130.84	58 48 40.8	Middleburg.
Dab (B. M. C 6), 1918	2,208,577.36 970,760.53	43 05 14.0	Dad.
Cuz (B. M. A 6), 1918	2,209,349.21 972,173.41	28 38 51.3	Dab (B. M. C 6).
Cuy (B. M. X 5), 1918	2,210,040.63 972,918.68	42 51 12.4	Cuz (B. M. A 6).
Manson (B. M. W 5), 1918	2,211,139.16 973,051.81	83 05 24.2	Cuy (B. M. X 5).
Cux (B. M. U 5), 1918	2,215,409.22 972,252.40	100 36 13.5	Manson (B. M. W 5).
Ridgeway (B. M. R 5), 1918	2,224,749.95 978,277.38	57 10 37.5	Cux (B. M. U 5).
Cuv (B. M. Q 5), 1918	2,225,577.73 978,690.37	63 29 05.3	Ridgeway (B. M. R 5).
Norlina (B. M. L 5), 1918	2,240,283.28 982,681.10	74 49 01.1	Cuv (B. M. Q 5).
Cus (B. M. J 5), 1918	2,242,038.43 982,534.79	94 45 54.7	Norlina (B. M. L 5).
Warren (B. M. H 5), 1918	2,249,292.62 980,139.18	108 16 30.7	Cus (B. M. J 5).
Cut (B. M. F 5), 1918	2,253,463.47 978,774.03	108 07 25.2	Warren (B. M. H 5).
Cur (B. M. D 5), 1918	2,255,463.74 978,361.76	101 38 45.6	Cut (B. M. F 5).
Cup (B. M. B 5), 1918	2,257,333.21 978,337.73	90 44 11.2	Cur (B. M. D 5).
Macon (B. M. Z 4), 1918	2,267,518.27 979,261.81	84 48 56.9 82 55 16*	Cup (B. M. B 5). Azimuth mark.
Cun (B. M. X 4), 1918	2,275,855.41 982,067.92	71 23 52.2	Macon (B. M. Z 4).

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

SANFORD TO VIRGINIA BOUNDARY (TRAVERSE)—Continued

Station	x coordinate; y coordinate	Plane azimuth	Mark
Principal points—Continued			
	Feet	° ′ ″	
Cum (B. M. U 4), 1918	2,276,583.57 982,044.86	91 48 50.0	Cun (B. M. X 4).
Cul (B. M. S 4), 1918	2,283,041.96 977,138.78	127 13 18.9	Cum (B. M. U 4).
Cug (B. M. R 4), 1918	2,284,386.43 976,689.93	108 27 41.5	Cul (B. M. S 4).
Cuf (B. M. O 4), 1918	2,287,183.57 976,897.65	85 45 10.5	Cug (B. M. R 4).
Cue (B. M. N 4), 1918	2,291,675.76 977,203.94	86 05 58.0	Cuf (B. M. O 4).
Cud (B. M. L 4), 1918	2,292,650.09 976,852.62	109 49 41.1	Cue (B. M. N 4).
Vaughan (B. M. I 4), 1918	2,294,263.18 974,722.33	142 51 59.1 140 52 21*	Cud (B. M. L 4). Azimuth mark.
Cub (B. M. H 4), 1918	2,295,051.51 974,216.92	122 39 52.3	Vaughan (B. M. I 4),
Cru (B. M. E 4), 1918	2,297,589.29 973,296.90	109 55 37.5	Cub (B. M. H 4).
Cro (B. M. D 4), 1918	2,298,596.07 973,618.23	72 17 55.3	Cru (B. M. E 4).
Cote (B. M. A 4), 1918	2,299,464.47 974,030.25	64 37 03.3	Cro (B. M. D 4).
Cri (B. M. Z 3), 1918	2,302,387.04 976,784.39	46 41 58.1	Cote (B. M. A 4).
Cre, 1918	2,309,910.01 978,146.31	79 44 19.0	Cri (B. M. Z 3).
Coz (B. M. W 3), 1918	2,310,715.21 978,122.90	91 39 55.2	Cre.
Coy (B. M. U 3), 1918	2,315,697.79 977,374.47	98 32 33.0	Coz (B. M. W 3).
Littleton (B. M. R 3), 1918	2,318,488.34 977,893.42	79 27 54.8 20 43 57*	Coy (B. M. U 3). B. M. S 3.
Cow (B. M. L 3), 1918	2,337,646.01 990,950.46	55 44 38.9	Cox (B. M. N 3).
Cov (B. M. I 3), 1918	2,338,936.31 991,269.19	76 07 28.4	Cow (B. M. L 3).
Summit (B. M. H 3), 1918	2,344,748.69 989,990.03	102 24 41.5	Cov (B. M. I 3).
Cot (B. M. D 3), 1918	2,348,029.89 989,878.87	91 56 25.1	Summit (B. M. H 3).
Cos (B. M. C 3), 1918	2,350,773.90 989,754.62	92 35 33.4	Cot (B. M. D 3).
Cor (B. M. B 3), 1918	2,352,256.48 990,294.36	69 59 44.6 223 38 45*	Cos (B. M. C 3). Azimuth mark.
Thelma (B. M. Y 2), 1918	2,354,721.53 992,867.34	43 46 21.9 48 16 12*	Cor (B. M. B 3). Azimuth mark.
Cop (B. M. X 2), 1918	2,361,129.32 995,561.16	67 11 53.6	Thelma (B. M. Y 2).
Con (B. M. V 2), 1918	2,361,829.96 995,707.94	78 10 04.7	Cop (B. M. X 2).
Cog (B. M. T 2), 1918	2,362,823.34 995,700.45	90 25 55.2 265 35 55*	Con (B. M. V 2). Azimuth mark.

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

SANFORD TO VIRGINIA BOUNDARY (TRAVERSE)—Continued

Station	*x* coordinate; *y* coordinate	Plane azimuth	Mark
Principal points—Continued			
	Feet	° ′ ″	
Cof, 1918	2,363,372.36 995,585.67	101 48 30.1	Cog (B. M. T 2).
Coe (B. M. R 2), 1918	2,363,926.67 995,337.81	114 05 30.6	Cof.
Cod (B. M. P 2), 1918	2,366,022.82 993,826.35	125 47 38.6	Coe (B. M. R 2).
Cob (B. M. N 2), 1918	2,373,711.77 991,940.18	103 46 58.8	Cod (B. M. P 2).
Coa (B. M. L 2), 1918	2,374,417.57 992,091.08	77 55 54.7	Cob (B. M. N 2).
Cly (B. M. J 2), 1918	2,375,469.15 992,603.64	64 00 52.3	Coa (B. M. L 2).
Clu (B. M. H 2), 1918	2,376,236.74 992,802.19	75 29 50.5	Cly (B. M. J 2).
Clo (B. M. F 2), 1918	2,380,277.58 991,939.48	102 03 05.7	Clu (B. M. H 2).
Cli (B. M. D 2), 1918	2,386,482.07 990,741.95	100 55 27.6	Clo (B. M. F 2).
Cle (B. M. B 2), 1918	2,390,312.65 988,388.86	121 33 43.3	Cli (B. M. D 2).
Cla (B. M. X 1), 1918	2,395,317.06 983,461.64	133 53 53.2	Roanoke (B. M. Z 1).
Ciz (B. M. U 1), 1918	2,399,958.71 981,143.86	116 32 05.9	Cla (B. M. X 1).
Civ (B. M. T 1), 1918	2,403,367.82 979,391.27	117 12 26.1	Ciz (B. M. U 1).
Cit (B. M. Q 1), 1918	2,404,617.02 979,065.45	104 37 06.1	Civ (B. M. T 1).
Cir, 1918	2,408,250.02 978,871.14	93 03 41.5	Cit (B. M. Q 1).
Cip (B. M. L 1), 1918	2,412,776.20 977,911.12	101 58 30.6 20 23 33*	Cir. Azimuth mark.
Weldon (B. M. K 1), 1918	2,413,426.14 977,963.90	85 21 26.4 60 35 46*	Cip (B. M. L 1). Azimuth mark.
Garysburg (B. M. I 1), 1918	2,423,472.85 984,347.93	57 34 00.1	Weldon (B. M. K 1).
Cin (B. M. G 1), 1918	2,427,029.83 986,317.50	61 01 33.0	Garysburg (B. M. I 1).
Cim (B. M. E 1), 1918	2,432,043.40 989,379.42	58 35 11.3	Cin (B. M. G 1).
Cil (B. M. C 1), 1918	2,447,217.57 994,715.13	70 37 36.3	Cim (B. M. E 1).
Cik (B. M. A 1), 1918	2,454,330.56 998,490.95	62 02 20.7	Cil (B. M. C 1).
Cig, 1918	2,456,121.07 999,517.10	60 10 57.9	Cik (B. M. A 1).
Cid (B. M. W), 1918	2,459,983.26 1,002,455.26	52 44 16.6 53 27 27*	Cig. Azimuth mark.
Cib (B. M. U), 1918	2,465,574.56 1,004,533.20	69 36 46.9	Cid (B. M. W).
Cia (B. M. S), 1918	2,468,847.39 1,006,540.22	58 28 54.6	Cib (B. M. U).

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

SANFORD TO VIRGINIA BOUNDARY (TRAVERSE)—Continued

Station	*x* coordinate; *y* coordinate	Plane azimuth	Mark
Principal points—Continued			
	Feet	° ′ ″	
Cra (B. M. P), 1918	2,470,630.84 1,007,252.01	68 14 33.5 65 55 46*	Cia (B. M. S). Reference mark.
Cet (B. M. O), 1918	2,474,551.35 1,009,296.36	62 27 36.8	Cra (B. M. P).
Cer (B. M. M), 1918	2,475,636.00 1,010,247.55	48 45 02.4	Cet (B. M. O).
Cep (B. M. K), 1918	2,477,191.99 1,012,418.29	35 37 58.9	Cer (B. M. M).
Cel (B. M. I), 1918	2,478,476.47 1,013,560.04	48 22 00.1	Cep (B. M. K).
Cef (B. M. G), 1918	2,479,629.22 1,014,154.41	62 43 26.0	Cel (B. M. I).
Ced (B. M. E), 1918	2,485,011.88 1,016,259.53	68 38 23.6	Cef (B. M. G).
Caz (B. M. D), 1918	2,487,048.36 1,017,291.41	63 07 43.5 249 11 44*	Ced (B. M. E). B. M. C.
Care (B. M. A), 1918	2,497,139.79 1,021,031.46	69 39 52.1 72 26 41*	Caz (B. M. D). Azimuth mark.
Ceda (B. M. V 11) (Va.), 1918	2,506,517.45 1,026,509.37	59 42 32.0	Care (B. M. A).
Cay (B. M. T 11) (Va.), 1918	2,516,674.34 1,032,470.90	59 35 22.0 220 35 39*	Ceda (B. M. V 11). B. M. U 11.
Boykins (B. M. S 11), (Va.), 1918	2,527,984.55 1,036,108.86	72 10 10.1	Cay (B. M. T 11).
Caw (B. M. Q 11) (Va.), 1918	2,529,234.25 1,036,977.97	55 10 59.3	Boykins (B. M. S 11).
Cat (B. M. O 11) (Va.), 1918	2,532,698.29 1,040,142.35	47 35 18.5	Caw (B. M. Q 11).
Cas (B. M. M 11) (Va.), 1918	2,533,751.70 1,040,833.62	56 43 34.5	Cat (B. M. O 11).
Cap (B. M. K 11) (Va.), 1918	2,538,001.73 1,042,782.92	65 21 40.2	Cas (B. M. M 11).
Supplementary points			
Colon, 1918	1,951,617.54 645,415.68	330 44 05.1 21 14 05*	Allenby. Azimuth mark.
Allenby A, 1918	1,957,040.04 647,773.13	66 30 10.2 209 03 49*	Colon. Azimuth mark.
Allenby B, 1918	1,957,735.88 648,988.35	29 47 44.3	Allenby A.
Allenby C, 1918	1,958,670.26 650,058.59	41 07 22.1	Allenby B.
Allenby D, 1918	1,959,731.11 650,860.51	52 54 48.8	Allenby C.
Allenby E, 1918	1,961,963.14 652,729.08	50 03 54.8 215 07 50.2	Allenby D. Osgood.
Fetner, 1918	2,065,602.47 741,836.56	21 30 56.3 83 00 19.8	Cary. Dof.
Dod, 1918	2,068,884.57 743,532.07	283 46 46*	Azimuth mark.
Thompson, 1918	2,081,210.47 741,052.90	101 22 20.8 98 43 40*	Dod. Azimuth mark.
Method, 1918	2,094,419.31 742,161.43	288 49 27.3 294 38 39*	Raleigh. Azimuth mark.

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

SANFORD TO VIRGINIA BOUNDARY (TRAVERSE)—Continued

Station	*x* coordinate; *y* coordinate	Plane azimuth	Mark
Supplementary points—Continued			
	Feet	° ′ ″	
Southern, 1918	2,104,170.13	113 57 04.9	Method.
	737,830.00	269 01 06.9	Raleigh.
		113 31 38*	Azimuth mark.
East, 1918	2,107,094.68	178 22 02.0	Raleigh.
	733,988.00	177 41 11*	Azimuth mark.
Raleigh longitude, 1853 [1]	2,107,157		
	738,857		
Millbrook, 1918	2,117,430.26		
	746,729.51		
Doc, 1918	2,128,091.65		
	782,958.73		
Wake Forest, water tank, 1918	2,144,853.44		
	811,896.31		
Youngsville, church spire, 1918	2,156,256.79		
	828,489.61		
Primary traverse station no. 4 (U. S. G. S.), 1918.[1]	2,484,996.08		
	1,016,237.31		
Primary traverse station no. 14 (U. S. G. S.) (Va.), 1918.[1]	2,527,597		
	1,035,931		

SANFORD TO WILMINGTON (TRAVERSE)

Principal points			
Spout Springs, 1918	1,980,170.54	159 41 28.5	Jonesboro.
	556,373.23		
Prince, 1918	2,007,798.83	146 57 45.3	Spout Springs.
	513,890.15	152 18 01*	Azimuth mark.
Camp, 1918	2,012,452.04	134 42 49.6	Prince.
	509,283.20	137 19 00*	Azimuth mark.
Lake, 1918	2,015,809.76	151 24 43.6	Camp.
	503,121.61	325 34 08*	Azimuth mark.
Shaw, 1918	2,028,475.55	141 55 41.2	Lake.
	486,952.00	319 26 46*	Azimuth mark.
Pine, 1918	2,031,358.59	135 00 21.9	Shaw.
	484,068.35	208 42 48*	Azimuth mark.
Fayetteville, 1918	2,043,002.79	137 19 09.3	Pine.
	471,441.14	101 26 19*	Azimuth mark.
Vander, 1918	2,069,631.10	104 47 19.1	Fayetteville.
	464,411.28	101 46 15*	Azimuth mark.
Ville, 1918	2,101,062.69	104 55 08.0	Vander.
	456,036.88		
Autry, 1918	2,103,299.16	107 13 58.4	Ville.
	455,343.17		
Empie, 1918	2,112,185.98	110 38 27.7	Autry.
	451,995.57		
Hayne, 1918	2,123,108.43	110 15 59.1	Empie.
	447,962.51	110 19 42*	Azimuth mark.
Roseboro, 1918	2,146,164.73	110 28 47.1	Hayne.
	439,351.40	159 32 10*	Azimuth mark.
Mentz, 1918	2,155,661.62	161 31 36.5	Roseboro.
	410,924.01	163 25 50*	Azimuth mark.
Moores, 1918	2,220,057.02	158 13 36.3	Kerr.
	319,673.96	153 18 09*	Azimuth mark.

[1] No check on this position.
*This azimuth has been computed by the first formula (p. 61), neglecting the second term.

SANFORD TO WILMINGTON (TRAVERSE)—Continued

Station	x coordinate; y coordinate	Plane azimuth	Mark
Principal points—Continued			
	Feet	° ′ ″	
Black River, 1918	2,221,726.01	151 30 44.8	Moores.
	316,598.47	173 07 59*	Azimuth mark.
Ivanhoe, 1918	2,224,594.59	58 14 08.6	Black River.
	318,374.59	260 56 52*	Azimuth mark.
Corbet, 1918	2,233,396.60	143 43 42.5	Ivanhoe.
	306,379.62	149 56 36*	Azimuth mark.
Atkinson, 1918	2,247,523.72	143 33 20.4	Corbet.
	287,249.08	146 29 55*	Azimuth mark.
Denneys, 1918	2,266,380.69	143 35 43.9	Atkinson.
	261,676.29		
Currie, 1918	2,270,223.80	94 22 15.4	Denneys.
	261,382.54		
Montague, 1918	2,277,770.23	128 30 02.7	Currie.
	255,379.68		
Huggins, 1918	2,287,152.26	150 33 17.4	Montague.
	238,759.90	324 50 04*	Azimuth mark.
Richards, 1918	2,295,873.14	150 23 17.7	Huggins.
	223,415.70	146 47 22*	Azimuth mark.
Dru, 1918	2,312,345.82	150 30 02.5	Richards.
	194,299.52		
Yadkin, 1918	2,313,605.79	169 52 12.0	Dru.
	187,247.49		
Supplementary points			
Spout Springs K, 1918	1,966,332.97	101 13 31.2	Swan.
	594,367.34		
Spout Springs J, 1918	1,966,484.58	178 33 55.4	Spout Springs K.
	588,313.55		
Spout Springs I, 1918	1,966,642.60	178 36 29.9	Spout Springs J.
	581,809.24		
Spout Springs H, 1918	1,966,718.26	170 59 59.4	Spout Springs I.
	581,331.55		
Spout Springs G, 1918	1,967,238.56	161 25 39.5	Spout Springs H.
	579,783.04		
Dum, 1918	1,967,852.40	161 32 51.3	Spout Springs G.
	577,943.39		
Dul, 1918	1,969,904.29	143 22 15.1	Dum.
	575,183.45		
Pineview, 1918	1,973,090.05	159 54 26.0	Dul.
	566,474.55		
Spout Springs F, 1918	1,973,558.16	168 12 28.6	Pineview.
	564,232.28		
Spout Springs E, 1918	1,975,303.79	157 53 04.4	Spout Springs F.
	559,936.63		
Spout Springs D, 1918	1,975,332.40	177 01 39.6	Spout Springs E.
	559,385.63		
Spout Springs C, 1918	1,975,154.30	191 29 19.0	Spout Springs D.
	558,509.35		
Spout Springs B, 1918	1,975,153.47	180 03 51.9	Spout Springs C.
	557,771.23		
Spout Springs A, 1918	1,975,660.92	148 57 04.1	Spout Springs B.
	556,928.32		
Prince F Prime, 1918	1,979,227.99	125 25 03.6	Spout Springs A.
	554,391.68		

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

SANFORD TO WILMINGTON (TRAVERSE)—Continued

Station	*x* coordinate; *y* coordinate	Plane azimuth			Mark
Supplementary points—Continued	*Feet*	°	′	″	
Prince F, 1918	1,979,629.18 554,106.84	125	22	27.4	Prince F Prime.
Prince G, 1918	1,979,744.23 554,583.89	13 193	33 24	32.7 03.2	Prince F. Spout Springs.
Prince E, 1918	1,983,253.50 551,535.07	125	21	32.4	Prince F.
Duf, 1918	1,983,777.23 550,971.72	137	05	14.2	Prince E.
Dud, 1918	1,984,840.53 549,136.94	149	54	24.0	Duf.
Duc, 1918	1,987,438.03 542,568.26	158	25	27.5	Dud.
Dub, 1918	1,989,551.07 539,042.27	149	04	00.4	Duc.
Prince D, 1918	1,990,314.48 535,461.38	167	57	55.0	Dub.
Overhills, 1918	1,990,874.14 534,795.70	139	56	42.3	Prince D.
Manchester, 1918	1,994,709.62 532,089.61	125 124	12 28	16.4 19*	Overhills. Azimuth mark.
Bragg, 1918	2,000,740.66 518,493.15	156 156	04 36	45.0 24*	Manchester. Azimuth mark.
Prince C, 1918	2,001,517.68 517,514.73	141	32	41.5	Bragg.
Prince B, 1918	2,005,679.35 515,115.30	119	57	56.9	Prince C.
Prince A, 1918	2,007,287.47 514,400.51	314 113	56 57	50.2 46.0	Prince. Prince B.
Fayetteville J, 1918	2,030,461.74 484,467.06	141 293	21 58	53.9 06.1	Shaw. Pine.
Fayetteville I, 1918	2,033,779.49 478,467.09	151	03	32.8	Fayetteville J.
Fayetteville H, 1918	2,035,182.36 475,184.05	156	51	45.3	Fayetteville I.
Fayetteville G, 1918	2,035,155.31 474,582.94	182	34	35.7	Fayetteville H.
Fayetteville E, 1918	2,035,009.34 474,210.26	201	23	20.8	Fayetteville G.
Fayetteville D, 1918	2,035,339.14 473,591.80	151	55	50.8	Fayetteville E.
Fayetteville C, 1918	2,039,837.08 471,727.23	112	30	57.2	Fayetteville D.
Fayetteville B, 1918	2,040,834.45 471,881.91	81	11	03.7	Fayetteville C.
Fayetteville A, 1918	2,042,767.34 471,530.59	100 290	18 48	05.6 08.4	Fayetteville B. Fayetteville.
Primary traverse station No. 17 (U. S. G. S.), 1918.[1]	1,999,595 521,129				
Primary traverse station No. 18 (U. S. G. S.), 1918.[1]	2,007,456.84 514,315.54				
Fayetteville F, 1918 [1]	2,035,145.63 474,558.15				

[1] No check on this position.
*This azimuth has been computed by the first formula (p. 61), neglecting the second term.

SANFORD TO WILMINGTON (TRAVERSE)—Continued

Station	*x* coordinate; *y* coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Primary traverse station No. 4 (U. S. G. S.), 1918.[1]	2,034,458.95 474,851.51		
Fayetteville, water tank, 1918 [1]	2,039,681 471,473		
Primary traverse station No. 3 (U. S. G. S.), 1918.[1]	2,062,459 466,277		
Primary traverse station No. 2 (U. S. G. S.), 1918.[1]	2,091,274 458,612		
Primary traverse station No. 1 (U. S. G. S.), 1918.[1]	2,122,750.60 448,057.47		
Primary traverse station No. 3 (U. S. G. S.), 1918.[1]	2,304,493 186,102		

SANFORD TO OSBORNE (TRAVERSE)

Supplementary points			
Debeney A, 1918	1,951,234.26 644,765.88	210 32 02.2 280 20 46.1	Colon. Allenby.
Debeney, 1918	1,948,996.95 640,980.51	210 34 38.6 213 12 53*	Colon. Azimuth mark.
Brook, 1918	1,947,045.43 632,900.96	193 34 44.5	Debeney.
Lee, 1918	1,947,285.35 629,547.67	175 54 27.3 354 42 03.5	Brook. Sanford.
Sanford C, 1918	1,947,423.59 627,893.45	175 13 22.8	Lee.
Sanford B, 1918	1,947,259.93 623,274.84	182 01 45.9	Sanford C.
Sanford A, 1918	1,946,233.67 620,195.75	198 25 59.6 293 40 30.7	Sanford B. Sanford.
Troy, 1918	1,947,397.05 615,925.08	164 45 42.2 193 51 20.4	Sanford A. Sanford.
Fismes, 1918	1,943,968.48 609,170.29	206 54 40.5	Troy.
Lennon, 1918	1,942,454.26 607,276.26	218 38 28.6	Fismes.
Gum, 1918	1,941,502.44 604,665.70	200 01 55.4	Lennon.
Alfair, 1918	1,942,066.60 602,399.36	166 01 17.3	Gum.
Mangin, 1918	1,941,442.73 600,448.01	197 43 46.9 0 18 48*	Alfair. Azimuth mark.
Reeves, 1918	1,941,447.37 595,994.16	38 39 49.2 179 56 25.1	Lemon. Mangin.
Lemon C, 1918	1,939,708.50 594,147.61	223 16 47.2 218 24 15*	Reeves. Azimuth mark.
Lemon B, 1918	1,937,852.92 590,789.32	208 55 20.2	Lemon C.
Lemon A, 1918	1,937,011.10 588,756.17	83 24 42.6 202 29 30.7	Lemon. Lemon B.

[1] No check on this position.
*This azimuth has been computed by the first formula (p. 61), neglecting the second term.

SANFORD TO OSBORNE (TRAVERSE)—Continued

Station	*x* coordinate; *y* coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Morrison, 1918	1,934,562.35 582,373.84	188 45 02.4 200 59 26.3	Lemon. Lemon A.
Mihiel, 1918	1,932,386.34 580,577.83	230 27 53.3	Morrison.
Huron, 1918	1,928,312.00 575,400.30	218 12 00.7	Mihiel.
Cameron, 1918	1,925,710.93 575,148.87	264 28 43.4	Huron.
Hayes, 1918	1,921,683.29 567,878.00	208 59 02.1	Cameron.
Hamilton, 1918	1,921,573.85 565,966.67	183 16 37.5	Hayes.
Newton, 1918	1,919,428.37 557,349.36	193 58 51.1	Hamilton.
Mount Vernon, 1918	1,919,297.42 554,368.61	182 30 55.8	Newton.
Ailette, 1918	1,918,697.80 551,827.01	193 16 28.6 204 35 22.3	Mount Vernon. Lemon.
Vass, 1918	1,913,438.49 544,830.95	216 56 02.9	Ailette.
Lakeview A, 1918	1,907,856.76 541,647.71	240 18 14.6	Vass.
Guynemer A, 1918	1,906,739.53 541,389.61	256 59 30.7	Lakeview A.
Guynemer, 1918	1,905,151.46 540,146.17	231 56 22.1	Guynemer A.
Lakeview, 1918	1,907,137.53 541,286.92	60 07 40.8 216 49 29*	Guynemer. Azimuth mark No. 1.
Fonck, 1918	1,902,346.84 539,191.51	251 12 07.3	Guynemer.
Delaware, 1918	1,898,256.63 535,381.62	227 01 55.8	Fonck.
Niagara D, 1918	1,896,387.02 532,319.03	211 24 09.7	Delaware.
Niagara C, 1918	1,895,844.37 531,780.23	225 12 14.3 71 13 37*	Niagara D. Azimuth mark.
Niagara, 1918	1,895,259.97 530,782.19	39 44 17.2 213 05 07.4	Foch. Delaware.
Niagara B, 1918	1,894,658.61 531,362.05	250 34 25.9 313 57 26.1	Niagara C. Niagara.
Niagara A, 1918	1,893,863.97 530,607.57	262 52 12.5 21 08 22*	Niagara. Foch E azimuth mark.
Foch E, 1918	1,893,299.37 529,029.96	228 12 43.8 24 28 43*	Niagara. Azimuth mark.
Foch D, 1918	1,887,638.01 521,091.51	215 29 41.4	Foch E.
Foch C, 1918	1,886,918.13 520,617.01	236 36 34.6	Foch D.
Foch B, 1918	1,885,523.68 520,379.55	260 20 09.0 52 56 42*	Foch C. Azimuth mark.
Foch A, 1918	1,883,207.59 518,669.91	233 34 00.5 328 50 26.8	Foch B. Foch.

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

SANFORD TO OSBORNE (TRAVERSE)—Continued

Station	x coordinate; y coordinate	Plane azimuth	Mark
Supplementary points—Continued			
	Feet	° ′ ″	
Sanford, red steel standpipe, 1918	1,951,794.93 630,325.94		
Sanford, tall steel water tank, 1918	1,947,108.07 630,173.62		
Jonesboro, tall square white steeple with spiral, 1918.	1,953,665.99 620,503.31		
Carthage, lower water tank, 1918	1,875,133.33 581,363.62		
Carthage, taller water tank, 1918	1,875,903.73 580,977.03		
Carthage, courthouse dome, 1918	1,875,566.41 580,954.89		
Vass, white steeple with shingle roof, 1918.[1]	1,915,168 548,519		
Lakeview, green water tank, with black roof, 1918.	1,907,864.48 543,506.19		
Niagara, water tank, 1918	1,894,049.46 530,334.55		

WASHINGTON TO PAMLICO SOUND, CORE SOUND

Principal points			
James, 1933	2,596,237.82 619,851.88	81 05 49*	Azimuth mark, R. M. No. 1.
Fort, 1931	2,598,266.40 633,158.06	15 47 12*	Azimuth mark, R. M. No. 3.
Core eccentric, 1931	2,641,882.67 616,083.83	63 59 32*	Azimuth mark, R. M. No. 3.
Reka, 1933	2,641,378.33 656,990.25	336 26 58*	Azimuth mark, R. M. No. 2.
Spring, 1933	2,684,060.88 626,687.20	136 23 50*	Azimuth mark, R. M. No. 3.
Rose, 1933	2,687,181.14 671,497.58	39 38 32*	Azimuth mark, R. M. No. 2.
Makleyville, 1933	2,730,710.30 631,631.54	329 41 38*	Azimuth mark, R. M. No. 3.
Way, 1933	2,733,941.06 669,408.76	262 40 12*	Azimuth mark, R. M. No. 1.
Scranton, 1933	2,758,274.08 645,197.24	220 07 12*	Azimuth mark, R. M. No. 1.
Swan, 1933	2,795,599.44 615,188.27	44 25 22*	Azimuth mark, R. M. No. 3.
Post, 1933	2,798,149.39 657,341.47	33 04 19*	Azimuth mark, R. M. No. 2.
New Holland, 1933	2,842,619.48 628,127.09	77 17 55*	Azimuth mark, R. M. No. 2.
Jones, 1933	2,842,374.21 663,627.63	51 25 34*	Azimuth mark, R. M. No. 2.
Mount Pleasant, 1933	2,868,935.37 618,968.68	19 17 18*	Azimuth mark, R. M. No. 2.
Englehard, 1933	2,902,770.68 665,977.22	44 03 08*	Azimuth mark, R. M. No. 3.

[1] No check on this position.
*This azimuth has been computed by the first formula (p. 61), neglecting the second term.

WASHINGTON TO PAMLICO SOUND, CORE SOUND—Continued

Station	x coordinate; y coordinate	Plane azimuth	Mark
Principal points—Continued			
	Feet	° ′ ″	
Gull Shoal beacon, 1933	2,906,781.09 602,039.28		
Durant, 1933	2,990,153.58 554,325.77	55 36 21*	Azimuth mark, R. M. No. 2.
Salvo, 1933	3,048,256.27 667,917.42	187 37 55*	Azimuth mark, R. M. No. 1.
Metropolitan, 1933	2,957,657.44 723,988.18	48 26 16*	Azimuth mark, R. M. No. 2.
Long Shoal Lighthouse, 1933	2,979,992.59 673,670.76		
Pea Island, 1874	3,035,414.43 731,665.41	338 27 51*	Azimuth mark, R. M. No. 3.
Ocracoke, 1933	2,902,556.01 511,346.50	302 25 41*	Azimuth mark, R. M. No. 3.
Bluff Shoal Lighthouse, 1935	2,874,050.66 544,363.30		
Southwest Point Lighthouse, 1932	2,854,290.32 510,370.85		
Whale, 1933	2,862,683.46 475,185.36		
Harbor Island Bar Lighthouse, 1932	2,831,889.81 469,198.86		
Brant Island Shoal Lighthouse, 1932	2,809,000.19 515,405.73		
North, 1920	2,790,011.40 478,426.86		
Atlantic, 1935	2,800,592.13 424,986.74	96 40 49*	Azimuth mark.
Extra, 1932	2,768,688.88 451,441.20	229 10 26*	Azimuth mark, New Tump Shoal beacon.
Supplementary points			
Day, 1933	2,771,014.59 464,663.32		
Salter, 1935	2,778,428.81 425,368.83	38 42 32*	Azimuth mark.
Belhaven, municipal water tank, black, 1933.	2,706,602.40 659,774.89		
Belhaven, Interstate Cooperage Co., yellow brick stack, 1933.	2,704,458.82 661,649.45		
New Holland, New Holland Corporation, water tank, 1933.	2,841,041.44 631,540.37		
New Holland, New Holland Corporation, stack, 1933.	2,841,221.73 631,244.92		
Hatteras Inlet Lighthouse, 1933	2,966,781.41 566,495.02		
Cape Hatteras Lighthouse, 1933	3,038,373.30 565,816.46		
Core, 1914 [1]	2,642,008 616,151		
Fort (U.S.E.), 1914 [1]	2,598,343 633,208		
Primary traverse station No. 5 (U.S. G.S.), 1933.[1]	2,733,124 669,540		

[1] No check on this position.
*This azimuth has been computed by the first formula (p. 61), neglecting the second term.

WASHINGTON TO PAMLICO SOUND, CORE SOUND—Continued

Station	x coordinate; y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Bluff Shoal Lighthouse, 1933	2,874,050.59 544,362.80		
Gull Shoal Lighthouse, 1935 [1]	2,906,780 602,039		

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

Principal points			
Mason, 1933	2,054,690.22 325,337.66	280 30 24*	Azimuth mark, R. M. No. 1.
Freeman, 1933	2,056,304.73 281,159.20	243 10 44*	Azimuth mark, R. M. No. 1.
Allenton, 1933	2,022,230.83 306,508.96	283 24 48*	Azimuth mark, R. M. No. 3.
Long Branch, 1933	2,009,758.49 291,846.29	137 24 10*	Azimuth mark, R. M. No. 2.
Fields, 1933	2,029,027.23 255,101.33	271 25 51*	Azimuth mark, R. M. No. 2.
Byrd, 1933	1,987,849.34 259,547.28	218 41 20*	Azimuth mark, R. M. No. 1.
Williamson, 1933	2,023,735.48 221,800.99	288 39 40*	Azimuth mark, R. M. No. 2.
Baker, 1933	1,286,689.00 703,931.46		
King eccentric, 1933	1,309,221.17 538,529.57	82 26 38*	Azimuth mark, R. M. No. 2.
Pasour, 1933	1,331,355.66 594,928.90	98 18 29*	Azimuth mark, Cherryville municipal water tank.
Anderson 2, 1933	1,378,245.91 667,401.82	233 05 39*	Azimuth mark, R. M. No. 1.
Spencer, 1933	1,368,829.38 569,769.86		
Huntersville, 1933	1,451,678.43 609,655.81	86 00 09*	Azimuth mark, R. M. No. 3.
Charlotte, 1933	1,449,304.66 542,673.93	198 59 48*	Azimuth mark, R. M. No. 3.
Concord, 1933	1,522,049.66 596,373.20	222 37 53*	Azimuth mark, R. M. No. 1.
Mint Hill, 1933	1,507,992.80 527,740.52	61 06 29*	Azimuth mark, R. M. No. 3.
Jackson, 1933	1,523,986.47 591,152.35	182 25 38*	Azimuth mark, R. M. No. 2.
Locust, 1933	1,574,256.15 553,454.47	44 44 26*	Azimuth mark, R. M. No. 3.
Advance, 1933	1,555,219.88 500,019.64	227 35 04*	Azimuth mark, R. M. No. 1.
Fountain, 1933	1,615,506.34 486,090.99	313 32 24*	Azimuth mark, R. M. No. 2.
Aquadale, 1933	1,637,696.69 541,709.03	255 45 57*	Azimuth mark, R. M. No. 2.

[1] No check on this position.
*This azimuth has been computed by the first formula (p. 61), neglecting the second term.

GOLDSBORO TO LITTLE RIVER, S. C., AND MARIETTA TO LINCOLNTON—Continued

Station	x coordinate; y coordinate	Plane azimuth	Mark
Principal points—Continued			
	Feet	° ′ ″	
McKay, 1933	1,690,326.54 513,381.68	352 42 11*	Azimuth mark, R. M. No. 1.
Wadesboro, 1933	1,676,994.09 447,009.55	260 11 06*	Azimuth mark, R. M. No. 1.
Lenzton, 1933	1,747,137.39 475,298.26	343 23 35*	Azimuth mark, R. M. No. 3.
Ingram, 1933	1,716,555.59 462,773.53	69 57 37*	Azimuth mark, R. M. No. 2.
Hinson, 1933	1,723,137.15 430,700.05	127 55 01*	Azimuth mark, R. M. No. 2.
Sandy, 1933	1,763,877.78 459,115.91	73 07 11*	Azimuth mark, R. M. No. 3.
Martin, 1933	1,763,929.03 405,995.32	257 51 58*	Azimuth mark, R. M. No. 2.
Fruitland, 1933	1,803,941.89 427,265.00	66 54 57*	Azimuth mark, R. M. No. 2.
Fairview, 1933	1,821,968.93 394,066.38	356 05 21*	Azimuth mark, R. M. No. 1.
McInnis (S. C.), 1933	1,789,683.74 362,282.49	38 59 40*	Azimuth mark, R. M. No. 2.
Zion, 1933	1,851,224.43 359,841.04	184 50 32*	Azimuth mark, R. M. No. 1.
Lynch (S. C.), 1933	1,829,652.51 326,233.97	100 57 50*	Azimuth mark, R. M. No. 3.
Oak Grove, 1933	1,874,989.33 326,955.93	118 31 32*	Azimuth mark, R. M. No. 3.
Judson (S. C.), 1933	1,858,852.82 294,742.40	302 44 49*	Azimuth mark, R. M. No. 1.
Salem, 1933	1,900,702.63 311,086.75	133 00 52*	Azimuth mark, R. M. No. 3.
Barlow (S. C.), 1933	1,876,766.11 273,058.09	334 24 48*	Azimuth mark, R. M. No. 2.
Dillon north base, 1933	1,911,669.32 286,298.11	222 00 04*	Azimuth mark, R. M. No. 3.
Dillon south base (S. C.), 1933	1,891,854.11 249,523.31	208 27 35*	Azimuth mark, R. M. No. 1.
Hammond, 1933	1,922,424.88 273,026.83	335 59 37*	Azimuth mark, R. M. No. 1.
Hamer (S. C.), 1933	1,907,310.29 273,055.60	42 01 52*	Azimuth mark, R. M. No. 3.
Oliver (S. C.), 1933	1,920,341.03 230,899.63	110 06 06*	Azimuth mark, R. M. No. 3.
Pittman, 1933	1,953,836.32 268,245.93	43 20 40*	Azimuth mark, R. M. No. 3.
Claybank, 1933	1,966,020.21 248,772.15	181 55 07*	Azimuth mark, R. M. No. 2.
Kemper (S. C.), 1933	1,939,893.00 209,767.58	142 14 47*	Azimuth mark, R. M. No. 3.
Nichols (S. C.), 1933	1,955,183.85 192,105.85	354 49 47*	Azimuth mark, R. M. No. 1.
Ford, 1933	2,002,597.24 209,298.40	77 51 11*	Azimuth mark, R. M. No. 3.

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

GOLDSBORO TO LITTLE RIVER, S. C., AND MARIETTA TO LINCOLNTON—Continued

Station	x coordinate; y coordinate	Plane azimuth	Mark
Principal points—Continued			
	Feet	° ′ ″	
Floyds (S. C.), 1933	1,981,713.85 159,894.49	295 54 01*	Azimuth mark, R. M. No. 1.
Wilson, 1933	2,017,845.37 190,616.51	226 47 18*	Azimuth mark, R. M. No. 1.
Green Sea (S. C.), 1933	2,006,776.25 136,555.99	254 12 00*	Azimuth mark, R. M. No. 1.
Clarendon, 1933	2,048,145.30 166,814.80	112 24 32*	Azimuth mark, R. M. No. 2.
Iron Hill, 1933	2,065,267.95 141,255.12	260 42 20*	Azimuth mark, R. M. No. 2.
Loris (S. C.), 1933	2,033,841.02 110,141.96	127 15 02*	Azimuth mark, R. M. No. 2.
Guide, 1933	2,090,558.78 115,072.04	305 04 16*	Azimuth mark, R. M. No. 2.
Simpson (S. C.), 1933	2,049,687.56 86,137.47	273 29 40*	Azimuth mark, R. M. No. 2.
Supplementary points			
Bladenboro, aluminum water tank, 1933.	2,065,250.02 286,403.00		
Bladenboro Cotton Mill, brick stack, 1933.	2,059,385.97 288,922.77		
Bladenboro Cotton Mill, aluminum water tank, 1933.	2,058,422.98 289,477.67		
Chadbourn, aluminum water tank, 1933.	2,052,954.42 208,604.99		
Fairmont, ball on top of municipal water tank, 1933. [1]	1,966,631 271,879		
Mullins, ball on top of southerly black water tank (S. C.), 1933.	1,924,556.86 165,685.07		
Astronomic telescope, 1933 [1]	2,153,757.41 330,108.28		
Magnetic station (N. C. G. S. and U. S. G. S. (1898)), 1933. [1]	2,118,626.49 319,653.94		
Mullins, ball on top of northerly black water tank (S. C.), 1933.	1,922,640.37 166,041.04		
Turner (N. C.-S. C.), 1933	1,980,859.37 197,408.52	222 59 37*	Azimuth mark, R. M. No. 1.
B. M. State Line (N. C.-S. C.), 1933 [1]	1,980,965.54 197,455.36		
Replacement (N. C.-S. C.), 1933	2,011,901.54 166,015.30	300 54 15*	Azimuth mark, R. M. No. 1.
Tabor, municipal water tank, aluminum, 1933.	2,037,375.06 145,991.72		
Tabor (N. C.-S. C.), 1933	2,035,466.20 142,186.17	220 18 28*	Azimuth mark, R. M. No. 1.
State-line monument (N. C.-S. C.), 1933. [1]	2,035,474.87 142,176.68		
Dothan (N. C.-S. C.), 1933	2,076,627.34 100,555.67	1 24 04*	Azimuth mark, R. M. No. 3.

[1] No check on this position.
*This azimuth has been computed by the first formula (p. 61), neglecting the second term.

GOLDSBORO TO LITTLE RIVER, S. C., AND MARIETTA TO LINCOLNTON—Continued

Station	*x* coordinate; *y* coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Dillon, Dillon Oil Co., tall, slender, black water tank (S. C.), 1933.	1,888,154.55 244,320.53		
Dillon, municipal water tank, red (S. C.), 1933.[1]	1,888,571 244,862		
Maxton, aviation beacon on municipal water tank, 1933.	1,894,999.29 359,887.20		
Rowland, municipal water tank, ball on top, 1933.	1,911,530.80 288,370.05		
Hamer, Carolina Textile Corporation, stack (S. C.), 1933.	1,900,431.47 265,952.48		
Hamer, Carolina Textile Corporation, water tank near stack, ball on top (S. C.), 1933.	1,900,325.66 265,978.71		
McRae (N. C.-S. C.), 1933	1,862,146.70 319,639.57	264 50 23*	Azimuth mark, R. M. No. 1.
State-line monument (1905) (N. C.-S. C.), 1933.[1]	1,862,151.26 319,632.37		
McColl, municipal water tank, aluminum (S. C.), 1933.	1,835,514.46 335,321.08		
McColl, Marlboro Cotton Mills, tank, aluminum (S. C.), 1933.[1]	1,836,588 334,802		
Laurinburg, Dixie Guano Co., tank, 1933.	1,868,555.42 369,329.99		
Laurinburg, municipal water tank, 1933.	1,860,104.99 374,413.04		
Airway beacon, flashing red and white, east of Clio (S. C.), 1933.[1]	1,861,293 309,207		
Bennettsville, black water tank (S. C.), 1933.[1]	1,793,747 316,183		
Clio, white water tank (S. C.), 1933[1]	1,834,981 302,250		
Gibson (N. C.-S. C.), 1933	1,814,357.16 367,197.99	50 44 05*	Azimuth mark, R. M. No. 2.
State-line monument (N. C.-S. C.), 1933.	1,814,372.16 367,181.43		
Perhealth (N. C.-S. C.), 1933	1,767,684.91 385,096.72	61 43 12*	Azimuth mark, R. M. No. 2.
Hamlet traverse tie, 1933	1,787,309.52 414,741.31	295 11 23*	Azimuth mark, R. M. No. 2.
Rockingham, 1918	1,794,928.53 422,358.09	243 44 10*	Azimuth mark, R. M. No. 1.
Cordova, 1933	1,758,088.79 418,100.12	42 03 08*	Azimuth mark, R. M. No. 2.
Pee Dee, 1933	1,743,709.64 440,231.82	255 29 07*	Azimuth mark, R. M. No. 1.
Astronomic station, 1933[1]	1,763,918.05 459,201.01		
Entwistle, 1933	1,794,522.19 441,005.11	254 14 14*	Azimuth mark, R. M. No. 2.
Ellerbe, 1933	1,772,927.34 482,785.61	40 14 13*	Azimuth mark, R. M. No. 1.
Hamlet, city water tank, 1933	1,787,342.45 414,745.72		

[1] No check on this position.
* This azimuth has been computed by the first formula (p. 61), neglecting the second term.

GOLDSBORO TO LITTLE RIVER, S. C., AND MARIETTA TO LINCOLNTON—Continued

Station	x coordinate; y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Rockingham, municipal water tank, aluminum, 1933.	1,768,569.93 433,402.28		
Ellerbe, municipal water tank, black, 1933.	1,772,928.19 482,832.01		
Marston, Marston Training School, black water tank, 1933.	1,818,410.11 463,441.42		
East Rockingham, Hannah-Picket Mill No. 2, tall black water tank, ball on top, 1933.	1,769,654.76 428,528.56		
East Rockingham, short aluminum water tank, red top, 1933.[1]	1,769,131 434,221		
Wadesboro, municipal water tank, aluminum, 1933.	1,677,478.57 444,092.73		
Wadesboro, church spire, cross on top, 1933.[1]	1,673,870 442,387		
Mount Gilead, water tank, higher of two, 1933.	1,699,758.02 536,117.60		
Mount Gilead, water tank, lower of two, 1933.[1]	1,699,426 536,123		
Ansonville, 1933	1,669,005.54 496,389.53	214 34 33*	Azimuth mark, R. M. No. 1.
Marshville, 1933	1,593,726.69 457,384.85	205 20 48*	Azimuth mark, R. M. No. 3.
Marshville, black water tank, west one, ball on top, 1933.	1,591,475.39 453,150.31		
Marshville, black water tank, east one, ball on top, 1933.	1,594,412.87 453,650.87		
Charlotte, Presbyterian Church, spire, 1933.[1]	1,449,290 543,310		
Sloop, 1933	1,494,895.63 585,372.04	48 14 31*	Azimuth mark, R. M. No. 3.
Allen, 1933	1,517,745.17 541,024.32	320 35 16*	Azimuth mark, R. M. No. 3.
Locke, 1933	1,526,267.80 611,318.75	94 39 18*	Azimuth mark, R. M. No. 2.
Jackson Training School for Boys, water tank, 1933.	1,524,170.39 591,021.19		
Kannapolis, tall silver water tank, 1933	1,515,177.04 638,409.15		
Kannapolis, tall brick stack, 1933	1,516,880.88 641,502.46		
Concord, Presbyterian Church, spire (tall white), 1933.	1,528,265.83 608,772.22		
Huntersville, municipal water tank, 1933.	1,451,718.66 609,695.71		
Bench mark 41 (1932), 1933 [1]	1,451,702.15 609,707.14		
City, 1933 [1]	1,448,831 543,519		
Mayor, 1933 [1]	1,448,077 542,843		

[1] No check on this position.
* This azimuth has been computed by the first formula (p. 61), neglecting the second term.

GOLDSBORO TO LITTLE RIVER, S. C., AND MARIETTA TO LINCOLNTON—Continued

Station	x coordinate; y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Alexis, 1933	1,367,065.98 611,021.48	336 52 34*	Azimuth mark, R. M. No. 2.
Stanly, 1933	1,374,689.58 592,550.17	205 00 57*	Azimuth mark, R. M. No. 1.
Gastonia, 1933	1,348,296.21 558,163.31		
Gastonia base reference mark No. 1, 1933.[1]	1,348,469.20 558,350.52		
Gastonia base, 1933 [1]	1,348,143.28 558,314.61		
Cherryville, 1933	1,290,464.05 600,738.07	346 26 27*	Azimuth mark, R. M. No. 2.
Dallas, water tank, tall black, near white factory, 1933.[1]	1,366,018 568,048		
Charlotte airport beacon, revolving white light, 1933.[1]	1,417,343 533,691		
Denver, 1933	1,396,141.32 653,534.77	192 51 54*	Azimuth mark, R. M. No. 2.
Statesville, 1933	1,438,057.43 745,095.96	69 21 50*	Azimuth mark, R. M. No. 2.
Newton, 1933	1,340,084.22 703,610.25	211 58 11*	Azimuth mark, R. M. No. 3.
Penelope, 1933	1,289,507.47 728,487.88	69 02 56*	Azimuth mark, R. M. No. 3.
Catlin, 1933	1,262,609.56 670,679.10	41 50 46*	Azimuth mark, R. M. No. 2.
Lincolnton, 1933	1,328,059.48 633,937.89	343 11 22*	Azimuth mark, R. M. No. 2.
Primary traverse station No. 10 (U. S. G. S.), 1933.[1]	1,374,905.00 592,591.63		
Gastonia, black water tank, 1933 [1]	1,349,082 557,066		
Elizabethtown 2, 1938 [1]	2,118,625.15 319,778.99		

CHARLOTTE TO SOUTH CAROLINA BOUNDARY

Principal points			
Pleasant, 1934	1,489,792.12 489,893.64	108 01 15*	Azimuth mark, R. M. No. 3.
Monroe, 1934	1,537,912.12 452,106.15	199 47 56*	Azimuth mark, R. M. No. 1.
Mineral, 1934	1,493,283.48 434,033.29	56 16 27*	Azimuth mark, R. M. No. 3.
Providence, 1934	1,457,065.59 479,312.10	154 07 58*	Azimuth mark, R. M. No. 3.
State, 1934	1,445,596.63 465,486.19	15 17 38*	Azimuth mark, R. M. No. 3.
Heath, 1934	1,465,124.71 419,172.81	55 56 56*	Azimuth mark, R. M. No. 3.
Roddy (S. C.), 1934	1,419,172.41 413,691.02	347 30 54*	Azimuth mark, R. M. No. 2.

[1] No check on this position.
*This azimuth has been computed by the first formula (p. 61), neglecting the second term.

CHARLOTTE TO SOUTH CAROLINA BOUNDARY—Continued

Station	*x* coordinate; *y* coordinate	Plane azimuth	Mark
Principal points—Continued			
	Feet	° ′ ″	
Fort Mill (S. C.), 1934	1,416,821.34 462,914.98	89 44 30*	Azimuth mark, R. M. No. 3.
Red Hill, 1934	1,506,685.09 483,136.15	45 55 01*	Azimuth mark, R. M. No. 1.
Meckun, 1933	1,512,707.23 512,150.73	303 12 41*	Azimuth mark, R. M. No. 2.
Richardson, 1934	1,460,577.49 394,501.14	12 01 06*	Azimuth mark, R. M. No. 1.
Lancaster (S. C.), 1934	1,466,940.98 357,581.63	140 39 22*	Azimuth mark, R. M. No. 3.
Rodgers, 1934	1,468,260.53 431,702.45	305 16 40*	Azimuth mark, R. M. No. 1.
Supplementary points			
Monroe, municipal water tank, 1934	1,537,712.30 452,190.24		
Monroe, courthouse, spire, 1934	1,535,695.56 452,284.04		
Waxhaw, cotton mill, stack, 1934	1,478,246.45 432,090.33		
Fort Mill, silver water tank (S. C.), 1934.	1,416,841.70 462,947.63		
Fort Mill, standpipe (S. C.), 1934 [1]	1,418,065 461,949		
Lancaster, municipal tank (S. C.), 1934	1,467,684.74 357,800.07		
Lancaster, aluminum water tank, (S. C.), 1934.	1,469,950.60 351,813.95		
Boundary Monument (1813) (N. C.-S. C.), 1934.[1]	1,460,486.95 394,171.26		

SANFORD TO OSBORNE (TRAVERSE)

Principal points			
Carr, 1918	1,847,960.43 471,009.30		
Hoffman, 1918	1,837,264.24 467,879.11		
Broadacre, 1918	1,831,775.87 464,217.75	236 17 32.1	Hoffman.
Marston, 1918	1,829,959.37 453,840.69	189 55 44.4 54 42 15*	Broadacre. Azimuth mark.
Cognac, 1918	1,819,094.46 446,371.14	235 29 30.3 228 37 22*	Marston. Azimuth mark.
Oise, 1918	1,816,409.20 435,990.46	194 30 11.8	Cognac.
Ainse, 1918	1,812,009.41 431,546.41	224 42 47.7	Oise.
Vesle, 1918	1,803,906.75 427,224.65	241 55 32.3	Ainse.
Hamlet, 1918	1,787,315.13 414,709.13	224 51 59.6	Rockingham.
Light, 1918	1,773,126.05 393,599.80	213 54 28.3	Hamlet.

[1] No check on this position.
* This azimuth has been computed by the first formula (p. 61), neglecting the second term.

SANFORD TO OSBORNE (TRAVERSE)—Continued

Station	x coordinate; y coordinate	Plane azimuth			Mark
Principal points—Continued	*Feet*	°	′	″	
Osborne (S. C.), 1918	1,768,067.63 382,105.05	203	45	09.2	Light.
Quentin E, 1918	1,880,738.66 516,836.26	233 262 234	23 11 00	56.7 49.4 19	Foch A. Foch. Foch B azimuth mark.
Quentin D, 1918	1,879,139.52 513,559.47	206 232 55	00 44 20	47.9 28.3 08	Quentin E. Foch. Quentin B azimuth mark.
Quentin C, 1918	1,878,012.77 512,752.07	234	22	32.1	Quentin D.
Quentin B, 1918	1,877,568.83 511,954.22	209 237	05 35	32.8 03*	Quentin C. Azimuth mark.
Quentin A, 1918	1,877,379.37 509,805.91	185	02	23.6	Quentin B.
Quentin, 1918	1,877,023.24 508,822.27	199 219 38	54 39 09	10.6 37.0 35*	Quentin A. Foch. Azimuth mark.
Aberdeen, 1918	1,872,918.21 504,095.03	220 32	58 46	13.0 42*	Quentin. Azimuth mark.
Griffin, 1918	1,868,058.79 495,646.41	209	54	22.9	Aberdeen.
Pond A, 1918	1,864,514.96 492,396.23	227	28	29.6	Griffin.
Keyser A, 1918	1,863,941.33 491,179.72	205	14	44.3	Pond A.
Keyser, 1918	1,863,490.95 486,491.87	185	29	16.0	Keyser A.
Pond, 1918	1,864,798.59 492,046.64	13 44 140 222	14 40 56 09	48.2 44.4 48.6 58.2	Keyser. Keyser A. Pond A. Griffin.
Erie, 1918	1,857,417.36 476,873.36	212	16	13.0	Keyser.
Ratle, 1918	1,854,989.12 473,951.38	219	43	38.8	Erie.
Alexander, 1918	1,852,539.39 473,845.28	267	31	12.1	Ratle.
Richmond, 1918	1,850,720.88 473,179.40	249 51	53 49	20.0 39.7	Alexander. Carr.
Carr A, 1918	1,849,878.25 472,005.46	62 215	33 40	05.7 12.0	Carr. Richmond.
Hoffman A, 1918	1,847,386.88 470,824.71	73 244 252	46 38 09	31.7 31.4 35.5	Hoffman. Carr A. Carr.
Hamlet F, 1918	1,793,293.71 419,119.60	206	47	06.8	Rockingham.
Hamlet E, 1918	1,792,658.97 415,295.56	189	25	27.9	Hamlet F.
Hamlet D, 1918	1,791,982.03 414,886.52	238	51	27.3	Hamlet E.
Hamlet C, 1918	1,790,132.14 413,861.08	240	59	57.5	Hamlet D.
Hamlet B, 1918	1,790,462.33 413,254.43	151	26	28.5	Hamlet C.

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

SANFORD TO OSBORNE (TRAVERSE)—Continued

Station	*x* coordinate; *y* coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*	° ′ ″	
Hamlet A, 1918	1,789,312.72 412,292.77	140 25 10.8 230 05 13.9	Hamlet. Hamlet B.
Light I, 1918	1,784,182.59 408,300.80	206 03 01.6 232 06 43.2	Hamlet. Hamlet A.
Light J, 1918	1,784,611.25 408,663.86	232 20 11.9 49 44 11.6	Hamlet A. Light I.
Light H, 1918	1,781,644.38 405,609.34	211 55 48.3 223 19 17.4	Hamlet. Light I.
Light G, 1918	1,776,456.80 400,259.43	224 07 02.7	Light H.
Light F, 1918	1,774,923.83 399,576.26	245 58 46.3	Light G.
Light D, 1918	1,774,567.68 399,331.18	235 28 00.1	Light F.
Light C, 1918	1,774,110.25 398,910.76	227 24 50.9	Light D.
Light E, 1918	1,774,908.40 399,607.01	247 09 07.0 333 21 10.9 48 54 03.0 51 00 19.1	Light G. Light F. Light C. Light D.
Light B, 1918	1,773,937.89 394,870.01	182 26 33.0 32 35 02.2	Light C. Light.
Light A, 1918	1,773,649.78 393,989.97	53 18 51.2 198 07 39.2	Light. Light B.
Osborne I, 1918	1,773,187.52 393,341.74	166 36 06.9 215 29 35.1	Light. Light A.
Osborne H, 1918	1,772,712.08 392,673.51	215 25 53.5	Osborne I.
Osborne G, 1918	1,772,472.86 392,220.32	205 20 16.0 207 49 39.7 212 30 31.0	Light. Osborne H. Osborne I.
Osborne F, 1918	1,772,120.65 390,206.13	189 55 07.3	Osborne G.
Osborne E, 1918	1,771,311.53 388,905.10	211 52 40.0	Osborne F.
Osborne D, 1918	1,771,087.33 388,187.56	197 21 06.3	Osborne E.
Osborne C, 1918	1,771,253.99 386,969.74	172 12 26.9	Osborne D.
Osborne B, 1918	1,771,239.50 386,385.23	181 25 32.9	Osborne C.
Osborne A (S. C.), 1918	1,770,033.42 382,459.72	79 46 21.6 197 04 44.9	Osborne. Osborne B.
Supplementary points			
Southern Pines, Congregational Church, steeple, 1918.[1]	1,882,736 518,875		
Southern Pines, water tank, 1918	1,885,562.98 517,681.41		
Aberdeen, Seaboard Air Line Ry., water tank, 1918.[1]	1,873,033 504,193		
Hoffman, Seaboard Air Line Ry., semaphore, 1918.[1]	1,834,973 466,363		
Hamlet Seaboard Air Line Ry., water tank, 1918.[1]	1,790,649 413,242		

[1] No check on this position.

CHOWAN RIVER (SECOND-ORDER)

Station	x coordinate; y coordinate	Plane azimuth	Mark
Principal points	*Feet*	° ′ ″	
Main, 1932	2,684,591.60 846,369.94		
House, 1932	2,677,857.21 842,171.04	237 53 02*	Line of bridge.
Chowan River bridge, center of draw, 1932.	2,680,975.10 844,117.54		
Cow Island 3, 1932	2,671,305.52 910,795.25		
Thicket, 1932	2,673,019.82 899,442.80		
Cole, 1932	2,664,346.74 898,169.13		
Bass, 1932	2,672,803.27 893,000.94		
White, 1932	2,672,237.09 887,062.13		
Fore 2, 1932	2,675,243.58 907,758.63		
Harbor, 1932	2,675,379.17 919,406.99		
Montrose, 1874	2,681,644.22 918,473.55		
Tree, 1932	2,665,101.48 904,481.01		
Mt. Pleasant, 1932	2,669,057.25 941,586.57		
Turn, 1932	2,678,491.24 925,628.01		
Cat, 1932	2,680,263.52 937,003.69		
Woodley, 1932	2,680,570.20 924,445.75		
Beak, 1932	2,678,260.29 933,927.26		
Taylor, 1932	2,673,242.78 936,496.90		
Stump, 1932	2,672,664.88 940,435.95		
Swamp, 1932	2,667,618.26 944,684.86		
Sand, 1932	2,643,110 957,789		
Barnes, 1932	2,644,619 958,622		
River, 1932	2,646,484 958,501		
Bluff, 1932	2,646,391 957,021		
Eure, 1932	2,649,399 956,053		
Point, 1932	2,649,381 958,000		

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

CHOWAN RIVER (SECOND-ORDER)—Continued

Station	x coordinate; y coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*	° ′ ″	
Sarem, 1932	2, 654, 150 958, 574		
Island, 1932	2, 651, 293 958, 542		
Hodges, 1932	2, 654, 597 956, 852		
Cane, 1932	2, 656, 965 955, 797		
Creek, 1932	2, 659, 051 953, 475		
Marsh, 1932	2, 663, 162 950, 777		
Wiccacon, 1932	2, 662, 011 949, 382		
Flag, 1932	2, 661, 022 953, 959		
Goose, 1932	2, 664, 155 946, 399		
Wharf, 1932	2, 669, 108 941, 830		
Pile, 1932	2, 628, 787 963, 117		
Buck, 1932	2, 630, 328 964, 095		
Oak, 1932	2, 630, 815 962, 122		
Root, 1932	2, 634, 485 961, 447		
Spikes, 1932	2, 633, 540 963, 053		
Ray, 1932	2, 635, 892 962, 913		
Water, 1932	2, 638, 603 961, 915		
Pettys, 1932	2, 638, 405 959, 607		
Bend, 1932	2, 641, 475 958, 836		
Mark, 1932	2, 639, 630 958, 361		
High, 1932	2, 642, 096. 97 957, 647. 17		
Pole, 1932	2, 623, 540. 63 965, 505. 30		
Horn, 1932	2, 628, 038. 70 964, 921. 16		
Stand, 1932	2, 625, 897. 38 964, 338. 08		
Tun, 1932	2, 623, 859. 83 965, 354. 41		
Tank, 1932	2, 621, 529. 86 965, 493. 62		
Rail, 1932	2, 622, 036. 10 966, 538. 09		

CHOWAN RIVER (SECOND-ORDER)—Continued

Station	*x* coordinate; *y* coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*	° ′ ″	
Road, 1932	2,620,766.58 967,798.30		
Mill, 1932	2,618,858.28 966,952.72		
Mud, 1932	2,616,853.59 967,909.75		
Harrell, 1932	2,615,381.31 967,001.98		
Snake, 1932	2,613,512.06 968,097.12		
Knee, 1932	2,613,237.88 969,555.79		
Riv, 1932	2,611,401.19 970,182.09		
Cliff, 1932	2,610,614.72 969,499.93		
East, 1932	2,609,047.87 971,087.53		
Cy, 1932	2,606,182.01 973,532.43		
Slide, 1932	2,604,246.50 974,934.80		
Chowan, 1932	2,603,440.05 976,739.23		
Flax, 1932	2,604,340.37 982,284.32		

ALBEMARLE, CROATAN AND ROANOKE SOUNDS (SECOND-ORDER)

Principal points			
Debt, 1933	2,843,163.24 829,109.12		
Lewis, 1933	2,868,529.58 828,310.18		
Snake, 1933	2,930,554.30 871,302.94		
Haulover, 1933	2,929,068.48 825,153.53		
Coll, 1933	2,967,254.60 836,089.55		
Mashoe, 1933	2,943,939.46 819,018.93		
Croat, 1933	2,952,231.02 810,101.39		
Hill, 1933	2,977,169.51 811,345.76		
Fleet, 1933	2,962,873.15 792,043.27		
Wanch, 1933	2,992,144.18 788,002.50		
Bodie Island north base, 1849	3,007,410.14 799,429.04		
Manns Point R. M., 1903	2,986,284.32 825,032.16		

ALBEMARLE, CROATAN AND ROANOKE SOUNDS (SECOND-ORDER)—Continued

Station	x coordinate; y coordinate	Plane azimuth	Mark
Principal points—Continued	*Feet*	° ′ ″	
Seven, 1933	2,998,011.37 815,347.24		
Roanoke Marshes Lighthouse, 1933	2,977,894.10 766,264.22		
Cedar, 1933	2,985,498.81 773,553.72		
Creek, 1933	3,003,079.32 782,683.81		
Bodie Island south base, 1849	3,022,726.96 767,328.76		
Club, 1933	3,009,291.04 762,653.01		
Bodie Island Lighthouse, 1875	3,018,566.91 770,398.03		
Roots, 1933	2,975,089.47 723,192.04		
Supplementary points			
Wade Point Lighthouse, 1909	2,892,083.49 889,291.65		
Long Shoal Point, 1914	2,883,369.23 816,511.97		
Gator, 1933	2,903,072.89 817,959.11		
Shellbank 2, 1915	2,963,078.14 855,118.25		
Harbor, 1933	2,948,410.80 862,857.45		
Guite, 1933	2,961,474.84 870,140.42		
Pig, 1933	2,945,363.64 877,006.51		
High, 1933	2,969,343.28 871,018.44		
Sand, 1933	2,961,319.53 886,152.53		
Cross, 1933	2,971,044.03 871,438.66	321 52 34*	Azimuth mark.
0+00 (N. C. D. C. & D.), 1933	2,966,399.78 881,675.40		
Mill Creek, 1909	3,002,681.86 773,520.04		
917+29.2 (N. C. D. C. & D.), 1933	3,008,835.81 800,386.37		
Ash, 1933	2,986,669.66 790,656.90		
Bryan, 1933	2,977,737.88 799,736.87		
Baum Point, 1915	2,988,944.50 806,061.52		
Sir, 1933	2,973,895.70 812,895.17		
Lunch, 1915	2,976,550.02 832,937.56		

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

ALBEMARLE, CROATAN AND ROANOKE SOUNDS (SECOND-ORDER)—Continued

Station	*x* coordinate; *y* coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Wright Memorial Monument, 1933	2,985,187.46 840,546.71		
Croatan Lighthouse, 1903	2,953,526.96 814,334.63		
1320+00 (N. C. D. C. & D.), 1933	3,024,953.40 763,619.59		
Hawk, 1933 [1]	2,967,283 842,913		
Croix, 1933	2,973,414.91 764,348.76		
Oregon Inlet Coast Guard Station, cupola, 1933. [1]	3,030,926 752,378		
Oregon Inlet Coast Guard Station, flagpole, 1933. [1]	3,031,007 752,315		
Pea Island Coast Guard Station, 1933 [1]	3,044,781 722,233		
Bodie Island Coast Guard Station, 1933. [1]	3,019,631 777,331		
Nag's Head Coast Guard Station, 1933	3,003,816.60 811,408.89		
Paul Gamiels Hill Coast Guard Station, 1933.	2,963,802.96 887,496.19		
Currituck Bridge, center of draw span, 1933.	2,958,343.77 867,159.43		
Burnside, church spire, 1933	2,980,622.63 800,010.85		
Beacon No. 1, 1933	2,988,887.66 814,170.37		
Collington Shoal, beacon light, 1933	2,959,896.10 818,640.58		
Blockade Shoal Beacon, 1933	2,970,380.99 798,449.86		
Wanchese Beacon, 1933	2,987,125.12 777,235.96		
Methodist Church, spire, 1933 [1]	2,985,186 802,481		
Beacon, 1933	2,991,589.81 805,761.19		
Dare County, courthouse, spire, 1933	2,985,906.98 802,542.37		
Duck Island R. M., 1909	3,011,076.04 761,687.45		
Dare R. M., 1909	2,967,777.48 775,379.00		
Fort Raleigh, flagstaff, 1933	2,973,871.29 812,735.93		
Beacon, 1933 [1]	2,950,424 855,338		
Middle Grounds Beacon, 1933 [1]	2,890,466 812,881		
Sandy Point Shoal, beacon light, 1933 [1]	2,887,037 801,174		

[1] No check on this position.

ALBEMARLE, CROATAN AND ROANOKE SOUNDS (SECOND-ORDER)—Continued

Station	x coordinate; y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Derrick mast on fishhouse, 1933 [1]	2, 945, 626 818, 897		
Raleigh, 1909	2, 975, 094. 06 812, 991. 28		
105+60 (N. C. D. C. & D.), 1933 [1]	2, 971, 044 872, 192		
R. M. Tillet 2, 1914 [1]	2, 930, 513 871, 256		
Pal, 1909 [1]	2, 843, 128 829, 234		
Alligator, 1914 [1]	2, 902, 993 817, 989		

CAPE ROMAIN, S. C., TO CAPE FEAR (SECOND-ORDER)

Principal points			
Evert (S. C.), 1934	2, 095, 231. 77 46, 667. 90	170 08 57*	Azimuth mark, R. M. No. 3.
Ward (S. C.), 1934	2, 102, 668. 32 38, 973. 24	185 11 22*	Azimuth mark, R. M. No. 1.
Lewis (S. C.), 1934	2, 120, 946. 82 36, 802. 36		
State line monument (N. C.–S. C.), 1934.	2, 112, 359. 57 64, 420. 28		
Blane, 1934	2, 143, 848. 27 47, 341. 28		
Goat (S. C.), 1934	2, 131, 411. 41 39, 836. 92		
Metcalf, 1934	2, 139, 306. 72 55, 735. 40	258 53 30*	Azimuth mark, R. M. No. 3.
Grissett, 1934	2, 151, 002. 61 69, 998. 63	356 36 25*	Azimuth mark, R. M. No. 1.
Seaside, 1934	2, 155, 657. 68 53, 351. 63		
Sylvia, 1934	2, 163, 700. 11 64, 057. 76	62 41 55*	Azimuth mark, R. M. No. 3.
Sauce, 1934	2, 178, 759. 47 70, 471. 10	38 10 15*	Azimuth mark, R. M. No. 2.
Brick, 1934	2, 183, 856. 23 57, 294. 30	185 53 28*	Azimuth mark, R. M. No. 1.
Tar, 1934	2, 193, 191. 06 75, 900. 71	266 00 44*	Azimuth mark, R. M. No. 1.
Hewett, 1934	2, 209, 257. 07 76, 267. 21	211 33 54*	Azimuth mark, R. M. No. 1.
Holden, 1934	2, 224, 257. 09 63, 843. 28	9 30 54*	Azimuth mark, R. M. No. 1.
Lockwood, 1934	2, 224, 441. 84 79, 060. 07	26 36 22*	Azimuth mark, R. M. No. 1.
Bonham, 1934	2, 239, 039. 23 63, 584. 62		
Waterway, 1934	2, 256, 903. 46 65, 644. 53	197 24 10*	Azimuth mark, R. M. No. 3.

[1] No check on this position.
* This azimuth has been computed by the first formula (p. 61), neglecting the second term.

CAPE ROMAIN, S. C., TO CAPE FEAR (SECOND-ORDER)—Continued

Station	*x* coordinate; *y* coordinate	Plane azimuth	Mark
Principal points—Continued			
	Feet	° ′ ″	
Hick, 1933	2,272,091.01 65,021.16		
Pond, 1934	2,277,801.01 57,476.55		
Creek, 1923	2,288,217.48 62,975.62		
Supplementary points			
Tubbs, 1934	2,158,740.70 50,322.49		
Shallotte, 1934	2,193,842.35 65,907.75		
Chadwick, 1934	2,189,726.10 57,556.45		
R. M. 15 (U. S. E.), 1934	2,190,040.92 60,357.50		
R. M. 14 (U. S. E.), 1934	2,193,304.94 58,862.16		
Folly, 1934	2,235,893.44 73,831.16		
Intracoastal Waterway, beacon No. 38, 1934.	2,183,525.67 56,616.63		
Intracoastal Waterway, beacon No. 55, 1934.[1]	2,187,552 58,359		
Intracoastal Waterway, beacon No. 53, 1934.	2,188,904.67 59,598.47		
Little River, beacon No. 8 (S. C.), 1934.[1]	2,129,002 45,989		
Intracoastal Waterway, beacon No. 46 (S. C.), 1934.[1]	2,132,846 42,151		
Intracoastal Waterway, beacon No. 71, 1934.[1]	2,159,204 50,944		
Intracoastal Waterway, beacon No. 51, 1934.	2,190,049.61 59,914.93		
Intracoastal Waterway, beacon No. 34, 1934.	2,193,279.66 58,610.36		
Intracoastal Waterway, beacon No. 35, 1934.	2,209,816.37 61,093.63		
Intracoastal Waterway, beacon No. 32, 1934.	2,221,377.87 61,321.57		
Intracoastal Waterway, beacon No. 14, 1934.[1]	2,239,041 63,289		
Intracoastal Waterway, beacon No. 30, 1934.[1]	2,226,546 62,221		
Intracoastal Waterway, beacon No. 23, 1934.[1]	2,243,386 62,519		
Intracoastal Waterway, beacon No. 29, 1934.[1]	2,223,886 61,890		
Intracoastal Waterway, beacon No. 57, 1934.[1]	2,181,610 56,460		
Intracoastal Waterway, beacon No. 42, 1934.[1]	2,161,460 51,451		
Intracoastal Waterway, beacon No. 73, 1934.[1]	2,156,291 50,515		

[1] No check on this position.

CAPE ROMAIN, S. C., TO CAPE FEAR (SECOND-ORDER)—Continued

Station	x coordinate; y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
Intracoastal Waterway, beacon No. 36, 1934.[1]	2,185,963 57,125		
Intracoastal Waterway, beacon No. 45, 1934.[1]	2,195,433 58,918		
Intracoastal Waterway, beacon No. 61, 1934.[1]	2,176,461 54,903		
Intracoastal Waterway, beacon No. 59, 1934.[1]	2,178,917 55,649		
Intracoastal Waterway, beacon No. 75, 1934.[1]	2,154,272 49,900		
Intracoastal Waterway, beacon No. 77, 1934.[1]	2,151,782 49,144		
R. M. 26 (U. S. E.) 1934[1]	2,143,783 47,186		
Right-of-way, monument 25 (U. S. E.), 1934.[1]	2,239,151 63,382		

UPPER NEUSE RIVER (SECOND-ORDER)

Principal points			
Great Island eccentric, 1932	2,675,244.10 437,117.90		
Wilkinson 2, 1932	2,657,761.35 449,713.74		
Hancock, 1932	2,639,051.54 442,615.57		
Crock, 1932	2,652,717.82 451,833.38		
Whisk, 1932	2,636,562.39 462,679.17		
Tucker, 1932	2,629,995.97 446,308.63		
Dixon, 1932	2,620,228.46 471,423.22		
Seal, 1932	2,612,679.32 457,167.06		
River, 1932	2,604,411.57 466,591.14		
Broad, 1932	2,614,690.23 477,471.73		
West, 1932	2,606,590.98 481,669.32		
Johnson Point Lighthouse, 1932	2,603,355.99 476,863.73		
Rench, 1933	2,598,882.59 480,691.47		
Green, 1933	2,601,931.93 484,915.37		
Fir, 1933	2,598,731.62 488,826.38		
Spring, 1933	2,593,217.71 489,851.60		

[1] No check on this position.

UPPER NEUSE RIVER (SECOND-ORDER)—Continued

Station	*x* coordinate; *y* coordinate	Plane azimuth	Mark
Principal points—Continued			
	Feet	° ′ ″	
Perry, 1932	2, 596, 037. 50 494, 064. 15		
Upper Green Spring Light, 1933	2, 590, 617. 88 492, 952. 93		
Duck Creek, 1932	2, 592, 360. 16 498, 276. 97		
James, 1932	2, 586, 163. 62 494, 437. 93		
Norfolk, 1933	2, 585, 505. 84 497, 993. 37	206 16 10*	First Baptist Church, spire.
New Bern, 1932	2, 587, 645. 80 498, 421. 19		
Supply, 1932	2, 586, 544. 55 498, 397. 99		
Bridge, 1932	2, 591, 667. 30 503, 666. 04		
Just, 1933	2, 587, 710. 42 500, 953. 27		
Blades, 1932	2, 590, 007. 02 505, 844. 91		
Land, 1932	2, 585, 075. 94 504, 583. 59		
Ferry (Lewis), 1933	2, 586, 981. 20 510, 241. 49		
Rowe, 1933	2, 582, 747. 21 508, 618. 12		
Open, 1933	2, 579, 498. 73 512, 986. 91		
Trent, 1932	2, 584, 304. 24 494, 049. 32		
Blinds, 1932	2, 583, 076. 03 494, 633. 75		
Eel, 1932	2, 581, 887. 40 492, 039. 40		
Bluff, 1932	2, 581, 720. 23 490, 585. 79		
Ferry, 1932	2, 580, 859. 24 489, 823. 55		
Supplementary points			
Wilkinson Point Beacon, 1933	2, 659, 012. 63 447, 799. 33		
Clubfoot Beacon, 1933 [1]	2, 671, 649 433, 841		
Hampton Shoal Beacon, 1933	2, 607, 785. 98 469, 575. 91		
Fort Point Beacon, 1933	2, 596, 441. 97 489, 936. 51		
Beacon No. 1, 1933	2, 584, 502. 26 506, 043. 15		
Beacon No. 3, 1933	2, 582, 247. 13 510, 875. 11		
Beacon No. 2, 1933	2, 583, 620. 09 509, 016. 77		

[1] No check on this position
*This azimuth has been computed by the first formula (p. 61), neglecting the second term.

UPPER NEUSE RIVER (SECOND-ORDER)—Continued

Station	x coordinate; y coordinate	Plane azimuth	Mark
Supplementary points—Continued	*Feet*	° ′ ″	
New Bern, standpipe, 1933	2,581,537.44 498,779.35		
New Bern, steel stack, 1933	2,584,412.93 493,855.70		
New Bern Cotton Oil Co., water tank, 1933.	2,585,114.43 503,532.90		
Beacon No. 4, 1933 [1]	2,579,736 513,134		
Bridgeton, white spire, 1933	2,591,993.59 504,568.80		
Bridgeton, Christian Church, spire, 1933.	2,592,487.10 504,198.57		
Bridgeton, stack, 1933	2,591,150.31 504,807.50		
Slocum Creek Beacon, 1933 [1]	2,632,123 444,239		
Otter Creek Beacon, 1933	2,615,557.04 461,183.63		
John, 1932	2,601,799.04 476,709.60		
Lower Green Spring Light, 1933	2,593,642.69 490,068.28		
Great Island 2, 1911 [1]	2,675,199 437,136		
Reed, 1866 [1]	2,639,062 442,689		
Slocum Creek, 1911 [1]	2,630,026 446,315		

LOWNDESVILLE, S. C., TO GASTONIA (SECOND-ORDER)

Principal points			
Jackson, 1935	1,351,418.43 537,043.56	74 22 40*	Azimuth mark.
Clover (S. C.), 1935	1,332,271.77 502,144.58	254 31 50*	Azimuth mark.
Smyrna (S. C.), 1935	1,280,142.22 479,207.91	347 30 24*	Azimuth mark.
Whitaker (S. C.), 1935	1,251,779.16 514,208.41	346 11 36*	Azimuth mark (S. C. Geod. S.)
Supplementary points			
Flagpole at King, 1933 [1]	1,309,221.20 538,526.93		
Carolina, 1935	1,339,854.04 519,988.73	336 40 03*	Azimuth mark.
Kings Mountain Battle Monument, tip (S. C.), 1935.	1,288,322.32 515,272.52		
C. K. 19 (S. C. Geod. S.) eccentric (S. C.), 1935.	1,267,602.29 525,008.09	14 05 55*	C. K. 18 (S. C. Geod. S.).

[1] No check on this position.
*This azimuth has been computed by the first formula (p. 61), neglecting the second term.

LOWNDESVILLE, S. C., TO GASTONIA (SECOND-ORDER)—Continued

Station	x coordinate; y coordinate	Plane azimuth	Mark
Supplementary points—Continued			
	Feet	° ′ ″	
C. K. 19 (S. C. Geod. S.) (S. C.), 1935 [1]	1,267,656.05 525,123.76		
Thicketty 2 (S. C.), 1935	1,172,012.40 507,674.85	187 39 47*	Azimuth mark, C. K. 55 (S. C. Geod. S.).
Kings Mountain, airway beacon, 200 mile blinker, Atlanta-New York, 1935.	1,309,225.16 538,515.32		
Clover, municipal water tank (S. C.), 1935.	1,332,553.36 502,162.11		
Airway beacon No. 18, flashing green, Atlanta-New York (S. C.), 1935.	1,255,703.46 508,342.52		
Airway beacon, 188 mile, red blinker, Atlanta-New York (S. C.), 1935.[1]	1,251,754.32 514,201.76		

BUCKSPORT, S. C., TO OSCEOLA, S. C. (SECOND-ORDER)

Principal points			
Parker (S. C.), 1935	1,510,771.62 376,551.02	174 01 52*	Azimuth mark.
Altan, 1935	1,540,621.66 415,009.47	78 33 11*	Azimuth mark.
Page (S. C.), 1935	1,576,835.09 373,244.18	253 47 09*	Azimuth mark, C. F. 108 (S. C. Geod. S.).
Taxahaw (S. C.), 1935	1,544,581.42 345,824.41	263 37 07*	Azimuth mark.
Supplementary point			
Transit traverse station No. 1 B (U. S. G. S.) (S. C.), 1935.	1,512,080.49 392,706.48	18 12 41*	Azimuth mark.

[1] No check on this position.
*This azimuth has been computed by the first formula (p. 61), neglecting the second term.

EXPLANATION OF PLANE-COORDINATE PROJECTION TABLES

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

There are several ways in which the table of scales can be used on the Lambert grids. The factors are listed for every minute of latitude and the most rigid method of using them is to determine the mean latitude of each line of a survey and interpolate for this value. But in general we do not have the latitudes of the stations of a survey and hence we have no means of computing the latitude of the middle of a given line. If United States Geological Survey quadrangle maps for the region are available, a traverse can be plotted on them approximately by angles and distances, and then the lati-

tudes of the middle points of the various lines can be scaled from the maps. This has been found to be very satisfactory in a general way. Unfortunately, these maps are not always available and for many sections of the country no such maps have yet been made.

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

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

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

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

PLANE-COORDINATE PROJECTION TABLES

TABLE OF CONSTANTS

Standard parallel (south)	34°20′
Standard parallel (north)	36°10′
Central meridian	79°
l	0. 57717077
log l	9. 76130433–10
log K	7. 63584334
y_0 (feet)	546, 551. 78
$\log \frac{1}{2\rho_0^2 \sin 1''}$	0. 3730186–10

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

TABLE I

Latitude	R	y' (y value on the central meridian)	Tabular difference of R for 1 second of latitude	Scale correction expressed in units of the seventh place of logarithms	Scale correction expressed as a ratio
° ′	*Feet*	*Feet*	*Feet*		
33 45	30, 183, 611. 25	0. 00	101. 10250	+923	1. 000212
46	30, 177, 545. 10	6, 066. 15	200	891	205
47	30, 171, 478. 98	12, 132. 27	150	858	198
48	30, 165, 412. 89	18, 198. 36	100	826	190
49	30, 159, 346. 83	24, 264. 42	067	795	183
50	30, 153, 280. 79	30, 330. 46	10017	763	176
33 51	30, 147, 214. 78	36, 396. 47	101. 09967	+734	1. 000169
52	30, 141, 148. 80	42, 462. 45	933	704	162
53	30, 135, 082. 84	48, 528. 41	883	674	155
54	30, 129, 016. 91	54, 594. 34	833	644	148
55	30, 122, 951. 01	60, 660. 24	800	615	142
33 56	30, 116, 885. 13	66, 726. 12	101. 09767	+587	1. 000135
57	30, 110, 819. 27	72, 791. 98	733	557	128
58	30, 104, 753. 43	78, 857. 82	700	529	122
33 59	30, 098, 687. 61	84, 923. 64	650	501	115
34 00	30, 092, 621. 82	90, 989. 43	600	472	109
34 01	30, 086, 556. 06	97, 055. 19	101. 09583	+446	1. 000103
02	30, 080, 490. 31	103, 120. 94	567	420	097
03	30, 074, 424. 57	109, 186. 68	533	394	091
04	30, 068, 358. 85	115, 252. 40	483	368	085
05	30, 062, 293. 16	121, 318. 09	450	342	079
34 06	30, 056, 227. 49	127, 383. 76	101. 09433	+316	1. 000073
07	30, 050, 161. 83	133, 449. 42	400	292	067
08	30, 044, 096. 19	139, 515. 06	367	267	062
09	30, 038, 030. 57	145, 580. 68	333	243	056
10	30, 031, 964. 97	151, 646. 28	333	219	050
34 11	30, 025, 899. 37	157, 711. 88	101. 09317	+196	1. 000045
12	30, 019, 833. 78	163, 777. 47	283	172	040
13	30, 013, 768. 21	169, 843. 04	250	150	034
14	30, 007, 702. 66	175, 908. 59	217	127	029
15	30, 001, 637. 13	181, 974. 12	183	105	024
34 16	29, 995, 571. 62	188, 039. 63	101. 09150	+83	1. 000019
17	29, 989, 506. 13	194, 105. 12	117	62	014
18	29, 983, 440. 66	200, 170. 59	100	41	009
19	29, 977, 375. 20	206, 236. 05	083	21	005
20	29, 971, 309. 75	212, 301. 50	067	0	1. 000000
34 21	29, 965, 244. 31	218, 366. 94	101. 09067	−20	0. 999995
22	29, 959, 178. 87	224, 432. 38	050	40	991
23	29, 953, 113. 44	230, 497. 81	033	59	987
24	29, 947, 048. 02	236, 563. 23	000	77	982
25	29, 940, 982. 62	242, 628. 63	09000	96	978

TABLE I—Continued

Latitude		R	y' (y value on the central meridian)	Tabular difference of R for 1 *second* of latitude	Scale correction expressed in units of the seventh place of logarithms	Scale correction expressed as a ratio
°	′	*Feet*	*Feet*	*Feet*		
34	26	29, 934, 917. 22	248, 694. 03	101. 08983	−114	0. 999974
	27	29, 928, 851. 83	254, 759. 42	983	131	970
	28	29, 922, 786. 44	260, 824. 81	950	149	966
	29	29, 916, 721. 07	266, 890. 18	950	166	962
	30	29, 910, 655. 70	272, 955. 55	950	182	958
34	31	29, 904, 590. 33	279, 020. 92	101. 08933	−199	0. 999954
	32	29, 898, 524. 97	285, 086. 28	917	215	950
	33	29, 892, 459. 62	291, 151. 63	917	230	947
	34	29, 886, 394. 27	297, 216. 98	900	245	944
	35	29, 880, 328. 93	303, 282. 32	900	260	940
34	36	29, 874, 263. 59	309, 347. 66	101. 08900	−275	0. 999937
	37	29, 868, 198. 25	315, 413. 00	883	288	934
	38	29, 862, 132. 92	321, 478. 33	900	302	930
	39	29, 856, 067. 58	327, 543. 67	900	316	927
	40	29, 850, 002. 24	333, 609. 01	883	329	924
34	41	29, 843, 936. 91	339, 674. 34	101. 08883	−341	0. 999921
	42	29, 837, 871. 58	345, 739. 67	883	353	919
	43	29, 831, 806. 25	351, 805. 00	883	365	916
	44	29, 825, 740. 92	357, 870. 33	883	377	913
	45	29, 819, 675. 59	363, 935. 66	883	387	911
34	46	29, 813, 610. 26	370, 000. 99	101. 08900	−399	0. 999908
	47	29, 807, 544. 92	376, 066. 33	883	410	906
	48	29, 801, 479. 59	382, 131. 66	900	419	903
	49	29, 795, 414. 25	388, 197. 00	900	428	901
	50	29, 789, 348. 91	394, 262. 34	917	438	899
34	51	29, 783, 283. 56	400, 327. 69	101. 08917	−447	0. 999897
	52	29, 777, 218. 21	406, 393. 04	933	455	895
	53	29, 771, 152. 85	412, 458. 40	933	464	893
	54	29, 765, 087. 49	418, 523. 76	950	472	891
	55	29, 759, 022. 12	424, 589. 13	967	479	890
34	56	29, 752, 956. 74	430, 654. 51	101. 08967	−486	0. 999888
	57	29, 746, 891. 36	436, 719. 89	09000	493	887
	58	29, 740, 825. 96	442, 785. 29	000	499	885
34	59	29, 734, 760. 56	448, 850. 69	017	506	883
35	00	29, 728, 695. 15	454, 916. 10	033	511	882
35	01	29, 722, 629. 73	460, 981. 52	101. 09050	−516	0. 999881
	02	29, 716, 564. 30	467, 046. 95	050	522	880
	03	29, 710, 498. 87	473, 112. 38	083	526	879
	04	29, 704, 433. 42	479, 177. 83	100	530	878
	05	29, 698, 367. 96	485, 243. 29	117	534	877
35	06	29, 692, 302. 49	491, 308. 76	101. 09133	−538	0. 999876
	07	29, 686, 237. 01	497, 374. 24	167	542	875
	08	29, 680, 171. 51	503, 439. 74	183	545	875
	09	29, 674, 106. 00	509, 505. 25	200	547	874
	10	29, 668, 040. 48	515, 570. 77	233	549	874
35	11	29, 661, 974. 94	521, 636. 31	101. 09250	−551	0. 999873
	12	29, 655, 909. 39	527, 701. 86	283	552	873
	13	29, 649, 843. 82	533, 767. 43	300	552	873
	14	29, 643, 778. 24	539, 833. 01	333	553	873
	15	29, 637, 712. 64	545, 898. 61	350	554	873
35	16	29, 631, 647. 03	551, 964. 22	101. 09400	−553	0. 999873
	17	29, 625, 581. 39	558, 029. 86	433	552	873
	18	29, 619, 515. 73	564, 095. 52	450	552	873
	19	29, 613, 450. 06	570, 161. 19	483	551	873
	20	29, 607, 384. 37	576, 226. 88	517	549	874
35	21	29, 601, 318. 66	582, 292. 59	101. 09550	−547	0. 999874
	22	29, 595, 252. 93	588, 358. 32	583	545	875
	23	29, 589, 187. 18	594, 424. 07	600	542	875
	24	29, 583, 121. 42	600, 489. 83	650	539	876
	25	29, 577, 055. 63	606, 555. 62	700	535	877
35	26	29, 570, 989. 81	612, 621. 44	101. 09733	−531	0. 999878
	27	29, 564, 923. 97	618, 687. 28	767	527	879
	28	29, 558, 858. 11	624, 753. 14	783	522	880
	29	29, 552, 792. 24	630, 819. 01	833	517	881
	30	29, 546, 726. 34	636, 884. 91	867	512	882

TABLE I—Continued

Latitude		R	y' (y value on the central meridian)	Tabular difference of R for 1 second of latitude	Scale correction expressed in units of the seventh place of logarithms	Scale correction expressed as a ratio
°	′	*Feet*	*Feet*	*Feet*		
35	31	29, 540, 660. 42	642, 950. 83	101. 09917	−507	0. 999883
	32	29, 534, 594. 47	649, 016. 78	09967	500	885
	33	29, 528, 528. 49	655, 082. 76	10033	495	886
	34	29, 522, 462. 47	661, 148. 78	067	488	888
	35	29. 516, 396. 43	667. 214. 82	100	481	889
35	36	29, 510, 330. 37	673, 280. 88	101. 10150	−474	0. 999891
	37	29, 504, 264. 28	679, 346. 97	200	466	893
	38	29, 498, 198. 16	685, 413. 09	233	458	895
	39	29, 492, 132. 02	691, 479. 23	300	449	897
	40	29. 486, 065. 84	697, 545. 41	350	439	899
35	41	29, 479, 999. 63	703. 611. 62	101. 10383	−430	0. 999901
	42	29, 473, 933. 40	709, 677. 85	450	420	903
	43	29. 467, 867. 13	715, 744. 12	500	410	905
	44	29. 461, 800. 83	721, 810. 42	550	400	908
	45	29. 455, 734. 50	727. 876. 75	600	389	910
35	46	29. 449, 668. 14	733, 943. 11	101. 10667	−378	0. 999913
	47	29. 443, 601. 74	740, 009. 51	717	366	916
	48	29. 437, 535. 31	746, 075. 94	767	354	918
	49	29, 431, 468. 85	752, 142. 40	833	342	921
	50	29, 425, 402. 35	758, 208. 90	883	330	924
35	51	29, 419, 335. 82	764, 275. 43	101. 10950	−317	0. 999927
	52	29, 413, 269. 25	770, 342. 00	11017	304	930
	53	29, 407, 202. 64	776, 408. 61	067	290	933
	54	29, 401, 136. 00	782, 475. 25	117	276	937
	55	29. 395, 069. 33	788, 541. 92	200	262	940
35	56	29, 389, 002. 61	794, 608. 64	101. 11250	−246	0. 999943
	57	29, 382, 935. 86	800, 675. 39	317	222	947
	58	29, 376, 869. 07	806, 742. 18	383	216	950
35	59	29, 370, 802. 24	812, 809. 01	450	200	954
36	00	29, 364, 735. 37	818, 875. 88	517	183	958
36	01	29, 358, 668. 46	824, 942. 79	101. 11583	−166	0. 999962
	02	29, 352, 601. 51	831, 009. 74	650	149	966
	03	29, 346, 534. 52	837, 076. 73	733	132	970
	04	29, 340, 467. 48	843, 143. 77	783	115	973
	05	29. 334, 400. 41	849, 210. 84	867	97	978
36	06	29, 328, 333. 29	855, 277. 96	101. 11933	−78	0. 999982
	07	29, 322, 266. 13	861, 345. 12	12017	59	986
	08	29. 316, 198. 92	867, 412. 33	083	40	991
	09	29, 310. 131. 67	873. 479. 58	150	20	0. 999995
	10	29, 304, 064. 38	879, 546. 87	233	0	1. 000000
36	11	29. 297, 997. 04	885, 614. 21	101. 12317	+21	1. 000005
	12	29. 291. 929. 65	891. 681. 60	383	41	009
	13	29, 285, 862. 22	897, 749. 03	467	62	014
	14	29, 279, 794. 74	903. 816. 51	533	84	019
	15	29, 273, 727. 22	909, 884. 03	617	106	024
36	16	29. 267, 659. 65	915, 951. 60	101. 12717	+127	1. 000029
	17	29, 261, 592. 02	922. 019. 23	800	150	034
	18	29, 255, 524. 34	928, 086. 91	867	173	040
	19	29, 249, 456. 62	934, 154. 63	12950	196	045
	20	29, 243, 388. 85	940, 222. 40	13033	220	051
36	21	29, 237, 321. 03	946. 290. 22	101. 13117	+245	1. 000056
	22	29, 231, 253. 16	952, 358. 09	217	270	062
	23	29, 225, 185. 23	958, 426. 02	283	294	068
	24	29, 219, 117. 26	964, 493. 99	383	320	074
	25	29, 213, 049. 23	970, 562. 02	467	345	079
36	26	29, 206, 981. 15	976, 630. 10	101. 13567	+370	1. 000085
	27	29, 200, 913. 01	982, 698. 24	633	397	091
	28	29, 194, 844. 83	988. 766. 42	733	424	098
	29	29, 188, 776. 59	994, 834. 66	833	451	104
	30	29. 182, 708. 29	1, 000, 902. 96	13933	478	110
36	31	29, 176, 639. 93	1, 006, 971. 32	101. 14017	+506	1. 000117
	32	29, 170, 571. 52	1, 013, 039. 73	100	535	123
	33	29. 164, 503. 06	1, 019, 108. 19	217	563	130
	34	29, 158, 434. 53	1, 025, 176. 72	300	593	137
	35	29, 152, 365. 95	1, 031, 245. 30	417	622	143
36	36	29, 146, 297. 30	1, 037, 313. 95	101. 14500	+652	1. 000150
	37	29, 140, 228. 60	1, 043, 382. 65	600	680	157
	38	29, 134, 159. 84	1, 049, 451. 41	717	710	163
	39	29, 128, 091. 01	1, 055, 520. 24	800	742	171
	40	29, 122, 022. 13	1, 061, 589. 12		773	178

TABLE II

[1″ of longitude = 0″.57717077 of θ]

Longitude		θ			Longitude		θ			Longitude		θ		
°	′	°	′	″	°	′	°	′	″	°	′	°	′	″
75	20	+2	06	58.6542										
	21		06	24.0239	76	26	+1	28	53.0579	77	31	+0	51	22.0919
	22		05	49.3937		27		28	18.4277		32		50	47.4617
	23		05	14.7634		28		27	43.7974		33		50	12.8314
	24		04	40.1332		29		27	09.1672		34		49	38.2012
	25		04	05.5029		30		26	34.5369		35		49	03.5709
75	26	+2	03	30.8727	76	31	+1	25	59.9067	77	36	+0	48	28.9407
	27		02	56.2424		32		25	25.2764		37		47	54.3104
	28		02	21.6122		33		24	50.6462		38		47	19.6802
	29		01	46.9819		34		24	16.0159		39		46	45.0499
	30		01	12.3517		35		23	41.3857		40		46	10.4197
75	31	+2	00	37.7215	76	36	+1	23	06.7555	77	41	+0	45	35.7894
	32	+2	00	03.0912		37		22	32.1252		42		45	01.1592
	33	+1	59	28.4610		38		21	57.4950		43		44	26.5290
	34		58	53.8307		39		21	22.8647		44		43	51.8987
	35		58	19.2005		40		20	48.2345		45		43	17.2685
75	36	+1	57	44.5702	76	41	+1	20	13.6042	77	46	+0	42	42.6382
	37		57	09.9400		42		19	38.9740		47		42	08.0080
	38		56	35.3097		43		19	04.3437		48		41	33.3777
	39		56	00.6795		44		18	29.7135		49		40	58.7475
	40		55	26.0492		45		17	55.0832		50		40	24.1172
75	41	+1	54	51.4190	76	46	+1	17	20.4530	77	51	+0	39	49.4870
	42		54	16.7887		47		16	45.8227		52		39	14.8567
	43		53	42.1585		48		16	11.1925		53		38	40.2265
	44		53	07.5283		49		15	36.5623		54		38	05.5962
	45		52	32.8980		50		15	01.9320		55		37	30.9660
75	46	+1	51	58.2678	76	51	+1	14	27.3018	77	56	+0	36	56.3358
	47		51	23.6375		52		13	52.6715		57		36	21.7055
	48		50	49.0073		53		13	18.0413		58		35	47.0753
	49		50	14.3770		54		12	43.4110	77	59		35	12.4450
	50		49	39.7468		55		12	08.7808	78	00		34	37.8148
75	51	+1	49	05.1165	76	56	+1	11	34.1505	78	01	+0	34	03.1845
	52		48	30.4863		57		10	59.5203		02		33	28.5543
	53		47	55.8560		58		10	24.8900		03		32	53.9240
	54		47	21.2258	76	59		09	50.2598		04		32	19.2938
	55		46	46.5955	77	00		09	15.6295		05		31	44.6635
75	56	+1	46	11.9653	77	01	+1	08	40.9993	78	06	+0	31	10.0333
	57		45	37.3351		02		08	06.3691		07		30	35.4030
	58		45	02.7048		03		07	31.7388		08		30	00.7728
75	59		44	28.0746		04		06	57.1086		09		29	26.1426
76	00		43	53.4443		05		06	22.4783		10		28	51.5123
76	01	+1	43	18.8141	77	06	+1	05	47.8481	78	11	+0	28	16.8821
	02		42	44.1838		07		05	13.2178		12		27	42.2518
	03		42	09.5536		08		04	38.5876		13		27	07.6216
	04		41	34.9233		09		04	03.9573		14		26	32.9913
	05		41	00.2931		10		03	29.3271		15		25	58.3611
76	06	+1	40	25.6628	77	11	+1	02	54.6968	78	16	+0	25	23.7308
	07		39	51.0326		12		02	20.0666		17		24	49.1006
	08		39	16.4023		13		01	45.4363		18		24	14.4703
	09		38	41.7721		14		01	10.8061		19		23	39.8401
	10		38	07.1419		15		00	36.1759		20		23	05.2098
76	11	+1	37	32.5116	77	16	+1	00	01.5456	78	21	+0	22	30.5796
	12		36	57.8814		17	+0	59	26.9154		22		21	55.9494
	13		36	23.2511		18		58	52.2851		23		21	21.3191
	14		35	48.6209		19		58	17.6549		24		20	46.6889
	15		35	13.9906		20		57	43.0246		25		20	12.0586
76	16	+1	34	39.3604	77	21	+0	57	08.3944	78	26	+0	19	37.4284
	17		34	04.7301		22		56	33.7641		27		19	02.7981
	18		33	30.0999		23		55	59.1339		28		18	28.1679
	19		32	55.4696		24		55	24.5036		29		17	53.5376
	20		32	20.8394		25		54	49.8734		30		17	18.9074
76	21	+1	31	46.2091	77	26	+0	54	15.2431	78	31	+0	16	44.2771
	22		31	11.5789		27		53	40.6129		32		16	09.6469
	23		30	36.9487		28		53	05.9827		33		15	35.0166
	24		30	02.3184		29		52	31.3524		34		15	00.3864
	25		29	27.6882		30		51	56.7222		35		14	25.7562

TABLE II—Continued

[1″ of longitude=0″.57717077 of θ]

Longitude		θ			Long itude		θ			Longitude		θ		
°	′	°	′	″	°	′	°	′	″	°	′	°	′	″
78	36	+0	13	51.1259	79	41	−0	23	39.8401	80	46	−1	01	10.8061
	37		13	16.4957		42		24	14.4703		47		01	45.4363
	38		12	41.8654		43		24	49.1006		48		02	20.0666
	39		12	07.2352		44		25	23.7308		49		02	54.6968
	40		11	32.6049		45		25	58.3611		50		03	29.3271
78	41	+0	10	57.9747	79	46	−0	26	32.9913	80	51	−1	04	03.9573
	42		10	23.3444		47		27	07.6216		52		04	38.5876
	43		09	48.7142		48		27	42.2518		53		05	13.2178
	44		09	14.0839		49		28	16.8821		54		05	47.8481
	45		08	39.4537		50		28	51.5123		55		06	22.4783
78	46	+0	08	04.8234	79	51	−0	29	26.1426	80	56	−1	06	57.1086
	47		07	30.1932		52		30	00.7728		57		07	31.7388
	48		06	55.5630		53		30	35.4030		58		08	06.3691
	49		06	20.9327		54		31	10.0333	80	59		08	40.9993
	50		05	46.3025		55		31	44.6635	81	00		09	15.6295
78	51	+0	05	11.6722	79	56	−0	32	19.2938	81	01	−1	09	50.2598
	52		04	37.0420		57		32	53.9240		02		10	24.8900
	53		04	02.4117		58		33	28.5543		03		10	59.5203
	54		03	27.7815	79	59		34	03.1845		04		11	34.1505
	55		02	53.1512	80	00		34	37.8148		05		12	08.7808
78	56	+0	02	18.5210	80	01	−0	35	12.4450	81	06	−1	12	43.4110
	57		01	43.8907		02		35	47.0753		07		13	18.0413
	58		01	09.2605		03		36	21.7055		08		13	52.6715
78	59		00	34.6302		04		36	56.3358		09		14	27.3018
79	00		00	00.0000		05		37	30.9660		10		15	01.9320
79	01	−0	00	34.6302	80	06	−0	38	05.5962	81	11	−1	15	36.5623
	02		01	09.2605		07		38	40.2265		12		16	11.1925
	03		01	43.8907		08		39	14.8567		13		16	45.8227
	04		02	18.5210		09		39	49.4870		14		17	20.4530
	05		02	53.1512		10		40	24.1172		15		17	55.0832
79	06	−0	03	27.7815	80	11	−0	40	58.7475	81	16	−1	18	29.7135
	07		04	02.4117		12		41	33.3777		17		19	04.3437
	08		04	37.0420		13		42	08.0080		18		19	38.9740
	09		05	11.6722		14		42	42.6382		19		20	13.6042
	10		05	46.3025		15		43	17.2685		20		20	48.2345
79	11	−0	06	20.9327	80	16	−0	43	51.8987	81	21	−1	21	22.8647
	12		06	55.5630		17		44	26.5290		21		21	57.4950
	13		07	30.1932		18		45	01.1592		22		22	32.1252
	14		08	04.8234		19		45	35.7894		23		23	06.7555
	15		08	39.4537		20		46	10.4197		25		23	41.3857
79	16	−0	09	14.0839	80	21	−0	46	45.0499	81	26	−1	24	16.0159
	17		09	48.7142		22		47	19.6802		27		24	50.6462
	18		10	23.3444		23		47	54.3104		28		25	25.2764
	19		10	57.9747		24		48	28.9407		29		25	59.9067
	20		11	32.6049		25		49	03.5709		30		26	34.5369
79	21	−0	12	07.2352	80	26	−0	49	38.2012	81	31	−1	27	09.1672
	22		12	41.8654		27		50	12.8314		32		27	43.7974
	23		13	16.4957		28		50	47.4617		33		28	18.4277
	24		13	51.1259		29		51	22.0919		34		28	53.0579
	25		14	25.7562		30		51	56.7222		35		29	27.6882
79	26	−0	15	00.3864	80	31	−0	52	31.3524	81	36	−1	30	02.3184
	27		15	35.0166		32		53	05.9827		37		30	36.9487
	28		16	09.6469		33		53	40.6129		38		31	11.5789
	29		16	44.2771		34		54	15.2431		39		31	46.2091
	30		17	18.9074		35		54	49.8734		40		32	20.8394
79	31	−0	17	53.5376	80	36	−0	55	24.5036	81	41	−1	32	55.4696
	32		18	28.1679		37		55	59.1339		42		33	30.0999
	33		19	02.7981		38		56	33.7641		43		34	04.7301
	34		19	37.4284		39		57	08.3944		44		34	39.3604
	35		20	12.0586		40		57	43.0246		45		35	13.9906
79	36	−0	20	46.6889	80	41	−0	58	17.6549	81	46	−1	35	48.6209
	37		21	21.3191		42		58	52.2851		47		36	23.2511
	38		21	55.9494		43	−0	59	26.9154		48		36	57.8814
	39		22	30.5796		44	−1	00	01.5456		49		37	32.5116
	40		23	05.2098		45		00	36.1759		50		38	07.1419

TABLE II—Continued

[1″ of longitude=0″.57717077 of θ]

Longitude		θ			Longitude		θ			Longitude		θ		
°	′	°	′	″	°	′	°	′	″	°	′	°	′	″
81	51	−1	38	41.7721	82	46	−2	10	26.4356	83	41	−2	42	11.0992
	52		39	16.4023		47		11	01.0659		42		42	45.7294
	53		39	51.0326		48		11	35.6961		43		43	20.3597
	54		40	25.6628		49		12	10.3264		44		43	54.9899
	55		41	00.2931		50		12	44.9566		45		44	29.6202
81	56	−1	41	34.9233	82	51	−2	13	19.5869	83	46	−2	45	04.2504
	57		42	09.5536		52		13	54.2171		47		45	38.8807
	58		42	44.1838		53		14	28.8474		48		46	13.5109
81	59		43	18.8141		54		15	03.4776		49		46	48.1412
82	00		43	53.4443		55		15	38.1079		50		47	22.7714
82	01	−1	44	28.0746	82	56	−2	16	12.7381	83	51	−2	47	57.4016
	02		45	02.7048		57		16	47.3683		52		48	32.0319
	03		45	37.3351		58		17	21.9986		53		49	06.6621
	04		46	11.9653	82	59		17	56.6288		54		49	41.2924
	05		46	46.5955	83	00		18	31.2591		55		50	15.9226
82	06	−1	47	21.2258	83	01	−2	19	05.8893	83	56	−2	50	50.5529
	07		47	55.8560		02		19	40.5196		57		51	25.1831
	08		48	30.4863		03		20	15.1498		58		51	59.8134
	09		49	05.1165		04		20	49.7801	83	59		52	34.4436
	10		49	39.7468		05		21	24.4103	84	00		53	09.0739
82	11	−1	50	14.3770	83	06	−2	21	59.0406	84	01	−2	53	43.7041
	12		50	49.0073		07		22	33.6708		02		54	18.3344
	13		51	23.6375		08		23	08.3011		03		54	52.9646
	14		51	58.2678		09		23	42.9313		04		55	27.5948
	15		52	32.8980		10		24	17.5616		05		56	02.2251
82	16	−1	53	07.5283	83	11	−2	24	52.1918	84	06	−2	56	36.8553
	17		53	42.1585		12		25	26.8220		07		57	11.4856
	18		54	16.7887		13		26	01.4523		08		57	46.1158
	19		54	51.4190		14		26	36.0825		09		58	20.7461
	20		55	26.0492		15		27	10.7128		10		58	55.3763
82	21	−1	56	00.6795	83	16	−2	27	45.3430	84	11	−2	59	30.0066
	22		56	35.3097		17		28	19.9733		12	−3	00	04.6368
	23		57	09.9400		18		28	54.6035		13		00	39.2671
	24		57	44.5702		19		29	29.2338		14		01	13.8973
	25		58	19.2005		20		30	03.8640		15		01	48.5276
82	26	−1	58	53.8307	83	21	−2	30	38.4943	84	16	−3	02	23.1578
	27	−1	59	28.4610		22		31	13.1245		17		02	57.7880
	28	−2	00	03.0912		23		31	47.7548		18		03	32.4183
	29		00	37.7215		24		32	22.3850		19		04	07.0485
	30		01	12.3517		25		32	57.0152		20		04	41.6788
82	31	−2	01	46.9819	83	26	−2	33	31.6455	84	21	−3	05	16.3090
	32		02	21.6122		27		34	06.2757		22		05	50.9393
	33		02	56.2424		28		34	40.9060		23		06	25.5695
	34		03	30.8727		29		35	15.5362		24		07	00.1998
	35		04	05.5029		30		35	50.1665		25		07	34.8300
82	36	−2	04	40.1332	83	31	−2	36	24.7967	84	26	−3	08	09.4603
	37		05	14.7634		32		36	59.4270		27		08	44.0905
	38		05	49.3937		33		37	34.0572		28		09	18.7208
	39		06	24.0239		34		38	08.6875		29		09	53.3510
	40		06	58.6542		35		38	43.3177		30		10	27.9812
82	41	−2	07	33.2844	83	36	−2	39	17.9480					
	42		08	07.9147		37		39	52.5782					
	43		08	42.5449		38		40	27.2084					
	44		09	17.1751		39		41	01.8387					
	45		09	51.8054		40		41	36.4689					

DESCRIPTIONS OF TRIANGULATION AND TRAVERSE STATIONS

This list of descriptions of stations may be conveniently consulted by reference to the illustrations at the end of this publication or to the index on page 181. All azimuths given in the descriptions are reckoned continuously from true south around by west to 360°, south being 0°, west 90°, north 180°, and east 270°. Where magnetic azimuths are given they are indicated as such. The distance between the station and reference mark is the horizontal distance unless otherwise noted. In general, except where the contrary is specifically stated, the surface and underground marks are not in contact, so that a disturbance of the surface mark will not necessarily affect the underground mark. The underground mark should be resorted to only in cases where there is evidence that the surface mark has been disturbed.

The name and dates given in each description immediately after the county refer to the chief of party by whom the station was established, the date of the establishment of the station, and the date when the station was last recovered. Any person who finds that one of the stations herein described has been disturbed or that the description no longer fits the facts is requested to send such information to the Director, United States Coast and Geodetic Survey, Washington, D. C.

The standard station and reference marks (see fig. 2) 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 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 Director, Washington, D. C. $250 fine or imprisonment for disturbing this mark." The shank is 25 millimeters in diameter and 80 millimeters long, with a slit at the lower end into which a wedge is inserted, so that when it is driven into a drill hole in the rock it will bulge at the bottom and hold the mark firmly in place. In recent years the slits in the stems of both station and reference disks have been enlarged so that the two prongs may be spread far apart and set in concrete without the use of a wedge. The marks used between about 1915 and 1920 have grooves cut around the shank instead of the slit.

The standard reference mark (shown in fig. 2) is the same size and shape as the station mark, with an arrow on the top in place of the triangle, which, when properly set, points to the station. The legend is the same, except the words "reference mark" take the place of the words "triangulation station."

The standard azimuth mark, referred to on pages 12 and 60, is also shown in figure 2. 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 bench mark (shown in fig. 2) is the same size and shape as the station mark, with a straight line on the top instead of the triangle. When this bench mark is set in place in a vertical position, as in the side of a building, the line is placed horizontal and is the mark to which the elevation refers.

In this volume appear a number of stations established by other survey agencies of the United States and State Governments, namely: United States Geological Survey (U. S. G. S.); United States Engineers

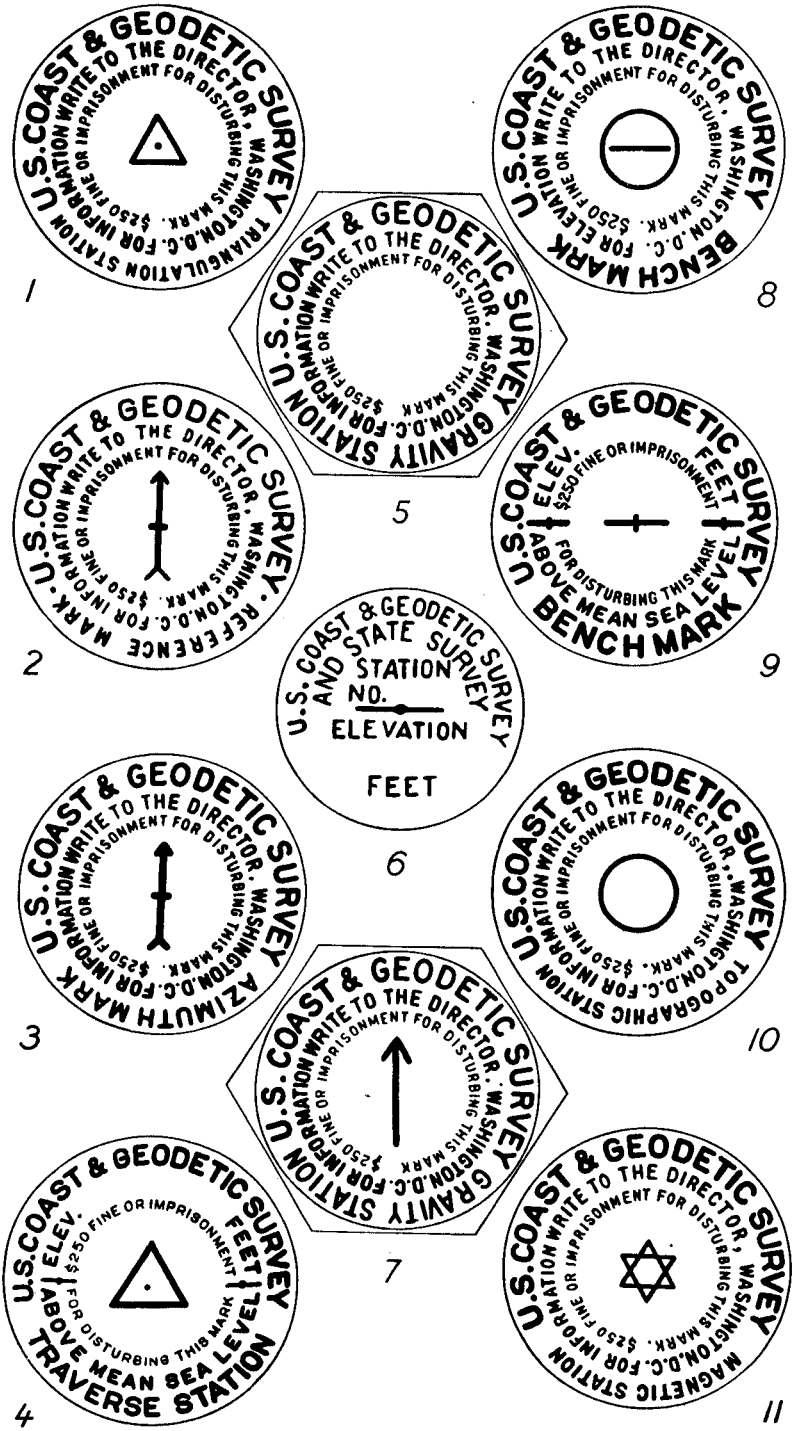

FIGURE 2.—Standard marks of the United States Coast and Geodetic Survey.

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

(U. S. E.); North Carolina Department of Conservation and Development (N. C. D. C. & D.); and South Carolina Geodetic Survey (S. C. Geod. S.). These stations have been occupied or observed on by the United States Coast and Geodetic Survey.

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.

STANDARD NOTES ON MARKING OF STATIONS

Surface marks

Note 1.—A standard bronze tablet 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 bronze tablet 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 bronze tablet set in concrete in a depression in outcropping bedrock.

Note 4.—A standard bronze tablet wedged in a drill hole in a boulder.

Note 5.—A standard bronze tablet set in concrete in a depression in a boulder.

Note 6.—A standard bronze tablet 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 bronze tablet, (*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 bronze tablet wedged in a drill hole, (*b*) a standard bronze tablet set in concrete in a depression, (*c*) a copper bolt set in cement in a drill hole or depression, (*d*) an iron spike set point up in cement in a drill hole or depression.

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

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

Reference and azimuth marks

Note 11.—A standard bronze tablet, 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 bronze tablet, 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 bronze tablet, with the arrow pointing toward the station, set in concrete at the center of the top of a tile, (*a*) which is embedded in the ground, (*b*) which is surrounded by a mass of concrete, (*c*) which is fastened by

means of concrete to the upper end of a long wooden pile driven into the marsh, (*d*) which is set in a block of concrete and projects from 12 to 20 inches above the block.

Witness marks

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

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

DESCRIPTIONS

WASHINGTON TO PAMLICO SOUND, CORE SOUND

Principal points

Bluff Shoal Lighthouse (Hyde County, G. L. Anderson, 1935).—At Pamlico Sound. Station is center of light which is on brown skeleton tower on brown piles about 40 feet high. Lighthouse was rebuilt in 1935, therefore 1904 station was considered lost.

Whale (Carteret County, G. C. Mattison, 1933; 1935).—About 6 miles south of Portsmouth on Portsmouth Island, adjacent to Whalebone Inlet in southeastern part of Pamlico Sound, on high sand dune on side of island toward sound, about 125 yards southeast of shore, 30 yards from small pond and 15.3 meters (50 feet) from more westerly extremity of shore. Surface mark is standard disk in concrete at center of top of tile, note 6a. Underground mark is standard disk in concrete, note 7a. Reference mark No. 1 is standard disk in concrete, note 11a, in flat, open marsh near southeast end of small pond and 24.64 meters (80.8 feet) from station in azimuth 310°46′. Reference mark No. 2 is standard disk in concrete on center of top of tile, note 13a, in flat, open marsh off from northwest end of small pond and 31.96 meters (104.9 feet) from station in azimuth 224°51′.

North (Carteret County, J. H. Hawley, 1920; 1935).—At Pamlico Sound, on point at entrance to Cedar Island Bay, on east side. Point is about 1 mile north and on opposite side of North Bay from point known as Western Point. It is located close to western limit of grassy area on point which rounds gradually. From grassy area a long sand spit makes out to westward and swampy land is back of area. Surface mark is standard disk in concrete set in upper end of long wooden pile driven into marsh, note 6c. Reference marks are standard disks in concrete set in upper end of long wooden piles driven into marsh, note 13c. Reference mark No. 1 is near eastern extremity of sandy area, and is 77.96 meters (255.8 feet) from station in azimuth 297°58′. Reference mark No. 2 is near eastern extremity of sandy area, and is 58.715 meters (192.63 feet) from station in azimuth 31°41′.

Atlantic (Carteret County, G. L. Anderson, 1935).—At Pamlico Sound, about 0.5 mile northeast of post office in Atlantic, on property belonging to Wallace Styron, about 50 meters (164 feet) from shore and 50 meters (164 feet) southeast of two houses. To reach from Atlantic, follow U. S. Highway 70 northeast for 0.35 mile to end of pavement and continue straight ahead on lane 0.2 mile to station. 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 projects 4 inches, is at foot of tree and 119.225 feet from station in azimuth 80°11′. Reference mark No. 2 projects 4 inches, is in garden of more easterly of two houses and 121.98 feet from station in azimuth 147°37′. Azimuth mark is about 0.2 mile northwest of end of pavement of U. S. Highway 70, 20 meters (66 feet) east of Cedar Point Road and west of station in azimuth 98°13′16″. Azimuth from station to cupola, Core Bank, Coast Guard station, is 330°37′58″.

Extra (Carteret County, G. C. Mattison, 1932; 1935).—2.3 miles southwest of Long Bay Beacon, on west shore of Long Bay, south of southern end of Pamlico Sound, on southeast point of marsh island known as Jacks Island (third main point south of Newstump Point in Cedar Island Bay), 50 meters (164 feet) from southeast point, 27 meters (89 feet) from east shore line and 23 meters (75 feet) from south shore line. Surface mark is standard disk in concrete at center of top of tile embedded in ground, note 6a. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13a. Reference mark No. 1 is 15.815 meters (51.89 feet) from station in azimuth 9°59′. Reference

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mark No. 2 is 15.61 meters (51.2 feet) from station in azimuth 100°56′. Azimuth from station to New Tump Shoal Light is 230°39′17″.

Supplementary points

Day (Carteret County, G. C. Mattison, 1933; 1935).—On west side of Cedar Island Bay, south of south end of Pamlico Sound, on southern shore of Newstump Bay, on east side of first main point south of Newstump Point, about 400 yards south of extremity of point, 105 paces north of prominent sand beach, 75 paces south of smaller sand beach and 27 meters (89 feet) from water line. Surface mark is standard disk in concrete at center of top of tile on end of long wooden pile driven into marsh, note 6c, projecting 8 inches. Reference marks are standard disks in concrete at center of top of tile on ends of long wooden piles driven into marsh, note 13c. Reference mark No. 1 is between station and water line and 18.38 meters (60.3 feet) from station in azimuth 280°00′. Reference mark No. 2 is 28 meters (92 feet) from low-water line on east shore and 19.85 meters (65.1 feet) from station in azimuth 184°19′.

Salter (Carteret County, G. L. Anderson, 1935).—At Salter. To reach from Atlantic, follow U. S. Highway 70 west for 4.7 miles (0.1 mile past bridge over Salter's Creek) to station on right, in large clearing 124 paces east of western tree line, 88 paces south of northern tree line and 66 paces west 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 is 80 paces south of northern tree line, 16 paces west of center line of highway, and 184.36 feet from station in azimuth 261°43′. Reference mark No. 2 is 87 paces west of center line of highway, 58 paces south of northern tree line, and 116.71 feet from station in azimuth 162°33′. Azimuth mark is at inside of and at beginning of second curve of reverse curve just south of station, 10 paces south of center line of highway, and 0.4 mile (by road) from station in azimuth 40°12′27″.

Gull Shoal Lighthouse (Hyde County, G. L. Anderson, 1935).—At Pamlico Sound. Station is center of light which is on white skeleton tower on brown piles about 40 feet high. Lighthouse was rebuilt in 1934, therefore 1933 station should be considered lost.

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

Principal point

King eccentric (Gaston County, Roland D. Horne, 1933; 1935).—On summit of Kings Mountain, which is 2 miles (air line) east of Kings Mountain, N. C., at northwest corner of 5-foot square platform, 2.646 feet from center of flagpole in center of platform. To reach from First National Bank in Kings Mountain, follow State Highway 215 and U. S. Highways 29 and 74 north for 0.7 mile to crossroad where 29 and 74 turn left to Gastonia and 215 turns right; turn right on 215 (past ball ground) for 1.25 miles to Y-intersection; turn left (southeast) on dirt road for 0.2 mile to T-road on left that goes up mountain (azimuth mark here) and follow this road for 0.2 mile to fork; take left fork for 0.2 mile to end of road and follow trail northeast to top of mountain. Station mark (note 1a) is cemented in northwest corner of a 5-foot square platform with flagpole at center. Reference and azimuth marks are standard disks in concrete, note 12a. Reference mark No. 1 is about 10 feet lower than station mark and 95.20 feet northeast of station in azimuth 233°12′. Reference mark No. 2 (azimuth) is in northwest angle of intersection of road up mountain and main north-south dirt road, 10.1 meters (33 feet) north of T-road, 8.7 meters (29 feet) east of center line of north-south road and about 0.5 mile west of station in azimuth 81°06′33″. Reference mark No. 3 is about 25 feet lower than station and 73.63 feet west of station in azimuth 90°16′. *Flagpole at King* is 2.65 feet from station in azimuth 359°04′.

Supplementary point

Elizabethtown 2 (Bladen County, C. I. Aslakson, 1938).—At Elizabethtown, about 200 feet east of north-south street (State Highway 41), 200 feet south of east-west street (State Highway 86), 58.46 feet northeast of northeast corner of jail and 51 feet southeast of southeast corner of courthouse, on jail and courthouse lawn. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Station mark is stamped "1933–38". Reference mark No. 1 is a granite

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post 6 inches square and 3 feet long, projecting 6 inches, and is 30 feet south of northeast corner of courthouse, 4 feet east of east side of courthouse, and 119.49 feet (computed) from station in azimuth 180°25′. Letters "NCGS USGS 1898" are cut in top of stone, with cross at center. *Elizabethtown 1933* (see description thereof) is 125.27 feet from station in azimuth 0°09′. The following azimuths are from station: Northeast corner jail, 59°22′; southeast corner courthouse, 167°59′.

CHOWAN RIVER (SECOND-ORDER)

Principal points

House (Bertie County, C. A. Egner, 1932).—On concrete pavement on fill 4.73 meters (15.5 feet) from west end of Chowan River bridge and 4 inches from north end of concrete. Station is standard disk set in cement in drill hole flush with surface. Reference mark No. 1 (*Eden 2*) is 109.68 meters (359.8 feet) from station in azimuth 111°54′29″. Following azimuths are from station: Line of bridge, 239°12′22″; *Chowan River bridge, center of draw*, 239°20′51.2″.

Main (Chowan County, C. A. Egner, 1932).—At east end of Chowan River Bridge. Station is a standard disk in drill hole on concrete abutment at level of floor surface, 4.9 feet south of inside of wooden railing of bridge and opposite the end of railing. Reference mark is standard disk in drill hole in rubble masonry retaining wall under bridge end, 7 feet below bridge end, and 5.28 meters (17.3 feet) from station in azimuth 65°56′. Following azimuths are from station: *Lawrence* (see description thereof) 140° 43′47.9″; east end of bridge, 149°.

Chowan River bridge, center of draw (Chowan-Bertie Counties, C. A. Egner, 1932).—Finial surmounting center of swing drawbridge on Chowan River bridge (U. S. Highway 17). Azimuth from station to *House* (see description thereof) is 59°21′13.9″.

Cow Island 3 (Bertie County, C. A. Egner, 1932).—On Chowan River, on first prominent point north of Colerain Landing, on west side of old cypress stump about 120 meters (394 feet) northwest of a lone tree, 75 meters (246 feet) west of lone tree in river, 50 meters (164 feet) southwest of small gum growing out of large cypress stump and 25 meters (82 feet) from line of cypress and gum swamp. The station is marked by 3-inch galvanized pipe driven into ground and a standard disk set in concrete in top of pipe. Reference mark is standard disk set in east face of tree and 12.58 meters (41.3 feet) from station in azimuth 147°50′. Witness mark No. 1 is triangular blaze in cypress and about 40 meters (131 feet) from station in azimuth 103°52′. Witness mark No. 2 is triangular blaze in cypress and about 75 meters (246 feet) from station in azimuth 306°02′.

Thicket (Chowan County, C. A. Egner, 1932).—On east side of Chowan River, east of Colerain Landing, about 300 meters (984 feet) north of old abandoned ferry slip, 150 meters (492 feet) south of fishhouse and 5 meters (16 feet) west of sand beach. Land just back of beach is thickly covered with small gum trees heavily matted with vines. Surface mark is standard disk driven into root of sycamore stump (tree cut to clear line). Reference mark No. 1 is at edge of thicket and 9.690 meters (31.79 feet) from station in azimuth 247°42′. Witness mark No. 1 is 8.73 meters (28.6 feet) from station in azimuth 167°35′. Witness mark No. 2 is 1.04 meters (3.4 feet) from station in azimuth 345°55′.

Cole (Bertie County, C. A. Egner, 1932).—On west side of Chowan River, at Colerain Landing. Station is standard disk set in small concrete jetty running from southeast corner of Standard Oil Co. fence to shore line, 30 meters (98 feet) east of more easterly of three vertical tanks and on northwest line 3.4 meters (11 feet) from southeast corner post. Reference mark No. 1 is standard disk set in foundation of east fence at west end of dock and 10.14 meters (33.3 feet) from station in azimuth 168°21′. Reference mark No. 2 is set in foundation of south fence and 7.69 meters (25.2 feet) from station in azimuth 105°18′.

Bass (Chowan County, C. A. Egner, 1932).—On east side of Chowan River about 200 meters (656 feet) south of Bass Landing, 75 meters (246 feet) west of shore line, and 1.5 meters (5 feet) west of 18-inch cypress standing in about 3 feet of water. Station is marked by a standard disk set in concrete in a 3-inch galvanized iron pipe driven into ground. Reference mark No. 1 is in tree 1.52 meters (5.0 feet) from station in azimuth 277°51′. Witness mark is triangular-blazed 3-foot cypress 12.50 meters (41.0 feet) from station in azimuth 353°08′.

White (Chowan County, C. A. Egner, 1932).—On east side of Chowan River about 0.4 mile south of White Landing. This is an unoccupied intersection station consisting of pole nailed to top of small lone cypress tree in water about 100

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meters (328 feet) from shore and about 40 meters (131 feet) inshore from large islet on which stand four large cypress trees. Station is marked by railroad spike driven into triangular blaze on east side of tree about 12 feet above water level. Following azimuths are from station: Station *Lawrence* (see description thereof), 2°49′23.3″; station *Bull Pond* (see description thereof), 99°35′53.9″.

Fore 2 (Chowan County, C. A. Egner, 1932).—At Holly's Wharf on east side of Chowan River, about 2.5 miles northeast of Colerain Landing, on south side of low sandy point about 30 meters (98 feet) southeast of ruins of old dock, 22.32 meters (73.2 feet) south of boardwalk leading to ruins of old dock, and 6 meters (20 feet) from shore line. Station is a standard disk in concrete, note 1a. Reference marks are standard disks in concrete, note 11a. Reference mark No. 1 is on sandy point, near large pine, and 21.60 meters (70.9 feet) from station in azimuth 231°45′. Reference mark No. 2 is in small clearing and 22.60 meters (74.1 feet) from station in azimuth 324°55′. Old station Fore (1874) is 12.5 meters (41 feet) from station in azimuth 163°13′.

Harbor (Hertford County, C. A. Egner, 1932).—On west side of Chowan River, about 4 miles north of Colerain Landing and 3 miles southwest of Cannon Ferry, at about center of square formed by four cypress trees, and about 15 meters (49 feet) east of main body of cypress and gum swamp. Station is a standard disk in irregular mass of concrete, note 1c. Reference mark No. 1 is a standard disk driven into the side of a cypress facing station, and is 1.59 meters (5.2 feet) from station in azimuth 109°13′. Witness marks are triangular-blazed cypress trees with nails in each corner and at center of blazes. Witness mark No. 1 is 1.48 meters (4.9 feet) from station in azimuth 177°14′; No. 2 is 1.70 meters (5.6 feet) from station in azimuth 295°22′, and No. 3 is 1.59 meters (5.2 feet) from station in azimuth 10°12′.

Montrose (Chowan County, R. E. Halter, 1874; 1932).—On east side of Chowan River about 1.5 miles south of Holiday Island, 60 yards north along shore from ruins of large wharf, and on slope of hill 10 yards back from shore. In 1932, station was re-marked as follows: A circular brick wall 2 feet in diameter and 8 inches high was built up around station and filled with concrete, with standard disk set in the concrete. Underground mark is 6-inch cube of concrete about 3 feet below surface of ground. Two reference marks were established, standard disks in concrete, note 11a. Reference mark No. 1 projects 6 inches, is at edge of cornfield, at top of bank, 3 meters (10 feet) northeast of large cedar and 15.70 meters (51.5 feet) from station in azimuth 259°. Reference mark No. 2 projects 6 inches, is near edge of cornfield, at top of bank, about 5 yards north of large cedar and 15.87 meters (52.1 feet) from station in azimuth 335°. Witness mark is triangular blaze with cluster of nails at center in 12-inch cypress, 4.69 meters (15.4 feet) from station. Following distances and azimuths are from station: North side of ruined wharf, 53 meters (174 feet), 49°12′; nail in triangular blaze in cypress tree, 14.83 meters (48.7 feet), 66°12′.

Tree (Bertie County, C. A. Egner, 1932).—About 1.3 miles north of Colerain Landing, an unoccupied station on west bank of Chowan River, on southeast side of large triangular-blazed cypress and 12-inch maple growing together on small islet formed by knees of cypress about 40 meters (131 feet) offshore. Station is marked by two railroad spikes driven horizontally about 6 inches above water into the sides of tree roots so that the heads come together and mark the station. The following azimuths are from station: *Thicket* (see description thereof), 303°46′05″.9; *Bass* (see description thereof), 327°26′38″.2.

Mt. Pleasant (Hertford County, C. A. Egner, 1932).—On west bank of Chowan River, near Mount Pleasant wharf, about 70 meters (230 feet) from water line, 56.20 meters (184.4 feet) from south gable of wharf house, and 5.6 meters (18 feet) west of center line of road. Marked by standard disk driven into root of poplar tree on bluff on west side of road leading back of wharf. Reference mark No. 1 is standard disk in range with station and south gable of wharf house and 7.67 meters (25.2 feet) from station in azimuth 355° (magnetic). Reference mark No. 2 is standard disk on bluff about 2 meters (7 feet) east of road and 14.95 meters (49.0 feet) from station in azimuth 87° (magnetic). Witness mark is triangle blazed on poplar tree, 1.24 meters (4.1 feet) from station in azimuth 190° (magnetic).

Turn (Hertford County, C. A. Egner, 1932).—On west side of Chowan River on point 4.5 miles north of Colerain Landing. Station is marked by an iron pipe driven into mud at foot of 24-inch cypress standing about 50 meters (164 feet) offshore. Reference marks are railroad spikes driven into triangles cut in trees. Reference mark No. 1 is in 24-inch cypress standing about 50 meters (164 feet)

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offshore and 0.72 meter (2.4 feet) from station in azimuth 94°55′. Reference mark No. 2 is in 12-inch cypress standing about 30 meters (98 feet) offshore and 36.86 meters (120.9 feet) from station in azimuth 162°29′.

Cat (Gates County, C. A. Egner, 1932).—On northeast shore of Chowan River about 0.67 mile north of north end of Holiday Island and 0.4 mile north of mouth of Catherine Creek. Marked by 2-inch galvanized iron pipe 5 feet long driven to within 1 foot of surface of water. Station is 3 meters (10 feet) inshore from and among knees of large cypress tree in water 30 meters (98 feet) from shore line. Tree has large hollow place on south side. Reference mark No. 1 is railroad spike in triangular blaze on 12-inch cypress inshore from station, and 2.45 meters (8.0 feet) from station in azimuth 63°24′. Reference mark No. 2 is 22.95 meters (75.3 feet) from station in azimuth 199°02′. Following azimuths are from station: *Turn* (see description thereof), 10°11′15″.2; *Beak* (see description thereof), 34°24′08″.5.

Woodley (Hertford County, C. A. Egner, 1932).—Station is center of light on Woodley Pier Light, red-slatted beacon on east side of channel of Chowan River about 0.6 mile southwest of south end of Holiday Island. Station is in about 10 feet of water and light is 16 feet above surface of water. Following azimuths are from station: Station *Harbor* (see description thereof), 47°11′07″.2; station *Montrose* (see description thereof), 351°08′14″.5.

Beak (Hertford County, C. A. Egner, 1932).—Center of light on Holiday Island Light, which is black slatted pile structure with light 16 feet above water surface and located in 10 feet of water, just west of north tip of Holiday Island on west side of channel. Azimuth from station to *Turn* (see description thereof) is 359°44′03″.4.

Taylor (Hertford County, C. A. Egner, 1932).—On west side of Chowan River, about 1 mile south of Mount Pleasant wharf. Station is marked by galvanized iron bolt driven in stump of an 18-inch cypress cut about 10 feet above water, and standing about 25 meters (82 feet) offshore. Witness mark No. 1 is iron spike driven in triangle cut on 18-inch cypress standing about 15 meters (49 feet) offshore and 15.17 meters (49.8 feet) from station in azimuth 322°08′. Witness mark No. 2 is railroad spike driven in triangle cut on 12-inch cypress standing about 5 meters (16 feet) offshore and 21.27 meters (69.8 feet) from station in azimuth 54°45′.

Stump (Gates County, C. A. Egner, 1932).—On northeast shore of Chowan River, directly across river from mouth of Taylor Pond, on the remains of large cypress stump in water 4 meters (13 feet) from shore line, and 20 meters inshore from large lone cypress in water. Station is marked by a railroad spike driven flush into stump. Reference mark No. 1 is a railroad spike in triangular blaze on giant cypress in water 20 meters (66 feet) offshore and is 23.17 meters (76.0 feet) from station in azimuth 121°28′. Reference mark No. 2 is railroad spike in triangular blaze on west side of giant cypress at water edge just inshore from station and is 11.34 meters (37.2 feet) from station in azimuth 175°31′. Azimuth from station to station *Beak* (see description thereof) is 320°37′57″.2.

Swamp (Gates County, C. A. Egner, 1932).—On south edge of prominent point on northeast shore of Chowan River, about 0.7 mile north of Mount Pleasant wharf. It is about 65 feet inshore from a lone stubby cypress tree in water and 4 feet offshore from and amongst the knees of large cypress standing in water 11 meters (36 feet) offshore. Station is marked by a 5-foot length of 2-inch galvanized iron pipe driven to within 1 foot of surface of water. Reference mark No. 1 is railroad spike in triangular blaze on south side of large cypress and 10.36 meters (34.0 feet) from station in azimuth 120° 16′. Reference mark No. 2 is railroad spike in triangular blaze on west side of cypress standing just inshore from station and 1.32 meters (4.3 feet) from station in azimuth 211° 15′. The following azimuths are from station: *Stump* (see description thereof), 311° 24′ 11.1″; *Mt. Pleasant* (see description thereof), 336° 23′ 45.8″.

Sand (Hertford County, C. A. Egner, 1932).—On west side of Chowan River, about 0.5 mile south of Pettys Shore. In 1932 station was reported lost.

Barnes (Gates County, C. A. Egner, 1932).—On north side of Chowan River, about 25 meters (82 feet) east of point of land formed by junction of Chowan River and Barnes Creek, in mass of cypress roots. Marked by 2-inch galvanized iron pipe. Reference mark No. 1 is a standard disk driven into 3-foot cypress tree (tree forks just above reference mark) on point of land formed by junction of Chowan River and Barnes Creek and is 25.70 meters (84.3 feet) from station in azimuth 130° 40′. Witness mark No. 1 is railroad spike driven into triangular

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blaze on small 3-inch gum tree located about 25 meters (82 feet) offshore and 1.84 meters (6 feet) from station in azimuth 181° 16′. Witness mark No. 2 is railroad spike driven in top of small cypress stump extending about 6 inches above water, in same vicinity as witness mark No. 1 but on opposite side of station, and 1.82 meters (6 feet) from station in azimuth 349° 29′.

River (Gates County, C. A. Egner, 1932).—On north bank of Chowan River between the mouth of Barnes Creek and west mouth of Island Creek. Station is marked with 2-inch galvanized iron pipe surrounded by cypress roots and knees, 3.45 meters (11.3 feet) northwest of railroad spike driven in top of cypress knee and 1.82 meters (6 feet) southeast of 18-inch cypress tree marked with triangular blaze and railroad spike. Reference mark No. 1 is a standard disk in small 8-inch ash tree standing on edge of north bank of river and is 13.95 meters (45.8 feet) from station in azimuth 152°43′. Reference mark No. 2 is standard disk in small 6-inch lone ash tree standing about 3 feet offshore and is 16.70 meters (54.8 feet) from station in azimuth 261°52′.

Bluff (Hertford County, C. A. Egner, 1932).—On Chowan River, about 5 meters (16 feet) from southern bank directly across river from western mouth of Island Creek. Marked with a 2-inch cast-iron pipe extending 1 foot above water surface and surrounded by short piling. Reference mark No. 1 is standard disk set in concrete monument 24 inches long and 10 inches square, 5 meters (16 feet) west of footpath leading to landing, 3 meters (10 feet) inshore and south of water's edge, and 15.45 meters (50.7 feet) from station in azimuth 33°24′. Witness mark No. 1 is railroad spike driven into 18-inch triangular-blazed pine tree located on extreme edge of south bank of river and is 35.22 meters (115.6 feet) from station in azimuth 313°27′.

Eure (Hertford County, C. A. Egner, 1932).—At Eure Landing on west side of Chowan River, in water about 21 meters (69 feet) from west bank of river and 4 feet north of 18-inch cypress. Station is marked by 3-inch galvanized iron pipe projecting about 12 inches above surface of water. Witness mark No. 1 is railroad spike driven into triangular blaze on cypress tree and is 21.57 meters (70.8 feet) from station in azimuth 288°22′. Witness mark No. 2 is railroad spike driven into triangular blaze on 18-inch cypress and is 1.1 meters (4 feet) from station in azimuth 25°13′. Reference mark No. 3 is a standard disk in concrete, note 11a, is on shore about 8 meters (26 feet) from shore line, 4 meters (13 feet) west of road to Eure Landing, and 59.65 meters (195.7 feet) from station in azimuth 49°05′

Point (Gates County, C. A. Egner, 1932).—On north shore of Chowan River, about middle of south shore of nameless island and about 10 meters (33 feet) from the general shore line, on small point making out from island covered with small cypress trees. Station is marked by railroad spike driven into root on offshore side of stump of large decayed cypress about 8 inches above water; spike projects about 2.5 inches. Reference mark No. 1 is a railroad spike in triangular blaze on 8-inch cypress, about 3 meters (10 feet) from shore line, and 12.40 meters (40.7 feet) from station in azimuth 121°18′. Reference mark No. 2 is railroad spike in 8-inch cypress located on same point as and just inshore from station and 3.21 meters (10.5 feet) from station in azimuth 209°01′. Azimuth from station to station *Sarem* (see description thereof) is 264°24′48″.

Sarem (Gates County, C. A. Egner, 1932).—On north side of Chowan River about 300 meters (984 feet) west of mouth of Sarem Creek. Station is marked by 5-foot section of 2-inch galvanized iron pipe driven so as to project about 1 foot above water and is 3 feet offshore from double cypress with fork about 3 feet above water. Reference mark No. 1 is railroad spike in large triangular blaze on giant cypress at water edge just inshore from station and 4.03 meters (13.2 feet) from station in azimuth 168°33′. Reference mark No. 2 is railroad spike in small triangular blaze on 18-inch cypress located about 8 feet offshore and 12.28 meters (40.3 feet) from station in azimuth 258°09′. Station *Cane* (see description thereof) is in azimuth 315°52′52″.

Island (Gates County, C. A. Egner, 1932).—About 1,200 meters (3,937 feet) west of mouth of Sarem Creek, at east end of nameless island (Island Creek in back), and 4 meters (13 feet) offshore from large decayed stump in water covered with vines. Station is 2-inch galvanized iron pipe, 5 feet long, projecting about 1 foot above surface of water. Reference marks are railroad spikes driven in triangular blazes on trees. Reference mark No. 1 is 15 feet from shore line and 19.31 meters (63.4 feet) from station in azimuth 52°30′. Reference mark No. 2 is in 18-inch cypress, 3 meters (10 feet) inshore from water line and 7.52 meters (24.7 feet) from station in azimuth 142°37′. Following azimuths are from sta-

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tion: Station *Hodges* (see description thereof), 298°22′12″; Station *Sarem* (see description thereof), 270°38′48″.

Hodges (Hertford County, C. A. Egner, 1932).—About 0.25 mile northwest of mouth of Hodges Creek, on southwest side of Chowan River, 13.9 meters (46 feet) from shore line. Marked by railroad spike in top of 8-inch cypress stump, about 7 feet tall. Reference mark No. 1 is a standard disk in concrete block 8 inches square at top, 11 inches square at bottom, and 24 inches long projecting 8 inches and about 3 feet inshore from water's edge, in tall grass, and 22.54 meters (73.9 feet) from station in azimuth 346°53′. Reference mark No. 2 is railroad spike in triangular blaze on large isolated tree, in green patch, 14 meters (46 feet) inshore from water's edge and 28.08 meters (92.1 feet) from station in azimuth 11°18′. Reference mark No. 3 is railroad spike projecting 3 inches from 8-inch cypress and 1.23 meters (4.0 feet) from station in azimuth 74°33′.

Cane (Gates County, C. A. Egner, 1932).—On east side of Chowan River on a point about 1 mile south of mouth of Sarem Creek 7 meters (23 feet) offshore. Station is marked by an iron pipe driven in mud to within 18 inches of water surface. Witness marks are railroad spikes driven in triangles cut in trees. Witness mark No. 1 is in 4-foot cypress standing about 3 meters (10 feet) offshore and 7.63 meters (25.0 feet) from station in azimuth 155°50′. Witness mark No. 2 is in 18-inch ash standing about 2 meters (7 feet) offshore and 6.00 meters (19.7 feet) from station in azimuth 224°35′.

Creek (Hertford County, C. A. Egner, 1932).—On west side of Chowan River, on low grass-covered swampland between river and Wiccacon Creek, and about 24 meters (79 feet) from river shore line. Station is marked by a 6-foot length of 4-inch galvanized iron pipe projecting about 8 inches above ground, into which was placed a 5-foot length of 2-inch pipe projecting about 4 feet. Reference mark is a standard disk in concrete, note 11a, projecting about 8 inches above surface of ground and is in tall grass about 3 meters (10 feet) from river shore line and 21.04 meters (69.0 feet) from station in azimuth 249°16′. Azimuth from station to station *Wiccacon* (see description thereof) is 325°24′30″.

Marsh (Gates County, C. A. Egner, 1932).—On east side of Chowan River, on a point diagonally opposite and south from the entrance to Wiccacon Creek, about 12 meters (39 feet) from small lone cypress standing offshore almost in range with station *Cane*, and just south of where bight, in shore line 300 meters (984 feet) across, begins. Station is marked by a standard disk set in top of sawed-off cypress 5 feet above water. This tree is forked below station mark, the offshore part being sawed 12 inches shorter. Reference mark is standard disk in concrete, set in muddy ground inshore from station among cypress roots, and 7.32 meters (24.0 feet) from station in azimuth 248°. Witness mark is an 8-inch galvanized lag screw at center of triangular blaze on 30-inch cypress standing inshore from station, just north of line to reference mark, and 4.35 meters (14.3 feet) from station in azimuth 235°48′. Azimuth from station to *Cane* (see description thereof) is 130°18′59″.

Wiccacon (Hertford County, C. A. Egner, 1932).—On west side of Chowan River, about 0.25 mile south of entrance to Wiccacon Creek, on offshore side of 15-inch cypress standing about 10 meters (33 feet) from tree line. Station could not be marked due to sloping roots and deep water, so the following method was used: Two lag screws were driven horizontally into roots about 6 inches above the water line making an angle of about 60 degrees at station. Distances were measured from station to the heads of these lag screws and are as follows: Southeast lag screw 0.280 meter (0.92 foot); northwest lag screw 0.450 meter (1.48 feet). Witness mark No. 1 is railroad spike at center of triangular blaze on same tree as station mark, about 5 feet above water and 0.875 meter (2.87 feet) from station in azimuth 79°06′. Witness mark No. 2 is an 8-inch lag screw at center of triangular-blaze on tree and 18.09 meters (59.4 feet) from station in azimuth 133°06′. Station *Creek* (see description thereof) is just clear of the tree line to northwest in azimuth 145°24′51″.

Flag (Gates County, C. A. Egner, 1932).—On east bank of Chowan River, in the southern part of a large bight opposite marshy ground around entrance to Wiccacon Creek, on the offshore knees of 24-inch cypress standing about 10 meters (33 feet) from main river bank marked by the edge of cypress trees. Station is marked by a ¾-inch lag screw with square top driven flush (vertically) in sloping surface of the base of tree about 12 inches above water level. A blaze (10 inches on a side) was cut around the lag screw driven into center of blaze. Witness mark is a ¾-inch lag screw at center of blaze in same tree about 5 feet above station mark

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and 0.770 meter (horizontal distance), or 2.53 feet, from station in azimuth 242°30′.

Goose (Hertford County, C. A. Egner, 1932).—On west side of Chowan River, about 1 mile south of Wiccacon Creek, in clump of cypress knees 35 meters (115 feet) offshore and standing about 3 feet above water. Station is marked by a railroad spike driven into top of cypress knee. Witness mark No. 1 is railroad spike driven in triangle on a 48-inch cypress standing about 35 meters (115 feet) offshore and is 3.09 meters (10.1 feet) from station in azimuth 352°11′. Witness mark No. 2 is railroad spike driven in 36-inch willow oak standing about 3 meters (10 feet) offshore and is 37.50 meters (123.0 feet) from station in azimuth 99°03′.

Wharf (Hertford County, C. A. Egner, 1932).—On west side of Chowan River. Station consists of a 1- by 1-inch pole 4 feet long nailed to end of dock at Mount Pleasant Landing. Following azimuths are from tation: Station *Swamp* (see description thereof), 153°44′51″; station *Stump* (see description thereof), 292°43′05″.

Pile (Hertford County, C. A. Egner, 1932).—On south side of Chowan River, about 1.33 miles east of south end of Atlantic Coast Line Railroad bridge and 27 meters (89 feet) from shore among some old pilings (ruins of old dock). Station is marked by a 10-foot length of 2-inch galvanized iron pipe projecting about 2 feet above surface of water. Reference mark No. 1 is railroad spike in triangular blaze on 12-inch cypress in water about 10 feet from shore line and 24.40 meters (80.1 feet) from station in azimuth 19°32′. Reference mark No. 2 is ½-inch iron drift bolt in top of piling about 2 feet above surface of water and 11.88 meters (39.0 feet) from station in azimuth 121°42′. Azimuth from station to station *Oak* (see description thereof) is 297°23′16″.

Buck (Gates County, C. A. Egner, 1932).—On east side of Chowan River, about 1.40 miles south of Atlantic Coast Line Railroad bridge across river at Tunis, 0.58 mile north of Spikes Creek, and 30 meters (98 feet) offshore in clump of cypress trees and roots. Station is marked by galvanized iron pipe 2 meters (7 feet) long. Witness mark No. 1 is railroad spike in triangular blaze on 18-inch cypress about 3 meters (10 feet) offshore and 19.88 meters (65.2 feet) from station in azimuth 209°26′. Witness mark No. 2 is railroad spike in triangular blaze on 30-inch cypress about 2 meters offshore and 19.88 meters (65.2 feet) from station in azimuth 245°48′.

Oak (Hertford County, C. A. Egner, 1932).—On south side of Chowan River, about 1.75 miles down river from Atlantic Coast Line Railroad bridge at Tunis, and about 5 meters (16 feet) offshore, just north of 16-inch cypress and west of 12-inch cypress. A prominent cypress stands southeast of station about 20 meters (66 feet) offshore. Station is marked by a 5-foot length of 2-inch galvanized iron pipe driven so that it projects about 2 feet above water. Reference mark No. 1 is railroad spike in triangular blaze on 12-inch cypress tree standing in about 4 feet of water and is 1.20 meters (3.9 feet) from station in azimuth 299°23′. Reference mark No. 2 is railroad spike in triangular blaze on 16-inch cypress standing in about 4 feet of water and is 1.35 meters (4.4 feet) from station in azimuth 38°54′. Azimuth from station to station *Root* (see description thereof) is 281°39′00″.

Root (Gates County, C. A. Egner, 1932).—On south side of Chowan River, about 2.5 miles southeast of Atlantic Coast Line Railroad bridge at Tunis. Station is marked by a 5-foot length of 2-inch galvanized iron pipe driven down beside large cypress knee so that it extends 2 feet above water. It is 18.4 meters (60.4 feet) offshore and 7.84 meters (25.7 feet) from a giant cypress. Reference mark No. 1 is railroad spike in triangular blaze on 18-inch cypress about 10 meters (33 feet) offshore and 14.78 meters (48.5 feet) from station in azimuth 55°30′. Reference mark No. 2 is railroad spike in triangular blaze on giant cypress just offshore from station and 7.84 meters (25.7 feet) from station in azimuth 165°09′.

Spikes (Gates County, C. A. Egner, 1932).—On north side of Chowan River, on tip of point formed by Chowan River and Spikes Creek, and about 2.2 miles east of Atlantic Coast Line Railroad bridge at Tunis. Station is marked by standard disk in concrete. Witness marks are railroad spikes driven into triangles cut in trees. Witness mark No. 1 is in 2-foot cypress (outermost tree on point) standing about 2 meters (7 feet) offshore and 5.00 meters (16.4 feet) from station in azimuth 311°32′. Witness mark No. 2 is in 4-foot cypress snag standing in Chowan River about 16 meters (52 feet) offshore and 17.37 meters (57.0 feet) from station in azimuth 29°21′.

Ray (Gates County, C. A. Egner, 1932).—On the north side of Chowan River at Rays Beach (fisherman's beach). Station is about 7 meters (23 feet) inside

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edge of canebrake, 4 meters (13 feet) northwest of 3-forked cypress tree, and 2 meters (7 feet) outside high-water line. Path runs along beach southward from fishhouse, 5 meters (16 feet) inside the station. Surface mark is standard disk in concrete block flush with sandy ground. Reference mark, a similar concrete block, was set flush with ground inshore from station, 3 meters (10 feet) across path mentioned above and 8.00 meters (26.2 feet) from station in azimuth 207°30′. Following distances and azimuths are from station: Southwest corner of fishhouse, 104°48′; three-forked cypress tree, 4.00 meters (13.1 feet), 263°58′.

Water (Gates County, C. A. Egner, 1932).—On east side of Chowan River, 2.85 miles south of Atlantic Coast Line Railroad bridge across river at Tunis, 0.5 mile south of Rays Beach. Station is marked by a standard disk driven in fork of two 3-foot cypress trees standing out by themselves about 55 meters (180 feet) offshore. Witness marks are railroad spikes driven in triangles cut in each of two trees forming fork for station mark. Witness mark No. 1 is 1.25 meters (4.1 feet) from station in azimuth 159°12′. Witness mark No. 2 is 1.59 meters (5.2 feet) from station in azimuth 336°25′.

Pettys (Hertford County, C. A. Egner, 1932).—On south side of Chowan River, about 400 meters (1,312 feet) west of Pettys Shore, and in water about 9 meters (30 feet) from shore line. Station is the center of the end of 4-foot length of T-rail driven into hollow stump, and is about 2 feet above surface of water and 8 inches below top of stump. Reference mark No. 1 is railroad spike in triangular blaze on 14-inch cypress at water edge and 8.72 meters (28.6 feet) from station in azimuth 343°43′. Reference mark No. 2 is railroad spike in triangular blaze on 10-inch cypress at water edge and 21.30 meters (69.9 feet) from station in azimuth 101°29′. Azimuth from station to station *Mark* (see description thereof) is 316°45′42″.

Bend (Gates County, C. A. Egner, 1932).—On east side of Chowan River, about 3.57 miles south of Atlantic Coast Line Railroad bridge at Tunis, 0.53 mile north of Barnes Creek, and 16 meters (52 feet) offshore. Marked by spike driven in cypress. Witness marks are railroad spikes driven into triangular blazes on 30-inch pines. Witness mark No. 1 is 2 meters offshore and 13.94 meters (45.7 feet) from station in azimuth 274°56′. Witness mark No. 2 is 16 meters (52 feet) offshore and 0.81 meter (2.7 feet) from station in azimuth 31°26′.

Mark (Hertford County, C. A. Egner, 1932).—On west side of Chowan River at Pettys Shore, southeast of Tunis, at high-water line, on sand beach bordering ravine, on site of old mill and wharf. Station is a standard disk in concrete, note 1a. Reference mark is a standard disk in concrete, note 11a, and is at high-water line and 23.34 meters (76.6 feet) from station in azimuth 118°25′. Witness marks are railroad spikes in center of triangular blazes on 18-inch trees. Witness mark No. 1 is 15.385 meters (50.48 feet) from station in azimuth 353°05′. Witness mark No. 2 is 23.84 meters (78.2 feet) from station in azimuth 80°41′.

High (Hertford County, C. A. Egner, 1932).—On south bank of Chowan River, on top of bluff about 0.5 mile east of Pettys Shore Landing, 47.75 meters (156.7 feet) south of bluff edge along river, and about 20 meters (66 feet) west of edge of shallow ravine running normal to river. Marked with standard disk set in mass of concrete 10 inches square at foot of 18-inch pine. Reference mark No. 1, standard disk set in 8-inch concrete cylinder 24 inches long, is in center of triangle formed by three pines, about 25 meters (82 feet) south of bluff edge along river, and is 44.1 meters (145 feet) from station in azimuth 108°25′. Reference mark No. 2 is standard disk set in concrete block 10 inches square and 24 inches long, about 20 meters (66 feet) west of small ravine, 5 meters (16 feet) south of bluff edge along river, and 40.19 meters (131.9 feet) from station in azimuth 199°12′.

Pole (Gates County, C. A. Egner, 1932).—On north side of Chowan River, about 0.5 mile east of Atlantic Coast Line Railroad bridge at Tunis, under lone pine in cypress swamp, and 22 meters (72 feet) from shore line. Station is a standard disk in concrete, note 1a, projecting about 4 inches. Reference mark No. 1 is a standard disk in concrete, note 11a, projecting about 6 inches, and is directly toward shore line from station, 7.3 meters (24 feet) from shore line, and 15.08 meters (49.5 feet) from station in azimuth 291°26′. Reference mark No. 2 is railroad spike at center of triangular blaze on a pine, to which signal is nailed, and 1.76 meters (5.8 feet) from station in azimuth 272°40′. Reference mark No. 3 is railroad spike at center of large triangular blaze on face of 36-inch triple-cypress and 5.90 meters (19.4 feet) from station in azimuth 319°51′. Azimuth from station to station *Winton* (see description thereof) is 108°27′03.5″.

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Horn (Gates County, C. A. Egner, 1932).—On east side of Chowan River, 1.03 miles south of Atlantic Coast Line Railroad bridge crossing river at Tunis, 0.03 mile north of Buckhorn Creek, and about 3 meters (10 feet) offshore. Station is marked by 3-inch galvanized iron pipe driven in old cypress stump. Reference mark is standard disk set in concrete in small clearing in brush 1 meter (3 feet) inshore and 9.81 meters (32.2 feet) from station in azimuth 158°40′. Witness mark is railroad spike driven in triangular blaze in 30-inch cypress standing offshore and 11.82 meters (38.8 feet) from station in azimuth 345°30′.

Stand (Hertford County, C. A. Egner, 1932).—On south side of Chowan River, about 1 mile east of south end of Atlantic Coast Line Railroad bridge at Tunis. Station is marked by railroad spike set in cement in large hollow cypress knee, about 4 inches above surface of water. *It is just inshore from large dead* charred cypress stump so that a large prominent cypress to the west is in range with inner railroad water tower at Tunis. Reference mark No. 1 is railroad spike in triangular blaze on 12-inch cypress at water edge and is 11.93 meters (39.1 feet) from station in azimuth 355°55′. Reference mark No. 2 is railroad spike in triangular blaze on 12-inch cypress located 6 feet offshore and is 16.03 meters (52.6 feet) *from station in azimuth 52°01′. Reference mark No. 3 is railroad spike* in charred stump near the station and 1.90 meters (6.2 feet) from station in azimuth 188°52′. Azimuth from station to station *Pile* (see description thereof) is 294°07′21″.

Tun (Gates County, C. A. Egner, 1932).—On east side of Chowan River, 0.33 mile south of Atlantic Coast Line Railroad bridge across river at Tunis, and on point on west side of 4-foot cypress. Station is marked by a 3-inch galvanized iron pipe driven into mud about 8 meters (26 feet) offshore. Witness marks are railroad spikes driven into triangles cut in trees. Witness mark No. 1 is in 18-inch ash, about 3 feet offshore, and 14.98 meters (49.1 feet) from station in azimuth 176°27′. Witness mark No. 2 is in 4-foot cypress, about 5 meters (16 feet) offshore, and 1.49 meters (4.9 feet) from station in azimuth 224°01′.

Tank (Hertford County, C. A. Egner, 1932).—Station is the center of Atlantic Coast Line Railroad water tank nearest river at west end of railroad bridge in Tunis. The following azimuths are from station: *Tunis* (see description thereof), 9°18′32.6″; *Tun* (see description thereof), 274°38′15.3″.

Rail (Gates County, C. A. Egner, 1932).—On north side of Chowan River, 2.10 meters (6.9 feet) north of north end of Atlantic Coast Line Railroad bridge at Tunis, and on fill 2.7 meters (9 feet) west of center line of railroad. Surface mark is standard disk in concrete, note 1a. Reference mark No. 1 is standard disk driven into timber of bridge at its west edge and 12.30 meters (40.4 feet) from station in azimuth 23°30′. Reference mark No. 2 is railroad spike in triangular blaze in cypress, in water about 20 feet offshore, and 28.19 meters (92.5 feet) from station in azimuth 143°07′. Following azimuths are from station: Station *Winton* (see description thereof), 106°07′31.0″; center line of tangent of Atlantic Coast Line Railroad, 206°28′47″. To determine azimuth of railroad tangent past station, set-up was made over rail of extension of line from *Winton* and angle turned off on line of rail both east and west and mean taken. This tangent, perfectly straight, extends about 3 miles.

Road (Gates County, C. A. Egner, 1932).—On east side of Chowan River, 0.3 mile north of Atlantic Coast Line Railroad bridge at Tunis. Station is marked by a 6-foot length of 2-inch galvanized iron pipe, driven 4 feet into mud, about 3 feet offshore among clump of large cypress stumps and small cypress and ash trees. Reference marks are railroad spikes driven into triangular blazes in ash trees. Reference mark No. 1 is in west face of 18-inch ash at water's edge and 1.81 meters (5.9 feet) from station in azimuth 241°06′. Reference mark No. 2 is on north face of 12-inch ash, about 2 meters (7 feet) offshore, and 5.70 meters (18.7 feet) from station in azimuth 311°17′.

Mill (Hertford County, C. A. Egner, 1932).—On west side of Chowan River, on a point 0.51 mile north of Atlantic Coast Line Railroad bridge across river at Tunis, and about 25 meters (82 feet) offshore. Marked by a 5-meter (16-foot) length of railroad iron driven into mud and projecting 3 feet. Witness marks are railroad spikes driven in triangles cut on trees. Witness mark No. 1 is in 18-inch ash standing 25 meters (82 feet) offshore and 32.63 meters (107.1 feet) from station in azimuth 288°59′. Witness mark No. 2 is in 30-inch pine on shore line and 1.22 meters (4.0 feet) from station in azimuth 5°26′.

Mud (Gates County, C. A. Egner, 1932).—On east side of Chowan River, about 1.33 miles south of highway bridge across river at Winton, 0.28 mile north of Mud Creek, and 7 meters (23 feet) inshore on open mud flat bordering river,

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covered with marsh grass and weeds. Surface mark is standard disk in concrete, note 1a. Reference mark is standard disk in concrete, note 11a, about 2 meters (7 feet) inshore and 17.69 meters (58.0 feet) from station in azimuth 7°55′. Witness mark is railroad spike driven in triangle cut in 5-foot cypress which stands out by itself at water's edge and 7.43 meters (24.4 feet) from station in azimuth 269°02′.

Harrell (Hertford County, C. A. Egner, 1932).—At Tuscarora Beach on Chowan River, about 2 miles southeast of Winton, and 4 meters (13 feet) from high-water line near south end of beach. Surface mark is a standard disk in concrete flush with ground. Reference marks are standard disks in concrete. Reference mark No. 1 is at right angles to beach line back from station and 31.37 meters (102.9 feet) from station in azimuth 23°12′. Reference mark No. 2 is along beach, 5 meters (16 feet) from large shade tree, and 28.82 meters (94.6 feet) from station in azimuth 100°28′. Following azimuths are from station: Corner of bathhouse, 75°44′; beach high-water line, 190°.

Snake (Hertford County, C. A. Egner, 1932).—On west side of Chowan River, 0.85 mile south of highway bridge across river at Winton, and about 0.20 mile north of Tuscarora Beach. Station is marked by railroad iron driven down to within 1.6 feet of surface of water, about 2 meters (7 feet) offshore. Witness marks are railroad spikes driven in triangles cut in cypress trees. Witness mark No. 1 is in 18-inch tree standing about 3 meters (10 feet) offshore and 0.78 meter (2.6 feet) from station in azimuth 247°48′. Witness mark No. 2 is in 4-foot cypress, the largest tree within 100 meters (328 feet) of mark, and 7.04 meters (23.1 feet) from station in azimuth 0°03′.

Knee (Gates County, C. A. Egner, 1932).—On east side of Chowan River, 0.7 mile south of highway bridge over river at Winton. Marked by a railroad iron driven in among cypress knees on west side of 5-foot cypress tree (north one of three trees standing about 4 meters (13 feet) offshore). Witness marks are railroad spikes driven in triangles cut in cypress trees. Witness mark No. 1 is in 5-foot cypress, about 3 meters (10 feet) offshore, and 1.15 meters (3.8 feet) from station in azimuth 211°09′. Witness mark No. 2 is in 3-foot cypress, about 3 meters (10 feet) offshore, and 8.20 meters (26.9 feet) from station in azimuth 302°51′.

Riv (Gates County, C. A. Egner, 1932).—On east side of Chowan River, 0.4 mile south of highway bridge across river at Winton, and in roots at west base of 5-foot cypress about 10 meters (33 feet) offshore. Surface mark is standard disk in concrete in 2-foot length of 4-inch iron pipe driven 1 foot in cypress root. Witness marks are railroad spikes driven in trees. Witness mark No. 1 is on west face of 5-foot cypress snag, standing 8 meters (26 feet) offshore, and 0.92 meter (3.0 feet) from station in azimuth 204°06′. Witness mark No. 2 is on south face of 4-foot cypress standing about 4 meters (13 feet) offshore and 33.80 meters (110.9 feet) from station in azimuth 123°19′.

Cliff (Hertford County, C. A. Egner, 1932).—On west side of Chowan River in heavy-timbered area, 0.3 mile south of highway bridge crossing river at Winton, on top of bluff about 14 meters (46 feet) above water and about 16 meters (52 feet) from water edge. There is a ravine about 40 meters (131 feet) south in which an old abandoned railway runs down to river. Station is marked by a standard disk set in concrete block. Reference mark is standard disk in concrete located in center of old east-west wagon road following crest of ridge, 17 meters (56 feet) back from edge of cliff facing river, and 17.64 meters (57.9 feet) from station in azimuth 38°00′. Witness mark is railroad spike driven in triangle cut in 10-inch pine standing about 7 feet from edge of cliff facing river and 2.30 meters (7.5 feet) from station in azimuth 85°00′.

East (Gates County, C. A. Egner, 1932).—On east end of Winton Bridge over Chowan River. Station is marked by a standard disk set in drill hole in the south concrete gutter of bridge, 98.05 meters (321.7 feet) from center of drawspan, 45.84 meters (150.4 feet) from east end, and about 2 feet from concrete railing. The following azimuths are from station: Center of drawspan, 32°13′33″; station *Winton* (see description thereof), 356°30′23.9″.

Cy (Gates County, C. A. Egner, 1932).—On east side of Chowan River, about 0.75 mile north of Winton Bridge. Station is marked by railroad spike driven flush into top of large knee of cypress tree located about 3 meters (10 feet) from shore line. Reference mark is railroad spike in triangular blaze on west side of giant cypress (top gone), projecting about 1 inch, and is 1.58 meters (5.2 feet) from station in azimuth 213°08′. Azimuth from station to station *Winton* (see description thereof) is 321°28′59.7″.

Slide (Hertford County, C. A. Egner, 1932).—On west bank of Chowan River, about 1.25 miles north of Winton Bridge and 0.3 mile south of Mount Gallows.

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Station is marked by a 1½-inch galvanized iron pipe 2 feet long, driven so that it projects about 1 inch and is located 3 meters (10 feet) offshore at south end of clearing in shore line where logs have been slid down the bank to river. No reference marks were established. Following azimuths are from station: *Chowan* (see description thereof), 157°06′20.1″; *Cy* (see description thereof), 307°06′35.9″.

Chowan (Hertford County, C. A. Egner, 1932).—On western shore of Chowan River, 1.3 miles north of highway bridge across river at Winton, on southern extremity of Chowan Beach, about 4 meters from water's edge. Surface mark is standard disk in concrete. Reference mark is standard disk in concrete, about 22 meters (72 feet) from water's edge, 2 meters (7 feet) southeast of 3-foot cypress tree and 18.30 meters (60.0 feet) from station in azimuth 84°58′. Following distances and azimuths are from station: Cottage, southeast corner, 12.90 meters (42.3 feet), 145°36′; bathhouse, southeast corner, 41.35 meters (135.7 feet), 168°28′.

Flax (Gates County, C. A. Egner, 1932).—On east bank of Chowan River, about 2.5 miles north of highway bridge over river at Winton, about east of point between Meherrin and Chowan Rivers, 3 meters (10 feet) offshore. Station is marked by a 6-foot length of railroad iron driven to within 12 inches of water level. Reference mark No. 1 is railroad spike in triangle cut in cypress snag 48 inches in diameter, standing about 5 meters (16 feet) offshore, and 1.68 meters (5.5 feet) from station in azimuth 102°44′. The following azimuths are from station: station *Slide* (see description thereof), 1°55′03.7″; point about 3 meters (10 feet) offshore between the Meherrin and Chowan Rivers, 104°24′.

ALBEMARLE, CROATAN, AND ROANOKE SOUNDS (SECOND-ORDER)

Principal points

Debt (Tyrrell County, G. C. Mattison, 1933).—About 7 miles west of the mouth of Alligator River, on Palmetto Point, in a low area covered with heavy gum and cypress timber, on south side of Albemarle Sound, directly inshore from station *Pal*, and 31 yards from shore line. Station mark is a standard disk set in center of top of tile embedded in ground, note 6a. Reference marks are standard disks in concrete, note 13a. Reference mark No. 1 is about 8 yards from shore line and 21.253 meters (69.73 feet) from station in azimuth 173°40′. Reference mark No. 2 is 21.950 meters (72.01 feet) from station in azimuth 300°08′. The following distances and azimuths are from station: Station *Pal* (see description thereof), 39.715 meters (130.30 feet), 166°19′; reference mark for station *Pal*, 32.710 meters (107.32 feet), 180°01′.

Lewis (Tyrrell County, G. C. Mattison, 1933; 1935).—About 3 miles west of mouth of Alligator River, on Lewis Point, in low swampy dense woods of cypress trees, on south side of Albemarle Sound, 17 yards from shore line and 5 yards north of large triangular-blazed cypress. Surface mark is standard disk in concrete set in center of top of tile, embedded in ground, note 6a. Reference marks are standard disks in concrete set in center of top of tile, embedded in ground, note 13a. Reference mark No. 1 is near west side of point, 2 yards west of 36-inch triangular-blazed cypress and 14.33 meters (47.0 feet) from station in azimuth 36°49′. Reference mark No. 2 is 10 yards inshore from west side of point, 3 yards from 10-inch triangular-blazed sweet gum tree and 18.90 meters (62.0 feet) from station in azimuth 102°03′.

Snake (Currituck County, G. C. Mattison, 1933; 1935).—On north shore of Albemarle Sound, on east side of mouth of North River, about 3.5 miles northwest of southern extremity of Powell Point, in firm sandy ground west of small point grown up with cypress and pines, 0.75 mile south of two-story house, 0.5 mile southeast of heavy growth of timber (highest in vicinity) extending to shore, 23.5 meters (77 feet) from south shore line, 18 meters (59 feet) southeast of 3-foot cypress, 17.4 meters (57 feet) west of blazed pine, 11.6 meters (38 feet) east of stumpy shore line, and 8.7 meters (29 feet) northwest of another blazed pine. To reach from Coinjock, follow State Highway 344 south for 18 miles to point 125 meters (410 feet) north of Powell Point Baptist Church (white), turn right and follow dirt road for 0.7 mile to fork and continue left on winding road for 0.9 mile to station located about 200 meters (656 feet) south along beach. Surface mark is standard disk in concrete at center of top of tile embedded in ground, note 6a. Underground mark is standard disk in concrete, note 7a. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13a. Reference mark No. 1 is directly inshore from point and 14.359 meters (47.11 feet) from station in azimuth 250°37′. Reference mark No. 2 is on sand beach, 5.5

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meters (18 feet) from water line and 20.995 meters (68.88 feet) from station in azimuth 140°35′. Two witness marks of station *Tillet 2* are as follows: Witness mark No. 1, 20-inch triangular-blazed pine, is 3.15 meters (10.3 feet) northeast of reference mark No. 1 and 17.51 meters (57.4 feet) from station. Witness mark No. 2 is tall 18-inch triangular-blazed pine, 8.81 meters (28.9 feet) east of station. *R. M. Tillet 2* is 19.080 meters (62.60 feet) from station in azimuth 43°08′.

Haulover (Dare County, G. C. Mattison, 1933; 1935).—About 1 mile east of Tom Mann Creek, on Haulover Point on south shore of Albemarle Sound, on high ground of sand-dune formation densely covered with trees and brush, about 200 yards east of outlet from East Lake, 38 yards from shore, and 7 yards from triangular-blazed live oak. Ground behind station slopes off to salt marsh. Surface and underground marks are standard disks set in concrete, notes 6a and 7a. Reference marks are standard disks in concrete, set in center of top of tile, embedded in ground, note 13a. Reference mark No. 1 is 11 yards from triangular-blazed 16-inch cypress and 19.84 meters (65.1 feet) from station in azimuth 235°07′. Reference mark No. 2 is 2 yards from triangular-blazed large live oak and 24.27 meters (79.6 feet) from station in azimuth 114°45′.

Coll (Dare County, G. C. Mattison, 1933).—At extreme southwest point of Collington Island, north of Roanoke Island, at southeast end of Currituck Sound and east end of Albemarle Sound, west of Wright Memorial Monument, in group of pines on sandy ridge, about 200 yards north of extreme point (marsh), 25 yards east of shore line, 25 feet west of marsh, and 7 yards south of triangular-blazed 24-inch pine. Surface mark is standard disk in concrete, set in center of top of tile, embedded in ground, note 6a. Reference marks are standard disks in concrete, set in center of top of tile, note 13a. Reference mark No. 1 is on sand ridge among pines and 16.78 meters (55.1 feet) from station in azimuth 154°50′. Reference mark No. 2 is near edge of marsh and two triangular-blazed 20-inch sweet gum trees and 18.18 meters (59.6 feet) from station in azimuth 226°46′.

Mashoe (Dare County, G. C. Mattison, 1933).—On south side of Albemarle Sound, at north end of Croatan Sound, about 0.5 mile west of mouth of Peter Mashoes Creek, on Caroon Point, northwest of Croatan Lighthouse, directly west of extreme point, between beach and village of Mashoes, on low sand ridge among small pine trees, in approximate location of old station Caroon Point, about 440 yards north-northwest of church, 58 yards from shore of sound, 14 yards northeast of large lake and 4 yards west of triangular-blazed 8-inch pine. Surface mark is standard disk in center of top of tile, embedded in ground, note 6a. Reference marks are standard disks in center of top of tile, embedded in ground, note 13a. Reference mark No. 1 is 6 yards east of 12-inch pine, 4 yards from lake shore, and 16.615 meters (54.51 feet) from station in azimuth 351°49′. Reference mark No. 2 is 4 yards from lake shore, 3 yards southeast of 24-inch triangular-blazed pine, and 20.775 meters (68.16 feet) from station in azimuth 88°51′.

Croat (Dare County, G. C. Mattison, 1933).—On west side of Croatan Sound, opposite north end of Roanoke Island, between Manns Harbor and Peter Mashoes Creek, on sand dune about 5 feet high, 23 yards west of triangular blazed 6-inch cypress, 20 meters (66 feet) from mean water line, and 18 yards north of triangular-blazed scrub pine. Surface mark is standard disk in concrete, set in center of top of tile, embedded in ground, note 6a. Reference marks are standard disks in concrete, set in center of top of tile, note 13a. Reference mark No. 1 is on sand ridge 17.47 meters (57.3 feet) from station in azimuth 308°22′. Reference mark No. 2 is on flat land behind ridge next to swamp, 2 yards from triangular-blazed 12-inch scrub live oak, and 18.64 meters (61.2 feet) from station in azimuth 357°25′.

Hill (Dare County, G. C. Mattison, 1933; 1935).—On northeast side of Roanoke Island, about 2.75 miles north of Manteo, on point of highest hill in vicinity, opposite dwelling of James Woodhouse, about 200 meters (656 feet) north of hard-surface highway. Surface mark is standard disk set in center of top of tile, note 6b. Underground mark is standard disk in concrete, note 7a. Reference marks are standard disks set in center of top of tile, embedded in ground, note 13a. Reference mark No. 1 is on lower dune covered with trees and 25.46 meters (83.5 feet) from station in azimuth 301°56′. Reference mark No. 2 is near two triangular-blazed trees and 56.19 meters (184.4 feet) from station in azimuth 20°54′.

Fleet (Dare County, G. C. Mattison, 1933).—About 1.5 miles south of Manns Harbor, on mainland on west side of Croatan Sound, on most southerly prominent part of point of marsh known as "Fleetwood Point," and in approximate location of old station Fleetwood, 300 yards northeast of small house and two barns, 32 yards in from shore line and 30 yards from water at small indentation in shore

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line. Surface mark is standard disk in center of top of tile, embedded in ground, note 6a. Reference marks are standard disks in center of top of tile, embedded in ground, note 13a. Reference mark No. 1 is 13.35 meters (43.8 feet) inshore from station in azimuth 82°04′. Reference mark No. 2 is about 16 yards from shore at indentation and 15.11 meters (49.6 feet) from station in azimuth 349°08′.

Wanch (Dare County, G. C. Mattison, 1933).—On Roanoke Island, about 3.25 miles south of Manteo, at southwest end of large low area covered with marsh grass, and southeast of pond made by borrow pit, about 67 meters (220 feet) north of two-story frame dwelling owned by Dewey E. Mann, 40 meters (131 feet) east of centerline of concrete highway between Manteo and Wanchese, and 9 yards east of lone 18-inch pine with twentypenny nail in triangular blaze. Surface mark is standard disk in center of top of tile embedded in ground, note 6a. Reference marks are standard disks in center of top of tile embedded in ground, note 13a. Reference mark No. 1 is 11 yards east of centerline of highway, 4 yards from south end of pond made by borrow pit, and 30.41 meters (99.8 feet) from station in azimuth 45°37′. Reference mark No. 2 is 2 yards northeast of northeast end of pond and 32.64 meters (107.1 feet) from station in azimuth 122°58′. Azimuth mark is standard disk in center of top of tile surrounded by mass of concrete, note 13b, and is 10 meters (33 feet) east of centerline of highway and about 80 meters (262 feet) from station in azimuth 115°13′.

Bodie Island north base (Dare County, A. D. Bache, 1849; 1933).—On Bodie Island, about east of center of Roanoke Island, about 0.5 mile southeast of State Highway 344 east of bridge to Roanoke Island, and about 115 meters (377 feet) west of beach telephone line. Underground mark is copper nail in top of 4-inch red-cedar stake driven down through hollow glazed stoneware marker shaped as frustrum of pyramid, top of which is 3 feet below surface of ground. Platform 5 feet square made of 3-inch planks laid crosswise and bolted together, with 18-inch diameter hole at center, was placed with center of hole over and 8 inches above stake. On this is placed stone monument 3.3 feet square and 2.8 feet high, top of which is flush with ground and in top center of which is 0.75-inch copper bolt with small drill hole marking station center. Over this is placed capstone 3 feet high by 1.5 feet square, top of which is in form of pyramid about 8 inches high, marked as follows: On north face "U. S. Coast Survey"; on east face "1848"; on south face "Base No. 4" and on west face "A. D. Bache, Supt." In 1933 station and two reference marks were recovered in good condition. Reference marks, consisting of stones 2.62 feet long and 1 foot square with copper bolts set in their tops (copper bolts containing small drill holes and cross marks at center), are placed 24.64 meters (80.8 feet) north of station on prolongation of base line, 33.10 meters (108.6 feet) east of station, and 34.03 meters (111.6 feet) west of station.

Manns Point R. M. (Dare County, J. Nelson, 1903; 1933).—On Bodie Island, on east side of Roanoke Sound near its northerly end, on Mann Point, on small sand knoll (with 3 pines and uprooted oak) about 18 inches above marsh, 100.31 meters (329.1 feet) inshore from location of old station Manns Point (now lost), 30 meters (98 feet) back from shore at point, and 5 meters (16 feet) from uprooted oak which was formerly used as witness mark. Surface mark is nail in 4- by 24-inch terra-cotta pipe filled with concrete, projecting about 8 inches and marked "U. S. C. & G. S.—1903." Underground mark is similar to surface mark, and separated by 4 inches of sand from bottom of upper mark. Reference mark (1917) is standard disk in concrete, note 11a. In 1933 new reference mark, note 13a, was established. Reference mark No. 1 (1917) is 42.25 meters (138.6 feet) from station in azimuth 238°45′. Reference mark No. 2 (1933) is 12.80 meters (42.0 feet) from station in azimuth 184°49′.

Seven (Dare County, G. C. Mattison, 1933).—On Bodie Island, on east side of Roanoke Sound, on sandy beach about 200 meters (656 feet) south of Nags Head, about 150 meters (492 feet) south of old wooden wharf, 75 meters (246 feet) from edge of water, and 30 yards east of north-south road. Surface mark is standard disk in concrete, set in center of top of tile, note 6a. Reference marks are standard disks in concrete, set in center of top of tile, note 13a. Reference mark No. 1 is 18.84 meters (61.8 feet) from station in azimuth 227°20′. Reference mark No. 2 is 14.78 meters (48.5 feet) from station in azimuth 328°19′.

Roanoke Marshes Lighthouse (Dare County, G. C. Mattison, 1933).—On Croatan Sound. Station is center of cupola of Roanoke Marshes Lighthouse. A cross mark on the metal roof is 2.36 meters (7.7 feet) from station in azimuth 101°58′. Azimuth from station to *Croix* (see description thereof) is 68°45′02.1″.

Cedar (Dare County, G. C. Mattison, 1933).—On Croatan Sound, on west side

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of Roanoke Island, on northwest edge of marsh extending westward from Wanchese Harbor toward Roanoke Marshes Lighthouse, 5 meters (16 feet) from edge of water at place where small island is about 5 meters (16 feet) offshore. Station is standard disk set in concrete at center of top of tile, note 6b. Reference marks are standard disks set at center of top of tile, note 13b. Reference mark No. 1 is 12.63 meters (41.4 feet) from station in azimuth 267°10′. Reference mark No. 2 is 12.905 meters (42.34 feet) from station in azimuth 5°24′.

Creek (Dare County, G. C. Mattison, 1933; 1937).—About 0.2 mile north of Broad Creek Point, on east side of Roanoke Island, about 600 meters (1,968 feet) east of Broad Creek and in direct line with first Coast Guard station south of highway bridge and two large 2-story houses in Wanchese, 280 meters (919 feet) north of small ditch leading west from Roanoke Sound to Broad Creek and in low marshy area 15 meters (49 feet) in back of center one of three 6-inch wooden posts 3 feet high located on shore. Station mark is standard disk in center of top of tile, note 6a. Reference marks are standard disks in center of top of tiles, note 13a. Reference mark No. 1 is on first prominent point above Broad Creek Point, 7 meters (23 feet) from east shore and 16.39 meters (53.8 feet) from station in azimuth 194°54′. Reference mark No. 2 is on first prominent point above Broad Creek Point, 9 meters (30 feet) from east shore and 12.835 meters (42.11 feet) from station in azimuth 285°19′.

Bodie Island south base (Dare County, A. D. Bache, 1849; 1937).—Near the southerly end of Bodie Island, about 1 mile southeast of lighthouse, about 0.75 mile west of Atlantic shore, 120 meters (394 feet) west of telephone line, and in range with lighthouse and Broad Creek Point. Underground mark is a copper nail in top of 4-inch red-cedar stake driven down through a hollow glazed stoneware marker shaped as frustrum of pyramid, top of which is 3 feet below surface of ground. A 5-foot square platform made of 3-inch planks laid crosswise and bolted together, with 18-inch diameter hole at center, was placed with center of hole over and 8 inches above the stake. On this is placed surface mark, which is small drill hole in copper bolt placed at center of stone monument 3.3 feet square by 2.8 feet high. This stone is set on the platform and its top is about flush with surface of ground. Over surface mark is placed a capstone 3 feet high and 2 feet on each side, with top in the form of a pyramid about 8 inches high. Capstone bears following inscriptions: On north face, "U. S. Coast Survey"; on east face, "1848"; on south face, "Base No. 4"; and on west face, "A. D. Bache, Supt." Two subsidiary stone monuments 2.62 feet long by about 1 foot square were placed at the east and west extremities of knoll on which station is located and nearly on same level as station, on a line nearly at right angles to base line passing through station. These stones are flush with ground and each has a copper bolt with drill hole and cross lines on top. Distance from station to west monument is 25.44 meters (83.5 feet) and to east monument 21.66 meters (71.1 feet). In 1903 the east subsidiary stone could not be found. In 1933 the capstone was recovered as described, and it is presumed that the other parts of station are as described. Reference marks were not recovered. Azimuth from station to *Bodie Island Lighthouse* (see description thereof) is 128°24′41.5″.

Club (Dare County, G. C. Mattison, 1933; 1937).—On west side of Duck Island, at extreme northeast end of Pamlico Sound, southeast of Roanoke Island, west of Bodie Island Lighthouse, on opposite side of island from clubhouse, in little clearing, on fairly hard ground 18 inches above water, in grassy marsh, about 90 meters (295 feet) east of Pamlico Sound, 30 meters (98 feet) west of easterly side of bay and 20 meters (66 feet) south of south side of bay. Station is standard disk set in concrete at center of top of tile, note 6a. Reference marks are standard disks set in concrete at center of top of tiles, note 13a. Reference mark No. 1 is toward small pond and 22.30 meters (73.2 feet) from station in azimuth 241°39′. Reference mark No. 2 is about 400 yards west of clubhouse and is 9.13 meters (30.0 feet) from station in azimuth 321°21′.

Bodie Island Lighthouse (Dare County, A. D. Bache, 1875; 1937).—On Bodie Island. Station is center of lighthouse, which is conical tower with alternate white and black horizontal bands above granite base, with black ironwork housing light, 156 feet above mean water level.

Roots (Dare County, G. C. Mattison, 1933).—On west side of Pamlico Sound, on east side of Stumpy Point, about 1.5 miles north of Old Point, in swampy ground, and 12 paces west of water's edge. Station is standard disk set in concrete at center of top of tile, note 6a. Reference mark No. 1 (unstamped), standard disk in concrete, is set at center of top of tile set over 2-by-4 driven in ground, note 13c, projecting 2 feet at water edge and is 19.15 meters (62.8 feet) from sta-

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tion in azimuth 125°36′. Reference mark No. 2, standard disk set in concrete at center of top of tile, note 13a, is 12 paces west of water edge and 16.67 meters (54.7 feet) from station in azimuth 214°58′. Stumpy Point 3 is 25.18 meters (82.6 feet) from station in azimuth 2°39′.

Supplementary points

Wade Point Lighthouse (Camden County, R. P. Eyman, 1935).—About 3.25 miles west of Camden Point (or North River Point), in mouth of Pasquotank River where it enters Albemarle Sound. Station is topmost peak above the light, at center of which is sharp spike. No reference marks were established.

Long Shoal Point (Tyrrell County, C. L. Garner, 1914; 1935).—On south shore of Albemarle Sound, at west side of mouth of Alligator River, on Long Shoal Point, on sandy ridge about 0.75 mile north of entrance to Little Alligator Creek. In 1933 station mark was found about 30 yards back from shore line, which has evidently built out. Station mark is a standard disk in concrete, note 1a. Underground mark is a mass of concrete boxed in with bricks with center marked by two fortypenny nails, points up. The old reference marks could not be found and two new marks, standard disks in concrete set in center of top of tile embedded in ground, note 13a, were established. Reference mark No. 1 is 3 yards from triangular-blazed 8-inch pine and 21.308 meters (69.91 feet) from station in azimuth 8°39′. Reference mark No. 2 is near two small triangular-blazed pines and 24.673 meters (80.95 feet) from station in azimuth 88°12′.

Gator (Dare County, G. C. Mattison, 1933; 1935).—On south shore of Albemarle Sound, on northwestern point of Durant Island, about 20 meters (66 feet) from the point, 20 meters (66 feet) from Albemarle Sound shore line, and 14 meters (46 feet) from Alligator River shore line. Surface mark is a standard disk in concrete at center of top of tile embedded in ground, note 6a. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13a. Reference mark No. 1 is 20.74 meters (68.0 feet) from station in azimuth 210°39′. Reference mark No. 2 is 20.56 meters (67.5 feet) from station in azimuth 307°23′. Reference mark No. 1 of old station *Alligator* (see description thereof) is 10.295 meters (33.78 feet) from station in azimuth 84°43′.

Shellbank 2 (Currituck County, O. W. Ferguson, 1915; 1933).—On Shellbank Point, on east shore of lower end of Currituck Sound, on extreme water edge of small bight making in from shore line, about 30 meters (98 feet) due west from point of woods bordered on both sides by marshland. Station is about 2 feet above water level and several feet lower than highest part of point. Surface mark is standard disk in concrete, note 1a, stamped "Shellbank." Reference mark is standard disk in concrete, note 11a. In 1933, old reference mark had been uprooted by storm. New reference marks are standard disks in concrete set according to notes 11a and 13a respectively. No. 1 is 19.05 meters (62.5 feet) from station in azimuth 212°46′, and No. 2 is 14.18 meters (46.5 feet) from station in azimuth 345°15′.

Harbor (Currituck County, G. C. Mattison, 1933; 1934).—About 0.75 mile north of Powell Point, on west side of Currituck Sound, at southeast end of Currituck County Peninsula, just northeast of village of Point Harbor, on Sampson Point, on sandy beach at edge of pines, about 120 meters (394 feet) south of west end of Wright Memorial Bridge, and 15 meters (49 feet) from mean-water line. Surface and underground marks are standard disks in concrete, notes 6a and 7a. Reference marks are standard disks in concrete, note 13a. Reference mark No. 1 is in pine woods, about 82 feet west of water edge, and 12.069 meters (39.60 feet) from station in azimuth 114°05′. Reference mark No. 2 is in pine woods, about 105 feet from water edge, on small peninsula, and 21.750 meters (71.36 feet) from station in azimuth 164°46′. Distance between reference marks is 16.910 meters (55.48 feet).

Guite (Dare County, G. C. Mattison, 1933; 1934).—On east shore of Currituck Sound, 0.3 mile north of east end of Wright Memorial Bridge, about 105 feet east of west end of small peninsula, 50 feet north-northwest of north shore of very small bay and 30 feet south-southeast of south shore of another small bay. Surface mark is standard disk in concrete at center of top of tile embedded in ground, note 6a. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13a. Reference mark No. 1 is near base of steep bank, about 40 feet east of east shore of small bay, and 20.120 meters (66.01 feet) from station in azimuth 224°45′. Reference mark No. 2 is near base of steep bank, about 35

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feet east of east shore of very small bay, and 24.700 meters (81.04 feet) from station in azimuth 301°11′. Distance between reference marks is 30.882 meters (101.32 feet).

Pig (Currituck County, G. C. Mattison, 1933; 1934).—On west shore of Currituck Sound, about 2.25 miles north of west end of Wright Memorial Bridge, in grass-covered marsh on point of land about 500 yards north of south end of Pig Point, 92 feet east of southeast end of bay on west side of peninsula, 69 feet south-southwest of north shore of peninsula, and 51 feet west of east shore of peninsula. To reach from drawbridge in Coinjock, (speedometer at zero) follow State Highway 344 south for 17.5 miles and turn left on dirt road just before reaching white church on left; at 18.3 keep straight ahead at T-road left; at 18.9 reach Hog Quarter Landing; from this point station is reached by boat, proceeding southeast about 600 yards. Surface mark is standard disk in concrete at center of top of tile embedded in ground, note 6a. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13a. Reference mark No. 1 is 60 feet west of east shore and 13.737 meters (45.07 feet) from station in azimuth 3°25′. Reference mark No. 2 is 45 feet southeast of a little bay, 38 feet northeast of east edge of inside bay and 20.063 meters (65.82 feet) from station in azimuth 66°05′. Distance between reference marks is 18.388 meters (60.33 feet).

High (Dare County, G. C. Mattison, 1933).—On Bodie Island, on ridge, about 650 meters (2,132 feet) west of Carolina Beach Pavilion (on Atlantic coast), at eastern edge of dense woods, 25 meters (82 feet) south of center line of State Highway 344, 13 yards south of top of bank on south side of road, and 10 yards east of triangular-blazed 15-inch live oak. Station is standard disk in concrete at center of top of tile embedded in ground, note 6a. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13a. Reference mark No. 1 is 15.47 meters (50.8 feet) from station in azimuth 354°06′. Reference mark No. 2 is 4 yards south of triangular-blazed leaning 15-inch live oak and 23.97 meters (78.6 feet) from station in azimuth 94°12′.

Sand (Dare County, G. C. Mattison, 1933).—On Bodie Island, on highest sand dune directly west of Paul Gamiel Hill Coast Guard station, about 100 meters (328 feet) south of road to Coast Guard station from west, 25 meters (82 feet) east of very dense woods, and 19 yards from triangular-blazed 6-inch live oak. Station is standard disk in concrete at center of top of tile embedded in ground, note 6a. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13a. Reference mark No. 1 is on sand dune, 2.5 yards from triangular-blazed 6-inch live oak, and 17.27 meters (56.7 feet) from station in azimuth 12°40′. Reference mark No. 2 is on sand dune and 25.45 meters (83.5 feet) from station in azimuth 78°26′.

Cross (Dare County, G. C. Mattison, 1933.)—On Bodie Island, about 1.5 miles east of east end of Wright Memorial Bridge, near intersection of north-south tangent with east-west tangent of State Highway 344, about 116 meters (381 feet) west of Carolina Beach Pavilion and 36 yards northeast of center line of highway, near center of Y formed by hard surface pavement. 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 same Y formed by road and 34.29 meters (112.5 feet) from station in azimuth 107°05′. Reference mark No. 2 is in same Y formed by road and 26.42 meters (86.7 feet) from station in azimuth 194°07′. Azimuth mark is across highway from a green residence, 104 yards south of southeasterly point of curvature of highway curve, directly in line of telephone poles, 42.96 meters (140.9 feet) south of copper tacks in telephone pole, 8.6 meters (28 feet) west of center line of highway, 2.85 meters (9.4 feet) north of copper tacks in another telephone pole, and about 0.25 mile from station in azimuth 323°46′25″. Station *105+60 (N. C. D. C. & D.)* (see description thereof) is 753.58 feet from station in azimuth 181°51′31″.

0+00 (N. C. D. C. & D.) (Dare County, G. C. Mattison, 1933).—On Bodie Island, about 2.15 miles south of Paul Gamiel Hill Coast Guard station, 2.1 miles north of road from Wright Memorial Bridge, and 27 meters (89 feet) east of telephone line. Station is copper nail set in 4-inch tile filled with and surrounded by mass of concrete marked "Station 0+00 N. C. Department Conservation & Development." Reference marks are copper nails in 1-inch square copper plates set 5 feet above ground in telephone poles. One reference mark is 166 feet from station in azimuth 124°21′. The other reference mark is 91 feet from station in azimuth 56°27′.

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Mill Creek (Dare County, J. W. Maupin, 1909; 1937).—On southeast side of Roanoke Island, about 0.5 mile south of Mill Creek, about 6 yards from shore. Station is marked by 4-inch drain tile 2 feet long, sunk in ground and embedded in concrete. Reference marks are two 2-by-4-inch stakes. Reference mark No. 1 is 25 feet from station in azimuth 283°04′. Reference mark No. 2 is 25 feet from station in azimuth 13°04′. In 1915 reference marks could not be recovered. A new reference mark, standard disk in concrete set in center of top of tile, note 13a, was established in range with *Bodie Island Lighthouse*, 38.96 meters (127.8 feet) from station in azimuth 103°06′.

917+29.2 (N. C. D. C. & D.) (Dare County, G. C. Mattison, 1933).—A station of the North Carolina Department of Conservation and Development, on Bodie Island, 2,600 feet south of Manteo Highway and 50 feet east of telephone line. Station is copper nail set in top of 4-inch sewer tile filled with concrete, bell down. Two reference marks are telephone poles. One reference mark is 59 feet west of station. The other reference mark is 147 feet south of station.

Ash (Dare County, G. C. Mattison, 1933).—On west side of Roanoke Island, near more easterly limits of Ashby Harbor, about 0.25 mile north of old station Ashby, between water line and large residence, 50 meters (164 feet) from residence, and 12 meters (39 feet) from edge of water. Surface mark is standard disk in concrete in top of tile, note 6b. Reference marks are standard disks in concrete in top of tile, note 13b. Reference mark No. 1 is 26.29 meters (86.3 feet) from station in azimuth 178°31′. Reference mark No. 2 is 11.67 meters (38.3 feet) from station in azimuth 274°01′.

Bryan (Dare County, G. C. Mattison, 1933).—On west side of Roanoke Island, on sandy point about 70 meters (230 feet) south of old Burnside Wharf (piling only remains) and 12 meters (39 feet) from water line. Station is standard disk set at top of concrete filled terra-cotta tile surrounded by concrete, note 6b. Reference mark No. 1 is reference mark for old station Pork Point and is opposite wharf, in 14-inch block of concrete, and 71.76 meters (235.4 feet) from station in azimuth 215°33′. Reference mark No. 2 is standard disk in concrete, note 13b, and is 10.48 meters (34.4 feet) from station in azimuth 338°10′.

Baum Point (Dare County, O. W. Ferguson, 1915; 1933).—On east side of Roanoke Island, at north side of entrance to Shallowbag Bay, on low sand spit, 12 meters (39 feet) and 6 meters (20 feet), respectively, from shores of bay and sound. Wooded marsh is about 5 yards back of station. Station is a standard disk in concrete, note 1a. In 1933, two new reference marks were established, standard disks in concrete in top of tile embedded in ground, note 13a. Reference mark No. 1 is 7.87 meters (25.8 feet) from station in azimuth 311°48′. Reference mark No. 2 is 8.61 meters (28.2 feet) from station in azimuth 36°53′.

Sir (Dare County, G. C. Mattison, 1933; 1937).—On north side of Roanoke Island, in approximate location of old station Raleigh (destroyed), on sandy ridge almost in range with Fort Raleigh pavilion and flagstaff, 49 meters (161 feet) north of Fort Raleigh flagstaff, 30 meters (98 feet) from shore line, and 15 meters (49 feet) above water. Station is standard disk in concrete at center of top of tile surrounded by mass of concrete, note 6b, projecting about 12 inches. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13a. Reference mark No. 1 is almost in line with station and flagstaff and 15.92 meters (52.2 feet) from station in azimuth 10°06′. Reference mark No. 2 is 11.88 meters (39.0 feet) from station in azimuth 30°31′. *Fort Raleigh, flagstaff* is 49.1 meters (161 feet) from station in azimuth 10°37′. In 1937 station was reported destroyed due to restoration work.

Lunch (Dare County, O. W. Ferguson, 1915; 1933).—On west side of Buzzard Bay, on McDonald Point at southern end of Collington Island, in rush grass on marshy ground, about 10 yards from high-water line and 8 yards below pasture fence running to sound. Station is a standard disk in concrete at center of top of tile embedded in ground, note 6a. Reference mark No. 1 is the northwest corner of B. D. Pugh's dwelling house and is 40.503 meters (132.88 feet) from station in azimuth 169°58′. Reference mark No. 2 is standard disk in concrete, note 11a, and is 23.729 meters (77.85 feet) from station in azimuth 206°58′.

Wright Memorial Monument (Dare County, J. C. Sammons, 1933).—Station is finial of beacon-light casing on top of Wright Memorial Monument on Kill-devil Hill. Top of light is at elevation of 151 feet.

Croatan Lighthouse (Dare County, J. Nelson, 1903; 1933).—On north end of Croatan Sound. Station is center of light at Croatan Lighthouse which is 40-foot structure about 1 mile offshore.

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1320+00 (N. C. D. C. & D.) (Dare County, G. C. Mattison, 1933; 1937).—On Bodie Island, 4,086 feet north of Oregon Inlet and 98.5 feet east of telephone line. Station is twenty-fifth mile station of North Carolina Department of Conservation and Development and is copper nail set in 4-inch sewer tile filled with concrete, bell down. Two reference marks are poles with copper nail in 1-inch square copper plate set 3 feet above ground. One reference mark is 116.7 feet west of station. The other reference mark is 136.75 feet southwest of station.

Hawk (Dare County, G. C. Mattison, 1933).—At eastern end of Albemarle Sound, on North Point, at northwest end of Collington Island, on south side of mouth of Kittyhawk Bay, in water-oak grove about 15 meters (49 feet) from water edge and 4 meters (13 feet) northwest of 24-inch twin oak with triangular blaze. Station is a standard disk set in concrete at center of top of tile embedded in ground, note 6a. Reference mark No. 1 is standard disk in concrete at center of top of tile embedded in ground, note 13a, is 3 yards southwest of triangular-blazed 24-inch pine, and 19.03 meters (62.4 feet) from station in azimuth 281°01′. Reference mark (note 11a) for old station "North Point 1915–1917" is 15.40 meters (50.5 feet) from station in azimuth 9°25′.

Croix (Dare County, G. C. Mattison, 1933).—On Croatan Sound, at Roanoke Marshes, opposite Wanchese, on central western part of small island separated from mainland by narrow, deep cut along which are six houses and west of which is another channel. Station is just east of most southeasterly house, 30 yards from creek bank, and 12 yards south of nearer of two narrow-gage railways extending from small dock into marsh. Surface mark is standard disk in concrete at center of top of tile embedded in ground, note 6a. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13a. Reference mark No. 1 is 16.21 meters (53.2 feet) south of near railway and 16.202 meters (53.16 feet) from station in azimuth 280°20′. Reference mark No. 2 is 14.108 meters (46.29 feet) from station in azimuth 359°56′.

Duck Island R. M. (Dare County, J. W. Maupin, 1909; 1937).—At the southerly end of Roanoke Sound, on southeast end of Duck Island. Station is marked by a standard reference mark disk, note 11a, which is 15.90 meters (52.2 feet) from station Duck Island in azimuth 222°39′. In 1933 station Duck Island was reported lost, and a new station *Club* (see description thereof) was established.

Dare R. M. (Dare County, J.W. Maupin, 1909; 1933).—On west side of Croatan Sound, on sandy point about 3 miles north-northwest of Roanoke Marshes Lighthouse. Station is marked by a standard reference mark disk in 3-inch iron pipe about 4 inches above ground, and is well back in marsh, 20.17 meters (66.2 feet) from station Dare in azimuth 50°54′.

Raleigh (Dare County, J. W. Maupin, 1909; 1933).—On north end of Roanoke Island, about 500 yards east of Old Fort Raleigh, on sandy point, about 6 meters (20 feet) from water edge and 5 yards east of road. Station is marked by two sections of 4-inch drain tile fitted together and embedded in ground. In 1933 the top tiling was found washed out and lying on ground, and the bottom tiling was found 1 foot below surface of ground. The original reference marks are 5-inch stakes driven into ground and projecting about 18 inches. One is 25.2 feet from station, directly in line toward *Croatan Lighthouse;* the other is 24.9 feet from station on a line 90° to the right of the first. A reference mark (note 11a) is 65.92 meters (216.3 feet) from station in azimuth 6°00′. In 1933 station and reference marks were reported lost, and new station *Sir* (see description thereof) was established.

105+60 (N. C. D. C. & D.) (Dare County, G. C. Mattison, 1933).—On Bodie Island. This is a station on the survey of North Carolina Department of Conservation and Development from Wright Memorial Bridge to Rodanthe Region. It is the second mile station, 753.88 feet north of station *Cross*, 453 feet north of center line of highway, 114 feet north-northeast of telephone pole with copper nail in 1-inch square copper plate 3 feet above ground, 96 feet east-southeast of another telephone pole similarly marked, 66 feet east of telephone line, and just north of Kitty Hawk Beach Dance Pavilion. Station is a copper nail set in 4-inch sewer tile filled with concrete, bell down.

Pal (Tyrrell County, J. B. Boutelle, 1909; 1933.—On south side of Albemarle Sound, about 10 miles west of entrance to Alligator River and about at center of Palmetto Point, on narrow strip of sand on outer edge of heavily-wooded swamp. Station is marked by nail in spread of roots on north side of 12-inch cypress, about 18 inches below the surface. Upper mark is nail in 4-inch drain tile filled with and set in concrete, placed directly over nail in tree, blazed on northeast and northwest sides about 12 inches above tile. Reference mark (1917)

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is a standard disk set in tile on end of long wooden pile driven into marsh, note 13c, and is 11.175 meters (36.66 feet) from station in azimuth 301°56′. Original witness marks are nails in blazes on trees back in swamp. The following distances and azimuths are from station: Square blaze on pronged gum tree, 18.73 meters (61.5 feet), 16°30′; triangular blaze on cypress, 21.26 meters (69.8 feet), 54°34′; diamond-shaped blaze on gum tree, 19.45 meters (63.8 feet), 333°15′.

Alligator (Dare County, C. L. Garner, 1914; 1933).—On south side of Albemarle Sound at the mouth of Alligator River, on extreme western point of Durant Island, on highest part of sand point which is covered with grass, 75 yards north-northwest of the woods and 6 yards east of high-water mark. In 1933 station was reported destroyed and new station *Gator* established. Azimuth from station to *Gator* (see description thereof) is 292°16′57″.

CAPE ROMAIN, S. C., TO CAPE FEAR (SECOND-ORDER)

Principal points

Evert (Horry County, S. C., K. G. Crosby, 1934).—About 4 miles west of Little River. The station is 46 meters (151 feet) south of the point of forks of road, 6 meters (20 feet) west of the edge of shoulder of side ditch, 15 meters (49 feet) west of center line of State Highway 9 (detour), and 6 meters (20 feet) northwest of a triangular blaze on a 12-inch pine tree. To reach from Little River, go west on State Highway 117 about 3 miles to Nixons crossroads. From here, take State Highway 9 (detour) and go north-northwest 2.1 miles to a woods road on the left at a curve in the road. 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 9 meters (30 feet) east of the center line of main road, 120.80 feet from station in azimuth 204°57′. Reference mark No. 2 is 9 meters (30 feet) east of the center line of main road, 132.18 feet from station in azimuth 292°28′. Reference mark No. 3 (azimuth) is on the southeast corner of the first cross roads north of station, 0.5 mile from station in azimuth 170°19′49″. Distance between reference marks Nos. 1 and 2 is 175.13 feet.

Ward (Horry County, S. C., K. G. Crosby, 1934).—At Nixons crossroads, about 0.5 mile north of Intracoastal Waterway, in southwest angle of intersection of State Highways 9 and 90, 130 meters (427 feet) (paced) west of center line of State Highway 9, 15 meters (49 feet) south of center line of State Highway 90, and 12 meters (39 feet) north of old mill chimney. 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 at edge of cultivated field, about 200 meters (656 feet) east of State Highway 9 and about 0.25 mile from station in azimuth 185°23′05″. Reference mark No. 2 is 24 meters (79 feet) south of center line of State Highway 90 and 99.39 feet from station in azimuth 264°05′. Reference mark No. 3 is 50 meters (164 feet) south of center line of State Highway 90, 20 meters (66 feet) south-southwest of old mill chimney, and 106.05 feet from station in azimuth 357°16′. Distance between reference marks Nos. 2 and 3 is 141.76 feet.

Lewis (Horry County, S. C., K. G. Crosby, 1934).—On prominent point of land on southeast side of Little River Neck, about 2.25 miles west-southwest of easterly point of neck, on bluff which extends east-west along edge of marsh, and about 0.75 mile from beach northerly from Hog Inlet, (row of pines extends along edge of bluff to east). Station is 45 meters (148 feet) north of creek at foot of bluff, 35 meters (115 feet) northeast of small unpainted house, 15 meters (49 feet) north of edge of bluff, 15 meters (49 feet) north of 15-inch oak, and about 5 meters (16 feet) above level of marsh. To reach from post office in Little River, S. C., follow U. S. Highway 17 southwest for 3.5 miles to dirt road just south of Intracoastal Waterway, take dirt road south for 0.3 mile; continue straight ahead at "Cherry Grove Beach" sign for 2.6 miles; turn right for 0.3 mile and turn right into woods road and continue 0.1 mile to station. Footwalk of planks on wooden piling extends southerly across marsh from bluff. 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 in uncultivated field and 35.257 meters (115.67 feet) from station in azimuth 181°51′. Reference mark No. 2 is 4 meters (13 feet) west of road to house and 34.54 meters (113.3 feet) from station in azimuth 112°08′. Distance between reference marks is 39.905 meters (130.92 feet).

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State line monument (Brunswick County, N. C., Horry County, S. C., K. G. Crosby, 1934).—About 1.15 miles west of Hickmans crossroads, on well-traveled dirt road, at North Carolina-South Carolina State line, 50 meters (164 feet) west of small unpainted church, 30 meters (98 feet) east of small unused shack and 20 meters (66 feet) south of edge of woods. To reach from Little River, S. C., follow dirt road north for 4 miles to Hickmans crossroads or follow paved road joining U. S. Highway 17, 5 miles east of Little River. Surface mark is 6.6- by 6.6-inch granite post, projecting about 3 feet. Reference marks are standard disks in concrete, note 11a. Reference mark no. 1 is in churchyard south of road, 25 meters (82 feet) west of 36-inch live oak, 20 meters (66 feet) north of graveyard and 30.27 meters (99.3 feet) from station in azimuth 115° magnetic. Reference mark No. 2 is south of center of traveled road at point of pine woods and 24.28 meters (79.7 feet) from station in azimuth 210° magnetic. Distance between reference marks is 40.55 meters (133.0 feet).

Blane (Brunswick County, K. G. Crosby, 1934).—About 1.5 miles north of Mad Inlet, on prominent point of mainland known locally as Blanes Landing, on property belonging to Jessie Metcalf, J. L. LaBruce, superintendent. To reach from Little River, follow U. S. Highway 17 northeast 7 miles to Standard service station. From this point, with speedometer at zero, proceed south as follows: At 2.4 take left fork; at 2.9 straight ahead at crossroads; at 4.6 take dim road across field for about 100 yards (this road crosses field just before coming to home of D. E. Stanaland); after crossing field enter woods at private road sign; go through gate at 4.9; at 5.6 take right fork at triangular-blazed pine; at 6.2 come to end of point and 12-inch triangular-blazed pine. Station is 13 meters (43 feet) north of this blazed pine, 168 feet north-northeast of *R. M. 26 (U. S. E.)*, on east side of road, about 130 meters (427 feet) north of Intracoastal Waterway, and about 28 meters (92 feet) from high-water line. 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 in woods and 141.52 feet from station in azimuth 210°14′. Reference mark No. 2 is 3 meters (10 feet) west of road and 124.37 feet from station in azimuth 132°11′. Distance between reference marks is 167.97 feet. Azimuth to *R. M. 26* (*U. S. E.*) is 23°21′30″.

Goat (Horry County, S. C., K. G. Crosby, 1934).—About 1 mile west-northwest from Little River Inlet, one-half mile south of the south point of Colkins Neck, on a small hummock on the north side of Little River. Station is about 60 meters (197 feet) north of the high-water line of the river, about 120 meters (394 feet) west of a creek which joins Little River at beacon No. 4, 18 meters (50 feet) north of the south side of the hummock, 25 meters (82 feet) west of the east end of the hummock, and 16 meters (52 feet) north-northeast from the most prominent tree on the hummock. 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 on the extreme northeast point of the hummock, 33.194 meters (108.90 feet) from station in azimuth 176°40′. Reference mark No. 2 is on the extreme southeast point of the hummock, 29.050 meters (95.31 feet) from station in azimuth 295°27′. Distance between reference marks is 53.626 meters (175.94 feet). The following azimuths are from station: Intracoastal Waterway, beacon No. 91, 157°55′38″; Intracoastal Waterway, beacon No. 89 172°16′20″; and *Intracoastal Waterway, beacon No. 46*, 212°03′09″.

Metcalf (Brunswick County, K. G. Crosby, 1934).—About 5 miles northeast of Little River, S. C., about 3 miles north-northeast of Mad Inlet, on old Georgetown Road, and in area of sparse pines, on land belonging to Jessie Metcalf. To reach station, zero speedometer at Little River Post Office and proceed as follows: Northeast on U. S. Highway 17 for 5.7 miles and turn sharp right onto dirt road leading south; at 8.1 miles take left fork; at 8.6 miles turn left at crossroads; at 9.23 take left fork; at 9.3 station on right, about 25 feet from center line of highway and 90 feet from center line of woods road leading to right before reaching station. A 10-inch pine with triangular blaze facing main road is 42 feet west of station and 32 feet from center line 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 127 feet from center line of road and 133.40 feet from station in azimuth 206°01′. Reference mark No. 2 is 110 feet from center line of road and 108.19 feet from station in azimuth 144°17′. Distance between reference marks Nos. 1 and 2 is

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125.86 feet. Reference mark No. 3 (azimuth) is on east side of road and about 860 feet from station in azimuth 259°09′24″.

Grissett (Brunswick County, K. G. Crosby, 1934).—At village of Grissett, about 10 miles northeast of Little River and about 0.3 mile south of U. S. Highway 17. Station is 28 feet northeast of center line of road, 18 feet southeast of tobacco barn, and just south of W. M. Grissett's home. To reach, turn south off U. S. Highway 17 at village of Grissett and go 0.3 mile 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 (azimuth) is 57 feet southwest of center line of road, 23 feet north of chimney on north side of Alard Grissett's home, and about 0.25 mile from station in azimuth 356°53′39″. Reference mark No. 2 is at edge of field, 210 feet southeast of barn, 22 feet southwest of center line of road, and 193.43 feet from station in azimuth 13°58′. Reference mark No. 3 is 155 feet southwest of center line of road on fence line just opposite barn, and 183.39 feet from station in azimuth 86°17′. Distance between reference marks Nos. 2 and 3 is 222.44 feet.

Seaside (Brunswick County, K. G. Crosby, 1934).—About 0.5 mile north of Seaside, in wooded area in V formed by main road and sand road leading to small house just northwest of station, about 75 feet northwest of road fork and 40 feet southwest of center line of main road. To reach from U. S. Highway 17, turn south at settlement of Grissett (which is 7 miles west of Shallotte) and go straight ahead 3.6 miles to station. 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 17 feet northeast of center line of main road at point 70 feet southeast of mail box 57 and 142.01 feet from station in azimuth 188°23′. Reference mark No. 2 is 55 feet southwest of center line of sand road at point 175 feet northwest of forks and 117.43 feet from station in azimuth 95°41′. Distance between reference marks is 188.51 feet.

Sylvia (Brunswick County, K. G. Crosby, 1934).—About 11.1 miles (by road) southwest of Shallotte and 4.1 miles southeast of Grissett, at site of old Gause plantation house on property belonging to Sylvia Jenwright (colored). To reach from Shallotte, follow U. S. Highway 17 southwest for 7 miles to Grissett, turn left on sand road for 2.1 miles to cross road; turn left onto old Georgetown Road and continue 2 miles to station, keeping straight ahead at all intersections. Station is 25 meters (82 feet) west of old chimney, 20 meters (66 feet) south of old barn across small garden plot, 18 meters (59 feet) southeast of sinkhole filled with water, 14 meters (46 feet) west of 12-inch cedar, and 7 meters (23 feet) southwest of center line 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 18 meters (59 feet) west of old barn, 13 meters (43 feet) north of sinkhole, and 94.82 feet from station in azimuth 188°50′. Reference mark No. 2 is 10 meters (33 feet) northwest of old chimney, at fence corner 8 meters (26 feet) east of cedar tree, and 90.46 feet from station in azimuth 282°57′. Distance between reference marks Nos. 1 and 2 is 135.61 feet. Reference mark No. 3 (azimuth) is in old field, 4 meters (13 feet) southeast of center line of road and 0.25 mile from station in azimuth 63°00′36″.

Sauce (Brunswick County, K. G. Crosby, 1934).—About 2.5 miles south-southwest of Shallotte. To reach from Shallotte, follow U. S. Highway 17 west for 1 mile to sign "Seaside 9", turn south on dirt road for 0.6 mile and take right fork for 1 mile to station located in another fork, about 65 meters (213 feet) south of point of fork, 22 meters (72 feet) from center line of road to right, and 9 meters (30 feet) from center line of road to left. 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) east of road and 138.81 feet from station in azimuth 329°26′. Reference mark No. 2 (azimuth) is in woods, 30 meters (98 feet) east of road to Seaside and about 0.25 mile from station in azimuth 38°30′39″. Reference mark No. 3 is 9 meters (30 feet) west of road to Seaside and 124.48 feet from station in azimuth 84°20′. Distance between reference marks Nos. 1 and 3 is 222.05 feet.

Brick (Brunswick County, K. G. Crosby, 1934; 1936).—At Brick Landing, on high ground about 300 meters (984 feet) west of Intracoastal Waterway Canal and 300 meters (984 feet) northwest of Beacon 38, in yard of C. L. Stanley's residence, 43 meters (141 feet) south of chimney of residence, 15 meters (49 feet) west of high sand bank covered with brush, 12 meters (39 feet) east of picket fence, and 10 meters (33 feet) north of sand road leading to Brick Landing. To reach from Shallotte, follow U. S. Highway 17 southwest 1 mile and turn left on sand road at

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sign "Seaside 9"; set speedometer at zero and continue as follows: 0.7 mile take right fork, 1.7 take left fork, 3.3 take left fork, 3.8 keep left at gas pump, 4.3 keep main right fork, 4.7 come to C. L. Stanley's home and 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 (azimuth) is 30 meters (98 feet) north of sand road on edge of field at woods line and about 0.25 mile from station in azimuth 186°14′27″. Reference mark No. 2 is 40 meters (131 feet) north of road, 20 meters (66 feet) south of chimney of residence, 1 meter (3 feet) east of fence line, and 29.280 meters (96.06 feet) from station in azimuth 248°19′. Reference mark No. 3 is 21 meters (69 feet) west of fence corner, 5 meters (16 feet) north of road, 0.5 meter (2 feet) inside fence paralleling road, and 34.678 meters (113.77 feet) from station in azimuth 168°45′. Distance between reference marks Nos. 2 and 3 is 41.132 meters (134.95 feet).

Tar (Brunswick County, K. G. Crosby, 1934).—About 2 miles east of Shallotte, on east bank of Shallotte River at point known locally as Tar Landing. To reach from Shallotte, follow U. S. Highway 17 east for 0.8 mile to "Holden Beach" sign; turn southeast on dirt road for 1 mile to "Shell Point" sign; turn right on dim dirt road for 1.3 miles and continue right along wire fence for 1 mile to landing and station, which is about 35 meters (115 feet) from water's edge, 30 meters (98 feet) east of bluff overlooking river, 14 meters (46 feet) south of road to landing, and 10 meters (33 feet) west of triangular-blazed 20-inch oak. 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 in woods, 35 meters (115 feet) north of road and 200 yards from station in azimuth 266°22′48″. Reference mark No. 2 is about 10 meters (33 feet) west of water's edge, 3 feet from edge of bluff, and 103.91 feet from station in azimuth 98°38′. Reference mark No. 3 is 14 meters (43 feet) north of road to landing and 118.61 feet from station in azimuth 168°26′. Distance between reference marks Nos. 2 and 3 is 127.81 feet.

Hewett (Brunswick County, K. G. Crosby, 1934).—To reach from Shallotte, turn south off U. S. Highway 17 at settlement of Robinson (which is 5.4 miles east of Shallotte and 1.8 miles west of Supply) and continue 4.25 miles to station located at home of H. F. Hewett, in front of the more southerly of two yellow houses, 40 feet north of board fence paralleling south side of drive-way to house, and 25 feet east of center line 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 (azimuth) is 40 feet east of center line of road, directly across road from small cream-colored house and about 0.2 mile from station in azimuth 211°57′48″. Reference mark No. 2 is 170 feet east of center line of road, 32 feet south of gate between yard and field, 1 foot west of north-south fence line of field south of Hewett's house, and 142.57 feet from station in azimuth 302°34′. Reference mark No. 3 is at fence corner, 15 feet west of center line of road, 15 feet southeast of southeast corner of frame garage, and 140.49 feet from station in azimuth 198°28′.

Holden (Brunswick County, K. G. Crosby, 1934; 1936).—About 7 miles south of Supply Post Office and about 0.3 mile north of ferry across Intracoastal Waterway at Holden Beach. To reach from Supply Post Office, go south on dirt road and follow "Holden Beach" signs for 7 miles to station, located 55 feet east of center line of road at a point 245 feet north of north edge of field which lies on west 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 (azimuth) is on south edge of field, about 150 feet west of center line of road and about 0.15 mile from station in azimuth 9°56′30″. Reference mark No. 2 is 140 feet north of north edge of field, 17 feet west of center line of road, 3 feet west of wire fence line, and 126.66 feet from station in azimuth 29°32′. Reference mark No. 3 is 305 feet north of north edge of field, 20 feet west of center line of road, 5 feet west of wire-fence line, and 97.47 feet from station in azimuth 127°20′. Distance between reference marks Nos. 2 and 3 is 170.00 feet.

Lockwood (Brunswick County, K. G. Crosby, 1934).—To reach from Supply Post Office, follow dirt road south for 1.2 miles to sign "Boons Landing" and keep straight ahead 3 miles to station on left (east) side of road, in small clearing at a point 100 meters (328 feet) north of edge of plowed field on west side of road, on property belonging to Jessie Lancaster, about 37 meters (121 feet) northwest of small hogpen located about 50 meters (164 feet) east of road, 24 meters (79 feet) north of gate in fence, 17 meters (56 feet) east of center line of road, 9

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meters (30 feet) south of abandoned shack, and 7 meters (23 feet) from fence along 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 (azimuth) is at edge of woods about 200 meters (656 feet) south of two-story house with tall outside white chimney, 3 meters (10 feet) south of center line of road, and about 400 meters (1,312 feet) from station in azimuth 27°02′00″. To reach from station, go 300 meters (984 feet) south along road to house of Harry Bryant on west side of road and turn right just past house on winding road for 150 meters (492 feet). Reference mark No. 2 is opposite gate in fence, 7 meters (23 feet) from center line of road and 40.864 meters (134.07 feet) from station in azimuth 41°10′. Reference mark No. 3 is 5 meters (16 feet) from center line of road and opposite a point 25 meters (82 feet) north of station along road and 32.902 meters (107.95 feet) from station in azimuth 138°58′. Distance between reference marks Nos. 2 and 3 is 55.830 meters (183.17 feet).

Bonham (Brunswick County, K. G. Crosby, 1934; 1936).—At Howell Point on east side of Lockwoods Folly River at its junction with Intracoastal Waterway, about 160 feet southeast of southeast corner of long narrow building with seven windows on east side and 115 feet north of high-water line of waterway at a point 50 feet west of *Intracoastal Waterway Beacon No. 14*. To reach from Supply Post Office, go east on State Highway 130 for 5.25 miles; turn right on sand road about 0.25 mile west of filling station and follow south about 3.9 miles; take left fork and continue on main-traveled road for 3 miles to Howell Point. 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 230 feet north of high-water line, 145 feet east of east side of building, 120 feet south of cow pen, and 116.42 feet from station in azimuth 195°10′. Reference mark No. 2 is 90 feet north of high-water line, 70 feet south-southeast of southeast corner of building, and 123.78 feet from station in azimuth 107°26′. Distance between reference marks is 166.52 feet. *Right-of-way monument 25* (*U. S. E.*) is 230.91 feet from station in azimuth 331°38′.

Waterway (Brunswick County, K. G. Crosby, 1934).—About 4 miles east of mouth of Lockwoods Folly River, on north bank of Intracoastal Waterway. The canal at this point is in cut about 20 feet deep. Station is about 100 feet southeast of southeast corner of small area fenced in with timber, 60 feet north of north bank of canal, and 55 feet west of center line 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 southwest corner of spoil area, 15 feet east of center line of road and 158.88 feet from station in azimuth 222°33′. Reference mark No. 2 is 75 feet east of center line of road, 35 feet north of north bank of canal, and 124.06 feet from station in azimuth 289°01′. Distance between reference marks Nos. 1 and 2 is 157.78 feet. Reference mark No. 3 (azimuth) is in woods, about 220 feet north of north dyke of spoil area, 30 feet east of center line of road, and about 0.25 mile from station in azimuth 197°53′29″.

Hick (Brunswick County, J. A. Bond, 1933; 1936).—About 4 miles west of Southport, on north side of Intracoastal Waterway, on sand dredge dump at edge of bushes on Hickory Point. To reach, turn south off State Highway 130 onto Fish Factory Road 13.7 miles east of Supply and 3 miles northwest of Southport; follow for 1.9 miles and take well-traveled road (right) for 1.5 miles to house; keep to left at house, continue 0.35 mile and take right fork for 0.25 mile to John Dosher's home; continue south on road across field to woods. Road ends at this point but continue through woods to edge of cultivated field, follow west about 100 yards and turn south across field again to woods and sand dredge dump. Station is about 275 yards north of edge of cut, 200 feet from small cultivated field behind trees, 30 meters (98 feet) south of edge of field. Surface mark is standard disk set in concrete at center of top of wooden pile driven into marsh, note 6c. Reference mark No. 1, standard disk set in concrete at center of top of tile, note 13b, is at edge of field and 61.48 feet from station in azimuth 203°13′. Reference mark No. 2 established in 1934 is a standard disk in concrete post, note 11a, and is 89.04 feet from station in azimuth 298°47′. Distance between reference marks is 113.00 feet.

Pond (Brunswick County, K. G. Crosby, 1934; 1936).—Station is on beach about 3.5 miles west of Fort Caswell. To reach from Southport, follow State Highway 130 northwest for 3 miles to Fish Factory Road; turn south and 1 mile south of pontoon bridge turn right on woods road where main road swings to

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left; follow 1 mile and take sharp left turn at T–road for 0.5 mile to station located 115 meters (377 feet) north of high-water line and 35 meters (115 feet) beyond edge of woods. 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 west of road at edge of woods and 34.00 meters (111.5 feet) from station in azimuth 194°22′. Reference mark No. 2 is 10 meters (33 feet) west of edge of small marshy spot and 33.43 meters (109.7 feet) from station in azimuth 310°52′. Reference mark No. 3 is at edge of woods and 57.815 meters (189.68 feet) from station in azimuth 113°54′. Distance between reference marks Nos. 3 and 1 is 62.039 meters (203.54 feet); between Nos. 1 and 2, 57.338 meters (188.12 feet).

Creek (Brunswick County, H. Odessey, 1923; 1934).—Station is about 2 miles west of Southport at lower end of Cape Fear River, on south edge of small hummock on north side of new Intracoastal Waterway at its junction with Elizabeth River, about 2 miles up Elizabeth River from its junction with Cape Fear River, and about 5 yards from high-water line at edge of first patch of woods beyond marshland. Original reference marks, each consisting of a nail in top of cedar post set in concrete, were reported lost in 1934. No. 1 is 6.356 meters (20.85 feet) from station in azimuth 330°59′ and No. 2 is 6.338 meters (20.79 feet) from station in azimuth 134°42′. In 1934 two new reference marks were established to replace those found destroyed. Reference mark No. 1 is 55.76 feet from station in azimuth 226°14′. Reference mark No. 2 is 57.45 feet from station in azimuth 141°41′. Distance between reference marks is 76.20 feet.

Supplementary points

Tubbs (Brunswick County, K. G. Crosby, 1934).—About 0.4 mile northeast of Seaside settlement, on strip of sand deposited by dredge in marsh between mainland and beach, about 0.75 mile from beach and 0.25 mile across Intracoastal Waterway canal from mainland, on low shell knoll, 236.3 meters (775 feet) southwest of *Intracoastal Waterway, Beacon No. 71*, 150 meters (492 feet) southeast of edge of marsh grass on east side of Intracoastal Waterway canal, and 60 meters (197 feet) northwest of a cut. Center of landing dock at Seaside ranges over Beacon 73 to the west of station. To reach from Shallotte, follow U. S. Highway 17 west for 7.1 miles; turn left between two gas stations at sign "Seaside 4" and follow main road south for 4 miles to dock; from this point continue by boat up canal for 0.25 mile to dock. From here take boat northeast ¼ mile to station. Station is a standard disk in concrete, note 1a. Reference marks are standard disks in concrete, note 11a. Reference mark No. 1 is on same knoll as the station, about 230 meters (754) feet southwest of *Intracoastal Waterway, Beacon No. 71*, 150 meters (492 feet) southeast of high-water line of canal, and 21.340 meters (70.01 feet) from station in azimuth 249°17′. Reference mark No. 2 is about 250 meters (820 feet) south of *Intracoastal Waterway, Beacon No. 71*, 120 meters (394 feet) northeast of high-water line of canal and 21.225 meters (69.64 feet) from station in azimuth 164°51′. Distance between reference marks is 28.568 meters (93.73 feet).

Shallotte (Brunswick County, K. G. Crosby, 1934).—About 7.5 miles southeast of Shallotte, on point of land known locally as Shell Point, at junction of Shallotte River and Shell Creek. To reach from Shallotte, take dirt road southeast of U. S. Highway 17 at Holden Beach sign 0.8 mile east of Shallotte. With speedometer at zero, upon leaving pavement, continue as follows: At 3.0 turn right off main road opposite garage, 3.1 keep left, 3.2 right, 4.0 keep main right fork, 4.6 straight ahead on main road at blazed pine, 4.7 keep main left fork, 5.5 take left fork, 5.7 cross small bridge, 5.8 keep right, 6.2 straight ahead at barn, 6.4 go down over hill and along beach to deserted cabins at end of point, in small clump of pines. Station is about 20 meters (66 feet) from high-water line and 10 meters (33 feet) north of edge of bluff near most southeasterly corner. 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 2 meters (7 feet) southwest of corner of wire fence around cultivated field and 71.05 feet from station in azimuth 221°37′. Reference mark No. 2 is 8 meters (26 feet) north of edge of bluff and 85.70 feet from station in azimuth 148°37′. Distance between reference marks is 93.98 feet.

Chadwick (Brunswick County, K. G. Crosby, 1934; 1936).—At Shallotte Inlet, on marsh island forming the eastern shore of Shallotte Inlet and approxi-

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mately midway between Intracoastal Waterway and beach. Island is separated from sand dunes and beach by creek extending easterly from Shallotte Inlet. Station is on marsh ground and is at springtide high-water line. From station the edge of marsh grass is about 40 meters (131 feet) to southwest, 55 meters (180 feet) to south, and 60 meters (197 feet) to northwest at junction of small creek with Shallotte Inlet. Station can be reached by boat from Village Point on Shallotte River which is about 5 miles by road south of Shallotte. Surface mark is standard disk in concrete, note 1a. Reference marks are standard disks in concrete, note 11a. Reference mark No. 1 is 8.624 meters (28.29 feet) from station in azimuth 335°17′. Reference mark No. 2 is 9.761 meters (32.02 feet) from station in azimuth 29°58′. Distance between reference marks is 8.510 meters (27.92 feet).

R. M. 15 (U. S. E.) (Brunswick County, K. G. Crosby, 1934; 1936).—About 5 miles south of Shallotte, at Village Point on Shallotte River, about 75 feet south from group of sheds on west bank of river and north bank of Intracoastal Waterway and 5 feet north of high-water line. Station is reference mark of Intracoastal Waterway Canal survey. *R. M. 14 (U. S. E.)* (see description thereof) ranges over a shed on an island in Shallotte River. Following azimuths are from station: *Chadwick* (see description thereof), 6°46′28.4″; *Brick* (see description thereof), 64°00′45.0″.

R. M. 14 (U. S. E.) (Brunswick County, K. G. Crosby, 1934; 1936).—About 5 miles south of Shallotte, on east bank of Shallotte River on north side of Intracoastal Waterway, and opposite Village Point, about 45 feet east of end of point and 8 feet north of high-water line. Station is reference mark of the Intracoastal Waterway Canal survey. Azimuth from station to *R. M. 15 (U. S. E.)* (see description thereof) is 114°58′51.6″.

Folly (Brunswick County, K. G. Crosby, 1934).—Station is on a marsh island in Lockwoods Folly River about 2 miles north of Intracoastal Waterway. Island is about one-half mile long, is nearly equidistant from east-west shores of river and is to east of principal watercourse. Station is at approximate springtide high-water line, northeast of group of houses and small store on west shore of river, about 200 meters (656 feet) from north end of island and 25 meters (82 feet) from edge of marsh grass. To reach from Supply Post Office, take dirt road south for 5 miles and turn east about 2 miles to river. Surface mark is standard disk in concrete, note 1a. Reference marks are standard disks in concrete, note 11a. Reference mark No. 1 is 19.735 meters (64.75 feet) from station in azimuth 209°35′. Reference mark No. 2 is 18.497 meters (60.69 feet) from station in azimuth 311°00′. Distance between reference marks is 29.57 meters (97.0 feet).

UPPER NEUSE RIVER (SECOND-ORDER)

Principal points

Great Island eccentric (Craven County, G. C. Mattison, 1932; 1935).—On Neuse River, about 6.5 miles southwest of Oriental, in sand bank on point on northeast end of Great Island which is frequently covered by high water. Station is 33 feet from shore line on side of island facing river and 30 feet from shore line of passage through island, and midway between reference marks of old station *Great Island 2*. Surface mark is standard disk in concrete at center of top of tile embedded in ground, note 6a. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13a. Reference mark No. 1 is in canebrake and 7.636 meters (25.05 feet) from station in azimuth 279°32′. Reference mark No. 2 is in canebrake and 7.60 meters (24.9 feet) from station in azimuth 306°56′. This station replaces *Great Island 2*. The following distances and azimuths are from station: Reference mark No. 2 of station *Great Island 2*, 3.595 meters (11.79 feet), 22°51′; station *Great Island 2* (see description thereof), 14.820 meters (48.62 feet), 113°05′; reference mark No. 1 of station *Great Island 2*, 3.549 meters (11.64 feet), 204°02′.

Wilkinson 2 (Pamlico County, G. C. Mattison, 1932).—On Wilkinson Point on north shore of Neuse River, about 14.3 miles below New Bern, in sandy and irregular terrain with numerous oak and gum trees where river makes general bend to left, on highest part of 20-foot sand dune, 32 meters (105 feet) and 30 meters (98 feet), respectively, from southwest and southeast sides of point and 12 feet north of blazed five-prong live oak marked with twentypenny nail. Surface mark is standard disk in concrete at center of top of tile embedded in ground, note 6a, projecting 6 inches. Underground mark is standard disk in concrete,

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note **7a**. Reference marks are standard disks in concrete at center of top of tile, embedded in ground, note 13a. Reference mark No. 1 is back from station toward swamp, 7 feet from blazed 24-inch live oak and 27.15 meters (89.1 feet) from station in azimuth 187°09′. Reference mark No. 2 is about 75 feet in from shoreline, 5 feet north of 42-inch hollow water oak, and 33.5 meters (110 feet) from station in azimuth 237°06′. In 1935 station was not found and station Kin established in vicinity.

Hancock (Craven County, G. C. Mattison, 1932; 1935).—On point on south shore of Neuse River, about 10 miles up from Oriental, 1 mile upstream from mouth of Hancock Creek, in rolling area heavily wooded with oak, cypress, and pine, about 35 meters (115 feet) from water on west side of point and 14 meters (46 feet) from water on north side of point. Surface mark is standard disk in concrete at center of top of tile, embedded in ground, note 6a. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13a. Reference mark No. 1 is downstream from station and 23.62 meters (77.5 feet) from station in azimuth 300°20′. Reference mark No. 2 is back from station and 22.59 meters (74.1 feet) from station in azimuth 29°45′. Station *Reed* (see description thereof) is 22.82 meters (74.9 feet) from station in azimuth 189°00′47″.

Crock (Pamlico County, G. C. Mattison, 1932; 1935).—On north shore of Neuse River, about 13.5 miles below New Bern and 1 mile northwest of Wilkinson Point, on 10-foot wooded bluff, about 122 yards northwest of mouth of Alligator Creek, 17 meters (56 feet) from water's edge and 12 meters (39 feet) from storm line. Surface mark is standard disk in concrete at center of top of tile embedded in ground, note 6a, projecting 4 inches. Underground mark is standard disk in concrete, note 7a. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13a. Reference mark No. 1 projects 6 inches, is 17 feet south of 12d nail in center of triangular blaze on 18-inch hickory tree and 22.46 meters (73.7 feet) from station in azimuth 163°43′. Reference mark No. 2 is 13 feet northwest of 12d nail in center of triangular blaze on 30-inch water oak and 18.49 meters (60.7 feet) from station in azimuth 258°42′. A 24-inch water oak is 16 meters (52 feet) from station in azimuth 3°45′.

Whisk (Pamlico County, G. C. Mattison, 1932; 1935).—On north shore of Neuse River, about 10.3 miles below New Bern, 0.25 mile upstream from mouth of Beard Creek, in area thickly wooded with pine and 26 meters (85 feet) back from face of eroded nearly perpendicular 25-foot clay bluff. Surface mark is standard disk in concrete at center of top of tile embedded in ground, note 6a, projecting 6 inches. Underground mark is standard disk in concrete, note 7a. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13a. Reference mark No. 1 projects 6 inches, is back of station, 22 yards from edge of ravine and 24.47 meters (80.3 feet) from station in azimuth 215°00′. Reference mark No. 2 projects 6 inches, is about 26 yards from edge of bluff and 29.24 meters (95.9 feet) from station in azimuth 285°36′.

Tucker (Craven County, G. C. Mattison, 1932; 1935).—On south shore of Neuse River, about 11.7 miles up from Oriental, 0.5 mile up-river from mouth of Slocum Creek and about 16 meters (52 feet) from water line, on low ground frequently covered by water. Surface mark is standard disk in concrete at center of top of tile embedded in ground, note 6a. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13a. Reference mark No. 1 is back of station from water, in edge of gum thicket and 34.53 meters (113.3 feet) from station in azimuth 354°04′. Reference mark No. 2 is back of station from water, in edge of gum thicket, and 19.77 meters (64.9 feet) from station in azimuth 62°20′. Following distances and azimuths are from station: Slocum Creek witness mark No. 2, 32.838 meters (107.74 feet), 30°46′; Station *Slocum Creek* (see description thereof), 9.460 meters (31.04 feet), 260°32′11″; Slocum Creek witness mark No. 1, 35.383 meters (116.09 feet), 345°07′.

Dixon (Craven County, G. C. Mattison, 1932; 1935).—On north shore of Neuse River, on most southerly point of marshy peninsula at east side of mouth of Goose Creek, and 15 meters (49 feet) from water's edge. Surface mark is standard disk in concrete in upper end of 8-inch terra cotta pipe, note 6c, projecting 14 inches. Reference marks are standard disks in concrete in upper end of 8-inch terra cotta pipe, note 13c. Reference mark No. 1 projects 14 inches, is 13 meters (43 feet) from water's edge, and 14.242 meters (46.73 feet) from station in azimuth 300°20′. Reference mark No. 2 projects 3 inches, is 13 meters (43 feet) from water's edge, and 14.791 meters (48.53 feet) from station in azimuth 201°47′. Azimuth from station to *Hampton Shoal Beacon* is 82°45′03.0″

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Seal (Craven County, G. C. Mattison, 1932; 1935).—On south shore of Neuse River, just below mouth of Otter Creek, about due south of point between Goose Creek and Upper Broad Creek, close to upstream end of long flat point, upstream from and 100 meters (328 feet) from clay bluff, 15 meters (49 feet) north-by-east of large pine marking corner of woods, 8 meters (26 feet) from indefinite shore line, and 3 meters (10 feet) outside tree line. Surface mark is standard disk in concrete at center of top of tile embedded in ground, note 6a. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13a. Reference mark No. 1 is just inside tree line and 17.682 meters (58.01 feet) from station in azimuth 330°17′. Reference mark No. 2 is well into woods and 18.762 meters (61.55 feet) from station in azimuth 48°40′. Azimuth from station to *Hampton Shoal Beacon* is 159°39′59″.

River (Craven County, G. C. Mattison, 1932; 1935).—On south shore of Neuse River, about opposite mouth of Goose Creek, at outer edge of growth of small trees on flat point, about 12 meters (39 feet) inshore and 10 meters (33 feet) northwest of lone pine. Surface mark is standard disk in concrete at center of top of tile embedded in ground, note 6a. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13c. Reference mark No. 1 is among trees, about 5 meters (16 feet) inside tree line and 21.78 meters (71.5 feet) from station in azimuth 16°22′. Reference mark No. 2 is among trees, about 2 meters (7 feet) west of drainage ditch and 23.16 meters (76.0 feet) from station in azimuth 110°51′. Azimuth from station to *Hampton Shoal Beacon* is 229°40′18.6″.

Broad (Pamlico County, G. C. Mattison, 1932; 1935).—On Neuse River, on more southeasterly point on spit, between Upper Broad Creek and Goose Creek, in hard ground in clump of seven cedar trees at outer edge of scattered pine and hickory trees. Surface and reference marks are standard disks in concrete at center of top of tile, notes 6a and 13a. Surface mark projects 8 inches. Reference mark No. 1 projects 6 inches and is 16.09 meters (52.8 feet) from station in azimuth 297°20′. Reference mark No. 2 projects 8 inches and is 13.00 meters (42.7 feet) from station in azimuth 215°37′. Azimuth from station to *Hampton Shoal Beacon* is 42°21′08.4″.

West (Craven County, G. C. Mattison, 1932; 1935).—On north shore of Neuse River, close to upper side of mouth of Upper Broad Creek, in marshy ground on downstream one of two most outwardly points of long rounding point where shore bends and runs straight toward mouth of Upper Broad Creek, 16.5 meters (54 feet) back of sandy water line. Surface mark is standard disk in concrete at center of top of tile embedded in ground, note 6a. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13a. Reference mark No. 1 is 10.5 meters (34 feet) from water line and 16.38 meters (53.7 feet) from station in azimuth 118°41′. Reference mark No. 2 is in marshy ground and 19.69 meters (64.6 feet) from station in azimuth 218°00′. Azimuth from station to *Hampton Shoal Beacon* is 355°31′17″.

Rench (Craven County, G. C. Mattison, 1932; 1935).—On south shore of Neuse River, about 1 mile northwest of Johnson Point Lighthouse, on low sandy point which extends about 40 feet from tree line, at point of intersection of 3 small draws from which point small ridges extend to north and south parallel to shore line, 70 feet inside tree line and 4.20 meters (13.8 feet) from water line. Surface mark is standard disk in concrete at center of top of tile embedded in ground, note 6a. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13a. Reference mark No. 1 is 14.9 meters (49 feet) from water line and 24.519 meters (80.44 feet) from station in azimuth 82°53′. Reference mark No. 2 is near north end of ridge running to south, 17.5 meters (57 feet) from water line and 21.542 meters (70.68 feet) from station in azimuth 22°53′.

Green (Craven County, G. C. Mattison, 1933; 1935).—On north shore of Neuse River, about 0.9 mile above mouth of Northwest Creek, on Bay Point, on solid ground at storm water line, 12 paces inshore from downstream corner of point and 5 paces from water's edge on side of point toward Johnson Point Lighthouse. Surface mark is standard disk in concrete at center of top of tile embedded in ground, note 6a. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13a. Reference mark No. 1 is on storm water line, about 25 meters (82 feet) from upstream corner of point, 5 meters (16 feet) from water's edge on upstream face of point, 2 meters (7 feet) west-northwest of dead 1-foot cypress, and 27.25 meters (89.4 feet) from station in azimuth 165°12′. Reference mark No. 2 is about 5 paces in from water's edge

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on storm water line and 24.01 meters (78.8 feet) from station in azimuth 251°06′. Azimuth from station to *Lower Green Spring Light* is 123°01′32″ and to *Johnson Point Lighthouse* is 351°07′53″.

Fir (Craven County, G. C. Mattison, 1933; 1935).—On east bank of Neuse River, about 2 miles below New Bern and 1 mile north of Bay Point, on low, sandy point, covered with scattered growth of trees, 3 meters (10 feet) from shore line. Surface mark is standard disk in concrete at center of top of tile embedded in ground, note 6a. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13a. Reference mark No. 1 is about 4 meters (13 feet) from shore and 8.48 meters (27.8 feet) from station in azimuth 149°21′. Reference mark No. 2 is about 3 meters (10 feet) from shore and 5.05 meters (16.6 feet) from station in azimuth 349°13′. Azimuth from station to *Johnson Point Lighthouse* is 340°01′.

Spring (Craven County, G. C. Mattison, 1933; 1935).—On north side of Neuse River, about 1.5 miles below New Bern, on Fort Point, on low, sandy point sparsely covered with small trees, 17 meters (56 feet) toward shore from 10-foot bluff or embankment, and 15 meters (49 feet) from shore line. Surface mark is standard disk in concrete at center of top of tile embedded in ground, note 6a. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13a. Reference mark No. 1 is 9 meters (30 feet) from bluff and 13.44 meters (44.1 feet) from station in azimuth 19°00′. Reference mark No. 2 is 6 meters (20 feet) from bluff and 10.682 meters (35.05 feet) from station in azimuth 101°16′ Azimuth from station to *Lower Green Spring Light* is 244°09′32″.

Perry (Craven County, G. C. Mattison, 1933; 1935).—On east side of Neuse River, almost opposite mouth of Trent River, about 1.8 miles southeast of New Bern (Norfolk Southern Railroad dock) in area wooded with scattered pine, cypress, and sweet gum on first prominent point below mouth of Duck Creek, about 50 feet from clump of cypress trees, 12 meters (39 feet) from south shore of point, 20.4 feet from 24-inch pine at edge of water (to which cleats have been nailed), and 6 meters (20 feet) from west shore of point. Surface mark is standard disk in concrete at center of top of tile embedded in ground, note 6a, projecting 6 inches. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13a. Reference mark No. 1 projects 6 inches, is about 11 feet from blazed 12-inch cypress tree and 16.92 meters (55.5 feet) from station in azimuth 200°01′. Reference mark No. 2 is about 10 feet north of blazed 6-inch sweet gum and 15.08 meters (49.5 feet) from station in azimuth 292°00′. Azimuth from station to *Fort Point Beacon* is 355°33′14.7″.

Duck Creek (Craven County, G. C. Mattison, 1932; 1935).—On east shore of Neuse River, about 0.75 mile northwest of entrance to Duck Creek, on first prominent point below highway bridge, straight east across river from Union Point in southeast corner of New Bern, 14 meters (46 feet) north of south side of point and 8.7 meters (29 feet) southeast of west side of point. Point is marshy, usually partly submerged and covered with growth of cypress trees. Surface mark is standard disk in concrete at center of top of tile embedded in ground, note 6a, projecting 8 inches. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13a. Reference mark No. 1 has as witness marks a small silver maple and 10-inch cypress and is 15.950 meters (52.33 feet) from station in azimuth 238°52′. Reference mark No. 2 is near three small cypress trees and is 11.780 meters (38.65 feet) from station in azimuth 289°04′.

James (Craven County, G. C. Mattison, 1932; 1935).—At James City, across Trent River from New Bern, 9.15 meters (30.0 feet) west of center line of Norfolk Southern Railroad main line to Morehead City, at point of intersection of first curve in main line south of Trent River bridge, in depression between main track and side track. Surface mark is standard disk in concrete at center of top of tile, embedded in ground, note 6a, projecting 8 inches. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13a. Reference mark No. 1 projects 8 inches and is 37.21 meters (122.1 feet) from station in azimuth 337°55′. Reference mark No. 2 projects 8 inches and is 34.65 meters (113.7 feet) from station in azimuth 25°02′. Switch Point, Sanderlin Siding, is 60.4 meters (198 feet) from station in azimuth 169°29′.

Norfolk (Craven County, G. C. Mattison, 1933; 1935).—At New Bern, on Norfolk Southern Railroad bridge across Trent River, just above junction of Neuse and Trent Rivers, 3.255 meters (10.68 feet) west of center line of track. Station is standard disk cemented in granite cap of second river pier from New Bern end of bridge. Reference mark No. 1, standard disk in concrete at center

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of top of tile embedded in ground, note 13a, projects 6 inches, is on fill west of track at north end of bridge, and 111.645 meters (366.29 feet) from station in azimuth 171°45′. Azimuth from station to First Baptist Church spire is 207° 23′58″.

New Bern (Craven County, G. C. Mattison, 1932; 1935).—On west side of Neuse River and north side of Trent River, at their junction at New Bern, in park around Woman's Club, about 25 meters (82 feet) southeast of most southeasterly masonry column of porch of club building, 17 meters (56 feet) east of gravel path, and 5 meters (16 feet) from high-water line. Surface mark is standard disk in concrete set at center of top of 8-inch tile embedded in ground, note 6a, projecting 6 inches. Reference mark no. 1 is drill hole in old reinforced concrete footing (4- by 8-feet at top) at edge of Trent River, 5.2 feet from northerly end of block, 3.9 feet from southerly end, and 60.055 meters (197.03 feet) from station in azimuth 76°53′. Reference mark No. 2 is standard disk in concrete at center of top of tile embedded in ground, note 13a, flush with ground, and about 10 meters (33 feet) northwest of edge of artificial pool, 3 feet south of path and 69.257 meters (227.22 feet) from station in azimuth 125°42′. New Bern eccentric is 4.106 meters (13.47 feet) from station in azimuth 273°08′.

Supply (Craven County, G. C. Mattison, 1932; 1935).—At New Bern, at foot of Craven Street (south), on top of and at southeast corner of three-story brick building of New Bern Building & Supply Co., at intersection of center lines of south and east parapet walls. Station is standard disk in drill hole in 4-inch sandstone coping. Reference mark is standard disk cemented in drill hole in 4-inch sandstone coping of south parapet wall and is 7.59 meters (24.9 feet) from station in azimuth 99°08′.

Bridge (Craven County, G. C. Mattison, 1932; 1935).—On north side of Neuse River, on first point south of east end of highway bridge between New Bern and Bridgeton, 38 meters (125 feet) northeast of tip of point, 24.7 meters (81 feet) from south side, and 18.5 meters (61 feet) from west side of point. Surface mark is standard disk in concrete at center of top of tile embedded in ground, note 6a. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13a. Reference mark No. 1 is on north side of point, 8.4 meters (28 feet) from water line and 26.420 meters (86.68 feet) from station in azimuth 158°50′. Reference mark No. 2 is on north side of point, 2 meters (7 feet) from road running down to water's edge and 22.468 meters (73.71 feet) from station in azimuth 285°07′.

Just (Craven County, G. C. Mattison, 1932; 1935).—On New Bern shore of Neuse River, on bulkheaded point (most prominent point in vicinity just below Neuse River highway bridge), near house of Mr. Justice, 20.20 meters (66.3 feet) from outer face of upstream (wooden) bulkhead, 14.57 meters (47.8 feet) from outer face of south concrete bulkhead, and 6.50 meters (21.3 feet) from stream (wooden) bulkhead. Surface mark is standard disk in concrete at center of top of tile embedded in ground, note 6a. Underground mark is standard disk in concrete, note 7a. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13a. Reference mark No. 1 is 10.7 meters (35 feet) from water's edge, 5 meters (16 feet) inside bulkhead, 2 feet inside fence line on Mr. Justice's property, and 80.105 meters (262.81 feet) from station in azimuth 52°21′. Reference mark No. 2 is about 2 feet southeast of southeast corner of barn and 62.32 meters (204.5 feet) from station in azimuth 67°19′. Azimuth from station to *New Bern Christ Episcopal Church* spire is 47°16′.

Blades (Craven County, G. C. Mattison, 1932; 1935).—On north shore of Neuse River, about 660 yards south of Norfolk Southern Railroad bridge, on sandy beach between railroad bridge and highway bridge, just south of patch of swamp overgrown with gum and cypress trees, 65 feet north of east-west fence from line of which row of piling extends into water, and 10.5 meters (34 feet) from water line. Two large cypress trees grow about 35 feet offshore at this point. Surface mark is standard disk in concrete at center of top of tile embedded in ground, note 6a. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13a. Reference mark No. 1 is inshore among trees, in range with north side of Bridgeton School, and 20.607 meters (67.61 feet) from station in azimuth 228°16′. Reference mark No. 2 is close to north side of east-west fence and 30.772 meters (100.96 feet) from station in azimuth 272°46′.

Land (Craven County, G. C. Mattison, 1932; 1935).—On south shore of Neuse River, about 200 yards north of Norfolk Southern Railroad bridge and 11 meters (36 feet) from water's edge, about halfway between Standard Oil Co. pier to south and Rowland Lumber Co. to north. A small point makes out at this place and

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from which extend remains of four marine railways. Surface mark is standard disk in concrete at center of top of tile embedded in ground, note 6a. Reference mark No. 1 is standard disk in concrete at center of top of tile embedded in ground, note 13a, and is 14.6 meters (48 feet) from water's edge, 9.781 meters (32.09 feet) north of Standard Oil Co. pier and 47.825 meters (156.91 feet) from station in azimuth 8°19′. Reference mark No. 2 is standard disk in concrete of old boiler foundation, note 11c, projects 3 feet and is 69 meters (226 feet) from water line and 58.625 meters (192.34 feet) from station in azimuth 70°04′.

Ferry (Lewis) (Craven County, G. C. Mattison, 1933; 1935).—On north side of Neuse River at Lewis Ferry, about 1.25 miles north of Bridgeton, 0.5 mile north of east end of Norfolk Southern Railroad bridge, on small ridge on point making out to west, between road and swamp to north, and 20.4 meters (67 feet) from water's edge to which road runs. Surface mark is standard disk in concrete at center of top of tile embedded in ground, note 6a. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13a. Reference mark No. 1 is on small ridge between road and swamp, 46 meters (151 feet) from water line, 11 meters (36 feet) north of road, and 23.561 meters (77.3 feet) from station in azimuth 196°10′. Reference mark No. 2 is on small rise, 62 meters (203 feet) from water line, 27 meters (89 feet) south of road, and 60.365 meters (198.05 feet) from station in azimuth 235°24′. Ferry 2, 1935, was established 146 feet northeast of station, on east side of road, where steel tower was built over station.

Rowe (Craven County, G. C. Mattison, 1933; 1935).—On south side of Neuse River, about 1,540 yards north-northwest of New Bern end of Norfolk Southern Railroad bridge, in marsh covered with tall swamp grass on low, rounding point which cuts more sharply to west 60 yards south of station, and 11.7 meters (38 feet) west-northwest of water line. Surface mark is standard disk fastened by means of concrete to end of long wooden pile driven into marsh, note 6c. Reference marks are standard disks fastened by means of concrete to upper end of long wooden piles driven into marsh, note 13c. Reference mark No. 1 is 16.5 meters (54 feet) from water line and 16.410 meters (53.84 feet) from station in azimuth 24°11′. Reference mark No. 2 is 28 meters (92 feet) from water line and 16.138 meters (52.95 feet) from station in azimuth 139°45′. Azimuth from station to *Beacon No. 2*, north of Norfolk Southern Railroad bridge, is 246°34′32.8″.

Open (Craven County, G. C. Mattison, 1933; 1935).—On south shore of Neuse River, about 1.75 miles north-northwest of New Bern end of Norfolk Southern Railroad bridge, on more easterly part of low, marshy point, covered by reeds, formed by intersection of Batchelder Creek and Neuse River, and 20.5 meters (67 feet) from water line on south and 16.6 meters (54 feet) from water line on northeast. Surface mark is standard disk in long wooden piles driven into marsh, note 6c. Reference marks are standard disks in long wooden piles driven into marsh, note 13c. Reference mark No. 1 is 5.5 meters (18 feet) north of water line of Batchelder Creek and 14.883 meters (48.83 feet) from station in azimuth 21°41′. Reference mark No. 2 is 29 meters (95 feet) southwest of water line of Neuse River and 20.197 meters (66.26 feet) from station in azimuth 132°56′. Azimuth from station to 4th light, *Beacon No. 4*, north of railroad bridge is 239° 22′05″

Trent (Craven County, G. C. Mattison, 1932; 1935).—On east side of Trent River, about 0.7 mile southwest of Norfolk Southern Railroad dock at New Bern, in area heavily overgrown with evergreen vines, 14.9 meters (49 feet) north of sawmill of W. T. Sanderlin Lumber Co., and 9 meters (30 feet) from water line. Surface mark is standard disk in concrete at center of top of tile embedded in ground, note 6a. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13a. Reference mark No. 1 is downstream from station and 5.78 meters (19.0 feet) from station in azimuth 183°50′. Reference mark No. 2 is near mill back of station and 6.55 meters (21.5 feet) from station in azimuth 305°29′.

Blinds (Craven County, G. C. Mattison, 1932; 1935).—On west side of Trent River, about 0.75 mile southwest of Norfolk Southern Railroad dock of New Bern, 6 meters (19 feet) from water line in low and extremely boggy ground overgrown with reeds. Area is under water half the time. Surface mark is standard disk in concrete at center of top of tile embedded in ground, note 6a. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13a. In 1933 reference mark No. 1 was not found. Reference mark No. 2 is 7.380 meters (24.21 feet) from station in azimuth 226°22′.

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Eel (Craven County, G. C. Mattison, 1932; 1935).—On west side of Trent River, about 1.25 miles southwest of Norfolk Southern Railroad dock at New Bern, 5 meters (16 feet) from water line, in heavy growth of reeds on low, mucky ground which is covered with water half the time. Surface mark is standard disk in concrete at center of top of tile embedded in ground, note 6a. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13a. Reference mark No. 1 is 9.92 meters (32.5 feet) from station in azimuth 58°05′. Reference mark No. 2 is 7.91 meters (26.0 feet) from station in azimuth 174°01′.

Bluff (Craven County, G. C. Mattison, 1932; 1935).—On east side of Trent River, about 1.4 miles southwest of Norfolk Southern Railroad dock at New Bern, at top of 10-foot bluff in old field with scattered pines, and 13 meters (43 feet) from water line. To reach from south end of bridge over Trent River in New Bern, follow U. S. Highway 70 southwest for 0.1 mile, turn right on narrow paved road for 1 mile, turn right and follow wide-graded road marked "Pollocksville" for 0.4 mile, turn right at sign "Trent House" for 0.4 mile to point where road makes sharp left turn, and continue straight ahead through field to river and station. Surface mark is standard disk in concrete at center of top of tile embedded in concrete, note 6a. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13a. Reference mark No. 1 is 6.23 meters (20.4 feet) from station in azimuth 237°10′. Reference mark No. 2 is 7.61 meters (25 feet) from station in azimuth 22°41′. Two-story white house is 450 meters (1,476 feet) from station in azimuth 13°19′08″.

Ferry (Craven County, G. C. Mattison, 1932; 1935).—On west side of Trent River, about 1.6 miles southwest of Norfolk Southern Railroad dock in New Bern, 13 meters (43 feet) from water line, on 10-foot bluff on point (apparently site of abandoned ferry landing) which extends well out into river. Surface mark is standard disk in concrete, note 1b. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13a. Reference mark No. 1 is 3.99 meters (13.1 feet) from station in azimuth 47°06′. Reference mark No. 2 is 7.23 meters (23.7 feet) from station in azimuth 97°25′.

John (Craven County, G. C. Mattison, 1932; 1935).—On south shore of Neuse River at Johnson Point, on 30-foot cliff which starts at point and runs about 0.5 mile northward along shore, 65 feet from water line, 60 feet north of southern extremity of point, and 25 feet back from edge of cliff. Surface mark is standard disk in concrete at center of top of tile embedded in ground, note 6a. Underground mark is standard disk in concrete, note 7a. Reference marks are standard disks in concrete at center of top of tile embedded in ground, note 13a. Reference mark No. 1 is on low ground south of base of cliff, 57 feet from water's edge and 27.861 meters (91.41 feet) from station in azimuth 299°00′. Reference mark No. 2 is 35 feet from water line, 20 feet back from edge of cliff and 30.684 meters (100.67 feet) from station in azimuth 143°33′. Azimuth from station to *Johnson Point Lighthouse* is 265°30′23.0″.

Great Island 2 (Craven County, H. P. Ritter, 1911; 1932).—On south side of Neuse River, about 1 mile below mouth of Clubfoot Creek, near west end of Great Island, on east side of passage which has broken through narrow part of island, in water 1 foot from shore. Station is galvanized-iron pipe with coupling on top. Reference marks are 2-inch galvanized-iron pipes without couplings at top. Reference mark No. 1 is in line with station and Cherry Point and 50 feet east-southeast of station. Reference mark No. 2 is in line with station and Wilkinson Point and 50 feet south-southeast of station. Distance between reference marks is 23.5 feet. In 1932 new station *Great Island eccentric* was established. Azimuth from station to *Great Island eccentric* (see description thereof) is 293°04′42″.

Reed (Craven County, G. A. Fairfield, 1866; 1933).—On prominent point on south shore of Neuse River where trees extend out farthest toward river, about 10 miles upstream from Oriental and about 1 mile upstream from mouth of Hancock Creek. Surface mark is iron screw pile 5 feet long with cast-iron cap bearing inscription "U. S. Coast Survey 1860" and "G. P." In 1933 station was found 22.82 meters (74.9 feet) north of new station *Hancock*. Two witness marks were also found, distances checking the original. Witness mark No. 1 is nail in center of rectangular blaze on 27-inch cypress about 3 feet above ground, and 16.139 meters (52.95 feet) southwest of station. Witness mark No. Two is 2.5-foot pine stump 18.745 meters (61.50 feet) southeast of station. Azimuth from station to *Hancock* (see description thereof) is 9°00′47″.

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Slocum Creek (Craven County, G. A. Fairfield, 1866; 1933).—On south shore of Neuse River, slightly west of mouth of Slocum Creek, on broad point of marshy ground covered with marsh grass and bushes and 10 meters (33 feet) from shore line. Surface mark is cross on cast-iron cap of screw pile, 5 feet long, 2 inches underground. In 1933 the station was recovered in good condition. Witness marks, consisting of 60d wire nails, in square blazes on trees, about 3 feet above ground, were established. Witness mark No. 1 is on 17-inch pine stump, 35.738 meters (117.25 feet) south-southeast of station. Witness mark No. 2 is on 16-inch pine 39.584 meters (129.87 feet) south by west of station. An original witness mark is nail in blaze on pine 41.5 meters (136 feet) nearly west from station. Station *Tucker* (see description thereof) is 9.460 meters (31.04 feet) from station in azimuth 80°32′.

LOWNDESVILLE, S. C., TO GASTONIA (SECOND-ORDER)

Principal points

Jackson (Gaston County, J. Bowie, Jr., 1935).—About 9 miles (air line) east-southeast of town of Kings Mountain, 7 miles (air line) northeast of Clover, 4.5 miles (air line) south of Gastonia, and 3 miles north of South Carolina-North Carolina State line, in wooded hill at southwestern end of ridge, along top of hill known locally as Jacksons Knob or Little Mountain, 8.3 meters (27 feet) north of 14-inch ash with triangular blaze on north side, 4.3 meters (14 feet) east of large oak forked about 8 feet above ground, and 3.4 meters (11 feet) west of 12-inch pine with triangular blaze on south side. To reach from intersection of U. S. Highways 74 and 29 with U. S. Highway 321 in Gastonia, follow U. S. Highway 321 south for 5.8 miles to dirt T-road across railroad (about 0.25 mile north of brick store and filling station), turn left (east) on dirt road for 1.9 miles to T-road intersection where dirt road comes in from left at curve in main road (see azimuth mark), continue right on main road for 0.55 mile (200 feet beyond power transmission line), turn left on road leading upgrade between church and school for 0.1 mile to end of truck travel and continue on foot to top of hill and station. Surface mark is standard disk in concrete, note 2. Reference and azimuth marks are standard disks in concrete, notes 12a and 11a. Reference mark No. 1 is 29.14 meters (95.6 feet) southeast of station in azimuth 206°32′. Reference mark No. 2 is 5.5 meters (18 feet) east of 16-inch pine, 4 meters (13 feet) southwest of 12-inch pine, and 26.29 meters (86.3 feet) southwest of station in azimuth 15°02′. Azimuth mark (note 11a) projects 4 inches and is about 1 mile southwest of station in azimuth 73°07′29″. Azimuth mark is reached from road intersection (see above) by going west for 0.4 mile and turning right on farm road at white house for 0.2 mile to mark in curve of farm road, 5 meters (16 feet) east-southeast of center line of road and at end of fence line. Following azimuths are from station: Water tank, aluminum, 160°02′02″; Water tank, 27°09′07″; Ball on black water tank, Gastonia, 158°38′51″; *Kings Mountain, airway beacon, 200-mile blinker, Atlanta—New York*, 90°44′40″.

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

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(72 feet) southwest of small barn, and 0.15 mile from station in azimuth 253°14′-30″. Following distances and azimuths are from station: *Clover, municipal water tank*, 282 feet, 265°08′; ball on water tank, 0.25 mile, 328°43′44″.

Smyrna (York County, S. C., J. Bowie, Jr., 1935).—At Smyrna, on State Highway 5 between Hickory Grove and Blacksburg, about 150 meters (492 feet) east of Esso service station in a V formed by State Highway 5 and dirt road leading east and directly across road from steep timbered hillside, 24 meters (79 feet) east of farm road, 16.1 meters (53 feet) north of northwest corner of barn, 12.5 meters (41 feet) east-northeast of 16-inch tree, 5.5 meters (18 feet) east-northeast of northeast corner of garage, and 4 meters (13 feet) north of wire barnyard fence line, in open field on property belonging to First National Bank of Sharon. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 8 inches. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 is 8 meters (26 feet) south of center line of dirt road, 3 feet southwest of northwest corner of small shed, and 156.87 feet from station in azimuth 227°41′. Reference mark No. 2 is 51 meters (167 feet) east-northeast of center line of State Highway 5, 42.4 meters (139 feet) east-northeast of telephone pole, 11 meters (36 feet) south of center line of dirt road, 2 meters (7 feet) south of 8-inch tree, and 147.15 feet from station in azimuth 97°59′. Azimuth mark projects 4 inches, is in open field on top of hill, midway between woods and a curve to southeast, 3.5 meters (11 feet) north of center line of road, and 1.2 miles south-southeast of station in azimuth 346°07′06″. To reach from station, go 1.2 miles south on State Highway 5 to dirt road and turn left on dirt road for 0.2 mile (keeping left at intersections) to mark on north side of farm road. Azimuth from station to York, water tank, is 288°14′20″.

Whitaker (Cherokee County, S. C., J. Bowie, Jr., 1935).—About 1.5 miles northeast of Blacksburg, on highest part of Whitaker Mountain, on east-northeast side of rectangular plot with airway blinker 188, 45 feet south of center line of road over mountain, 7.827 meters (25.68 feet) east-northeast of center of tower and 6.45 meters (21.2 feet) east of southeast leg of tower. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Reference marks are standard disks in concrete, note 11a. Reference mark No. 1 is 11.9 meters (39 feet) northeast of northeast leg of tower, 3 paces south of center line of road and 11.515 meters (37.78 feet) from station in azimuth 163°01′. Reference mark No. 2 is on east edge of small grove of scrub oak, 8.92 meters (29.3 feet) west of southwest leg of tower and 18.015 meters (59.10 feet) from station in azimuth 69°41′. Azimuth mark (station of the U. S. C. & G. S. and State Survey) is 6-inch square monument projecting 8 inches, and is about 0.25 mile southeast of junction of U. S. Highway 29 and State Highway 5, 120 feet southwest of southwest corner of house, 33 paces west of transmission pole with transformer, 8 paces northeast of center line of State Highway 5, and about 1.3 miles from station in azimuth 344°44′55″. Following distance and azimuths are from station: Water tank, Blacksburg, 43°52′53″; *Airway beacon, 188 mile, red blinker, Atlanta—New York*, 7.827 meters (25.68 feet), 73°37′; *Kings Mountain Battle Monument, tip*, 266°53′15″.3.

Supplementary points.

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

Carolina (Gaston County, J. Bowie, Jr., 1935).—About 3 miles north of Clover, S. C. To reach from Carolina & Northwestern Railway depot in Clover, go 3.3 miles north on U. S. Highway 321 to Bowling Green Post Office (Petty's store), turn left on T-road 0.3 mile to another T-road and turn right 0.1 mile to Mr. Wilson's residence and station located 41 feet southwest of house, 38 feet east of barn and garage, 30 feet (measured perpendicularly) north-northeast from reputed position of North Carolina-South Carolina State line, and 8 feet southwest of center line of driveway. Surface and underground marks are

For notes in regard to marking of stations see p. 136.

standard disks in concrete, notes 1a and 7a. Upper mark projects 4 inches. Reference and azimuth marks are standard disks in concrete, note 11a. Reference mark No. 1 projects 3 inches and is 45 feet north of 30-inch pecan tree, 27.5 feet northeast of 20-inch pecan tree, 3 feet southeast of barbed-wire barnyard fence line, and 37.992 meters (124.64 feet) from station in azimuth 218°05′. Reference mark No. 2 is 43.7 feet southeast of house, 6.7 feet northeast of 14-inch pecan tree, and 33.321 meters (109.32 feet) from the station in azimuth 302°43′. Azimuth mark projects 1 inch and is 25 paces west of barnyard fence, 11 paces north of dirt road, 4 paces north of telephone pole, and 0.25 mile from station in azimuth 335°23′33″. *Jackson* (see description thereof) is 4 miles northnortheast of station in azimuth 212°51′54.7″.

C. K. 19 (S. C. Geod. S.) eccentric (Cherokee County, S. C., J. Bowie, Jr., 1935).—About 9 miles west of Kings Mountain. To reach from post office in Kings Mountain, go west for 9 miles on U. S. Highway 29 to Grover, N. C., and station at south edge of town on property belonging to C. A. Mullinax, about 50 yards south of North Carolina-South Carolina State line, 86 feet southeast of east rail of north track of Southern Railway, 33 feet west of center line of highway, and 29 feet north of old wood house. Surface and underground marks are standard disks in concrete, notes 1a and 7a. Upper mark projects 3 inches. Reference marks are standard disks in concrete, note 11a. Reference mark No. 1 projects 6 inches, and is 12.867 meters (42.21 feet) northeast of station *C. K. 19 (S. C. Geod. S.)*, 41 feet west of center line of highway, and 50.170 meters (164.60 feet) from station in azimuth 211°34′. Reference mark No. 2 projects 5 inches, and is 24 feet east of east rail of north-bound track of Southern Railway, 3 paces northeast of telephone pole, and 42.743 meters (140.23 feet) from station in azimuth 78°56′. C. K. 18 (S. C. Geod. S.) (azimuth mark) is a U. S. C. & G. S. and State Survey standard disk (unstamped) in an 8-inch round post, flush with ground, and is 0.4 mile south of Grover on U. S. Highway 29, in grove of tall pines, 57 feet south of cultivated field, 55 feet west of center line of highway, 4 feet southeast of 10-inch pine tree, 4 feet west of black oak tree, and 0.5 mile from station in azimuth 12°41′02″. *C. K. 19 (S. C. Geod. S.)* is a U. S. C. & G. S. and State Survey standard disk in 6- by 6-inch concrete post projecting 4 inches, and is 53 feet west of center line of U. S. Highway 29, 22.5 feet east of east rail of north-bound track of Southern Railway, and 38.876 meters (127.54 feet) from station in azimuth 203°30′. *Kings Mountain, battle monument, tip* is 7 miles from station in azimuth 293°45′09.3″.

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

Thicketty 2 (Cherokee County, S. C., J. Bowie, Jr., 1935).—About 7 miles northwest of Gaffney, on highest point of Thicketty Mountain. To reach from post office in Gaffney follow State Highway 11 west for 8.5 miles to farm T-road on left (unpainted one-story house 30 yards north of junction), turn left 0.5 mile to top of mountain and station. Surface mark (1935) is U. S. C. & G. S. and State Survey disk set in concrete, note 1a. In 1935 the old mark, believed to be C. K. 56 (S. C. Geod. S.), was replaced. Surface and underground marks are standard disks set in concrete, notes 1a and 7a. Reference marks are standard reference disks cemented in outcropping rock, note 12b. Reference mark No. 1 projects 5 inches, is 10.470 meters (34.35 feet) from station in azimuth 266°30′. Reference mark No. 2 is 13.740 meters (45.08) feet from station in azimuth 21°13′. C. K. 55 (S. C. Geod. S.) (azimuth mark) (no number but believed to be C. K. 55 (S. C. Geod. S.)) is standard disk in 6-inch square concrete post (stamped U. S. C. & G. S. and S. S.) projecting 6 inches and is 100 yards east of unpainted house, 6.60 meters (21.7 feet) south of center line of State Highway 11, 3 feet south of road bank, and 0.5 mile from station in azimuth 186°03′54″. To reach from post office in Gaffney, follow State Highway 11 west for 5.85 miles to end of pavement and continue on dirt road 2.65 miles to mark on left.

For notes in regard to marking of stations see p. 136.

BUCKSPORT, S. C., TO OSCEOLA, S. C. (SECOND-ORDER)

Principal points

Parker (Lancaster County, S. C., J. Bowie, Jr., 1935).—About 15 miles (air line) south-southwest of Monroe, 9 miles (air line) east-northeast of Lancaster, and 4.75 miles (air line) west-northwest of Tradesville. To reach from Lancaster post office, go 1.75 miles east on Arch Street and take left fork for 3.8 miles to T-road intersection at filling station, take right fork for 0.2 mile and bear left at fork for 3.8 miles to crossroads at store and schoolhouse, turn left and follow road north 1.2 miles to R. W. Parker's house on right and station in northwest corner of yard, about 22 meters (72 feet) northwest of northwest corner of Parker's house, 20.5 meters (67 feet) south-southeast of center line of road leading right to Tabernacle, 7.9 meters (26 feet) west of 12-inch hickory tree, and 7.7 meters (25 feet) east of 10-inch cedar tree. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 10 inches. Reference mark No. 1 (note 11a) is 24.4 meters (80 feet) southwest of southwest corner of brick chimney on Negro house, 6 meters (20 feet) south of Tabernacle Road, 1.5 meters (5 feet) south-southwest of trunk of large cedar tree, and 50.188 meters (164.66 feet) northeast of station in azimuth 231°23′. Reference mark No. 2 (note 11b) is 7 meters (23 feet) west of center line of road and 45.755 meters (150.11 feet) northwest of station in azimuth 136°08′. Azimuth mark (note 11b) projects 6 inches and is 24 meters (79 feet) southeast of farmhouse, 12 meters (39 feet) east-northeast of 26-inch red oak tree, 4 meters (13 feet) north of lane, 1.5 meters (5 feet) south of white oak tree, and about 0.4 mile north of station in azimuth 173°05′27″.

Altan (Union County, J. Bowie, Jr., 1935).—About 7 miles (air line) south of Monroe, N. C. To reach from southwest corner of courthouse in Monroe, go east two blocks to intersection of Franklin and South Church Streets, turn right (south) for 2.6 miles to T-road with large frame house in southwest angle, turn right (southwest) for 4.7 miles to T-road in Altan (which is 0.1 mile past a red brick church on right, west), turn left (east) for 0.2 mile to forked road, take left fork for 0.3 mile (past house on right) to a dim T-road and turn right for 75 yards to station in a cultivated field belonging to Robert McManus, 5.6 meters (18 feet) east of center line of road. Surface and underground marks are standard disks in concrete, notes 1b and 7a. Upper mark projects 12 inches. Reference and azimuth marks are standard disks in concrete, note 11b. Reference mark No. 1 projects 10 inches, is 9.9 meters (32 feet) west of fence corner, 3.7 meters (12 feet) north of east-west road, 2 feet south of wire fence, and 84.580 meters (277.50 feet) northeast of station in azimuth 206°29′. Reference mark No. 2 projects 8 inches, is 2.2 meters (7 feet) north of center line of east-west road and 74.244 meters (243.58 feet) northwest of station in azimuth 156°03′. Azimuth mark projects 10 inches, is 13 paces south of southeast corner of store belonging to J. Rodgers, 7 paces west of center line of road, and 0.5 mile southwest of station in azimuth 77°40′08″.

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

For notes in regard to marking of stations see p. 136.

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

Supplementary point

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

For notes in regard to marking of stations see p. 136.

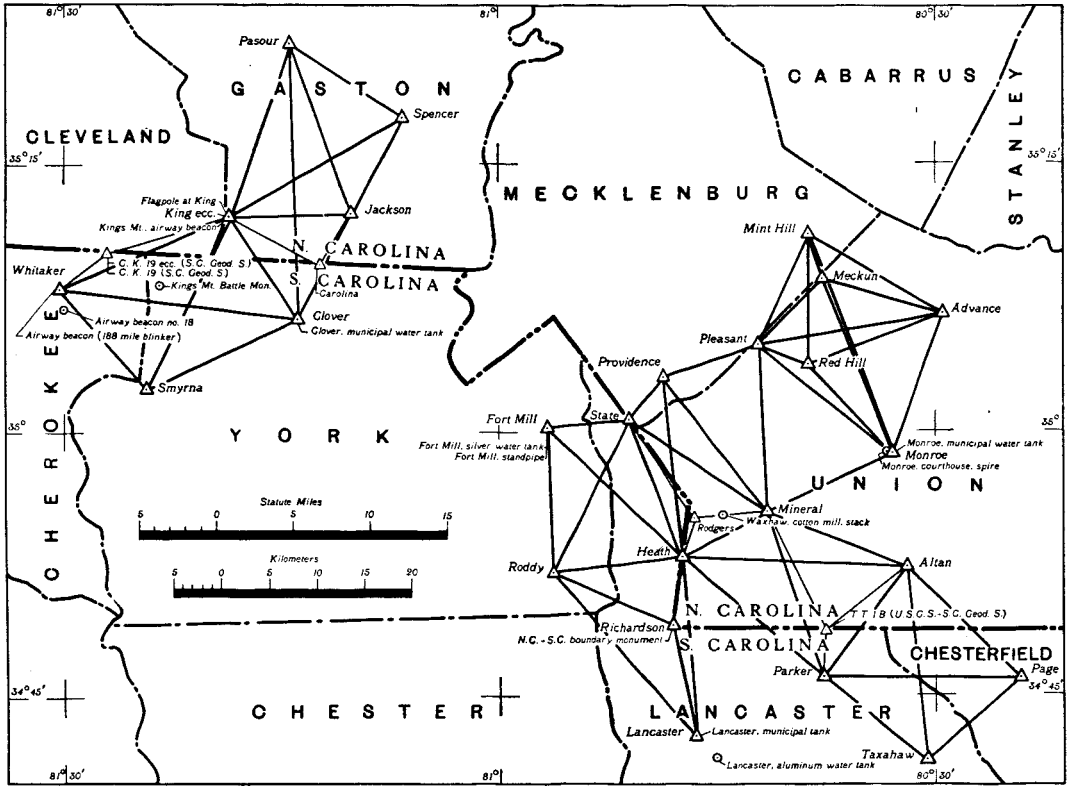

FIGURE 4.—Triangulation in the vicinity of Charlotte.

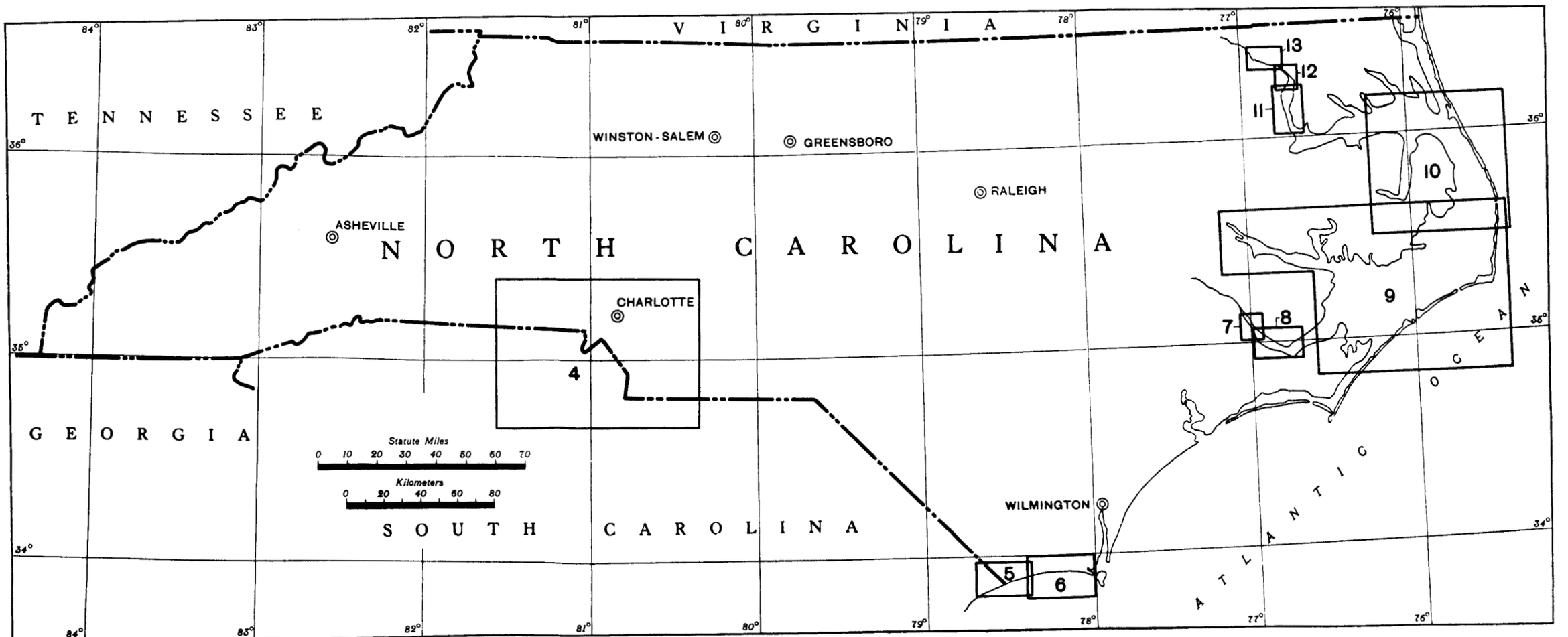

FIGURE 3.—Index map of North Carolina showing areas covered by each of the following sketches, figures 4 to 13.

161516°—40 (Face p. 174)

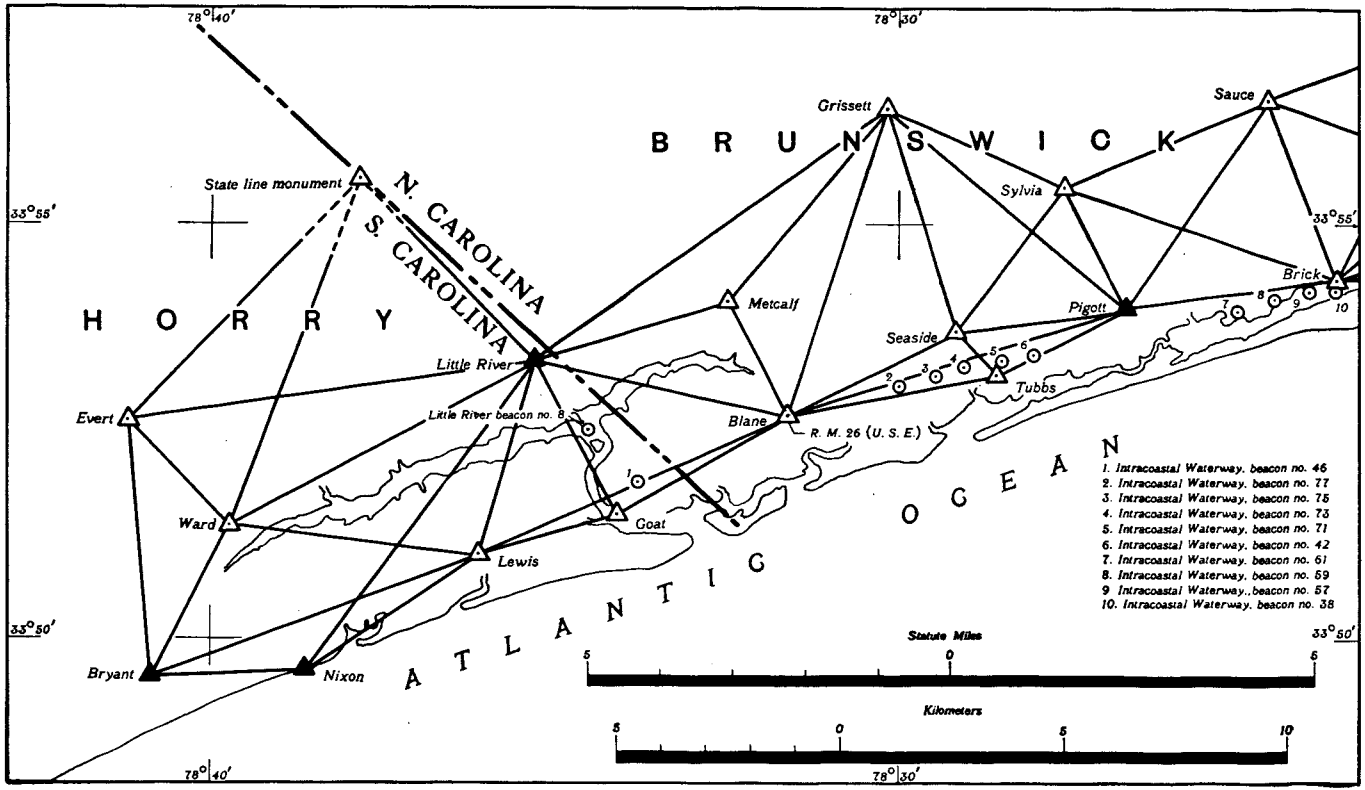

FIGURE 5.—Cape Romain, S. C., to Cape Fear (second-order).

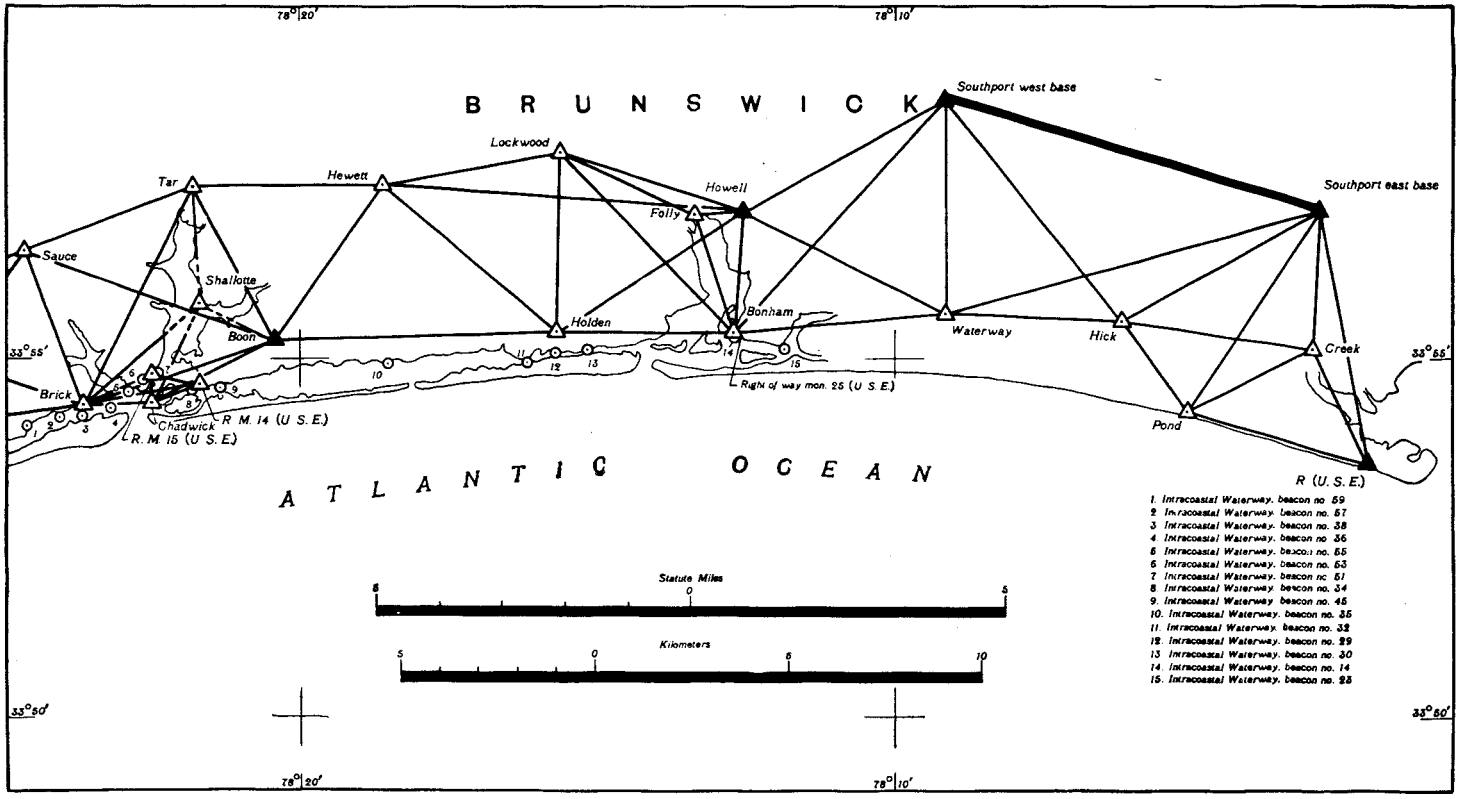

FIGURE 6.—Cape Romain, S. C., to Cape Fear (second-order).

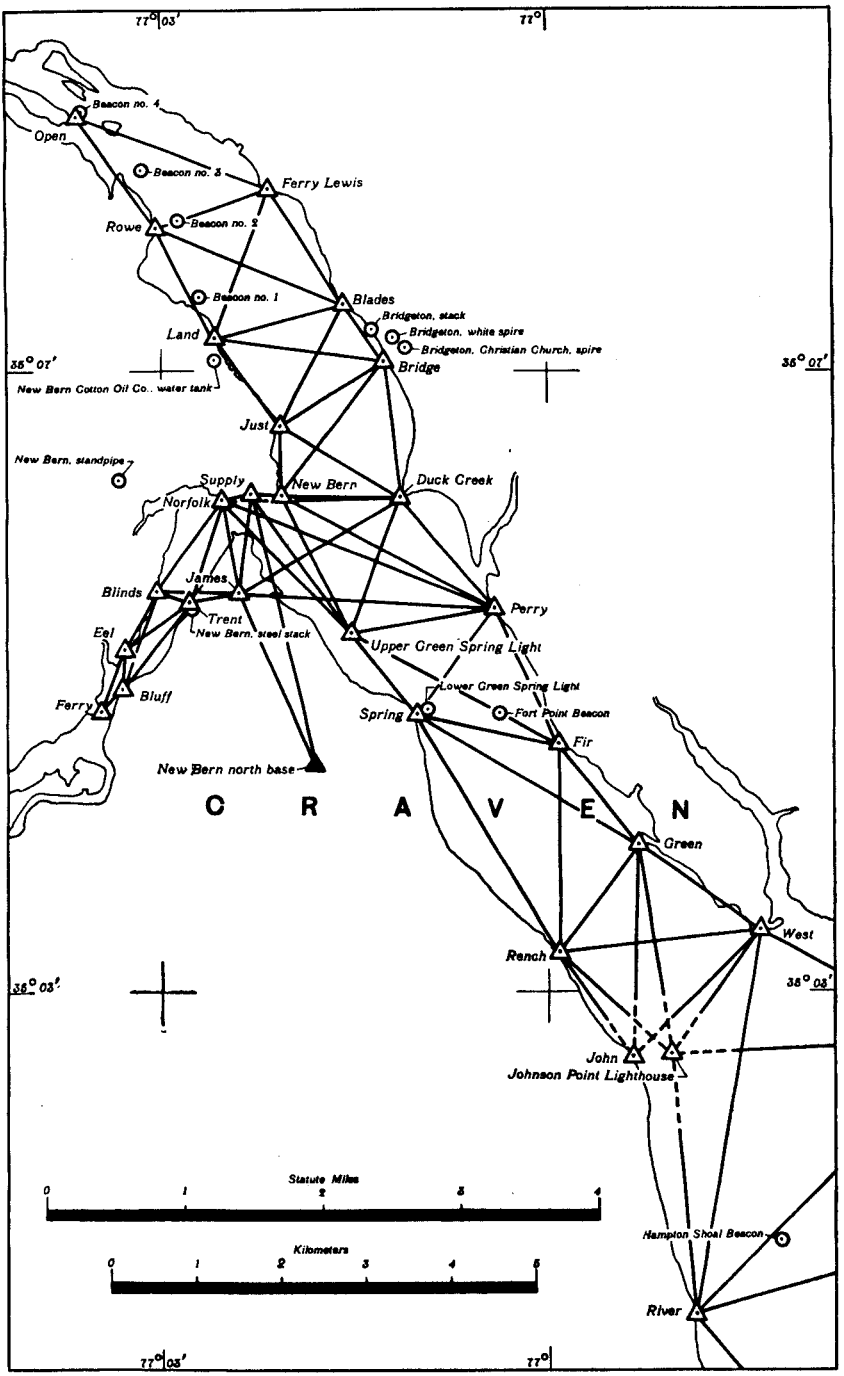

FIGURE 7.—Upper Neuse River (second-order).

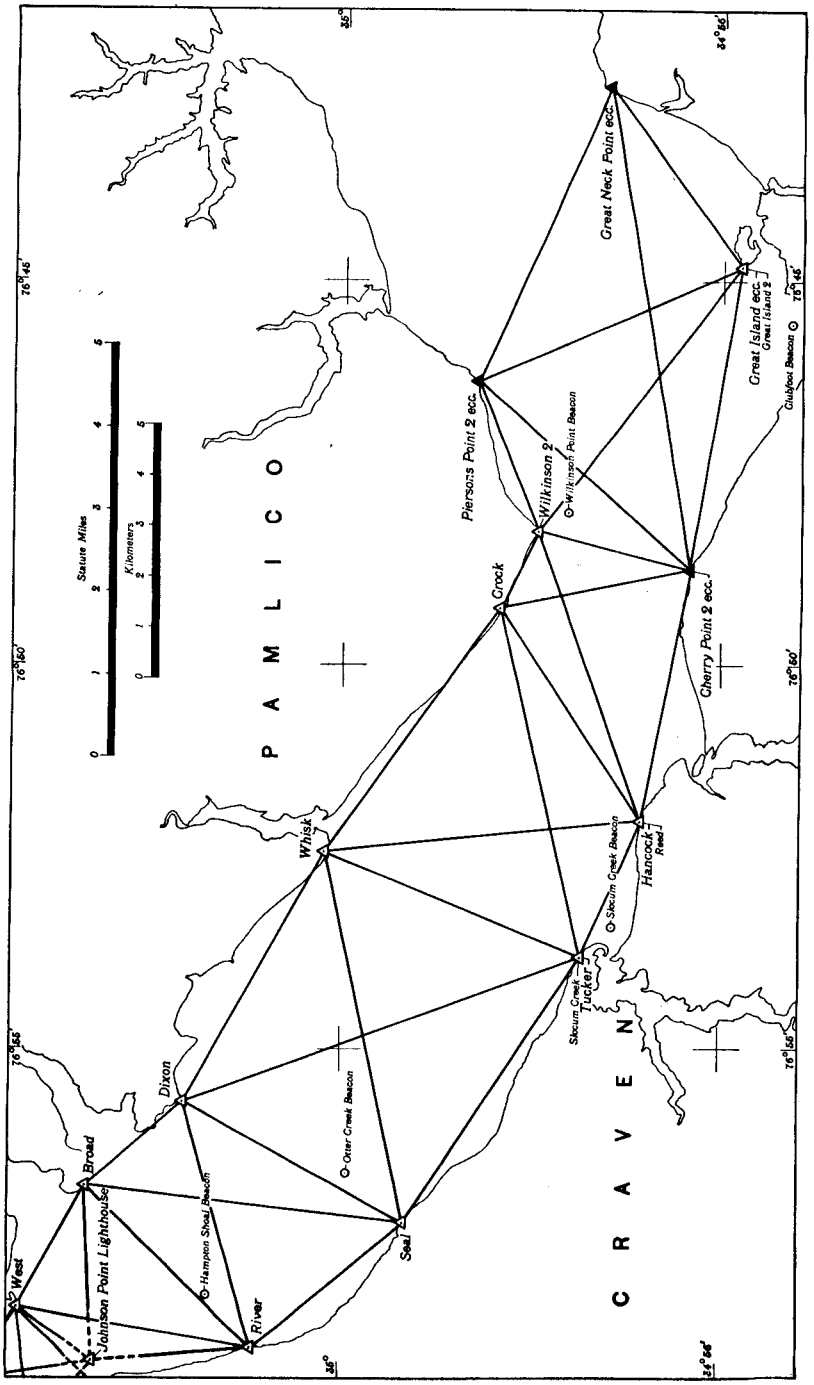

FIGURE 8.—Upper Neuse River (second-order).

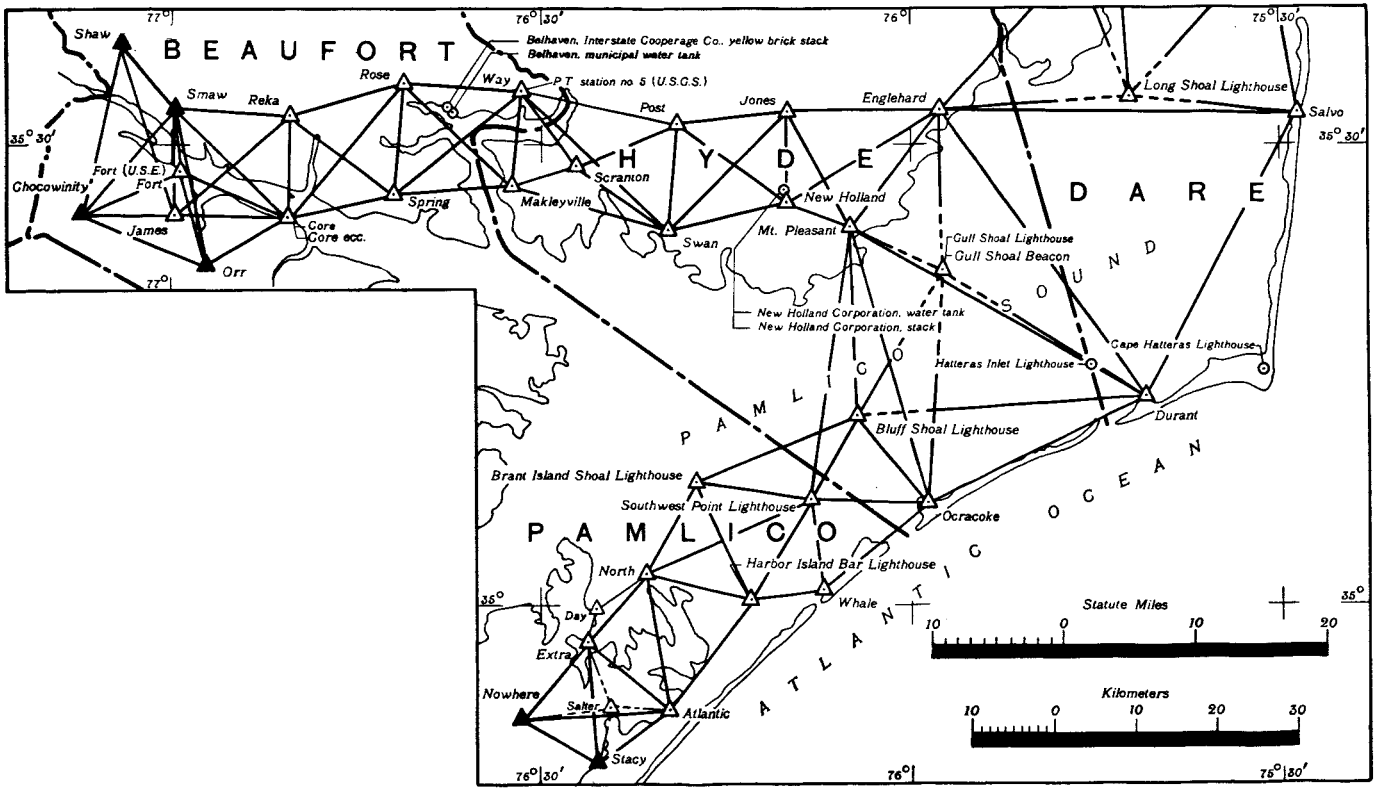

FIGURE 9.—Washington to Pamlico Sound, Core Sound.

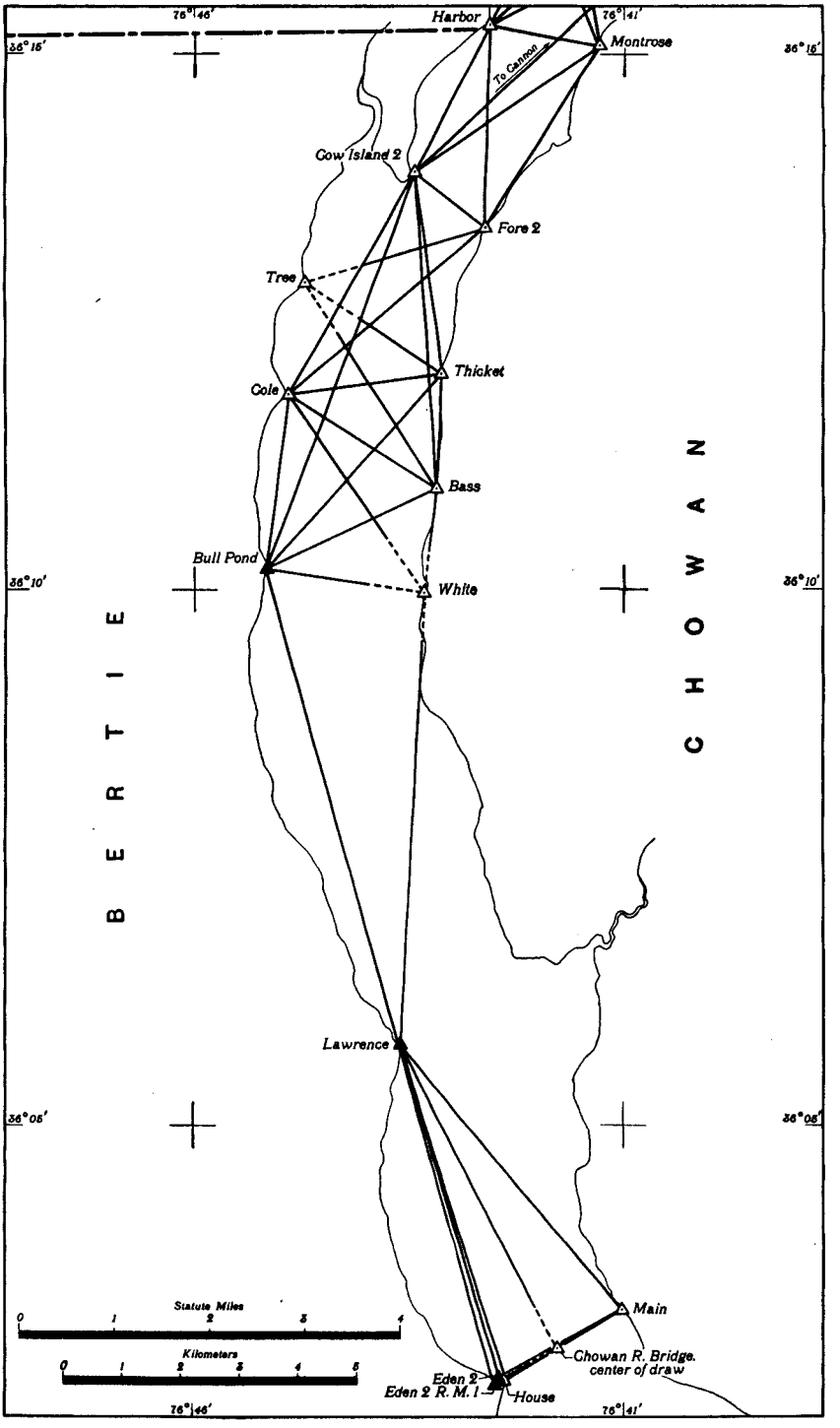

FIGURE 11.—Chowan River (second-order).

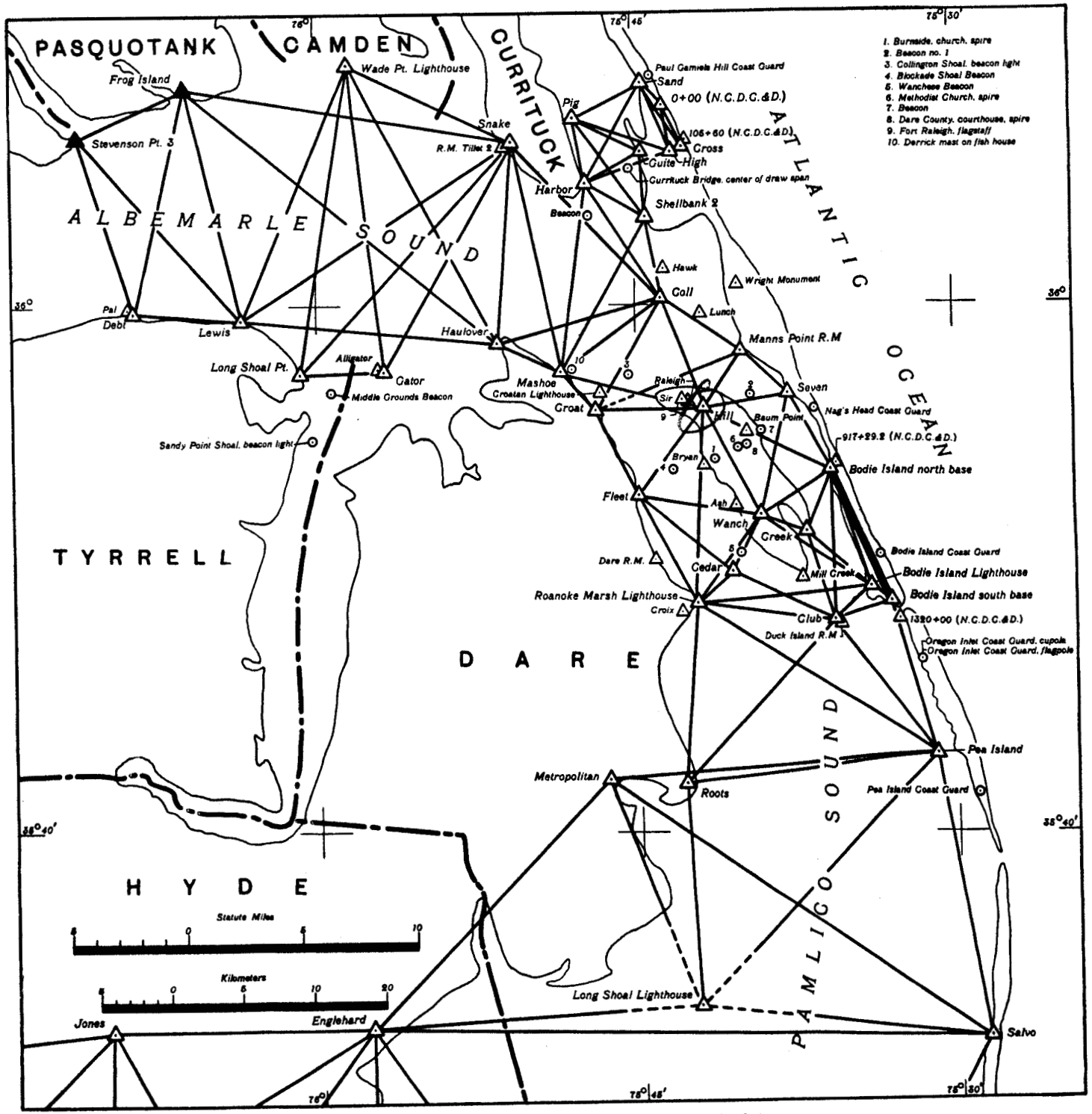

FIGURE 10.—Albemarle, Croatan and Roanoke Sounds (second-order).

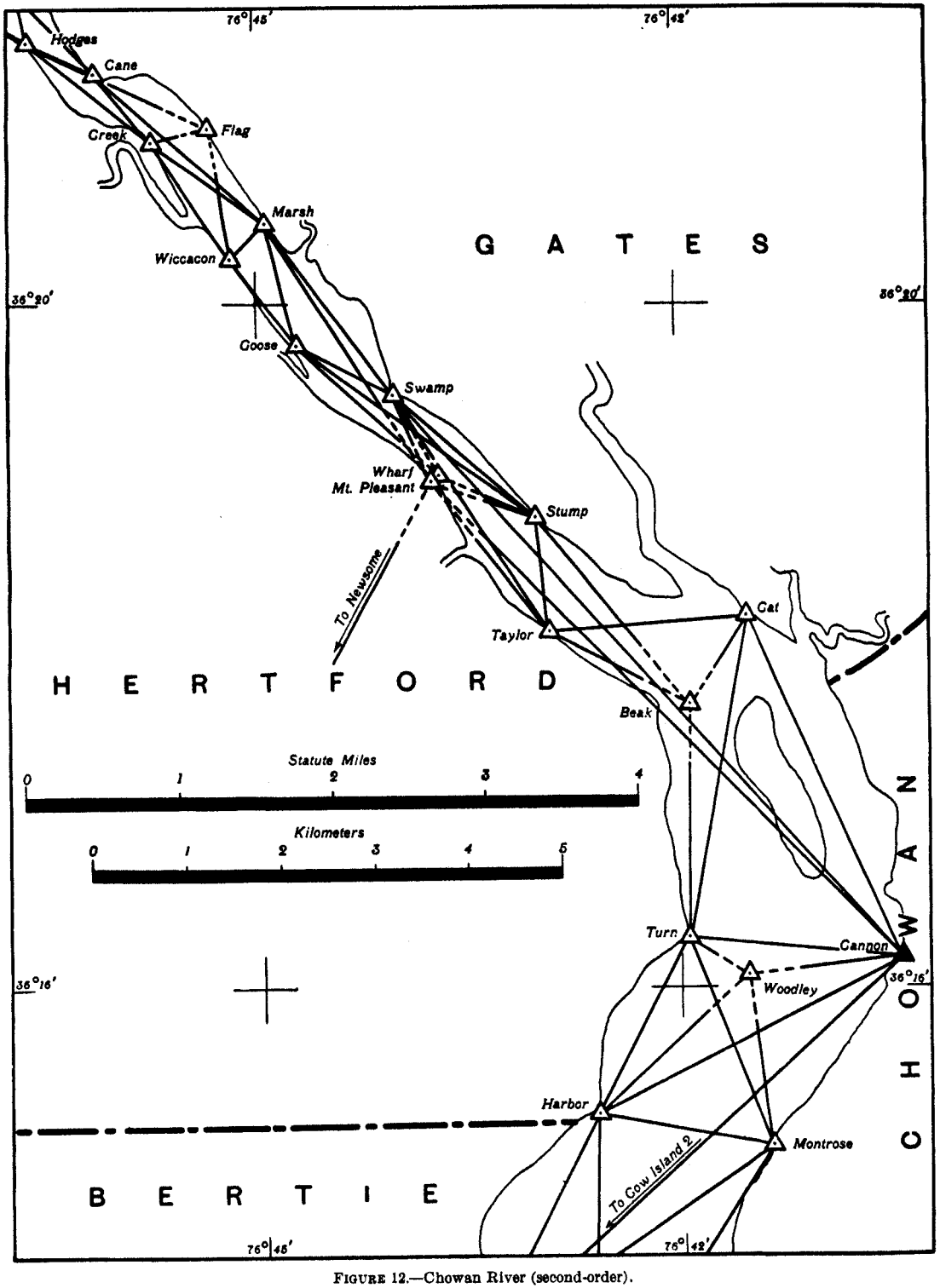

FIGURE 12.—Chowan River (second-order).

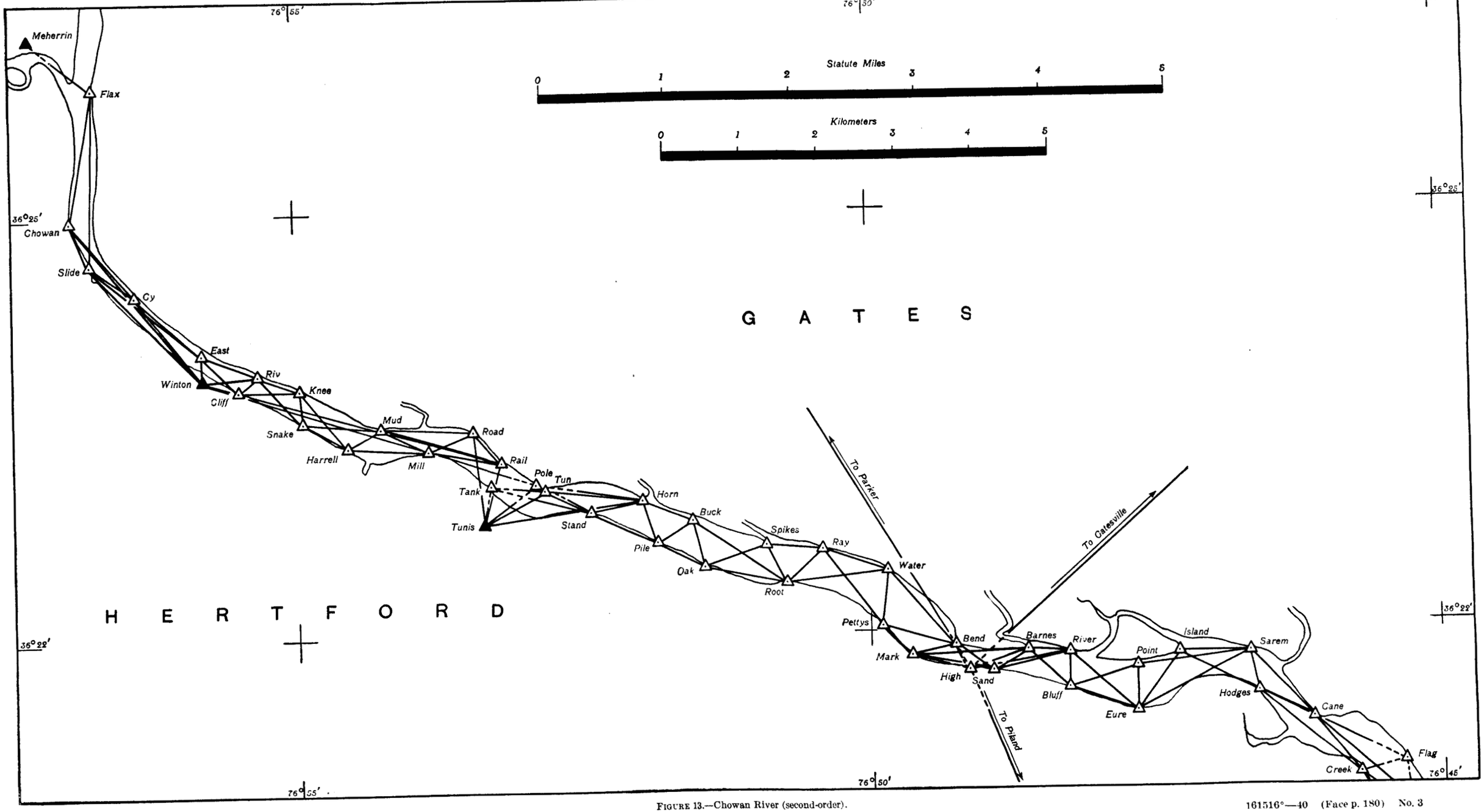

FIGURE 13.—Chowan River (second-order).

INDEX TO GEOGRAPHIC POSITIONS, DESCRIPTIONS, PLANE COORDINATES, AND SKETCHES

Station	Position	Description	Plane coordinates	Sketch
	Page	*Page*	*Page*	*Figure*
0+00 (N. C. D. C. & D.)	44	153	119	10
105+60 (N. C. D. C. & D.)	47	155	121	10
917+29.2 (N. C. D. C. & D.)	44	154	119	10
1320+00 (N. C. D. C. & D.)	45	155	120	10
Aberdeen	33	(*)	114	(*)
Aberdeen, Seaboard Air Line Ry., water tank	36		115	(*)
Adam	(*)	(*)	83	(*)
Adams	(*)	(*)	82	(*)
Advance	19	(*)	107	4
Ailette	(*)	(*)	104	(*)
Ainse	32	(*)	113	(*)
Air beacon, green and white flashing. (*See* Raleigh, airway beacon.)				
Air beacon, spindle. (*See* Raleigh, airway beacon.)				
Airport	(*)	(*)	76	(*)
Airway beacon, flashing red and white, east of Clio (S. C.)	25		110	
Airway beacon, Kings Mountain, 200-mile blinker, Atlanta-New York	57		126	4
Airway beacon, 188-mile, red blinker, Atlanta-New York (S. C.)	58		126	4
Airway beacon No. 18, flashing green, Atlanta-New York (S. C.)	58		126	4
Airway beacon No. 33	(*)		75	
Airway beacon No. 35 (Va.)	(*)		75	
Airway beacon No. 47	(*)		80	
Airways beacon No. 1. (*See* Airway beacon No. 47.)				
Albert	(*)	(*)	73	(*)
Alberta	(*)	(*)	87	(*)
Alexander	34	(*)	114	(*)
Alexis	29	(*)	112	(*)
Alfair	(*)	(*)	103	(*)
Allen (Mecklenburg County)	28	(*)	111	(*)
Allen (Person County)	(*)	(*)	73	(*)
Allenby	(*)	(*)	85	(*)
Allenby A	(*)	(*)	99	(*)
Allenby B	(*)	(*)	99	(*)
Allenby C	(*)	(*)	99	(*)
Allenby D	(*)	(*)	99	(*)
Allenby E	(*)	(*)	99	(*)
Allenton	17	(*)	107	(*)
Alley	(*)	(*)	88	(*)
Alligator	47	156	121	10
Alphin	(*)	(*)	88	(*)
Alston	(*)	(*)	82	(*)
Altan	58	172	126	4
Amos	(*)	(*)	90	(*)
Anderson (Catawba County)	(*)	(*)	63	(*)
Anderson (Mecklenburg County, Va.)	(*)	(*)	79	(*)
Anderson 2	18	(*)	107	(*)
Ansonville	27	(*)	111	(*)
Apex	(*)	(*)	93	(*)
Apex, municipal water tank	(*)		76	(*)
Aquadale	19	(*)	107	(*)
Arapahoe	(*)	(*)	66	(*)
Arba	(*)	(*)	82	(*)
Ash	44	154	119	10
Asheboro	(*)	(*)	84	(*)
Asheville	(*)	(*)	88	(*)
Asheville A	(*)		88	(*)
Askew	(*)	(*)	66	(*)
Askin	(*)	(*)	66	(*)
Astronomic station	26		110	(*)
Astronomic telescope	23		109	(*)
Atkinson (coastal control arc)	(*)	(*)	71	(*)
Atkinson (Sanford to Wilmington traverse)	(*)	(*)	101	(*)
Atlanta-New York airway beacon:				
Kings Mountain, 200-mile blinker	57		126	4
No. 18, flashing green (S. C.)	58		126	4
188-mile, red blinker (S. C.)	58		126	4
Atlantic	15	137	106	9
Autry	(*)	(*)	100	(*)
Averett (Va.)	(*)	(*)	79	(*)

*See Special Publication No. 192.

Station	Position	Description	Plane coordinates	Sketch
Aviation beacon. (*See* Charlotte airport beacon.)				
Aviation beacon No. 34. (*See* Airway beacon No. 33.)				
Aviation beacon, red and white lights. (*See* Airway beacon No. 35) (Va.).				
Aviation beacon, red and white lights. (*See* Airway beacon, flashing red and white, east of Clio (S. C.).)				
	Page	*Page*	*Page*	*Figure*
Baker	18	(*)	107	(*)
Bakers Knob	(*)		63	(*)
Bald Head Lighthouse	(*)		71	(*)
Bald Knob (U. S. G. S.) (Tenn.)	(*)	(*)	92	(*)
Bald of Rich (U. S. G. S.)	(*)	(*)	92	(*)
Baldwin	(*)	(*)	93	(*)
Balsam Cone	(*)		65	(*)
Baptist Church:				
Lenoir, First, spire	(*)		87	(*)
Wilmington, First, spire	(*)		72	(*)
Wilmington, tall spire with cock weather vane	(*)		72	(*)
Barbee	(*)	(*)	75	(*)
Barber	(*)	(*)	65	(*)
Barlow (S. C.)	21	(*)	108	(*)
Barnes	38	141	116	13
Bass	37	139	116	11
Battle Monument, Kings Mountain, tip (S. C.)	57		125	4
Battleboro	(*)	(*)	81	(*)
Baum Point	44	154	119	10
Bay	(*)	(*)	91	(*)
Beacon (Currituck County)	47		120	10
Beacon (Dare County)	46		120	10
Beacon (U. S. E.)	(*)		92	(*)
Beacon:				
Blockade Shoal	46		120	10
Charlotte, airport, revolving white light	29		112	
Clubfoot	55		124	8
Collington Shoal light	46		120	10
Fort Point	55		124	7
Gull Shoal	14		106	9
Hampton Shoal	55		124	7, 8
Middle Grounds	47		120	10
Milton, airway beacon No. 34 (Va.)	(*)		75	
No. 1 (Craven County)	55		124	7
No. 1 (Dare County)	46		120	10
No. 2	55		124	7
No. 3	55		124	7
No. 4 (Craven County)	56		125	7
No. 4 (Onslow County)	(*)		92	(*)
No. 6	(*)		92	(*)
No. 8, Little River	50		122	5
No. 10	(*)		92	(*)
No. 14, Intracoastal Waterway	51		122	6
No. 23, Intracoastal Waterway	51		122	6
No. 29, Intracoastal Waterway	51		122	6
No. 30, Intracoastal Waterway	51		122	6
No. 32, Intracoastal Waterway	51		122	6
No. 34, Intracoastal Waterway	51		122	6
No. 35, Intracoastal Waterway	51		122	6
No. 36, Intracoastal Waterway	51		123	6
No. 38, Intracoastal Waterway	50		122	5, 6
No. 42, Intracoastal Waterway	51		122	5
No. 45, Intracoastal Waterway	51		123	6
No. 46, Intracoastal Waterway	50		122	5
No. 51, Intracoastal Waterway	51		122	6
No 53, Intracoastal Waterway	50		122	6
No. 55, Intracoastal Waterway	50		122	6
No. 57, Intracoastal Waterway	51		122	5, 6
No. 59, Intracoastal Waterway	51		123	5, 6
No. 61, Intracoastal Waterway	51		123	5
No. 71, Intracoastal Waterway	51		122	5
No. 73, Intracoastal Waterway	51		122	5
No. 75, Intracoastal Waterway	52		123	5
No. 77, Intracoastal Waterway	52		123	5
Otter Creek	56		125	8
Raleigh, Carolina Hotel, revolving red	(*)		76	(*)
Sandy Point Shoal, light	47		120	10
Slocum Creek	56		125	8
Wanchese	46		120	10
Wilkinson Point	55		124	8
Beak	38	141	116	12
Beale (Va.)	(*)	(*)	78	(*)
Beard	(*)	(*)	89	(*)
Bear Wallow Mountain	(*)		65	(*)
Bearwallow	(*)	(*)	86	(*)
Beaufort, Tidewater Power Co., water tank, ball on top	(*)		84	(*)

*See Special Publication No. 192.

Station	Position	Description	Plane coordinates	Sketch
	Page	*Page*	*Page*	*Figure*
Belhaven:				
Interstate Cooperage Co., yellow-brick stack	16		106	9
Municipal water tank, black	16		106	9
Bell	(*)	(*)	68	(*)
Bell tower, University of North Carolina	(*)		75	(*)
Bench mark 41 (1932)	28	(*)	111	(*)
B. M. Fairview	(*)	(*)	87	(*)
B. M. State Line (N. C.-S. C.)	23	(*)	109	(*)
Bend (Gates County)	40	145	117	13
Bend (New Hanover County)	(*)	(*)	71	(*)
Benn	(*)	(*)	62	(*)
Bennettsville, black water tank (S. C.)	25		110	(*)
Benson, water tank	(*)		77	(*)
Beston	(*)	(*)	74	(*)
Bethany (Va.)	(*)	(*)	79	(*)
Bethea	(*)	(*)	68	(*)
Bethel Hill	(*)	(*)	79	(*)
Big Butt (N. C.-Tenn.)	(*)	(*)	62	(*)
Big Craggy Mountain	(*)		63	(*)
Big Fodderstack (N. C.-Tenn.)	(*)		62	(*)
Big Knob (Va.)	(*)	(*)	62	(*)
Big Yellow Mountain	(*)		64	(*)
Black Brother Mountain	(*)		65	(*)
Black Mountain	(*)	(*)	86	(*)
Black River	(*)	(*)	101	(*)
Blackstock Knob	(*)		62	(*)
Bladenboro, aluminum water tank	23		109	(*)
Bladenboro Cotton Mill:				
Aluminum water tank	23		109	(*)
Brick stack	23		109	(*)
Blades	54	166	124	7
Blane	48	157	121	5
Blinds	54	167	124	7
Blockade Shoal Beacon	46		120	10
Bloodworth	(*)	(*)	68	(*)
Blossom (Va.)	(*)	(*)	65	(*)
Blowing Rock	(*)	(*)	87	(*)
Bluff (Craven County)	55	168	124	7
Bluff (Hertford County)	38	142	116	13
Bluff (U. S. E.)	(*)	(*)	91	(*)
Bluff Shoal Lighthouse, 1933	17		107	9
Bluff Shoal Lighthouse, 1935	15	137	106	9
Bodie Island Coast Guard Station	45		120	10
Bodie Island Lighthouse	43	151	119	10
Bodie Island north base	42	150	118	10
Bodie Island south base	43	151	119	10
Bog	(*)		91	(*)
Bonham	49	160	121	6
Boon	(*)	(*)	67	6
Boundary monument (N. C.-S. C.)	(*)		70	(*)
Boundary monument (N. C.-Va.)	(*)	(*)	68	(*)
Boundary monument (N. C.-Va.)	(*)		81	(*)
Boundary monument (1813) (N. C.-S. C.). (*See* State-Line monument (1813) (N. C.-S. C.).)				
Boundary monument No. 14 (N. C.-Va.)	(*)	(*)	81	(*)
Boundary monument No. 20 (N. C.-Va.)	(*)		81	(*)
Bowlens Pyramid (one of the northernmost summits of Black mountains)	(*)		64	(*)
Bowman (Va.)	(*)	(*)	85	(*)
Boyd	(*)	(*)	66	(*)
Boykins (B. M. S. 11) (Va.)	(*)	(*)	99	(*)
Boykins, black water tank (Va.)	(*)		80	(*)
Bragg	(*)	(*)	102	(*)
Brant Island Shoal Lighthouse	15		106	9
Braswell	(*)	(*)	74	(*)
Brewer	(*)	(*)	74	(*)
Brick	49	158	121	5, 6
Brickhouse Point 2	(*)	(*)	68	(*)
Bridge (Craven County)	54	166	124	7
Bridge (New Hanover County)	(*)	(*)	71	(*)
Bridgeton:				
Christian Church, spire	56		125	7
Stack	56		125	7
White spire	56		125	7
Bridgewater	(*)	(*)	87	(*)
Brier (U. S. E.)	(*)	(*)	92	(*)
Briggs	(*)	(*)	76	(*)
Bright Yellow Mountain	(*)		64	(*)
Brim (N. C.-Va.)	(*)	(*)	87	(*)
Britten	(*)	(*)	86	(*)
Broad	53	164	123	8
Broad Creek 2	(*)	(*)	70	(*)
Broadacre	32	(*)	113	(*)
Brook	(*)	(*)	103	(*)

* See Special Publication No. 192.

Station	Position	Description	Plane coordinates	Sketch
	Page	*Page*	*Page*	*Figure*
Brown	(*)	(*)	81	(*)
Bryan (Craven County)	(*)	(*)	67	(*)
Bryan (Dare County)	44	154	119	10
Bryant (Alleghany County)	(*)	(*)	85	(*)
Bryant (Horry County, S. C.)	(*)	(*)	67	5
Bryson	(*)	(*)	88	(*)
Buchanan	(*)	(*)	79	(*)
Buck	39	144	117	13
Buffalo (Va.)	(*)	(*)	79	(*)
Bull Head Mountain	(*)		63	(*)
Bull Pond	(*)	(*)	69	11
Bullock	(*)	(*)	79	(*)
Burke-Caldwell county-line stone	(*)	(*)	87	(*)
Burnside, church spire	46		120	10
Burnt	(*)	(*)	65	(*)
Byrd	17	(*)	107	(*)
Byrum	(*)	(*)	65	(*)
Cactus	(*)	(*)	69	(*)
Caesars Head Hotel, largest building, east end of roof (S. C.)	(*)		63	(*)
Cal eccentric (Va.)	(*)	(*)	80	(*)
Callahan	(*)	(*)	79	(*)
Camden	(*)	(*)	65	(*)
Cameron	(*)	(*)	104	(*)
Camp (Cumberland County)	(*)	(*)	100	(*)
Camp (Northampton County)	(*)	(*)	80	(*)
Camp (Onslow County)	(*)		91	(*)
Camp (Sampson County)	(*)	(*)	89	(*)
Camp (Southampton County, Va.)	(*)	(*)	78	(*)
Camp Glen, steel tower (Glen)	(*)	(*)	70	(*)
Can (Va.)	(*)	(*)	80	(*)
Can eccentric (Va.)	(*)	(*)	80	(*)
Canady	(*)	(*)	89	(*)
Cane	39	148	117	12, 13
Cannon	(*)	(*)	90	12
Cap (B. M. K 11) (Va.)	(*)	(*)	99	(*)
Cape Fear Lighthouse	(*)		71	(*)
Cape Fear River, channel light	(*)		71	(*)
Do	(*)		71	(*)
Cape Hatteras Lighthouse	16		106	9
Cape Lookout Lighthouse	(*)		84	(*)
Capehart	(*)	(*)	66	(*)
Care (B. M. A)	(*)	(*)	99	(*)
Carleton Knob	(*)		63	(*)
Carolina	57	170	125	4
Carpenter	(*)	(*)	73	(*)
Carr (Greene County)	(*)	(*)	82	(*)
Carr (Richmond County)	32	(*)	113	(*)
Carr A	34	(*)	114	(*)
Carson	(*)	(*)	66	(*)
Carthage	(*)	(*)	84	(*)
Carthage:				
Courthouse dome	(*)		105	(*)
Lower water tank	(*)		105	(*)
Taller water tank	(*)		105	(*)
Carver	(*)	(*)	88	(*)
Cary	(*)	(*)	94	(*)
Cary High	(*)	(*)	73	(*)
Cary, municipal water tank	(*)		76	(*)
Cary reference mark	(*)	(*)	76	(*)
Cas (B. M. M 11) (Va.)	(*)	(*)	99	(*)
Cat	37	141	116	12
Cat (B. M. O 11) (Va.)	(*)	(*)	99	(*)
Catholic Church, Wilmington, western of twin domes	(*)		71	(*)
Catlin	29	(*)	112	(*)
Caw (B. M. Q 11) (Va.)	(*)	(*)	99	(*)
Cay (B. M. T 11) (Va.)	(*)	(*)	99	(*)
Caz (B. M. D)	(*)	(*)	99	(*)
Ced (B. M. E)	(*)	(*)	99	(*)
Ceda (B. M. V 11) (Va.)	(*)	(*)	99	(*)
Cedar	43	150	119	10
Cedar Point	(*)	(*)	90	(*)
Cedder Mountain	(*)	(*)	72	(*)
Cef (B. M. G)	(*)	(*)	99	(*)
Cel (B. M. I)	(*)	(*)	99	(*)
Cep (B. M. K)	(*)	(*)	99	(*)
Cer (B. M. M)	(*)	(*)	99	(*)
Cet (B. M. O)	(*)	(*)	99	(*)
Chadbourn, aluminum water tank	23		109	(*)
Chadwick	50	161	122	6
Channel light No. 13, flashing white	(*)		70	(*)
Chapel	(*)	(*)	82	(*)

* See Special Publication No. 192.

Station	Position	Description	Plane coordinates	Sketch
	Page	*Page*	*Page*	*Figure*
Chapel Hill	(*)	(*)	73	(*)
Chapel Hill, black water tank	(*)		75	(*)
Charlotte	18	(*)	107	(*)
Charlotte:				
Airport beacon, revolving white light	29		112	
Presbyterian Church, spire	27		111	(*)
Cheoah (U. S. G. S.)	(*)	(*)	86	(*)
Cherry Point 2	(*)	(*)	70	(*)
Cherry Point 2 eccentric	(*)	(*)	70	8
Cherryville	29	(*)	112	(*)
Chestnut (Va.)	(*)	(*)	72	(*)
Chimney Top Mountain	(*)		64	(*)
Chocowinity	(*)	(*)	66	9
Chowan	41	148	118	13
Chowan River bridge, center of draw	36	139	116	11
Chowan River toll bridge, green light on top	(*)		69	(*)
Christian Church, Bridgeton, spire	56		125	7
Church spire:				
Danville (Va.)	(*)		75	(*)
Henderson	(*)		80	(*)
Wadesboro, cross on top	27		111	(*)
Wilmington, low, with broad base	(*)		72	(*)
Wilmington, low, with weather vane	(*)		72	(*)
Wilmington, with broad base	(*)		72	(*)
Youngsville	(*)		100	(*)
Cia (B. M. S)	(*)	(*)	98	(*)
Cib (B. M. U)	(*)	(*)	98	(*)
Cid (B. M. W)	(*)	(*)	98	(*)
Cig	(*)	(*)	98	(*)
Cik (B. M. A 1)	(*)	(*)	98	(*)
Cil (B. M. C 1)	(*)	(*)	98	(*)
Cim (B. M. E 1)	(*)	(*)	98	(*)
Cin (B. M. G 1)	(*)	(*)	98	(*)
Cip (B. M. L 1)	(*)	(*)	98	(*)
Cir	(*)	(*)	98	(*)
Circle	(*)	(*)	87	(*)
Cit (B. M. Q 1)	(*)	(*)	98	(*)
City	28	(*)	111	(*)
Civ (B. M. T 1)	(*)	(*)	98	(*)
Ciz (B. M. U 1)	(*)	(*)	98	(*)
C. K. 19 (S. C. Geod. S.) (S. C.)	57	171	126	4
C. K. 19 (S. C. Geod. S.) eccentric (S. C.)	57	171	125	4
Cla (B. M. X 1)	(*)	(*)	98	(*)
Clarendon	22	(*)	109	(*)
Clarksville (Va.)	(*)	(*)	79	(*)
Clarksville, municipal water tank, aluminum, finial (Va.)	(*)		79	(*)
Claybank	21	(*)	108	(*)
Clayton	(*)	(*)	73	(*)
Clayton:				
Cotton Mills, water tank	(*)		76	(*)
Liberty Cotton Mills, water tank	(*)		76	(*)
Municipal water tank	(*)		76	(*)
Cle (B. M. B 2)	(*)	(*)	98	(*)
Cli (B. M. D 2)	(*)	(*)	98	(*)
Cliff	41	147	118	13
Climax	(*)	(*)	84	(*)
Clinton, silver-colored water tank	(*)		89	(*)
Clio, white water tank (S. C.)	25		110	(*)
Clo (B. M. F 2)	(*)	(*)	98	(*)
Clover (S. C.)	57	169	125	4
Clover, municipal water tank (S. C.)	57		126	4
Clu (B. M. H 2)	(*)	(*)	98	(*)
Club	43	151	119	10
Clubfoot Beacon	55		124	8
Cly (B. M. J 2)	(*)	(*)	98	(*)
Clyde	(*)	(*)	73	(*)
Coa (B. M. L 2)	(*)	(*)	98	(*)
Coast Guard Station:				
Bodie Island	45		120	10
Nag's Head	45		120	10
Oregon Inlet, cupola	45		120	10
Oregon Inlet, flagpole	45		120	10
Paul Gamiels Hill	45		120	10
Pea Island	45		120	10
Cob (B. M. N 2)	(*)	(*)	98	(*)
Cobb Point Light	(*)		68	(*)
Cockspur (Tenn.)	(*)	(*)	62	(*)
Cod (B. M. P 2)	(*)	(*)	98	(*)
Coe (B. M. R 2)	(*)	(*)	98	(*)
Cof	(*)	(*)	98	(*)
Cog (B. M. T 2)	(*)	(*)	97	(*)
Cognac	32	(*)	113	(*)

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Station	Position	Description	Plane coordinates	Sketch
	Page	*Page*	*Page*	*Figure*
Cold Mountain 1	(*)		64	(*)
Cold Mountain 2	(*)		64	(*)
Cole	37	139	116	11
Coll	42	149	118	10
Collington Shoal, beacon light	46		120	10
Colon	(*)	(*)	99	(*)
Como	(*)	(*)	78	(*)
Con (B. M. V 2)	(*)	(*)	97	(*)
Concord (Cabarrus County)	19	(*)	107	(*)
Concord (N. C.-Va.)	(*)	(*)	80	(*)
Concord, Presbyterian Church, spire (tall white)	28		111	(*)
Congregational Church, Southern Pines, steeple	36		115	(*)
Cooper	(*)	(*)	66	(*)
Cop (B. M. X 2)	(*)	(*)	97	(*)
Cor (B. M. B 3)	(*)	(*)	97	(*)
Corapeake	(*)	(*)	78	(*)
Corbet	(*)	(*)	101	(*)
Cordova	26	(*)	110	(*)
Core	17	(*)	106	9
Core eccentric	13	(*)	105	9
Cos (B. M. C 3)	(*)	(*)	97	(*)
Cot (B. M. D 3)	(*)	(*)	97	(*)
Cote (B. M. A 4)	(*)	(*)	97	(*)
Cotton	(*)	(*)	90	(*)
Cotton Oil Co., New Bern, water tank	55		125	7
Court	(*)	(*)	90	(*)
Courthouse:				
Carthage, dome	(*)		105	(*)
Dallas, cupola	(*)		63	(*)
Dare County, spire	46		120	10
Lincolnton, yellow cupola	(*)		62	(*)
Monroe, spire	31		113	4
Cov (B. M. I 3)	(*)	(*)	97	(*)
Covil	(*)	(*)	90	(*)
Cow (B. M. L 3)	(*)	(*)	97	(*)
Cow Island 2. (*See* Cow Island 3.)				11
Cow Island 3	37	139	116	
Cox (B. M. N 3)	(*)	(*)	82	(*)
Cox eccentric	(*)	(*)	82	(*)
Coy (B. M. U 3)	(*)	(*)	97	(*)
Coz (B. M. W 3)	(*)	(*)	97	(*)
Cra (B. M. P)	(*)	(*)	99	(*)
Crag	(*)	(*)	91	(*)
Crawley (Va.)	(*)	(*)	72	(*)
Cre	(*)	(*)	97	(*)
Creek (Brunswick County)	49	161	122	6
Creek (Dare County)	43	151	119	10
Creek (Hertford County)	39	143	117	12, 13
Cri (B. M. Z 3)	(*)	(*)	97	(*)
Crisp	(*)	(*)	83	(*)
Cro (B. M. D 4)	(*)	(*)	97	(*)
Croat	42	149	118	10
Croatan Lighthouse	45	154	120	10
Crock	52	163	123	8
Croix	45	155	120	10
Cross	44	153	119	10
Crowder Mountain	(*)		62	(*)
Cru (B. M. E 4)	(*)	(*)	97	(*)
Cub (B. M. H 4)	(*)	(*)	97	(*)
Cud (B. M. L 4)	(*)	(*)	97	(*)
Cue (B. M. N 4)	(*)	(*)	97	(*)
Cuf (B. M. O 4)	(*)	(*)	97	(*)
Cug (B. M. R 4)	(*)	(*)	97	(*)
Cul (B. M. S 4)	(*)	(*)	97	(*)
Cum (B. M. U 4)	(*)	(*)	97	(*)
Cun (B. M. X 4)	(*)	(*)	96	(*)
Cunningham (Va.)	(*)	(*)	75	(*)
Cup (B. M. B 5)	(*)	(*)	96	(*)
Cur (B. H. D 5)	(*)	(*)	96	(*)
Currie	(*)	(*)	101	(*)
Currituck Beach Lighthouse	(*)		68	(*)
Currituck Bridge, center of draw span	46		120	10
Cus (B. M. J 5)	(*)	(*)	96	(*)
Cut (B. M. F 5)	(*)	(*)	96	(*)
Cuv (B. M. Q 5)	(*)	(*)	96	(*)
Cux (B. M. U 5)	(*)	(*)	96	(*)
Cuy (B. M. X 5)	(*)	(*)	96	(*)
Cuz (B. M. A 6)	(*)	(*)	96	(*)
Cy	41	147	118	13
Cypress	(*)	(*)	68	(*)
Dab (B. M. C 6)	(*)	*)	96	(*)

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Station	Position	Description	Plane coordinates	Sketch
	Page	*Page*	*Page*	*Figure*
Dad	*	*	96	*
Daf	*	*	96	*
Dag	*	*	96	*
Dall	*	*	77	*
Dal	*	*	96	*
Dallas:				
Courthouse, cupola	*		63	*
Water tank, tall, black, near white factory	29		112	*
Damascus (Va.-Tenn.)	*	*	89	*
Dan (B. M. O 6)	*	*	96	*
Daniel	*	*	79	*
Danville, church spire (Va.)	*		75	*
Dap (B. M. R 6)	*	*	96	*
Dar	*	*	96	*
Dare	*	*	95	*
Dare County, courthouse, spire	46		120	10
Dare R. M	47	155	120	10
Das	*	*	96	*
Davis	*	*	93	*
Daw (B. M. Q 6)	*	*	96	*
Dawson	*	*	82	*
Day (Carteret County)	16	138	106	9
Day (Vance County)	*	*	96	*
Daya	*	*	95	*
Daz	*	*	80	*
Daz eccentric	*	*	79	*
Deb	*	*	95	*
Debeney	*	*	103	*
Debeney A	*	*	103	*
Debt	41	148	118	10
Dec	*	*	95	*
Ded	*	*	95	*
Deep Run	*	*	74	*
Def	*	*	95	*
Deg	*	*	95	*
Dek	*	*	95	*
Del	*	*	95	*
Delaware	*	*	104	*
Dem	*	*	95	*
Den	*	*	95	*
Denneys	*	*	101	*
Denver	29	*	112	*
Deo	*	*	95	*
Dep	*	*	95	*
Der	*	*	95	*
Derrick mast on fish house	47		121	10
Des	*	*	95	*
Det	*	*	95	*
Deter	*	*	95	*
Devils Courthouse Mountain	*		63	*
Dew	*	*	95	*
Dex	*	*	95	*
Dey	*	*	95	*
Dez	*	*	95	*
Dib	*	*	94	*
Dic	*	*	94	*
Did	*	*	94	*
Dif	*	*	94	*
Dig	*	*	94	*
Dik	*	*	94	*
Dil (B. M. M 9)	*	*	94	*
Dillon:				
Dillon Oil Co., tall, slender, black water tank (S. C.)	24		110	*
Municipal water tank, red (S. C.)	24		110	*
North base	21	*	108	*
South base (S. C.)	21	*	108	*
Dillsboro	*	*	88	*
Dim	*	*	94	*
Dip	*	*	94	*
Dir	*	*	94	*
Dis	*	*	94	*
Dit	*	*	94	*
Div	*	*	94	*
Dix	*	*	94	*
Dixon	52	163	123	8
Diz	*	*	94	*
Dob	*	*	94	*
Doc	*	*	100	*
Dod	*	*	99	*
Doe (Tenn.)	*	*	92	*
Dof	*	*	94	*
Dog	*	*	94	*

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Station	Position	Description	Plane coordinates	Sketch
	Page	*Page*	*Page*	*Figure*
Doh	(*)	(*)	94	(*)
Doi	(*)	(*)	93	(*)
Dok	(*)	(*)	93	(*)
Dol	(*)	(*)	93	(*)
Dom	(*)	(*)	93	(*)
Dome supported by pillars	(*)		70	(*)
Don	(*)	(*)	93	(*)
Dop	(*)	(*)	93	(*)
Dor	(*)	(*)	93	(*)
Dos	(*)	(*)	93	(*)
Dot	(*)	(*)	93	(*)
Dothan (N. C.-S. C.)	24	(*)	109	(*)
Dov	(*)	(*)	93	(*)
Dow	(*)	(*)	93	(*)
Dox	(*)	(*)	93	(*)
Doy	(*)	(*)	93	(*)
Doz	(*)	(*)	93	(*)
Dra	(*)	(*)	93	(*)
Dre	(*)	(*)	93	(*)
Drewry	(*)	(*)	79	(*)
Dri	(*)	(*)	93	(*)
Dro	(*)	(*)	93	(*)
Dru	(*)	(*)	101	(*)
Drummond (N. C.-Va.)	(*)	(*)	81	(*)
Dub	(*)	(*)	102	(*)
Dublin	(*)	(*)	89	(*)
Duc	(*)	(*)	102	(*)
Duck Creek (Craven County)	53	165	124	7
Duck Creek (Onslow County)	(*)	(*)	67	(*)
Duck Island R. M	46	155	120	10
Dud	(*)	(*)	102	(*)
Dudley	(*)	(*)	74	(*)
Duf	(*)	(*)	102	(*)
Duke	(*)	(*)	75	(*)
Duke University, Durham, chapel tower, northwest corner	(*)		75	(*)
Dul	(*)	(*)	101	(*)
Dum	(*)	(*)	101	(*)
Duplin	(*)	(*)	74	(*)
Duplin-Lenoir Counties, boundary monument	(*)		77	(*)
Durant (Dare County)	14	(*)	106	9
Durant (Perquimans County)	(*)	(*)	65	(*)
Durham	(*)	(*)	73	(*)
Durham:				
Chesterfield Cigarette Factory, aluminum tank	(*)		75	(*)
Chesterfield Cigarette Factory, tall brick stack	(*)		75	(*)
Duke University, chapel tower, northwest corner	(*)		75	(*)
Durham Cotton Mill, tall stack	(*)		75	(*)
Middle base	(*)	(*)	73	(*)
North base	(*)	(*)	73	(*)
South base	(*)	(*)	73	(*)
Eason	(*)	(*)	82	(*)
East (Gates County)	41	147	118	13
East (Wake County)	(*)	(*)	100	(*)
East Drowning Creek Mountain	(*)		63	(*)
East Durham:				
Lucky Strike Tobacco Storage, northeasterly 1 of 2 water tanks	(*)		76	(*)
Lucky Strike Tobacco Storage, southwesterly 1 of 2 aluminum water tanks	(*)		76	(*)
East Rockingham:				
Hannah-Picket Mill No. 2, tall black water tank, ball on top	27		111	(*)
Short aluminum water tank, red top	27		111	(*)
Eden 2	(*)	(*)	69	11
Eden 2 reference mark No. 1	(*)	(*)	69	11
Edenton	(*)	(*)	66	(*)
Edenton, highest water tank	(*)		69	(*)
Edmondson	(*)	(*)	77	(*)
Eel	55	168	124	7
Elizabeth	(*)	(*)	65	(*)
Elizabeth City, municipal water tank	(*)		68	(*)
Elizabethtown	(*)	(*)	89	(*)
Elizabethtown 2	30	138	112	
Elk Knob (Smoky Range)	(*)		64	(*)
Ellerbe	26	(*)	110	(*)
Ellerbe, municipal water tank, black	27		111	(*)
Ellis (Va.)	(*)	(*)	79	(*)
Empie	(*)	(*)	100	(*)
Emporia (Va.)	(*)	(*)	79	(*)

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Station	Position	Description	Plane coordinates	Sketch
	Page	*Page*	*Page*	*Figure*
Enfield:				
Brick stack	(*)		82	(*)
Municipal water tank, squat, black	(*)		82	(*)
Englehard	14	(*)	105	9, 10
English (Tenn.)	(*)	(*)	86	(*)
Entwistle	26	(*)	110	(*)
Episcopal Church, Christ, New Bern, spire	(*)		69	(*)
Erie	34	(*)	114	(*)
Espey	(*)	(*)	93	(*)
Estelle	(*)	(*)	72	(*)
Eure	38	142	116	13
Eureka	(*)	(*)	81	(*)
Evert (S. C.)	47	156	121	5
Everton	(*)	(*)	88	(*)
Extra	16	137	106	9
Fain (U. S. G. S.)	(*)	(*)	88	(*)
Fair	(*)	(*)	76	(*)
Fairmont, ball on top of municipal water tank	23		109	(*)
Fairview	20	(*)	108	(*)
Fairview (bench mark)	(*)	(*)	87	(*)
Farley	(*)	(*)	93	(*)
Farmville	(*)	(*)	81	(*)
Fayetteville	(*)	(*)	100	(*)
Fayetteville A	(*)	(*)	102	(*)
Fayetteville B	(*)	(*)	102	(*)
Fayetteville C	(*)	(*)	102	(*)
Fayetteville D	(*)	(*)	102	(*)
Fayetteville E	(*)	(*)	102	(*)
Fayetteville F	(*)	(*)	102	(*)
Fayetteville G	(*)	(*)	102	(*)
Fayetteville H	(*)	(*)	102	(*)
Fayetteville I	(*)	(*)	102	(*)
Fayetteville J	(*)	(*)	102	(*)
Fayetteville, water tank	(*)		103	(*)
Felt (Va.)	(*)	(*)	85	(*)
Ferry	55	168	124	7
Ferry (Lewis)	54	167	124	7
Ferry (U. S. E.)	(*)	(*)	92	(*)
Ferry eccentric	(*)	(*)	90	(*)
Fetner	(*)	(*)	99	(*)
Fields	17	(*)	107	(*)
Fir	53	165	123	7
Fire tower, Wayah Bald	(*)		88	(*)
Fish (Brunswick County)	(*)	(*)	70	(*)
Fish (Onslow County)	(*)	(*)	91	(*)
Fish (U. S. E.)	(*)	(*)	90	(*)
Fisher's Peak	(*)		63	(*)
Fismes	(*)	(*)	103	(*)
Flag	39	143	117	12, 13
Flagpole at King	57	170	125	4
Flagstaff, Fort Raleigh	47		120	10
Flanigan	(*)	(*)	82	(*)
Flat Shoal Mountain	(*)		85	(*)
Flat Top Mountain (Blue Ridge)	(*)		64	(*)
Flax	41	148	118	13
Fleet	42	149	118	10
Flowers	(*)	(*)	74	(*)
Floyds (S. C.)	22	(*)	109	(*)
Foch	(*)	(*)	85	(*)
Foch A	(*)	(*)	104	(*)
Foch B	(*)	(*)	104	(*)
Foch C	(*)	(*)	104	(*)
Foch D	(*)	(*)	104	(*)
Foch E	(*)	(*)	104	(*)
Fodderstack Mountain (Terrapin Mountain)	(*)		64	(*)
Folly	50	162	122	6
Fonck	(*)	(*)	104	(*)
Ford	22	(*)	108	(*)
Fore 2	37	140	116	11
Fork (Tenn.)	(*)	(*)	62	(*)
Forrest	(*)	(*)	94	(*)
Fort (Beaufort County)	13	(*)	105	9
Fort 2 (New Hanover County)	(*)	(*)	71	(*)
Fort (U. S. E.)	17	(*)	106	9
Fort Caswell, stack	(*)		71	(*)
Fort Mill (S. C.)	31	(*)	113	4
Fort Mill:				
Silver water tank (S. C.)	31		113	4
Standpipe (S. C.)	32		113	4
Fort Point Beacon	55		124	7
Fort Raleigh, flagstaff	47		120	10
Fountain (Anson County)	19	(*)	107	(*)

* See Special Publication No. 192.

Station	Position	Description	Plane coordinates	Sketch
	Page	Page	Page	Figure
Fountain (Onslow-Duplin Counties)	(*)	(*)	74	(*)
Franklin	(*)	(*)	88	(*)
Franklinton	(*)	(*)	95	(*)
Free	(*)	(*)	70	(*)
Freeman (Bladen County)	17	(*)	107	(*)
Freeman (N. C.–Va.)	(*)	(*)	81	(*)
French (U. S. E.)	(*)	(*)	91	(*)
Frog Island	(*)	(*)	68	10
Fruitland	20	(*)	108	(*)
Futrell	(*)	(*)	80	(*)
Garland	(*)	(*)	89	(*)
Garner	(*)	(*)	73	(*)
Garrard	(*)	(*)	75	(*)
Garysburg (B. M. I 1)	(*)	(*)	98	(*)
Gaskill	(*)	(*)	83	(*)
Gastonia	29	(*)	112	(*)
Gastonia base	29	(*)	112	(*)
Gastonia base reference mark No. 1	29	(*)	112	(*)
Gastonia, black water tank	30		112	
Gates	(*)	(*)	81	(*)
Gatesville	(*)	(*)	81	(*)
Gatling	(*)	(*)	78	(*)
Gator	43	152	119	10
Gerton	(*)	(*)	86	(*)
Gibbons	(*)	(*)	93	(*)
Gibson (N. C.–S. C.)	25	(*)	110	(*)
Gillette (U. S. E.)	(*)	(*)	90	(*)
Gin eccentric	(*)	(*)	90	(*)
Gin (U. S. E.)	(*)	(*)	92	(*)
Glen (Camp Glen, steel tower)	(*)	(*)	70	(*)
Glenfield	(*)	(*)	83	(*)
Glenn	(*)	(*)	92	(*)
Goat (S. C.)	48	157	121	5
Goldsboro	(*)	(*)	74	(*)
Goldsboro eccentric	(*)	(*)	77	(*)
Goldsboro eccentric reference mark No. 4	(*)	(*)	77	
Goldsboro:				
Aluminum standpipe	(*)		77	(*)
Durham Hosiery Mills, aluminum water tank, higher of two	(*)		77	(*)
Farmers Cotton & Storage Warehouse Co., water tank	(*)		77	(*)
St. Paul Methodist Church, spire	(*)		77	(*)
State Hospital, stack	(*)		77	(*)
Vinson Lumber Co., water tank	(*)		77	(*)
Goose	39	144	117	12
Gore	(*)	(*)	67	(*)
Grandfather	(*)	(*)	86	(*)
Grandfather Mountain	(*)		62	(*)
Grant (McDowell County)	(*)	(*)	87	(*)
Grant (Onslow County)	(*)	(*)	67	(*)
Grassy Point lighthouse	(*)		69	(*)
Grassy Ridge	(*)		64	(*)
Great Hogback Mountain	(*)		64	(*)
Great Island 2	56	168	125	8
Great Island eccentric	52	162	123	8
Great Neck Point eccentric	(*)	(*)	70	8
Green (Craven County)	53	164	123	7
Green (Martin County)	(*)	(*)	66	(*)
Green (Watauga County)	(*)	(*)	92	(*)
Green Sea (S. C.)	22	(*)	109	(*)
Greensboro	(*)	(*)	84	(*)
Greensboro:				
City water tank	(*)		85	(*)
Vicks Chemical Co., water tank	(*)		85	(*)
White water tank	(*)		85	(*)
Greenville	(*)	(*)	81	(*)
Greenville, Imperial Tobacco Co.:				
Taller of two stacks	(*)		83	(*)
Taller of two tanks	(*)		83	(*)
Gregory	(*)	(*)	65	(*)
Grey (U. S. E.)	(*)	(*)	90	(*)
Greystone Hotel, water tank, Roaring Gap	(*)		87	(*)
Griffin (Bladen County)	(*)	(*)	89	(*)
Griffin (Moore County)	33	(*)	114	(*)
Griffin (Perquimans County)	(*)	(*)	68	(*)
Grissett	48	158	121	5
G. S. Tie (Va.)	(*)	(*)	75	(*)
Guide	22	(*)	109	(*)
Guilford	(*)	(*)	84	(*)
Guinea	(*)	(*)	65	(*)
Guite	44	152	119	10

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Station	Position	Description	Plane coordinates	Sketch
	Page	*Page*	*Page*	*Figure*
Gull Shoal beacon	14		106	9
Gull Shoal Lighthouse	17	138	107	9
Gum	(*)	(*)	103	(*)
Guthrie	(*)	(*)	70	(*)
Guynemer	(*)	(*)	104	(*)
Guynemer A	(*)	(*)	104	(*)
Guyot (U. S. G. S.) (N. C.-Tenn.)	(*)	(*)	86	(*)
Hadnot (U. S. E.)	(*)	(*)	91	(*)
Hagers Mount	(*)	(*)	73	(*)
Hagood (Va.)	(*)	(*)	79	(*)
Halifax	(*)	(*)	82	(*)
Hall (Duplin County)	(*)	(*)	89	(*)
Hall (Johnston County)	(*)	(*)	73	(*)
Hall (U. S. E.)	(*)	(*)	90	(*)
Halloway	(*)	(*)	79	(*)
Halsey	(*)	(*)	69	(*)
Hamer (S. C.)	21	(*)	108	(*)
Hamer, Carolina Textile Corporation:				
Stack (S. C.)	24		110	(*)
Water tank, near stack, ball on top (S. C.)	25		110	(*)
Hamilton	(*)	(*)	104	(*)
Hamlet	33	(*)	113	(*)
Hamlet A	34	(*)	115	(*)
Hamlet B	34	(*)	114	(*)
Hamlet C	34	(*)	114	(*)
Hamlet D	34	(*)	114	(*)
Hamlet E	34	(*)	114	(*)
Hamlet F	34	(*)	114	(*)
Hamlet traverse tie	26	(*)	110	(*)
Hamlet:				
City water tank	26		110	(*)
Seaboard Air Line Ry., water tank	36		115	(*)
Hammond	21	(*)	108	(*)
Hampstead	(*)	(*)	68	(*)
Hampton Shoal beacon	55		124	7, 8
Hancock	52	163	123	8
Hanging Bluff	(*)		62	(*)
Hangover tree (Geological Survey)	(*)		62	(*)
Harbor (Currituck County)	43	152	119	10
Harbor (Hertford County)	37	140	116	11, 12
Harbor Island Bar Lighthouse	15		106	9
Hargett	(*)	(*)	74	(*)
Harlowe	(*)	(*)	67	(*)
Harrell (Va.)	(*)	(*)	78	(*)
Harrell	41	147	118	13
Harris	(*)	(*)	74	(*)
Hartland	(*)	(*)	87	(*)
Harvell	(*)	(*)	67	(*)
Hatch (U. S. E.)	(*)	(*)	90	(*)
Hatteras Inlet Lighthouse	16		106	9
Haulover	42	149	118	10
Havelock	(*)	(*)	66	(*)
Hawk	45	155	120	10
Hawksbill Mountain	(*)		64	(*)
Hayes	(*)	(*)	104	(*)
Hayesville	(*)	(*)	88	(*)
Hayne	(*)	(*)	100	(*)
Haywood	(*)	(*)	82	(*)
Heath (Lenoir County)	(*)	(*)	83	(*)
Heath (Union County)	30	(*)	112	4
Henderson	(*)	(*)	95	(*)
Henderson:				
American Agricultural Chemical Co. tank, tall, black	(*)		80	(*)
Church spire	(*)		80	(*)
Henderson Cotton Mills, tank, aluminum	(*)		80	(*)
Hertford	(*)	(*)	65	(*)
Hewett	49	159	121	6
Hibriten	(*)	(*)	86	(*)
Hibriten Mountain	(*)		63	(*)
Hick	49	160	122	6
Hickory (Norfolk County, Va.)	(*)	(*)	65	(*)
Hickory (Wilkes-Caldwell-Alexander Counties)	(*)	(*)	85	(*)
Hickory Knob	(*)		63	(*)
High (Dare County)	44	153	119	10
High (Hertford County)	40	145	117	13
High (Onslow County)	(*)	(*)	91	(*)
High Peak	(*)	(*)	86	(*)
High Pinnacle (Blue Ridge)	(*)		63	(*)
High Point	(*)	(*)	84	(*)
High Point, higher tank	(*)		85	(*)
Hill	42	149	118	10

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Station	Position	Description	Plane coordinates	Sketch
	Page	*Page*	*Page*	*Figure*
Hillsboro	(*)	(*)	73	(*)
Hilltop	(*)	(*)	94	(*)
Hines	(*)	(*)	90	(*)
Hinson	20	(*)	108	(*)
Hocutt	(*)	(*)	73	(*)
Hodges	39	143	117	12, 13
Hoffman	32	(*)	113	(*)
Hoffman A	34	(*)	114	(*)
Hoffman, Seaboard Air Line Ry., semaphore	36		115	(*)
Hogback (S. C.)	(*)	(*)	62	(*)
Hogback Mountain	(*)	(*)	86	(*)
Holden	49	159	121	6
Hookerton, water tank, aluminum	(*)		83	(*)
Horn	40	146	117	13
House	36	139	116	11
Howard	(*)	(*)	79	(*)
Howell	(*)	(*)	67	6
Hubert	(*)	(*)	67	(*)
Huffman	(*)	(*)	74	(*)
Huggins	(*)	(*)	101	(*)
Hughes	(*)	(*)	67	(*)
Humpback Mountain (Blue Ridge)	(*)		64	(*)
Humphrey	(*)	(*)	74	(*)
Hunt	(*)	(*)	73	(*)
Huntersville	18	(*)	107	(*)
Huntersville, municipal water tank	28		111	(*)
Huron	(*)	(*)	104	(*)
Ingold	(*)	(*)	89	(*)
Ingram	19		108	(*)
Intracoastal Waterway, beacon:				
No. 14	51		122	6
No. 23	51		122	6
No. 29	51		122	6
No. 30	51		122	6
No. 32	51		122	6
No. 34	51		122	6
No. 35	51		122	6
No. 36	51		123	6
No. 38	50		122	5, 6
No. 42	51		122	5
No. 45	51		123	6
No. 46	50		122	5
No. 51	51		122	6
No. 53	50		122	6
No. 55	50		122	6
No. 57	51		122	5, 6
No. 59	51		123	5, 6
No. 61	51		123	5
No. 71	51		122	5
No. 73	51		122	5
No. 75	52		123	5
No. 77	52		123	5
Ireland	(*)	(*)	88	(*)
Iron Hill	22	(*)	109	(*)
Island	38	142	117	13
Ivanhoe	(*)	(*)	101	(*)
Jackson (Cabarrus County)	19	(*)	107	(*)
Jackson (Gaston County)	57	169	125	4
Jackson Training School for Boys, water tank	28		111	(*)
James (Beaufort County)	13	(*)	105	9
James (Craven County)	53	165	124	7
James (Pittsylvania County, Va.)	(*)	(*)	72	(*)
Jamesville	(*)	(*)	66	(*)
Jarman	(*)	(*)	91	(*)
Jodup	(*)	(*)	78	(*)
John	56	168	125	7
Johnson	(*)	(*)	68	(*)
Johnson Point Lighthouse	53		123	7, 8
Johnstown	(*)	(*)	87	(*)
Jonas	(*)	(*)	86	(*)
Jones	14	(*)	105	9, 10
Jonesboro	(*)	(*)	84	(*)
Jonesboro, tall square white steeple with spiral	(*)		105	(*)
Jordan. (*See* Jordon.)				
Jordon	(*)	(*)	78	(*)
Judson (S. C.)	21	(*)	108	(*)
Just	54	166	124	7

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Station	Position	Description	Plane coordinates	Sketch
	Page	*Page*	*Page*	*Figure*
Kannapolis:				
Tall brick stack	28		111	(*)
Tall silver water tank	28		111	(*)
Kemper (S. C.)	21	(*)	108	(*)
Kentuck (Va.)	(*)	(*)	72	(*)
Kernersville	(*)	(*)	84	(*)
Kerr	(*)	(*)	89	(*)
Keyes	(*)	(*)	68	(*)
Keyser	33	(*)	114	(*)
Keyser A	33	(*)	114	(*)
King	(*)	(*)	62	(*)
King eccentric	18	138	107	4
Kings Mountain, airway beacon, 200-mile blinker, Atlanta-New York	57		126	4
Kings Mountain, Battle Monument, tip (S. C.)	57		125	4
Kinston	(*)	(*)	74	(*)
Kinston:				
Caswell Training School, brick stack	(*)		77	(*)
Caswell Training School, water tank	(*)		77	(*)
Municipal standpipe, green	(*)		78	(*)
Yellow brick stack	(*)		77	(*)
Kirkland	(*)	(*)	68	(*)
Kittrell	(*)	(*)	95	(*)
Knee	41	147	118	13
Knight (Southampton County)	(*)	(*)	80	(*)
Knight (Wake County, Va.)	(*)	(*)	73	(*)
Knoll	(*)	(*)	67	(*)
La Grange, municipal water tank	(*)		77	(*)
Lake	(*)	(*)	100	(*)
Lakeview	(*)	(*)	104	(*)
Lakeview A	(*)	(*)	104	(*)
Lakeview, green water tank, with black roof	(*)		105	(*)
Lancaster (S. C.)	31	(*)	113	4
Lancaster:				
Aluminum water tank (S. C.)	32		113	4
Municipal tank (S. C.)	32		113	4
Lance (Ga.)	(*)	(*)	86	(*)
Land	54	166	124	7
Laurel	(*)	(*)	86	(*)
Laurel Point Lighthouse	(*)		69	(*)
Laurinburg:				
Dixie Guano Co., tank	25		110	(*)
Municipal water tank	25		110	(*)
Lawn	(*)	(*)	87	(*)
Lawrence	(*)	(*)	69	11
Laws	(*)	(*)	73	(*)
Leak	(*)	(*)	74	(*)
Leasburg	(*)	(*)	73	(*)
Lebanon	(*)	(*)	75	(*)
Lee (Currituck County)	(*)	(*)	68	(*)
Lee (Lee County)	(*)	(*)	103	(*)
Leggett	(*)	(*)	82	(*)
Lemon	(*)	(*)	84	(*)
Lemon A	(*)	(*)	103	(*)
Lemon B	(*)	(*)	103	(*)
Lemon C	(*)	(*)	103	(*)
Lennon	(*)	(*)	103	(*)
Lenoir	(*)	(*)	87	(*)
Lenoir, First Baptist Church, spire	(*)		87	(*)
Lenway	(*)	(*)	77	(*)
Lenzton	19	(*)	108	(*)
Leon (S. C.)	(*)	(*)	67	(*)
Lewis	41	148	118	10
Lewis (S. C.)	48	156	121	5
Lewis Ferry	54	167	124	7
Liberty	(*)	(*)	84	(*)
Liddell	(*)	(*)	77	(*)
Light	33	(*)	113	(*)
Light A	35	(*)	115	(*)
Light B	35	(*)	115	(*)
Light C	35	(*)	115	(*)
Light D	35	(*)	115	(*)
Light E	35	(*)	115	(*)
Light F	35	(*)	115	(*)
Light G	35	(*)	115	(*)
Light H	35	(*)	115	(*)
Light I	35	(*)	115	(*)
Light J	35	(*)	115	(*)
Light No. 2	(*)		92	(*)
Light No. 8	(*)		92	(*)

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Station	Position	Description	Plane coordinates	Sketch
	Page	*Page*	*Page*	*Figure*
Light:				
Cape Fear River, channel	(*)		71	(*)
Cape Fear River, channel	(*)		71	(*)
Channel No. 13, flashing white	(*)		70	(*)
Cobb Point	(*)		68	(*)
Lower Green Spring	56		125	7
Mackay Creek	(*)		69	(*)
Miller Point	(*)		68	(*)
Reed Point	(*)		69	(*)
Upper Green Spring	53		124	7
Lighthouse:				
Bald Head	(*)		71	(*)
Bluff Shoal, 1933	17		107	9
Bluff Shoal, 1935	15	137	106	9
Bodie Island	43	151	119	10
Brant Island Shoal	15		106	9
Cape Fear	(*)		71	(*)
Cape Hatteras	16		106	9
Cape Lookout	(*)		84	(*)
Croatan	45	154	120	10
Currituck Beach	(*)		68	(*)
Grassy Point	(*)		69	(*)
Gull Shoal	17	138	107	9
Harbor Island Bar	15		106	9
Hatteras Inlet	16		106	9
Johnson Point	53		123	7, 8
Laurel Point	(*)		69	(*)
Long Shoal	15		106	9, 10
Roanoke Marshes	43	150	119	10
Southwest Point	15		106	9
Wade Point	43	152	119	10
Lilly	(*)	(*)	78	(*)
Lincolnton	29	(*)	112	(*)
Lincolnton, courthouse, yellow cupola	(*)		62	(*)
Little Bald (N. C.-Tenn.)	(*)		62	(*)
Little Bald Mountain (Nantahala)	(*)		64	(*)
Little Fodderstack (Tenn.)	(*)		62	(*)
Little Pisgah Mountain	(*)		63	(*)
Little Ragged (U. S. E.)	(*)	(*)	91	(*)
Little River (S. C.)	(*)	(*)	67	5
Little River, beacon No. 8	50		122	5
Littleton (B. M. R 3)	(*)	(*)	97	(*)
Littleton, municipal water tank, black	(*)		82	(*)
Locke	28	(*)	111	(*)
Lockwood	49	159	121	6
Locust	19	(*)	107	(*)
Long Branch	17	(*)	107	(*)
Long Point	(*)	(*)	70	(*)
Long Point eccentric	(*)	(*)	68	(*)
Long Ridge, middle summit	(*)		64	(*)
Long Shoal Lighthouse	15		106	9, 10
Long Shoal Point	43	152	119	10
Loris (S. C.)	22	(*)	109	(*)
Lower Green Spring Light	56		125	7
Luciuda (Tenn.)	(*)	(*)	92	(*)
Lunch	45	154	119	10
Lutheran Church, Wilmington, spire	(*)		72	(*)
Lynch (Brunswick County, Va.)	(*)	(*)	79	(*)
Lynch (Marlboro County, S. C.)	20	(*)	108	(*)
McColl:				
Marlboro Cotton Mills, tank, aluminum (S. C.)	25		110	(*)
Municipal water tank, aluminum (S. C.)	25		110	(*)
McInnis (S. C.)	20	(*)	108	(*)
McKay	19	(*)	108	(*)
McRae (N. C.-S. C.)	25	(*)	110	(*)
Mackay Creek light	(*)		69	(*)
Macon (B. M. Z 4)	(*)	(*)	96	(*)
Magnetic station (N. C. G. S. and U. S. G. S. 1898)	23	(*)	109	(*)
Main	36	139	116	11
Makleyville	13	(*)	105	9
Malone	(*)	(*)	78	(*)
Manchester	(*)	(*)	102	(*)
Mangin	(*)	(*)	103	(*)
Mann	(*)	(*)	82	(*)
Manns Point R. M	42	150	118	10
Manson (B. M. W 5)	(*)	(*)	96	(*)
Marion	(*)	(*)	87	(*)
Marion A	(*)		88	(*)
Mark	40	145	117	13
Marsh (Gates County)	39	143	117	12
Marsh (U. S. E.)	(*)	(*)	92	(*)
Marshville	27	(*)	111	(*)

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Station	Position	Description	Plane coordinates	Sketch
Marshville, black water tank, ball on top:	*Page*	*Page*	*Page*	*Figure*
East one	27		111	(*)
West one	27		111	(*)
Marston	32	(*)	113	(*)
Marston, Marston Training School, black water tank	27		111	(*)
Martin	20	(*)	108	(*)
Martin–Beaufort County line, marker post	(*)		69	(*)
Mashoe	42	149	118	10
Mason (Bladen County)	17	(*)	107	(*)
Mason (Hertford County)	(*)	(*)	90	(*)
Mason (New Hanover County)	(*)	(*)	71	(*)
Mason (N. C.–Va.)	(*)	(*)	80	(*)
Mavaton	(*)	(*)	65	(*)
Max Patch	(*)	(*)	86	(*)
Maxton, aviation beacon on municipal water tank	24		110	(*)
Mayor	28	(*)	111	(*)
Meckun	31	(*)	113	4
Meherrin	(*)	(*)	90	13
Mentz	(*)	(*)	100	(*)
Metcalf	48	157	121	5
Method	(*)	(*)	99	(*)
Methodist Church:				
Goldsboro, St. Paul, spire	(*)		77	(*)
Raleigh, Edenton, tall spire	(*)		76	(*)
Spire	46		120	10
Taylorsville, spire	(*)		87	(*)
Metropolitan	15	(*)	106	10
Middle Grounds Beacon	47		120	10
Middleburg	(*)	(*)	96	(*)
Mihiel	(*)	(*)	104	(*)
Mill (Brunswick County)	(*)	(*)	67	(*)
Mill (Hertford County)	40	146	118	13
Mill (U. S. E.)	(*)	(*)	92	(*)
Mill (Vance County)	(*)	(*)	95	(*)
Mill Creek	44	154	119	10
Millbrook	(*)	(*)	100	(*)
Miller Point light	(*)		68	(*)
Milton, airway beacon No. 34 (Va.)	(*)		75	(*)
Milton, aviation beacon No. 35A. (*See* Milton, airway beacon No. 34 (Va.))				
Mineral	30	(*)	112	4
Mint Hill	19	(*)	107	4
Mitchell	(*)	(*)	86	(*)
Mobile	(*)	(*)	95	(*)
Mona Mountain	(*)		63	(*)
Moncure	(*)	(*)	93	(*)
Monk	(*)	(*)	83	(*)
Monroe (Bladen County)	(*)	(*)	89	(*)
Monroe (Union County)	30	(*)	112	4
Monroe:				
Courthouse spire	31		113	
Municipal water tank	31		113	
Montague	(*)	(*)	101	(*)
Montford (U. S. E.)	(*)	(*)	91	(*)
Montrose	37	140	116	11, 12
Monument No. 25 (U. S. E.), right-of-way	52		123	6
Monument, State line (N. C.–S. C.)	48	157	121	5
Monument, Wright Memorial	45	154	120	10
Moon (Va.)	(*)	(*)	79	(*)
Moore (Pitt County)	(*)	(*)	81	(*)
Moore (Stokes County)	(*)	(*)	62	(*)
Moores	(*)	(*)	100	(*)
More	(*)	(*)	89	(*)
Morehead City:				
Pole on dome-shaped building	(*)		70	(*)
Villa Hotel, water tank (Vi)	(*)	(*)	70	(*)
Water tank	(*)	(*)	70	(*)
Morgan (Va.)	(*)	(*)	78	(*)
Moriah	(*)	(*)	76	(*)
Morrison	(*)	(*)	104	(*)
Mosley	(*)	(*)	81	(*)
Moss (U. S. E.)	(*)	(*)	91	(*)
Mount Airy	(*)	(*)	87	(*)
Mount Airy, standpipe next to water tank	(*)		87	(*)
Mount Clingman	(*)		63	(*)
Mount Cross (Va.)	(*)	(*)	72	(*)
Mount Gibbs	(*)		64	(*)
Mount Gilead, water tank:				
Higher of two	27		111	(*)
Lower of two	27		111	(*)
Mount Hallback	(*)		64	(*)
Mount Hardy (Tennessee Bald Mountain)	(*)		64	(*)
Mount Mitchell	(*)		62	(*)

* See Special Publication No. 192.

Station	Position	Description	Plane coordinates	Sketch
	Page	*Page*	*Page*	*Figure*
Mount Olive	(*)	(*)	88	(*)
Mount Olive, municipal water tank, aluminum	(*)		89	(*)
Mount Pisgah	(*)		63	(*)
Mount Pleasant (Hertford County)	37	140	116	12
Mount Pleasant (Hyde County)	14	(*)	105	9
Mount Vernon	(*)	(*)	104	(*)
Moyock	(*)	(*)	65	(*)
Mud	41	146	118	13
Mulberry	(*)	(*)	85	(*)
Mullins, ball on top of:				
Northerly black water tank (S. C.)	23		109	(*)
Southerly black water tank (S. C.)	23		109	(*)
Murphy	(*)	(*)	88	(*)
Nag's Head Coast Guard Station	45		120	10
N. C. corner (N. C.-Va.-Tenn.)	(*)	(*)	89	(*)
N. C.-S. C. boundary. (*See* State-line monument (1813).)				
N. C.-S. C. boundary monument. (*See* State-line monument (1905).)				
N. C.-S. C. boundary monument. (*See* State-line monument, Scotland-Marlboro Counties.)				
Near	(*)	(*)	84	(*)
Nelson	(*)	(*)	75	(*)
New Bern	54	166	124	7
New Bern:				
Christ Episcopal Church, spire	(*)		69	(*)
Cotton Oil Co., water tank	55		125	7
Municipal incinerator, weather vane	(*)		69	(*)
Municipal standpipe	(*)		69	(*)
North base	(*)	(*)	66	7
South base	(*)	(*)	66	(*)
Standpipe	55		125	7
Steel stack	55		125	7
U. S. Post Office, dome	(*)		70	(*)
Water tank	(*)		69	(*)
New Holland	14	(*)	105	9
New Holland:				
New Holland Corporation, stack	16		106	9
New Holland Corporation, water tank	16		106	9
Newport	(*)	(*)	67	(*)
Newsome	(*)	(*)	90	(*)
Newton (Catawba County)	29	(*)	112	(*)
Newton (Moore County)	(*)	(*)	104	(*)
Niagara	(*)	(*)	104	(*)
Niagara A	(*)	(*)	104	(*)
Niagara B	(*)	(*)	104	(*)
Niagara C	(*)	(*)	104	(*)
Niagara D	(*)	(*)	104	(*)
Niagara, water tank	(*)		105	(*)
Nichols (S. C.)	22	(*)	108	(*)
Nixon (S. C.)	(*)	(*)	70	5
Norfolk	53	165	124	7
Norlina (B. M. L 5)	(*)	(*)	96	(*)
North	15	137	106	9
North base (U. S. E.)	(*)	(*)	91	(*)
North base, Bodie Island	42	150	118	10
North Wilkesboro, red brick house of Mrs. Claudill, spire	(*)		87	(*)
Northeast	(*)	(*)	91	(*)
Nowhere	(*)	(*)	84	9
Oak	39	144	117	13
Oak Grove	20	(*)	108	(*)
Oak Island, U. S. Coast Guard, flagpole	(*)		70	(*)
Oakland, Cleveland High School, water tank	(*)		77	(*)
Oakville	(*)	(*)	79	(*)
Observation tower, Wrightsville Beach, Oceanic Hotel, flagpole	(*)		71	(*)
Ocracoke	15	(*)	106	9
Osburn	(*)	(*)	84	(*)
Oise	32	(*)	113	(*)
Old	(*)	(*)	65	(*)
Oliver (S. C.)	21	(*)	108	(*)
O'Neal	(*)	(*)	81	(*)
Onslow	(*)	(*)	68	(*)
Open	54	167	124	7
Ore Hill	(*)	(*)	84	(*)
Oregon Inlet Coast Guard station:				
Cupola	45		120	10
Flagpole	45		120	10
Orr	(*)	(*)	66	9
Osborne (S. C.)	33	(*)	114	(*)
Osborne A (S. C.)	36	(*)	115	(*)

*See Special Publication No. 192.

Station	Position	Description	Plane coordinates	Sketch
	Page	*Page*	*Page*	*Figure*
Osborne B	36	(*)	115	(*)
Osborne C	35	(*)	115	(*)
Osborne D	35	(*)	115	(*)
Osborne E	35	(*)	115	(*)
Osborne F	35	(*)	115	(*)
Osborne G	35	(*)	115	(*)
Osborne H	35	(*)	115	(*)
Osborne I	35	(*)	115	(*)
Osgood	(*)	(*)	93	(*)
Otter Creek Beacon	56		125	8
Overhills	(*)	(*)	102	(*)
Owen	(*)	(*)	85	(*)
Owens	(*)	(*)	81	(*)
Pack Mountain (U. S. G. S.)	(*)	(*)	87	(*)
Page (S. C.)	58	172	126	4
Pal	47	155	121	10
Pamlico Fertilizer Co., water tank	(*)		69	(*)
Paradise (U. S. E.)	(*)	(*)	78	(*)
Paradise eccentric	(*)	(*)	77	(*)
Park	(*)	(*)	83	(*)
Park eccentric	(*)	(*)	83	(*)
Parker	(*)	(*)	80	(*)
Parker (S. C.)	58	172	126	4
Paschal	(*)	(*)	80	(*)
Pasour	18	(*)	107	4
Passet	(*)	(*)	91	(*)
Paul Beck	(*)	(*)	84	(*)
Paul Gamiels Hill Coast Guard Station	45		120	10
Pea Island	15	(*)	106	10
Pea Island Coast Guard Station	45		120	10
Pee Dee	26	(*)	110	(*)
Pelham	(*)	(*)	72	(*)
Pelletier	(*)	(*)	67	(*)
Pender	(*)	(*)	68	(*)
Penelo	(*)	(*)	82	(*)
Penelope	29	(*)	112	(*)
Perhealth (N. C.-S. C.)	25	(*)	110	(*)
Perry (Bertie County)	(*)	(*)	66	(*)
Perry (Craven County)	53	165	124	7
Perry (New Hanover County)	(*)	(*)	68	(*)
Pettitt	(*)	(*)	82	(*)
Pettys	39	145	117	13
Pickens Nose	(*)		64	(*)
Piersons Point 2	(*)	(*)	70	(*)
Piersons Point 2 eccentric	(*)	(*)	70	8
Pig	44	153	119	10
Pigott	(*)	(*)	67	5
Piland	(*)	(*)	90	(*)
Pile	39	144	117	13
Pilgrim	(*)	(*)	68	(*)
Pilot Mountain	(*)		85	(*)
Pine	(*)	(*)	100	(*)
Pine (U. S. E.)	(*)	(*)	92	(*)
Pinetops, water tank, aluminum	(*)		83	(*)
Pineview	(*)	(*)	101	(*)
Pinnacle (Pickens County, S. C.)	(*)	(*)	62	(*)
Pinnacle (Rutherford County)	(*)	(*)	86	(*)
Pinnacle Mountain (Bald Mountain)	(*)		63	(*)
Pipkin	(*)	(*)	66	(*)
Pisgah	(*)	(*)	86	(*)
Pit	(*)	(*)	80	(*)
Pittman	21	(*)	108	(*)
Piver	(*)	(*)	67	(*)
Pleasant	30	(*)	112	4
Plymouth, stack	(*)		69	(*)
Plymouth, water tank	(*)		69	(*)
Pogue	(*)	(*)	86	(*)
Point	38	142	116	13
Pole	40	145	117	13
Pond (Brunswick County)	49	160	122	6
Pond (Moore County)	34	(*)	114	(*)
Pond A	33	(*)	114	(*)
Poore	(*)	(*)	62	(*)
Post	14	(*)	105	9
Poverty	(*)	(*)	90	(*)
Poverty (U. S. E.). (*See* Poverty.)				
Presbyterian Church:				
Charlotte, spire	27		111	(*)
Concord, spire (tall white)	28		111	(*)
Wilmington, tall spire with cross	(*)		72	(*)

* See Special Publication No. 192.

Station	Position	Description	Plane coordinates	Sketch
Primary traverse station:	*Page*	*Page*	*Page*	*Figure*
No. 1 (U. S. G. S.)	(*)	(*)	103	(*)
No. 2 (U. S. G. S.)	(*)	(*)	103	(*)
No. 3 (U. S. G. S.) (Brunswick County)	(*)	(*)	103	(*)
No. 3 (U. S. G. S.) (Cumberland County)	(*)	(*)	103	(*)
No. 3 P (U. S. G. S.) (N. C.-Va.)	(*)	(*)	81	(*)
No. 4 (U. S. G. S.) (Cumberland County)	(*)	(*)	103	(*)
No. 4 (U. S. G. S.) (Northampton County)	(*)	(*)	100	(*)
No. 5 (U. S. G. S.)	17	(*)	106	9
No. 9 (U. S. G. S.) (Hertford County)	(*)	(*)	81	(*)
No. 9 (U. S. G. S.) (Lenoir County)	(*)	(*)	83	(*)
No. 9 eccentric	(*)		83	(*)
No. 10 (U. S. G. S.)	30	(*)	112	(*)
No. 11 (U. S. G. S.) (Gates County)	(*)	(*)	81	(*)
No. 11 (U. S. G. S.) (Northampton County)	(*)	(*)	80	(*)
No. 12 (U. S. G. S.) (Va.)	(*)	(*)	80	(*)
No. 12 eccentric (Va.)	(*)		80	(*)
No. 13 (U. S. G. S.)	(*)	(*)	83	(*)
No. 13 eccentric	(*)		83	(*)
No. 14 (U. S. G. S.) (Va.)	(*)	(*)	100	(*)
No. 17 (U. S. G. S.)	(*)	(*)	102	(*)
No. 18 (U. S. G. S.)	(*)	(*)	102	(*)
No. 25 (U. S. G. S.) (Va.)	(*)	(*)	75	(*)
Prince	(*)	(*)	100	(*)
Prince A	(*)	(*)	102	(*)
Prince B	(*)	(*)	102	(*)
Prince C	(*)	(*)	102	(*)
Prince D	(*)	(*)	102	(*)
Prince E	(*)	(*)	102	(*)
Prince F	(*)	(*)	102	(*)
Prince F Prime	(*)	(*)	101	(*)
Prince G	(*)	(*)	102	(*)
Propst Mountain	(*)		63	(*)
Providence	30	(*)	112	4
Quay (Va.)	(*)	(*)	78	(*)
Queen	(*)	(*)	70	(*)
Quentin	33	(*)	114	(*)
Quentin A	33	(*)	114	(*)
Quentin B	33	(*)	114	(*)
Quentin C	33	(*)	114	(*)
Quentin D	33	(*)	114	(*)
Quentin E	33	(*)	114	(*)
R (U. S. E.)	(*)	(*)	71	6
Rabun 2 (Ga.)	(*)	(*)	86	(*)
Ragged (U. S. E.)	(*)	(*)	91	(*)
Rail	40	146	117	13
Raleigh (Dare County)	47	155	121	10
Raleigh (Wake County)	(*)	(*)	94	(*)
Raleigh 2	(*)	(*)	73	(*)
Raleigh longitude	(*)	(*)	100	(*)
Raleigh reference mark	(*)	(*)	76	(*)
Raleigh:				
Airway beacon, green and white flashing	(*)		76	
Berry Kelly Training School, black water tank, ball on top	(*)		76	(*)
Carolina Hotel, revolving red beacon	(*)		76	(*)
Edenton Methodist Church, tall spire	(*)		76	(*)
Meredith College, black water tank, ball on top	(*)		76	(*)
Meredith College, tall brick stack	(*)		76	(*)
State College, brick stack	(*)		76	(*)
Ramsure	(*)	(*)	84	(*)
Ratle	34	(*)	114	(*)
Rattlesnake Cliff	(*)	(*)	86	(*)
Rawlings (Va.)	(*)	(*)	78	(*)
Ray	39	144	117	13
Red Hill	31	(*)	113	4
Red Mount	(*)	(*)	73	(*)
Reed	56	168	125	8
Reed Point light	(*)		69	(*)
Reeves	(*)	(*)	103	(*)
Reidsville:				
Lucky Strike Cigarette factory, tall stack	(*)		74	(*)
Most northerly of three Lucky Strike tobacco storage water tanks	(*)		74	(*)
Reka	13	(*)	105	9
Rench	53	164	123	7
Replacement (N. C.-S. C.)	24	(*)	109	(*)
Rhodes (U. S. E.)	(*)	(*)	91	(*)
Richards	(*)	(*)	101	(*)
Richardson	31	(*)	113	4

* See Special Publication No. 192.

Station	Position	Description	Plane coordinates	Sketch
	Page	*Page*	*Page*	*Figure*
Richland Balsam Mountain	(*)		64	(*)
Richlands	(*)	(*)	74	(*)
Richmond	34	(*)	114	(*)
Ridgeway (B. M. R 5)	(*)	(*)	96	(*)
Right-of-way Monument 25 (U. S. E.)	52		123	6
Riv	41	147	118	13
River (Craven County)	53	164	123	7, 8
River (Gates County)	38	142	116	13
R. M. 14 (U. S. E.)	50	162	122	6
R. M. 15 (U. S. E.)	50	162	122	8
R. M. 26 (U. S. E.)	52		123	5
R. M. Tillet 2	47		121	10
Road	40	146	118	13
Roan High Bluff	(*)	(*)	62	(*)
Roanoke (B. M. Z 1)	(*)	(*)	82	(*)
Roanoke eccentric	(*)	(*)	82	(*)
Roanoke Marsh Lighthouse. (*See* Roanoke Marshes Lighthouse.)				
Roanoke Marshes Lighthouse	43	150	119	10
Roanoke Rapids:				
High, large, globular water tank	(*)		80	(*)
Large squat aluminum water tank in east side	(*)		82	(*)
Rosemary Mills, red brick stack on west side	(*)		80	(*)
Roaring Gap, Greystone Hotel, water tank	(*)		87	(*)
Robinson	(*)	(*)	89	(*)
Rockingham	26	(*)	110	(*)
Rockingham:				
Municipal water tank, aluminum	26		111	(*)
Short aluminum water tank. (*See* East Rockingham, short aluminum water tank red top.)				
Rocky Mount:				
Atlantic Coast Line R. R. shops, red brick stack	(*)		83	(*)
East base	(*)	(*)	81	(*)
Municipal power plant, high, yellow, brick stack	(*)		82	(*)
Planters Oil Co., water tank, black	(*)		83	(*)
West base	(*)	(*)	81	(*)
Rocky Mountain, near Daytonsville (S. C.)	(*)		63	(*)
Roddy (S. C.)	31	(*)	112	4
Rodgers	31	(*)	113	4
Rogers (Bladen County)	(*)	(*)	89	(*)
Rogers (Grayson-Smyth Counties, Va.)	(*)	(*)	62	(*)
Root	39	144	117	13
Roots	43	151	119	10
Roper	(*)	(*)	74	(*)
Rose	13	(*)	105	9
Roseboro	(*)	(*)	100	(*)
Rowe	54	167	124	7
Rowland, municipal water tank, ball on top	24		110	(*)
Roxboro	(*)	(*)	73	(*)
Roxboro:				
Black water tank	(*)		76	(*)
Municipal water tank	(*)		75	(*)
Ruggles	(*)	(*)	82	(*)
Ruins	(*)	(*)	71	(*)
Russell (Carteret County)	(*)	(*)	84	(*)
Russell (Onslow County)	(*)	(*)	67	(*)
Russell (Rockingham County)	(*)	(*)	74	(*)
Saddle	(*)	(*)	85	(*)
Saddleback Mountain	(*)		65	(*)
St. James Church	(*)	(*)	71	(*)
Salem	21	(*)	108	(*)
Salter	16	138	106	9
Salvo	15	(*)	106	9, 10
Samway	(*)	(*)	77	(*)
Samworth	(*)	(*)	90	(*)
Sand (Dare County)	44	153	119	10
Sand (Hertford County)	38	141	116	13
Sanders	(*)	(*)	73	(*)
Sandlin	(*)	(*)	74	(*)
Sandy	20	(*)	108	(*)
Sandy Point Shoal, beacon light	47		120	10
Sandymush	(*)	(*)	86	(*)
Sanford	(*)	(*)	85	(*)
Sanford A	(*)	(*)	103	(*)
Sanford B	(*)	(*)	103	(*)
Sanford C	(*)	(*)	103	(*)
Sanford:				
Red steel standpipe	(*)		105	(*)
Tall steel water tank	(*)		105	(*)
Sarem	38	142	117	13
Sauce	48	158	121	5, 6

* See Special Publication No. 192.

Station	Position	Description	Plane coordinates	Sketch
	Page	*Page*	*Page*	*Figure*
Saunders (Bertie County)	(*)	(*)	90	(*)
Saunders (Gates County)	(*)	(*)	81	(*)
Sauratown Mountain	(*)		64	(*)
Schoolfield, Dan River Cotton Mills:				
Tallest and most westerly of three stacks (Va.)	(*)		75	(*)
Water tank (Va.)	(*)		75	(*)
Scranton	14	(*)	105	9
Sea	(*)	(*)	91	(*)
Seal	53	164	123	8
Seaside	48	158	121	5
Selma	(*)	(*)	73	(*)
Selma, municipal water tank (black)	(*)		76	(*)
Semora	(*)	(*)	72	(*)
Sentell	(*)	(*)	86	(*)
Seven	42	150	119	10
Severn	(*)	(*)	78	(*)
Shackleford	(*)	(*)	81	(*)
Shallotte	50	161	122	6
Sharp spire, Wilmington, with weather vane	(*)		72	(*)
Sharpsburg	(*)	(*)	83	(*)
Shaw (Beaufort County)	(*)	(*)	66	9
Shaw (Cumberland County)	(*)	(*)	100	(*)
Shellbank 2	43	152	119	10
Shiloh (Camden County)	(*)	(*)	70	(*)
Shiloh (Southampton County, Va.)	(*)	(*)	78	(*)
Shiloh eccentric (Camden County)	(*)	(*)	68	(*)
Shore	(*)	(*)	83	(*)
Siler	(*)	(*)	84	(*)
Silver Creek Knob	(*)		62	(*)
Simkins	(*)	(*)	67	(*)
Simonton College, center of cupola	(*)		63	(*)
Simpson (Carteret County)	(*)	(*)	83	(*)
Simpson (Horry County, S. C.)	23	(*)	109	(*)
Sir	45	154	119	10
Sitting Bull Mountain (Ridge Pole), middle summit of Nantahala	(*)		65	(*)
Slide	41	147	118	13
Slocum Creek	56	169	125	8
Slocum Creek Beacon	56		125	8
Sloop	28	(*)	111	(*)
Smaw	(*)	(*)	66	9
Smith	(*)	(*)	72	(*)
Smithfield:				
Concrete stack	(*)		77	(*)
Cotton Mill, yellow brick stack	(*)		77	(*)
Municipal water tank	(*)		77	(*)
Smyrna (S. C.)	57	170	125	4
Snake (Currituck County)	42	148	118	10
Snake (Hertford County)	41	147	118	13
Snow Hill	(*)	(*)	83	(*)
Snow Hill, municipal water tank, aluminum	(*)		83	(*)
Somerset Turkish towel mills, black water tank, ball on top	(*)		75	(*)
South base (U. S. E.)	(*)	(*)	91	(*)
South base, Bodie Island	43	151	119	10
Southern	(*)	(*)	100	(*)
Southern Pines:				
Congregational Church, steeple	36		115	(*)
Water tank	36		115	(*)
Southport:				
East base	(*)	(*)	67	6
Water tank	(*)		71	(*)
West base	(*)	(*)	67	6
White spire	(*)		71	(*)
Southwest (U. S. E.)	(*)	(*)	91	(*)
Southwest Point Lighthouse	15		106	9
Spencer	18	(*)	107	4
Spencer Mountain	(*)		62	(*)
Spikes	39	144	117	13
Spire:				
Bridgeton, Christian Church	56		125	7
Bridgeton, white	56		125	7
Dare County Courthouse	46		120	10
Methodist Church	46		120	10
Spivy	(*)	(*)	88	(*)
Spooners	(*)	(*)	70	(*)
Spooners eccentric	(*)	(*)	70	(*)
Spout Springs	(*)	(*)	100	(*)
Spout Springs A	(*)	(*)	101	(*)
Spout Springs B	(*)	(*)	101	(*)
Spout Springs C	(*)	(*)	101	(*)
Spout Springs D	(*)	(*)	101	(*)
Spout Springs E	(*)	(*)	101	(*)

* See Special Publication No. 192.

Station	Position	Description	Plane coordinates	Sketch
	Page	*Page*	*Page*	*Figure*
Spout Springs F	(*)	(*)	101	(*)
Spout Springs G	(*)	(*)	101	(*)
Spout Springs H	(*)	(*)	101	(*)
Spout Springs I	(*)	(*)	101	(*)
Spout Springs J	(*)	(*)	101	(*)
Spout Springs K	(*)	(*)	101	(*)
Spray (Va.)	(*)	(*)	74	(*)
Spring (Beaufort County)	13	(*)	105	9
Spring (Craven County)	53	165	123	7
Spring (U. S. E.)	(*)	(*)	91	(*)
Sprunt	(*)	(*)	71	(*)
Stack:				
Belhaven, Interstate Cooperage Co., yellow brick	16		106	9
Bladenboro, Cotton Mill, brick	23		109	(*)
Bridgeton	56		125	7
Durham, Chesterfield Cigarette Factory, tall brick	(*)		75	(*)
Durham, Durham Cotton Mill, tall	(*)		75	(*)
Enfield, brick	(*)		82	(*)
Fort Caswell	(*)		71	(*)
Goldsboro, State Hospital	(*)		77	(*)
Greenville Imperial Tobacco Co., taller of two	(*)		83	(*)
Hamer, Carolina Textile Corporation (S. C.)	24		110	(*)
Highest of three	(*)		84	(*)
New Bern, steel	55		125	7
Plymouth	(*)		69	(*)
Raleigh, Meredith College, tall brick	(*)		76	(*)
Raleigh, State College, brick	(*)		76	(*)
Reidsville, Lucky Strike Cigarette Factory, tall	(*)		74	(*)
Roanoke Rapids, Rosemary Mills, red brick, on west side	(*)		80	(*)
Rocky Mount, Atlantic Coast Line R. R. shops, red brick	(*)		83	(*)
Rocky Mount, municipal power plant, high, yellow, brick	(*)		82	(*)
Schoolfield, Dan River Cotton Mills, tallest and most westerly of three (Va.)	(*)		75	(*)
Smithfield, concrete	(*)		77	(*)
Smithfield Cotton Mill, yellow brick	(*)		77	(*)
Washington, brick	(*)		69	(*)
Waxhaw, cotton mill	31		113	4
Wilmington	(*)		72	(*)
Wilmington, high	(*)		72	(*)
Wilmington, highest	(*)		72	(*)
Wilson, municipal power plant, tall brick	(*)		83	(*)
Stacy	(*)	(*)	84	9
Stake A	(*)		71	(*)
Stancell (N. C.-Va.)	(*)	(*)	78	(*)
Stand	40	146	117	13
Standing Indian	(*)	(*)	86	(*)
Standing Indian, fire tower	(*)		88	
Standing Indian Mountain, north summit of Nantahala	(*)		64	(*)
Standpipe:				
Fort Mill (S. C.)	32		113	4
Goldsboro, aluminum	(*)		77	(*)
Mount Airy, next to water tank	(*)		87	(*)
New Bern	55		125	7
New Bern, municipal	(*)		69	(*)
Sanford, red steel	(*)		105	(*)
Stanly	29	(*)	112	(*)
Star	(*)	(*)	85	(*)
State	30	(*)	112	4
State boundary monument (N. C.-Va.)	(*)	(*)	68	(*)
State boundary monument No. 14 (N. C.-Va.)	(*)	(*)	81	(*)
State boundary monument No. 20 (N. C.-Va.)	(*)		81	(*)
State College	(*)	(*)	76	(*)
State Line (bench mark) (N. C.-S. C.)	23	(*)	109	(*)
State line monument (1813) (N. C.-S. C.)	32	(*)	113	4
State line monument (1905) (N. C.-S. C.)	25	(*)	110	(*)
State line monument (N. C.-S. C.)	48	157	121	5
State line monument (N. C.-S. C.) (Columbus-Horry Counties)	24	(*)	109	(*)
State line monument (N. C.-S. C.) (Scotland-Marlboro Counties)	25	(*)	110	
State Road	(*)	(*)	87	(*)
Statesville (Iredell County)	29	(*)	112	(*)
Statesville (N. C.-Va.)	(*)	(*)	80	(*)
Statesville longitude	(*)	(*)	63	(*)
Stevenson Point 3	(*)	(*)	68	10
Stokesdale	(*)		85	(*)
Stone (N. C.-Tenn.)	(*)	(*)	92	(*)
Stone (U. S. E.)	(*)	(*)	92	(*)
Stone eccentric	(*)	(*)	90	(*)
Stump (Gates County)	38	141	116	12
Stump (Onslow County)	(*)	(*)	91	(*)
Sugarloaf Mountain	(*)		63	(*)

* See Special Publication No. 192.

Station	Position	Description	Plane coordinates	Sketch
	Page	*Page*	*Page*	*Figure*
Summit (B. M. H 3)	(*)	(*)	97	(*)
Supply (Brunswick County)	(*)	(*)	67	(*)
Supply (Craven County)	54	166	124	7
Sutton 2	(*)	(*)	69	(*)
Swamp (Gates County)	38	141	116	12
Swamp (Onslow County)	(*)	(*)	91	(*)
Swan (Hyde County)	14	(*)	105	9
Swan (Lee County)	(*)	(*)	85	(*)
Swan eccentric	(*)	(*)	85	
Swan Point (U. S. E.)	(*)	(*)	70	(*)
Swan Point eccentric	(*)	(*)	70	(*)
Sykes (N. C.-Va.)	(*)	(*)	80	(*)
Sylva	(*)	(*)	88	(*)
Sylvia	48	158	121	5
Table Rock Mountain	(*)		64	(*)
Tabor (N. C.-S. C.)	24	(*)	109	(*)
Tabor, municipal water tank, aluminum	24		109	(*)
Tank (Franklin County)	(*)	(*)	94	(*)
Tank (Hertford County)	40	146	117	13
Tank:				
Durham, Chesterfield Cigarette Factory, aluminum	(*)		75	(*)
Fort Mill, silver, water (S. C.)	31		113	4
Greenville, Imperial Tobacco Co., taller of two	(*)		83	(*)
Henderson, American Agricultural Chemical Co., tall black	(*)		80	(*)
Henderson Cotton Mills, aluminum	(*)		80	(*)
High Point, higher	(*)		85	(*)
Lancaster, municipal (S. C.)	32		113	4
Laurinburg, Dixie Guano Co	25		110	(*)
McColl, Marlboro Cotton Mills, aluminum (S. C.)	25		110	(*)
Tar (Brunswick County)	49	159	121	6
Tar (Camden County)	(*)	(*)	65	(*)
Tatham (U. S. G. S.)	(*)	(*)	86	(*)
Taxahaw (S. C.)	58	173	126	4
Taylor (Alexander County)	(*)	(*)	87	(*)
Taylor (Halifax County)	(*)	(*)	82	(*)
Taylor (Hertford County)	3	141	116	12
Taylorsville:				
Methodist Church, spire	(*)		87	(*)
Prison camp, water tower	(*)		87	(*)
Temple	(*)	(*)	66	(*)
Thelma (B. M. Y 2)	(*)	(*)	97	(*)
Thicket	37	139	116	11
Thicketty (S. C.)	(*)		63	(*)
Thicketty 2	57	171	126	
Thomkins	(*)	(*)	85	(*)
Thompson	(*)	(*)	99	(*)
Tie (U. S. G. S.). (*See* G. S. Tie.)				
Tippers	(*)	(*)	73	(*)
Topton	(*)	(*)	88	(*)
Town point (U. S. E.)	(*)	(*)	78	(*)
Town Point eccentric	(*)	(*)	78	(*)
Townsville	(*)	(*)	79	(*)
Toxey	(*)	(*)	65	(*)
Transit traverse station No. 1 B (U. S. G. S.) (S. C.)	58	173	126	4
Tree	37	140	116	11
Trent	54	167	124	7
Trout	(*)	(*)	92	(*)
Troy	(*)	(*)	103	(*)
Truesdale	(*)	(*)	67	(*)
Tryon Mountain	(*)		64	(*)
Tryon Mountain, northeast summit	(*)		64	(*)
Tubbs	50	161	122	5
Tucker	52	163	123	8
Tun	40	146	117	13
Tunis	(*)	(*)	90	13
Turn	37	140	116	12
Turner (N. C.-S. C.)	23	(*)	109	(*)
Turner (Surry County)	(*)	(*)	85	(*)
Turnstall	(*)	(*)	66	(*)
Tussock	(*)	(*)	89	(*)
Union	(*)	(*)	71	(*)
University	(*)	(*)	75	(*)
University of North Carolina, bell tower	(*)		75	(*)
Upper Green Spring Light	53		124	7
Vance	(*)	(*)	66	(*)
Vander	(*)	(*)	100	(*)
Vann	(*)	(*)	78	(*)
Vass	(*)	(*)	104	(*)

* See Special Publication No. 192.

Station	Position	Description	Plane coordinates	Sketch
	Page	*Page*	*Page*	*Figure*
Vass, white steeple with shingle roof	(*)		105	(*)
Vaughan (B. M. I 4)	(*)	(*)	97	(*)
Verona	(*)	(*)	67	(*)
Vesle	33	(*)	113	(*)
Vi (Morehead City, Villa Hotel, water tank)	(*)	(*)	70	(*)
View	(*)	(*)	91	(*)
Ville	(*)	(*)	100	(*)
Vim	(*)	(*)	91	(*)
Virgilina	(*)	(*)	79	(*)
Virginia-North Carolina boundary monument (N. C.-Va.)	(*)	(*)	68	(*)
Vultare	(*)	(*)	78	(*)
Wade Point Lighthouse	43	152	119	10
Wadesboro	19	(*)	108	(*)
Wadesboro:				
Church spire, cross on top	27		111	(*)
Municipal water tank, aluminum	27		111	(*)
Wake	(*)	(*)	94	(*)
Wake Forest, water tank	(*)		100	(*)
Walker	(*)	(*)	79	(*)
Wallaceton (Va.)	(*)	(*)	78	(*)
Walton	(*)	(*)	78	(*)
Wanch	42	150	118	10
Wanchese Beacon	46		120	10
Ward (S. C.)	47	156	121	5
Warren (B. M. H 5)	(*)	(*)	96	(*)
Warrior Mount	(*)		63	(*)
Warsaw	(*)	(*)	88	(*)
Warsaw, aluminum water tank	(*)		89	(*)
Washington:				
Brick stack	(*)		69	(*)
Municipal water tank	(*)		69	(*)
Water (Gates County)	39	145	117	13
Water (Onslow County	(*)		90	(*)
Water Rock (U. S. G. S.)	(*)	(*)	86	(*)
Water tank:				
Aberdeen, Seaboard Air Line Ry	36		115	(*)
Apex, municipal	(*)		76	(*)
Beaufort, Tidewater Power Co., ball on top	(*)		84	(*)
Belhaven, municipal, black	16		106	9
Bennettsville, black (S. C.)	25		110	(*)
Benson	(*)		77	(*)
Bladenboro, aluminum	23		109	(*)
Bladenboro Cotton Mill, aluminum	23		109	(*)
Boykins, black (Va.)	(*)		80	(*)
Carthage, lower	(*)		105	(*)
Carthage, taller	(*)		105	(*)
Cary, municipal	(*)		76	(*)
Chadbourn, aluminum	23		109	(*)
Chapel Hill, black	(*)		75	(*)
Clarksville, municipal, aluminum (Va.)	(*)		79	(*)
Clayton Cotton Mills	(*)		76	(*)
Clayton, Liberty Cotton Mills	(*)		76	(*)
Clayton, municipal	(*)		76	(*)
Clinton, silver colored	(*)		89	(*)
Clio, white (S. C.)	25		110	(*)
Clover, municipal (S. C.)	57		126	4
Dallas, tall, black, near white factory	29		112	(*)
Dillon, Dillon Oil Co., tall, slender, black (S. C.)	24		110	(*)
Dillon, municipal, red (S. C.)	24		110	(*)
East Durham, Lucky Strike Tobacco Storage, northeasterly one of two	(*)		76	(*)
East Durham, Lucky Strike Tobacco Storage, southwesterly one of two, aluminum	(*)		76	(*)
East Rockingham, Hannah-Picket Mill No. 2, black, tall, ball on top	27		111	(*)
East Rockingham, short aluminum, red top	27		111	(*)
Edenton, highest	(*)		69	(*)
Elizabeth City, municipal	(*)		68	(*)
Ellerbe, municipal, black	27		111	(*)
Enfield, municipal, squat, black	(*)		82	(*)
Fairmont, municipal, ball on top	23		109	(*)
Fayetteville	(*)		103	(*)
Gastonia, black	30		112	
Goldsboro, Durham Hosiery Mills, aluminum, higher of two	(*)		77	(*)
Goldsboro, Farmers Cotton and Storage Warehouse Co	(*)		77	(*)
Goldsboro, Vinson Lumber Co	(*)		77	(*)
Greensboro, city	(*)		85	(*)
Greensboro, Vicks Chemical Co	(*)		85	(*)
Greensboro, white	(*)		85	(*)
Greystone Hotel, Roaring Gap	(*)		87	(*)

*See Special Publication No. 192.

Station	Position	Description	Plane coordinates	Sketch
Water tank—Continued:	*Page*	*Page*	*Page*	*Figure*
Hamer, Carolina Textile Corporation (S. C.)	25		110	(*)
Hamlet, city	26		110	(*)
Hamlet, Seaboard Air Line Ry	36		115	(*)
Hookerton, aluminum	(*)		83	(*)
Huntersville, municipal	28		111	(*)
Jackson Training School for Boys	28		111	(*)
Kannapolis, tall, silver	28		111	(*)
Kinston, Caswell Training School	(*)		77	(*)
La Grange, municipal	(*)		77	(*)
Lakeview, green, with black roof	(*)		105	(*)
Lancaster, aluminum (S. C.)	32		113	4
Laurinburg, municipal	25		110	(*)
Littleton, municipal, black	(*)		82	(*)
McColl, municipal, aluminum (S. C.)	25		110	(*)
Marshville, black, ball on top, east one	27		111	(*)
Marshville, black, ball on top, west one	27		111	(*)
Marston Training School, black	27		111	(*)
Maxton, aviation beacon on municipal	24	*	110	(*)
Monroe, municipal	31		113	4
Morehead City	(*)	(*)	70	(*)
Morehead City, Villa Hotel (Vi)	(*)	(*)	70	(*)
Mount Gilead, higher of two	27		111	(*)
Mount Gilead, lower of two	27		111	(*)
Mount Olive, municipal, aluminum	(*)		89	(*)
Mullins, ball on top of, northerly, black (S. C.)	23		109	(*)
Mullins, ball on top of, southerly, black (S. C.)	23		109	(*)
New Bern	(*)		69	(*)
New Bern, Cotton Oil Co	55		125	7
New Holland, New Holland Corporation	16		106	9
Niagara	(*)		105	(*)
Oakland, Cleveland High School	(*)		77	(*)
Pamlico Fertilizer Co	(*)		69	(*)
Pinetops, aluminum	(*)		83	(*)
Plymouth	(*)		69	(*)
Raleigh, Berry Kelly Training School, black, ball on top	(*)		76	(*)
Raleigh, Meredith College, black, ball on top	(*)		76	(*)
Reidsville, most northerly of three, Lucky Strike tobacco storage	(*)		74	(*)
Roanoke Rapids, high, large globular	(*)		80	(*)
Roanoke Rapids, large squat, aluminum, in east side	(*)		82	(*)
Roaring Gap, Greystone Hotel	(*)		87	(*)
Rockingham, municipal, aluminum	26		111	(*)
Rocky Mount, Planters Oil Co., black	(*)		83	(*)
Rowland, municipal, ball on top	24		110	(*)
Roxboro, black	(*)		76	(*)
Roxboro, municipal	(*)		75	(*)
Sanford, tall, steel	(*)		105	(*)
Schoolfield, Dan River Cotton Mills (Va.)	(*)		75	(*)
Selma, municipal (black)	(*)		76	(*)
Smithfield, municipal	(*)		77	(*)
Snow Hill, municipal, aluminum	(*)		83	(*)
Somerset, Turkish towel mills, black	(*)		75	(*)
Southern Pines	36		115	(*)
Southport	(*)		71	(*)
Tabor, municipal, aluminum	24		109	(*)
Wadesboro, municipal, aluminum	27		111	(*)
Wake Forest	(*)		100	(*)
Warsaw, aluminum	(*)		89	(*)
Washington, municipal	(*)		69	(*)
Weldon, Eastern Cotton Oil Co., black	(*)		82	(*)
Wendell, black	(*)		76	(*)
Williamston, municipal	(*)		69	(*)
Wilmington	(*)		71	(*)
Wilmington, black	(*)		72	(*)
Wilmington, silver, with black writing	(*)		71	(*)
Wilmington, silver, with scale on side and ball on top	(*)		71	(*)
Winston-Salem	(*)		85	(*)
Wrightsville Beach	(*)		71	(*)
Water tower	(*)		69	(*)
Water tower, Taylorsville, prison camp	(*)		87	(*)
Waterway	49	160	121	6
Watson	(*)	(*)	77	(*)
Waxhaw, cotton mill, stack	31		113	4
Way	13	(*)	105	9
Wayah	(*)	(*)	88	(*)
Wayah Bald, fire tower	(*)		88	(*)
Waynesville	(*)	(*)	88	(*)
Weeks	(*)	(*)	65	(*)
Welch	(*)	(*)	88	(*)
Weldon (B. M. K 1)	(*)	(*)	98	(*)
Weldon, Eastern Cotton Oil Co., water tank black	(*)		82	(*)

* See Special Publication No. 192.

Station	Position	Description	Plane coordinates	Sketch
	Page	*Page*	*Page*	*Figure*
Wendell, black water tank	(*)		76	(*)
West	53	164	123	7, 8
West Drowning Creek Mountain	(*)		63	(*)
Whale	15	137	106	9
Wharf	39	144	117	12
Whisk	52	163	123	8
Whitaker (S. C.)	57	170	125	4
White (Bertie County)	(*)	(*)	66	(*)
White (Carteret County)	(*)	(*)	84	(*)
White (Chowan County)	37	139	116	11
White (Pittsylvania County, Va.)	(*)	(*)	75	(*)
White Lake	(*)	(*)	89	(*)
White Oak (Va.)	(*)	(*)	72	(*)
White Top 2 (Va.)	(*)	(*)	89	(*)
Whitehall	(*)	(*)	74	(*)
Whitehat	(*)	(*)	69	(*)
Whitesides Mountain	(*)		64	(*)
Wiccacon	39	143	117	12
Wilkes	(*)	(*)	87	(*)
Wilkinson 2	52	162	123	8
Wilkinson Point Beacon	55		124	8
Williams (Jones-Lenoir Counties)	(*)	(*)	74	(*)
Williams (N. C.-Va.)	(*)	(*)	75	(*)
Williams (Onslow County)	(*)	(*)	91	(*)
Williamson	18	(*)	107	(*)
Williamston	(*)	(*)	66	(*)
Williamston, municipal water tank	(*)		69	(*)
Wilmington	(*)	(*)	68	(*)
Wilmington:				
Baptist Church, tall spire with cock weather vane	(*)		72	(*)
Black water tank	(*)		72	(*)
Catholic Church, western one of twin domes	(*)		71	(*)
Church spire with broad base	(*)		72	(*)
First Baptist Church, spire	(*)		72	(*)
High stack	(*)		72	(*)
Highest stack	(*)		72	(*)
Low church spire with broad base	(*)		72	(*)
Low church spire with weather vane	(*)		72	(*)
Lutheran Church, spire	(*)		72	(*)
Presbyterian Church, tall spire with cross	(*)		72	(*)
Sharp spire with weather vane	(*)		72	(*)
Silver water tank with black writing	(*)		71	(*)
Silver water tank with scale on side and ball on top	(*)		71	(*)
Spire	(*)		72	(*)
Stack	(*)		72	(*)
Water tank	(*)		71	(*)
Wilson	22	(*)	109	(*)
Wilson (U. S. E.)	(*)	(*)	92	(*)
Wilson, municipal power plant, tall brick stack	(*)		83	(*)
Windsor	(*)	(*)	66	(*)
Winston-Salem, water tank	(*)		85	(*)
Winton	(*)	(*)	80	13
Wise	(*)	(*)	80	(*)
Woodard	(*)	(*)	79	(*)
Woodley	37	141	116	12
Woodville	(*)	(*)	65	(*)
Woody	(*)	(*)	79	(*)
Woolard	(*)	(*)	66	(*)
Wooten	(*)	(*)	81	(*)
Worley	(*)	(*)	74	(*)
Wright Memorial Monument	45	154	120	10
Wright Monument. (*See* Wright Memorial Monument.)				
Wrightsville Beach:				
Oceanic Hotel, observation tower, flagpole	(*)		71	(*)
Water tank	(*)		71	(*)
Wrightsville northwest base	(*)	(*)	71	(*)
Wrightsville northwest base eccentric	(*)	(*)	71	(*)
Yadkin	(*)	(*)	101	(*)
Yeopin	(*)	(*)	65	(*)
Young	(*)	(*)	62	(*)
Youngsville	(*)	(*)	94	(*)
Youngsville, church spire	(*)		100	(*)
Zion	20	(*)	108	(*)

* See Special Publication No. 192.

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