



Light Houses						
Name and Locality	Latitude	Longitude	Height of Light	Height of Mast	Distance from Water	Distance from Shore
Seven-foot Knoll Lt. Ho.	39° 14' 35.0"	76° 36' 12.5"	35 ft.	45 ft.	11.9	11.9
North Pt. Lower do.	39° 14' 45.0"	76° 36' 12.5"	35 ft.	45 ft.	11.8	11.8
North Pt. Upper do.	39° 14' 45.0"	76° 36' 12.5"	35 ft.	45 ft.	11.9	11.9
Fort Carroll do.	39° 14' 45.0"	76° 36' 12.5"	35 ft.	45 ft.	11.3	11.3
Lazarus Pt. do.	39° 14' 45.0"	76° 36' 12.5"	35 ft.	45 ft.	11.1	11.1

Variations of the Magnetic Needle				
Locality	From Observations in	Observer	Variation West	Variation East
Fort M. Henry	April 1857	Capt. J. L. Lee	2° 13'	2° 30'
Fort M. Henry	Sept. 1856	Chas. A. Schott	2° 29'	2° 04'
North Point	July 1846	Capt. J. L. Lee	1° 37'	2° 04'
North Point	July 1845	do. do.	1° 40'	2° 02'
Boekin Point	April 1847	do. do.	2° 02'	2° 07'

PATAPSCO RIVER AND THE APPROACHES

From a Trigonometrical Survey under the direction of E. R. HASSLER and A. D. BACHE Superintendents of the SURVEY OF THE COAST OF THE UNITED STATES
 Triangulation by J. FERGUSON Assistant
 Topography by F. H. GERDES R. D. CUTTS ILL. WHITING & J. B. GLUCK ASSISTS.
 Hydrography by the parties under the command of
 Lieuts. G. M. BACHE C. H. M. BLAIR & R. WAINWRIGHT U. S. N. Assistants.

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 Scale follows

SAILING DIRECTIONS

When in 8 fathoms soft bottom, about 2 1/2 miles from Thomas Pt. Lt. Ho. steer N. by E. 1/2 E. (N. 52° E.) This course passes clear from the 8 fathoms water until an up with the mud bank. In the Tidewater of 8 fathoms there are shoals. Continue on this course, passing the Lower and Upper 5 fathoms Buoy, when deepening to 7 fathoms, steer S. by E. (S. 22° E.) for the Entrance Bay in 4 fathoms water. Leave this Bay to the Northward, bringing the Lights on North Pt. in range. If the Lights are not visible, anchor in 4 fathoms water. If visible, steer with Light House nearly in range, keeping the Lower Light slightly open with Sparrow Pt. which will cross in 7 fathoms, precisely in range, cross as the Seven-foot Knoll. Follow this range until up with Rock Range Buoy. The Seven-foot Knoll Lt. will bear S. by E. by 1/2 E. (S. 52° E.) then steer N. by E. (N. 52° E.) for Lower Channel Buoy until Lower Lt. on North Pt. bears North (N. 52° E.), then cross to them (N. 52° E.) 7 fathoms. North Pt. bears N. 52° E. 3/4 E. (N. 37 1/2° E.) then change the course to N. by E. (N. 52° E.) for Rock Knoll Buoy, bearing it on the port hand, steer N. by E. (N. 52° E.) towards the Yellow Bank. Just South of Hawkins Pt. until Hawkins and Leading Points are in range, follow this range, leaving Sparrow Pt. Knoll Buoy on the Starboard hand. When Fort M. Henry they stand in a slight angle to the Southward of Washington Monument above N. E. A. K. Lt. bearing between the Buoy of Hawkins Pt. and Solter's Pt. to the Southward of Fort Carroll Lt. when abreast of Lazarus Pt. having passed to the Westward of a Buoy on a spit below the Lazarus Pt. stand on in mid channel, way passing to the Eastward of a Buoy on a spit making out from Fort M. Henry, then haul up for the anchorage in the Basin, bearing to the Southward and Westward of the Middle Channel.

Note: The new Channel now in progress of excavation is shown within the dotted line A. B. C. From A to B the Channel is dredged out to a width of 255 feet, from B to C it has at the present time an average width of 200 feet. The inclined figures along the line give the present depths.

The dredging has been commenced by Major H. Brewster, Corps of Engineers, U. S. A. in charge of this improvement, by letter dated February 9th, 1859.

NOTE

The Courses and Bearings without the brackets are Magnetic; those within are True, and the Distances are in Nautical miles. The Soundings are expressed in feet, and show the depth at mean low water, the plane of reference. The dotted outlines beyond low water mark represent the bottom within the respective depths of 6, 7, and 8 fathoms. The characteristic soundings only are given on the Map. They are selected from the numerous soundings taken in the survey, so as to represent the figure of the bottom.

TIDES

Corrected Establishment	Bolton's Lt.	Baltimore
Rise of Highest Tide observed above the plane of reference	2.4 ft.	3.1 ft.
Full of Lowest do. below do.	1.6 ft.	2.2 ft.
Full of Mean Low Water of Spring Tides below do.	0.2 ft.	0.2 ft.
Depth of Mean Low Water of Neap Tides above do.	0.1 ft.	0.2 ft.
Mean Rise and Fall of Tides	1.0 ft.	1.3 ft.
Mean do. of Spring Tides	1.3 ft.	1.5 ft.
Mean do. of Neap Tides	0.8 ft.	0.9 ft.
Mean Duration of Rise & Receding from the middle of one Mean do. of Full & Stand to the middle of the next	27' 00"	26' 33"

The Triangulation was executed in 1854 & 55
 The Topography do. do. in 1854 & 55 & 56 & 57 & 58
 The Hydrography do. do. in 1855 & 56 & 57
 In the description of Buoy H. S. signifies horizontal stripes, P. S. perpendicular stripes, B. black and R. red.



Verified
 W. R. Robertson, Capt. U.S. Army, Engrs.
 Asst. U.S. in charge of office.