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Notes on the Coast of the United States

by A. D. Bache, Sup'dt U. S. C. Survey

Section III

Potomac River Va.
Patuxent do Md
Severn do do
Patapsco do do
Susquehanna do do
and Rivers & Sounds on East'n Shore of Chesapeake Bay

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Note— This Memoir was prepared chiefly by Prof. A. D. Bache, assisted by Lieut Comd'g J. S. Phelps, U. S. Navy. Capt. C. P. Patterson, Hydrographic Inspector. and Prof. W. P. Trowbridge, Assist. U. S. C. Survey.

National Oceanic and Atmospheric Administration

Notes on the Coast of the United States

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Potomac R. V.a

Chart (a)

The Potomac enters Chesapeake Bay in Latitude 38°00′ N. Longitude 76°20′ W. between Smith's Pt on the south and Point Lookout on the north. The boundary line between Virginia and Maryland passes along the low water mark of the right bank. The general course of the river from the mouth to the Little falls above Georgetown and Washington is N. 30° W (true); between the mouth and Aquia Creek the course is N. 60° W. and from Aquia Creek to Washington N 30° E. The general course upwards from Washington as far a Harper's Ferry is N. 48° W. The following are the Distances from the mouth to remarkable points: from Point Lookout to Piney Point eleven nautical miles; to Blackstones Island twenty two miles; to Lower Cedar Point thirty five miles; to Mathias Point forty miles; to Maryland Pt fifty miles; to Smith's Point fifty four miles; to Cockpit Point sixty three miles: to Indian head seventy miles; to Hallowing Point seventy four miles; to the White house seventy six miles; to Fort Washington eighty one miles; to Alexandria L. Ho. eighty five miles; to the Arsenal eighty nine miles.

At Alexandria, the Orange and Alexandria Rail road leads in a southwesterly direction to Lynchburg 170 miles from Alexandria, and thence by the Virginia and Tennessee Railroad to Bristol 204 miles from Lynchburg. It connects at 27 miles from Alexandria with the Manasses Gap Railroad, passes Culpeper Court house at 62 miles, and connects at Gordonsville, 88 miles from Alexandria, with the Virginia Central Railroad. The latter road pursues a course westward to Jackson's River Depot 119 miles from Gordonsville

passing Charlottesville at 21 miles and Staunton at 60 miles from Gordonsville. From Gordonsville the Virginia Central Railroad runs eastward to Richmond 76 miles, connecting with the Richmond Fredericksburg and Potomac Railroad at 27 miles from Richmond.

The Manasses Gap Railroad runs northwestward from the junction with the Orange and Alexandria Railroad, passing the following places at the named distances from Alexandria; Thoroughfare Gap in Bull Run Mountain 43 miles; Piedmont 61 miles; Manasses Gap 68 miles; Front Royal 78 miles; Strasburg 88 miles; Woodstock 101 miles, terminating at Mount Jackson 112 miles from Alexandria. Another Railroad, the Alexandria Loudon and Hampshire runs from Alexandria northwestward to Leesburg 38 miles. At Aquia Creek the Richmond, Fredericksburg and Petersburg Railroad leads in a southwesterly direction connecting with the above places.

The following are the principal Tributaries, Pohick, Piscassaway, Masawoman, Chickamoxen, Quantico, Cheepawunsie Aquia, Potomac and Pope's Creeks, and the Nanjemoy & St Mary's Rivers, none of which appear to be of much importance excepting the Saint Mary's River which empties into the Potomac River seven miles to the northward and westward of Point Lookout, and extends in a northerly direction about seven miles, varying in width from two miles at the mouth to one third of a mile near its head. $3\frac{1}{2}$ fathoms water can be carried up about 5 miles or to about $1\frac{1}{2}$ miles above Porto bello.

The following are the various **Widths and Depths** of the Potomac River. At Point Lookout the river is five and a half nautical miles wide and the greatest depth sixty nine feet; at Piney Point three and a half miles wide, and depth sixty nine feet; at Blackstone's Island three and one fourth miles wide, depth forty feet; at Swan's Point two and a half miles wide, depth forty one feet; at Lower Cedar Point three miles wide, depth eighty nine feet; at Mathias Point two miles wide, depth seventy eight feet; at Maryland Point two miles wide, depth thirty feet; at Smith's Point three miles wide, depth twenty five feet; at Shipping Point one and three fourths miles wide, depth twenty-three and a half feet; at Cockpit Point one and a half miles wide, depth thirty nine feet; at Deep Point three and one fourth miles wide, depth twenty two feet; at Indian Head one and three fourths miles wide, depth thirty five feet; at Hallowing Point one mile wide depth thirty six feet; at White House one half a mile wide, depth fifty four feet; at Fort Washington one mile wide, depth thirty six feet; at Jones Point Light two thirds of a mile wide, depth forty feet; and at Geesborough Point one mile wide, depth fifty five feet. In the channel the bottom is generally soft excepting in the vicinity of Cockpit Point and through the Kettle Bottoms where it is hard. There are no dangers in the channel excepting through the Kettle Bottoms which consist of small shoals or "lumps" with twelve or more feet on them; the principal dangers are the shoals which make from the following points and islands namely, Smith's Pt. Point Lookout, Hog Island, St George's Island

Ragged Point, Posey's Bluff, Blackstone's Island, Cob Pt, Swan Point, Bluff Point, Upper and Lower Cedar Points, Upper Machodoc Cr: Persimmon Point, Mathias Point, Metomkin Point, Maryland Point and the opposite shore, Deep Point and Crane Island.

Through the Kettle Bottoms once off Machias and Metomkin Pts the channel is from one half to three fourths of a mile wide.

The Variation is 2°30′ West.

Sailing Directions.

All bearings and courses given are Magnetic. On passing Point Lookout steer up mid river N.W½W till Piney Point Light house bears North, then N.W¾N till Ragged Point bears S.W. and Blackstone Light W.N.W.½W. then W by N. till Blackstone Light bears N.E. ½N. and Piney Point Light E. by S.½S. then N.W¾W. by the channel buoys through the Kettle Bottoms to the "turn buoy" which is situated about 1½ miles north of Rosier's Creek and S by W¼W from Lower Cedar Point; then steer N¾E. leaving the Cedar Point buoy on the starboard hand, till abreast of Cedar Point distant about ⅓ of a mile. The Cedar Point buoy marks the point of a dangerous shoal which makes out from Cedar Point and is nearly a mile from the extreme point. From abreast of Cedar Point, steer N¼W. till abreast of Pope's creek and about ½ mile from the Maryland shore, then N.W. by W½W. till past the Mathias Point buoy, which leave ⅛ of a mile on the port hand.

Avoid the flats off the upper Machodoc Creek as there is but little water on them. The water breaks about fifty feet in-

side the Persimmon Point Buoys. Until past the Metomkin shoals great care must be observed and the lead kept constantly going, as the water shoals suddenly from 3 or 5 fathoms to 5 feet or less water. From Mathias Pt buoy steer West till Lower Cedar Pt closes with Persimmon Point then W½S. till Mathias Pt bears East and Upper Cedar Pt E.N.E. then S.W. ¾W till abreast of the first point to the eastward of Maryland Pt when steer W.½S. for the Maryland Pt buoy, which pass close to on either hand, then W.N.W. to abreast of Lower Thomas Pt and from thence N.¾ West to Smith's Pt passing it about ⅓ of a mile distant. The water is good close in to Smith's, Liverpool and Sandy Points. From Smith's Pt steer north to Sandy Pt which pass distant about 300 yards, then N.½W. till Shipping Pt bears West distant "a short half a mile" or about ⅓ the distance across from the point, the N.E. to Indian Head, passing it distant from 300 to 400 feet, then steer E¾N. till up with Glymouth wharf or the mid channel buoy, then N.E. till Crane Island bears N.W½W, then N by W. pass Halloring Pt till abreast of Bluff Pt, thence N½E. to White Stone, then N.N.E. to off the Pavillion or White House, passing the wharf at the Pavillion distant about 250 feet. From the White House steer E.N.E.½E. towards Bryan's Pt till past the buoy off Sheridan Point, thence to Fort Washington; the deepest water is close into the whf.

From Fort Washington steer N.N.E. to Pattens Pt then N. to the buoy of Broad Cr. which leave on the starboard hand, then N by E. to Rosier's Bluff, then N.¼W. to Jones' Pt L. house, which pass dist. 100 yards then N. by E till abreast of the coal wharf, then N. by E ¼E to Geesboro' Pt and from thence N¼W. to the Arsenal. The courses are correct magnetic, serving in general, but the chart & lead are safest.

Marks for Potomac R. from its mouth to Alexandria.

No in order	Name of Stations	Color	Marks	Bearing of prominent objects from buoys &c		General remarks	Depths at L.W. of Spring tides
A1	Smith's Pt Shoal	Black	In can 2d Summer	Tasmaker's	S.W by S½S	On outer edge of this Shoal to guide	12
	Nine foot Lump		spar winter	Thicket bluff	N.W by W	clear standing up. Heavy Vessels neve	
				Light Vessel	S E by E	pass inside of this buoy	
....	Cornfield harbor	Red	spar 16	Light house	E by S	Buoy on dangerous place, 3½ fathoms	
	under Pt Lookout	Black horizontal		Cornfield Pt	N W½W	each side. Vessels give it a small berth	8
				Wharf end	N E		
....	L.H. Pt Lookout	White tower	light on	Smith's Pt L Ho.	S E by S½S	L. house on N. side of entrance	..
		Straw building	dwelling	Spit end George Id	N W by W¼W		
....	End Spit George I.	Red	In can 2d summer	Cherry Pt	N by W¼W	Sticky. Bound up St Mary's, when up	23
		Black horizontal	spar winter	S. end George's Id	W by N¼W	with buoy, steer for Cherry Pt. If up the	
				L.H. Pt Lookout	S E by E¼E	Potomac keep Ragd Pt on Stard bow till clear of sand spit from George I.	
....	Piney Point L.H.	White	tower 36	Ragged Pt buoy	W by N½N	Light on starboard hand going up.	
1	Ragged Pt	Black	In nun 2d	L.H. Piney Pt	E by S½S	Soft bottom	24
			spar	Stinking Pt bluff	S¾W		
				Ragged Pt bluff	W S W		
....	Blackstone's Id	White	tower	Buoy off Shank's I.	W¼S	Light on Starboard hand going up	
		Red	Bk house			Light on Keeper's dwelling	
....	Shank's Id	Black	spar 43	Buoy off Wycomico	N W½W	Soft. Between this and the river	27
		White Vertically		L.H. Blackstone I.	E ¼N	Wycomico 4 fathoms will be found	
				Tree, Shank's I.	N by E¼E		
....	Wycomico River	Black	spar 38½	Cobb Pt	N¾E	Soft. Best for large Vessels, going up, to	23½
		White Vertically		L.H. Blackstone I.	E by S¾S	leave this buoy to port hand. Nearly a-	
				Ex. end Nomini Clf.	S E½S	breast on the other side is a lump 19 feet	
....	Cobb Pt or first	Black	In nun 2d summer	Buoy off Wycomico	S E by E¼E	Soft. Four fathoms found between this	24
	Kettle Bottom By	White vertically	spar winter	Cobb Pt	N E¼N	buoy and the next.	
				L.H. Blackstone I.	E by S¼S		
....	Burnt Chimney Sh.	Black	spar 40	Cobb Pt	E½N	Soft. Four fathoms found between this	25
	or 2d ditto.	White vertically		Swan Pt	N W by N½N	buoy and the next.	
....	Between Bt Chimy	Black	spar 45	By 2d Bt Chimy Shl	S E¾E	Soft. Four fathoms found between this	28½
	shoal & Swan Pt 3d.	White vertically		Swan Pt	N⅜W	buoy and the next	
				Ho. on White Pt	W¾N	Mark trees on Baber's Pt N W by W½W	
...	Off Swan Pt or 4th do.	Black	spar 45½	Swan Pt	N E¾N	Soft. 5½ to 7½ fathoms found between	30
	of Kettle bottoms	White vertically		3d buoy Kettle Botms	S E by E¼E	this 4th buoy and next 5th and last.	
				Mark trees Baber's P.	N W¾W		

Continued page 7

Marks for Potomac R. Va., from its mouth to Alexandria.

	Name of station	Color	Mark	Bearings of prominent objects from the buoys.		General remarks	Depths L.W. of spring tides
	Buoy S.W of Kettle B.m S.th and last	Black vertical White	1.st nun 2.d summer spar winter	Buoy off Swan P.t	SE¼S	Soft. A turning point. Up to	31
				Bluff P.t	SW by W	which (bound up) you are clear of	
				White P.t	S½E	K. bottoms. Range large White house	
				Low.r Cedar P.t L.H.	N½W	on hill with 2 large Elms, carrying over K. Bottoms	
3	B.y Up.r Machodoc Flats	Black	spar 41	Nun buoy S.W. Kettle	SE by S	Soft bottom	28
				L. Ves.l L.r Cedar P.t	N½W		
				Hooe's ferry	N by W½W		
				M.t Moriah	SW¼W		
2	Off Lower Cedar P.t on end of bar	Red	1.st can 2.d summer spar winter	L. Ves.l L.r Cedar P.t	N by W½W	hard. Soundings very abrupt	19
				Cedar P.t	NE¾N		
				Hooe's ferry	NW by N½N		
	L. Vessel off Low.r Cedar P.t	Lead	1 light 2 masts	B.y L.r Cedar P.t	SE by E½E	Between Cedar P.t and Yates Shoal,	
				B.y Paspahansey C	NE¾N	near Yates on port hand coming up.	
4	Paspahansy Sh.l	Red	spar 38	Paspahansey Cr.	E¼N	hard, soundings very abrupt from	24
				L. Ves.l L.r Cedar P.t	SW¾S	7 to 4 fathoms and then into 9 feet.	
				Ludlow's ferry	NNE		
5	Persimmon Sh.l	Black	spar 37	Mathias P.t	NW¼N	hard.	24
				Hooe's ferry	SW¾W		
				L. Ves.l L.r Cedar P.t	S½E		
6	Dent's Shoal	Red	spar 39	Mathias P.t	W¾S	hard. soundings abrupt 12 to 16	26
				Dent's house	ENE	fathoms into 9 feet	
				Persimmon P.t	S¾W		
7	Mathias P.t	Black	spar 39	L. Ves.l Up. Cedar P.t	W¾N	soft. soundings abrupt 4½ fathoms	26
				Mathias P.t	SW by S½S	to 9 feet.	
				Dent's house	E½S		
8	Port Tobacco Sh.	Red	1.st can summer spar winter	L. Ves.l U.r Cedar P.t	W	Sticky. soundings very abrupt	39
				Mathias P.t	SW by S½S	9 into 4½ fath.s and quickly into 6 feet	
				Persimmon P.t	S¾E		
9	Dade's P.t	Black	spar 38	Mathias P.t	E by N¼N	hard. very abrupt 9 to 4½ fathoms	23
				L. Ves.l Up. Cedar P.t	NW by N¼N	and immediately into 6 feet.	
				Judge Dade's H.	SSE by ¼S		
	L. Vessel Upper Cedar Point	Yellow	1 light 2 masts	B.y Port Tobacco S.	E	Off Upper Cedar P.t opposite river Tobacco M.d on starboard coming up.	
11	Mattomkin Sh.l	Black	spar 38	Hollis, or poplar's	N¾E	soft. very abrupt 9 into 4½ fathoms	27½
				Upper Cedar P.t	NE	and then into 6 feet.	
				L. Ves.l U. Cedar P.t	NE¼N		

10	Jenifer Flats lower	Red	spar 38	Hollis or the poplars	N by E¼E	Up Cedar NNE¼E Metom^n NE¼E	21
12	Buoy Jenifer's Flats upper end	Red	spar 36½	Jenifer flat (lower)	N by E¼E	soft bottom	23
				Maryland P^t bluff	S W by W½W		
				Melomkin P^t	NE by N¾N		
...	Lump Maryland Flats	Black	I^n can 2^d summer spar winter	Maryland P^t bluff	NW½W	hard. Altho' on lump the	25
				Jenifer Flats (upper)	NNE½E	channel is not clear on Virg^a hand	
				Hollis, or the poplars	N by E	side going up, must be left on port	
...	Lower end of Maryland Flats	Black White vertical	spar 34	Maryland P^t	E¼N	soft bottom	20½
				Morris' P^t	NW by N¼N		
				Maryland P^t Lump	E by S¾S		
...	Upper end of Maryland Flats	Black vertical White	spar 31	Maryland P^t	SE by E½E	soft	20½
				Wh. house, Morris' L^g	N by E		
				Maryland flats (lower)	SE		
14	Smith's P^t	Red	spar 35½	Thorn Gut P^t	S by E½E	hard, rocky	22
				Aquia Cr. landing	S W by W½W		
				Smith's P^t	E.		
16	Perry P^t near Wade's Bay	Red	spar 38	Liverpool P^t	N.	soft	28½
				Smith's P^t	S½E		
				Perry's P^t	E½N		
15	Liverpool P^t near Marlow's Creek	Black	spar 34½	Perry's P^t	SSE	soft	22½
				Buoy off Perry's P^t	S by E		
				Liverpool P^t	E		
18	Budd's ferry	Red	spar 38	Sandy P^t	S W¾S	hard	26
				Chicamuxen R mouth	E by S		
				Cockpit P^t	NE½N		
...	Matawoman Flats	Black White	spar 30	Cockpit P^t	W½S	soft	19
				Indian Head	NE by E		
				Freestone P^t	N by W½W		
17	Occoquan Flats S.E. side	Black	spar 28½	Indian Head	NE by E	soft	19
				Freestone P^t	N W¾W		
				Cockpit P^t	W by S¾S		
				Matawoman Flats	S W½W		
19	Craney I^d Bar	Black	spar 37	Craney I	N¼W	hard	23
				Pie's landing	SE½S		
				Indian Head	S W by W¼W		
20	Brent's Bar near White house	Red	spar 38	White Stone cliff	NW by N	soft	25
				Brent's P^t	E		
				Halloing P^t	SE by S		
22	Hard bargain Sh^l	Red	spar 38	Flag staff F^t Washing^n	E by N¾N	very hard. Abrupt sounding	
				Sheridan's P^t	NE by N¼N		27
				Mt Vernon house	WNW		
21	Sheridan Flats lower end	Black	spar 29	Flag staff F^t Wash^n	ENE	soft Abrupt	20
				Sheridan's P^t	S W by W		
				Moxley's P^t	S.SE		
23	Sheridan Flats upper end	Black	spar 29	Sheridan's P^t	S W½W	soft. Abrupt	21
				F. Staff F^t Washington	S¼E		
				Goose Creek	E½N		

24	Broad Cr. Flats	Red	spar 37	Sheridan's Pt up. end	S by W½W	Soft bottom	28
				Church Broad C. do.	E ¾ S		
				Rosier's bluff	N¾E		
25	Flats opposite to Rosier's bluff	Black	spar 29	Rosier's bluff	NE	Soft	19
				Pioneer mills, Alex.a	NW by W		
				N. end Hog I.	S by W		
27	On Hunting C. flats	Black	spar 28	2 Trees end Jones' Pt	NW by N½N	Soft. Soundings abrupt	17
				Berry's ferry	N by E½E		
				Pioneer mills Alex.a	N by W½W		
26	Alexandria flats opposite Jones Pt	Red	spar 29	Berry's Ferry	NE by E¾E	Soft. gradual	19
				2 Trees end Jones' Pt			
				Pioneer mills Alex.a	N½E		
...	Jones Pt L. house	White	light on dwelling				
28	Alexandria Flats opposite City	Red	spar 29	Berry's Ferry	E by S½S	Soft " gradual	18
				2 Trees end Jones' Pt	S W½W		
				Pioneer mills Alex.a	NW½W		
30	Off Goose Island Alexandria flats	Red	spar 36	Goose egg I.	E by S½S	Soft	24
				Berry's Ferry	SE by S¼S		
				Pioneer mills Alex.a	SW¾S		
29	Half way tree	Black					
29	Geesborough ent.e of Georgetown Ch.l	Black	spar 22	U.S. Arsenal wharf	NE by N	hard	12
				Washington Mon.t	N½E		
				New Lunatic Asyl.m	E½N		
...	Junction of Wash.n & Georgetown Ch.ls end of mud flat	Black	spar 29	N. Lunatic Asylum	E½N	Soft Leave it on starboard hand entering Georgetown Ch.l and port hand for Wash.n Chan.l	17
		Red horizontal		U.S. Arsenal wharf	N by E¼E		
				Washington Mon.t	N¾W		
32	Flats between Geesboro & U.S. Arsenal Bs	Red	spar 29	Lunatic Asylum	E½S	Soft	13
				U.S. Arsenal wharf	N½W	Monument N by W¼W	
31	Off U.S. Arsenal	Black	spar 24	Large Ship house N.Y.	E NE	Soft. Starboard Wash.n port N.Y.	13
34	Opposite Buzzard Pt next Arsenal buoy	Red	spar 27	Large Ship house N.Y.d	NE½N	Soft	18
				Lunatic Asylum	SE		
				Washington Mon.t	NW½N		
33	Buzzard Pt	Black	spar 29	Lunatic Asylum	SE¾S	Soft	24
				Large Ship house NY	NE¼N		
				Washington Mon.t	NW by N		
36	Abreast, Johnson's	Red	spar 24	Lunatic Asylum	S by E	soft	15
				Large Ship house	NE by E		
				Buzzard Pt	SW by W½W		
38	Abreast, Canal near Navy Yard	Red	spar 22	Lunatic Asylum	S¾W	Soft When round it steer for the large Ship house	24
				Large Ship house (end)			
				Buzzard Pt	SW¼W		
				Wycomico R			
1	Cobb Pt Bar	Black	spar 30	Blackstone L H.	SE by E	Sticky	18
				Cobb Pt, outer end	N by W½W		
				Poplars, White Pt	N by E		
2	Lancaster Bar	Red	spar 30	F.m house (near mouth)	SE by E	hard. very abrupt	15
				Cobb Pt	W by N½N		
				Tide mill house	NNW		

	These buoys are all placed on the starboard hand of the channel. No specific designations of their stations	Red	spar 22	Washington Mon.t Geesborough Pt	N N W S E by S	Soft bottom	15
		Red	spar 22	Washington Mon.t Geesborough Pt	N by W S S.E	hard "	15
		Red	spar 22	Washington Mon. Lunatic Asylum	N E by N S E by E	hard "	14
		Red	spar 20	Observatory	N	hard "	11
		Red	spar 18	Washington Mon. Observatory	E by N N by E	hard "	10
		Red	spar 18	Observatory Draw, long bridge	N by E½E	hard "	10

Taken from the Publications of the Light House Board

? It is uncertain whether the above Beacons and Buoys are now in their places:

Tides.

	Pt Lookout	Wash. N Yard
Average interval between the time of Moon's transit and time high water	$12^h 58^m$	$20^h 10^m$
Mean rise and fall of tides	1.ft 4	3.ft 0
Mean " do " Spring tides	1.9	3.4
Mean " do " Neap tides	0.7	2.6
Mean duration of rise	$5^h 59^m$	$5^h 37^m$
Mean duration of fall	6.19	6.49

From the above the following practical results are deduced. The tide take $7^h 12^m$ to pass from Pt Lookout to the Washington Navy yard thus traveling at rate of about 12·6 nautical miles an hour (the distance being 91 miles). A Steamer therefore leaving Point Lookout at high water and ascending the river at the rate of 12.6 miles an hour would have high water during the whole trip and very little current. If her draught is light enough to enable her to pass the Shoals at other times than high water she would find it advantageous to start some time before high water so as to have the flood current in her favor. A Steamer going down the river, at the same rate as above, starting from Washington at high water, would have an ebb current in her favor and find low water about 3½ hours after starting or about 42 miles down the river: she would then have the flood current against her and arrive at Pt Lookout about the time of high water. To find high water at the Kettle Bottoms, in going down the river, the vessel ought to leave Washington about one hour and a half after low water, or at the time of low water, if she wants to find high water at the shoals of Boyd's ferry

End #7

Patuxent River.

CHARTS b & c

The Patuxent enters Chesapeake Bay in Latitude 38°19' N. and Longitude 76°23' W. between Cedar Point on the south and Little Cove on the north. It is of very easy entrance, the least water near the mouth being four fathoms, deepening inside to eleven and a half fathoms. Four fathoms can be carried in the channel up to Benedict twenty miles, where the British forces under General Ross landed in August 1814. This town is thirty six miles by the road through Bryantown and Upper Marlborough to Bladensburg which is six miles from Washington. About Swanson's creek the three fathom curve disappears except in deep places. Eleven feet and over can be carried to a point 12 miles above Benedict, two and a half miles above Lower Marlborough and nearly six miles and a half below Nottingham. About a mile and a half below Lower Marlborough the river narrows and deepens, the 3 fathom curve reappearing, and, except on a bar of about one third of a mile in length, appearing from three miles below Lower Marlborough to two miles above it. The river is remarkably clear of islands & of shoals. The width of the river at its mouth is five miles; at the first narrows at Drum Point seven eighths of a mile; at the second narrows three eighths of a mile; and at the third, at Long Point near Benedict, less than five eighths of a mile. The Patuxent has no considerable affluents. The western branch upon which is Upper Marlborough the county seat of Prince Georges', is the most considerable. It joins the main stream at Pig Point nineteen miles above Benedict. The chart gives sailing lines up to Selterly Point and the line of deepest water up to near Nottingham.

Sailing Directions.

COMING FROM THE SOUTHWARD

With Cedar Point bearing West, distant about 2 miles, steer N.W. until Core Pt. L. house bears N by W¼W. and the Round tree on Drum Pt bears West, when steer for Round Tree until the dwelling house on Hog Island bears S.W; then steer S.W. by W½W. for Wise's Store (which stands on the South Shore just under the bank next above the Wood Yard) until opening Summerville's large Brick House on Point Patience; when steer W.N.W½W. for Hopewell's House and Poplars at Ferry Wharf, until Sandy Pt bears North, which will clear Sandy Pt Shoal; then steer N.W¾N. for the Brick house on Pt Patience until Town Point bears S.W. and Abel's House (just open to the Southward of Pt Patience) bears W.N.W¼W. when steer for the latter until opening the river North of Pt Patience, when haul short round that Point (all dangers being visible) and steer N¾E. until the Brick house on Point Patience bears S.S.E. when keep away to N. by W¾W. passing between the Hawk's Nest off Cuckold's Creek and the flats off Helen's Creek, until above Half Pone Point, when Hooke's Three Poplars will bear N.E. then steer N.W.W until passing St Leonard's Creek, when the river becomes too tortuous and narrow for Sailing Directions to be of service and the Chart must be the chief guide.

COMING FROM THE NORTHWARD. With Core Point Light house bearing West, distant 1½ miles, steer S by W. for Cedar Pt until Round Tree bears W, when proceed as above directed.

Patuxent Roads.

Pilots usually anchor large vessels with Core Pt Light house bearing North. Small vessels however run in and anchor under Drum Point. The courses & bearings are magnetic; Distances in nautical miles

Dangers.

The entrance to the Patuxent is unobstructed. The only danger is the shoal off Hog Island. Vessels rounding Cedar Pt to enter the river should give this Island a berth of ⅝ of a mile, standing in.

Bottoms. *The bottom off the mouth of the Patuxent River is blue mud.*

Soundings. *The soundings are expressed in feet to 18 feet, or within the dotted surfaces, beyond them in fathoms, and show the depth at mean low water, the plane of reference. The dotted surfaces beyond low water mark represent the bottom within the respective depths of 6, 12, and 18 feet. 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.*

Light House

	Latitude N.	Longitude W. from Greenwich In arc	In time	Flashing, and the Interval of Flash	Height above level of the sea	Distane visible in nautical miles
Cove Point	38° 23′ 06″.6	76° 22′ 36″.4	$5^h\ 05^m\ 30^s.4$	fixed $1^m\ 30^s$	46^{ft}	12.1

Variation of the Magnetic Needle 2¼ West

Tides

Corrected Establishment at Drum Point	1^h XVI^m
Rise of highest tide observed above the plane of reference	3.1 ft
Fall of lowest tide " below do	0.9
Fall of mean low water of Spring tides below do	0.2
Height of mean low water of Neap tides above do	0.4
Mean rise and fall of tides	1.4
Mean do of Spring tides	1.9
Mean do of Neap tides	0.7
Mean duration of Rise } *Reckoning from the middle of one*	$5^h.48^m$
Mean do of Fall } *stand to the middle of the next*	6.45
Mean do of Stand	0.25

West River, South River, Rhode River Severn River and Magothy River

Though called rivers the above named are properly only arms of the Bay. No considerable streams flow into them. West River joins the Bay between Curtis Pt and Saunder's Pt, the distance between these points is about 2 nautical miles. West River extends to the S.W. about 4 miles. Its shores are very irregular, and it branches out at its head into numerous crooked arms and creeks.

Rhode River may be called an arm of West River. It enters West River on the North and has a general N.W. direction extending inland about 2½ miles The country around West and Rhode Rivers is cultivated. Twelve feet of water can be carried well up West River and 10 feet nearly to the head of Rhode River.

South River enters the Bay between Saunders' Pt and Thomas' Pt. It is about 2 miles wide between these points and extends in a straight direction N.W. diminishing in width to the distance of eight miles. On the south shore are found Selby's Bay near Turkey Pt, Glebe Creek, half way up the river, and Beard's Creek about three fourths of the distance to the head of the river. On the North shore, in order, are found Duval's Creek, Aberdeen Creek and Broad Creek. A bridge spans the run above Beard's Creek, on the road from Annapolis to Washington. To this point 14 feet of water can be carried.

Severn River. Enters the Chesapeake Bay in Latitude 38° 58' N & Longitude 76° 30' W. between Greensberry's Pt on the North and Tally's Pt on the Sd. – the distance between which is nearly two miles. From Fort Severn 1¼ miles above Greensberry's Pt, towards its head, for a distance of 4 miles, the river has a nearly uniform breadth of ¾ mile. It then spreads out into a bay about two miles across called Round Bay. Nineteen feet water can be taken into the river and to the very head of Round Bay. The north shore is more bold and abrupt than the south shore, and is broken into many small curves and points with five or six very small creeks. The South shore is broken with 7 or 8 creeks from ½ to 1½ miles long, to the heads of nearly all of which 8 to 12 feet of water can be taken, and which a series of peninsulas, upon one of which (between Spa & Graveyard Crs) the City of Annapolis stands about 3 miles from Tally's & 1½ from Greensberry's Pt

Throughout the whole river the bottom is of soft blue mud, except on shoals off the Points.

Annapolis Roads *from the true mouth or entrance to this river. These Roads lie between Hacket's Pt on the North, Greensberry's Neck and Lilly's Pt on the W. Tally's Pt on the South, together with the several shoals making off from their respective Points &c. These shoals are North Shoal making out nearly due South from Hacket's Pt* $\frac{3}{8}$ *mile to the 6 feet curve* — $\frac{5}{8}$ *to the 12 feet curve, and* $1\frac{1}{8}$ *mile to the 18 feet curve. Greensberry's Pt Shoal making out from that Pt* $\frac{1}{8}$ *mile S.S.W & $\frac{3}{8}$ mile E by S. to the 6 feet curve* $\frac{1}{4}$ *$\frac{1}{2}$ mile S.S.E and E.S.E. $\frac{5}{8}$ mile to the 12 feet curve — and $\frac{7}{8}$ mile S.E. to the 18 feet curve. The 18 ft curve off these Pts nearly join. The bank along the shore, between Lilly's and Tally's Points, runs out to the N & E.* $\frac{1}{8}$ *mile to the 6 feet curve, from* $\frac{1}{4}$ *to* $\frac{3}{8}$ *mile to the 12 feet curve and from* $\frac{3}{8}$ *to* $\frac{7}{8}$ *mile to the 18 feet curve. The shoal off Tally's Pt is the most dangerous of these shoals and runs out from this point in a S.E. by E. direction with 6 feet* $\frac{5}{8}$ *of a mile distant; 12 feet* $\frac{3}{4}$ *mile distant, and 18 feet nearly one mile. The Roads, within the 18 feet curve of these shoals and the bay, form nearly an equilateral triangle with sides of 2 miles, with a depth of water varying from 5 and 6 fms to 18 feet. Inside the curve of 18 feet the bottom is almost always sand and outside soft mud.*

Ranges, Courses &c. — *From the Sd to clear the shoals off Thomas Pt and Tally's Pt — Hacket's Pt on with Whitehall Poplars — course N* $\frac{1}{4}$ *W. — To clear the N.E. edge of Tally's Pt Shoal — Fort Severn its own breadth open to the Northward of Horn Pt, bearing N.W.* $\frac{1}{4}$ *N. To clear SE point of North Shoal, —. Tally's Point on with the mouth of Oyster Creek, bearing S W* $\frac{1}{4}$ *S. and Greensberry's Pt on with State house bearing W by N* $\frac{1}{4}$ *N. To clear the South edge of N. and Greensberry's Pt Shoal — Keep the largest of a group of houses,* $\frac{1}{2}$ *mile back from the S.W. shore, just open to the Wd of the mouth of a small creek on the same shore about* $\frac{1}{2}$ *way between Back and Cat hole creeks.*

the best anchorage in the Roads for vessels drawing 18 feet and under is on a line between Hackets and Tally's P^{ts} with Greensberry's P^t on with centre of Fort Nonsense hill, with Fort Madison just shut in. F^t Severn P^t on with Bluff P^t and the group of houses back of Sandy P^t on with the shore just below Weeden's Creek, in 22 feet water: (for larger vessels as in Sailing Directions). SAILING DIRECTIONS. Vessels bound into ANNAPOLIS HARBOR from down the Bay should give Thomas' P^t a berth of at least 2 miles and not open the Poplars at Whitehall Cr. to the W^d of the trees on the western end of Hackel's P^t. This range, as by (View No 1) will carry them clear of the shoals off Thomas' & Tally's P^{ts} in 7 f^{ms} water. When off Thomas' P^t steer N¼W by compass until the whole length of the Severn R. is open (as by View N°3): then haul in NW½N on this range, pass to the S^d of the Black Buoy off Greensberry P^t and when near the White Buoy off Horn P^t haul up to the N^d towards Fort Madison and anchor in 19 feet water, muddy bottom. Vessels drawing under 12 ft. water can stand for the inner white or Channel Buoy and anchor inside of it, in from 13 to 14 feet muddy bottom. Vessels bound in from up the Bay should give Sandy P^t a berth of at least a mile and steer S.W. by S. by compass in from 7 to 8 fathoms water, until the end of Greenbury's P^t is in range with the State house (View N°2): then haul in W½S until the river opens (View N°3); then steer NW½N. on this range as before directed. Vessels making the Inner Roads for a harbor can anchor in from 3 to 4 fathoms water, muddy bottom, with the Poplar on Horn P^t in range with the State house and Tally's P^t open with Thomas Pt Light house. The best

anchorage in the Outer Roads for large vessels of War is in 8 fathoms water, muddy bottom, with the Poplar on Horn Pt in range with the State house and Thomas' Pt Light house bearing SW½S. by compass. This anchorage is distant 4½ miles from the City of Annapolis. The Light on Thomas' Pt is fixed. The height of the tower, from base to lantern, is 30 feet and the light can be seen 15 miles. The characteristic soundings are given on the maps. They are selected from the numerous soundings taken in the survey so as to represent the figure of the bottom. The bottom of the whole of the upper part of Chesapeake Bay above the Severn is soft mud.

TIDAL NOTES

Corrected Establishment of Annapolis				IVH XLIIIM
Rise of highest tide above the plane of reference			Nov 11th 43	2ft. 6
Height of mean tide above	do	do	"	0.9
Fall of lowest tide below	do	do	Oct 1st 44	1.4

The tidal notes are the results of observations during 13 months in 1844-5 The plane of reference is mean low water. The soundings are expressed in feet and show the depth at mean low water. The dotted surfaces represent the bottoms within the depths 18, 12 and 6 feet.

LATITUDE of Annapolis State House 38°58'39" LONGITUDE 76°29'51" W. (time) 5h 05m 59s.4
Variation of Magnetic Needle 2°14 W. (Station Taylor 1845)

LIGHTS, BUOYS AND MARKS IN THE ROADS.

Tally's Pt	Black spar 30ft	Thomas Pt SWbyS.	Tally's Pt WNW	Greensby Pt NNW	(hard)
Hackets' Pt	Red spar 25	Thomas Pt SSW	Hackets Pt NbyE	Greensby Pt WNW	(hard)
Horn Pt	Black spar 25	Horn Pt	West - Greensberry Pt E by N		(hard)
Greensby L.H.	White light on the N. side of the entrance of Annapolis harbor				
By Greensby Pt	Red spar 20	Tally's Pt	South	Horn Pt WNW	Greensby Pt N by W {hard sticky}
Mouth, Severn	B&W. spar 20	Horn Pt	South	Statehouse W by N - Mud fort NE	{hard sandy}

The City of Annapolis is connected by Rail road with the Baltimore & Washington Railroad. This Road runs directly N.W. 18 miles and joins the Washington branch of the Baltimore and Ohio Railroad at the "Junction". The most direct common road from Annapolis to Washington leads directly West from Annapolis, crosses the Patuxent at Patuxent bridge and enters Washington via Bladensburg, distance 29 miles. Another common road leads from Annapolis S.W. crosses the Patuxent at Queen Anne and leads directly to a point opposite Alexandria on the Potomac distance 29 miles.

MAGOTHY RIVER

Magothy River enters the Bay above Sandy Pt a little over 3 miles. Its entrance is half a mile wide, but the river widens out to 1½ miles. The mouth is nearly closed by Gibson's Island. The river extends nearly parallel to the Severn 5¼ miles. It is navigable for vessels drawing 13 feet. The entrance is between Stony Pt and Persimmon Pt. The N. bank is high, and woods, and the south bank low.

PATAPSCO RIVER

The Patapsco is one of the most important rivers of the Chesapeake Bay being the great highway for the commerce of the City of Baltimore.

Its entrance between Bodkin Point and North Point is about 3 miles wide. The most prominent points on the North side are North, Sparrow, Sollers' and Lazaretto Points – the last forming the East point of the entrance to Baltimore Harbor. On the South side they are Bodkin, Rock & Hawkins and a nameless Pt opposite to S. of Fort McHenry. North Pt and Rock Point – Sollers' Pt and Hawkins' Pt – and Lazaretto Point and the Point

opposite to S. of Fort Mc Henry, bear N.E. and S.W. from each other; the first 2¼ miles apart; the second 1⅜ miles; the last nearly a mile. From Bodkin Point, Rock Point, Hawkins' Point and a Point on the shore about 1 mile above Fishing Point are nearly in a line. On the N. shore, North Pt. Sparrow Point, Sollers' Point and the Point S. of Fort Mc Henry are in the same line, the two lines converging and crossing about 2 miles beyond Fort Mc Henry and exactly at right angles from the S. line to the head of the Baltimore Basin distant ½ mile. Near the head of ship navigation the Patapsco River sets off two arms to the Nd and Wd from the main stream where it makes a turn to the Sd and Wd; - the most eastern, largest and deepest of these is Baltimore Harbor. A neck or peninsula is formed between them ¾ mile across and at their heads and running with an irregular shore line to a round end at Fort Mc Henry. Across and back from this neck, and the North side of Baltimore Harbor is built the City of Baltimore.

The distance from Bodkin Pt to Fort Mc Henry is 10½ miles and to the eastern point, Baltimore wharves 11½ miles. From Light house at North Pt to Light house at Lazaretto is 7½ miles.* Fort Carroll is 3¾ miles from North Point. Fort Mc Henry is situated at the Er end of the neck of land that separates Baltimore Harbor from the Patapsco River and is on the western side of the entrance to the harbor, commanding completely the Harbor and all the approaches to it.

* From Seven-foot Knoll Light house to Fort Carroll Light house is 6⅜ miles. From Fort Carroll Light house to Lazaretto L.H. is a little over 3½ miles.

The mouth of the Patapsco is obstructed by an immense flat which extends from Sollers' and Hawkins' Points broken on the N.W. edge by a channel $\frac{1}{4}$ mile wide running past Ft Carroll to the Sd & Ed for $1\frac{1}{2}$ miles, out into the Bay nearly 5 miles E.S.E from North Pt and 3 miles to the Ed and out from the shore to the Sd of Bodkin Pt. Along the outer or bay edge this great bank is much broken into lumps and knolls with deep water between them and thro' which narrow and crooked channels run. Of these lumps and knolls, some of which have as little as 6 & 8 feet water on them, vessels should be very careful of approach. Shoal spits also make out from all the Points. These shoal spits with the lumps and knolls are invariably hard sand with the bottom thin soft mud. The channel in the Bay to the Ed of the lumps and knolls is two miles wide. Thro' the natural channel 17 feet water can be taken, as per sailing directions, and 22 feet by the artificial or Brewerton channel. The artificial channel is perfectly straight and runs in a direct line from Huntingfield Pt, Er shore of Bay, to Hawkins Pt. After passing Ft Carroll the channel widens rapidly to the entrance of the Harbor. The Harbor of Baltimore is an irregular arm of the river, or more properly a Basin, $2\frac{1}{2}$ miles long through the middle divided into 4 parts. (1st) The entrance which is a $\frac{1}{4}$ mile wide and a $\frac{1}{4}$ mile long between Lazaretto Pt on the East and Fort McHenry Point on the West, and leads directly North from the river. It has from 20 to 30 feet water in mid-channel. (2d) The Lower Harbor runs in North West and South East direction and is nearly one and a quarter miles long and $\frac{3}{4}$ m. wide.

There is a shoal of 8 feet towards the middle of the N.E. side, but 18 ft. can be taken to its head between the two points $\frac{1}{4}$ mile apart which separate it from (3d) the Middle Harbor which runs in a curve from about W.N.W. and is over $\frac{3}{4}$ mile long & $\frac{3}{8}$ mile wide, 14 feet can be taken thro' this at low water. It is narrowed by the points & wharves to 150 yards at the point where it is separated from (4th) the Upper Harbor or Basin; this is $\frac{1}{2}$ mile long running irregularly to the N.W. with a width of from 150 to 200 yds. This Basin has a depth of from 14 to 18 feet water. This Harbor, and particularly the Basin, is constantly filling in from the sewerage of the City and requires constant dredging to keep its depth. The distances from the centre of Ft McHenry to end of wharves of Fell's Pt is $1\frac{1}{2}$ miles; to the Monument a fraction over $2\frac{5}{8}$ miles; to the extreme head of the Basin $2\frac{1}{8}$ miles; to the nearest point of the Phila & Balte R.R.d between $\frac{7}{8}$ and 1 mile; to the main Depot of the Balte & Ohio R.Rd $2\frac{7}{8}$ miles; to Ft Carroll 4 miles. From Ft Carroll to Sollers' Pt a little over $\frac{3}{4}$ mile; to Hawkins' Pt $\frac{5}{8}$ mile. From Balte Harbor to the mouth the shores of the river are very irregular, numerous creeks entering from the adjacent country. Bodkin, Main & Back Creeks unite and enter the river near Bodkin Pt. Rock Cr. enters 3 miles above near Rock Pt. Stoney Cr. above Stoney Pt, and Marley Cr. above Hawkins' Pt. On the N. shore the principal creeks, in order, are North Pt Cr. Humphrey's Cr. and Bear Cr. Ft Carroll is on the flats off from Sollers' Pt commanding the channel which passes within $\frac{1}{4}$ mile of the Fort & between it & Hawkins Pt.

SAILING DIRECTIONS

When in 8 fath^s, soft bottom, about 2½ miles from Thomas' P Lt. Ho. steer N by E½ E (N 15° E). This course passes over from 9 to 10 fathoms water until on or up with the mud bank. To the Westward of 4 fathoms there are Knolls. Continue on this course, passing the Lower and Upper 5 fathom buoys, when, deepening to 7½ fathoms, steer N N W (N 24° 30 W) for the entrance buoy in 4 fathoms water. Leave this buoy to the N^d, bringing the Lights on North P^t in range.

If the Lights are not visible, anchor in 4 fathoms water; if visible steer with Light houses nearly in range, keeping the Lower Light slightly open to the N^d, which will cross in 17 feet, soft bottom, precisely in range, crosses the Sixteen-foot Knoll. Follow this range until up with Rock-Range Buoy, when the Seven-foot Knoll Light will bear S W by W¾ W (S 62° W) then steer W¾ N. (N 84° 30' W) for Lower channel Buoy until Lower Light on North P^t bears N (N 2° W); the course is then N W (N 47° W) until Light on North P^t bears N E ¼ E (N. 44° 30 E.) when change the course to N W by W½ W (N 64° W) for Rock knoll Buoy, leaving it on the port hand; steer W½ N. (N 86° 30' W.) towards the Yellow Bank just South of Hawkins' P^t until Hawkins' P^t and Leading P^t are in range; follow this range, leaving Sparrow P^t Knoll buoy on the starboard hand. When Fort Mc Henry flag-staff is slightly open to the S^d of Washington Monument, steer N W½ N (N. 41° 30' W) passing between the buoys off Hawkins' P^t and Sollers' P^t flats to the S^d of Fort Carroll Light, when abreast of Lazaretto Lt. having passed to the W^d of a buoy on a spit below the Lazaretto, stand on in mid channel way passing to the E^d of a Buoy on a spit making out

from Fort McHenry, then haul up for the anchorage in the Basin, keeping to the southward and Wd of the Middle Ground. Note. The new Channel now in progress of excavation is shown within the dotted lines, has at the present time an average width of 90 feet. The inclined figures along the lines give the present depths. Ranges. The Upper North Pt L.house just open to the Sd of the Lower leads into the mouth of the channel as well as up to that of the artificial channel and past Rock Range Buoy. This range leads between the 9 ft Knoll to the Sd and the Sixteen-ft. Knoll to the Nd and to the Sd of Rock Range Buoy. On this range 12 feet can be carried within ¼ mile of the Lower Light house. White Rock on with first Point next from Rock Pt leads from Rock Range Buoy to Lower Channel Buoy. Leading Pt open a little to the Nd of Hawkins' Pt clears shoals Nd of Seven-ft Knoll L. house. Sparrow Pt on Lazarello Pt clears the shoal of North Pt in 16 feet water to the Sd of North Pt Buoy.

Hawkins Pt on with Leading Pt leads over Rock Knoll and Buoy in 10½ ft. water, as also does the line between extreme end of Stoney Pt and Upper L. H. North Pt: and the first range also runs ¼ mile N. of Rock Pt Buoy on the edge of the shoal running off from Rock Pt and over Sparrow Pt Buoy in 12 feet water. Keep to the Nd of Rock Pt & Rock Knoll Buoy and to the Sd close aboard of the Sparrow Pt Buoy.

Hawkins Pt on Fishing Pt leads over Rock Pt & Lower channel Buoy.

Fort Carroll on with the outer Pt on the shore to Nd and Wd of Fishing Pt leads ⅜ mile to the Nd. Sparrow and Rock Pt Buoys and ⅛ mile to the Nd of Rock Knoll Buoy. The Monument on with N. edge of Fort McHenry

	Feet L.W. Spr. Tides
r	11
d	14
d	11
ty	21
ty	24
t	21
t	23
	20
	20
t	24
	23
	22
	19
	19
	19
	18
	19
	19
	18
	18
	18
	19
d	12½
d	10
d	16

leads up midchannel from Fort Carroll to entrance of Baltimore Harbor. The wharf of Fort Mc Henry just open the shore of Lazarello Pt leads clear to the Sd and Wd of the shoal making of from this last Point.

Note. The Soundings are expressed in feet and show the depths at mean low water — the plane of reference. The dotted surfaces beyond low water mark represent the bottom within the respective depths of of 6, 12 and 18 feet. The characteristic soundings only are given on the Map. They are selected from the numerous soundings taken in the survey, so as represent the character of the bottom.

Dangers

The principal dangers in entering the Patapsco are the Knolls off Bodkin Pt. These knolls are found as far out as 3 miles from the Point, from the N.E round to the S.E and South. They can only be avoided by the use of the Sailing Directions or Charts, which should be carefully studied before being used by strangers. The Knolls are generally hard lumps in a soft bottom. The bottom of the Patapsco is hard along the shore and soft towards the middle of the channel

Tides.

		Bodkin Pt	Baltimore
Corrected Establishment		V X:LII	VI XXXIII
Rise of highest tide observed above	the plane of reference	2ft.4	3ft.1
Fall of lowest tide	do	1.6	2.2
Fall of mean low water of Spring tides below	do	0.2	0.2
Height of mean low water Neap tides above	do	0.1	0.2
Mean rise and fall of tides		1.0	1.3
Mean do of Spring tides		1.3	1.5
Mean do of Neap tides		0.8	0.9
Mean duration of rise		5h.23m	5h.54m
Mean duration of fall		7.08	6.33

MAGNETIC VARIATIONS.

At Fort McHenry 2° 39′ W. At North Point 2° 04′ W. and at Bodkin Point 2° 26′ W.

	Feet L.W. Sp. Tides
	11
	14
	11
	21
	24
	21
	23
	20
	20
	24
	23
	22
	19
	19
	19
	18
	19
	19
	18
	18
	18
	19
	12½
	10
	16

BEACONS BUOYS AND MARKS FOR PATAPSCO RIVER.

Nr. of order	Locality	Color	Mark	Bearings of prominent objects. Remarks.		Feet L.W. Sp. Tides
	North Pt L.H	White	light fixed	Upper Chan.l buoy W. (tower white) N. side entrance (35 ft to Sea lev.l) Visible 10 miles		
4	North Pt bar	Red	spar 21 ft	Bodkin L. house S by E North Pt N. Sparrow Pt NW by N	soft	11
14	14 foot Bank	Red	spar 21	Upper North Pt light E by N called Sollers & Sparrow's Pt NW by N. Sparrow's Marks on	hard	14
	Up.r North Pt Light house	White	light fixed	(tower white N. side entrance (42 ft to S. level) Visible 11 miles		
5	Off Rock Pt	Black	spar 21	Hawkins' Pt NW by W½W White Rock W.S.W. Spar.r NW by N½N	hard	11
9	Hawkins Pt or West buoy	Black	spar 24	Sollers Pt NE by N½N Bodkin L.H. SE½S Lower North Pt L.H. E by S½S	sticky	21
	Ft Carroll LH	White	light fixed on keeper's house	Fog bell machine Clears Fort		
12	Lazaretto bar	Red	spar 29	Flag St. Ft McHenry NW by W Lazaretto L.H. NW½W Hawkins Pt SE by S.	sticky	24
	L.H. Lazaretto	White	light fixed	(35 ft to S. level) N. side, entrance visible 10 miles		
	Fort McHenry	Black	spar 29	Flag staff Ft McHenry S W by W½W Lazaretto L.H. SE½E.	soft	21
	New or Brewerton Channel from Swan Pt to Fort Carroll runs ESE					
1st	or Entrance buoy N°2	Red	Iron 1st C summer Spar in winter	Pool's I.d S W end NE by N. Swan Pt E SE. Seven-ft Knoll L.H. W¼N.	soft	23
2d	Buoy N°4	Red	spar 30	S. W end Pool's I.d NE by N½N. Swan Pt ESE 7 ft Knoll L.H. W¼N	"	20
3d	" " 6	"	" 35	Pool do. NE by N½N. Swan Pt E S E 7 ft Knoll L.H. W½S	"	20
4th	" " 8	"	" 35	Pool do. NE½N Swan Pt E S E 7 ft Knoll L.H W¾S	soft	24
5th	" " 10	"	" 35	Pool do NE Swan Pt E S E 7 ft Knoll L.H. W by S	"	23
6th	" " 12	"	" 35	Pool do NE½E Swan Pt E S E 7 ft Knoll L.H. S by W½W	"	22
7th	" " 14	"	" 32	Pool do. NE by E Swan Pt E S E 7 ft Knoll L.H. S½W	"	19
8th	" " 16	"	" 32	Pool do NE by E½E Swan Pt E S E 7 ft Knoll L.H. S½E	"	19
9th	" " 18	"	" 32	North Pt NW½N Bodkin Pt SW½W Hawkins Pt W by N½N	"	19
10th	" " 20	"	" 30	North Pt W by N Bodkin Pt S Hawkins Pt W by N½N	"	18
11th	" " 22	"	" 30	North Pt NE by N¾N Bodkin Pt S by E Hawkins Pt W by N½N	"	19
12th	" " 24	"	" 30	North Pt NE by N Bodkin Pt S by E½E Hawkins Pt W by N½N	"	19
13th	" " 26	"	" 30	North Pt NE by E½E Bodkin Pt S E by S½S Hawkins Pt W by N½N	"	18
14th	" " 28	"	" 28	North Pt E½N Bodkin Pt SE½S Hawkins Pt W by N½N	"	18
15th	" " 30	"	" 30	North Pt E by N Rock Pt S½E Sparrows Pt N½W	"	18
16th	" " 32	"	" 30	Hawkins W by N½N Rock Pt S E½S Sparrows Pt NNE	"	19
	Buoys are planted about ¾ mile apart. Channel to be buoyed mid.					
	BODKIN SWASH					
19	Off Magothy	Black	spar 21	Bodkin LH NW N½N Low.r Magothy bluff S W by W½W	hard	12½
20	Belvidere Shoal	Red	spar 20	Love Pt S E½E Sand Pt S¾E (dangerous) if up leave port	hard	10
1	SE Bodkin Bar	Black	spar 21	Bodkin LH NW. Sandy Pt S½E North Pt Low.r L. NNW	hard	16

MARKS FOR THE EASTERN OR SWAN P^T CHANNEL

2	Swan P^t Bar	Red	spar 25	North P^t L.H. NW by W½W On E. side of E. Channel by Pool's I.	hard	22
				Love P^t S by E Pool I^d S. end N by E½E Soundings abrupt. Sfms to 14ft		
1	Lower on Middle G^d off Pool I.	Black	spar 25	Swan P^t S by W (On E edge of Middle Ground of Pool I. Sound^g abrupt	sticky	18
				North P^t W by N½N (3 fathoms into 7 ft close to Buoy		
				Pool's I^d S. end N by W½W		
3	Upper on Middle G^d off Pool I		spar 25	Pool's I^d S. end NW by W	hard	18
				Grecian hall wharf SE½E		
				Wharton's P^t NE by N.		
				NORTH P^T CHANNEL		
13	North P^t Cr.	Black	spar 13	Upper North P^t L.H. SE by E Busy as guide to Creek, not in regular order. Near a rock. Vessels entering pass	soft	9
				Sparrow's P^t W by N½N no nearer than 50 yards: best left to port		

From Official Pulications of Light house Board

BACK RIVER AND MIDDLE RIVER

Back River and Middle River are shallow arms of the Bay lying between the Patapsco and Gunpowder Rivers. They are navigable only for vessels drawing 7 and 8 feet. Harts' I and Middle I lie at the entrance of Back River. The mouth of Back River is called Hawk Cove.

GUNPOWDER RIVER

This is a considerable stream which rises near the boundary between Maryland and Pennsylvania and runs SW to the Bay. Like most of the rivers entering the Chesapeake it is much enlarged at its mouth. It is crossed by the Balt^e and Phil^a Rail road, about 6½ miles from its mouth, by a bridge of piles. Spry's Island nearly closes the mouth of Gunpowder River which is navigable to the Railroad bridge for vessels drawing less than 6 ft. Vessels drawing 15 feet can pass behind Spry's Island.

BUSH RIVER

Bush River enters the Bay at Ligos P^t just above the mouth of Gunpowder River. It runs in a S. direction. Seven feet can be carried up to the Railroad bridge 6½ miles, and 10 and 11 feet within the mouth. The

Rail road bridge across Gunpowder River is one mile in length and that across the Bush River somewhat over a half mile long.

SUSQUEHANNAH RIVER

The Susquehannah River empties its waters into the head of Chesapeake Bay. Its tributaries have their rise far up in the interior of Pennsylvania and Western New York. Its general course is S. East. On account of the islands and rapids towards its mouth it is not navigable. A common road Bridge crosses the river 6 miles from its mouth and the great Rail-road route from Phil^a to Baltimore crosses the river from Perrysville on the East bank to Havre de Grace on the W. Bank about $\frac{3}{4}$ of a mile from the mouth of the river. Havre de Grace and Perrysville are about 10 miles from the boundary line between Maryland and Pennsylvania. The Susquehannah has a general width of $\frac{3}{4}$ of a mile near its mouth, and 6 feet of water can be carried to Havre de Grace and Perrysville.

RIVERS AND SOUNDS ON THE EASTERN SHORE OF CHESAPEAKE BAY.

Although no large rivers enter the Bay from the Eastern shore yet the whole extent of this shore from a point fifteen miles above Cape Charles is broken up by islands, inlets, creeks, sounds and arms of the Bay to which the name of Rivers has been given, the whole affording almost innumerable anchorages and places of refuge for vessels of all sizes, but especially for those of light draught. From Cape Charles to Plantation Creek the shore is bold and there are no inlets. Plantation Creek 7 miles from Cape Charles, may be entered by boats. Cherrystone Inlet joins the Bay about 10 miles above Cape Charles. A channel leads into this inlet, into the entrance of which 8 feet water can be taken. This channel enters the Old Plantation Flats 2 miles below Old Plantation Cr. and runs almost due N. carrying 4 fathoms 3 miles into the Flats. From this point to the Inlet is very narrow. Mattawoman Creek. Hunger's Creek, are Inlets running back 2 or 3 miles inland, about 7 miles above Cherrystone Inlet. The town of Eastville is situated near the head of a small inlet called the Gulf just below Mattawoman Creek. It may be approached by boats. Nassawaddox Creek, Occohannock Creek, Craddock Creek, Nandua Creek, Onancock Creek, Chesconessex Creek, Deer Creek, Hunting Creek, Guilford Creek and Messongo Creek occur in order in passing along the E. shore to the mouth of Pocomoke Sound. They all partake of the same character and will admit of a general description. They can only be reached by vessels of very light draft and by boats, and in the vicinity of Pocomoke Sound the shores are swampy. Farther land is cultivated down to the water.

POCOMOKE RIVER & POCOMOKE SOUND

The entrance to Pocomoke Sound is situated in Latitude 37°46' N. and Longitude 75° 55' W. Three low, narrow marshy islands, with the attached shoals separate this from Tangier Sound, leaving an entrance on the S. about 4 miles wide. The chain of islands extends N and S about 8 miles. They are Watt's Island, Little Fox Island and Great Fox Island. The Sound extends off to the NE a distance of 16 miles and E^d to the mouths of Guilford and Messongo Creeks 10 miles. It is partly divided by a long narrow shoal which extends to the S.W. between the mouth of the Pocomoke River and Messongo Creek. Ten fathoms can be carried 4 miles into the Sound and 3¼ fathoms can be carried 8 miles up towards the mouth of the Pocomoke River.

Pokomoke River enters the extreme NE^n extremity of the Sound where it runs up into the land by a narrow inlet. Nine feet can be carried to the entrance of this narrow part of the Sound, and 5 feet up the river one or two miles. The N^n shore of the Sound is bordered by shoals. At one point, just E of Broad Creek, this shoal extends S into the Sound nearly 2 miles. Elsewhere 7 and 8 feet can be carried within half a mile of the shore, which is swampy. On the western part of the Sound it is very shallow. This Sound is a good harbor of refuge for vessels of any draft, as large vessels may find a safe anchorage within the entrance. The numerous creeks entering it lead to the cultivated land and roads of the country around.

TANGIER SOUND

The entrance to Tangier Sound lies in nearly the same Latitude with the en-

trance to Pocomoke Sound, and to the west of it. This Sound extends 34 miles in a N. and S. direction with an average width of 4 or 5 miles. It is separated from the waters of Chesapeake Bay by a chain of islands extending N. and S. nearly the entire length of the Sound. These islands are very irregular in shape & are cut up by so-called creeks or small inlets in every direction; they are low and swampy. The first on the S. is Tangier I. between which and Wall's I^d lies the channel of entrance to the Sound. This island is nearly 6 miles long. A cluster of islands opposite to the mouth of the Potomac is connected with Tangier I^d by shoals having but 1 or 2 feet of water upon them. Then comes the South marsh, between which and the last named cluster of islands 9 feet of water can be carried into Tangier S^d through Ridge Straits. N. of the South Marsh is situated Bloodworth I^d with Holland Straits on the South; - these Straits have but 3 or 4 ft. of water. Between Bloodworth I^d and the main land on the N, a narrow channel enters the Sound called Hooper's Straits. The channel is very narrow and winding but has a depth of 14 feet. The E^n shore of Tangier Sound is very irregular, several creeks entering it forming wide inlets, the necks of land extending between them well into the Sound. The principal of these peninsulas are Jerrico Marshes opposite Ridge Straits and Deil's I^d opposite Bloodworth's I^d. Thirteen feet of water can be carried up the creek between Jerrico Marshes and Flat Cap P^t, as far as Colburn's Creek. The mouth of this creek affords good anchorage for vessels drawing less than 10 feet. Between Jerrico Marshes and Deil's I^d a creek enters in which vessels drawing 10 and 11 feet

may find a safe anchorage, and 9 feet may be carried 6 or 7 miles to the East of Deil's I^d. Naticoke River enters Tangier Sound at its N.E.^n extremity. The head of the Sound has three arms, one to the N.E. of Deil's I^d peninsula, Naticoke River, and a third to the West of Naticoke River and separated from it by a large irregular marsh. A depth of 5 fathoms can be carried up the Sound by a channel $\frac{3}{4}$ mile wide to a point opposite Hooper's Straits, a distance of 25 miles from the entrance to the Sound. Three and $\frac{3}{4}$ fathoms may be carried well into the mouth of Naticoke R. and 8 feet up to the town of Vienna, by the narrow, winding channel of this river, a distance of 16 miles. Six or seven feet can be carried to the town of Whitehaven a distance of 7 miles up the channel to the East of the mouth of Naticoke River. The shores of Tangier Sound in this vicinity are sparingly cultivated. Tangier Sound offers some fine harbors & anchorages, but great care is required in navigating it with vessels of large draft on account of the shoals and Flats which border it. It affords numerous hiding places also for small craft, which however may be easily detected by small cruisers

HONGA RIVER is properly a Bay which commences at Hooper's Straits and runs N W by N a distance of 13 miles. It is separated from the waters of the Chesapeake by a narrow, irregular island, which runs nearly the whole length of the river, called Hooper's Island. By the channel, which is narrow and winding, a depth of $4\frac{1}{2}$ fathoms may be carried up 6 miles & 7 and 8 fathoms well in behind Hooper's Island. Hooper's Island is surrounded by Shoals, especially on the west side, 5 feet only being found

at a distance of $1\frac{3}{4}$ miles. The country on the E. shore of Honga River is wooded and partially cultivated.

TAR BAY is a small shallow Bay to the West of the head of Honga River, separated from the Bay by Barren Island. From Barren Id to the entrance to Little Choptank or Hudson River, the shore of the Bay is quite unbroken, and is marked by cultivated land and wood interspersed. HUDSON OR LITTLE CHOPTANK AND CHOPTANK RIVER unite and enter the Bay in Lat. 37°35' Longitud 76°23' W. A long peninsula makes out from the main land to the N. farming the S. point of entrance to these rivers, Sharp's Island forming the N. point. The entrance between the shoals which make out from these points is not more than 1 mile wide. A channel having 14 feet of water however enters between Sharp's Id, and Low's Id on the North.

LITTLE CHOPTANK or Hudson's River joins the Choptank at its mouth and is nothing more than the enlargement of numerous Crks which enter from the S. East. These creeks are mere tidal streams making out into the land in every direction and cutting the region between the mouth of the Little Choptank and Choptank Rivers into fantastic shapes. Slaughter Creek enters from the South Church Creek from the East and Lee's Creek, Beckwith's, Phillips' and Back Creeks from the North. Cook's Pt and Hill's Pt project far out into the mouth of the Choptank.

CHOPTANK RIVER enters from the Ed. It widens out into quite a

large bay before entering the Sound, which is partially closed by Sharp's Island and the shoals attached to it. The Choptank rises in the counties to the N.E. Its general direction is S.W. to Lat. 35° Long. 76°, then NW to Lat. 37°40' Long. 76°15', then S.W to its mouth, by the channel. The Choptank may be entered by vessels of the largest size, and 4 fathoms may be carried up to Cambridge, a town on the South bank about 17 miles from the mouth of the river by the channel. The channel of the river for 30 miles is deep though narrow, the shores being bold. Shoals occur near the mouth however which must be avoided by vessels of large draft. The North shore of the mouth of the Choptank is much cut up by creeks and Inlets: in a region 14 miles square there is nearly an equal alternation of land and water, the creeks and coves running into the land in every conceivable direction. The principal creeks are called Third Haven on which is situated the town of Easton, Broad Creek and Harris' Creek: in these creeks the water is generally shallow, but Easton may be reached with 8 feet and Broad and Harris' Creeks can be entered with 8 and 9 feet. The country around is well cultivated, the fields being interspersed with woodland. EASTERN BAY. This is a considerable Bay having its entrance in Latitude 37°50' Longitude 76°20' just above Poplar Island. The channel enters between Poplar I^d and Kent I^d and runs N.E. 6 and 7 fathoms may be carried 6 miles up the channel. St Michael's River enters this Bay from the S.E. into which 5 fathoms can be carried above the town of St Michael's which is 5 miles from Tilghman's Pt. Several rivers enter the Eastern part of the Bay, among

among which may be named Wye River formed by the junction of the Front Wye River and Back Wye River. These rivers are navigable for small craft. The north shore of Eastern Bay is formed (by) Kent Island. This Island is about 13 miles long presenting a bold shore to Chesapeake Bay but an irregular shore to Eastern Bay, which, like the north shores of all the bays on the Eastern side of the Chesapeake, is much cut up by creeks and inlets giving every conceivable shape to the land between. Coxe's Creek lies along the East shore of Kent Island. It affords an anchorage for vessels of any draft near its mouth and vessels drawing 7 and 8 feet have a great deal of freedom in Eastern Bay, care being taken to avoid the projecting shoals. Kent Ia is well cultivated. CHESTER RIVER enters Chesapeake Bay N. of Kent Ia. This River rises in Chester and Queen Anne Counties and runs S.W. to Lat. 39° – Long. 36°10', then N.W. to the Bay. A peninsula 4 or 5 miles long from the main land on the North of Kent Ia terminating in East Neck Id and running South ~~and curves~~ causes the river to make this bend to the South. Four fathoms may be carried around this peninsula to the distance of 10 miles from the mouth by the channel. Chestertown is situated on the West bank of the River 24 miles, by the river, from its mouth. Eleven feet of water can be carried to Chestertown but the river is winding and the channel very narrow. Numerous creeks enter the river towards its mouth which are navigable for small craft. The country along Chester River is well cultivated and wooded. SASSAFRAS RIVER is the next river of importance which occurs above Chester River. The Eastern shore between these rivers, a distance of 22 miles, being bold & only broken by two or three inconsiderable inlets and creeks. It enters

the Bay between Howell's Pt and Grace Pt about 10 miles from Harre de Grace and Perryville. It is navigable for small vessels, and vessels of 10 and 12 feet draft can go up 6 or 7 miles. It branches out into numerous creeks and is bordered by a thickly settled region. ELK RIVER enters the head of the Bay to the S.E. of the mouth of the Susquehannah, and opposite Sandy Pt. The main channel of the Bay extends up this river. Three fathoms can be carried up to the mouth of Bohemia Cr. and vessels drawing 9 feet to Frenchtown, which is connected with Newcastle Delaware by Railroad.

Chesapeake City lies on a branch of Elk R. called Back Cr which leads into the Chesapc and Delc Canal. This is the route of considerable commerce between Baltc and Philc by large sized steam propellers NORTH EAST RIVR lies on the W. of Elk R. and is separated by a long peninsula which terminates at Turkey Pt. It may be entered by vessels drawing 7 feet. Bohemia Cr. enters Elk R. from the S.E. LINES OF COMMUNICATION. The inland lines of communication of En Maryland are common roads. The principal towns have direct access to the Bay on the W. by the rivers and (n) the railroad which extends down through the central parts of Delaware on the East. This Railroad extends from Newcastle Del. to the S.Wn boundary of the State, whence there is direct communication with the Chesapeake down the Nanticoke R. This is an important line of railroad communication between Philc and the lower part of the Chesapeake Bay. Most of the principal towns of the En shore have direct communication with this road and with the Bay-

The Delaware and Chesapeake Canal at the head of Chesapeake Bay is an important line of water communication between the Delaware and Chesapeake. Another important line of communication is from Harre de Grace or Perry to Annapolis by water, thence by Railroad via the Junction with the Baltimore & Washington Railroad, or from Perryville, Frenchtown or Chesapeake City to Baltimore by water & thence by R. road to Washington.