

REPORTS OF THE  
DEPARTMENT OF CONSERVATION AND DEVELOPMENT  
STATE OF NEW JERSEY

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Division of Geology—HENRY B. KÜMMEL, State Geologist

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BULLETIN 17  
(GEOLOGIC SERIES)

Revision of Primary Levels and List of  
Bench Marks in Northern New Jersey

BY

C. C. VERMEULE, Consulting Engineer



TRENTON, N. J.  
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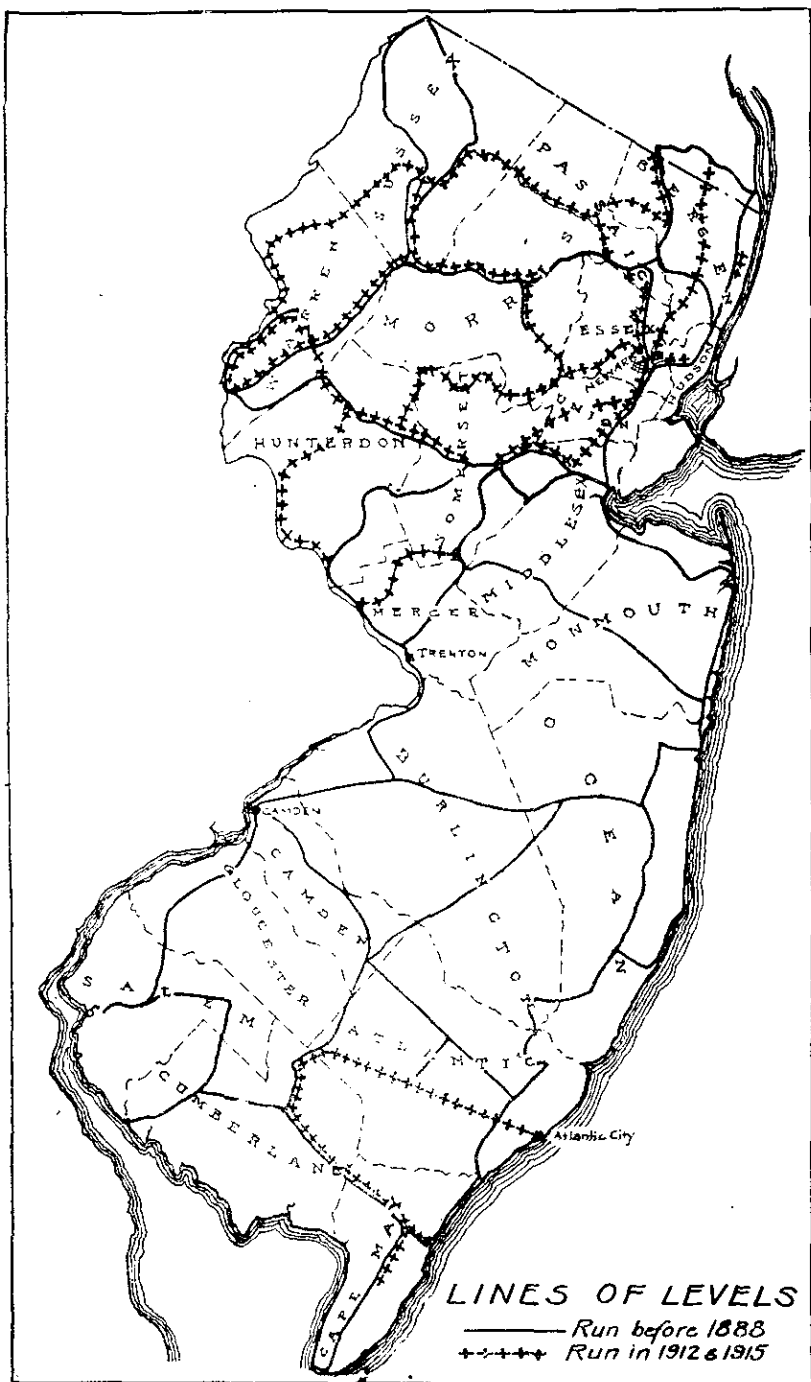


Fig. 1.—Lines of Levels, run previous to 1888 and in 1912 and 1915.

## Letter of Transmittal.

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May 5, 1916.

*Hon. James F. Fielder, Governor of New Jersey, Trenton, New Jersey:*

SIR—I transmit herewith the manuscript of a report on "The Revision of Primary Levels and a List of Bench Marks in Northern New Jersey," prepared under the direction of Henry B. Kümmel, State Geologist.

This report gives the results of the lines of levels which engineers connected with this department have run at various times. The determination of the exact height above sea level of a large number of points throughout the State, particularly where located in our centers of population, is of great importance to engineers. Frequent requests for information of this sort have convinced me that this publication will meet the needs of a large number of technical men in this State.

Yours very respectfully,

ALFRED GASKILL,

*Director.*

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## Revision of Primary Levels and List of Bench Marks in Northern New Jersey.

NEW YORK, December 18, 1915.

*Dr. H. B. Kimmel, State Geologist, Trenton, N. J.:*

SIR—In compliance with your instructions, the work of revising primary bench marks which had been begun in 1912, was continued this year and completed for all of that part of the State lying north of a line drawn from Trenton to Perth Amboy. The work of these two years now enables me to submit a complete list including both new and revised bench marks for Northern New Jersey, more correct as to elevations than any heretofore published.

*Original bench marks.*—The original lines of primary levels had been run in connection with the Topographic Survey, and the results were reported in the Annual Reports for 1885 and 1886, so far as the work had then been completed. In Volume I (1888), the report on Topography, Magnetism, and Climate, a complete list was published, including all of the primary bench marks established during the prosecution of the survey. This was republished in Volume IV, Physical Geography, 1895. The primary purpose of this work had been to control and form a basis for the topographic levels. The bench marks were established upon the more permanent structures then available, such as bridges and public buildings, except for the seashore between Sandy Hook and Cape May, and a few points inland, where monuments had been set, which consisted of a granite post about 2½ feet in length, and 8 to 10 inches square, with 9 inches of its upper end dressed to a cylindrical shape and the top to a spherical surface. The summit of this spherical surface is the bench mark, and just 9 inches lower a shoulder is cut at the base of the cylinder, which may also be used as a bench mark in case the top is damaged. This granite post was set by digging a hole 4 feet deep and 2 feet square. At the bottom, in a smaller hole 9 inches deep, a glass insulating cap such as is used on telegraph poles, was set in hydraulic cement and covered over to the level of the bottom of the larger hole with cinders. The larger hole was then filled solidly with concrete in the top of which the

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granite post was set with its head projecting about 6 inches above the ground. When the monument was in place it formed a monolith, weighing about a ton, and after it had fully set and shrinkage and settlement had taken place, the elevation was taken and recorded. The only monument of this character in Northern New Jersey is the one at Perth Amboy. This is described in the accompanying list of bench marks.

*Reasons for revision.*—With the above exceptions, the bench marks were on bridges and buildings, as already stated, and it had been found during recent years that through rebuilding operations many such bench marks had disappeared. Some localities which had been originally provided for were entirely without monuments, and it was important that the work of replacement should be undertaken at this time, as otherwise the larger part of the value of the original lines of levels would be permanently lost. The revision was undertaken with the intention of not only replacing these lost bench marks by others, but establishing new bench marks, more permanent in character, upon a large number of additional structures which are at this time available. In order to determine the elevation of such additional bench marks accurately, it has been necessary in many cases to again level over a considerable part of the original lines. It has not been thought desirable to establish new bench marks without checking the necessary lines of level, and, furthermore, it has been thought very desirable that such new bench marks should be connected with more than one of the old monuments, in order to guard against settlement and otherwise insure accuracy. Where there were several of the old marks still existing in a given locality, they were again connected by lines of levels, in order to check the original work, and to detect any possible settlement in the structures upon which they had been placed.

In addition to the foregoing, which was more strictly revision work, it was decided to run a number of new lines of levels through those sections which had not been covered by the original work, in order to secure a more equable distribution of the monuments. The nature of the work which has been done may be made clearer by describing the lines which had been run prior to 1888 and those which have been run during the past two years.

*Description of lines run.*—In 1881, the U. S. Coast and Geodetic Survey ran a line of primary levels from the tidal gage at Sandy Hook via Red Bank, Perth Amboy, Somerville, and

thence westerly along the line of the Central Railroad of New Jersey to Phillipsburg, on the Delaware River. The results of this work were furnished in manuscript to the Geological Survey and a list of the bench marks was published in the annual report of the State Geologist for 1881. The datum had been determined by a series of tidal measurements at Sandy Hook, extending from 1875 to 1881, a period of six years. Mean sea level, as determined by these readings, or the mean between high and low tide, was adopted as zero, and this datum has been used throughout by the Geological Survey since that date.

The primary lines of levels which had been run before 1888, under the direction of the writer, and which were connected with and based upon the foregoing levels of the U. S. Coast and Geodetic Survey, were as follows: (See Figure 1, Frontispiece.)

1. A line run by Mr. Philip H. Bevier, in 1886, over the same route taken by the U. S. Coast and Geodetic Survey, from the Sandy Hook tide gage to Metuchen, in order to establish a larger number of more conveniently situated bench marks, for the purposes of the topographic survey.

2. A line from Perth Amboy via Rahway to Newark, run and re-run in the opposite direction, by Mr. Frederick W. Bennett.

3. A line from Newark via Bloomfield and the Morris Canal to Paterson, by Mr. Bennett.

4. A line from Newark via Jersey City and Hackensack to Paterson, by Mr. Bennett.

5. A line from Paterson west following the Morris Canal through Dover, Waterloo, and Washington to Phillipsburg, and there checking on the bench marks of the U. S. Coast and Geodetic Survey, by Mr. Bennett.

6. A branch line from the last-named line at Denville to Morristown, by Mr. Bennett.

7. A line from line number 5 at Waterloo northwest through Newton, Branchville, Montague, Port Jervis, High Point, Sussex, and Franklin Furnace, returning to Andover and Waterloo, by Mr. Bevier.

8. A line from Phillipsburg through Belvidere and Oxford, connecting at Washington with line number 5, by Mr. Bevier.

9. From Paterson north, along the Erie Railroad to Suffern, thence easterly along the Piermont Branch Railroad to Tappan, and thence southerly along the Northern Railroad of New Jersey to a connection with line number 4 at Fairview, by Mr. Bennett.



10. A circuit from Bound Brook, following the Delaware and Raritan Canal through Rocky Hill and Princeton to Trenton, thence up the Delaware River to Lambertville, thence to Flemington and Somerville, connecting with the line of the U. S. Coast and Geodetic Survey first mentioned, by Mr. Bevier.

The work done in 1912 included the following:

1. A line from Newark through Bloomfield and Richfield to Paterson was run, and, in addition, the old bench marks on the route were verified and a number of new ones established, while a branch line was run from Bloomfield through Glen Ridge and Montclair, partly by Mr. P. D. Staats and partly by Mr. Jeffrey Hosking.

2. The old line from Paterson to Phillipsburg had been very satisfactory when originally run, and it was not found necessary to re-run it where the bench marks were intact. It was re-run by Mr. Hosking, however, from Paterson to Little Falls, from Boonton to Denville, from Rockaway to Dover, and from Wharton it was run continuously for 43 miles to Phillipsburg, many of the old bench marks having been destroyed.

3. The line from Phillipsburg through Belvidere to Washington was re-run throughout by Mr. Hosking.

4. In Sussex County the line running northeast from Waterloo was re-run by Mr. Hosking from Whitehall through Newton to Branchville Junction and was repeated in the reverse direction. All bench marks were verified so far as they existed, and a number of new ones were established.

5. On the old Paterson-Suffern line the levels were re-run by Mr. Staats continuously from Ridgewood to Suffern, and re-run in the reverse direction. The old bench marks along the Piermont branch were verified and a number of new ones established. On the Northern Railroad the line was re-run from Highwood to Nordhoff, and considerable local leveling was done to establish additional bench marks at Richfield, Hackensack, and Jersey City.

6. A new line was run by Mr. Staats from Hackensack northward through Westwood to Nanuet, and new bench marks established along the route.

7. A new line was run by Mr. Staats from Hackensack through Rutherford to Harrison and Newark.

8. A new line was run by Mr. Staats from Newark through the Oranges and Summit to Morristown, and thence to Denville.

9. Beginning at Newark, a line was run by Mr. Staats through Elizabeth and Metuchen to South Plainfield.

In 1915, the following work was done by Mr. Loren P. Plummer, Jr.:

1. Beginning at Elizabeth, levels were run along the Central Railroad of New Jersey to Dunellen, and thence to South Plainfield to connect with the work done in 1912.

2. Beginning at Somerville, a line was run along the Central Railroad of New Jersey to Washington, Warren County.

3. Beginning at Annandale on the last-described line, levels were run through Clinton, Pittstown, and Frenchtown, thence down the Delaware to Lambertville.

4. Old benches were verified and new marks established in Trenton, Princeton, Monmouth Junction, and points along the Delaware and Raritan Canal to New Brunswick, also at Perth Amboy and Woodbridge.

5. Levels were run from Kingston through Rocky Hill, Hopewell, and Pennington to Washington's Crossing and Titusville.

6. A new line was run from Whitehouse, Hunterdon County, through Gladstone, Bernardsville, and Summit.

7. Beginning at Ridgewood, in Bergen County, a line was run westward to Midland Park, and thence following the New York, Susquehanna and Western Railroad to Franklin Furnace, thence to Sparta Junction and Branchville Junction, in Sussex County.

8. A short check line was run from Mountain View, Passaic County, north along the New York and Greenwood Lake Railroad to Pompton and Butler, on line number 7.

The above work has resulted in the recovery and verification of 129 old bench marks, and the establishment of 579 new ones, making a total of 708 in all for the portion of the State under consideration. The original work had only provided 185 permanent bench marks, a large number of those established at the time having been of a temporary nature for use in connection with the topographic work.

*Type of bench marks established.*—On beginning the work of revision, the question of adopting special monuments of stone or metal was given consideration in the light of the experience which had already been had concerning the bench marks established in the original work, executed mainly from 29 to 34 years ago. The mortality of the bench marks then established has proven to be 30 per cent., or something less than 1 per cent. yearly. At the present time a much larger number of substantial permanent structures exist than were available 30 years ago. With the more numerous marks now established a mortality of 1 per cent. annually will not prove serious for many years, and will, on the whole, in the opinion of the writer, be quite as good

as can be expected of any system of special monuments erected either on private lands or on the highways. There is no more satisfactory bench mark, in the writer's judgment, than the stone monuments which were set in the manner we have described in 1885 and 1886, but, nevertheless, even among these, the mortality has been quite as great as 1 per cent. yearly, although they are mostly set upon public property, such as the grounds of life-saving stations. In a densely populated State, such as ours, a metal mark of any kind appears to excite both the curiosity and cupidity of certain persons, and it has even been found that the underground marks of the U. S. Coast and Geodetic Survey triangulation points, although they consisted of nothing of value, so aroused the curiosity of certain persons who learned that something had been buried in the locality that many of them were destroyed. In this respect the stone monuments mentioned are least subject to disturbance for the reason that they present nothing of value which it is possible to carry away, and indicate their own purpose so plainly that curiosity is satisfied. Marks upon buildings and bridges, however, have nothing about them to invite their destruction. They are subject only to the ordinary mortality of such structures. It is for this reason that we have relied mainly upon this class of monuments. Nothing can be better short of absolute ownership and control of the ground in which permanent monuments are placed, and even this would not eliminate the need for inspection and care.

*Accuracy of results.*—The leveling operations of the U. S. Coast and Geodetic Survey have been conducted with instruments and methods of precision which are admirable for the purpose. Such methods have not been adopted by this Survey, however, for the reason that it has been found possible to obtain accuracy sufficient for our purpose at a very much smaller cost by means of the instruments and methods in common use by civil engineers. We have used throughout an ordinary engineer's Y-level with a rod graduated to hundredths of feet and read in part with the telescope to the nearest .005 foot and in part with the target to thousandths of a foot. The accuracy which we had secured during the prosecution of the original work was shown by the results reported in 1885 and 1886 to be within the limits of error considered permissible by the Geodetic Association of Europe, as quoted in the report of the Superintendent of the U. S. Coast and Geodetic Survey for 1882, page 522, namely, .0158 foot per mile. The work done during 1912 and 1915 has afforded an opportunity for rechecking and recomputing the original levels and making a rigid comparison between all of the

levels run in these and earlier years. The results may be of interest, as indicating what may be done with such methods as we have adopted, and may also be some guide to the confidence which may be placed in the results of the leveling operations.

In recomputing and re-comparing the earlier work it was found that the levels run from Sandy Hook to Metuchen, a distance of 34.5 miles as compared with the results of the U. S. Coast and Geodetic Survey, showed a difference of  $-.047$  foot. The difference had been greater at some intermediate points, however. At Red Bank,  $+.153$ ; at Matawan,  $+.162$ ; at Morgan,  $-.114$ ; South Amboy,  $-.246$ , and Raritan draw-bridge,  $-.314$  foot. These levels were run five years later than the U. S. Coast and Geodetic Survey levels, and it should be remarked that the Raritan drawbridge was known to have settled during this period, such settlement ultimately becoming so considerable that it affected the closing of the bridge. There is also no certainty that the point on the old railroad abutment at South Amboy had not settled.

The line from Perth Amboy to Newark, 18 miles, when re-run, checked back within  $.06$  foot, and this total error in 36 miles was not exceeded at any intermediate point.

The circuit from Newark through Jersey City and Hackensack, returning via Bloomfield to Newark, 39 miles, closed within  $+.57$  foot.

The line from Paterson through Dover, Waterloo, and Washington to Phillipsburg, 59 miles, closed within  $.06$  foot.

Taking the early work and the recent work together, we have obtained a number of additional checks, which have thrown much greater light upon the general character of the earlier work and have in a few cases detected some important differences where the early work had been insufficiently checked, but in the main the errors have been found to be clerical or typographical, and not due to inaccuracy in the field operations. The line run from Newark through Bloomfield to Paterson, in 1912, closed at the East Jersey Reservoir within  $-.09$  foot. This line started and closed on adjusted elevations of the earlier work.

Beginning on an adjusted bench mark at Hackensack, and running thence through Rutherford and Harrison to Newark, 12.5 miles, the difference was  $.07$  foot.

Beginning at Newark and re-running the line thence to Hudson County Court House in Jersey City, 6 miles, the difference was  $.02$  foot.

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On the line from Paterson to Phillipsburg the difference between Paterson and Little Falls was  $-.22$  foot; from Boonton to Denville,  $+.02$  foot; from Rockaway to Dover,  $+.16$  foot. On the line re-run in 1912 from Wharton to Phillipsburg the differences between the later and the earlier elevations were as follows: Lake Hopatcong,  $-.03$ ; Hackettstown,  $+.04$ ; Washington,  $-.01$ ; Phillipsburg,  $+.06$ ; the latter being for a distance of 43 miles.

The line run in 1912 from Phillipsburg through Belvidere to Washington was 25 miles long and checked out at Washington on the line previously described with a difference of  $+.08$  foot. From Whitehall to Branchville Junction, in Sussex County, 9 miles, difference was  $.31$  foot. Starting on an adjusted elevation of the 1886 work at Ridgewood, Bergen County, during the present year, and running thence westward 32 miles, over the mountains to a bench mark at Branchville Junction, in Sussex County, the agreement with an elevation at the same point determined by a line run by Mr. Hosking in 1912 from Andover, north to Branchville Junction, was exact, whereas the difference compared with a line run from Andover to Branchville Junction by Mr. Bevier in 1886 was  $+.31$  foot. These errors may be taken as obtaining in a line 44 miles long between the adjusted bench mark at Ridgewood and the adjusted bench mark at Waterloo, both determined in the work done before 1888.

Another comparison may be made by taking the elevation at Franklin Furnace as determined by means of three different lines run from Waterloo and one line run from Ridgewood, Bergen County. The results are as follows:

	<i>Elevation at</i>	<i>Departure</i>
	<i>Franklin Furnace.</i>	<i>from Mean.</i>
Beginning at Waterloo on a previously adjusted bench mark, thence to Newton-Branchville-Franklin Furnace, 24 miles, run by Bevier & Plummer, .....	566.45	$-.26$
Same line as above, run by Hosking & Plummer, .....	566.76	$+.05$
Ridgewood, Bergen County, to Franklin Furnace, 32 miles, run by Mr. Plummer, .....	566.71	0
Waterloo to Franklin Furnace, 19½ miles, run by Mr. Bevier, .....	566.91	$+.20$

The foregoing comparison indicates something of the probable errors at Franklin Furnace as determined by levels connected from Perth Amboy through Paterson, Ridgewood, and Pompton, and from Perth Amboy and Phillipsburg through Waterloo. They are residual errors of a number of long lines.

The circuit from Elizabeth through Plainfield, South Plainfield, and Metuchen, back to Elizabeth, 32.5 miles, closed within .32 foot. The circuit from Somerville to Washington, 27.5 miles, closed within .15 foot. Beginning at Whitehouse on the Somerville-Washington line, and running through Gladstone and Bernardsville to Summit, 34 miles, and there testing on the bench mark of the Newark-Morristown line, run by Mr. Staats in 1912, the difference was .18 foot.

Beginning at Annandale, on an adjusted bench mark of the Somerville-Washington line, and running thence through Frenchtown to Lambertville, 33 miles, and testing on a bench mark of the Trenton-Lambertville-Somerville line, run by Mr. Bevier in 1886, the difference was .15 foot.

Beginning at Kingston on a bench mark of the Mt. Holly-Bound Brook line, run by Mr. Bevier in 1885, and running thence through Hopewell and Pennington to Washington's Crossing and Titusville, 21.5 miles; and there testing on one of the bench marks established by Mr. Bevier in 1886, the difference was .26 foot.

Beginning at Mountain View, on a bench mark of the Paterson-Dover-Phillipsburg line established by Mr. Bennett in 1887, and running to Pompton, and there testing on a bench mark of this year's Ridgewood-Franklin Furnace line, the difference was .16 foot.<sup>1</sup>

Many of these results represent the accumulated error in a number of lines of levels, but the earlier work had been previously adjusted and the errors distributed.

*Correction for Sussex County.*—The elevations in Sussex County originally depended upon a loop run from Waterloo through Newton, Branchville, and Montague to Port Jervis, returning via High Point, Sussex, and Franklin Furnace to Andover and Waterloo. This loop traversed a mountainous country with large differences in elevation. The results were less satisfactory than for the other lines, but it was thought to have been sufficiently adjusted to give substantially correct results when the levels were published in 1888. The levels recently run, however, proved that the early levels had not been sufficiently checked at intermediate points, and that the final elevations were somewhat at fault for that part of Sussex County lying north of Andover.

<sup>1</sup>The above results range from about  $1/5$  to  $1/82$  of an inch per mile. The average error in closure for all the circuits cited was about  $1/14$  of an inch per mile. H. B. K.

The levels run by Mr. Hosking in 1912, those run by Mr. Plummer during the present year, and the original field notes of the levels run in 1886 were all again carefully compared and recomputed, and a final adjustment made, which has changed the elevations through Sussex County in some cases as much as .8 foot; but the results of a comparison of the various lines have already been given and are sufficient to establish the accuracy of the final elevations now adopted. There were other cases in which local errors were detected, chiefly mathematical or clerical, but in some cases typographical, notwithstanding great care had been taken to avoid errors of this nature. Such errors have been carefully eliminated in the list of elevations submitted herewith. They in no case represented errors in the principal lines of levels, except the discrepancy in the Sussex loop already noted. A re-examination of the original field notes proved that the field work had been accurate.

The foregoing results of tests are given in full and are intended to speak for themselves. There is no question that they are sufficient to indicate that as a whole the work is accurate. It is not claimed that they absolutely prove that every elevation given is of corresponding accuracy throughout, but the checks are so frequent, and are so often made from intermediate points of one line to intermediate points of another line of levels that they appear to preclude any doubt that the work is fairly good throughout.

*Comparison with New York Datum Plane.*—During the past year there has been published the result of the precise levels run for the Board of Estimate and Apportionment of the City of New York by Mr. Frederick W. Koop, assistant engineer. In these levels the elevation of the monument at Perth Amboy has been taken to be 60.946 feet, which differs both from the elevation heretofore published by this Survey, and also from the elevation as adjusted for the present report, and as this involves a slight difference in the datum plane adopted by the New York levels and by this Survey, a comparison of the elevations seems desirable. As heretofore stated, in 1886 the line from Sandy Hook tide gage through Perth Amboy to Metuchen was re-run, and certain differences appeared in the elevations at South Amboy and Perth Amboy as thus ascertained, and those given by the U. S. Coast and Geodetic Survey, as the results of its operations in 1881. It should be furthermore stated that the elevations furnished by the U. S. Coast and Geodetic Survey in manuscript, and published by this Survey in 1881, differ slightly

from the final adjusted results appearing in the Annual Report of the Superintendent of the U. S. Coast and Geodetic Survey for 1881, which was not published until some years later. In 1886 and 1887 the U. S. Coast and Geodetic Survey repeated this line of levels from Sandy Hook tide gage through Perth Amboy and thence up the Hudson River, and the elevations then determined differ somewhat from those given in the report for 1881. The several elevations are given in the following table:

	<i>U. S. Coast and Geodetic Survey.</i>			<i>P. H. Bevier.</i>
	<i>M.S.S. 1881.</i>	<i>Report 1881.</i>	<i>Report 1887.</i>	<i>1886.</i>
Morgan, .....	5.611	5.594		5.515
South Amboy, .....	14.580	14.564	14.549	14.331
Raritan Bridge, .....	7.782	7.756	7.650	7.475
Perth Amboy mt., .....			60.841	60.600
Metuchen, .....	83.641	83.638		83.594

Inasmuch as it was known that there had been settlement at the Raritan drawbridge, the writer at that time decided to adopt the elevations as determined by Mr. P. H. Bevier, assistant topographer for this Survey. On the other hand, Mr. Koop has proceeded on the assumption that the elevation at Raritan drawbridge, as determined in 1881, is the more correct, and has corrected the levels for 1887 on the assumption that there had been no settlement at the drawbridge during the interval. In this way he obtains an elevation for the monument at Perth Amboy of 60.946. If we assume, however, that the elevation as determined by the U. S. Coast and Geodetic Survey in 1887 is correct, and that the difference at the drawbridge was due to settlement, then the correct elevation of the Perth Amboy monument is 60.841.

I have recently been furnished in manuscript the results of another line of levels run in 1914 by the U. S. Coast and Geodetic Survey from Sandy Hook to Perth Amboy. These levels give an elevation of 60.945 for the monument at Perth Amboy, thus nearly agreeing with the elevation adopted by the New York City survey. However, this last line of levels gives an elevation at the Sandy Hook lighthouse which differs by .195 foot from the elevation adopted in 1881 and 1887. Furthermore, taking the several elevations at Perth Amboy monument determined to date, we have the following:

Levels of 1881 to South Amboy, and of 1887 thence to Perth Amboy,	60.872
Levels of 1887, .....	60.841
Levels of 1914, .....	60.945
Levels of Geological Survey of New Jersey, Sandy Hook to Perth Amboy, 1885, as recomputed, .....	60.623



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If we give to our own levels of 1886 one-half the weight given to the several results of the U. S. Coast and Geodetic Survey, and thus determine the mean of all the elevations, we shall have as a result 60.841, which happens to be exactly the same as the elevation determined in 1887 by the U. S. Coast and Geodetic Survey. If we adopt the last as the correct elevation, it involves no change in the transcontinental line of 1881, which we have always heretofore assumed to be correct, whereas, if we adopt any of the other elevations, a readjustment of the entire transcontinental line to Easton, Pennsylvania, becomes necessary. If we make such an adjustment, we may need a still further adjustment in case this line shall be re-run from Perth Amboy to Easton and recomputed later on. I have, therefore, decided to adopt the elevation of the Perth Amboy monument determined by the U. S. Coast and Geodetic Survey in 1887, viz.: 60.841 feet, which differs by only .031 foot from the results of the transcontinental line of 1881 as the correct elevation. It results in a difference between the elevations adopted by this Survey and those published by the City of New York of .105 foot, our elevations being to that extent lower than theirs.

The list of bench marks herewith submitted has the names of cities and towns in which bench marks are located, arranged alphabetically by counties. It is complete for all that part of the State lying north of a line drawn from Trenton to Perth Amboy. It is intended to replace all previous similar lists.

Respectfully submitted,

C. C. VERMEULE,

*Consulting Engineer.*

# A List of Bench Marks for Northern New Jersey.

## Names of Places being Arranged Alphabetically by Counties.

### BERGEN COUNTY.

#### ALLEDALE.

Eleva., 321.81 ft.

A cross cut in the west end (about 6 inches from north end of west truss, 6.3 feet from the end and near the edge) of the north abutment of the bridge which carries the Erie Railroad over Hohokus Creek, three-quarters of a mile south of the depot.

#### ALLEDALE.

Eleva., 269.49 ft.

A cross cut in the southeast corner of the second step from the top of the east end of the north abutment of the bridge which carries the Erie Railroad over a small brook, about 300 yards south of the station.

#### BLAUVELTVILLE, N. Y.

Eleva., 182.80 ft.

A cross cut in the outside corner of the west end of the south abutment of the bridge which carries a road over the Piermont Branch of the Erie Railroad, at the station.

#### CAMPGAW.

Eleva., 379.93 ft.

A cross on the northwest corner at the west end of the concrete cap of a small culvert under the New York, Susquehanna, and Western Railroad, about one-quarter mile east of the station. The point is on the north side of the railroad, 5.4 feet north of the north rail and about one foot lower.

#### CAMPGAW.

Eleva., 375.17 ft.

A cross on the concrete base of a concrete pier supporting a spur into a building at the highway near the station. It is the pier nearest the road and about 12 feet east of the building. The cross is level with the ground, and on a 4-inch shelf projecting east of the edge of the pier, which is about 65 feet north of the railroad track.

#### CARLSTADT.

Eleva., 145.85 ft.

A cross cut in the north end of the doorsill (near the edge and close up to the door jamb) of the entrance to the public-school building, which stands on the east side of Third Street, between Hoboken and Broad streets. This entrance is near the north end of the school building, and leads into the old part.

#### CLOSTER.

Eleva., 40.00 ft.

A cross cut in the east corner of the sill of the front door of C. Hansen's feed store, on the west side of the Erie Railroad, at the junction of two roads.

#### CLOSTER.

Eleva., 65.06 ft.

A cross cut in the north end of the doorsill ( $3\frac{1}{2}$  inches from the edge and  $3\frac{1}{2}$  inches from the wall) of the most northerly entrance to the public-school building, on the east side or front. The school building is located between High and Demarest streets, and faces the east.

20 BENCH MARKS, NORTHERN NEW JERSEY.

**CLOSTER.**

Eleva., 30.65 ft.

A cross cut in the west end (3.3 feet from I-beam, 2.5 feet from end, 1.6 feet from edge, 0.83 foot from back-wall end, 3.2 feet below track) of the north abutment of the bridge which carries the northern branch of the Erie Railroad over Dwar's Kill, three-quarters of a mile north of the station. The cross is cut on the shelf of the abutments supporting the north ends of the I-beam.

**CLOSTER.**

Eleva., 25.71 ft.

A cross cut in the south end (4.7 feet from I-beam, 0.6 foot from end, 1.95 feet from edge, 0.45 foot from retaining wall behind, and 3.05 feet below track) of the east abutment of the bridge which carries the northern branch of the Erie Railroad over the North Branch of Dwar's Kill, 1 mile north of the depot. The cross is cut on a shelf of the abutment supporting the south end of the I-beam.

**CRYSTAL LAKE.**

Eleva., 339.33 ft.

A cross on the extreme south end of the west abutment, 17 feet south of the south rail, and 7 feet lower, at the New York, Susquehanna, and Western Railroad bridge, over a stream about 450 feet east of the station.

**CRYSTAL LAKE.**

Eleva., 330.91 ft.

A cross on the concrete cap, 12.4 feet from the south end of the wall, and 2 feet above the crown of the arch, on the east wall of the highway bridge, over the brook, about  $\frac{1}{2}$  mile west of the station.

**DEMAREST.**

Eleva., 38.87 ft.

A cross cut in the south end of the sill of the front door of the station of the Northern Railroad of New Jersey.

**DUNDEE LAKE.**

Eleva., 41.14 ft.

This bench mark is on the New York, Susquehanna, and Western Railroad bridge crossing the lake. The point is a cross cut in the northwest corner of the iron bed-plate on which rests the most easterly truss, on the north side of the track.

**EAST RUTHERFORD.**

Eleva., 82.29 ft.

This bench mark is a point taken on the northwest corner of the base of a monument, "Dedicated to the Memory of Soldiers and Sailors Who Fought in Defence of the American Flag," standing in the junction between Paterson Avenue and Grove Street, opposite Second Street. This monument is a cannon mounted upon a granite base. The point is on the corner of the granite base, between the breach and the trunnion bed. Looking towards the muzzle, it is on the left of the cannon.

**EMERSON.**

Eleva., 47.97 ft.

A cross cut in the north end of doorsill (.35 foot from outer edge, 1.2 feet from north end, and near the corner-of a bay window) at the entrance to a building owned by R. Alexander, standing on the west side of the main road, opposite the point where this road crosses the New Jersey and New York Railroad. This building has a yellow brick front, with stone trimmings, red brick sides, and is two stories high; the upper story is occupied as apartments, the lower story is used as a store, and occupied by the Emerson Grocery Company.

**ENGLEWOOD..**

Eleva., 36.48 ft.

A cross cut in the southeast corner of a flat stone on the east end of a stone culvert which carries the Northern Railroad of New Jersey over a small stream 200 feet south from Slocum Avenue and one-quarter of a mile north of the station.

**ENGLEWOOD.**

Eleva., 27.49 ft.

A cross cut in the east end of the doorsill (8 inches from the edge, and near the door jamb) of the only entrance in the north end of the station, which stands on the east side of the Northern Railroad of New Jersey between Demarest and Palisade avenues.

**ENGLEWOOD.**

Eleva., 8.82 ft.

A cross cut in the summit of a stone at the north end of a culvert, just west of the Northern Railroad of New Jersey, which carries Forest Avenue over a small run.

**GARFIELD.**

Eleva., 12.96 ft.

A cross cut in the east end of the coping stone of the north wing wall of the east abutment of the bridge which carries Passaic Avenue over Passaic River. This point is outside of hand rail, 0.32 foot from edge, 3.3 feet from east end of wing wall, and 12.85 feet from north end of east abutment.

**GARFIELD.**

Eleva., 34.26 ft.

A cross cut in the northwest corner of the highest step of the west end of the south abutment of the bridge which carries the short cut of the Erie Railroad over Passaic Avenue. The south end of the bridge truss rests upon this step.

**HACKENSACK.**

Eleva., 12.50 ft.

A cross cut in the west end of the sill of the main front door of the First Reformed Church, on Court Street.

**HACKENSACK.**

Eleva., 19.86 ft.

A cross cut in the southeast corner of the east end of the doorsill (2.15 feet from outer edge, 0.36 foot from east side of doorway and 0.13 foot from bronze door saddle) of the most easterly of the three front entrances to the Bergen County Courthouse, which stands on the southeast corner of Main and Court streets. The courthouse faces Court Street.

**HACKENSACK.**

Eleva., 22.70 ft.

A cross cut in the west end of the doorsill of the entrance to apartments over the store, in a brick building on the north side of Anderson Street, west of Anderson Street depot. This building was erected in 1894 by G. A. Mattjetschenk.

**HASBROUCK HEIGHTS.**

Eleva., 151.27 ft.

A cross cut in the west end of sill of first window, east of the front, or Franklin Avenue, entrance of the public-school building, which stands on top of the ridge, on the south side of Franklin Avenue between the Boulevard and Burton Avenue. The window is below the water table and opens into the basement of the building.

**HIGHWOOD.**

Eleva., 48.95 ft.

A cross cut in the northeast corner of the coping of the retaining wall at the east end of the south abutment of the Northern Railroad of New Jersey bridge over a brook, about 500 yards south of the station.

**HILLSDALE.**

Eleva., 52.76 ft.

A cross cut in a brownstone block on the top of the first step (6 inches from the east end and 6 inches from edge) on the east end of the north abutment of the bridge which carries the New Jersey and New York Branch of the Erie Railroad over Pascack Brook, about 1,600 feet south of the station. The north end of the truss of the bridge rests on the first step.

**HOKOKUS.**

Eleva., 194.69 ft.

A cross cut in the southwest corner of the coping of the west parapet of the culvert which carries the Erie Railroad over Hokokus-Creek.

## 22 BENCH MARKS, NORTHERN NEW JERSEY.

### **KINGSLAND.**

**Eleva., 63.12 ft.**

A cross cut in the south end of the coping of the east wing wall of the north abutment of the bridge, which carries Ridge Road over the Delaware, Lackawanna, and Western Railroad, about 800 feet west of the station. This cross is about 1 foot from the south end of the wing wall, between the hand rail and the inner edge of the coping.

### **KINGSLAND.**

**Eleva., 54.93 ft.**

A cross in the end of a piece of a railroad rail, standing erect in a concrete foundation, on the north slope of a cut, 40 feet north from the westbound track, 15 feet from top of slope and 25 feet from the east end of the east wing wall of the north abutment of a bridge which carries the Ridge Road over the Delaware, Lackawanna, and Western Railroad, about 800 feet west of station. This is probably a railroad bench mark.

### **LODI.**

**Eleva., 22.37 ft.**

A cross cut in the southeast corner of the south end of the west abutment of the bridge which carries Passaic Avenue over Saddle River.

### **LODI.**

**Eleva., 34.47 ft.**

A cross on the south end of the sill of the second window from the south, under the water table, in the wing of Public School Building No. 1, which stands on the southeast corner of South Main and Hunter streets and faces South Main Street. There is an entrance on each side of the wing in front, on the South Main Street side, and four windows under the water table opening into the basement. The bench mark is on the sill of the second window from the south.

### **LODI.**

**Eleva., 45.42 ft.**

A cross cut in the northwest corner of the west end of the coping of the north wall of the culvert which carries Union Avenue over a small stream, about 2,100 feet east of South Main Street.

### **LODI TOWNSHIP.**

**Eleva., 30.68 ft.**

A cross cut in the coping of the east wall (directly over the middle of the arch) of the bridge which carries Terrace Avenue over a gully just south of the right of way of the old Lodi Railroad, now abandoned. This arch bridge is just south of the south boundary of Hackensack.

### **LYNDHURST.**

**Eleva., 66.56 ft.**

A cross cut in the extreme south end (against the face of the brick wall) of the sill of the most southerly door of the two entrances to the Lincoln School, on the west and facing the Ridge Road, between the Delaware, Lackawanna, and Western Railroad and Valley Brook Avenue. There are two doors for an entrance with a window between them.

### **MAHWAH.**

**Eleva., 309.06 ft.**

A cross cut in the northeast corner of the east end of the south abutment of the bridge which carries the Erie Railroad over a road leading from Masonicus to Wanamaker's Mills, about three-eighths of a mile south of the station. The cross is on the top of a series of steps, which form a shelf, upon which rests the north end of the I-beam.

### **MAHWAH.**

**Eleva., 297.76 ft.**

A cross cut in the northeast corner of the north end of the retaining wall on the east side of the Erie Railroad. The cross is about 325 feet north of the station.

### **MAHWAH.**

**Eleva., 274.54 ft.**

A cross cut in the east end (near the edge, 1.35 feet from the bedplate and 10.2 feet from the end) of the north abutment of the bridge which carries the Erie Railroad over the Mahwah Creek. The cross is on the stone upon which rests the bedplate of the north end of the most easterly truss. This bridge is 1,400 yards north of the railroad station.

**MIDLAND PARK.**

Eleva., 202.71 ft.

Top of the rail of the New York, Susquehanna, and Western Railroad at the station.

**MIDLAND PARK.**

Eleva., 234.37 ft.

A cross on the east end of the south abutment of a highway bridge, about five-eighths mile northwest of the station, and 100 feet northeast of the New York, Susquehanna, and Western Railroad tracks. The cross is on the northeast corner of the stone on which rests the south end of the east girder.

**MONTVALE.**

Eleva., 140.34 ft.

A cross cut in the southwest corner of the south end of the east abutment, of the bridge which carries East Avenue over Pascack River, 900 feet west of the railroad station.

**NANUET, N. Y.**

Eleva., 298.16 ft.

A cross cut in the window sill (3.6 inches from the west end and 4.2 inches from the edge) west of the entrance to the store owned by William Hutton, Jr., on the north side of the road leading from Spring Valley to Nyack, and just east of the crossing of the Piermont and New City branches of the Erie Railroad. The front of the store is divided into three equal parts, the center part has an entrance to the store, with a large window each side. The sills of the windows and door are at the same level.

**NANUET, N. Y.**

Eleva., 293.60 ft.

A cross cut in the northeast corner of the stone cap of the pier upon which rests the northeast of five columns which support the roof of the shed shelter, attached to the east end of the Erie Railroad station.

**NEW MILFORD.**

Eleva., 12.62 ft.

A cross cut in the south end of the doorsill (5.3 inches from south side of doorway and 11 inches from door) of the most southerly entrance, on the west side of the Hackensack Water Company's pumping station. This door is the entrance to the old engine house, now known as Engine House No. 1. Over the arched entrance is the date "1882."

**NORDHOFF.**

Eleva., 9.87 ft.

This bench mark is on the north end of the sill of the most northerly window in the front, or east side, of the lodge at the entrance to the late Hon. W. W. Phelps' Teaneck estate.

**NORDHOFF.**

Eleva., 4.25 ft.

A cross cut in the northwest corner of the west end of the south abutment of a bridge which carries the Northern Railroad over a small stream 600 feet north of the station.

**NORTH ARLINGTON.**

Eleva., 128.24 ft.

A cross cut in the center of a brownstone monument standing on the north side of Kearny Avenue on the line between the cemetery and the public-school lot.

**NORTH ARLINGTON.**

Eleva., 141.00 ft.

A cross cut in the south end of the bluestone doorsill of the front entrance to the Town Hall, formerly a school house, on the east side, one hundred feet back of Kearny Avenue.

**NORTH HACKENSACK.**

Eleva., 9.54 ft.

A cross cut in the middle of a series of five steps, on the west end of the north abutment of a bridge which carries the New Jersey and New York Railroad over a small stream, 700 feet south of the station. The stream at this point is the dividing line between the town of Hackensack and Riverside Borough.

## 24 BENCH MARKS, NORTHERN NEW JERSEY.

### **NORTHVALE.**

**Eleva., 37.89 ft.**

A cross cut in the south end of the north doorsill of the entrance to the waiting room on the west side or back of the station. The station is of brick with stone sills. There are two doors on the west side near the south end and one near the north end, leading into the waiting room. The cross is cut on the sill of this door.

### **NORTHVALE.**

**Eleva., 33.47 ft.**

A cross cut in the northeast corner of the north end of the west wing wall of the north abutment of the bridge which carries the road leading from Northvale to Tappan over Tappan Brook. This bridge is about 375 feet south of the State line.

### **NORWOOD.**

**Eleva., 32.77 ft.**

A cross cut in the east wall, over the center of the arch, of a culvert which carries the Northern Railroad of New Jersey over a small run, 800 feet north of the station.

### **OAKLAND.**

**Eleva., 277.32 ft.**

A cross on the southwest corner at the west end of the concrete porch floor of the store and postoffice near the station.

### **OAKLAND.**

**Eleva., 234.70 ft.**

A cross on the southeast corner of top step, 10.6 feet south of south rail, and 1 foot lower at the south end of the west concrete abutment of the New York, Susquehanna, and Western Railroad bridge, over Ramapo River.

### **ORADELL.**

**Eleva., 16.03 ft.**

A cross cut in the south end of the west abutment (4.1 feet below the east end of the south wing wall, and 5.6 feet above the ground) of the bridge which carries Oradell Avenue over Hackensack River. This cross is cut on the shelf of the abutment supporting the west end of the truss. The bridge is about 250 feet east of the depot.

### **ORANGEBURG, N. Y.**

**Eleva., 113.82 ft.**

A cross cut in the east corner of the coping, on top of and at the extreme south end of the long abutment, of the bridge which carries the Piermont Branch of the Erie Railroad over the West Shore Railroad.

### **PALISADE MONUMENT.**

**Eleva., 460.21 ft.**

This bench mark is on the summit of the State-line monument on the top of the Palisades.

### **PALISADE MONUMENT.**

**Eleva., 453.08 ft.**

This bench mark is a cross cut on a rounded knob of the bedrock, 7.8 feet southwest of the monument.

### **PARK RIDGE.**

**Eleva., 142.26 ft.**

A cross cut in the east end of the sill of the most westerly of the three doorways of the front entrance to the public-school building, which stands on the southeast corner of Main Street and Park Avenue.

### **PASSAIC JUNCTION.**

**Eleva., 53.20 ft.**

A cross cut in the southeast corner of the lowest step at the east end of the north abutment of the bridge which carries the Bergen County Short Cut of the Erie Railroad over the New York, Susquehanna, and Western Railroad.

### **PEARL RIVER, N. Y.**

**Eleva., 212.81 ft.**

This bench mark is on the cross cut on the State-line monument, 2.8 feet west of the west rail of the New Jersey and New York Branch of the Erie Railroad, about one-half mile south of the station.

**PEARL RIVER, N. Y.**

Eleva., 216.39 ft.

A cross cut in the north end of the east abutment of the bridge which carries Central Avenue over a small stream, about 500 feet west of the railroad.

**PEARL RIVER, N. Y.**

Eleva., 219.83 ft.

A cross cut in the west end of the north concrete wall of a bridge which carries Washington Avenue, or the direct road from Pearl River to Upper Montvale, over a small stream, about 500 feet west of the railroad.

**PEARL RIVER, N. Y.**

Eleva., 224.95 ft.

A cross cut in the top of a boulder, cemented in the west end of the north abutment at the end of the hand rail of the bridge which carries the road leading from Pearl River to Upper Montvale over Pascack Brook, five-eighths of a mile west of Pearl River.

**PEARL RIVER, N. Y.**

Eleva., 225.50 ft.

This bench mark was taken on the cross cut in the new eighth milestone on the State line. This stone is about half way, between Pearl River and Upper Montvale. There is an old mile stone here also. The elevation of the top of the old stone is 226.18 feet.

**RAMSEY.**

Eleva., 344.00 ft.

A cross cut in the water table, in front, at the offset, 23.5 feet from the northwest corner of the Dater Building, on the south side of Main Street, giving, on the west, the right of way of the Erie Railroad, and opposite the station.

**RAMSEY.**

Eleva., 339.68 ft.

A cross cut in the northwest corner of the shelf, upon which rests the south end of the truss (7 feet from the most westerly rail of the southbound tracks, 6.9 feet from the end of the wing wall and 4 feet above the brook) of the south abutment of the bridge which carries the Erie Railroad over a brook,  $1\frac{2}{15}$  miles north of the depot and 60 feet south of a highway crossing.

**RIDGEFIELD.**

Eleva., 14.35 ft.

A cross cut in the south end of the sill of the front door of the Ladies' waiting room of the station of the Northern Branch of the Erie Railroad.

**RIDGEFIELD.**

Eleva., 5.96 ft.

A cross cut in the southwest corner of the west end (at the northwest corner of the draw) of the north abutment of the bridge which carries Bergen Turnpike over Overpeck Creek, half a mile west of the depot.

**RIDGEFIELD PARK.**

Eleva., 5.77 ft.

This bench mark is a cross cut in the northwest corner of the north end of the west wall of a culvert which carries the West Shore Railroad over a small stream, one-third of a mile north of the depot. (Partially destroyed.)

**RIDGEFIELD PARK.**

Eleva., 6.85 ft.

A rounded knob, with the letters "B.M." closely cut, in the southwest corner of the south end of the west wall of the bridge which carries the West Shore Railroad over a small stream, one-third of a mile north of the depot. This bench and the one above are on the same wall of the culvert.

**RIDGEWOOD.**

Eleva., 134.55 ft.

A cross cut in the south end of the doorsill, under a bronze tablet, of the corner and main entrance to the Ridgewood Trust Company's building, which is on the southeast corner of Ridgewood Avenue and Prospect Street.

**RIDGEWOOD.**

Eleva., 153.97 ft.

A cross cut in the east end (2 feet from truss, 12.4 feet from end and close to the edge) of the north abutment of the bridge which carries the Erie Railroad over a road, three-quarters of a mile north of the depot. The cross is on a shelf of the north abutment, upon which rests the north end of the truss.



26 BENCH MARKS, NORTHERN NEW JERSEY.

**RIVER EDGE.**

Eleva., 7.74 ft.

A cross cut in the northwest corner of a shelf upon which rests the east end of the draw, on the north end of the east abutment of the drawbridge which carries a road over the Hackensack River, 300 feet east of the depot. This shelf is 2.6 feet below the top of the west end of the north wing wall of the east abutment and 2.2 feet above a retaining wall along the river.

**RUTHERFORD.**

Eleva., 47.53 ft.

A cross on top of a stone monument located in a small circular flower bed around a flag pole at the junction of streets near the depot.

**RUTHERFORD.**

Eleva., 43.14 ft.

A cross cut in the extreme east end of the doorsill of a double door entrance to the railroad station from the street on the south side. Over this door is the name "Erie Railroad."

**RUTHERFORD.**

Eleva., 76.94 ft.

A cross cut in the south end of the doorsill (under the arch) of the entrance to the Municipal Building, on the west side of Park Avenue, between Franklin Place and Ridge Road.

**SUFFERN, N. Y.**

Eleva., 287.49 ft.

This bench mark is the top of the new fifteen-mile stone of the State line which stands on the east side of Ramapo Avenue, west of the Erie Railroad.

**TAPPAN, N. Y.**

Eleva., 60.03 ft.

This bench mark is the top of a State-line monument on the east side of the road leading from Tappan to Harrington Park, near the German Church.

**TAPPAN, N. Y.**

Eleva., 108.47 ft.

This bench mark is on the top, on the cross, of the new three-mile monument of the State line.

**TAPPAN, N. Y.**

Eleva., 109.158 ft.

This bench mark is the top or highest point of the old third monument of the State line.

**TENAPLY.**

Eleva., 48.06 ft.

A cross cut in the south end of the sill of the north front door of the station of the Northern Branch of the Erie Railroad.

**WALDWICK.**

Eleva., 228.41 ft.

A cross cut in the northeast corner of the stone cap, on the concrete base, west of the tracks, upon which rests the most northerly of the pillars supporting the west end of the bridge which carries a highway over the Erie Railroad one-quarter of a mile south of the depot.

**WALLINGTON.**

Eleva., 9.65 ft.

A cross cut in the northwest corner of the north end of the shelf, upon which rests the east ends of the truss, of the east abutment of the drawbridge which carries the road from Wallington to Passaic over the Passaic River.

**WESTWOOD.**

Eleva., 54.56 ft.

A cross cut in the southwest corner of the north wing wall on the west side of the arch bridge which carries the New Jersey and New York Railroad over a brook south of the station. The cross is cut near the end of the first step of north wing wall, 2 inches from the end and  $3\frac{1}{2}$  inches from the edge.

**WESTWOOD.**

Eleva., 74.69 ft.

A cross cut in the northeast corner of the east end of the stone doorsill of the Westwood Avenue entrance to the First National Bank building standing on corner of Westwood and Center Avenues.

**WOODCLIFF LAKE.**

Eleva., 96.98 ft.

A cross cut in the west end of the south wall of the concrete culvert which carries the road over Hackensack Water Company's storage reservoir.

**WOODRIDGE.**

Eleva., 136.69 ft.

This bench mark is taken over the hole in the top of a brownstone monument, standing on the west side of Hackensack Avenue, on a line with the north side of Moonachie Avenue (projected). This monument is evidently a property monument.

**WOODRIDGE.**

Eleva., 188.12 ft.

A cross cut in the north end of the sill, of the first window south of the Hackensack Street entrance, of the public school building on the southwest corner of Hackensack and Union Streets.

**WORTENDYKE.**

Eleva., 263.18 ft.

A cross on the north corner of the concrete wall, 12 feet northeast of the rail, and 4 feet lower, at the northeast end of the southeast abutment of the New York, Susquehanna, and Western Railroad bridge over the brook about 800 feet southeast of the station.

**WORTENDYKE.**

Eleva., 266.72 ft.

A cross near the east edge of stone, 3 feet below coping and 1.2 feet south of south edge, at the southeast corner of the highway bridge over a brook about 150 feet west of the station.

**WYCKOFF.**

Eleva., 331.90 ft.

A cross on a small shelf of flagstone projecting at the northeast side of the opening of a culvert, 0.4 feet northeast of the north face of opening, and 0.7 feet below the concrete cap at the southeast end of the culvert of a highway bridge, opposite the Wyckoff Hotel, about one-eighth mile east of the railroad station.

**WYCKOFF.**

Eleva., 356.58 ft.

On the northeast corner of the doorsill of the Reformed Church.

ESSEX COUNTY.

**BELLEVILLE.**

Eleva., 32.97 ft.

A cross cut east of the iron fence, nearly in the center of the first coping stone, at the south end of the west parapet of the bridge which carries Washington Avenue over Second River.

**BELLEVILLE.**

Eleva., 111.63 ft.

A cross cut in the east corner of the sill of the first window west of the front entrance to Montgomery School No. 2, which stands on the north side of Montgomery Avenue, about 500 feet east of the bridge which carries said avenue over the Morris Canal.

**BLOOMFIELD.**

Eleva., 141.32 ft.

A cross cut in the west end of the stone sill of the middle of the three front doors of the old Presbyterian Church.

**BLOOMFIELD.**

Eleva., 132.75 ft.

A cross cut in the extreme northwest corner of a large flat stone in the north end of the east abutment, upon which rests the east end of the north truss of the iron bridge which carries the Greenwood Lake Branch of the Erie Railroad over the Morris Canal.

**BLOOMFIELD.**

Eleva., 181.19 ft.

A cross cut in the northwest corner of the west abutment, about 6 feet 4 inches above the towpath, of the bridge carrying the first road north of plane No. 11 over the Morris Canal.

28 BENCH MARKS, NORTHERN NEW JERSEY.

- BLOOMFIELD.** **Eleva., 193.88 ft.**  
 This bench mark is on the northeast corner of the west abutment of a bridge which carries a road over the Morris Canal about  $2\frac{3}{8}$  miles north of the old Presbyterian Church. On this corner are two letters cut on the stone: "J. W." The point is on the "W." The west end of the north truss of the bridge rests upon this stone.
- BLOOMFIELD.** **Eleva., 177.52 ft.**  
 A cross cut in the lowest step of the north wing wall of the west abutment of the bridge which carries a road over the Morris Canal at Brookdale.
- BLOOMFIELD.** **Eleva., 168.49 ft.**  
 A cross cut in the most westerly coping stone (5 inches from the iron post of the hand rail) of the south wing wall of the west abutment of the bridge which carries a road over Yantecaw, or Third River, at Brookdale.
- BLOOMFIELD.** **Eleva., 182.15 ft.**  
 A cross cut in the water table, between the two pilasters, to the right of the entrance to the public-school building at Brookdale.
- BLOOMFIELD.** **Eleva., 128.97 ft.**  
 A cross cut in the south end of the doorsill of the Broad-street entrance to the Bloomfield National Bank Building, which stands on the northwest corner of Bloomfield Avenue and Broad Street.
- BLOOMFIELD.** **Eleva., 150.46 ft.**  
 This bench mark is the top of a round knob cut in the southeast corner of a brownstone monument standing in front of Christ Episcopal Church, at the junction of Bloomfield Avenue and Liberty Street.
- EAST ORANGE.** **Eleva., 181.86 ft.**  
 A cross cut in the extreme north end of the third stone step from the top (and fourth from the bottom) behind a pilaster on the left of the entrance of the East Orange Free Public Library, which stands on the southeast corner of Main Street and Munn Avenue.
- EAST ORANGE.** **Eleva., 179.02 ft.**  
 A cross cut in the southwest corner of the base of a polished column, standing on the right of the entrance to the Essex County Trust Company's building, which is on the southeast corner of Main Street and Arlington Avenue.
- EAST ORANGE.** **Eleva., 180.52 ft.**  
 A cross cut in the extreme southwest corner of the top step of the most westerly entrance to the First Reformed Church, which stands on the southeast corner of Main and Halstead streets. This bench mark is vertically below the cross at the peak of the roof.
- EAST ORANGE.** **Eleva., 184.98 ft.**  
 A cross cut in the northwest corner of the base of the most westerly of four columns standing in front of the People's Bank, which is located at the southwest corner of Main and Prospect Streets.
- GLEN RIDGE.** **Eleva., 194.63 ft.**  
 A cross cut in the west end of the stone sill of the most westerly window, on the south or Bloomfield-avenue side of the High School building, which is at the northwest corner of Bloomfield and Ridgewood Avenues.
- GLEN RIDGE.** **Eleva., 187.09 ft.**  
 A cross, with the letters "B. M." cut in the north end of the brownstone coping of the west wall of the arch bridge which carries Ridgewood Avenue over Second River. This bridge is about 150 feet from Bloomfield Avenue.

**GLEN RIDGE.**

Eleva., 226.10 ft.

A cross cut in the east end, inside of the hand rail, of the north abutment (at the junction with the east wing wall) of the iron bridge which carries the Parkway over Second River and the Delaware, Lackawanna, and Western Railroad.

**MAPLEWOOD.**

Eleva., 130.27 ft.

A cross cut in the extreme west end of the north wing wall of the west abutment of a bridge which carries Parker Avenue over the East Branch of Rahway River.

**MAPLEWOOD.**

Eleva., 118.40 ft.

A cross cut in the east end of the north wing wall of the east abutment of the bridge which carries Oakland Avenue over the East Branch of Rahway River.

**MAPLEWOOD.**

Eleva., 109.77 ft.

A cross cut in the west end of the coping of the north wing wall of the east abutment of the bridge which carries Baker Avenue over the East Branch of Rahway River.

**MAPLEWOOD.**

Eleva., 133.86 ft.

A cross cut in the west end of the doorsill, of the only entrance on the south or rear side, to the first or main floor of the public-school building, which stands on the south side of Baker Avenue, just east of the Delaware, Lackawanna, and Western Railroad.

**MAPLEWOOD.**

Eleva., 97.35 ft.

A cross cut in a level place at the west end of the coping of the north wing wall of the west abutment of the bridge which carries Milburn Avenue over the East Branch of Rahway River.

**MILBURN.**

Eleva., 133.10 ft.

A cross cut in the east end of the coping of the north parapet of the arch bridge which carries Milburn Avenue over Rahway River, in Milburn.

**MILBURN.**

Eleva., 131.55 ft.

A cross cut in the south end (6 inches from the outer edge) of the doorsill of the Main-street entrance to the banking department of the First National Bank building.

**MILBURN.**

Eleva., 146.24 ft.

A cross cut in the southwest corner of the stone base (near the east street curb) upon which rests the middle of three iron pillars supporting the east end of the bridge which carries the Delaware, Lackawanna, and Western Railroad over Main Street.

**MONTCLAIR.**

Eleva., 240.54 ft.

A cross cut in the north wall (near the southwest corner of a concrete post, measuring 2.7 feet x 1.2 feet) at the east end of the concrete bridge which carries Bloomfield Avenue over the Delaware, Lackawanna, and Western Railroad. The concrete post is at the junction of the north parapet with the northeast retaining wall.

**MONTCLAIR.**

Eleva., 250.53 ft.

A cross cut in the extreme west end of the stone doorsill (5 inches from a pilaster and near the junction of the west stone balustrade with the building) at the Bloomfield-avenue entrance to the Telephone building, which is on the southwest corner of Bloomfield and Gates Avenues.

**MONTCLAIR.**

Eleva., 296.64 ft.

A cross cut in the northwest corner of the base of the most easterly of two columns standing in front of the Bank of Montclair building, which is located at 491 Bloomfield Avenue, on the north side of the street and about 180 feet west of North Fullerton Avenue. The column, on the base of which the cross is cut, stands between two windows.

## 30 BENCH MARKS, NORTHERN NEW JERSEY.

### MONTCLAIR.

Eleva., 298.19 ft.

A cross cut in the east end of the base of a pilaster (4.3 feet from doorway and 1.5 feet above the sidewalk) on the east or left of Bloomfield-avenue entrance to the Young Men's Christian Association building.

### MONTCLAIR.

Eleva., 333.01 ft.

A cross cut in the south end of the water table (3.25 feet north of pilaster and 2 feet above the ground) on the west or Bell Street side of the Public Service car barns, which stand at the northeast corner of Bloomfield Avenue and Bell Street.

### NEWARK.

Eleva., 15.84 ft.

A cross cut in the fourth step from the bottom (or the eleventh step from the top) on the south end of the west abutment of the bridge which carries the Lehigh Valley Railroad over Frelinghuysen Avenue.

### NEWARK.

Eleva., 12.65 ft.

A cross cut in the east end of the doorsill of the Fenwick-avenue entrance to Engine House No. 19 of the Newark Fire Department, which stands on the northeast corner of Frelinghuysen and Fenwick Avenues.

### NEWARK.

Eleva., 24.62 ft.

A cross cut in the south end of the doorsill of the front entrance to the German Methodist Church, at the northeast corner of Walnut and Mulberry Streets.

### NEWARK.

Eleva., 33.47 ft.

A cross cut in the west end of the middle step of three at the Academy Street entrance to the Newark Post Office, which stands on the northwest corner of Broad and Academy Streets. The cross is 6 inches from west wall, 4 inches from back, and 8 inches from edge of step.

### NEWARK.

Eleva., 41.68 ft.

A cross cut in the water table of the Newark City Hall, about 13.5 feet above the street,  $2\frac{1}{3}$  feet above the platform of approach,  $18\frac{11}{12}$  feet south from the south edge of the most southerly entrance, and  $10\frac{1}{2}$  inches north of the junction of the south stone balustrade with the building.

### NEWARK.

Eleva., 68.07 ft.

A cross cut in the northeast corner of the square marble base of the most northerly of two columns at the north, or left side, of the High Street entrance to the Essex County Courthouse.

### NEWARK.

Eleva., 109.92 ft.

A cross cut in a brownstone base at the foot of the north end of the east truss of the bridge which carries Summit Street over the Morris Canal, at the upper end of the inclined plane.

### NEWARK.

Eleva., 119.10 ft.

A cross cut in the northeast corner of the stone on which the east end of the north truss rests, in the end of the east abutment of the bridge which carries Sussex Avenue over the Morris Canal.

### NEWARK.

Eleva., 132.93 ft.

A cross cut in the south end of the brownstone doorsill of the lay-street entrance to the First Infantry Armory, which stands on the south side of Central Avenue between Jay and Hudson Streets. This cross is  $2\frac{1}{2}$  inches from the south wall of the entrance, 5 inches from edge of sill and 8 inches from door jamb.

### NEWARK.

Eleva., 120.11 ft.

A cross cut in the southeast corner of the base of the column against the south wall of the building (four feet back from the corner column) of Engine House No. 15, of the Newark Fire Department, which stands on the north side of Park Avenue, between Sixth and Seventh Streets. The cross is on the northeast column of three, at the entrance to the building.

**NEWARK.****Eleva., 117.61 ft.**

This bench mark is the pointed top of a concrete post in the middle of the south parapet of the concrete bridge which carries Bloomfield Avenue over a driveway and stream in Branch Brook Park.

**NEWARK.****Eleva., 117.58 ft.**

This bench mark is the pointed top of a concrete post in the middle of the north parapet of the concrete bridge carrying Bloomfield Avenue over a driveway and stream in Branch Brook Park.

**NEWARK.****Eleva., 120.13 ft.**

A cross cut in the north end of the east abutment (near the east end of the north truss) of the bridge which carries the Orange Branch of the Erie Railroad over the Morris Canal at Forest Hill. The cross is 2.83 feet from the end of truss, 3 inches from edge and 5.42 feet from the northwest corner of the abutment.

**NEWARK.****Eleva., 103.52 ft.**

A cross cut in the north end of the doorsill of the most southerly entrance (near circular tower) to Tiffany and Company's factory opposite Forest Hill Station of the Greenwood Lake Branch of the Erie Railroad.

**NEWARK.****Eleva., 187.52 ft.**

A cross cut in the north end of the stone doorsill of the most southerly Seventh-street entrance of Fire House No. 11 of the Newark Fire Department, which stands on the corner of Central Avenue and Seventh Street.

**ORANGE.****Eleva., 195.68 ft.**

This bench mark is the extreme northeast corner of the base of the Soldiers' and Sailors' Monument, standing at the junction of Main and South Main Streets, at the intersection of Prince Street.

**ORANGE.****Eleva., 191.04 ft.**

A cross cut in the west end of the doorsill of the Main-street entrance to the Young Men's Christian Association building, which stands on the north side of Main Street, east of Park Street. The entrance is at the west end of the building.

**ORANGE.****Eleva., 184.64 ft.**

A cross cut in the south end of the sill, on Center Street side, of the corner window, formerly an entrance to the Public Service building, which stands on the southeast corner of Main and Center Streets.

**ORANGE.****Eleva., 190.74 ft.**

A cross cut in the southeast corner (0.35 foot from wall, 0.55 foot from end and 3.35 feet from a stone lamp post) of the stone platform at the left of the entrance of the Orange National Bank, which is located one door east of the southeast corner of Main and Cone Streets.

**ORANGE.****Eleva., 196.42 ft.**

A cross cut on the west end of the doorsill of the main, or middle, entrance (directly under the steeple) of the First Presbyterian Church, which stands on the northwest corner of Main and Day Streets.

**ORANGE.****Eleva., 219.84 ft.**

This bench mark is a point on the extreme northwest corner of the base of the monument to the "Dispatch Rider of the American Revolution." This monument stands on the northeast corner of the cemetery, at the southwest corner of Main and Scotland Streets.

**ORANGE.****Eleva., 187.27 ft.**

A cross cut in the south end of the doorsill of the left entrance to the waiting rooms of the Highland Avenue Station of the Delaware, Lackawanna, and Western Railroad.

## 32 BENCH MARKS, NORTHERN NEW JERSEY.

### **SOUTH ORANGE.** **Eleva., 168.95 ft.**

A cross cut in the south end of the coping of the west wall of an arch bridge which carries Scotland Street over a small brook, about 125 feet north of South Orange Avenue.

### **SOUTH ORANGE.** **Eleva., 193.15 ft.**

This bench mark is a point taken on the east end of doorsill (close to outer edge and 6 inches from east wall of doorway) of the rear entrance from South Orange Avenue to the First Presbyterian Church. This church stands on the point formed by the junction of South Orange and Irvington Avenues with Academy Street.

### **SOUTH ORANGE.** **Eleva., 189.70 ft.**

A cross cut in the extreme west end of a stone sill (at a point where it projects from the surface of the wall) of the most westerly window on the north side of the first ell, or wing, north from First Street, of the Columbia School building, which stands on the west side of and facing Academy Street, between Irvington Avenue and First Street. There are three wings running back from the main building with two courts. The windowsill on which the bench mark was left is the rear of the school building on the court side of the first wing north of First Street.

### **SOUTH ORANGE.** **Eleva., 154.82 ft.**

A cross cut in the concrete foundation, on the Vose Avenue side, between the corner show window and a column supporting the southeast corner of the Decker Building, which stands on the northwest corner of South Orange and Vose Avenues.

### **SOUTH ORANGE.** **Eleva., 137.91 ft.**

A cross cut in a shelf (7.5 feet above the river and 1.3 feet below the footpath of the bridge) upon which rests the east end of I-beam, on the north end of the east abutment of the bridge which carries South Orange Avenue over the East Branch of Rahway River. There is also another cross cut in the west end of the north wing wall of the east abutment, 1.25 feet higher. This cross is directly above the bench mark, and must not be confused with it.

### **WYOMING.** **Eleva., 100.44 ft.**

A cross cut in the coping, 5 feet from the east end of the north parapet, of an arch bridge which carries a road leading from Milburn Avenue to Headleytown over East Branch of Rahway River. This road joins Milburn Avenue 200 feet east of the junction of Ridgewood Road and Milburn Avenue. The bridge is 350 feet southeast from Milburn Avenue.

## HUDSON COUNTY.

### **HARRISON.** **Eleva., 26.87 ft.**

A cross cut in the west end of the stone sill of the front door of the small brick office building, at Peter Hauck and Company's brewery, on Harrison Avenue, opposite Washington Street.

### **HARRISON.** **Eleva., 32.51 ft.**

A cross cut near the southeast corner of the base of the column standing at the right, or east side of the front entrance to the West Hudson Trust Company's building, on the north side of Harrison Avenue, just west of Kearny Avenue.

### **HARRISON.** **Eleva., 56.29 ft.**

A cross cut in the east end of the south abutment, on a shelf (2.0 feet below the footpath) upon which rests the south end of the east truss, of the bridge which carries Kearny Avenue over the Erie Railroad.

### **JERSEY CITY.** **Eleva., 94.93 ft.**

A cross cut in the south corner of the upper large square stone step at the main entrance (on Summit Avenue) of the Westminster Presbyterian Church, at the east corner of Summit and Magnolia Avenues.

**JERSEY CITY.**

Eleva., 99.65 ft.

A cross cut in the east end of the sandstone sill of the most westerly of two doors in the Newark Avenue front of the Hudson County Jail, opposite Oakland Avenue.

**JERSEY CITY.**

Eleva., 101.22 ft.

A cross cut in the south end of the doorsill (10 inches from the door jamb, 3.6 inches from the south side of the entrance and 1.3 feet from the outer edge of the sill) of the most easterly of three entrances from Newark Avenue to the Hudson County Courthouse, which stands on the west corner of Newark and Pavonia Avenues.

**JERSEY CITY.**

Eleva., 26.25 ft.

A cross cut in the north end of the east abutment, at the foot of the east end of the north truss of a small viaduct which carries a 30-inch water main over the tracks of the West Shore or Junction Railroad, just south of the bridge carrying Newark Avenue over the same railroad.

**JERSEY CITY.**

Eleva., 18.65 ft.

A cross cut in the north side of the stone base of the fifth, or last pilaster from Montgomery Street, on the Washington Street side of the Union Trust Company's building, which stands on the southwest corner of Montgomery and Washington Streets.

**JERSEY CITY.**

Eleva., 6.99 ft.

A cross cut in the top of the south wall of Morris Canal lock No. 22. The cross is 14.1 feet from the head, or drop gate, 20.4 feet from the stone steps leading to the street and 0.12 foot from the edge of the wall. This lock is at Washington Street.

**KEARNY.**

Eleva., 121.90 ft.

A cross cut in the first of two steps (0.7 foot from southwest corner of step, 15.5 feet from junction of the west wing wall with the northwest corner of the bridge, and 3.4 feet below the roadbed) in the west end of the north abutment of the bridge which carries Kearny Avenue over the Greenwood Lake Branch of the Erie Railroad, about 1,500 feet west from Arlington Station.

**KEARNY.**

Eleva., 111.11 ft.

A cross cut in the southeast corner of the large stone landing, five steps down from the door, of the entrance to the Town Hall. This cross is in the corner formed by the junction of the south stone balustrade with the building. The Town Hall stands on the east side of Kearny Avenue nearly opposite Grove Street.

**NEW DURHAM.**

Eleva., 7.91 ft.

A cross cut in the lowest of a series of steps (near the edge and close up to the bottom of the next step above) of the north abutment of the bridge which carries the Hackensack Turnpike over the West Shore Railroad at the station.

## HUNTERDON COUNTY.

**ANNANDALE.**

Eleva., 355.049 ft.

The bottom surface of a square cavity cut on a projecting stone, about the center of the north abutment of an overhead highway bridge, over the Central Railroad, about 1 mile east of the station. The mark is a little below the level of the railroad track in hard blue limestone. This is a bench mark of the U. S. Coast and Geodetic Survey.

**ANNANDALE.**

Eleva., 345.66 ft.

A cross on the east end of the stone doorsill at the west entrance of the Central Railroad station, on the side toward the tracks.



34 BENCH MARKS, NORTHERN NEW JERSEY.

**ANNANDALE.** Eleva., 342.99 ft.  
 A cross 3 inches diagonally from the southwest corner of a cement block, forming the top of a series of steps at the south end of the west abutment of a bridge carrying the Central Railroad over a highway about 800 feet west of the station.

**BLOOMSBURY.** Eleva., 326.180 ft.  
 The bottom of a square cavity cut in the top stone at the northwest corner of a railroad bridge over the wagon road, one fourth mile west of the Central Railroad station. This is a U. S. Coast and Geodetic Survey bench mark. It is marked thus: B    M  
188r.

**BYRAM.** Eleva., 101.45 ft.  
 A cross on the northeast corner of a concrete pier supporting a wooden bridge over the Pennsylvania Railroad, about 800 feet north of the station. The cross is about  $\frac{1}{2}$  feet above the level of the rails, and 8 feet west of the west rail.

**BYRAM.** Eleva., 97.77 ft.  
 A copper bolt on the north end of the wall of a railroad culvert, about 300 feet south of Byram station, on the west side of the track.

**BYRAM.** Eleva., 100.68 ft.  
 A cross on the northwest corner of a concrete block on which rests the northeast end of the north truss, at the northeast abutment of the bridge over the Delaware.

**CLINTON.** Eleva., 202.07 ft.  
 A cross on the northeast corner of the south wing wall, on the bluestone cap, of the highway bridge over South Branch of Raritan River, near the intersection of Lee and Center Streets.

**CLINTON.** Eleva., 195.95 ft.  
 A cross on the outer edge, at left of doorway, of the doorsill at the entrance to the Clinton National Bank.

**CLINTON.** Eleva., 194.37 ft.  
 A cross on the extreme north point of the center pier of the Main Street bridge, over South Branch of Raritan River, 200 feet south of the dam. The point is about 16 inches north of the iron railing, and about 6 inches below the level of bridge floor.

**EVERITTSTOWN.** Eleva., 391.49 ft.  
 A cross on the west end of the second step from top at the entrance to a frame school building, one-fourth mile east of village, on the road to Pittstown. The point is next to the riser.

**EVERITTSTOWN.** Eleva., 320.72 ft.  
 A cross on the outer corner at the west end of the south abutment of a wooden bridge, over the south branch of Nishasakawick Brook, about 100 feet east of the general store at the corner of the crossroads.

**EVERITTSTOWN.** Eleva., 337.53 ft.  
 On the bottom edge and corner of brownstone tablet, at the northeast corner of the Methodist Episcopal Church.

**FLEMINGTON.** Eleva., 187.45 ft.  
 This bench mark is a cross on the south end of the doorsill at the front entrance of the courthouse.

**FLEMINGTON.** Eleva., 186.29 ft.  
 This bench mark is on top of the brass head of the southern "true meridian" post in front of the courthouse.

**FLEMINGTON.****Eleva., 171.26 ft.**

This bench mark is a cross cut on the west end of the doorsill, at the southwest corner of the stone Presbyterian Church, at the forks of the street.

**FRENCHTOWN.****Eleva., 276.64 ft.**

A cross in the cover of the cement wall at the entrance, directly below the hinges of the door at the top edge of the reservoir of the Frenchtown Water Works, one-fourth mile northeast of village, on the road to Everittstown.

**FRENCHTOWN.****Eleva., 133.29 ft.**

A cross on the northeast corner of a large block in front of the National Hotel on Milford road, opposite Kingwood Avenue. The stone is 8½ feet from the porch of the hotel.

**FRENCHTOWN.****Eleva., 129.06 ft.**

A cross on the course of stones forming the seat of the truss, about 12 inches below the level of the floor, and at the bridge end of a long wing wall running northeast, at the northeast corner of the southeast abutment of a bridge over the brook on Kingwood road, 100 feet from Milford road, and opposite National Hotel.

**FRENCHTOWN.****Eleva., 129.90 ft.**

On the outer corner at the east end of a brownstone doorsill, at the right side of the entrance to the bank building on Bridge' Street. The point is immediately below the right brick door jamb.

**FRENCHTOWN.****Eleva., 120.27 ft.**

A cross on the east outer corner of the south end of the concrete coping on the Pennsylvania Railroad culvert, over Little Nichisakawick Creek, about 500 feet south of the railroad station.

**GLEN GARDNER.****Eleva., 450.31 ft.**

A cross on the concrete covering of a spring, 6 inches from the middle of the top edge of the opening, just north of the Central Railroad station.

**GLEN GARDNER.****Eleva., 451.76 ft.**

A cross on the northeast corner of the second step from the top at the north end of the west abutment of the Central Railroad bridge, over a highway, about 400 feet west of the station.

**GLEN GARDNER.****Eleva., 469.55 ft.**

A cross on the southeast corner of the sixth step from the top of the south end of the west abutment of the Central Railroad bridge, over a highway, about one-half mile west of the railroad station.

**HIGH BRIDGE.****Eleva., 320.56 ft.**

A cross on the outer corner at the north end of the bottom step of the retaining wall of the west abutment of the Central Railroad bridge over Railroad Avenue. It is on the north side of the tracks.

**HIGH BRIDGE.****Eleva., 377.21 ft.**

A cross on the outer edge of the north end of the concrete windowsill of a small west, rear window of the annex to the Reformed Church, at the corner of the Berkshire Valley road and Church Street.

**HIGH BRIDGE.****Eleva., 368.70 ft.**

A cross on the outer edge at the north end of the stone windowsill, near the marble corner stone on the west side of the Methodist Episcopal Church, at Church and Thomas Streets.

**HIGH BRIDGE.****Eleva., 371.13 ft.**

On the outer edge of the west end of a stone doorsill, at the north entrance to the High School, being the first entrance from Thomas Street on the north face of the building.

36 BENCH MARKS, NORTHERN NEW JERSEY.

**HAMPTON.**

**Eleva., 507.10 ft.**

A cross on an outcrop of rock about 90 feet east of the center of the railroad station, 7 feet south of the nearest rail of the eastbound track, and 15 feet west of signal No. 562.

**HAMPTON.**

**Eleva., 561.64 ft.**

A cross on the outer edge at the southeast end of the stone doorsill of the entrance to St. Ann's Church.

**HAMPTON.**

**Eleva., 583.71 ft.**

A cross on the outer edge at the north end of a concrete doorsill of the public school between Foss Avenue and High Street. The entrance is on High Street.

**HAMPTON.**

**Eleva., 467.66 ft.**

A cross on the southwest corner of the third stone from top at the northwest end of the north abutment of the Delaware, Lackawanna, and Western Railroad bridge, over a highway about one mile north of Hampton.

**KINGWOOD STATION.**

**Eleva., 110.40 ft.**

A cross at the inner angle of the northeast wing wall, about 2 feet below the level of and 8 feet east of the east rail, at the northeast end of the concrete wall of a Pennsylvania Railroad culvert at the station.

**KINGWOOD STATION.**

**Eleva., 108.18 ft.**

A cross on the wall, directly above the crown of the arch, and about 2 feet below, and 15 feet east of the east rail at a concrete arch culvert carrying the Pennsylvania Railroad over Warford Creek, about one-half mile south of the station.

**LAMBERTVILLE.**

**Eleva., 70.21 ft.**

A cross surrounded by a triangle on the northeast corner of a large corner stone on the north end of the west wall of lock on the canal feeder.

**LAMBERTVILLE.**

**Eleva., 72.87 ft.**

A cross cut on the south end of the doorsill of the center or ladies waiting-room door, on the east side of the railroad station.

**LAMBERTVILLE.**

**Eleva., 81.38 ft.**

A cross cut on the east end of the stone doorsill under the portico of the Baptist Church on Bridge Street.

**LAMBERTVILLE.**

**Eleva., 80.72 ft.**

A cross about 4 inches from the outer edge on the north end of the doorsill at the southerly entrance to the post office on North Union Street.

**LAMBERTVILLE.**

**Eleva., 79.29 ft.**

A cross on the outer corner at the west end of the doorsill, on the stone supporting the column bases, at the entrance to the Lambertville National Bank, corner of Union and Bridge Streets.

**LANSLOWNE.**

**Eleva., 171.78 ft.**

A cross on the girder seat, about 3.5 feet below the level of and 4 feet east of the rail, on the east end of the south concrete abutment of the Lehigh Valley Railroad bridge (Clinton Branch) over a branch of South Branch of Raritan River, about one-half mile north of the station.

**LANSLOWNE.**

**Eleva., 178.14 ft.**

A cross about 4 feet east of and about 4 feet below the east rail, and on the southerly corner of the stone supporting the north end of the east truss of a bridge over Cakepoulin Creek on the Clinton Branch of the Lehigh Valley Railroad, one-fourth mile north of the station.

**LANSDOWNE.**

Eleva., 196.64 ft.

A cross on the outer corner of the stone supporting the easterly end of the north truss, about 6 feet northeast of, and 6 feet lower than the north rail at the north end of the east abutment of the Lehigh Valley Railroad bridge over Cakepoulin Creek, 1,000 feet west of station.

**LEBANON.**

Eleva., 283.91 ft.

A cross on the northwest corner of the second step from the top of the northwest wing wall of the west abutment of a stone arch bridge, carrying the Central Railroad over a highway, about 500 feet east of the station.

**LEBANON.**

Eleva., 298.19 ft.

A cross cut in the outer edge at the east end of the stone doorsill of the boiler room of Cushtunk Mountain creamery. The entrance is on the side facing the railroad station, and is the most easterly entrance.

**LEBANON.**

Eleva., 301.30 ft.

A cross on the northwest corner of the third step from the top at the north end of the west abutment of a bridge carrying the Central Railroad over a highway, about 1,000 feet west of the station.

**MT. AIRY.**

Eleva., 137.35 ft.

A cross cut on the fourth stone step from the bottom of the south abutment of the bridge, over the highway, at the west side of the Flemington branch of the Pennsylvania Railroad.

**NEW GERMANTOWN.**

Eleva., 254.26 ft.

A cross about one-half foot below the doorsill and one-third foot out from the riser on the north end of a large concrete step at the entrance to the Methodist Episcopal Church on Main Street.

**NEW GERMANTOWN.**

Eleva., 205.80 ft.

A cross on the center of the west wall of a concrete culvert about 300 feet north of the street, leading from the railroad station to Main Street, near the cemetery.

**NEW GERMANTOWN.**

Eleva., 152.53 ft.

A cross on a stone about 3 feet below and 5 feet south of the south rail of the Rockaway Valley Railroad, on the southeast corner at the south end of the west abutment at the railroad bridge, about three-fourths mile north-east of station and one-fourth mile east of the crossing of a highway.

**PITTSTOWN.**

Eleva., 375.04 ft.

A cross on the highway bridge over the brook 150 feet west of the Lehigh Valley Railroad station. The cross is on the north end of the east abutment, and at the northwest corner, about 1 foot above the seat of the girder.

**PITTSTOWN.**

Eleva., 366.11 ft.

A cross on the outer edge at the east end of the doorsill at the central entrance to the New Century Inn on Clinton road, about 100 feet east of a stream.

**PITTSTOWN.**

Eleva., 360.34 ft.

A cross on a brown stone below the flagstone cap, 1 foot below the level of the bridge floor, and 26 feet northwest of the northwest edge of the bridge; on the westerly corner at the northwest end of northwest wing wall of north-east abutment of a highway bridge on Clinton road, about 500 feet north-east of Everittstown road.

**POTTERSVILLE.**

(See Somerset County.)

**RAVEN ROCK.**

Eleva., 85.55 ft.

A cross on a rounded corner of a stone holding the northeast gate of lock at canal feeder, about 200 feet westerly from the railroad station. The cross is about 5 feet south of the south edge of the bridge.

## 38 BENCH MARKS, NORTHERN NEW JERSEY.

### **RAVEN ROCK.**

**Eleva., 89.24 ft.**

A cross on the northwest corner of the west concrete cap of an arch bridge, about 100 feet southeast of the station of the Pennsylvania Railroad.

### **SIDNEY.**

**Eleva., 216.31 ft.**

A cross about 1 foot below the level of bridge floor on northwest corner at the west end of the south abutment of a highway bridge at the railroad station.

### **SIDNEY.**

**Eleva., 229.74 ft.**

A cross 18 inches below the level of floor at the northwest corner of the west stone abutment of the highway bridge, about one-fourth mile west of the railroad station.

### **STOCKTON.**

**Eleva., 75.18 ft.**

A cross about 3.5 feet north of the north truss, at the north end of the east abutment of a small bridge, over the canal lock, about 1,200 feet north of the railroad station.

### **STOCKTON.**

**Eleva., 88.82 ft.**

A cross on the outer edge at the north end of the second step from the bottom, leading up to the Stockton Baptist Church.

### **STOCKTON.**

**Eleva., 77.27 ft.**

On the east end of the sill of the second window from the west end of building, in the south face of the basement of the Presbyterian Church.

### **STOCKTON.**

**Eleva., 78.51 ft.**

This is railroad B. M. No. 10, a bolt in the stone at the southwest end of the north abutment of the bridge which carries the Pennsylvania Railroad over the canal feeder, about five-eighths of a mile south of the railroad station.

### **TUMBLE FALLS.**

**Eleva., 102.13 ft.**

A cross on the northeast corner at the east end of the southeast wing wall of a concrete bridge, a few feet south of the railroad station.

### **WHITEHOUSE.**

**Eleva., 172.24 ft.**

A copper bolt in a stone at the north end of the east abutment of the Central Railroad bridge, over a private way about 500 feet east of the station.

### **WHITEHOUSE.**

**Eleva., 178.19 ft.**

A cross on the outer edge at the west end of the stone doorsill at the easterly entrance to the railroad station.

### **WHITEHOUSE.**

**Eleva., 168.16 ft.**

A cross cut on the outer edge at the east end of the stone doorsill at the main entrance to the Reformed Church.

### **WHITEHOUSE.**

**Eleva., 219.41 ft.**

A copper bolt in the concrete foundation of a signal for westbound trains, about  $1\frac{3}{4}$  miles west of the railroad station.

## MERCER COUNTY.

### **GLENMORE.**

**Eleva., 199.93 ft.**

A cross about 2 feet below the level of and 25 feet east of east rail, near the base of a post of iron-pipe railing, at the east end of the north concrete abutment of a bridge over highway and trolley, on the Reading Railroad at Glenmore station. The cross is at the corner of the wall, where it turns at a right angle from the road.

### **GLENMORE.**

**Eleva., 186.89 ft.**

A cross about 6 feet below the level of and 15 feet east of the east rail on the east edge of the capstone of a stone arch at the easterly side of the tracks of the Reading Railroad, about three-fourths miles south of the station.

**HOPEWELL.**

Eleva., 201.75 ft.

A cross on the outer edge at the northerly end of a brownstone doorsill, directly below the letter "H" in Hopewell, at the entrance to the alcove of the Hopewell National Bank.

**HOPEWELL.**

Eleva., 196.63 ft.

A point on the outer edge at the southerly end of a brownstone doorsill, directly below the letter "H" in Hopewell, at the entrance to the alcove of the Hopewell National Bank.

**HOPEWELL.**

Eleva., 194.31 ft.

A cross on the southerly end of the bluestone doorsill, under the porch, at the entrance to Calvary Baptist Church.

**HOPEWELL.**

Eleva., 194.40 ft.

A cross on the outer edge at the northeasterly end of the brownstone doorsill at the southwesterly rear entrance to the Hopewell High School.

**KINGSTON.**

(See Middlesex County.)

**MILLSTONE AQUEDUCT.**

Eleva., 58.94 ft.

A triangle cut in the center of the memorial plate at the top of the south end of the west abutment of the aqueduct carrying the Delaware and Raritan Canal over Millstone River, 2 miles south of Kingston.

**PENNINGTON.**

Eleva., 180.38 ft.

A cross on the northwest corner of the lowest stone step at the west end of the south abutment of the Reading Railroad bridge, over a highway, about  $1\frac{1}{4}$  miles north of the railroad station.

**PENNINGTON.**

Eleva., 197.56 ft.

A cross on the south end of the stone doorsill at the entrance to the ladies' waiting room in the west face of the Reading Railroad station.

**PENNINGTON.**

Eleva., 214.35 ft.

A cross on the south end of the doorsill at the Main Street entrance to the First National Bank on the northeast corner of Delaware Avenue.

**PENNINGTON.**

Eleva., 207.29 ft.

A cross on the outer corner at the north end of the bluestone doorsill at the entrance to the basement of the administration building of Pennington Seminary. The entrance is on the left side and is immediately under the porch steps of the upper entrance.

**PENNINGTON.**

Eleva., 125.87 ft.

A cross at the outermost corner of a large capstone, about 3 feet north of truss, and about  $9\frac{1}{2}$  inches lower than the bridge floor, on the north end of the west abutment of the bridge, carrying the highways over Jacob's Creek, about  $2\frac{1}{2}$  miles west of Pennington, on the road to Titusville.

**PRINCETON.**

Eleva., 208.51 ft.

At the center of a triangle cut on the north end of the doorsill at the west entrance to the Hall of Science.

**PRINCETON.**

Eleva., 203.70 ft.

A cross on the highest stone step, 1.6 feet out from the hinge of east iron door at main northerly entrance to Palmer Physical Laboratory. The cross is at the left side as you enter.

**PRINCETON.**

Eleva., 167.79 ft.

A cross on the east end of the stone doorsill of the west entrance on the northerly side of the Geological Laboratory. The cross is immediately at the beveled portion of base stone of archway.

**PRINCETON.**

Eleva., 194.31 ft.

A cross on the east end of the granite doorsill at the tower entrance to the Methodist Episcopal Church. The cross is  $5\frac{1}{2}$  inches out from the door jamb, and 2 inches east.

40 BENCH MARKS, NORTHERN NEW JERSEY.

**STOUTSBURG.**

(See Somerset County.)

**TITUSVILLE.**

**Eleva., 63.23 ft.**

A cross cut on the east end of the stone doorsill at the front entrance of brick Presbyterian Church.

**TITUSVILLE.**

**Eleva., 58.68 ft.**

A cross on the southwest corner of a stone on the west end of the north abutment of a bridge in the rear of the Presbyterian Church, carrying the Pennsylvania Railroad over a dry water course.

**TRENTON.**

**Eleva., 52.61 ft.**

A triangle cut in the northeast corner of the most northerly coping stone of the west lock wall of the prison lock of the Delaware and Raritan Canal.

**TRENTON.**

**Eleva., 54.25 ft.**

On the broad water table, 3.2 feet above the pavement, in the re-entrant angle of stone moulding, 1.1 feet south from produced line of the south jamb of the most southerly window on the west side of the United States Government building, at the northeast corner of Montgomery and State Streets. The point is indicated by an arrow head.

**TRENTON.**

**Eleva., 60.40 ft.**

A cross about 2.2 feet out from doors on the outer corner at the east end of bluestone doorsill at the northerly entrance to the Armory near the City Hall.

**TRENTON.**

**Eleva., 61.49 ft.**

A cross on the outer corner of a large stone at the west end of steps, and about 5 feet out from the iron gate at the State Street entrance to the City Hall.

**TRENTON.**

**Eleva., 50.34 ft.**

A cross 0.9 foot from the west end of the step, and 0.7 foot in from outside edge, about 4 inches from the base of the westernmost column, near the west end of the second step from the bottom of the corner entrance to the Mechanics National Bank building at the southwest corner of Warren and State Streets.

**TRENTON.**

**Eleva., 51.18 ft.**

A point 0.5 foot diagonally in from the southeast corner of the base of the easternmost granite column at the main entrance to the State House.

**WASHINGTON'S CROSSING.**

**Eleva., 49.12 ft.**

A cross on the stone seat at the east end of north truss on the east abutment of the first span of the iron highway bridge over Delaware River.

**WASHINGTON'S CROSSING.**

**Eleva., 58.13 ft.**

A cross on the concrete, 5.7 feet west of the iron screw stem of the sluice gate, and 6 inches in from the edge of the concrete on the canal feeder, at the east side of the Pennsylvania Railroad tracks, and about 90 feet south of the railroad station.

MIDDLESEX COUNTY.

**COLONIA.**

**Eleva., 38.26 ft.**

A cross cut on the north end of the upper concrete step near side of the north entrance to shelter at the north side of Pennsylvania Railroad, opposite the station.

**DUNELLEN.**

**Eleva., 59.32 ft.**

A cross on the outer edge at the north end, next to the face of the wall, of stone doorsill of entrance to First National Bank. The entrance is on North Avenue, and is the second door from the south end of the building.

**DUNELLEN.**

Eleva., 57.34 ft.

A cross cut on the easterly cement pier of the steel tower carrying the fire bell and flag pole at the corner of North and Prospect Avenues. It is the furthest pier from North Avenue, and the cross is near the steel frame imbedded in the concrete.

**ISELIN.**

Eleva., 58.91 ft.

A cross cut on the east end near the outer edge of the doorsill at entrance to the waiting room at the middle of the station.

**ISELIN.**

Eleva., 25.29 ft.

A cross cut in stone at the foot of the north end of the west truss on the north abutment of a bridge carrying the highway over the south branch about  $1\frac{1}{4}$  miles south of the railroad station.

**ISELIN.**

Eleva., 38.49 ft.

On northwest corner of the coping of the north wall of an arch bridge carrying the Pennsylvania Railroad over a small stream midway between Iselin and Colonia stations.

**KINGSTON.**

Eleva., 57.71 ft.

A triangle cut on the east edge of the west wall of the Delaware and Raritan Canal lock about 120 feet from the south end of the lock.

**KINGSTON.**

Eleva., 57.53 ft.

A cross on the east end of the concrete dam of Carnegie Lake. The cross is near the junction of the horizontal portion of the wall with the sloping east wing wall. It is about 8 inches from the edge of the horizontal wall.

**KINGSTON.**

Eleva., 56.33 ft.

A cross on the southwest corner of a stone at the center of the north wall, or stone highway bridge, near the canal lock. It is on the corner, nearest the road, of a stone of a lighter color than the others.

**MENLO PARK.**

Eleva., 118.16 ft.

A cross cut on the southeast corner of the south wing wall of the west abutment of the bridge, carrying Middlesex Avenue over the Port Reading Railroad between Metuchen and Menlo Park.

**MENLO PARK.**

Eleva., 119.52 ft.

A cross cut in the top of a milestone, "16 miles to Newark," standing at the northwest side of Middlesex Avenue 200 feet northeast of the bridge over the Port Reading Railroad.

**MENLO PARK.**

Eleva., 74.54 ft.

A cross cut at the northwest corner of the north wing wall of a bridge carrying the Pennsylvania Railroad over a highway just southwest of the station.

**MENLO PARK.**

Eleva., 53.55 ft.

A cross cut on the southeast corner of the south wing wall of an arch bridge carrying the Pennsylvania Railroad over a highway one-eighth mile northeast of station.

**METUCHEN.**

Eleva., 81.12 ft.

A cross cut in the southwest corner of the lowest step at the south end of the east abutment of the bridge carrying the Pennsylvania Railroad over the Lehigh Valley Railroad.

**METUCHEN.**

Eleva., 81.21 ft.

A cross cut on the lowest step of the north abutment of bridge carrying Lehigh Valley Railroad switch over Middlesex Avenue. It is a large cross and is marked B. M.



42 BENCH MARKS, NORTHERN NEW JERSEY.

**METUCHEN.**

Eleva., 100.59 ft.

A cross cut in the south end of the sill of the entrance to the Metuchen National Bank at the east side of Main Street.

**METUCHEN.**

Eleva., 90.34 ft.

A cross cut in the stone base of the fluted pilaster, west side of the front or Middlesex Avenue entrance to the high school.

**MONMOUTH JUNCTION.**

Eleva., 87.39 ft.

A cross in the coping stone over the center of the arch of a stone culvert, on the east side of the main line of the Pennsylvania Railroad, 170 yards north of the station.

**MONMOUTH JUNCTION.**

Eleva., 90.94 ft.

A cross on the south end of the doorsill of the north entrance to the Pennsylvania Railroad station at the east side of the tracks. The door is on the westerly side of the building.

**MONMOUTH JUNCTION.**

Eleva., 82.31 ft.

A cross cut on the southeast corner of the south end of the capstone holding the iron railing at the east side of a small highway culvert over a brook which crosses the Pennsylvania Railroad, 170 yards north of the station. The bridge is about 500 feet west of the tracks and near the Rocky Hill branch.

**MONMOUTH JUNCTION.**

Eleva., 95.63 ft.

A cross on the southwest corner of the stone cap at the south end of the westerly bridge pier which supports two iron columns for the highway bridge over the Pennsylvania Railroad, about 1,000 feet north of station.

**NEW BRUNSWICK.**

Eleva., 70.951 ft.

Elevation of underground mark, 65.709 ft.

This granite monument is on Rutgers College campus, a distance of 35 feet measured on a perpendicular line from the face of the front wall of Queens College, the perpendicular being erected from the middle of the front entrance, which is in the middle of the south side of the building.

**NEW BRUNSWICK.**

Eleva., 51.21 ft.

A cross on the northwest corner of the lowest stone step of the north wing wall of the east abutment of the Pennsylvania Railroad bridge over George Street.

**NEW BRUNSWICK.**

Eleva., 72.28 ft.

A cross on the outer edge at the east end of the sill at the easterly entrance to Rutgers College chapel. The point is on the right as you enter, and is back under the porch.

**NEW BRUNSWICK.**

Eleva., 17.62 ft.

A cross cut on a large coping stone at the south end of the lock chamber and on the east wall of the second, or "deep" lock of the Delaware and Raritan Canal.

**NEW MARKET.**

Eleva., 55.35 ft.

A cross cut on the north corner of the west end of the center pier of a highway bridge about 500 yards above the New Market dam. The bridge is known as the Washington Avenue bridge, and the cross is on a flagstone supporting the iron post of the bridge.

**NEW MARKET.**

Eleva., 54.36 ft.

A cross cut on the east abutment on the southeast corner of the stone on which rests the east end of the southern girder of the Lehigh Valley Railroad bridge over a small stream, about three-quarters of a mile east of New Market.

**NEW MARKET.**

Eleva., 48.39 ft.

A cross cut on the easterly corner of the top stone of the south end of the west abutment of a small Lehigh Valley Railroad bridge, about three-quarters of a mile west of New Market station.

**PERTH AMBOY.**

Eleva., 60.841 ft.

Elevation of underground mark 56.096 feet.

This monument is a granite post with rounded top located in a triangular grass plot in the public park, on the center line of High Street, 97.75 feet southwesterly from its intersection with the center line of Market Street. Said intersection is marked by a sunken monument from which the city surveys start.

**PERTH AMBOY.**

Eleva., 57.60 ft.

This bench mark is on the east end of the stone doorsill of the Market Street entrance of the City Hall.

**PERTH AMBOY.**

Eleva., 60.09 ft.

A cross on the north end of the stone doorsill at the westerly entrance of the First Presbyterian Church. The entrance is on High Street, at the rear of the building. The cross is about 7 inches out from the wooden door jamb and near the edge of the stone wall.

**PERTH AMBOY.**

Eleva., 57.02 ft.

A cross next to the brick wall on the south end of the window sill of the basement window, at the north end of the Perth Amboy High School. The window faces on State Street and is the second south from the north face of the building.

**PERTH AMBOY.**

Eleva., 46.21 ft.

A cross on the outer edge of the north end of the stone doorsill at the Maple Street entrance to the post office, which stands about 200 feet north-east of Smith Street.

**PERTH AMBOY.**

Eleva., 29.45 ft.

A cross cut on a slight shelf on the sixth stone from the north end of the second tier above the surface of the ground, of the eastern abutment of the bridge which carries the New York and Long Branch Railroad over the Pennsylvania Railroad, about 1½ miles north of Perth Amboy.

**SAMPTOWN.**

Eleva., 55.84 ft.

A cross on the northwest corner of the north abutment of a small steel bridge, over the brook about 200 feet north of the Lehigh Valley Railroad on or near Clinton Avenue.

**SOUTH PLAINFIELD.**

Eleva., 64.34 ft.

A cross cut in stone on the northwest corner of the east abutment of the Lehigh Valley Railroad bridge, about 250 feet east of the station.

**SOUTH PLAINFIELD.**

Eleva., 64.67 ft.

A cross cut on the northeast corner of the south abutment of a highway bridge over a stream opposite the station.

**SOUTH PLAINFIELD.**

Eleva., 70.78 ft.

A cross cut on the south end of the cement doorsill of the second entrance on Plainfield Avenue from the railroad to Spicer Manufacturing Co. plant. The building is on the easterly side of the road.

**SOUTH PLAINFIELD.**

Eleva., 63.95 ft.

A cross cut on the south end of the southeast abutment of a highway bridge over a small stream, about one-quarter of a mile southeast from the South Plainfield Railroad station.

**WOODBIDGE.**

Eleva., 22.97 ft.

A cross cut on the water table on the northeast corner of the Methodist Church, over the cornerstone bearing the date 1870.

## 44 BENCH MARKS, NORTHERN NEW JERSEY.

### WOODBIDGE.

Eleva., 19.35 ft.

A cross on the outer edge at the east end of the stone doorsill at Main Street entrance to the First National Bank on the northwest corner of Main and Pearl Streets.

### MORRIS COUNTY.

#### BLOOMINGDALE.

Eleva., 256.21 ft.

A cross on the south end of the east abutment of a steel highway bridge over Pequannock River near Bloomingdale station of the New York, Susquehanna, and Western Railroad. The cross is on a projection westward from the seat of truss near the angle formed by the wing wall and the abutment 3.6 feet below the level of the bridge floor, and about one foot south of the truss.

#### BOONTON.

Eleva., 494.15 ft.

A cross cut on the east end of the north concrete parapet, under iron fence one foot west of west end of wing wall of Pond bridge, which carries Main Street over Rockaway River above the falls.

#### BOONTON.

Eleva., 412.94 ft.

A cross cut in the east corner of the coping stone, level with the railroad, at the north corner of the Delaware, Lackawanna, and Western Railroad bridge over Rockaway River.

#### BOONTON.

Eleva., 485.73 ft.

A cross on the southwest corner of the third stone of the shaft foundation of the soldiers' monument on Main Street. The point is at the top of the curved edge and 2 inches below the base of the shaft.

#### BOONTON.

Eleva., 494.77 ft.

A cross cut in the east end of the granite sill of the east door of the Maxfield Engine House, 713 Main Street.

#### BUTLER.

Eleva., 315.22 ft.

A cross on the center of the north end of the concrete pier of the New York, Susquehanna, and Western Railroad bridge over Stone House Brook, near the station. The cross is 9.8 feet north of the north rail, and 4.3 feet lower.

#### BUTLER.

Eleva., 333.30 ft.

A cross on the south end at the outer edge of the doorsill at the entrance to the First National Bank on Boonton Avenue.

#### BUTLER.

Eleva., 342.40 ft.

A cross on the outer edge at the north end of the east abutment of the New York, Susquehanna, and Western Railroad bridge over Pequannock River about 1,000 feet west of the station. The cross is at the angle, formed by a bevel in the seat for the east end of the truss, 5.7 feet lower than the rail.

#### CHATHAM.

Eleva., 242.84 ft.

A cross cut in the sixth coping stone from the north end, in the center of the east parapet of the Delaware, Lackawanna, and Western Railroad bridge over Passaic River. This coping stone is 6 feet long by 3 feet wide. The cross is 26.1 feet from the north end and 45.6 feet from the south end of the east parapet.

#### CHATHAM.

Eleva., 234.16 ft.

A cross cut in the west end of the sill (2 inches from the edge, 3½ inches from the brick wall and 10 inches from the door saddle) at the entrance to the Mayor's Office and Library at the west end of the Town Hall, which stands on the north side of Fairmount Avenue between the Delaware, Lackawanna, and Western Railroad and Main Street.

**CHATHAM.**

Eleva., 261.97 ft.

A cross cut in the stone parapet on the east side of the steps leading to the front entrance of the public-school building, which stands on the north side of Fairmount Avenue just west of the Delaware, Lackawanna, and Western Railroad. The parapet measures 4 feet by 2.7 feet; the cross is 0.7 foot from the side of the building, 3.3 feet from the end of the parapet and 2 feet from the pilaster just east of the entrance.

**CHATHAM.**

Eleva., 209.29 ft.

A cross cut in the north post of the west wall of an arch bridge which carries Main Street over a small stream at the junction of Main and Lafayette Streets.

**DENVILLE.**

Eleva., 503.42 ft.

A cross in the granite corner stone, at the west end of the south abutment of the iron bridge which carries a road over Rockaway River. The bridge is 2 miles northeast of Denville Station and 300 feet south of the junction of the Rockaway Valley road with the Rockaway-Boonton (Cook's) road.

**DENVILLE.**

Eleva., 512.86 ft.

A cross cut in the northeast corner of the stone on the top of the south wall of Morris Canal Lock, No. 8, right at the end of the gate, when open.

**DENVILLE.**

Eleva., 505.75 ft.

A cross cut in the south end of the granite coping of the west abutment of the two-span iron bridge which carries the Denville-Piers Lock road over the Rockaway River. This bridge is about a mile north of Denville station.

**DENVILLE.**

Eleva., 508.77 ft.

This bench mark is on the north abutment of the bridge of the Rockaway branch of the Delaware, Lackawanna, and Western Railroad which crosses Den Brook, half a mile north of Denville station. This point is on the outside corner of the third step from the top of the east end of the abutment.

**DENVILLE.**

Eleva., 515.40 ft.

A cross cut in the bluestone sill of the basement window in the front or west of the building in the ell to the north of the main entrance to the public school.

**DOVER.**

Eleva., 558.64 ft.

A cross in the surface (15 inches south of the northwest corner) of the west concrete sidewalk of the bridge carrying Mercer Street over Rockaway River. This cross is 3 inches east of the west parapet of the bridge.

**DOVER.**

Eleva., 572.99 ft.

A cross cut in the water table at the southeast corner of George Richard's brick building at the northwest corner of Blackwell and Sussex Streets.

**DOVER.**

Eleva., 582.08 ft.

A cross cut in the top and in the northeast corner of the bluestone forming the west side of the bottom step of the main front entrance to the Memorial Presbyterian Church. This mark is close to the base of the chimes tower.

**DOVER.**

Eleva., 571.09 ft.

A cross cut in the top of the granite stone at the top of the wing wall at the northwest corner of the bridge which carries Sussex Street over Rockaway River.

**DOVER.**

Eleva., 574.02 ft.

A cross cut in the southeast corner of the brownstone sill of the east entrance to the High School which stands on the corner of McFarland and Sussex Streets.

## 46 BENCH MARKS, NORTHERN NEW JERSEY.

### DOVER.

Eleva., 537.81 ft.

A cross cut in the outside corner on top of the granite stone forming the north end of the west bridge seat of the girder bridge which carries the Hibernia Mine Railroad over Rockaway River.

### GILLETTE.

Eleva., 215.23 ft.

A cross on the east end of the north wall of the small pipe culvert under the railroad, about 300 yards west of the station.

### LAKE HOPATCONG.

Eleva., 925.68 ft.

A cross cut in the northeast corner of the north end of the west wall of the raceway of the Morris Canal lock at the outlet of the lake. This is also a canal bench mark.

### LAKE HOPATCONG.

Eleva., 908.20 ft.

A cross cut in the top and in the southwest corner of the second step from the top of the west end of the north abutment of the bridge which carries the Delaware, Lackawanna, and Western Railroad (cut off) over the Landing and Port Morris road.

### LAKE JUNCTION.

Eleva., 682.49 ft.

A cross cut in the southeast corner of a large granite stone under the concrete cap of the bridge seat at the south end of the west abutment of the bridge which carries the Delaware, Lackawanna, and Western Railroad over Rockaway River,  $1\frac{1}{2}$  miles west of Wharton station.

### LAKE JUNCTION.

Eleva., 711.98 ft.

A cross cut in the top and in the southwest corner of the south concrete parapet of the four-track bridge which carries the Delaware, Lackawanna, and Western Railroad over the Lake Hopatcong Branch of the Central Railroad of New Jersey,  $1\frac{3}{4}$  miles west of Wharton station.

### LANDING.

Eleva., 933.50 ft.

A cross cut in the northeast corner of the bluestone sill of the front entrance of the block-house office building of W. E. King, on the south side of the Landing road.

### LANDING.

Eleva., 936.55 ft.

A cross in the west end of the south concrete parapet of the concrete bridge, which carries the highway over the Delaware, Lackawanna, and Western Railroad and Morris Canal, about 100 feet west of Hopatcong station. The bench mark is above the west springing line of the arch and 13.5 feet higher and at the east end of the concrete guard.

### LANDING.

Eleva., 939.67 ft.

A cross cut in the southwest corner of the concrete sill of the west main entrance to the Lake Hopatcong station of the Delaware, Lackawanna, and Western Railroad, on the west side of tracks. The bench mark is 1 foot above the road level.

### LINCOLN PARK.

Eleva., 182.48 ft.

A cross cut in the southwest corner of the stone forming the upper step at the east end of the north wall of Morris Canal lock No. 12, east.

### LINCOLN PARK.

Eleva., 184.13 ft.

A cross cut in the south end of the bluestone doorsill of the entrance to the public-school house on the back river road to Two Bridges.

### LINCOLN PARK.

Eleva., 178.00 ft.

A cross cut in the south concrete platform of the Delaware, Lackawanna, and Western Railroad station. The point is in close to the building at the middle of the south side below the window.

### LINCOLN PARK.

Eleva., 179.17 ft.

A cross cut in the north side of the foundation (directly over the "9" in "1906") of the water tower, 900 feet west of the Delaware, Lackawanna, and Western Railroad station.

- MADISON.** Eleva., 197.56 ft.  
A cross cut in the south end of the sill of the most southerly of the windows in the west side of the Madison Water Works pumping station.
- MADISON.** Eleva., 205.34 ft.  
A cross cut in the west end of the coping of the south parapet of the culvert which carries Main Street over Spring Garden Brook just east of the junction of Main Street and Rosedale Avenue.
- MADISON.** Eleva., 227.56 ft.  
A cross cut in the east end of the sill (near the middle pilaster) of the most westerly window in the front of the brick office and apartment building of Green and Pierson, which stands on the south side of Main Street between Prospect Street and Waverly Place. This point is on the sill of the window to the left of the front entrance to the apartment at the west end of the building.
- MADISON.** Eleva., 243.77 ft.  
A cross cut in the southwest corner of the bluestone platform of the approach to the front entrance to the banking department of the Madison Trust Company's building, which stands on the southwest corner of Main Street and Waverly Place. The point is near the wall and south of the base of the column against the wall at the left of the entrance.
- MADISON.** Eleva., 252.06 ft.  
A cross cut in the east end of the doorsill of the Main Street entrance to the Young Men's Christian Association, on the corner of Main Street and Park Avenue.
- MILLINGTON.** Eleva., 277.19 ft.  
A cross on the west end of the north abutment of a railroad bridge over Passaic River, west of the station. The cross is on the southwest corner of the second stone from the top about 8 feet west of the west rail, and 1 foot lower.
- MILLINGTON.** Eleva., 279.89 ft.  
A cross on the outer edge at the south end of the doorsill of the north entrance to the railroad station at the west face of building.
- MILLINGTON.** Eleva., 271.36 ft.  
Northeast corner of the water table of Harrow factory, west of the railroad, opposite the station. The point is level with the window sills in the lower part of the building.
- MONTVILLE.** Eleva., 239.57 ft.  
A cross cut in the summit of a very large rounded boulder imbedded in the towpath at the edge of the Morris Canal, 200 yards east of the lower plane.
- MONTVILLE.** Eleva., 387.87 ft.  
A cross cut in a projecting stone on the top of the wall at the south side of the square well into which the water falls, at the top of the upper plane of the Morris Canal.
- MONTVILLE.** Eleva., 311.55 ft.  
A cross cut in the south end of the bluestone doorsill of the main entrance to the Town Hall.
- MONTVILLE.** Eleva., 316.52 ft.  
A cross cut in the northeast corner of the concrete doorsill of the main front entrance to the public school.
- MORRISTOWN.** Eleva., 403.56 ft.  
A cross cut in the east end of the sill, close by the west side, of the most easterly of two wooden pillars at the entrance of the Morris County Court-house.

## 48 BENCH MARKS, NORTHERN NEW JERSEY.

### MORRISTOWN.

Eleva., 377.66 ft.

This bench mark is on the flat surface, directly under the carved stone cannon, at the west corner of the base of the soldiers' monument in the city park.

### MORRISTOWN.

Eleva., 369.72 ft.

A cross cut in the southwest corner of the middle granite step (6 inches below the water table), of the Methodist Episcopal Church, on Park Place.

### MORRISTOWN.

Eleva., 366.95 ft.

A cross cut in the south end of the bluestone doorsill of the southerly entrance from Speedwell Avenue to the Police Headquarters building, on the corner of Speedwell Avenue and Water Street.

### MORRISTOWN.

Eleva., 373.83 ft.

A cross cut in the southeast end of the granite step (at the level of the granite doorsill and 6 inches above the sidewalk) of the First National Bank building on Park Place. The point is at the base of the ornamental stone door jamb of iron grill.

### MOUNT TABOR.

Eleva., 502.06 ft.

A cross cut in the northwest corner of the coping of the wall over the north end of a culvert, under the Morris and Essex Railroad, for carrying off the overflow of a pond, 1 mile east of Mount Tabor.

### MT. ARLINGTON.

Eleva., 782.84 ft.

A cross cut in the southeast corner of the south concrete parapet of the bridge which carries the Delaware, Lackawanna, and Western Railroad over the Kenville-Mt. Arlington road. The bridge is 600 feet west of the station.

### NETCONG.

Eleva., 874.13 ft.

A cross cut in the northeast corner of the bluestone sill of the entrance at the east end of Stanhope-Netcong station of the Delaware, Lackawanna, and Western Railroad.

### NEW FOUNDLAND.

Eleva., 764.41 ft.

A cross at the outer edge of the west end of the bluestone window sill of the Standard Oil Co. pumping station. The building is about 100 feet south of the New York, Susquehanna, and Western Railroad tracks, and about 1,000 feet east of the station. The cross is 3.5 feet above the ground, and 4 feet from the northwest corner of the building on the north face.

### NEW FOUNDLAND.

Eleva., 778.58 ft.

A cross on the concrete base of the southwest column supporting the water tower at the station. The cross is 1.4 feet above the ground on the southeast corner of the base. It is 14.7 feet north of the north rail of the railroad.

### NEW FOUNDLAND.

Eleva., 784.38 ft.

A cross on the middle of the south wall of a reinforced-concrete highway bridge over Pequannock River, about 1 mile west of village. The cross is on the coping at or near the crown of the arch, 1.8 feet north of the center post of the iron pipe rail, and 0.3 foot in from the outer edge of the coping.

### PEQUANNOCK.

Eleva., 181.05 ft.

Top of the rail of the New York and Greenwood Lake Railway at the highway crossing near the station.

(See also Wayne, Passaic County.)

### POMPTON PLAINS.

Eleva., 195.53 ft.

A cross near the outer edge at the south end of the doorsill at the entrance to the First Reformed Church.

### POMPTON.

(See Passaic County.)

**PORT MORRIS.**

Eleva., 892.66 ft.

A cross cut in west end of bluestone sill of the basement window on the north side of the tower of the Methodist Episcopal Church.

**PORT MORRIS.**

Eleva., 890.18 ft.

A cross cut in the south end of the bluestone sill of the south basement window on the east side of the public schoolhouse.

**POWERTVILLE.**

Eleva., 494.31 ft.

A cross cut in the west end of the bluestone doorsill of the north entrance to the concrete engine-house, of Field, White, & Company's paper mills.

**POWERTVILLE.**

Eleva., 495.53 ft.

A cross cut in the south end (at the end of two trusses) of the bluestone top of the center pier supporting the two spans of the highway bridge over the Rockaway River, at the paper mills.

**ROCKAWAY.**

Eleva., 523.18 ft.

This bench mark is on the northeast corner of the flange of the cast-iron footplate at the northeast corner of the iron bridge over the Morris Canal, at the foot of the plane.

**ROCKAWAY.**

Eleva., 527.50 ft.

A cross cut in the outside corner of the north end of the west abutment of the Main Street bridge over the Rockaway River.

**ROCKAWAY.**

Eleva., 533.63 ft.

A cross cut in the east end of a bluestone doorsill of the easterly Main-street entrance to the municipal building.

**ROCKAWAY.**

Eleva., 563.87 ft.

This bench mark is a point taken on the northeast corner of the flat portion of the top of the bluestone sill of the east front window of Strait's store, on Main Street. The bench mark is indicated by an arrow cut in the flagging about 4 inches below the point.

**SHIPPENPORT.**

Eleva., 873.54 ft.

The bottom of a square hole cut in the west end of the bridge seat of the south concrete abutment of the four track Delaware, Lackawanna, and Western Railroad bridge over Morris Canal.

**SHIPPENPORT.**

Eleva., 874.78 ft.

A cross cut in the southeast corner of the wrought iron bedplate, of the south end of the east girder of the four track Delaware, Lackawanna, and Western Railroad bridge over the highway.

**SHIPPENPORT.**

Eleva., 864.57 ft.

A cross cut in the southeast corner of the east coping stone of the north wing wall of the overflow on the east side of the Morris Canal, a short distance north of the Delaware, Lackawanna, and Western Railroad.

**STIRLING.**

Eleva., 224.88 ft.

A cross on the outer edge at the north end of the windowsill, first south of the office door of the silk factory of Schwarzenbach, Huber Co. The entrance faces the railroad, and is about 800 feet north of the station. The cross is 5.5 feet above the ground.

**STIRLING.**

Eleva., 259.73 ft.

A cross on the outer edge at the west end of the sill of a basement window at northern face of public school. The cross is about one foot above the ground, and 6 feet east of the west face of the building.

**TOWACO.**

Eleva., 226.56 ft.

A cross cut in the west end of the doorsill of the entrance near the west end and on the south side of the Delaware, Lackawanna, and Western Railroad station.



## 50 BENCH MARKS, NORTHERN NEW JERSEY.

### TOWACO.

Eleva., 243.39 ft.

A cross cut in the top of a brownstone block which forms the northeast corner of the foundation of the Methodist Episcopal Church, which stands near the tracks and about 1,000 feet east of the Delaware, Lackawanna, and Western Railroad station.

### TOWACO.

Eleva., 224.11 ft.

A cross cut in the west abutment of the bridge which carries the Delaware, Lackawanna, and Western Railroad over the highway west of the station. The point is on the concrete bridge seat, 4 feet below the track level, and 3 feet north of the north rail.

### TOWACO.

Eleva., 194.46 ft.

A cross cut in the northwest corner of the bridge seat of the west concrete topped abutment of the bridge which carries the Delaware, Lackawanna, and Western Railroad over a road at the foot of plane No. 10 east. This point is 1 foot south of the north end of the abutment, 3 feet below, and 25 feet north of the north rail of the two track line.

### WHARTON.

Eleva., 612.60 ft.

A cross cut in the outside corner of the upper step at the north end of the western abutment of the Delaware, Lackawanna, and Western Railroad bridge over the Rockaway River, three-quarters of a mile southeast of Wharton.

### WHARTON.

Eleva., 602.35 ft.

A cross cut in the outside corner of the lowest step at the south end of the western abutment of the bridge which carries the High Bridge Branch of the Central Railroad of New Jersey over Rockaway River, three-quarters of a mile southeast of Wharton.

### WHARTON.

Eleva., 666.25 ft.

A cross cut in the west end of the south abutment of the bridge which carries the High Bridge Branch of the Central Railroad of New Jersey over the Delaware, Lackawanna, and Western Railroad. This cross is cut on the granite stone at the end of the bridge seat.

### WHARTON.

Eleva., 694.96 ft.

A cross cut in the top of and in the south end of the bluestone sill of the Main-street entrance of Wharton public school.

## PASSAIC COUNTY.

### ATHENIA.

Eleva., 183.78 ft.

A cross cut in the northeast corner of the west abutment at the north end of the bridge which carries the highway leading from Athenia Station on the Delaware, Lackawanna, and Western Railroad, to Montclair, over the Morris Canal.

### ATHENIA.

Eleva., 179.50 ft.

This bench mark is on a small cut in a projecting stone, 4.6 feet above the ground, at the west end of the north abutment of the road bridge over the Morris Canal, 1 mile south of Athenia. The point is indicated by an arrow head.

### ATHENIA.

Eleva., 164.80 ft.

A cross cut in the southeast corner of the west end of the culvert which carries a highway leading from Athenia Station (Erie R. R.) to Montclair, over a small stream, about 800 feet northeast from the Morris Canal.

### BLOOMINGDALE.

(See Morris County.)

**CHARLOTTESBURG.****Eleva., 682.44 ft.**

A cross on the southeast corner of the second step from the top at the east end of the north abutment of the bridge, which carries the New York, Susquehanna, and Western Railroad over Pequannock River, about one-eighth mile north of the station.

**CHARLOTTESBURG.****Eleva., 737.21 ft.**

A cross on the northeast corner of the southeasterly concrete pier, which supports the steel column of the highway bridge over the New York, Susquehanna, and Western Railroad about 800 feet west of the station.

**HAWTHORNE.****Eleva., 41.83 ft.**

A cross cut in the top of the granite coping (6 inches back from the southeast corner) of the east wing wall of the north abutment of the bridge which carries the Erie Railroad over the Passaic River. The point is 5 feet below the track level.

**LITTLE FALLS.****Eleva., 174.67 ft.**

A cross cut in the stone coping at the end of the iron railing on the west side of the Passaic River, of the Morris Canal aqueduct.

**LITTLE FALLS.****Eleva., 195.34 ft.**

A cross cut in the northeast corner of the stone doorsill of the main front entrance of the Reformed Church.

**LITTLE FALLS STATION (Totowa).****Eleva., 194.56 ft.**

This bench mark is at the point of an arrow on the water table at the northeast corner of the Little Falls depot of the Delaware, Lackawanna, and Western Railroad.

**MACOPIN INTAKE.****Eleva., 583.75 ft.**

A cross on the middle of the third capped stone from the gate house, and about 5.8 feet from its foundations, measured along the center of the intake dam of the Newark Water Works.

**MOUNTAIN VIEW.****Eleva., 172.62 ft.**

A cross cut in the top of the north concrete wing wall (9 inches back from the north corner) of the east abutment of the bridge which carries the highway over Pompton River. This bridge is 800 feet west of the Erie Railroad Station and 300 feet south of the Morris Canal aqueduct.

**MOUNTAIN VIEW.****Eleva., 175.74 ft.**

A cross cut in the north corner of the west end of the coping of the circular wall at the north end of the west abutment of the aqueduct by which the Morris Canal crosses the Pompton River.

**MOUNTAIN VIEW.****Eleva., 180.57 ft.**

A cross cut in the east end of the concrete doorsill of the south entrance of the Delaware, Lackawanna, and Western Railroad station.

**NEW FOUNDLAND.****(See Morris County.)****OAK RIDGE.****Eleva., 399.61 ft.**

A cross on the concrete seat at the east end of the south girder 0.6 foot from the corner, and 2.7 feet south of the girder of the bridge which carries the highway over the New York, Susquehanna, and Western Railroad, about 1 mile northwest of the station.

**PASSAIC.****Eleva., 56.69 ft.**

A cross cut in the south end of doorsill of the front entrance of the Passaic Trust and Safe Deposit Company's building, which stands on the west side of Main Street between Academy and Bloomfield Avenues.

**PASSAIC.****Eleva., 60.31 ft.**

A cross cut in a raised projection, in front of the wall, on the extreme south end of the doorsill of the entrance to the municipal building standing on the northwest corner of Howe Avenue and Prospect Street. This entrance is between two fire engine rooms.

52 BENCH MARKS, NORTHERN NEW JERSEY.

- PASSAIC.** Eleva., 26.51 ft.  
 A cross cut in the extreme southwest corner of the west end of the coping of the north wall of the arch bridge which carries Passaic Avenue over the tailrace from the mills. This bridge is a short distance west of the New York, Susquehanna, and Western Railroad.
- PATERSON.** Eleva., 99.45 ft.  
 A cross cut in the south end of the Main-street entrance to St. Boniface Church, at the southeast corner of Main and Slater Streets.
- PATERSON.** Eleva., 80.12 ft.  
 A cross cut in the east end of the doorsill of the main front entrance to the Market Street M. E. Church.
- PATERSON.** Eleva., 88.82 ft.  
 A cross cut in the west end of the doorsill of the main entrance to the municipal building on the corner of Market and Union Streets.
- PATERSON.** Eleva., 99.15 ft.  
 A cross cut in the north end of the doorsill of the main entrance to the First Presbyterian Church, on the corner of Main and Ward Streets.
- PATERSON.** Eleva., 103.18 ft.  
 A cross cut in the top of the second cheek stone from the bottom, at the northwest corner of the base of the second pillar from the north end of the Hamilton-street entrance to the Passaic County Courthouse.
- PATERSON.** Eleva., 181.24 ft.  
 This point is on the East Jersey Water Company's bench mark at Stony road reservoir, Grand Street and Reservoir Avenue, and is a cross cut in out-crop rock, 1 foot north of the concrete wall on the Grand-street side and 36 feet east of the middle of the intake pipes near the corner of the streets.
- PATERSON.** Eleva., 187.69 ft.  
 A cross cut in the north corner of the concrete facing of the east abutment of the Delaware, Lackawanna, and Western Railroad bridge, over Passaic River, known as High Bridge. This bridge is between Paterson and Little Falls.
- POMPTON.** Eleva., 207.09 ft.  
 A cross on the outer edge at the west end of the brownstone doorsill at the middle entrance to the Pompton Reformed Church.
- POMPTON LAKES.** Eleva., 203.18 ft.  
 A cross about 6 inches diagonally from the southwest corner of the seat of the steel truss at the south end of the eastern concrete abutment of the highway bridge over Wanaque River northwest of the station.
- POMPTON LAKES.** Eleva., 204.00 ft.  
 A cross on a large stone on the north end of the west abutment at the angle of the wing wall of the New York, Susquehanna, and Western Railroad bridge over Wanaque River, west of the station. The cross is on the east corner of the stone, 5.3 feet lower than the rail.
- POMPTON JUNCTION.** Eleva., 217.26 ft.  
 Northeast frog point at the crossing of New York, Susquehanna, and Western, and New York and Greenwood Lake Railroads.
- POMPTON JUNCTION.** Eleva., 235.76 ft.  
 A cross on the northwest corner of the stone on which rests the east end of the north truss at the north end of the east abutment of New York, Susquehanna, and Western Railroad Bridge, over Pequannock River, about three-quarters of a mile west of the station. The cross is 6 feet north of the north rail, and 5.2 feet below.

**RICHFIELD.**

Eleva., 182.56 ft.

A cross cut in the north end of the east abutment of the bridge over the Morris Canal. The point is at the end of the timber on which the bridge rests.

**RICHFIELD.**

Eleva., 183.11 ft.

A cross cut in the east end of the bluestone sill of the window, between corner stone marked "1907," and the main entrance to St. John's German Lutheran Church.

**RICHFIELD.**

Eleva., 186.72 ft.

This bench mark is the bottom edge of the corner stone, marked "1907," of St. John's German Lutheran Church.

**RICHFIELD.**

Eleva., 191.84 ft.

A cross cut in the east end of the bluestone sill of the front basement window, nearest the east side, of Public School No. 2.

**SMITH MILLS.**

Eleva., 425.16 ft.

A cross on the high point of the large boulder near the north end of west abutment of the steel highway bridge over Pequannock River. The cross is 1.7 feet diagonally from the corner of the abutment, 5.2 feet below the bottom plate of girder, and 4 feet north of the center of north girder.

**WAYNE.**

Eleva., 172.70 ft.

Top of the rail of New York and Greenwood Lake Railroad at station.

**WAYNE.**

Eleva., 175.63 ft.

A cross on the east end of the south abutment of New York and Greenwood Lake Railroad bridge over Pompton River, about 1 mile north of Wayne station. The cross is 6 inches diagonally from the northeast corner of girder seat, 4.7 feet east of east girder, and 5 feet lower than the rail.

**TOTOWA.**

(See Little Falls Station.)

## SOMERSET COUNTY.

**BASKING RIDGE.**

Eleva., 377.99 ft.

A cross on the south end of the doorsill at the east front entrance to the waiting room of Delaware, Lackawanna, and Western Railroad station.

**BASKING RIDGE.**

Eleva., 361.50 ft.

A cross on the northeast corner of a red sandstone on the second from the top of a series of steps forming the east end of the south abutment of a bridge carrying the railroad over the highway, about one-fourth mile south of the station.

**BASKING RIDGE.**

Eleva., 338.14 ft.

Top of stone water table at southwest corner of the Presbyterian Church.

**BERNARDSVILLE.**

Eleva., 377.85 ft.

A cross on the outer edge at the west end of the window sill of Delaware, Lackawanna, and Western Railroad station, on the north face of the building, the fourth window west of the main entrance, 3.75 feet above the platform.

**BERNARDSVILLE.**

Eleva., 374.52 ft.

A cross on the outer edge at west end of doorsill, next to the base of the west column, at the main entrance to the Bernardsville National Bank, on the northwest corner of Mine Brook Road and Claremont Avenue.

**BERNARDSVILLE.**

Eleva., 393.52 ft.

A cross on the northeast corner at the east end of the south concrete pier, which supports the steel highway bridge over the Delaware, Lackawanna, and Western Railroad, about 400 feet east of the station.

54 BENCH MARKS, NORTHERN NEW JERSEY.

- BLAWENBURG.** Eleva., 66.20 ft.  
 A cross level with the truss seat on the northeast corner at the north end of the abutment of the highway bridge over Bedens Brook, 1½ miles east of the village on the road to Rocky Hill.
- BLAWENBURG.** Eleva., 152.15 ft.  
 A cross on the east end of the concrete doorstep at the entrance to the Reformed Church. The cross is near the outer edge of the wooden sill, and about 6 inches from the foundation of the building.
- BOUND BROOK.** Eleva., 35.744 ft.  
 This is the bottom of a cavity 1 inch square by ⅓ inch deep, cut on the top stone of the west end of the north abutment of the highway bridge, over Raritan River. This is a Bench mark of the U. S. Coast and Geodetic Survey. It is marked thus: B |    | M  
                                   XIII  
                                   1881.
- BOUND BROOK.** Eleva., 40.41 ft.  
 A cross on the northeast corner of the western concrete retaining wall of the Central Railroad bridge, over the brook, one-fourth mile east of the station.
- BOUND BROOK.** Eleva., 31.98 ft.  
 A cross cut on the outer edge at the east end of the stone doorsill of the First National Bank building on Main Street.
- BOUND BROOK.** Eleva., 39.86 ft.  
 A cross cut on the outer southwest corner of stone doorsill on the right side of the entrance to St. Joseph's Church, at the southwest corner of Mountain Avenue and East Second Street.
- FAR HILLS.** Eleva., 168.74 ft.  
 A cross on the water table, 0.75 feet above the concrete platform and 7.5 feet east of the middle of the ticket office; at the northeast corner of the ticket-office bay at the Delaware, Lackawanna, and Western Railroad station.
- GLADSTONE.** Eleva., 232.63 ft.  
 A cross on the southwest corner, on seat of the east end of girder, at the south end of the east abutment of the highway bridge over the stream, 400 feet west of Main Street, on road leading to Pottersville.
- GLADSTONE.** Eleva., 216.91 ft.  
 A cross on the center of a large projecting stone just below the one on which the north end of the east girder rests, at the east end of the north abutment of a plate-girder bridge, carrying the Delaware, Lackawanna, and Western Railroad over the brook, about 1,000 feet south of the station.
- GRIGGSTOWN.** Eleva., 50.53 ft.  
 A triangle on the coping of the west lock wall under the north edge of the bridge, at the Delaware and Raritan Canal lock, one-half a mile south of the village.
- GRIGGSTOWN.** Eleva., 50.79 ft.  
 Top of monument with a bronze tablet reading "Washington by this route, etc.," about 300 feet northeast of the canal lock, one-half a mile south of the village.
- GRIGGSTOWN.** Eleva., 44.07 ft.  
 On the summit of a stone, indicated by an arrow, standing at the east corner of Edgar's mill, at the west side of the canal.
- LYONS.** Eleva., 320.70 ft.  
 A cross about 6 inches from the angle of wing wall, level with the bed plate of the girder, on the north end of the west abutment of a highway bridge over the Delaware, Lackawanna, and Western Railroad, about one-fourth mile south of the station.

**MILLSTONE—EAST.**

Eleva., 45.48 ft.

A triangle on the southwest corner of a stone supporting south gatepost at the entrance to N. S. Wilson's brick residence, south of Thatcher's drug store, at easterly corner of Market Street and Railroad Avenue.

**MILLSTONE—EAST.**

Eleva., 43.12 ft.

Top of stone set as a corner of lands owned by the Delaware and Raritan Canal Company, about 60 feet north of canal bridge, and 50 feet east of the easterly edge of the canal near the bridgetender's residence.

**MILLSTONE—EAST.**

Eleva., 52.91 ft.

A cross on the south end of the sill of a blind door at the easterly face and north end of Somerset Rubber Company's building on Market Street.

**MINE BROOK.**

Eleva., 272.47 ft.

A cross on the southeast corner of the middle of three steps forming the south end of the west wall of a small pipe culvert under the Delaware, Lackawanna, and Western Railroad, about 1 mile east of the station, and 100 feet west of a highway crossing.

**MINE BROOK.**

Eleva., 186.40 ft.

A cross on the southeast corner of a stone carrying the south end of east girder at east end of south abutment of the Delaware, Lackawanna, and Western Railroad bridge, over a brook one-half a mile west of station.

**NORTH BRANCH.**

Eleva., 84.880 ft.

This bench mark is the bottom surface of a square cavity cut near the top of the southwest corner of the Central Railroad bridge over North Branch of Raritan River, a short distance of the railroad station. This is a bench mark of the U. S. Coast and Geodetic Survey. It is marked thus:

B [—] M

XV.

**NORTH BRANCH.**

Eleva., 84.72 ft.

A bolt in the second stone from the top of most easterly wing wall of the bridge, carrying the Central Railroad over North Branch of Raritan River.

**NORTH BRANCH.**

Eleva., 83.66 ft.

A square cut in the second stone from the top of northerly abutment at east side of tracks at bridge carrying the Central Railroad over a highway, just east of where the railroad crosses North Branch of Raritan River.

**NORTH BRANCH.**

Eleva., 86.29 ft.

A cross on the northwest end and north corner of a large capstone on the northeast wall, over an arch carrying the railroad over Chambers Brook, opposite the station.

**PEAPACK.**

Eleva., 198.51 ft.

A cross on the top of a large keystone, just below coping at the center of the north wall of a stone highway bridge, over the brook near the station, and about 300 feet west of road to Gladstone.

**PEAPACK.**

Eleva., 236.31 ft.

A cross on the outer edge at the north end of bluestone doorsill at girls' entrance to Peapack-Gladstone Grammar School.

**PEAPACK.**

Eleva., 163.01 ft.

A cross on the stone carrying the west end of the south truss about 0.6 feet west of westerly edge of bed plate, at the south end of the west abutment of the bridge, carrying the Delaware, Lackawanna, and Western Railroad over North Branch of Raritan River, about 1½ miles south of the station.

56 BENCH MARKS, NORTHERN NEW JERSEY.

- POTTERSVILLE.** Eleva., 231.93 ft.  
 The top of a cornerstone at the northwest corner of the Reformed Church. The corner stone is marked "1866," and its top coincides with the bottom of the water table.
- POTTERSVILLE.** Eleva., 221.42 ft.  
 A cross on the seat of the truss, at the north end of the east abutment of the highway over Black River.
- POTTERSVILLE.** Eleva., 179.23 ft.  
 A cross on the northeast corner of a red sandstone projecting from the corner at the east end of the south abutment of a bridge over a branch of Lamington River, on the road from Pottersville to New Germantown, about 1.5 miles south of Pottersville.
- RARITAN.** Eleva., 66.65 ft.  
 A cross cut on the outer edge at the west end of a stone doorsill of a red-brick building at the corner of Second and Anderson Streets. The door is the one nearest Anderson Street.
- RARITAN.** Eleva., 67.36 ft.  
 A cross on top of a foundation stone on which are the words "erected 1893," at the southerly corner of the Relief Hose building on Anderson Street.
- RARITAN.** Eleva., 66.84 ft.  
 A cross on the outer edge, near the door jamb, of the doorsill at the left-hand side of the entrance to the Raritan Savings Bank on the southeast side of Somerset Street, between Anderson and Thompson Streets.
- ROCKY HILL.** Eleva., 43.90 ft.  
 A cross on the outer edge at the north end of the west abutment, at the seat of the truss, and about 3 inches north, at the highway bridge over the raceway, about 600 feet west of the railroad station.
- ROCKY HILL.** Eleva., 46.59 ft.  
 A cross on the southeast end of the concrete wall, at the end of the iron-pipe railing, at the south side of the highway, and about 250 feet west of the Pennsylvania Railroad station.
- ROCKY HILL.** Eleva., 104.69 ft.  
 A cross on the outer edge at the east end of the white sandstone window sill of the basement window, on the south face of the red-brick school building. The window is on the extreme right as you enter the building.
- ROCKY HILL.** Eleva., 136.08 ft.  
 A cross on the south end of the lower of six concrete steps into the property at the southwest corner of roads, about 1 mile west of the village. The point is about 100 feet from the main Rocky Hill and Hopewell road.
- SOMERVILLE.** Eleva., 91.52 ft.  
 On the top of the plinth at the base of the easternmost column in the front of the courthouse, immediately at the inside of the base of the balustrade, where it joins the plinth, at the northerly side of the column.
- SOMERVILLE.** Eleva., 81.86 ft.  
 On the doorsill, close to the wall at the outermost edge of the door frame, at the west side of the right entrance door of the First Reformed Church.
- SOMERVILLE.** Eleva., 76.23 ft.  
 On the outer edge at the north end of the stone doorsill at the left side of the entrance to the Armory, opposite the courthouse on Grove Street.
- SOMERVILLE.** Eleva., 71.22 ft.  
 A cross on the outer east corner of the top step at the easterly entrance to the Second Reformed Church on Main Street. The cross is near the coping, and almost directly below the east corner of the tower.

**SOMERVILLE.**

Eleva., 46.28 ft.

A cross cut inside of a triangle on the east edge of the west abutment, under the center of the railroad track of the truss bridge, carrying the South Branch Railroad over Raritan River.

**STOUTSBURG.**

Eleva., 137.90 ft.

A cross on a projection of a flagstone a little below the level of the road, about  $3\frac{1}{2}$  feet below the top of the south wall, and over the center of the opening for the stream on a small bridge on the road to Rocky Hill, about one-fourth mile northeast of village.

**WESTON.**

Eleva., 42.97 ft.

A triangle cut on the coping of Delaware and Raritan Canal lock, 6 feet north of the east edge of the lock bridge.

**WESTON.**

Eleva., 47.86 ft.

On the top of the water table at the southwest corner of a residence opposite the canal lock, and on the east side of the highway.

## SUSSEX COUNTY.

**ANDOVER.**

Eleva., 638.05 ft.

This bench mark is on the large gneiss rock on the bank, on the east side of the Sussex Railroad, 145 yards north of the station, and 9 yards north of cattle pens.

**ANDOVER.**

Eleva., 648.15 ft.

A cross cut in the top of the north end of the bluestone sill of the middle one of three basement windows of the bell tower of the Methodist Episcopal Church. Window is on west side of the tower.

**ANDOVER.**

Eleva., 611.84 ft.

This bench mark is indicated by an arrow on the top of a brownstone corner stone at the southwest corner of the Presbyterian Church.

**ANDOVER JUNCTION.**

Eleva., 579.16 ft.

A cross cut in the northwest corner of the bedplate at the south end of the west girder of the bridge carrying the Sussex Branch of the Delaware, Lackawanna, and Western Railroad over Pequest River, just north of Andover Junction.

**BEAVER LAKE.**

Eleva., 963.15 ft.

A cross on the northwest corner of the north pier supporting the iron column of the overhead bridge at the New York, Susquehanna, and Western Railroad station. The point is a little below the level of, and at the east side of, the tracks.

**BRANCHVILLE.**

Eleva., 527.08 ft.

A cross cut in the center and 1 foot from the west edge of a large stone in the top course on the west end of the north abutment of the Sussex Branch of the Delaware, Lackawanna, and Western Railroad bridge over Dry Brook, 25 yards south of the crossing over the railroad of the road to Augusta, and southeast of the entrance of the road to Swartswood. (The bench is not on the single stone which is upon the top of the wall.)

**BRANCHVILLE.**

Eleva., 578.35 ft.

A cross cut in the northeast corner of a limestone corner stone inscribed "Presbyterian Church of Branchville A. D. 1856." This stone is set in the east side of the building in the middle one of three attached pillars.

**BRANCHVILLE.**

Eleva., 574.24 ft.

The top of the exposed corner stone bearing the inscription "Branchville M. E. Church 1864-78." Point is indicated by an arrow.



58 BENCH MARKS, NORTHERN NEW JERSEY.

- BRANCHVILLE.** Eleva., 535.47 ft.  
 A cross cut in the northwest corner of bedplate at the north end of the west girder of Delaware, Lackawanna, and Western Railroad bridge over Dry Brook just south of the station and northeast of Borden's creamery.
- BRANCHVILLE JUNCTION.** Eleva., 577.56 ft.  
 A cross cut in the top surface of the concrete foundation, just south of the "g" in 1905, of the pipe housing of the Delaware, Lackawanna, and Western Railroad water tower on the west side of the track and south of the station.
- BRANCHVILLE JUNCTION.** Eleva., 560.98 ft.  
 This bench mark is on the east rail of the Sussex Branch of the Delaware, Lackawanna, and Western Railroad and the north rail of the New York, Susquehanna, and Western Railroad at their crossing.
- CARPENTER'S POINT.** Eleva., 452.82 ft.  
 This bench mark is the top of State-line monument on the road which runs from Port Jervis to Montague.
- CARPENTER'S POINT.** Eleva., 421.88 ft.  
 This bench mark is the top of the State-line monument on the east shore of Neversink River.
- CARPENTER'S POINT.** Eleva., 481.50 ft.  
 This bench mark is on the State-line monument on the east side of the turnpike to Sussex, at the Two-States Hotel.
- CARPENTER'S POINT.** Eleva., 415.51 ft.  
 This bench mark is on the Tri-State monument at the meeting of the boundary lines of New Jersey, New York, and Pennsylvania, on the extreme point at the forks of Delaware and Neversink rivers.
- COLEVILLE.** Eleva., 908.78 ft.  
 A cross cut in the large boulder at the entrance of the road to Sand Pond about 1 mile northwest of Coleville.
- COLEVILLE.** Eleva., 808.39 ft.  
 A cross cut in the face of the 1887 corner stone of the M. E. Church just below and between the two "8's." Elevation is at intersection of cross.
- COLEVILLE.** Eleva., 781.76 ft.  
 A cross cut in the top of the west end of the south girder of the highway bridge over the brook 200 feet west of the schoolhouse. Mark is about 6 inches west of the west face of west iron-rail post.
- CULVER'S GAP.** Eleva., 915.70 ft.  
 This bench mark is on the summit of a conglomerate boulder on the northeast corner of the roads meeting in the gap.
- CRANBERRY LAKE.** Eleva., 777.05 ft.  
 The summit of the most westerly of the two spurs of gneiss rock at the northeast corner of the road from Stanhope and a road running northeast at the north end of the Cranberry Reservoir (not marked).
- CRANBERRY LAKE.** Eleva., 766.73 ft.  
 A cross cut in top of the west coping, directly over the keystone, of the stone-arch culvert over the brook 400 yards south of Cranberry Station. The coping is the only course of masonry above the arch, and the mark is 2.80 feet higher than the crown of the arch.
- EMMONS.** Eleva., 469.08 ft.  
 A cross cut in the top of limestone that is at the northwest end of the bridge seat of the southwest abutment of girder bridge No. 73/26, carrying the New York, Susquehanna, and Western Railroad over the Freedom-Middletown road, and a brook. The point is 1 foot back from the exposed corner of the stone.

**FRANKLIN FURNACE.**

Eleva., 560.93 ft.

This bench mark is on the stone water table at the southwest corner (front corner towards New Furnace) of the company's old brick store and office.

**FRANKLIN FURNACE.**

Eleva., 566.71 ft.

A cross cut in the north end of the limestone sill of the front entrance of the Catholic Church. The building is of limestone and was built in 1902.

**FRANKLIN FURNACE.**

Eleva., 558.20 ft.

A cross cut in the northwest end of the granite sill of the front entrance to the old public school.

**HAINESVILLE.**

Eleva., 639.64 ft.

A cross cut in the top of an imbedded rock with rounded summit, on the east side of the road, 40 yards north of the corner of roads, at which the church and schoolhouse stand.

**HAINESVILLE.**

Eleva., 652.25 ft.

A cross cut in surface of the concrete porch of the Dutch Reformed Church. This point is on the north end of the northerly of the two front entrances.

**HAINESVILLE:**

Eleva., 660.50 ft.

A cross cut in the white limestone corner stone, bearing the inscription "M. E. Church 1911," at the southeast corner of the building. This mark is on the flat surface back under the baseboard.

**HALSEY.**

Eleva., 609.59 ft.

A cross cut in the south coping (1 foot from the east end) of the concrete culvert (Nos. 68-14) just west of Halsey Station of the New York, Susquehanna, and Western Railroad.

**HALSEY.**

Eleva., 576.84 ft.

A cross cut in the surface, 1 foot from the northeast end, of the coping of the northwest concrete wall of culvert No. 69/00, carrying the New York, Susquehanna, and Western Railroad over a brook 1 mile southwest of Halsey Station.

**HIGH POINT.**

Eleva., 1800.80 ft.

This bench mark is the highest point of the bed-rock on the summit of the mountain.

**HIGH POINT.**

Eleva., 1804.89 ft.

This bench mark is a cross cut on the top of a boulder on the summit of the mountain. This is the highest point in New Jersey.

**LAFAYETTE.**

Eleva., 550.25 ft.

This bench mark is on the summit of a limestone boulder, indicated by an arrow, at the east corner of the main crossroads in the village.

**LAFAYETTE.**

Eleva., 512.91 ft.

A cross cut in the southeast corner of the limestone on top of the south abutment on the east side of the Sussex Railroad track, where it crosses above the wagon road, just east of the crossroads and about 1 mile north of the village.

**LAKE GRINNELL.**

Eleva., 566.71 ft.

Top of rail of the Lehigh and Hudson River Railroad at the station.

**LAKE GRINNELL.**

Eleva., 567.06 ft.

On the southwest corner of the concrete top of the stone pier, 1½ feet above and about 3 feet east of the east rail of the Lehigh and Hudson River Railroad. The pier supports an overhead highway bridge north of Grinnell Station.

60 BENCH MARKS, NORTHERN NEW JERSEY.

- MONTAGUE.** **Eleva., 521.27 ft.**  
 A cross cut in the rough stone water table near the barroom door of the Brick House Hotel.
- MONTAGUE.** **Eleva., 527.67 ft.**  
 A cross cut in the top surface of the concrete abutment, close to the girder, about 1 foot south of the north end of the west girder of the small road bridge just south of the Brick House Hotel. The bench mark, which is at the elevation of the bottom of the girder, is also indicated by an arrow cut in the lower flange of the girder, near its edge.
- MONROE.** **Eleva., 544.68 ft.**  
 Top of rail of the Lehigh and Hudson Railroad at highway crossing near the station.
- NEWTON.** **Eleva., 648.99 ft.**  
 A cross cut in the east end of the outside of the limestone doorsill at the entrance of the Sussex County Courthouse.
- NEWTON.** **Eleva., 650.33 ft.**  
 This bench mark is indicated by an arrow cut in the granite of the lowest of the stepped stones forming the base of the Soldiers' Monument. The point is at the highest part of the northwest corner of the lowest stone directly at the base of the second stone.
- NEWTON.** **Eleva., 656.87 ft.**  
 A cross cut in the top and at the north end of the limestone sill of the main entrance of the Newton Trust Company's building.
- NEWTON.** **Eleva., 649.94 ft.**  
 A cross cut in the east end of the limestone sill of the north door of the Clerk's and Surrogate's office building.
- NEWTON.** **Eleva., 678.77 ft.**  
 A cross cut in the east end of the stone doorsill at the corner of the jamb of the entrance to the Presbyterian Church.
- NEWTON.** **Eleva., 601.55 ft.**  
 A cross cut in the limestone sill of the most northerly of three doors (baggage room) in the east side of the Newton station of the Sussex Railroad.
- NEWTON.** **Eleva., 602.67 ft.**  
 A cross cut in the northwest corner of the bedplate at the south end of the west girder of the single-track bridge carrying the Sussex branch of the Delaware, Lackawanna, and Western Railroad over the road leading from Newton to Mulford Station, at Drake's Pond, 1 mile south of Newton.
- SPARTA JUNCTION.** **Eleva., 571.59 ft.**  
 A cross on the center of the west wall of the culvert under the Lehigh and Hudson River Railroad at the crossing of the New York, Susquehanna, and Western Railroad.
- SPARTA JUNCTION.** **Eleva., 576.15 ft.**  
 North frog point at the crossing of the Lehigh and Hudson River and the New York, Susquehanna, and Western Railroads.
- STANHOPE.** **Eleva., 864.15 ft.**  
 A cross cut in the outside corner of the coping at the west end of the north wall of the Morris Canal lock, at outlet of the reservoir. This is a canal bench mark.
- STANHOPE.** **Eleva., 958.53 ft.**  
 A cross cut in the south end of the bluestone sill of the basement window facing west, in "L" at the west of the south entrance to the High School.

**STOCKHOLM.**

Eleva., 935.80 ft.

A cross on the south end of the west abutment of the New York, Susquehanna, and Western Railroad bridge over the highway about one-half mile east of the station. The cross is at the center of the horizontal part of the wall and about 5 feet above the roadway.

**STOCKHOLM.**

Eleva., 968.87 ft.

A cross on the north end of the west abutment of the railroad bridge over Pequannock river about 300 yards east of the station. The cross is on the northeast corner of the second stone step from the bottom. It is 13 feet north of, and 5.6 feet lower than the north rail.

**STOCKHOLM.**

Eleva., 1013.13 ft.

A cross cut on the south end of the west abutment of the steel-girder highway bridge over the New York, Susquehanna, and Western Railroad about  $1\frac{3}{4}$  miles north of the station. The cross is on the extreme end at the middle of the horizontal part of the concrete wing wall, and is 11.4 feet south of the south girder and 3 feet below its seat.

**SWARTSWOOD STATION.**

Eleva., 502.89 ft.

A cross cut in the top, about 1 foot back from the outside corner, of the first limestone step below the bridge seat, at the northwest end of the northeast masonry abutment of the track bridge carrying the New York, Susquehanna, and Western Railroad over the Newton road.

**STILLWATER.**

Eleva., 476.61 ft.

A cross cut in the second limestone step from the top at the northwest end of the southwest abutment of a small field culvert (No. 74/17), 275 yards northeast of the creamery and 1 mile northeast of the station.

**STILLWATER.**

Eleva., 471.62 ft.

A cross cut in a small shelf on the northeast side, 6 inches below the summit of a 5-foot white limestone boulder on the northwest side of the New York, Susquehanna, and Western Railroad, at the southwest end of the retaining wall of the cut, 650 yards northeast of the station.

**STILLWATER.**

Eleva., 460.70 ft.

A cross cut in the southeast end of the concrete doorsill of the entrance at the southwest end of the McDermott creamery.

**SUSSEX.**

Eleva., 441.65 ft.

A cross cut in the south end of the stone doorsill of the brick store building on the northwest corner of the streets, on the south corner of the open triangle opposite Coble's Hotel.

**SUSSEX.**

Eleva., 483.10 ft.

A cross cut in the south end of the bluestone sill of the basement window near the south end of the west side of the public school.

**SUSSEX.**

Eleva., 420.04 ft.

A cross cut in the bluestone porch of the First Baptist Church. The point is near the west end of the westerly of the two front entrances.

**TUTTLE'S.**

Eleva., 757.25 ft.

This bench mark is on the summit of a large boulder on the northwest corner of the roads meeting about three-quarters of a mile south of Tuttle's Corner.

**WARBASSE.**

Eleva., 559.53 ft.

A cross cut in the surface of the south end of the west concrete abutment, 1 foot back from the face of the abutment and 1 foot north of the angle line of the abutment and wing wall of the single-track bridge carrying the New York, Susquehanna, and Western Railroad over Paulinskill just west of the station.

## 62 BENCH MARKS, NORTHERN NEW JERSEY.

- WATERLOO.** Eleva., 652.79 ft.  
 A cross cut in the outside corner of the gneiss rock forming the top of the south end of the west abutment of the highway bridge over the outlet of Waterloo Pond, 200 yards below a dam. It is an iron bridge and near the foot of the canal plane.
- WATERLOO.** Eleva., 653.57 ft.  
 A cross cut in the east end of the lowest bluestone step of the stone stairs leading up from the road to the level of the church yard at the Methodist Church. The point is 6 inches north of the outside face of the retaining wall.
- WATERLOO.** Eleva., 642.71 ft.  
 A cross cut in the middle of the piece of the bluestone cap of the east parapet that is directly over the middle pier of the two-span, masonry-arch highway bridge (Kinney's bridge) over Musconetcong River, 1 mile west of Waterloo.
- WHITEHALL.** Eleva., 705.58 ft.  
 This bench mark is on a small rounded summit, marked by an arrow on the coping stone, 2 inches back from the face of the wall and directly over the center of the keystone of the east side of the stone-arch bridge carrying the Sussex Railroad over the wagon road, just north of Whitehall and about 1 mile south of Andover.
- WOODRUFF'S GAP.** Eleva., 582.90 ft.  
 Top of rail at the highway crossing near the station on the Lehigh and Hudson River Railroad.

### UNION COUNTY.

- ALDENE.** Eleva., 70.31 ft.  
 A cross cut on southwest corner of the southeast pier supporting the western wireless tower of the Marconi Co. at the intersection of the Central and Lehigh Valley railroads.
- ALDENE.** Eleva., 78.77 ft.  
 A cross cut on the northeast corner of the concrete foundation of the steps leading overhead to westbound trains. This foundation forms the second step at the Central Railroad station.
- BERKELEY HEIGHTS.** Eleva., 212.37 ft.  
 A cross on the south end of the west abutment of the Delaware, Lackawanna, and Western Railroad bridge over Passaic River, one-half mile west of the station. The cross is on the southeast corner of the second concrete step from the top of the abutment, and about 5 feet lower than the rail.
- BERKELEY HEIGHTS.** Eleva., 219.11 ft.  
 A cross on the second step from the top at the south end of the west wall of the culvert under the Delaware, Lackawanna, and Western Railroad, one-quarter mile east of the station. The cross is on the southwest corner of the step about 15 feet south of south rail, and 9 feet lower.
- CRANFORD.** Eleva., 76.79 ft.  
 On the north end of the marble step where it projects beyond the casing at the entrance to the Cranford Trust Co. at the corner of Union Avenue and North Avenue.
- CRANFORD.** Eleva., 89.69 ft.  
 A cross cut on the outer edge at the north end of the stone doorsill near the casing of the Union Avenue entrance of the Cleveland school.
- CRANFORD.** Eleva., 86.43 ft.  
 A cross on the inner edge at the south end of the first cement step at the right-hand entrance from Miln Street to the public library.

**CRANFORD.**

Eleva., 73.66 ft.

A cross on the northeast corner of the northerly concrete support at the base of the wooden post of the cover for the subway, at the north side of Central Railroad tracks at the station.

**ELIZABETH.**

Eleva., 32.83 ft.

This bench mark is a point taken on the northeast corner of the third step from the top (to the right and in the rear as the monument faces) of the Soldiers' and Sailors' Monument, which stands in a triangle formed by the intersection of North Broad, Prince, and Magnolia Streets.

**ELIZABETH.**

Eleva., 30.44 ft.

A cross cut in the south end of the stone sill of the main front door of the First Presbyterian Church.

**ELIZABETH.**

Eleva., 27.74 ft.

A cross cut in the southeast corner of the bottom step of the series of steps of the east retaining wall of the north abutment of the bridge which carries the Pennsylvania Railroad over West Jersey Avenue. This bench mark is at the foot of a stairway leading to the south end of the east platform of the railroad station.

**ELIZABETH.**

Eleva., 31.02 ft.

A cross cut in the extreme south end of the stone platform of the entrance to the Union County Courthouse, on the west side of South Broad Street opposite Elizabeth Avenue. There are four fluted columns at the entrance, with their bases resting on the platform. The cross is cut in front of the most southerly of the four columns and near the pilaster at the south side of the entrance.

**ELIZABETH.**

Eleva., 14.29 ft.

A cross cut in coping, 1.55 feet north of a line perpendicular to the center of the keystone of the middle arch, of the east parapet of an arch bridge which carries South Broad Street over the Elizabeth River.

**ELIZABETH.**

Eleva., 38.71 ft.

This bench mark is on the cross on top of a property monument at the northeast corner of Linden Avenue and the road leading to Lorraine. This bench mark is about  $1\frac{1}{2}$  miles southwest of Elizabeth.

**ELMORA.**

Eleva., 30.94 ft.

A cross on outer edge at south end, near retaining wall, of bottom concrete step leading from Bayway to westbound tracks at Central Railroad station.

**ELMORA.**

Eleva., 33.80 ft.

A cross on highest point of boulder 40 feet south of southwest corner of Bayway and Westfield Avenues, between sidewalk and curb near Central Railroad station.

**FANWOOD.**

Eleva., 165.32 ft.

A cross cut on outer corner at north end of bluestone windowsill of middle window of bay and free library and post office building at northeast corner of North and Martine Avenues. The bay window is on North Avenue side.

**FANWOOD.**

Eleva., 160.96 ft.

A cross cut on the north end of the cement coping of a stone retaining wall at foot of corner post of iron railing on west side of Central Railroad, near the bottom of steps leading overhead to eastbound tracks at Central Railroad station.

**GARWOOD.**

Eleva., 90.55 ft.

A cross cut on the southeast corner of the cement base for iron steps which lead over to westbound tracks, at the south side of the Central Railroad at the station. The cement base forms the first step.

## 64 BENCH MARKS, NORTHERN NEW JERSEY.

### GARWOOD.

Eleva., 86.72 ft.

A cross cut on the south end of the stone doorsill of the left entrance on Center Street, of the Municipal building. It is 1 foot from the south side of building which stands on the southwest corner of Center Street and South Avenue.

### LINDEN.

Eleva., 19.83 ft.

A copper bolt set in the northeast wing wall of the northwest abutment of a bridge which carries the Pennsylvania Railroad over Morse's Creek, about  $1\frac{1}{4}$  miles east of Linden. This is probably a railroad bench mark. It is

marked thus: (11)

### LINDEN.

Eleva., 18.08 ft.

A cross cut in the southeast corner of the south end of the east abutment of a bridge which carries the Baltimore and Ohio Railroad over Linden Avenue, about  $1\frac{1}{4}$  miles east of Linden. This bench mark is 4.2 feet above the ground.

### LINDEN.

Eleva., 35.03 ft.

A cross cut in the south corner of the southeast end of the bridge seat of the northeast concrete abutment of a bridge which carries the Pennsylvania Railroad over Wood Avenue.

### LINDEN.

Eleva., 23.36 ft.

A cross cut in the center of the middle coping stone of the northwest parapet of an arch bridge which carries Linden Avenue over the South Branch of Morse's Creek, about  $1\frac{1}{4}$  miles west of the station.

### LINDEN.

Eleva., 26.42 ft.

A cross cut in the south end of the east abutment of the concrete bridge which carries the Pennsylvania Railroad over Stiles Street, 700 yards west of the station.

### LORRAINE.

Eleva., 70.42 ft.

Middle of the raised margin at the bottom of a bronze tablet on the stone monument at the intersection of Galloping Hill road and Colonia road. The rod was held directly under the letter A in the word "Elizabeth."

### LORRAINE.

Eleva., 69.00 ft.

A cross cut on the southwest corner of the eastern cement pier supporting an automatic signal at the west side of Linden road, and north side of the Central Railroad.

### MURRAY HILL.

Eleva., 246.50 ft.

A cross on the north end of the west wall of a culvert under the railroad at highway, about three-quarters mile west of the station. The cross is on a brownstone projecting from the wall and near the face of a concrete slab, 8 feet north of and about 4 feet lower than the rail.

### MURRAY HILL.

Eleva., 247.94 ft.

A cross on the stone seat at the east end of the north plate girder of a railroad bridge over the highway, 800 feet east of the station. The cross is at the east edge of the stone, 1.1 feet south of the north edge, and about 4.3 feet below the level of the rail.

### MURRAY HILL.

Eleva., 240.24 ft.

A cross on the fourth step from the bottom of the north end of the east abutment of the railroad bridge over the highway, 800 feet east of the station. The cross is on the northwest corner of the stone.

### PLAINFIELD.

Eleva., 129.02 ft.

A cross cut on the outer edge at the east end of the bluestone window sill of window nearest the road in the northeast end of the pumping station of Plainfield-Union Water Co. north of Netherwood station and west of the Central Railroad.

**PLAINFIELD.****Eleva., 128.20 ft.**

A cross on the northeasterly side at the top of concrete steps at the northwest side of the Central Railroad tracks at Netherwood station. The cross is on the north edge of the coping at the angle.

**PLAINFIELD.****Eleva., 106.14 ft.**

A cross cut on the southwest corner of the northeast stone wing wall, northwest side of the Central Railroad tracks over Richmond Street.

**PLAINFIELD.****Eleva., 109.56 ft.**

A cross cut on the outer edge at the southeast end of the bluestone step (second from the top) at the northeast end of the Central Railroad station platform.

**PLAINFIELD.****Eleva., 101.54 ft.**

On the northwest edge of the stone doorstep, 3 inches from the face of the wall at the Watchung Avenue entrance of the Elks' building between East Second Street and East Front Street.

**PLAINFIELD.****Eleva., 103.45 ft.**

A cross cut on the outer edge at the northeast end of the bottom step of the East Front Street entrance to the Y. M. C. A. building at the corner of Watchung Avenue.

**PLAINFIELD.****Eleva., 97.17 ft.**

On the outer edge at the north end of the stone doorsill, at the base of a small column, at the southerly entrance to the First National Bank on Front Street opposite Park Avenue.

**PLAINFIELD.****Eleva., 100.91 ft.**

A cross cut on the northerly outer corner of the stone doorsill near the doorway at the northeast entrance to the First Baptist Church on West Front Street opposite Central Avenue.

**PLAINFIELD.****Eleva., 92.26 ft.**

A cross on the northeast corner of the southerly stone abutment at the southeast side of the Central Railroad tracks at the junction of South Second Street and Plainfield Avenue.

**PLAINFIELD.****Eleva., 90.82 ft.**

A cross on the outer edge at the northwest end of the top cement step, leading from Grant Avenue to the westbound tracks at Grant Avenue station.

**PLAINFIELD.****Eleva., 72.79 ft.**

A cross cut on the northwest corner of the stone on which rests the western iron girder at the south abutment of the Central Railroad bridge over Clinton Avenue at Clinton Avenue station. The cross is 1 foot west of girder and 2 feet from its south end.

**RAHWAY.****Eleva., 18.17 ft.**

A cross cut at the foot of the lamp-post end of the iron railing on the west end of the coping of the north parapet of an arch bridge which carries Elizabeth Avenue over Rahway River.

**RAHWAY.****Eleva., 18.81 ft.**

A cross cut in the stone foundation at the northwest corner of the Second Presbyterian Church. A niche in the buttress at this corner exposes the foundation for an area about 6 inches square; on this is the cross.

**RAHWAY.****Eleva., 24.42 ft.**

A cross cut in the stone base of the pilaster (between the entrance and the most southerly window) on the west side of the Rahway National Bank, which is on Irving Street just west of its junction with Lewis Street.



## 66 BENCH MARKS, NORTHERN NEW JERSEY.

### **RAHWAY.**

**Eleva., 20.18 ft.**

A cross cut in the east end of the north abutment of a bridge which carries the Perth Amboy Branch of the Pennsylvania Railroad over South Branch of Rahway River,  $1\frac{1}{2}$  miles west of station.

### **RAHWAY.**

**Eleva., 11.96 ft.**

A cross cut in the southwest corner of a stone in the west end of the north abutment, which supports the north foot of the west truss, of a bridge which carries Georges Avenue over South Branch of Rahway River. This bridge is about 1 mile west of Rahway and is on the line between Union and Middlesex Counties.

### **ROSELLE.**

**Eleva., 80.27 ft.**

A cross on high point of concrete base of the iron flag pole 200 feet south of Central Railroad station at First Avenue and Chestnut Street. The cross is inside at center base.

### **ROSELLE.**

**Eleva., 74.67 ft.**

On the outer edge of the south end of the bluestone doorsill of the First National Bank at the corner of Second Avenue and Chestnut Street.

### **SPRINGFIELD.**

**Eleva., 105.34 ft.**

This bench mark is a point on the southeast corner of the base (close up to the column or shaft) of a statue of a Continental soldier standing in the southwest corner of the Presbyterian Churchyard, on the northeast corner of Morris Avenue and Main Street.

### **SPRINGFIELD.**

**Eleva., 100.45 ft.**

A cross cut in the top of a milestone marked " $5\frac{1}{2}$  miles to Elizabeth Town," which is 4.1 feet high, 1.5 feet wide and 0.7 foot thick, and stands at the junction of Morris Avenue and Seven Bridge road.

### **SPRINGFIELD.**

**Eleva., 89.59 ft.**

This bench mark is the top of the keystone of the most easterly of three arches, on the south side of an arch bridge which carries Morris Avenue over West Branch of Rahway River.

### **SPRINGFIELD.**

**Eleva., 105.99 ft.**

A cross cut in the east end of the south wing wall of the west abutment of the bridge which carries Morris Avenue over a raceway, four-fifths of a mile west of the Presbyterian Church and at west junction of Morris Avenue with an old road.

### **SUMMIT.**

**Eleva., 194.63 ft.**

This bench mark is the highest point on the extreme west corner of the keystone in the south end of the arch of a bridge which carries Springfield Avenue over a small stream, about  $1\frac{1}{4}$  miles east of Summit. This stream empties into a pond south of the road.

### **SUMMIT.**

**Eleva., 227.70 ft.**

A cross cut in the east end of coping of the south wall of a culvert which carries Morris Avenue over a small stream. This culvert is about 150 feet west of the junction of Springfield and Morris Avenues.

### **SUMMIT.**

**Eleva., 261.93 ft.**

A cross cut in the east end of coping of the south wall of a small culvert which carries Morris Avenue over a small waterway between Orchard Street and the turnpike.

### **SUMMIT.**

**Eleva., 324.19 ft.**

A cross cut in the southwest corner of the concrete base of the east iron pillar on the north side of the road, supporting the bridge which carries the Rahway Valley Railroad over Morris Avenue.

**SUMMIT.** Eleva., 390.61 ft.  
A cross cut in the east end of the bridge seat of the south concrete abutment of a bridge which carries Summit Avenue over the Delaware, Lackawanna, and Western Railroad, just east of the station. This point is 1.3 feet from the end and 1.47 feet from the edge of the abutment, 1.5 feet from back wall and 1.6 feet below the platform of the bridge.

**SUMMIT.** Eleva., 393.66 ft.  
A cross cut in the east end of the stone sill of the window in the middle arch in the front of the Municipal Building on Springfield Avenue near the corner of Summit Street.

**SUMMIT.** Eleva., 396.45 ft.  
A cross cut in the west end of the doorsill of the side entrance, on Springfield Avenue, of the Summit Bank building, on the northeast corner of Springfield and Beechwood Avenues. This is the entrance to apartments above the banking rooms.

**SUMMIT.** Eleva., 382.07 ft.  
A cross cut in a concrete retaining wall, at change of level, near the west end of south abutment of a bridge which carries Springfield Avenue over the Delaware, Lackawanna, and Western Railroad.

**SUMMIT.** Eleva., 260.25 ft.  
A cross cut in the bridge seat (0.55 foot from bedplate of truss) at east end of the south concrete abutment of a bridge which carries the Delaware, Lackawanna, and Western Railroad over the Boulevard.

**WESTFIELD.** Eleva., 128.74 ft.  
A cross cut on the east corner of the cement platform at the base of the eastern stone column at the north side of the Central Railroad tracks at the station.

**WESTFIELD.** Eleva., 121.99 ft.  
A cross cut on the western outer corner of the bluestone doorsill of the eastern entrance to the Westfield Fire Department building. The entrance is on North Avenue, and the cross is directly below a bronze tablet.

**WESTFIELD.** Eleva., 121.78 ft.  
A cross at the northeast outer corner of the stone sill at the entrance to the post office and National Bank of Westfield on Elm Street, opposite Quimby Street. The cross is at the base of the north column and on the south side.

**WESTFIELD.** Eleva., 123.43 ft.  
A cross near the easterly outer corner of the bluestone doorsill at the entrance to the People's National Bank at the corner of East Broad and Prospect Streets. The cross is at the base of the eastern column at the Broad Street entrance.

## WARREN COUNTY.

**BELVIDERE.** Eleva., 257.40 ft.  
The top of a copper bolt, around which a square is cut, set in a limestone block at the northwest end of the northeast bridge seat of the field bridge (P. R. R.) No. 87, just northeast of the railroad bridge over the highway,  $1\frac{1}{8}$  miles southwest of the station. This is a railroad bench mark.

**BELVIDERE.** Eleva., 290.45 ft.  
A cross cut in the north end of the granite sill of the southerly of the two entrances on the west side of the public school.

**BELVIDERE.** Eleva., 289.88 ft.  
Cross cut in the northeast corner of the brownstone sill of the middle, or tower-door of the First Presbyterian Church, which stands on the west side of the city park.

## 68 BENCH MARKS, NORTHERN NEW JERSEY.

### BELVIDERE.

Eleva., 286.01 ft.

A cross cut in the west end of the brownstone doorsill of the Surrogate's office. This is the most westerly of the four doors in the front of the Warren County Courthouse.

### BELVIDERE.

Eleva., 265.44 ft.

A copper bolt around which a square is cut, set in the top of a square-dressed stone, on which rests the south end of the west girder of the single track (P. R. R.) bridge, No. 91. The bolt is 6 inches northeast of the corner of the bedplate.

### BELVIDERE.

Eleva., 262.36 ft.

A copper bolt, around which a square is cut, set in a limestone block in the northwest coping of the Pennsylvania Railroad stone arch bridge over the brook, 300 yards south of the station. This bolt is in the top surface of the coping and above the crown of the arch of bridge No. 88.

### BELVIDERE.

Eleva., 286.00 ft.

The bottom of a square cavity cut in the west end of the bluestone sill of the door of the County Clerk's office; said door being the easterly of the four doors in the front of the courthouse.

### BELVIDERE.

Eleva., 287.03 ft.

A cross cut in the top and at the north end of the brownstone sill of the main front entrance of the Methodist Episcopal Church, on the east side of the park.

### BLAIRSTOWN.

Eleva., 350.04 ft.

A cross cut in the southwest corner of the upper of two square-dressed granite blocks, on which rests the east end of the south truss of the single track bridge (No. 81/88), carrying the New York, Susquehanna, and Western Railroad over Paulins Kill. This bridge is three-fourths miles east of the station.

### BLAIRSTOWN.

Eleva., 347.69 ft.

A cross cut in the west end of the doorsill of the tower entrance to the Presbyterian Church.

### BLAIRSTOWN.

Eleva., 346.44 ft.

A cross cut in the west end of the doorsill of the entrance to the People's National Bank.

### BLAIRSTOWN.

Eleva., 348.34 ft.

A cross cut in the square limestone base of the most easterly of the three pillars in front of the First National Bank.

### BROADWAY.

Eleva., 350.56 ft.

A cross cut in the top and east end of the north concrete parapet of the bridge which carries the turnpike over Mill Brook. The point is 6 inches above the concrete floor of the bridge.

### BROADWAY.

Eleva., 351.93 ft.

A cross cut in the east end of the concrete doorsill of the tower entrance to the Broadway Methodist Episcopal Church.

### BROADWAY.

Eleva., 345.84 ft.

This bench mark is the top of the seventh course of brick of the chimney on the west side of the schoolhouse. The top of this course is above the bottom of the woodwork of the building. The point is marked by an arrow on the face of the chimney towards the road, and near the southwest corner.

### BROADWAY.

Eleva., 434.73 ft.

This bench mark is on the southwest corner of a square-dressed stone (2½ feet from the wooden sill lying thereon) at the south side of the floodgate of the Morris Canal, just south of the road leading from Broadway to Montana.

**BUTZVILLE.**

Eleva., 346.47 ft.

A cross cut in the northwest corner of the south abutment of the iron bridge which carries the highway over Pequest River, 1 mile west of the railroad station. The stone is a conglomerate.

**BUTZVILLE.**

Eleva., 382.24 ft.

A cross cut in the northwest corner of the top surface of the bedplate at the north end of the west truss of the bridge, which carries the highway over Pequest River, 225 yards east of the Lehigh and Hudson River Railroad.

**BUTZVILLE.**

Eleva., 382.70 ft.

A cross in a circle cut in the northwest concrete wing wall (at the end of the lattice guard rail) of the truss bridge which carries the highway over Pequest River east of the station.

**BUTZVILLE.**

Eleva., 423.40 ft.

A cross cut in the outer edge of the coping stone on the south side of the Delaware, Lackawanna, and Western Railroad track, and directly over the keystone of the center arch of the stone bridge over the Pequest River and the Lehigh and Hudson River Railroad, east of Butzville station.

**COLUMBIA.**

Eleva., 295.08 ft.

A cross cut in the southeast corner of the square-dressed granite block on which rests the west end of the south truss of the single-track bridge which carries the New York, Susquehanna, and Western Railroad over Paulins Kill. This bridge is one-half mile east of Columbia.

**COLUMBIA.**

Eleva., 309.22 ft.

A cross cut in the east end of the bluestone sill of the basement window in the front of the M. E. Church, and just west of the tower.

**COLUMBIA.**

Eleva., 310.84 ft.

The bottom of the corner stone inscribed "M. E. Church, 1840-1892." The point is at the exposed corner.

**COLUMBIA.**

Eleva., 287.00 ft.

A cross cut in the northwest corner of the bedplate at the east end of the north truss of the bridge which carries the highway over Paulins Kill at its mouth.

**DELAWARE.**

Eleva., 284.98 ft.

A cross cut in the northwest corner of the bedplate at the southeast corner of the two-track, five-span bridge, which carries the Delaware, Lackawanna, and Western Railroad over the Delaware River, 1 mile north of Delaware. The mark is on the new or northerly bridge.

**DELAWARE.**

Eleva., 288.65 ft.

The top of a stone slab in front of the Presbyterian Church.

**DELAWARE.**

Eleva., 290.78 ft.

This bench mark, indicated by an arrow, is at the bottom of the middle of the front face of the corner stone (without inscription) at the southeast corner of St. James Church.

**EASTON, PA., U. S. C. S.**

Eleva., 214.401 ft.

This bench mark is the bottom surface of a square cavity cut on top of a pier (north side of the New Jersey Central Railroad track) of the bridge across the Lehigh River at Easton. It is on the pier at the west end of wide

part of bridge. It is marked thus: B  $\left[ \begin{array}{c} \text{U. S.} \\ \text{---} \\ \text{XIX} \end{array} \right]$  M

**EASTON, PA., U. S. C. S.**

Eleva., 357.186 ft.

This is the bottom of a square cavity cut in the foundation stone at west corner of the jail at Easton. The front of the jail is built of red sandstone and the foundation of blue limestone.

70 BENCH MARKS, NORTHERN NEW JERSEY.

**EASTON, PA., U. S. C. S.**

**Eleva., 363.488 ft.**

This bench mark is the bottom surface of a square cavity cut on the sill of a blind window on the east side of the Easton Courthouse. This side of the courthouse has two blind windows, but the one used is the one nearest to U. S. C. & G. S.

the front of the building. It is marked thus: B  $\left[ \begin{array}{c} H \\ \text{---} \\ 1881 \end{array} \right]$  M

**EASTON, PA.**

**Eleva., 196.55 ft.**

A cross cut in the top of water table at the southeast corner of the post-office building, which stands at corner of Ferry and Second Streets. The front is an alcove between the two sides at base of corner pillar and level with the top step at the entrance.

**EASTON, PA.**

**Eleva., 235.10 ft.**

A cross cut in the northwest corner of the granite sill under the outer arch of the main entrance of the public-school building.

**FOUL RIFT.**

**Eleva., 252.02 ft.**

A cross cut 8 inches back from the outside corner (at the north end) on the concrete wall over the arch at the west end of the concrete road culvert No. 84, 400 yards south of the railroad station. The mark is on the top face of the wall and is about 6.6 feet higher than and 8 inches north of the crown of the arch. This culvert is south of the highway culvert.

**HACKETTSTOWN.**

**Eleva., 567.67 ft.**

A cross cut in the northeast corner of the northeast concrete pier of the pipe housing of the water power, just east of the Delaware, Lackawanna, and Western Railroad station.

**HACKETTSTOWN.**

**Eleva., 570.37 ft.**

Bluestone water table at the northeast corner of the People's National Bank.

**HACKETTSTOWN.**

**Eleva., 562.60 ft.**

A cross cut in the southeast end of the brownstone sill of the entrance to the Hackettstown National Bank.

**HACKETTSTOWN.**

**Eleva., 553.82 ft.**

A cross cut in the southeast end of the brownstone sill of the lower entrance of the Methodist Episcopal Church.

**HACKETTSTOWN.**

**Eleva., 556.05 ft.**

A cross cut in the east corner of the bluestone sill of the southerly Washington street entrance of the public school.

**HACKETTSTOWN.**

**Eleva., 597.63 ft.**

This bench mark is on the sandstone water table at the base of the brick work, at the northeast corner of the main building (directly over the corner stone dated "Dec. 1, 1900") of the Centenary Collegiate Institute (unmarked).

**HACKETTSTOWN.**

**Eleva., 573.06 ft.**

A cross cut in the southwest corner of the granite stone on which rests the west end of the south girder of the bridge which carries the Delaware, Lackawanna, and Western Railroad over the turnpike just south of Warren Furnace. Stone referred to is on the bridge seat of west abutment.

**HAINESBURG.**

**Eleva., 329.34 ft.**

This bench mark is the bottom of the corner stone (at the exposed corner) of the church marked "M. E. Church, A. D. 1892." The point is indicated by an arrow.

**HAINESBURG.**

**Eleva., 306.74 ft.**

A cross cut in the limestone at the east end of the south abutment of the southerly of the two iron highway bridges. The point is 1 foot west of the angle of the abutment and wing wall.

**HARMONY STATION.****Eleva., 199.65 ft.**

A cross cut in the northeast corner of the fourth sandstone step from the bottom, on the east wing wall of the south abutment of the stone arch bridge which carries the Pennsylvania Railroad over a farm road to the river. The bridge (No. 72) is just south of mile post  $1\frac{1}{2}$  and is locally known as Amey's culvert.

**HARMONY STATION.****Eleva., 216.25 ft.**

The northeast corner of a sandstone post about 9 inches square, set 6.7 feet west of the west rail of the single track, on the Belvidere Branch of the Pennsylvania Railroad, 300 yards south of the station and 350 yards north of mile post  $1\frac{5}{16}$ . The stone is marked:  $\frac{J B}{4/09}$  (the east face is marked: 54).

**HARMONY STATION.****Eleva., 215.69 ft.**

This bench mark is the bottom of a slot 4 inches long,  $\frac{1}{2}$  inch wide (formed by a drill hole) 4 inches north of the southeast corner of the top of the square-dressed granite stone on which rests the north end of the west girder of railroad bridge No. 77, 550 yards north of the station.

**HAZEN.****Eleva., 409.72 ft.**

A cross cut in the northeast corner of the projecting foundation stones at the southeast corner of the brick Presbyterian Church, at Oxford Church. The point is at the southeast corner of the attached brick column that rests on the stones.

**HUTCHINSON.****Eleva., 219.34 ft.**

A cross cut in the top and at the outside corner of the northeast end of the sandstone coping over the arch at the southwest end of stone culvert No. 80 which carries the single track of the Belvidere Branch of the Pennsylvania Railroad over Buckhorn Creek, about 175 yards west of the station.

**HUTCHINSON.****Eleva., 225.76 ft.**

A cross cut in the southwest corner of the south wall (over the crown of the arch) of a stone culvert which carries the Pennsylvania Railroad over a farm road to Delaware River. This culvert is 100 yards east of mile post  $\frac{9}{16}$  and about 0.6 mile west of the station. The stone is a speckled sandstone 6 feet above and 10 feet west of the crown of the bridge.

**LOPATCONG.****Eleva., 262.986 ft.**

This bench mark is the bottom surface (center) of a square cavity cut in the coping stone at the east end of the north parapet of the stone bridge of the Central Railroad of New Jersey, over the Morris Canal, about  $1\frac{1}{2}$  miles east of Phillipsburg. It is marked thus: B [ ] M.  
1881

**LOPATCONG.****Eleva., 218.95 ft.**

A cross cut in the summit of the most westerly stone in the coping of the north wall of the upper lock of the Morris Canal.

**MARKSBORO.****Eleva., 423.01 ft.**

The highest point (indicated by an arrow cut in the top surface) of the exposed spigot end of an iron pipe at the northwest end of a flood culvert, with concrete end walls, under the New York, Susquehanna, and Western Railroad  $1\frac{1}{2}$  miles northeast of the station. (Bridge No.  $\frac{19}{21}$ .)

**MARKSBORO.****Eleva., 402.97 ft.**

A cross cut in the west corner of the bedplate at the northeast end of the northwest truss of the bridge which carries the New York, Susquehanna, and Western Railroad over Paulins Kill, three-fourths miles northeast of the station.

**MARKSBORO.****Eleva., 393.89 ft.**

A cross cut on limestone (1 foot back from the exposed corner) at the northeast end of the northwest abutment of the highway bridge over the Paulins Kill at the station.

**MARKSBORO.****Eleva., 371.76 ft.**

A cross cut in the south corner of the square-dressed granite stone on which rests the east end of the south truss of the New York, Susquehanna, and Western Railroad bridge over Paulins Kill. This bridge is No. <sup>no</sup>/<sub>or</sub> and is 1 mile west of the station.

**MARTIN'S CREEK.****Eleva., 226.95 ft.**

Top of bolt, around which a square is cut, set in a granite stone in the top of the east side of the circular wall of the turntable at the east end of the railroad bridge over Delaware River at Martin's Creek.

**MARTIN'S CREEK.****Eleva., 219.95 ft.**

A cross cut in the southeast corner of the higher part of the most easterly of the five stone piers supporting the railroad bridge over Delaware River. There are two bridge seats on this pier, the mark being on the easterly and higher one.

**MARTIN'S CREEK.****Eleva., 324.15 ft.**

A cross cut in the northeast end of the concrete sill of the basement window, that is in the northwest side of the part of the public school building, on which the bell tower is, and which contains the hall of the main front entrance.

**NEW VILLAGE.****Eleva., 435.36 ft.**

A cross cut in the rounded summit of the coping stone on the west side of the south wall of the Morris Canal lock, west of the village. The summit is 1.5 feet from the end of the wall, and about 3 yards from the tail gates.

**NEW VILLAGE.****Eleva., 374.95 ft.**

A cross cut in the surface of the concrete porch of Thatcher's store. The mark is about 2 feet east of the northwest corner of the porch and directly north of the coal chute. This building is on the turnpike, at the old Stewartsville road.

**NEW VILLAGE.****Eleva., 439.98 ft.**

A cross cut in the northeast corner of the east bedplate of the north truss, on the east concrete abutment of the bridge which carries the trolley road over the Morris Canal.

**NEW VILLAGE.****Eleva., 426.87 ft.**

A cross cut in the east end of the south concrete parapet of a small highway bridge over the canal feeder that is just west of the canal lock, 1 mile west of the village.

**OXFORD FURNACE.****Eleva., 479.77 ft.**

A cross cut in the east end of the stone sill of the front door of the Oxford Iron and Nail Company's brick store, on the north corner of the streets, just south of the railroad station.

**OXFORD FURNACE.****Eleva., 501.84 ft.**

A cross cut in the south end of the stone doorsill of the front door of the Second Presbyterian Church.

**OXFORD FURNACE.****Eleva., 570.42 ft.**

A cross cut in the granite water table at the north end of the doorsill of the public school.

**PAULINA.****Eleva., 347.09 ft.**

A cross cut in the bluestone coping of the east end of the north abutment (the one nearest the railroad) of the highway bridge over Paulins Kill.

**PEQUEST FURNACE.****Eleva., 439.32 ft.**

Bottom of a square cavity cut in the top surface of the granite stone at the north end of the west coping of the Delaware, Lackawanna, and Western Railroad stone arch culvert, 1½ miles north of Oxford Furnace station. This culvert is over Furnace Brook.

- PHILLIPSBURG.** **Eleva., 207.87 ft.**  
 A cross cut in the southwest corner of the lowest step (close to the bottom of the second step) of the east wing wall of the north abutment of the girder bridge which carries the Lehigh Valley Railroad over South Main Street, just west of Center Street.
- PHILLIPSBURG.** **Eleva., 215.81 ft.**  
 This bench mark is the bottom of a square cavity cut 6 inches back from the southwest corner of the fourth from the top, of the square-dressed stones forming the series of steps of the south wing wall, of the east abutment of a two-track bridge which carries the Central Railroad of New Jersey over Delaware River, just north of the Lehigh Valley Railroad bridge. The point is on a sandstone block and its top surface is 2.5 feet above the bridge seat.
- PHILLIPSBURG.** **Eleva., 232.60 ft.**  
 A cross cut in the east end of the bluestone doorsill of the Main-street entrance to the Second National Bank, at the corner of Main and Market Streets.
- PHILLIPSBURG.** **Eleva., 195.56 ft.**  
 A cross cut in the northwest corner of the stone water table under the column on the east side of the north entrance of the Pennsylvania Railroad station, at the east end of the cantilever highway bridge over Delaware River.
- PHILLIPSBURG.** **Eleva., 194.21 ft.**  
 A cross cut in the northwest corner of the square-dressed sandstone coping of the north end of the east abutment (New Jersey side) of the cantilever bridge which carries the highway over Delaware River, between Phillipsburg and Easton, Pa. The point is about the elevation of the concrete sidewalk of the bridge.
- PHILLIPSBURG.** **Eleva., 197.60 ft.**  
 A cross cut in the top of the concrete foundation at the northeast corner of the building (and east of the doors opening towards the turntable) of the Lehigh and Hudson River Railroad roundhouse, near the north end of the Phillipsburg freight yards.
- PHILLIPSBURG.** **Eleva., 199.36 ft.**  
 The top of a bolt head set in the sandstone coping near the middle of the west wall of the small stone road culvert at the north end of the Lehigh and Hudson River Railroad, Phillipsburg yards. A square is cut around the head of the bolt. This is a railroad bench mark.
- PHILLIPSBURG.** **Eleva., 201.70 ft.**  
 Head of a bolt set in a granite stone of the bridge seat near the west end of the north abutment of the single-track girder bridge No. 70, which carries the Pennsylvania Railroad over a farm road. This bridge is just north of mile post <sup>15</sup>/<sub>33</sub> and northeast of a small brick schoolhouse on the Pennsylvania side of Delaware River. This is a railroad bench mark.
- PLEASANT VALLEY.** **Eleva., 500.40 ft.**  
 This bench mark is the top of the bottom course of brick at the southwest corner of the Pleasant Valley brick schoolhouse. The point is marked by a vertical arrow set in brick.
- PORT GOLDEN.** **Eleva., 569.98 ft.**  
 This bench mark is on the southeast corner of the masonry at the gates of the flume, at the head of plane No. 6, west of the Morris Canal.
- PORT GOLDEN.** **Eleva., 526.54 ft.**  
 A cross cut in the east end of the granite doorsill of the main entrance to the brick schoolhouse.



## 74 BENCH MARKS, NORTHERN NEW JERSEY.

### PORT COLDEN.

Eleva., 522.85 ft.

This bench mark is the top of the white limestone corner stone of the church, inscribed "Port Colden M. E. Church 1893." Elevation taken at top of stone and at bottom wooden baseboard.

### PORT COLDEN.

Eleva., 525.63 ft.

A cross cut in the southwest corner of the top granite step at the west end of the north abutment of the concrete bridge which carries the Hackettstown-Washington highway over the Delaware, Lackawanna, and Western Railroad.

### PORT MURRAY.

Eleva., 644.54 ft.

A cross cut in the south end of the bluestone sill of the basement window just south of the triple memorial window, and north of the main entrance, of the McCrea Memorial M. E. Church.

### PORT MURRAY.

Eleva., 607.44 ft.

A cross cut in the northwest corner of the top granite step at the west end of the south abutment of the wooden bridge which carries the road over the Delaware, Lackawanna, and Western Railroad, about 500 feet west of the station.

### PORT MURRAY.

Eleva., 630.99 ft.

This bench mark is on the north corner of masonry of the gates at the head of the flume of Morris Canal plane No. 5, west.

### PORT WARREN.

Eleva., 334.39 ft.

This bench mark is the southeast corner of the bottom step of a series forming the end of the foundation wall, at the southwest corner of the wheelhouse of Morris Canal plane No. 9, west.

### PORT WARREN.

Eleva., 281.05 ft.

A cross cut in the northeast corner of the dressed granite stone which forms the bottom step of the west wing wall at the north end of the double arch stone culvert which carries the highway and Lopatcong Creek under the Delaware, Lackawanna, and Western Railroad.

### PORT WARREN.

Eleva., 280.04 ft.

A cross cut in the northeast corner of the bedplate at the northwest corner of the girder bridge which carries the turnpike over Lopatcong Creek. It is just east of the intersection of the turnpike with the Port Warren road.

### ROCKPORT.

Eleva., 648.55 ft.

A cross cut in the northeast corner of the stone porch of the Presbyterian Church. The point is on a granite stone, level with the bottom of the wooden baseboard.

### ROXBURY STATION.

Eleva., 244.20 ft.

The top of a copper bolt, around which a square is cut, set in a block of sandstone at the west end of a small girder bridge (No. 83) over the highway at the north end of the station. This is a railroad bench mark.

### ROXBURY STATION.

Eleva., 265.05 ft.

A cross cut in the southeast corner of the north abutment of a wooden truss bridge which carries the highway over the Belvidere Branch of the Pennsylvania Railroad, about 250 yards east of the station.

### SAXTON FALLS.

Eleva., 637.69 ft.

A cross cut in the coping of the west lock wall, just back of the middle of a groove for temporary repair dam, just above the chamber for the head gate of the Morris Canal guard lock No. 5, west.

### SAXTON FALLS.

Eleva., 618.71 ft.

A cross cut in top and northeast corner of a granite coping stone at the north end of the west abutment of the girder bridge which carries the Delaware, Lackawanna, and Western Railroad over Musconetcong River.

**SAXTON FALLS.**

Eleva., 642.86 ft.

A cross cut in the corner of a stone in which the west tail gate is anchored, close to the south side of the quoin, Morris Canal, lock No. 4.

**SAXTON FALLS.**

Eleva., 605.65 ft.

A cross cut in the northwest corner of a granite stone on top of the north end of the east abutment of the iron bridge over Musconetcong River. The point is 1½ feet below the bridge floor.

**STEWARTSVILLE.**

Eleva., 405.83 ft.

A cross cut in the foundation at the east corner of the wheelhouse at the Morris Canal plane No. 8, west.

**STEWARTSVILLE.**

Eleva., 341.51 ft.

A cross cut in the top of a limestone block, in which rests the post of the southeast end of the southwest iron rail of a small highway bridge (with concrete floor) southeast of the Stewartsville road bridge over the canal. The point is about 15 feet southeast of the middle of the bridge.

**STEWARTSVILLE.**

Eleva., 333.68 ft.

A cross cut in the northwest corner of the concrete porch of the northerly of the two entrances of the brick schoolhouse. The point is close to the foundation and 6 inches lower than the bottom of the lowest course of brick.

**STEWARTSVILLE.**

Eleva., 322.66 ft.

A cross cut in the northwest corner of the concrete porch of the northerly of the two detached wooden columns at the front of the First Lutheran Church. The mark is at the southwest corner of the column.

**STEWARTSVILLE.**

Eleva., 374.28 ft.

This bench mark is on the northeast corner of the square-dressed stone on which the bedplate of the truss rests, at the south end of the east abutment of the Morris and Essex Railroad bridge over the Morris Canal, east of the station.

**STEWARTSVILLE.**

Eleva., 320.40 ft.

A cross cut in the top surface of the brownstone cheek stone at the north end of the stone steps of the front entrance of the Presbyterian Church. The mark is at the level of the stone entrance floor and at the middle of the square wooden column which rests on the stone and which is attached to the building.

**VAIL.**

Eleva., 346.26 ft.

A cross cut in the north face of a block of limestone set in the foundation at the northeast corner of the D. B. Kaiser gristmill, which stands opposite the station. Elevation is at the intersection of the cross and 0.58 feet below the bottom of the baseboard.

**VAIL.**

Eleva., 311.37 ft.

A cross cut in the top surface of the bluestone coping at the east end of the south abutment of the bridge which carries the Polkville-Walnut Valley highway over Paulins Kill, 1 mile west of Vail and at the crossroads of the Walnut Valley-Polkville and Blairstown-Hainesburg roads. The bench mark is 7.0 feet above water level.

**WASHINGTON.**

Eleva., 488.62 ft.

A cross cut in the east coping of the wing wall of the south abutment of the bridge which carries the Delaware, Lackawanna, and Western Railroad over the highway, about 2 miles north of Washington Station. The mark is at the angle in the wall, 5.5 feet east of the east rail.

**WASHINGTON.**

Eleva., 489.89 ft.

A cross cut in the north end of the brownstone doorsill of the main front entrance of the public school. The mark is by the corner of the brickwork.

## 76 BENCH MARKS, NORTHERN NEW JERSEY.

### WASHINGTON.

Eleva., 485.53 ft.

A cross cut in the east end of the brownstone doorsill of the spire entrance (on Church Street) of the Presbyterian Church.

### WASHINGTON.

Eleva., 508.08 ft.

This bench mark is on the northwest corner of the north end, on top of the wall supporting the wooden flume at the head of Morris Canal plane No. 7, west. The point is also a canal bench mark.

### WASHINGTON.

Eleva., 463.05 ft.

A cross cut in the southeast corner of the highest of three bluestone steps at the entrance of the First National Bank, on the northwest corner of Belvidere and Washington Avenues.

### WASHINGTON.

Eleva., 462.01 ft.

This bench mark is on the corner of a stone under the iron column at the northeast corner of the Beatty Building, which stands at the southwest corner of Belvidere and Washington Avenues.

### WASHINGTON.

Eleva., 467.54 ft.

This bench mark is on the stone water table of the Windsor Hotel, a brick building facing on Washington Avenue. The point is on the rear corner of a wing, with three windows, extending back from the main building on Belvidere Avenue.