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TRIANGULATION IN RHODE ISLAND

By

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Geodetic Computer

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TRIANGULATION IN RHODE ISLAND.

By Earl Church, *Geodetic Computer, U. S. Coast and Geodetic Survey.*

INTRODUCTION.

The purpose of this publication is to present the final results of the computation of all the triangulation in the State of Rhode Island. The results are given by means of a table of geographic positions, which furnishes the geodetic latitude and longitude of each point in the triangulation, the geodetic length and azimuths of each line, the value in meters for the seconds of each latitude and longitude, and the logarithm of the number of meters in each length.

Previous to this time there has been one publication of triangulation in Rhode Island, namely, Appendix 8, Coast and Geodetic Survey Report for 1885. This forms a logical dividing line for the field observations, between the old work before that report and the new work between that time and the present.

FIELD WORK.

Regarding the field observations, it may be said that the old Rhode Island triangulation contains a small section of primary and secondary triangulation, but is principally tertiary in character. These are terms used to designate the precision of the field work, and will be briefly explained. If further information is desired regarding these standards of accuracy and the Coast Survey field methods of attaining them, it can readily be obtained from the General Instructions for Field Work, Special Publication No. 26.

The criterion for specifying the precision of observations in triangulation is the average closing error of a triangle, or the discrepancy between the sum of the three measured angles of the triangle and 180° plus its spherical excess. In work of primary accuracy this average closing error is 1″ or less, in secondary 3″, and in tertiary 5″. The class of triangulation most extensively used throughout the entire work in Rhode Island is tertiary. Observations in this kind of triangulation are made with a repeating theodolite. In the main scheme angles are measured by the method of repetitions, while intersection stations such as church spires, cupolas, etc., are observed upon by the direction method, the application of both methods conforming to specifications in the General Instructions for Field Work. The probable error of a length in the main scheme of tertiary trian-

gulation is nearly always less, and generally much less, than 1 part in 5000, or 1 foot in 1 mile. The error in length, however, is likely to exceed this amount between supplementary stations, especially between intersection points which are close together and whose positions were determined independently by observations from distant stations.

As stated, there is some primary and secondary triangulation in the old work, but by far the greater part of it is tertiary. As for the new work, it is entirely tertiary in character. The new work also contains a scheme in Narragansett Bay and west of Point Judith by the United States Army Engineers, likewise tertiary.

COMPUTATIONS.

In regard to the computation of the Rhode Island triangulation, it is first necessary to consider the exact contents of the previous report, in order to see to what extent it furnishes the results of the computation of the old work. As usual, the results were assembled in the form of a table of geographic positions. However, an adjustment by least squares was made of only part of the work contained therein; and in cases where this had not been done the results of the field computation were published. In that publication there was a distinction made between the results of office computations by adjustments and results of field computations, by giving the seconds of geographic positions to three decimal places for the former and to but two for the latter. Also, the table of geographic positions in that publication gave opposite each point the geodetic azimuth, back azimuth and length over only two of the lines from that point; while in all recent publications this data is given opposite each point for enough lines from that point so that the azimuths, back azimuths, and lengths are given for all lines in the triangulation.

In the computation of the new work, the least-squares adjustments which have just been completed preparatory to this publication include all of the new triangulation. In the field work for these new schemes there were frequent connections with old work, sometimes involving adjusted points, sometimes unadjusted. Whenever there was a connection to an adjusted point the old computation has been held fixed; whenever there was a connection to an unadjusted point, the old point has been adjusted either before the new work or simultaneously with it, thus superseding the results of the field computation of the old point in question as published in the former report.

The positions of the primary and secondary stations of the old work, all of which had been adjusted for the old report, are reproduced here. However, opposite these points, there are given, in addition to the information furnished before, azimuths and distances to enough points to include all the lines in the entire primary and

secondary scheme. For the adjusted tertiary stations in the old work, which include practically all of the main tertiary scheme, the old positions are likewise reproduced with additional azimuths and distances to include all the lines in the scheme. Positions of old intersection stations, whether adjusted or unadjusted, and positions of a very few isolated occupied points which were previously published unadjusted, are reproduced here exactly as before, with no additional information. Then, of course, the list of geographic positions here is complete as to the results of the computation of the new triangulation, giving the geodetic latitudes and longitudes of all points and the geodetic lengths and azimuths of all lines. This report, therefore, in furnishing triangulation data for Rhode Island, is independent of Appendix 8 of the Coast and Geodetic Survey Report for 1885, and is complete in itself.

The results presented here provide for the engineer data for beginning any new scheme of triangulation, provide control for any topographic or hydrographic survey in the vicinity, constitute a basis for any sort of engineering survey whatever, and likewise represent considerable scientific value. Coast and Geodetic Survey stations are being used more and more extensively as the control of all surveying and mapping, and in work involving the location and perpetuation of private property lines or boundaries, especially with the Survey's progress in extending this work and publishing the results.

In regard to the usefulness of triangulation stations, there is submitted the following quotation 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. But, be that as it may, there can be no doubt as to the difficulties of accurately locating and permanently defining the boundaries of an oysterman's plantation situated under water at a distance off shore from 1 to 6 miles, as is the case with the leased oyster bottoms of Delaware.

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 station marks which have not been destroyed. In the case of the destruction of the chart on which the position of any such point on the earth's surface was originally plotted, this point can be replotted by its geographic position with any degree of accuracy permitted by the scale of any new chart constructed for that purpose

If there be no question at the time of the original location and legal adoption of a geographic definition of the location of a point by a given latitude and longitude, there can be no technical or legal question afterwards as to its exact meaning, or as to the exact redetermination of the location of this point, be it either on land or water, at its newly determined position, or on a new chart in its newly plotted position.

For these reasons, the method of defining the location of boundary points by latitudes and longitudes (geographic positions) was adopted in the survey of the leased oyster bottoms of Delaware. This method is more or less an innovation in oyster surveys which was first used in connection with the work of the Maryland Oyster Survey. It possesses so many undoubted advantages, and at the same time is so simple in principle and application when once understood, that its adoption by other oyster surveys of other states than Maryland and Delaware seems probable.

THE NORTH AMERICAN DATUM.

Next, concerning the actual use of the table of geographic positions, it is necessary to explain the "North American datum," which serves as the basis for all the geodetic values in this report.

Early in the year 1913 the Superintendent of the United States Coast and Geodetic Survey was notified by the director of the Comisión Geodésica Mexicana and by the chief astronomer of the Dominion of Canada Astronomical Observatory that the so-called United States standard datum had been adopted as the datum for the triangulation of those organizations. They also reported that the Clarke spheroid of 1866, now used in the United States, would be used by them.

Owing to the international character of the datum now adopted by the three countries, the Superintendent of the United States Coast and Geodetic Survey has changed its designation from the "United States standard datum" to the "North American datum."

EXPLANATION OF POSITIONS, LENGTHS, AND AZIMUTHS, AND OF THE NORTH AMERICAN DATUM.

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

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

The primary triangulation in the United States was commenced at various points and existed at first as a number of detached portions in each of which the geodetic datum was necessarily dependent only upon the astronomic stations connected with that particular

portion. As examples of such detached portions of triangulation there may be mentioned the early triangulation in New England and along the Atlantic coast, a detached portion of the transcontinental triangulation centering on St. Louis and another portion of the same triangulation in the Rocky Mountain region, and three separate portions of triangulation in California, in the latitude of San Francisco, in the vicinity of Santa Barbara Channel, and in the vicinity of San Diego. With the lapse of time these separate pieces expanded until they touched or overlapped.

The transcontinental triangulation, of which the office computation was completed in 1899, joined all of the detached portions mentioned and made them one continuous triangulation. As soon as this took place the logical necessity existed of discarding the old geodetic data used in these various pieces and substituting one for the whole country, or at least for as much of the country as is covered by continuous triangulation. To do this was a very heavy piece of work, and involved much preliminary study to determine the best datum to be adopted. On March 13, 1901, the Superintendent adopted what was known from that time until 1913 as the United States standard datum, but is now known as the North American datum (see p. 8), and it was decided to reduce the positions to that datum as rapidly as possible. The datum adopted was that formerly in use in New England, and therefore its adoption did not affect the positions which had been used for geographic purposes in New England and along the Atlantic coast to North Carolina, nor those in the States of New York, Pennsylvania, New Jersey, and Delaware. The adopted datum does not agree, however, with that used in The Transcontinental Triangulation and in The Eastern Oblique Arc of the United States, publications which deal primarily with the purely scientific problem of the determination of the figure of the earth and which were prepared for publication before the adoption of the new datum.

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

The main objects to be attained by the geodetic operations of the Coast and Geodetic Survey are, first, the control of the charts published by the Survey; second, the furnishing of geographic positions (latitudes and longitudes) of accurately determined elevations, and of distances and azimuths, to officers connected with the Coast and Geodetic Survey and to other organizations; third, the determination of the figure of the earth. For the first and second objects it is not necessary that the reference spheroid should be accurately that which most closely fits the geoid within the area covered, nor that the adopted geodetic datum should be absolutely the best that can be

derived from the astronomic observations at hand. It is simply desirable that the reference spheriod and the geodetic datum adopted shall be, if possible, such a close approximation to the truth that any correction which may hereafter be derived from the observations which are now, or may become, available shall not greatly exceed the probable errors of such corrections. It is, however, very desirable that one spheriod and one geodetic datum be used for the whole country. In fact, this is absolutely necessary if a geodetic survey is to perform fully the function of accurately coordinating all surveys within the area which it covers. This is the most important function of a geodetic survey. To perform this function, it is also highly desirable that when a certain spheroid and geodetic datum have been adopted for a country they be rigidly adhered to, without change, for all time, unless shown to be largely in error.

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

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

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

years in the northeastern group of States and along the Atlantic coast as far south as North Carolina.

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

The North American datum, upon which the positions and azimuths given in this publication depend, may be defined in terms of the position of the station Meades Ranch as follows:

	°	′	″
ϕ=	39	13	26.686
λ=	98	32	30.506
α to Waldo =	75	28	14.52

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

The principal lists of geographic positions published on the adopted datum throughout the whole United States are contained in the following publications of the Coast and Geodetic Survey and of other organizations:

Appendix 8 of the Report for 1885, positions in Massachusetts and Rhode Island.
Appendix 8 of the Report for 1888, positions in Connecticut.
Appendix 8 of the Report for 1893, positions in Pennsylvania, Delaware, and Maryland.
Appendix 10 of the Report for 1894, positions in Massachusetts.
Appendix 6 of the Report for 1901, positions in Kansas and Nebraska.
Appendix 3 of the Report for 1902, positions in Kansas, Missouri, Nebraska, and Colorado.
Appendix 4 of the Report for 1903, positions in Kansas, Oklahoma, and Texas.
Appendix 9 of the Report for 1904, positions in California.
Appendix 5 of the Report for 1905, positions in Texas.
Appendix 3 of the Report for 1907, positions in California.
Appendix 5 of the Report for 1910, positions in California.
Appendix 4 of the Report for 1911, positions in Nebraska, Minnesota, North Dakota, and South Dakota.
Appendix 5 of the Report for 1911, positions in Texas.
Appendix 6 of the Report for 1911, positions in Florida.
Special Publication No. 11, positions in Texas, New Mexico, Arizona, and California.

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

Special Publication No. 13, positions in California, Oregon, and Washington.
Special Publication No. 16, positions in Florida.
Special Publication No. 17, positions in Texas.
Special Publication No. 19, positions in Colorado, Utah, Nevada, Wyoming, Montana, South Dakota, and North Dakota.
Special Publication No. 24, positions in Alabama and Mississippi.
Special Publication No. 30, positions in West Virginia, Ohio, Kentucky, Indiana, Illinois, and Missouri.
Special Publication No. 31, positions along the Columbia River and the coasts of Oregon and northern California.
Special Publication No. 43, positions in Georgia.
Special Publication No. 46, positions in Maine.
Special Publication No. 54, positions in Texas.
Special Publication No. 62, positions in Rhode Island.
Report on triangulation of Greater New York.
Report on a plan of sewerage for the City of Cincinnati.
Appendix EEE, pages 2905–3031, Annual Report of the Chief of Engineers, 1902, positions of points on and near the Great Lakes.
Publications of the Massachusetts Harbor and Land Commission.
Various bulletins of the United States Geological Survey.

EXPLANATION OF SKETCHES AND TABLES.

In choosing stations to be used as control or for other purposes, the engineer should refer to the sketches at the end of this pamphlet. Old work and new work are shown on separate sketches. In the old work all adjusted triangulation, usually comprising the whole main scheme, is given with lines to show observed directions, a dotted line indicating the omission of an observation. This much of the old work is plotted on the sketches, even though in some cases the station may have been reported lost. For intersection stations or unoccupied points in the old work the points are plotted, but without lines. Intersection stations in the old work, which have been reported lost, have been omitted from the sketches. The method of plotting the stations without lines has also been used for a few isolated occupied points in the old work which were never adjusted. On the sketches showing the new work, all stations are plotted. However, lines to indicate the observed directions are shown for occupied or main-scheme points only, and are not given for intersection stations. These sketches will enable one to determine upon the stations desired, and then the index will show where to find the data regarding them.

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

given in this table being then derived from the corresponding logarithms.

The rule followed in recent publications of this office has been to give latitudes and longitudes to thousands of seconds for all points the positions of which are fixed by fully adjusted triangulation. Points the positions of which are given to hundredths of seconds only are marked by footnotes as being without check (observed from only two stations) or as being unadjusted.

In the selection of stations upon which to base new triangulation, only the principal points—that is, the main-scheme points—should be used. No-check points, or unoccupied ones determined by observations from only two stations, should always be used with caution and never as the base for further triangulation.

Engineers and others using the data given in this report for the control of maps and surveys will find it of help to have Special Publications Nos. 5 and 8 of the Coast and Geodetic Survey. They may be obtained at a nominal cost from the Superintendent of Documents, Washington, D. C.

Special Publication No. 5 is entitled, "Tables for a Polyconic Projection of Maps, Based on Clarke's Reference Spheroid of 1866." These tables give the necessary explanation of the method employed in the construction of a polyconic projection, as well as furnishing the values in meters of the degrees, minutes, and seconds of latitude and longitude for all latitudes.

Special Publication No. 8 is entitled "Formulæ and Tables for the computation of Geodetic Positions." As the title of this publication implies, the data contained in it will enable one to compute the spherical coordinates for triangulation where the distances and angles are known.

For the convenience of those who may wish to use the lengths in this triangulation in feet instead of meters, there is given on the following pages a table for making conversions between these two units.

CONVERSION TABLES.

Lengths—Feet to meters (from 1 to 1000 units).

[Reduction factor: 1 foot=0.3048006096 meter.]

Feet.	Meters.	Feet.	Meters.	Feet.	Meters.	Feet.	Meters.	Feet.	Meters.
0	0.0	50	15.24003	100	30.48006	150	45.72009	200	60.96012
1	0.30480	1	15.54483	1	30.78486	1	46.02489	1	61.26492
2	0.60960	2	15.84963	2	31.08966	2	46.32969	2	61.56972
3	0.91440	3	16.15443	3	31.39446	3	46.63449	3	61.87452
4	1.21920	4	16.45923	4	31.69926	4	46.93929	4	62.17932
5	1.52400	5	16.76403	5	32.00406	5	47.24409	5	62.48412
6	1.82880	6	17.06883	6	32.30886	6	47.54890	6	62.78893
7	2.13360	7	17.37363	7	32.61367	7	47.85370	7	63.09373
8	2.43840	8	17.67844	8	32.91847	8	48.15850	8	63.39853
9	2.74321	9	17.98324	9	33.22327	9	48.46330	9	63.70333
10	3.04801	60	18.28804	110	33.52807	160	48.76810	210	64.00813
1	3.35281	1	18.59284	1	33.83287	1	49.07290	1	64.31293
2	3.65761	2	18.89764	2	34.13767	2	49.37770	2	64.61773
3	3.96241	3	19.20244	3	34.44247	3	49.68250	3	64.92253
4	4.26721	4	19.50724	4	34.74727	4	49.98730	4	65.22733
5	4.57201	5	19.81204	5	35.05207	5	50.29210	5	65.53213
6	4.87681	6	20.11684	6	35.35687	6	50.59690	6	65.83693
7	5.18161	7	20.42164	7	35.66167	7	50.90170	7	66.14173
8	5.48641	8	20.72644	8	35.96647	8	51.20650	8	66.44653
9	5.79121	9	21.03124	9	36.27127	9	51.51130	9	66.75133
20	6.09601	70	21.33604	120	36.57607	170	51.81610	220	67.05613
1	6.40081	1	21.64084	1	36.88087	1	52.12090	1	67.36093
2	6.70561	2	21.94564	2	37.18567	2	52.42570	2	67.66574
3	7.01041	3	22.25044	3	37.49047	3	52.73051	3	67.97054
4	7.31521	4	22.55525	4	37.79528	4	53.03531	4	68.27534
5	7.62002	5	22.86005	5	38.10008	5	53.34011	5	68.58014
6	7.92482	6	23.16485	6	38.40488	6	53.64491	6	68.88494
7	8.22962	7	23.46965	7	38.70968	7	53.94971	7	69.18974
8	8.53442	8	23.77445	8	39.01448	8	54.25451	8	69.49454
9	8.83922	9	24.07925	9	39.31928	9	54.55931	9	69.79934
30	9.14402	80	24.38405	130	39.62408	180	54.86411	230	70.10414
1	9.44882	1	24.68885	1	39.92888	1	55.16891	1	70.40894
2	9.75362	2	24.99365	2	40.23368	2	55.47371	2	70.71374
3	10.05842	3	25.29845	3	40.53848	3	55.77851	3	71.01854
4	10.36322	4	25.60325	4	40.84328	4	56.08331	4	71.32334
5	10.66802	5	25.90805	5	41.14808	5	56.38811	5	71.62814
6	10.97282	6	26.21285	6	41.45288	6	56.69291	6	71.93294
7	11.27762	7	26.51765	7	41.75768	7	56.99771	7	72.23774
8	11.58242	8	26.82245	8	42.06248	8	57.30251	8	72.54255
9	11.88722	9	27.12725	9	42.36728	9	57.60732	9	72.84735
40	12.19202	90	27.43205	140	42.67209	190	57.91212	240	73.15215
1	12.49682	1	27.73686	1	42.97689	1	58.21692	1	73.45695
2	12.80163	2	28.04166	2	43.28169	2	58.52172	2	73.76175
3	13.10643	3	28.34646	3	43.58649	3	58.82652	3	74.06655
4	13.41123	4	28.65126	4	43.89129	4	59.13132	4	74.37135
5	13.71603	5	28.95606	5	44.19609	5	59.43612	5	74.67615
6	14.02083	6	29.26086	6	44.50089	6	59.74092	6	74.98095
7	14.32563	7	29.56566	7	44.80569	7	60.04572	7	75.28575
8	14.63043	8	29.87046	8	45.11049	8	60.35052	8	75.59055
9	14.93523	9	30.17526	9	45.41529	9	60.65532	9	75.89535

Lengths—Feet to meters (from 1 to 1000 units)—Continued.

Feet.	Meters.	Feet.	Meters.	Feet.	Meters.	Feet.	Meters.	Feet.	Meters.
250	76.20015	300	91.44018	350	106.68021	400	121.92024	450	137.16027
1	76.50495	1	91.74498	1	106.98501	1	122.22504	1	137.46507
2	76.80975	2	92.04978	2	107.28981	2	122.52985	2	137.76988
3	77.11455	3	92.35458	3	107.59462	3	122.83465	3	138.07468
4	77.41935	4	92.65939	4	107.89942	4	123.13945	4	138.37948
5	77.72416	5	92.96419	5	108.20422	5	123.44425	5	138.68428
6	78.02896	6	93.26899	6	108.50902	6	123.74905	6	138.98908
7	78.33376	7	93.57379	7	108.81382	7	124.05385	7	139.29388
8	78.63856	8	93.87859	8	109.11862	8	124.35865	8	139.59868
9	78.94336	9	94.18339	9	109.42342	9	124.66345	9	139.90348
260	79.24816	310	94.48819	360	109.72822	410	124.96825	460	140.20828
1	79.55296	1	94.79299	1	110.03302	1	125.27305	1	140.51308
2	79.85776	2	95.09779	2	110.33782	2	125.57785	2	140.81788
3	80.16256	3	95.40259	3	110.64262	3	125.88265	3	141.12268
4	80.46736	4	95.70739	4	110.94742	4	126.18745	4	141.42748
5	80.77216	5	96.01219	5	111.25222	5	126.49225	5	141.73228
6	81.07696	6	96.31699	6	111.55702	6	126.79705	6	142.03708
7	81.38176	7	96.62179	7	111.86182	7	127.10185	7	142.34188
8	81.68656	8	96.92659	8	112.16662	8	127.40665	8	142.64669
9	81.99136	9	97.23139	9	112.47142	9	127.71146	9	142.95149
270	82.29616	320	97.53620	370	112.77623	420	128.01626	470	143.25629
1	82.60097	1	97.84100	1	113.08103	1	128.32106	1	143.56109
2	82.90577	2	98.14580	2	113.38583	2	128.62586	2	143.86589
3	83.21057	3	98.45060	3	113.69063	3	128.93066	3	144.17069
4	83.51537	4	98.75540	4	113.99543	4	129.23546	4	144.47549
5	83.82017	5	99.06020	5	114.30023	5	129.54026	5	144.78029
6	84.12497	6	99.36500	6	114.60503	6	129.84506	6	145.08509
7	84.42977	7	99.66980	7	114.90983	7	130.14986	7	145.38989
8	84.73457	8	99.97460	8	115.21463	8	130.45466	8	145.69469
9	85.03937	9	100.27940	9	115.51943	9	130.75946	9	145.99949
280	85.34417	330	100.58420	380	115.82423	430	131.06426	480	146.30429
1	85.64897	1	100.88900	1	116.12903	1	131.36906	1	146.60909
2	85.95377	2	101.19380	2	116.43383	2	131.67386	2	146.91389
3	86.25857	3	101.49860	3	116.73863	3	131.97866	3	147.21869
4	86.56337	4	101.80340	4	117.04343	4	132.28346	4	147.52350
5	86.86817	5	102.10820	5	117.34823	5	132.58827	5	147.82830
6	87.17297	6	102.41300	6	117.65304	6	132.89307	6	148.13310
7	87.47777	7	102.71781	7	117.95784	7	133.19787	7	148.43790
8	87.78258	8	103.02261	8	118.26264	8	133.50267	8	148.74270
9	88.08738	9	103.32741	9	118.56744	9	133.80747	9	149.04750
290	88.39218	340	103.63221	390	118.87224	440	134.11227	490	149.35230
1	88.69698	1	103.93701	1	119.17704	1	134.41707	1	149.65710
2	89.00178	2	104.24181	2	119.48184	2	134.72187	2	149.96190
3	89.30658	3	104.54661	3	119.78664	3	135.02667	3	150.26670
4	89.61138	4	104.85141	4	120.09144	4	135.33147	4	150.57150
5	89.91618	5	105.15621	5	120.39624	5	135.63627	5	150.87630
6	90.22098	6	105.46101	6	120.70104	6	135.94107	6	151.18110
7	90.52578	7	105.76581	7	121.00584	7	136.24587	7	151.48590
8	90.83058	8	106.07061	8	121.31064	8	136.55067	8	151.79070
9	91.13538	9	106.37541	9	121.61544	9	136.85547	9	152.09550

Lengths—Feet to meters (from 1 to 1000 units)—Continued.

Feet.	Meters.	Feet.	Meters.	Feet.	Meters.	Feet.	Meters.	Feet.	Meters.
500	152.40030	550	167.64034	600	182.88037	650	198.12040	700	213.36043
1	152.70511	1	167.94514	1	183.18517	1	198.42520	1	213.66523
2	153.00991	2	168.24994	2	183.48997	2	198.73000	2	213.97003
3	153.31471	3	168.55474	3	183.79477	3	199.03480	3	214.27483
4	153.61951	4	168.85954	4	184.09957	4	199.33960	4	214.57963
5	153.92431	5	169.16434	5	184.40437	5	199.64440	5	214.88443
6	154.22911	6	169.46914	6	184.70917	6	199.94920	6	215.18923
7	154.53391	7	169.77394	7	185.01397	7	200.25400	7	215.49403
8	154.83871	8	170.07874	8	185.31877	8	200.55880	8	215.79883
9	155.14351	9	170.38354	9	185.62357	9	200.86360	9	216.10363
510	155.44831	560	170.68834	610	185.92837	660	201.16840	710	216.40843
1	155.75311	1	170.99314	1	186.23317	1	201.47320	1	216.71323
2	156.05791	2	171.29794	2	186.53797	2	201.77800	2	217.01803
3	156.36271	3	171.60274	3	186.84277	3	202.08280	3	217.32283
4	156.66751	4	171.90754	4	187.14757	4	202.38760	4	217.62764
5	156.97231	5	172.21234	5	187.45237	5	202.69241	5	217.93244
6	157.27711	6	172.51715	6	187.75718	6	202.99721	6	218.23724
7	157.58192	7	172.82195	7	188.06198	7	203.30201	7	218.54204
8	157.88672	8	173.12675	8	188.36678	8	203.60681	8	218.84684
9	158.19152	9	173.43155	9	188.67158	9	203.91161	9	219.15164
520	158.49632	570	173.73635	620	188.97638	670	204.21641	720	219.45644
1	158.80112	1	174.04115	1	189.28118	1	204.52121	1	219.76124
2	159.10592	2	174.34595	2	189.58598	2	204.82601	2	220.06604
3	159.41072	3	174.65075	3	189.89078	3	205.13081	3	220.37084
4	159.71552	4	174.95555	4	190.19558	4	205.43561	4	220.67564
5	160.02032	5	175.26035	5	190.50038	5	205.74041	5	220.98044
6	160.32512	6	175.56515	6	190.80518	6	206.04521	6	221.28524
7	160.62992	7	175.86995	7	191.10998	7	206.35001	7	221.59004
8	160.93472	8	176.17475	8	191.41478	8	206.65481	8	221.89484
9	161.23952	9	176.47955	9	191.71958	9	206.95961	9	222.19964
530	161.54432	580	176.78435	630	192.02438	680	207.26441	730	222.50445
1	161.84912	1	177.08915	1	192.32918	1	207.56922	1	222.80925
2	162.15392	2	177.39395	2	192.63399	2	207.87402	2	223.11405
3	162.45872	3	177.69876	3	192.93879	3	208.17882	3	223.41885
4	162.76353	4	178.00356	4	193.24359	4	208.48362	4	223.72365
5	163.06833	5	178.30836	5	193.54839	5	208.78842	5	224.02845
6	163.37313	6	178.61316	6	193.85319	6	209.09322	6	224.33325
7	163.67793	7	178.91796	7	194.15799	7	209.39802	7	224.63805
8	163.98273	8	179.22276	8	194.46279	8	209.70282	8	224.94285
9	164.28753	9	179.52756	9	194.76759	9	210.00762	9	225.24765
540	164.59233	590	179.83236	640	195.07239	690	210.31242	740	225.55245
1	164.89713	1	180.13716	1	195.37719	1	210.61722	1	225.85725
2	165.20193	2	180.44196	2	195.68199	2	210.92202	2	226.16205
3	165.50673	3	180.74676	3	195.98679	3	211.22682	3	226.46685
4	165.81153	4	181.05156	4	196.29159	4	211.53162	4	226.77165
5	166.11633	5	181.35636	5	196.59639	5	211.83642	5	227.07645
6	166.42113	6	181.66116	6	196.90119	6	212.14122	6	227.38125
7	166.72593	7	181.96596	7	197.20599	7	212.44602	7	227.68606
8	167.03073	8	182.27076	8	197.51080	8	212.75083	8	227.99086
9	167.33553	9	182.57557	9	197.81560	9	213.05563	9	228.29566

Lengths—Feet to meters (from 1 to 1000 units)—Continued.

Feet.	Meters.	Feet.	Meters.	Feet.	Meters.	Feet.	Meters.	Feet.	Meters.
750	228.60046	800	243.84049	850	259.08052	900	274.32055	950	289.56058
1	228.90526	1	244.14529	1	259.38532	1	274.62535	1	289.86538
2	229.21006	2	244.45009	2	259.69012	2	274.93015	2	290.17018
3	229.51486	3	244.75489	3	259.99492	3	275.23495	3	290.47498
4	229.81966	4	245.05969	4	260.29972	4	275.53975	4	290.77978
5	230.12446	5	245.36449	5	260.60452	5	275.84455	5	291.08458
6	230.42926	6	245.66929	6	260.90932	6	276.14935	6	291.38938
7	230.73406	7	245.97409	7	261.21412	7	276.45415	7	291.69418
8	231.03886	8	246.27889	8	261.51892	8	276.75895	8	291.99898
9	231.34366	9	246.58369	9	261.82372	9	277.06375	9	292.30378
760	231.64846	810	246.88849	860	262.12852	910	277.36855	960	292.60859
1	231.95326	1	247.19329	1	262.43332	1	277.67336	1	292.91339
2	232.25806	2	247.49809	2	262.73813	2	277.97816	2	293.21819
3	232.56287	3	247.80290	3	263.04293	3	278.28296	3	293.52299
4	232.86767	4	248.10770	4	263.34773	4	278.58776	4	293.82779
5	233.17247	5	248.41250	5	263.65253	5	278.89256	5	294.13259
6	233.47727	6	248.71730	6	263.95733	6	279.19736	6	294.43739
7	233.78207	7	249.02210	7	264.26213	7	279.50216	7	294.74219
8	234.08687	8	249.32690	8	264.56693	8	279.80696	8	295.04699
9	234.39167	9	249.63170	9	264.87173	9	280.11176	9	295.35179
770	234.69647	820	249.93650	870	265.17653	920	280.41656	970	295.65659
1	235.00127	1	250.24130	1	265.48133	1	280.72136	1	295.96139
2	235.30607	2	250.54610	2	265.78613	2	281.02616	2	296.26619
3	235.61087	3	250.85090	3	266.09093	3	281.33096	3	296.57099
4	235.91567	4	251.15570	4	266.39573	4	281.63576	4	296.87579
5	236.22047	5	251.46050	5	266.70053	5	281.94056	5	297.18059
6	236.52527	6	251.76530	6	267.00533	6	282.24536	6	297.48539
7	236.83007	7	252.07010	7	267.31013	7	282.55017	7	297.79020
8	237.13487	8	252.37490	8	267.61494	8	282.85497	8	298.09500
9	237.43967	9	252.67971	9	267.91974	9	283.15977	9	298.39980
780	237.74448	830	252.98451	880	268.22454	930	283.46457	980	298.70460
1	238.04928	1	253.28931	1	268.52934	1	283.76937	1	299.00940
2	238.35408	2	253.59411	2	268.83414	2	284.07417	2	299.31420
3	238.65888	3	253.89891	3	269.13894	3	284.37897	3	299.61900
4	238.96368	4	254.20371	4	269.44374	4	284.68377	4	299.92380
5	239.26848	5	254.50851	5	269.74854	5	284.98857	5	300.22860
6	239.57328	6	254.81331	6	270.05334	6	285.29337	6	300.53340
7	239.87808	7	255.11811	7	270.35814	7	285.59817	7	300.83820
8	240.18288	8	255.42291	8	270.66294	8	285.90297	8	301.14300
9	240.48768	9	255.72771	9	270.96774	9	286.20777	9	301.44780
790	240.79248	840	256.03251	890	271.27254	940	286.51257	990	301.75260
1	241.09728	1	256.33731	1	271.57734	1	286.81737	1	302.05740
2	241.40208	2	256.64211	2	271.88214	2	287.12217	2	302.36220
3	241.70688	3	256.94691	3	272.18694	3	287.42697	3	302.66701
4	242.01168	4	257.25171	4	272.49174	4	287.73178	4	302.97181
5	242.31648	5	257.55652	5	272.79655	5	288.03658	5	303.27661
6	242.62129	6	257.86132	6	273.10135	6	288.34138	6	303.58141
7	242.92609	7	258.16612	7	273.40615	7	288.64618	7	303.88621
8	243.23089	8	258.47092	8	273.71095	8	288.95098	8	304.19101
9	243.53569	9	258.77572	9	274.01575	9	289.25578	9	304.49581

Lengths—Meters to feet (from 1 to 1000 units).

[Reduction factor: 1 meter=3.280833333 feet.]

Meters.	Feet.	Meters.	Feet.	Meters.	Feet.	Meters.	Feet.	Meters.	Feet.
0		50	164.04167	100	328.08333	150	492.12500	200	656.16667
1	3.28083	1	167.32250	1	331.36417	1	495.40583	1	659.44750
2	6.56167	2	170.60333	2	334.64500	2	498.68667	2	662.72833
3	9.84250	3	173.88417	3	337.92583	3	501.96750	3	666.00917
4	13.12333	4	177.16500	4	341.20667	4	505.24833	4	669.29000
5	16.40417	5	180.44583	5	344.48750	5	508.52917	5	672.57083
6	19.68500	6	183.72667	6	347.76833	6	511.81000	6	675.85167
7	22.96583	7	187.00750	7	351.04917	7	515.09083	7	679.13250
8	26.24667	8	190.28833	8	354.33000	8	518.37167	8	682.41333
9	29.52750	9	193.56917	9	357.61083	9	521.65250	9	685.69417
10	32.80833	60	196.85000	110	360.89167	160	524.93333	210	688.97500
1	36.08917	1	200.13083	1	364.17250	1	528.21417	1	692.25583
2	39.37000	2	203.41167	2	367.45333	2	531.49500	2	695.53667
3	42.65083	3	206.69250	3	370.73417	3	534.77583	3	698.81750
4	45.93167	4	209.97333	4	374.01500	4	538.05667	4	702.09833
5	49.21250	5	213.25417	5	377.29583	5	541.33750	5	705.37917
6	52.49333	6	216.53500	6	380.57667	6	544.61833	6	708.66000
7	55.77417	7	219.81583	7	383.85750	7	547.89917	7	711.94083
8	59.05500	8	223.09667	8	387.13833	8	551.18000	8	715.22167
9	62.33583	9	226.37750	9	390.41917	9	554.46083	9	718.50250
20	65.61667	70	229.65833	120	393.70000	170	557.74167	220	721.78333
1	68.89750	1	232.93917	1	396.98083	1	561.02250	1	725.06417
2	72.17833	2	236.22000	2	400.26167	2	564.30333	2	728.34500
3	75.45917	3	239.50083	3	403.54250	3	567.58417	3	731.62583
4	78.74000	4	242.78167	4	406.82333	4	570.86500	4	734.90667
5	82.02083	5	246.06250	5	410.10417	5	574.14583	5	738.18750
6	85.30167	6	249.34333	6	413.38500	6	577.42667	6	741.46833
7	88.58250	7	252.62417	7	416.66583	7	580.70750	7	744.74917
8	91.86333	8	255.90500	8	419.94667	8	583.98833	8	748.03000
9	95.14417	9	259.18583	9	423.22750	9	587.26917	9	751.31083
30	98.42500	80	262.46667	130	426.50833	180	590.55000	230	754.59167
1	101.70583	1	265.74750	1	429.78917	1	593.83083	1	757.87250
2	104.98667	2	269.02833	2	433.07000	2	597.11167	2	761.15333
3	108.26750	3	272.30917	3	436.35083	3	600.39250	3	764.43417
4	111.54833	4	275.59000	4	439.63167	4	603.67333	4	767.71500
5	114.82917	5	278.87083	5	442.91250	5	606.95417	5	770.99583
6	118.11000	6	282.15167	6	446.19333	6	610.23500	6	774.27667
7	121.39083	7	285.43250	7	449.47417	7	613.51583	7	777.55750
8	124.67167	8	288.71333	8	452.75500	8	616.79667	8	780.83833
9	127.95250	9	291.99417	9	456.03583	9	620.07750	9	784.11917
40	131.23333	90	295.27500	140	459.31667	190	623.35833	240	787.40000
1	134.51417	1	298.55583	1	462.59750	1	626.63917	1	790.68083
2	137.79500	2	301.83667	2	465.87833	2	629.92000	2	793.96167
3	141.07583	3	305.11750	3	469.15917	3	633.20083	3	797.24250
4	144.35667	4	308.39833	4	472.44000	4	636.48167	4	800.52333
5	147.63750	5	311.67917	5	475.72083	5	639.76250	5	803.80417
6	150.91833	6	314.96000	6	479.00167	6	643.04333	6	807.08500
7	154.19917	7	318.24083	7	482.28250	7	646.32417	7	810.36583
8	157.48000	8	321.52167	8	485.56333	8	649.60500	8	813.64667
9	160.76083	9	324.80250	9	488.84417	9	652.88583	9	816.92750

Lengths—Meters to feet (from 1 to 1000 units)—Continued.

Meters.	Feet.	Meters.	Feet.	Meters.	Feet.	Meters.	Feet.	Meters.	Feet.
250	820.20833	300	984.25000	350	1,148.29167	400	1,312.33333	450	1,476.37500
1	823.48917	1	987.53083	1	1,151.57250	1	1,315.61417	1	1,479.65583
2	826.77000	2	990.81167	2	1,154.85333	2	1,318.89500	2	1,482.93667
3	830.05083	3	994.09250	3	1,158.13417	3	1,322.17583	3	1,486.21750
4	833.33167	4	997.37333	4	1,161.41500	4	1,325.45667	4	1,489.49833
5	836.61250	5	1,000.65417	5	1,164.69583	5	1,328.73750	5	1,492.77917
6	839.89333	6	1,003.93500	6	1,167.97667	6	1,332.01833	6	1,496.06000
7	843.17417	7	1,007.21583	7	1,171.25750	7	1,335.29917	7	1,499.34083
8	846.45500	8	1,010.49667	8	1,174.53833	8	1,338.58000	8	1,502.62167
9	849.73583	9	1,013.77750	9	1,177.81917	9	1,341.86083	9	1,505.90250
260	853.01667	310	1,017.05833	360	1,181.10000	410	1,345.14167	460	1,509.18333
1	856.29750	1	1,020.33917	1	1,184.38083	1	1,348.42250	1	1,512.46417
2	859.57833	2	1,023.62000	2	1,187.66167	2	1,351.70333	2	1,515.74500
3	862.85917	3	1,026.90083	3	1,190.94250	3	1,354.98417	3	1,519.02583
4	866.14000	4	1,030.18167	4	1,194.22333	4	1,358.26500	4	1,522.30667
5	869.42083	5	1,033.46250	5	1,197.50417	5	1,361.54583	5	1,525.58750
6	872.70167	6	1,036.74333	6	1,200.78500	6	1,364.82667	6	1,528.86833
7	875.98250	7	1,040.02417	7	1,204.06583	7	1,368.10750	7	1,532.14917
8	879.26333	8	1,043.30500	8	1,207.34667	8	1,371.38833	8	1,535.43000
9	882.54417	9	1,046.58583	9	1,210.62750	9	1,374.66917	9	1,538.71083
270	885.82500	320	1,049.86667	370	1,213.90833	420	1,377.95000	470	1,541.99167
1	889.10583	1	1,053.14750	1	1,217.18917	1	1,381.23083	1	1,545.27250
2	892.38667	2	1,056.42833	2	1,220.47000	2	1,384.51167	2	1,548.55333
3	895.66750	3	1,059.70917	3	1,223.75083	3	1,387.79250	3	1,551.83417
4	898.94833	4	1,062.99000	4	1,227.03167	4	1,391.07333	4	1,555.11500
5	902.22917	5	1,066.27083	5	1,230.31250	5	1,394.35417	5	1,558.39583
6	905.51000	6	1,069.55167	6	1,233.59333	6	1,397.63500	6	1,561.67667
7	908.79083	7	1,072.83250	7	1,236.87417	7	1,400.91583	7	1,564.95750
8	912.07167	8	1,076.11333	8	1,240.15500	8	1,404.19667	8	1,568.23833
9	915.35250	9	1,079.39417	9	1,243.43583	9	1,407.47750	9	1,571.51917
280	918.63333	330	1,082.67500	380	1,246.71667	430	1,410.75833	480	1,574.80000
1	921.91417	1	1,085.95583	1	1,249.99750	1	1,414.03917	1	1,578.08083
2	925.19500	2	1,089.23667	2	1,253.27833	2	1,417.32000	2	1,581.36167
3	928.47583	3	1,092.51750	3	1,256.55917	3	1,420.60083	3	1,584.64250
4	931.75667	4	1,095.79833	4	1,259.84000	4	1,423.88167	4	1,587.92333
5	935.03750	5	1,099.07917	5	1,263.12083	5	1,427.16250	5	1,591.20417
6	938.31833	6	1,102.36000	6	1,266.40167	6	1,430.44333	6	1,594.48500
7	941.59917	7	1,105.64083	7	1,269.68250	7	1,433.72417	7	1,597.76583
8	944.88000	8	1,108.92167	8	1,272.96333	8	1,437.00500	8	1,601.04667
9	948.16083	9	1,112.20250	9	1,276.24417	9	1,440.28583	9	1,604.32750
290	951.44167	340	1,115.48333	390	1,279.52500	440	1,443.56667	490	1,607.60833
1	954.72250	1	1,118.76417	1	1,282.80583	1	1,446.84750	1	1,610.88917
2	958.00333	2	1,122.04500	2	1,286.08667	2	1,450.12833	2	1,614.17000
3	961.28417	3	1,125.32583	3	1,289.36750	3	1,453.40917	3	1,617.45083
4	964.56500	4	1,128.60667	4	1,292.64833	4	1,456.69000	4	1,620.73167
5	967.84583	5	1,131.88750	5	1,295.92917	5	1,459.97083	5	1,624.01250
6	971.12667	6	1,135.16833	6	1,299.21000	6	1,463.25167	6	1,627.29333
7	974.40750	7	1,138.44917	7	1,302.49083	7	1,466.53250	7	1,630.57417
8	977.68833	8	1,141.73000	8	1,305.77167	8	1,469.81333	8	1,633.85500
9	980.96917	9	1,145.01083	9	1,309.05250	9	1,473.09417	9	1,637.13583

Lengths—Meters to feet (from 1 to 1000 units)—Continued.

Meters.	Feet.	Meters.	Feet.	Meters.	Feet.	Meters.	Feet.	Meters.	Feet.
500	1,640.41667	550	1,804.45833	600	1,968.50000	650	2,132.54167	700	2,296.58333
1	1,643.69750	1	1,807.73917	1	1,971.78083	1	2,135.82250	1	2,299.86417
2	1,646.97833	2	1,811.02000	2	1,975.06167	2	2,139.10333	2	2,303.14500
3	1,650.25917	3	1,814.30083	3	1,978.34250	3	2,142.38417	3	2,306.42583
4	1,653.54000	4	1,817.58167	4	1,981.62333	4	2,145.66500	4	2,309.70667
5	1,656.82083	5	1,820.86250	5	1,984.90417	5	2,148.94583	5	2,312.98750
6	1,660.10167	6	1,824.14333	6	1,988.18500	6	2,152.22667	6	2,316.26833
7	1,663.38250	7	1,827.42417	7	1,991.46583	7	2,155.50750	7	2,319.54917
8	1,666.66333	8	1,830.70500	8	1,994.74667	8	2,158.78833	8	2,322.83000
9	1,669.94417	9	1,833.98583	9	1,998.02750	9	2,162.06917	9	2,326.11083
510	1,673.22500	560	1,837.26667	610	2,001.30833	660	2,165.35000	710	2,329.39167
1	1,676.50583	1	1,840.54750	1	2,004.58917	1	2,168.63083	1	2,332.67250
2	1,679.78667	2	1,843.82833	2	2,007.87000	2	2,171.91167	2	2,335.95333
3	1,683.06750	3	1,847.10917	3	2,011.15083	3	2,175.19250	3	2,339.23417
4	1,686.34833	4	1,850.39000	4	2,014.43167	4	2,178.47333	4	2,342.51500
5	1,689.62917	5	1,853.67083	5	2,017.71250	5	2,181.75417	5	2,345.79583
6	1,692.91000	6	1,856.95167	6	2,020.99333	6	2,185.03500	6	2,349.07667
7	1,696.19083	7	1,860.23250	7	2,024.27417	7	2,188.31583	7	2,352.35750
8	1,699.47167	8	1,863.51333	8	2,027.55500	8	2,191.59667	8	2,355.63833
9	1,702.75250	9	1,866.79417	9	2,030.83583	9	2,194.87750	9	2,358.91917
520	1,706.03333	570	1,870.07500	620	2,034.11667	670	2,198.15833	720	2,362.20000
1	1,709.31417	1	1,873.35583	1	2,037.39750	1	2,201.43917	1	2,365.48083
2	1,712.59500	2	1,876.63667	2	2,040.67833	2	2,204.72000	2	2,368.76167
3	1,715.87583	3	1,879.91750	3	2,043.95917	3	2,208.00083	3	2,372.04250
4	1,719.15667	4	1,883.19833	4	2,047.24000	4	2,211.28167	4	2,375.32333
5	1,722.43750	5	1,886.47917	5	2,050.52083	5	2,214.56250	5	2,378.60417
6	1,725.71833	6	1,889.76000	6	2,053.80167	6	2,217.84333	6	2,381.88500
7	1,728.99917	7	1,893.04083	7	2,057.08250	7	2,221.12417	7	2,385.16583
8	1,732.28000	8	1,896.32167	8	2,060.36333	8	2,224.40500	8	2,388.44667
9	1,735.56083	9	1,899.60250	9	2,063.64417	9	2,227.68583	9	2,391.72750
530	1,738.84167	580	1,902.88333	630	2,066.92500	680	2,230.96667	730	2,395.00833
1	1,742.12250	1	1,906.16417	1	2,070.20583	1	2,234.24750	1	2,398.28917
2	1,745.40333	2	1,909.44500	3	2,073.48667	2	2,237.52833	2	2,401.57000
3	1,748.68417	3	1,912.72583	3	2,076.76750	3	2,240.80917	3	2,404.85083
4	1,751.96500	4	1,916.00667	4	2,080.04833	4	2,244.09000	4	2,408.13167
5	1,755.24583	5	1,919.28750	5	2,083.32917	5	2,247.37083	5	2,411.41250
6	1,758.52667	6	1,922.56833	6	2,086.61000	6	2,250.65167	6	2,414.69333
7	1,761.80750	7	1,925.84917	7	2,089.89083	7	2,253.93250	7	2,417.97417
8	1,765.08833	8	1,929.13000	8	2,093.17167	8	2,257.21333	8	2,421.25500
9	1,768.36917	9	1,932.41083	9	2,096.45250	9	2,260.49417	9	2,424.53583
540	1,771.65000	590	1,935.69167	640	2,099.73333	690	2,263.77500	740	2,427.81667
1	1,774.93083	1	1,938.97250	1	2,103.01417	1	2,267.05583	1	2,431.09750
2	1,778.21167	2	1,942.25333	2	2,106.29500	2	2,270.33667	2	2,434.37833
3	1,781.49250	3	1,945.53417	3	2,109.57583	3	2,273.61750	3	2,437.65917
4	1,784.77333	4	1,948.81500	4	2,112.85667	4	2,276.89833	4	2,440.94000
5	1,788.05417	5	1,952.09583	5	2,116.13750	5	2,280.17917	5	2,444.22083
6	1,791.33500	6	1,955.37667	6	2,119.41833	6	2,283.46000	6	2,447.50167
7	1,794.61583	7	1,958.65750	7	2,122.69917	7	2,286.74083	7	2,450.78250
8	1,797.89667	8	1,961.93833	8	2,125.98000	8	2,290.02167	8	2,454.06333
9	1,801.17750	9	1,965.21917	9	2,129.26083	9	2,293.30250	9	2,457.34417

Lengths—Meters to feet (from 1 to 1000 units)—Continued.

Meters.	Feet.	Meters.	Feet.	Meters.	Feet.	Meters.	Feet.	Meters.	Feet.
750	2,460.62500	800	2,624.66667	850	2,788.70833	900	2,952.75000	950	3,116.79167
1	2,463.90583	1	2,627.94750	1	2,791.98917	1	2,956.03083	1	3,120.07250
2	2,467.18667	2	2,631.22833	2	2,795.27000	2	2,959.31167	2	3,123.35333
3	2,470.46750	3	2,634.50917	3	2,798.55083	3	2,962.59250	3	3,126.63417
4	2,473.74833	4	2,637.79000	4	2,801.83167	4	2,965.87333	4	3,129.91500
5	2,477.02917	5	2,641.07083	5	2,805.11250	5	2,969.15417	5	3,133.19583
6	2,480.31000	6	2,644.35167	6	2,808.39333	6	2,972.43500	6	3,136.47667
7	2,483.59083	7	2,647.63250	7	2,811.67417	7	2,975.71583	7	3,139.75750
8	2,486.87167	8	2,650.91333	8	2,814.95500	8	2,978.99667	8	3,143.03833
9	2,490.15250	9	2,654.19417	9	2,818.23583	9	2,982.27750	9	3,146.31917
760	2,493.43333	810	2,657.47500	860	2,821.51667	910	2,985.55833	960	3,149.60000
1	2,496.71417	1	2,660.75583	1	2,824.79750	1	2,988.83917	1	3,152.88083
2	2,499.99500	2	2,664.03667	2	2,828.07833	2	2,992.12000	2	2,156.16167
3	2,503.27583	3	2,667.31750	3	2,831.35917	3	2,995.40083	3	3,159.44250
4	2,506.55667	4	2,670.59833	4	2,834.64000	4	2,998.68167	4	3,162.72333
5	2,509.83750	5	2,673.87917	5	2,837.92083	5	3,001.96250	5	3,166.00417
6	2,513.11833	6	2,677.16000	6	2,841.20167	6	3,005.24333	6	3,169.28500
7	2,516.39917	7	2,680.44083	7	2,844.48250	7	3,008.52417	7	3,172.56583
8	2,519.68000	8	2,683.72167	8	2,847.76333	8	3,011.80500	8	3,175.84667
9	2,522.96083	9	2,687.00250	9	2,851.04417	9	3,015.08583	9	3,179.12750
770	2,526.24167	820	2,690.28333	870	2,854.32500	920	3,018.36667	970	3,182.40833
1	2,529.52250	1	2,693.56417	1	2,857.60583	1	3,021.64750	1	3,185.68917
2	2,532.80333	2	2,696.84500	2	2,860.88667	2	3,024.92833	2	2,188.97000
3	2,536.08417	3	2,700.12583	3	2,864.16750	3	3,028.20917	3	3,192.25083
4	2,539.36500	4	2,703.40667	4	2,867.44833	4	3,031.49000	4	3,195.53167
5	2,542.64583	5	2,706.68750	5	2,870.72917	5	3,034.77083	5	3,198.81250
6	2,545.92667	6	2,709.96833	6	2,874.01000	6	3,038.05167	6	3,202.09333
7	2,549.20750	7	2,713.24917	7	2,877.29083	7	3,041.33250	7	3,205.37417
8	2,552.48833	8	2,716.53000	8	2,880.57167	8	3,044.61333	8	3,208.65500
9	2,555.76917	9	2,719.81083	9	2,883.85250	9	3,047.89417	9	3,211.93583
780	2,559.05000	830	2,723.09167	880	2,887.13333	930	3,051.17500	980	3,215.21667
1	2,562.33083	1	2,726.37250	1	2,890.41417	1	3,054.45583	1	3,218.49750
2	2,565.61167	2	2,729.65333	2	2,893.69500	2	3,057.73667	2	3,221.77833
3	2,568.89250	3	2,732.93417	3	2,896.97583	3	3,061.01750	3	3,225.05917
4	2,572.17333	4	2,736.21500	4	2,900.25667	4	3,064.29833	4	3,228.34000
5	2,575.45417	5	2,739.49583	5	2,903.53750	5	3,067.57917	5	3,231.62083
6	2,578.73500	6	2,742.77667	6	2,906,81833	6	3,070.86000	6	3,234.90167
7	2,582.01583	7	2,746.05750	7	2,910.09917	7	3,074.14083	7	3,238.18250
8	2,585.29667	8	2,749.33833	8	2,913.38000	8	3,077.42167	8	3,241.46333
9	2,588.57750	9	2,752.61917	9	2,916.66083	9	3,080.70250	9	3,244.74417
790	2,591.85833	840	2,755.90000	890	2,919.94167	940	3,083.98333	990	3,248.02500
1	2,595.13917	1	2,759.18083	1	2,923.22250	1	2,087.26417	1	3,251.30583
2	2,598.42000	2	2,762.46167	2	2,926.50333	2	3,090.54500	2	3,254.58667
3	2,601.70083	3	2,765.74250	3	2,929.78417	3	3,093.82583	3	3,257.86750
4	2,604.98167	4	2,769.02333	4	2,933.06500	4	3,097.10667	4	3,261.14833
5	2,608.26250	5	2,772.30417	5	2,936.34583	5	3,100.38750	5	3,264.42917
6	2,611.54333	6	2,775.58500	6	2,939.62667	6	3,103.66833	6	3,267.71000
7	2,614.82417	7	2,778.86583	7	2,942.90750	7	3,106.94917	7	3,270.99083
8	2,618.10500	8	2,782.14667	8	2,946.18833	8	3,110.23000	8	3,274.27167
9	2,621.38583	9	2,785.42750	9	2,949.46917	9	3,113.51083	9	3,277.55250

GEOGRAPHIC POSITIONS.

Primary stations.

Station.	Latitude and longitude.	Seconds in meters	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Blue Hill (Mass.), 1845.	42 12 43.941 71 06 52.638	1355.7 1207.3					
Copecut (Mass.), 1844.	41 43 17.245 71 03 36.644	532.1 847.1	175 17 06.299	355 14 55.237	Blue Hill.....	54694.51	4.7379437
Great Meadow (Mass.), 1836.	41 52 45.138 71 13 02.292	1392.7 52.9	123 44 50.597 192 54 36.214	303 35 35.905 12 58 43.781	Beaconpole.... Blue Hill.....	23223.72 37951.70	4.3659318 4.5792312
Massachusetts, north base (Mass.), 1844.	42 03 06.592 71 12 24.871	203.4 572.0	2 34 36.135 72 44 05.443	182 34 11.112 252 34 18.759	Great Meadow Beaconpole....	19193.11 21123.09	4.2831454 4.3247575
Massachusetts, south base (Mass.), 1844.	41 54 49.921 71 18 16.114	1540.3 371.3	207 47 11.966 126 46 54.940	27 51 06.916 306 41 03.861	Massachusetts north base. Beaconpole....	17326.376 15091.32	4.2387077 4.1787273
Beaconpole, 1844.....	41 59 42.468 71 27 01.257	1310.2 28.9	146 50 05.79 228 55 19.77 275 44 23.98 313 02 37.56	326 32 28.49 49 08 50.12 96 18 52.16 133 18 14.85	Wachusett.... Blue Hill..... Manomet..... Copecut.....	65656.70 36777.41 71626.35 44425.23	4.8172790 4.5655811 4.8550728 4.6476297

Secondary stations.

Pocasset, 1843.....	41 39 09.420 71 11 32.364	290.6 748.9	150 41 04.12 175 17 23.53 235 09 32.46	330 30 44.69 355 16 23.63 55 14 48.84	Beaconpole.... Great Meadow Copecut.....	43666.53 25252.10 13397.89	4.6401487 4.4022976 4.1270365
Spencer, 1843.....	41 40 43.256 71 29 40.685	1334.4 941.0	185 57 36.34 225 54 02.06 262 22 17.91 276 27 31.02	5 59 22.68 46 05 07.25 82 39 38.36 96 39 34.51	Beaconpole.... Great Meadow Copecut..... Pocasset.....	35339.35 32056.96 36475.19 25343.96	4.5482586 4.5059224 4.5619976 4.4038746
Quaker, 1843.....	41 34 57.376 71 15 18.337	1770.1 424.7	118 12 27.73 160 33 30.72 185 26 22.26 213 54 44.81 226 24 37.79	298 02 54.85 340 25 42.31 5 27 52.82 33 57 14.89 46 32 24.14	Spencer..... Beaconpole.... Great Meadow Pocasset..... Copecut.....	22634.29 48608.10 33092.07 9372.00 22393.41	4.3547668 4.6867087 4.5197239 3.9718322 4.3501202
McSparran, 1838.....	41 29 46.953 71 27 24.737	1448.5 573.7	171 10 21.59 180 33 32.24 205 03 05.78 240 18 12.34 280 42 13.30	351 08 51.35 0 33 47.88 25 12 39.37 60 26 14.04 101 02 59.40	Spencer..... Beaconpole.... Great Meadow Quaker..... Cuttyhunk....	20491.06 55397.68 46964.93 19370.85 44480.03	4.3115644 4.7434916 4.6717737 4.2871487 4.6481651
East Rock, 1843.....	41 27 04.650 71 11 38.340	143.4 889.9	102 55 54.21 160 44 27.59 278 46 25.33	282 45 27.44 340 42 01.77 98 56 44.56	McSparran.... Quaker..... Cuttyhunk....	22523.20 15450.37 21986.15	4.3526300 4.1889388 4.3421491
College Hill, 1835....	41 50 18.850 71 24 00.627	581.6 14.5	7 06 04.06 23 53 42.39 253 23 08.32 319 59 49.01 336 56 21.48	187 03 48.37 203 49 55.92 73 30 27.63 140 08 07.23 157 02 09.01	McSparran.... Spencer..... Great Meadow Pocasset..... Quaker.....	38298.07 19418.24 15841.36 26934.71 30886.99	4.5831769 4.2882098 4.1997926 4.4303124 4.4897756
Mt. Hope, 1843.....	41 40 26.130 71 14 26.209	806.1 606.2	6 47 22.05 42 30 54.47 300 27 25.96 184 51 03.24 250 34 29.10 91 30 55.33 351 02 39.60	186 46 47.42 222 22 17.74 120 29 21.52 4 51 59.15 70 41 41.19 271 20 47.28 171 04 30.95	Quaker..... McSparran.... Pocasset..... Great Meadow Copecut..... Spencer..... East Rock....	10213.98 26721.82 4666.03 22882.13 15920.85 21159.34 25030.47	4.0091950 4.4268661 3.6690033 4.3594964 4.2019661 4.3255022 4.3984690
Whitman, 1838.....	41 40 33.889 71 27 19.357	1045.5 447.7	276 41 44.91 0 21 29.76 301 48 59.78 270 41 43.56	96 52 14.43 180 21 26.18 121 56 58.75 90 50 17.62	Pocasset..... McSparran.... Quaker..... Mt. Hope.....	22063.36 19959.02 19655.51 17885.63	4.3436717 4.3001393 4.2934843 4.2525042
Block Island, 1835...	41 10 32.077 71 35 30.644	989.5 714.3	65 06 14.68 227 16 59.28 197 33 03.29	244 53 53.01 47 32 44.86 17 38 24.22	Montauk..... East Rock.... McSparran....	29029.62 45250.01 37376.15	4.4628414 4.6556187 4.5725945
Champlin, 1838.....	41 29 16.000 71 46 47.766	493.6 1108.1	335 30 49.75 267 51 56.97	155 38 16.93 88 04 47.49	Block Island.. McSparran....	38080.36 26995.50	4.5807010 4.4312914

Secondary stations—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Broad Hill, 1839	41 24 39.953	1232.5	5 29 19.04	185 28 07.89	Block Island	26276.50	4.4195676
	71 33 42.824	994.6	115 07 24.97	294 58 45.38	Champlin	20112.11	4.3034577
			222 46 57.27	42 51 07.57	McSparran	12911.69	4.1109830
			261 37 09.01	81 51 45.44	East Rock	31074.87	4.4924093
Watch Hill, 1835	41 18 49.932	1540.4	197 55 49.23	17 58 47.42	Champlin	20302.98	4.3075598
	71 51 17.201	400.1	304 46 59.34	124 57 23.39	Block Island	26863.71	4.4291660
			8 42 30.41	188 40 31.07	Montauk	27947.35	4.4463406
Lantern Hill, 1838	41 27 37.929	1170.1	257 32 43.91	77 39 16.69	Champlin	14089.65	4.1489001
	71 56 40.826	947.5	335 11 28.24	155 15 02.20	Watch Hill	17940.44	4.2538331
			316 51 10.25	137 05 08.88	Block Island	43293.35	4.6364212
Nootas, 1843	41 32 13.020	401.7	156 03 33.63	336 00 49.97	Pocasset	14058.13	4.1479275
	71 07 25.832	598.8	31 38 34.97	211 35 47.67	East Rock	11171.88	4.0481262
			114 53 32.22	294 48 18.76	Quaker	12066.30	4.0815740
			309 04 33.44	129 12 05.94	Cuttyhunk	20436.54	4.3104073
Cuttyhunk (Mass.), 1835.	41 25 14.887	459.3	123 56 41.52	303 43 55.71	Quaker	32270.72	4.5088086
	70 56 02.646	61.4	162 33 26.03	342 28 24.78	Copecut	35009.26	4.5441829

Tertiary stations, Narragansett Bay and eastward.

Principal points.							
Mt. Hope 2, 1874	41 40 26.515	818.0	6 47 47.5	186 47 12.8	Quaker	10226.1	4.009711
	71 14 26.094	603.6	62 15 31.6	242 11 25.8	Pine Hill	9668.8	3.985375
			300 36 00.8	120 37 56.0	Pocasset	4670.4	3.669353
Somerset 2 (Mass.), 1874.	41 43 44.048	1358.9	44 24 16.2	224 21 24.6	Mt. Hope 2	8526.8	3.930787
	71 10 08.164	188.7	3 53 43.5	183 53 36.2	City	3719.3	3.570467
Calvary (Mass.), 1874	41 43 40.822	1259.4	92 00 50.6	271 59 28.7	Somerset 2	2847.4	3.454456
	71 08 05.039	116.4	71 00 27.8	250 57 34.9	Gardner Neck	6351.4	3.802868
Fall River high school (Mass.), 1887.	41 42 19.485	601.1	189 48 23.4	9 49 20.0	Richmond Hill	11516.0	4.061300
	71 09 08.300	191.9	256 53 06.1	76 56 46.8	Copecut	7871.5	3.896056
Oak Hill (Mass.), 1884.	41 54 51.238	1580.8	148 46 29.5	328 42 41.9	Red Brush	15097.5	4.178904
	71 16 43.230	996.3	307 21 19.9	127 23 47.4	Great Meadow	6409.0	3.806791
Bear Hill, 1884	41 56 45.078	1390.8	188 19 15.5	8 19 55.5	Red Brush	9493.8	3.977442
	71 23 23.185	534.1	290 49 38.5	110 54 05.8	Oak Hill	9861.6	3.993948
Pawtucket waterworks, pole on gatehouse, 1884.	41 53 11.098	342.4	194 25 28.9	14 27 28.5	Red Brush	16517.6	4.217946
	71 25 22.327	514.7	255 28 26.1	75 34 12.8	Oak Hill	12357.9	4.091946
Wickford, 1843	41 34 30.541	942.2	267 15 10.0	87 23 37.2	Quaker	17726.2	4.248616
	71 28 02.688	62.3	354 15 15.0	174 15 40.2	McSparran	8793.1	3.944141
			239 47 37.2	59 56 39.4	Mt. Hope	21854.1	4.339532
Batty, 1843	41 32 13.240	408.5	56 01 21.0	235 58 09.7	McSparran	8069.9	3.906866
	71 22 36.230	839.8	216 41 08.6	36 46 34.2	Mt. Hope	18973.3	4.278142
			243 26 21.0	63 31 11.5	Quaker	11340.5	4.054633
			157 01 36.9	336 58 28.4	Whitman	16779.4	4.224776
			119 16 28.8	299 12 52.3	Wickford	8070.5	3.938043
Prudence, 1843	41 36 24.417	753.3	299 33 45.1	119 36 00.7	Quaker	5439.6	3.735563
	71 18 42.589	986.2	34 57 28.3	214 54 53.2	Batty	9452.5	3.975545
			218 29 07.6	38 31 58.0	Mt. Hope	9529.8	3.979085
			44 40 10.0	224 34 23.8	McSparran	17227.7	4.236228
			74 53 56.1	254 47 44.4	Wickford	13440.0	4.128401
			122 48 37.1	302 42 53.9	Whitman	14222.3	4.152969
Slate, 1843	41 32 21.011	648.2	88 32 34.5	268 28 11.5	Batty	9196.3	3.963615
	71 15 59.637	1382.4	191 13 02.6	11 13 30.3	Quaker	4918.1	3.691793
			73 24 24.5	253 16 50.3	McSparran	16581.6	4.219627
			153 19 27.7	333 17 39.8	Prudence	8404.9	3.924533
			271 08 18.2	91 13 59.1	Nootas	11912.8	4.076014
Miantonomy, 1843	41 30 37.049	1143.0	146 45 48.2	326 40 02.1	Whitman	22026.5	4.342946
	71 18 37.433	868.1	228 44 44.9	48 46 29.6	Slate	4865.4	3.687116
			118 12 46.4	298 10 08.1	Batty	6281.8	3.798094
			82 50 46.1	262 44 56.6	McSparran	12326.9	4.090855

Tertiary stations, Narragansett Bay and eastward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Principal points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Hazard, 1843	41 28 23.251	717.3	132 59 35.2	312 53 47.0	Wickford	16631.9	4.220942
	71 19 17.586	408.1	147 01 21.4	326 59 09.7	Batty	8459.8	3.927360
			102 54 54.4	282 49 31.5	McSparran	11592.9	4.064191
			192 42 43.7	12 43 10.3	Miantonomy	4231.5	3.626497
			282 46 31.2	102 51 35.3	East Rock	10930.3	4.038633
Telegraph, 1843	41 27 47.828	1475.5	110 07 43.5	290 02 56.4	McSparran	10699.5	4.029362
	71 20 11.632	269.9	138 43 23.9	318 38 11.6	Wickford	16542.5	4.218602
			202 42 20.5	22 43 22.9	Miantonomy	5659.5	3.752775
			276 19 58.4	96 25 38.3	East Rock	11987.4	4.078726
			228 55 45.7	48 56 21.6	Hazard	1663.5	3.221018
Telegraph 2, 1869	41 27 47.279	1458.6	178 04 18.5	358 04 18.5	Telegraph	17.0	1.229518
	71 20 11.608	269.4	202 38 03.4	22 39 05.8	Miantonomy	5674.9	3.753957
			276 15 09.4	96 20 49.3	East Rock	11975.0	4.078639
Pine Hill, 1843	41 38 00.469	14.5	242 14 44.3	62 18 49.8	Mount Hope	9661.0	3.985020
	71 20 35.806	828.7	307 30 33.8	127 34 04.6	Quaker	9270.7	3.967114
			31 55 58.6	211 51 27.3	McSparran	17933.0	4.253654
Hull, 1868	41 32 14.564	449.3	194 38 15.5	14 39 35.1	Pine Hill	11030.1	4.042579
	71 22 36.229	839.9	243 37 26.9	63 42 17.0	Quaker	11322.2	4.053931
			298 29 46.6	118 32 24.9	Miantonomy	6301.2	3.799420
			337 51 03.2	157 52 39.0	Telegraph 2	8902.0	3.949488
Dumplin 2, 1869	41 28 45.694	1409.6	174 10 03.3	354 09 44.4	Hull	6477.3	3.811397
	71 22 07.834	181.8	234 50 19.3	54 52 38.7	Miantonomy	5968.3	3.775849
			303 44 25.8	123 45 42.8	Telegraph 2	3243.6	3.511027
Dumplin, 1843	41 28 45.682	1409.3	234 50 20.2	54 52 39.6	Miantonomy	5969.0	3.775899
	71 22 07.859	182.3	279 55 09.5	99 57 02.4	Hazard	4010.9	3.603241
			104 26 59.1	284 23 29.1	McSparran	7590.2	3.880253
McSparran 2, 1869	41 29 47.786	1474.2	235 50 41.0	55 53 52.0	Hull	8070.9	3.906923
	71 27 24.350	564.8	284 35 32.5	104 39 02.2	Dumplin 2	7588.1	3.880150
Meetinghouse Hill 2, 1869.	41 26 43.175	1332.0	247 04 21.6	67 08 37.0	Dumplin 2	9716.8	3.987524
	71 28 33.552	778.8	195 44 21.8	15 45 07.6	McSparran 2	5917.4	3.772130
			260 19 10.2	80 24 42.7	Telegraph 2	11816.9	4.072505
			62 08 01.0	242 04 36.4	Broad Hill	8125.3	3.909838
Barbers Heights, 1868	41 31 44.871	1384.3	257 02 09.1	77 04 03.1	Hull	4088.3	3.611543
	71 25 28.100	651.3	319 56 33.8	139 58 46.6	Dumplin 2	7220.0	3.858539
			36 44 41.2	216 43 24.1	McSparran 2	4507.2	3.653906
Beavertail lighthouse, 1869.	41 26 57.895	1786.1	85 56 27.0	265 53 25.7	Meetinghouse Hill 2.	6376.0	3.804547
	71 23 59.574	1382.7	137 49 26.9	317 47 11.3	McSparran 2	7074.4	3.849691
			217 56 03.9	37 57 18.0	Dumplin 2	4217.1	3.625018
Prudence 2, 1869	41 36 22.230	685.8	299 02 03.2	119 04 18.3	Quaker	5390.8	3.731653
	71 18 41.808	968.1	359 27 15.2	179 27 18.1	Miantonomy	10649.6	4.027335
			35 25 38.9	215 23 03.7	Hull	9374.4	3.971942
Quonsett 3, 1868	41 35 17.032	525.4	226 13 07.5	46 15 38.1	Pine Hill	7290.2	3.862739
	71 24 23.203	537.5	336 13 28.8	156 14 39.8	Hull	6150.9	3.788937
			12 56 44.6	192 56 01.5	Barbers Heights.	6715.9	3.827105
Conanicut North, 1843	41 34 24.861	767.1	119 24 25.1	299 23 03.2	Quonsett 3	3279.2	3.515766
	71 22 19.870	460.3	199 54 18.8	19 55 27.5	Pine Hill	7074.8	3.849716
			233 44 32.6	53 46 56.8	Prudence	6239.6	3.795156
			264 05 45.1	84 10 24.9	Quaker	9816.8	3.991968
			293 24 27.2	113 28 39.3	Slate	9604.3	3.982465
			41 29 16.6	221 27 11.7	Barbers Heights.	6587.3	3.818707
			91 17 46.5	271 13 58.9	Wickford	7944.1	3.900046
High Rocks, 1843	41 37 47.560	1467.2	162 21 16.6	342 20 29.0	Whitman	5385.1	3.731186
	71 26 08.780	203.2	253 11 16.5	73 19 02.8	Mount Hope	16977.4	4.229871
			289 09 29.4	109 16 40.9	Quaker	15950.6	4.202777
			319 41 31.4	139 44 03.0	Conanicut North.	8198.0	3.913707
			6 46 35.5	186 45 45.1	McSparran	14931.3	4.174096
			23 28 14.2	203 26 58.2	Wickford	6625.9	3.821247

Tertiary stations, Narragansett Bay and eastward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Principal points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Quonsett, 1843	41 35 26.582	820.1	236 37 50.0	56 44 33.6	Mount Hope	16826.4	4.225991
	71 24 33.702	780.6	257 35 29.7	77 39 22.8	Prudence	8324.8	3.920374
			335 27 35.8	155 28 53.7	Batty	6556.5	3.816672
			20 44 23.8	200 42 30.6	McSparran	11202.8	4.049325
Hog Island 3, 1874	41 38 40.481	1248.8	342 42 37.5	162 43 38.9	Quaker	7208.4	3.857842
	71 16 50.822	1176.0	76 41 02.9	256 38 33.4	Pine Hill	5351.5	3.728472
			225 39 19.2	45 40 55.4	Mount Hope 2	4681.3	3.670366
Little Compton, 1843	41 31 12.385	382.2	164 27 05.8	344 24 49.4	Mount Hope	17734.1	4.248810
	71 11 00.706	16.3	249 23 57.3	69 26 19.8	Nootas	5321.2	3.726012
			6 31 13.6	186 30 48.8	East Rock	7692.5	3.886066
			139 19 18.0	319 16 27.1	Quaker	9155.9	3.961700
Wing, 1843	41 35 23.225	716.7	2 25 06.7	182 24 48.0	East Rock	15395.1	4.187382
	71 11 10.352	239.8	82 07 08.5	262 04 23.9	Quaker	5799.2	3.763371
			154 08 19.3	334 06 09.2	Mount Hope	10386.6	4.016473
Paradise Rock, 1869	41 30 05.511	169.9	55 23 23.3	235 20 26.7	Telegraph 2	7503.4	3.875258
	71 15 45.504	1055.3	103 43 43.8	283 41 49.6	Mlantonomy	4104.4	3.613247
			213 01 28.1	33 04 30.6	Wing	11693.8	4.067957
			314 11 29.3	134 14 12.9	East Rock	8001.3	3.903161
Windmill 2, 1869	41 32 33.559	1035.2	50 03 00.5	230 00 24.7	Paradise Rock	7109.8	3.851855
	71 11 50.508	1170.6	132 40 28.7	312 38 10.8	Quaker	6548.1	3.816114
			190 04 32.5	10 04 59.2	Wing	5316.4	3.725619
Simmons 2, 1870	41 29 32.078	989.7	32 15 42.2	212 14 20.3	East Rock	5377.9	3.730613
	71 09 34.665	804.1	96 52 18.7	276 48 13.0	Paradise Rock	8663.3	3.937683
Little Compton 2, 1870.	41 31 12.440	383.7	326 53 33.1	146 54 30.8	Simmons 2	3690.0	3.567735
	71 11 01.694	39.3	72 36 29.8	252 33 21.7	Paradise Rock	6897.9	3.838715
			155 40 17.8	335 39 45.7	Windmill 2	2746.5	3.438786
Simmons, 1843	41 29 32.288	996.2	147 00 06.7	326 59 09.4	Little Compton	3682.4	3.566133
	71 09 34.214	793.5	210 58 02.0	30 59 27.1	Nootas	5783.7	3.762207
			32 19 10.1	212 17 47.9	East Rock	5388.9	3.731504
Mound, 1874	41 38 14.042	433.2	25 46 07.3	205 44 43.3	Quaker	6736.7	3.828449
	71 13 11.906	275.4	99 09 56.5	279 07 31.0	Hog Island 3	5131.8	3.710266
			157 13 25.6	337 12 36.3	Mount Hope 2	4432.8	3.646681
Chase, 1874	41 40 23.917	737.9	33 42 01.7	213 40 45.0	Mound	4815.6	3.682651
	71 11 16.462	380.9	91 03 50.6	271 01 44.5	Mount Hope 2	4387.3	3.642195
Quicksand 2 (Mass.), 1870.	41 29 56.406	1740.2	113 31 47.7	293 29 13.6	Little Compton 2.	5880.7	3.769427
	71 07 09.162	212.5	77 28 34.3	257 26 57.9	Simmons 2	3457.5	3.538759
Blackbeard (Mass.), 1843.	41 40 28.881	891.0	17 33 43.3	197 33 20.9	Pocasset	2571.3	3.410145
	71 10 58.835	1360.9	89 00 21.5	268 58 03.6	Mount Hope	4797.7	3.681029
			217 23 08.0	37 24 36.7	Fall River 2	5081.3	3.705972
Mattapoisett (Mass.), 1843.	41 42 40.473	1248.7	27 47 46.2	207 46 43.4	Mount Hope	4684.9	3.670702
	71 12 51.763	1196.7	270 12 33.9	90 15 17.7	Fall River 2	5696.0	3.755569
			327 14 19.2	147 15 34.3	Blackbeard	4827.2	3.683696
Towesett, 1843	41 41 59.230	1827.4	241 38 09.1	61 39 16.9	Mattapoisett	2679.2	3,428006
	71 14 33.740	780.1	299 15 54.9	119 18 17.8	Blackbeard	5698.4	3.755753
			356 31 44.5	176 31 49.5	Mount Hope	2877.5	3.459018
Patience, 1843	41 39 33.473	1032.7	102 49 37.1	282 45 41.2	Whitman	8416.9	3.925151
	71 21 24.560	568.2	260 25 58.4	80 30 36.5	Mount Hope	9813.7	3.991834
			315 05 58.3	135 10 01.5	Quaker	12018.2	4.079840
			338 31 48.7	158 32 21.2	Pine Hill	3083.1	3.488994
			260 22 00.8	80 26 39.2	Mount Hope 2	9818.3	3.992037
Prudence (U. S. E.), 1913.	41 39 33.288	1027.0	2 07 50.8	182 07 47.8	Pine Hill	2805.6	3.457209
	71 20 31.203	721.9	90 16 14.1	270 15 38.5	Patience	1234.5	3.091500
Squash, 1913	41 40 22.179	684.2	34 54 45.5	214 53 18.0	Pine Hill	5330.7	3.726785
	71 18 23.997	555.1	62 52 26.6	242 51 02.1	Prudence (U. S. E.).	3306.9	3.519425
			70 13 54.2	250 11 54.1	Patience	4439.3	3.647316

Tertiary stations, Narragansett Bay and eastward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Principal points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Kid, 1913	41 41 37.009	1141.8	26 14 57.1	206 14 24.4	Squash	2574.0	3.410601
	71 17 34.785	804.4	46 55 44.0	226 53 46.8	Prudence (U. S. E.).	5587.7	3.747230
			54 22 38.1	234 20 05.3	Patience	6540.2	3.815591
Conimicut lighthouse, 1897.	41 43 01.305	40.3	300 42 05.6	120 44 11.6	Kid	5091.1	3.706810
	71 20 44.084	1019.1	326 34 05.0	146 35 38.3	Squash	5881.8	3.769507
			357 20 28.5	177 20 37.2	Prudence (U. S. E.).	6424.6	3.807845
			8 18 34.6	188 18 07.7	Patience	6479.9	3.811570
Rocky Point (U. S. E.), 1913.	41 41 29.869	921.5	267 50 24.7	87 53 14.6	Kid	5909.8	3.771573
	71 21 50.166	1160.1	280 44 00.9	100 48 56.4	Mount Hope 2.	10454.9	4.019322
			350 37 55.4	170 38 12.4	Patience	3639.5	3.561042
Conimicut (U. S. E.), 1912.	41 43 02.184	67.4	296 05 27.3	116 08 01.6	Kid	5970.4	3.776005
	71 21 26.658	616.3	359 34 05.2	179 34 06.6	Patience	6439.2	3.808835
			10 48 21.8	190 48 06.2	Rocky Point (U. S. E.).	2899.5	3.462318
Nayatt Lighthouse, 1863–1912.	41 43 30.667	946.1	312 13 06.5	132 14 57.7	Kid	5216.8	3.717404
	71 20 21.857	505.2	28 43 23.7	208 42 25.0	Rocky Point (U. S. E.).	4249.4	3.628328
			59 36 27.9	239 35 44.8	Conimicut (U. S. E.).	1736.6	3.239704
Green (U. S. E.), 1913	41 43 57.253	1766.4	284 00 38.1	104 02 12.7	Nayatt lighthouse.	3384.8	3.529532
	71 22 43.942	1015.5	313 33 25.2	133 34 16.7	Conimicut (U. S. E.)	2465.2	3.391858
Gaspe (U. S. E.), 1913	41 44 34.114	1052.5	300 13 48.6	120 15 25.3	Nayatt lighthouse.	3886.3	3.589540
	71 22 47.132	1089.1	326 44 12.6	146 45 06.2	Conimicut (U. S. E.).	3391.6	3.530409
			356 17 27.1	176 17 29.2	Green (U.S.E.)	1139.6	3.056764
Hope Island, 1912	41 36 10.302	317.8	6 39 16.9	186 38 52.9	Hull	7322.0	3.864628
	71 21 59.625	1380.7	137 43 40.7	317 40 08.1	Whitman	10994.9	4.041192
			209 42 59.1	29 43 54.8	Pine Hill	3913.7	3.592592
			233 00 40.8	53 05 41.9	Mount Hope	13130.9	4.118293
			283 34 15.1	103 38 41.4	Quaker	9562.6	3.980577
Calf, 1912	41 37 32.601	1005.8	248 24 27.0	68 30 57.5	Mount Hope 2.	14615.0	4.164800
	71 24 13.572	314.2	260 18 01.7	80 20 26.4	Pine Hill	5113.6	3.708724
			309 17 40.0	129 19 09.0	Hope Island	4008.1	3.602937
			188 43 54.7	8 44 52.2	Gaspe (U.S.E.)	13157.1	4.119160
Sandy Point, 1912	41 39 43.303	1335.9	264 33 21.0	84 40 07.3	Mount Hope 2.	14198.5	4.152242
	71 24 37.132	859.1	299 34 42.6	119 37 23.0	Pine Hill	6422.8	3.807726
			304 14 18.0	124 20 29.0	Quaker	15657.6	4.194726
			330 57 50.2	150 59 34.9	Hope Island	7514.9	3.875926
			352 17 49.6	172 18 05.3	Calf	4069.0	3.609492
Quonsett 4, 1912	41 35 18.677	576.2	183 11 52.4	3 11 59.0	Calf	4138.2	3.616808
	71 24 23.545	545.3	226 33 02.2	46 35 33.5	Pine Hill	7260.9	3.860991
			244 26 47.4	64 28 23.0	Hope Island	3694.1	3.567614
			336 20 47.2	156 21 58.8	Hull	6200.5	3.792424
Warwick lighthouse, 1897	41 40 01.440	44.4	78 01 00.2	257 59 44.5	Sandy Point	2692.7	3.430180
	71 22 43.286	1001.4	98 56 04.5	278 53 00.7	Whitman	6464.2	3.810517
			266 09 51.6	86 15 21.7	Mount Hope	11524.1	4.061608
			295 20 25.8	115 21 17.9	Patience	2015.4	3.304368
			312 17 01.7	132 21 57.2	Quaker	13931.8	4.144007
Bell 1913	41 39 36.968	1140.5	39 01 40.9	219 00 11.6	Calf	4938.2	3.693573
	71 21 59.242	1370.6	93 04 38.0	273 02 53.0	Sandy Point	3658.2	3.563272
			126 32 25.5	306 31 56.2	Warwick lighthouse.	1268.2	3.108187
			277 38 59.9	97 39 22.7	Patience	809.7	2.908309
Butt, 1913	41 41 03.324	102.6	301 12 31.0	121 14 01.5	Warwick lighthouse.	3683.3	3.566236
	71 24 59.458	1375.1	348 10 56.4	168 11 11.2	Sandy Point	2522.2	3.401779

Tertiary stations, Narragansett Bay and eastward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Principal points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Sally, 1913	41 40 15.741	485.6	208 23 55.2	28 24 18.0	Butt	1668.9	3.222429
	71 25 33.777	781.3	276 22 00.9	96 23 54.2	Warwick lighthouse.	3968.7	3.598647
			307 21 44.2	127 22 21.8	Sandy Point	1648.9	3.217186
Chip, 1913	41 40 24.603	759.0	240 45 49.4	60 46 50.8	Butt	2446.6	3.388561
	71 26 31.767	734.8	281 30 49.9	101 31 28.5	Sally	1369.0	3.136409
Long, 1913	41 40 01.161	35.8	170 32 43.7	350 32 40.2	Chip	733.2	2.865204
	71 26 26.560	614.4	226 24 14.8	46 25 12.7	Butt	2781.6	3.444299
			249 46 19.8	69 46 54.9	Sally	1301.3	3.114373
Nag, 1913	41 37 49.209	1518.1	98 50 46.1	278 49 42.0	Pine Hill	2261.2	3.354340
	71 18 59.276	1372.1	146 28 50.6	326 27 55.5	Prudence (U. S. E.).	3851.8	3.585659
Pop, 1913	41 38 59.128	1824.2	30 08 05.0	210 07 29.1	Nag	2494.1	3.396906
	71 18 05.184	120.0	62 34 40.6	242 33 00.6	Pine Hill	3927.7	3.594135
			107 20 13.4	287 18 36.4	Prudence (U. S. E.).	3539.3	3.548912
Hog Island searchlight, 1913.	41 38 37.167	1146.6	63 32 06.0	243 30 40.7	Nag	3318.6	3.520959
	71 16 50.931	1178.6	77 44 53.4	257 42 24.0	Pine Hill	5326.3	3.726429
			108 46 55.7	288 44 29.3	Prudence (U. S. E.).	5383.1	3.731033
Cop, 1913	41 37 11.293	348.4	42 43 18.1	222 39 15.1	Batty	12509.6	4.097242
	71 16 30.110	697.1	108 43 39.6	288 42 00.5	Nag	3645.9	3.561801
			146 31 32.1	326 30 28.9	Pop	3988.8	3.600841
			169 41 29.2	349 41 15.4	Hog Island searchlight.	2692.8	3.430204
Hog Island Shoal lighthouse, 1913.	41 37 56.638	1747.3	4 29 43.3	184 29 40.1	Cop	1403.2	3.147135
	71 16 25.358	586.9	86 20 00.7	266 18 18.4	Nag	3570.1	3.552681
			91 11 28.3	271 08 41.9	Pine Hill	5798.2	3.763292
			117 40 54.4	297 38 11.0	Prudence (U. S. E.).	6423.3	3.807761
Dyer Island, 1843	41 34 57.237	1765.8	52 22 40.4	232 19 34.2	Hull	8216.4	3.914680
	71 17 55.486	1285.3	52 09 11.8	232 06 05.5	Batty	8241.4	3.916001
			205 30 08.1	25 32 27.1	Mount Hope	11243.9	4.050917
			205 32 33.1	25 33 29.9	Cop	4584.1	3.661253
			200 39 05.0	20 40 05.0	Hog Island Shoal lighthouse.	5915.1	3.771964
Bat, 1913	41 35 01.927	59.4	221 07 58.0	41 09 38.1	Cop	5300.1	3.724283
	71 19 00.703	16.3	275 27 52.7	95 28 36.0	Dyer Island	1517.6	3.181104
			44 03 58.5	224 01 35.6	Hull	7183.5	3.856334
Carr, 1913	41 34 16.471	508.1	61 13 08.2	241 09 52.5	Hull	7804.8	3.892359
	71 17 41.129	952.9	127 16 07.4	307 15 14.6	Bat	2316.2	3.364778
			165 11 18.9	345 11 09.4	Dyer Island	1300.9	3.114246
McSparran 3, 1892	41 29 47.834	1475.7	216 44 45.8	36 46 02.7	Barbers Heights.	4506.7	3.653856
	71 27 24.398	565.9	212 30 16.4	32 33 51.3	Hope Island	13995.8	4.145998
			235 51 28.4	55 54 39.3	Hull	8071.0	3.906928
			284 36 04.0	104 39 33.7	Dumplin 2	7589.8	3.880233
			317 47 16.4	137 49 31.9	Beavertail lighthouse.	7076.3	3.849805
			15 44 16.3	195 43 30.4	Meetinghouse Hill 2.	5918.5	3.772213
Hill, 1897	41 28 51.500	1588.8	108 14 55.9	288 12 25.3	McSparran 3	5556.1	3.744768
	71 23 36.910	856.3	154 16 11.5	334 14 57.8	Barbers Heights.	5937.8	3.773625
			192 39 16.5	12 39 56.7	Hull	6420.8	3.807582
			274 56 42.3	94 57 41.4	Dumplin 2	2074.4	3.316895
			60 07 31.7	240 04 15.3	Meetinghouse Hill 2.	7941.4	3.899896
Wickford lighthouse, 1912.	41 34 21.733	670.5	235 38 04.7	55 39 18.3	Quonsett 4	3113.1	3.493190
	71 26 14.487	335.6	240 24 22.7	60 27 11.9	Hope Island	6787.3	3.831700
			307 46 42.5	127 49 07.7	Hull	6401.2	3.806260

Tertiary stations, Narragansett Bay and eastward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Principal points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Conanicut lighthouse, 1888.	41 34 24.726	762.8	89 02 54.2	269 00 18.5	Wickford lighthouse.	5436.1	3.735289
	71 22 19.882	460.6	120 10 08.1	300 08 46.0	Quonsett 4	3313.1	3.520236
			188 11 43.3	8 11 56.8	Hope Island	3290.8	3.517298
			5 23 27.9	185 23 16.4	Hull	4033.4	3.605671
Fox, 1912	41 33 16.271	502.0	141 09 08.3	321 08 21.7	Wickford lighthouse.	2593.4	3.413862
	71 25 04.275	99.1	194 01 35.0	14 02 02.0	Quonsett 4	3892.5	3.590224
			240 58 47.8	61 00 36.9	Conanicut lighthouse.	4355.5	3.639034
			299 00 24.6	119 02 03.2	Hull	3924.0	3.593733
Sand, 1912	41 33 28.249	871.5	343 31 35.3	163 31 54.9	Hull	2370.4	3.374827
	71 23 05.227	121.1	82 22 55.6	262 21 36.6	Fox	2783.5	3.444585
			151 58 03.1	331 57 11.1	Quonsett 4	3859.9	3.586575
Plum Beach lighthouse, 1912.	41 31 49.147	1516.2	159 19 02.4	339 18 33.3	Fox	2873.1	3.458347
	71 24 20.488	475.0	179 22 20.8	359 22 18.7	Quonsett 4	6464.6	3.810540
			202 02 23.2	22 03 56.7	Hope Island	8692.9	3.939163
			209 42 02.5	29 42 52.4	Sand	3520.0	3.546545
			252 00 50.2	72 01 59.7	Hull	2541.0	3.404999
Rome, 1912	41 32 51.321	1583.3	160 00 35.9	340 00 05.8	Wickford lighthouse.	2968.2	3.472490
	71 25 30.692	711.3	198 53 09.2	18 53 53.7	Quonsett 4	4804.9	3.681684
			236 53 20.5	56 55 27.1	Conanicut lighthouse.	5277.0	3.722440
			285 38 53.3	105 40 48.4	Hull	4199.8	3.623229
			319 40 58.8	139 41 44.4	Plum Beach lighthouse.	2515.4	3.400613
Seal, 1912	41 35 52.910	1632.3	358 17 23.9	178 17 26.2	Conanicut lighthouse.	2721.8	3.434850
	71 22 23.388	541.6	69 13 46.4	249 12 26.6	Quonsett 4	2976.6	3.473719
Allen, 1912	41 36 58.183	1795.0	303 42 06.1	123 43 32.7	Seal	3628.1	3.559677
	71 24 33.719	780.7	326 46 25.3	146 47 54.2	Conanicut lighthouse.	5658.8	3.752721
			355 36 38.0	175 36 44.8	Quonsett 4	3078.9	3.488393
Goat Island Shoal lighthouse, 1912	41 28 58.561	1806.6	18 53 15.8	198 52 54.3	Telegraph 2	2324.2	3.366268
	71 19 39.189	909.2	83 26 50.8	263 25 12.3	Dumplin 2	3471.4	3.540509
Rose Island 2 (Rose Island rear range), 1912.	41 29 45.269	1396.6	324 32 33.5	144 33 02.8	Goat Island Shoal lighthouse.	1768.9	3.247714
	71 20 23.420	543.2	355 41 37.0	175 41 44.8	Telegraph 2	3650.3	3.562332
			52 49 09.8	232 48 00.6	Dumplin 2	3040.6	3.482958
Stevens, 1912	41 44 44.173	1362.8	302 27 49.7	122 29 32.3	Nayatt lighthouse.	4223.3	3.625651
	71 22 56.023	1294.5	326 29 52.3	146 29 58.2	Gaspe (U. S. E.).	372.2	2.570746
			326 42 42.1	146 43 41.6	Conimicut (U. S. E.).	3763.8	3.575629
Bullocks Neck 2, 1912	41 44 43.037	1327.8	322 48 54.0	142 49 42.8	Nayatt lighthouse.	2802.3	3.447514
	71 21 35.133	811.8	91 04 54.6	271 04 00.8	Stevens	1869.4	3.271698
Dutch Island lighthouse, 1868.	41 29 48.327	1490.9	155 25 55.1	335 25 08.0	Barbers Heights	3953.6	3.596989
	71 24 17.197	398.9	179 12 50.7	359 12 46.7	Quonsett 3	10141.8	4.006114
			331 56 04.8	151 56 31.4	Hill	1986.7	3.298129
Net, 1912	41 27 46.188	1424.9	173 49 09.7	353 48 58.1	Dutch Island lighthouse.	3790.1	3.578648
	71 23 59.605	1383.3	194 38 42.2	14 38 57.2	Hill	2082.6	3.318603
			96 50 23.1	276 49 07.4	Hull	2666.5	3.425949
Gould Island, 1843	41 32 04.285	132.2	199 00 43.2	19 02 02.5	Prudence	8488.9	3.928853
	71 20 42.014	974.0	203 10 47.3	23 11 54.5	Bat	5962.1	3.775397
			215 51 37.9	35 53 28.4	Dyer Island	6585.0	3.818553
			225 46 23.1	45 48 23.1	Carr	5848.4	3.767036
			265 27 59.7	85 31 06.9	Slate	6566.1	3.817305
			312 57 50.9	132 59 13.5	Miantonomy	3948.0	3.596375

Tertiary stations, Narragansett Bay and eastward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Principal points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Gull Rocks lighthouse, 1869.	41 30 09.302	287.0	3 11 08.0	183 11 01.0	Telegraph 2...	4388.2	3.642291
	71 20 01.101	25.5	48 44 55.1	228 43 31.1	Dumplin 2....	3911.0	3.592286
			137 04 02.6	317 02 19.7	Hull.....	5279.4	3.722582
			165 01 52.9	345 01 25.8	Gould Island..	3672.0	3.564898
Newport naval training station, chimney, 1912.	41 30 35.885	1107.1	43 34 25.9	223 32 53.6	Dumplin 2....	4691.2	3.671287
	71 19 48.462	1123.8	82 03 42.4	261 58 40.3	McSparran 3..	10677.9	4.028484
			128 03 49.9	308 01 58.7	Hull.....	4939.5	3.693680
			155 31 32.4	335 30 56.9	Gould Island..	2996.5	3.476621
Pawtuxet, 1863.....	41 45 56.846	1753.8	314 55 46.1	134 56 51.8	Bullocks Neck 2	3223.9	3.508377
	71 23 13.913	321.4	349 33 14.6	169 33 26.5	Stevens.....	2279.9	3.357915
Sable Point, 1863....	41 46 02.421	74.7	343 42 32.1	163 42 52.7	Bullocks Neck 2	2551.6	3.406808
	71 22 06.110	141.1	25 32 09.7	205 31 36.5	Stevens.....	2675.4	3.427382
			83 44 21.6	263 43 36.5	Pawtuxet.....	1575.6	3.197435
Kettle Point, 1863...	41 47 46.377	1430.8	345 53.51.7	165 54 14.9	Sable Point...	3306.9	3.519418
	71 22 40.993	946.5	3 32 06.8	183 31 56.8	Stevens.....	5632.1	3.750669
			12 40 54.5	192 40 32.6	Pawtuxet.....	3463.7	3.539542
Fort Independence 2, 1863.	41 47 34.452	1062.9	349 06 44.3	169 07 15.1	Gaspe (U.S.E.)	5665.7	3.753255
	71 23 33.446	772.3	350 39 10.9	170 39 35.8	Stevens.....	5324.1	3.726247
			351 28 42.8	171 28 55.8	Pawtuxet.....	3045.0	3.483581
			253 05 51.0	73 06 25.9	Kettle Point..	1265.7	3.102337
Potters Cove front range, 1915.	41 30 46.113	1422.6	216 15 31.0	36 16 21.6	Gould Island..	2991.1	3.475826
	71 21 58.325	1352.6	292 39 41.2	112 40 58.9	Gull Rocks lighthouse.	2946.2	3.469267
Potters Cove rear range, 1915.	41 30 46.332	1429.4	224 24 46.5	44 25 53.9	Gould Island..	3367.2	3.527275
	71 22 23.667	548.8	270 39 23.3	90 39 40.1	Potters Cove front range.	587.7	2.769161
			275 06 10.1	95 07 53.0	Naval Training Station chimney.	3613.6	3.557939
Out, 1915.....	41 33 47.918	1478.3	239 04 53.2	59 06 42.5	Bat.....	4445.6	3.647934
	71 21 45.351	1050.9	248 05 59.5	68 08 32.0	Dyer Island...	5738.9	3.758826
			261 07 44.7	81 10 26.7	Carr.....	5726.8	3.757910
			9 00 45.0	189 00 19.6	Potters Cove rear range.	5672.0	3.753739
Trial course, front range pole south end of, 1915.	41 32 50.356	1553.5	233 09 29.7	53 11 59.4	Dyer Island...	6531.4	3.815008
	71 21 41.135	953.4	244 26 40.7	64 29 19.9	Carr.....	6163.6	3.789833
			316 02 23.9	136 03 03.1	Gould Island..	1974.4	3.295426
Rose Island lighthouse, 1888.	41 29 43.903	1354.5	351 11 11.3	171 11 27.2	Telegraph 2...	3640.8	3.561202
	71 20 35.646	826.8	49 59 18.9	229 58 17.8	Dumplin 2....	2792.6	3.446003
			148 58 53.1	328 57 33.1	Hull.....	5424.2	3.734337
			261 32 42.5	81 32 50.6	Rose Island 2.	286.7	2.457454
Tammany scaffold, 1897.	41 30 38.552	1189.4	284 16 33.4	104 18 27.6	Paradise Rock	4129.2	3.615867
	71 18 38.038	882.1	22 20 32.9	202 19 30.9	Telegraph 2...	5712.4	3.756815
			54 26 12.5	234 23 53.5	Dumplin 2....	5983.6	3.776966
			118 13 44.1	298 11 06.3	Hull.....	6266.8	3.797044
Prudence 3, 1897.....	41 36 22.233	685.9	218 07 23.4	38 10 13.3	Mount Hope 2.	9583.1	3.981504
	71 18 41.851	969.1	359 31 19.8	179 31 22.2	Tammany Scaffold.	10603.2	4.025439
			35 25 19.6	215 22 44.1	Hull.....	9373.8	3.971917
Quaker 2, 1897.....	41 34 57.282	1767.2	63 43 43.2	243 38 52.4	Hull.....	11325.4	4.054052
	71 15 18.125	419.8	119 04 07.5	299 01 52.2	Prudence 3....	5397.4	3.732183
			186 45 27.4	6 46 02.0	Mount Hope 2.	10228.4	4.009800
Pocasset 2, 1897.....	41 38 55.435	1710.2	32 14 42.6	212 12 29.6	Quaker 2.....	8685.3	3.938784
	71 11 58.079	1343.9	63 12 44.7	243 08 16.4	Prudence 3....	10473.8	4.020105
			129 23 01.5	309 21 23.1	Mount Hope 2.	4429.8	3.646385
Flagg, 1905.....	41 35 19.266	594.4	202 59 34.5	22 59 57.8	Prudence Island lighthouse.	2080.7	3.318208
	71 18 49.562	1148.0					
			214 30 13.2	34 31 49.1	Hog Island Shoal lighthouse.	5892.4	3.770295
			298 28 41.4	118 29 17.3	Dyer Island...	1425.1	3.153835

Tertiary stations, Narragansett Bay and eastward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Principal points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Butts, 1843	41 36 55.841	1722.8	188 11 05.5	8 11 32.4	Mount Hope	6554.5	3.816540
	71 15 06.549	151.6	230 14 40.0	50 17 02.3	Pocasset	6446.7	3.809340
			4 16 21.2	184 16 13.4	Quaker	3664.9	3.564068
West, 1861	41 38 44.419	1370.4	78 44 58.9	258 41 43.8	Pine Hill	6933.6	3.840956
	71 15 42.009	972.2	209 11 37.5	29 12 27.9	Mount Hope	3594.7	3.555668
			262 22 19.8	82 25 05.7	Pocasset	5828.2	3.765536
			346 13 43.9	166 14 07.4	Butts	3448.9	3.537675
Anthony, 1843	41 38 46.348	1429.9	36 14 30.0	216 13 18.2	Butts	4226.6	3.625986
	71 13 18.627	431.1	88 59 08.8	268 57 33.5	West	3318.7	3.520962
			153 04 42.4	333 03 57.5	Mount Hope	3452.8	3.538166
Sugarloaf Hill, 1869	41 26 04.967	153.2	213 25 46.9	33 27 56.3	McSparran 2	8238.4	3.915845
	71 30 40.022	929.2	248 06 52.3	68 08 16.0	Meetinghouse Hill 2.	3163.8	3.500213
Paradise Rock 2, 1917	41 30 03.444	106.3	313 44 20.8	133 47 05.2	East Rock	7974.8	3.901718
	71 15 46.568	1080.1	55 41 08.1	235 38 12.4	Telegraph 2	7447.0	3.871979
Cor, 1917	41 27 36.973	1140.6	164 43 51.8	344 43 16.6	ParadiseRock2	4684.1	3.670630
	71 14 53.383	1238.9	282 24 16.6	102 26 25.7	East Rock	4635.4	3.666090
Church Point 3, 1917	41 30 09.711	299.6	350 07 36.0	170 08 04.4	East Rock	5795.0	3.763052
	71 12 21.149	490.5	36 52 02.5	216 50 21.7	Cor	5888.8	3.770026
			87 41 41.2	267 39 25.1	ParadiseRock2	4768.3	3.678362
Graphite, 1917	41 32 03.412	105.3	2 33 58.5	182 33 54.0	Church Point3	3511.3	3.545463
	71 12 14.371	333.1	53 04 08.8	233 01 48.2	ParadiseRock2	6157.0	3.789367
Windmill 3, 1917	41 32 33.625	1037.4	9 06 26.8	189 06 06.4	Church Point3	4496.5	3.652873
	71 11 50.462	1169.7	30 44 14.8	210 43 58.9	Graphite	1084.4	3.035193
			49 46 45.5	229 44 09.0	ParadiseRock2	7171.9	3.855632
Black Point, 1917	41 31 48.230	1487.9	242 41 20.9	62 42 38.5	Windmill 3	3053.4	3.484786
	71 13 47.511	1101.4	257 45 10.4	77 46 12.1	Graphite	2209.4	3.344282
			326 36 43.5	146 37 40.7	Church Point3	3639.8	3.561076
McCurrys Point, 1917	41 34 33.194	1024.1	318 10 02.2	138 11 36.7	Windmill 3	4949.8	3.694585
	71 14 12.889	298.8	353 24 19.8	173 24 36.7	Black Point	5123.1	3.709535
Brown, 1917	41 35 12.100	373.3	1 49 19.7	181 49 15.2	Windmill 3	4891.6	3.689449
	71 11 43.752	1013.4	24 31 23.9	204 30 01.8	Black Point	6912.5	3.839638
			70 51 17.3	250 49 38.3	McCurrys Point.	3657.3	3.563165
Power, 1917	41 36 36.511	1126.4	303 31 14.9	123 33 07.5	Brown	4713.7	3.673361
	71 14 33.407	773.5	352 52 41.5	172 52 55.1	McCurrys Point.	3834.0	3.583655
			203 21 53.1	23 22 42.8	Anthony	4363.7	3.639851
Tiverton, 1917	41 37 40.572	1251.7	348 31 48.9	168 32 15.5	Brown	4673.8	3.669669
	71 12 23.875	552.7	23 36 04.0	203 34 51.6	McCurrys Point.	6308.0	3.799892
			56 37 32.4	236 36 06.4	Power	3591.5	3.555280
			148 01 17.0	328 00 40.7	Anthony	2392.5	3.378843
Hummock, 1917	41 38 14.179	437.4	171 13 38.5	351 13 34.2	Anthony	1004.2	3.001829
	71 13 12.008	277.9	312 56 12.4	132 56 44.4	Tiverton	1521.9	3.182391
			32 01 42.6	212 00 48.6	Power	3553.9	3.550701
Bullocks Neck 3, 1897	41 44 42.082	1298.3	322 42 29.7	142 43 18.0	Nayatt Lighthouse.	2769.2	3.442358
	71 21 34.446	795.9	81 40 47.3	261 39 58.9	Gaspe (U.S.E.)	1697.4	3.229794
			152 40 43.1	332 39 23.9	Fort Independence 2.	5986.3	3.777159
Sabine Point 2, 1897	41 45 54.280	1674.6	340 06 01.7	160 06 24.9	BullocksNeck3	2368.8	3.374534
	71 22 09.341	215.8	19 26 51.2	199 26 26.0	Gaspe(U.S.E.)	2622.8	3.418773
			147 51 33.9	327 50 37.9	Fort Independence 2.	3650.2	3.562320
Cranberry, 1897	41 47 28.536	880.4	350 33 57.6	170 34 11.5	SabinePoint 2.	2947.9	3.469507
	71 22 30.259	698.7	4 08 39.1	184 08 27.8	Gaspe(U.S.E.)	5395.4	3.732021
			97 08 15.4	277 07 33.3	Fort Independence 2.	1470.3	3.167415

Tertiary stations, Narragansett Bay and eastward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Principal points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Auxiliary, 1897	41 47 52.216	1611.0	295 57 07.8	115 57 51.1	Cranberry	1669.1	3.222481
	71 23 35.257	814.0	355 38 16.3	175 38 17.5	Fort Independence 2.	549.6	2.740074
Fort, 1897	41 28 40.152	1238.7	101 16 59.5	281 16 35.0	Dumplin 2	874.2	2.941593
	71 21 30.885	716.6	227 38 56.7	47 40 51.2	Tammany Scaffold.	5423.8	3.734303
Boulder (U. S. E.), 1909.	41 31 29.332	904.9	161 23 15.6	341 23 11.0	Barbers Heights.	505.9	2.704023
	71 25 21.136	490.0	249 55 55.0	69 57 44.4	Hull	4069.8	3.609568
Fox Island (U. S. E.), 1909.	41 33 13.904	429.0	297 23 00.5	117 24 41.6	Hull	3978.4	3.599703
	71 25 08.622	199.8	5 08 21.4	185 08 13.1	Boulder (U.S. E.).	3239.2	3.510433
Green (U. S. E.), 1909	41 32 26.235	809.4	230 07 01.5	50 07 51.7	Fox Island (U. S. E.).	2293.9	3.360569
	71 26 24.575	569.6	273 52 12.3	93 54 43.6	Hull	5305.3	3.724712
			15 51 08.2	195 50 28.6	McSparran 3	5079.8	3.705849
Hammond (U.S. E.), 1912.	41 30 54.423	1679.0	202 14 38.4	22 15 11.5	Green (U.S.E.)	3060.3	3.485766
	71 27 14.554	337.5	6 20 32.1	186 20 25.5	McSparran 3	2067.0	3.315331
Brown (U. S. E.), 1912.	41 31 50.051	1544.1	28 43 42.9	208 42 43.7	McSparran 3	4299.4	3.633410
	71 25 55.304	1282.1	46 57 44.9	226 56 52.4	Hammond (U. S. E.).	2514.3	3.400414
			148 42 32.8	328 42 13.4	Green (U.S.E.)	1306.4	3.116060
Hazard (U. S. E.), 1912.	41 31 25.186	777.0	315 33 11.0	135 35 28.8	Dumplin 2	6890.0	3.838222
	71 25 35.785	829.7	39 59 42.1	219 58 30.2	McSparran 3	3919.7	3.593258
			67 29 55.8	247 28 40.6	Hammond (U. S. E.).	2478.9	3.394266
			149 28 19.5	329 27 56.8	Brown (U. S. E.).	890.5	2.949624
Railroad (U. S. E.), 1912.	41 32 33.879	1045.2	214 24 57.9	34 25 22.1	Fox Island (U. S. E.).	1496.9	3.175184
	71 25 45.128	1046.0	277 43 56.3	97 46 01.6	Hull	4419.0	3.645323
Bissel (U. S. E.), 1912.	41 32 52.013	1604.7	234 42 26.6	54 42 53.9	Fox Island (U. S. E.).	1169.0	3.067831
	71 25 49.795	1154.1	349 03 21.1	169 03 24.2	Railroad (U. S. E.).	569.8	2.755727
Cedar (U. S. E.), 1912.	41 32 47.341	1460.5	244 28 52.7	64 29 01.3	Bissel (U.S.E.)	334.6	2.524500
	71 26 02.823	65.4	315 21 28.7	135 21 40.4	Railroad (U. S. E.).	583.7	2.766180
Hazard Tower (U. S. E.), 1912.	41 24 55.746	1719.8	154 56 48.0	334 56 03.7	Meetinghouse Hill 2.	3658.6	3.563310
	71 27 26.813	622.7	180 21 22.2	0 21 23.8	McSparran 3	9011.2	3.954782
			226 11 50.3	46 15 21.5	Dumplin 2	10254.2	4.010903
			86 50 28.3	266 46 19.4	Broad Hill	8746.4	3.941831
Updike (U. S. E.), 1912.	41 27 16.962	523.3	13 16 57.9	193 16 28.0	Hazard Tower (U. S. E.).	4476.2	3.650908
	71 26 42.530	987.1	67 59 17.0	247 58 03.4	Meetinghouse Hill 2.	2779.9	3.444023
			168 12 53.0	348 12 25.3	McSparran 3	4754.8	3.677130
Dillon (U. S. E.), 1912.	41 26 13.001	401.1	328 01 01.0	148 01 43.4	Hazard Tower (U. S. E.).	2809.6	3.448650
	71 28 30.892	717.2	85 17 08.9	265 15 43.3	Sugarloaf Hill.	3008.2	3.478313
			176 12 14.3	356 12 12.4	Meetinghouse Hill 2	932.9	2.969844
			231 52 40.3	51 53 52.0	Updike (U. S. E.).	3197.0	3.504747
Narrow River east (U. S. E.), 1912.	41 26 27.883	860.2	28 01 55.4	208 01 12.3	Hazard Tower (U. S. E.).	3220.0	3.507862
	71 26 21.652	502.7	98 46 13.2	278 44 45.8	Meetinghouse Hill 2.	3098.1	3.491095

Tertiary station, Narragansett Bay and eastward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Principal points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Narrow River west (U. S. E.), 1912.	41 26 21.139 71 26 57.622	652.2 1337.8	14 25 53.0	194 25 33.7	Hazard Tower (U.S.E.).	2720.2	3.434597
			106 59 01.7	286 57 58.1	Meetinghouse Hill 2.	2328.4	3.367062
			256 00 21.9	76 00 45.7	Narrow River east (U.S.E.)	860.6	2.934800
Johnson (U. S. E.), 1912.	41 29 42.668 71 26 18.800	1316.4 436.1	6 58 58.3	186 58 52.4	Updike (U. S. E.).	4528.6	3.655967
			95 59 07.5	275 58 24.0	McSparran 3..	1529.9	3.184663
			149 42 53.7	329 42 16.8	Hammond (U. S. E.).	2563.7	3.408861
Monroe (U. S. E.), 1912.	41 29 05.942 71 26 27.597	183.3 640.3	5 52 56.3	185 52 56.2	Updike (U. S. E.).	3379.8	3.528893
			134 27 04.9	314 26 27.2	McSparran 3..	1845.7	3.266151
			190 12 32.5	10 12 38.3	Johnson (U. S. E.).	1151.3	3.061173
Monroe 3 (U. S. E.), 1912.	41 28 43.938 71 26 52.346	1355.5 1214.5	355 08 31.5	175 08 47.8	Updike (U. S. E.).	2692.9	3.430216
			159 20 10.2	339 19 48.9	McSparran 3..	2106.8	3.323623
			220 13 27.2	40 13 43.6	Monroe (U. S. E.).	889.1	2.948948
Champlin (U. S. E.), 1912.	41 29 41.696 71 26 49.606	1286.4 1150.7	267 35 41.1	87 36 01.5	Johnson (U. S. E.).	715.2	2.854426
			335 09 37.2	155 09 51.8	Monroe (U. S. E.).	1215.5	3.084747
Mitchell (U. S. E.), 1912.	41 29 21.661 71 26 51.992	668.3 1206.1	185 06 58.2	5 06 59.8	Champlin (U. S. E.).	620.6	2.792789
			229 54 32.3	49 54 54.3	Johnson (U. S. E.).	1006.4	3.002764
			310 35 30.0	130 35 46.2	Monroe (U. S. E.).	745.3	2.872325
			0 24 15.8	180 24 15.6	Monroe 3 (U. S. E.).	1163.8	3.065880
Supplementary points.							
Colt, 1913	41 40 57.059 71 17 53.033	1760.4 1226.5	62 13 48.6	242 11 28.0	Patience	5531.2	3.742816
			134 07 08.2	314 05 14.3	Conimicut lighthouse.	5507.9	3.740983
			198 53 59.8	18 54 11.9	Kid	1302.8	3.114874
Rum, 1913	41 42 22.771 71 18 09.151	702.5 211.6	330 37 28.0	150 37 50.9	Kid	1620.1	3.209540
			40 53 15.6	220 51 05.7	Patience	6907.0	3.839292
			72 18 31.1	252 16 04.1	Rocky Point (U. S. E.).	5364.8	3.729551
			104 55 48.8	284 53 37.4	Conimicut (U. S. E.).	4725.2	3.674417
Gray water tank, center pole, 1913.	41 43 26.349 71 18 35.807	812.9 827.6	28 31 31.2	208 29 38.9	Patience	8176.0	3.912543
			51 22 02.9	231 19 53.6	Rocky Point (U. S. E.).	5753.7	3.759949
			79 19 32.3	259 17 38.6	Conimicut (U.S.E.)	4019.0	3.604116
Black water tank, windmill on top, 1913.	41 43 40.347 71 19 11.683	1244.8 270.0	21 58 59.6	201 57 31.2	Patience	8212.9	3.914498
			42 19 22.0	222 17 36.6	Rocky Point (U. S. E.).	5443.2	3.735858
			69 20 11.8	249 18 42.0	Conimicut (U. S. E.).	3334.6	3.523049
Ballou flagstaff, 1913.	41 44 19.944 71 20 49.192	615.3 1136.8	19 51 02.1	199 50 37.2	Conimicut (U. S. E.).	2550.6	3.406634
			75 13 18.6	255 12 02.2	Green (U. S. E)	2742.7	3.438181
			99 07 24.6	279 06 06.1	Gaspe (U.S.E.)	2760.2	3.440940
Pile, 1913	41 44 26.902 71 20 55.843	830.0 1290.4	15 14 42.2	195 14 21.7	Conimicut (U. S. E.).	2709.0	3.432807
			69 53 54.9	249 52 42.9	Green (U.S.E.)	2660.3	3.424932
			94 57 19.4	274 56 05.3	Gaspe (U.S.E.)	2581.2	3.411825

Tertiary station, Narragansett Bay and eastward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Supplementary points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Water tank, gallery top, 1913	41 43 13.892	428.6	169 14 12.5	349 14 05.1	Green (U.S.E.)	1361.7	3.134090
	71 22 32.938	761.4	172 27 05.3	352 26 55.8	Gaspe (U.S.E.)	2496.7	3.397358
			260 17 39.9	80 19 07.1	Nayatt lighthouse.	3073.8	3.487670
Water tank, finial, 1913.	41 43 06.923	213.6	159 49 59.6	339 49 43.1	Green (U.S.E).	1654.2	3.218591
	71 22 19.266	445.4	166 32 18.2	346 31 59.6	Gaspe (U.S.E.)	2766.0	3.441858
			254 52 59.8	74 54 17.9	Nayatt lighthouse.	2811.0	3.448862
Oak, 1913	41 40 56.999	1758.5	35 28 24.1	215 27 37.5	Sandy Point..	2791.6	3.445852
	71 23 27.110	627.0	66 31 46.2	246 30 22.0	Sally	3194.5	3.504397
			95 13 43.5	275 12 42.1	Butt	2144.8	3.331379
Pat, 1913	41 39 06.969	215.0	3 25 19.1	183 25 09.8	Hope Island..	5460.1	3.737202
	71 21 45.551	1054.0	49 39 18.2	229 37 39.9	Call	4495.9	3.652812
			105 46 59.8	285 45 05.8	Sandy Point..	4125.3	3.615452
Der, 1913	41 37 56.287	1736.5	24 07 05.3	204 06 23.3	Hope Island...	3582.3	3.554166
	71 20 56.412	1305.7	80 55 17.0	260 53 06.0	Call	4622.0	3.664827
			122 53 54.6	302 51 27.9	Sandy Point..	6081.9	3.784041
Pojac 2, 1913	41 39 03.915	120.8	289 54 42.6	109 57 17.5	Pine Hill	5741.4	3.759019
	71 24 29.026	671.7	327 08 10.1	147 09 49.3	Hope Island..	6375.7	3.804528
			352 45 45.3	172 45 55.5	Call	2839.8	3.453286
Fence, 1913	41 38 12.983	400.5	274 02 43.6	94 05 19.4	Pine Hill	5443.4	3.735873
	71 24 30.396	703.5	317 18 09.6	137 19 49.7	Hope Island..	5148.7	3.711696
			342 38 25.1	162 38 36.2	Call	1305.3	3.115707
Windmill, 1913 [1]	41 40 27.60	851.5	336 32 37	156 32 58	Bell	1702.7	3.231148
	71 22 28.54	660.2	318 26 33	138 27 15	Patience	2231.4	3.348582
Flagstaff, 1913	41 40 20.880	644.2	304 47 15.8	124 48 11.8	Bell	2374.0	3.375486
	71 23 23.511	543.9	55 45 53.8	235 45 04.8	Sandy Point..	2060.3	3.313923
			120 33 05.0	300 32 01.2	Butt	2576.8	3.411081
House, red cupola, 1913.	41 40 31.613	975.3	48 12 47.2	228 11 59.2	Sandy Point..	2236.4	3.349547
	71 23 25.059	579.6	80 40 19.0	260 38 53.4	Sally	3017.5	3.479649
			114 08 38.0	294 07 35.2	Butt	2392.6	3.378863
Oakland Beach, flagstaff, 1913.	41 41 05.769	178.0	18 39 04.4	198 38 39.7	Sandy Point..	2685.2	3.428969
	71 24 00.017	0.4	54 34 09.1	234 33 06.8	Sally	2661.9	3.425188
			70 07 18.1	250 05 33.2	Chip	3732.7	3.572020
White house, south gable, 1913.	41 41 11.173	344.7	284 29 32.8	104 29 59.7	Butt	967.4	2.985587
	71 25 39.953	924.0	355 13 27.6	175 13 31.7	Sally	1716.1	3.234547
			39 50 12.1	219 49 37.6	Chip	1871.0	3.272067
Cedar, 1913	41 41 16.581	511.6	322 56 25.9	142 57 06.6	Sally	2351.9	3.371421
	71 26 35.048	810.5	355 10 35.4	175 10 41.0	Long	2335.1	3.368302
			357 17 25.2	177 17 27.3	Chip	1605.4	3.205582
East Greenwich Lutheran church spire, 1913.	41 39 49.233	1518.9	225 40 19.0	45 40 51.1	Chip	1561.7	3.193607
	71 27 20.063	464.2	234 53 14.6	54 54 48.1	Butt	3975.4	3.599376
			253 26 16.4	73 26 52.0	Long	1291.3	3.111035
Shed, white top, 1913 [1]	41 44 05.25	162.0	35 53 28	215 52 48	Conimicut (U. S. E.)	2401.6	3.380496
	71 20 25.75	595.1					
			85 35 39	265 34 07	Green (U.S.E)	3203.2	3.505578
Red windmill, 1913 [1].	41 39 48.45	1494.7	125 50 13	305 49 28	Chip	1905.6	3.280021
	71 25 24.98	577.9	194 20 08	14 20 25	Butt	2384.4	3.377377
E. Greenwich, brick chimney, 1913 [1]	41 39 51.96	1603.0	198 20 27	18 20 36	Chip	1061.1	3.025751
	71 26 46.20	1068.8	237 59 40	57 59 53	Long	535.8	2.729015
E. Greenwich, yellow chimney, 1913 [1]	41 39 52.02	1604.9	207 41 09	27 41 24	Chip	1135.2	3.055077
	71 26 54.57	1262.5	246 28 38	66 28 57	Long	706.7	2.849215
E. Greenwich courthouse, 1913.[1]	41 39 43.83	1352.2	229 26 23	49 27 45	Butt	3772.4	3.576621
	71 27 03.38	78.2	244 35 16	64 36 15	Sally	2294.7	3.360729

[1] No check on this position.

Tertiary stations, Narragansett Bay and eastward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Supplementary points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Apponaug courthouse cupola, 1913.	41 41 57.191	1764.5	315 28 53.6	135 30 50.2	Sandy Point..	5791.4	3.762785
	71 27 32.642	754.7	318 41 41.1	138 43 00.1	Sally.....	4165.8	3.619694
			336 52 24.3	156 53 08.2	Long.....	3892.3	3.590207
Apponaug, yellow chimney, 1913.	41 41 59.294	1829.3	314 25 29.6	134 27 32.5	Sandy Point..	5992.0	3.777570
	71 27 42.094	973.3	317 05 54.9	137 07 20.2	Sally.....	4360.5	3.639535
			330 53 11.6	150 53 58.3	Chip.....	3343.7	3.524221
Prudence Island lighthouse, 1912.	41 36 21.350	658.7	214 57 11.2	34 59 42.9	Mt. Hope.....	9216.1	3.964549
	71 18 14.463	334.9	237 27 50.0	57 28 59.4	Cop.....	2865.7	3.457235
			350 23 07.3	170 23 19.9	Dyer Island...	2631.9	3.420272
			220 39 35.1	40 40 47.7	Hog Island Shoal lighthouse.	3875.9	3.588372
			204 16 18.5	24 17 14.1	Hog Island 3..	4708.9	3.672916
Flagstaff, 1913.....	41 36 13.290	410.0	41 51 16.7	221 50 16.7	Dyer Island...	3149.7	3.498267
	71 16 24.761	573.4	58 38 54.9	238 37 11.6	Bat.....	4229.9	3.626325
			176 02 29.0	356 02 25.8	Cop.....	1793.8	3.253764
Brad, 1913 [1].....	41 35 18.52	571.4	16 26 54	196 26 37	Carr.....	1996.0	3.300162
	71 17 16.74	387.7	78 00 26	257 59 17	Bat.....	2462.0	3.391296
Shanty, 1913.....	41 39 20.517	633.0	19 08 41.2	199 08 13.1	Nag.....	2981.8	3.474479
	71 18 17.030	394.0	52 27 15.4	232 25 43.2	Pine Hill.....	4051.3	3.607597
			97 14 43.5	277 13 14.3	Prudence (U. S. E.).	3129.4	3.495457
Potters Cove, windmill, 1913.	41 38 19.838	612.0	186 29 20.5	6 29 27.9	Prudence (U. S. E.).	2280.6	3.358055
	71 20 42.343	980.0	220 17 19.4	40 18 51.3	Squash.....	4949.1	3.694523
			345 47 28.4	165 47 32.8	Pine Hill.....	616.4	2.789869
White Rocks beacon, 1912.	41 34 26.835	827.9	223 14 14.4	43 17 12.2	Pine Hill.....	9050.6	3.956675
	71 25 03.660	84.8	233 09 20.9	53 11 23.0	Hope Island ..	5325.4	3.726351
			320 02 52.0	140 04 30.1	Hull.....	5322.1	3.726081
Poorhouse barn cupola, 1912.	41 35 23.337	720.0	230 14 19.9	50 17 07.1	Pine Hill.....	7583.1	3.879848
	71 24 47.651	1103.7	249 33 44.1	69 35 35.6	Hope Island ..	4152.4	3.618303
			332 22 58.3	152 24 25.8	Hull.....	6571.9	3.817690
Halfway Rocks beacon, 1912.[1]	41 33 49.83	1537.3	51 14 34	231 12 49	Hull.....	4693.1	3.671460
	71 19 58.35	1352.0	147 03 35	327 02 14	Hope Island ..	5164.6	3.713036
Round tower, 1912 [1]..	41 34 14.56	449.2	120 40 19	300 38 43	Quonsett 4....	3879.3	3.588753
	71 21 59.49	1378.3	179 57 03	359 57 03	Hope Island ..	3570.9	3.552773
Wickford Episcopal church spire, 1912.[1]	41 34 18.30	564.6	243 04 11	63 05 56	Quonsett 4....	4114.7	3.614338
	71 27 01.92	44.5	301 46 22	121 49 19	Hull.....	7244.7	3.860021
Hamilton power station chimney, 1912.	41 33 04.768	147.1	221 32 19.1	41 36 11.0	Pine Hill.....	12193.9	4.086142
	71 26 25.152	582.9	227 02 13.1	47 05 09.3	Hope Island ..	8402.5	3.924408
			286 15 04.4	106 17 36.6	Hull.....	5527.5	3.742525
Owen Wister water tower, 1912.	41 31 52.651	1624.3	194 29 46.1	14 30 33.1	Quonsett 4....	6565.3	3.817255
	71 25 34.495	799.7	211 20 40.2	31 23 58.5	Pine Hill.....	13290.6	4.123545
			260 41 30.2	80 43 28.8	Hull.....	4187.5	3.621953
Jamestown standpipe, 1912.	41 29 28.222	870.6	315 09 27.3	135 10 55.7	Telegraph 2...	4391.0	3.642563
	71 22 25.030	580.6	59 15 49.5	239 11 45.4	Meetinghouse Hill 2.	9952.7	3.997942
			95 00 26.0	274 57 07.8	McSparran 3..	6970.5	3.843262
Narragansett church, 1912.	41 29 33.580	1036.0	38 30 03.7	218 28 04.4	Meetinghouse Hill 2.	6715.9	3.827105
	71 25 33.448	775.9	99 42 25.3	279 41 11.9	McSparran 3..	2610.9	3.416788
			202 01 26.0	22 03 47.5	Hope Island...	13204.4	4.120720
Tower Hill Hotel, 1912 [1]	41 26 29.99	925.2	218 12 47	38 16 47	Hull.....	13535.7	4.131482
	71 28 37.44	869.2	237 55 41	57 59 00	Hill.....	8228.3	3.915308
Hazard Tower, 1912 .	41 24 55.708	1718.6	154 57 20.5	334 56 36.3	Meetinghouse Hill 2.	3659.6	3.563436
	71 27 26.816	622.8	180 21 23.6	0 21 25.3	McSparran 3..	9012.4	3.954840
			206 26 46.7	26 29 59.3	Hull.....	15124.9	4.179692
			216 14 38.6	36 17 10.8	Hill.....	9021.9	3.955300

[1] No check on this position.

Tertiary stations, Narragansett Bay and eastward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Supplementary points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Newport, Davis house cupola, 1912.	41 27 01.347 71 21 18.874	41.6 438.1	86 51 35.2	266 46 47.4	Meetinghouse Hill 2.	10105.6	4.004562
			121 13 54.8	301 09 52.8	McSparran 3..	9915.4	3.996311
			136 42 15.0	316 40 43.6	Hill.....	4670.1	3.669323
Newport, Lippet's house tower, 1912.	41 27 06.293 71 18 42.466	194.1 985.7	87 04 43.3	266 58 11.9	Meetinghouse Hill 2.	13739.1	4.137958
			112 24 56.2	292 19 10.6	McSparran 3..	13095.9	4.117135
			115 26 06.1	295 22 51.1	Hill.....	7564.6	3.878787
North wireless mast, 1912.	41 29 18.503 71 19 42.201	570.8 979.0	13 37 52.2	193 37 32.7	Telegraph 2...	2895.8	3.461770
			73 20 10.5	253 18 34.0	Dumplin 2....	3527.0	3.547404
			94 52 00.4	274 46 54.2	McSparran 3..	10759.5	4.031794
South wireless mast, 1912.	41 29 13.254 71 19 41.769	408.9 969.0	75 55 42.4	255 54 05.7	Dumplin 2....	3493.7	3.543290
			95 43 10.4	275 38 04.0	McSparran 3..	10784.5	4.032798
			144 08 19.8	324 06 24.2	Hull.....	6903.3	3.839055
Newport power station chimney, 1912.	41 28 50.961 71 18 57.895	1572.1 1343.2	73 36 43.5	253 30 22.3	Meetinghouse Hill 2.	13928.9	4.143917
			87 54 22.4	267 52 16.7	Dumplin 2....	4409.8	3.644418
			98 32 22.9	278 26 47.5	McSparran 3..	11880.2	4.074822
Fort Adams lighthouse, 1912.[1]	41 28 54.36 71 20 15.66	1677.0 363.3	84 08 42	264 07 28	Dumplin 2....	2616.3	3.417680
			173 27 41	353 27 36	Rose Island 2.	1580.9	3.198891
Spindle Rock beacon, 1912.	41 39 25.040 71 23 36.173	772.5 836.9	301 59 31.1	122 01 31.0	Pine Hill.....	4922.4	3.692179
			14 00 48.9	194 00 24.1	Calf.....	3575.2	3.553305
			111 46 56.3	291 46 15.8	Sandy Point..	1518.8	3.181500
Patience Island water tower, 1912.	41 39 27.514 71 21 32.992	818.8 763.3	46 21 54.1	226 20 07.4	Calf.....	5136.2	3.710638
			96 32 22.9	276 30 20.5	Sandy Point..	4288.2	3.632275
			259 31 02.9	79 35 46.8	Mt. Hope 2....	10042.5	4.001843
Castle Island beacon, 1843.	41 39 13.969 71 17 12.157	431.0 281.3	64 19 29.8	244 17 14.6	Pine Hill.....	5230.1	3.718511
			239 52 37.1	59 54 27.2	Mt. Hope.....	4438.1	3.647193
			341 34 40.4	161 35 56.0	Quaker.....	8343.3	3.921336
Buttonwood water tower, 1912.	41 41 05.426 71 24 45.414	167.4 1050.3	314 37 57.0	134 40 42.9	Pine Hill.....	8118.7	3.909487
			353 35 40.2	173 36 01.4	Calf.....	6607.2	3.820015
			355 40 29.7	175 40 35.2	Sandy Point..	2540.8	3.404978
Aldrich's tower, 1912.	41 41 01.062 71 22 41.277	32.8 954.7	275 16 13.9	95 21 43.1	Mt. Hope 2....	11503.1	4.060816
			332 27 59.5	152 29 22.9	Pine Hill.....	6282.5	3.798133
			48 10 38.9	228 09 21.9	Sandy Point..	3596.8	3.555922
Rocky Point observatory, 1912.	41 41 19.707 71 22 01.812	608.0 41.9	278 48 25.9	98 53 28.9	Mt. Hope 2....	10667.4	4.028057
			359 41 45.2	179 41 46.7	Hope Island...	9545.7	3.979807
			23 31 35.8	203 30 08.3	Calf.....	7641.1	3.883154
Bristol, white Methodist church spire, 1843.	41 40 15.373 71 16 31.869	474.3 737.2	350 09 00.5	170 09 49.2	Quaker.....	9957.2	3.998136
			53 37 11.9	233 34 29.8	Pine Hill.....	7013.1	3.845911
			85 00 29.8	264 55 07.3	Sandy Point..	11269.8	4.051918
Bristol, square stone church tower, 1912.	41 40 17.417 71 16 16.937	537.3 391.8	46 09 53.6	226 06 05.8	Hope Island..	11001.4	4.041448
			65 17 38.6	245 12 21.8	Calf.....	12145.4	4.084412
			131 18 54.2	311 14 34.6	Gaspe (U.S.E.)	12004.3	4.079336
Whale Rock lighthouse, 1888.	41 26 40.130 71 25 26.859	1238.0 623.5	91 15 30.8	271 13 27.2	Meetinghouse Hill 2.	4334.9	3.636976
			212 11 02.7	32 12 15.5	Hill.....	4789.2	3.680259
			224 48 46.7	44 49 44.4	Net.....	2873.1	3.458346
Windmill, 1912[1].....	41 27 48.34 71 25 55.91	1491.3 1297.5	238 50 57	58 52 29	Hill.....	3768.3	3.576140
			271 23 50	91 25 07	Net.....	2699.9	3.431351
Dutch Island, flag, 1912.[1]	41 30 13.39 71 23 59.87	413.1 1388.6	348 05 27	168 05 42	Hill.....	2581.7	3.411914
			359 55 17	179 55 17	Net.....	4541.1	3.657162
North Point house chimney, 1912.	41 40 00.079 71 20 43.251	2.4 1000.6	258 02 11.2	78 03 43.8	Squash.....	3292.8	3.517563
			341 21 49.6	161 21 57.7	Prudence (U.S.E.).	872.3	2.940659
			49 20 43.8	229 20 16.3	Patience.....	1259.8	3.100309

[1] No check on this position.

Tertiary stations, Narragansett Bay and eastward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Supplementary points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Bight, 1913	41 37 31.217	963.1	53 06 46.5	233 05 11.1	Hope Island	4157.6	3.618841
	71 19 36.027	834.0	90 24 22.8	270 21 18.4	Calf	6425.1	3.807878
			123 07 01.7	303 06 22.0	Pine Hill	1652.0	3.218021
Coal, 1915	41 36 54.689	1687.2	33 09 00.4	213 07 52.8	Dyer Island	4327.5	3.636235
	71 16 13.329	308.6	45 46 56.8	225 42 43.0	Hull	12384.4	4.092876
			48 06 26.1	228 04 35.2	Bat	5208.3	3.716699
Blackstack J, 1915[1]	41 36 54.94	1695.0	33 43 51	213 42 42	Dyer Island	4365.9	3.640073
	71 16 10.83	250.7	48 27 57	228 26 05	Bat	5256.7	3.720717
Brad, (1915)	41 35 24.399	752.7	55 14 01.1	235 09 59.9	Hull	10261.9	4.011227
	71 16 32.565	754.3	66 26 15.0	246 25 20.0	Dyer Island	2095.5	3.321297
			78 35 28.9	258 33 50.6	Bat	3500.7	3.544149
Lo, 1915	41 33 59.597	1838.6	65 38 54.9	245 35 30.3	Hull	7850.0	3.894869
	71 17 27.713	642.1	131 45 39.3	311 44 37.6	Bat	2887.7	3.460554
			160 06 39.9	340 06 21.5	Dyer Island	1891.1	3.276716
Wall, 1913	41 39 47.122	1453.8	27 42 28	207 42 26	Sandy Point	133.07	2.12408
	71 24 34.458	797.2					
Bayview Hotel flag, 1912.	41 45 54.207	1672.4	26 05 14.4	206 04 39.5	Gaspe (U. S. E.).	2751.2	3.439526
	71 21 54.776	1265.3	143 37 36.5	323 36 30.8	Fort Independence 2.	3841.6	3.584510
			162 51 49.5	342 51 18.7	Kettle Point	3621.5	3.558890
Pomham clubhouse, 1912.	41 46 40.741	1256.9	17 16 23.9	197 15 48.9	Gaspe (U. S. E.).	4091.1	3.611841
	71 21 54.562	1260.1	125 58 40.8	305 57 35.0	Fort Independence 2.	2821.4	3.450459
			152 06 17.7	332 05 46.8	Kettle Point	2291.3	3.360088
Providence capitol dome, 1912.	41 49 51.486	1588.4	321 09 14.7	141 10 44.4	Kettle Point	4955.1	3.695054
	71 24 55.608	1283.2	335 49 57.2	155 50 52.0	Fort Independence 2.	4633.7	3.665925
			343 07 56.5	163 09 22.1	Gaspe (U. S. E.).	10231.2	4.009925
Providence, Christian Science Church, 1912.	41 49 45.112	1391.8	328 19 44.1	148 20 49.3	Kettle Point	4303.8	3.633855
	71 24 18.866	435.4	345 25 02.8	165 25 33.1	Fort Independence 2.	4165.2	3.619641
			347 32 31.5	167 33 32.6	Gaspe (U. S. E.).	9826.0	3.992377
West Barrington water tower, 1912.	41 44 50.642	1562.4	13 49 59.4	193 49 35.7	Conimicut (U. S. E.).	3446.0	3.537319
	71 20 51.015	1178.8	79 14 59.3	259 13 42.0	Gaspe (U. S. E.).	2731.1	3.436333
			143 25 37.2	323 23 49.1	Fort Independence 2.	6294.2	3.798941
East Providence water tower, 1912.	41 48 12.095	373.2	359 11 37.3	179 11 41.2	Conimicut (U. S. E.).	9562.3	3.980564
	71 21 32.479	749.8	14 23 12.3	194 22 22.6	Gaspe (U. S. E.).	6942.7	3.841528
			67 25 53.6	247 24 33.1	Fort Independence 2.	3024.6	3.480673
Pawtuxet beacon, 1912.	41 45 35.575	1097.6	357 16 25.0	177 16 27.6	Gaspe (U. S. E.).	1898.3	3.278372
	71 22 51.040	1179.1	4 09 07.9	184 09 04.6	Stevens	1590.0	3.201400
			165 03 11.3	345 02 43.1	Fort Independence 2.	3796.1	3.579340
Warren water tower, 1912.[1]	41 42 16.97	523.6	78 15 09	258 11 48	Rocky Point (U. S. E.).	7120.2	3.852493
	71 16 48.72	1126.4	114 47 31	294 45 09	Nayatt lighthouse.	5426.5	3.734516
Tank, 1915	41 32 21.595	666.2	224 55 12.3	44 57 33.6	Bat	6987.9	3.844346
	71 22 33.718	781.6	233 17 48.8	53 20 53.4	Dyer Island	8038.9	3.905195
			15 01 08.2	195 01 06.6	Hull	224.6	2.351411

[1] No check on this position.

Tertiary stations, Narragansett Bay and eastward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Supplementary points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Mill, 1915	41 30 56.232	1734.8	175 46 59.1	355 46 54.0	Hull	2423.1	3.384378
	71 22 28.542	661.8	212 24 58.9	32 27 16.7	Bat	8981.0	3.953323
			220 22 39.6	40 25 40.7	Dyer Island	9763.8	3.989620
Chimney B, 1915	41 34 14.309	441.4	256 46 17.4	76 48 59.1	Dyer Island	5797.1	3.763209
	71 21 59.101	1369.3	269 20 13.0	89 23 04.2	Carr	5977.3	3.776502
			335 59 10.6	156 00 01.8	Gould Island	4391.2	3.642582
Cog, 1915	41 31 15.300	472.0	130 50 33.3	310 49 43.3	Gould Island	2311.1	3.363823
	71 19 26.593	616.6	184 54 09.6	4 54 26.8	Bat	7017.3	3.846171
			197 07 49.3	17 08 49.8	Dyer Island	7165.1	3.855222
Bull, 1915	41 28 48.152	1485.5	164 54 43.0	344 53 53.9	Hull	6595.5	3.819247
	71 21 22.166	514.3	195 51 45.7	15 53 19.5	Bat	11988.5	4.078765
			202 48 07.9	22 50 25.0	Dyer Island	12353.6	4.091793
Silo E, 1915	41 33 20.892	644.5	146 36 36.8	326 35 37.9	Bat	3733.5	3.572121
	71 17 32.002	741.6	169 37 42.6	349 37 27.0	Dyer Island	3021.7	3.480254
			172 58 08.5	352 58 02.4	Carr	1727.6	3.237455
Windmill D, 1915	41 32 59.994	1850.9	68 29 58.1	248 27 53.3	Gould Island	4685.6	3.670767
	71 17 33.954	786.9	151 53 29.0	331 52 31.4	Bat	4265.1	3.629927
			175 58 10.2	355 58 05.4	Carr	2365.2	3.373877
Windmill L, 1915	41 36 00.251	7.7	326 33 52.7	146 34 29.5	Dyer Island	2329.4	3.367249
	71 18 50.894	1178.6	7 11 49.5	187 11 43.0	Bat	1813.6	3.258551
			36 53 05.2	216 50 35.8	Hull	8702.7	3.939652
War College cupola, 1915.	41 30 26.889	829.6	130 26 47.5	310 24 56.0	Hull	5122.1	3.709444
	71 19 48.074	1114.9	187 22 06.7	7 22 38.1	Bat	8555.9	3.932264
			197 21 48.4	17 23 03.1	Dyer Island	8739.2	3.941470
Chimney N, 1915	41 32 36.760	1134.1	227 52 10.2	47 54 32.0	Bat	6678.7	3.824692
	71 22 34.528	800.3	236 08 29.9	56 11 35.0	Dyer Island	7783.9	3.891197
			3 17 39.7	183 17 38.6	Hull	685.9	2.836275
Water Tower C, 1915	41 33 03.748	115.6	60 54 57.4	240 51 19.6	Potters Cove, rear range.	8713.1	3.940173
	71 16 55.309	1281.8	101 29 14.8	281 26 02.4	Out	6858.1	3.836202
			141 27 38.7	321 26 21.8	Bat	4662.1	3.668583
Trial course, rear range pole at south end of, 1915	41 32 50.287	1551.4	268 42 14	88 42 17	Trial course, front range pole at south end of.	93.94	1.9729
	71 21 45.188	1047.3					
Barn M cupola, 1915.[1]	41 35 35.42	1092.7	6 34 26	186 34 22	Bat	1040.1	3.017072
	71 18 55.56	1286.8	39 32 51	219 30 25	Hull	8033.7	3.904914
Trial course, rear range pole at north end of, 1915.	41 33 47.836	1475.8	248 21 32.6	68 24 07.3	Dyer Island	5811.2	3.764265
	71 21 48.669	1127.7	261 13 15.8	81 16 00.0	Carr	5803.2	3.763664
			334 11 12.8	154 11 57.0	Gould Island	3548.5	3.550050
Rose Island front range, 1915.[1]	41 29 45.35	1399.1	270 37 45	90 37 52	Rose Island 2	231.5	2.364525
	71 20 33.40	774.7	49 23 25	229 23 24	Rose Island lighthouse.	68.7	1.836752
Bristol Ferry lighthouse, 1897.	41 38 34.435	1062.4	46 08 09.3	226 06 07.6	Prudence 3	5884.0	3.769674
	71 15 38.648	894.4	205 53 19.9	25 54 08.1	Mount Hope 2	3843.8	3.584759
			262 44 45.3	82 47 11.9	Pocasset 2	5145.3	3.711414
Mussel Bed Shoals lighthouse, 1897.	41 38 10.743	331.4	51 54 12.2	231 52 09.7	Prudence 3	5423.7	3.734298
	71 15 37.523	868.5	201 31 34.6	21 32 22.0	Mount Hope 2	4503.0	3.653505
			254 47 25.9	74 49 51.7	Pocasset 2	5262.5	3.721189
Hall, 1906	41 37 10.389	320.5	43 55 38.9	223 54 04.3	Flagg	4759.0	3.677512
	71 16 27.024	625.6	58 42 10.9	238 40 59.6	Prudence Island lighthouse.	2911.5	3.464124
			168 47 32.1	348 47 16.4	Hog Island 3	2833.5	3.452326
Smith stone boathouse cupola, 1912.	41 36 15.265	470.9	39 04 27.0	219 03 31.0	Dyer Island	3100.5	3.491425
	71 16 31.121	720.6	61 41 44.0	241 40 12.1	Flagg	3642.1	3.561348
			94 29 41.4	274 28 32.8	Prudence Island lighthouse.	2400.4	3.380283

[1] No check on this position.

Tertiary stations, Narragansett Bay and eastward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Supplementary points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Dyer, 1906	41 34 42.305	1305.2	137 57 19.4	317 56 49.9	Flagg	1535.6	3.186281
	71 18 05.162	119.6	175 58 05.0	355 57 58.8	Prudence Island lighthouse.	3063.2	3.486180
			205 56 32.2	25 56 38.6	Dyer Island	512.3	2.709541
Cheatham's house, north gable, 1917.	41 29 48.397	1493.1	46 29 45.2	226 27 43.3	Cor.	5887.8	3.769955
	71 11 49.371	1145.2	94 50 41.2	274 48 04.0	Paradise Rock 2	5521.2	3.742034
			131 44 25.7	311 44 04.6	Church Point 3	987.8	2.994652
Hotel Lyman spire, 1917.	41 27 46.463	1433.4	351 29 15.6	171 29 21.1	East Rock	1304.3	3.115385
	71 11 46.658	1082.8	86 09 07.0	266 07 03.4	Cor.	4343.3	3.637824
			127 13 44.0	307 11 05.1	Paradise Rock 2	6988.5	3.844384
			169 44 22.8	349 43 59.9	Church Point 3	4491.1	3.652356
Windmill on tank, 1917.	41 27 41.955	1294.3	356 04 09.2	176 04 11.4	East Rock	1153.6	3.062055
	71 11 41.747	968.9	88 02 17.4	268 00 10.5	Cor.	4450.1	3.648373
			127 33 50.2	307 31 08.0	Paradise Rock 2	7163.5	3.855125
			168 39 49.2	348 39 23.0	Church Point 3	4649.1	3.667368
White barn cupola, 1917.	41 27 51.184	1579.0	49 10 11.2	229 09 23.8	East Rock	2195.4	3.341512
	71 10 26.774	621.3	118 50 17.3	298 46 45.6	Paradise Rock 2	8467.3	3.927743
			148 10 27.7	328 09 12.1	Church Point 3	5030.4	3.701603
Gardner's, Dr., house south chimney, 1917.	41 27 42.173	1301.0	42 21 03.5	222 20 33.4	East Rock	1566.3	3.194877
	71 10 52.880	1227.2	88 22 31.7	268 19 52.5	Cor.	5583.9	3.746935
			155 47 02.5	335 46 04.0	Church Point 3	4991.1	3.698194
Golf club flagpole, 1917.[1]	41 28 10.40	320.8	119 50 09	299 47 15	Paradise Rock 2	7014.6	3.846003
	71 11 24.22	562.0	160 15 58	340 15 20	Church Point 3	3910.5	3.592229
Sachuset Neck, chimney on shack, 1917.	41 28 59.371	1831.6	213 10 44.6	33 12 30.7	Graphite	6784.9	3.831545
	71 14 54.544	1265.4	238 36 29.6	58 38 11.2	Church Point 3	4167.7	3.619901
			359 23 33.4	179 23 34.2	Cor.	2542.1	3.405201
North gable, south end of long shack, 1917.	41 28 47.431	1463.2	144 59 36.7	324 58 49.8	Paradise Rock 2	2863.2	3.456849
	71 14 35.751	829.5	208 27 28.8	28 29 02.5	Graphite	6877.9	3.837458
			230 52 39.7	50 54 08.9	Church Point 3	4024.0	3.604658
North silo, 1917[1]	41 28 50.35	1553.3	145 39 29	325 38 45	Paradise Rock 2	2731.1	3.436337
	71 14 40.14	931.3	232 46 36	52 48 08	Church Point 3	4048.4	3.607280
Rope's barn, north cupola, 1917.	41 30 11.990	369.9	40 40 03.7	220 38 06.4	Cor.	6303.4	3.799577
	71 11 56.386	1307.8	83 01 30.9	263 01 14.4	Church Point 3	578.6	2.762381
			139 03 24.3	319 02 10.6	Black Point	3931.3	3.594537
			181 48 00.3	1 48 04.2	Windmill 3	4371.7	3.640650
Square yellow house, cupola, 1917.	41 30 50.581	1560.5	234 34 41.5	54 36 11.9	Graphite	3877.9	3.588592
	71 14 30.689	711.6	292 45 22.1	112 46 48.0	Church Point 3	3258.0	3.512954
			50 26 14.3	230 25 24.1	Paradise Rock 2	2282.9	3.358482
Rectangular barn, weather vane, 1917.	41 30 21.752	671.1	65 02 27.3	245 01 52.7	Paradise Rock 2	1338.3	3.126549
	71 14 54.256	1258.3	229 45 16.1	49 47 02.1	Graphite	4855.9	3.686271
			275 57 27.9	95 59 09.4	Church Point 3	3570.3	3.552706
Scherer's house, north chimney, 1917.	41 31 02.890	89.2	28 37 32.6	208 37 07.0	Church Point 3	1869.0	3.271608
	71 11 42.542	986.5	115 46 50.7	295 45 27.9	Black Point	3217.4	3.507509
			158 26 16.5	338 25 55.4	Graphite	2007.7	3.302691
Norman's house, east chimney, 1917.	41 31 39.192	1209.1	164 29 24.7	344 29 22.5	Black Point	2893.7	3.461457
	71 13 44.173	1024.1	237 29 23.9	57 30 39.3	Windmill 3	3125.5	3.494913
			325 06 00.8	145 06 55.8	Church Point 3	3365.6	3.527058
Brown water tank, 1917.[1]	41 31 38.81	1197.3	253 32 39	73 33 53	Graphite	2680.9	3.428276
	71 14 05.28	122.4	318 41 34	138 42 43	Church Point 3	3658.7	3.563328
Flagpole, 1917[1]	41 31 39.16	1208.1	250 10 38	70 11 37	Graphite	2206.7	3.343736
	71 13 43.92	1018.2	325 10 26	145 11 21	Church Point 3	3361.5	3.526533
Black tank, 1917	41 31 42.353	1306.6	261 59 51.1	82 02 03.6	Graphite	4677.4	3.670003
	71 15 34.176	792.3	302 32 30.1	122 34 38.1	Church Point 3	5310.6	3.725147
			5 22 51.8	185 22 43.7	Paradise Rock 2	3064.9	3.486420
Almy's, H., house, chimney, 1917.	41 32 22.261	686.8	10 51 58.5	190 51 36.1	Church Point 3	4163.9	3.619496
	71 11 47.305	1096.5	52 21 20.0	232 18 41.5	Paradise Rock 2	7008.5	3.845022
			69 21 59.6	249 20 40.0	Black Point	2977.8	3.473894

[1] No check on this position.

Tertiary stations, Narragansett Bay and eastward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Supplementary points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Boulder on shore [1]...	41 32 32.12	990.9	269 09 30	89 11 01	Windmill 3....	3203.5	3.505627
	71 14 08.66	200.7	340 05 55	160 06 09	Black Point...	1440.1	3.158387
Almy farm, red water tank, 1917.	41 33 16.029	494.5	319 07 27.7	139 08 00.1	Windmill 3....	1730.0	3.238053
	71 12 39.307	910.9	30 16 33.6	210 15 48.4	Black Point...	3136.3	3.496412
			137 40 46.6	317 39 44.5	McCurrys Point.	3220.1	3.507869
Westernmost of three shacks, west gable, 1917.	41 33 42.111	1299.2	317 35 30.5	137 36 25.7	Windmill 3....	2861.2	3.456551
	71 13 13.712	317.7	12 34 23.3	192 34 00.9	Black Point...	3599.6	3.556253
			138 58 53.1	318 58 13.8	McCurrys Point.	2088.9	3.319920
Slade farm flag, 1917.	41 34 13.825	426.5	344 54 11.1	164 54 35.0	Windmill 3....	3201.7	3.505382
	71 12 26.439	612.6	22 42 27.6	202 41 33.9	Black Point...	4868.9	3.687427
			103 37 46.9	283 36 36.3	McCurrys Point.	2537.0	3.404422
High Hill Point, tripod, 1917.	41 32 51.028	1574.3	288 33 02.9	108 33 48.7	Windmill 3....	1687.1	3.227132
	71 12 59.465	1378.2	349 52 32.3	169 52 57.7	Church Point 3	5055.4	3.703755
			29 53 50.2	209 53 18.4	Black Point...	2234.7	3.349212
			151 38 48.4	331 37 59.7	McCurrys Point.	3581.8	3.554099
Dutch windmill, 1917.	41 33 55.398	1709.1	244 30 11.5	64 32 33.8	Brown.....	5501.2	3.740453
	71 15 18.118	419.8	309 02 04.5	129 04 06.4	Graphite.....	5483.8	3.739078
			329 28 35.3	149 30 32.7	Church Point 3	8081.3	3.907483
Vanderbilt's barn, south gable, 1917.	41 33 04.279	132.0	224 27 55.4	44 29 46.3	Brown.....	5527.0	3.742486
	71 14 30.894	716.0	284 15 18.0	104 17 04.4	Windmill 3....	3836.7	3.583962
			336 47 44.0	156 48 12.8	Black Point...	2552.6	3.406980
Vanderbilt estate, gray tower, 1917.	41 32 58.622	1808.5	223 16 23.5	43 18 14.6	Brown.....	5657.2	3.752601
	71 14 31.169	722.4	281 40 57.2	101 42 43.8	Windmill 3....	3803.8	3.580215
			298 13 50.6	118 15 21.3	Graphite.....	3599.3	3.556224
			335 00 38.8	155 01 07.8	Black Point...	2395.8	3.379459
Schlegel farm, white silo, 1917.	41 35 48.574	1498.6	344 53 06.7	164 53 15.4	Brown.....	1165.6	3.066536
	71 11 56.873	1317.1	53 34 48.6	233 33 18.3	McCurrys Point.	3915.0	3.592831
			112 12 34.0	292 10 50.1	Power.....	3915.0	3.592727
Blue house, east gable, 1917.	41 34 33.540	1034.7	172 55 55.8	352 55 42.3	Power.....	3822.9	3.582388
	71 14 13.092	303.3	203 39 32.6	23 40 45.1	Tiverton.....	6300.1	3.799349
			251 00 33.7	71 02 12.8	Brown.....	3658.3	3.563279
Chase estate, gray tower, 1917.	41 36 40.823	1259.4	30 26 50.7	210 25 44.4	McCurrys Point.	4566.9	3.659623
	71 12 32.994	763.9	87 16 46.0	267 15 26.1	Power.....	2791.3	3.445804
			186 31 55.7	6 32 01.8	Tiverton.....	1855.4	3.268431
Power house stack, 1917.	41 36 25.415	784.1	300 20 18.3	120 22 09.0	Brown.....	4475.9	3.650882
	71 14 30.525	706.8	332 34 32.4	152 36 18.6	Windmill 3....	8055.2	3.906079
			345 29 06.7	165 30 32.5	Church Point 3	11972.3	4.078176
			353 20 54.9	173 21 23.5	Black Point...	8609.3	3.934967
Church's estate, yellow tower, 1917.	41 37 02.339	72.2	25 03 30.2	205 02 28.5	McCurrys Point.	5079.0	3.705779
	71 12 40.034	926.9	164 26 48.0	344 26 22.4	Anthony.....	3330.8	3.522552
			197 35 39.0	17 35 49.7	Tiverton.....	1237.4	3.092519
Flag on point, 1917.	41 37 42.110	1299.1	43 48 18.0	223 47 22.3	Power.....	2803.9	3.447755
	71 13 09.586	221.9	173 58 26.0	353 58 20.0	Anthony.....	1992.8	3.299472
			272 33 48.6	92 34 18.9	Tiverton.....	1059.2	3.024976
Fish factory stack, 1917.	41 38 33.840	1044.0	329 11 52.7	149 12 20.8	Tiverton.....	1913.2	3.281760
	71 13 06.198	143.4	29 09 26.0	209 08 28.1	Power.....	4144.7	3.617488
			143 18 01.6	323 17 53.4	Anthony.....	481.3	2.682405
Sisson farm, long yellow shed, cupola, 1917.	41 38 00.234	7.2	225 11 00.0	45 11 41.1	Anthony.....	2018.7	3.305063
	71 14 20.505	474.6	282 39 09.5	102 40 26.9	Tiverton.....	2767.0	3.442005
			358 25 04.1	178 25 09.1	McCurrys Point.	6389.8	3.805490

[1] *No check on this position.*

Tertiary stations, Narragansett Bay and eastward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Supplementary points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Brown barn cupola, 1917.	41 37 17.389 71 14 34.236	536.5 792.6	212 31 03.1 256 39 18.8 314 22 43.6	32 31 53.4 76 40 45.4 134 24 36.8	Anthony..... Tiverton..... Brown.....	3255.0 3101.4 5525.1	3.512548 3.491555 3.742338
Island Park, merry-go-round, 1917.	41 37 24.693 71 13 32.544	761.8 753.4	252 52 00.8 328 21 46.8 10 01 05.8	72 52 46.4 148 22 59.0 190 00 39.0	Tiverton..... Brown..... McCurrys Point.	1663.4 4804.2 5372.8	3.220993 3.681619 3.730203
Baptistchurchspire, 1917.	41 37 59.788 71 12 29.356	1844.5 679.5	348 27 34.5 20 37 25.0 48 11 42.4	168 28 04.7 200 36 16.2 228 10 20.0	Brown..... McCurrys Point. Power.....	5280.0 6809.7 3853.4	3.722637 3.833127 3.585840
Pomham beacon, 1897.	41 46 35.163 71 22 27.099	1084.8 625.9	7 03 58.1 140 03 26.9 177 27 46.1	187 03 44.7 320 02 42.7 357 27 44.0	Gaspe(U.S.E.) Fort Independence 2. Cranberry.....	3763.2 2386.1 1648.3	3.575554 3.377683 3.217031
Sassafras Point lighthouse, 1897.[1]	41 48 01.55 71 23 31.41	47.7 725.1	305 48 00 17 08 55	125 48 41 197 08 53	Cranberry..... Auxiliary.....	1740.9 301.3	3.240762 2.478961
Fuller Rocks lighthouse, 1897.	41 47 38.820 71 22 48.676	1197.7 1123.9	344 15 58.2 359 38 28.2 82 34 33.7	164 16 24.4 179 38 29.2 262 34 03.9	Sabine Point 2 Gaspe (U.S.E.) Fort Independence 2.	3350.8 5698.7 1042.4	3.525150 3.755775 3.018040
Sabine Point lighthouse, 1897.	41 45 44.290 71 22 33.021	1366.4 762.8	240 35 51.4 324 48 22.1 8 33 53.6	60 36 07.2 144 49 01.1 188 33 44.2	Sabine Point 2. Bullocks Neck 3 Gaspe (U.S.E.)	627.9 2348.3 2189.4	2.797872 3.370761 3.340333
Bullocks Point lighthouse, 1897.	41 44 15.961 71 21 52.795	492.4 1220.0	114 02 36.0 172 49 07.0 207 44 53.3 303 36 40.9	294 01 59.8 352 48 56.0 27 45 05.5 123 37 41.4	Gaspe (U.S.E.) Sabine Point 2. Bullocks Neck 3 Nayatt lighthouse.	1374.9 3057.3 910.6 2523.9	3.138264 3.485339 2.959331 3.402064
Pomham Rocks lighthouse, 1897.	41 46 39.604 71 22 11.999	1221.9 277.1	11 50 34.8 131 59 10.7 164 23 45.3	191 50 11.3 311 58 16.4 344 23 33.1	Gaspe (U.S.E.) Fort Independence 2. Cranberry.....	3955.8 2530.0 1567.4	3.597231 3.403117 3.195189
Pawtuxet church spire, 1897.	41 45 59.136 71 23 30.660	1824.5 708.2	178 44 48.4 274 33 08.8 311 30 44.0	358 44 46.6 94 34 03.0 131 32 01.4	Fort Independence 2. Sabine Point 2. Bullocks Neck 3	2941.4 1884.3 3586.0	3.468560 3.275159 3.554613
Castle Hill lighthouse, 1897.	41 27 43.913 71 21 48.143	1354.7 1117.3	129 34 18.0 166 31 13.8 192 59 44.3	309 33 05.8 346 31 00.7 12 59 55.7	Hill..... Dumplin 2.... Fort.....	3273.7 1960.0 1780.6	3.515044 3.292248 3.250564
Range finder, 1897...	41 28 21.576 71 20 29.407	665.6 682.4	108 03 17.1 211 25 45.2 338 40 28.4	288 02 11.9 31 26 59.0 158 40 40.2	Dumplin 2.... Tammany Scaffold. Telegraph 2...	2401.9 4952.9 1135.8	3.380555 3.694860 3.055307
Azimuth flag, 1897...	41 28 21.473 71 20 27.068	662.4 628.1	107 43 56.3 210 52 18.8 341 13 03.0	287 42 49.5 30 53 31.0 161 13 13.2	Dumplin 2.... Tammany Scaffold. Telegraph 2...	2454.5 4927.5 1114.2	3.389968 3.692629 3.046976
Goat Island lighthouse, 1888.	41 29 36.113 71 19 39.097	1114.1 906.9	12 39 53.7 65 44 53.8 139 58 39.7	192 39 32.2 245 43 15.2 319 56 42.2	Telegraph 2... Dumplin 2.... Hull.....	3441.2 3784.9 6384.9	3.536716 3.578054 3.805151
Naval College dome, 1888.	41 30 26.853 71 19 43.350	828.4 1005.3	258 21 59.7 7 35 17.0 47 03 16.5	78 22 43.1 187 34 58.3 227 01 40.7	Miantonomy.. Telegraph 2... Dumplin 2....	1560.7 4966.4 4579.5	3.193321 3.696040 3.660820
Fort Adams flagstaff, 1888.[1]	41 28 45.88 71 20 20.21	1415.5 468.9	353 41 52 89 52 35	173 41 58 269 51 24	Telegraph 2... Dumplin 2....	1818.9 2497.0	3.259810 3.397413
Lime Rocks lighthouse, 1888.[1]	41 28 39.25 71 19 35.29	1210.8 818.8	147 44 08 200 15 47	327 42 08 20 16 25	Hull..... Miantonomy..	7857.0 3874.1	3.895257 3.588168

[1] No check on this position.

Tertiary stations, Narragansett Bay and eastward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Supplementary points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Borden Flats lighthouse, 1904.	41 42 16.168	498.8	58 17 15.0	238 14 37.7	Mt. Hope 2....	6431.7	3.808328
	71 10 29.561	683.5	190 20 12.8	10 20 27.1	Somerset 2....	2756.0	3.440276
			231 58 12.3	51 59 48.5	Calvary.....	4240.6	3.627425
			266 52 27.5	86 53 21.5	Fall River high school.	1881.6	3.274528
Pocasset 3, 1904 [1].....	41 39 12.87	397.1	71 12 09	251 08 51	Hog Island Shoals L. H.	7288.6	3.862643
	71 11 27.27	630.9	118 47 27	298 45 28	Mt. Hope 2....	4720.1	3.673951
Richards, 1889.....	41 59 09.087	280.4	7 37 00.9	187 36 43.7	Bear Hill.....	4482.6	3.651527
	71 22 57.390	1321.1	100 25 11.0	280 22 27.9	Beacon pole...	5707.1	3.756412
Cumberland, 1889....	41 55 40.003	1234.2	278 57 41.1	99 02 16.5	Oak Hill.....	9618.2	3.983095
	71 23 35.491	817.7	290 13 42.4	110 20 45.2	Great Meadow	15560.2	4.192014
			28 12 00.8	208 10 49.4	Pawtucket waterworks.	5212.4	3.717039
North Attelboro corner No. 2, 1889.	41 59 06.472	199.7	145 36 18.1	325 36 16.5	Richards.....	97.8	1.990268
	71 22 54.990	1265.9					
Sakonnet lighthouse, 1897.	41 27 11.395	351.5	95 42 21.9	275 37 03.2	Telegraph 2...	11221.1	4.050034
	71 12 10.487	243.4	137 08 07.1	317 05 44.8	Paradise Rock	7330.9	3.865156
			163 10 31.7	343 08 27.9	Quaker 2.....	15017.1	4.176585
			172 42 46.2	352 41 16.8	Mt. Hope 2....	24730.6	4.393234
Gould Island lighthouse, 1897. [1]	41 32 03.20	98.6	97 15 15	277 13 56	Hull.....	2781.8	3.444332
	71 20 37.18	862.0	198 29 39	18 29 56	Prudence 3....	8426.5	3.925645
Central Falls High-school cupola, 1889 [1]	41 53 14.52	448.0	178 40 33	358 40 29	Bear Hill.....	6498.3	3.81280
	71 23 16.67	384.4	251 44 54	71 49 17	Oak Hill.....	9547.5	3.97989
Central Falls Baptist Church spire, 1889. [1]	41 53 09.62	296.8	156 43 03	336 40 31	Beaconpole...	13196.8	4.12047
	71 23 14.62	337.1	250 47 57	70 52 18	Oak Hill.....	9551.0	3.98005
Quicksand (Mass.), 1843. [2]	41 30 01.683	51.9	175 32 19.6	355 32 10.6	Nootas.....	4064.2	3.608975
	71 07 12.194	282.8	74 37 19.5	254 35 45.4	Simmons.....	3416.7	3.533609
Nootas (Borden) (Mass.), 1836. [2]	41 32 13.094	404.0	309 04 44.8	129 12 17.3	Cuttyhunk....	20438.7	4.310454
	71 07 25.874	599.8	114 53 04.2	294 47 50.8	Quaker.....	12064.5	4.081508
Little Compton church spire, 1843. [2]	41 30 33.635	1037.5	139 30 46.0	319 27 27.0	Quaker.....	10702.7	4.029492
	71 10 18.351	425.5	139 59 16.9	319 58 48.2	Little Compton 2.	1563.1	3.193998
Church Point 2, 1869 [2]	41 30 09.917	305.9	189 03 55.5	9 04 15.7	Windmill 2...	4487.5	3.652007
	71 12 21.012	487.2	88 22 38.6	268 20 23.1	Paradise Rock	4744.8	3.676216
South Portsmouth, Episcopal Church tower, 1869. [2]	41 32 50.304	1551.9	188 04 23.9	8 04 39.8	Quaker.....	3959.6	3.597650
	71 15 42.342	981.4	0 49 36.4	180 49 34.3	Paradise Rock	5084.5	3.706246
South Portsmouth, Union Church tower, 1869. [2]	41 33 30.179	931.1	181 45 30.8	1 45 33.2	Quaker.....	2691.3	3.429967
	71 15 21.902	507.8	76 59 33.1	256 54 45.0	Hull.....	10333.1	4.014232
Slate Hill, flagstaff, 1869. [2]	41 32 22.154	683.6	356 33 58.4	176 34 05.6	Paradise Rock	4223.1	3.625628
	71 15 56.410	1307.4	206 26 40.9	86 29 24.0	Windmill 2...	5710.7	3.756691
Fair grounds, tower, 1869. [2]	41 31 16.608	512.3	67 54 33.6	247 53 07.7	Miantonomy..	3243.5	3.511010
	71 16 27.837	645.4	335 53 02.3	155 53 30.4	Paradise Rock	2403.1	3.380763
Gibbs 2, 1869 [2].....	41 29 39.540	1219.7	231 08 26.9	51 08 55.3	Paradise Rock	1277.1	3.106234
	71 16 28.381	658.2	120 40 10.9	300 38 44.5	Miantonomy..	3479.5	3.541511
Fogland Point House, north gable, 1869. [2]	41 33 42.896	1323.4	318 40 21.9	138 41 15.7	Windmill 2...	2848.2	3.454567
	71 13 11.652	269.9	128 04 07.4	308 02 43.4	Quaker.....	3727.6	3.571424
North Windmill, 1869. [2]	41 35 16.013	494.0	5 20 12.2	185 20 10.7	Quaker.....	577.5	2.761554
	71 15 16.018	371.0	113 13 14.1	293 10 57.5	Prudence 2....	5185.4	3.714779

[1] No check on this position.
[2] Reprinted without change from Appendix 8, Report for 1885.

Tertiary stations, Narragansett Bay and eastward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Supplementary points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Quicksand (Borden) (Mass.), 1836.[1]	41 30 01.73 71 07 12.18	53.4 282.5	175 31 13 299 36 00	355 31 04 119 43 23	Nootas (Borden). Cuttyhunk....	4065.1 17881.7	3.60907 4.25241
Shaw's, Peter, barn cupola, 1870.[1]	41 29 14.50 71 08 45.72	447.3 1060.6	115 34 56 239 59 56	295 31 24 60 01 00	Simmons 2.... Quicksand 2..	1258.2 2586.1	3.09976 3.41265
Wilbur's windmill, 1870.[1]	41 29 24.36 71 11 02.56	751.7 59.4	263 19 56 180 20 44	83 20 54 0 20 45	Simmons 2.... Little Compton 2.	2052.8 3334.4	3.31235 3.52301
West Island, New York Club, flagstaff, 1869.[1]	41 27 00.81 71 11 59.03	25.0 1370.1	97 11 32 137 20 18	277 06 06 317 17 48	Telegraph 2... Paradise Rock	11522.0 7751.1	4.06153 3.88936
Griswold's barn, south cupola, 1869.[1]	41 32 58.69 71 14 20.83	1810.7 482.8	224 41 08 282 31 47	44 43 14 102 33 37	Wing..... Windmill 2....	6273.6 3569.2	3.79752 3.55257
Howland's barn cupola, 1869.[1]	41 32 04.17 71 11 46.08	128.6 1068.3	137 23 28 173 32 27	317 21 07 353 32 24	Quaker..... Windmill.....	7262.8 912.6	3.86110 2.96026
Lawton's house flagstaff, 1869.[1]	41 37 33.40 71 12 48.97	1030.4 1133.5	330 22 04 351 40 00	150 23 09 171 40 39	Wing..... Windmill 2....	4619.7 9348.8	3.66461 3.97076
Portsmouth, belfry, 1869.[1]	41 36 13.34 71 14 53.67	411.5 1242.7	327 56 31 286 37 13	147 58 33 106 39 41	Windmill 2.... Wing.....	7998.7 5398.1	3.90302 3.73224
Potter's, Widow, barn, 1869.[1]	41 33 18.00 71 12 17.07	555.3 395.5	126 08 50 335 48 52	306 06 50 155 49 10	Quaker..... Windmill 2....	5199.9 1502.8	3.71600 3.17690
Four Corners, belfry, 1869.[1]	41 34 31.52 71 11 22.41	972.3 519.1	189 56 02 10 08 44	9 56 10 190 08 25	Wing..... Windmill 2....	1619.7 3690.7	3.20943 3.56782
Balch's house, north chimney, 1869.[1]	41 29 00.51 71 16 20.91	15.7 485.1	202 16 16 67 08 25	22 16 39 247 05 52	Paradise Rock Telegraph 2...	2167.1 5810.1	3.33589 3.76418
Butts 2, 1861 [1].....	41 36 55.74 71 15 07.48	1719.6 173.2	104 45 03 188 22 00	284 41 25 8 22 27	Pine Hill..... Mount Hope..	7858.5 6560.5	3.89534 3.81694
Spar Island, 1861 [1]...	41 41 17.40 71 13 14.68	536.8 339.5	46 17 39 125 13 50	226 16 51 305 12 57	Mount Hope.. Towesot.....	2288.9 2237.8	3.35963 3.34983
Tiverton cupola, 1843[1]	41 37 30.25 71 12 50.91	933.2 1178.5	35 54 53 157 53 23	215 53 15 337 52 20	Quaker..... Mount Hope..	5822.2 5857.2	3.76509 3.76769
Barker, 1843 [1].....	41 38 23.01 71 12 06.65	709.9 153.9	34 59 50 139 38 41	214 57 43 319 37 08	Quaker..... Mount Hope..	7742.3 4985.6	3.88887 3.69772
Cornell, 1843 [1].....	41 37 18.96 71 09 16.52	584.9 382.4	62 30 03 137 19 03	242 26 03 317 17 33	Quaker..... Pocasset.....	9448.9 4636.9	3.97538 3.66623
Windmill, 1843 [1].....	41 32 33.62 71 11 50.48	1037.2 1170.1	132 39 29 166 07 11	312 37 08 346 05 26	Quaker..... Mount Hope..	6547.7 15016.9	3.81609 4.17658
Church Point, 1843 [1].	41 30 00.12 71 12 23.96	3.7 555.7	156 13 52 171 40 11	336 11 56 351 38 50	Quaker..... Mount Hope..	10021.4 19520.0	4.00093 4.29048
Gibbs, 1843 [1].....	41 29 36.69 71 16 29.18	1131.9 676.9	59 54 34 122 03 32	239 52 42 302 02 07	Hazard..... Miantonomy..	4516.4 3509.6	3.65479 3.54526
Sakonnet Point, 1843[1]	41 27 16.36 71 11 46.09	504.7 1069.8	160 55 58 171 21 24	340 53 37 351 19 38	Quaker..... Mount Hope..	15050.1 24646.2	4.17744 4.39175
High Hill, 1843 [1].....	41 32 51.03 71 12 59.46	1574.3 1378.1	140 28 21 171 52 00	320 26 49 351 51 02	Quaker..... Mount Hope..	5054.8 14183.4	3 70370 4.15178
Mount Hope (Borden), 1836.[1]	41 40 27.55 71 14 26.15	849.9 604.9	300 55 58 6 46 05	120 57 54 186 45 30	Pocasset..... Quaker.....	4688.3 10258.0	3.67102 4.01106
Joe Sanford (Borden) (Mass.), 1836.[1]	41 35 37.56 71 07 55.53	1158.7 1286.1	353 46 48 83 08 51	173 47 08 263 03 57	Nootas (Borden). Quaker.....	6345.6 10331.1	3.80247 4.01415
Fall River (Mass.), 1834.[1]	41 42 39.25 71 08 45.54	1210.9 1052.8	62 29 50 30 48 42	242 26 03 210 46 51	Mount Hope.. Pocasset.....	8884.4 7536.0	3.94863 3.87714

[1] Unadjusted field computation, reprinted without change from Appendix 8, Report for 1885.

Tertiary stations, Narragansett Bay and eastward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Supplementary points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Toweset Neck (Borden), 1836.[1]	41 42 45.02 71 13 36.28	1388.9 838.7	271 29 33 15 13 08	91 32 46 195 12 35	Fall River.... Mount Hope (Borden).	6723.7 4394.4	3.82761 3.64290
Pawtucket dark spire, 1885.[1]	41 52 53.95 71 23 05.06	1664.5 116.7	156 40 20 271 03 51	336 37 42 91 10 33	Beaconpole... Great Meadow	13728.4 13901.1	4.13762 4.14305
Pawtucket spire (Borden), 1836.[1]	41 52 36.04 71 22 53.84	1111.9 1241.5	173 37 47 284 06 07	353 36 51 104 09 53	Joe's Rock.... Great Rock...	17290.3 8046.8	4.23780 3.90562
Arnold, 1843.[1].....	41 45 14.48 71 23 41.75	446.7 964.6	304 39 29 30 10 50	124 45 39 210 08 25	Mount Hope.. Whitman.....	15622.8 10012.0	4.19376 4.00052
Kinnicut, 1843.[1].....	41 47 47.84 71 21 57.48	1475.9 1327.1	322 32 00 29 05 06	142 37 00 209 01 32	Mount Hope.. Whitman.....	17160.1 15315.8	4.23452 4.18514
Fort Independence, 1843.[1]	41 47 34.44 71 23 33.38	1062.5 770.7	316 12 33 2 33 58	136 18 37 182 33 52	Mount Hope.. Arnold.....	18290.3 4322.4	4.26222 3.63572
Neutaconkanut, 1843.[1]	41 48 41.08 71 28 03.06	1267.4 70.6	288 15 00 316 32 36	108 18 00 136 35 30	Fort Independence. Arnold.....	6556.6 8777.3	3.81668 3.94336
Batty's farm, 1843.[1]..	41 45 34.90 71 24 35.80	1076.7 827.0	140 13 05 201 20 43	320 10 47 21 21 25	Neutaconkanut. Fort Independence.	7476.9 3960.0	3.87372 3.59769
Prospect Hill, 1843.[1].	41 49 44.64 71 24 20.85	1377.2 481.1	344 43 53 69 07 15	164 44 25 249 04 47	Fort Independence. Neutaconkanut.	4163.0 5490.1	3.61941 3.73958
Bullock's Neck (Borden), 1836.[1]	41 44 42.27 71 21 35.11	1304.1 811.2	306 19 38 334 10 54	126 26 19 154 15 04	Pocasset..... Quaker.....	17311.8 20039.7	4.23834 4.30189
Bullock's Neck, 1843.[1]	41 44 42.90 71 21 27.69	1323.5 639.8	107 28 18 151 15 51	287 26 49 331 14 27	Arnold..... Fort Independence.	3247.1 6036.3	3.51149 3.78077
Verification south base (Borden), 1836.[1]	41 50 13.04 71 21 28.68	402.3 661.8	169 49 19 247 14 49	349 47 26 67 17 38	Joe's Rock.... Great Rock...	21942.1 6333.1	4.34128 3.80161
Verification north base (Borden), (Mass.), 1836.[1]	41 54 25.94 71 21 20.68	800.3 476.6	313 25 31 1 21 22	133 28 14 181 21 17	Great Rock... Verification south base.	7787.7 7804.4	3.89141 3.89234
Pawtuxet (Borden), 1836.[1]	41 45 14.19 71 23 41.72	436.8 963.9	177 20 36 288 35 09	357 20 23 108 36 33	College Hill... Bullock's Neck (Borden).	9409.4 3086.2	3.97356 3.48942
Pomham, 1843.[1].....	41 46 42.15 71 21 28.04	1300.4 647.6	319 54 55 48 48 16	139 59 36 228 46 47	Mount Hope.. Arnold.....	15153.7 4105.4	4.18052 3.61336
Pawtuxet spire, 1843.[1]	41 45 59.34 71 23 30.50	1830.7 704.6	309 12 13 27 48 11	129 18 15 207 45 39	Mount Hope.. Whitman.....	16247.3 11349.3	4.21078 4.05497
Providence, Baptist Church, 1843.[1]	41 49 38.92 71 24 32.12	1200.7 741.2	313 48 55 0 38 48	133 50 38 180 38 46	Kinnicut..... Batty's Farm.	4947.9 7529.4	3.69442 3.87676
Providence, Congregational Church, 1843.[1]	41 49 12.90 71 24 50.78	398.0 1172.0	318 20 19 12 06 47	138 27 15 192 05 08	Mount Hope.. Whitman.....	21734.5 16376.5	4.33715 4.21422
Providence, Quaker College, 1843.[1]	41 50 00.56 71 23 56.34	17.3 1300.0	323 19 35 15 02 07	143 25 55 194 59 52	Mount Hope.. Whitman.....	22081.6 18101.3	4.34403 4.25771
Providence, High Street Church, 1863.[1]	41 49 05.73 71 25 16.25	176.8 375.1	304 20 32 319 53 34	124 22 15 139 54 43	Kettle Point.. Fort Independence 2.	4340.2 3683.0	3.63751 3.56620
Providence, Unitarian Church, 1863.[1]	41 49 27.88 71 24 20.08	860.1 463.4	323 52 10 342 55 07	143 53 10 162 55 38	Kettle Point.. Fort Independence 2.	3878.2 3662.1	3.58863 3.56378

[1] Unadjusted field computation, reprinted without change from Appendix 8, Report for 1885.

Tertiary stations, Narragansett Bay and eastward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Supplementary points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Providence Vitriol Works, chimney, 1863.[1]	41 49 49.56 71 25 21.92	1529.0 505.9	315 39 24 329 00 56	135 41 11 149 02 08	Kettle Point.. Fort Independence 2.	5314.1 4862.8	3.72543 3.68689
Prudence South, 1843.[2]	41 34 44.455 71 19 32.957	1371.4 763.4	266 06 36.5 100 35 43.4	86 09 25.5 280 32 23.8	Quaker..... Quonsett.....	5911.8 7086.6	3.771717 3.850438
Newport church, 1838.[2]	41 29 14.456 71 18 49.706	446.0 1153.1	82 00 34.1 34 00 07.0	261 51 40.3 213 49 06.0	Tiff..... Block Island..	18888.0 41721.0	4.276186 4.620355
Coal Mines, middle chimney, 1868.[2]	41 37 09.940 71 16 26.833	306.6 621.2	338 47 41.3 43 14 04.9	158 48 26.8 223 09 59.8	Quaker..... Hull.....	4386.6 12500.8	3.642125 4.096938
Gould Island barn cupola, 1868.[2]	41 32 02.029 71 20 41.058	62.6 951.9	98 15 10.1 312 26 08.3	278 13 53.7 132 27 30.3	Hull..... Miantonomy..	2697.7 3884.5	3.430991 3.589335
Hall's, Ben, house, west chimney, 1869.[2]	41 35 08.267 71 16 414.328	255.0 957.3	279 54 26.2 129 17 10.8	99 55 21.3 309 15 50.8	Quaker..... Prudence 2....	1951.5 3604.5	3.290379 3.556849
Tefft's house, chimney, 1869.[1]	41 28 01.34 71 27 37.94	41.3 880.4	28 09 39 185 29 03	208 09 02 5 29 12	Meetinghouse Hill 2. McSparran 2..	2735.3 3298.8	3.43700 3.51836
Watson's house, chimney, 1869.[1]	41 28 22.37 71 26 05.70	690.2 132.3	48 17 04 262 33 03	228 15 26 82 35 41	Meetinghouse Hill 2. Dumplin 2....	4597.7 5566.0	3.66254 3.74554
Barn west gable, 1869[1]	41 28 35.10 71 23 28.36	1082.8 657.9	64 02 17 260 04 23	243 58 55 80 05 16	Meetinghouse Hill 2. Dumplin 2....	7879.8 1896.7	3.89651 3.27800
Potter's, Dr., house chimney, 1869.[1]	41 27 00.95 71 26 30.46	29.3 707.0	242 02 42 166 21 04	62 05 36 346 20 28	Dumplin 2.... McSparran 2..	6898.4 5296.5	3.83875 3.72399
Potter's, And., house chimney, 1869.[1]	41 30 29.90 71 21 38.60	922.5 895.1	11 54 48 338 04 42	191 54 29 158 05 40	Dumplin 2.... Telegraph 2...	3285.5 5407.6	3.51660 3.73300
Newport, Ocean house, 1868.[1]	41 28 53.24 71 18 30.59	1642.5 709.7	49 02 56 177 09 47	229 01 49 357 09 42	Telegraph 2... Miantonomy..	3104.1 3206.6	3,49193 3.50604
Newport, St. Mary's Catholic Church spire, 1868.[1]	41 28 49.06 71 18 49.38	1513.5 1145.6	140 20 05 184 45 22	320 17 35 4 45 30	Hull..... Miantonomy..	8238.1 3342.7	3.91583 3.52417
Newport, Belmont's house, cupola, 1869.[1]	41 27 52.17 71 18 22.46	1609.5 521.1	221 30 10 107 32 35	41 31 54 287 30 06	Paradise Rock Dumplin 2....	5493.8 5483 9	3.73987 3.73909
Newport, Bronson's house, flagstaff, 1869.[1]	41 27 51.76 71 21 28.23	1596.8 655.0	217 50 02 151 05 47	37 51 55 331 05 21	Miantonomy.. Dumplin 2....	6457.8 1900.7	3.81008 3 27890
Rose Island flagstaff, 1869.[1]	41 29 47.52 71 20 34.30	1466.0 795.4	240 34 35 48 41 34	60 35 52 228 40 32	Miantonomy.. Dumplin 2....	3111.6 2889.0	3.49298 3.46074
Fort Adams, flagstaff, 1869.[1]	41 28 45.88 71 20 20.25	1415.4 469.7	89 52 52 353 40 19	269 51 41 173 40 25	Dumplin 2.... Telegraph 2...	2496.2 1818.8	3.39727 3.25978
Anderson's barn, cupola, 1868.[1]	41 33 41.31 71 17 23.46	1274.4 543.5	159 55 33 69 45 51	339 54 41 249 42 24	Prudence..... Hull.....	5285.7 7727.2	3.72310 3.88802
Portsmouth Grove, flagstaff, 1868.[1]	41 35 13.03 71 17 13.73	401.9 318.0	53 38 50 136 18 37	233 35 16 316 17 39	Hull..... Prudence 2....	9282.3 2952.6	3.96765 3.47021
Pappoose Squaw 2, 1861.[1]	41 39 15.20 71 18 02.45	468.9 56.7	286 16 34 246 21 21	106 18 07 66 23 45	West..... Mount Hope..	3385.9 5460.3	3.52967 3.73722
Hog Island 2, 1861 [1]..	41 38 40.48 71 16 50.79	1248.8 1175.4	122 51 55 225 43 54	302 51 07 45 45 30	Pappoose Squaw 2. Mount Hope..	1974.1 4670.4	3.29536 3.66935
Quonsett 2, 1863 [1]....	41 35 16.90 71 24 23.02	521.4 533.2	226 10 12 299 21 34	46 12 43 119 22 56	Pine Hill..... Conanicut North.	7289.9 3273.2	3.86272 3.51497
Calf Pasture Point, 1863.[1]	41 37 40.62 71 24 18.99	1253.1 439.6	263 13 13 335 26 26	83 15 41 155 27 45	Pine Hill..... Conanicut North.	5202.2 6639.6	3.71619 3.82214

[1] Unadjusted field computation, reprinted without change from Appendix 8, Report for 1885.
[2] Reprinted without change from Appendix 8, Report for 1885.

Tertiary stations, Narragansett Bay and eastward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Supplementary points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Green's Point, 1863 [1].	41 41 03.60	111.1	304 39 24	124 40 44	Warwick lighthouse.	3372.0	3.52789
	71 24 43.18	998.6	356 46 12	176 46 16	Sandy Point..	2481.5	3.39472
Hope Island barn, 1863.[1]	41 36 09.97	307.6	7 54 34	187 54 21	Conanicut North.	3273.9	3.51506
	71 22 00.42	9.7	131 05 36	311 04 04	Calf Pasture Point.	4256.0	3.62900
Buttonwood house, cupola, 1863.[1]	41 41 19.12	589.9	297 58 12	118 00 22	Warwick lighthouse.	5107.6	3.70822
	71 25 58.28	1347.8	327 35 03	147 35 57	Sandy Point..	3501.9	3.54430
Yellow barn, cupola, 1863.[1]	41 41 01.77	54.6	269 03 32	89 05 12	Green's Point.	3479.2	3.54148
	71 27 13.58	314.1	303 46 08	123 47 52	Sandy Point..	4354.3	3.63892
White house, north chimney, 1863.[1]	41 40 46.09	1421.9	260 35 38	80 37 12	Green's Point.	3309.6	3.51978
	71 27 04.36	100.8	299 37 17	119 38 55	Sandy Point..	3918.1	3.59308
North Popasquash, 1863.[1]	41 40 54.61	1684.8	31 44 02	211 42 27	Pine Hill.....	6316.0	3.80044
	71 18 12.28	284.0	75 21 32	255 18 32	Warwick lighthouse.	6479.8	3.81156
Rocky Point, 1843 [1]..	41 41 29.72	916.9	280 46 43	100 51 38	Mount Hope..	10451.5	4.01918
	71 21 50.06	1157.6	323 07 45	143 12 05	Quaker.....	15122.7	4.17963
Pappoose Squaw, 1843.[1]	41 39 15.20	468.9	334 26 35	154 28 25	Quaker.....	8815.8	3.94526
	71 18 02.52	58.3	246 21 44	66 24 08	Mount Hope..	5461.7	3.73733
Rumstick, 1843 [1].....	41 42 24.05	742.0	344 06 08	164 08 01	Quaker.....	14327.2	4.15616
	71 18 07.76	179.4	22 51 08	202 49 30	Pine Hill.....	8823.5	3.94564
Conimicut, 1863 [1]....	41 43 01.67	51.5	240 12 58	60 13 43	Nayatt lighthouse, 1863.	1799.2	3.25508
	71 21 29.44	680.5	310 40 30	130 42 41	North Popasquash.	6012.6	3.77906
Babcock, 1863 [1].....	41 42 44.36	1368.5	355 06 38	175 06 46	North Popasquash.	3398.3	3.53126
	71 18 24.80	573.3	97 09 07	277 07 04	Conimicut....	4301.5	3.63362
Hall, 1863 [1].....	41 43 12.06	372.1	19 59 16	199 58 32	North Popasquash.	4512.3	3.65440
	71 17 05.59	129.2	64 59 00	244 58 07	Babcock.....	2020.8	3.30552
Rocky Point Hotel chimney, 1863.[1]	41 41 21.91	675.9	208 50 37	28 51 40	Nayatt lighthouse, 1863.	4534.4	3.65652
	71 21 56.52	1307.0	279 12 17	99 14 46	North Popaquash.	5254.1	3.72058
Barn, white cupola, 1863.[1]	41 42 22.66	699.1	107 57 24	287 56 25	Babcock.....	2171.9	3.33683
	71 16 55.43	1281.5	171 14 25	351 14 18	Hall.....	1542.1	3.18810
Warren beacon, 1863 [1]	41 42 48.74	1503.7	12 57 44	192 57 21	North Popasquash.	3613.1	3.55788
	71 17 37.24	860.9	82 59 53	262 59 21	Babcock.....	1107.8	3.04448
Warren, Methodist spire, 1863.[1]	41 43 48.78	1504.9	16 40 04	196 39 18	North Popasquash.	5608.9	3.74888
	71 17 02.72	62.9	83 05 13	263 03 00	Nyatt lighthouse, 1863.	4636.8	3.66622
Yellow house, west chimney, 1863.[1]	41 43 41.87	1291.7	342 21 51	162 22 38	North Popasquash.	5414.5	3.73356
	71 19 23.20	530.2	75 40 26	255 39 47	Nyatt lighthouse, 1863.	1399.6	3.14601
Warwick Neck, 1843 [1]	41 41 21.10	650.9	278 14 24	98 19 59	Mount Hope..	11768.7	4.07073
	71 22 49.72	1149.8	34 58 26	214 56 14	High Rocks...	8038.4	3.90517
Nayatt lighthouse, 1843.[1]	41 43 30.09	928.3	335 59 58	156 03 20	Quaker.....	17311.3	4.23833
	71 20 22.31	515.6	60 37 47	240 33 10	Whitman.....	11069.8	4.04414
Pojac, 1843 [1].....	41 39 04.92	151.8	124 42 23	304 40 29	Whitman.....	4822.5	3.68327
	71 24 27.97	647.2	259 44 36	79 51 16	Mount Hope..	14145.6	4.15062

[1] Unadjusted field computation, reprinted without change from Appendix 8, Report for 1885.

Tertiary stations, Narragansett Bay and eastward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Supplementary points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Warren spire, 1843 [1]	41 43 48.47	1495.3	29 04 31	208 57 39	McSparran	29688.6	4.47259
	71 17 04.14	95.7	67 13 21	247 06 32	Whitman	15469.6	4.18948
Bristol courthouse, 1843.[1]	41 40 12.66	390.6	261 26 23	81 27 42	Mount Hope	2794.5	3.44630
	71 16 25.67	593.8	350 53 24	170 54 09	Quaker	9851.0	3.99348
Wickford spire, 1843 [1]	41 34 23.40	721.9	3 50 43	183 50 27	McSparran	8547.9	3.93186
	71 27 00.02	0.5	266 14 46	86 22 32	Quaker	16289.2	4.21190
Wickford lighthouse, old tower, 1843.[1]	41 34 15.92	491.1	9 50 54	189 50 13	McSparran	8421.5	3.92539
	71 26 22.64	524.6	101 01 23	281 00 17	Wickford	2361.6	3.37320
Apponaug spire, 1843 [1]	41 41 55.84	1722.7	307 15 07	127 23 13	Quaker	21294.6	4.32827
	71 27 30.08	695.6	354 23 59	174 24 06	Whitman	2540.4	3.40401
Hog Island, 1843 [1]	41 38 40.38	1245.7	225 39 21	45 40 57	Mount Hope	4668.7	3.66920
	71 16 50.58	1170.4	342 44 59	162 46 00	Quaker	7203.4	3.85754
Castle Hill, 1843 [1]	41 27 53.02	1635.7	113 05 22	293 01 26	McSparran	8975.1	3.95304
	71 21 28.80	668.3	252 57 27	72 58 54	Hazard	3184.5	3.50304
Fox Island, 1843 [1]	41 33 16.24	501.0	119 03 13	299 01 14	Wickford	4723.0	3.67422
	71 25 04.48	103.8	228 02 03	48 09 07	Mount Hope	19856.4	4.29790
Fort Adams, flagstaff, 1843.[1]	41 28 47.51	1465.7	213 35 44	33 36 48	Miantonomy	4057.6	3.60827
	71 20 14.24	330.4	299 38 44	119 39 22	Hazard	1512.7	3.17976
South Rock, 1843 [1]	41 34 26.66	822.5	320 17 23	140 19 01	Batty	5349.5	3.72831
	71 25 03.67	85.0	20 46 04	200 44 30	McSparran	9227.8	3.96510
Halfway Rock, 1843 [1]	41 33 49.82	1537.0	50 51 37	230 49 52	Batty	4718.6	3.67381
	71 19 58.34	1351.8	342 29 29	162 30 23	Miantonomy	6235.8	3.79489
Beavertail lighthouse, 1843.[1]	41 26 56.86	1754.2	86 49 38	266 46 36	Meeting house Hill.	6382.2	3.80497
	71 23 59.42	1379.3	137 46 58	317 44 42	McSparran	7087.6	3.85050
Rose Island, 1843 [1]	41 29 48.20	1487.0	89 48 21	269 43 49	McSparran	9517.0	3.97850
	71 20 34.44	798.8	325 46 02	145 46 53	Hazard	3169.6	3.50100
Prince, 1843 [1]	41 44 34.61	1067.7	320 49 12	140 52 11	Mount Hope	9886.0	3.99502
	71 18 56.22	1299.0	57 29 25	237 23 50	Whitman	13800.7	4.13990
Reynolds, 1868 [1]	41 33 45.55	1405.2	230 41 46	50 43 25	Quonsett 3	4457.0	3.64904
	71 26 52.10	1207.2	295 18 28	115 21 18	Hull	6560.8	3.81696
Sherman's house chimney, 1868.[1]	41 33 47.42	1462.9	135 06 06	315 04 47	Quonsett 3	3903.2	3.59142
	71 22 24.25	561.9	5 32 04	185 31 56	Hull	2878.3	3.45913
Schoolhouse chimney, 1868.[1]	41 32 18.25	563.0	75 45 15	255 43 10	Barber's Heights.	4180.6	3.62124
	71 22 33.32	772.3	155 13 53	335 12 40	Quonsett 3	6074.9	3.78354
Barn, cupola, 1868 [1]	41 32 08.72	269.0	79 30 36	259 28 42	Barber's Heights.	4034.6	3.60580
	71 22 36.98	857.3	157 03 00	337 01 50	Quonsett 3	5309.6	3.80000
Dutch Island, flagstaff, 1868.[1]	41 30 19.30	595.4	177 20 11	357 19 59	Quonsett 3	9195.2	3.96356
	71 24 04.75	110.2	209 59 14	30 00 13	Hull	4105.6	3.61338
Potter's windmill, shaft, 1868.[1]	41 30 56.30	1736.9	109 49 26	289 47 27	Barber's Heights.	4422.1	3.64563
	71 22 28.66	664.6	175 50 38	355 50 33	Hull	2420.9	3.38398
Tefft's barn cupola, 1868.[1]	41 31 32.92	1015.6	193 30 36	13 31 24	Quonsett 3	7110.8	3.85192
	71 25 34.92	809.6	252 45 20	72 47 19	Hull	4337.4	3.63723
Hamilton Mills, cupola, 1868.[1]	41 32 57.49	1773.6	211 29 20	31 30 36	Quonsett 3	5048.7	3.70318
	71 26 17.05	395.2	284 29 18	104 31 45	Hull	5287.3	3.72323
Sanford's Mill, cupola, 1868.[1]	41 33 05.93	182.9	284 51 32	104 54 23	Hull	6169.9	3.79028
	71 26 53.50	1239.9	321 37 44	141 38 41	Barber's Heights.	3189.3	3.50370

[1] Unadjusted field computation, reprinted without change from Appendix 8, Report for 1885.

Tertiary stations, Narragansett Bay and eastward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Supplementary points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Fox Island, house chimney, 1868.[1]	41 33 15.00 71 25 06.59	462.8 152.7	194 56 35 298 07 55	14 57 04 118 09 35	Quonsett 3.... Hull.....	3896.8 3952.6	3.59071 3.59688
Wickford Academy, 1868.[1]	41 34 06.68 71 27 21.19	206.1 491.0	242 13 18 297 36 11	62 15 16 117 40 20	Quonsett 3.... Hull.....	4659.9 7454.9	3.66838 3.87244
Wickford Baptist Church, 1868.[1]	41 34 19.58 71 27 05.35	604.1 123.9	244 43 24 301 42 22	64 45 12 121 45 21	Quonsett 3.... Hull.....	4153.2 7333.1	3.61838 3.86529
Fish house, chimney, 1868.[1]	41 34 41.97 71 26 51.84	1294.8 1200.9	274 46 00 0 11 52	94 49 01 180 11 52	Conanicut North. Reynolds.....	6323.1 1740.4	3.80093 3.24066
Smith's barn, cupola, 1868.[1]	41 36 00.02 71 25 23.04	0.6 533.6	304 39 57 26 26 51	124 41 59 206 25 52	Conanicut North. Reynolds.....	5159.6 4633.0	3.71262 3.66586
Green's barn, cupola, 1868.[1]	41 33 42.34 71 26 31.25	1306.2 724.1	225 25 42 337 59 53	45 27 07 158 00 35	Quonsett 3.... Barber's Heights.	4163.3 3908.4	3.61944 3.59200
Vaughn's house, cupola, 1868.[1]	41 34 25.62 71 27 45.68	790.4 1058.3	251 17 51 327 14 46	71 20 05 147 16 17	Quonsett 3.... Barber's Heights.	4951.5 5895.9	3.69474 3.77055
Poorhouse, northeast gable, 1868.[1]	41 35 21.98 71 24 50.76	678.1 1175.7	283 26 44 331 39 21	103 27 02 151 40 50	Quonsett 3.... Hull.....	656.4 6568.7	2.81719 3.81748
Browning's house, chimney, 1868.[1]	41 32 00.82 71 25 49.54	25.3 1148.5	198 16 53 314 41 45	18 17 50 134 41 59	Quonsett 3.... Barber's Heights.	6375.6 699.4	3.80452 2.84471
Signal flag, 1868[1]....	41 35 32.16 71 25 42.20	992.1 977.4	293 52 23 357 19 52	113 54 37 177 20 01	Conanicut North. Barber's Heights.	5126.1 7019.6	3.70979 3.84631
Boston Neck, 1843[1]..	41 28 19.08 71 26 05.43	588.6 126.0	145 50 35 50 00 19	325 49 43 229 58 41	McSparran.... Meetinghouse Hill.	3276.2 4499.5	3.51537 3.65317
Beaconpole (Borden), 1834.[2]	42 00 03.257 71 26 43.159	100.5 993.2	305 28 55.0 348 15 00.0	125 38 03.8 168 16 48.8	Great Meadow College Hill...	23244.3 18415.5	4.366316 4.265183
Red Brush (C. & G. S. and Borden), (Mass.), 1834.[2]	42 01 49.546 71 22 23.459	1528.7 539.6	322 22 16.3 58 30 07.5	142 28 31.5 238 27 01.6	Great Meadow Beaconpole...	21193.4 7498.8	4.326202 3.874993
Munroe (Borden), 1844.[1]	41 46 34.35 71 19 05.61	1059.8 129.6	322 36 12 346 14 23	142 41 14 166 16 54	Pocasset..... Quaker.....	17267.9 22136.4	4.237240 4.345107

Tertiary stations, Point Judith westward.

Principal points.							
Montauk 2 (N. Y.), 1874.	41 03 54.383 71 54 18.505	1677.7 432.0	244 53 56.6 188 40 43.8	65 06 18.3 8 42 43.2	Block Island.. Watch Hill...	29031.4 27947.9	4.462867 4.446349
Wilcox, 1838.....	41 21 23.198 71 43 59.859	715.7 1391.4	65 06 19.4 123 15 26.1 165 02 57.7 329 24 30.3	245 01 30.5 303 07 02.8 345 01 06.6 149 30 06.2	Watch Hill.... Lantern Hill.. Champlin..... Block Island..	11214.9 21119.8 15098.2 23323.0	4.049795 4.324689 4.178926 4.367785
Green Hill, 1838.....	41 22 24.709 71 35 51.593	762.0 1199.0	358 43 39.4 80 33 10.8 215 37 40.8	178 43 53.2 260 27 48.1 35 39 05.9	Block Island.. Wilcox..... Broad Hill....	21989.3 11505.8 5134.3	4.342211 4.060917 3.710477
Pelog Tiff, 1838.....	41 23 18.746 71 48 40.418	578.4 939.0	125 40 31.8 193 20 20.5 298 38 29.0 23 44 24.3	305 35 14.0 13 21 35.1 118 41 34.4 203 42 40.7	Lantern Hill.. Champlin..... Wilcox..... Watch Hill...	13725.1 11327.4 7430.9 9058.4	4.137517 4.054131 3.871044 3.957052

[1] Unadjusted field computation, reprinted without change from Appendix 8, Report for 1885.
[2] Reprinted without change from Appendix 8, Report for 1885.

Tertiary stations, Point Judith westward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Principal points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Noyes Point, 1838....	41 19 46.309	1428.7	144 32 11.7	324 29 58.9	Pelog Tiff.....	8048.2	3.905700
	71 45 19.443	452.0	211 45 12.8	31 46 05.4	Wilcox.....	3515.3	3.545062
			321 13 27.2	141 19 55.5	Block Island..	21914.5	4.340732
			78 13 37.5	258 09 41.4	Watch Hill....	8500.4	3.929441
Cranberry Hill, 1838.	41 20 53.226	1642.1	124 57 42.5	304 55 16.2	Eels Hill 2.....	6282.6	3.798142
	71 47 22.770	529.3	158 06 29.8	338 05 38.5	Pelog Tiff.....	4838.4	3.684705
			258 53 31.3	78 55 45.4	Wilcox.....	4806.8	3.681858
			305 44 17.6	125 45 39.1	Noyes Point..	3533.3	3.548187
Quonochontaug, 1838.	41 19 59.986	1850.7	83 37 42.3	263 35 55.3	Noyes Point..	3793.3	3.579012
	71 42 37.329	867.9	143 13 54.4	323 13 00.0	Wilcox.....	3204.7	3.505794
Joshua Champlin, 1839.	41 22 16.387	505.6	267 23 07.5	87 25 48.6	Green Hill....	5670.2	3.753598
	71 39 55.332	1285.8	344 08 44.7	164 11 39.3	Block Island..	22583.9	4.353799
			41 50 31.4	221 48 44.3	Quonochontaug.	5647.0	3.751820
			58 27 35.9	238 24 01.7	Noyes Point..	8843.5	3.946623
Tiff, 1839.....	41 27 48.562	1498.2	8 05 19.3	188 03 10.6	Block Island..	32295.0	4.509135
	71 32 15.700	364.3	97 40 25.0	277 30 47.4	Champlin.....	20413.3	4.309913
			241 33 29.4	61 36 42.1	McSparran....	7675.4	3.885102
Meetinghouse Hill, 1839.	41 26 45.316	1398.0	110 46 50.4	290 44 23.6	Tiff.....	5504.7	3.740734
	71 28 33.931	787.7	195 58 57.0	15 59 42.9	McSparran....	5829.1	3.765900
			17 55 52.3	197 51 17.2	Block Island..	31549.9	4.498998
			61 41 38.0	241 38 13.6	Broad Hill....	8148.6	3.911083
Austin, 1839.....	41 24 25.282	780.0	183 22 22.4	3 22 29.7	Meetinghouse Hill.	4327.6	3.636248
	71 28 44.899	1042.9	190 36 44.2	10 37 37.3	McSparran....	10096.6	4.004175
			93 46 11.1	273 42 54.0	Broad Hill....	6934.5	3.841015
Weeden, 1839.....	41 22 50.890	1570.0	222 04 04.4	42 07 10.5	Meetinghouse Hill.	9746.1	3.988829
	71 33 15.241	354.2	245 05 59.4	65 08 58.1	Austin.....	6922.6	3.840270
			77 28 37.9	257 26 54.5	Green Hill....	3722.2	3.570804
			169 13 01.9	349 12 43.7	Broad Hill....	3425.1	3.534672
Point Judith lighthouse, 1839.	41 21 39.884	1230.4	24 08 10.4	204 03 49.3	Block Island..	22568.6	4.353504
	71 28 54.732	1272.1	80 35 18.7	260 20 32.0	Watch Hill....	31652.2	4.500403
			98 09 34.3	278 04 58.9	Green Hill....	9786.5	3.990628
			110 42 32.0	290 39 39.2	New Weeden.	6497.9	3.812774
			109 54 56.2	289 52 04.2	Weedon.....	6438.1	3.808759
			120 42 57.8	309 39 47.6	Broad Hill....	8698.5	3.939444
			182 33 48.9	2 33 55.4	Austin.....	5107.6	3.708218
			187 54 33.3	7 55 32.8	McSparran....	15170.7	4.181007
			226 56 28.7	47 02 15.3	Telegraph 2...	16615.7	4.220518
Sherman, 1839.....	41 30 16.938	522.6	280 40 10.8	100 42 30.8	McSparran....	4987.1	3.697846
	71 30 56.024	1299.4	333 11 35.4	153 13 09.4	Meetinghouse Hill.	7313.8	3.864145
			20 26 23.0	200 24 32.6	Broad Hill....	11093.4	4.045066
			21 59 51.5	201 58 58.7	Tiff.....	4936.5	3.693423
			85 13 12.8	265 02 42.2	Champlin.....	22155.9	4.345490
Wilbur, 1839.....	41 29 29.630	914.1	289 35 31.6	109 39 41.2	Tiff.....	9282.7	3.967672
	71 38 32.536	754.7	323 00 45.7	143 03 57.5	Broad Hill....	11184.1	4.048600
			87 56 57.6	267 51 29.5	Champlin.....	11495.9	4.060544
New Weeden, 1871...	41 22 54.286	1674.7	75 49 09.6	255 47 27.0	Green Hill....	3722.0	3.570778
	71 33 16.313	379.1	169 18 15.0	349 17 57.5	Broad Hill....	3317.5	3.520814
Eels Hill 2 (Conn.), 1838.	41 22 49.868	1538.4	138 42 24.9	318 38 42.3	Lantern Hill..	11833.3	4.073108
	71 51 04.352	101.1	206 32 46.3	26 35 36.1	Champlin.....	13318.8	4.124466
Kenyon, 1871.....	41 23 25.332	781.5	280 21 20.7	100 23 49.5	New Weeden.	5317.5	3.725708
	71 37 01.430	33.2	319 03 00.1	139 03 46.3	Green Hill....	2476.3	3.393801
Governors Island, 1873.	41 21 19.416	599.0	218 02 43.8	38 04 10.2	Kenyon.....	4933.3	3.693142
	71 39 12.292	285.7	246 37 45.6	66 39 58.2	Green Hill....	5081.0	3.705945
			62 48 52.1	242 46 36.7	Quonochontaug.	5359.9	3.729159
Ajax, 1873.....	41 20 35.864	1106.4	245 11 43.1	65 13 05.8	Governors Island.	3203.9	3.505679
	71 41 17.404	404.6	59 13 46.8	239 12 54.0	Quonochontaug.	2163.0	3.335061

Tertiary stations, Point Judith westward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Principal points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Hiscox, 1873	41 21 29.185	900.3	274 03 07.5	94 05 07.9	Governors Island.	4247.4	3.628128
	71 42 14.556	338.3					
			321 04 00.6	141 04 38.2	Ajax	2114.5	3.325198
			10 53 36.2	190 53 21.2	Quonochontaug.	2802.2	3.447503
Noyes Neck, 1873	41 19 46.490	1434.2	233 39 04.2	53 41 06.6	Hiscox	5347.3	3.728137
	71 45 19.841	461.4	263 41 53.3	83 43 40.6	Quonochontaug.	3801.9	3.580004
			78 10 36.7	258 06 40.8	Watch Hill	8492.5	3.929034
Village Hill, 1873	41 20 54.173	1671.3	296 50 48.4	116 52 22.2	Quonochontaug.	3699.9	3.568188
	71 44 59.291	1378.3					
			12 53 29.0	192 53 15.4	Noyes Neck	2142.0	3.330816
Hector, 1873	41 19 31.659	976.7	232 12 56.5	52 14 29.8	Village Hill	4155.9	3.618662
	71 47 20.571	478.4	260 44 01.1	80 45 20.8	Noyes Neck	2844.7	3.454031
			76 51 26.6	256 48 50.4	Watch Hill	5652.1	3.752212
Cranberry Hill 2, 1873.	41 20 53.307	1647.3	269 34 32.9	89 36 07.7	Village Hill	3336.4	3.523274
	71 47 22.799	530.0	305 48 59.5	125 50 20.7	Noyes Neck	3526.2	3.547303
			358 49 22.1	178 49 23.6	Hector	2522.1	3.401765
Bunker Hill, 1873	41 23 10.163	313.5	261 29 48.8	81 31 18.0	Kenyon	3169.3	3.500969
	71 39 16.346	379.8	286 24 21.1	106 26 36.4	Green Hill	4960.2	3.695502
			358 25 14.3	178 25 17.1	Governors Island.	3417.8	3.533750
			30 35 55.7	210 34 35.8	Ajax	5529.5	3.742685
Achilles, 1873	41 19 15.355	473.7	77 18 58.3	257 17 19.5	Watch Hill	3568.1	3.552439
	71 48 47.545	1105.8	213 04 39.7	33 05 35.7	Cranberry Hill 2	3609.9	3.557493
			258 44 04.7	78 46 21.9	Noyes Neck	4925.0	3.692405
			256 01 41.2	76 02 38.6	Hector	2084.4	3.318971
Commons, 1873	41 21 15.213	469.2	259 30 00.9	79 31 07.1	Hiscox	2367.4	3.374267
	71 43 54.697	1271.5	288 20 59.9	108 22 43.8	Ajax	3853.0	3.585794
			322 12 49.6	142 13 40.7	Quonochontaug.	2936.2	3.467788
			35 53 04.6	215 52 08.4	Noyes Neck	3378.0	3.528653
			66 37 45.9	246 37 03.2	Village Hill	1635.9	3.213755
Fort Hill, 1873	41 20 01.266	39.1	288 54 49.8	108 56 05.4	Hector	2816.2	3.449669
	71 49 15.129	351.8	335 37 51.4	155 38 09.6	Achilles	1554.8	3.191683
			52 13 49.6	232 12 28.9	Watch Hill	3592.0	3.555339
Frost (Conn.), 1873	41 20 57.572	1776.0	4 42 40.8	184 42 31.6	Watch Hill	3951.0	3.596705
	71 51 03.250	75.6	304 38 01.8	124 39 13.2	Fort Hill	3055.6	3.485095
Watch Hill lighthouse, 1873.	41 18 14.192	437.8	187 39 57.9	7 40 17.3	Frost	5085.7	3.706351
	71 51 32.432	754.6	224 01 10.6	44 02 41.4	Fort Hill	4594.5	3.662237
			243 47 22.9	63 49 11.8	Achilles	4274.4	3.630876
Stonington Harbor lighthouse (Conn.), 1873.	41 19 42.719	1317.9	243 23 00.4	63 25 11.4	Frost	5157.5	3.712438
	71 54 21.588	502.1	265 22 53.8	85 26 16.2	Fort Hill	7149.4	3.854269
			290 46 35.3	110 48 37.0	Watch Hill	4587.2	3.661549
Block Island north lighthouse, 1874.	41 13 39.660	1223.4	12 41 29.9	192 40 53.1	Block Island	5931.6	3.773168
	71 34 34.736	809.1	56 55 18.4	236 42 19.5	Montauk 2	32985.2	4.518320
			95 05 03.3	274 47 54.1	Mt. Prospect 2	36488.0	4.562150
			112 23 46.3	292 12 45.1	Watch Hill	25219.9	4.401743
East End (N. Y.), 1835.	41 17 06.265	193.2	244 21 31.6	64 24 40.9	Watch Hill	7397.5	3.869083
	71 56 03.910	91.1	292 50 00.1	113 03 32.8	Block Island	31190.8	4.494026
Wampassot (Conn.), 1835.	41 19 44.648	1377.4	286 49 15.9	106 51 54.2	Watch Hill	5825.5	3.765330
	71 55 16.929	393.6	12 36 45.1	192 36 14.1	East End	5006.8	3.699556
Weeden (U. S. E), 1909.	41 23 01.218	37.6	72 32 21.5	252 30 39.7	Green Hill	3751.7	3.574230
	71 33 17.593	408.8	169 06 38.4	349 06 21.7	Broad Hill	3101.9	3.491624
			223 54 20.9	43 57 28.7	Meetinghouse Hill 2.	9508.1	3.978094

Tertiary stations, Point Judith westward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Principal points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Breachway (U. S. E.), 1909.	41 22 34.615	1067.9	87 28 53.3	267 25 37.6	Green Hill....	6887.2	3.838043
	71 30 55.518	1290.2	103 58 23.4	283 56 49.5	Weeden (U. S. E.).	3401.9	3.531716
			134 51 59.6	314 50 09.0	Broad Hill....	5482.6	3.738984
			301 00 55.2	121 02 14.9	Point Judith lighthouse.	3275.8	3.515313
Jumping Hill (U. S. E.), 1909.	41 24 12.680	391.2	4 14 04.7	184 13 58.3	Breachway (U. S. E.).	3033.6	3.481955
	71 30 45.879	1065.7	57 59 18.5	237 57 38.2	Weeden (U. S. E.).	4157.3	3.618814
Kenyon North (U. S. E.), 1909.	41 23 50.264	1550.6	43 45 47.1	223 44 43.5	Breachway (U. S. E.).	3231.0	3.509333
	71 29 19.349	449.5	74 43 59.1	254 41 21.6	Weeden (U. S. E.).	5738.2	3.758778
			108 59 35.1	288 58 37.9	Jumping Hill (U. S. E.).	2125.7	3.327497
Potter (U. S. E.), 1909.	41 23 52.360	1615.3	327 26 33.8	147 27 17.4	Breachway (U. S. E.).	2845.4	3.454147
	71 32 01.412	32.8	48 17 33.2	228 16 42.9	Weeden (U. S. E.).	2371.1	3.374944
			250 19 57.9	70 20 47.9	Jumping Hill (U. S. E.).	1863.2	3.270200
			270 58 09.2	90 59 56.4	Kenyon North (U. S. E.).	3765.4	3.575806
Poor Farm (U. S. E), 1909.	41 25 44.791	1381.8	117 19 24.4	297 18 50.0	Sugarloaf Hill	1356.2	3.132334
	71 29 48.125	1117.5	244 06 16.1	64 07.07.3	Dillon (U. S. E.).	1993.2	3.299557
Depew (U. S. E.), 1909.	41 25 36.500	1126.0	108 29 02.8	288 28 41.0	Poor Farm (U. S. E.).	806.9	2.906835
	71 29 15.166	352.2	222 23 17.2	42 23 46.5	Dillon (U. S. E.).	1524.7	3.183189
Carr (U. S. E.), 1909.	41 24 52.206	1610.6	153 40 33.6	333 40 01.9	Sugarloaf Hill.	2504.5	3.398718
	71 29 52.187	1212.0	183 19 38.8	3 19 41.5	Poor Farm (U. S. E.)	1625.0	3.210853
			212 10 23.5	32 10 48.0	Depew (U. S. E.).	1614.4	3.208018
Larkin (U. S. E.), 1909.	41 21 36.436	1124.1	75 48 12.2	255 47 13.2	Governors Island.	2139.7	3.330355
	71 37 43.055	1000.7	143 08 47.8	323 07 46.1	Bunker Hill...	3614.0	3.557984
			196 03 34.9	16 04 02.4	Kenyon.....	3495.9	3.543561
			240 06 05.4	60 07 19.1	Green Hill....	2988.0	3.475379
Davis (U. S. E.), 1909.	41 21 56.723	1749.9	77 08 37.1	257 07 19.2	Larkin (U. S. E.).	2810.4	3.448763
	71 35 45.179	1050.0	170 12 12.1	350 12 07.9	Green Hill....	875.9	2.942442
Moonstone (U. S. E.), 1909.	41 22 12.085	372.8	73 40 13.3	253 39 27.3	Davis (U. S. E.).	1685.0	3.226588
	71 34 35.608	827.5	102 26 07.8	282 25 17.6	Green Hill....	1808.2	3.257257
			230 05 40.1	50 06 31.7	Weeden (U. S. E.).	2363.1	3.373484
Carpenter (U. S. E.), 1909.	41 22 29.849	920.8	144 45 34.8	324 45 15.4	Weeden (U. S. E.).	1184.9	3.073684
	71 32 48.168	1119.3	266 46 29.1	86 47 43.6	Breachway (U. S. E.).	2621.9	3.418623
Browning (U. S. E.), 1909.	41 22 26.951	831.4	66 26 17.5	246 25 47.6	Moonstone (U. S. E.).	1147.1	3.059615
	71 33 50.365	1170.4	215 45 53.2	35 46 14.9	Weeden (U. S. E.).	1302.9	3.114899
			266 27 16.4	86 27 57.5	Carpenter (U. S. E.).	1448.1	3.160809
Whitford (U. S. E.), 1909.	41 22 23.138	713.8	237 50 46.4	57 51 39.6	Weeden (U. S. E.).	2207.9	3.343075
	71 34 38.041	884.0	263 56 05.1	83 56 36.6	Browning (U. S. E.).	1114.2	3.046048
			350 35 32.6	170 35 34.2	Moonstone (U. S. E.).	345.6	2.538623
			91 37 16.9	271 36 28.3	Green Hill....	1710.0	3.232999

Tertiary stations, Point Judith westward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Principal points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Gardiner (U. S. E.), 1909.	41 22 47.886 71 32 43.117	1477.3 1001.9	117 10 44.3	297 10 21.6	Weeden (U. S. E.).	900.5	2.954494
			205 58 08.6	25 58 36.2	Potter (U.S.E.)	2212.5	3.344884
			279 17 20.8	99 18 32.0	Breachway (U. S. E.).	2533.6	3.403741
Cashman (U.S.E.), 1909.	41 23 00.178 71 34 46.226	5.5 1074.1	269 05 56.7	89 06 55.3	Weeden (U. S. E.).	2059.7	3.313803
			350 33 28.1	170 33 35.1	Moonstone (U. S. E.).	1504.0	3.177261
			350 32 53.2	170 32 58.6	Whitford (U. S. E.).	1158.4	3.063862
Westerly, 1909.....	41 21 59.868 71 40 52.826	1846.9 1227.7	243 51 30.4	63 54 03.3	Kenyon.....	5988.7	3.777330
			263 43 39.0	83 46 58.1	Green Hill....	7042.6	3.847731
			298 05 41.7	118 06 48.1	Governors Island.	2649.1	3.423100
Ajax 2 (U. S. E.), 1909.	41 20 36.278 71 41 17.504	1119.2 407.0	96 07 53.3	276 05 26.8	Village Hill...	5185.8	3.714815
			140 54 28.3	320 53 50.6	Hiscox.....	2103.1	3.322863
			245 25 10.2	65 26 32.9	Governors Island.	3200.7	3.505240
Peabody (U. S. E.), 1909.	41 21 09.760 71 42 06.974	301.1 162.1	163 36 42.3	343 36 37.3	Hiscox.....	624.7	2.795640
			265 47 17.3	85 49 12.7	Governors Island.	4071.6	3.609762
			311 55 21.1	131 55 53.8	Ajax 2 (U. S. E.).	1545.8	3.189162
Lucas (U. S. E.), 1909.	41 20 05.418 71 42 27.064	167.1 629.3	113 02 15.1	293 00 34.6	Village Hill...	3845.7	3.584971
			186 25 10.2	6 25 18.5	Hiscox.....	2600.5	3.415057
			193 14 25.2	13 14 38.5	Peabody (U. S. E.).	2039.1	3.309447
			239 30 42.6	59 31 28.6	Ajax 2 (U. S. E.).	1876.8	3.273412
Gavitt (U. S. E.), 1909.	41 21 05.096 71 44 03.972	157.2 92.3	266 57 41.2	86 58 58.5	Peabody (U. S. E.).	2723.6	3.435148
			309 14 39.0	129 15 43.0	Lucas (U. S. E.).	2909.6	3.463837
			75 19 18.6	255 18 42.1	Village Hill...	1329.4	3.123669
Quonochontaug Pond (U. S. E.), 1909.	41 19 55.962 71 43 39.742	1726.4 924.1	134 09 42.1	314 08 49.6	Village Hill...	2577.9	3.411272
			165 12 21.0	345 12 05.0	Gavitt (U. S. E.).	2205.9	3.343586
			260 12 01.5	80 12 49.5	Lucas (U. S. E.).	1715.0	3.234261
Bentley, 1909.....	41 21 51.907 71 45 33.272	1601.3 773.3	336 04 49.4	156 05 11.8	Village Hill...	1948.4	3.289674
			54 40 28.8	234 39 16.4	Cranberry Hill 2.	3120.9	3.494283
Cranberry Hill 3 (U. S. E.), 1909.	41 20 53.431 71 47 22.772	1648.3 529.4	234 39 50.2	54 41 02.5	Bentley.....	3119.8	3.494128
			269 35 38.2	89 37 13.0	Village Hill...	3335.7	3.523193
Chapman (U. S. E.), 1909.	41 19 55.443 71 45 24.106	1710.6 560.5	91 56 04.8	271 53 32.2	Fort Hill.....	5375.1	3.730387
			122 57 59.6	302 56 41.3	Cranberry Hill 3 (U. S. E.).	3288.2	3.516960
			197 39 47.9	17 40 04.3	Village Hill...	1901.3	3.279049
			269 36 57.6	89 38 06.5	Quonochontaug Pond (U. S. E.).	2426.9	3.385052
Brightman (U. S. E.), 1909.	41 19 35.978 71 47 02.679	1109.9 62.3	104 13 29.5	284 12 01.9	Fort Hill.....	3177.3	3.502061
			168 56 17.2	348 56 03.9	Cranberry Hill 3 (U. S. E.).	2434.6	3.386435
			229 55 53.4	49 57 14.9	Village Hill...	3748.4	3.573841
			255 18 30.1	75 19 35.1	Chapman (U. S. E.).	2369.7	3.374689
Pleasant View (U. S. E.), 1909.	41 19 24.985 71 48 14.142	770.8 328.9	128 17 05.4	308 16 25.0	Fort Hill.....	1806.7	3.256887
			203 38 15.6	23 38 49.5	Cranberry Hill 3 (U. S. E.).	2978.5	3.474002
			258 27 36.1	78 28 23.3	Brightman (U. S. E.).	1696.2	3.229480

Tertiary stations, Point Judith westward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Principal points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Sunset Hill (U. S. E.), 1909.	41 18 50.200	1548.7	184 47 01.2	4 47 10.5	Frost	3943.1	3.595841
	71 51 17.394	404.6	232 21 21.6	52 22 42.3	Fort Hill	3590.5	3.555158
			255 51 03.9	75 53 05.0	Pleasant View (U. S. E.).	4395.2	3.642978
Club House (U. S. E.), 1909.	41 19 19.199	592.3	63 02 33.9	243 01 44.0	Sunset Hill (U. S. E.)	1973.0	3.295126
	71 50 01.788	41.6	219 53 42.1	39 54 12.9	Fort Hill	1691.6	3.228296
			265 54 42.6	85 55 53.8	Pleasant View (U. S. E.).	2509.9	3.399654
Browning, J. M. (U. S. E.), 1909.	41 18 54.543	1682.7	83 04 12.9	263 03 41.6	Sunset Hill (U. S. E.).	1109.9	3.045290
	71 50 30.025	698.4	220 13 53.4	40 14 42.8	Fort Hill	2696.4	3.430792
			220 48 23.8	40 48 42.4	Club House (U. S. E.).	1004.9	3.002137
			253 26 17.2	73 27 47.0	Pleasant View (U. S. E.).	3297.0	3.518119
No. 13 (U. S. E.), 1909.	41 19 30.056	1204.9	242 09 30.4	62 11 40.7	Frost	5189.5	3.715126
	71 54 20.636	470.9	289 27 33.6	109 29 34.6	Sunset Hill (U. S. E.).	4520.5	3.655184
No. 9 (U. S. E.), 1909.	41 18 42.417	1308.6	133 49 21.1	313 48 29.4	No. 13 (U.S.E.)	2523.8	3.402049
	71 53 02.337	54.4	213 34 50.0	33 36 08.7	Frost	5005.4	3.699436
			245 15 40.1	65 18 10.1	Fort Hill	5817.2	3.764713
			264 22 21.5	84 23 30.8	Sunset Hill (U. S. E.).	2452.8	3.389666
No. 8 (U. S. E.), 1909.	41 19 03.195	98.6	219 43 17.4	39 44 40.6	Frost	4588.2	3.661645
	71 53 09.376	218.1	278 44 23.0	98 45 36.9	Sunset Hill (U. S. E.).	2635.3	3.420832
			345 40 21.1	165 40 25.7	No. 9 (U. S. E.).	661.6	2.820580
No. 1 (U. S. E.), 1909.	41 19 21.657	668.1	334 09 13.2	154 09 26.6	Sunset Hill (U. S. E.).	1078.3	3.032727
	71 51 37.604	874.6	58 26 54.4	238 25 58.5	No. 9 (U. S. E.).	2312.9	3.364158
			75 04 05.9	255 03 05.4	No. 8 (U. S. E.).	2209.1	3.344217
No. 3 (U. S. E.), 1909.	41 19 42.827	1321.2	47 12 42.7	227 12 05.2	No. 8 (U. S. E.).	1799.7	3.255196
	71 52 12.592	292.8	214 57 20.1	34 58 05.8	Frost	2813.6	3.449267
			321 39 37.9	141 40 14.3	Sunset Hill (U. S. E.).	2069.8	3.315918
No. 10 (U. S. E.), 1909.	41 18 37.885	1168.8	98 01 18.1	278 00 50.0	No. 9 (U. S. E.).	1002.4	3.001046
	71 52 19.665	457.4	124 02 06.4	304 01 33.7	No. 8 (U. S. E.).	1395.2	3.144645
			215 55 08.6	35 55 36.4	No. 1 (U. S. E.).	1667.5	3.222064
No. 7 (U. S. E.), 1909.	41 19 33.098	1021.1	97 29 26.9	277 28 47.2	No. 13 (U. S. E.).	1410.8	3.149470
	71 53 20.488	476.5	230 45 01.6	50 46 32.2	Frost	4119.9	3.614891
			294 47 51.5	114 49 12.8	Sunset Hill (U. S. E.).	3154.0	3.498862
No. 5 (U. S. E.), 1909.	41 20 05.506	169.9	242 53 25.0	62 54 54.1	Frost	3526.3	3.547319
	71 53 18.268	424.8	309 33 35.0	129 34 54.8	Sunset Hill (U. S. E.).	3646.8	3.561916
Clayhead, 1911	41 12 44.106	1360.7	32 15 20.2	212 14 07.6	Block Island	4815.7	3.682658
	71 33 40.383	940.8	143 32 57.1	323 32 21.3	Block Island, north lighthouse.	2130.7	3.328526
Block Island, southeast lighthouse, 1874.	41 09 10.103	311.7	71 55 24.7	251 41 30.6	Montauk 2	31195.5	4.494092
	71 33 08.359	195.0	127 19 57.9	307 18 24.3	Block Island	4171.1	3.620253
			173 33 09.4	353 32 48.3	Clayhead	6643.8	3.822417

Tertiary stations, Point Judith westward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Principal points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Paine, 1874	41 09 18.840	581.2	70 56 12.8	250 42 42.9	Montauk 2	30472.1	4.483903
	71 33 44.968	1048.5	132 31 50.7	312 30 47.2	Block Island	3342.7	3.524098
			287 31 08.6	107 31 32.7	Block Island, southeast lighthouse.	895.2	2.951900
Sandy Hill, 1911	41 11 06.435	198.5	201 19 28.7	21 20 21.0	Block Island, north lighthouse.	5074.5	3.705393
	71 35 53.967	1257.7					
			225 55 09.3	45 56 37.3	Clayhead	4332.1	3.636699
			332 50 44.5	152 50 59.9	Block Island	1191.2	3.075972
Southwest, 1911	41 09 01.799	55.5	188 40 03.5	8 40 15.5	Block Island	2817.1	3.449808
	71 35 48.857	1139.2	203 34 33.7	23 35 58.3	Clayhead	7483.1	3.874084
			266 04 11.3	86 05 56.9	Block Island, southeast lighthouse.	3751.2	3.574175
Ocean View hotel, cupola, 1911.	41 10 16.473	508.2	98 57 59.0	278 56 32.8	Block Island	3092.6	3.490320
	71 33 19.591	456.7	113 12 03.8	293 10 22.1	Sandy Hill	3914.5	3.592676
			173 55 43.8	353 55 30.1	Clayhead	4580.0	3.660867
New Shoreham life saving station, lookout, 1911.	41 10 32.820	1012.5	89 28 18.1	269 27 09.4	Block Island	2437.0	3.386856
	71 33 46.100	1074.7	109 11 50.5	289 10 26.3	Sandy Hill	3155.6	3.499079
			181 52 58.5	1 53 02.3	Clayhead	4052.3	3.607698
			309 12 47.6	129 13 05.1	Ocean View Hotel cupola	797.5	2.901751
Rock, 1913	41 22 23.788	733.9	260 37 01.3	80 37 58.9	Breachway (U. S. E.).	2050.5	3.311850
	71 32 22.573	524.6	285 38 38.6	105 40 55.9	Point Judith lighthouse.	5016.8	3.700424
Main breakwater center light, 1912.	41 21 15.503	478.3	128 17 49.7	308 16 33.8	Rock	3399.9	3.531472
	71 30 27.754	645.1	165 11 35.0	345 11 16.7	Breachway (U. S. E.).	2524.5	3.402168
			250 48 38.4	70 49 39.8	Point Judith lighthouse.	2289.3	3.359707
South beacon, 1912	41 21 16.925	522.1	253 30 27.9	73 31 35.9	Point Judith lighthouse.	2496.4	3.397310
	71 30 37.714	876.7					
			15 03 25.3	195 01 24.7	Clayhead	16381.3	4.214348
			21 22 32.0	201 19 55.6	Block Island north lighthouse.	15146.1	4.180302
Supplementary points.							
White light, 1912	41 10 38.490	1187.4	7 50 39.8	187 50 37.2	Ocean View Hotel cupola.	685.6	2.836069
	71 33 15.577	363.1	76 11 15.9	256 10 55.8	New Shoreham L. S. S. lookout.	732.6	2.864891
			171 31 04.1	351 30 47.8	Clayhead	3918.0	3.593066
Outer red light, 1912	41 10 31.152	961.0	353 04 18.7	173 04 20.3	Ocean View Hotel cupola	456.1	2.659093
	71 33 21.951	511.7	95 13 22.8	275 13 06.9	New Shoreham L. S. S. lookout.	565.2	2.752216
			174 01 23.3	354 01 11.2	Clayhead	4123.9	3.615313
Inner red light, 1912	41 10 24.509	756.1	348 34 53.4	168 34 54.8	Ocean View Hotel cupola	252.9	2.402973
	71 33 21.739	506.8	114 17 59.9	294 17 43.8	New Shoreham L. S. S. lookout.	623.0	2.794506
			174 14 25.4	354 14 13.1	Clayhead	4328.3	3.636317
Springhouse tank, 1912.	41 10 03.333	102.8	106 17 16.9	286 15 51.1	Block Island	3163.8	3.500214
	71 33 20.359	474.6	118 32 45.8	298 31 04.6	Sandy Hill	4075.4	3.610170
			174 37 37.0	354 37 23.8	Clayhead	4981.6	3.697367

Tertiary stations, Point Judith westward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Supplementary points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Barn, east cupola, 1912.	41 22 49.873	1538.6	305 25 58.6	125 27 53.0	South beacon.	4944.1	3.694083
	71 33 31.009	720.5	0 40 10.2	180 40 04.0	Clayhead.....	18688.8	4.271582
			4 59 51.0	184 59 09.0	Block Island, north lighthouse.	17038.4	4.231429
Boathouse, southeast corner, 1912.	41 21 54.122	1669.7	278 56 32.7	98 59 59.2	South beacon.	7359.0	3.866817
	71 35 50.438	1172.3	349 52 31.2	169 53 57.1	Clayhead.....	17235.4	4.236422
			353 24 23.0	173 25 13.1	Block Island, north lighthouse.	15355.2	4.186256
Church cupola, 1913..	41 22 27.384	844.8	264 04 55.9	84 05 57.2	Breachway (U.S.E.).	2166.7	3.335805
	71 32 28.261						
		656.8	308 21 31.4	128 22 51.0	Main breakwater center light.	3572.4	3.552963
			310 00 28.2	130 00 31.9	Rock.....	172.6	2.236926
Pole, 1913[1].....	41 21 56.29	1736.6	112 35 15	292 34 17	Rock.....	2209.3	3.344246
	71 30 54.80	1273.6	179 11 31	359 11 30	Breachway (U.S.E.).	1182.4	3.072764
Main breakwater west light, 1913.	41 21 41.146	1269.4	121 14 37.4	301 13 35.7	Rock.....	2536.9	3.404296
	71 30 49.243	1144.6	174 56 54.1	354 56 50.0	Breachway (U.S.E.).	1655.9	3.219043
			327 43 49.3	147 44 03.5	Main breakwater center light.	935.6	2.971086
Main breakwater east light, 1913.	41 21 35.401	1092.1	51 30 55.3	231 30 33.3	Main breakwater center light.	986.4	2.994044
	71 29 54.540	1267.7					
			113 28 03.9	293 26 26.0	Rock.....	3750.4	3.574079
			142 12 03.6	322 11 23.3	Breachway (U.S.E.).	2312.0	3.363988
East breakwater light, 1913.	41 21 32.374	998.7	66 20 51.2	246 20 17.4	Main breakwater center light.	1297.1	3.112958
	71 29 36.644	851.8					
			112 22 19.6	292 20 29.9	Rock.....	4169.9	3.620127
			136 20 08.7	316 19 16.6	Breachway (U.S.E.).	2654.7	3.424008
House chimney, 1913[1]	41 22 13.50	416.5	45 24 31	225 23 39	Main breakwater center light.	2548.3	3.406243
	71 29 09.69	225.2					
			104 50 39	284 49 29	Breachway (U.S.E.).	2544.1	3.405542
House chimney, 1913.	41 22 33.320	1027.9	351 39 03.5	171 39 13.5	Main breakwater center light.	2426.4	3.384956
	71 30 42.911	997.2					
			82 46 22.8	262 45 16.9	Rock.....	2334.6	3.368219
			97 45 52.2	277 45 43.9	Breachway (U.S.E.).	295.7	2.470810
Searles flagstaff, 1911.	41 12 08.150	251.4	39 17 12.5	219 16 04.0	Block Island..	3828.7	3.583046
	71 33 46.638	1086.6	57 19 32.9	237 18 09.0	Sandy Hill....	3525.4	3.547208
			187 29 02.6	7 29 06.7	Clayhead.....	1118.8	3.048736
Wireless mast, 1911..	41 09 11.958	368.9	85 21 28.9	265 19 40.3	Southwest....	3859.7	3.586558
	71 33 03.876	90.4	125 51 19.0	305 49 42.4	Block Island..	4220.9	3.625409
			131 42 18.8	311 40 26.7	Sandy Hill....	5309.7	3.725071
			172 35 45.3	352 35 21.2	Clayhead.....	6599.6	3.819518
Windmill, 1911.....	41 09 28.474	878.4	71 20 03.5	251 18 54.8	Southwest....	2569.9	3.409914
	71 34 04.445	103.6	134 19 24.1	314 18 27.4	Block Island..	2808.5	3.448478
			185 18 24.2	5 18 40.0	Clayhead.....	6061.0	3.782546
Signal Tower, southeast lighthouse, 1911.	41 09 12.216	376.9	85 05 20.7	265 03 35.5	Southwest....	3742.5	3.573158
	71 33 08.951	208.7	126 43 42.9	306 42 09.7	Block Island..	4120.8	3.614986
			173 36 30.2	353 36 09.6	Clayhead.....	6577.5	3.818062

[1] No check on this position.

Tertiary stations, Point Judith westward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Supplementary points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Highland House cupola, 1911.	41 10 03.448	106.4	59 28 40.5	239 27 09.5	Southwest....	3743.2	3.573244
	71 33 30.574	712.8	107 31 24.7	287 30 05.7	Block Island..	2935.0	3.467601
			120 11 04.8	300 09 30.4	Sandy Hill....	3866.1	3.587273
			177 21 36.9	357 21 30.5	Clayhead.....	4961.4	3.695604
Springhouse cupola, 1911.	41 10 04.918	151.7	60 51 09.2	240 49 30.7	Southwest....	3996.0	3.601630
	71 33 19.188	447.3	105 18 12.6	285 16 46.1	Block Island..	3176.8	3.501987
			117 45 33.3	297 43 51.4	Sandy Hill....	4076.4	3.610275
			174 15 31.2	354 15 17.3	Clayhead.....	4935.6	3.693336
Weather Bureau signal tower, 1911.	41 10 41.939	1293.8	80 09 47.7	260 08 58.3	Block Island..	1779.5	3.250307
	71 34 15.424	359.5	108 13 14.5	288 12 09.6	Sandy Hill....	2417.9	3.383440
			192 13 15.8	12 13 38.9	Clayhead.....	3856.2	3.586155
New Shoreham life saving station, flagstaff, 1911.[1]	41 10 33.01	1018.5	109 01 36	289 00 12	Sandy Hill....	3164.3	3.500282
	71 33 45.61	1063.2	181 43 30	1 43 34	Clayhead.....	4045.9	3.607014
Barlow's house cupola, 1911.[1]	41 08 57.13	1762.5	95 28 23	275 27 41	Southwest....	1511.7	3.179467
	71 34 44.32	1033.5	159 45 56	339 45 25	Block Island..	3121.7	3.494394
Sandy Point life saving station, flagstaff, 1911.	41 13 45.936	1417.1	20 15 43.9	200 14 52.5	Sandy Hill....	5244.8	3.719728
	71 34 36.033	839.2	325 47 42.9	145 48 19.6	Clayhead.....	2306.2	3.362888
			351 08 31.0	171 08 31.9	Block Island north lighthouse.	195.9	2.292138
Sandy Point life saving station, lookout, 1911.	41 13 45.160	1393.2	20 15 40.2	200 14 49.1	Sandy Hill....	5219.2	3.717606
	71 34 36.416	848.2	325 16 26.8	145 17 03.7	Clayhead.....	2291.5	3.360114
			347 01 21.0	167 01 22.1	Block Island north lighthouse.	174.1	2.240852
Great Salt Pond breakwater, outer end light, 1911.	41 11 54.899	1693.7	17 04 10.8	197 03 57.8	Sandy Hill....	1563.9	3.194221
	71 35 34.270	798.6	203 13 14.8	23 13 54.0	Block Island north lighthouse.	3516.8	3.546146
			240 12 57.7	60 14 12.7	Clayhead.....	3056.9	3.485287
			358 06 21.0	178 06 23.4	Block Island..	2556.4	3.407622
Great Salt Pond breakwater, inner end light, 1911.	41 11 45.359	1399.3	29 00 19.6	209 00 00.8	Sandy Hill....	1372.9	3.137654
	71 35 25.403	591.9	198 30 11.5	18 30 44.9	Block Island north lighthouse.	3718.4	3.570353
			233 27 52.6	53 29 01.8	Clayhead.....	3044.9	3.483575
			3 05 38.2	183 05 34.8	Block Island..	2264.0	3.354871
Block Island life saving station, flagstaff, 1911.	41 09 49.765	1535.3	203 46 44.4	23 47 13.8	Sandy Hill....	2584.7	3.412403
	71 36 38.683	901.9	230 32 28.0	50 33 12.8	Block Island..	2054.1	3.312625
			321 51 33.9	141 52 06.7	Southwest....	1881.2	3.274443
Block Island life saving station, chimney, 1911.[1]	41 09 49.39	1523.7	230 04 35	50 05 19	Block Island..	2052.1	3.312209
	71 36 38.16	889.7	321 56 02	141 56 34	Southwest....	1864.6	3.270594
Baptist church steeple, 1911.	41 10 05.356	165.2	188 35 56.0	8 36 04.0	Sandy Hill....	1905.6	3.280040
	71 36 06.191	144.3	225 08 49.0	45 09 12.4	Block Island..	1168.8	3.067748
			348 21 04.0	168 21 15.4	Southwest....	2001.9	3.301433
Hygea Hotel cupola, 1911.	41 10 36.953	1140.0	85 03 49.6	265 03 00.5	Block Island..	1745.6	3.241946
	71 34 16.035	373.8	111 44 01.2	291 42 56.7	Sandy Hill....	2457.1	3.390422
			191 57 16.4	11 57 39.9	Clayhead.....	4009.6	3.603096
Latimer Reef lighthouse (N. Y.), 1886.	41 18 16.406	506.1	221 07 20.5	41 08 26.5	Stonington Harbor lighthouse.	3535.2	3.548417
	71 56 01.567	36.5					
			234 20 41.2	54 23 58.2	Frost.....	8535.2	3.931214
			251 04 17.5	71 08 45.9	Fort Hill.....	9991.3	3.999621
			270 36 01.1	90 38 58.6	Watch Hill lighthouse.	6261.4	3.796674

[1] No check on this position.

Tertiary stations, Point Judith westward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Supplementary points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Stonington breakwater lighthouse (Conn.), 1904.	41 19 30.593 71 54 48.931	943.8 1137.9	239 31 41.4	59 31 59.5	Stonington Harbor lighthouse.	737.8	2.967914
			242 53 48.5	62 56 17.6	Frost	5893.8	3.770395
			263 01 09.0	83 04 49.5	Fort Hill	7820.0	3.893205
			297 15 39.7	117 17 49.4	Watch Hill lighthouse.	5142.5	3.711174
			36 26 30.8	216 25 42.9	Latimer Reef lighthouse.	2844.7	3.454035
Stonington outer breakwater lighthouse, 1904.	41 18 59.412 71 54 30.652	1832.9 713.0	57 54 21.8	237 53 21.9	Latimer Reef lighthouse.	2496.5	3.397337
			188 57 55.8	8 58 01.9	Stonington Harbor lighthouse.	1352.5	3.131147
			232 53 54.2	52 56 11.3	Frost	6045.4	3.781427
			288 34 54.8	108 36 52.4	Watch Hill lighthouse.	4374.1	3.640889
Watch Hill Reef beacon, 1904.	41 17 42.375 71 51 52.225	1307.3 1215.3	100 16 51.6	280 14 07.1	Latimer Reef lighthouse.	5895.2	3.770502
			122 49 48.7	302 48 04.1	Stonington outer breakwater lighthouse.	4385.3	3.642003
			136 54 44.2	316 53 05.7	Stonington Harbor lighthouse.	5084.7	3.706267
			205 07 52.7	25 08 05.7	Watch Hill lighthouse.	1084.2	3.035108
Catumb Rocks beacon, 1904.	41 17 30.345 71 53 00.430	936.2 10.0	108 38 58.0	288 36 58.5	Latimer Reef lighthouse.	4447.4	3.648107
			142 37 58.4	322 36 58.8	Stonington outer breakwater lighthouse.	3457.6	3.538779
			155 11 47.8	335 10 54.3	Stonington Harbor lighthouse.	4498.9	3.653111
			236 32 22.4	56 33 20.5	Watch Hill lighthouse.	2453.8	3.389847
Sugar Rock beacon (bent), 1904.	41 17 41.253 71 52 45.529	1272.7 1059.3	103 23 34.0	283 21 24.6	Latimer Reef lighthouse.	4688.0	3.670991
			134 36 16.9	314 35 07.4	Stonington outer breakwater lighthouse.	3434.3	3.535834
			149 12 04.3	329 11 00.9	Stonington Harbor lighthouse.	4362.8	3.639765
			239 08 04.5	59 08 52.7	Watch Hill lighthouse.	1981.1	3.296902
Rhodes Folly beacon (Conn.), 1904.	41 19 51.430 71 53 41.998	1586.6 976.6	47 55 46.0	227 54 14.0	Latimer Reef lighthouse.	4373.9	3.640872
			73 43 55.4	253 43 29.3	Stonington Harbor lighthouse.	959.1	2.981847
			241 03 04.2	61 04 49.1	Frost	4217.5	3.625056
			314 51 22.9	134 52 48.4	Watch Hill lighthouse.	4252.1	3.628602
Fort Mansfield flagstaff, 1904.	41 18 26.084 71 52 48.047	804.7 1117.7	86 13 24.4	266 11 16.6	Latimer Reef lighthouse.	4511.8	3.654346
			113 18 55.5	293 17 47.6	Stonington outer breakwater lighthouse.	2598.7	3.414762
			137 23 10.9	317 22 09.1	Stonington Harbor lighthouse.	3212.9	3.506899
			207 31 54.5	27 33 03.7	Frost	5270.6	3.721862
			239 18 51.8	59 21 12.4	Fort Hill	5757.1	3.760206
			281 46 25.6	101 47 15.3	Watch Hill lighthouse.	1796.9	3.254522

Tertiary stations, Point Judith westward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Supplementary points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Watch Hill church spire, 1904.	41 18 37.431	1154.8	23 02 44.9	203 02 36.2	Watch Hill lighthouse.	779.1	2.891583
	71 51 19.822	449.5	84 23 02.6	264 19 56.4	Latimer Reef lighthouse.	6597.7	3.819391
			115 25 45.0	295 23 47.7	Stonington Harbor lighthouse.	4693.4	3.671483
			184 56 22.9	4 56 33.7	Frost	4339.4	3.637433
			228 08 49.6	48 10 11.8	Fort Hill	3877.1	3.588505
Ocean hotel flagstaff, 1904.	41 18 37.426	1154.6	29 38 53.9	209 38 42.3	Watch Hill lighthouse.	824.7	2.916313
	71 51 14.895	346.5	84 28 20.2	264 25 11.0	Latimer Reef lighthouse.	6700.2	3.826086
			114 54 11.0	294 52 07.7	Stonington Harbor lighthouse.	4786.6	3.680028
			183 34 59.7	3 35 07.5	Frost	4331.9	3.636680
			227 06 38.2	47 07 57.4	Fort Hill	3801.1	3.579908
Watch Hill hotel, cupola, 1904.	41 18 33.826	1043.6	20 58 49.4	200 58 42.8	Watch Hill lighthouse.	648.7	2.812054
	71 51 22.449	522.2	85 17 38.9	265 14 34.7	Latimer Reef lighthouse.	6515.3	3.813932
			117 02 32.4	297 00 34.1	Stonington Harbor lighthouse.	4677.3	3.669994
			185 44 50.2	5 45 03.0	Frost	4456.9	3.649034
			227 39 20.5	47 40 44.7	Fort Hill	4005.6	3.602666
Larkin hotel, north tower, 1904.	41 18 30.157	930.4	15 23 28.9	195 23 24.9	Watch Hill lighthouse.	510.8	2.708288
	71 51 26.605	618.9	86 13 50.8	266 10 49.3	Latimer Reef lighthouse.	6410.5	3.806891
			118 49 39.4	298 47 43.9	Stonington Harbor lighthouse.	4644.9	3.666976
			186 48 29.6	6 48 45.1	Frost	4580.0	3.660866
Larkin hotel, south tower, 1904.	41 18 29.138	898.9	15 15 29.4	195 15 25.7	Watch Hill lighthouse.	477.9	2.679365
	71 51 27.027	628.7	86 30 21.0	266 27 19.8	Latimer Reef lighthouse.	6398.7	3.806092
			119 13 30.1	299 11 34.9	Stonington Harbor lighthouse.	4651.6	3.667600
			186 52 58.2	6 53 13.9	Frost	4612.4	3.663926
White, 1912	41 09 13.623	420.3	192 23 59.7	12 24 14.7	Block Island	2478.0	3.394109
	71 35 53.472	1246.8	271 36 01.3	91 37 49.9	Block Island southeast lighthouse.	3851.5	3.585633
			343 33 42.5	163 33 45.5	Southwest	380.3	2.580100
Chim, 1912[1]	41 09 22.16	683.7	217 10 00	37 10 46	Block Island	2706.7	3.432445
	71 36 40.80	951.2	297 24 39	117 25 13	Southwest	1364.3	3.134917
Edge, 1912[1]	41 08 50.49	1557.7	133 56 12	313 55 43	Chim	1408.1	3.148644
	71 35 57.31	1336.4	209 27 52	29 27 57	Southwest	400.6	2.602717
North rear range, 1918.[1]	41 13 40.45	1247.8	324 13 38	144 14 14	Clayhead	2142.2	3.330870
	71 34 34.13	794.9	23 16 58	203 16 19	Great Salt Pond breakwater, outer end light.	3544.7	3.549584
Second front range, 1918.[1]	41 12 35.04	1080.9	259 16 01	79 16 43	Clayhead	1502.4	3.176790
	71 34 43.75	1019.3	43 33 12	223 32 39	Great Salt Pond breakwater, outer end light.	1708.6	3.232030

[1] No check on this position.

Tertiary stations, Point Judith westward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Supplementary points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Second rear range, 1918.	41 12 31.991	986.9	254 08 21.1	74 08 58.3	Clayhead.....	1368.0	3.136083
	71 34 36.869	859.0	49 27 21.1	229 26 43.3	Great Salt Pond break water, outer end light.	1760.1	3.245536
Breakwater front range, 1918.	41 11 46.435	1432.5	23 22 54.2	203 22 39.1	Sandy Hill....	1344.3	3.128502
	71 35 31.076	724.1	164 05 37.5	344 05 35.4	Great Salt Pond breakwater, outer end light.	271.5	2.433797
			235 23 26.3	55 24 39.2	Clayhead.....	3133.2	3.495983
Breakwater rear range, 1918	41 11 45.647	1408.2	25 25 15.8	205 24 59.5	Sandy Hill....	1339.3	3.126873
	71 35 29.299	682.7	157 54 53.4	337 54 50.1	Great Salt Pond breakwater, outer end light.	308.0	2.488597
			234 35 23.7	54 36 35.	Clayhead.....	3113.2	3.493207
South front range, 1918.	41 10 57.386	1770.3	210 03 48.6	30 04 17.7	Great Salt Pond breakwater, outer end light.	2050.1	3.311775
	71 36 18.345	427.6	243 49 50.7	63 50 06.8	Sandy Hill....	633.0	2.801437
South rear range, 1918.	41 10 54.557	1683.0	120 24 08.8	300 24 04.5	South front range.	172.4	2.236545
	71 36 11.966	278.9	205 15 36.6	25 16 01.4	Great Salt Pond breakwater, outer end light.	2058.3	3.313519
			228 51 40.2	48 51 52.0	Sandy Hill....	557.0	2.745836
Hopkinton church spire, 1840.[1]	41 27 34.50	1064.3	325 49 00	145 49 58	Wells Hill.....	3648.8	3.56215
	71 46 44.22	1026.3	18 53 31	198 52 14	Peleg Tiff.....	8338.5	3.92109
Napatree Point, house chimney.[1]	41 18 22.64	698.5	60 21 13	240 19 16	East End.....	4761.3	3.67773
	71 53 06.09	141.7	129 44 51	309 43 25	Wampasset...	3957.3	3.59740
Point Judith, 1838 [2]..	41 21 54.836	1691.8	189 23 18.8	9 23 40.6	Austin.....	4704.3	3.672496
	71 29 17.941	417.0	107 25 57.0	287 23 20.1	Weeden.....	5779.4	3.761880
Shannock, 1838[2].....	41 28 05.190	160.1	100 34 53.0	280 29 17.6	Champlin.....	11948.0	4.077295
	71 38 21.488	498.6	273 25 29.1	93 29 31.3	Tiff.....	8504.1	3.929627
Kingston church spire, 1838.[2]	41 28 48.900	1508.6	51 38 32.4	231 30 18.7	Wilcox.....	22123.6	4.344855
	71 31 33.541	778.1	92 20 29.7	272 10 24.1	Champlin.....	21226.2	4.326872
Pawkhungernock church, 1839.[2]	41 30 20.058	618.8	291 21 14.1	111 23 38.4	Champlin.....	5422.6	3.734205
	71 50 25.464	590.5	331 34 11.2	151 38 26.3	Wilcox.....	18827.2	4.274787
Block Island, north light-house (old), 1838.[2]	41 13 29.152	899.4	113 02 21.8	292 51 19.4	Watch Hill....	25381.3	4.404514
	71 34 33.050	769.8	13 48 28.3	193 47 50.4	Block Island..	5625.0	3.750121
Watch Hill light-house (old), 1838.[2]	41 18 13.695	422.5	197 23 37.0	17 23 46.9	Watch Hill....	1171.5	3.068736
	71 51 32.255	750.4	302 21 57.4	122 32 31.3	Block Island..	26537.2	4.423855
James, 1839 [3].....	41 32 41.81	1289.8	56 36 34	236 31 59	Champlin.....	11525.2	4.06165
	71 39 52.97	1227.6	15 19 54	195 17 11	Wilcox.....	21705.5	4.33657
Bushy Hill, 1838 [3]...	41 12 43.99	1357.0	114 45 02	294 33 25	Watch Hill....	27063.9	4.43239
	71 33 40.56	944.9	32 14 10	212 12 58	Block Island..	4810.3	3.68217
Tower Hill church, 1838.[3]	41 28 02.85	87.9	86 09 06	266 06 00	Tiff.....	6523.6	3.81449
	71 27 35.23	817.5	18 52 41	198 47 27	Block Island..	34250.0	4.53466
Big Hill, 1838 [3].....	41 23 26.36	813.3	86 12 36	266 10 56	Peleg Tiff.....	3537.6	3.54871
	71 46 08.49	197.3	20 04 51	200 04 02	Cranberry Hill	5029.7	3.70154
Wells' Hill, 1838 [3]....	41 25 56.65	1747.7	44 17 46	224 15 31	Peleg Tiff.....	6803.5	3.83273
	71 45 15.02	369.6	14 45 32	194 44 57	Big Hill.....	4794.4	3.68073

[1] No check on this position.
[2] Reprinted without change from Appendix 8, Report for 1885.
[3] Unadjusted field computation, reprinted without change from Appendix 8, Report for 1885.

Tertiary stations, Point Judith westward—Continued.

Station.	Latitude and longitude.	Seconds in meters.	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Supplementary points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Diamond Hill, tree, 1838.[2]	41 25 46.62 71 46 28.73	1438.3 667.0	33 51 20 353 47 56	213 49 53 173 48 09	Peleg Tiff..... Big Hill.....	5492.2 4352.3	3.73975 3.63872
Cormorant Hill, 1838[1]	41 23 37.22 71 49 03.45	1148.2 80.2	62 32 10 316 47 47	242 30 50 136 48 02	Eel's Hill 2.... Peleg Tiff.....	3166.3 781.7	3.50055 2.89303
Wakefield flagstaff, 1839.[1]	41 26 05.03 71 30 40.05	155.1 929.9	213 29 16 246 59 19	33 31 25 67 00 42	McSparran.... Meetinghouse Hill.	8210.8 3180.7	3.91438 3.50253
Wakefield church, white spire, 1869.[1]	41 26 24.25 71 30 11.06	748.2 256.7	255 31 45 48 29 45	75 32 50 228 29 26	Meetinghouse Hill 2. Sugar Loaf Hill	2337.8 897.7	3.36881 2.95312
Wakefield church, gray spire, 1869.[1]	41 26 25.58 71 29 50.95	789.2 1182.8	253 11 03 60 49 58	73 11 54 240 49 26	Meetinghouse Hill 2. Sugar Loaf Hill	1877.0 1304.7	3.27347 3.11550
Pierce's barn cupola, 1869.[1]	41 25 34.08 71 28 50.74	1051.4 1178.1	190 36 17 110 35 24	10 36 28 290 34 12	Meetinghouse Hill 2. Sugar Loaf Hill	2168.5 2710.3	3.33615 3.43302
Block Island derrick, 1874.[1]	41 09 10.01 71 33 08.80	308.8 205.2	71 55 22 127 27 07	251 41 26 307 25 34	Montauk 2.... Block Island..	31184.6 4164.6	4.49394 3.61957
Sandhill, 1838[1].....	41 21 40.62 71 42 17.39	1253.2 404.2	77 17 45 8 29 52	257 16 37 188 29 39	Wilcox..... Quonochontaug	2441.7 3138.8	3.38770 3.49676
White house, west chimney, 1839.[1]	41 23 20.46 71 29 18.66	631.2 433.6	79 21 55 111 48 21	259 17 35 291 45 26	Green Hill.... Broad Hill....	9291.2 6608.6	3.96807 3.82011
Sherman's, J. P., house, center chimney, 1871.[1]	41 23 25.18 71 31 45.62	776.8 1059.9	65 40 25 130 17 05	245 39 25 310 15 48	New Wooden. Broad Hill....	2312.8 3568.5	3.36413 3.55248
Topographical pole 4, 1871.[1]	41 23 59.28 71 32 40.78	1828.8 947.3	56 40 03 131 03 14	236 37 57 311 02 33	Green Hill.... Broad Hill....	5307.4 1910.9	3.72488 3.28124
Hazard's, A. P., house, center chimney, 1871.[1]	41 24 34.68 71 33 04.20	1069.9 97.6	5 11 36 44 08 23	185 11 28 224 06 32	New Wooden. Green Hill....	3109.8 5586.0	3.49273 3.74710
Topographical pole 6, 1871.[1]	41 24 00.68 71 33 31.32	21.0 727.5	47 45 24 167 34 08	227 43 51 347 34 00	Green Hill.... Broad Hill....	4403.3 1240.7	3.64378 3.09366
Browning's, W. T., house, center chimney, 1871.[1]	41 23 12.44 71 34 36.28	383.8 843.0	49 55 28 96 44 20	229 54 38 276 42 44	Green Hill.... Kenyon.....	2287.3 3395.8	3.85933 3.53094
Topographical pole 3, 1871.[1]	41 23 17.94 71 35 17.72	553.4 411.7	25 36 20 95 24 41	205 35 58 275 23 32	Green Hill.... Kenyon.....	1821.5 2420.3	3.26042 3.38387
Topographical pole near post road, 1871.[1]	41 23 41.82 71 35 54.60	1290.1 1268.5	358 19 03 71 51 46	178 19 05 251 51 02	Green Hill.... Kenyon.....	2380.2 1633.8	3.37662 3.21321
Seventh Day meeting house, north chimney, 1871.[1]	41 23 36.04 71 36 30.00	1111.8 697.0	337 55 14 65 39 56	157 55 39 245 39 35	Green Hill.... Kenyon.....	2374.9 801.3	3.37564 2.90379
Kenyon's, H. G., house, center chimney, 1871.[1]	41 22 56.41 71 37 06.67	1740.2 155.0	187 46 28 299 16 37	7 46 31 119 17 27	Kenyon..... Green Hill....	900.3 2000.3	2.95441 3.30109
Liberty pole, 1871[1]..	41 21 41.54 71 37 21.90	1281.5 509.0	188 27 01 237 36 11	8 27 15 57 37 11	Kenyon..... Green Hill....	3237.1 2485.7	3.51016 3.39544
Border Hill, topographical pole, 1871.[1]	41 23 26.74 71 38 29.70	824.9 690.0	271 12 12 297 30 02	91 13 10 117 31 47	Kenyon..... Green Hill....	2051.6 4142.5	3.31209 3.61726
Yellow barn, cupola, 1871.[1]	41 22 31.40 71 37 26.60	968.7 618.1	199 21 47 275 20 24	19 22 04 95 21 27	Kenyon..... Green Hill....	1763.6 2217.4	3.24639 3.34585

[1] Unadjusted field computation, reprinted without change from Appendix 8, Report for 1885.

Tertiary stations, Point Judith westward—Continued.

Station.	Latitude and longitude.	Seconds in meters	Azimuth.	Back azimuth.	To station.	Distance.	Logarithm of distance.
Supplementary points—Continued.	° ′ ″		° ′ ″	° ′ ″		*Meters.*	
Harris's barn, east cupola, 1873.[1]	41 22 19.74 71 40 22.64	609.0 526.1	318 41 14 21 40 20	138 42 00 201 39 44	Governor's Island. Ajax	2477.1 3447.9	3.39394 3.53756
Davis's, O., house, east gable chimney, 1873.[1]	41 20 56.91 71 44 09.26	1755.6 215.3	249 30 46 309 23 50	69 32 02 129 24 51	Hiscox Quonochontaug	2846.3 2766.4	3.45428 3.44191
Brown's, E., house, chimney, 1873.[1]	41 19 54.22 71 45 25.62	1672.7 595.8	236 34 37 267 22 57	56 36 43 87 24 48	Hiscox Quonochontaug	5321.1 3917.2	3.72600 3.59297
Nye's, R., house, white chimney, 1873.[1]	41 21 54.53 71 46 28.12	1682.3 653.5	312 01 50 33 58 57	132 02 49 213 58 21	Village Hill Cranberry Hill 2.	2780.4 2274.0	3.44410 3.35679
Knapp's Point, house chimney, 1873.[1]	41 18 22.53 71 53 07.63	695.1 177.5	211 09 07 251 46 20	31 10 29 71 47 33	Frost Watch Hill	5589.6 2704.3	3.74738 3.43206
Dunn's house, white chimney, 1873.[1]	41 21 06.38 71 46 07.44	196.8 172.9	209 28 58 283 22 00	29 29 21 103 22 45	Bentley Village Hill	1613.5 1628.4	3.20776 3.21176
Sanders's E., house, chimney, 1873.[1]	41 20 26.32 71 44 46.60	812.0 1083.4	218 38 47 285 06 31	38 39 21 105 07 50	Commons Quonochontaug	1931.7 3113.5	3.28595 3.49325
Hazard's Castle, 1869[1]	41 24 55.10 71 27 28.37	1699.9 658.9	115 51 31 226 15 27	295 49 24 46 18 59	Sugar Loaf Hill Dumplin 2	4944.6 10294.1	3.69413 4.01259
Wharton's, Dr., house, east chimney, 1869.[1]	41 24 56.65 71 27 16.49	1747.7 382.9	151 26 12 178 50 11	331 25 21 358 50 06	Meeting-house Hill 2. McSparran 2	3741.7 8983.2	3.57306 3.95343

[1] Unadjusted field computation, reprinted without change from Appendix 8, Report for 1885.

DESCRIPTIONS OF 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. 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.

In general, except where the contrary is specifically stated, the surface and underground mark 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 Superintendent, Coast and Geodetic Survey, Washington, D. C.

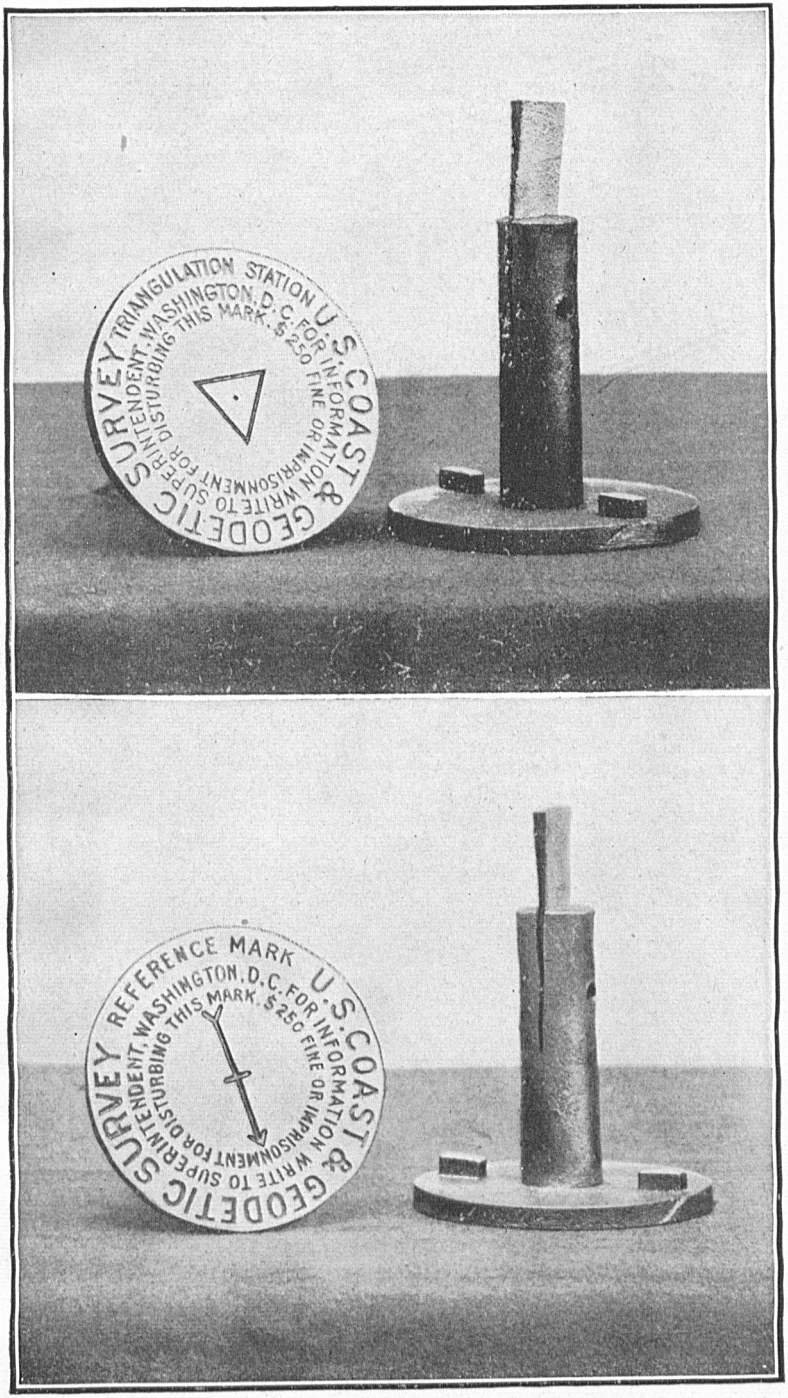

Fig. 1.—STANDARD STATION AND REFERENCE MARKS USED IN MARKING TRIANGULATION STATIONS.

MARKING OF STATIONS.

The standard disk station and reference marks referred to in the following descriptions and notes consist of a disk and shank of brass cast in one piece, as shown in figure 1. The disk of the station mark is 90 mm. in diameter, with a hole at the center surrounded by a 20 mm. equilateral triangle, and has the following inscribed legend: "U. S. Coast and Geodetic Survey Triangulation Station. For information write to the Superintendent, Washington, D. C. $250 fine or imprisonment for disturbing this mark." The shank is 25 mm. in diameter and 80 mm. long, with a slit at the lower end into which a wedge is inserted so that when it is driven into a drill hole in the rock it will bulge at the bottom and hold the mark firmly in place.

The standard disk reference mark, shown in figure 1, 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 following notes on the marking of stations are made as general as possible in order that it may not be necessary in the field to describe small and unimportant variations:

NOTES DESCRIBING SURFACE AND SUBSURFACE STATION MARKS, REFERENCE, AND WITNESS MARKS.

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

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

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

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

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

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

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

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

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

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

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

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

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

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.

Note 16.—The station is marked by the projecting point of a nail surrounded by a triangle in the top of a concrete post 8 inches square and 22 inches long, which projects slightly above the ground. The underground mark is the same as the surface mark, except that the post is only 12 inches long and is buried to a depth of 2 feet. The station mark bears the inscription "1912 (or 1913) C. & G. S."

PRIMARY STATIONS.

Blue Hill (Norfolk County, Mass., A. D. Bache, 1845; 1901).—On a hill of the same name about 20 miles northeast of the northeast corner of Rhode Island. The station is marked by a copper bolt inclosed in a triangle, cut in a large rock. Nearly east and west of the bolt are arrows pointing toward the station. Four reference marks, each a hole inclosed in a square cut in a rock, are located, respectively, 9.38 meters (30.78 feet) southwest by west; 3.83 meters (12.57 feet) north by west; 10.75 meters (35.28 feet) northeast by east; and 9.58 meters (31.44 feet) south by east of the station.

Copecut (Bristol County, Mass., Borden, 1837; A. D. Bache, 1844; 1887).—On Copecut Hill, about 4½ miles east of Fall River, 3⅞ miles southeast by east of Steep Brook Village, 3⅛ miles north-northwest of Hicksville, 1⅝ miles eastward of Watuppa Pond, and ½ mile east of the road from Hicksville to Steep Brook. The station is marked by a copper bolt set in a hole drilled in the rock and covered by a large pile of stones.

Great Meadow (Bristol County, Mass., Borden, 1836; 1889).—On the summit of Great Meadow Hill, about 6 miles west of Taunton, 1½ miles south-southwest of North Rehoboth, 1 mile north of the Providence-Taunton road, ⅛ mile north of an intermediate road, and ¾ mile east of road to North Rehoboth. The station is marked by a copper bolt set in a hole drilled in the rock.

Beaconpole (Providence County, R. I., A. D. Bache, 1844; 1896).—In the northwestern part of the town of Cumberland, R. I., about 2 miles northeast of the village of Cumberland Hill on the Woonsocket and Manville Electric Railway, on the summit of a high hill known as Copper Mine Hill or Beaconpole Hill. It is reached by a cart path which leads to a stone quarry from the north side of Tower Hill road at about its highest part. This cart path, at about ¼ mile from the main road, passes to the north of the station and 75 meters from it. The station is marked by a copper bolt with lead around it and inclosed in a triangle. It is on the highest part of a round, granite rock with a smooth surface about 25 or 30 feet in diameter about 200 meters east of the

highest part of the hill. The dividing line of the properties of Mr. Cook and Mr. Welcun Cargill runs over the rock. Four reference marks, a drill hole within a square in each case, are located as follows: No. 1 on the apex of a large, low rock, distant 7.87 meters (25.83 feet) in azimuth 354° 35′; No. 2, near the south corner of a flat rock distant 10.12 meters (33.21 feet) in azimuth 87° 11′; No. 3, in the center of a flat rock 6.41 meters (21.04 feet) distant in azimuth 151° 38′; No. 4, on the east slope of a large rock 5.49 meters (18.01 feet) distant in azimuth 233° 34′. Arrows point from the reference marks to the station.

SECONDARY STATIONS.

Pocasset (Newport County, R. I., E. Blunt, 1843; 1912).—On the prominent hill of that name about ¾ mile from the east shore of Mount Hope Bay, 1 mile northeastward of Tiverton, and ¼ mile southeast of the road from that place to Fall River, Mass. The station is near a stone wall to the south and east, and is marked by an iron bolt set in a hole drilled in the rock and projecting 2 inches. A standard reference disk, set in the top of a bowlder, is 8.16 meters to the northward of the station. Another station, *Pocasset* 3, is located about 150 meters to the northeast of *Pocasset*.

Spencer (Kent County, R. I., E. Blunt, 1843; 1879).—On Spencer Hill, about 2½ miles northwest of East Greenwich and 1½ miles southeast by east of Crompton. The station is a short distance east of the summit on land belonging to Jesse Dewley and about 200 yards east of his house. An old barn is 49.2 feet north 71½° west of the station at the angle of a stone wall. The station is marked by an iron bolt set in a hole drilled in the rock.

Quaker (Newport County, R. I., Borden Survey 1836; Coast Survey 1843).—Reported destroyed in 1897.

McSparran (Washington County, R. I., E. Blunt, 1838).—Reported destroyed in 1869.

East Rock (Newport County, R. I., E. Blunt, 1843; 1917).—On the highest part of the west end of East Island which lies about 300 meters to the southward of Sakonnet Point, the eastern point of the entrance to Sakonnet River. The station is marked by a standard brass disk set in cement contained in the earthenware cone forming the original station mark. A standard reference mark is also set in the rock 6.78 meters (22.24 feet) to the eastward of the station.

Mount Hope (Bristol County, R. I., E. Blunt, 1843)—Lost, superseded in 1874 by *Mount Hope 2*.

Whitman (Kent County, R. I., E. Blunt, 1838; 1879).—On the eastern slope of Drum Rock Hill, about four-tenths of a mile from the west shore of Greenwich Bay, ¾ mile north of East Greenwich, ⅓ mile west of the shore road, 260 meters south of a road leading indirectly to East Greenwich, and 180 meters south of a road connecting the road last mentioned and the shore road. The original mark was a buried earthenware cone, but in 1879 a heavy cedar post with 5 copper nails in its top, was set so as to pass through the center of the buried cone and project 1.5 feet above the ground surface.

Block Island (Newport County, R. I., 1835; 1918).—On the summit of Beacon Hill, the highest hill of Block Island. The station is about ¾ mile from the west shore and 150 meters north of the road leading to Block Island Harbor. The station is marked according to note 6b.[1] The subsurface mark is a standard brass disk cemented in the top of a 10-inch piece of 3-inch iron pipe and set in a mass of cement about 30 inches below the surface. Five reference marks are located, respectively: 11.02 meters (36.16 feet) south-southwest, 11.50 meters (37.73 feet) northwest, 28.76 meters (94.36 feet) northeast by north, 34.28 meters (112.47 feet) northeast by east, and 43.60 meters (143.04 feet) east-northeast from the station. The first is a triangle cut on a planked granite block projecting 6 inches above the ground; No. 2 is a square cut on

[1] See pp. 61-62.

a granite block whose exposed portion, 6 by 16 inches, projects 4 inches; No. 3 is a cross cut on a pink-colored bowlder in the base of a stone wall; No. 4 is a triangle cut on a granite bowlder of a stone wall; No. 5 is a cross cut on south face of a granite bowlder of a stone wall. A building 16 feet square, used as an observatory, cuts off the view to the southwest, its nearest corner being only 1.125 meters (3.69 feet) from the station.

Champlin (Washington County, R. I., E. Blunt, 1838; 1871).—On the summit of the hill of that name, about 1¾ miles north of Hopkinton, ¾ mile east of the Rhode Island-Connecticut boundary and on the west side of the main road from Westerly via Ashaway and Hopkinton. The original mark, a buried cone, was not found in 1871, but probably still exists. The station is on land belonging to Ethan Champlin, whose house is a short distance to the southwest. In 1871 a deserted house stood on the east side of the road and nearly opposite to the entrance to the field in which the station is located.

Broad Hill (Washington County, R. I., E. Blunt, 1839; 1913).—On a conical hill of the same name, also known as Indian Hill, about 3¾ miles west southwest of Wakefield, ¾ mile northeast by north of Perryville, and ⅛ mile west of a road leading to Kingston. The station is marked by a standard brass disk set in the top of a red sandstone post, which projects but slightly above the mass of cement placed about it in 1913. A standard reference disk, 6.37 meters (20.90 feet) south by east from the station, is set in the top of a bowlder showing 18 inches above the ground.

Watch Hill (Washington County, R. I., E. Blunt, 1835).—Reported destroyed in 1904.

Lantern Hill (New London County, Conn., E. Blunt, 1838; 1874).—On the prominent hill of that name, about 9 miles north of Stonington, 4 miles north-northeast of North Mystic, and 3½ miles northwest by west of North Stonington. About 23 feet north of the station is a large conical mass of rock which forms the southern edge of the summit ridge. The station is marked by an earthenware cone whose top, 8 inches in diameter, is about a foot below the ground surface.

Nootas (Bristol County, Mass., E. Blunt, 1843; 1895).—On Nootas Hill 1¾ miles southwest of the Post Office in Adamsville, 2⅝ miles north of Tunipus Beach and quite near the Massachusetts boundary. The station is marked by an earthen crock, with a piece 3 inches square chipped off, buried 2 feet below ground. It is 7 feet west of a wall on the west side of a road running to Adamsville.

Cuttyhunk (Dukes County, Mass., E. Blunt, 1843; 1905).—Located on Cuttyhunk Island, one of the Elizabeth Islands, northwest of Marthas Vineyard. The station is on the highest part of the island, near the Pilot lookout station. It is marked by a granite monument, 1 foot square, bearing a drill hole in the center, with the letters "U. S."

TERTIARY STATIONS, NARRAGANSETT BAY AND EASTWARD.

PRINCIPAL POINTS.

Mount Hope 2 (Bristol County, R. I., A. M. Harrison, 1874; 1912).—On the bare summit of the prominent hill of that name on the north side of Mount Hope Bay, about 300 meters from the shore, 900 meters north of Mount Hope Point, 1½ miles east of Bristol and 4 miles from the city of Fall River. The station is 22 meters south of a stone fence which crosses the hill, and 27 meters south of a stone bearing a wooden post anchored by iron rods. The station is marked by a drilled hole in the top of a post of brown sandstone 6 inches square. A standard reference disk, set in the rounded top of an outcrop of ledge, is 3.64 meters (11.94 feet) to the southeastward of the station. Two other stations in this vicinity, one by Borden in 1836 and the other by E. Blunt in 1843, are lost. They were approximately 32 meters north and 12½ meters south-southwest of the present station.

Calvary (Bristol County, Mass., A. M. Harrison, 1894).—Reported destroyed in 1913.

Fall River, high school (Bristol County, Mass.)—The tower or cupola of that institution, located in the northern part of the town of Fall River.

Oak Hill (Bristol County, Mass., G. Bradford, 1884).—Located on a hill of the same name, about 6 miles northeast of Pawtucket, R. I., on the northern side of the summit on cleared ground, a few feet lower than the highest point of the hill. The station is marked by a copper tack in a stick thrust through a 14-inch drain pipe, buried with its top 20 inches below ground. Three stakes, with copper tacks, are 6 feet from the station east, north, and south respectively.

Wickford (Washington County, R. I., E. Blunt, 1843).—Reported destroyed in 1912.

Batty (Newport County, R. I., E. Blunt, 1843).—On Conanicut Island, Narragansett Bay, about 2½ miles from its northern end. The station could not be found at later dates and was superseded in 1868 by *Hull*. It is 40.8 meters true south from *Hull* and was marked by a stone cone embedded in concrete.

Prudence (Newport County, R. I., E. Blunt, 1843; 1869).—On the summit of a hill on the east side of Prudence Island, Narragansett Bay, about four-tenths of a mile west-northwest of the lighthouse on Sand Point. The station was marked originally by a buried earthenware cone, but this could not be found in 1869. The station is probably lost.

Slate (Newport County, R. I., E. Blunt, 1843; 1913).—On the island of Rhode Island, about 3½ miles north of Newport, on "Slate Hill," 2¼ miles east of Narragansett Bay, and 1½ miles west of Sakonnet River. The station is a short distance west of the highway and trolley line from Newport to Portsmouth and Stonebridge, and between the ends of Bromans and Mitchells Lanes. The land now belongs to Charles A. Albro, who in 1912 pointed out the approximate location of the station. The mark is a buried stone cone which was not searched for by digging, as considerable expense would be involved in utilizing it.

Miantonomy (Newport County, R. I., E. Blunt, 1843).—Reported destroyed in 1912.

Hazard (Newport County, R. I., E. Blunt, 1843).—On Hazard Hill, on the north side of "The Neck" of the island of Rhode Island, about ¼ mile from shore, ½ mile to the southwestward of Newport, four-tenths of a mile south-southeast of Lime Rock Light, 280 meters north of the road to Brentons Point and 120 meters east of a branch road to the north shore. The station is marked by a buried stone cone.

Telegraph (Newport County, R. I., E. Blunt, 1843).—Reported destroyed in 1869.

Telegraph (2) (Newport County, R. I., S. C. McCorkle, 1869; 1917).—On Telegraph Hill, about 1½ miles southwest of Newport, 1⅜ miles east by south of Castle Hill Light, and between two roads leading indirectly to Newport. The station is now marked by a circular bronze disk bearing the inscription "U. S. Coast & Geodetic Survey, Azimuth to Dumplin 2–123° 45′ 43″, Beaver Tail Lt. 73° 57′ 36″, Established 1869. Telegraph 2." A hole in the top of a small, raised knob in the center of the disk is the station point. The large, four-story, stone residence of Arthur Curtis James is about 20 meters southeast of the station. A flag pole, 10.90 meters (35.76 feet) to the westward also serves as a reference mark. The original station *Telegraph*, now lost, was about 17 meters north of the present station.

Pine Hill (Newport County, R. I., E. Blunt, 1843; U. S. E., 1916).—On a prominent, bare hill on the narrow part of Prudence Island, about ⅝ mile east of Pine Hill Point and the same distance south-southwest of Gull Point. The station is marked by a standard brass disk set in the top of a 4-inch tile, which in turn is set in and through the center of the original cone. The tile and upper part of the center of the original cone are filled with cement and sand and surrounded by a mass of the same materials, but so arranged that the upper rim of the cone (really a frustum of a cone) is left visible. A reference mark, a brass disk set in a rock which projects 18 inches above the ground, is 17.08 meters (56.04 feet) west by south of the station.

Hull (Newport County, R. I., S. C. McCorkle, 1868; 1915).—On the summit of a hill or ridge of Conanicut Island, Narragansett Bay, about 2½ miles from the north end of the island. The station is on the west side of the road running north and south through the center of the island and is about midway between the east and west shores. It is on a bare, flat ledge of rock and is marked by a standard brass disk set in a hole drilled in the rock. A standard reference disk is similarly set at an unstated distance to the north-northeast. There is a schoolhouse on the ridge about 150 meters to the northeast and an Episcopal church the same distance to the southeast. The old station *Batty* was 40.8 meters (133.9 feet) south (true) from this station.

Dumplin 2 (Newport County, R. I., S. C. McCorkle, 1869; 1912).—On Dumplin Hill, on the south coast of Conanicut Island (Narragansett Bay) about ½ mile east of Mackerel Cove and 125 meters from shore. The station was marked by a buried cone and for surface marks 3 drilled holes, in adjacent rocks, located, respectively, 3.20 meters (10.5 feet) south, 3.25 meters (10.67 feet) east and 2.50 meters (8.21 feet) west from the center. In 1903 the U. S. Engineers placed a granite post, with drilled holes in its top, for surface mark, and this now projects ½ inch above the concrete floor of a range finder building since erected for the use of the Army.

Dumplin (Newport County, R. I., E. Blunt, 1843).—Reported destroyed in 1869.

McSparran 2 (Washington County, R. I., J. Farley, 1869).—Reported destroyed in 1892.

Meetinghouse Hill 2 (Washington County, R. I., S. A. McCorkle, 1869; 1912).—On the southern hill of the ridge known as Tower Hill, about a mile east of Wakefield, and 1¼ miles north-northwest of Narragansett Pier. The station is on the southwest end of a large quartz rock projecting 3 feet above the ground, about ¼ mile north-northeast of Tower Hill Hotel and about 63 meters east of the road from Wakefield to East Greenwich. It is marked by a standard brass disk set in a hole drilled in the rock. A standard reference disk, set in a gray stone projecting 0.2 meters, is 20.71 meters (67.95 feet) to the northward of the station. The original station of 1839, not found in 1869, was about 66 meters north and 8.7 meters west of the present one.

Barbers Heights (Washington County, R. I., S. C. McCorkle, 1868; 1912).—On the ridge of that name, on the west side of Narragansett Bay, about 3 miles south-southeast of Wickford and ½ mile west of Plum Beach. The station is on a large, flat, bare rock near the northern end of the high part of the ridge in a field belonging to Owen Wister, and is marked by a standard brass disk set in a hole drilled in the rock. A standard reference disk is set in a hole 11.40 meters (37.40 feet) west by south from the station. The road from Wickford to Narragansett Pier is 234 meters west of the station, and the one leading to Plum Beach is 430 meters to southward. The field has numerous large bowlders showing, one of which is in line between the station and a large apple tree; also there is a stone fence 160 meters to the southward.

Beavertail lighthouse (1869) (Newport County, R. I., S. C. McCorkle, 1869; 1892).—On the south point of Conanicut Island between the east and west entrances to Narragansett Bay. A square, granite tower, upper half white, attached to white dwelling.

Prudence 2 (Newport County, R. I., S. C. McCorkle, 1869; 1897).—The computation shows that this station was about 70 meters to the southward of *Prudence*. It was not found in 1897, and is considered lost.

Quonsett 3 (Washington County, R. I., 1868).—Reported destroyed in 1912.

Conanicut north (Newport County, R. I., E. Blunt, 1843; 1912).—This station was within a few feet of the Conanicut lighthouse, built in 1886, and hence is now lost (see p. —).

High Rocks (Washington County, R. I., E. Blunt, 1843).—Reported destroyed in 1912.

Quonsett (Washington County, R. I., E. Blunt, 1843).—Reported destroyed in 1863.

Hog Island 3 (Bristol County, R. I., A. M. Harrison, 1874; 1913).—On the northern part of Hog Island, which lies in the mouth of Bristol Harbor. The station is about ¼ mile from the northern end and 150 meters from the western shore of the island and is marked by a brownstone post 6 inches square, the top of which projects a few inches above the ground. A standard reference disk, set in the top of a small bowlder, is 1.89 meters (6.20 feet) east-southeast of the station, and a square tower on a barn is 102.4 meters (336.0 feet) south by west of the station. Two former stations in this locality, *Hog Island* (*1843*) and *Hog Island 2* (*1861*), were, respectively, 6.4 meters (21 feet) southeast and 0.6 meters (2 feet) east of the present station, but both are lost.

Little Compton (Newport County, R. I., E. Blunt, 1843; 1870).—On the east side of Sakonnet River, about 1⅛ miles eastward from Browns Point, ⅞ mile north-northwest of the village of Little Compton, and ½ mile east of the road to Tiverton and Fall River. Station is marked by a buried stoneware cylinder.

Wing (Newport County, R. I., E. Blunt, 1843; 1912).—On the east side of Sakonnet River, about 1½ miles east of Sapowet Point, 1¼ miles north-northeast of the crossroad at Four Corners, and ½ mile east of the road leading to Tiverton and Fall River. The station is on the summit of a ridge, on the property of Samuel W. Hathaway, and is marked according to note 6b.[1] A reference mark, note 12c, is 4.56 meters (14.96 feet) west of the station. Three rock fissures are mentioned as being, respectively, 31.2 meters (102.4 feet) southeast, 50.1 meters (164.4 feet) south, and 52 meters (170.6 feet) north, from the station.

Paradise Rock (Newport County, R. I., S. C. McCorkle, 1869).—Reported destroyed in 1913.

Windmill 2 (Newport County, R. I., S. C. McCorkle, 1869).—Reported destroyed in 1912.

Simmons 2 (Newport County, R. I., S. C. McCorkle, 1870).—On Simmons Hill, about 2 miles east of Sakonnet River, 1⅛ miles north of the Atlantic Coast, 1¼ miles south by east of Little Compton, on the east side of the road leading thereto, ⅛ mile south of a road, and ⅓ mile north of another crossroad. The station is in a field belonging to Mr. Simmons and is marked by a stone cone beneath the surface.

Little Compton 2 (Newport County, R. I., S. C. McCorkle, 1870).—Same locality as *Little Compton* (see above), but 23 meters farther west. It was established to observe a station not visible from the old point. There is no description of the marking except that there is a pile of stones that was used to support the signal pole.

Simmons (Newport County, R. I., E. Blunt, 1843).—Reported destroyed in 1870.

Mound (Newport County, R. I., A. M. Harrison, 1874).—Reported destroyed in 1913. Superseded in 1917 by *Hummock*.

Chase (Bristol County, R. I., A. M. Harrison, 1874).—Reported destroyed in 1912.

Quicksand 2 (Bristol County, Mass., S. C. McCorkle, 1870).—About 300 meters north of the Atlantic coast and about a mile east of Tunipas Pond. The station is on a low-base sand hill, southwest of a barn, and is marked by a pile of stones. Two stakes are placed, respectively, 3 feet to the northeast and 3 feet to the southwest.

Blackbeard (Bristol County, Mass., E. Blunt, 1843).—Reported destroyed in 1913.

Mattapoisett (Bristol County, Mass., E. Blunt, 1843; 1912).—On the southwest corner of Gardeners Neck, on the north shore of Mount Hope Bay, and on the east side of the mouth of Coles River. The station is marked by a buried stone cone. The mark was not found in 1912, but may still exist.

Toweset (Bristol County, R. I., E. Blunt, 1843; 1912).—On the southern part of Warren Neck, near the mouth and on east side of Kickamuit River, which is tributary to the west side of Mount Hope Bay. The station is in a cultivated field and is marked by a standard brass disk, cemented in the top of a piece of 4-inch drainpipe and sunk to the ground level. The lower end of this is in the center of the position occupied by

[1] See pp. 61-62.

the buried earthenware cone of 1843, which was accidentally broken, and is surrounded by a mass of cement and sand. A standard reference disk, cemented on the top of a similar pipe, is set 15.27 meters (50.1 feet) west of the station and just beyond a stone fence which is near the edge of the bluff of the river bank.

Patience (Newport County, R. I., E. Blunt, 1843; U. S. Engineers, 1918).—On the summit of a small hill at the northeast corner of Patience Island in Narragansett Bay, and about 1¼ miles southeast ½ east of Warwick lighthouse. The station is marked according to note 16.[1] Two reference marks, each a drilled hole and arrow cut in a rock, are, respectively, 17.56 meters (57.6 feet) northwest by north and 8.40 meters (27.55 feet) south by west from the station. The arrows point toward the station.

Prudence (*U. S. E.*) (Newport County, R. I., U. S. Engineers, 1909; 1913).—About ½ mile south of the north point of Prudence Island and 300 meters northwest of Bear Point. The station is 90.1 meters (295.5 feet) west-southwest of the corner of a stone wall and is marked by a drilled hole within a triangle cut in an outcropping rock. Two reference marks, each a drill hole and arrow cut in a rock, are, respectively, 16.06 meters (52.7 feet) east by north and 5.94 meters (19.5 feet) south from the station.

Squash (Bristol County, R. I., J. B. Boutelle, 1913).—On a point on the west side of Popasquash Neck, about ¾ mile from its mouth end, 28 feet from the edge of the bluff, and 93.6 meters (307.5 feet) north of the northwest corner of Senator Dixon's porch. The station is marked by a standard brass disk set in the top of a concrete post 8 inches square. The subsurface mark is a similar cement block marked in the same manner. Two reference marks, each a drill hole in a rock, are, respectively, 4.8 meters (15.7 feet) west by north and 17.0 meters (55.7 feet) northeast by north from the station.

Kid (Bristol County, R. I., J. B. Boutelle, 1913).—On a large rock on the east side of Narragansett Bay, at the foot of the bluff west of Bristol Highlands, about a mile south of the mouth of Warren River, and 1½ miles west-northwest of Bristol. The station is marked by a drilled hole within a triangle cut in the rock.

Conimicut lighthouse (Kent County, R. I., D. B. Wainwright, 1897; 1913).—On the and spit in the westerly side of the entrance to Providence River. The lighthouse is a white conical tower on a brown, cylindrical pier. The lantern is 58 feet above mean high water.

Rocky Point (*U. S. E.*) (Kent County, R. I., J. B. Boutelle, 1913).—On the prominent point of that name on the east side of Warwick Neck, Narragansett Bay, about ¾ mile south of Warwick, and 1¾ miles north of the southern extremity of the neck. The station was established by the U. S. Engineers and is marked by a drilled hole within a triangle cut in the top of a large bowlder. It supersedes the old 1843 station of the U. S. Coast and Geodetic Survey, which was in the same vicinity, but is now lost.

Conimicut (*U. S. E.*) (Kent County, R. I., J. B. Boutelle, 1913; U. S. Engineers, 1915).—On Conimicut Point, on the west side of the mouth of Providence River, a few feet outside of the stone wall and iron fence of the front yard of Edwin F. Cary's summer residence. The station is marked by a brass bolt set in cement in the top of a piece of 5-inch iron pipe. A flagpole in Mr. Cary's yard is 5.48 meters (18.0 feet) to the westward of the station and serves as a reference mark. The station supersedes the U. S. Coast and Geodetic Survey station *Conimicut* (*1863*) which is lost.

Nayatt lighthouse (*1863*) (Bristol County, R. I., A. M. Harrison, 1863; 1912).—On Nayatt Point, on the east side of the mouth of Providence River. It is now abandoned as lighthouse, but the structure still remains. It is about 20 meters northeast of the original lighthouse of 1843, which was destroyed.

Green (*U. S. E.*) (Kent County, R. I., J. B. Boutelle, 1913).—On the southern end of Greenes Island, which lies in the west side of Providence River, about a mile to the southward of Gaspee Point. The station is marked by a brass bolt set in concrete

[1] See pp. 61-62.

contained in a 6-inch tile projecting 3 inches above the ground. Two reference marks set by the commissioner of fisheries of R. I., each a brass plate in the top of a granite post, 6 inches square, are located, respectively, 9.02 meters (29.58 feet) west by north and 13.36 meters (43.84 feet) north of the station. The brass plates are marked No. 120, with an arrow and distance to the station.

Gaspe (*U. S. E.*) (Kent County, R. I., J. B. Boutelle 1913).,—On the west side of Providence River on the bluff of Gaspee Point, about 300 meters below the northern extremity of the point and ¼ mile north of Greenes Island. The station is 2 meters from the edge of the bluff and is marked by a drilled hole in the top of a square, granite post. A reference mark, consisting of a standard brass disk cemented in the top of a piece of 4-inch sewer pipe projecting about 4 inches above the ground, is 12.46 meters (40.89 feet) to the westward of the station.

Hope Island (Newport County, R. I., E. Blunt, 1843; 1912).—On the highest point of the island of that name in Narragansett Bay about 1½ miles west of Prudence Island and the same distance north of Conanicut Island. The station is marked by a standard brass disk cemented in the top of a 4-inch tile set to project 2 inches above the ground. The foot of the draintile is in the center of the original buried cone (frustum) and surrounded by a mixture of cement and sand. A standard reference disk, set in a stone, is 9.16 meters (30.05 feet) southeast by south from the station, and an additional reference mark, a hole drilled in a rock, is 5.96 meters (19.55 feet) west-northwest from the station.

Calf (Washington County, R. I., Isaac Winston, 1912).—On the west side of Narragansett Bay, on Calf Pasture Point near the entrance to Allens Harbor. The station is on a sand ridge 20 meters from high water line and is marked according to note 6b.[1] A standard reference disk, note 13b,[1] is 12.27 meters (40.26 feet) west-northwest from the station. The 1863 station, *Calf Pasture Point*, now considered as lost, was about 280 meters to the northward of this station.

Sandy Point (Kent County, R. I., A. M. Harrison, 1863; 1912).—On the point of that name on the west side of Narragansett Bay and on the eastern extremity of Potowomut Neck, on the south side of the mouth of Greenwich Bay. The station is in a road leading to the beach near its north fence and 14 meters from a stonewall along the shore. The station is marked according to note 6a.[1] The subsurface mark is a buried bottle. A standard reference disk, set in the top of the stone wall, is 14.77 meters (48.46 feet) to southeastward of the station. Another reference mark, a drill hole in the north concrete wing wall, is 12.80 meters (42.00 feet) east by south from the station. A hole was drilled in the top of the wall in range with Warwick lighthouse.

Quonsett 4 (Washington County, R. I., Isaac Winston, 1912; U. S. Engineers, 1916.—On the prominent point of the same name on the west shore of Narragansett Bay, about 2½ miles east by north of Wickford. The station is on a sand ridge near the end of the point and is marked according to note 6b.[1] A standard reference disk, note 13b,[1] is 13.58 meters (44.55 feet) west from the station. Three previous stations, *Quonsett (1843)*, *Quonsett 2 (1863)*, and *Quonsett 3 (1868)*, were located in this vicinity, but are now lost and are superseded by this station.

Warwick lighthouse (Kent County, R. I., E. Blunt, 1843; 1897).—On the south end of Warwick Neck, west side of Narragansett Bay, and east side of Greenwich Bay entrance. It is a white, square tower on a shore dwelling, and its lantern is 52 feet above mean high water.

Bell (Newport County, R. I., J. B. Boutelle, 1913).—On the low point on the northwest end of Patience Island, Narragansett Bay, about ¾ mile southeast of Warwick Lighthouse. The station is about 250 feet back of high-water line and 90 feet northwest of a small pond. It is marked according to note 16.[1] Two reference marks,

[1] See pp. 61-62.

each a drilled hole in a rock, are located, respectively, 5.8 meters (19.0 feet) east by north and 6.1 meters (19.9 feet) southeast by south from the station.

Butt (Kent County, R. I., J. B. Boutelle, 1913).—On the north shore of Greenwich Bay, on a low sandy point, at the western end of Buttonwood. The station is 187 meters (615 feet) west of the western end of the present breakwater or bulkhead, 3 meters (10 feet) north of high-water mark, and 11 meters (36 feet) south of the low bluff between the shore and the road. It is marked according to note 16.[1]

Sally (Kent County, R. I., J. B. Boutelle, 1913; U. S. Engineers, 1916).—On the prominent rocky point on the south shore of Greenwich Bay, about 1¾ miles east-northeast of East Greenwich and immediately south of Sally Rock. The station is a few feet south of a large, prominent rock on the extreme end of the point, and is marked according to note 16.[1] Two reference marks, each a hole drilled in a rock, are located, respectively, 3.78 meters (12.4 feet) west-southwest and 3.12 meters (10.25 feet) north of the station.

Chip (Kent County, R. I., J. B. Boutelle, 1913; U. S. Engineers, 1916).—On the southern side of the small bluff of Chippanogset Island, which lies at the western end of Greenwich Bay, about ¾ mile east-northeast of East Greenwich. The island is connected with the mainland at low water. The station is marked according to note 16.[1]

Long (Kent County, R. I., J. B. Boutelle, 1913; U. S. Engineers, 1916).—On the north side of Long Point on south shore of Greenwich Bay and east side of the mouth of Greenwich Cove. The station is less than ½ mile east-northeast of East Greenwich and is marked according to note 16.[1]

Nag (Newport County, R. I., J. B. Boutelle, 1913).—On a bluff on the east shore of Prudence Island about ¼ mile southeast of Gull Point and east of Nags Pond. The station is 26 feet from the edge of the bluff and is marked according to note 16.[1] A station of the U. S. Engineers, called *Nags Pond* (*U. S. E.*), a drill hole within a triangle cut on the top of a large rock, is 22.98 meters (75.39 feet) southeast of the station.

Pop (Bristol County, R. I., J. B. Boutelle, 1913).—On a large rock about 10 or 12 meters outside of high-water mark, on the west shore of Popasquash Point, within 100 meters of its southern extremity. The station is marked by a drill hole within a triangle cut in the rock.

Hog Island Searchlight (Bristol County, R. I., J. B. Boutelle, 1913).—On the top of a tower on a house near the center of Hog Island, which lies in the mouth of Bristol Bay. The station has the appearance of a lighthouse, and is the same object observed in 1912 under the name of *Water Tower*.

Cop (Newport County, R. I., J. B. Boutelle, 1913).—On a prominent point of the west side of the island of Rhode Island, about 1½ miles above Coggeshall Point, 1¼ miles south of Hog Island, and west of the Rhode Island coal mines. The station is marked according to notes 1a and 7a.[1] Three stone posts projecting about 6 inches in the ruined foundation of the Rhode Island Copper works, are, respectively, 33.8 meters (111 feet) east by north, 25.4 meters (83.2 feet) east, and 21.2 meters (69.6 feet) southeast by south from the station. The west corner of the brick foundation is 42.1 meters (138 feet) south by west.

Hog Island Shoal lighthouse (Bristol County, R. I., J. B. Boutelle, 1913).—A white conical tower on a black, cylindrical pier, in 2 fathoms of water, about ⅜ mile south of the southeast end of Hog Island. The lantern is 54 feet above the mean high water.

Dyer Island (Newport County, R. I., E. Blunt, 1843; 1913).—On the east side of Dyer Island, in the eastern part of Narragansett Bay between Rhode and Prudence Islands and about ⅞ mile southwest of Coggeshall Point. The station is on the south side of the cove and 75 meters south of the eastern point of the island and is marked

[1] See pp. 61-62.

by a standard brass disk cemented in the top of a 4-inch tile which is set in the center of a buried cone and surrounded by a mass of cement and sand. The mark projects 3 inches above the ground. A standard reference disk, set in the top of a bowlder which projects 0.2 meter above the ground, is 5.06 meters (16.60 feet) west of the station.

Bat (Newport County, R. I., J. B. Boutelle, 1913).—On the southeast shore of Prudence Island, about 1¾ miles southwest of the lighthouse and 18 feet back from the edge of the low bluff. The station is marked according to note 1a.[1] The subsurface mark is a block of concrete, with a triangle and "1913 C. & G. S." on its top surface. Two reference marks, each a drill hole in a rock with an arrow pointing toward the station, are, respectively, 14.23 meters (46.7 feet) east by north and 12.04 meters (39.5 feet) southeast by south from the station.

Carr (Newport County, R. I., J. B. Boutelle, 1913).—On Carrs Point on the west shore of the island of Rhode Island, about 1¼ miles south of Coggeshall Point. The station is on top of the narrow bank, just outside of a wire fence, and is marked according to note 1a.[1] The subsurface mark is a concrete block 2 feet below the ground, inscribed with a triangle and the legend "1913—C. & G. S."

McSparran 3 (Washington County, R. I., D. L. Hazard, 1892; 1912).—On the summit of McSparran Hill, on a rock ledge near the center of a large field which is inclosed by stone walls and belongs to Edward Nichols. The road to Wickford passes along the west side of the field at a distance of 54 meters (177 feet) from the station, and the north and east walls are distant, respectively, 42 meters (139 feet) and 41 meters (136 feet). The station is about 4 miles northeast of Wakefield, ¾ mile north by west of Bridgetown, ⅜ mile west of the Pattasquanscott River, and 1⅞ miles west of the West Passage of Narragansett Bay. It is marked by a standard brass disk set in the rock. A standard reference disk is also set in the ledge at a distance of 17.55 meters (57.58 feet) to the west-southwest of the station. Two earlier stations in this vicinity, *McSparran (1838)*, and *McSparran 2 (1869)*, are now lost, their marks having disappeared.

Hill (Newport County, R. I., D. B. Wainwright, 1879; 1912).—On a hill in the southwestern part of Conanicut Island about ¼ mile east of West Passage and ⅜ mile west of Mackerel Cove. The station is marked by a standard brass disk set in a hole drilled in the rock. A standard reference disk, set in a small, white, quartz ledge is 29.85 meters (97.93 feet) southwest by south from the station. The reference mark is about 3 feet higher than the station point.

Conanicut lighthouse (Newport County, R. I., A. T. Mosman, 1888; 1912).—On the north point of Conanicut Island. A square, white tower on dwelling. The lantern is 47 feet above mean high water.

Fox (Washington County, R. I., J. B. Boutelle, 1912; U. S. Engineers, 1916).—On the small island of that name lying in the west side of Western Passage about 1½ miles to the southeastward of Wickford Entrance. The station is about 100 feet from the east shore of the island and is marked according to note 16,[1] except that there is no underground mark. Three reference marks, each a drilled hole in a rock or bowl der, are, respectively, 26.43 meters (86.7 feet) north by west, 23.9 meters (78.4 feet) north-northeast, and 24.1 meters (79.2 feet) southeast from the station.

Sand (Newport County, R. I., J. B. Boutelle, 1912; U. S. Engineers, 1916).—On Sand Point of the western shore of Conanicut Island about 1½ miles south of the north end, 9 meters east of the low bluff bank, and 90 meters south-southwest of the mouth of a small creek. The station is marked according to note 16,[1] except that there is no underground mark. Reference mark No. 1, a drill hole in the top of a large rock at low-water mark, is 35.7 meters (117 feet) west by north from the station. The top of this

[1] See pp. 61–62.

rock shows about a foot above ordinary high water. Reference mark No. 2 is a drill hole within a triangle cut on the top of a large bowlder, 38.4 meters (126 feet) north by west from the station.

Plum Beach lighthouse (Washington County, R. I., D. B. Wainwright, 1897).—In Western Passage, Narragansett Bay, on a shoal about ½ mile east of the point of Plum Beach. The lighthouse is a black cylindrical pier surmounted by a conical tower, lower half white and upper half brown.

Rome (Washington County, R. I., J. B. Boutelle, 1912; U. S. Engineers, 1916).—On the southwest side of the small hill forming Romes Point, the east side of the entrance to Bissel Cove and the Nannacatucket River, and 1.8 miles southeast of Wickford Harbor lighthouse. The station is near the center of a rock 20 by 38 inches and is marked by a drill hole within a 4-inch triangle. A 6-inch cross, cut in a small outcrop of rock, is 3.60 meters (11.8 feet) west of the station and serves as a reference mark.

Seal (Newport County, R. I., J. B. Boutelle, 1912; U. S. Engineers, 1916).—On the southwest point of Hope Island, about 1⅝ miles north-northeast of Conanicut lighthouse, and 1⅛ miles east by north of Quonsett Point. The station is marked by a ¾-inch brass pipe embedded in cement in a crevice between two rocks and 3 inches below the surface of the ground. Four reference marks, each a drill hole in a rock are located, respectively, 42.61 meters (139.8 feet) south by west, 6.13 meters (20.1 feet) west, 8.23 meters (27.0 feet) east by north and 12.53 meters (41.1 feet) south by east, from the station.

Allen (Washington County, R. I., J. B. Boutelle, 1912; U. S. Engineers, 1916).—On the west shore of Narragansett Bay, just south of Spinks Neck, on a narrow strip of sand beach forming the south point of the entrance to Allens Harbor. The station is midway between the shore and a road, 70 meters (231 feet) northeast of a gateway through a stone wall 20.4 meters (67 feet) to the northeastward of a small house, and is marked according to note 16.[1] A reference mark, a drill hole in the center of a cross cut on the side of a large bowlder, is 74.4 meters (244 feet) to the east-northeast of the station.

Goat Island Shoal lighthouse (Newport County, R. I., Isaac Winston, 1912).—At the south end of Goat Island, Newport Harbor. The lantern is 25 feet above mean high water and the point vertically below the lantern is marked by the intersection of two lines cut in the concrete base.

Rose Island 2 (Newport County, R. I., Isaac Winston, 1912).—On the summit of a small mound on the eastern point of Rose Island, Newport Harbor. The station is marked according to note 6a.[1] The pole of the structure erected by the Navy Department, as the rear range for one end of a speed-trial course, is directly over the station.

Stevens (Kent County, R. I., A. M. Harrison, 1863; 1912).—On the west side of Providence River on the bluff back of Gaspee Point and near the mouth of Mud Cove. The station is marked according to note 6a.[1] The subsurface mark is a buried bottle. A reference mark is southwest by west from the station, but its distance and marking are not given.

Bullocks Neck 2 (Providence County, R. I., A. M. Harrison, 1863).—Reported destroyed in 1912.

Dutch Island lighthouse (Newport County, R. I., S. C. McCorkle, 1868; 1912).—On the south end of Dutch Island, Western Passage of Narragansett Bay, about ⅜ mile to the northwestward of Beaver Head, Conanicut Island. The lightouse is a square, white tower attached to the dwelling. The lantern is 56 feet above mean high water.

Net (Newport County, R. I., J. B. Boutelle, 1912; U. S. Engineers, 1916).—On the west side of the southwest section of Conanicut Island, about a mile north of Beavertail lighthouse, and on the south side of the entrance to Austins Hollow. The station is 16 feet east of the edge of the bluff and is marked according to note 16.[1] Three

[1] See pp. 61-62.

reference marks, each a drill hole in a small outcropping rock, are located, respectively, 44.4 meters (145.6 feet) east-northeast, 5.5 meters (18 feet) south-southeast, and 26.8 meters (88 feet) southwest from the station.

Gould Island (Newport County, R. I., E. Blunt, 1843; 1915).—On the island of that name in the Western Passage of Narragansett Bay, about 3½ miles northwest of Newport. The station is near the center of the island, 38 meters north of a cross-wire fence and 96 meters south of a stone one. It is marked according to note 6a.[1] Its lower end is in the center of the buried cone constituting the subsurface mark. A standard reference disk cemented in the top of a similar pipe is set 38.47 meters (126.2 feet) south by west from the station.

Naval training station, chimney (Newport County, R. I., Isaac Winston, 1912).—On the western side of Coasters Harbor Island, which lies near the west coast of the island of Rhode Island and north of the northern entrance to Newport Harbor.

Pawtuxet (Providence County, R. I., A. M. Harrison, 1863; 1912).—On Pawtuxet Neck, west side of Providence River, a short distance east of the junction of Sheldon Street and the road along the Neck. The residence of Arthur Peck has been built over the point, and the station is, therefore, considered as lost.

Sable Point (Providence County, R. I., A. M. Harrison, 1863).—Reported destroyed in 1912.

Kettle Point (Providence County, R. I., A. M. Harrison, 1863; 1912).—On the east shore of Providence River, on a point of the same name, about ⅜ mile northeast of Field Point, and about 1¾ miles southeast of Fox Point, in the city of Providence. The station is on the slope of a ridge about 20 feet below the highest point, on the first point of land north of Fuller Rocks lighthouse. It is 22 meters from a wire fence along the railroad right-of-way, 60 meters north of a stone fence, 34 meters from the railroad tracks, and 10 meters from the top of the bluff. The station is marked according to note 6b.[1] The underground mark is a bottle buried 3 feet deep. A standard reference mark set in a bowlder showing 0.3 meters above ground is 1.42 meters (4.66 feet) to the southwest of the station.

Fort Independence 2 (Providence County, R. I., A. M. Harrison, 1863; 1912).—On the summit of Robin Hill, about ½ mile back of Fields Point on the west side of Providence River. The station is in an old earthwork of 1812 and is marked according to note 6a.[1] The subsurface mark is a buried bottle. A bronze tablet set in a cement base and bearing the inscription "Fort Independence, Erected on Robin Hill, 1775, Strengthened 1814," is also within the old fort. It is held in position by 4 bolts and the lower one on the left as one faces the tablet is used as a reference mark; it is 12.05 meters (39.5 feet) to westward of the station. Two granite posts, set by the city engineers of Providence (1911), also serve as reference marks. They are, respectively, 3.04 meters (9.97 feet) north (true) and 3.06 meters (10.04 feet) south (true) from the station.

Potter Cove front range (Newport County, R. I., N. H. Heck, 1915).—On the beach of Potters Cove, east side of Conanicut Island, Narragansett Bay, and separated by a narrow salt lagoon from the road running parallel to the shore. The point is marked according to note 6a.[1] A reference mark, note 13a,[1] is 16.93 meters (55.54 feet) south of the station.

Potter Cove rear range (Newport County, R. I., N. H. Heck, 1915).—About 600 meters back of the beach of Potters Cove, east side of Conanicut Island, Narragansett Bay, and 587.7 meters to the westward of the *front range*. The point is marked by a drill hole in the center of a cross cut on a conglomerate bowlder which is 1 meter east of a stone wall. A reference mark, note 13a,[1] is 27.29 meters (89.53 feet) east by south from the station.

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[1] See pp. 61-62.

Out (Newport County, R. I., N. H. Heck, 1915).—On the east shore of Conanicut Island about ½ mile from its northeast end, 330 feet south of Conanicut Park wharf, and 30 feet back from high water. This station is the front range of the north end of the speed-trial course, and is marked according to note 6a.[1] A reference mark, note 13a,[1] is 34.67 meters (113.75 feet) northwest by west from the station, in the middle of a field and 1 foot seaward from a large, outcropping rock.

Trial course, front range pole at south end of (Newport County, R. I., N. H. Heck, 1915).—On the east shore of Conanicut Island, Narragansett Bay, about 1½ miles south of North Point (Conanicut lighthouse). The station is about 30 feet from high water, in a stony field and is marked according to note 6a.[1] This constitutes the front range for the south end of a speed-trial course. The *rear range*, similarly marked, is 93.94 meters (308.20 feet) to the westward. A reference mark, note 13a,[1] is 38.75 meters (127.13 feet) to the westward of the front range station.

Rose Island lighthouse (Newport County, R. I., A. T. Mosman, 1888).—On the southwest point of Rose Island (off Newport Harbor) on top of the light-keeper's dwelling. The lantern is 48 feet above mean high water.

Tammany Scaffold (Newport County, R. I., D. B. Wainwright, 1897; 1912).—On Miantonomy Hill, on the western side of the island of Rhode Island, about a mile to the northward of Newport. The station is on the southwest corner of the top of an observatory scaffold, at the intersection of two heavy top rails. The scaffold is about 25 feet high and substantially built, but being no longer used will eventually disappear. In 1912 the floors and ladders were gone.

Prudence 3 (Newport County, R. I., D. B. Wainwright, 1897; 1912).—The computation shows that this station was 0.9 meters east of *Prudence 2* and about 70 meters to the southward of *Prudence*. It was not found in 1912, and is considered as lost.

Quaker 2 (Newport County, R. I., D. B. Wainwright, 1897).—This station was in the same vicinity as *Quaker*, but was only temporarily marked. The Massachusetts Topographic Survey Commission, in 1901 reported it as lost.

Pocasset 2 (Newport County, R. I., D. B. Wainwright, 1897).—About ½ mile to the west-southwest of *Pocasset*. It was established for temporary use only and was not marked. It is considered as lost.

Flagg (Newport County, R. I., R. B. Derickson, 1905).—Reported destroyed in 1912.

Butts (Newport County, R. I., E. Blunt, 1843).—On Butts Hill, northern part of the island of Rhode Island, about ½ mile from its eastern or Sakonnet River shore, about a mile north of Portsmouth, 1½ miles south of Bristol Ferry, and about 300 meters east of the junction of a road from Portsmouth with that from Newport to Bristol Ferry. The station mark is a buried stone cone.

West (Bristol County, R. I., E. Blunt, 1861; 1913).—On the highest point of a ridge about ⅛ mile back of Bristol lighthouse on what appears to be an old breastwork, about 100 meters west of the road to Bristol. The station is marked with a soda bottle surrounded by gravel buried in the ground.

Anthony (Newport County, R. I., E. Blunt, 1843; 1917).—On the highest of a group of small hills in the northeast corner of the island of Rhode Island, about 100 meters west of Sakonnet River and ½ mile north of the railroad bridge at Tiverton. The station is near the middle of the ridge forming the top of the hill and is 25 meters north of a large bowlder and 50 meters south of a stone fence. It is marked according to note 6a,[1] the tile foot resting on solid rock at a depth of 16 inches below the ground surface. The reference mark, a brass bolt 1 inch in diameter set in the rock, is 14.85 meters (48.72 feet) south of the station.

Sugarloaf Hill (Washington County, R. I., S. C. McCorkle, 1869; 1912).—On the summit of a hill in the western part of Wakefield and immediately north of the road leading to Charlestown. The station is marked according to note 6b.[1] The original

[1] See pp. 61-62.

mark, a drill hole in a small bowlder, was in 1912 sunk to depth of 3 feet to serve as underground mark. A reference mark, note 12c,[1] is 2.61 meters (8.56 feet) to the northward of the station.

Paradise Rock 2 (Newport County, R. I., R. P. Strough, 1917).—On the island of Rhode Island, approximately 2¼ miles east by north of the city of Newport. It is on the summit of a prominent ridge of rocks running in a north-and-south direction just to the eastward of the Easton farm. The station is approximately 60 meters south of a dilapidated stone wall which marks the southern limits of a stone quarry. The latter forms a sharp bluff, which is very prominent from the entrance to Sakonnet River. The station is marked according to note 2.[1] Two reference marks, note 12a,[1] are 30.69 meters (100.69 feet) southward, and 7.65 meters (25.10 feet) northwestward of the station.

Cor (Newport County, R. I., R. P. Strough, 1917).—On the highest point of Cormorant Rock, which lies about ¾ mile south by west of Sachuest Point, the west point of the mouth of Sakonnet River. The station is marked according to note 4.[1]

Church Point 3 (Newport County, R. I., R. P. Strough, 1917).—On the east shore of the Sakonnet River, about 300 meters above Church Point, on a ridge above the shore and due west of Mr. Young's barn. The station is marked according to notes 6a and 7a.[1] The reference mark is described in note 13a.[1] Two older stations in this vicinity, now lost, are *Church Point* and *Church Point 2*.

Graphite (Newport County, R. I., R. P. Strough, 1917).—On the brow of a hill on the east side of the Sakonnet River, about 1⅛ miles southeast of High Hill Point, a little less than ½ mile south of the southern end of Monquit Pond and 260 meters from shore. The station is on the Almy farm, on the west side of the Little Compton-Tiverton road, at the intersection of two stone walls, and 200 meters west of a prominent grove of trees. The station is marked according to notes 6a and 7a.[1] Two reference marks, note 13a,[1] are, respectively, 16.19 meters (53.12 feet) to the eastward and 8.69 meters (28.51 feet) to the northward of the station.

Windmill 3 (Newport County, R. I., I. Winston, 1912; 1917).—On the hill of that name on the east side of the Sakonnet River, about ½ mile from the shore and the mouth of Nonquit pond, 2 miles south-southwest from Tiverton Four Corners, and 2½ miles northwest from Little Compton. The station is marked by a standard brass disk cemented in the top of a 4-inch sewer pipe which passes through the stone cone forming the original surface mark and is surrounded by a mass of cement and gravel. It is 73 meters (240 feet) south of a stone fence, 89 meters (292 feet) north of a cemetery fence, and 6.1 meters (20.0 feet) west of the stone fence along the road to Tiverton Four Corners. A standard reference disk, cemented in the top of a piece of 4-inch sewer pipe, is 5.72 meters (18.77 feet) east of the station and close to the road fence. The land belongs to Harry Almy and is rented by Tony Almeda, whose house is between the station and the Sakonnet River.

Black Point (Newport County, R. I., R. P. Strough, 1917).—On the west shore of the Sakonnet River, about ⅛ mile north of Black Point. The station is marked according to note 4 [1] and is nearly flush with the surrounding turf. Two reference marks, notes 12a and 12c,[1] are respectively, 61.88 meters (203.02 feet) east by north and 5.08 meters (16.67 feet) south by east of the station. The northwest support of the most northerly of two windmills on the Black Point Farm is 108.2 meters (354.9 feet) from the station.

McCurrys Point (Newport County, R. I., R. P. Strough, 1917).—On the west side of the Sakonnet River, about 2 miles south of Portsmouth, 275 meters back of the point of the sand spit known as McCurry's Point, and 11 meters (36 feet) south of a small cottage. The station is marked according to note 4.[1] A reference mark, note 13a,[1] is 7.69 meters (25.23 feet) northeast of the station, and a marker of the U. S. Fish Commission is 261.74 meters (858.73 feet) to the eastward.

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[1] See pp. 61-62.

Brown (Newport County, R. I., R. P. Strough, 1917).—On the east side of the Sakonnet River, about a mile east of Sapowet Point and 75 meters west of the main highway to Tiverton and Little Compton. The station is on a large pudding-stone formation locally known as Browns Ledge, on the property of Isaac M. Brown. The station is marked according to note 2.[1] Two reference marks, note 12a,[1] are, respectively, 6.15 meters (20.18 feet) west and 17.84 meters (58.53 feet) north by west from the station.

Power (Newport County, R. I., R. P. Strough, 1917).—On the west side of the Sakonnet River, about 350 meters north of the stack of the Portsmouth Power House and over 100 meters inland, on land belonging to William Dunn. The station is on a bowlder in a gap of a dilapidated stone wall running north and south a short distance east of Water Street, Portsmouth, and is marked according to note 4.[1] Two reference marks, note 13a,[1] are, respectively, 22.82 meters (74.87 feet) south by west and 55.20 meters (181.10 feet) east by north from the station.

Tiverton (Newport County, R. I., R. P. Strough, 1917).—On the east side of the Sakonnet River, on a cylindrical, flat mound on the first ridge above Tiverton Village. The mound is on top of Fort Durfee, a short distance east of the main highway to Fall River, and less than ¾ mile north of Nannaquacket Pond. The station is marked according to notes 6a and 7a.[1] A reference mark, note 12a,[1] is 18.57 meters (60.93 feet) south-southwest of the station.

Hummock (Newport County, R. I., R. P. Strough, 1917).—On the western edge of a high, rocky knoll on the west side of the Sakonnet River, opposite Tiverton, and a short distance south of the New York, New Haven & Hartford Railroad. The station is marked according to note 4.[1] A Fish Commission marker 7.84 meters (25.72 feet) from the station and in range with the spire of the Tiverton Baptist Church serves as a reference mark.

Bullocks Neck 3 (Providence County, R. I., D. B. Wainwright, 1897).—Reported destroyed in 1912.

Sabine Point 2 (Providence County, R. I., D. B. Wainwright, 1897).—On a mound of oyster shells on the wharf which extends from the southern side of Sabine Point. There is no permanent mark.

Cranberry (Washington County, R. I.,———).—On the summit of the small, rocky islet of the same name. Only a temporary mark was used.

Boulder (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909; Isaac Winston, 1913).—On a ridge on the west side of the Western Passage of Narragansett Bay, about ¼ mile from shore and ½ mile to the southwestward of Plum Beach. The station is on top a very large bowlder, 15 feet high, which is on the slope of the ridge in a group of bowlders 10 meters east of a wire fence and 160 meters east of the stone fence along the post road to Wickford. The station is marked by a standard brass disk, having the added legend "Established by the Corps of Engineers, U. S. A.," set in a hole drilled in the rock. A standard reference disk, set in a drilled hole in the same bowlder, is 2.48 meters (8.14 feet) to the northward of, and about 3 feet lower than, the station.

Fox Island (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909).—On the small island of that name in the west side of the Western Passage of Narragansett Bay, about ½ mile to the northeastward of Romes Point. The marking is not given, but the point may readily be found by measuring 124.3 meters (407.81 feet) in a west-southwest direction (magnetic) from station *Fox*.

Green (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909; Isaac Winston, 1913).—On the west side of the Western Passage of Narragansett Bay, ¾ mile south of the village of Hamilton, 1½ miles northwest of Plum Beach and 1 mile southwest from Romes Point. The station is 1 meter south of a wire fence, 18 meters east of the stone fence along the Providence-Narragansett Pier road, and is marked

[1] See pp. 61-62.

according to note 6b,[1] except that the disk bears the added legend "Established by the Corps of Engineers, U. S. A." A reference mark, note 13b,[1] is 19.17 meters (62.89 feet) southwest from the station and 2 meters from the stone wall above mentioned.

Hammond (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909; 1912).—On a bare ledge on the east slope of the ridge west of upper Pattaquamscott Pond, about 2 miles west-northwest of Saunderstown and 200 meters south of the Hamilton-Kingston road. The station is on land belonging to Mrs. La Farge, of New York, and is 50 meters south of a stone fence. The station is marked according to note 2,[1] except that the disk has the additional legend "Established by the Corps of Engineers, U. S. A." A reference mark, note 12c,[1] is 9.26 meters (30.38 feet) west by south from the station.

Brown (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909; 1912).—On the west side of the Western Passage of Narragansett Bay, about a mile west of Plum Beach, ⅜ mile west of Owen Wister's water tower, and 250 meters west of the road from Hamilton to Narragansett Pier via Saunderstown. The station is on top of a prominent, bare ledge in front of John Brown's house, at the beginning of the downward slope to the westward and west of the last rock fence. It is marked according to note 2,[1] except that the disk has the additional legend "Established by the Corps of Engineers, U. S. A." A reference mark, note 12a,[1] is 3.06 meters (10.04 feet) southwest from the station.

Hazard (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909; 1912).—On the west side of the Western Passage of Narragansett Bay, about ¾ mile west-southwest from the point of Plum Beach, 1⅛ miles north of Saunderstown and near the summit of the hill known as Barbers Height. The station is on top of a flat bowlder, near a bowlder 10 feet high, 22 meters north of a wire fence, and 78 meters east of a stone fence. The station is marked according to note 4,[1] except that the disk has the additional legend "Established by the Corps of Engineers, U. S. A." A reference mark, note 12a,[1] is 11.88 meters (38.98 feet) southeast by east from the station.

Railroad (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909; 1912).—On the west side of the Western Passage of Narragansett Bay, about 200 meters from shore, 300 meters from the south shore of Bissel Cove, ¾ mile southeast of Hamilton, and 1⅛ miles north-northwest of the point of Plum Beach. The station is on land belonging to Oliver Green and is just outside of the east fence along the Sea View Electric Co.'s right of way, on a flat rock showing about a foot above the ground. The station is marked according to note 2,[1] except that the disk has the additional legend "Established by the Corps of Engineers, U. S. A." A reference mark, note 12a,[1] is 2.29 meters (7.51 feet) north by west from the station.

Bissel (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909; 1912.—On the west side of the Western Passage of Narragansett Bay, on a point on the east side of Bissel Cove, about ½ mile east of Hamilton and ⅛ mile west of Romes Point. The station is on land belonging to J. A. Johnson, 185 feet southeast from his house, and is marked according to note 6b,[1] except that the disk has the additional legend "Established by the Corps of Engineer, U. S. A." A reference mark, note 13b,[1] is 11.68 meters (38.32 feet) north by west from the station.

Cedar (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909).—Reported destroyed in 1912.

Hazard Tower (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909; 1912).—On the east side of Point Judith Neck about ½ mile south of Narragansett Pier, and ¼ mile from the shore, on the west side of the road from Narragansett Pier to Point Judith. The tower is square and massive, and of granite. The station point is marked on the copper roof, about in its center.

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[1] See pp. 61-62.

Updike (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909; 1912).—On the west side of the Western Passage of Narragansett Bay, about 1¾ miles northeast of Narragansett Pier, ¾ mile inland, ¼ mile east of the Pattaquamscott River, 150 meters west of the road to Wickford, and 300 meters south of the road to Middle Bridge. The station is on the top of a large bowlder standing about 14 meters west of a stone fence and about 50 meters southeast of the burying ground of the Updike family. The station is marked according to note 4,[1] except that the disk has the additional legend "Established by the Corps of Engineers, U. S. A." The reference mark, note 12c,[1] is 14.57 meters (47.80 feet) east-southeast from the station, its bowlder forming part of the stone fence.

Dillon (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909; 1912).—On a knoll in the north end of Point Judith Neck, about ¾ mile northwest of Narragansett Pier, 1¼ miles east-southeast of Wakefield, 300 meters south of the "Cove" of the Pattaquamscott River, and 60 meters south of the railroad. The station is on a small bowlder showing only 2 inches above the ground and is marked according to note 4,[1] except that the disk has the additional legend "Established by the Corps of Engineers, U. S. A." A standard reference disk, set in the top of a large bowlder on the highest point of the knoll, is 9.07 meters (29.76 feet) to the southwestward of the station.

Narrow River, east (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909; 1912).—On land owned by Mr. J. B. M. Potter of Kingston, R. I., on the southern point of Coston Neck, on the west side of the western entrance to Narragansett Bay, on a high ledge forming the east side of the entrance to Narrow River (Pattaquamscott Narrows). The station is marked according to note 2,[1] except that the disk has the additional legend "Established by the Corps of Engineers, U. S. A." The reference mark is 3.45 meters (11.32 feet) southwest of the station.

Narrow River, west (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909).—Reported destroyed in 1912.

Johnson (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909; 1912).—On a large rock near the top of a ridge about 1 mile west of the Narragansett Bay shore, ½ mile east of the Pattaquamscott River, ⅔ mile east-northeast of Bridgetown, and ¼ mile north of the junction of the South Ferry-Bridgetown road with that to Narragansett Pier. The station is on top of a large rock 6 feet high, 4 meters north of a stone fence (the fifth from the road), and 125 meters east of the first stone fence to the west. It is marked according to note 2,[1] except that the disk has the additional legend "Established by the Corps of Engineers, U. S. A." The reference mark, note 12a,[1] is 3.26 meters (10.70 feet) north of the station.

Monroe (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909; 1912).—On a large and prominent rock on the top of a ridge, about a mile west of Narragansett Bay, ⅛ mile east of the Pattaquamscott River, and ½ mile southeast of Bridgetown. The station is about ½ mile south of the road from Bridgetown to South Ferry, and ¼ mile west of the road to Narragansett Pier. It is marked according to note 2,[1] except that the disk has the additional legend "Established by the Corps of Engineers, U. S. A." The reference mark, note 12a,[1] is 4.93 meters (16.17 feet) south-southwest from the station, and 2 feet lower.

Monroe 3 (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909; 1912).—On the east side of the Pattaquamscott River, about ⅝ mile south of Bridgetown and 5 feet north of a stone fence. The station is 195 feet from the river shore and is marked by an oak hub 2 inches square. The land is owned by Joseph Johnson.

Champlin (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909; 1912).—On the east side of the Pattaquamscott River, north of the South Ferry-Bridgetown road, about ½ mile north of Bridgetown, on land belonging to Chas. Champlin. The station is 84 meters (276 feet) from the river shore and 1.1 meters (3.6 feet) south of a stone fence. It is marked according to note 6a,[1] except that the disk has the

[1] See pp. 61-62.

additional legend "Established by the Corps of Engineers, U. S. A." The reference mark, note 12c,[1] is 14.51 meters (47.60 feet) south-southeast from the station, on a small bowlder 15 meters south of the fence.

Mitchell (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909; 1912).—In Warren Madison's orchard in Bridgetown, on the west bank of the Pattaquamscott River, about 25 meters from shore, 114 meters north of a road, 50 meters north of the nearest house, and 3.8 meters (12.47 feet) south of a wire fence. The station is marked according to note 6a.[1] The reference mark, note 13a,[1] is 0.4 meter (1.3 feet) south of the wire fence and 3.45 meters (11.32 feet) north by east from the station.

SUPPLEMENTARY POINTS.

Colt (Bristol County, R. I., J. B. Boutelle, 1913).—On a small hill about ¼ mile east of North Point, on Popasquash Neck, in the northern part of Narranganset Bay, at the northern end of the bridge over the entrance to Mill Gut. This is a hydrographic point and is marked by a nail in the top of a 2 by 4 inch wooden stub.

Rum (Bristol County, R. I., J. B. Boutelle, 1913).—On the end of a low ridge on the extreme southern end of Rumstick Point, which is in the northern part of Narragansett Bay and on the western side of the mouth of Warren River. The station is marked according to notes 1a and 7c.[1]

Pile (Bristol County, R. I., J. B. Boutelle, 1913).—On the eastern shore of Providence River, about 1¼ miles northwest of Nayatt Point and ⅓ mile south of the mouth of Bullock Creek. The station is marked by a pole, with cross boards, nailed to a pile on the outer end of an old wharf at West Barrington, at the foot of the shell road and in front of a house owned by William Smith, the town clerk of East Providence.

Oak (Kent County, R. I., J. B. Boutelle, 1913; U. S. Engineers, 1916).—On the west shore of Warwick Neck, Greenwich Bay, at the mouth of Warwick Cove and southeast of Oakland Beach. The station is on a low, sandy point 32 feet from shore and 62 feet south of the south corner of a row of piles which formerly supported a coal pocket or wharf. The station is marked according to notes 1a and 7a.[1]

Pat (Newport County, R. I., J. B. Boutelle, 1913; U. S. Engineers, 1916).—On the southwest side of Patience Island, Narragansett Bay, about 100 feet from the edge of a 20-foot bluff and 50 feet about south-southwest from the junction of two stone fences. The station is marked by a hole in the center of a triangle cut in the top of a square concrete post and surrounded by the inscription "1913 C. & G. S." The subsurface mark, note 7c,[1] has a similar inscription. Three reference marks, a cross, a triangle, and a square, cut on outcropping bowlders, are, respectively, 6.10 meters (20.0 feet) southwest by west, 12.56 meters (41.2 feet) southwest by west, and 12.86 meters (42.2 feet) north-northwest from the station.

Der (Newport County, R. I., J. B. Boutelle, 1913; U. S. Engineers, 1916).—On the west side of Prudence Island, Narragansett Bay, about 250 feet northwest of Pine Hill Point, 20 feet back from the edge of the bluff, and 345 feet below a stone wall. The station is marked by a concrete block, 8 by 8 by 12 inches, set with its top nearly flush with the ground, and bearing a triangle and the inscription "1913 C. & G. S." Three reference marks, each a drill hole in rock, are, respectively, 11.83 meters (38.8 feet) to the north-northwest, 33.04 meters (108.4 feet) northeast, and 9.78 meters (32.1 feet) southeast from the station.

Pojac 2 (Washington County, R. I., J. B. Boutelle, 1913).—On the point of that name on the west shore of Narragansett Bay, the south point of the mouth of the Potowomut River (now sometimes called Green River). The station is marked according to note 16.[1]

Fence (Washington County, R. I., J. B. Boutelle, 1913; U. S. Engineers, 1916).—On the west side of Narragansett Bay, on the top of a bluff about a mile south of Pojac Point, 0.8 mile north of Calf Pasture Point, and 0.3 mile south of the mouth of a small

[1] See pp. 61-62.

creek. The station is 6.9 meters (22.6 feet) back from the edge of the bluff, 3.8 meters (12.6 feet) north of a fence, and is marked according to note 16.[1]

Windmill (Kent County, R. I., J. B. Boutelle, 1913).—On the eastern side of Warwick Neck, Narragansett Bay, about ½ mile above Warwick lighthouse and 100 meters above Sand Point.

Flagstaff (Kent County, R. I., J. B. Boutelle, 1913).—On a point on the west side of Warwick Neck, Greenwich Bay, about ¾ mile south by east of Oakland Beach, ¾ mile northwest of Warwick lighthouse, and 1¼ miles east-northeast of Sandy Point. It is known as Shepley's flagstaff.

Cedar (Kent County, R. I., J. B. Boutelle, 1913; U. S. Engineers, 1916).—On the point of the bluff at Cedar Tree Point, on the north side of Greenwich Bay, and on the east side of the mouth of the Apponaug River. The station is 4 meters back from the edge of the bluff and is marked according to note 16.[1]

Brad (Newport County, R. I., J. B. Boutelle, 1913).—On the west shore of the island of Rhode Island, about 200 meters south of Coggeshall Point, on the north side of the naval coal depot at Melville. The station is an iron smokestack.

Shanty (Bristol County, R. I., J. B. Boutelle, 1913).—On the west shore of Popasquash Neck, about ½ mile north by west of Popasquash Point. The north gable is the point observed upon.

North Point, house chimney (Newport County, R. I., J. B. Boutelle, 1912).—Near the northern extremity of North Point, on Prudence Island. The station is a small terra-cotta chimney on a fish house.

Bight (Newport County, R. I., J. B. Boutelle, 1913).—In the bottom of a deep bight of the west side of Prudence Island, about 1¼ miles to the southeastward of Pine Hill Point and just north of the mouth of a small creek. It is near the lower end of a long, narrow strip of sand and grass, between the beach and marsh, 25 feet from the edge of the marsh, 30 feet from the beach, and 50 feet from the end of the strip. The station is marked by a concrete block 8 inches square, having a protruding nail within a triangle and bearing the inscription "1913—C. & G. S."

Coal (Newport County, R. I., N. H. Heck, 1915).—On the west side of the island of Rhode Island, about 1¼ miles south of Hog Island Shoal lighthouse, 450 meters southeast by east of the coal mines wharf, and 200 meters from the shore. The station is about 58 meters to the westward of a prominent black stack and 220 meters west of the New York, New Haven & Hartford Railroad. It is the northwest gable of a coal breaker, a large, wooden building.

Brad 1915 (Newport County, R. I., N. H. Heck, 1915).—On the west side of the island of Rhode Island, about 0.6 mile east of the U. S. naval coal depot south of Coggeshall Point, 500 meters west of the New York, New Haven & Hartford Railroad, 270 meters northeast of a sharp turn of the road from the coal depot, and 87 meters east of a small creek. The station is a round, black tank setting close to the ground on a sidehill.

Lo (Newport County, R. I., N. H. Heck, 1915).—On the west side of the island of Rhode Island, about 0.4 mile south-southeast of Carrs Point, 350 meters southeast of the New York, New Haven & Hartford Railroad, 500 meters northwest of the Newport-Portsmouth road, and near the terminus of a minor road leading therefrom. The station is a white silo adjoining a barn.

Wall (Kent County, R. I., J. B. Boutelle, 1913; U. S. Engineers, 1916).—In the angle of a stone wall at the extreme end of Sandy Point, on Potowomut Neck, on the south side of the entrance to Greenwich Bay. The station is marked according to note 16.[1] The old station *Sandy Point (1863)* is 133.17 meters (436.9 feet) to the southwest of this new station.

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[1] See pp. 61-62.

Tank (Newport County, R. I., N. H. Heck, 1915).—A small black tank on Conanicut Island, midway between its eastern and western shores and 2⅜ miles from its north end on the west side of the main road. A schoolhouse is about 80 meters to the southward.

Mill (Newport County, R. I., N. H. Heck, 1915).—A windmill on a shingle mill on Conanicut Island, about 1¼ miles north of Jamestown, 700 meters west of the shore of Potters Cove, and 75 meters east of the main road.

Chimney B (Newport County, R. I., N. H. Heck, 1915).—The most prominent chimney on a residence located on Conanicut Island, near North Point, about 100 meters from the water's edge, and about 500 meters southeast of Conanicut Island lighthouse.

Cog (Newport County, R. I., N. H. Heck, 1915).—A chimney of a residence on the west side of the island of Rhode Island, near the southwest corner of Coddington Cove and 250 meters south from its terminating point. It is the west-southwest chimney, and the house is the only one now remaining in the vicinity.

Bull (Newport County, R. I., N. H. Heck, 1915).—The dome top of a tower on a house on the southeast side of Bulls Point on the east side of Conanicut Island, about 1¼ miles northeast by north of Castle Hill lighthouse. The house belongs to Isaac Clothier.

Silo E (Newport County, R. I., N. H. Heck, 1915).—A yellow silo on the west side of the island of Rhode Island about ⅝ mile from shore, 1 mile south of Carrs Point, and ⅛ mile west of the road from Newport to Portsmouth.

Windmill D (Newport County, R. I., N. H. Heck, 1915).—A windmill on a tower on the west side of the island of Rhode Island, about 1½ miles south of Carrs Point and ¾ mile from shore on the west side of the Newport-Portsmouth road.

Windmill L (Newport County, R. I., N. H. Heck, 1915).—On Prudence Island, about ½ mile from its eastern shore and ⅝ mile southwest of Prudence Island lighthouse.

Chimney N (Newport County, R. I., N. H. Heck, 1915).—On Conanicut Island, about midway between its eastern and western shores and about 2 miles from its north end on the west side of the road from Jamestown.

Trial course, rear range pole at south end of (Newport County, R. I., N. H. Heck, 1915).—This point constitutes the rear range for the south end of the speed-trial course and is 93.94 meters (308.20 feet) west of *Trial course, front range pole at south end of.* It is marked according to note 6a.[1]

Trial course, rear range pole at north end of (Newport County, R. I., N. H. Heck, 1915).—This station is the rear range of the north end of the speed-trial course and is 77.85 meters (255.41 feet) from *Trial course, front range pole at north end of.* Both stations are marked according to note 6a.[1] The station is about 15 feet eastward from an old grass-grown road running parallel to the shore.

Rose Island front range (Newport County, R. I., N. H. Heck, 1915).—On Rose Island, off Newport Harbor, about 70 meters north-northeast of the center of the lighthouse. The center of the pole of a tripod erected by the Navy Department constitutes the front range for one end of a speed-trial course; the rear range is *Rose Island 2*, which is 231.5 meters (759.5 feet) to the eastward. A reference mark, note 13a,[1] is 10.96 meters (35.96 feet) to the southeast by east and 4 meters west of a picket fence.

Hall (Newport County, R. I., W. C. Dibrell, 1906).—On a prominent point on the west side of the island of Rhode Island, about 2 miles north by east of Coggeshall Point, on the site of the old copper mill. The station is the center of a walled up dry well about 2 feet in diameter. It is about 77 meters southeast by east from station *Cop*, which is well marked.

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[1] See pp. 61-62.

Dyer (Newport County, R. I., W. C. Dibrell, 1906).—On the north end of a small islet which lies about ⅛ mile to the southwestward of Dyer Island, between Rhode and Prudence Islands. The station is marked by a triangle cut in a rock 2 feet square and covered by a pile of rocks.

Range finder (Newport County, R. I., D. B. Wainwright, 1897).—In the southwest part of the island of Rhode Island, about ½ mile west of the southern part of Newport, ⅔ mile south by west of Fort Adams lighthouse and midway between the shores of the Eastern Passage and Brentons Cove. The station is the small, white flag pole on the building at Fort Adams inclosing the range finder.

Pocasset 3 (Newport County, R. I., J. B. Baylor, 1904; 1913).—On Pocasset Hill about 150 meters to the northeast of station *Pocasset*. It was marked originally by a drilled hole within a triangle deeply cut in the rock, but in 1913 a standard brass disk was set in the drilled hole. For a reference mark another drill hole was made 6.69 meters (21.95 feet) south-southwest from the station.

Richards (Providence County, R. I., C. H. Van Orden, 1889).—On a knoll about 2¼ miles west of North Attleboro, Mass., ¾ mile east-northeast of Arnold Mills, and ¼ mile north of the house of Calvin Richards. The station is in a lot having walls on three sides and is 31.7 meters (104 feet) from the south wall, 37.2 meters (122 feet) from the east wall, and about 100 meters north of the junction of Wrentham and North Attleboro townships with the state boundary line. The station mark is a drill hole in a rock about a foot high.

Cumberland (Providence County, R. I., C. H. Van Orden, 1889).—About 150 meters east of the summit of a high, flat-topped hill located about 2½ miles north of Central Falls, 1 mile northeast by east of Lonsdale, 1½ miles east by south of Berkeley, ½ mile west of the Massachusetts and Rhode Island boundary, and ⅛ mile east of the road from Lonsdale to Arnold Mills. Two drilled holes in rocks are, respectively, 1.395 meters (4.577 feet) to the southwestward and 0.435 meters (1.427 feet) to the southeastward of the station point which is not otherwise marked.

Quicksand (Mass.) (Bristol County, Mass., E. Blunt, 1843).—Reported destroyed in 1895.

Church Point 2 (Newport County, R. I., S. C. McCorkle, 1869).—On the east side of Sakonnet River, about 300 meters above Church Point. The station could not be found in 1912, and in 1917 it was superseded by *Church Point 3*.

Fair Grounds Tower (Newport County, R. I., S. C. McCorkle, 1869).—The flagstaff on the tower is the point used.

Gibbs 2 (Newport County, R. I., S. C. McCorkle, 1869).—In the southern part of the island of Rhode Island, about 2 miles east of Newport, ½ mile east of the city reservoir and ⅜ mile north of the road from Newport to Portsmouth via Eastons Beach. The station is on the summit of Gibbs Hill, on the old Peckham farm, and is in the northwest angle of the foundation wall of an old house. The inner angle marks the station center.

Quicksand (Borden) (Bristol County, Mass., Borden, 1836).—This is a station of the Massachusetts Boundary Survey. It is marked by a copper bolt set in a low, flat rock and is 1.5 meters (4.9 feet) north and 0.3 meter (1.0 foot) east of *Quicksand (1843)*.

Potter's, Widow, barn (Newport County, R. I., S. C. McCorkle, 1869).—The cupola of the barn is the point determined.

Barker (Newport County, R. I., E. Blunt, 1843).—On the summit of a ridge on the east side of the Sakonnet River to the eastward of Tiverton, nearly opposite the east end of Ocean Avenue, and about ⅛ mile east of Newport-Tiverton-Fall River road. The station was not found in 1913 and was reported as probably lost.

Cornell (Newport County, R. I., E. Blunt, 1843).—On Cornell's Hill, about 5½ miles south of Fall River, 3¼ miles east-southeast of Sakonnet River at Stone Bridge, ¾ mile to the westward of the Massachusetts and Rhode Island boundary, 300 meters south of the cross road at Bliss Corners, and on the east side of the north and south road leading to the Corners. The marking of the station is not given.

Windmill (Newport County, R. I., E. Blunt, 1843).—Reported destroyed in 1869.

Church Point (Newport County, R. I., E. Blunt, 1843).—Reported destroyed in 1869.

Gibbs (Newport County, R. I., E. Blunt, 1843).—The buried cone marking this station was not found in 1869. The station was considered as lost and was superseded by *Gibbs 2*.

Sakonnet Point (Newport County, R. I., E. Blunt, 1843).—On the southwest corner of the point of that name which forms the east side of the mouth of the Sakonnet River The station is on a sand hill, ⅜ mile east of Sakonnet lighthouse and is marked by a buried stone cylinder.

High Hill (Newport County, R. I., E. Blunt, 1843).—Reported destroyed in 1913. It was superseded in 1917 by *High Hill Point*.

Mount Hope (*Borden*) (Bristol County, R. I., Borden, 1836).—Lost and superseded in 1843 by *Mount Hope*.

Fall River (Bristol County, Mass., Borden, 1834; E. Blunt, 1843).—Reported destroyed in 1913.

Pawtucket dark spire (Providence County, R. I., Gersham Bradford, 1885).—Reported destroyed.

Pawtucket spire (*Borden*) (Providence County, R. I., Borden, 1836).—Reported destroyed.

Arnold (Kent County, R. I., E. Blunt, 1843; 1912).—On the summit of a small, round hill, locally known as Kellawecket Hill, on the west side of Providence River, and in the southern part of Pawtuxet. The station is on the west side of Fair Street, on land belonging to Mrs. P. B. Whitmarsh. It is 28 meters (92 feet) from the street fence and 75 meters (246 feet) from the north end of the Whitmarsh residence. The station is marked according to note 6a.[1] A reference mark, note 13a,[1] is 14.04 meters (46.06 feet) from the station and in line with the chimney of the back building of the Whitmarsh home.

Kinnicut (Providence County, R. I., E. Blunt, 1843).—Reported destroyed in 1912.

Fort Independence (Providence County, R. I., E. Blunt, 1843).—Reported destroyed in 1863.

Neutaconkanut (Providence County, R. I., E. Blunt, 1843).—On the northern and lower summit of the hill of that name, about 1¼ miles west of the Providence City Line, 1 mile west of Olneysville, 1¼ miles north by west of the Cranston Point Works, and 1½ miles east of Hughesdale. The mark is a buried stone cone or bottle, and over the point is a pile of stones.

Batty's farm (Kent County, R. I., E. Blunt, 1843).—Reported lost in 1912.

Prospect Hill (Providence County, R. I., E. Blunt, 1843).—In Providence, in the garden of house No. 1, Prospect Street, occupied in 1843 by C. T. Keith. The station is marked by a buried stone cone.

Bullocks Neck (*Borden*) (Providence County, R. I., Borden, 1836).—Reported destroyed.

Bullocks Neck (Providence County, R. I., E. Blunt, 1843).—Reported destroyed in 1912.

Pawtuxet (*Borden*) (Kent County, R. I., Borden, 1836).—Reported destroyed.

Pomham (Providence County, R. I., E. Blunt, 1843).—Reported destroyed in 1912.

Prudence South (Newport County, R. I., E. Blunt, 1843).—Reported destroyed.

Gould Island, barn cupola (Newport County, R. I., 1868).—Reported destroyed in 1912.

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[1] See pp. 61-62.

Coal Mines, middle chimney (Newport County, R. I., S. C. McCorkle, 1868).—On a prominent point of the west side of the island of Rhode Island. The chimney is the largest of four.

Rose Island flagstaff (Newport County, R. I., S. C. McCorkle, 1869).—Reported destroyed.

Pappoose Squaw 2 (Bristol County, R. I., E. Blunt, 1861).—On Popasquash Neck, about ⅓ mile above Popasquash Point, 150 meters west of the shore of Bristol Harbor, 50 feet east of a road, and 16 feet north of a stone wall. The land belongs to James D. E. Perry. The station is marked by two stakes which are, respectively, 7 feet north and 10 feet south of the center.

Hog Island 2 (Bristol County, R. I., E. Blunt, 1861).—Reported destroyed in 1874.

Quonsett 2 (Washington County, R. I., A. M. Harrison, 1863).—Reported destroyed in 1868.

Calf Pasture Point (Washington County, R. I., A. M. Harrison, 1863).—Reported destroyed in 1912.

Green's Point (Kent County, R. I., A. M. Harrison, 1863).—Reported destroyed in 1912.

Buttonwood house cupola (Kent County, R. I., A. M. Harrison, 1863).—Reported destroyed in 1912.

North Popasquash (Bristol County, R. I., A. M. Harrison, 1863).—Reported destroyed in 1912.

Rocky Point (Kent County, R. I., E. Blunt, 1843).—Reported destroyed in 1912.

Pappoose Squaw (Bristol County, R. I., E. Blunt, 1843; 1861).—Superseded in 1861 by *Pappoose Squaw 2.*

Rumstick (Bristol County, R. I., E. Blunt, 1843).—Reported destroyed in 1912.

Conimicut (Kent County, R. I., A. M. Harrison, 1863).—Reported destroyed in 1912.

Babcock (Bristol County, R. I., A. M. Harrison, 1863).—Reported destroyed in 1912.

Hall (Bristol County, R. I., A. M. Harrison, 1863).—Reported destroyed in 1912.

Rocky Point Hotel, chimney (Kent County, R. I., A. M. Harrison, 1863).—Reported destroyed.

Warwick Neck (Kent County, R. I., E. Blunt, 1843).—On a hill on Warwick Neck, about 1½ miles north by east from Warwick Lighthouse, 1 mile west by south of Rocky Point, and ½ mile east of Old Warwick Cove. The station is on the highest part of the Anthony farm. The marking of the station is not stated.

Nayatt lighthouse (1843) (Bristol County, R. I., E. Blunt, 1843).—Reported destroyed.

Pojac (Washington County, R. I., E. Blunt, 1843).—Reported destroyed in 1913.

Wickford lighthouse (old tower) (Washington County, R. I., E. Blunt, 1843; 1912).—. On Poplar Point, the southern point of the entrance to Wickford Harbor. The light was discontinued after the completion of the new light on Old Gay Rock, in 1882, but the tower still stands. A cottage has been built around it, but otherwise it has undergone no change.

Hog Island (Bristol County, R. I., E. Blunt, 1843).—Reported destroyed.

Castle Hill (Newport County, R. I., E. Blunt, 1843).—On an old fortification mound on the hill of that name, on the west side of "The Neck," about 2½ miles southwest from Newport, 1 mile to the northward of Brenton Point, and ⅓ mile east-northeast of Castle Hill lighthouse. The station is marked by a buried stone cone.

Fox Island (Washington County, R. I., E. Blunt, 1843).—Reported destroyed in 1912.

South Rock (Washington County, R. I., E. Blunt, 1843).—Reported destroyed.

Halfway Rock (Newport County, R. I., 1843).—Reported destroyed in 1912.

Rose Island (Newport County, R. I., E. Blunt, 1843).—Reported destroyed in 1912.

Prince (Bristol County, R. I., E. Blunt, 1843).—On Princes Hill, on the west side of the Barrington River. The station is marked by a buried stone cone. This cone is queried in Blunt's record and "glass bottle" written over it.

Reynolds (Washington County, R. I., S. C. McCorkle, 1868; 1912).—On the west side of Narragansett Bay, about ½ mile southeast of Wickford. The station is on a rock projecting about a foot above the ground, on land belonging to Dr. N. D. Harvey, of Providence, and is near the front entrance to his summer residence and almost on the south line between his land and that of T. B. P. Bogert. The station is marked by a standard brass disk set in a hole drilled in the rock. A reference disk, similarly set in a flat stone on the property line, is 12.455 meters (40.863 feet) from the station.

Dutch Island flagstaff (Newport County, R. I., S. C. McCorkle, 1868).—Reported destroyed.

Fox Island house, chimney (Washington County, R. I., S. C. McCorkle, 1868).—Reported destroyed.

Wickford Academy (Washington County, R. I., S. C. McCorkle, 1868).—Reported destroyed.

Poorhouse, northeast gable (Washington County, R. I., S. C. McCorkle, 1868).—Reported destroyed.

Boston Neck (Washington County, R. I., E. Blunt, 1843).—On a hill on the east side of Boston Neck, on the west side of the Western Passage of Narragansett Bay. The station is on land belonging to Eli Watson, south of his house, and is marked by a buried cone.

Beaconpole (Borden) (Providence County, R. I., Borden, 1834).—This station, marked by a copper bolt in the rock, is about ½ mile northeast of the Coast and Geodetic Survey station *Beaconpole*.

Red Brush (Borden) (Mass.) (Norfolk County, Mass., Borden, 1834; 1884).—On the summit of Red Brush Hill (now generally known as Blakes Hill), about 4 miles to the southward of Franklin and ¾ mile southeast of Sheldonville. The station is marked by a copper bolt set in the rocky ledge.

TERTIARY STATIONS, POINT JUDITH WESTWARD.

PRINCIPAL POINTS.

Montauk 2 (Suffolk County, N. Y., J. A. Sullivan, 1874; 1916).—On the summit of a hill about 2½ miles west of Montauk Point Light, 1¼ miles south-southwest of Shagwong Point, and ½ mile east of Great Pond. The station is marked by an iron cone set 2 feet below the surface and over it a red sandstone post, 5 inches square, reaching to the surface. The post has a drilled hole in the center of its top, surrounded by the letters "U. S. C. S." Reference mark No. 1 is a cross within a triangle cut in the eastern face of a large bowlder 11.52 meters (37.79 feet) east-southeast from the station. Reference mark No. 2 is an arrow point chiseled in a rock 36.79 meters (120.70 feet) west-northwest from the station. This rock projects 1½ feet above the ground.

Green Hill (Washington County, R. I., E. Blunt, 1838; 1913).—On the summit of the bare hill of that name, about 6 miles west-northwest of Point Judith light, 2 miles east-southeast of Charlestown and between Trustum and Green Hill Ponds. The station is marked by a drill hole in the top of a sandstone post. A portion of the top has been chipped off, but the drill hole is still intact. A standard reference disk set in the top of a bowlder is 11.86 meters (38.91 feet) north-northeast from the station and 2.3 meters (7.5 feet) from a stone fence which passes the station at a distance of 4.7 meters (15.4 feet) to the eastward.

Peleg Tiff (Washington County, R. I., E. Blunt, 1838; 1840).— On the hill of that name, about ⅝ mile east of the northern part of Westerly. The station is on the summit of the hill and is marked by a buried cone.

Noyes Point (Washington County, R. I., E. Blunt, 1843).—Reported destroyed.

Cranberry Hill (Washington County, R. I., E. Blunt, 1838).—Reported destroyed in 1873.

Quonochontaug (Washington County, R. I., E. Blunt, 1839).—Reported destroyed in 1909. [See *Lucas* (*U. S. E.*), p. 89.]

Tiff (Washington County, R. I., E. Blunt, 1839).—On Tefft's Hill, about 1⅜ miles southwest of Kingston. The station is marked by a buried stone cone.

Meetinghouse Hill (Washington County, R. I., E. Blunt, 1839).—Reported destroyed in 1869.

Austin (Washington County, R. I., E. Blunt, 1839).—On Point Judith Neck, about 1½ miles southwest of Narragansett Pier. The station is on the Austin farm, and is marked by a buried cone.

Weeden (Washington County, R. I., E. Blunt, 1839).—Reported destroyed in 1871.

Sherman (Washington County, R. I., E. Blunt, 1839).—On the summit of Sherman Hill, about 4½ miles north of Wakefield, and 1¾ miles north-northeast of Kingston. The station is marked by a buried stone cone.

Wilbur (Washington County, R. I., E. Blunt, 1839).—On the summit of the hill of that name. The station is probably marked by a buried cone.

New Weeden (Washington County, R. I., J. A. Sullivan, 1871).—Reported destroyed in 1909.

Eels Hill 2 (New London County, Conn., E. Blunt, 1838).—On a hill of the same name, but now known as Hinckley Hill, about a mile west-northwest of Westerly. The marking is not stated.

Kenyon (Washington County, R. I., J. A. Sullivan, 1871; 1913).—On a small knoll about 2 miles from the coast, 1½ miles east by north of Charlestown and 10 meters south of the road from Wakefield to Charlestown. The station is marked according to note 6b.[1] A standard reference disk, set in a large bowlder showing 18 inches above the ground, is 3.43 meters (11.25 feet) to the southeastward of the station, and a house owned by T. F. Roach stands about 90 meters to the westward.

Governors Island (Washington County, R. I., A. M. Harrison, 1873; 1913).—On the summit of a 20-foot hill, known as Governors Island or Wilcox Hill, which is surrounded by marsh and stands between the ocean beach and Charlestown Pond. The station is marked by a standard brass disk set in a hole drilled in the top of a granite post, 6 inches square, which projects about 6 inches above the ground. A standard reference disk, set in a bowlder which shows 18 inches above the ground, is 8.35 meters (27.39 feet) to the northwestward of the station.

Ajax (Washington County, R. I., A. M. Harrison, 1873).—Reported destroyed in 1912.

Hiscox (Washington County, R. I., A. M. Harrison, 1873; 1918).—On the knoll about 3½ miles west by south from Charlestown, 1¼ miles from the coast, on the north side of the road from Westerly to Charlestown, and back of a Baptist Church. The station is marked by a standard brass disk set in a drill hole in the top of a granite post, 6 inches square, which projects about 6 inches above the ground. A standard reference disk, set in the top of a bowlder showing 3 feet above the ground, is 2.0 meters (6.6 feet) to the southwestward of the station.

Noyes Neck (Washington County, R. I., A. M. Harrison, 1873).—Reported destroyed in 1909.

Village Hill (Washington County, R. I., A. M. Harrison, 1873; 1918).—On the hill of that name, about 1½ miles north-northeast of Noyes Beach. The station is marked by a standard disk set in the top of a granite post 6 inches square. A standard reference mark, set in the top of a bowlder showing 2 feet above the ground, is 2.63 meters (8.63 feet) to the northward of the station.

Hector (Washington County, R. I., A. M. Harrison, 1873).—Reported destroyed in 1909.

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[1] See pp. 61-62.

Cranberry Hill 2 (Washington County, R. I., A. M. Harrison, 1873).—Reported destroyed in 1909.

Bunker Hill (Washington County, R. I., A. M. Harrison, 1873; 1913).—On the summit of a hill about 5/8 mile northwest by west of Charlestown. The station is marked by a standard brass disk, set in a drilled hole in the top of a granite post 6 inches square, which projects about 6 inches above the ground. A standard reference disk, set in the top of a bowlder, is 3.42 meters (11.22 feet) north of the station.

Achilles (Washington County, R. I., A. M. Harrison, 1873).—Reported destroyed in 1909.

Commons (Washington County, R. I., A. M. Harrison, 1873; 1913).—On the south end of a prominent wooded ridge, about 5 miles east-southeast of Westerly and 3/4 mile east-northeast of Quonochontaug. The mark is a hole drilled in the top of a stone post. A standard reference disk, set in the top of a large bowlder projecting 3 feet, is 3.39 meters (11.12 feet) from the station.

Fort Hill (Washington County, R. I., A. M. Harrison, 1873; 1913).—On the highest point of a round, bare hill about 1/2 mile east of the highway and trolley line from Westerly to Watch Hill and about 2 miles northeast of Watch Hill. The station is marked by a drill hole in the top of a granite post, 6 inches square and 2 1/2 feet long, projecting 6 inches above the ground. A junk bottle, buried 3 1/2 feet underground, is the subsurface mark.

Frost (Conn.) (New London County, Conn., A. M. Harrison, 1873; 1909).—On an oblong, rocky hill about 2 miles southwest by south of Westerly, R. I., and about 3 miles northeast by east of Stonington, Conn. The station is marked by a drill hole in the center of a granite block, 6 inches square, about 10 meters south of three heavy granite bowlders embedded in the ground. A junk bottle is used as a subsurface mark.

Stonington Harbor lighthouse (Conn.) (New London County, Conn., W. M. Stearns, 1873; 1904).—On Stonington Point, just south of the city of Stonington, and on the east side of the road leading therefrom. This is the old tower, which is no longer lighted.

Weeden (U. S. E.) (Washington County, R. I., U. S. Engineers, 1909; 1913).—About 1 1/2 miles southeast by south from Perryville, 1/2 mile from the coast, 1/2 mile west of Segars Cove, 1/4 mile west of a road leading to Matoonoc Beach, 370 meters south of a road leading to Charlestown, and 90 meters east of a stone fence. The station is on the top of a ridge on a flat bowlder flush with the ground, and inclosed by posts and wire. The point is marked according to note 4,[1] except that the marker has the added inscription "Established by the Corps of Engineers, U. S. A." The reference mark, a brass bolt set in a hole drilled in a bowlder projecting 18 inches above the ground, is 7.49 meters (24.57 feet) to the northeastward of the station. Two previous stations of the Coast and Geodetic Survey, *Weeden (1845)* and *New Weeden (1871)*, were on this same hill, but are now lost.

Breachway (U. S. E.) (Washington County, R. I., U. S. Engineers, 1909; 1913).—On a sand ridge on the west side of the entrance to Point Judith Pond from the Harbor of Refuge, 60 meters west of the stone jetty which is the continuation of the inner end of the West Breakwater. The station is marked by two lengths of sewer pipe joined together by iron rods and filled with concrete. This projects about 18 inches above the ground. The reference mark, note 13a,[1] is 8.59 meters (28.18 feet) southwest by south from the station, on a bench of the sand ridge.

Jumping Hill (U. S. E.) (Washington County, R. I., U. S. Engineers, 1909; 1912).—On the summit of a prominent hill on the west side of Point Judith Pond, about 2 miles to the northward of the shore end of the West Breakwater of the Harbor of Refuge, on land belonging to William C. Green, and 1.35 meters (4.43 feet) in fro of the porch of a small one-story house. The station is on the edge of the high blu formed by the erosion of the east side of the hill and is marked according to note

[1] See pp. 61–62.

except that the disk has the added inscription "Established by the Corps of Engineers, U. S. A." A reference mark is at the west end of the house where the northwest corner of the porch joins it, 8.36 meters (27.43 feet) to the westward of the station.

Kenyon North (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909; 1913).—On the west side of Point Judith Neck, about 3 miles south of Wakefield. The station is on the top of a bowlder 12 feet high, 50 feet north of a stone fence, close to a farm road, and is marked according to note 4,[1] except that the disk has the added inscription "Established by the Corps of Engineers, U. S. A." The reference mark, note 12c,[1] is on the same bowlder 2.52 meters (8.27 feet) to the northeastward of the station.

Potter (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909; 1913).—On a prominent hill about 3¼ miles southwest of Wakefield. The station is marked according to note 6a,[1] except that the disk has the added inscription "Established by the Corps of Engineers, U. S. A." The reference mark, note 12c,[1] is 17.25 meters (56.59 feet) southeast from the station.

Poor Farm (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909; 1913).—In a cultivated field at the head of Point Judith Pond, about ⅝ mile south of Wakefield, near the Poor Farm house, 3 feet west of the fence extending from the garden to Point Judith Pond, and ⅛ mile southwest of the road from Wakefield to Narragansett Pier. The station is about midway between the twenty-seventh and twenty-eighth fence posts, counting from the fence back of the garden, and is marked according to note 6a.[1] The reference mark, note 13a,[1] is 11.65 meters (38.22 feet) north-northwest from the station, 1 foot west of the wire fence, and near the twenty-third fence post, counting as before.

Depew (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909; 1913).—On land belonging to Mr. Depew, about a mile to the southeast of Wakefield, ⅛ mile east of Upper Judith Pond, and in the south side of an unfenced road leading to the latter. The station is marked according to note 6a,[1] except that the disk has the added inscription "Established by the Corps of Engineers. U. S. A." The reference mark, note 13a,[1] is 3.79 meters (12.43 feet) southwest by south from the station.

Carr (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909).—Reported destroyed in 1913.

Larkin (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909; 1913).—On the sand ridge back of Charlestown Beach, about 1½ miles south of Charlestown, on the property of Mrs. M. C. Larkin, and 25 meters west of the Larkin cottage. The station is about a meter from the top of the outer slope of the ridge on the west side of the road leading from Charlestown to Wakefield and is marked according to note 6a[1] except that the disk has the added inscription "Established by the Corps of Engineers, U. S. A." The underground mark is a nail in a mass of concrete at a depth of 3 feet. A reference mark, note 13a,[1] is 15.01 meters (49.24 feet) north by west from the station.

Davis (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909).—Reported destroyed in 1912.

Moonstone (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909).—Reported destroyed in 1912.

Carpenter (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909; 1913).—On Matoonoc Beach, on level ground, 50 meters east of the Matoonoc Beach house and 30 meters north of the road back of the sand ridge. The station is marked according to note 6a[1] except that the disk has the added inscription "Established by the Corps of Engineers, U. S. A." A reference mark, note 13a,[1] is 29.67 meters (97.34 feet) south of the station and is in the road near its north fence.

Browning (*U. S. E.*) (Washington County, R., I. U. S. Engineers, 1909).—Reported destroyed in 1913.

[1] See pp. 61-62.

Whitford (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909).—Reported destroyed in 1913.

Gardiner (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909).—Reported destroyed in 1913.

Cashman (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909; 1913).—About 1¼ miles southwest of Perryville and about 150 meters south of the highway from Charlestown to Matoonoc Beach. The station is in the northeast corner of a field belonging to Thomas Cashman and is 125 meters east of his house. It is marked by a standard bronze disk bearing the added inscription "Established by the Corps of Engineers, U. S. A," set in a drill hole in the top of a stone post, 7 by 9 inches, projecting 9 inches above the ground. The top and bottom of the post are embedded in concrete. A reference mark, note 13a,[1] is 10.83 meters (35.53 feet) west by north from the station.

Westerly (Washington County R. I., A. M. Harrison, 1873; 1913).—On the summit of a hill on the south side of the Charlestown-Westerly highway, about 3 miles westward from Charlestown and opposite the house of Mrs. O. E. Akers. The station is marked by a standard brass disk, set in a hole drilled in the top of a granite post. A standard reference disk, set in a hole drilled in a bowlder, is 2.54 meters (8.33 feet) northward from the station. It is also a station of the U. S. Engineer Corps.

Ajax 2 (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909; 1913).—On the sand ridge back of the eastern portion of "East Beach" and about a mile east-northeast of Quonochontaug Beach. The station is 11 meters from high-water line, 5 meters from the top of the bank, 25 meters to the southward of a line of telegraph poles, and about 350 meters to the eastward of the east cottage of East Beach. An iron boiler of a wreck lies about 130 meters to the southwestward. The station is marked according to note 6a,[1] except that the disk has the added inscription "Established by the Corps of Engineers, U. S. A." A reference mark, note 13a,[1] is 13.67 meters (44.85 feet) north of the station.

Peabody (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909; 1913).—About ⅜ mile south of the Charlestown-Watch Hill road and on the east side of the branch road leading therefrom to East Beach, in a field of the Peabody farm between Quonochontaug and Ninigret Ponds, and about 54 meters to the southeastward of Alfred Burdick's house. The station is marked by a standard disk, set in a hole drilled in the middle one of three bowlders. A reference disk is similarly set in another bowlder, 2.06 meters (6.76 feet) north-northwest of the station.

Lucas (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909; 1913).—On open ground in the eastern portion of Quonochontaug Beach, back of William Morris's cottage and about ⅛ mile from the ocean. The station is marked by a standard brass disk, set in a hole drilled in the rock or bowlder. A standard reference disk, set in the top of a large bowlder, is 15.18 meters (49.80 feet) north-northwest of the station. This station supersedes the old Coast and Geodetic Survey station *Quonochontaug*.

Gavitt (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909; 1913).—On the slope of the ridge immediately north of the Charlestown-Westerly road, about 5 miles southeast of the latter town, and about ½ mile east by north of the village of Quonochontaug. The station is marked by a standard brass disk, bearing the added inscription "Established by the Corps of Engineers, U. S. A.," set in a hole drilled in a large bowlder or outcrop of rock. A reference disk, set in the top of a large bowlder, is 7.82 meters (25.66 feet) northwest by north from the station.

Quonochontaug Pond (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909; 1913).—On a sand hill between the ocean beach and the south shore of Quonochontaug Pond, about ⅓ mile west of the Quonochontaug Coast Guard Station. The station is marked according to note 6a,[1] except that the disk has the added inscription "Established by the Corps of Engineers, U. S. A." The subsurface mark

[1] See pp. 61-62.

is a nail in the top surface of a mass of concrete 3½ feet below the ground. A reference mark, note 13a,[1] is 3.69 meters (12.11 feet) east by north from the station.

Bentley (Washington County, R. I., A. M. Harrison, 1873; 1913).—On the summit of a prominent bare hill covered with numerous large bowlders, about 3½ miles east-southeast of Westerly. The land now belongs to J. G. Arnold, of Westerly, whose house is on the slope of the hill northwest of the station. The station is marked by a standard brass disk, set in a hole drilled in the top of a granite post. A reference disk, set in the top of a flat bowlder, is 5.88 meters (19.29 feet) north-northwest of the station.

Cranberry Hill 3 (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909; 1918).—On the summit of the hill of that name, about 3 miles southeast by south of Westerly, 2¼ miles northwest by north of Noyes Beach, and 300 meters southwest of the road from Westerly to Charlestown and Wakefield. The station is marked by a standard disk bearing the additional legend "Established by the Corps of Engineers, U. S. A.," cemented in the top of a piece of 4-inch sewer pipe set in concrete. Three and a half feet below the surface a nail embedded in concrete serves as an underground mark. A standard reference mark, cemented in the top of a similar pipe, is set 6.99 meters (22.93 feet) north-northwest of the station.

Chapman (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909; 1918).—On the highest point of Noyes Neck, about 5½ miles east of Watch Hill, ½ mile north of Noyes Beach, 80 meters west of road leading to the beach, and 17 meters (56 feet) north of the private road leading to Mr. Chapman's house. The station is marked by a standard station mark, bearing the added inscription "Established by the Corps of Engineers, U. S. A," set in a hole drilled in the rock. A standard reference disk, set in a hole drilled in the top of a large bowlder, is 8.39 meters (27.53 feet) northwest of the station.

Brightman (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909).—Reported destroyed in 1912.

Pleasant View (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909; 1918).—On the south side of Brightman Pond, about 2½ miles east by north from Watch Hill. The station is about 16 meters north of the trolley line to Westerly and in the rear of S. J. Renter's cottage, on level ground between the trolley line and the pond. The station is marked by a nail embedded in concrete in a 4-inch sewer pipe set in the ground. A similar pipe, set 13.32 meters (43.70 feet) south of the station and about 3 meters north of the trolley track, serves as a reference mark.

Sunset Hill (*U. S. E.*) (Washington County, R. I., U. S. Engineers, 1909; 1912).—On the hill of that name just to the northward of Watch Hill Village, and ¾ mile north-northeast of Watch Hill lighthouse. The station is marked by a drill hole in an embedded bowlder on the west side of the hill and in the northwest corner of an excavation. The station will probably soon disappear, as in 1913 preparations were being made for the erection of a building on the site.

Club House (*U. S. E.*) (Washington County, R. I., U. S. Engineers 1909; 1918).—On land belonging to the Misquamicot Golf Club, about 1⅓ miles east-north east of Watch Hill and ⅓ mile north of Watch Hill Pond. The station is on a small bowlder, showing 14 inches above the ground, 62 feet from the northeast corner of the clubhouse, and 44 feet from the northwest corner of the tennis court. It is marked according to note 4,[1] except that the disk has the added inscription "Established by the Corps of Engineers, U. S. A." A reference disk, set in the top of a large bowlder, is 8.01 meters (26.28 feet) south-southeast of the station.

Browning, J. M. (*U. S. E.*) (Washington County, R. I., U. S. Engineer Corps, 1909; 1913).—On a prominent knoll about 1¼ miles east-northeast of Watch Hill lighthouse and 300 meters west of Watch Hill Pond, in front of the residence of Col. A. A. Pope. The station is about 200 feet south of the road and is marked by

[1] See pp. 61-62.

a standard disk with the added inscription, "Established by the Corps of Engineers, U. S. A.," set in the top of a rock. A large bowlder, projecting 3 feet above the ground, is 1.90 meters (6.23) feet east-southeast of the station.

Clayhead (Newport County, R. I., W. M. Steirnagle, 1911).—On Clay Head, in the northeastern part of Block Island, about 2¾ miles to the northward of the Eastern Harbor, 1 mile south of Grove Point, ⅛ mile west of Balls Point, and 50 meters south of a private road leading along the south side of Bush Hill. The station is 9 meters south of the ruins of a burned building and 10 meters west of a north-and-south fence, and is marked by a standard brass disk, set in the top of a granite post, 14 by 21 inches, which projects about 4 inches above the ground. A subsurface mark, a drill hole within a triangle cut on a flat stone, is buried at a depth of about 3 feet. Five reference marks are, respectively, 31.35 meters (102.85 feet) west by south, 9.53 meters (31.27 feet) north by west, 9.84 meters (32.28 feet) east by south, 10.60 meters (34.78 feet) southeast by east, and 18.76 meters (61.55 feet) south-southeast from the station, and are marked, respectively, by a square, a letter X, a cross, a triangle, and a Y, cut in bowlders.

Paine (Newport County, R. I., J. A. Sullivan, 1874).—Reported destroyed in 1911.

Sandy Hill (Newport County, R. I., W. M. Steirnagle, 1911; 1918).—On the hill of the same name on the west side of Block Island, about a mile below the entrance to the New Harbor, and $\frac{8}{10}$ mile above Dunns Landing in Grace Cove. The station is 15 meters inland from the slope of the hill and 7.5 meters (24.6 feet) from a post at the summit, used for drying nets. The mark is a standard brass disk, set in the top of a granite bowlder, which exposes a surface of about 10 by 20 inches. Four reference marks are, respectively, 9.89 meters (32.45 feet) north, 8.14 meters (26.71 feet) north ½ east, 9.92 meters (32.55 feet) north-northeast, and 7.76 meters (25.46 feet) east by south from the station, and are marked, respectively, by a square, a triangle, a Y, and a larger triangle, cut in bowlders.

Southwest (Newport County, R. I., W. M. Steirnagle, 1911).—About 10 meters south of the summit of the westerly ridge of Plover Hill, in the Southwest part of Block Island, between Black Rock and Southwest Points and about ¼ mile from shore. The station is about 50 meters east of a north-and-south private road and is marked by a standard brass disk in a block of rock, 20 by 50 by 75 centimeters, set on end so as to project slightly above the ground surface. The subsurface mark is a drill hole within a triangle cut on a granite bowlder, which is buried at a depth of 2¼ feet. Three reference marks are, respectively, 29.27 meters (96.03 feet) northeast, 29.50 meters (96.78 feet) southeast, and 16.20 meters (53.15 feet) northwest from the station, and are marked, respectively, by a Y, a square, and a cross, cut in bowlders.

Rock (Washington County, R. I., J. B. Boutelle, 1913).—On Rocky Point, about 1½ miles west of Point Judith Harbor of Refuge, on the first small bluff southwest of a pond, 46½ feet about southeast of the south corner of a small cottage and 32 feet south of a small shed or barn. The mark is a drill hole within a triangle cut on a gray stone, 7 by 18 inches, set about flush with the sand.

SUPPLEMENTARY POINTS.

Springhouse tank (Newport County, R. I., N. H. Heck, 1912).—In the eastern part of Block Island, about ⅛ mile to the southward of the Inner Basin of Block Island Harbor, and 40 meters from the southwest corner of the Spring House.

Church cupola (Washington County, R. I., J. B. Boutelle, 1913).—The cupola of the church at Matoonoc Beach.

Pole (Washington County, R. I., J. B. Boutelle, 1913).—The old light pole on the south end of the northwest breakwater of the Point Judith Harbor of Refuge.

White (Newport County, R. I., N. H. Heck, 1912).—In the southern part of Block Island, about 5/8 mile north-northwest of Black Creek Point, 1/2 mile northeast of Southwest Point, and about 60 meters west of a road. The station is the chimney of a white house owned by Robert Lewis.

Chim (Newport County, R. I., N. H. Heck, 1912).—The chimney of the white house belonging to Marshall Ball, located on Dickens Point, about 1/2 mile south of the life-saving station.

Edge (Newport County, R. I., N. H. Heck, 1912).—On Southwest Point, on Block Island. The station is the higher of the two chimneys on Dr. Campbell's cottage.

Point Judith (Washington County, R. I., E. Blunt, 1838; 1888).—On Point Judith Neck, on a hill about a mile northwestward from Point Judith lighthouse. The station is marked by a buried cone.

Shannock (Washington County, R. I., E. Blunt, 1839).—On the northern part of the summit ridge of Shannock Hill, about 4 1/4 miles west of West Kingston, 1 1/2 miles to northward of the village of Shannock, and 1/4 mile north of the road from Kingston to Woodville. The station is marked by a buried cone.

Brown's, E., house, chimney (Washington County, R. I., W. M. Stearns, 1873).—Reported destroyed in 1918.

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South Portsmouth, Episcopal church tower	41	.....	4
South Portsmouth, Union church tower	41	.....	4
South rear range	58	.....	8
South Rock	46	84	.....
South wireless mast	35	.....	5
Southwest	53	91	8
Spar Island	42	.....	4
Spencer	22	63	4
Spindle Rock beacon	35	.....	5
Spire, Apponaug	46	.....	4
Spire, Warren	46	.....	4
Springhouse cupola	55	.....	8
Springhouse tank	53	91	8
Square stone church tower, Bristol	35	.....	5
Square yellow house, cupola	38	.....	5
Squash	25	68	5
Stevens	28	72	5
Stonington breakwater lighthouse (Conn.)	56	.....	7
Stonington Harbor lighthouse (Conn.)	49	87	6,7
Stonington outer breakwater lighthouse (Conn.)	56	.....	7
Sugar Rock beacon (bent)	56	.....	7
Sugarloaf Hill	30	74	6,7
Sunset Hill (U. S. E.)	52	90	7
Tammany Scaffold	29	74	4,5
Tank	36	81	5
Tefft's barn, cupola	46	.....	4
Tefft's house, chimney	44	.....	4
Telegraph	24	65	4,5
Telegraph 2	24	65	4
Tiff	48	86	6
Tiverton	30	76	5
Tiverton cupola	42	.....	4
Topographical pole 3	59	.....	6
Topographical pole 4	59	.....	6
Topographical pole 6	59	.....	6
Topographical pole near post road	59	.....	6
Tower Hill church	58	.....	.....
Tower Hill hotel	34	.....	5
Towesett	25	67	4
Towesett Neck (Borden)	43	.....	4
Trial course, front range pole at south end of	29	74	5
Trial course, rear range pole at north end of	37	81	5
Trial course, rear range pole at south end of	37	81	5
Unitarian church, Providence	43	.....	4
Updike (U. S. E.)	31	78	5
Vanderbilt estate, gray tower	39	.....	5
Vanderbilt's barn, south gable	39	.....	5
Vaughn's house, cupola	47	.....	4
Verification north base (Borden) (Mass.)	43	.....	.....
Verification south base (Borden)	43	.....	4
Village Hill	49	86	6,7
Vitriol Works, chimney, Providence	44	.....	.....
Wakefield church, gray spire	59	.....	6
Wakefield church, white spire	59	.....	6
Wakefield flagstaff	59	.....	6
Wall	36	80	5
Wampasset (Conn.)	49	.....	6
War college, cupola	37	.....	5
Warren:			
Beacon	45	.....	4
Methodist church spire	45	.....	4
Spire	46	.....	4
Water tower	36	.....	5
Warwick:			
Lighthouse	26	69	5
Neck	45	84	4
Watch Hill	23	64	6,7
Watch Hill:			
Church spire	57	.....	7
Hotel cupola	57	.....	7
Lighthouse	49	.....	6,7
Lighthouse (old)	58	.....	.....
Reef beacon	56	.....	7
Water tank, finial	33	.....	5
Water tank, gallery top	33	.....	5
Water tower C	37	.....	5
Watson's house, chimney	44	.....	4
Weather Bureau signal tower	55	.....	8
Weeden	48	86	.....
Weeden (U. S. E.)	49	87	6,7
Wells Hill	58	.....	6
West	30	74	5
West Barrington water tower	36	.....	5
West Island, New York Club, flagstaff	42	.....	4
Westerly	51	89	7
Westernmost of three shacks, west gable	39	.....	5
Whale Rock lighthouse	35	.....	5
Wharton's, Dr., house, east chimney	60	.....	6
White	57	92	8
White barn cupola	38	.....	5
White house, north chimney	45	.....	4
White house, south gable	33	.....	5
White house, west chimney	59	.....	6
White light	53	.....	8
White Rocks beacon	34	.....	5
Whitford (U. S. E.)	50	89	7
Whitman	22	63	4,5
Wickford	23	65	4
Wickford:			
Academy	47	85	.....
Baptist church	47	.....	4
Episcopal church spire	34	.....	5
Lighthouse	27	.....	5
Lighthouse, old tower	46	84	4
Spire	46	.....	4
Wilbur	48	86	6
Wilbur's windmill	42	.....	4
Wilcox	47	.....	6
Windmill	33	80	4
Windmill 2	25	67	4
Windmill 3	30	75	5
Windmill (1843)	42	83	4
Windmill (1912)	35	.....	5
Windmill (Block Island)	54	.....	8
Windmill D	37	81	5
Windmill L	37	81	5
Windmill on tank	38	.....	5
Wing	25	67	4
Wireless mast	54	.....	8
Yelow barn, cupola	45	.....	4
Yellow barn, cupola	59	.....	6
Yellow chimney, Apponaug	34	.....	5
Yellow chimney, East Greenwich	33	.....	5
Yellow house, west chimney	45	.....	4

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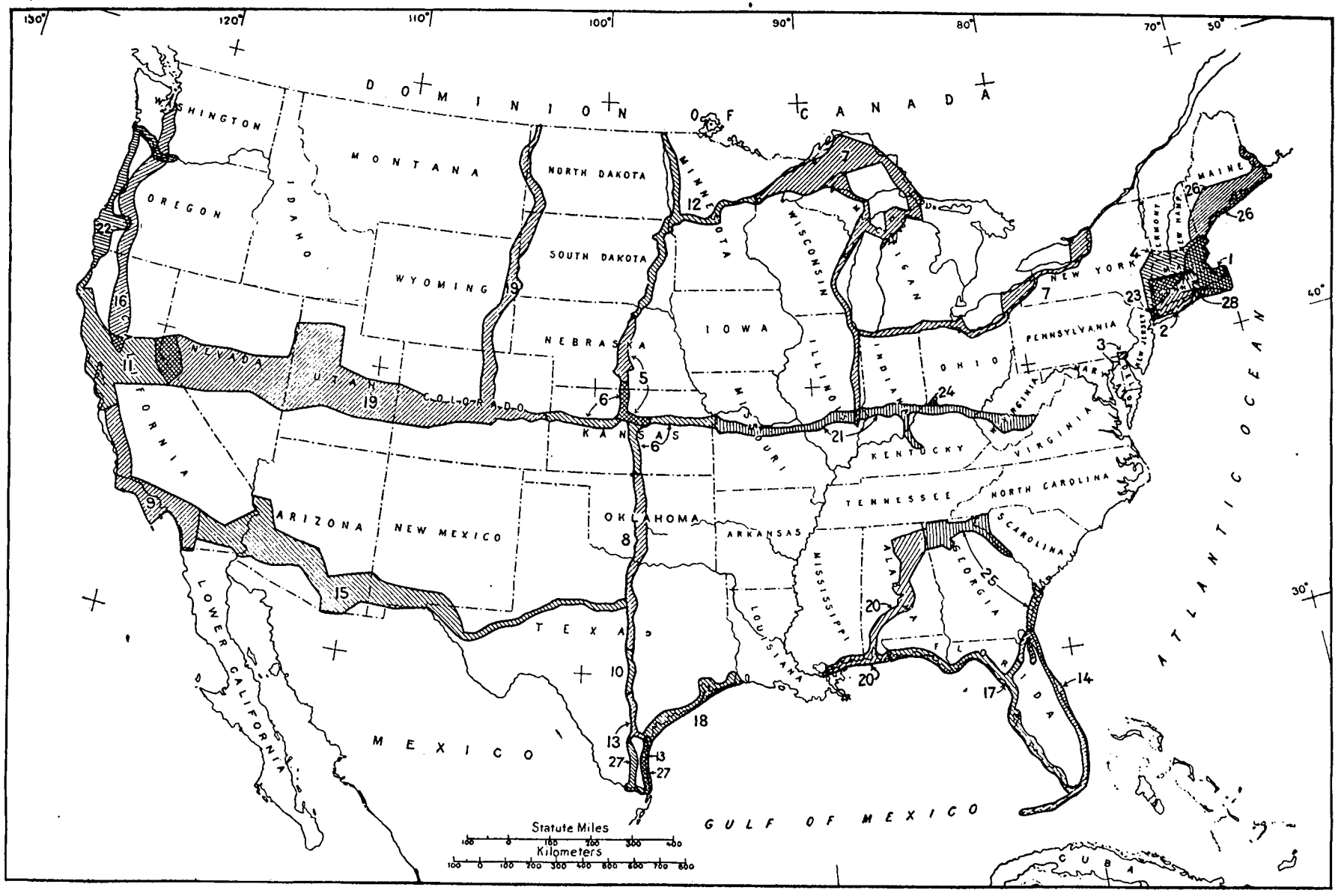

FIG. 2.—INDEX MAP SHOWING AREAS IN THE UNITED STATES COVERED BY PUBLISHED TRIANGULATION WHICH HAS BEEN RIGIDLY COMPUTED ON THE NORTH AMERICAN DATUM.

1, Appendix 8 Report for 1885; 2, Appendix 8 Report for 1888; 3, Appendix 8 Report for 1893; 4, Appendix 10 Report for 1894; 5, Appendix 6 Report for 1901; 6, Appendix 3 Report for 1902; 7, Appendix EEE Annual Report of the Chief of Engineers, 1902; 8, Appendix 4 Report for 1903; 9, Appendix 9 Report for 1904; 10, Appendix 5 Report for 1905; 11, Appendix 5 Report for 1910; 12, Appendix 4 Report for 1911; 13, Appendix 5 Report for 1911; 14, Appendix 6 Report for 1911; 15, Special Publication No. 11; 16, Special Publication No. 13; 17, Special Publication No. 16; 18, Special Publication No. 17; 19, Special Publication No. 19; 20, Special Publication No. 24; 21, Special Publication No. 30; 22, Special Publication No. 31; 23, Report on the triangulation of Greater New York; 24, Report on a plan of sewerage for the city of Cincinnati; 25, Special Publication No. 43; 26, Special Publication No. 46; 27, Special Publication No. 54; 28, this publication.

146952—20. (To follow page 97.) No. 1

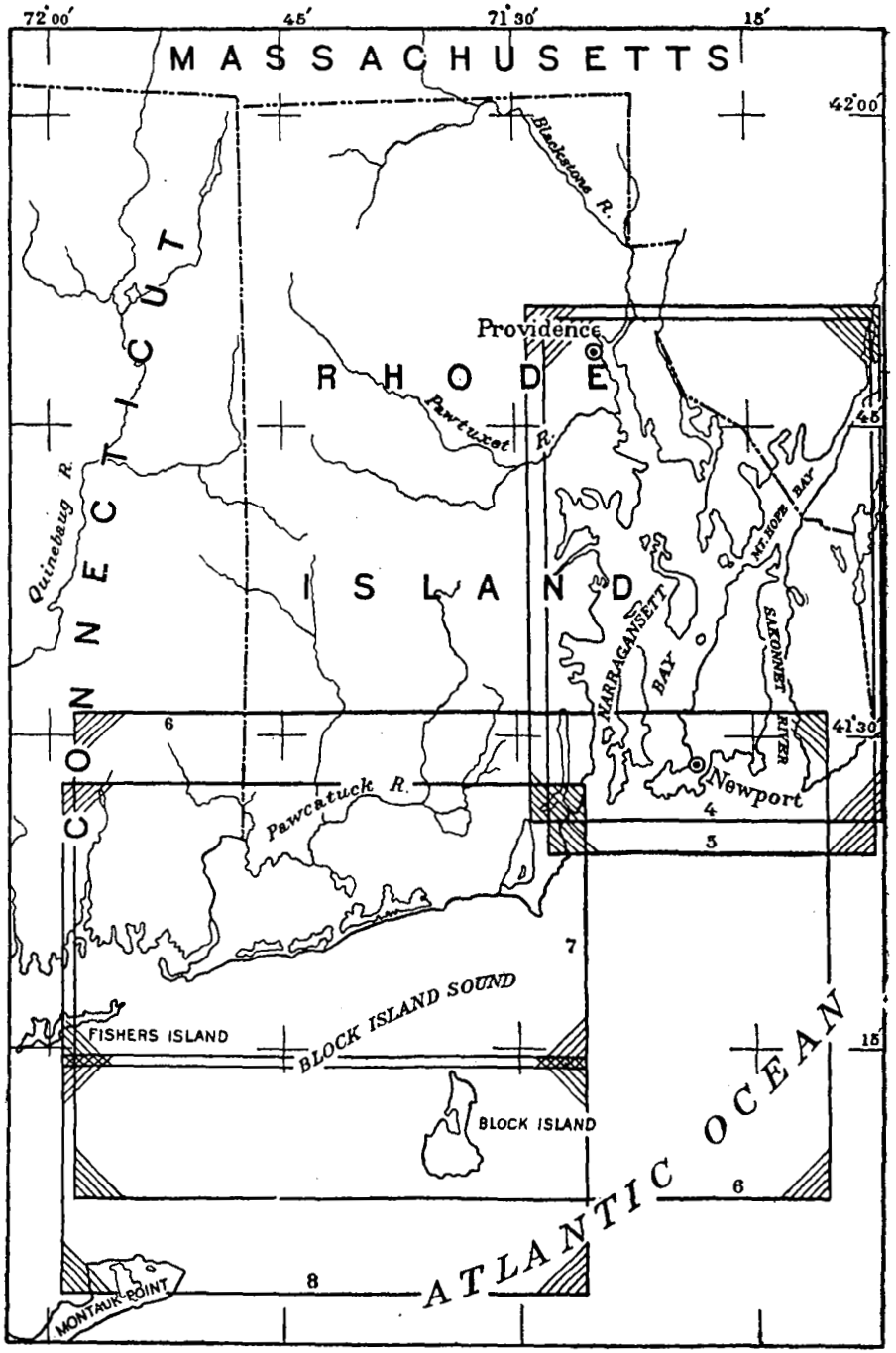

FIG. 3A.—INDEX MAP OF RHODE ISLAND SHOWING THE BOUNDARIES OF EACH OF THE SKETCHES, FIGURES 4 TO 8.

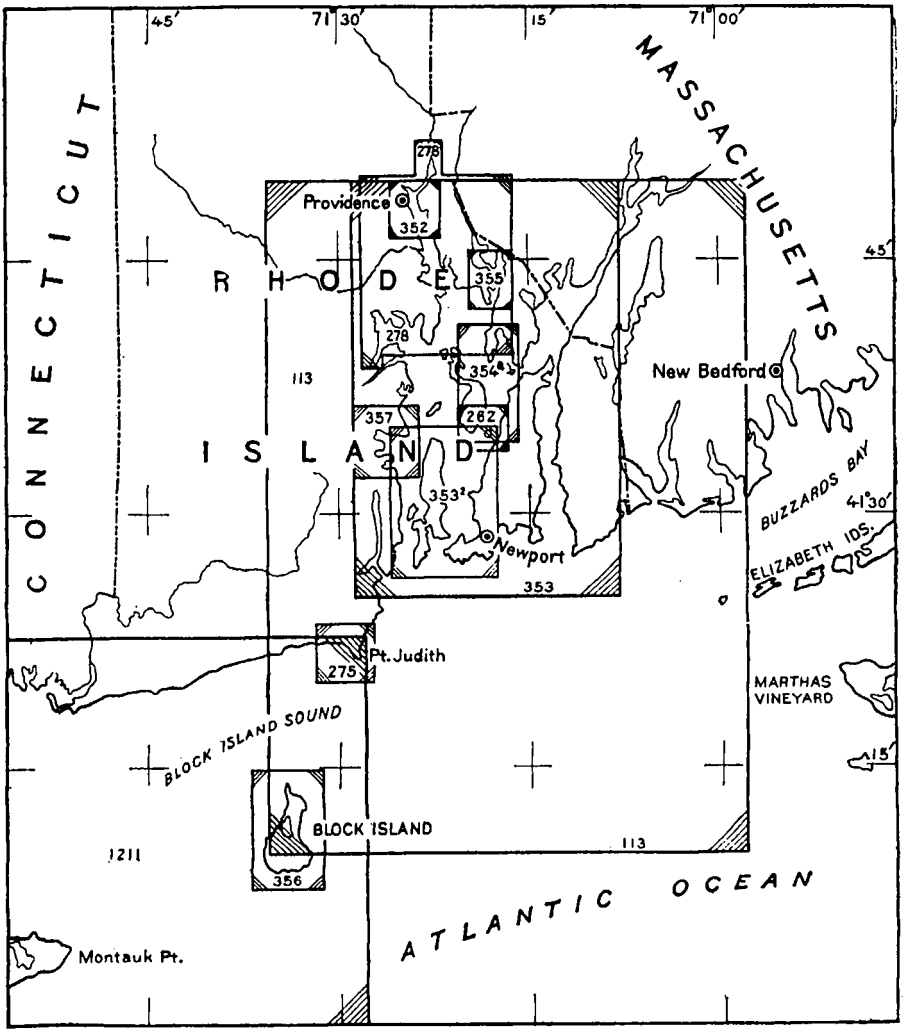

FIG. 3B.—INDEX MAP OF RHODE ISLAND SHOWING THE NUMBERS AND BOUNDARIES OF THE COAST AND GEODETIC SURVEY CHARTS ALONG THE COAST.

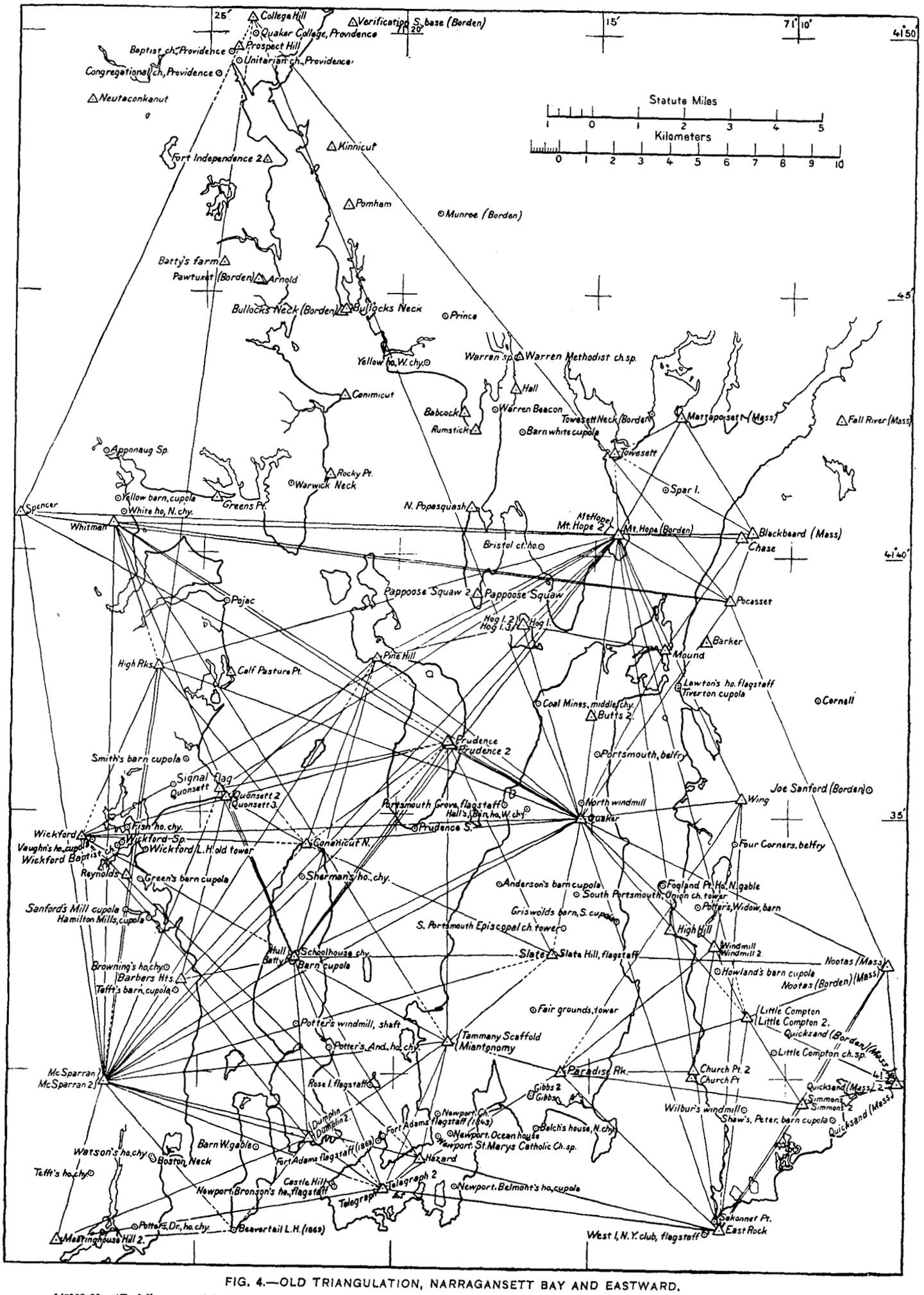

FIG. 4.—OLD TRIANGULATION, NARRAGANSETT BAY AND EASTWARD.

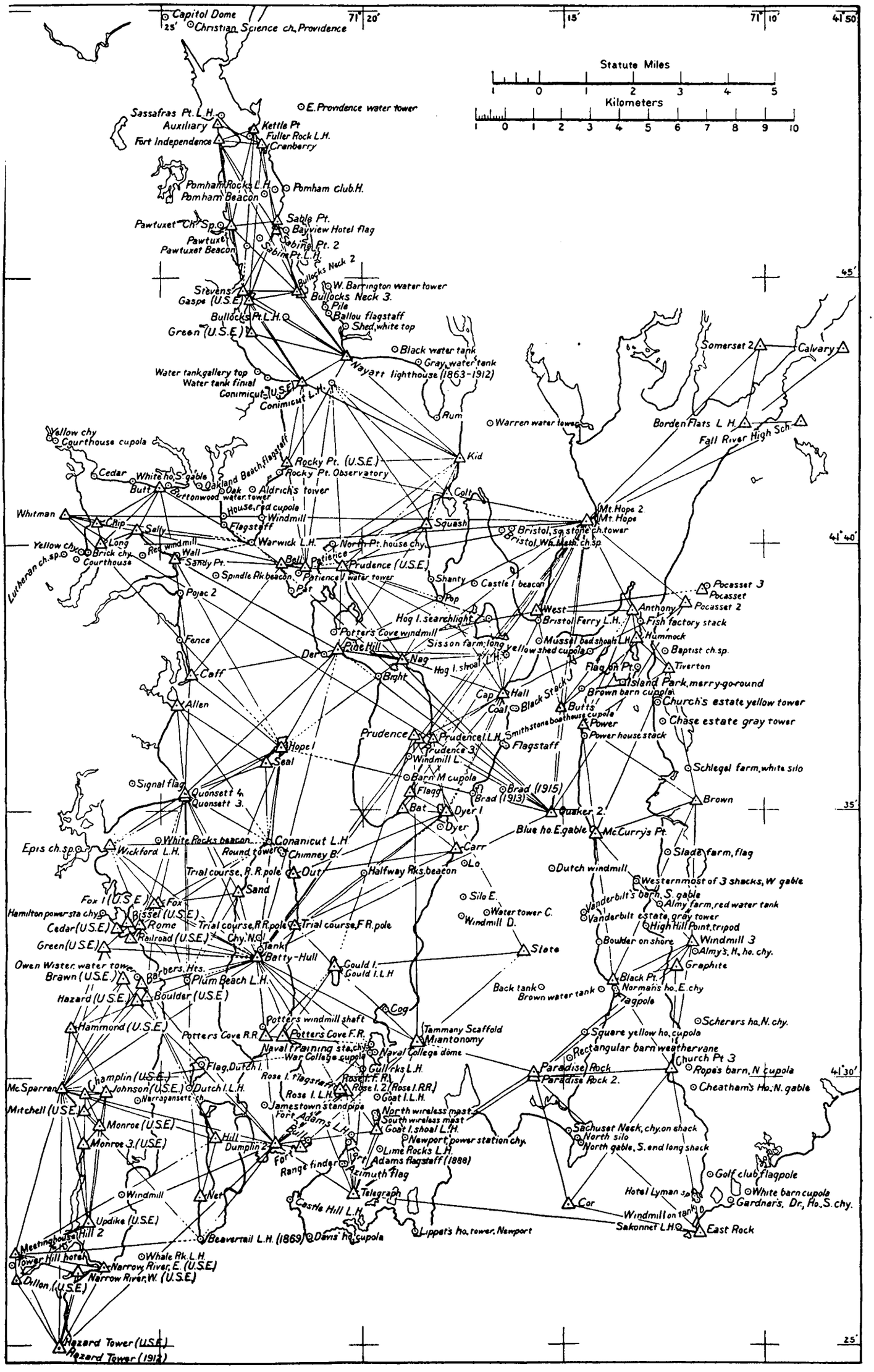

FIG. 2.—NEW TRIANGULATION, NARRAGANSETT BAY AND EASTWARD.

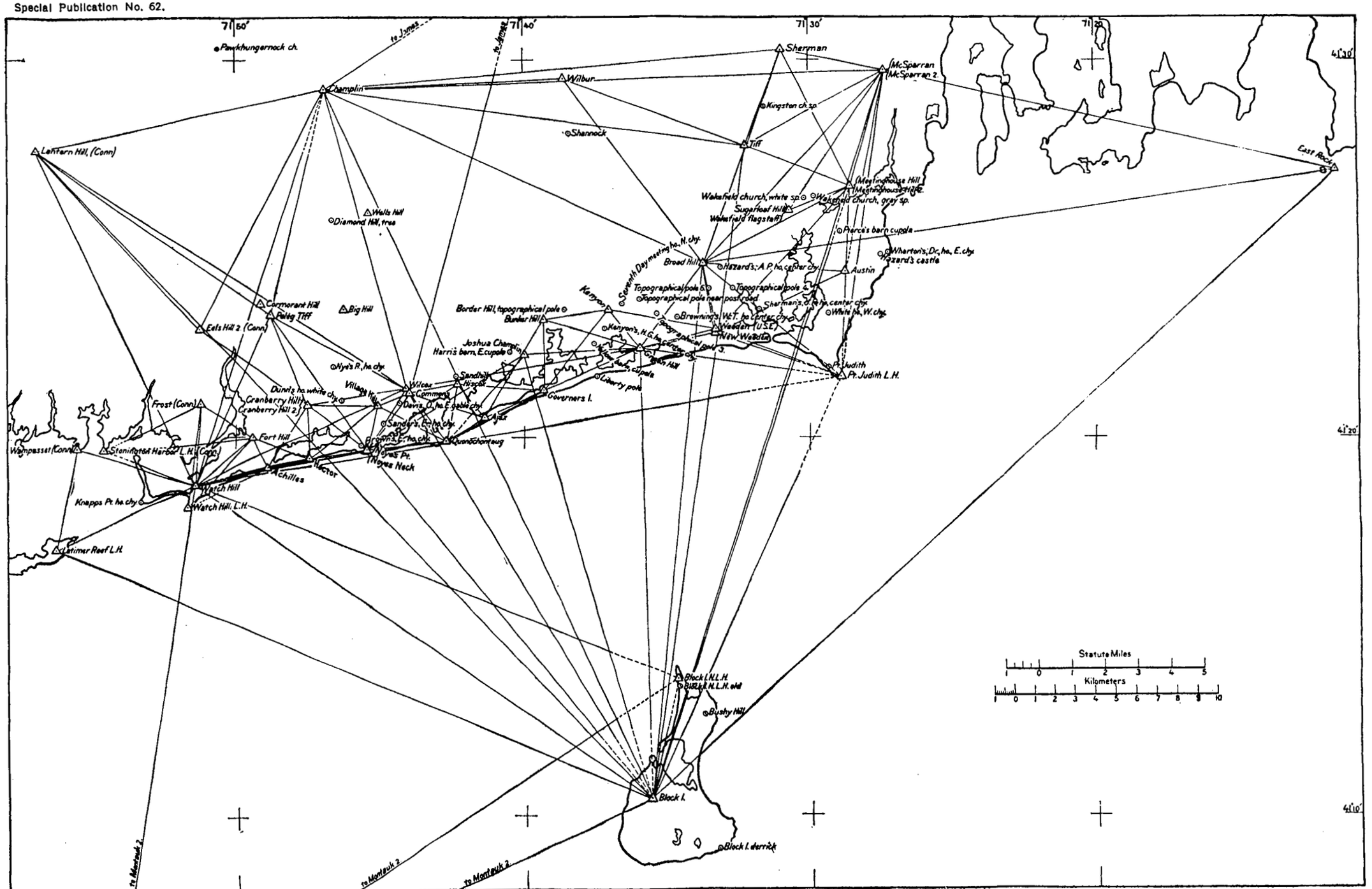

FIG. 6.—OLD TRIANGULATION, POINT JUDITH WESTWARD.

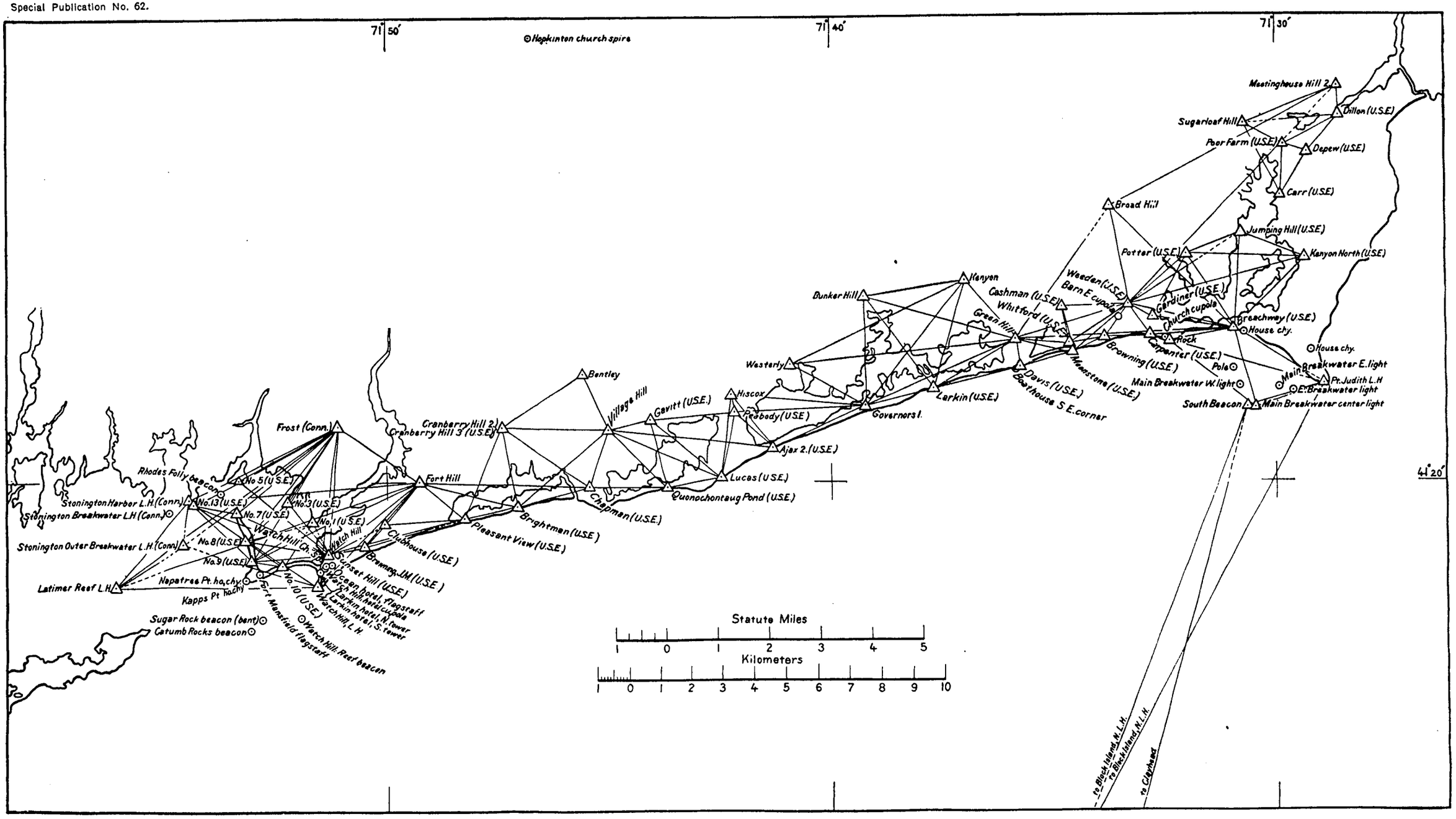

FIG. 7.—NEW TRIANGULATION, POINT JUDITH WESTWARD.

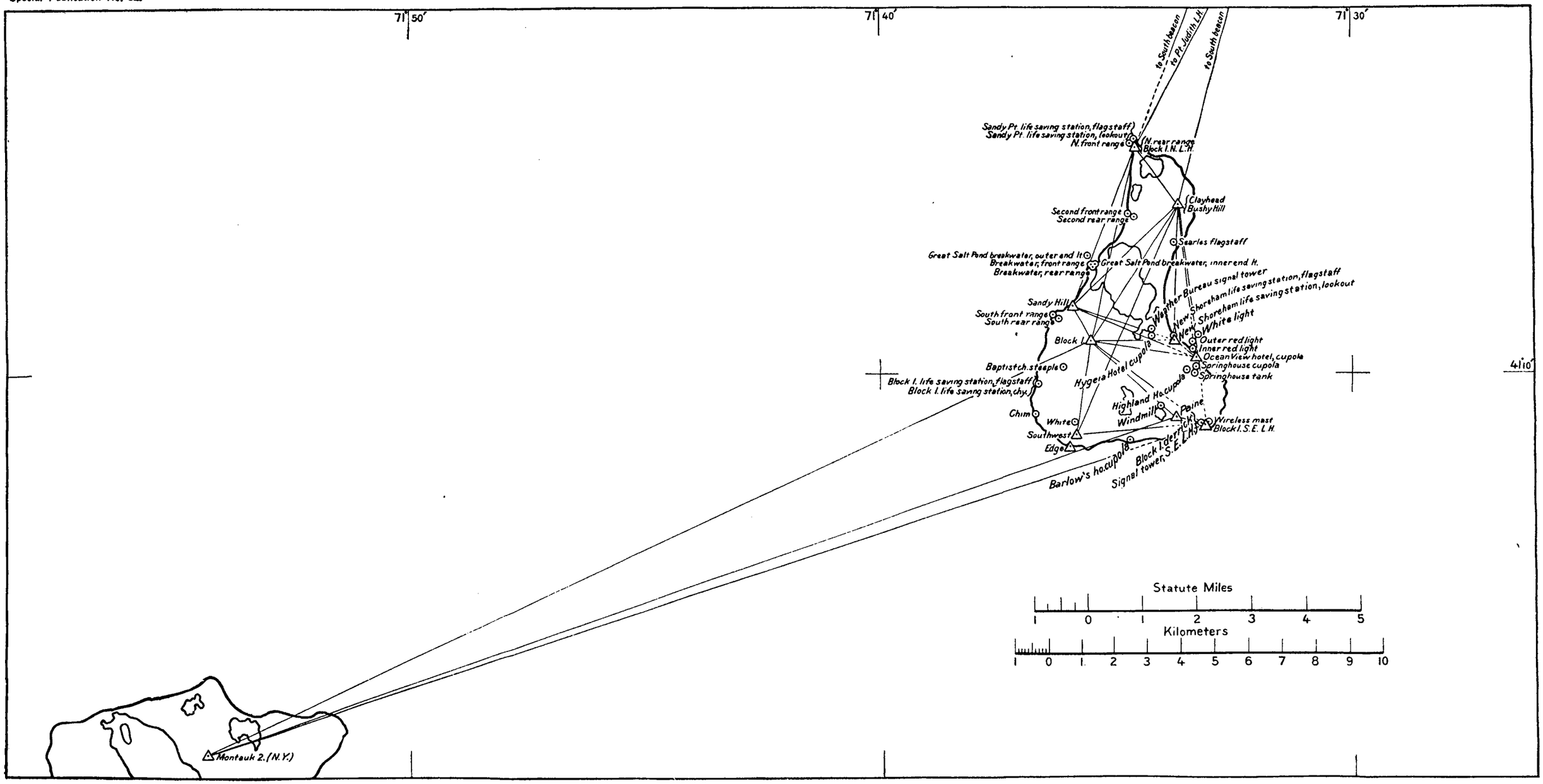

FIG. 8.—NEW TRIANGULATION, VICINITY OF BLOCK ISLAND.