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U. S. COAST AND GEODETIC SURVEY.

*Dr. Henry S. Pritchett*, Superintendent.

State: *New York*.

DESCRIPTIVE REPORT.

*Hydrographic Sheets Nos. 2384  
2385 and 2386*

LOCALITY:

*Hudson River*

*1898*

CHIEF OF PARTY:

*D. B. Hannwright*

2385

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Department of Commerce and Labor  
COAST AND GEODETIC SURVEY

*W. S. Pritchett*  
Superintendent.

State: *N. Y.*

DESCRIPTIVE REPORT.

*Hyd. C.* Sheet No. *2385*

LOCALITY:

*See*  
*2384*

CHIEF OF PARTY:

*D. B. Wainwright*

*1898*  
*190*

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Department of Commerce and Labor  
COAST AND GEODETIC SURVEY

*H. S. Pritchett*  
Superintendent.

State: *N. Y.*

DESCRIPTIVE REPORT.

*Hyd* Sheet No. *2386*

LOCALITY:

*See*  
*2384*

*1898*  
*100*

CHIEF OF PARTY:

*D. B. Wainwright*

2386

COPY

Washington, D.C.

February 28th, 1899.

Dr. Henry S. Pritchett,  
Superintendent C. & G. Survey,  
Washington, D.C.

Sir:

I have the honor to report that in accordance with your instructions, the party in my charge on the Steamer "Blake" took up the survey of the Hudson River early in August.

The topography and hydrography were completed from Spuyten Duyvil Creek to Ardsley, a section a little more than ten miles in length.

The triangulation extended over a greater distance, starting from a base in New York City and being carried up to Tarrytown.

The changes in the topography developed by the new survey were such as one would naturally expect to have occurred since the last surveys, in the neighborhood of a great metropolis and sea-front like New York.

Wherever there are turns, the docking facilities were found to be increased to meet the demand of an increasing population and commerce. The New York Central Railroad, whose roadbed forms an almost continuous sea-wall on the East bank of the River, has

found it necessary to broaden its right of way by building out riverwards to accomodate new tracks in order to handle its increased traffic.

These are the conditions which prevail on the East Bank of the River. On the West bank the Pallisades rising abruptly from the water to a height of over four hundred feet, form an effectual barrier between the River and the populous country beyond.

Occasionally a group of houses may be seen here and there along the shore, where scant room has been found for their location on a narrow bench formed from material supplied by the disintegration of the cliffs above. These are occupied by fishermen and quarrymen. Their situation isolates them to such an extent, that one of their neighbors living on the crest above, who might readily throw a stone on their housetops, would consider a visit to them more laborious than a trip to New York.

Owing to these conditions there has been little change of a substantial character. There are the same number of small wharves and landings now as formerly, only somewhat differently distributed. Small quarries were opened, worked a short time and then abandoned; bushes and vines concealing the debris, and a few rotting piles in the water marking the landing site.

The hydrography was executed in 1885 by Lieut. R. Wainwright and was sufficient for the needs of that time. But at the present

time, when it is considered necessary to establish pierhead lines to prevent injurious encroachment on the rivers channel, and problems of modern engineering relating to a great waterway, frequently arise, a more detailed development is demanded.

From a comparison of the older with the laterwork, the general statement can be made that whatever changes have taken place since 1855 have been in the direction of improvement in the width and depth of channel.

In many cases this may be more apparent than real, because the data of 1855 was hardly sufficient for drawing some of the depth contours, and was on this account misleading.

To enter more into details, it will be seen in the section from Spuyten Duyvil Creek to Yonkers, that the later survey shows little change in the contour of the bottom up to the five fathom curve. The breadth of the area between the six fathom curve above Mt. St. Vincent has been somewhat increased. Also the area between the seven fathom curves, instead of stopping about half a mile above Spuyten Duyvil Creek, continues in and joins the deep water below the Creek.

But the most notable change which was developed, was the increase in area of the eight fathom curve.

In the survey of 1855 it is shown as only 550 meters in length by 120 meters in breadth; its northern limit a little less than

half a mile below Riverdale. In the later survey the northern limit is opposite Mt. St. Vincent and the area extends southward 2,500 meters with an average breadth of 200 meters.

From Yonkers to Hastings no important differences were indicated, except that the contours of the later work present a much smoother outline, due, no doubt, to the closer development.

The same characteristic difference appears in the section of the work from Hastings to Ardsley, and the new work develops an area of over eight fathoms, extending from a point opposite Dobb's Ferry to five-eighths of a mile to the southward, which is not indicated by the old work.

At the outset of the season two projections were furnished me from the Office for the hydrographic work. A diligent search was made for the old triangulation points, but not one was recovered. This was chiefly due to the fact that they were located either on wharves long since obsolete, or on the sea-wall of the Hudson River Railroad, which has been altered. It was expected that some new points would have to be determined by triangulation during the season, but the actual amount of work necessary was not realized until the ground had been gone over from New York to Tarrytown; the nearest localities where a base could be obtained for a start.

Assistant Edwin Smith took charge of this branch of the survey

on his arrival, and it is hardly necessary for me to comment on the character of the work of an officer of his experience and skill beyond saying that it was of the first order.

He was assisted by Mr. Dean Halford, who performed the duties of recorder in a satisfactory manner.

While the observations were under way, I made such computations as the time and data would permit. But the larger part of the computations and revisions were made by Mr. Smith.

In order that the Hydrography might not be delayed until the triangulation was ready to be utilized? I made two topographical sketches of the section from Spuyten Duyvil Creek to Yonkers. For this purpose I transferred the old topography to new sheets, and selected as an initial point a location which appeared identical with that of the old survey. The table was oriented by some detail of the shore-line chosen for a like reason. Then a talemeter base of about a mile in length was measured along the railroad, and from this base the signals erected for the hydrographic work were cut in.

Tide gauges were located at Riverdale, Glenwood, and Dobb's Ferry. One was also set up for a short time at the entrance to Spuyten Duyvil Creek, on the erroneous supposition that the B.M. there had been recovered. When it became evident that the latter had been destroyed, the other gauges were corrected with the one at Dobb's Ferry by simultaneous observations, in two days, at the



slack ebb and slack flood current period, according to the method prescribed by Assistant Henry Mitchell in App. 11 - Rep. 1870.

Chief Yeoman C. L. Grenn was in charge of the steam launch when the greater part of the sounding was done. Chief Yeoman T.W. Lentze was in charge of the remainder. They both proved energetic in the performance of their duties.

Second Class Yeoman D.B. Wainwright and Seaman Recorder, Oscar Straube, completed the hydrographic party and are likewise to be commended.

The steam launch was far from an ideal instrument for the prosecution of the work, and in the strong currents of the Hudson all her weak points were magnified. Nearly all the up and down lines were run with the steamer, but the width of the river precluded her running the normals.

The topography was restricted principally to the shore line but in certain instances, when the towns abbuted, the streets were mapped far enough back to afford a sufficient basis for plotting a plan of the town.

I executed the larger part of the topography myself, but when in the latter part of October the party was ordered to Buzzards Bay to investigate and develop the uncharted ledge in Quick Hole, Assistant W. E. McGrath remained at Yonkers and completed the shore line on the East side, and on the return of the "Blake" finished

what remained to be done on the West side.

Mr. E. F. Rodger's work as Rodsman was highly satisfactory.

Chief Machinist, L.M.Hodgkins, served as Chief Engineer throughout the season, and he deserves special commendation for the perfect working of his department, and the skill and energy with which he undertook the preparation of the plans and the supervision of the repairs and alterations of the steamer.

Dr. R. K. Cleburne, Apothecary, was highly successful in his care of the four cases of sickness which occurred on board, and besides paid strict attention to the sanitary condition of the vessel.

The season closed early in November in order to fit out the "Blake" for the winter's work in Porto Rico.

Very respectfully,

(Signed) D.B.Wainwright.

Assistant C. & G. Survey.