Upper

Electrotype Engr. No. 5 by A. Mathias U.S.C.S.

West Longitude from Greenwich Observatory

Longitude West from New York City Hall 0° 15'

The plan of Philadelphia, excepting the wharves on the Delaware front is from the printed plan of Charles Vine & Conf published in 1850 corrected by Coast Survey measurements.

PART OF

THE DELAWARE RIVER

continued

FROM FRANKFORD TO TRENTON

SAILING DIRECTIONS.

From Bombay Hook Bar to Liston's (the tree bearing South) the course is N.W.½ N. 13 miles; soundings as far as Bombay Hook Light, it is 4 fathoms, and between the Light and Liston's 3½ to 3¾ fathoms being the least water in any part of the Channel between Cape Henlopen and the Pea Patch.

From Liston's (the tree bearing South) to pile Stony Pt. bar a-berth, near Fort Penn place a little to the Westward of Reedy Island Light 2½ miles or until Barney's House on the Delaware shore (yellow with two single poplars near it) bears S.W. by W., soundings 4 fathoms, then your course is N. by E.½ E. 4 miles to Salem or Elsinborough Pt. on the Jersey shore, soundings up to the middle of Reedy Island 4 to 5 fathoms, then deepening to 7 & 8 fathoms.

There are two Channels to pass the Pea Patch. For the Eastern, or Gunar Pt. channel, touch the Salem Flats along which commence at Elsinborough Pt. hauling on and off, shoaling to 3½ and deepening to 5 and 6 fathoms water. When up with the North End of the Pea Patch, take your soundings from the New Jersey shore, hauling on to the Flat to 5 and deepening off to 8 fathoms, touching the Flat along until New Castle Spire bears N.1 E. then haul out on this course into the middle of the River. The River from Delaware City to Bulk Head Shoal is then a runway to Bird & Ly required by changes in the bed.

The channel Westward of the Pea Patch is divided by a Middle ground, commencing about mid way between the Pea Patch and Delaware shore and following the bend of the River, the least water upon it is 10 feet. The Channel Westward of this Middle is narrow, least water 20 feet. To take it run from Elsinborough Pt. for the Pea Patch until up with Reedy Pt. then which the shore trends suddenly to the N.W. then touch the Flats on the Delaware shore along up passing between the East and West Buoys and near the West Buoy.

The channel East of the Middle is not so difficult, least water 23 feet. When up with Reedy Pt. take your soundings from the Pea Patch side and touch the Flats along up to East Buoy and then the Middle to the Bombay Buoy.

From New Castle to Marcus Hook the general course of the River is S.E. by N.¾ miles, the last water off the Eastern shore until past Cherry Pt. Flats, a middle ground off Chestnut Creek, about 24 miles long least water 8 feet.

Having passed the Flats the best water is off the Western shore. Keeping is pretty well aboard, you clear Marcus Hook Bar which has off that place.

From Marcus Creek to Chester the course is about N.E. by E.¾ miles, best water off the Western shore. When one mile above Chester you are up with the Buoy on the Spit which makes down the River from Tinicum Pt. which you bear to the Westward. The bend of the River is then nearly East of the Bar below Fore Mifflin, upon which there are two Buoys from the Bar, between the two Buoys and river for Fort Mifflin, passing to the Northward of the red, you will lose off that mark. The River then trends Eastward again, up to the Horse Shoe, upon which there is a Buoy which is to be left to the Northward.

Having passed the Horse Shoe, the bend of the River is nearly South, up to Kaighns Pt., the best water on the Eastern shore, until the Canal basin on the Pennsylvania side bears W. by N. Steer across the River and keep the Western shore aboard up to the city.

REMARKS.

The Harbor of Reedy Island is much used, particularly in winter while ice is running. A small spit makes South from the lower end of the Island 1 a mile, being clear of this your course is South. Anchor off the Farm in 4 or 5 fathoms mud.

Bombay Hook Roads is an anchorage much used by vessels waiting wind or tide. Bring Bombay Hook Pt. to bear S. by E. the Light N. by E. and anchor in from 3 to 4 fathoms, sticky bottom.

TIDES.

Corrected Establishment of Philadelphia	1h XXII' of New Castle 1h XVII'
Rise of Highest Tide observed above the plane of reference	7' 8 ... 5' 5
Height of Mean Low Water above the plane of reference	3' 3 ... 3' 0
Height of Mean High Water above the plane of reference	10' ... 8' 5
Mean Rise and Fall of Tides	7' ... 5' 4
Mean Rise and Fall of Spring Tides	8' 9 ... 6' 7
Mean Rise and Fall of Neap Tides	5' 5 ... 4' 5
Mean duration of Flood (from middle of one slack to middle of the next)	5' 50" ... 5h 45'
Mean duration of Ebb	7' 0.5" ... 6h 54'
Mean duration of Slack Water	0' 15" ... 0' 26"

Variations of the Magnetic Needle.

At White Hill New Jersey	in May 1844		4° 44' West
At Girard College Philadelphia	in May 1844		3° 50' West
At Wilmington Delaware	in May 1844	Local attraction	3° 34' West
At Church's Landing New Jersey	in June 1844	Local attraction	5° 56' West
At Fort Delaware	in June 1844		3° 21' West

Buoys.

No.	Where situated	Shape	Color of Buoys
21	Reedy Island		
22	Pea Patch		
23	Middle Ground (South End)		
24	do. do. (North do.)		
25	Channel E. of Pea Patch	Spar	Black
26	Bulkhead	Spar	Black
27	Bombay		
28	Cherry Island Flats	Spar	Red & Black horizontal Stripes
29	Marcus Hook Bar	Spar	Red
30	Chester Island (W.)		
31	do. do. (E.)		
32	Little Tinicum		
33	The Bar (W. side)		
34	do. do. (E. do.)		
35	Horse Shoe	Spar	Black
36	Windmill Island (South)	Spar	Red
37	Off Bulkhead	Spar	Black
206	On Bakers Shoal	Spar	
214	Channel W. of Middle Ground		

Final reduction the Engraving of Topography by W.M. C. Fairlie Assistant & of Hydrography by Lt. J. B. Dale U.S.N. & J. B. Glick Assistant.

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Sheet No. 3

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Chart C

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