TREASURY DEPARTMENT
UNITED STATES COAST AND GEODETIC SURVEY
O. H. TITTMANN
SUPERINTENDENT

UNITED STATES COAST PILOT

ATLANTIC COAST

PART VI

CHESAPEAKE BAY AND TRIBUTARIES

VK
981
.U56
2nd ed.
(1902)

SECOND EDITION

PRICE, 50 CENTS

LIBRARY
N.O.A.A.
U.S. Dept. of Commerce

WASHINGTON
GOVERNMENT PRINTING OFFICE
1902

National Oceanic and Atmospheric Administration

Climate Database Modernization Program

ERRATA NOTICE

One or more conditions of the original document may affect the quality of the image, such as:

Discolored pages
Faded or light ink
Binding intrudes into the text

This document has been imaged through the NOAA Climate Database Modernization Program. To view the original document, please contact the NOAA Central Library in Silver Spring, MD at (301) 713-2607 x124 or www.reference@nodc.noaa.gov.

LASON
Imaging Subcontractor
12200 Kiln Court
Beltsville, MD 20704-1387
March 28, 2002

BLANK PAGE

TREASURY DEPARTMENT,
UNITED STATES COAST AND GEODETIC SURVEY OFFICE,
WASHINGTON, D. C., *April 15, 1902.*

This volume covers Chesapeake Bay and its tributaries.

This publication is based mainly upon the work of the Coast and Geodetic Survey, including the results of special examinations and investigations made in the field in 1901 in connection with its preparation.

The system adopted in this publication includes—

I. A tabular description of all lighthouses, light-vessels, and fog signals; lists of life-saving stations, Weather Bureau storm-warning display stations, and information regarding tides, tidal currents, variation of the compass, etc.

II. General information concerning the several bodies of water and harbors, including notes relative to pilots and pilotage, towboats, depth of water, draft of vessels entering, harbor and quarantine regulations, supplies, facilities for making repairs, usual or best anchorages, and other matters of practical interest. In each case the information of this nature precedes the sailing directions and is printed in smaller type.

III. Sailing directions, with subordinate paragraphs treating of prominent objects, dangers, aids to navigation, etc. In the arrangement adopted the aim has been to conform, as far as practicable, to the order in which these matters would be considered in practice, and to render available such information as may be wanted promptly. For this purpose, and to afford a ready means of reference from one part to another, the sailing directions, where long, are divided into numbered or lettered sections, printed in large type, each followed by its own subordinate remarks in smaller type.

IV. Appendices.

The first edition of this volume was prepared by Ensign E. H. Tillman, U. S. N., and Mr. John Ross. In the present (second) edition the text has been revised and brought up to date by Mr. John Ross, assisted by Mr. Herbert C. Graves, under the general direction of Herbert G. Ogden, Assistant, Coast and Geodetic Survey, Inspector of Hydrography and Topography.

Great courtesy has been shown by local authorities in furnishing information desired for incorporation in this work.

The aids to navigation are correct to April 15, 1902.

As absolute accuracy in a work of this class is scarcely possible, navigators will confer a favor by notifying the Superintendent of the Coast and Geodetic Survey of errors which they may discover, or of additional matter which they think, for the good of mariners, should be inserted.

O. H. TITTMANN,
Superintendent.

BLANK PAGE

NOTE.

All bearings and courses are *magnetic.*

All distances are in *nautical miles*, except where otherwise stated.

Except where otherwise stated all depths are at *mean low water.*

In winter when whistling buoys, bell buoys, lighted buoys, can buoys, and nun buoys are in danger of being carried away by ice, they are taken up and replaced by spar or spar-shaped buoys.

SYSTEM OF BUOYAGE ADOPTED IN UNITED STATES WATERS.

The following order is observed in coloring and numbering the buoys in United States waters, viz:

1. In approaching the channel, etc., from seaward, RED BUOYS, with EVEN NUMBERS, will be found on the STARBOARD side of the channel, and must be left on the STARBOARD hand in passing in.

2. In approaching the channel, etc., from seaward, BLACK BUOYS, with ODD NUMBERS, will be found on the PORT side of the channel, and must be left on the PORT hand in passing in.

3. BUOYS painted with RED and BLACK HORIZONTAL STRIPES will be found on OBSTRUCTIONS, with channel ways on either side of them, and may be left on either hand in passing in.

4. BUOYS painted with WHITE and BLACK PERPENDICULAR STRIPES will be found in MID-CHANNEL and must be passed close-to to avoid danger.

All other distinguishing marks to buoys will be in addition to the foregoing, and may be employed to mark particular spots, *a description of which is given in the printed list of buoys.*

Perches, with balls, cages, etc., will, when placed on buoys, be at turning points, the color and number indicating on what side they shall be passed.

Nun buoys, properly colored and numbered, are usually placed on the starboard side, and can buoys on the port side of channels.

Day beacons, stakes, and spindles (except such as are on the sides of channels, which will be colored like buoys) are constructed and distinguished with special reference to each locality, and particularly in regard to the background upon which they are projected.

Wherever practicable, the towers, beacons, buoys, spindles, and all other aids to navigation, are arranged in the buoy list in regular order *as they are passed by vessels entering from sea.*

The positions of the buoys mentioned in this volume are shown on the charts of the United States Coast and Geodetic Survey, which are kept corrected from information furnished by the Inspectors of the Lighthouse Districts, for the changes in the aids to navigation rendered necessary from time to time to indicate the best channels.

The following symbols and abbreviations are used on the charts of the Coast and Geodetic Survey:

◊ Red buoys, with even numbers, to be left on starboard hand in entering; if green, yellow, or white, the color is printed close to the buoy.

◆ Black buoys, with odd numbers, to be left on the port hand in entering.

◈ Black and white perpendicular stripes, without numbers, mid-channel or fairway buoys.

◈ or H. S., red and black horizontal stripes, without numbers, marking dangers or obstructions, to be left on either hand.

◊ Lighted buoys, different colors as above.

◊ ***WHISTLE,*** whistling buoys, different colors as above.

◊ ***BELL,*** bell buoys, different colors as above.

C., N., or S., signifies can, nun, or spar buoy.

BLANK PAGE

AGENCIES ON THE ATLANTIC AND GULF COASTS FOR THE SALE OF THE CHARTS, COAST PILOTS, AND TIDE TABLES OF THE UNITED STATES COAST AND GEODETIC SURVEY.

EASTPORT, ME.
C. H. CUMMINGS.

LUBEC, ME.
J. W. CASE.

MACHIAS, ME.
W. B. PARLIN.

ADDISON POINT, ME.
O. A. HOLMES.

McKINLEY, ME.
FRANK McMULLIN.

HARRINGTON, ME.
F. H. DYER.

MILLBRIDGE, ME.
E. W. WALLACE.

BAR HARBOR, ME.
ALBERT W. BEE.

VINALHAVEN, ME.
F. E. LITTLEFIELD.

BLUEHILL, ME.
H. B. DARLING.

NORTH HAVEN, ME.
C. S. STAPLE.

SEDGWICK, ME.
R. E. DORITY.

CASTINE, ME.
C. FRED JONES.

BANGOR, ME.
SNOW & NEALLEY CO., 98 Broad St.

BELFAST, ME.
NEWTON S. LORD, 31 Front St.

CAMDEN, ME.
FRED LEWIS.

ROCKPORT, ME.
JOHN HASKINS.

ROCKLAND, ME.
E. R. SPEAR & CO., 408 Main St.

DAMARISCOTTA, ME.
R. C. REED.

PEMAQUID HARBOR, ME.
CHAS. A. FARRIN.

BOOTHBAY HARBOR, ME.
WILLIAM O. McCOBB.

BATH, ME.
CHARLES A. HARRIMAN, 106 Front St.

AUGUSTA, ME.
J. F. PIERCE.

HARPSWELL CENTER, ME.
JOHN A. CURTIS.

PORTLAND, ME.
WM. SENTER & CO., 51 Exchange St.

BURLINGTON, VT.
JOHN A. ARTHUR, Custom-House.

GLOUCESTER, MASS.
CHARLES D. BROWN.
REED & TATTERSALL, 4 Duncan St.

SALEM, MASS.
E. A. MACKINTIRE, 220 Essex St.
A. F. HITCHINGS, Custom-House.

BOSTON, MASS.
S. THAXTER & SON, 35 Central St.
C. C. HUTCHINSON, 152 State St.
L. W. FERDINAND & CO., 152 Federal St.

COHASSET, MASS.
HARRY W. SOUTHER.

BARNSTABLE, MASS.
V. D. BACON.

NANTUCKET, MASS.
J. M. WINSLOW.

VINEYARD HAVEN, MASS.
E. ST. CROIX OLIVER.

WAREHAM, MASS.
JOHN HUXTABLE.

NEW BEDFORD, MASS.
C. R. SHERMAN, 38 North Second St.

FALL RIVER, MASS.
GEORGE E. BAMFORD, 7 Granite Block.

PROVIDENCE, R. I.
GEO. A. STOCKWELL, Room 13, Board of Trade Building.

NEWPORT, R. I.
J. M. K. SOUTHWICK, 185 Thames St.

BLOCK ISLAND, R. I.
C. C. BALL.

STONINGTON, CONN.
JAMES H. STIVERS, 72 Water St.

MYSTIC, CONN.
E. B. SEAMANS.

NEW LONDON, CONN.
AXEL F. ANDERSON, 57 Bank St.
EDWIN KEENEY & CO., cor. Bank and State Sts.

NORWICH, CONN.
EUGENE S. BROCK, 29 Forest St.

HARTFORD, CONN.
ROBERT D. STEVENS, Custom-House.

NEW HAVEN, CONN.
J. RICE WINCHELL, Custom-House.

BRIDGEPORT, CONN.
WALLACE A. SMITH, Custom-House.

SOUTH NORWALK, CONN.
CHAS. J. PRESCOTT.

STAMFORD, CONN.
CHAS. H. LEEDS.

LARCHMONT, N. Y.
HARRY RYERSON.

SAG HARBOR, N. Y.
CHARLES P. COOK.

GREENPORT, N. Y.
GEORGE B. PRESTON.

NORTHPORT, N. Y.
C. O. PARTRIDGE.

COLLEGE POINT, N. Y.
ALBERT HUMM.

NEW YORK, N. Y.
T. S. & J. D. NEGUS, 140 Water St.
JOHN BLISS & CO., 128 Front St.
R. MERRILL'S SONS, 66 South St.
THOMAS MANNING, 45 Broadway.
MICHAEL RUPP & CO., 39 South St.
E. STEIGER & CO., 25 Park Place.
C. A. GEISSLER, 26 South St.
E. F. MEDINGER, 115 Broad St.

ATLANTIC CITY, N. J.
J. F. HALL, 1632 Atlantic Ave.

CAPE MAY, N. J.
CHARLES SANDGRAN, 314 Washington St.

PHILADELPHIA, PA.
RIGGS & BRO., 310 Market St.
CHAS. LUND, 124 South Second St.

BALTIMORE, MD.
F. J. SLOANE & CO., Pratt St. & Spear's Wharf.
M. V. O'NEAL, 502 East Pratt St.
CHAS. H. WHITE & CO., 2110 Aliceanna St.
WM. B. CLARK, STATE GEOLOGIST, Johns Hopkins University.

WASHINGTON, D. C.
COAST AND GEODETIC SURVEY OFFICE.
W. H. LOWDERMILK & CO., 1424 F St. NW.
WM. BALLANTYNE & SONS, 428 7th St. NW.
BRENTANO'S, 1015 Pennsylvania Ave. NW.

ALEXANDRIA, VA.
R. BELL'S SONS, 110 South Fairfax St.

NEWPORT NEWS, VA.
JAMES E. ABBE, 120 26th St.

NORFOLK, VA.
C. F. GREENWOOD & BRO., 318 Main St.
VICKERY & CO., 268 Main St.

CHINCOTEAGUE ISLAND, VA.
J. W. FIELD.

WASHINGTON, N. C.
Dr. E. M. BROWN.

NEWBERN, N. C.
SAM B. WATERS.

BEAUFORT, N. C.
JOHN D. DAVIS, Custom-House.

WILMINGTON, N. C.
W. N. HARRISS, North Water St.
E. D. WILLIAMS.

PLYMOUTH, N. C.
F. F. FAGAN.

CHARLESTON, S. C.
ISAAC HAMMOND, 10 Broad St.

BEAUFORT, S. C.
P. A. ROPER, Custom-House.

SAVANNAH, GA.
J. P. JOHNSON, Custom-House.

BRUNSWICK, GA.
C. W. DEMING, Custom-House.

FERNANDINA, FLA.
J. W. HOWELL.

JACKSONVILLE, FLA.
H. & W. B. DREW CO.

PALM BEACH, FLA.
E. M. BRELSFORD.

MIAMI, FLA.
R. M. SMITH.

KEY WEST, FLA.
ALFRED BROST, Custom-House.

PUNTA GORDA, FLA.
K. B. HARVEY.

BRADENTOWN, FLA.
WM. J. FOGARTY.

TAMPA, FLA.
TAMPA BOOK AND NEWS CO.

TARPON SPRINGS, FLA.
C. D. WEBSTER.

CEDAR KEYS, FLA.
S. P. ANTHONY, Custom-House.

APALACHICOLA, FLA.
J. E. GRADY & CO., Water St.

PENSACOLA, FLA.
McKENZIE OERTING & CO., 599 S. Palafox St.

MOBILE, ALA.
C. H. COSTELLO COMPANY, 25–27 Commerce St.
E. O. ZADEK JEWELRY COMPANY.

PASCAGOULA, MISS.
J. H. MENGE & SONS.

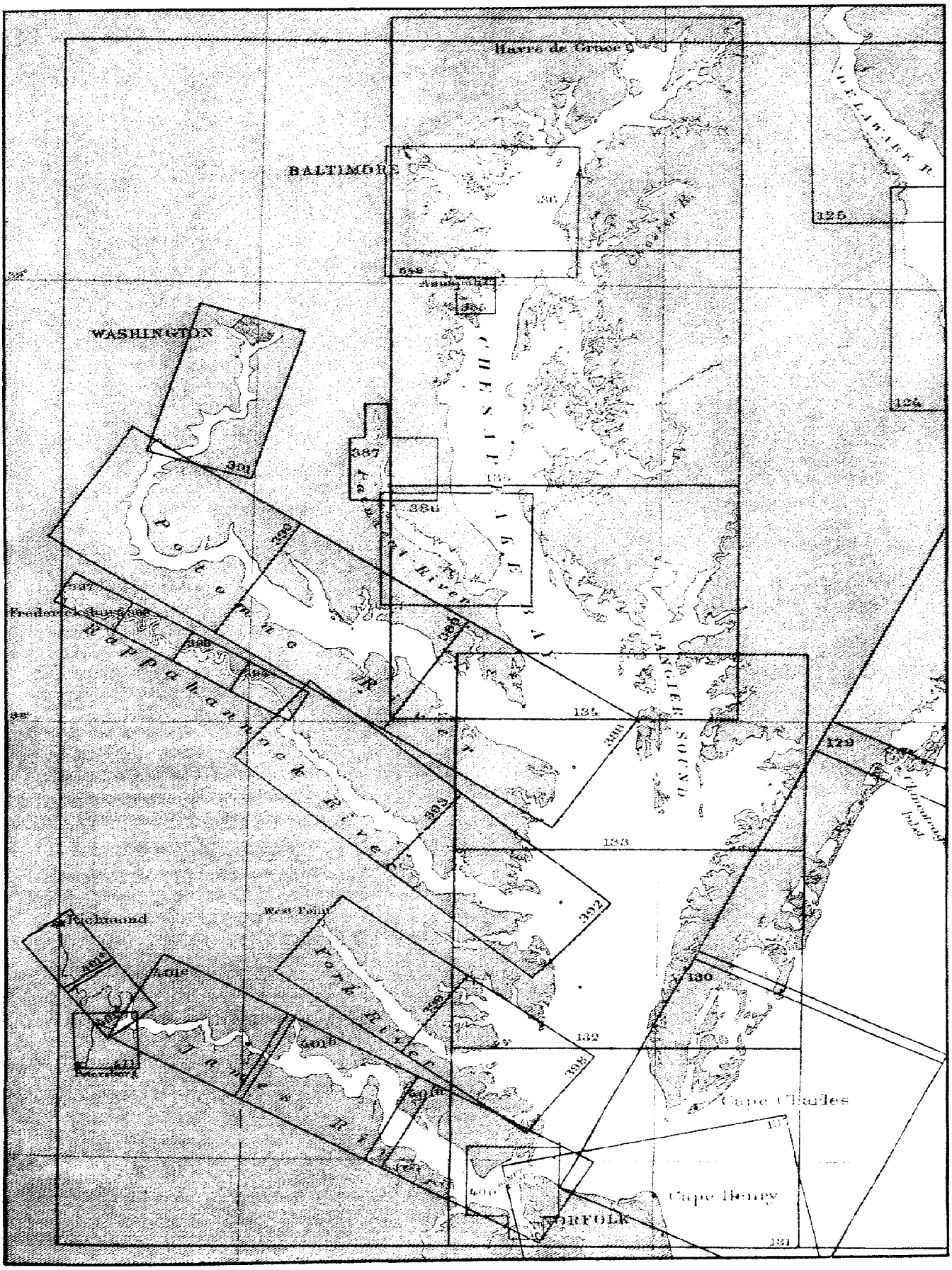
SCRANTON, MISS.
Miss LIZZIE S. ALLEY.

NEW ORLEANS, LA.
Widow LOUIS FRIGERIO, 1015 Canal St.
WOODWARD, WIGHT & CO., 406–418 Canal St.
FRIGERIO & SCHULLY, 411 Royal St.
J. H. MENGE & CO., 400–412 Common St.

MORGAN CITY, LA.
B. M. YOUNG.

SABINE PASS, TEX.
JNO. R. ADAMS & CO.

GALVESTON, TEX.
CHARLES F. TRUBE, 2415 Market St.


Havre de Grace
BALTIMORE
DELAWARE R.
WASHINGTON
CHESAPEAKE BAY
Annapolis
Fredericksburg
Rappahannock River
Potomac River
TANGIER SOUND
Richmond
West Point
York River
James River
Cape Charles
Cape Henry
NORFOLK
Eastern Shore
130
131
132
133
134
135
136
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553
554
555
556
557
558
559
560
561
562
563
564
565
566
567
568
569
570
571
572
573
574
575
576
577
578
579
580
581
582
583
584
585
586
587
588
589
590
591
592
593
594
595
596
597
598
599
600
601
602
603
604
605
606
607
608
609
610
611
612
613
614
615
616
617
618
619
620
621
622
623
624
625
626
627
628
629
630
631
632
633
634
635
636
637
638
639
640
641
642
643
644
645
646
647
648
649
650
651
652
653
654
655
656
657
658
659
660
661
662
663
664
665
666
667
668
669
670
671
672
673
674
675
676
677
678
679
680
681
682
683
684
685
686
687
688
689
690
691
692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
711
712
713
714
715
716
717
718
719
720
721
722
723
724
725
726
727
728
729
730
731
732
733
734
735
736
737
738
739
740
741
742
743
744
745
746
747
748
749
750
751
752
753
754
755
756
757
758
759
760
761
762
763
764
765
766
767
768
769
770
771
772
773
774
775
776
777
778
779
780
781
782
783
784
785
786
787
788
789
790
791
792
793
794
795
796
797
798
799
800
801
802
803
804
805
806
807
808
809
810
811
812
813
814
815
816
817
818
819
820
821
822
823
824
825
826
827
828
829
830
831
832
833
834
835
836
837
838
839
840
841
842
843
844
845
846
847
848
849
850
851
852
853
854
855
856
857
858
859
860
861
862
863
864
865
866
867
868
869
870
871
872
873
874
875
876
877
878
879
880
881
882
883
884
885
886
887
888
889
890
891
892
893
894
895
896
897
898
899
900
901
902
903
904
905
906
907
908
909
910
911
912
913
914
915
916
917
918
919
920
921
922
923
924
925
926
927
928
929
930
931
932
933
934
935
936
937
938
939
940
941
942
943
944
945
946
947
948
949
950
951
952
953
954
955
956
957
958
959
960
961
962
963
964
965
966
967
968
969
970
971
972
973
974
975
976
977
978
979
980
981
982
983
984
985
986
987
988
989
990
991
992
993
994
995
996
997
998
999
1000

GENERAL OUTLINE OF ARRANGEMENT.

The order in which Chesapeake Bay and its tributaries have been treated in this volume is:

1. Chesapeake Bay as a whole; tables of, lighthouses, tide and current stations, storm-warning display stations, life-saving stations, bearings and distances, and variation of the compass; and sailing directions in sections from the sea to the mouth of the Patapsco River (Baltimore Harbor Entrance).

2. The tributaries and ports in the western shore of Chesapeake Bay, with sailing directions, in detail, from Hampton Roads to and including Baltimore Harbor.

3. The tributaries and ports in the eastern shore of Chesapeake Bay, with sailing directions, in detail, from Cape Charles to and including Chester River.

4. The head and tributaries of Chesapeake Bay above the mouth of the Patapsco, with sailing directions in detail.

The descriptive matter and general information is in small type and precedes in every case the sailing directions.

Sailing directions (in large type) are numbered in sections in the order in which they would be required in practice, and when given for more than one approach or channel, a letter is added to the numeral, thus: "Approaching Potomac River Entrance, Sec. 1, From Southward; Sec. 1 A, From Northward." When directions for vessels of certain draft or for minor channels are given in the same section, they are put in separate paragraphs generally distinguished by Roman numerals.

Each section contains also remarks (in fine type) relating to the principal objects that will be seen, and other information that may be of assistance to the navigator in locating his position; also a short description of the dangers, and aids marking them, that will be found while following the sailing directions.

In some of the rivers where frequent changes of course are necessary the directions are, on that account, made more general, and include the remarks, the whole being put in large type.

Entering Chesapeake Bay from the sea, the general rule followed in U. S. Coast Pilots for the Atlantic Coast has been retained, *i. e.*, the approach from northward or eastward is numbered 1, and from southward or westward 1 A.

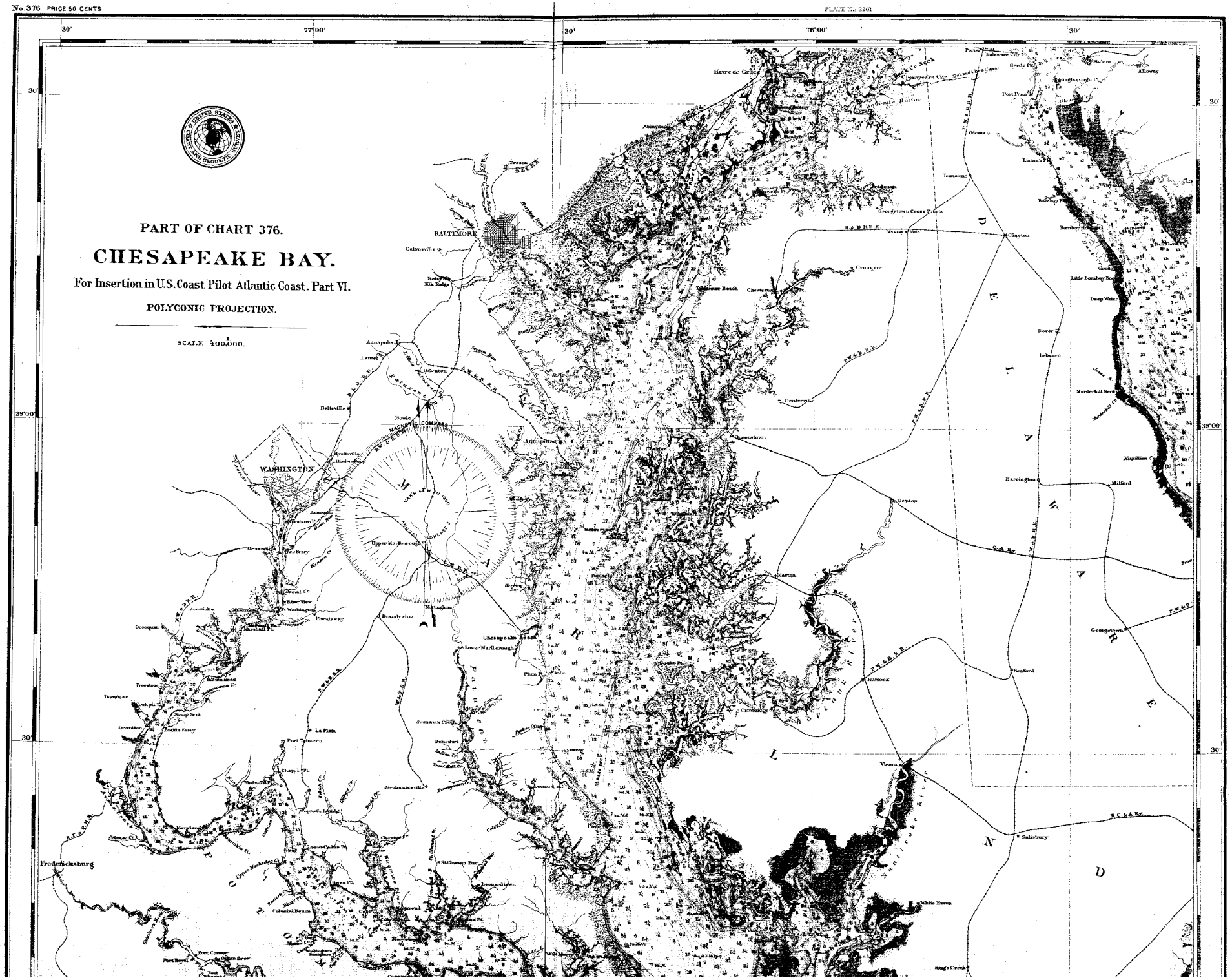
Entering the tributaries of Chesapeake Bay, the natural approach from seaward (from southward) is numbered 1, and from northward 1 A.

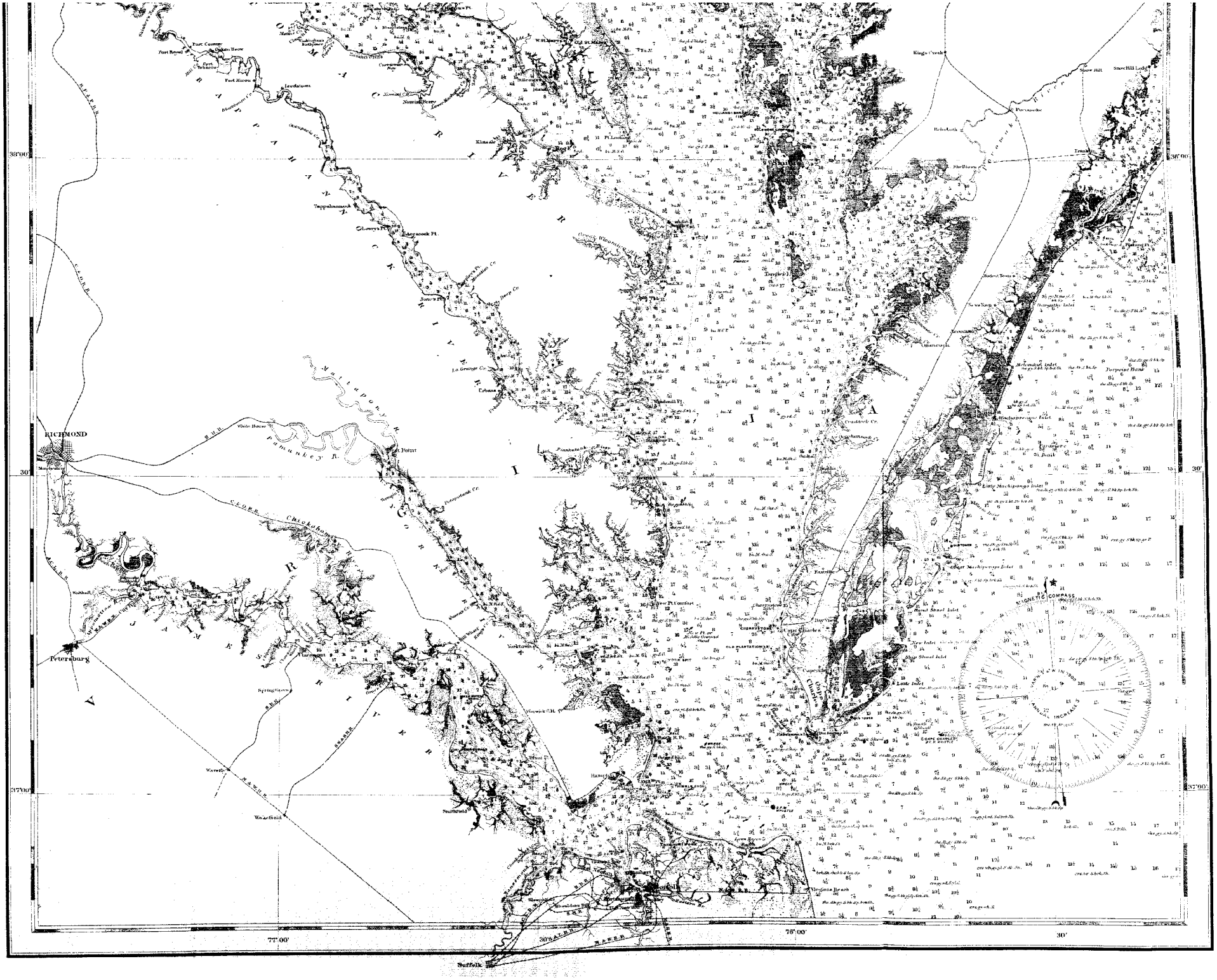
Unless otherwise stated in the text, the directions in section 2 should be followed immediately after section 1 or 1 A, or paragraphs in these sections.

BLANK PAGE

No. 376 PRICE 50 CENTS

PLATE No. 2201




RICHMOND
Petersburg
Suffolk
Norfolk
Portsmouth
Hampton
Yorktown
Smithfield
Waverly
Wakefield
Urbana
Tappahannock
Kinsale
Leedstown
Port Royal
Port Conway
Port Tobacco
Port Micou
Nomini Ferry
Pt. Lookout
Accacock Pt.
Jones Pt.
Deep Cr.
La Grange Cr.
Mattapony R.
Pamunkey R.
White House
Dog Point
Chickahominy R.
Cherrystone
Eastville
Cape Charles
Cape Charles City
Old Plantation
Kings Creek
Snow Hill
Snow Hill Lodge
Pocomoke
Rehoboth
Tangier I.
Watts I.
Onancock
Craddock Cr.
Pitmans Bank
Little Machipongo Inlet
Great Machipongo Inlet
Sand Shoal Inlet
Ship Shoal Inlet
New Inlet
Little Inlet
Virginia Beach
Magnetic Compass
Annually Increases
38°00'
37°00'
30'
77°00'
76°00'
30'

The following addenda include the changes which occurred while this volume was in press, and additional information received to May 17, 1902:

PAGE 22.

Hooper Island Lighthouse consists of a brown, cylindrical foundation, surmounted by a conical white tower and black lantern, in 18 feet of water, 6⅛ miles **SE.** by **E.** ¼ **E.** from Cedar Point Lighthouse. The light, which will be put in operation June 1, 1902, will be fourth order, flashing white every 15 seconds, elevated 63 feet above mean high water, and should be visible 13½ miles. The fog signal will be a bell struck by machinery a single and a double blow, alternately, at intervals of 20 seconds.

PAGE 93.

Matin Cutt Wreck has been removed, and the buoy (spar, red and black horizontal stripes) marking it has been discontinued.

UNITED STATES COAST PILOT.

ATLANTIC COAST—PART VI.

CHESAPEAKE BAY AND TRIBUTARIES.

CHESAPEAKE BAY.*

Chesapeake Bay is the largest bay on the Atlantic seaboard of the United States. **The entrance,** in latitude **37° 00′ N.** and longitude **75° 59′ W.,** between Cape Charles on the north and Cape Henry on the south, is about 10 miles wide, but the shoals extending southward off Cape Charles leave an available width of about 5 miles for vessels of 18 feet draft in smooth water; the channel, with a depth of over 6 fathoms, is only 1¼ miles in width at its narrowest part.

The whole of the northern point of entrance to Chesapeake Bay is generally known as **Cape Charles**; this includes **Smith Island,** a long, low, partly wooded island on the eastern side of the cape, near the southern end of which is Cape Charles Lighthouse: **The Isaacs,** a low, irregular-shaped, sandy island, the southernmost point of the cape; and **Fisherman Island,** a low, sandy island with several low, red-roofed buildings (**National Quarantine Station**), which lies between The Isaacs and the mainland on the western side of the cape; there is a long wharf with a building on it on the western side of the island. **Cape Charles** proper is a low, sandy point, the southernmost point of the mainland, on the eastern side of Chesapeake Bay, and just northward of Fisherman Island, from which it is separated by a shallow passage called Fisherman Inlet.

Smith Island may be seen from quite a distance; it is marked by **Cape Charles Lighthouse** (see table of lighthouses), which rises well above the heavy woods covering this part of the island; the old tower (white with red band) stands on the eastern side of the island ¼ mile **ESE. ½ E.** from the lighthouse, and is conspicuous.

The coast from Cape Charles to Fenwick Island Lighthouse, a distance of 93 miles, has a general **NE.** by **N.** trend, and is low, with small sand hillocks. Just back of the sand beach are shallow bodies of water or marsh, and farther back are dense low woods. Between Cape Charles and Assateague Lighthouse (about 55 miles **NE.** by **N.**) the coast is broken by a number of small, shallow, unimportant inlets.

Cape Henry, when seen from seaward, presents a bold range of sand hills, which by reason of their unusual height (80 feet) and bold surfaces, show very conspicuously from a long distance. Opposite the pitch of the cape the crest of this range is ½ mile from high-water mark, the intervening space being filled by a cluster of lower hills, diminishing gradually in height to the smooth, flat beach that borders the coast. On this beach are **Cape Henry Lighthouse** and the old tower (see table, page 16). Near the lighthouse is a **storm-warning display and telegraph station of the United States Weather Bureau,** from which storm signals are displayed, and with which vessels may communicate by the use of International Code Signals.

The coast southward of Cape Henry has a general **S.** by **E. ½ E.** direction for a distance of about 70 miles to Bodie Island Lighthouse. For a distance of 11 miles south of Cape Henry there are heavy woods close along the beach, but for the remainder of the distance (59 miles) to Bodie Island Lighthouse the coast is formed by a low, flat, and narrow strip of land, with an average width of ½ mile, separating the extensive interior waters of North Carolina from the Atlantic Ocean.

---

*Chesapeake Bay falls within the limits of the following Coast and Geodetic Survey charts: **1000,** Sailing Chart, Cape Sable to Cape Hatteras, Mercator projection, deg. lat.=3.7 inches, price $0.50; **376,** Delaware and Chesapeake Bays, scale $\frac{1}{400,000}$, price $0.50; **79,** Chesapeake Bay, Maryland, and Virginia, in one sheet, scale $\frac{1}{200,000}$, price $0.50; and in parts on charts **131, 132, 133, 134, 135, 136,** Chesapeake Bay, in six sheets, scale of each $\frac{1}{80,000}$, price of each $0.50; and a number of river and harbor charts on a larger scale, as noted under the several headings; all charts referred to in footnotes are issued by the Coast and Geodetic Survey.

Coast and Geodetic Survey charts can be obtained from the agents named in the list given on pages 7 and 8. Facing page 8 is an index map showing the location and limits of charts covering Chesapeake Bay. The catalogue of charts of the Survey also contains similar index maps; copies of this catalogue can be obtained free of charge on personal application at any of the sale agencies, or by letter addressed to the Coast and Geodetic Survey Office, Washington, D. C.

Chesapeake Bay, from its entrance to the mouth of the Susquehanna River, at its head, is about 170 miles long in a general N. and S. direction; the lower half has a width varying from 10 to 20 miles, the upper varies in width from 2½ to 10 miles. The prevailing depth in the lower part of the bay is from 4 to 10 fathoms, with a deeper hole in toward the eastern shore above Cape Charles City. From a point a little above the mouth of the Rappahannock River a long, narrow, and deep hole, following the general course of the bay, extends to within a few miles of the mouth of the Patapsco River. In this hole the depth varies from 10 to 26 fathoms. Toward the head of the bay the water shoals gradually to 12 feet, this depth being found abreast of Red Point at the mouth of Northeast River.

The Chesapeake, from its entrance to the mouth of the Patapsco River, a distance of 140 miles, is navigable for the largest vessels. A large foreign and coastwise trade enters the bay bound to the principal ports on its tributaries. A very large trade is carried on by steamboats and small sailing vessels between the numerous landings on the bay and tributaries and the ports of Baltimore, Norfolk, Newport News, and Washington. A considerable trade is carried through the Chesapeake and Delaware Canal, principally in steamers and barges built for the purpose.

Tributaries.—The Chesapeake is remarkable for the great number of its tributaries. Those of the eastern shore are of little importance to general navigation, but are much used by small craft engaged in fishing and local trade. The rivers on the western shore give access to the large commercial cities and towns to which Chesapeake Bay is the approach. All the rivers and creeks tributary to the bay are subject to tidal influence; with few exceptions, the tidal action extends to the head of navigation for seagoing or bay vessels.

The Eastern Shore, for about 40 miles above Cape Charles until the entrance of Pocomoke Sound is reached, presents a fairly regular line, broken at intervals by a number of small creeks. Northward of Pocomoke Sound the shore is extremely irregular nearly to the head of the bay, and presents a confusing network of islands, small bays, rivers, and creeks. These intricate waters are of but little importance except for the large fleets of small craft engaged in oyster fishing during the winter, and in carrying farm produce from the numerous landings to other parts of the bay. About 5 miles NW. from the entrance to Pocomoke Sound is Tangier Island, the southernmost of a chain of islands which extend nearly 26 miles in a northerly direction. Tangier Sound lies between these islands and the mainland of the eastern shore, and has a number of tributaries. Proceeding northward, other large bays and rivers of the eastern shore are: Little Choptank River; Choptank River, leading to Cambridge; Eastern Bay, leading to Claiborne and St. Michaels; Chester River, leading to Chestertown; Sassafras River, and Elk River. All of these have numerous smaller tributaries; Back Creek, a tributary of the Elk River, is the approach to the western entrance of the Chesapeake and Delaware Canal.

The Western Shore.—Beginning at Cape Henry and proceeding westward along the southern shore and then northward along the western shore, the principal bays and rivers are: Lynn Haven Roads, a broad open bight just within Cape Henry, and an anchorage in southerly winds. Hampton Roads, about 15 miles westward of Cape Henry, is at the confluence of the Elizabeth, Nansemond, and James rivers, forming their approach; it is an important anchorage for the largest vessels. Elizabeth River has Lambert point, and the important cotton-shipping port of Norfolk on its eastern bank, while opposite, on the west bank, are Portsmouth, the U. S. Navy Yard, Berkley, Pinners Point, Port Norfolk, and West Norfolk. The head waters of the Elizabeth River are connected with the inland waters of North Carolina by two canals, the Albemarle and Chesapeake Canal and the Dismal Swamp Canal. The Nansemond River leads to the town of Suffolk. The James River leads to the city of Richmond, and to City Point, Manchester, and Petersburg; Newport News is on the northern point at the entrance to the river. A large coastwise and foreign trade is carried on by some of these ports. The York River has Yorktown on its western bank, and farther up is Westpoint, which is of some commercial importance. Mobjack Bay forms the approach to several small rivers. The Rappahannock River leads to Port Royal and Fredericksburg. The Potomac River separates Virginia from Maryland; on its banks are Alexandria, Va., and Washington, D. C., the capital of the United States. The mouth of the Patuxent River is frequently entered for shelter. The Severn River has Annapolis, the capital of Maryland, and the site of the United States Naval Academy near its mouth. On the Patapsco River, 9 miles above its mouth, is the city of Baltimore, the most important commercial city approached through Chesapeake Bay. The Susquehanna River flows into the head of the bay; at its mouth is Havre de Grace, and a little above, on the east bank, is Port Deposit.

Oyster grounds.—Chesapeake Bay and its tributaries are noted for the number and extent of the oyster beds which cover many of the shoals having depths of 6 to 18 feet of water over them. Large fleets of oystermen are engaged in dredging for oysters during the season. In many of the tributaries on both sides of the bay the oyster beds are private property, and are marked by stakes to define the limits of the beds. In the larger rivers these stakes, in some cases, extend out nearly to the edge of the channel.

Prominent features and aids.—The entrance of the bay is well marked by two lighthouses and a light-vessel. The shores are generally low and present no prominently marked features, below the mouth of the Patuxent River, that can readily be distinguished when in mid-channel. Above the mouth of the Patuxent the western shore is hilly and generally wooded, but the eastern shore is low. The low points of land on both shores have long shoals, which are marked by buoys at their outer ends, extending out some distance into the bay. The islands along the eastern shore are generally surrounded by extensive shoals. The lighthouses and other aids to navigation are the principal guides. The buoyage accords with the system adopted in United States waters (see page 5). For description of lighthouses see table, pages 16–25.

Channels.—The main channel of Chesapeake Bay favors Cape Henry, and leads in a general **NNW. ½ W.** direction between the Middle Ground on the east and Tail of the Horseshoe Shoal on the west; it is about 2⅝ miles wide between the 5-fathom curves. Between Back River Lighthouse and the mouth of the Patapsco River the channel has a general northerly direction and is free from turns or sharp changes in the courses followed. From the Middle Ground to a short distance above Windmill Point Lighthouse the ship channel leads up the middle of the bay; above Rappahannock Spit it favors the western shore until up to the entrance of Eastern Bay, and thence takes the middle of the bay to the southern entrance of the Patapsco River. From Bodkin Point to the head of the bay the channel leads along the eastern shore. A least depth of 5 fathoms can be carried from the entrance of the bay to the mouth of the Patapsco. Above the Middle Ground there are no dangerous shoals except those making out from the shores and surrounding the islands, but there are some spots with 3¾ and 4 fathoms over them lying 5 miles in a general **ESE.** direction from Great Wicomico River Lighthouse. The most prominent dangers are well marked by buoys and in many cases by lighthouses.

Beside the Main Channel there are several channels leading into Chesapeake Bay, between Cape Charles and the Middle Ground, named, respectively, the **North Channel, Northwest Channel,** and **Beach Channel;** the North Channel is the only one marked by buoys. These channels have a good depth of water, but the shoals, between which they lead, are mostly unmarked and of a shifting character, making it dangerous for a stranger to attempt to use them except in clear weather with a smooth sea.

Lines defining limits within which the Inland Rules of the Road apply.—Baltimore Harbor and Chesapeake Bay.—From Cape Henry Lighthouse **NE.** by **E. ¼ E. Easterly,** to Outer Entrance Whistling buoy, thence **N.** by **E. ¾ E.** to Cape Charles Lighthouse.

Pilots.—Both Virginia pilots and Maryland pilots cruise off the entrance of Chesapeake Bay. A pilot steamer, showing a blue flag at the masthead in the daytime and a red light below a white light at the masthead at night, will be found cruising outside of the whistling buoy at the entrance to the bay. Vessels bound to ports in the State of Maryland take a Maryland pilot; those bound to ports in Virginia take a Virginia pilot: vessels bound up the Potomac usually take a Maryland pilot, if any, who, on reaching the river, turns the vessel over to a river pilot, or takes the vessel up himself, under an arrangement in force among the pilots; in either case, the cost to the vessel is the same. Pilots for the smaller tributaries of the bay are either oystermen or fishermen living in the vicinity, and will be found in the bay near the tributary or by sending on shore when off its entrance. For Pilot Laws and Regulations, see Appendix I.

Towboats will sometimes be found cruising in the lower part of the bay near the entrance, and they will be found in the bay between the entrance and the mouth of the Patapsco River. There is a towboat agency at Fort Monroe, through which tugs may be ordered by telegraph to Hampton Roads from Norfolk, Richmond, and Baltimore. For local towage, see "Towboats," under the different headings.

Anchorages.—The following anchorages are the principal ones available for vessels bound up and down the bay: *Lynn Haven Roads,* just westward of Cape Henry, affords shelter against southerly winds and has good holding ground in 3¾ to 5 fathoms water. Or anchorage may be found *near the Tail of the Horseshoe* inside of the light-vessel, in 5 fathoms water, bottom fine sand, about 5 miles northwest from Cape Henry; this anchorage is only used in good weather. *Hampton Roads* is one of the most important roadsteads in the United States; it is well sheltered from all winds and is approached through a channel with a least depth of 5 fathoms. *Mobjack Bay* affords anchorage under New Point Comfort in 3 to 4 fathoms water, secure from northerly and northeasterly winds but exposed to winds between east and south. *Rappahannock River,* within its mouth, has anchorage in 3 to 8 fathoms water. In the mouth of the *Potomac River* shelter against northeasterly winds will be found just inside Point Lookout, in 3 to 4½ fathoms water. In southeasterly and westerly winds the best anchorage is in the mouth of *St. Mary River,* about 8 miles **NW.** from Point Lookout; this anchorage is well sheltered, has a depth of 3½ to 4½ fathoms, with good holding ground. *Patuxent River,* inside Drum Point, affords excellent anchorage for the largest vessels, with a depth of 4 to 9 fathoms water, good holding ground, and well sheltered. Eastward of Drum Point is good anchorage, but it is exposed to easterly winds. *Annapolis Roads* has good anchorage for large vessels in 4 to 8 fathoms water; it is exposed to easterly winds.

Large vessels and steamers anchor anywhere in the bay in a suitable depth, if headed by the wind or in thick weather.

National Quarantine Station.—Quarantine for all ports on Chesapeake Bay and its tributaries, except Baltimore, is conducted in accordance with the regulations of the United States Marine-Hospital Service (see Appendix III), and supplementary orders received from the Department from time to time.

The boarding station for vessels entering Hampton Roads is a vessel moored off Hotel Chamberlin in Hampton Roads, and vessels are boarded when off Fort Monroe, above which no vessel, subject to visitation by the Health Officer, is allowed to pass without being boarded. Vessels with infectious or contagious disease undergoing quarantine are anchored off the Quarantine Hospital at Fisherman Island until released.

The boarding station for vessels bound to Washington is at Alexandria.

All foreign vessels, and vessels from domestic ports where a contagious disease shall become epidemic, are subject to inspection by the quarantine officers at all seasons of the year.

A fine of $300 is imposed on any vessel violating the United States Quarantine Regulations. For local Quarantine Regulations, see the different headings.

United States Marine-Hospital Service.—The Marine Hospital at Baltimore is the one to which seamen requiring long-continued hospital treatment are sent from relief stations in Chesapeake Bay and its tributaries. Norfolk, Va., and Washington, D. C., have relief stations of Class II; Cambridge, Crisfield, and Solomons, Md., and Fredericksburg, Newport News, and Richmond, Va., have relief stations of Class III; and Alexandria, Carters Creek, Tappahannock, and Urbana, Va., have relief stations of Class IV of the United States Marine-Hospital Service (see Appendix III).

Repairs to hulls of large vessels can be made at Baltimore, Newport News, and Norfolk, where there are large dry docks and shipyards. At Baltimore there are several marine railways and floating docks capable of taking out large vessels. There are excellent facilities for repairs to machinery of steamers at Baltimore, Newport News, Richmond, and Norfolk. See also "Repairs" under the different headings.

Supplies.—Coal, fresh water, provisions, and ship-chandler's stores can be obtained at the principal ports. As mentioned under the different headings, supplies can be obtained at other places, but the quantity is apt to be limited and the facilities are not always good. Norfolk, Newport News, and Baltimore are available as coaling ports for large vessels.

Ice.—In severe winters ice forms in the head of the bay and many of its tributaries. Under the influence of wind and tide ice will sometimes be met with as far down the bay as Cove Point; very seldom below this. The weather shore is generally free from ice. Steam vessels can always pass up and down the bay.

The ice from Tangier and Pocomoke sounds does not interfere with the larger vessels in the bay, but small vessels engaged in the oyster fisheries are frequently held by the ice, especially in Kedge and Hooper straits, and are forced to employ towboats to assist them.

BLANK PAGE

TABLE OF LIGHTS.

Lighthouse District, Etc.—The waters covered by this volume lie within the **Fifth Lighthouse District** of the United States. This district extends from Metomkin Inlet, Virginia, to, and includes, New River Inlet, North Carolina, and includes Chesapeake Bay, the sounds of North Carolina, and tributaries. The Light list for the seacoasts of the United States and the Buoy list for the Fifth District give full descriptions of the aids to navigation.

Number.	Name.	Latitude, north. Longitude, west.	Characteristics of light.	Order of light.	Height of light above sea level, in feet.	Distance visible, in nautical miles.
		° ′ ″				
1	*Winter-Quarter Shoal Light-Vessel, No. 45*	37 55 (33) 75 05 (37)	Fixed red	Refl'r	45	12
2	ASSATEAGUE	37 54 (40) 75 21 (23)	Fixed white	1	150	18½
3	HOG ISLAND	37 23 (46) 75 41 (59)	Flashing white every 45 seconds; duration of flash 3 seconds.	1	180	19¾
4	*Cape Charles Light-Vessel, No. 49*	37 05 (32) 75 43 (00)	Two fixed white	Refl'r	{45} {45}	12
5	CAPE CHARLES	37 07 22 75 54 24	Flashing white, signaling "45," every minute, thus: 4 flashes, eclipse 6 seconds; 5 flashes, eclipse 32 seconds.	1	180	19¾
6	CAPE HENRY	36 55 35 76 00 27	Fixed white with a fixed red sector between SSE. and SW. by W.	1	157	18¾
7	CURRITUCK BEACH	36 22 36 75 49 51	Fixed white, varied by a red flash every 90 seconds.	1	158	18¾
8	BODIE ISLAND	35 49 07 75 33 49	Fixed white	1	156	18½
9	CAPE HATTERAS	35 15 17 75 31 16	Flashing white every 10 seconds	1	191	20
10	*Diamond Shoal Light-Vessel, No. 71*	35 05 (10) 75 18 (42)	Two fixed white 12 seconds, eclipse 3 seconds; three lanterns encircling each masthead; electric. If the electric-light apparatus should become inoperative, the lights will show fixed white *without eclipses* and will be *less brilliant* than the electric lights.	Lens lantern.	{57} {57}	13
	CHESAPEAKE BAY:					
11	*Tail of the Horseshoe Light-Vessel, No. 46*	36 58 (36) 76 02 (30)	Two fixed white	Refl'r	{45} {45}	12
12	THIMBLE SHOAL	37 00 52 76 14 24	Fixed white for 1 minute, followed by six consecutive flashes, alternately red and white; interval between flashes, 10 seconds.	4	42½	11¾
13	Old Point Comfort	37 00 06 76 18 24	Fixed red	4	53½	12¾
	WILLOUGHBY BAY.					
14	Sewall Point Spit Beacon	36 58 (56) 76 18 (42)	Fixed white	Post lantern.	12	
15	Willoughby Spit Beacon	36 58 (29) 76 18 (16)	Fixed white	Post lantern.	12	
	ELIZABETH RIVER.					
16						
17	*Bush Bluff Light-Vessel*	36 54 (36) 76 20 (19)	Two fixed white	Lens lantern.	57	
18	Craney Island	36 53 (33) 76 20 (18)	Flashing white every 5 seconds	5	34	11
19	Lambert Point Fog-Signal Station	36 52 (33) 76 19 (55)				
20	Western Branch Beacon	36 51 (49) 76 19 (41)	Fixed red	Post lantern.	16	
21	Naval Hospital	36 50 (55) 76 18 (07)	Fixed red	Lens lantern.	42½	
22	Newport News Middle Ground	36 56 (41) 76 23 (33)	Fixed white varied by a white flash every 20 seconds.	4	51½	12½
23	Nansemond River	36 54 53 76 26 40	Fixed red	6	36	7½

CHESAPEAKE BAY AND TRIBUTARIES.

These pamphlets, which are corrected and reprinted from time to time, are sent free of charge to any shipmaster on application to the office of the Lighthouse Board, Washington, D. C., or to the Inspector of the Fifth Lighthouse District, Merchants' Bank Building, Baltimore, Md. They can also be had on application at the United States Branch Hydrographic Offices at Norfolk, Va., and Baltimore, Md.

Number.	Color and peculiarity of lighthouse or vessel.	Height, in feet, from base of structure to center of lantern.	Fog signal.
1	Two masts, schooner-rigged, no bowsprit; red hoop-iron daymark at mainmast head. Hull red, with "WINTER-QUARTER, 45" in white on each side, and "45" on stern.		8-inch Crosby chime whistle, operated by compressed air; blasts 3 seconds, alternate silent intervals of 59 seconds and 60 seconds. If whistle be disabled a bell will be rung by hand.
2	Tower red; lantern black. Top of dwelling shows above trees from between E. and S.	129	
3	Black, octagonal, pyramidal, iron skeleton tower. Dwellings detached and not visible from seaward.	175	
4	Two masts schooner-rigged, no bowsprit; red cage-work daymark at each masthead. Hull red, with "CAPE CHARLES, No. 49" in large white letters and figures on each side. A black smokestack and the fog signal are between the masts.		12-inch steam whistle; blasts 5 seconds, silent intervals 15 seconds. If whistle be disabled a bell will be rung by hand.
5	White, octagonal, pyramidal, iron skeleton tower; lantern black. Dwellings detached and not visible from seaward.	175	
6	Octagonal tower; base, service room, and lantern black; shaft colored on each face half white and half black, alternating, so that upper and lower halves of faces show alternately black and white. Dwellings and fog-signal house near. Old tower, SW. by W., 340 feet.	152	1st-class steam siren; blasts 5 seconds, silent intervals 90 seconds.
7	Conical red tower; lantern black. Dwelling detached and in rear. To the northward and southward of the tower are high white sand hills; no other prominent objects in the vicinity.	150	
8	Conical brick tower, granite base; shaft colored in horizontal bands, alternately black and white, commencing with white below; lantern and ironwork black. White dwelling 150 feet to westward.	150	
9	Tower colored in spiral bands, alternately black and white; base, red brick with granite corners; lantern black.	189	
10	Flush-deck steam light-vessel; two masts schooner-rigged, no bowsprit. Circular gallery under the lens lanterns at each masthead. Hull red, with "DIAMOND SHOAL" in white on each side and "71" in white on each bow. A black smokestack and the fog signal between the masts. NOTE.—*Light-Vessels Nos. 71 and 72 will be used on this station alternately. The descriptions of the vessels are alike excepting as to the number.*		12-inch steam chime whistle; blasts 5 seconds, silent intervals 55 seconds. If whistle be disabled a bell will be rung by hand.
11	Two masts schooner-rigged, no bowsprit, red hoop-iron daymark at each masthead. Hull straw color, with "TAIL OF THE HORSESHOE" in black on each side, and "No. 40" in black on each quarter. A black smokestack and fog signal are between the masts.		12-inch steam whistle; blasts 3 seconds, silent intervals 27 seconds. If whistle be disabled a bell will be rung by hand.
12	White hexagonal screw-pile structure; piles and roof brown; lantern black. One bell on northerly and other on southerly side of lighthouse.		Two bells struck by machinery, simultaneously, every 5 seconds.
13	Tower and dwelling white; lantern black; fog-bell frame brown, detached	47	Bell struck by machinery every 10 seconds.
14	Lantern suspended from a temporary structure of three poles, natural color		
15	Black four-pile sctruture		
16			
17	Two masts schooner rigged; hull red, with "BUSH BLUFF" in white on each side; spars black.		Bell rung by hand.
18	White octagonal screw-pile structure; piles and roof brown; lantern black		Bell struck by machinery every 12 seconds.
19	Bell on lantern gallery of old, white, screw-pile lighthouse; piles and roof brown; lantern black.		Bell struck by machinery every 3½ seconds.
20	Black iron column, surmounted by the lantern and surrounded by a triangular protection of piles.		
21	Lantern suspended from a mast		
22	Black cylindrical foundation pier surmounted by a brown conical tower. A gallery, with roof, surrounds base of tower.		Bell struck by machinery a double blow every 15 seconds.
23	White hexagonal screw-pile structure; piles and roof brown; lantern black		Bell struck by machinery every 7 seconds.

TABLE OF LIGHTS.

Number.	Name.	Latitude, north. Longitude, west.	Characteristics of light.	Order of light.	Height of light above sea level, in feet.	Distance visible, in nautical miles.
	CHESAPEAKE BAY—Continued.	° ′ ″				
	JAMES RIVER.					
24	White Shoal	37 01 19 76 31 40	Fixed white to southward of NW. by W. and SE. by E., fixed red to northward.	6	32½	10¾
25	Range. Burwells Bay Front Post Light		Fixed white	Post lantern.	22	
26	Range. Burwells Bay Rear Post Light		Fixed white	Post lantern.	58	
27	Point of Shoals	37 04 06 76 39 12	Fixed white	6	33	11
28	Deep-Water Shoals	37 08 56 76 38 13	Fixed white	6	33	11
29	Homewood Post Light		Fixed white	Post lantern.	32	
30	Range. Goose Hill Channel Front Post Light		Fixed white	Post lantern.	35	
31	Range. Goose Hill Channel Rear Post Light		Fixed white	Post lantern.		
32	Range. Sunken Marsh Front Post Light		Fixed white	Post lantern.	22	
33	Range. Sunken Marsh Rear Post Light		Fixed white	Post lantern.	130	
34	Range. Harrison Bar Front Post Light		Fixed white	Lens lantern.	25	
35	Range. Harrison Bar Rear Post Light		Fixed white	Lens lantern.	45	
36	Jordan Point	37 18 (47) 77 13 (25)	Fixed white with a fixed red sector between E. ¾ S. and ESE. ⅝ E.	6	10¾	31½
37	Wood Wharf Post Light		Fixed white	Post lantern.	13	
38	Picketts Wharf Post Light		Fixed white	Post lantern.	27	
39	Jones Neck Lower Post Light		Fixed white	Post lantern.	23	
40	Jones Neck Upper Post Light		Fixed white	Post lantern.	17	
41	Meadowville Post Light		Fixed white	Post lantern.	12	
42	Dutch Gap Cut-off Lower Light	37 22 (35) 77 21 (34)	Fixed red	Post lantern.	21	
43	Dutch Gap Cut-off Upper Light	37 22 (38) 77 21 (38)	Fixed red	Post lantern.	21	
44	Graveyard Reach Post Light		Fixed white	Post lantern.	18	
45	Kingsland Creek Post Light		Fixed white	Post lantern.	17	
46	Falling Creek Post Light		Fixed white	Post lantern.	14	
47	Warwick Bar Post Light		Fixed white	Post lantern.	22	
48	Goodes Rock Lower Post Light		Fixed white	Post lantern.	19	
49	Goodes Rock Upper Post Light		Fixed white	Post lantern.	15	
50	Back River	37 05 14 76 16 12	Fixed white varied by a white flash every 90 seconds.	4	33	11
51	YORK SPIT	37 12 35 76 15 16	Fixed red	4	36½	11¼
	YORK RIVER.					
52	Tue Marshes	37 14 08 76 23 10	Fixed white	5	40½	11½
53	Gloucester Point Wharf Post Light, No. 2		Fixed white	Post lantern.	41	
54	Pages Rock	37 18 (37) 76 35 (12)	Fixed white	4	40½	11¼

CHESAPEAKE BAY AND TRIBUTARIES.

Number.	Color and peculiarity of lighthouse or vessel.	Height, in feet, from base of structure to center of lantern.	Fog signal.
24	White hexagonal screw-pile structure; piles and roof brown; lantern black		Bell struck by machinery every 10 seconds.
25	Red iron arm on white post		
26	Red iron arm on white post		
27	White hexagonal screw-pile structure; piles and roof brown; lantern black		Bell struck by machinery at alternate intervals of 5 and 20 seconds.
28	White hexagonal screw-pile structure; piles and roof brown; lantern black		Bell struck by machinery every 15 seconds.
29	White post with red iron arm		
30	Lantern on bracket in front of small white house		
31	Frame structure, upper part inclosed and painted white	18	
32	White post with red iron arm and daymark of three white horizontal slats below lantern.		
33	Lantern suspended from a tree with white diagonal-cross daymark below lantern		
34	White post with daymark of three white horizontal slats, in front of brown oil house.	6	
35	White post with red iron arm and white triangular daymark, apex down, below lantern.		
36	Square white tower; lantern black; dwelling in rear white; roof brown	28½	Bell struck by machinery every 10 seconds.
37	White post with red iron arm; black daymark, 12 feet long and 4 feet high, on piles of old wharf in rear.		
38	White post with red iron arm and white triangular daymark, apex up, below lantern.		
39	White post with red iron arm		
40	White post with red iron arm		
41	Lantern suspended from an arm on an iron spindle surmounted by an openwork galvanized-iron barrel-shaped cage.		
42	Lantern in red box on white post	19	
43	Lantern in red box on white post. White dwelling, on top of hill	19	
44	White post with red iron arm		
45	White post with red iron arm		
46	White post with red iron arm		
47	White post with red iron arm		
48	White post with red iron arm		
49	White post with red iron arm		
50	White tower, connected by a footbridge with dwelling; lantern black; lower half of dwelling white; upper half unpainted shingles; roof brown.	30	
51	White hexagonal screw-pile structure; piles brown; lantern black		Bell struck by machinery every 10 seconds.
52	Square, white, screw-pile structure; piles and roof brown; lantern black		Bell struck by machinery alternately a single and a double blow, intervals 30 seconds.
53	Post		
54	White hexagonal screw-pile structure, with green shutters and black lantern; piles and roof brown.		Bell struck by machinery every 15 seconds.

TABLE OF LIGHTS.

Number.	Name.	Latitude, north. Longitude, west.	Characteristics of light.	Order of light.	Height of light above sea level, in feet.	Distance visible, in nautical miles.
	CHESAPEAKE BAY—Continued.	° ′ ″				
	YORK RIVER—Continued.					
55	Purtan Bay Post Light, No. 1		Fixed white	Post lantern.	30	
56	Purtan Island Post Light, No. 4		Fixed white	Post lantern.	14½	
57	Potopotank Creek Post Light, No. 6		Fixed white	Post lantern.	14½	
58	Bells Rock	37 29 (26) 76 45 (35)	Fixed white with a fixed red sector from NNW. ½ W. through eastward and northward to SE. by E. ⅝ E.	4	42½	11¾
59	Old Plantation Flats	37 13 44 76 02 50	Fixed white with a fixed red sector between N. by W. ¼ W. and NE. ¾ N.	4	38½	11½
60	Cherrystone	37 15 38 76 02 05	Fixed white with a fixed red sector between N. ¾ E. and SSW. ¼ W. Dark sector between SW. ⅝ W. and NW. ½ N.	4	34	11
61	Range. Cape Charles City Front		Fixed white	Lens lantern.	18	
62	Range. Cape Charles City Rear		Fixed white	Lens lantern.	39	
63	Cape Charles City Harbor (southern)		Fixed white	Post lantern.		
64	Cape Charles City Harbor (northern)		Fixed red	Post lantern.	28	
65	NEW POINT COMFORT	37 18 04 76 16 41	Fixed white	4	57½	13
66	Wolf Trap	37 23 25 76 11 23	Fixed white varied by a white flash every 25 seconds.	4	52	12⅔
67	Stingray Point	37 33 41 76 16 13	Fixed red	5	33½	8½
68	Bowlers Rock	37 49 (18) 76 43 (48)	Fixed white	5	32	10¾
69	WINDMILL POINT	37 35 49 76 14 10	Fixed white	5	36½	11
70	Watts Island	37 46 57 75 53 37	Fixed white varied by a white flash every 2 minutes.	5	48	12¼
71	Tangier Sound	37 47 17 75 58 27	Fixed white with a fixed red sector between NE. ⅜ E. through westward and northward to S. by W. ¾ W.	4	39	11½
72	James Island	37 57 49 75 55 07	Fixed white	4	38	11½
73	Somers Cove	37 58 00 75 52 40	Fixed white	6	33	11
74	Big Annemessex River Beacon					
75	Great Wicomico River	37 48 15 76 16 04	Fixed white with a fixed red sector between ESE. and SW. by W., and another between NNW. and ENE.	4	42	11¾
76	SMITH POINT	37 52 47 76 11 02	Flashing white with a flashing red sector to westward of N. ¾ E. and SSE. ⅜ E.; interval between flashes 30 seconds.	4	52	12⅔
	POTOMAC RIVER.					
77	POINT LOOKOUT	38 02 19 76 19 20	Fixed white	4	41	11¾
78	Kitts Point Beacon, No. 1		Fixed white	Post lantern.	10	
79	Smith Creek Beacon, No. 2		Fixed red	Post lantern.	10	
80	Piney Point	38 08 07 76 31 48	Fixed white	5	33½	11
81	Blakistone Island	38 12 27 76 44 43	Fixed white with a fixed red sector between SW. and W.	4	44½	12
82	Cobb Point Bar	38 14 33 76 49 37	Fixed white with a fixed red sector between WNW. ⅜ W. and NW. by W. ½ W.; and another between ESE. ⅛ E. and SE. by E. ¾ E.	4	38½	11½

CHESAPEAKE BAY AND TRIBUTARIES.

Number.	Color and peculiarity of lighthouse or vessel.	Height, in feet, from base of structure to center of lantern.	Fog signal.
55	Pole with a pile on each side and a white triangular daymark, apex up, below the lantern.		
56	Pyramidal cluster of four red piles, carrying a red daymark with the number "4"		
57	Pyramidal cluster of four red piles, carrying a red daymark with the number "6"		
58	White hexagonal screw-pile structure; piles and roof brown; lantern black		Bell struck by machinery every 15 seconds.
59	White square frame dwelling; iron screw-pile foundation and roof brown; blinds green; lantern black.		Bell struck by machinery every 15 seconds.
60	White hexagonal screw-pile structure; piles and roof brown; lantern black		Bell struck by machinery a double blow every 30 seconds.
61	White post		
62	Square pyramidal structure, upper half white, lower half brown		
63	Cluster of piles		
64	Post at corner of square white wooden building with brown roof, on end of stone jetty.		Bell struck by machinery a single blow every 10 seconds.
65	White tower; lantern black; white detached dwelling	56	
66	Brown cylindrical foundation pier expanding in trumpet shape at its upper end to form a gallery, surmounted by an octagonal red-brick dwelling with a square tower; lantern black.		2d-class Daboll trumpet; blasts 3 seconds, silent intervals 7 seconds. If trumpet be disabled a bell will be rung by hand.
67	White hexagonal screw-pile structure; piles and roof brown; lantern black		Bell struck by machinery at alternate intervals of 5 and 30 seconds.
68	White square screw-pile structure; piles brown; lantern black		Bell struck by machinery every 10 seconds.
69	White hexagonal screw-pile structure; piles and roof brown; lantern black		Bell struck by machinery every 10 seconds.
70	White tower; detached dwelling, lower part white, upper part unpainted shingles; roof brown; lantern black. Six large trees near dwelling, on westerly end of the island.	40	
71	White square screw-pile structure, with green shutters and black lantern; piles and roof brown.		Bell struck by machinery at alternate intervals of 5 and 30 seconds.
72	White hexagonal screw-pile structure; piles and roof brown; lantern black		Bell struck by machinery every 15 seconds.
73	White square screw-pile structure; piles and roof brown; lantern black		Bell struck by machinery every 15 seconds.
74	*To be established*		
75	White hexagonal screw-pile structure, with green shutters; piles and roof brown; lantern black.		Bell struck by machinery a double blow every 15 seconds.
76	Brown cylindrical foundation pier expanding in trumpet shape at its upper end to form a gallery. White octagonal two-story brick dwelling with square brick tower rising from roof on the south side; black lantern.		2d-class Daboll trumpet; blasts 4 seconds, silent intervals 2 seconds. If trumpet be disabled a bell will be struck by machinery a single and a double blow alternately, intervals 20 seconds.
77	Black lantern on white dwelling; white fog-bell tower at the easterly end of coal shed.	36	Bell struck by machinery every 10 seconds.
78	Black triangular four-pile structure		
79	Red triangular four-pile structure		
80	Tower and detached dwelling white; lantern black; fog-bell tower white, 15 feet to westward.	30	Bell struck by machinery every 20 seconds.
81	Black lantern on white dwelling; detached fog-bell tower brown	41	Bell struck by machinery every 16 seconds.
82	White square screw-pile structure, with green shutters; piles and roof brown; lantern black.		Bell struck by machinery a double blow every 15 seconds.

TABLE OF LIGHTS.

Number.	Name.	Latitude, north. Longitude, west.	Characteristics of light.	Order of light.	Height of light above sea level, in feet.	Distance visible, in nautical miles.
	CHESAPEAKE BAY—Continued.	° ′ ″				
	POTOMAC RIVER—Continued.					
83	Lower Cedar Point Beacon		Fixed white	Post lantern.	29	
84	LOWER CEDAR POINT	38 20 24 76 59 38	Fixed white	4	38	11½
85	Mathias Point Shoal	38 24 19 77 02 36	Fixed white	5	43½	12
86	UPPER CEDAR POINT	38 24 10 77 04 59	Fixed white with a fixed red sector between SW. ¼ W. and W. by S.	5	33½	11
87	Maryland Point	38 20 59 77 11 53	Flashing white every 5 seconds	4	41½	11¾
88	Fort Washington	38 42 (45) 77 02 (11)	Fixed white	Lens lantern.	28	8¾
89	Jones Point	38 47 25 77 02 27	Fixed red	5	32½	8½
90	Holland Island Bar	38 04 07 76 05 46	Fixed white	4	42	11¾
91	Solomons Lump	38 02 53 76 00 55	Fixed white	5	46½	12⅛
92	Point No Point					
93	Great Shoals	38 12 (42) 75 52 (53)	Fixed white	5	37	11¼
94	Sharkfin Shoal	38 12 08 76 59 13	Fixed white with a fixed red sector from N. ¼ E. through southwestward to E. ½ S.	4	44	12
95	HOOPER STRAIT	38 13 36 76 04 33	Fixed white with a fixed red sector between NW. by W. ½ W. and NW. ½ W.	5	40½	11½
96	Hooper Island	38 15 23 76 15 00				
97	Cedar Point	38 17 58 76 22 05	Flashing red every 5 seconds	4	45	12
98	Drum Point	38 19 10 76 25 16	Fixed red with a dark sector between E. by N. and E. ¼ N.	4	45½	11¼
99	Cove Point	38 23 10 76 22 55	Fixed white varied by a white flash every 90 seconds.	4	44½	12
100	Sharps Island	38 38 20 76 22 33	Fixed white with a fixed red sector from S. by E. ⅝ E. through northeastward to W. ½ S.; *obscured between N. ⅞ E. and N. by E. ¾ E.*	4	53½	12¾
101	Choptank River	38 39 21 76 11 06	Fixed white	5	38	11¼
102	Hambrook Bar					
103	Range: Cambridge Front					
104	Range: Cambridge Rear					
105	Bloody Point Bar	38 50 01 76 23 31	Fixed white with a fixed red sector from NW. by W. ¾ W. through southeastward to NNE. ⅛ E.	4	55½	12¾
106	Thomas Point Shoal	38 53 56 76 26 10	Flashing white from SSW. ¼ W. through eastward to N. by E. ¼ E.; flashing red throughout the remaining sector; interval between flashes 30 seconds.	4	42½	11¾
107	Greenbury Point Shoal	38 58 05 76 27 16	Fixed white	4	39	11½
108	Sandy Point	39 00 57 76 23 05	Fixed white from S. ⅜ E. through eastward to N. by E. ½ E.; fixed red throughout the remaining sector.	5	51	12½
109	Love Point	39 03 26 76 17 01	Fixed white	5	37½	11¼

CHESAPEAKE BAY AND TRIBUTARIES.

Number.	Color and peculiarity of lighthouse or vessel.	Height, in feet, from base of structure to center of lantern.	Fog signal.
83	White conical foundation, surmounted by a red column, carrying a rod conical cage and a ball.		
84	White square screw-pile structure; piles and roof brown; blinds green; lantern black.		Bell struck by machinery every 12 seconds.
85	White hexagonal screw-pile structure; piles and roof brown; lantern black		Bell struck by machinery a single and a double blow alternately, intervals 30 seconds.
86	White square screw-pile structure; piles and roof brown; lantern black; window shutters green.		Bell struck by machinery every 15 seconds.
87	White hexagonal screw-pile structure; piles and roof brown; lantern black; window shutters green.		Bell struck by machinery a double blow every 15 seconds.
88	White tower with black lantern; dwelling in rear of tower	17	Bell struck by machinery every 15 seconds.
89	Black lantern on white dwelling		
90	White hexagonal screw-pile structure, with green shutters; piles and roof brown; lantern black.		Bell struck by machinery every 10 seconds.
91	Brown cylindrical foundation pier surmounted by a white octagonal frame dwelling with square tower; lantern black.		Bell struck by machinery every 10 seconds.
92	*To be established*		
93	White square screw-pile structure; piles and roof brown; lantern black		Bell struck by machinery every 15 seconds.
94	White hexagonal screw-pile structure; piles and roof brown; lantern black; window shutters green.		Bell struck by machinery a double blow every 15 seconds.
95	White hexagonal screw-pile structure; piles brown; lantern black		Bell struck by machinery every 12 seconds.
96	*Building*		
97	Square white tower rising above the corner of the roof of a square red-brick dwelling, with white gable end; lantern black. Square wooden bell tower, middle section shingled, natural color, remainder white, about 15 feet southeasterly from the lighthouse.		Bell struck by machinery every 30 seconds.
98	White hexagonal screw-pile structure; piles and roof brown; lantern black		Bell struck by machinery a double blow every 15 seconds.
99	Tower and detached dwelling white; lantern black; detached brown fog-signal tower.	39	Daboll trumpet; blasts 8 seconds, silent intervals 7 seconds.
100	Brown tower on brown cylindrical foundation; lantern black		Bell struck by machinery a double blow every 10 seconds.
101	White hexagonal screw-pile structure; piles and roof brown; lantern black		Bell struck by machinery every 10 seconds.
102			
103	*To be established*		
104			
105	Brown tower on brown cylindrical foundation; lantern black		Bell struck by machinery every 12 seconds.
106	White hexagonal screw-pile structure; piles and roof brown; lantern black		Bell struck by machinery a triple blow every 30 seconds.
107	White hexagonal screw-pile structure; piles and roof brown; lantern black		Bell struck by machinery a double blow every 10 seconds.
108	Brown cylindrical foundation; red-brick dwelling, green trimmings, roof painted in three white and two black horizontal bands; lantern black.		Bell struck by machinery every 10 seconds.
109	White hexagonal screw-pile structures, protected by riprap; piles and roof brown; lantern black.		Bell struck by machinery every 8 seconds.

TABLE OF LIGHTS.

Number.	Name.	Latitude, north. Longitude, west.	Characteristics of light.	Order of light.	Height of light above sea level, in feet.	Distance visible, in nautical miles.
	CHESAPEAKE BAY—Continued.	° ′ ″				
	QUEENSTOWN CREEK.					
110	Range. Beacon No. 1 Front		Fixed white	Post lantern.	10	
111	Range. Beacon No. 3 Rear		Fixed red	Post lantern.	20	
112	Beacon No. 2		Fixed white	Post lantern.	10	
113	Rockhall Creek Beacon, No. 3		Fixed white	Post lantern.	4	
114	Baltimore					
115	Range. Craighill Channel Front	39 11 19 76 23 41	Two fixed white	5 Range lens.	39 213¾	11½ 9½
116	Range. Craighill Channel Rear	39 13 44 76 23 41	Fixed white	Range lens.	105	16
	PATAPSCO RIVER—BALTIMORE HARBOR.					
117	SEVEN-FOOT KNOLL	39 09 19 76 24 33	Fixed red	4	42	11¼
118	Range. Cut-off Channel Front	39 11 49 76 26 55	Fixed white	Refl'r	25	10
119	Range. Cut-off Channel Rear	39 12 58 76 27 47	Fixed white	Refl'r	64	13½
120	Fort Carroll	39 12 51 76 31 12	Fixed white with a fixed red sector between NW. by N. and N. by W. ½ W.	5	45	12
121	Broverton Channel Range. Hawkins Point (front)	39 12 28 76 31 58	Fixed white	Refl'r	27	10¼
122	Broverton Channel Range. Leading Point (rear)	39 12 49 76 33 08	Fixed white	Refl'r	69	13¾
123	Lazaretto Point	39 15 46 76 34 18	Flashing red every 5 seconds	4	38	11¼
124	Pooles Island	39 17 26 76 16 00	Fixed white with a fixed red sector between WNW. ⅜ W. and NW. by W. ⅞ W., and another between NW. 11/16 N. and NNW. 11/16 W.	4	38	11¼
125	Turkey Point	39 27 00 76 00 31	Fixed white	4	63½	13½
126	Fishing Battery	39 29 41 76 05 01	Fixed white	6	34½	11
127	Havre de Grace	39 32 27 76 05 06	Fixed red	5	38½	8½
	ELK RIVER.					
128	Old Town Point Wharf Post Light	39 30 10 75 54 58	Fixed white	Post lantern.	25	
129	Old Field Point Post Light	39 30 38 75 53 58	Fixed white	Post lantern.	10	
130	Randall Wharf Post Light	39 31 49 75 51 51	Fixed white	Post lantern.	20	

The names of the lights are printed as follows, viz:

1st. PRIMARY SEACOAST LIGHTS.

2d. SECONDARY SEACOAST LIGHTS AND LAKE-COAST LIGHTS.

3d. *Light-vessels.*

4th. Sound, bay, river, and harbor lights.

The geographical positions of lights which are uncertain by some seconds, not having yet been accurately determined, and those of light-vessels which vary somewhat in position, have the seconds inclosed thus: 30° 45′ (57″). The geographical positions which are given without having the seconds so inclosed are furnished by the United States Coast and Geodetic Survey and have been accurately determined by triangulation.

CHESAPEAKE BAY AND TRIBUTARIES.

Number.	Color and peculiarity of lighthouse or vessel.	Height, in feet, from base of structure to center of lantern.	Fog signal.
110	Black four-pile structure, with cluster of three fender piles on channel side		
111	Bracket on gable end of depot building		
112	Black three-pile structure		
113	Temporary structure near partially submerged wreck of former structure		
114	*To be established*		
115	Brown dwelling on brown cylindrical foundation, surmounted by black lantern		Bell struck by machinery at alternate intervals of 3 and 30 seconds.
116	Open frame pyramid of four sides, lower portion white, upper part brown; trimmings lead color; lantern black.		
117	Brown octagonal screw-pile structure, with green window shutters		Bell struck by machinery every 12 seconds.
118	Octagonal brick tower, painted in three horizontal bands, upper and lower red, middle white.	18	
119	Four-sided open iron-frame pyramid, with square central shaft, surmounted by a lantern; framework and shaft white; lantern roof brown.	56	
120	Black lantern on white structure	45	Bell struck by machinery every 10 seconds.
121	White square screw-pile structure; ironwork and roof brown		
122	White tower and brown dwelling attached; mast surmounted by black ball stands immediately behind and shows about 15 feet above the tower.	40	
123	Tower white; lantern black; detached dwelling white; detached fog-bell frame and oil house brown.	34	Bell struck by machinery every 10 seconds.
124	Tower and detached dwelling white; lantern black; detached fog-bell frame and oil house brown.	35½	Bell struck by machinery every 12 seconds.
125	Tower, detached dwelling, and detached fog-bell tower all white; lantern black. The light-tower is partly hidden by foliage.	30	Bell struck by machinery every 10 seconds.
126	Black lantern on white dwelling	32	
127	Tower and detached dwelling white; lantern black	32	
128	Lantern on white post		
129	Triangular pile structure with center pile supporting lantern. Pile ice-breaker around structure.		
130	Lantern on red post, connected with the shore by a footbridge on piles		

In the column "Characteristics of light," the time interval of flashing lights is given from the beginning of one flash to the beginning of the next following flash, and bearings are magnetic and given from seaward.

In the column "Distance visible, in nautical miles," will be found the distances within which the lights can be seen, under ordinary conditions of the atmosphere, the height of the light being measured from mean high water and the eye of the observer taken at an elevation of 15 feet above sea level.

The fact should be noted that sound signals are not always reliable. The sound may be lost while really approaching it, after being heard; or even when approached until close-to, it may not be heard at all, though properly made. These conditions are the exception, not the rule. They are, however, always possible and render great care necessary.

STORM-WARNING DISPLAY STATIONS AND SEACOAST TELEGRAPH STATIONS.

The Storm-Warning Displays of the United States Weather Bureau are made for the benefit of mariners at the following stations. The signals are described and their meaning is explained in Appendix II.

Drum Point, Md.	**Annapolis, Md.**	**Newport News, Va.**
Solomons, Md.	**Baltimore, Md.**	**Cape Henry, Va.**
Oxford, Md.	**Fort Monroe, Va.**	**Norfolk, Va.**

There is a seacoast telegraph station at Cape Henry with which passing vessels may communicate by the use of the International Code Signals. Messages are sent from the station at Cape Henry to the United States Weather Bureau Station at Norfolk, Va., and from thence forwarded at the expense of the person to whom the message is addressed.

UNITED STATES LIFE-SAVING STATIONS.

The following list of life-saving stations has been corrected to July 1, 1901. The geographical positions given are approximate, and are taken from the Official Register of the service. These stations are furnished with lifeboats, mortars, and all other appliances for affording assistance in case of shipwreck.*

Name of Station.	State.	Locality.	Approximate Position.					
			Latitude, north.			Longitude, west.		
			°	′	″	°	′	″
Hog Island	Va	South end of Hog Island	37	22	20	75	42	45
Cobb Island	Va	South end of Cobb Island	37	17	30	75	47	00
Smith Island	Va	At Cape Charles Light	37	07	00	75	53	40
Cape Henry	Va	⅛ mile southeast of Cape Henry Light	36	55	10	75	59	50
Seatack	Va	5⅓ miles south of Cape Henry Light	36	51	10	75	58	40
Dam Neck Mills	Va	10 miles south of Cape Henry Light	36	47	10	75	57	30
Little Island	Va	On beach abreast of North Bay	36	41	30	75	55	20
False Cape	Va	On beach abreast of Back Bay	36	36	00	75	52	50
Wash Woods	N. C	On beach abreast of Knotts Island	36	32	00	75	52	10
Currituck Inlet	N. C	5¾ miles north of Currituck Beach Light	36	27	30	75	50	40
Whales Head	N. C	¼ mile north of Currituck Beach Light	36	23	20	75	49	40
Poyners Hill	N. C	6½ miles south of Currituck Beach Light	36	17	10	75	48	00
Caffeys Inlet	N. C	10⅝ miles south of Currituck Beach Light	36	13	40	75	46	20
Paul Gamiels Hill	N. C	5 miles north of Kitty Hawk	36	08	00	75	43	50
Kitty Hawk	N. C	On the beach abreast of north end of Kitty Hawk Bay	36	03	50	75	41	30
Kill Devil Hills	N. C	4½ miles south of Kitty Hawk	36	00	10	75	39	40
Nags Head	N. C	9 miles north of Oregon Inlet	35	56	00	75	36	40
Bodie Island	N. C	⅛ mile northeast of Bodie Island Light	35	49	40	75	33	20

TIDES, CHESAPEAKE BAY.†

GENERAL TABLE.

Time of high water at Old Point Comfort is 8h. 44m. after the moon's meridian passage (moon's southing).

Locality.	Time of high water before or after time of high water at Old Point Comfort.	Mean Rise and Fall.			Mean Duration of—			Rise of highest tide observed.
		Mean tides.	Spring tides.	Neap tides.	Rise.	Fall.	Stand.	
	h. m.	Feet.	Feet.	Feet.	h. m.	h. m.	h. m.	Feet.
Old Point Comfort		2.5	3.0	2.0	6 27	5 58	0 14	7.6
Cape Charles Lighthouse	0 42 before	2.5	3.0	2.0	5 44	6 41	0 15	4.2
Cherrystone Lighthouse	0 22 before	2.5	3.0	2.0	5 38	6 47	0 17	3.6
York River Entrance	0 04 before	2.4	2.9	1.9	6 27	5 58	0 16	3.7
Piankatank River Entrance	1 19 after	1.3	1.6	1.0	5 50	6 35	0 33	2.5
Tangier Sound, Crisfield	4 04 after	1.9	2.3	1.5	6 02	6 23	0 27	3.9
Potomac River Entrance	4 12 after	1.4	1.7	1.1	6 04	6 21	0 35	2.6
Patuxent River Entrance	4 58 after	1.4	1.6	1.2	5 44	6 41	0 25	3.1
Sharps Island Lighthouse	6 28 after	1.3	1.5	1.1	5 35	6 50	0 30	3.3
Severn River, Annapolis	4 04 before	0.9	1.0	0.8	6 11	6 14	0 32	3.2
Chester River, Chestertown	1 28 before	2.0	2.3	1.7	6 08	6 17	0 33	3.5
Baltimore Harbor	2 16 before	1.2	1.4	1.0	5 53	6 32	0 31	4.2
Sassafras River, Betterton	0 45 before	2.0	2.3	1.7	5 40	6 45	0 28	4.3
Havre de Grace	0 52 after	2.0	2.3	1.7	5 45	6 40	0 25	3.1

* Instructions to enable mariners to avail themselves fully of the assistance thus afforded will be sent free of charge upon application to the General Superintendent of the Life-Saving Service, Washington, D. C.

† **Tide Tables for the Atlantic Coast,** published annually by the United States Coast and Geodetic Survey, predicting the times and heights of tides for every day of the year, at all the principal ports, can be obtained from the agents named in the list given on pages 7–8, price $0.15.

TIDAL CURRENTS, CHESAPEAKE BAY.

GENERAL TABLE.

Stations.	Current turns to flood—hours after high water at Old Point Comfort or Baltimore.	Velocity at strength of flood current.	Current turns to ebb—hours after high water at Old Point Comfort or Baltimore.	Velocity at strength of ebb current.
	h. m.	Miles.	h. m.	Miles.
	Old Point Comfort.		**Old Point Comfort.**	
2.2 miles N. ¼ E. from Lynn Haven Inlet	9 59	1.1	2 09	1.2
7.8 miles E. ¾ S. from Old Point Comfort Lighthouse	8 14	1.2	2 43	1.2
3.8 miles E. from Old Point Comfort Lighthouse	9 24	0.9	0 42	1.7
0.5 mile SSW. from Old Point Comfort Lighthouse	8 01	1.9	0 56	1.7
0.7 mile SW. by W. ½ W. from Old Point Comfort Lighthouse	8 40	1.2	1 24	1.4
3.8 miles SW. from Old Point Comfort Lighthouse	7 12	1.2	1 43	0.9
4.8 miles E. ½ S. from Back River Lighthouse	10 18	1.5	5 22	1.1
2.3 miles SE. ½ S. from York Spit Lighthouse	8 28	0.7	2 09	0.8
4.5 miles ESE. ¼ E. from York Spit Lighthouse	9 24	0.9	3 09	0.9
1.2 miles E. ½ N. from Wolf Trap Lighthouse	0 35	0.7	5 08	1.1
2.6 miles SE. by E. ½ E. from Windmill Point Lighthouse	0 15	0.8	4 53	1.5
6.1 miles NNE. from Smith Point Lighthouse	11 55	0.5	8 25	0.4
2.2 miles SE. by S. from Point Lookout Lighthouse	0 20	0.6	5 15	0.8
2.8 miles NE. by E. ½ E. from Point No Point	0 25	0.8	7 00	0.5
1.1 miles WSW. ⅜ W. from Hooper Strait Lighthouse	12 00	0.5	4 30	0.6
3.2 miles SE. by E. ⅝ E. from Cedar Point	1 40	0.7	10 00	0.3
1.4 miles E. ¼ N. from Drum Point Lighthouse	4 30	0.6	1 20	0.4
2.6 miles N. ⅝ E. from Cove Point	3 40	0.5	9 25	0.9
3.4 miles SE. by E. ⅝ E. from Holland Point	5 40	0.4	11 00	0.5
3.3 miles SW. ⅜ W. from Bloody Point Bar Lighthouse	6 15	0.4	11 25	0.5
2.0 miles WNW. ¼ W. from Tilghmans Point	2 20	0.5	9 00	0.3
	Baltimore.		**Baltimore.**	
1.6 miles S. by E. from Thomas Point Shoal Lighthouse	7 30	0.6	1 20	0.6
1.0 mile E. ½ S. from Sandy Point	8 10	0.7	1 45	0.7
3.6 miles E. ½ S. from Seven-Foot Knoll Lighthouse	9 15	0.5	2 20	0.6
2.2 miles W. ⅜ S. from Craighill Channel Front Range Lighthouse	8 30	0.8	1 25	1.0
1.0 mile NE. ⅛ N. from Seven-Foot Knoll Lighthouse	7 50	0.6	2 20	0.4
0.2 mile W. from Craighill Channel Front Range Lighthouse	8 00	0.6	2 00	1.0
1.2 miles WNW. ⅜ W. from Craighill Channel Front Range Lighthouse	11 25	0.3	6 30	0.5
0.4 mile SW. ⅞ S. from Cut-off Channel Front Range Lighthouse	7 30	0.2	0 00	0.3
1.0 mile SW. ⅛ W. from Cut-off Channel Front Range Lighthouse	6 30	0.6	11 45	0.4
1.5 miles SW. ¼ W. from Cut-off Channel Front Range Lighthouse	6 10	0.3	11 45	0.4

VARIATION OF THE COMPASS.

The magnetic variation at different points in Chesapeake Bay and its tributaries for 1902 is as follows:

Locality.	Compass variation.	Annual increase.
	° ′	′
Chesapeake Bay entrance between Cape Charles and Cape Henry	4 15 W.	3
Hampton Roads	4 00 W.	3
James River, City Point	4 00 W.	3
York River Entrance	4 15 W.	3
Rappahannock River Entrance	4 20 W.	3
Potomac River Entrance	4 40 W.	3
Watts Island Lighthouse	4 40 W.	3
Hooper Strait	5 00 W.	3
Patuxent River Entrance	5 00 W.	3
Sharps Island Lighthouse	5 15 W.	3
Annapolis Roads	5 00 W.	3
Patapsco River, Fort Carroll	5 00 W.	3
Pooles Island	5 15 W.	3
Turkey Point, entrance to Elk River	5 40 W.	3

BEARINGS AND DISTANCES.

The following bearings and distances serve to indicate the relative positions of lighthouses and light-vessels along the coast and in Chesapeake Bay, but can not in all cases be taken as courses to be steered:

Cape Charles Light-vessel.—The following are bearings and distances from Cape Charles Light-vessel:

	Miles.
Cape Charles Lighthouse, WNW. ¾ W	9½
Hog Island Lighthouse, N. ⅝ E	18½
Assateague Lighthouse, NNE. ½ E	52
Winter Quarter Shoal Light-vessel, NE. ¾ N	58½
Montauk Point Lighthouse, NE	299½
Gay Head Lighthouse, NE. ⅝ E	342½
Nantucket Shoals Light-vessel, NE. by E. ½ E	356
Diamond Shoal Light-vessel, S. ½ E	122
Cape Henry Lighthouse, SW. by W. ½ W	17⅛

Cape Henry Lighthouse.—The following are bearings and distances from Cape Henry Lighthouse:

	Miles.
Cape Charles Lighthouse, NNE. ½ E	12¾
Currituck Beach Lighthouse, S. ⅛ E	34
Bodie Island Lighthouse, S. by E. ½ E	69¾
Diamond Shoal Light-vessel, S. by E. ½ E	115½
Tail of the Horseshoe Light-vessel, NNW. ½ W	3½
Thimble Shoal Lighthouse, NW. by W. ½ W	12½
Old Point Comfort Lighthouse, WNW. ½ W	15
Back River Lighthouse, NW. ⅝ W	16
York Spit Lighthouse, NNW. ¾ W	20¾
New Point Comfort Lighthouse, NNW. ½ W	26
Wolf Trap Lighthouse, N. by W. ⅛ W	29½
Old Plantation Flats Lighthouse, N. ½ W	18½
Windmill Point Lighthouse, N. by W	41¾
Smith Point Lighthouse, N. ⅝ W	57¾

Wolf Trap Lighthouse.—The following are bearings and distances from Wolf Trap Lighthouse:

	Miles.
Tail of the Horseshoe Light-vessel, S. by E	25¾
Thimble Shoal Lighthouse, S. by W	22¾
Back River Lighthouse, S. by W. ⅝ W	18½
York Spit Lighthouse, S. by W. ¾ W	11½
Windmill Point Lighthouse, N. ⅝ W	12¾
Smith Point Lighthouse, N. ⅝ E	29½
Holland Island Bar Lighthouse, N. by E	41
Tangier Sound Lighthouse, NNE. ½ E	26
Watts Island Lighthouse, NE. ⅞ N	27½
Old Plantation Flats Lighthouse, SSE. ⅞ E	11¾

Smith Point Lighthouse.—The following are bearings and distances from Smith Point Lighthouse:

	Miles.
Windmill Point Lighthouse, S. by W. ⅛ W	17
Point Lookout Lighthouse, NNW. ¾ W	11½
Cedar Point Lighthouse, N. by W. ½ W	26¾
Cove Point Lighthouse, N. by W. ⅛ W	31¾
Hooper Island Lighthouse, N. ½ W	22¾
Hooper Strait Lighthouse, N. by E. ⅝ E	21½
Holland Island Bar Lighthouse, NNE. ½ E	12
Tangier Sound Lighthouse, SE. by E. ½ E	11½
Old Plantation Flats Lighthouse, S. ½ E	39½

Cove Point Lighthouse.—The following are bearings and distances from Cove Point Lighthouse:

	Miles.
Thomas Point Shoal Lighthouse, N	31
Bloody Point Bar Lighthouse, N. ⅝ E	26¾
Sharps Island Lighthouse, N. ½ E	15½
Hooper Island Lighthouse, SE. by S	10
Holland Island Bar Lighthouse, SSE. ¾ E	23½
Cedar Point Lighthouse, S. ½ E	5½

Thomas Point Shoal Lighthouse.—The following are bearings and distances from Thomas Point Lighthouse:

	Miles.
Greenbury Point Lighthouse, N. ½ W	4½
Sandy Point Lighthouse, NNE. ½ E	7½
Pooles Island Lighthouse, NNE. ½ E	24½
Bloody Point Bar Lighthouse, SSE. ½ E	4½
Sharps Island Lighthouse, S. ½ E	15¾

Sandy Point Lighthouse.—The following are bearings and distances from Sandy Point Lighthouse:

	Miles.
Seven-Foot Knoll Lighthouse, **N.** ¼ **W**	8½
Craighill Channel Front Range Light, **N.** ¼ **E**	10¼
Pooles Island Lighthouse, **NNE.** ½ **E**	17½
Love Point Lighthouse, **ENE**	5¼
Bloody Point Bar Lighthouse, **S.** ⅝ **W**	11

Pooles Island Lighthouse.—The following are bearings and distances from Pooles Island Lighthouse:

	Miles.
Seven-Foot Knoll Lighthouse, **SW**	10½
Craighill Channel Front Range Light, **SW.** ⅝ **W**	8½
North Point Lighthouse, **SW.** by **W.** ½ **W**	10¼
Turkey Point Lighthouse, **NE.** by **E**	15¼

GENERAL REMARKS AND DIRECTIONS, APPROACHING CHESAPEAKE BAY ENTRANCE.

From Northward.—On the coast, between Delaware and Chesapeake bays, there are no prominent natural features; the lighthouses, light-vessels, and life-saving stations are the only objects easily distinguished from a distance. The 100-fathom curve extends along at an average distance of about 60 miles from the coast. Outside the 100-fathom curve the water deepens very rapidly. Soundings in 30 fathoms indicate a distance of 35 to 50 miles from the shore. Inside of the 30-fathom curve the water shoals irregularly; the bottom is composed of sand, broken shells, pebbles, and gravel, or a combination of them. The 15-fathom curve will be found 12 to 32 miles offshore, and deep-draft vessels approaching the coast in thick weather should not get into a less depth unless sure of their position. At night, in clear weather, when in 12 fathoms, some one of the lights or light-vessels will generally be visible.

Vessels of light draft coming from Delaware Bay may run along close to the shore, inside of the outlying shoals, but it is not advisable to do so, for if caught in an easterly gale the chances for going on the beach are great; it is safest at all times to pass outside of the shoals. A course of **SSW.** ⅝ **W.** from Five-Fathom Bank Light-vessel, made good for 55½ miles, will lead to a point about 4 miles **E.** of Winter-Quarter Shoal Light-vessel, in a least depth of about 7 fathoms, and clear of all dangers. The course from a position 4 miles **E.** of Winter-Quarter Shoal Light-vessel to Cape Charles Light-vessel is **SW.** ⅝ **S.**, and the distance about 60 miles. To insure a depth of 7 fathoms or more, from a position 4 miles **E.** of Winter-Quarter Shoal Light-vessel, make good a **SW.** by **S.** course for 72 miles, which will lead to a position from which Cape Henry Light bears **WNW.** ½ **W.**, distant 12 miles; this course should lead 4½ miles eastward of Cape Charles Light-vessel.

The tidal influences along the coast northward of Cape Charles are weak, and the direction and velocity of the currents are due, in a great degree, to the direction and force of the wind.

From Eastward.—The entrance may be approached boldly from eastward, as there are no outlying dangers. Twenty fathoms will be found about 45 miles eastward of Cape Henry; inside that depth the water shoals irregularly. In clear weather Cape Henry and Cape Charles lighthouses and Cape Charles Light-vessel will be made about the same time. In thick weather safety may be insured by keeping in 10 fathoms. When in latitude 37° 00′ N., and 30 fathoms of water, a **W.** course will lead directly for Cape Henry Lighthouse, but depths of 5½ to 6 fathoms will be found from 5 to 7 miles eastward of the lighthouse, and deep-draft vessels in heavy weather should avoid these spots.

From Southward.—Between Cape Henry and Cape Hatteras, a distance of about 105 miles, there are no dangerous outlying shoals over 5 miles from the beach. Vessels of the heaviest draft may, in smooth weather, run as close as 5 miles from the beach, but are not advised to do so, as it is a dangerous coast to be caught on in an easterly gale. The narrow stretch of sand beach forming the greater length of the coast is very low, and frequently may not be visible, even in clear weather, more than 4 or 5 miles. The 100-fathom curve, which, abreast of Cape Henry, is about 65 miles offshore, gradually approaches the coast southward; and southeast of Cape Hatteras is only about 20 miles from the beach. The 30-fathom curve is about 5 miles inside of the 100-fathom curve. Abreast of Cape Henry 20 fathoms will be found about 45 miles off the coast, but farther southward that depth is

found closer in, and at Cape Hatteras it is only 11 miles offshore. With the exception of a few places, 5 to 9 fathoms may be carried as close as 1 mile from the beach. Inside of 15 fathoms the depth is extremely irregular, and there are many holes of limited extent lying far inside of the general limits of the corresponding depth.

In running along this coast in thick weather take soundings frequently, and when less than 15 fathoms is found haul offshore at once. Rounding Hatteras Shoals close to Diamond Shoal Light-vessel, steer **N.** ¼ **E.** for 45 miles; Bodie Island Lighthouse should then bear **W.**, distant 11 miles; the course for Chesapeake Bay Entrance is then **N.** by **W.** ¾ **W.**, and the distance about 72 miles. Cape Henry Lighthouse will be made broad off the port bow. Having made Cape Henry Lighthouse, follow the directions for entering Chesapeake Bay from southward.

Strong currents set up or down this coast with southerly or northerly gales. Their strength and set depend upon the force and duration of the gale, and has been estimated to be as much as 3 or 4 miles per hour during very heavy gales. In southeasterly gales the set of the currents is not parallel to the coast, but more or less in toward it.

SAILING DIRECTIONS, CHESAPEAKE BAY.

1. ***Approaching and Entering, from Northward.***—Note the "General Remarks and Directions, Approaching Chesapeake Bay Entrance from Northward," preceding.

I. *Vessels of over 24 feet draft.*—Passing 4½ miles eastward of Cape Charles Light-vessel on the **SW.** by **S.** course, bring it to bear **WNW.** and steer **SW.** by **S.** for 13 miles. Then steer **W.** for 5 miles; Cape Henry Light should then bear **NW.** by **W.** ½ **W.**, distant 7½ miles. Then steer **NW.** and when Cape Henry Light bears **SW.**, distant 2 miles, steer **WNW.** ⅝ **W.** Then follow the directions in the paragraphs following according to destination.

II. *Vessels of less than 24 feet draft.*—Having made Cape Charles Light-vessel, pass eastward of it, and then bring it to bear **NE.** ¼ **E.**, and steer **SW.** ¼ **W.** for about 13 miles until Cape Henry Lighthouse bears **W.** ¼ **S.**, distant about 4¾ miles (Cape Charles Light-house, if visible, will then bear about **N.** ¼ **E.**). Now steer **WNW.** ⅝ **W.** and pass about 1¾ miles northward of Cape Henry Lighthouse, and then—

If bound into Hampton Roads.—Continue the **WNW.** ⅝ **W.** course, and follow the directions under section 1, heading "Hampton Roads."

If bound up the bay.—Follow the directions under section 2, following.

If desiring to anchor in Lynn Haven Roads (the bight immediately westward of Cape Henry).—Stand southwestward when Cape Henry Lighthouse bears **S.**, and anchor according to draft in 3¾ to 5 fathoms water. Do not approach the shore within ¾ mile when abreast of Lynn Haven Inlet, the shallow indentation in the southern shore 4¼ miles westward of Cape Henry Lighthouse.

III. *Vessels of 16 feet draft or less, in a smooth sea.*—Pass Cape Charles Light-vessel close-to on either hand, and bring it to bear **ENE.**, and steer **WSW.** about 15½ miles. Cape Henry Lighthouse should then bear **S.**, distant 3 miles, and Tail of the Horseshoe Light-vessel should bear **W.**, distant nearly 1½ miles, and then—

If bound into Hampton Roads.—Continue the **WSW.** course until the light-vessel bears **N.** by **E.**, distant ¾ mile, and follow the directions under section 1, heading "Hampton Roads."

If bound up the bay.—Steer **WNW.** until Tail of the Horseshoe Light-vessel is in range with Cape Henry Lighthouse, bearing **SSE.** ¼ **E.**, and then follow the directions under section 2, following.

If desiring to anchor in Lynn Haven Roads.—Steer **SW.** by **W.**, and anchor in 3¾ to 5 fathoms of water about 4 miles westward of Cape Henry Lighthouse and about 1 mile offshore.

Note.—**Vessels of less than 16 feet draft sometimes enter the bay across the shoals lying northward of these sailing lines. A stranger should not attempt to do so, as the shoals are of a shifting nature and the depths over them can not be relied on, especially after a gale of wind.**

Caution.—At night, the red sector of Cape Henry Lighthouse covers all the shoals, with less than 4 fathoms over them, lying off Cape Charles, and vessels of 18 feet or less draft will insure safety by keeping on the edge of the red rays until up to the whistling buoy. Vessels of deeper draft should follow the preceding directions for deep-draft vessels, which will lead well eastward of the red sector on the **SW.** by **S.** or **SW.** ¼ **W.** courses, and through the red sector on the **WNW.** ⅜ **W.** course.

Remarks.—The **SW.** by **S.** course leads in 8 fathoms or more and well eastward of the entrance. When the course is changed to **W.** Cape Henry Lighthouse should bear **WNW.** ½ **W.** and be distant about 12 miles. When the course is changed to **NW.** Cape Charles Lighthouse should bear **N.** ⅜ **W.** and be distant about 15 miles. On the **NW.** course Tail of the Horseshoe Light-vessel should be made a little on the port bow. Outer Entrance whistling buoy should be left nearly 1¾ miles on the starboard hand, and Cape Henry Lighthouse should be left nearly 2 miles on the port hand when it is abeam and the course is changed to **WNW.** ⅜ **W.**

On the **SW.** ½ **W.** course from Cape Charles Light-vessel, Smith Island and Cape Charles Lighthouse will be seen northwestward. Cape Henry Lighthouse will be made well on the starboard bow, and when it bears **W.** ½ **S.** Outer Entrance whistling buoy (red, No. 2) will be about 1¾ miles on the starboard beam; the course is then changed to **WNW.** ⅜ **W.**, and the whistling buoy should be left 1 mile on the starboard hand. When inside Cape Henry, Tail of the Horseshoe Light-vessel will be left ¾ mile on the starboard hand, and, on a clear day or at night, Thimble Shoal Lighthouse will be made a little on the starboard bow when on the **WNW.** ⅜ **W.** course.

On the **WSW.** course from Cape Charles Light-vessel, Middle Ground Shoal bell buoy (red, No. 4) will be left ½ mile on the starboard hand. Cape Henry Lighthouse will be made off the port bow, and Tail of the Horseshoe Light-vessel a little on the starboard bow.

Dangers.—**Smith Island Shoal** has a least depth of 17 feet over it, and lies about 7¼ miles **ESE.** ⅝ **E.** from Cape Charles Lighthouse and about 1½ miles westward of Cape Charles Light-vessel.

Shark Shoal has a least depth of 17 feet over it, and lies about 4¾ miles **SE.** by **E.** from Cape Charles Lighthouse.

Shoal water (less than 18 feet) is found 1¾ miles offshore, northward of Cape Charles Lighthouse, and 4 miles offshore, southward of the southern end of Smith Island. These shoals are not marked and should be avoided by strangers.

The Lower Middle Ground has 20 to 23 feet of water over it, and lies about 3¼ miles northeastward of Cape Henry Lighthouse. It is about 3 miles long **E.** and **W.**, and nearly 1¼ miles wide **N.** and **S.** Southward of this shoal is Outer Entrance whistling buoy (red, No. 2), left on the starboard hand by deep-draft vessels which pass into the bay between the Lower Middle Ground and Cape Henry. The depths between the Lower Middle Ground and the Middle Ground range from 3¼ to 5 fathoms.

The Middle Ground is fully described under section 2, following. Its southeastern end has 17 feet over it and lies 5¼ miles **N.** by **E.** ⅝ **E.** from Cape Henry Lighthouse. **NNE.** ½ **E.**, distant 5 miles from this lighthouse, is a bell buoy (red, No. 4), which serves as a guide to keep vessels clear of the southeastern end of the Middle Ground and the shoals northward. About 2¼ miles eastward and southeastward of this buoy are several spots with 19 and 23 feet over them, forming part of the Lower Middle Ground.

Numerous shoal spots of a shifting nature and varying depth lie northward of the bell buoy, between it and Cape Charles. These spots are all avoided by following the sailing directions. A buoyed channel (North Channel) leads through these shoals and along the eastern edge of the Inner Middle Ground, but a stranger should not attempt it except in the daytime with clear weather and a smooth sea.

The shores of Cape Henry, while the lighthouse bears southward of **W.** by **S.**, can be approached as close as ¼ mile, but if the lighthouse bears northward of **W.** by **S.**, deep-draft vessels should keep at least 2¼ miles offshore, as there are spots with only 27 feet over them 2 miles offshore.

1 A. ***Approaching and Entering, from Southward.***—See the "General Remarks and Directions, Approaching Chesapeake Bay Entrance from Southward," page 29.

Standing along the coast northward of Currituck Lighthouse, give the beach a berth of over 5 miles and steer **N.** by **W.**, keeping the same distance offshore. When Cape Henry Lighthouse bears about **NW.** by **W.** ½ **W.**, distant about 7½ miles, steer **NW.** until the lighthouse bears **SW.**, distant about 2 miles, and then—

If bound into Hampton Roads.—Steer **WNW.** ⅜ **W.**, and follow the directions under section 1, heading "Hampton Roads."

If bound up the bay.—Follow the directions under section 2, following.

If desiring to anchor in Lynn Haven Roads.—Stand more westward and anchor 1 mile from the shore, about 4 miles westward of Cape Henry Lighthouse, in 3¾ to 5 fathoms of water.

Remarks.—Standing northward along the coast, when south of Cape Henry, there are no special features; the depths, 5 miles offshore, range from 6 to 10 fathoms, and the bottom is irregular. About 5 miles below Cape Henry several large buildings may be seen on the beach. After a strong northerly or northeasterly wind, a strong current sets southward and inshore. Vessels approaching Cape Henry from southward during or after a northerly gale should keep well offshore until the lighthouse is sighted, and then stand in, following the directions for entering. Sailing vessels should give Cape Henry a good berth, as the currents tend to set a vessel on the cape.

For dangers, see "Dangers," under section 1, preceding.

2. ***From Cape Henry Lighthouse to Middle Ground North End buoy.***—I. *Vessels of the deepest draft—over 24 feet.*—Having followed the directions in sections 1 or 1 A, when Cape Henry Lighthouse bears **SW.**, distant about 2 miles, steer **NW.** until Tail of the Horseshoe Light-vessel is nearly in range with Cape Henry Lighthouse and the latter bears **SSE.**; then steer **NNW.** until 5 miles from the light-vessel. Then steer **NNW. ¾ W.**, and having stood on this course nearly 6 miles, Middle Ground North End buoy (nun, red, No. 8) should be a little more than ½ mile distant on the starboard beam, and Back River Lighthouse should bear **WSW.**, distant about 6½ miles. Then follow the directions in section 3.

The least water found while following these directions is 5¼ fathoms, about 1 mile northeastward and northward of Tail of the Horseshoe Light-vessel. These directions are also good for vessels at night—the **NNW.** course leading up on the edge of the red rays in Cape Henry Light, and the **NNW. ¾ W.** course in the white rays of the light. York Spit Lighthouse should be on the port bow on the latter course.

II. *Vessels of less than 24 feet draft.*—Bring Cape Henry Lighthouse to bear **SSE. ¼ E.** over the stern, and steer **NNW. ¼ W.**, keeping Tail of the Horseshoe Light-vessel in range with Cape Henry Lighthouse. This course made good for 10¾ miles from the light-vessel or 14¼ miles from Cape Henry Lighthouse, leads ½ mile westward of Middle Ground North End buoy (nun, red, No. 8), when the directions in section 3 should be followed.

The least water liable to be found on the sailing line is about 27 feet when just northward of, or 3¾ miles northward of, the light-vessel. The directions are good for either the daytime or at night.

If beating—not drawing over 18 feet.—When northward of the southern end of the Middle Ground, in standing eastward, go about as soon as Cape Henry Lighthouse bears southward of **SSE.** The western edge of the Middle Ground rises abruptly from 7 or 8 fathoms of water. Standing westward, beware of the Tail of the Horseshoe, which lies about 5½ miles **E. ½ S.** from Thimble Shoal Lighthouse. When approaching this shoal go about when the light-vessel bears eastward of **SE. ¼ S.**

When northward of the range of Thimble Shoal and Old Point Comfort lighthouses, or Thimble Shoal Lighthouse and Hotel Chamberlin, you may stand farther westward, but go about when the water shoals to 4 fathoms, or when York Spit Lighthouse bears northward of **N.** by **W. ¾ W.**

Note.—No directions of practical use can be given for the channels eastward of the Middle Ground. A stranger should not attempt to stand up the bay except through the Main Channel.

Remarks.—Standing on the **NNW.** or the **NNW. ¾ W.** courses, the two Tail of Horseshoe buoys will be left well on the port hand, and will be too distant to be seen. When Thimble Shoal Lighthouse and the Hotel Chamberlin are in range, Tail of Horseshoe North End buoy will be nearly in line with them, and 2¼ miles distant on the port hand. The Middle Ground is left on the starboard hand. Middle Ground buoy (nun, red, No. 6), which bears about **W.**, distant 5½ miles from the Quarantine Station on Fisherman Island, is left 1 mile on the starboard hand; on a clear day Cape Henry Lighthouse can be seen for a distance of 19 miles, or until abreast of this buoy. A good lookout should be kept for the Middle Ground North End buoy, which is left ¼ mile on the starboard hand when passing.

Dangers.—The Middle Ground is the southern and westernmost of the shoals which lie southwestward of Cape Charles; it has a general depth of 14 to 17 feet over it, and extends for a distance of 8¼ miles along the eastern side of the main channel of Chesapeake Bay; the width of the Middle Ground between the 18-foot curves is ¼ to ½ mile. The southern and western edge of the Middle Ground rises abruptly from the deep water of the bay; on the eastern side are several channels leading between the shoals lying between the Middle Ground and Cape Charles. The southeastern end of the Middle Ground is 5¾ miles **N.** by **E. ¼ E.** from Cape

Henry Lighthouse; about 1¼ miles SE. from this end is a red bell buoy. About 10½ miles N. by W. ½ W. from Cape Henry Lighthouse, and about 5¼ miles W. from the Quarantine Station on Fisherman Island, is the Middle Ground buoy (nun, red, No. 6), which marks the western edge of the shoal. About 3½ miles NW. ½ N. from this buoy, and 7¼ miles SW. ½ S. from Old Plantation Flats Lighthouse, is Middle Ground North End buoy (nun, red, No. 8). Deep-draft vessels should pass at least ½ mile westward of this buoy.

The numerous shoal spots, with 14 to 17 feet of water over them, which lie northward and northeastward of the eastern end of the Middle Ground, are of a shifting nature and can not be described so as to be avoided. A stranger should follow the sailing directions, which lead well southward of the shoals.

Tail of the Horseshoe Shoal lies on the western side of the channel, about 5½ miles E. from Thimble Shoal Lighthouse. This is an irregular-shaped shoal, nearly 2 miles long in a general NW. and SE. direction, about ¼ mile wide at the widest part, and has 16 to 18 feet of water over it. Tail of Horseshoe Shoal buoy (can, black, No. 1) is off the southeastern end of the shoal, and lies 3 miles northwestward of Tail of the Horseshoe Light-vessel. Tail of Horseshoe Shoal North End buoy (spar, black, No. 3) is about 5½ miles E. by N. from Thimble Shoal Lighthouse and 2⅝ miles NW. from black can buoy, No. 1. These buoys mark the western edge of the main channel abreast the shoal (see "Remarks," preceding), but should be given a wide berth by deep-draft vessels.

Inner Middle Ground is a large irregular-shaped shoal, with 6 to 15 feet of water over it, lying between Cape Charles and the northern end of the Middle Ground. The shoal extends 4¼ miles in a general NW. by N. and SE. by S. direction, and its greatest width is about 1½ miles. The southern end of this shoal bears W., distant 1 mile from the western end of The Isaacs, and is marked by a buoy (spar, red and black horizontal stripes). About 1⅛ miles westward of Cape Charles proper the eastern edge of the Inner Middle Ground is marked by a buoy (spar, black, No. 1), and 3½ miles NNW. ½ W. from this buoy is the Upper Middle Ground buoy (spar, red and black horizontal stripes), which marks the northern end of the Inner Middle Ground. These three buoys mark the western side of the North Channel and the eastern edge of the Inner Middle Ground.

Nine-Foot Shoal is a narrow shoal, with a least depth of 9 feet over it, lying a little over 1 mile westward of the southern end of Inner Middle Ground. The shoal stretches 2⅝ miles in a NW. and SE. direction, and is ⅝ mile wide at its widest part. The southeastern end is 2½ miles WSW. from the southern point of The Isaacs. The Northwest Channel leads between this shoal and the Inner Middle Ground, but there are no aids to mark the shoals.

Latimer Shoal is eastward of the northern end of the Inner Middle Ground. It has 13 to 17 feet of water over it, is about 1½ miles long and ⅝ mile wide; it is not marked Eastward of this shoal the Beach Channel (28 feet deep) leads along the shore between Cape Charles and Butler Bluff, connecting with the deep water southward of Old Plantation Flats Lighthouse. Westward of the shoal is the North Channel.

3. ***From Middle Ground North End Buoy, off Back River Entrance, to Smith Point Lighthouse.***—I. *Vessels of the deepest draft.*—Having followed the directions in section 2, and brought Back River Lighthouse to bear **WSW.**, distant about 6½ miles, the vessel should be ½ mile westward of Middle Ground North End buoy (nun, red, No. 8). From this position steer **N. ½ E.** for 15½ miles until Wolf Trap Lighthouse bears **W.**, distant 2¼ miles. Then steer **N. ⅛ W.** for 25 miles until Great Wicomico River Lighthouse bears **W.**, distant about 3½ miles (having stood 13 miles on this course, Windmill Point Lighthouse should bear abeam, distant 3¼ miles). When Great Wicomico River Lighthouse bears **W.**, distant about 3½ miles, steer **N.** by **E. ⅛ E.** for 4½ miles to a position ¾ mile east of Smith Point Lighthouse, and then follow the directions in section 4.

The least depth should be 5¼ fathoms, and this should be found from 2 to 5½ miles northward of Middle Ground North End buoy.

II. *Vessels of less than 19 feet draft.*—Having followed the directions in section 2, and brought Back River Lighthouse to bear **WSW.**, distant about 6½ miles, the vessel should be ½ mile westward of Middle Ground North End buoy (nun, red, No. 8). From this position the course is **N. ¼ E.**, and if made good for 44¾ miles leads about ¾ mile eastward of Smith Point Lighthouse; this course should pass 1⅝ miles eastward of Wolf Trap Lighthouse, and 3⅝ miles eastward of Windmill Point Lighthouse. When Smith Point Lighthouse is made, shape the course so as to pass ¾ mile eastward of it, and follow the directions in section 4.

The least depth on the sailing line should be 5 fathoms, except at a point 6½ miles **S. ⅛ E.** from Smith Point Lighthouse and 5 miles **SE.** by **E. ½ E.** from Great Wicomico River Lighthouse, where 4 fathoms will be found, marked by a red nun buoy; spots with 3¾ fathoms of water lie a little over 1 mile southeastward from this buoy.

If beating—not drawing over 19 feet.—York Spit Lighthouse may be approached as close as 2 miles when it bears between **N.** by **W.** and **SW.** (through **W.**). Do not bring

Wolf Trap Lighthouse to bear eastward of **N.** ½ **E.** when southward of it, and when northward of it keep eastward of a line joining it and Windmill Point Lighthouse. Wolf Trap Lighthouse may be approached from eastward as close as ¾ mile.

From a point 3 miles below to a point 19 miles above Old Plantation Flats Lighthouse the eastern shore has shoals making out from 1 to 2¼ miles, and in standing over toward this shore go about before getting within 2¼ miles of it. Abreast the mouth of Occohannock Creek and northward, shoals make out from the shore to a distance of from 2¼ to 3¼ miles, but deep water leads into Pocomoke Sound and Tangier Sound.

Rappahannock Spit extends 2¼ miles in a southeasterly direction from Windmill Point Lighthouse and connects with the shore westward, but there is deep water southward and northward of it. When northward of this lighthouse do not bring it to bear southward of **S.** ½ **W.**, and when Smith Point Lighthouse is made do not bring it to bear eastward of **N.** by **E.** ¼ **E.**, and keep at least ½ mile eastward of the lighthouse while passing it.

Tangier Island may be approached as close as 3½ miles when it bears between **N.** and **NE.** Shoals make out nearly 5 miles from its western shore.

Remarks.—The courses favor the western shore, from which shoals, flats, and spits make out. The outer parts of these are marked by lighthouses (most of them pile structures) and by buoys. Flats also make out from the eastern shore, and on that side of the bay the shoaling is generally abrupt, while on the western side it is more gradual and the lead affords a better warning.

On the port hand York River Entrance and Mobjack Bay are passed; these are separated by York Spit, at the outer part of which is York Spit Lighthouse (see table of lights, page 18). A black can buoy marks the end of the spit, but the spit with a depth of 21 feet extends 1½ miles eastward of this buoy.

On the starboard hand, well over toward the eastern shore and difficult to distinguish, are Old Plantation Flats Lighthouse and Cherrystone Lighthouse, the latter off Cape Charles City. Westward of Cherrystone Lighthouse is a buoy.

On the port hand the following are passed northward of York Spit Lighthouse: Mobjack Bay Entrance, New Point (Middle Ground) buoy, New Point Comfort Shoal buoy, and New Point Comfort Lighthouse, a high tower on the mainland (see table of lights, page 20). About 6¼ miles farther up Chesapeake Bay is Wolf Trap Lighthouse, caisson structure about 2½ miles offshore; a black spar buoy is southward of the lighthouse, and a black can buoy about ¾ mile eastward of it. About 4½ miles northwestward of Wolf Trap Lighthouse is a buoy marking the edge of the shoals making off from the western shore. About 10 miles northward of Wolf Trap Lighthouse the western shore is broken by Piankatank River Entrance, and just northward of this is Rappahannock River Entrance leading in between two lighthouses which stand offshore. Stingray Point Lighthouse, a little over 1 mile offshore, marks the southern side of the entrance into Rappahannock River; the northern side is marked by Windmill Point Lighthouse (see table of lights, page 20) on Rappahannock Spit. The spit extends 2¼ miles outside the lighthouse, where it is marked by a black can buoy.

The eastern shore, for a stretch of nearly 30 miles northward of Cherrystone Lighthouse, shows in the distance, while on the sailing line, as being low and wooded, without remarkable features; this shore is broken by many small creeks. Flats and sand bars extend out 1 to 3 miles from the shore, and the shoaling is abrupt in places.

The western shore from Windmill Point Lighthouse to Smith Point Lighthouse, a distance of a little more than 18 miles, is broken by many small creeks, and has shoals making out from ½ to 3 miles. When about 6 miles southward of Smith Point, the entrance to Great Wicomico River and Great Wicomico River Lighthouse are passed; coasters seeking anchorage frequently enter the mouth of this river.

Eastward of the sailing line Tangier Island, low, flat, and partly wooded, may be seen. It is left about 7 miles distant when abreast Great Wicomico River Lighthouse. Southeastward of Tangier Island is the approach to Pocomoke and Tangier Sounds. Shoals make out 1½ to 4½ miles from the western shore of Tangier Island.

Smith Point Lighthouse, on the southern side, at the entrance to the Potomac River, is about 2½ miles offshore near the edge of the shoal making off from Smith Point; a black can buoy lies ¾ mile southeastward of the lighthouse.

Dangers.—**Old Plantation Flats** lie off the eastern shore of the bay, about 7 miles above Cape Charles, and have 8 feet of water over them. Old Plantation Flats Lighthouse is on the northern end of the flats and west of Old Plantation Creek. The shore northward of the lighthouse should be given a berth of 2¼ miles.

York Spit, making out from the western shore between York River and Mobjack Bay entrances, is marked by York Spit Lighthouse (see table of lights, page 18), which is about 2¼ miles inside the point of the spit, which has 3¾ fathoms at its outer end. York Spit is fully described in section I, "Sailing Directions, York River."

New Point (Middle Ground) Shoal is about 3¼ miles **NE.** by **N.** from York Spit Lighthouse. This shoal is marked at its eastern end by a black buoy, and is fully described in section I, "Sailing Directions, Mobjack Bay."

Wolf Trap Spit makes out 3 miles from the western shore of the bay, about midway between Mobjack Bay and Piankatank River entrances. The spit is marked near its eastern end by Wolf Trap Lighthouse,

outside of which and marking the edge of the spit is a buoy (can, black, No. 13). A 19-foot spot lying 1¼ miles **S.** by **E.** ½ **E.** from the lighthouse is marked by a buoy (spar, black, No. 11). The shore northward and southward of the lighthouse should not be approached closer than 2¼ miles. Northward of the lighthouse, distant about 4½ miles, is a black buoy (can, No. 15), marking the edge of the shoal making offshore.

Rappahannock Spit makes out 4¼ miles in an **ESE.** direction from Windmill Point, the northern point at the entrance to Rappahannock River; it is marked by Windmill Point Lighthouse (see table of lights, page 20) on the middle of the spit, and by a buoy (can, black, No. 17) placed near its eastern edge. A full description of the spit is given in section I, "Sailing Directions, Rappahannock River."

Shoals extend out 3 miles from the western shore, about midway between Rappahannock River and Great Wicomico River entrances (see heading "Coast from Rappahannock River Entrance to Great Wicomico River Entrance"); these shoals have from 6 to 14 feet of water over them, and are covered with fish stakes which extend well into the channel of the bay.

Tangier Island Shoal, with 10 to 15 feet of water over it, makes out nearly 5 miles westward from the southern end of the island, and is marked at its southwestern end by a buoy (nun, red, No. 12).

A spot with 22 feet of water over it lies about 7¼ miles **S.** ¾ **E.** from Smith Point Lighthouse and about 6 miles **SE.** by **E.** ½ **E.** from Great Wicomico River Lighthouse. There is also a spot with 24 feet over it and marked by a red nun buoy, 1¼ miles northwestward of the 22-foot spot. Deep-draft vessels (over 19 feet) should follow the directions in paragraph 1 to avoid these shoal spots which lie in the middle of the bay.

Smith Point Shoal, at the southern point of entrance to the Potomac River, is described in section I, "Sailing Directions, Potomac River." The lighthouse is off the eastern end of the shoal.

4. ***From Smith Point Lighthouse to Cove Point Lighthouse.***—With Smith Point Lighthouse bearing **W.,** distant ¾ mile, steer **N.** by **W.** ½ **W.;** this course made good for 31¾ miles should lead about ⅝ mile eastward of Cove Point Lighthouse. When Cove Point Lighthouse is made, shape the course so as to pass ⅝ mile eastward of it, and follow the directions in section 5.

If beating—not drawing over 20 feet.—The western shore may be approached anywhere as close as 1 mile, and closer in many places except off Point No Point. When Point Lookout Lighthouse bears westward of **NW.** by **W.,** keep Smith Point Lighthouse bearing eastward of **S.** ½ **E.** so as to avoid the shoal lying just eastward of the middle of the bay.

When Point Lookout Lighthouse has been brought to bear southward of **SW.** by **W.,** the vessel may stand well over toward the entrance to Hooper Strait and as close as 2 miles from the western shore of Bloodsworth Island. The western shore of Hooper Island should not be approached closer than 4½ miles, nor the western shore of Barren Island or western shore of the southern end of Taylor Island nearer than 2 miles. Hooper Island Lighthouse should not be approached closer than ½ mile when westward of it.

Remarks.—On the **N.** by **W.** ½ **W.** course the mouth of the Potomac River is passed on the port hand; on the north side of the entrance is Point Lookout Lighthouse (see table of lights, page 20). On the starboard hand, after making good about 6 miles on the **N.** by **W.** ½ **W.** course, Kedge Straits Middle Ground is passed and left about 2 miles on the starboard hand; it lies a little eastward of the middle of the bay, and its western edge has a general direction nearly parallel with the sailing line. In the distance eastward is the line of low islands separating Tangier Sound from Chesapeake Bay. Holland Island Bar Lighthouse will be left about 6½ miles on the starboard hand.

On the port hand St. Jerome Creek Entrance and Point No Point are passed. When well past Point No Point the western shore can be approached as close as 1 mile, and in some parts much nearer, until abreast Cove Point Lighthouse; while the eastern part of the bay should be avoided, as extensive flats and shoals make out from the eastern shore. Hooper Island Lighthouse should be left about 2¾ miles on the starboard hand when standing on the **N.** by **W.** ½ **W.** course.

Cedar Point Lighthouse, 5¼ miles southward of Cove Point Lighthouse, will be left 1¾ miles on the port hand. Just northward of Cedar Point is Patuxent River Entrance; on the northern side of the entrance, and about 2 miles southward of Cove Point Lighthouse, is Little Cove Point and Little Cove Point Shoal buoy, colored and numbered as a starboard hand buoy for vessels entering Patuxent River; when standing up the bay this buoy is left on the port hand. About 3¼ miles southwestward of Little Cove Point, on the northern side of the river, is Drum Point Lighthouse; between Little Cove Point and Drum Point is a broad yellowish bluff which shows prominently from well down the bay. Cove Point Lighthouse can be approached on its eastern side as close as ¼ mile; inside of this the water shoals abruptly.

Dangers.—Kedge Straits Middle Ground is a large irregular-shaped shoal, with 16 to 18 feet over it, and a spot with 13 feet over it near its southwestern end. The shoal lies a little eastward of the middle of the bay and about 6½ miles eastward of Point Lookout Lighthouse. The southern end of this shoal bears **ESE.** from Point Lookout, and is marked by a buoy (spar, red, No. 14); the northern end, bearing **ENE.** ½ **E.** from Point

Lookout Lighthouse, is also marked by a buoy (spar, red, No. 16). To avoid this shoal at night keep Smith Point Lighthouse bearing eastward of **S. ¼ E.**

Smith Point Shoal and **Point Lookout Shoal** are described in section I, "Sailing Directions, Potomac River."

Point No Point Shoal makes out eastward from Point No Point, about 6 miles above Point Lookout Lighthouse; there is a spot with 19 feet over it 1¼ miles **SE.** by **E.** from the point. A buoy (can, black, No. 21) is placed to mark this 19-foot spot off the eastern part of the shoal.

Shoals make out for a distance of 3¼ miles from the eastern shore (Hooper Island, just north of Hooper Strait), and also a little over 1 mile from the western shore of Barren Island. Hooper Island Lighthouse, the spar buoy ¼ mile westward of it, the two can buoys of the Naval Trial Course, and the two spar buoys northward of the Trial Course buoys, serve to mark the edge of these shoals.

5. ***From Cove Point Lighthouse to Thomas Point Shoal Lighthouse.***—With Cove Point Lighthouse bearing **W.**, distant ⅞ mile, continue the **N.** by **W.** ⅛ **W.** course of section 4. The depth should not be less than 6 fathoms. Having made good the **N.** by **W.** ⅛ **W.** course for 16 miles, Sharps Island Lighthouse should bear **E.** ½ **S.**, distant 4 miles, and the western shore should be about 2¾ miles distant; depth 6 fathoms.

Now shape the course **N.** by **E.** ⅛ **E.** and make good this course about 15½ miles, when Thomas Point Shoal Lighthouse should bear abeam, distant 1 mile; on this course Poplar Island Shoal buoy (spar, red, No. 20) should have been left about 1 mile, and Bloody Point Bar Lighthouse 1⅝ miles, on the starboard hand. When Thomas Point Shoal Lighthouse is made, steer so as to give its southern side a berth of not less than ¾ mile, and pass about 1 mile eastward of the lighthouse. Then follow the directions in section 6.

If beating—not drawing over 20 feet.—Be guided by the remarks immediately following. There are no dangers lying in the middle of the bay, and it is only necessary to guard against approaching the shores too closely; the shoaling on the eastern side of the bay is very abrupt in places.

When abreast Poplar Island, if at night, do not stand eastward far enough to have Sharps Island Light and Bloody Point Bar Light showing red at the same time; one showing red and the other white, or both showing white, will clear the shoals making out from the western shore of Poplar Island. To avoid the shoals which make out from the western shore below Thomas Point Shoal Lighthouse, give the western shore a berth of 1½ miles until Bloody Point Bar Lighthouse bears **ENE.** ½ **E.**, then keep Thomas Point Shoal Light showing white until it is passed.

In thick weather, standing from westward toward the eastern shore, a careful use of the lead is necessary. A good rule is to go about when the water deepens over 10 fathoms. The deep water leads close along the shoals on the eastern shore.

Remarks.—From Cove Point Lighthouse until abreast Sharps Island Lighthouse the western shore can be approached as close as ¼ mile by all but vessels of the deepest draft; giving the shore a berth of 1 mile, the least water found will be 5 fathoms. The eastern shore should be given a berth of 1¼ miles.

When about 11 miles northward of Cove Point Lighthhouse the entrance to Little Choptank River is passed. Sharps Island, northward of this entrance, is marked off its northern end by Sharps Island Lighthouse. The southern approach to Choptank River leads eastward of Sharps Island. The western side of Sharps Island should not be approached closer than 1¼ miles on account of the shoals which rise abruptly from the deep water of the bay and extend nearly this distance from the island.

Plum Point, on the western shore, about 15 miles above Cove Point, has no marked natural features; the shoal making out ¼ mile eastward from the point is marked by a buoy.

The **N.** by **E.** ½ **E.** course passes the northern approach to Choptank River (north of Sharps Island), and leaves Holland Point about 3½ miles on the port hand. Holland Point should be given a berth of 1½ miles when eastward and northeastward of it. Poplar Island is left 2½ miles on the starboard hand, and should not be approached closer than 1½ miles from westward. When Poplar Island is abeam, Eastern Bay Entrance, northward of Poplar Island, will be open broad on the starboard bow. Thomas Point Shoal Lighthouse should be made on the port bow, and Bloody Point Bar Lighthouse will be left about 1¼ miles on the starboard hand. The bight in the western shore south of Thomas Point Shoal Lighthouse, forming the entrances to West and South rivers, with its numerous shoals, can be avoided by keeping Thomas Point Shoal Lighthouse bearing northward and westward of **N.** by **E.** When nearly up to Thomas Point Shoal Lighthouse the entrances to West and South rivers will be passed.

The eastern shore above Bloody Point Bar Lighthouse should not be approached closer than 1 mile, as the water shoals very abruptly from 12 fathoms to 9 feet in some places about $\frac{3}{10}$ mile from the shore.

Dangers.—**Shoals** with 9 to 13 feet of water over them make out 1¼ miles westward from James Point, the southern point of entrance to Little Choptank River, and about 8 miles above Cove Point Lighthouse.

Sharps Island Shoal extends nearly 1½ miles off the western shore of Sharps Island, and has 9½ feet of water near its outer edge. The western edge of the shoal, abreast the southern end of the island, is marked by a buoy (spar, red, No. 18). The southern point of this shoal is 1⅝ miles south of the island, and Sharps Island Lighthouse is on the northern part of the shoal.

Plum Point Shoal extends about ⅝ mile eastward from Plum Point. It is marked at its eastern edge by a buoy (spar, black, No. 23).

Holland Point Shoal extends nearly 1¼ miles eastward from Holland Point (the southern point at the entrance to Herring Bay), and has 11 feet of water at its eastern end. The eastern edge of the shoal is marked by a buoy (can, black, No. 25); there is also a buoy (spar, black, No. 1) placed to mark the northern point of the shoal and the channel into Herring Bay. The shore, for a distance of 2½ miles southward of Holland Point, should not be approached closer than 1½ miles on account of shoal water.

Poplar Island Shoal has 8 to 12 feet of water over it and extends nearly 1¼ miles from the western shore of Poplar Island, where it is marked by a buoy (spar, red, No. 20), which lies 4⅝ miles **S.** by **W.** ½ **W.** from Bloody Point Bar Lighthouse. This shoal is covered by the red rays of Sharps Island and Bloody Point Bar lighthouses. Poplar Island is surrounded by shoals; north of the island is the entrance to Eastern Bay.

The Shoal making off from Kent Point, the northern point at the entrance to Eastern Bay, is marked near its western edge by Bloody Point Bar Lighthouse (see table of lights, page 22).

Horseshoe Point Shoal makes out 1⅝ miles eastward from Horseshoe Point, the point on the western shore opposite Bloody Point Bar Lighthouse. This shoal has 2 to 8 feet over it, and is marked at its eastern edge by a buoy (can, black, No. 27) which lies 3¼ miles **W.** by **N.** from Bloody Point Bar Lighthouse.

Thomas Point Shoal extends in an **ESE.** direction nearly 1¼ miles from the point, and has 7 feet of water over it. Near the end of the shoal is the lighthouse (see table of lights, page 22); marking the edge of the shoal is a buoy (can, black, No. 29). The shoal extends about ⅝ mile northward, and the same distance southward, of the lighthouse.

The bight between Horseshoe Point and Thomas Point (entrance to West and South rivers) is full of shoals with less than 18 feet of water over them; some of these shoals are marked by buoys placed for entering the rivers.

6. ***From Thomas Point Shoal Lighthouse to Patapsco River (Baltimore Harbor) Entrance.***—Passing 1 mile eastward of Thomas Point Shoal Lighthouse, steer **NNE.** This course made good for a little more than 7 miles leads about ⅝ mile eastward of Sandy Point Lighthouse.

If bound to Baltimore, follow the directions given under the heading "Patapsco River and Baltimore Harbor."

If bound up the bay above the Patapsco River, follow the directions given under the heading "Chesapeake Bay, above the Patapsco River."

If beating, do not stand nearer than 1¼ miles of the eastern shore, nor westward of a line joining Thomas Point Shoal Lighthouse and Sandy Point Lighthouse. At night do not stand far enough westward to have both of the above-mentioned lights showing red at the same time; with one showing red and the other white, or both showing white, the shoals making out from the western shore will be avoided.

Remarks.—The eastern shore, between Bloody Point Bar Lighthouse and Love Point, makes out shoal in parts and must be given a berth of about 1¼ miles; depths of 9 and 11 feet being found about 1 mile off shore in places, the water shoaling abruptly. There are no buoys along this part of the eastern shore.

The western shore makes out shoal for a long distance in some places. Buoys mark the outer edge of the shoals. About 2½ miles **N.** by **E.** from Thomas Point Shoal Lighthouse is Tolly Point Shoal buoy. Just northward of this is Annapolis Roads, forming the approach to Severn River and Annapolis Harbor, the entrance being marked by Greenbury Point Lighthouse and by several buoys. On the northern side of Annapolis Roads and about 3 miles **NNE.** from Tolly Point is Hackett Point. From Hackett Point to Sandy Point the western shore should be given a berth of ⅝ mile or more. Sandy Point Lighthouse is built on the outer part of the shoal making out from Sandy Point, and is nearly ¼ mile offshore.

Dangers.—**Tolly Point Shoal** extends 1 mile in a **SE.** by **E.** direction from the point, and has 2 to 13 feet of water over it; the eastern end of the shoal is marked by a buoy (can, black, No. 31).

Hackett Point Shoal makes out about 1 mile in a southerly and southeasterly direction from Hackett Point, and has 3 to 15 feet of water over it. The southeastern edge of this shoal is marked by a buoy (can, black, No. 33).

Sandy Point Shoal makes off from Sandy Point and has 6 to 9 feet over it; the lighthouse is near the eastern part of the shoal.

HAMPTON ROADS AND NEWPORT NEWS.*

Hampton Roads, at the confluence of the Elizabeth, Nansemond, and James rivers, and opening into the extreme southwest corner of Chesapeake Bay, is one of the important anchorages on the eastern coast of the United States. Many vessels come here seeking and for orders, and vessels bound up and down the coast make this the principal harbor of refuge between Delaware Bay and Cape Hatteras. The entrance, from the bay, is 15 miles **WNW. ½ W.** from Cape Henry Lighthouse, and is about 2 miles wide between Old Point Comfort on the north and Willoughby Sand Spit on the south, but the shoals on its southern side contract the channel to a width of about ½ mile, between Old Point Comfort and Fort Wool (Ripraps). The width of the roads increases inside the entrance, but the channel has nowhere a greater width than 2 miles owing to the extensive shoals and flats which make out from the shores. Vessels of the largest size can enter and find good anchorage.

Fort Monroe is a military post and village on the north side of the entrance to Hampton Roads; it is also known as **Old Point Comfort,** and is a much-frequented seaside resort. The steamers of several lines plying in Chesapeake Bay and its tributaries make a landing at Fort Monroe.

The town of **Hampton,** on the west bank of **Hampton Creek,** is about 2 miles **NW.** from Fort Monroe. The town has some trade in coal, lumber, ice, and farm produce, carried in vessels of 10 feet or less draft; small steamers also make regular trips to Hampton. There is about 8 feet of water in the channel. Strangers should not enter the creek without a pilot; sailing vessels sometimes tow up to the town.

Newport News, an important shipping point about 6 miles **WSW. ¼ W.** from Fort Monroe, is on the northern point at the entrance to James River. It has large grain elevators, coal bins, and cotton sheds, and is the terminus of the Chesapeake and Ohio Railroad. There is a sufficient depth of water alongside the wharves for the largest vessels.

Prominent Features.—Approaching Hampton Roads from eastward, two lighthouses (**Thimble Shoal** and **Old Point Comfort**) are guides to the entrance. The two large hotels on the southern end of Old Point Comfort are prominent marks in the daytime. Northward of the hotels is the fort (Fort Monroe), and a little eastward is the lighthouse. **Fort Wool (Ripraps),** a low gray structure on the south side of the channel, is about ¼ mile **S.** of Old Point Comfort Lighthouse. When entering the roads the high dome of the Soldiers' Home in Hampton, northwestward, and the large grain elevator at Newport News, southwestward, will show distinctly. After entering the roads, **Craney Island Lighthouse,** at the mouth of the Elizabeth River, will be seen to the southward, and **Newport News Middle Ground** and **Nansemond River lighthouses** to the southwestward. For a description of lighthouses see page 16. At night the electric lights at Newport News show prominently.

Channels.—Crossing the bay, the channel into Hampton Roads has a least depth of 5 fathoms; westward of Thimble Shoal Lighthouse the depth increases and is from 6 to 14 fathoms until well inside Old Point Comfort. Eastward of the entrance it leads between two extensive shoals, the Horseshoe on the north and Willoughby Bank on the south; between these shoals its least width is ¼ mile. A channel with a depth of 16 feet, sometimes used by local pilots, leads south of Willoughby Bank and close westward of Fort Wool (Ripraps). This channel has no aids and should not be attempted by a stranger.

From the entrance, between Old Point Comfort and Fort Wool, the channel has a general **SW. by W.** direction for 4½ miles, with a width gradually increasing from 1 to 2 miles; it then turns more westward and is divided by Newport News Middle Ground, leaving a channel about 1 mile wide on either side of the latter. The best water (4½ fathoms) is found southward of the Middle Ground; lumps with 17 and 18 feet of water over them lie in the channel northward of the Middle Ground. The channel is well marked by buoys, and by Thimble Shoal and Old Point Comfort lighthouses, the lighthouses being the principal guides for making the anchorage at night.

Anchorages.—The larger vessels anchor anywhere in the channel inside of Fort Monroe. Bay vessels and the smaller coasters frequently anchor in toward the north shore, inside and westward of Hampton Bar, where there is good anchorage in 8 to 13 feet of water, soft bottom. The larger coasters anchor in the western part of the roads near Newport News, and in the mouth of the James River.

Pilots for Hampton Roads and Newport News will be found cruising off or in the entrance of Chesapeake Bay. Strangers bound into Hampton Creek should take either a pilot or towboat. A Virginia pilot boat is usually anchored on Hampton Flats, just westward of the steamboat dock at Old Point Comfort. Pilotage is compulsory for all vessels other than a coasting vessel having a pilot license granted by the agents of pilots of the State of Virginia. For pilot laws and regulations, see Appendix I.

---

*Shown on charts **376,** scale $\frac{1}{400,000}$; **79,** scale $\frac{1}{200,000}$; **181,** scale $\frac{1}{80,000}$; **400,** scale $\frac{1}{20,000}$; price of each $0.50; **401a,** scale $\frac{1}{40,000}$; price $0.40.

Towboats are not often used except by vessels in distress or by large square-rigged vessels with a head wind. Vessels bound up the James River to Richmond, up the Nansemond River to Suffolk, or up the Elizabeth River to Norfolk or Portsmouth, sometimes take a towboat from Hampton Roads. There is a towboat agency at Fort Monroe through which tugs can be ordered, by telegraph, from Norfolk, Richmond, and Baltimore.

National Quarantine Station.—The boarding station is a vessel moored off Hotel Chamberlin. (See page 14 and Appendix III).

Storm-warning display of the United States Weather Bureau are shown at Old Point Comfort from Hotel Chamberlin, and can be seen by vessels entering or anchored in the roads; also from a flagstaff near the water front at Newport News (see Appendix II).

Harbor Control.—The harbor master at Newport News has control of the anchorage and berthing of vessels; his fees are the same as those for the port of Norfolk (see Appendix I, under heading Norfolk and Portsmouth).

Repairs.—Two large dry docks at Newport News (larger one, length inside caisson 806 feet, depth over sill 30 feet; smaller one, length on top 610 feet, depth over sill 25 feet) can accommodate the largest vessels. Repairs to the machinery of steamers can be made at Norfolk and Newport News. There are two large dry docks at the United States Navy Yard, Norfolk, which might be used in case of emergency when not required by naval vessels. There are several marine railways at Norfolk.

Supplies.—Coal (bituminous), in quantities over 50 tons, can be had, through chutes, from the coal wharf at Newport News and the coal pier at Lambert Point. Anthracite and bituminous coal can be obtained at the wharves in Norfolk or from lighters at the anchorage. Water can be had from Norfolk in a steam water boat by telegraphing from Fort Monroe or Newport News. Provisions and ship chandler's stores can be had at Hampton, Newport News, and Norfolk.

Tides and Tidal Currents.—For tides at Old Point Comfort (Fort Monroe) see table, page 26, also the tide tables of the Atlantic Coast of the United States, in which the tides are predicted for every day of the current year. High water occurs at Newport News 9 minutes, and low water 29 minutes, later than high and low water, respectively, at Fort Monroe, and the mean rise and fall is 2.6 feet. The tidal currents turn about 1 hour earlier alongside the wharves at Fort Monroe than in the channel; between Fort Wool and Fort Monroe they have considerable velocity, which is influenced by the force and direction of the wind.

SAILING DIRECTIONS, HAMPTON ROADS AND NEWPORT NEWS.

1. ***Approaching and Entering, from Seaward.***—In approaching Chesapeake Entrance, follow the directions under section 1 or 1 A, pages 30–31.

Standing in northward of Cape Henry, pass about 1¾ miles northward of the lighthouse, and shape the course **WNW. ⅝ W.** This course, made good about 11½ miles after Cape Henry Lighthouse bears **S.**, leads ¾ mile southward of Tail of the Horseshoe Light-vessel and passes ¼ to ⅝ mile southward of four red nun buoys (Nos. 2, 4, 6, and 8) which mark the northern edge of the deep-water channel, and nearly ½ mile south of Thimble Shoal Lighthouse. Four black can buoys (Nos. 1, 3, 5, and 7), marking the southern edge of the deep-water channel, will be left well on the port hand.

Currents.—It will be necessary to make an allowance for the tidal current, frequently of as much as ½ point more southward on the flood and ½ point more northward on the ebb.

When Thimble Shoal Lighthouse bears about **N.**, steer **W. ½ S.** for Old Point Comfort Lighthouse and leave Willoughby Spit bell buoy at least 300 yards on the port hand. Approaching Old Point Comfort Lighthouse, turn more southward and steer **SW.** by **W. ¼ W.**, heading for Newport News Middle Ground Lighthouse and so as to pass about midway between Old Point Comfort Lighthouse and Fort Wool. Continue the **SW.** by **W. ¼ W.** course into Hampton Roads, and anchor at discretion inside of Old Point Comfort. Vessels of 12 feet draft or less may stand more westward without danger, but vessels of greater draft must be careful to avoid Newport News Middle Ground. See section 2 following.

If bound to Norfolk, follow the directions under heading "Elizabeth River, Norfolk Harbor."

If bound to Nansemond River, follow the directions under heading "Nansemond River."

If bound to Newport News, entrance to James River, follow the directions under section 2 following.

Remarks.—On the **WNW. ⅝ W.** course Thimble Shoal Lighthouse (see table, page 16) will be made a little on the starboard bow, and Hotel Chamberlin (large, red-brick structure) and Old Point Comfort Lighthouse

on the port bow. As Thimble Shoal Lighthouse is approached, **Fort Wool** (Ripraps), a low gray-stone structure nearly 1 mile southward of Old Point Comfort Lighthouse, will be distinguished, and the houses of the town of Hampton will show over the land nearly ahead. Southward the shore of Chesapeake Bay, between Cape Henry and Hampton Roads, is comparatively low, with small hillocks, and is backed by thick woods; it presents no marked natural features; **Ocean View,** a summer resort, bears about **S.** by **W.** from Thimble Shoal Lighthouse. About 12 miles from Cape Henry Lighthouse, and at the entrance of Hampton Roads, the shore terminates in **Willoughby Sand Spit,** a long point behind which is Willoughby Bay, large and shallow.

Steering **W. ½ S.** for Old Point Comfort Lighthouse (see table, page 16) the large elevator at Newport News will show in the distance southward of Old Point Comfort. On the **SW. by W. ½ W.** course into Hampton Roads, Newport News Middle Ground Lighthouse (see table, page 16) will be ahead and Nansemond River Lighthouse will be nearly in range with it but not distinguished, unless at night, until well in the roads.

Dangers.—Middle Ground and Tail of the Horseshoe, left on the starboard hand, are described under heading "Sailing Directions, Chesapeake Bay," section 1, page 31, and section 2, pages 32–33.

Crump Bank, about 1¾ miles in length **E.** and **W.,** has 17 and 18 feet of water on it. This shoal lies about 1¼ miles off the south shore of the bay and about 8 miles westward of Cape Henry Lighthouse; it is not marked. A detached spot with 18 feet over it lies about 1 mile northwestward of the bank.

The Horseshoe is the extensive shoal, with 6 to 18 feet of water over it, making off from the shore between Old Point Comfort and Back River Entrance. The eastern half of the shoal has from 13 to 18 feet of water over it, the western not less than 6 feet, till within ⅛ mile of the shore. The southern edge of the shoal runs almost in a straight line 5¼ miles **E. ½ N.** from Old Point Comfort Lighthouse and along the north side of the channel into Hampton Roads; about midway along this edge is Thimble Shoal Lighthouse (see table, page 16) placed on **Thimble Shoal,** a ridge with 11 feet of water over it. The eastern edge is irregular, extending in a general **SE.** by **S.** direction from off Back River Entrance for a distance of 6 miles. Three red nun buoys (Nos. 4, 6, and 8) are placed to mark the deep-water channel along the southern edge of the Horseshoe eastward of Thimble Shoal Lighthouse. Vessels of not over 12 feet draft may, in smooth weather, cross the shoal, passing ½ mile eastward of Thimble Shoal Lighthouse and keeping it bearing westward of **S.** by **W. ½ W.** Vessels of less than 7 feet draft may stand 1½ miles from the shore.

Willoughby Bank is on the south side of the channel into Hampton Roads. From Fort Wool (Ripraps) it extends 2½ miles in an **ENE. ½ E.** direction, where its northern edge is marked by a buoy (bell, black); from thence the bank extends in a general southeasterly direction for 2½ miles, and is about ½ mile wide at its widest part. Its northern edge, eastward of the bell buoy, lies about 2½ miles from the south shore, and nearly parallel to it. This part of the bank has 14 to 18 feet of water over it, and the part westward of the buoy has 3 to 13 feet.

Just southward and westward of Fort Wool is a narrow channel with a depth of 16 feet, which leads south of Willoughby Bank. This channel is sometimes used by local pilots; it is unmarked.

Sewall Point Shoal makes out northward and eastward from Sewall Point, and extends nearly to Fort Wool. It has from 2 to 7 feet of water over it, and is marked off its western edge, nearly midway between Fort Wool and Sewall Point, by a buoy (can, black, No. 3).

Shoal ground with 3 to 7 feet of water over it makes out northwestward from Willoughby Sand Spit, joining the end of Sewall Point Shoal just southwestward of Fort Wool. The 16-foot channel south of Willoughby Bank leads between this shoal ground and Fort Wool. The steam ferryboat to Ocean View uses a channel into Willoughby Bay which is marked by two stake lights.

Hampton Bar has 2 to 5 feet of water over it and lies on the north side of the channel off the mouth of Hampton Creek and just westward of Old Point Comfort. The bar is about 2 miles long in a **SW. by W.** and **NE. by E.** direction, and a little over ½ mile wide at its widest part. Between its eastern end, marked by a buoy (can, red and black horizontal stripes), and the wharves at Old Point Comfort, a narrow channel leads to an anchorage in 8 to 9 feet water behind the bar; a small area of this anchorage, near the wharves, has a depth of 18 to 25 feet, and is locally known as "Mother Hawkins Hole." The southwestern end of the bar is marked by a buoy (nun, red and black horizontal stripes), which bears **SW. by W. ½ W.** 2½ miles from Old Point Comfort Lighthouse. The water shoals abruptly on the channel side of the bar, and is marked by two red nun buoys.

In the bight between Old Point Comfort and Newport News are **extensive shoals** which rise abruptly from the channel and have a general depth of 8 to 12 feet of water over them. These shoals fill the whole bight; they are laid out in oyster beds and are sometimes used as an anchorage for the smaller coasters entering the roads for refuge. On the edge of this shoal, and just eastward of Newport News Point, is Newport News Bar, with 3 to 5 feet over it.

The other dangers in Hampton Roads are described under section 2 following.

1 A. ***Approaching and Entering, from Northward, coming down Chesapeake Bay.***—For convenience, the following directions are divided into paragraphs to suit different draft vessels.

I. *Vessels of the deepest draft.*—Reverse the directions for standing up the bay, and when Back River Lighthouse bears **WSW.,** distant 6½ miles, and Middle Ground North

End buoy bears **E.**, distant ½ mile, steer **SSE. ¾ E.** about 11 miles. Round Tail of the Horseshoe Light-vessel at a distance of ½ to ¾ mile, and when it bears **NNE.**, distant ¾ mile, steer **WNW. ⅝ W.** Then follow the directions in section 1 preceding.

II. *Vessels of 18 feet or less draft.*—From a position ½ mile **W.** from Middle Ground North End buoy, steer **S. ¼ W.** for 8¾ miles, or until red nun buoy No. 4 is ½ mile distant abaft the port beam, and Thimble Shoal Lighthouse bears **NW.** by **W. ¾ W.** Then steer **WNW. ⅝ W.**, leaving red nun buoys Nos. 6 and 8 on the starboard hand, and when Thimble Shoal Lighthouse bears **N.**, distant nearly ½ mile, follow the directions in section 1 preceding.

III. *Vessels of 12 feet or less draft.*—Standing down the bay bring Thimble Shoal Lighthouse to bear between **SW.** and **W.** and steer for it between these bearings. Leave the lighthouse 400 yards on the starboard hand and steer for Old Point Comfort Lighthouse. Then follow the directions in section 1 preceding.

Caution.—See the current note in section 1 preceding, when standing westward.

Remarks.—When on the southerly courses, passing westward of Tail of the Horseshoe, Thimble Shoal Lighthouse, the Hotel Chamberlin, and Fort Wool will be on the starboard bow; Cape Henry Lighthouse, if visible, will be on the port bow. Standing down between Horseshoe Shoal and the Tail of the Horseshoe on the **S. ¼ W.** course, Tail of the Horseshoe North End buoy (spar, black, No. 3) should be left about 1 mile on the port hand; red nun buoy No. 4 should be made on the port bow and left ¼ mile on the port hand. See also "Remarks" under section 1.

Dangers.—Tail of the Horseshoe (16 feet of water), lying 5¼ miles E. of Thimble Shoal Lighthouse, is described under heading "Sailing Directions, Chesapeake Bay," section 2, page 33.

The Horseshoe and dangers entering Hampton Roads are described under section 1 preceding.

2. ***From Old Point Comfort to Newport News.***—Having followed the directions under section 1 or 1 A preceding.

I. *Vessels of the deepest draft, to pass South of the Middle Ground.*—Standing into the roads on the **SW.** by **W. ¼ W.** course, when the east end of Hotel Chamberlin bears **NE. ½ N.** steer **SW. ½ S.** until up to Fairway Lower buoy (spar, white and black perpendicular stripes). Leave this buoy close-to on either hand and steer **WSW. ⅛ W.**, heading for Fairway Middle buoy (spar, white and black perpendicular stripes). Leave this buoy close-to on either hand and steer **NW.** by **W. ⅝ W.**, heading for Fairway Upper buoy (spar, white and black perpendicular stripes). Leaving this buoy close-to on either hand, steer about **NW. ¾ N.** so as to leave the wharves at Newport News about ⅝ mile on the starboard hand. Anchor abreast the wharves, or, if bound up the James River, follow the directions under section 1 of that heading.

Remarks.—When the course is changed to **SW. ¼ S.**, Sewall Point Shoal buoy should be ¼ mile distant on the port beam. On the **WSW. ¼ W.** course Nansemond River Lighthouse should be ahead, and when up to Fairway Middle buoy Newport News Middle Ground Lighthouse should be ⅝ mile distant, bearing **N. ¼ W.** On the **NW.** by **W. ⅛ W.** course Newport News Middle Ground West End buoy (nun, red and black horizontal stripes) should be left ¼ mile on the starboard hand. The **NW. ¾ N.** course will lead directly for the shipping which is usually anchored off the wharves at Newport News.

Dangers.—Craney Island Flats, an extensive shoal extending out 2 to 3 miles from Craney Island and the shore westward, fills the bight between Sewall Point and Nansemond River Entrance, leaving only a narrow channel into Elizabeth River and a channel about 1 mile wide southward of Newport News Middle Ground. This shoal is more fully described under heading Elizabeth River, Norfolk Harbor.

Newport News Middle Ground, at the junction of Hampton Roads and the James River, is 1¼ miles long in an E. and W. direction, nearly ⅝ mile wide, and has 15 to 17 feet of water over it. The eastern and western ends are each marked by a buoy (nun, red and black horizontal stripes). The buoy on its eastern end bears **E.** by **N.** from Newport News Middle Ground Lighthouse, distant nearly 1 mile. The western buoy bears **W.** by **N.** from Newport News Middle Ground Lighthouse, distant about ⅝ mile. There is a channel on either side of the Middle Ground about 1 mile in width. Newport News Middle Ground Lighthouse is on the Middle Ground near its western end.

Newport News Bar extends about 1 mile along the southern edge of the shoal lying in the bight between Old Point Comfort and Newport News, described under section 1. This bar has from 3¼ to 5¼ feet of water over it;

about ¼ mile **SE.** by **E.** from Newport News Point is a buoy (spar, red and black horizontal stripes). A narrow channel, with 10 feet of water, leads between the western end of the bar and Newport News Point.

Naseway Shoal is described under heading "James River," sailing directions, section 1. This shoal extends northward from the mouth of the Nansemond River, leaving the channel of Newport News Point 1 to 1¼ miles in width. The water shoals abruptly on the edge of this shoal.

II. *Vessels of 16 feet or less draft, to pass North of the Middle Ground.*—Continue on the **SW.** by **W.** ¼ **W.** course, heading for Newport News Middle Ground Lighthouse until the large grain elevator at Newport News bears **WNW.** Then steer **W.** ½ **N.**, taking care to leave the small red and black horizontally striped spar buoy, marking Newport News Bar, ¼ mile on the starboard hand. Give the shore westward of this buoy a berth of ¼ mile or more, and anchor off the wharves, or if bound up the James River, follow the directions under section 1 of that heading.

Remarks.—On the **W.** ¼ **N.** course Newport News Middle Ground Lighthouse should be left about ⅝ mile on the port hand when abeam, and care must be taken not to approach Newport News Bar too closely.

See dangers under paragraph I preceding.

ELIZABETH RIVER AND NORFOLK.*

The Elizabeth River, emptying into Hampton Roads from southward, is important as the approach to the cities of Norfolk and Portsmouth, the town of Berkley, the United States Navy Yard, and the Albemarle and Chesapeake and Dismal Swamp canals. These canals afford communication by water from Chesapeake Bay to the sounds and inland waters of North Carolina. Vessels of 28 feet draft can go up to Norfolk and the Navy Yard (see **Channels**, following). A draft of 13 feet can be taken up the Southern Branch about 2½ miles above the Navy Yard, and 8 to 9 feet into and through the Albemarle and Chesapeake and Lake Drummond (Dismal Swamp) canals.

Tanner Creek is in the eastern shore about 2¾ miles southward of Sewall Point; the entrance is about **NE.** by **E.** ¼ **E.** from Craney Island Lighthouse. This creek has from 9 to 22 feet of water in the channel for a distance of 3 miles above its mouth, but the entrance is obstructed by a bar with about 6 feet of water. Only small vessels engaged in the bay trade enter the creek, from which considerable farm produce is shipped. There are no aids to assist a stranger in entering.

Elizabeth River has three tributaries or branches; these receive numerous small creeks and streams, none of which are of commercial importance. The **Western Branch** makes in westward, about 2 miles southward of Craney Island Lighthouse. It has a narrow channel, with a depth of 20 feet to the wharves at Lovett Point (West Norfolk) and 13 feet up to the bridge which crosses the branch about 1½ miles above its mouth; a depth of 8 feet can be carried 2 miles above the bridge; several buoys and beacons mark the channel at the entrance. The wharves at Port Norfolk, opposite West Norfolk, on the south bank of the Western Branch, can be reached by vessels of 15 feet draft. The **Eastern Branch** makes in eastward at the city of Norfolk, the water front of the city extending some distance along the north shore of the branch, and is crossed by three bridges. A channel 25 feet deep has been dredged up to the Norfolk and Western Railroad bridge. A draft of 12 feet can be taken 3 miles above the lower bridge, but the channel is quite narrow and is not marked. The **Southern Branch** has the city of **Portsmouth** and the **United States Navy Yard** on its west bank, and forms the northern approach to the two canals which afford passages from Chesapeake Bay to the inland waters of North Carolina. This branch is of considerable commercial importance; there are several large lumber mills at which vessels load, and all the commerce using the canals also passes through the branch. Between the Navy Yard at Portsmouth and **Deep Creek** the branch is crossed by three railroad drawbridges, the widths of draws being from 43 to 100 feet. For a distance of 7 miles from Norfolk the Southern Branch is navigable for vessels of 12 feet draft at high water, and vessels load to that draft with lumber; above this and to the lock of the Albemarle and Chesapeake Canal the depth in the channel is about 9 feet. The channel for its whole length of 12 miles is marked by buoys, but is narrow and crooked in places, and vessels of 200 feet length may have some trouble in keeping in the best water. A draft of 8 feet can be taken through the Albemarle and Chesapeake Canal, and 9 feet through the Lake Drummond (Dismal Swamp) Canal.

Norfolk is a thriving commercial city on the eastern bank of the river, about 7 miles above Sewall Point and 3½ miles above Craney Island. It has a large foreign trade and a coasting trade employing several lines of steamers and sailing vessels of every description. Norfolk is one of the important ports in the United States for the shipment of coal, cotton, and naval stores; it is the terminus of several railroads, and has ferry

* See footnote on page 38.

communication with Portsmouth and Berkley, and frequent daily communication by steamers with Newport News and Old Point Comfort.

Portsmouth, on the west bank of Elizabeth River at its junction with the Southern Branch, is a city of considerable commercial importance. It is a railroad terminus, and has a large cotton-shipping business, both foreign and coastwise.

Berkley is a small town opposite Norfolk and Portsmouth, on the point separating the Eastern and Southern branches. It has some trade in lumber. Communication with Norfolk is carried on by means of a ferry and bridge.

The United States Navy Yard is on the western bank of the Southern Branch, at the upper end of the city of Portsmouth.

Prominent features.—The mouth of Elizabeth River is at the southeastern end of Hampton Roads, and just westward of Sewall Point; the western point at the entrance, Craney Island, is marked by **Craney Island Lighthouse** (see table, page 16). Making out from the eastern bank, about 1 mile above Craney Island, are the **large piers and coal pockets** of the Norfolk and Western Railroad; these are a prominent mark, and can be seen when in Hampton Roads. **Lambert Point Fog Signal** (see table, page 16) is at the end of the first pier. About 1¼ miles above Lambert Point coal docks, at Pinner Point, on the west bank, are the docks of the Southern Railroad, and on a wharf on the west bank opposite the city of Norfolk is a tall mast from which a light is shown; this is **Naval Hospital Light** (see table, page 16). **Fort Norfolk** is a low, white stonework on the eastern bank, about 1⅛ miles above Lambert Point, and east from the docks at Pinner Point.

Channels.—The channel into the Elizabeth River has a width of 450 feet and depth of 28 feet, and is well buoyed as far as Norfolk. It leads from Sewall Point for 3½ miles along the eastern edge of Craney Island Flats, and then takes a nearly mid-river course, between extensive shoals, to the city of Norfolk. Along its length, from the entrance to the city, the buoys are placed close enough to be readily recognized in daylight. The deepest draft ordinarily leaving the port is 25½ feet, but a draft of 28½ feet has been taken out. The channel of the Southern Branch above the Navy Yard is narrow and crooked, and although buoyed to the entrance of the Albemarle and Chesapeake Canal, should never be attempted by a stranger without a pilot.

Anchorages.—The channel between Sewall Point and Craney Island is too narrow for large vessels to anchor. Large vessels anchor on the west side of the channel from near the coal docks at Lambert Point, nearly to Pinner Point, leaving a passage for passing vessels. Vessels of light draft sometimes anchor on the south side of the channel in Eastern Branch below the Norfolk and Western Railroad bridge. See also Harbor Regulations, following, and Appendix I.

Pilots.—Pilotage is compulsory for all vessels except those that have a license (see Pilot Laws, Appendix I). Pilots for Norfolk and Portsmouth will be found cruising off the entrance, or just inside Chesapeake Bay, and can also be had at Old Point Comfort (Fort Monroe), where a Virginia pilot boat will usually be found.

Towboats are generally used by the larger vessels and are taken in Hampton Roads. If not found cruising in the roads they may be ordered at the towboat agency at Old Point Comfort (see also page 39).

Quarantine for the District of Elizabeth River is under the control of a Board of Quarantine Commissioners. Vessels entering Elizabeth River from Hampton Roads, subject to visitation by the Medical Officer, will stop at the Quarantine Anchorage opposite Craney Island until boarded. Vessels entering via the canals are subject to the above regulations, and will stop at or near Burton Point, above the Navy Yard, until boarded by the Quarantine Medical Officer.

All licensed Virginia pilots are required to furnish masters of incoming vessels a copy of the Quarantine Regulations for Elizabeth River (see Quarantine Regulations in Appendix I, and National Quarantine Regulations, Appendix III).

Harbor Regulations.—The Harbor Masters of Norfolk and Portsmouth have control of the berthing of all vessels, and designate the anchorage grounds for vessels. They act together in all cases for both cities. For Harbor Regulations and Harbor Master's fees, see Appendix I.

Wharves.—The facilities for docking vessels at Norfolk and Portsmouth are good. There is sufficient water alongside the principal wharves for the deepest-draft vessels that can enter the river. The facilities for loading and unloading vessels are good.

Supplies of all descriptions can be obtained at Norfolk. Coal for steamers can be had alongside the wharves or out in the stream in lighters. Bituminous coal in unlimited quantities can be had alongside the coal pier at Lambert Point, where there is a depth of 28 feet; quantities less than 50 tons are put on board in wheelbarrows; quantities over 50 tons are put on board through chutes from the coal pockets.

Repairs.—Machinery of steamers and repairs to hulls of vessels can be made at Norfolk. At Norfolk and Berkley there are 3 marine railways from 225 to 324 feet long, draft 9 feet forward and 18 feet aft, capable of

taking out vessels of 900 to 1,000 tons, and there are several smaller marine railways; at the Navy Yard there is a stone dry dock 294½ feet long, on blocks, and a Simpson dock, 450¾ feet long, on blocks.

A Branch Hydrographic Office of the Navy Department is located at the custom-house; this office is supplied with the latest information and publications affecting navigation, for the consultation of mariners.

Storm-Warning Displays of the United States Weather Bureau are made at Norfolk, where the communications from the Seacoast Telegraph Station at Cape Henry are received and forwarded.

Tides.—It is high water at the Navy Yard 21 minutes, and low water 30 minutes, after high and low water, respectively, at Old Point Comfort (Fort Monroe). The mean rise and fall of tides is 2.7 feet; the mean rise and fall of spring tides is 3.2 feet, and of neap tides 2.1 feet.

Ice.—In severe winters the Southern Branch is closed by ice down to the Navy Yard. Drift ice will sometimes be found abreast the piers at Lambert Point when the river is free of ice both above and below them. The harbor is generally free of ice, and navigation is never obstructed.

SAILING DIRECTIONS, ELIZABETH RIVER, NORFOLK HARBOR.

Strangers should not attempt to enter the river unless the buoys can be plainly seen; sailing vessels must have a fair wind.

From Hampton Roads to Norfolk.—Having entered Hampton Roads as directed in section 1 or 1 A, pages 39–41, and when on the **SW.** by **W.** ¼ **W.** course Sewall Point Shoal buoy (can, black, No. 3) is about ¼ mile distant on the port beam, steer **S.** ⅝ **W.** Elizabeth River Entrance buoys (red, one a bell buoy, the other a gas-lighted buoy) will be nearly ahead, and should be left 100 yards on the starboard hand. Follow the red buoys, course about **S.** ⅝ **W.**, leaving them about 100 yards on the starboard hand until abreast of Bush Bluff Light-vessel. Then steer **S.** by **E.**, following the buoys, and leave Craney Island Lighthouse about 200 yards on the starboard hand. Continue to follow the buoys, course about **S.** ¾ **W.**, and when between red nun buoy No. 28 and black can buoy No. 11 steer to leave the wharves at Lambert Point about 250 yards on the port hand.

After passing Lambert Point steer about **SE.**—the channel is well defined by the buoys and wharves—heading for the wharves of Norfolk, and leaving the red buoys on the starboard hand and the black buoys on the port hand. Anchor on the edge of the channel, or go alongside the wharves (see "Anchorages," page 43).

If desiring to pass up the South Branch above the Navy Yard, take a pilot or towboat.

Remarks.—Sewall Point, the eastern point at the entrance to the river, shows bare faces of sand backed by trees; a large wharf extends out from the shore just below the point. When heading southerly along the line of the red buoys, Craney Island Lighthouse and the coal piers at Lambert Point will be the prominent features nearly ahead. When nearly up to Craney Island, the entrance to Tanner Creek will be opened eastward. A large number of vessels awaiting coal will usually be found anchored abreast Lambert Point and on both sides of the channel from Lambert Point to Pinner Point. After passing the piers at Lambert Point, the Western Branch will be gradually opened to the southwestward; the wharves at Pinner Point will be seen a little on the starboard bow, and the city of Norfolk will be ahead.

Dangers.—Shoals make out from the shore from ¼ to 1 mile to the edge of the channel between Sewall Point and Lambert Point, rising abruptly from the edge of the channel. Bush Bluff Light-vessel (see table, page 16), 1 mile **N.** of Craney Island Lighthouse, one black spar, and two black can buoys, mark the western edge of these shoals.

Craney Island Flats, the extensive shoal making out about 3 miles northward from Craney Island and the shore westward, has from 1 to 18 feet of water over it; the general depth on the flats is 9 to 11 feet. The eastern edge of the flats rises abruptly from the deep water of the channel into Elizabeth River, but is well marked by a number of red spar and nun buoys. From the northeastern point of the flats (which is about 3 miles **N.** from Craney Island Lighthouse), the northern edge, bordering on Hampton Roads, curves southward and then westward to the entrance of the Nansemond River. The shoaling is gradual on the northern side of these flats.

Shoals extend out ½ mile all along the shore between Craney Island and Lovett Point (the northern point at the entrance to Western Branch), and rise abruptly from the channel. A red nun buoy (No. 28) marks the eastern edge of these shoals westward of Lambert Point.

Western Branch Shoal is off the entrance of Western Branch, about ½ mile southward of Lambert Point. Two red nun buoys, Nos. 30 and 32, are placed to mark the channel off the entrance to Western Branch, and a red nun buoy marks the entrance of the dredged channel to the wharves at West Norfolk.

Fort Norfolk Flats make out from the eastern shore between Lambert Point and Fort Norfolk; they rise abruptly from the edge of the channel and have a depth of 2 to 5 feet of water over them. The edge of these flats is marked by two black spar buoys, Nos. 13 and 15.

Pinner Point Flats extend ¼ mile eastward and northeastward from Pinner Point (the southern point at the entrance to Western Branch, opposite Fort Norfolk). The greater part of these flats have been reclaimed and are now the wharves of the Southern Railroad.

Shoals with 3 or 4 feet of water over them fill the entrance to **Scotch Creek** (an unimportant stream on the west side of the channel, between Pinner Point and Naval Hospital Point). These shoals rise abruptly from the edge of the channel.

The bight between Naval Hospital Point and the city of Portsmouth has only 1 to 4 feet of water. The channel favors the Norfolk shore until the Southern Branch is opened out.

NANSEMOND RIVER.*

Nansemond River flows into the southwestern part of Hampton Roads, and is the approach, by water, to the town of Suffolk. This river is navigable to Suffolk (in 1901) for vessels of 10 feet draft, but the channel is narrow and crooked, and although it is buoyed a stranger should not go above the lighthouse, at the entrance, without a pilot or towboat. At Suffolk, just below the head of navigation, the river is crossed by a drawbridge. Under the supervision of the United States Engineers the river has been improved by dredging a channel 80 feet wide and 12 feet deep from Western Branch to Suffolk. Nansemond River has considerable trade in lumber, firewood, farm produce, and merchandise, carried principally in vessels that are owned elsewhere The river has several tributaries, creeks of little commercial importance, which are used only by small craft trading to Norfolk and vicinity.

Suffolk is a thriving town, near the head of navigation, 18¼ miles above the mouth of the river; it has a large trade in lumber, firewood, and merchandise; several railroads pass through the town. Steamers of the Old Dominion Line make daily trips between Norfolk and Suffolk, stopping at landings on the Nansemond River.

The **Prominent Feature** in approaching the entrance is **Nansemond River Lighthouse** (see table, page 16), which is off **Pig Point**, the eastern point at the entrance, and 3 miles **SW.** by **W.** from Newport News Middle Ground Lighthouse. (See also "Prominent Features" under heading "Hampton Roads," page 38.)

The **Channel** across the bar at the entrance has a depth of 16 feet and is marked by buoys and Nansemond River Lighthouse. Inside the bar the channel is narrow and has a depth of 3 to 5 fathoms, leading between shoals which make out from both shores. Above Town Point, on the eastern shore, about 4 miles above the lighthouse, the channel begins to shoal, and from the point up to Suffolk are numerous shoals, some of which it is proposed to remove by dredging.

Anchorages.—The usual anchorage for vessels bound into the river and waiting for a favorable wind and tide is in Hampton Roads. Good anchorage is found anywhere in the channel of the river where the bottom is soft. Strangers should not go beyond a point ¼ mile **W.** of the lighthouse at the entrance.

Towboats will be found at the mouth of the river or in Hampton Roads, and sailing vessels generally take one, as the river channel is too narrow for a vessel to work in.

Supplies.—Coal for steamers can be had alongside the wharf at Suffolk. Provisions can be obtained in the town.

Repairs to hull and machinery can be made at Newport News and Norfolk (see headings "Hampton Roads" and "Elizabeth River").

Tides and Tidal Currents.—For tides at the mouth of the river see Newport News, page 39. At Suffolk high and low water occur about 1h. 35m. later than at the entrance, and the mean rise and fall of the tide is 3.8 feet. The currents between the entrance and Town Point have a tendency to set a vessel on the shoals and flats.

GENERAL DIRECTIONS, NANSEMOND RIVER.

From Hampton Roads to an anchorage in the mouth of the river.—When southward of Newport News Middle Ground bring the lighthouse to bear **NE. ½ N.**, distant 1⅛ miles; the vessel should then be near Nansemond River Entrance buoy (spar, white and black perpendicular stripes). From this buoy steer about **W.** by **S.** for Mid-channel Inner buoy (spar, white and black perpendicular stripes). Leave this buoy close-to on either hand, and steer **SW.** by **W.** ½ **W.**, keeping a black can buoy No. 1 and Nansemond River Lighthouse a little on the port bow. Leave Pig Point Flats buoy (can, black, No. 1) about 100 yards and the lighthouse 200 yards on the port hand. Anchor abreast the lighthouse, or in the channel between the lighthouse and Wills John Shoal buoy (spar, red, No. 2), which is on the eastern edge of the shoals making out from Barrel Point and about ⅔ mile above the lighthouse.

*See footnote on page 38.

If desiring to proceed up the river, take a pilot or be guided by the buoys. The channel is narrow and the shoals rise abruptly on either side.

Remarks.—The directions are good for a draft of 14 feet to the anchorage off the lighthouse, but 10 feet is the best draft that can navigate the river. The buoys and lighthouse are the only aids that can be used by a stranger, and care must be taken not to mistake oyster stakes (which are sometimes found near the channel) for the buoys. **Pig Point,** the eastern point at the entrance, slopes sharply toward the water and is wooded. **Barrel Point,** the western point at the entrance, is wooded; the trees at the extremity of the point are lower and more straggling than farther back.

Dangers.—**Craney Island Flats,** on the eastern side of the entrance, is described on page 44.

Naseway Shoal, on the western side of the entrance, is described under heading "James River."

Shoals extend out from Pig Point, the eastern point at the entrance, and from Barrel Point, the western point at the entrance to the river, leaving the channel about 400 yards wide for a distance of ½ mile above the lighthouse. Above this the channel is very much narrower in places.

JAMES RIVER*

empties into the western part of Hampton Roads at Newport News, and is the approach, by water, to the cities of Richmond and Petersburg and the towns of Smithfield and City Point. The river is navigable (in 1901) for vessels of 16 feet draft to the city of Richmond, a distance of 87 miles. Under the supervision of the United States Engineers improvements are being made to obtain a depth of 22 feet in the channel from the entrance to Richmond. At its mouth the river is about 3 miles wide; above this its width is irregular until up to City Point; from thence to Richmond its width ranges from 200 to 650 yards. The towns and landings on the river and its tributaries have a large trade in tobacco, granite, lumber, and wood, carried in coasting vessels, and flour, shipped principally to ports in South America. Several lines of coasting steamers make regular trips to Richmond, and bay steamers touch at the landings on the river.

Numerous creeks and several rivers empty into the James below Richmond; only three of these are of any commercial importance, or navigable by vessels of over 8 feet draft.

Pagan Creek empties into the James River from southwestward, about 7 miles above Newport News. The entrance between **Goodwin Point,** on the east, and **Day Point,** on the west, is about 1¼ miles wide, but the channel is narrow, crooked, and obstructed by bars, which necessitate the services of a pilot for entering the first time. The bars have been dredged under the supervision of the United States Engineers, but have shoaled so that in 1901 vessels of 6½ feet draft have some trouble to reach the town of Smithfield at low water. **Smithfield,** on the south bank of the creek, about 4½ miles above its mouth, has some trade in cord wood and lumber, carried in coasting vessels; a steamer of the Old Dominion Line makes trips from Norfolk to Smithfield. Strangers desiring to enter Pagan Creek should anchor about ½ mile south of White Shoal Lighthouse and signal for a pilot. **Jones Creek,** a crooked narrow stream of no importance, empties into the entrance of Pagan Creek from eastward. The bar at its mouth has about 2½ feet of water upon it.

Warwick River empties into the James River about 8 miles above Newport News; the entrance is **N. ½ W.** from White Shoal Lighthouse. This river is of no commercial importance; a shoal extends across its entrance through which a narrow channel, with 7 feet of water, leads about 1½ miles into the river; above this is a bar with 4 feet of water. Oystermen anchor on the shoals at the river entrance, but strangers should not.

Lawn Creek is a narrow unimportant stream, emptying into the west side of the river, just below Deep Water Shoal Lighthouse and about 16 miles above Newport News. There is a bar at the mouth of the creek with about 3 feet of water upon it.

Skiff Creek is shallow and unimportant. The entrance is northeast from Deep Water Shoals Lighthouse, and obstructed by a bar with 2 feet of water upon it.

College Creek, 22 miles above Newport News, on the opposite side of the river from Hog Point, has a bar at its mouth with 2 to 5 feet of water over it. There is 6 to 11 feet of water in the channel of the creek inside the bar.

Cobham Creek is a narrow unimportant stream, emptying into **Cobham Bay,** the large bight opposite Jamestown Island.

Gray Creek is a narrow stream of little importance, emptying into the James River from southwestward, opposite the upper end of Jamestown Island. There is about 3½ feet of water on the bar at the mouth of the creek.

Powhatan Creek, at the upper end of Jamestown Island, can only be navigated by small boats.

*James River, from its entrance to Richmond, is shown on chart **376,** scale $\frac{1}{400,000}$; **79,** scale $\frac{1}{200,000}$, price of each $0.50; and in parts on charts **401a, 401b, 401c,** scale of each $\frac{1}{40,000}$, price of each $0.40; **401d, 401e,** scale of each $\frac{1}{20,000}$, price of each $0.30.

Chickahominy River is an important tributary of the James River, emptying into the latter from northward about 33 miles above Newport News. The river is navigable for vessels of 8 feet draft to **Windsor Shades**, about 23½ miles above its mouth; 12 feet can be taken up to **Binns Bar**, 21½ miles above the entrance. The sawmills and landings ship large quantities of lumber, wood, and railroad ties in vessels of 6½ to 13 feet draft. Small steamers make landings on the river. Timber is brought down in rafts from the upper part of the river and its tributaries. The channel is narrow and crooked; it has been improved, under the supervision of the United States Engineers, by dredging channels through the bars 200 feet wide and 14 feet deep at the entrance, and 100 feet wide and 8 feet deep up to Windsor Shades, but these depths have decreased slightly. The dredged channel at the mouth of the river is marked by two buoys; these are the only aids to navigation in the river. Strangers entering should take a pilot or towboat at Newport News or in the James River. The mean rise and fall of tides at the mouth of the river is about 1.8 feet. The numerous creeks emptying into Chickahominy River are of no special importance except as water ways for rafts and barges.

Chippoak Creek empties into the James River from southwestward, just above the village of **Claremont**, 38 miles above Newport News. The entrance of this creek is obstructed by a bar with about 3 feet of water upon it.

Kittewan Creek, emptying into the James River from westward, about 6 miles above Claremont, is narrow and has about 1½ feet of water on the bar at its entrance.

Ward Creek is a narrow stream, with 1 foot of water on the bar at its entrance, emptying into James River from southward, about 2½ miles above Kittewan Creek.

Courthouse Creek is a shallow stream, of no importance, opposite Windmill Point, and about 50 miles above Newport News.

Herring Creek is a narrow unimportant stream emptying into the James River from northwestward, about 2 miles above Windmill Point.

Powell Creek is about 1½ miles above Herrick Creek, on the opposite side of the river. The bar at the entrance of this creek has only 3 feet of water upon it.

Appomattox River empties into James River from southwestward, between City Point and Bermuda Hundred, and about 60 miles above Newport News. The channel is narrow and crooked; it has been improved, under the supervision of the United States Engineers, by dredging and the construction of dikes and training-walls. In 1901 a draft of 6 feet could be taken at low water to Petersburg, 11 miles above the mouth of the river. The city of **Petersburg**, at the head of navigation, has considerable trade carried principally in vessels of less than 8 feet draft.

The channel of Appomattox River is buoyed, but a stranger should not enter without a pilot or towboat; either may be obtained at City Point. The mean rise and fall of tides at the mouth of the river is 2.8 feet.

Turkey Creek, emptying into the James River from northward, about 4 miles above City Point, is shallow and of no importance.

Curles Creek empties into the James River from westward, about 1½ miles above Turkey Creek. The bar at the entrance has 2 feet of water upon it.

Fourmile Creek is of no importance; its entrance is on the north side of the river, about 12 miles above City Point and about 3½ miles below Dutch Gap Canal.

Dutch Gap Canal is a cut about 230 yards long, 300 feet wide, and 18 feet deep; it is 75 miles above Newport News and 12 miles below Richmond. This canal cuts off a long bend of the river and shortens the distance to Richmond about 4¾ miles; it is marked at both ends, on the port hand going up, by a lens lantern (see table of lights, page 18).

Newport News, on the north bank at the entrance of the James River, is described under the heading "Hampton Roads." Pilots and towboats for James River and its tributaries can be obtained at Newport News.

City Point is a town on the eastern point at the entrance to the Appomattox River, 60 miles above Newport News. It is connected with Petersburg by a railroad, and has a little trade in tobacco, cotton, flour, and timber, shipped in some of the largest vessels entering the river. Vessels up to 17 feet draft take cargoes from City Point. The larger sailing vessels bound up to Richmond take a towboat at City Point if they have not taken one lower down the river.

Bermuda Hundred is a village on the west bank of the James River, nearly 1¾ miles above City Point and just above the mouth of the Appomattox River.

The city of **Richmond** (capital of the State of Virginia) is at the head of navigation, on the north bank of the James River, 87 miles above its mouth. It has a large coastwise and some foreign trade; the deepest draft vessels entering and clearing from the port is 16 feet. The larger sailing vessels usually tow up the river either from Newport News or from City Point. There is a dock at Richmond in which vessels lie to load and discharge cargoes; the dimensions of the lock into this dock are: length 180 feet, width 33½ feet, depth 14 feet. The depth of water at the wharves ranges from 12 to 15 feet at low water.

Manchester, a town on the opposite side of the river and connected with Richmond by several bridges, has several large manufactories.

Prominent Features and Aids.—Approaching and entering the river, the large grain elevator at Newport News will be the most prominent object in this vicinity. After entering the river the lighthouses (see table, page 18) and the buoys are the best guides.

The **Channel** of James River below City Point is crooked, and at its narrowest part, Harrison Bar, is about 100 feet wide in the dredged cut. Strangers should not attempt to sail up the river to City Point unless with a fair wind in the daytime and drawing less than 12 feet. Above City Point the channel is very narrow (in places 75 and 100 feet wide) and crooked, and sailing vessels require the services of a tug. From the mouth of the river to the city of Richmond the narrower parts of the channel and the prominent shoals and dangers are marked by buoys and by several lighthouses and range beacons.

Anchorages.—The mouth of the river off Newport News affords excellent anchorage for the largest vessels and deepest draft; it is also a favorite anchorage for coasters entering Hampton Roads for shelter. Vessels bound up or down the river anchor anywhere in the channel where the depth of water and the character of the bottom are suitable. Off the city of Richmond vessels are permitted to anchor in the stream, but not for a longer time than 24 hours without permission from the Harbor Master.

The **Harbor Master** at Richmond attends to the mooring and berthing of vessels, at the request of persons in charge, and keeps the channel of the river clear for the passage of vessels. The Dock Master of the Richmond Dock attends to the berthing of vessels while in the dock.

Pilots.—Pilotage in James River is not compulsory; vessels desiring a pilot for the river can get one at Hampton Roads or Newport News. For Virginia Pilot Laws, see Appendix I.

Towboats.—Sailing vessels bound to Richmond or City Point generally take a towboat at Hampton Roads. Those of less than 12 feet draft can sail up to City Point, with a favorable wind, by closely following the directions, but they should take a towboat if bound farther up. The captains of tugs are licensed pilots.

Supplies.—Coal for steamers (bituminous) can be obtained at Newport News and Richmond. Provisions can be had at City Point, Richmond, and a few of the landings along the river. Ship-chandler's stores can be obtained at Richmond.

Repairs.—Machinery of steamers and the hulls of vessels can be repaired at Richmond. The nearest dry dock is at Newport News (see "Repairs" under heading "Hampton Roads").

Freshets occur irregularly in the fall, winter, and spring; the range of their height at Richmond is from 5½ to 28½ feet, but this latter is exceptional. Vessels are not endangered by the freshets. A freshet of 25.1 feet at Richmond was 14.5 feet at Dutch Gap, 2.2 feet at City Point, and hardly felt at Brandon.

Ice.—There is some drift ice in the river during severe winters, and at times the river is frozen over for a few miles below Richmond, interrupting navigation for a few days. Navigation to Richmond is hardly ever suspended 30 days at one time on account of ice.

Currents.—The currents follow the general direction of the channel except between Hog Island and Jamestown Island, where they set across Goose Hill Flats. Their velocity is variable; in the lower reaches the flood current approximately equals the ebb in velocity; in dry seasons the velocity of the flood increases. The main counteracting effect of the flood is the freshet current.

Tides.—The force and direction of the wind have a marked influence on the time of high water and the rise and fall of the tides. The variation of the tides in the river are very intricate. There may be a difference of 2 feet in the height of high water at City Point and Richmond, or the same difference in the low water of the same tides. The following table shows the relative time of high water at different points on the river, after high water at Fort Monroe, and the mean rise and fall of tides:

TIDES, JAMES RIVER.

GENERAL TABLE.

The corrected establishment for Old Point Comfort is 8h. 44m.

Locality.	Time of high water after time of high water at Old Point Comfort.	Mean Rise and Fall.			Mean Duration of—			Rise of highest tide observed.	Approximate distance of station above Newport News.
		Mean tides.	Spring tides.	Neap tides.	Rise.	Fall.	Stand.		
	h. m.	Feet.	Feet.	Feet.	h. m.	h. m.	h. m.	Feet.	Miles.
Warwick River	0 52	2.6	3.1	2.1	6 02	6 23	0 31	3.5	8
Hog Island	2 38	1.9	2.3	1.5	5 52	6 33	32	3.3	22
Claremont	3 59	2.0	2.4	1.6	5 43	6 42	33	4.5	38
City Point	5 56	2.8	3.4	2.2	5 27	6 58	32	4.3	60
Curls Neck	8 12	3.2	3.8	2.5	5 18	7 07	32	4.4	69½
Dutch Gap	8 37	3.5	4.2	2.8	5 15	7 10	34	4.5	75
Falling Creek	9 06	3.8	4.6	3.0	5 10	7 15	33	4.6	81½
Richmond Bar	9 16	4.0	4.8	3.2	5 05	7 20	35	4.8	84
Richmond	9 33	3.6	4.3	2.8	5 00	7 25	35	4.7	87

SAILING DIRECTIONS, JAMES RIVER TO CITY POINT.

These directions, if closely followed, are good for vessels of 13 feet or less draft. Vessels of a greater draft should employ a towboat or a pilot, as some local knowledge is necessary to keep in the best water in the narrower parts of the channel. Directions for entering Chesapeake Bay will be found on pages 30–32, and for entering Hampton Roads to Newport News on pages 39–42.

Note.—In following these directions special attention should be paid to the buoys and the distance they are to be left when passing. Some of the range beacons do not show well as daymarks and can not readily be seen at a greater distance than 1 to 1½ miles.

1. ***From Newport News to Point of Shoals Lighthouse.***—Passing Newport News, steer **NW. ¾ N.** and leave the wharves about ¼ mile on the starboard hand. When the grain elevator at Newport News bears **SE.** by **E.**, steer **NW.** by **W.**, keeping the bearing. On this course black can buoy (No. 3) will be left about 500 yards on the port beam; White Shoal Lighthouse, about 450 yards on the starboard hand; and black spar buoy (No. 5), off Day Point, about 250 yards on the port beam. Continue the **NW.** by **W.** course about 1¼ miles after the latter buoy bears abeam, and then change the course to **W. ¾ N.**; black can buoy (No. 7) should be left 250 yards on the port hand, and when about 1 mile past this buoy Burwells Bay Range (two white posts) should be made ahead and kept in line. Leave red spar buoy (No. 2) about 450 yards on the starboard hand (if this buoy is not in position keep closely on the range), and when Point of Shoals Lighthouse bears **N. ¼ W.** steer **N.** by **W.** and leave the lighthouse about 250 yards on the starboard hand. Then follow the directions under section 2.

Remarks.—Standing up the river, White Shoal Lighthouse will show prominently. **Day Point,** on the southern bank of the river, is the most prominent landmark, showing a steep bluff at the end, which is clearly defined. As the lighthouse is approached Warwick River will be opened northward, but is not very easily distinguished, and Pagan Creek Entrance southward. White Shoal shows several bare spots westward of the lighthouse. After passing White Shoal Lighthouse, Point of Shoals Lighthouse will be seen (see table, page 18) on the port bow, about 6¼ miles above White Shoal Lighthouse. Fish stakes make out from the southern and western shore of Burwells Bay nearly to the edge of the channel, and a long lumber wharf and railway (post office name, Fergusson Wharf) shows prominently westward of Point of Shoals Lighthouse.

Burwells Bay Range, two white posts, are in a clearing on the hill about ⅜ mile southward of the lumber wharf; there is a 1½-story building to the left of the range.

Dangers and Aids.—Naseway Shoal (left on the port hand on the **NW. ¾ N.** and **NW.** by **W.** courses) is an extensive shoal extending about 3¼ miles eastward and about 1⅜ miles northward of Fishing Point, the southern point at the entrance to James River. This shoal has from 1 to 10 feet of water over it, and in some places bare spots show at low water. On the edge of the shoal, and about ⅛ mile **SW.** by **W.** ¼ **W.** from the elevator at Newport News, is Naseway Shoal Lower buoy (spar, black, No. 1). Naseway Shoal Upper buoy (can, black, No. 3) is on the northern edge of the shoal, 1⅜ miles **NE.** from Fishing Point and 2 miles **NW.** by **W.** ¼ **W.** from the elevator at Newport News.

Brown Shoal (left on the starboard hand on the **NW.** by **W.** course), showing bare at low water, is one of the numerous shoal spots lying off the northern bank between Newport News and Warwick River Entrance; just eastward of Warwick River some of the shoals extend out 1¼ miles from the shore.

White Shoal (left on the starboard hand on the **NW.** by **W.** course) lies in the middle of the river, about 5¼ miles above Newport News. This shoal is about 1¼ miles long in a **SE.** and **NW.** direction within the 12-foot curve, about ⅜ mile wide, and shows several bare spots at low water. Near its southeastern side it is marked by White Shoal Lighthouse (see table, page 18).

Day Point Shoal (left on the port hand on the **NW.** by **W.** course) is a large shoal extending across the entrance of Pagan Creek, and about ⅜ mile northeastward from Day Point, the western point at the entrance to Pagan Creek. This shoal has several spots showing bare at low water, and is marked by a buoy (spar, black, No. 5) placed off its northern edge, about **NE.** ¼ **E.** from Day Point. There is a narrow channel with 6¼ feet of water leading into Pagan Creek.

Glover Bluff Shoal (left on the port hand on the **W. ¾ N.** course) is part of the extensive shoals which extend out ¼ mile from the southwestern bank above Day Point. About ¼ mile from the bank and nearly 2 miles northwestward of Day Point the edge of this shoal is marked by a buoy (can, black, No. 7).

Point of Shoals (left on the starboard hand) is a large shoal, showing bare spots at low water, lying in the middle of the river above Warwick River and Pagan Creek entrances. This shoal extends in a broken line from **Point of Shoals Lighthouse** (see table, page 18), which marks its upper (western) end, to the entrance of

Warwick River. Brown Shoal buoy (spar, red, No. 2), about 1⅝ miles **SE.** from the lighthouse, marks the edge of this shoal. Shoal spots also extend from the lighthouse in a northeasterly direction to Mulberry Point.

Shoals make out nearly ½ mile from the bank of the river in Burwells Bay; they rise abruptly from the channel, have from 1 to 5 feet of water over them, and are covered with fish stakes nearly to the edge of the channel.

2. ***From Point of Shoals Lighthouse to Jamestown Island.***—When Point of Shoals Lighthouse bears **E.**, distant 250 yards, steer **N.** by **E.** ¾ **E.** for 2 miles until up to Hardin Bluff Shoal buoy (can, black, No. 9); when this buoy is about 300 yards off the port beam, steer **N.** ½ **E. Northerly,** keeping Deep Water Shoals Lighthouse a little on the starboard bow, and leaving Swash buoy (spar, red, No. 2) ¼ mile on the starboard hand and Lawn Creek Flats lower buoy (spar, black, No. 11) on the port hand. Pass about 400 yards westward of Deep Water Shoals Lighthouse and when it bears **SSE.** steer **NNW.,** keeping it on the bearing astern. Lawn Creek Flats upper buoy (spar, black, No. 13) will be left on the port hand and Hog Island Flats Southeast Side buoy (spar, red and black horizontal stripes), marking the junction of the northern channel, will be left about ½ mile on the starboard hand. Turning Point buoy (nun, red, No. 2) will be made nearly ahead; leave it about 40 yards on the starboard hand and steer **NW.** ½ **W.** for Upper Entrance buoy (spar, red, No. 4). When up to this buoy, leave it about 50 yards on the starboard hand and haul a little westward so as to leave Hog Island Point Shoal buoy (can, black, No. 17) about 100 yards on the port hand.

From black can buoy No. 17 steer about **SW.** by **W.** ¼ **W.,** leaving Goose Hill Middle Ground buoys (spars, black, Nos. 19 and 21) on the port hand and keeping the two small white structures of the Goose Hill Channel Range ahead. Leave Entrance to Cut buoy (spar, red, No. 4½) on the starboard hand. Having passed the latter buoy, continue the **SW.** by **W.** ¼ **W.** course and pass ¼ mile southward of Lower Point Shoal buoy (nun, red, No. 6); then follow the directions under section 3, following.

Note.—The Main Channel above Deep Water Shoals Lighthouse may be followed by close attention to the buoys, and although wider than the Swash (South) Channel, it is about 2 miles longer.

Remarks.—Standing up the river on the **N.** by **E.** ¾ **E.** course after passing Point of Shoals Lighthouse, **Deep Water Shoals Lighthouse** (see table, page 18) will be made on the port bow, and when on the **N.** ¼ **E.** course it will be a little on the starboard bow. Shoals lie in the middle of the river above Deep Water Shoals Lighthouse, with a channel on each side—the **Main Channel** (the northern) and the **Hog Island Swash Channel** (the southern); these channels are each marked by buoys and unite at Hog Point, about 4 miles above Deep Water Shoals Lighthouse. **Hog Point** is low, bare, and flat, backed by trees; there is a small village (Homewood) which shows from eastward; a long wharf, with a post light at its end, makes out, which, when seen from down the river, appears as the end of the point. The bank northward of Hog Point, at intervals, shows bare bluff faces about 15 to 20 feet high. The **Main Channel** has 2 feet more water and is a little wider than the Swash Channel, but the latter is 2 miles shorter. The directions are for the **Swash Channel,** which has 17 feet of water. After rounding Hog Point, **Jamestown Island**—low, with scattered clumps of trees—will be made on the starboard bow just above the entrance to **The Thoroughfare;** the latter separates Jamestown Island from the mainland. **Cobham Bay** is the large bight southward of Jamestown Island; it is full of shoals. When standing on the **SW.** by **W** ¼ **W** course Goose Hill Channel Range (see table, page 18) should be seen over the ruins of the wharf at Dollers Point.

Dangers and Aids.—**Hardin Bluff Shoal** is part of the shoals making out from the western bank above Burwells Bay. A buoy (can, black, No. 9) is placed on the edge of the shoal, nearly 2 miles above Point of Shoals Lighthouse; this buoy is left on the port hand going up river.

Red spar buoy No. 2 is placed about ⅛ mile **SW.** ¼ **S.** from Mulberry Point near the western edge of the shoals which lie between the point and Point of Shoals Lighthouse.

Lawn Creek Flats make out from the western bank, opposite Deep Water Shoals Lighthouse. These flats have spots with 3 feet of water over them, and are marked by two buoys which are left on the port hand when standing up the river. The lower buoy (spar, black, No. 11) is about ¼ mile **SW.** by **W.** from Deep Water Shoals Lighthouse, and the upper buoy (spar, black, No. 13) about ¼ mile **NW.** by **N.** from the lighthouse. The channel leads between the buoys and the lighthouse.

Deep Water Shoals make out from the eastern bank above Mulberry Point. These shoals rise abruptly from the channel, have 2 to 6 feet of water over them, and are marked at their western edge by **Deep Water Shoals Lighthouse** (see table, page 18).

Hog Island Flats (left on the port hand going up the Main Channel and on the starboard hand going up the Swash Channel) lie in the middle of the river and have from 4½ to 11 feet of water over them. These flats are marked by four buoys; Southeast buoy (spar, red and black horizontal stripes) is 1¼ miles **E.** of Deep Water

Shoal Lighthouse; Northwest buoy (spar, black, No. 15) is 1 mile **NE.** by **E.** ¼ **E.** from Hog Point; this latter buoy is colored and numbered for the Main Channel. Turning Point buoy (nun, red, No. 2) is on the southern edge of the flats, about 2¾ miles **NNW.** from Deep Water Shoals Lighthouse; Upper Entrance buoy (spar, red, No. 4) is near the western end of the flats, about ⅜ mile **NNE.** ½ **E.** from Hog Point; these two buoys mark the northern side of the Swash Channel.

Tree Hill Shoal lies ⅝ mile off the northern bank, about 3¼ miles above Deep Water Shoals Lighthouse, and on the north side of the Main Channel. This shoal has 2 feet of water over it, and is marked at its southern edge by a buoy (spar, red, No. 4). A channel with a depth of 11 feet leads about 500 yards offshore northward of this shoal.

Hog Island Point Shoal makes out northward and about ½ mile northwestward from Hog Point. The northwestern point of the shoal is marked by a buoy (can, black, No. 17). Approaching the shore of Hog Island below Hog Point the water shoals gradually from 18 feet to 12 feet, but suddenly from 12 feet to 6 feet.

Goose Hill Flats or Middle Ground lies in the middle of the river, above Hog Point and eastward of Jamestown Island. It is about 1⅜ miles long, ⅝ mile wide, has 3 to 9½ feet of water over it, and is marked by two buoys placed on its northwestern edge. The lower buoy (spar, black, No. 19) is 1⅝ miles **WSW.** ⅝ **W.** from Hog Point, and the upper buoy (spar, black, No. 21) is a little over ⅝ mile **SW.** by **W.** ¼ **W.** from the lower. These buoys are left on the port hand going up the river. There is a channel with 13½ feet of water eastward of the Middle Ground, but it is not buoyed.

Lower Point Shoal makes out from the southeastern point of Jamestown Island toward Goose Hill Middle Ground. A cut has been dredged through this shoal, which is marked by two buoys: Entrance to Cut buoy (spar, red, No. 4½) and Lower Point Shoal buoy (nun, red, No. 6); both these buoys are left on the starboard hand going up river.

The shoals in Cobham Bay have 4½ to 5½ feet of water over them, and have a number of fish stakes which extend nearly to the edge of the channel.

3. ***From Jamestown Island to Claremont.***—When Lower Point buoy (nun, red, No. 6) bears **NE.**, distant about 400 yards, change course to **NW.** ¼ **N.** so as to pass 400 yards southward of Church Point, and leave black can buoy No. 23 about 150 yards on the port hand. When past black can buoy No. 23 steer **NW.** by **W.** ½ **W.**; leave Back River buoy (spar, red, No. 8) about 150 yards on the starboard hand, and from this buoy steer **W.** ¼ **N.** Leave black can buoy No. 25 about 150 yards on the port hand and the remains of Dillard Wharf about ⅝ mile on the port hand; continue the course, keeping on the Sunken Marsh Channel Range, and pass about 400 yards southward of red nun buoy No. 10. When up to the latter, steer about **NW.** by **W.**, keeping in the middle of the river until abreast Claremont, then follow the directions under section 4.

Remarks.—Church Point is the southwestern point of Jamestown Island; **Jamestown Wharf** is about ⅝ mile eastward of the point. The broad and shallow entrance to Grays Creek is opposite Church Point and just below **Swan Point,** which is low and thickly wooded, with several prominent trees near its end. After passing Church and Swan points, vessels bound into the Chickahominy River continue the **NW.** ¼ **N.** course and follow the northern bank to the dredged channel.

About 4½ miles above Church Point, Chickahominy River Entrance will be fully opened out. **Barrett Point,** the eastern point at the entrance, makes out low and partly cleared, with a conspicuous group of detached trees on the extremity of the point. On the western side of the entrance to Chickahominy River is a noticeable bare bluff with abrupt bare faces. The shoals off the entrance are usually covered with fishing stakes.

Claremont Landing, at Sloop Point, on the south bank, has three wharves at which vessels load lumber; the upper one has a large railroad shed upon it; about 1¼ miles above the railroad wharf are the ruins of Claremont wharf. The village of **Claremont** is on high land and hidden by trees; a few houses will show among the trees when up to the landing. **Tettington** Post Office and Landing are on the north bank, opposite Claremont.

Dangers and Aids.—Swan Point Shoal makes out ¼ mile northeastward from Swan Point. It has 2 to 8 feet of water and is marked at its northeastern point by a buoy (can, black, No. 23). **Shoals** extend off the mouth of Grays Creek and the south bank between Swan Point and Cobham Bay. Back River buoy (spar, red, No. 8) is about ⅝ mile above Swan Point Shoal buoy; vessels bound up the James River leave it on the starboard hand, and those bound into the Chickahominy River leave it on the port hand.

Browns Shoal (left on the port hand going up river) lies off the south bank above Swan Point abreast a long, prominent wharf. A buoy (can, black, No. 25) lies off the north side of the shoal about 1 mile **NW.** ¼ **W.** from Swan Point.

Dancing Point Flats are extensive shoals making out eastward and southeastward from Dancing Point; they have from 3 to 11 feet of water over them, and extend across and well off from the entrance to Chickahominy River. The southern edge of these flats, about ⅞ mile from Dancing Point, is marked by a buoy (nun, red, No. 10). Vessels bound up the river leave the flats on the starboard hand.

Between Dancing Point and the ruins of Claremont Wharf the channel takes nearly the full width of the river. The water shoals abruptly on approaching the shores.

4. ***From Claremont to Windmill Point.***—Continue the **NW.** by **W.** course about 1⅝ miles above the railroad wharves at Claremont, and when off the middle of the entrance to Chippoak Creek steer **NNW. ⅝ W.**, heading for the small wharf on Brandon Point. Leave the wharf at Brandon Point about 300 yards on the port hand and steer about **N. ¼ E.**, following the eastern bank, and when up to where the river makes a turn westward follow a mid-channel course, keeping out of the bights. After passing the entrance to Kittewan Creek (about 6 miles above Claremont), and when about 1 mile below Weynoak Point, favor the eastern bank slightly, keeping out of the bight at the mouth of Ward Creek.

Round Weynoak Point, keeping in midstream, and when about ⅝ mile above **Flowerdew Hundred Creek**—the small creek just above Fort Powhatan—steer about **N.** by **E.** so as to pass eastward of Minzie Middle Ground Lower buoy (spar, red and black horizontal stripes). When ⅝ mile past this buoy haul gradually westward, leaving Minzie Middle Ground Upper buoy on the port hand and passing about midway between Windmill Point and Willcox Wharf, northward of the point. Then follow the directions in section 5.

Remarks.—Standing up the river from Claremont Wharf, **Tree Point**, on the eastern bank, about 2¼ miles above Claremont, is wooded to the water's edge and shows quite prominently; above the point are the ruins of a landing. **Brandon Point**, opposite Tree Point, has a small landing. **Sturgeon Point** and post office, about 2½ miles above Tree Point, has a small landing and a brickyard backed by a bare bluff; eastward of Sturgeon Point is a lumber wharf and sawmill. Kennon Marsh is the low point on the west bank about 1¼ miles above Brandon Point; there are some bushy trees at its end and a few scattered trees on the marsh. **Weynoak Point** is low and wooded, on the north bank about 4 miles above Sturgeon Point. Opposite and a little below Weynoak Point, off the entrance to Ward Creek, are the remains of a wood pier. **Fort Powhatan**, on the opposite bank from Weynoak Point, above Ward Creek, is high and thickly wooded; the fort can not be distinguished from the river. **Windmill Point** is a low point nearly 2½ miles above Fort Powhatan, where the river makes a sharp turn southwestward; there is a thick group of trees on the end of the point. **Willcox Wharf** and **Post Office** are on the north bank of the river, opposite Windmill Point. The land eastward of Willcox Wharf shows bare bluffs to the entrance of Court House Creek.

Dangers and Aids.—**Shoals** make out for some distance from the northern bank; below Tree Point they have from 3¼ to 15 feet of water over them, and may be avoided by keeping the southern and western bank the best aboard when between Chippoak Creek and Brandon Point.

The bight above Brandon Point in the west bank is full of shoals, which rise abruptly from the channel.

Kennon Flats fill the bight in the north bank opposite the northwestern point of Kennon Marsh. A buoy (spar, red, No. 12) is placed on the edge of the flats. Above Kennon Flats buoy the bights are all shallow, and the water shoals suddenly on both sides of the channel.

Just below Weynoak Point a shoal, with from 1 to 13 feet of water over it, makes out about ¼ mile in an easterly direction from the western bank. This shoal is not marked, but is avoided by favoring the eastern bank, taking care not to get into the bight off the mouth of Ward Creek.

Above Fort Powhatan shoal water extends only a short distance from the banks until up to Minzie Middle Ground, but the shoaling is very abrupt.

Minzie Middle Ground lies in the middle of the river eastward of Windmill Point; it has 2½ to 9 feet of water over it, and is nearly ¼ mile long in a **NNW.** and **SSE.** direction. At its southeastern end is a buoy (spar, red and black horizontal stripes) and at its northwestern end is another red and black horizontally striped buoy. The channel passes eastward of the Middle Ground, but there is a channel (Swash Channel) with 13 feet water between the Middle Ground and Windmill Point.

5. ***From Windmill Point to City Point.***—When midway between Windmill Point and Willcox Wharf steer southwestward so as to leave black spar buoy No. 27 close-to on the port hand, and from this buoy shape the course about **WSW.**, keeping in the middle of the river until red spar buoy No. 14 is broad off the starboard bow; then steer more westward so as to leave it about 200 yards on the starboard beam; then steer about **W. ⅛ N.** for black spar buoy No. 27½. Leave black spar buoy No. 27½ on the port hand and continue about the same course, leaving black spar buoys Nos. 29 and 31 about 30 yards on the port hand. When abreast of buoy No. 31 *Harrison Bar Range* (two white posts) should be in range bearing about **NW.** by **W. ⅝ W.** Stand on this range until abreast of red spar buoy No. 18 and then haul westward, following the buoys, leaving the black buoys on the port hand and the red ones on the starboard hand. When abreast of black buoy No. 45, and the wharf at City Point bears **NW.** by **W. ½ W.**, steer for the wharf. Anchor in the channel, which is about 350 yards wide abreast the wharf.

Caution.—The channel at **Harrison Bar,** 1¼ miles above black spar buoy No. 27½, is very narrow, and the range and buoys should be closely followed while crossing the bar.

Remarks.—**Buckler Point,** on the north bank, about 1⅝ miles above Willcox Wharf, is moderately high and wooded to the water's edge. After passing this point **Jordan Point Lighthouse,** about 2¼ miles below City Point, should be made ahead and on a line with black spar buoy No. 31. The remains of the wharf at Harrison Landing will be made on the starboard bow. **City Point** is high and wooded, with an abrupt slope to the river; the town is on the northern slope of the hill and does not show well from down the river. The channel above black spar buoy No. 31 is narrow, but the buoys are so placed as to be readily seen and followed. The water shoals abruptly on both sides.

Sailing directions of value can not be given for James River above City Point.

Dangers and Aids.—**Flowerdew Hundred Middle Ground** is off the western side of Windmill Point; it has 2 to 12 feet of water over it, and is marked off its western edge by a buoy (spar, black, No. 27) which is left on the port hand going up the river.

Buckler Point Shoal makes off a little over ¼ mile southward from Buckler Point. This shoal has 2½ to 10 feet of water over it, and is marked at its southern edge by a buoy (spar, red, No. 14).

Harrison Bar is a large shoal, bare at extreme low tides, lying in the middle of the river off Harrison Landing. This shoal is 2¾ miles long in a general **ESE.** and **WNW.** direction, and its northern edge, along which the channel passes, is marked by five black spar buoys. A narrow channel, with a least depth of 12½ feet, leads southward of this bar, but it is not buoyed, and is seldom used except by those well acquainted with the river.

Harrison Point Flats make off from the northern bank just above Harrison Landing. The edge of these flats is marked by two buoys. The lower buoy (nun, red, No. 16) is placed where the channel between the flats and Harrison Bar is very narrow and has been improved by dredging. The upper buoy (spar, red, No. 18) is nearly ⅞ mile **NW. ¼ W.** from the lower buoy.

North Flats and **Eppes Island Flats** are the extensive shoals lying on the north side of the channel above and joining Harrison Point Flats. The edge of these flats is marked by two red spar buoys, Nos. 20 and 22, and by one red nun buoy, No. 24.

Bailey Creek Flats is the extensive shoal which fills the bight in the south bank between Jordan Point and City Point. The edge of the flats is marked by one black can buoy, No. 39, and three black spar buoys. These buoys are left on the port hand going up the river.

Eppes Island Shoal is the part of Eppes Island Flats lying southward and westward of Eppes Island. The edge of this part of the shoal is marked by red spar buoy No. 28 and red nun buoys Nos. 26 and 30.

The entrance of Appomattox River, just above City Point, is full of shoals. The channel leading into Appomattox River is marked by buoys which must be left on the port hand when standing up the James River above City Point.

BACK RIVER *

makes into the western shore of Chesapeake Bay, about 6 miles northward of Old Point Comfort. The river is shallow, with a narrow and crooked channel, which leads between bars making out from the entrance and others lying in the middle of the river. At its head the river is divided into two branches, the **Northwest Branch** making northwestward for a distance of 2½ miles, and the **Southwest Branch** making southwestward 3 miles. Back River has some trade in oysters, wood, and farm produce, carried principally in small vessels trading in the bay, and a steamer of 6½ feet draft. The deepest draft that can enter the river is about 12 feet, and 7 to 8 feet can be carried into the branches at high water. **Back River Lighthouse** marks the south side of the entrance to the river (see table, page 18).

The channel over the bar at the entrance is buoyed and has a depth of 10 feet at low water in its shoalest part. The entrance to this channel is 5 miles **N. ¼ W.** from Thimble Shoal Lighthouse and 6¾ miles **S. ¼ W.** from York Spit Lighthouse. Inside the mouth of the river there are a number of buoys. A small settlement with two wharves is inside the southern point of entrance on **Northendean (North End) Point,** and the village of **Fox Hill** (post office name Ripraps) is on the east bank of **Harris Creek,** a small branch making southward just east of the mouth of Southwest Branch. Strangers entering the river always take a pilot. One can be had by making signal when off the entrance. If the wind is from eastward, it is advisable to lie off and on; if the wind is westerly, vessels can anchor in 3 fathoms of water off the entrance and wait for a pilot. Towboats are seldom used; they may be had at Hampton Roads.

Tides and Tidal Currents.—The mean rise and fall of tides at the mouth of the river is 2.4 feet. The tidal currents are baffling. Local knowledge is necessary for the safe navigation of the river.

* Shown on chart **131,** scale $\frac{1}{80,000}$, price $0.50.

SAILING DIRECTIONS TO ENTRANCE OF BACK RIVER.

The following directions will carry a vessel to the entrance of the channel over the bar; above this a stranger must be guided by the buoys or take a pilot.

1. ***Approaching from Southward.***—I. ***From a position 1¼ miles S. of the bell buoy on southeastern end of Middle Ground.***—Make good a **NW.** by **W.** ⅝ **W.** course for nearly 15 miles, and anchor near the bell buoy with Back River Lighthouse bearing **W.** by **S.** distant 1¼ to 1½ miles.

II. ***From near Cape Henry.***—Bring Cape Henry Lighthouse to bear **SE.** and steer **NW.** Anchor near the bell buoy with Back River Lighthouse bearing **W.** by **S.** distant 1¼ to 1½ miles.

III. ***From Hampton Roads.***—Pass out of Hampton Roads, keeping in the main channel, and when about ¾ mile eastward of Thimble Shoal Lighthouse steer **N.** about 4 miles; then steer **NW.** by **N.** and anchor as directed in the preceding paragraph.

Note.—These courses are good for a draft of 12 feet or less. When approaching Back River Lighthouse on the **NW.** by **W.** ⅝ **W.** course, the least depth found will be 3½ fathoms.

Remarks.—All the courses in this section lead to a point about 1½ miles eastward of Back River Lighthouse. Strangers should here take a pilot if over 7 feet draft, or anchor until one comes on board in answer to signal. Vessels of 7 feet draft may stand in to North End (Northendean) Point by following the buoys. To make the entrance buoy (can, black, No. 1) steer **W.** ½ **N.** for the bell buoy. The buoys are close enough to be readily seen.

Dangers.—Point of Breakers Shoal makes out nearly 2½ miles from the shore south of Back River Lighthouse. It has from 6 to 9 feet of water over it, and can be avoided by keeping Thimble Shoal Lighthouse bearing westward of **S.** by **W.** until Back River Lighthouse bears westward of **NW.** by **W.** There are spots with 13 and 14 feet of water lying 2½ miles **ESE.** ½ **E.** from Back River Lighthouse.

Plum Tree Bar makes out 2½ miles in a southeasterly direction from the northern point at the entrance to the river, and extends across its mouth. The buoyed channel leads across the southeastern end of this bar and along between it and Point of Breakers Shoal.

1 A. ***Approaching from Northward.***—Standing down the bay, leave York Spit Lighthouse 1 mile on the starboard hand and steer **S.** When Back River Lighthouse bears **W.** by **S.**, steer for it on this bearing, and anchor in 3¼ fathoms water near the bell buoy, when the lighthouse is 1½ miles distant.

See "Remarks" and "Dangers" under section 1, foregoing. To avoid the shoals north of the entrance, keep York Spit Lighthouse bearing westward of **N.** ¼ **W.**

POQUOSIN RIVER*

makes into the western shore of Chesapeake Bay, west of York Spit Lighthouse and south of York River Entrance. The river has several tributaries which flow through a well cultivated farming country, from which considerable wood and garden produce are shipped to other points on Chesapeake Bay; it also has a large oyster trade. A steamer from Norfolk stops regularly at landings on the river. Shoals make out from both shores off the entrance, between which is a good anchorage in 15 to 18 feet of water; but a stranger should not enter the river without a pilot, who may be had by making signal at the anchorage. The usual draft of vessels entering the river is 8 feet or less, but vessels drawing as much as 15 feet have been loaded. The guides for the anchorage off the mouth of the river are the same as for York River, and in making this anchorage the directions for entering York River should be followed until midway between York Spit Lighthouse and Tue Marshes Lighthouse.

The mean rise and fall of tides at the mouth of the river is 2.4 feet.

*Shown on Coast and Geodetic Survey chart 131, scale $\frac{1}{80,000}$, price $0.50.

GENERAL DIRECTIONS, POQUOSIN RIVER.

To an anchorage in the mouth of Poquosin River.—Having followed the directions in section 1 or 1 A, "Sailing Directions, York River," bring New Point Comfort Lighthouse to bear **NE. ¾ N.**, and steer **SW. ¾ S.**, heading fair for the entrance of the river and passing between Poquosin Flats and Tue Point Shoal. When the trees on York Point bear **NW. by N.**, anchor in the channel in 15 to 17 feet of water.

Remarks.—On the **SW. ¾ S.** course, **Bennet Creek** will be gradually opened on the port bow, **Robert Creek** (very small) will be directly ahead, and **York Point** on the starboard bow. From York Point shoals make out 600 yards, and rise abruptly from the channel; near its end the point is low and not easily distinguished, but back some distance from the end it is well marked by thick tall pines with bare trunks.

When up to York Point, **Cheseman Creek** will be opened northwestward and a long wharf, with sheds on the outer end, will be seen bearing about **WSW.** This wharf is on the west bank of Poquosin River, opposite **Hunt Point.**

Dangers.—**Drum Island Flats** and **Poquosin Flats** extend eastward and northeastward for a distance of nearly 3 miles from the western shore of Chesapeake Bay, between Back and Poquosin rivers. These flats have from 2 to 12 feet of water over them and should not be approached from eastward in less than 18 feet of water, as the shoaling is abrupt in some places inside this depth. Poquosin Flats are the northernmost, and their eastern end extends to within 1½ miles of York Spit, this being the width of the channel between them. The northeastern point of Poquosin Flats is marked by a buoy (can, black, No. 1).

York Spit and **Tue Point Shoal** are described under section 1, "Sailing Directions, York River."

Shoals make off from the points at the entrance to the river; the ends of these shoals are usually marked by bushes or stakes; these are, however, unreliable guides for a stranger, as there are also numerous fish stakes on the shoals.

YORK RIVER.*

This river, formed by the union of the Pamunkey and Mattaponi rivers, flows in a southeasterly direction for about 30 miles, and empties into Chesapeake Bay on the western shore, between Poquosin River and Mobjack Bay, the entrance being about 15 miles north of Old Point Comfort. It is remarkable for its straight course and depth of water in the channel, and is of considerable commercial importance—cotton and tobacco being shipped in foreign and coasting vessels from Westpoint, and grain, lumber, farm produce, and oysters in coasting and bay vessels from landings on the river and its tributaries. Two bars below Westpoint have been improved by dredging, under the supervision of the United States Engineers, and some work is in progress deepening and widening the cuts; in 1901 the depth was 21 feet at low water, and the least width 105 feet at a point 8 miles below Westpoint. Vessels of 22 feet draft can be taken up to Westpoint at high water.

The numerous small creeks emptying into York River between its mouth and Westpoint (at its head) are comparatively shallow, and only frequented by small vessels carrying oysters or garden produce.

Mattaponi River, extending in a northwesterly direction from Westpoint, is navigable for small vessels up to **Aylett**, about 34 miles above its mouth. The river has some trade in grain, cord wood, lumber, and farm produce, carried principally in vessels owned elsewhere. Vessels of 10 to 12 feet draft enter the river, but 5 feet is about the deepest draft that can be taken to Aylett under favorable conditions. A small steamer plies between Westpoint and the different landings on the river as far as Walkertown, about 12 miles below Aylett.

Freshets occur in the river in March and April. The tides in the river are greatly influenced by the wind; an easterly wind brings a full tide. The mean rise and fall of tides is 3.5 feet at the entrance.

Pamunkey River, extending in a westerly direction from Westpoint, is navigable to **Hanovertown**, a landing about 50 miles above Westpoint. Ten to 15 feet can be taken up the river 25 miles to **Whitehouse Railroad Bridge**, and 5½ to 8 feet to **Buckland Bar**, about 33 miles from Westpoint, according to the stage of the tide. Vessels may tow up the river or sail up to Whitehouse, and then drop up with the tide. Above Buckland Bar there are places with depths of 1½ feet in the channel. There is some trade on the river in grain, cord wood, lumber, and farm produce, the carrying being done mostly by vessels owned elsewhere. The tides are influenced by the winds; their mean rise is 3.5 feet at the entrance. Freshets occur in March and April, and at Hanovertown the river sometimes rises 22 feet above low water.

Yorktown is a town of little commercial importance on the south bank of the river, about 6 miles above Tue Marshes Lighthouse. It has a steamboat landing for steamers running between Baltimore and Westpoint.

*Shown on charts **376**, scale $\frac{1}{400,000}$; **79**, scale $\frac{1}{200,000}$, price of each $0.50; and in parts on charts **398**, **399**, scale of each $\frac{1}{60,000}$, price of each $0.20. The entrance is also shown on chart **131**, scale $\frac{1}{80,000}$, price $0.50.

Pilots for the river, up to Westpoint, can be had by making signal below Yorktown; several pilots live near the river bank near the town.

Westpoint is at the junction of the Pamunkey and Mattaponi rivers, about 30 miles above the mouth of York River. It is a terminal of a branch of the Southern Railroad, and has some foreign and coastwise trade in cotton and tobacco. The deepest draft taken up to the railroad wharves is 22 feet at high water. There are several coasting steamers which call at Westpoint; some of them have accommodations for passengers. The railroad wharves have excellent facilities for unloading and loading vessels, and large sheds for storage of freight.

Prominent features.—In approaching York River Entrance, **York Spit Lighthouse** and **Tue Marshes Lighthouse** (see table, page 18) are the most conspicuous objects seen. When well in toward the entrance, **Yorktown Monument**, high white shaft with pyramidal base, will be seen when the entrance is opened. The banks are low and present no conspicuous features, but in the daytime the buoys marking the prominent dangers will be readily distinguished. In the river Pages Rock and Bells Rock lighthouses, the post lights, and the ends of some wharves on the northern bank are good features to assist in keeping in the channel.

Channels.—The channel into the mouth of the river leads southward of York Spit, and has a least width of 1 mile and a depth of 5 fathoms. Between Tue Marshes Lighthouse and Yorktown the channel favors the southern bank slightly, and has a least width of ¾ mile and depth of 5½ to 14 fathoms. Above Yorktown it gradually narrows, and above Pages Rock Lighthouse there is one place where it is only 200 yards wide. Off the mouth of Potopotank Creek, about 15 miles above Yorktown, a dredged cut (the **Lower Cut**), 105 feet wide and 21 feet deep (in 1901), leads into deeper water above. About 2 miles below Westpoint is the commencement of the **Upper Cut**, which leads to the wharves at Westpoint. This cut had a least width of 160 feet and least depth of 21 feet (in 1901), and is being widened and deepened. On the north side of the channel, above Pages Rock Lighthouse, the wharves and fish stakes making out from the north bank fairly define the edge of the channel along its narrowest part. The cuts are well marked by buoys.

Anchorages.—A good anchorage for deep draft vessels is just eastward or westward of Gloucester Point, on the northern edge of the channel. Above Gloucester Point good anchorage is found anywhere in the channel up to Pages Rock Lighthouse, above which the channel is narrow, and deep draft vessels should not anchor until off the wharves at Westpoint. Light draft vessels can anchor anywhere in the channel, except in the cuts; or they may anchor on the flats on the south side of the channel where the depths are suitable.

Pilots.—Vessels required by law to take a pilot (see Appendix I) will get one at the entrance of Chesapeake Bay or in Hampton Roads. Vessels exempt from compulsory pilotage if they desire a pilot can obtain one at Yorktown. It is advisable for strangers of deep draft (over 15 feet) to take a pilot if bound above Yorktown. Strangers bound up the Pamunkey or Mattaponi rivers should take a pilot or a towboat at Westpoint.

Towboats.—The larger sailing vessels generally tow up the river; those coming from Baltimore, Hampton Roads or Norfolk for a cargo, generally tow to Westpoint all the way from those ports. Coasting vessels bound up the Pamunkey or Mattaponi rivers generally take a towboat at Westpoint. Tugs can be had at Westpoint for vessels bound up the York River.

Supplies.—Bituminous coal in limited quantity for steamers may be had at the railroad wharf at West point. Water can be obtained from a water boat at Yorktown, or alongside the wharves at Westpoint. Provisions in limited quantities can be had at Yorktown and Westpoint.

Repairs.—The nearest large dry dock is at Newport News. Norfolk, Newport News, and Baltimore are the nearest places where the machinery of steamers can be repaired.

Freshets occur in the Pamunkey and Mattaponi rivers in March and April, but they are not dangerous to shipping in York River.

Ice.—The York River is closed by ice for a short time during severe winters; in ordinary winters it is comparatively free from ice.

Currents.—The tidal currents generally follow the direction of the channel except in its narrowest parts, where they have a tendency to set a vessel on shoals. The observed velocity of the currents below Westpoint was 1¼ miles on the ebb and about ¾ mile on the flood. The flood runs 2 hours after high water and the ebb about 2 hours after low water at Westpoint. In the Mattaponi River the flood and the ebb currents commence running about 1 hour before they do in the Pamunkey.

Tides.—The mean rise and fall of tides at Tue Marshes Lighthouse is 2.4 feet; at Westpoint 3.5 feet. The force and direction of the wind, however, has a marked influence on the rise and fall of tides. It is high water at Westpoint 1h. 35m. later than at the river entrance.

SAILING DIRECTIONS, YORK RIVER.

The directions in sections 1, 1 A, and 2 are good for vessels up to 25 feet draft. The directions in section 3 are good for vessels of 15 feet draft; strangers of over 15 feet draft should take a pilot.

1. ***Approaching and Entering, from Southward.***—I. *Vessels of 25 feet draft or less* — Having followed the directions in sections 1 or 1 A, and 2, "Sailing Directions, Chesapeake Bay," when ½ mile westward of Middle Ground North End buoy, steer **NW. ¾ W.** Leave the large black can buoy (No. 5), near the end of York Spit, about ⅜ mile on the starboard hand and continue the course, leaving black can buoy (No. 1) a little over ½ mile on the port hand, red nun buoy (No. 2) about ½ mile on the starboard hand, and black can buoy (No. 3) about ⅜ mile on the port hand. When Tue Marshes Lighthouse bears **W.**, distant nearly 2 miles, steer **W.** by **N.** until the lighthouse bears **S.**, distant ⅜ mile. Then follow the directions in section 2.

II. *Vessels of 18 feet draft.*—Bring York Spit Lighthouse to bear between **NW. ½ N.** and **N.** by **W. ¾ W.** and steer for it between these bearings until the large black can buoy No. 5, near the end of York Spit, is sighted. Bring this buoy to bear **N.**, distant ⅜ mile, and then steer **NW. ¾ W.** and follow the directions in paragraph I preceding.

At night, standing up the bay, when Back River Light bears **W.**, or Old Plantation Light shows white, steer for York Spit Light on any bearing between **NW. ½ N.** and **N.** by **W. ¾ W.** When Tue Marshes Light bears **NW.** by **W. ½ W.**, steer for it on this bearing until York Spit Light bears **N.** by **E.**; then steer **NW. ½ W.** until Tue Marshes Light bears **W.**; now steer **W. ¾ N.**, a little over 2 miles, until Tue Marshes Light bears **S.**, distant about ½ mile. Come to anchor, and wait for daylight to proceed up the river.

Remarks.—On the **NW. ¾ W.** course from the Middle Ground North End buoy, York Spit Lighthouse will be made on the starboard bow; leave it a little over 1 mile on the starboard hand. On a clear day, New Point Comfort and the lighthouse will be seen northward. After passing York Spit Lighthouse, Poquosin River Entrance will be opened out off the port beam, and Tue Marshes Lighthouse will be made on the port bow. The entrance of York River will be right ahead. As the entrance is approached, north of Tue Marshes Lighthouse, Yorktown Monument, on a clear day, will be made broad off the port bow.

Dangers and Aids.—**Drum Island Flats** and **Poquosin Flats** are described on page 55.

York Spit makes out in a general **SE.** direction for a distance of 7 miles from the northern point at the entrance to York River and has 1 to 18 feet of water over it. About 1 mile from its southeastern point the spit is marked by **York Spit Lighthouse** (see table of lights, page 18); 1 mile **SE.** from the lighthouse the point of the spit is marked by a buoy (can, black, No. 5), but depths of 3¼ to 3½ fathoms are found extending 2⅝ miles in a general **SE.** direction from the lighthouse. About 3¼ miles **NW.** by **W. ½ W.** from York Spit Lighthouse the **Elbow of York Spit** is marked on its southern end by a buoy (nun, red, No. 2). Numerous fish and oyster stakes are placed on the shoaler parts of the spit.

Vessels of 13 feet draft or less can cross York Spit by passing between ⅛ mile and 2 miles westward of the lighthouse.

Tue Point Shoal, making out for a distance of 2 miles eastward from Tue Point, has from 1 to 17 feet of water over it, and shoals gradually on its eastern side but very abruptly on the northern. About 1¼ miles **E.** by **S.** from Tue Marshes Lighthouse the northern edge of this shoal is marked by a buoy (can, black, No. 3). Tue Marshes Lighthouse marks the northwestern part of the shoal. There are many fish and oyster stakes on this shoal.

A shoal with 3 feet of water over it makes out nearly ⅝ mile southward from the point north of Tue Marshes Lighthouse. The water deepens abruptly southward of this shoal.

1 A. ***Approaching and Entering, from Northward.***—I. *Vessels of 25 feet draft or less.*—From a position 1¾ miles **E.** of Wolf Trap Lighthouse, steer **S.** by **W. ¼ W.** for 13½ miles, leaving New Point Middle Ground buoy (can, black, No. 7) about ¾ mile on the starboard hand, and passing about 2½ miles eastward of York Spit Lighthouse when it bears abeam. When the lighthouse bears **NW.**, distant 3 miles, steer **W.** about 1 mile, and then steer **NW. ¾ W.** Leave the large black can buoy (No. 5) about ⅜ mile, and York Spit Lighthouse about 1 mile, on the starboard hand. Continue the course, leaving black can buoy (No. 1) a little over ½ mile on the port hand, red nun buoy

(No. 2) about ½ mile on the starboard hand, and black can buoy (No. 3) about ⅝ mile on the port hand. When Tue Marshes Lighthouse bears **W.**, distant nearly 2 miles, steer **W.** by **N.** until the lighthouse bears **S.**, distant ⅝ mile. Then follow the directions in section 2.

II. *Vessels of less than 16 feet draft.*—Standing down Chesapeake Bay when York Spit Lighthouse bears westward of **SW.**, steer about **SSW.** ½ **W.** so as to pass at least 1 mile southeastward of the lighthouse. Round York Spit Lighthouse, leaving it from 1 to 1½ miles on the starboard hand, and when it bears **NE.**, distant about 1 mile, shape a course **NW.** ¾ **W.**, taking care to leave black can buoy No. 1 and Tue Point Shoal buoy (can, black, No. 3) ⅝ mile on the port hand. When Tue Marshes Lighthouse bears **W.**, steer **W.** by **N.** for 2 miles until the lighthouse bears **S.**, distant ¼ to ½ mile. To continue up the river, follow the directions in section 2.

III. *Vessels drawing less than 13 feet, to cross York Spit.*—When about 2½ miles **ESE.** from New Point Comfort Lighthouse, shape the course **SW.** by **S.**, crossing York Spit about 1¼ miles northwestward of York Spit Lighthouse. When the lighthouse bears **ESE.**, shape the course **WNW.**, keeping on the bearing, and taking care to leave red nun buoy (No. 2) on the starboard hand and black can buoy (No. 3) on the port hand. When Tue Marshes Lighthouse bears **W.**, steer about **W.** ¾ **N.** until the lighthouse bears **S.**, distant ⅝ mile, and follow the directions in section 2.

Remarks.—Passing outside of York Spit at night, take care to avoid black can buoy No. 5 on the end of the spit. Rounding York Spit Lighthouse, when New Point Comfort light is in range with York Spit light the Spit buoy (can, black, No. 5) will have been passed. See also the remarks in section 1.

For dangers, see "Dangers and Aids" under section 1, preceding.

2. ***From York River Entrance to Yorktown.***—With Tue Marshes Lighthouse bearing **S.**, about ⅝ mile distant, steer **W.** ½ **S.**, leaving black spar buoy No. 5 about ⅝ mile on the port hand. Continue on this course until Gloucester Point bears **WNW.**, then steer about **WNW.** ½ **W.**, heading fair between Gloucester Point and the town of Yorktown, and leaving red spar buoy No. 4 about ⅝ mile on the starboard hand. The reach above Yorktown will be gradually opened out.

Or, steer a mid-river course, following the south bank at a distance of about ¾ mile.

Note.—If desiring to anchor, come-to either eastward of Gloucester Point or in mid-channel about 1 mile above the point. The depth in the channel between Yorktown and Gloucester Point is 9½ to 14 fathoms.

Remarks.—On the **W.** ½ **S.** course the houses of Yorktown and the monument will be made on the starboard bow. **Gloucester Point**, on the north bank of the river opposite Yorktown, will be distinguished by a group of houses and a wharf at its southern extremity. The entrances to two creeks, in the south bank, are passed on this course: they are shallow and of no importance. When changing the course to **WNW.** ½ **W.**, **Wormley Creek**, of no importance, will be a little forward of the port beam, and **Sarah Creek**, opposite on the north bank, will be seen eastward of Gloucester Point. **Yorktown Monument** will show above the trees while standing up the river; it stands on a bluff southeastward of the town. Between Yorktown and Gloucester Point the channel occupies the full width of the river. The aids are Tue Marshes Lighthouse, two buoys, and a post light on the end of the wharf at Gloucester Point. A vessel may keep in mid-channel nearly up to Yorktown by bringing Tue Marshes Lighthouse directly astern, bearing **E.** ½ **S.**, and keeping it on that bearing.

Dangers.—From the northern bank for nearly 3 miles westward of Tue Marshes Lighthouse shoals extend out nearly 1 mile into the river; their edge about 2½ miles eastward of Gloucester Point is marked by a red spar buoy (No. 4). On the southern bank the shoals extend out about ½ mile until past Wormley Creek; the edge of this shoal, about 2½ miles westward of Tue Marshes Lighthouse, is marked by a buoy (spar, black, No. 5). The shoaling is abrupt on both sides of the channel.

3. ***From Yorktown to Westpoint.—Note.***—The channel between Yorktown and the Lower Middle Ground, a distance of 6½ miles, has a width of ½ mile, and leads nearly in the middle of the river. From the Lower Middle Ground to the **Lower Cut**, a distance of 8 miles, the channel varies from 600 yards to 200 yards in width, the latter width being at the Upper Middle Ground. Between the Lower Cut and the **Upper Cut**, a

distance of 5 miles, the channel has an average width of about 400 yards. The flats on both sides of the channel have in some places fish and oyster stakes.

Pass 400 yards southward of the wharf at Gloucester Point and steer about **NW. ⅛ N.** Standing on this course, *Sandy Point Shoal buoy* (can, black, No. 7) should be made a little on the port bow and left 100 yards on the port hand. Continuing the **NW. ⅛ N.** course, *Poplar Creek Flats buoy* (nun, red, No. 6) should be made on the starboard bow and be left on the starboard hand. Continue the **NW. ⅛ N.** course past this buoy, and when Pages Rock Lighthouse bears **N. ½ W.**, change course to **NNW.**, heading for the end of the long wharf at Claybank. Leave Pages Rock Lighthouse about 350 yards on the starboard hand; *Lower Middle Ground buoy* (can, black, No. 9) should be made on the port bow and left on the port hand when passing; *Jones Wharf*, the long wharf at the village of **Claybank,** should be kept ahead. When nearly up to Jones Wharf, shape the course **NW. ⅛ N.**, and leave the end of Jones Wharf 150 yards on the starboard hand; on the course the end of a long wharf(*Allmonds Wharf*), nearly 3½ miles distant, should be ahead. Standing on this course the *Upper Middle Ground buoy* (can, black, No. 11) should be made ahead; Fish stakes and wharves extend out nearly to the edge of the channel from the north bank. When Allmonds Wharf is 1 mile distant ahead, haul a little westward and leave the wharf 150 yards on the starboard hand; when nearly up to black buoy No. 11 haul a little northward and leave it on the port hand (the channel is only 200 yards wide abreast this buoy). When buoy No. 11 is abaft the beam, steer **NW. ½ N.**; pass 75 yards southward of *Purtan Island Post Light* and leave *Lower Entrance Cut buoy* (nun, red, No. 8) about 20 yards on the starboard hand, and follow the buoys of the cut (spars, red, Nos. 10 and 12), leaving them close-to on the starboard hand. Leave red nun buoy No. 14 and the post light on the starboard hand, and continue the **NW. ½ N.** course until **Bells Rock Lighthouse** bears **NNW. ¼ W.**; steer for the lighthouse on this bearing, leaving red buoy No. 16 on the starboard hand. *Ware Creek Flats buoy* (spar, black, No. 13) will be made a little on the port bow. Pass 200 yards southward of the lighthouse and bring it to bear **SE.** by **E. ¼ E.** and steer **NW.** by **W. ¼ W.**, keeping the lighthouse on the bearing astern. The buoys at the entrance to the **Upper Cut,** *Goff Point Shoal buoy* (nun, red, No. 18) and *Baker Creek Flats buoy* (can, black, No. 15) will be made ahead, and on approaching them closer the black spar buoys (Nos. 17, 19, 21, and 23), marking the western edge of the cut, will be seen. Enter the cut, steering about **NNW. ¼ W.**, and follow the black buoys, leaving them close-to on the port hand. When up to the *Upper Entrance to Cut buoy* (can, black, No. 25) continue the **NNW. ¼ W.** course, and anchor off the railroad company's docks.

Note.—From Bells Rock Lighthouse to the entrance of the Upper Cut the tidal current sets diagonally across the channel, and allowance should be made for it.

MOBJACK BAY.*

This is a large irregular bay making into the western shore of Chesapeake Bay, about 17 miles north of Old Point Comfort and just northward of York River Entrance. There is good anchorage in the bay, sheltered from all but southerly and southeasterly winds; vessels bound up and down the bay sometimes come to anchor for the night inside of New Point Comfort Lighthouse (at the northern side of the entrance) in 12 to 21 feet of water, according to draft.

Several rivers empty into the bay; there are a number of landings, but no towns or villages of importance upon it or its tributaries. Vessels of 12 feet and less draft trade in the bay and its tributaries; the principal cargoes consist of farm produce, lumber, and oysters. The bay is principally the resort of vessels engaged in dredging for oysters. Extensive shoals make out from the shores in many places; some of these are indicated by fish and oyster stakes which can not, however, be taken as guides to define the limits of the shoals.

East River empties into the northern side of Mobjack Bay about 4¼ miles **NW.** from New Point Comfort Lighthouse. It has a narrow channel for 3½ miles from its mouth, with a least depth of 14 feet. **Pudding (Pullin) Creek** is a small shallow stream emptying into East River about 3¼ miles above its mouth; the village of **Mathews Court House** is at the head of the creek. **Williams Wharf,** on the east shore, about 3 miles above the mouth of **East River,** and **Hicks Wharf,** just above and on the western shore, are the principal landings on the

* Shown on charts 376, scale $\frac{1}{400,000}$; 79, scale $\frac{1}{200,000}$; 132, scale $\frac{1}{80,000}$; price of each $0.50.

river. Steamers from Norfolk make regular trips to East River for passengers and freight. The entrance is marked by buoys and the channel follows the middle of the river.

North River, emptying into the northern part of Mobjack Bay, is over 1¼ miles wide at its mouth, but has large shoals on both sides, which leave a channel about ⅛ mile wide at the entrance, and narrower above. Two of the shoals on the western side of the channel are marked by buoys. Ten feet of water may be carried about 5 miles up the river. **Blackwater River**, a small stream of no importance, empties into the northern side of North River about 3¼ miles above its mouth.

Ware River, emptying into the western side of the head of Mobjack Bay, is navigable for 6 miles above its mouth by vessels of 8 feet draft, and a draft of 12 feet can be taken about 4 miles up it to **Wilson Creek.** The channel is crooked, but the most prominent dangers are marked by buoys. A steamer makes regular trips between Norfolk and landings on the river.

Severn River empties into the western side of Mobjack Bay 5 miles **WNW. ½ W.** from New Point Comfort Lighthouse. It is formed by the union of two branches, the **Northwest Branch** and **Southwest Branch,** and is navigable about 4 miles from its mouth for vessels of 12 feet draft, and 5 miles for vessels of 8 feet draft. The channel is narrow and crooked; shoals extend out some distance from the shores on both sides. The more prominent dangers at and within the entrance are marked by buoys.

Aids.—The shores on both sides of the entrance to Mobjack Bay are low and thickly wooded; they present no prominent marks readily distinguished by a stranger. **New Point Comfort Lighthouse** and York Spit Lighthouse (see table, pages 18, 20) are the most prominent aids in approaching. The buoys marking the prominent shoals will be readily distinguished in the daytime with clear weather.

Pilots are not necessary for entering Mobjack Bay for an anchorage, but strangers bound into the tributaries should take a pilot, anchoring in the bay until one is procured. Pilots competent to take vessels up any of the rivers will be found among the oystermen working in the bay.

Tides.—The mean rise and fall of tides is 2.4 feet.

SAILING DIRECTIONS, MOBJACK BAY.

1. ***Approaching from Southward.***—Follow the directions in sections 1 and 2, "Sailing Directions, Chesapeake Bay," and when ½ mile **W.** of the Middle Ground North End buoy, steer **NNW. ¾ W.** Keep close on this course and leave York Spit Lighthouse on the port hand, distant about 1¾ miles, and then follow the directions in section 2.

Or, having come from Hampton Roads and drawing 12 feet or less, stand out of the roads, passing south of Thimble Shoal Lighthouse, and when ¼ mile eastward of it shape the course **N. ¾ E.** While on this course be careful not to bring Thimble Shoal Lighthouse to bear southward of **S.** by **W. ¼ W.** until Back River Lighthouse bears **W.** When Back River Lighthouse bears **W.**, distant about 2½ miles, shape the course **N. ¼ E.**, keeping the course until York Spit Lighthouse bears **SW.** by **W. ¾ W.**, distant about 1¾ miles. Then follow the directions in section 2.

Note.—At night the lights will be sufficient guides.

Remarks.—On the **NNW. ¾ W.** course, York Spit Lighthouse should be made well on the port bow. New Point Comfort Lighthouse should be made a little on the starboard bow (nearly ahead) at night or on a clear day.

New Point Comfort is a long low point composed of several small islands, backed by thick woods on the mainland; the white light-tower shows prominently on the southern end of the point.

The **N. ¾ E.** course, having come from Hampton Roads, leads across The Horseshoe with a least depth of 15 feet; watch the bearing of Thimble Shoal Lighthouse and guard against being set westward into shoal water. On the **N. ¼ E.** course York Spit Lighthouse should be made well on the port bow. Give this light a berth of at least 1 mile.

Dangers.—The Horseshoe is described on page 40.

Plum Tree Bar and the shoals making out from the entrance to Back River are described on page 54.

York Spit is described on page 57.

New Point (Middle Ground) Shoal lies fair in the entrance to Mobjack Bay, and bears **NE. by N.**, distant 3¼ miles from York Spit Lighthouse, and **SE.**, distant 3¾ miles from New Point Comfort Lighthouse. The shoal is nearly 1¼ miles long in an **E.** and **W.** direction and ¼ mile wide, with depths of 16 to 18 feet. At its eastern end it is marked by a buoy (can, black, No. 7) marked "New Point Middle Ground," in white letters.

New Point Comfort Shoal is described under section 1 A following.

1 A. ***Approaching from Northward.***—When Wolf Trap Lighthouse is made, steer so as to pass 1¾ miles eastward of it. When the lighthouse bears **NW.**, distant 2 miles. make good the course **SW.** by **S.** until New Point Comfort Lighthouse bears **NW. ½ W.**; change course to **W.**, keeping this course until New Point Comfort Lighthouse bears **N.** by **E.**, about 1¾ miles distant; then shape the course **NW. ¼ N.** up the bay, following the directions in section 2.

Remarks.—The **SW.** by **S.** course leads fair between New Point Comfort Shoal and New Point (Middle Ground) Shoal. York Spit Lighthouse should be made and kept on the port bow. New Point Comfort and lighthouse will be broad off the starboard bow, and as it is approached York River Entrance will be opened out southwestward of the lighthouse. Tue Marshes Lighthouse, on the south side of York River Entrance, will be seen at night. When the course is changed to **W.** the vessel should be between the black buoys marking New Point Comfort Shoal and New Point (Middle Ground) Shoal. On the **W.** course the vessel will be heading for the low marshy islands off the north point at the entrance to York River, and on a clear day Tue Marshes Lighthouse will be seen.

Dangers.—**Wolf Trap Spit** makes out 3 miles from the western shore of the bay, about 6½ miles northward of New Point Comfort. It is marked by **Wolf Trap Lighthouse** (see table, page 20); nearly ⅓ mile northeastward of the lighthouse is a buoy (can, black, No. 13). **A shoal**, with 3¼ fathoms and marked by black spar buoy No. 11 on its eastern side, is located 1¼ miles **S.** by **E. ½ E.** from Wolf Trap Lighthouse.

A shoal with a least depth of 14 feet over it lies about 2 miles **SW. ½ S.** from Wolf Trap Lighthouse. To avoid it, vessels should keep Wolf Trap Lighthouse bearing northward of **NNE.**; this bearing will also clear the shoals off New Point Comfort.

New Point Comfort Shoal extends nearly 2 miles in a southeasterly direction from New Point Comfort Lighthouse. It has 10 to 16 feet of water over it, and is marked at its southeastern point by a buoy (can, black, No. 9).

New Point (Middle Ground) Shoal is described under section 1, preceding. **York Spit** is described on page 57.

New Point Comfort Spit makes out ⅓ mile southwestward from New Point Comfort Lighthouse. It is marked at its western end by a buoy (nun, red, No. 2).

2. ***Entering and Proceeding up Mobjack Bay.***—With York Spit Lighthouse bearing **SW.** by **W. ¾ W.**, distant 1½ to 1¾ miles, shape the course **NW. ¼ N.** This course made good for 10 miles will lead to Ware and Severn rivers Junction buoy (spar, red and black horizontal stripes).

Note.—To make an anchorage in the mouths of the tributaries to Mobjack Bay see section 3.

Strangers should not enter the tributaries of Mobjack Bay without a pilot (see general description, page 59). There is good anchorage anywhere in the channel of Mobjack Bay.

Remarks.—The **NW. ¼ N.** course leads southward of New Point (Middle Ground) Shoal, New Point Comfort Shoal, and the shoals making out westward from New Point Comfort, and leads northward of York Spit and the shoals making out from the shore between York and Severn rivers. When New Point Comfort Lighthouse approaches a **NNE.** bearing, red nun buoy No. 2, on New Point Comfort Spit, will be on the starboard bow. Standing farther in on this course, red spar buoy No. 4, marking Dutchman Bluff Flats, will be made on the starboard bow, and East River will be opened out to the northward, with several buoys in the entrance. Severn River and Little Ware River will be opened out on the port bow. The point between North River and Ware River is heavily wooded, and will be easily recognized ahead as approached on the **NW. ¼ N.** course.

Dangers.—**York Spit** is described on page 57. **New Point (Middle Ground) Shoal** is described under section 1, preceding. **New Point Comfort** Shoal and Spit are described under section 1 A, preceding.

Dutchman Bluff Flats make out nearly 1 mile from the eastern shore, about 2¼ miles above New Point Comfort Lighthouse. They have 3 to 9 feet over them, and are marked at their western edge by a buoy (spar, red, No. 4).

Cedar Point Flats make southward about ¾ mile from **East River (White) Point**, the western point at the entrance to East River. These flats have 3 to 4 feet of water over them, and are marked by a buoy (spar, black, No. 1) which is placed off their southeastern point.

Shoals make out from the western shore for 1¼ miles between the western point at the entrance to the bay and the mouth of Severn River.

A shoal extends eastward 1¼ miles from the northern point at the entrance to Severn River, and is marked by a buoy (spar, red and black horizontal stripes).

A shoal extends southeastward from Ware Point, the point between Ware and North rivers, and is marked at its southeastern end by a buoy (spar, red and black horizontal stripes).

3. ***To an anchorage in the mouths of tributaries to Mobjack Bay.***—Strangers should not attempt to proceed far up the tributaries without a pilot.

I. ***To enter East River.***—Following the directions in section 2, when 1½ miles past Dutchman Bluff Flats buoy (spar, red. No. 4), steer **N.**, heading fair between the buoys in the entrance of the river. Anchor when abreast Cedar Point Flats buoy (spar, black, No. 1).

Remarks.—The channel above the buoys at the entrance follows a general mid-river course. Strangers desiring to enter the river should engage a pilot at the entrance.

II. ***To enter Severn River.***—Follow the directions in section 2 until New Point Comfort Lighthouse bears **ESE.**, then steer **WNW.** Anchor when Ware and Severn rivers Junction buoy (spar, red and black horizontal stripes) bears **NE.**, distant ½ to ¾ mile.

Remarks.—The river channel is marked by several buoys and is full of oyster stakes. Strangers should not enter.

III. ***To enter North River.***—Follow the directions in section 2, and when nearly up to North and Ware rivers Junction buoy (spar, red and black horizontal stripes) haul a little northward and anchor with the junction buoy bearing **SSW.**, distant ½ mile.

IV. ***To enter Ware River.***—Follow the directions in section 2, and when nearly up to North and Ware rivers Junction buoy haul a little westward and anchor with the junction buoy bearing **ENE.**, distant ½ mile.

PIANKATANK RIVER.*

This river empties into the western side of Chesapeake Bay, about 32 miles above Old Point Comfort and just below the entrance to Rappahannock River. The river is navigable 14 miles, to the village of **Freeport**, for vessels of 7 feet draft; 12 feet can be taken up to within 2½ miles of Freeport, where there is a bar with a depth of 6½ feet. Vessels of over 7 feet draft usually load part of their cargo above the bar and finish loading from lighters 2½ miles below Freeport. Lumber, cord wood, and railroad ties are shipped from the landings on the river, principally in vessels engaged in the bay trade.

The entrance between Stingray Point on the north and Cherry Point on the south is about 2½ miles wide, but the channel above the entrance is narrow and crooked in some places, and though it is buoyed, some local knowledge is necessary for its safe navigation.

Hills Bay, in the south side of the entrance west of Cherry Point, is a large bight which forms the approach to **Milford Haven** and its several creeks, and also to **Queens Creek**. The bar at the entrance to Milford Haven has been improved by dredging a channel 200 feet wide and 10 feet deep, so that vessels of 10 feet draft can now enter the harbor. The inner bar, however, has a depth of 8 feet. These waters are of little importance, and are frequented mainly by local craft of light draft and by a regular steamer from Baltimore. Steamers from Baltimore make regular trips to Milford Haven and landings on the river.

Tides.—The mean rise and fall of tides at Cherry Point is 1.3 feet.

SAILING DIRECTIONS, PIANKATANK RIVER.

Strangers should not attempt to go above the anchorage without a pilot. The directions lead in the best water.

1. ***Approaching and Entering, from Southward.***—Standing up the bay, pass about 1 mile eastward of Wolf Trap Lighthouse and steer **N.** by **W.** ½ **W.** *Milford Haven Spit buoy* (can, black, No. 15) will be left nearly ¾ mile on the port hand. When Stingray Point Lighthouse is made bearing westward of **NNW.** ½ **W.** steer for it, and when it is ¾ mile distant, steer about **WSW.** ½ **W.** On this course *Cherry Point Flats buoy* (spar, black, No. ½) will be left about 1 mile on the port hand, and *Cherry Point Spit Outer buoy* (can, black, No. 1) will be made broad off the port bow; southward of the latter several spar buoys will be seen. Haul gradually southward and pass Cherry Point Spit Outer buoy,

*See footnote on page 59.

leaving it about 100 yards on the port hand, and then steer about **SSW.**, leaving *Cherry Point Spit Inner buoy* (spar, black, No. 3) on the port hand and *Stove Point Spit buoy* (spar, red, No. 2) on the starboard hand. Anchor when southward of the latter buoy, in the entrance of Hills Bay. The entrance to Milford Haven lies in the southeastern end of Hills Bay, but can not be distinguished by a stranger. It is marked by two buoys, but local knowledge is necessary for entering.

Remarks.—The western shore of the bay between Wolf Trap Lighthouse and Stingray Point is full of fish stakes, which extend out to the channel of the bay, in some places as far as 2½ miles from the shore.

1 A. ***Approaching and Entering, from Northward.***—Coming down the bay, pass eastward of *Rappahannock Spit buoy* (can, black, No. 17). Round this buoy, leaving it ½ mile on the starboard hand, and when it bears **N.** steer **WSW. ¼ W.** This course made good will lead ¾ mile south of Stingray Point Lighthouse, and *Cherry Point Spit Outer buoy* (can, black, No. 1) will be made a little on the port bow. Round black can buoy No. 1, leaving it 100 yards on the port beam, and follow the directions under section 1 foregoing.

Note.—The flood current, when on the **WSW. ¼ W.** course, has a tendency to set a vessel northward, and the ebb southward. The direction of the wind and its force must be considered when making allowance for the current.

RAPPAHANNOCK RIVER*

empties into the western side of Chesapeake Bay about 35 miles north of Old Point Comfort and just north of the mouth of the Piankatank River. The general direction of the river is about **NW.** and **SE.**, and it is navigable to the city of Fredericksburg, about 90 miles above its mouth. This river is of some commercial importance, vessels owned on Chesapeake Bay and strangers being engaged in the carrying trade, which comprises cargoes of oysters, farm produce, general merchandise, wood, and railroad ties, the latter mostly carried in barges, which are towed. Steamers from Baltimore and Norfolk make regular trips to the landings on the river as far as Fredericksburg.

The rivers and creeks flowing into Rappahannock River are of no commercial importance, except Corrotoman River and Urbana and Carters creeks.

Carters Creek empties into Rappahannock River from northward, about 10 miles above Stingray Point Lighthouse. The creek has a narrow crooked channel, and is the resort of oystermen; strangers should not attempt to enter it. The post villages of **Weems** and **Irvington** are situated on the creek.

Corrotoman River empties into Rappahannock River from northward, about 11½ miles above Stingray Point Lighthouse. **Millenbeck** is a village on the west bank of the river, just inside its mouth. Vessels of 8 feet draft can go up the **West Branch** and the **East Branch**. Strangers entering should take a pilot at the entrance of Carters Creek.

Urbana Creek empties into the river from southward, 15 miles above Stingray Point Lighthouse. A dredged channel, marked by buoys, leads into the creek up to the wharves of the village of Urbana; a draft of 9 feet can be taken through this channel at high water. The village of **Urbana** has some trade, and is a landing for the steamers plying between Baltimore and Fredericksburg.

The other tributaries of the Rappahannock River are shallow; some of them have a little trade, carried in light-draft craft.

Tappahannock is a village on the west bank of the river, about 38 miles above its mouth. It has some trade, and can be reached by vessels of 14 feet draft. Steamers plying on the river make a landing at the village. Strangers bound up the river should here take a pilot.

Port Royal, a town on the west bank of the river, about 64 miles above its mouth, has some trade in grain and farm produce, carried in vessels owned elsewhere and by steamers from Baltimore. The deepest draft taken to Port Royal at high water is 12 feet.

Port Conway is a village on the east bank of the river, opposite Port Royal.

---

*Rappahannock River, from its entrance to Fredericksburg, is shown on charts **376**, scale $\frac{1}{400,000}$; **79**, scale $\frac{1}{200,000}$, price of each $0.50; and in parts on charts **392**, **393**, scale of each $\frac{1}{80,000}$; **394**, **395**, **396**, **397**, scale of each $\frac{1}{20,000}$, price of each $0.20. The entrance of the river to Corrotoman River is shown on chart **182**, scale $\frac{1}{80,000}$, price $0.50.

The city of **Fredericksburg** is on the west bank of the river, about 90 miles above its mouth. It has large manufacturing interests and some trade by water, the carrying being done principally by steamers and barges engaged in the bay trade. The deepest draft that can be taken to the wharves of the city is 7 feet.

Prominent Features.—**Windmill Point,** the northern, and **Stingray Point,** the southern point at the entrance to the river, are low and covered with a thick growth of trees. **Windmill Point** and **Stingray Point lighthouses** (see table, page 20) are the most prominent objects seen, and readily recognized when approaching the entrance. The first-class black can buoy No. 17, off the end of Rappahannock Spit, can be easily distinguished.

The channel from the mouth of the river to Tappahannock, about 38 miles above, is comparatively straight, gradually decreases in width, and leads between the shoals which make out from both banks; for a distance of 18 miles a depth of 5 fathoms can be taken up the river. The principal dangers are marked by buoys and **Bowlers Rock Lighthouse** (see table, page 20), the latter on the west side of the channel about 28 miles above the mouth of the river. Above Tappahannock the channel is narrow and crooked, and in places obstructed by bars, which, under the supervision of the United States Engineers, are being improved by dredging and the construction of dikes. Some of the prominent dangers are marked by buoys above Tappahannock, but the channel can only be followed by those acquainted with it.

Anchorages.—Good anchorage for deep draft vessels will be found in the mouth of the river south of Mosquito Point. Vessels standing up the river can anchor anywhere in the channel where the bottom is soft and depth suitable.

Pilots.—Strangers bound up the river usually take a pilot at Urbana or Tappahannock. No stranger should attempt to go above the latter place without one. Pilots for the upper part of the river can also be found at Port Royal.

Supplies.—Coal can be had at the wharves at Fredericksburg, and provisions can be obtained in Tappahannock, Port Royal, and Fredericksburg.

Freshets in spring and fall are of short duration; the river sometimes rises 20 feet at Fredericksburg, but only a little at Tappahannock.

Ice, during severe winters, closes the river to its mouth; when breaking up it is very destructive to the wharves.

Currents.—The tidal currents generally follow the direction of the channel.

Tides.—The mean rise and fall of the tides at the mouth of the river is 1.1 feet, at Tappahannock 1.6 feet, and at Fredericksburg 2.8 feet. It is high water at the mouth of the river 1h. 31m. after high water at Old Point Comfort, and at Tappahannock 2h. 53m. later than at the mouth of the river.

SAILING DIRECTIONS, RAPPAHANNOCK RIVER.

The directions in sections 1 and 1 A are good for a draft of 23 feet or less. Vessels of deeper draft should take a pilot. Strangers of over 10 feet draft should not go to Tappahannock without a pilot.

1. ***Approaching and Entering, from Southward.***—Following the directions in section 3, "Sailing Directions, Chesapeake Bay," page 33, when Wolf Trap Lighthouse bears **W.**, distant about 2¼ miles, steer **N.** by **W.** ¼ **W.** about 11 miles. This course will lead fair for Windmill Point Lighthouse. When Stingray Point Lighthouse bears **W.** steer **NW.** by **W.** until Windmill Point Lighthouse bears **E.**; then steer **W.**, keeping on the bearing, leaving black spar buoy No. 1 about ⅜ mile on the port hand, until up to Mosquito Point. The shoal making out from this point is marked by a buoy (spar, red, No. 2). Anchor about ½ mile southwestward of this buoy, or, if bound up the river, follow the directions in section 2.

Or, steer for Stingray Point Lighthouse on any bearing between **NNW.** ½ **W.** and **W.** ½ **S.** Round the light, leaving it 1¼ miles on the port hand, and pass about midway between it and Windmill Point Lighthouse; then steer **WNW.** ½ **W.** Leave black spar buoy No. 1 about ⅜ mile on the port hand and anchor about ½ mile southwestward of red spar buoy No. 2 off Mosquito Point.

Remarks.—On the **N. by W.** ¼ **W.** course, heading for **Windmill Point** Lighthouse, **Stingray Point** Lighthouse will present the same appearance; **Windmill Point** (low, covered with trees, with the post village of **Westland** just inside the point) will be broad off the starboard bow. Standing into the river, **Mosquito Point** (long, low, bare at its southern end, on the north bank 4 miles west of Windmill Point) and **Grays Point** (showing an

abrupt end covered with trees, on the south bank 3½ miles west of Mosquito Point) will be on the starboard bow. Sturgeon Creek Shoal buoy (spar, black, No. 1) will be on the port bow and left on the port hand. A good anchorage will be found about 1½ miles **SW.** from Mosquito Point, in 3½ to 7 fathoms water.

Dangers.—**Stingray Point Shoal,** making out about 1½ miles eastward from Stingray Point, has 2 to 5 feet of water over it, and is marked near its eastern end by **Stingray Point Lighthouse** (see table, page 20). The shoal with less than 18 feet of water over it extends over ⅔ mile **N.** by **E.** from the lighthouse.

Rappahannock Spit, making out 4½ miles in a general **ESE.** direction from Windmill Point, has from 6 to 17 feet over it, and is marked near its middle by **Windmill Point Lighthouse** and at its eastern end by a buoy (can, black, No. 17). Vessels of 13 feet draft can cross the spit between the lighthouse and buoy by passing at least 1 mile eastward of the lighthouse.

Shoals make out 1½ miles from the north bank just eastward of Mosquito Point, also about ½ mile southward of Windmill Point. Off Mosquito Point the shoals are marked by a buoy (spar, red, No. 2). The north side of Stingray Point should be given a berth of at least 1 mile on account of shoals.

Sturgeon Creek Shoal, marked off its northern end by a buoy (spar, black, No. 1). makes out 1 mile from the south bank at the mouth of Sturgeon Creek, about 2½ miles west from the end of Stingray Point.

1 A. ***Approaching and Entering, from Northward.***—Standing down the bay keep Windmill Point Lighthouse on the starboard bow and pass at least 2½ miles eastward of it. When Stingray Point Lighthouse bears **W.** ½ **S.** steer for it, keeping it on that bearing until Windmill Point Lighthouse bears abeam (**N.** ½ **W.**). Then shape the course **NW.** by **W.**, and when Windmill Point Lighthouse bears **E.** steer **W.**, keeping the bearing. Leave black spar buoy (No. 1) about ⅜ mile on the port hand, and continue the course up to Mosquito Point. Anchor as directed in section 1 preceding.

Note.—The above directions will answer at night. Anchor when the vessel has stood 3 miles on the **W.** course, and wait for daylight.

For "Remarks" and "Dangers" see section 1.

2. ***From Mosquito Point to Tappahannock.***—Pass Mosquito Point, leaving the buoy (spar, red, No. 2) about ⅜ mile on the starboard hand, and steer **NW.** by **W.** for about 4½ miles. Greys Point should then bear **S.** ¾ **E.**, and the vessel be in midstream. From this position steer **W.** ⅜ **N.**; *Tolls Point Shoal buoy* (spar, red, No. 4) should be made a little on the starboard bow and left 150 yards on the starboard hand. The entrance of Corrotoman River will be left on the starboard hand. Pass Tolls Point Shoal buoy (spar, red, No. 4), and when it is ⅜ mile distant on the starboard quarter, steer **NW.** by **N.** a little over 2⅝ miles. The village of Urbana, at the mouth of Urbana Creek, will be passed on this course on the port hand.

When the eastern point at the entrance of La Grange Creek bears **SW.** ¾ **W.**, steer **N.** ½ **W.** for 3 miles; on this course the channel approaches the eastern bank. When the eastern bank of the river is about ½ mile distant, steer **NW.** by **N.**; *Punch Bowl Shoal buoy* (spar, black, No. 3) will be made a little on the port bow and should be left on the port hand. When abreast it steer **NW.** by **W.** ½ **W.**; *Tarpley Point Shoal buoy* (spar, red, No. 6) will be made a little on the starboard bow and left about 200 yards on the starboard hand, and **Jones Point,** on the southern bank, will be right ahead. The shoal off Jones Point is covered with oyster stakes, and the bare yellow bluffs just below the point show prominently when coming up the river.

Leave Tarpley Point Shoal buoy 200 yards on the starboard hand and then steer **NW.** ½ **N.**, keeping *Jones Point Shoal buoy* (spar, black, No. 5) on the port bow. Leave Jones Point Shoal buoy about 300 yards on the port hand and shape the course **NW.** ⅜ **W.** for Bowlers Rock Lighthouse. On this course *Dumpling Shoals buoy* (spar, black, No. 7) will be made on the port bow and should be left on the port hand. *Dumpling Rock buoy* (spar, red, No. 8) and *Bowlers Ledge buoy* (spar, red, No. 10) should be made a little on the starboard hand. There are oyster stakes on the shoals on both sides of the channel; above Bowlers Rock Lighthouse the stakes are in rows about ⅛ mile apart and extend out from the bank to the edge of the channel; the end stakes, in some cases, have bushes on top.

When up to Bowlers Rock Lighthouse, leave it 100 to 150 yards on the port hand and steer **NNW.** ½ **W.** until **Accaceek Point** (three very conspicuous trees on end, on the north

bank, 3¾ miles above Bowlers Rock Lighthouse) bears **NE.**, distant about 700 yards. On this course **Lowrys Point** (on the south bank, about 5¼ miles above Bowlers Rock Lighthouse) will be a little on the port bow, and the lighthouse will be a very little on the port quarter; the fish stakes are the best guides to keep in the channel. When Accaceek Point bears **NE.**, steer **N.** by **W.** ¼ **W.** for 1¼ miles. When standing on the **N.** by **W.** ¼ **W.** course, look out for *Ross Rocks buoy* (spar, red, No. 12), which will be well off the port bow. When Lowrys Point bears **WNW.** ½ **W.** a **NW.** ¼ **W.** course should be steered, leaving red spar buoy No. 12 on the starboard hand. *Upper Jones Point buoy* (spar, black, No. 9), which will be made nearly ahead, should be left on the port hand. When abreast it steer about **NW.** by **W.** ½ **W.**, heading for the end of the landing. Leave Marguerite Marsh buoy (spar, red, No. 14) 200 yards on the starboard hand, and anchor in the channel about 500 yards from the bank abreast the town of Tappahannock.

SHORE FROM RAPPAHANNOCK RIVER ENTRANCE TO GREAT WICOMICO RIVER ENTRANCE.*

This stretch of shore, between Windmill Point and Smith Point, is about 17 miles long. It is generally low and is indented by numerous creeks and the Great Wicomico River. Shoals, between which buoyed channels lead into the mouths of the principal creeks and the Great Wicomico River, extend out from the shore in many places; off the mouth of Dividing Creek they extend out about 3 miles. Strangers seldom enter the creeks between the Rappahannock and Great Wicomico rivers unless assisted by a pilot.

LITTLE AND FLEET BAYS AND ANTEPOISON CREEK

are on the north side of Windmill Point. They are of little importance and only entered by small vessels engaged in the local trade; 9 feet of water can be carried, in a narrow channel, through Little Bay and 1 mile up Antepoison Creek. A red spar buoy marks the turning point entering Antepoison Creek from Little Bay. Strangers should not enter without a pilot.

DIMER CREEK

has a depth of 14 feet in the channel for a distance of 1½ miles above its mouth; above this the depth decreases gradually toward its head. The entrance to the creek lies about 1¼ miles **NW.** by **N.** from North Point, the eastern point at the entrance to Little Bay, and the channel at the entrance is marked by several buoys. Strangers seldom enter the creek; steamers from Baltimore make regular trips to the landing. Sailing directions of practical value can not be given; chart No. 132 is the best guide.

Tapps Creek, just southward of Dimer Creek, has a narrow, crooked channel, and is of little importance, as local knowledge is necessary to enter.

INDIAN CREEK

is the next creek northward of Dimer Creek; it has a depth of 15 feet in the channel for a distance of 1¾ miles above its mouth. This creek is of no special importance to strangers; there are two post villages and several landings on the creek. The channel is narrow, has no aids except one buoy at the entrance, and requires local knowledge for its navigation.

DIVIDING CREEK

makes into the western side of Chesapeake Bay about 6½ miles north of Windmill Point. It has several smaller tributaries, and is frequented principally by vessels engaged in the bay trade; steamers from Baltimore also make a landing on the creek. The channel into the creek is marked by buoys and has a least depth of 15 feet for a distance of 1½ miles above Hughlett Point, the northern point at the entrance. Shoals extend out nearly 3 miles eastward from the mouth of the creek. Strangers should not enter without a pilot.

Ingrams Cove and **Balls Creek** are two small, shallow, and unimportant streams north of Dividing Creek.

GENERAL DIRECTIONS.

From Rappahannock Spit buoy.—*To approach Little Bay or Dimer and Indian creeks.*—Bring Rappahannock Spit buoy (can, black, No. 17) to bear **SW.**, distant ½ mile, and steer **NW.** ½ **N.** about 6 miles. *Antepoison Flats buoy* (spar, black, No. 1) should then be about ½ mile distant abaft the port beam. Now steer about **WNW.** ½ **W.** for 1 mile, and anchor in 3 to 4½ fathoms water until a pilot can be obtained.

* Shown on charts **376**, scale $\frac{1}{400,000}$; **79**, scale $\frac{1}{200,000}$, and in parts on charts **132**, **138**, scale of each $\frac{1}{80,000}$, price of each $0.50.

From Rappahannock Spit buoy.—*To approach Dividing Creek Entrance.*—Bring Rappahannock Spit buoy (can, black, No. 17) to bear **SW.**, distant about ¼ mile, and steer **NNW.** for 8½ miles. *West Flats buoy* (spar, black, No. 1) should then be about ¼ mile off the port beam. Anchor in 3 to 5 fathoms water just northeastward of this buoy, or follow the buoys which will be seen to the westward, leaving them on their proper sides, and anchor in the channel of the creek.

From Smith Point.—*To approach Dividing, Indian, and Dimer creeks, and Little Bay.*—When Smith Point Shoal buoy (can, black, No. 19) bears **W.**, distant about ¼ mile, steer **SSW.** nearly 11 miles, until the southern end of Bluff Point bears **WSW. ¾ W.**, and then—

If bound into Dividing Creek, steer about **WNW.**, and anchor eastward of *West Flats buoy* (spar, black, No. 1).

If bound into Little Bay, or Antepoison, Dimer, and Indian creeks, steer **SW. ½ S.** until *Bluff Point Shoal buoy* (spar, red and black horizontal stripes) bears **N.**, distant ½ mile, and then steer **WSW ½ W.** about 1 mile, and anchor northeastward of *Dimer Creek Flats buoy* (spar, red, No. 2) until a pilot is obtained.

GREAT WICOMICO RIVER.*

This river empties into Chesapeake Bay about 5 miles south of Smith Point; it flows in a general **SE.** direction and is navigable for a distance of 7¼ miles, to Sampsons Wharf, for vessels of 7 feet draft; there is 18 feet of water in the channel for a distance of 4 miles above its mouth. The entrance of the river and the mouth of Cockrell Creek form a good anchorage, which is frequently used by vessels bound up and down the bay. Steamers from Baltimore make regular trips to the landings on the river. **Great Wicomico River Lighthouse** is on the shoal making off from **Fleet Point**, the northern point at the entrance, and is the principal guide for entering the river (see table, page 20). There are several houses back from the point. **Dammeron Marsh**, the southern point at the entrance, is low and flat, but shows well when approaching the entrance. Shoals extend out from both points, leaving the channel at the entrance quite narrow.

Cockrell Creek is a small tributary of the river, emptying into its mouth just inside Fleet Point, the northern point at the entrance to the river. **Fairport** is a small post village on the creek; it has some trade in wood, lumber, grain, and oysters, carried in coasting vessels and vessels and steamers engaged in the bay trade; it has also two small marine railways and a store with general supplies.

Ingrams Bay is the bight in the south shore of the entrance to the river, at the head of which is **Mill Creek**, an unimportant stream having a narrow channel with a depth of 9 to 16 feet for a distance of about 2 miles above its mouth. Ingrams bay has extensive shoals, with 2 to 4 feet of water over them, between which a channel with a least depth of 13 feet leads to the mouth of Mill Creek. Strangers should not attempt to enter Mill Creek without a pilot; there are no aids.

The channel of Great Wicomico River at the entrance is a little over ¼ mile wide between the 12-foot curves, but widens somewhat inside the lighthouse and until past the entrance to Cockrell Creek, above which it is narrow and crooked. At the entrance and up to Cockrell Creek the channel is marked by buoys, and in many places in the river oyster and fish stakes extend out from the shores nearly to the edge of the channel.

Anchorages.—The usual anchorages for vessels in the river is westward of and in the mouth of Cockrell Creek, in 14 to 19 feet of water. The smaller vessels usually stand into the creek and anchor in mid-channel between Fairport and its mouth.

Ice in severe winters closes the river to navigation.

Tides.—The mean rise and fall of tides is 1.1 feet at the entrance of the river.

SAILING DIRECTIONS FOR MAKING THE ANCHORAGE IN GREAT WICOMICO RIVER.

The following directions are good for vessels of 14 feet or less draft, when the buoys can be seen. Some local knowledge is necessary to take in vessels of over 14 feet draft.

1. ***Approaching and Entering, from Southward.***—Leaving *Rappahannock Spit buoy* (can, black, No. 17) about ¼ mile on the port hand, steer **N. ¼ W.** for 12 miles; Great Wicomico River Lighthouse will then bear **NW.**; steer for it and leave *Dammeron Marsh Shoals buoy* (spar, black, No. 3) on the port hand. When nearly ¼ mile distant

*Shown on charts **276**, scale $\frac{1}{400,000}$; **79**, scale $\frac{1}{200,000}$; **133**, scale $\frac{1}{80,000}$; price of each $0.50.

from the light haul westward, course about **WNW. ½ W.**, leaving the lighthouse about 300 yards on the starboard hand, and taking care to leave a red and black horizontally striped spar buoy 75 yards on the starboard hand. Continue the **WNW. ½ W.** course a little over 1 mile beyond the lighthouse until *Fleet Point Flats buoy* (spar, red, No. 2) bears **N.**, then steer about **NW.** and anchor off the mouth of Cockrell Creek.

1 A. ***Approaching and Entering, from Northward.***—Passing eastward of Smith Point Lighthouse, leave *Smith Point Shoal buoy* (can, black, No. 19) about ¼ mile on the starboard hand, and steer **SSW. ½ W.** When Great Wicomico River Light bears **W.** by **S.**, steer for it. Pass 300 yards southward of the light and 75 yards southward of the red and black horizontally striped spar buoy, and when up to this buoy steer **WNW. ½ W.** and proceed as directed in section 1.

Remarks.—The water shoals gradually on both sides of the channel until up to the anchorage, above which it shoals more abruptly near the banks of the river.

POTOMAC RIVER.*

This important tributary of Chesapeake Bay enters its western side about 60 miles above Old Point Comfort, and forms the boundary between the States of Maryland and Virginia. It is the approach to the cities of Alexandria, Va., and Washington, D. C. The river flows in a general southeasterly direction, and is navigable for large vessels as far up as West Washington (Georgetown), about 102 miles above its mouth; above this it is navigable for barges up to the outlet of the Chesapeake and Ohio Canal. The deepest draft of vessels entering and bound up to Alexandria or Washington is 20 feet; 22 feet has been taken up the river, but this is exceptional; 18 feet is about the deepest draft that can conveniently be taken up the river, and this requires the assistance of steam. The vessels engaged in the carrying trade are small and moderate sized coasters, and occasionally foreign vessels enter the river bound to West Washington (Georgetown). A large number of small vessels engaged in the bay trade are employed on the river. The entrance of the river between **Smith Point** on the south and **Point Lookout** on the north is nearly 10 miles wide, but south of Point Lookout it is 5¾ miles wide. There are no shoals or dangers in the middle of the entrance, and those making out from the shores can be easily avoided by keeping in the middle of the river. **Smith Point** is comparatively low. **Smith Point Lighthouse** is on the shoal making out from the point and about 2½ miles from it (see table of lights, page 20). **Point Lookout** is low, with a grove of trees some distance back from the extremity of the point. **Point Lookout Lighthouse** (described in the table of lighthouses on page 20) is on the extremity of the point. Potomac River has numerous rivers and creeks emptying into it; many of these are very shallow and of no commercial importance.

Little Wicomico River is shallow and of no importance. Its entrance is about ⅞ mile westward of Smith Point.

Cornfield Harbor is formed by a curve in the shore just westward of Point Lookout. This harbor is sheltered from northerly and northeasterly winds, and vessels bound up or down the bay frequently use it as an anchorage for the night. When the wind hauls southward, vessels anchored here generally get under way and stand into the mouth of St. Mary River.

Smith Creek, entering the northern side of the river about 5½ miles above Point Lookout, is mostly frequented by small vessels. There is a landing and village on the east bank about ¼ mile above its mouth. The channel is narrow and is marked by two lighted beacons and a buoy at the mouth. Vessels of 10 feet draft can pass up the river into either of its two branches 1 mile above its mouth, but strangers should take a pilot.

St. Mary River enters the Potomac from a northerly direction, about 7 miles above Point Lookout; it is the usual anchorage for vessels seeking shelter in the mouth of the Potomac from easterly winds (see heading "St. Mary River," following).

St. Georges River is a narrow, crooked, and unimportant estuary north of St. Georges Island; it i entered from the mouth of St. Mary River. This river is only frequented by vessels familiar with the locality, who come here for oysters and grain. The deepest draft entering is about 8 feet.

* Potomac River, from its entrance to Washington, is shown on charts **376**, scale $\frac{1}{400,000}$; **79**, scale $\frac{1}{200,000}$, price of each $0.50; and in parts on charts **388**, **389**, **390**, scale of each $\frac{1}{60,000}$; **391**, scale $\frac{1}{40,000}$, price of each, $0.40. The entrance of the river is shown on chart **133**, scale $\frac{1}{80,000}$, price $0.50.

Coan River enters the Potomac from southward; the entrance is 13 miles above Smith Point Lighthouse, and bears **WSW. ¾ W.** from Point Lookout Lighthouse. This river has two branches—**The Glebe** and **Kingscote Creek**; it has good anchorage for small vessels, and is much frequented by oystermen engaged in the mouth of the Potomac. The river and branches have some trade in oysters, wood, lumber, and produce, carried principally by bay vessels and steamers plying from Washington and Baltimore, which stop at the landings on the river. The principal landings are **Lewisetta, Cowart, Coan,** and **Bundick**; the latter is considered the head of navigation, to which 8 feet can be taken. The channel at the entrance is narrow and is marked by several buoys; its approach in Potomac River is marked by a gas-lighted buoy. A stranger, over 8 feet draft, bound to any of the landings above Kingscote Creek should take a pilot. Ice closes the river in severe winters.

Yeocomico River enters the Potomac 16½ miles above Smith Point Lighthouse and opposite the mouth of St. Mary River. The entrance is 1 mile wide, but shoals make out on both sides, which contract the channel to a width of ⅝ mile The river has three branches—the **Northwest, West,** and **South Yeocomico** rivers, and these again have smaller creeks emptying into them. **Kinsale** is the principal village; it is at the head of navigation on the West Yeocomico River, and is a landing for the steamers running from Washington and Baltimore. There is 16 feet of water in the channel up to Barn Point; above this the water gradually shoals toward the head of the branches. The deepest draft taken into the river is 13 feet; 10 feet can be carried up to Kinsale. The trade of the river comprises cargoes of oysters, wood, timber, and farm produce, carried principally by vessels owned in Chesapeake Bay.

Lower Machodoc River enters the Potomac from southward, 6 miles above Piney Point Lighthouse. The entrance is nearly 1¼ miles wide, and contracts gradually when entering the river. The narrowest part of the channel is marked by buoys, above which is a good anchorage in 10 to 13 feet of water, soft bottom. Shoals make out from the banks on both sides of the entrance. **Edgewater** and **Parhams Point** are landings on the river.

Nomini Bay and **Creek** and **Currioman Bay** are in the south bank of the Potomac, south of Blakistone Island Lighthouse. **Nomini Bay** is the approach to Currioman Bay and Nomini Creek, the former making westward and latter southward from the head of the bay. **Nomini Creek** is navigable 3½ miles, to the landing at **Nomini,** for vessels of 8 feet draft. At its entrance a dredged channel, about 140 feet wide and 9 feet deep, leads across the bar into the deep water of the creek; this channel is marked by several red buoys and two white beacons. Steamers make regular trips to Nomini and a number of landings on the creek. **Currioman Bay** is about 3 miles long in a **NW.** and **SE.** direction, and has from 7 to 10 feet of water in the channel. Produce, ship timber, lumber, and oysters are shipped from the landing about 2 miles above the entrance of the bay. Steamers from Washington and Baltimore make regular trips to **Currioman Landing.** The deepest draft taken into the bay is 8 feet.

Bretons Bay is an estuary of the Potomac, about 2½ miles **NE.** by **E.** from Blakistone Island Lighthouse. It extends in a general northeasterly direction about 5½ miles to **Leonardtown,** a small town at the head of navigation. The channel for a distance of 3½ miles from the entrance has a least depth of 15 feet; above this the depth gradually decreases, and the wharves of Leonardtown are reached through a dredged channel having a width of 150 feet and depth of 8 feet; this channel is being widened. Steamers from Washington and Baltimore land at Leonardtown.

St. Clements Bay is an estuary about 5½ miles long, making northward, just above Bretons Bay. It has some trade in wood, grain, and oysters, and the Potomac River steamers make landings at several wharves on the bay. There is 16 feet of water in the channel for a distance of 2 miles above the entrance; above this it shoals gradually, and 9 feet can be taken up nearly to the head of the bay. The most prominent dangers off the entrance are marked by buoys. **Blakistone Island Lighthouse** is a prominent guide for entering. Strangers entering the bay should take a pilot or be guided by Coast and Geodetic Survey chart 389. Dukeharts Channel, leading westward and northward of Blakistone Island, is marked by several buoys, but should not be used by a stranger.

Wicomico River enters the Potomac from a northerly direction, about 4½ miles above Blakistone Island Lighthouse. **Chaptico Bay** and **Creek** enter this river from eastward, about 6 miles above its mouth. The channel for a distance of 4 miles above the entrance of the river has a least depth of 4 fathoms, but is quite narrow in places; above this there are numerous shoal spots, which make navigation difficult for vessels of over 5 feet draft. Cobb Point Bar makes out from the western point at the entrance, and is marked at its southeastern end by **Cobb Point Bar Lighthouse** (see table, page 20) and a buoy (spar, red and black horizontal stripes). Two other buoys mark prominent shoals in the river above this buoy. On the eastern bank of the river and about 8 miles above its mouth is the landing of **Bushwood (Flowdens),** and on the west bank about 2 miles above Cobb Point Bar Lighthouse is the post village of **Rock Point.**

Mattox Creek is a shallow unimportant estuary in the south bank of the Potomac, about 10 miles above Blakistone Island Lighthouse. It has a narrow crooked channel with 6 to 11 feet of water; the entrance is marked by several buoys, but should not be attempted by a stranger without a pilot.

Upper Machodoc Creek enters the western side of the river about 2 miles below Lower Cedar Point Lighthouse. It has several landings, and is a resort for the oyster boats in this part of Potomac River. It is of little commercial importance and should not be entered by a stranger.

Port Tobacco River makes northward about 6 miles above Lower Cedar Point Lighthouse. It extends to Port Tobacco Landing, about ⅔ mile from the town of **Port Tobacco,** but is shoal and should not be entered by a stranger. The large bight at its mouth is also full of shoals, which are marked by a buoy and a beacon on their southern edge.

Nanjemoy Creek makes northward about 1½ miles above Upper Cedar Point Lighthouse. It is of little importance; the channel is narrow and shallow and only fit for small craft.

Potomac Creek enters the Potomac from westward, about 10 miles above Upper Cedar Point Lighthouse. It is of little importance and only entered by small vessels engaged in the local trade.

Aquia Creek enters the Potomac from northwestward, about 13 miles above Upper Cedar Point Lighthouse. The creek is shallow and has been improved, under the supervision of United States Engineers, by dredging a channel, about 5 feet deep and 40 to 80 feet wide through its shoalest part. About 3 miles above its mouth the creek is crossed by a railroad drawbridge.

Chopawamsic Creek is a narrow and unimportant stream about 7 miles above Aquia Creek, on the same side of the river.

Quantico Creek is a shallow tributary of the Potomac nearly 9 miles above Aquia Creek. It has a narrow, crooked channel with 7 feet water leading into the entrance and a short distance above the railroad bridge which crosses from its northern point of entrance. The railroad bridge and a wharf on the north side at the entrance in Potomac River are prominent features when off the entrance of the creek.

Chicomuxen Creek is shallow and enters the Potomac opposite Quantico Creek; it is of little importance. There is a landing (**Poseys**) on the southern shore, inside the entrance.

Powells Creek on the west side, and **Mattawoman Creek** on the east side, about 3 miles above Quantico Creek, are shallow and of no importance. Extensive shoals make off the entrance to Mattawoman Creek.

Neabsco Creek, on the west side of the river just above Powells Creek, is shallow and of no importance to strangers. A little cord wood and some piles and railroad ties are shipped in small vessels.

Occoquan Creek enters the Potomac from a northwesterly direction, about 14 miles above Aquia Creek; its northern point of entrance is **High Point.** The town of **Occoquan,** at the head of navigation, about 5½ miles above High Point, is reached through a dredged channel which was 100 feet wide and 6 feet deep in 1900. A railroad bridge crosses the creek about 1½ miles below the town of Occoquan. **Belmont Bay** is a large shallow bight inside the entrance of the creek, on its eastern side.

Gunston Cove makes into the western shore of the river about 6 miles above High Point. At its head **Accotink Bay** makes northward and **Pohick Bay** westward. These waters are shallow and of no commercial importance.

Dogue Creek, about 2 miles above Gunston Cove and opposite Marshall Point, is shallow and of no importance.

Piscataway Creek is in the eastern bank of the river, just below Fort Washington and 3 miles above Marshall Point (Marshall Hall). It is shallow and of no commercial importance.

Broad Creek is in the eastern bank, about 3 miles below the city of Alexandria; it is shallow and of no importance.

The city of **Alexandria** is on the west bank of the river, about 96 miles above the entrance and 4 miles below the city of Washington. It has some trade in coal, lumber, and ice, carried principally in moderate-sized coasting vessels. The deepest draft taken to Alexandria is 18 to 20 feet; this draft can be taken alongside the principal wharves. There are two small marine railways and some facilities for repairs to hulls of vessels (see "Repairs" following). Opposite Alexandria, on the east bank of the river, and extending out from Marbury Point, is the long pier of the Baltimore and Ohio Railroad.

Washington, the capital of the United States, is on the east bank of the river, about 100 miles above the entrance. The city has considerable trade in coal, lumber, and ice, brought in moderate-sized coasting vessels, and is also a market for farm produce, oysters, and fish, carried in vessels engaged in the bay trade. Several lines of steamers make regular trips between Washington and points in Chesapeake Bay and its tributaries. A draft of 22 feet has been taken up to the city under the most favorable conditions, but 18 to 20 feet is the deepest draft that can ordinarily be taken up at high water. Sailing vessels, when bound to Washington, should take a towboat at Alexandria on account of the channel, which is narrow and is being improved by

dredging under the supervision of the United States Engineers. The channel abreast the wharves is about 350 feet wide and 20 feet deep, but this depth is liable to change on account of freshets. The Harbor Master has supervision of the vessels along the water front of the city, and authority to remove such as are anchored so as to obstruct navigation.

The **United States Naval Gun Factory** is on the **Anacostia River,** which makes northeastward from the Potomac at the United States Arsenal, near the southern part of the city of Washington.

A narrow and crooked dredged channel, marked by buoys, leads through the extensive flats of the Anacostia River to the United States Gun Factory; this channel has a depth of about 20 feet, but is too narrow for a vessel to work in unless assisted by steam, and is shoaling. A bridge crosses the Anacostia River just above the Gun Factory.

West Washington (**Georgetown**), which is now a part of Washington, has some trade in coal, lumber, and ice, brought in moderate-sized coasting vessels, and occasionally a foreign vessel brings a cargo. The deepest draft taken to the wharves is 16 to 20 feet through a dredged channel about 350 feet wide, which leads through the Long Bridge to the wharves. The depth in this channel is liable to changes on account of freshets. Vessels bound to Georgetown should take a towboat at Alexandria.

Aids to Navigation.—The lighthouses in Potomac River are not sufficiently numerous to make the navigation of the river safe for a stranger at night; they are described in the table on page 20. The buoyage of the river is under the system adopted by the Lighthouse Board for United States waters (see page 5).

The channel of the river is good for a depth of 18 to 20 feet; this depth will be found between the lumps when crossing Kettle Bottom Shoals. Improvements are in progress to deepen this part of the channel by dredging. Dredging is in progress off Maryland Point to deepen the channel. A depth of 16 to 17 feet will generally be found in the channel abreast of the entrance to Mattawoman Creek, and a short distance above, on what is known as Mattawoman Shoal; this has been improved by dredging, but is not completed. Some local knowledge is necessary to carry the best water (19 to 20 feet) in this part of the river. Excepting the western bank of the river between Maryland Point and the entrance to Chopawamsic Creek, the water generally shoals abruptly on the edge of the channel, and a stranger should not attempt to beat while in the river above Blakistone Island Lighthouse. In many places above Indian Head the shoals are clearly defined at low water by the grass growing on them, or by the color of the water. The buoys are reliable guides to keep in the channel and are placed where most needed. Above Alexandria the channel is narrow and shoals abruptly on both sides; off the Anacostia River and in the channels abreast the city of Washington it is being improved by dredging. The dredged channels are liable to shoal during freshets.

Anchorages.—Vessels bound up or down the river anchor anywhere in the channel where the bottom is soft. Those entering the river for shelter, if of deep draft, stand into the mouth of St Mary River, where there is good anchorage in 4 to 5 fathoms water, soft bottom. Vessels engaged in the bay trade sometimes anchor for shelter in Coan River. An anchorage for the night, frequently used by vessels bound up or down Chesapeake Bay, is Cornfield Harbor, just westward of Point Lookout Lighthouse. This anchorage is exposed to southerly, southeasterly, and westerly winds, but is sheltered from northerly and northeasterly winds. The larger vessels bound up the river anchor anywhere in the channel where a suitable depth and bottom are found.

Pilots.—Pilotage is not compulsory for vessels bound up the Potomac. Vessels desiring a pilot can get one from St. Georges Island by making a signal when in the mouth of the river. If a towboat is taken a pilot is not needed, as the captain of the tug is a licensed pilot. Vessels taking a Maryland pilot in the entrance of Chesapeake Bay are taken up the river by that pilot or turned over to a river pilot at the mouth of the river; in either case the pilot's rate is the same as for the port of Baltimore. (See Pilot Laws in Appendix I.)

For **Quarantine** and **United States Marine-Hospital Service** see page 14 and Appendix III.

Towboats can always be had at Alexandria and Washington. If a vessel bound up the river is expected to arrive, a tug is generally sent down the river to meet her at the entrance. The larger vessels bound to Alexandria, Washington, or Georgetown all take a towboat to avoid the delays caused by adverse winds and tides.

Supplies.—Coal, water, provisions, and ship chandler's stores can be obtained at Alexandria and Washington.

Repairs.—There are two small marine railways at Alexandria and fair facilities for ordinary repairs to hulls of vessels. The largest railway has a cradle 225 feet long and 30 feet wide, and a capacity of hauling out vessels of 800 tons register. The other railway is about 150 feet long, with a capacity of hauling out vessels of 100 tons register. Ordinary repairs to machinery of steamers can be made at Alexandria and Washington.

Freshets occur at irregular intervals, but as a rule do not interfere with the navigation of the river below Alexandria unless accompanied by floating ice. At Washington, during the freshet of June 2, 1889 (the highest recorded), the river rose 13.26 feet at the foot of 17th street, and the deposit in the dredged channels decreased the depth from 20 feet to 14 feet in some places.

Ice.—During severe winters the tributaries of the Potomac are closed by ice and the river is frozen over to Cedar Point; the upper part of the river is then closed to navigation. During ordinary winters the towboats and steamers plying on the river keep a channel open, but sailing vessels usually require the assistance of steam when bound to Alexandria or Washington.

TIDES, POTOMAC RIVER.*

GENERAL TABLE.

It is high water at Point Lookout 4h. 12m. after high water at Old Point Comfort. The corrected establishment for Old Point Comfort is 8h. 44m.

Locality.	Time of high water after time of high water at Point Lookout.	Mean Rise and Fall.			Mean Duration of—			Rise of highest tide observed.	Distance of station above Point Lookout.
		Mean tides.	Spring tides.	Neap tides.	Rise.	Fall.	Stand.		
	h. m.	*Feet.*	*Feet.*	*Feet.*	*h. m.*	*h. m.*	*h. m.*	*Feet.*	*Miles.*
Point Lookout	----------	1.4	1.7	1.1	6 05	6 20	0 35	2.6	----------
Yeocomico River Entrance	0 33	1.5	1.8	1.2	6 02	6 23	33	2.6	9
Blakistone Island	1 03	1.8	2.1	1.5	5 58	6 27	34	2.6	24
Lower Cedar Point	1 59	1.8	2.1	1.5	5 56	6 29	32	2.1	40
Nanjemoy Creek	2 57	1.5	1.7	1.2	5 54	6 31	34	1.8	48
Mattawoman Creek	4 53	1.9	2.2	1.6	5 50	6 35	35	1.8	70
Fort Washington	6 16	2.6	3.0	2.2	5 48	6 37	33	3.1	89
Alexandria	6 45	2.8	3.2	2.3	5 53	6 32	34	3.8	97
Washington, Long Bridge	7 12	2.9	3.4	2.4	5 47	6 38	33	4.0	102

Tidal currents.—The velocity of the tidal currents in the Potomac is irregular, and is influenced by the force and direction of the wind; the set is generally in the direction of the channel. During freshets there is little or no flood current.

SAILING DIRECTIONS, POTOMAC RIVER.

The following directions are good for the daytime, when the buoys can be seen, for vessels of 17 feet draft or less, and at night as far up as Piney Point Lighthouse. As the river channel is crooked, and in many places too narrow for any but small vessels to work in, sailing vessels bound above Blakistone Island are advised to take a towboat. Vessels of over 17 feet draft should take a pilot.

1. ***Approaching and Entering, from Southward.***—Having followed the directions in sections 1, 2, and 3, "Sailing Directions, Chesapeake Bay," round Smith Point Lighthouse, giving it a berth of 1½ miles, and when it bears **SW.**, distant 1½ miles, steer **NW. ⅝ W.** for 22¼ miles. This course made good leads 2¼ miles southward of Point Lookout Lighthouse, about 1 mile southward of St. Georges Island, and to a point about 1¼ miles southward of Piney Point Lighthouse. Then follow the directions in section 2.

If beating.—Do not approach Point Lookout Lighthouse from the southward closer than 1 mile until it bears eastward of **NE.** by **N.**, and do not bring Smith Point Lighthouse to bear eastward of **SE. ½ E.** *At night*, having passed northward of Smith Point Lighthouse and in its white rays, keep in them, going about when, in standing southward, that light begins to show red (see table of lights, page 20). After the vessel is inside the river and clear of Smith Point Shoal, go about before Smith Point Light bears **SE. ½ E.** A good general rule for vessels to follow is, when beating into the river, to give the south bank between Smith Point and the western point of Yeocomico River (Lynchs Point) a berth of 1¼ miles, keeping out of the entrances of the tributaries; give the north bank between Point Lookout and St. Georges Island a berth of 1 mile, keeping out of the mouth of St. Mary River and clear of St. Georges Island Bar.

Having entered the river as directed above:

I. ***If desiring to anchor in Cornfield Harbor.***—When, on the **NW. ½ W.** course Point Lookout Lighthouse bears **N. ¾ E.**, steer **N. ¾ W.**, and anchor about ¾ mile westward of the lighthouse, ½ to ⅝ mile from the beach, in 18 to 22 feet of water.

II. ***If bound into St. Mary River.***—Follow the directions under heading "St. Mary River."

*The rise and fall of the tides in the Potomac River, as in Chesapeake Bay and other of its tributaries, is much influenced by the force and direction of the wind.

III. *If bound into Coan River.*—Bring Point Lookout Lighthouse to bear **E.** by **N.** and steer **W.** by **S.**, standing in fair between the two black buoys off the entrance. When the black gas-lighted buoy off the entrance is 500 yards distant on the starboard beam, steer about **SW.** by **W.** $\frac{3}{4}$ **W.**, heading so as to leave black can buoy No 1 about 50 yards on the port hand. Then steer about **S.** so as to leave red nun buoy No. 2 close-to on the starboard hand; then steer about **WSW.**, and gradually haul up for Travis Point. Anchor southwestward and close to Travis Point, in 10 to 13 feet of water. If bound farther up the river take a pilot.

IV. *If bound into Yeocomico River.*—Bring Point Lookout Lighthouse to bear **E.** $\frac{1}{8}$ **S.** and steer **W.** $\frac{1}{8}$ **N.**, keeping the bearing, and take care not to be set on the shoals eastward of the entrance. This course made good will lead up to *Lynchs Point Shoal buoy* (spar, black, No. 7); leave this buoy 100 yards on the starboard hand and steer **W.** by **N.** about $1\frac{1}{2}$ miles. Then steer about **WSW.** $\frac{1}{2}$ **W.**, heading to leave black spar buoy No. 1 off Barn Point on the port hand. Anchor westward of the black buoy off Barn Point, in 17 feet of water.

If bound into any of the branches of the Yeocomico River take a pilot.

V. *If bound into Smith Creek.*—When westward of Cornfield Point stand along the north shore, giving it a berth of about 1 mile, taking care to avoid the red and black horizontally striped nun buoy lying about 1 mile southward of Grays Point. When within $1\frac{1}{2}$ miles of Kitts Point and the lighted beacon at the entrance to Smith Creek bears about **N.**, take a pilot, as some local knowledge is necessary to keep in the channel, which is narrow and shoals abruptly on both sides.

Note.—If a pilot for Potomac River and its tributaries is desired, and one is not found at the mouth of the river, stand in on the **NW.** $\frac{3}{4}$ **W.** course with signal set, until up to St. Georges Island, where a pilot can always be found.

Remarks.—On the **NW.** $\frac{3}{4}$ **W.** course, Point Lookout Lighthouse will be made broad off the starboard bow; Little Wicomico River and **Hocks, Cubbetts, Hulls,** and **Presleys** creeks, on the south bank and of no importance, are passed. Before reaching St. Georges Island, Smith Creek, St. Mary River, and the entrance to St. Georges River, all on the north bank, and Coan and Yeocomico rivers, on the south bank, will be opened out. Piney Point Lighthouse will be made on the starboard bow, and **Ragged Point** (low, sandy, covered with trees except at its end) will be a little on the port bow. There is a landing and large white house on the eastern side of Piney Point.

Dangers.—Smith Point Shoal extends in an easterly direction about $2\frac{1}{4}$ miles from Smith Point. It has 6 to 12 feet of water over it, and its eastern edge is marked by Smith Point Lighthouse, which is off the south eastern end of the shoal (see table, page 20), and two buoys (can, black, Nos. 19 and 1). Smith Point Shoal lower buoy (can, black, No. 19) is placed off the southeastern end of the shoal, about $\frac{1}{4}$ mile **SE.** from the lighthouse. Smith Point Flats upper buoy (can, black, No. 1) is placed off the northeastern point of the shoal, $1\frac{1}{4}$ miles **NNW.** $\frac{1}{2}$ **W.** from the lighthouse.

Point Lookout Shoal makes out nearly $\frac{1}{4}$ mile eastward and nearly 1 mile southward from Point Lookout; 18 feet of water is found on the shoal about $\frac{1}{4}$ mile southward of the lighthouse. Its southern end is marked by a buoy (nun, red, No. 2) which bears **S.** $\frac{1}{2}$ **W.** from the lighthouse.

The Shoals along the south bank can be avoided by giving it a berth of $1\frac{3}{8}$ miles.

Coan River South Shoal, on the eastern side at the entrance to Coan River, extends $1\frac{1}{4}$ miles from the bank and is marked by a buoy (spar, black, No. 3); nearly $\frac{3}{8}$ mile **N.** $\frac{1}{2}$ **E.** from this buoy is Coan River gas-lighted buoy. The shoal has from 4 to 16 feet over it.

Coan River North Shoal, with 4 to 14 feet of water over it, extends $1\frac{1}{4}$ miles out from the western point at the entrance to Coan River, and is marked by a buoy (can, black, No. 5).

St. Georges Island Bar, making out $1\frac{1}{4}$ miles southeastward from the southeastern end of St. Georges Island, has from 3 to 17 feet of water over it, and is marked at its southeastern point by a buoy (spar, red and black horizontal stripes). This buoy is left on the port hand by vessels entering St. Mary River.

The Shoals along the north bank between Cornfield Point and St. Mary River Entrance will be avoided by giving that bank a berth of 1 mile.

The western side of St. Georges Island should not be approached closer than $\frac{1}{4}$ mile on account of shoals making out from it.

Lynch Point Shoal makes out $1\frac{1}{4}$ miles **SE.** by **E.** $\frac{1}{2}$ **E.** from Lynch Point and has from 2 to 6 feet of water over it for about one-half this distance. Its eastern point is marked by a buoy (spar, black, No. 7), which is also the guide for the entrance to Yeocomico River.

The south bank above Lynch Point, and until Piney Point bears **NE.**, can be approached as close as $\frac{1}{8}$ mile, but above this the south bank should receive a berth of at least $1\frac{1}{8}$ miles.

1 A. *Approaching and Entering, from Northward.*—Standing down Chesapeake Bay, as soon as Point Lookout Lighthouse is made, shape a course so as to pass at least 1½ miles eastward of it. Bring the light to bear **N. ¾ E.**, distant 1½ miles, and steer **NW. ⅛ W.** This course made good for 11¾ miles will lead to a point 1½ miles southward of Piney Point Lighthouse. Then follow the directions in section 2.

Directions for beating are given under section 1. For remarks and dangers see also section 1, preceding.

Directions for entering Cornfield Harbor, Coan River, Yeocomico River, and Smith Creek will be found in section 1, paragraphs I, III, IV, and V. Directions for St. Mary River will be found under a separate heading following Potomac River.

2. *From Piney Point to Lower Cedar Point Lighthouse.*—When Piney Point Lighthouse bears **NNE.**, distant about 1¼ miles, steer **NW. ⅛ N.** until Ragged Point Spit gas-lighted buoy bears **SW.**, distant nearly ¾ mile; Piney Point Lighthouse will then bear about **SE. by E.** Now shape the course **WNW. ⅝ W.** for 8 miles, with Blakistone Island Lighthouse on the starboard bow. Pass about ¾ mile south of this lighthouse, and when it bears **NE.**, distant ¾ mile, steer **NW. by W. ½ W.** This course contined 4⅛ miles leads about 1¼ miles **SSW.** from Cobb Point Bar Lighthouse, and to the first mid-channel buoy (can, white and black perpendicular stripes) marking the eastern end of the channel over Kettle Bottom Shoals. From this buoy steer about **NW. by W. Westerly** and pass the mid-channel buoys close-to on either hand, heading from one to the next above. All the mid-channel buoys are spar buoys with the exception of the first and last, which are cans of the first class; they are all painted black and white in perpendicular stripes; they are usually ten in number, but some may be missing. From the sixth mid-channel buoy to the last the course is about **NW. ¾ W.** From the last buoy (first-class can), steer for Lower Cedar Point Lighthouse, course about **N. by W. ¼ W.**, leaving Lower Cedar Point beacon about ¼ mile on the starboard hand. When within ⅝ mile of the lighthouse, haul northward so as to leave it about 400 yards on the port hand, then follow the directions in section 3.

Remarks.—The **NW. ⅛ N.** course from Piney Point leads nearly in mid-stream and well clear of Ragged Point Spit. On the **WNW. ⅝ W.** course, with Blakistone Island Lighthouse on the starboard bow, Lower Machodoc River and Nomini Bay will be opened out on the south bank, and Bretons and St. Clement bays will be opened on the north bank just eastward of Blakistone Island.

On the **NW. by W. ½ W.** course, after passing Blakistone Island Lighthouse, the Nomini Cliffs (high, bare, in places showing steep faces of reddish sand) will be seen on the south bank. On the north bank St. Catherines Sound and Wicomico River will be opened out. **Cobb Point Bar Lighthouse** will be on the starboard bow at the western side of the entrance to Wicomico River. A sharp lookout should be kept for the first mid-channel buoy, so as to get a fair lead for the buoyed channel over Kettle Bottom Shoals; these buoys should be followed, leaving them close-to on either hand. When abreast the fourth mid-channel buoy the mouth of Mattox Creek, on the south bank, will be opened. **Colonial Beach**, a summer resort and landing, will be seen about 2 miles above the mouth of Mattox Creek. When past the last mid-channel buoy (first-class can, white and black perpendicular stripes) and steering for Lower Cedar Point Lighthouse, Lower Cedar Point lighted beacon (see description in table, page 22), marking the end of the shoal making out from Lower Cedar Point, will be made on the starboard bow, and the buoys marking the dredged channel to the wharf at the point will be seen close in southward of Lower Cedar Point. Rosiers Creek and Upper Machodoc Creek will be opened out on the south bank. It is proposed to improve a channel over Kettle Bottom Shoals by dredging.

Dangers.—**Ragged Point Spit** makes out northeastward from Ragged Point nearly ½ mile. It has 1 to 7 feet of water over it, and is marked at its northeastern end by a buoy (gas-lighted, black, No. 9). The south bank for a distance of 3 miles eastward of Ragged Point should receive a berth of at least 1½ miles, on account of shoals that have less than 18 feet of water over them.

Shoal Spots with 17 to 18 feet of water over them lie about 1½ miles off the northern bank, about 5 miles above Piney Point Lighthouse. Above these spots the shore may be approached as close as ½ mile up to the entrance to Bretons Bay.

Heron Island Shoal makes out ½ mile eastward from **Heron Island** (the small flat, bare at low water, east of Blakistone Island). The shoal is marked at its eastern end by a buoy (spar, red and black horizontal stripes), which is also a guide for vessels entering Bretons and St. Clement bays from eastward.

Shoals along the south bank above Ragged Point can be avoided by keeping out of the bights and giving the shore a berth of ½ mile. This rule should be followed until up to the lower end of Kettle Bottom Shoals.

Cobb Point Bar, making southeastward from **Cobb Point,** the western point at entrance to the Wicomico River, is nearly bare in places at low water, and is marked by a lighthouse (see table of lights, page 20) and buoy (spar, red and black horizontal stripes) placed on its southeastern point.

Kettle Bottom Shoals occupy a stretch of the river about 10 miles long, between the mouth of the Wicomico River and Lower Cedar Point. These shoals comprise numerous lumps, with 10 to 18 feet of water over them. A channel has been buoyed which leads nearly in a straight line between the lumps, through the shortest part of the shoal, in a general **NW.** by **W.** ½ **W.** direction. The buoys are ten in number, eight spar buoys, and two can buoys—one at each end of the shoals; they are all painted white and black in perpendicular stripes, and placed close enough to one another to be readily picked up in the daytime. When passing over Kettle Bottom Shoals the buoys should be closely followed.

Upper Machodoc Flats make out 1½ miles from the mouth of Upper Machodoc Creek, occupying the bight in the west bank of the river between **Bluff Point,** the eastern point at the entrance to Rosiers Creek, and Lower Cedar Point Lighthouse. These flats have 6 to 11 feet of water over them, and are marked at their eastern edge by a buoy (spar, black, No. 11) placed 1⅛ miles **S.** of Lower Cedar Point Lighthouse.

Lower Cedar Point Shoal is marked at its lower end by a lighted beacon (see table, page 22). This shoal has 2 to 8 feet of water over it; near the point a dredged channel marked by three buoys leads from westward across the shoal to the landing on the eastern side of the point.

Lower Cedar Point Lighthouse is on the eastern edge of the shoals which extend along the west bank from Bluff Point to Mathias Point, a distance of about 9 miles; a part of this shoal is known as **Yates Bar.** The lighthouse bears **W.** from Lower Cedar Point, distant about ⅛ mile.

3. ***From Lower Cedar Point Lighthouse to the mouth of Aquia Creek.***—Passing about 400 yards eastward of Lower Cedar Point Lighthouse, steer about **N.** ⅛ **W** Persimmon Point Shoal beacon will be on the port bow and should be left 500 yards on the port hand. When this beacon is abeam, distant 500 yards, change the course to **NNW.** ½ **W.**; Popes Creek Flats buoy will be on the starboard bow. When Port Tobacco River Flats beacon (red and white screw pile structure with ball above) bears **NW.** ½ **W.** steer for it on this bearing until it is about ½ mile distant ahead, and a **W.** ½ **S.** course will head for Upper Cedar Point Lighthouse and pass 400 yards northward of Mathias Point Shoal Lighthouse.

Then steer **W.** ½ **S.,** leave Mathias Point Shoal Lighthouse at least 400 yards on the port hand, and as Upper Cedar Point Lighthouse is approached haul southward and leave it 500 yards on the starboard hand. Then steer **W.** by **S.,** keeping the wharf at Riverside (on the north bank) a little on the starboard bow; leave Mid-channel Lump buoy (spar, black, No. 17) about 300 yards on the port hand, and when 1 mile above this buoy and about ⅝ mile from Riverside Landing shape the course about **SW.** by **W.** Metomkin Point beacon will be on the port bow, and should be left 300 yards on the port hand when passing. When abreast of this beacon, red spar buoy No. 10 will be made on the starboard bow; this buoy and red nun buoy No. 12 should be left 200 yards on the starboard hand; Maryland Point Lighthouse should be a little on the starboard bow.

Passing red nun buoy No. 12, steer **W.** ⅝ **S.,** heading so as to leave Maryland Point Lighthouse at least 400 yards on the port hand. When the lighthouse is abeam steer **WNW.** ½ **W.**; on this course a black can buoy ("M. P." in white letters) should be left 250 yards on the port hand, and a red spar buoy No. 12½ about 300 yards on the starboard hand. A black spar buoy No. 19 will be made nearly ahead; leave this buoy on the port hand and steer **NNW.** ⅝ **W.,*** heading so as to pass at least 150 yards eastward of black spar buoy No. 21. The entrance to Aquia Creek is westward of this buoy. Then follow the directions in section 4.

Remarks.—On the **N.** ⅛ **W.** course Persimmon Point Shoal beacon (black and white screw pile structure with ball on top) will be on the port bow; a red spar buoy No. 6 off the mouth of Pasquahansa Creek should be left 700 yards on the starboard hand. On the **NNW.** ½ **W.** course Mathias Point Lighthouse and Port Tobacco River Flats beacon will be broad off the port bow. Pope Creek Flats buoy (spar, red, No. 8) should be left ⅝ mile on the starboard hand. When the course is changed to **NW.** ½ **W.,** heading for Port Tobacco River Flats beacon, Upper Cedar Point Lighthouse should show just clear of Mathias Point.

On the **W.** ½ **S.** course a black spar buoy will be seen about ⅝ mile **SE.** ½ **E.** from Upper Cedar Point Lighthouse; when standing to pass 400 yards southward of the lighthouse this buoy should be left ⅝ mile on the

*The Potomac River between Maryland Point and Smiths Point (4 miles above Maryland Point) is being improved by dredging, the project being to obtain a depth of 24 feet. At present (1902) the project is not completed, and during the summer pile beacons mark the locality where work is in progress or contemplated. While the work is in progress the buoys may be difficult to pick up, or may be out of position if interfering with the work.

port hand. On the **W.** by **S.** course two black spar buoys will be left on the port hand; Riverside landing and post office (small cluster of white houses and a wharf) should be on the starboard bow, and as it is approached Metomkin Point beacon (black and white screw pile structure with ball on top) should be made well on the port bow. On the **SW.** by **W.** course Maryland Point Lighthouse will be a little on the starboard bow. Red spar buoy No. 10 should be made on the starboard bow when abreast or a little above Metomkin Point beacon, and if necessary the course should be slightly changed, after passing this buoy, so as to leave red nun buoy No. 12 about 200 yards on the starboard hand.

On the **WNW.** ½ **W.** course a black can buoy should be left 250 yards on the port hand, and (if in the summer and dredging is in progress) a number of pile beacons will be made ahead or a little on the starboard bow. These pile beacons are to be left on the starboard hand.

Dangers.—Pasquahansa Shoal makes out from the eastern bank above Lower Cedar Point. Its western edge is marked by a buoy (spar, red, No. 6).

Persimmon Point Shoal makes eastward from the point and is marked by a beacon (black and white screw-pile structure with ball above) placed on the eastern side of the shoal.

Popes Creek Flats is the name applied to the eastern part of the flats lying off the mouth of Port Tobacco River. The edge of the flats is marked by a buoy (spar, red, No. 8).

Shoals make out ⅝ mile from the west bank, about midway between Persimmon Point and Mathias Point.

Port Tobacco River Flats lie in the bight off the mouth of Port Tobacco River and have a depth of 3 to 9 feet over them; their southern edge is marked by a beacon (red and white screw-pile structure with ball above). At night the red rays of Upper Cedar Point Lighthouse cover these flats westward of the beacon.

Mathias Point Shoal makes northward from **Mathias Point** and is marked by **Mathias Point Shoal Lighthouse** (see table, page 22) near its northern end. This shoal has a depth of 3 feet over it.

Upper Cedar Point Lighthouse (see table, page 22) is near the southern end of shoals which make out from Upper Cedar Point and extend to the mouth of Nanjemoy Creek.

Dade Shoal has spots with only 3 feet of water over them; the shoal is 1⅝ miles long in a general **ENE.** and **WSW.** direction, and lies southward and southwestward of Upper Cedar Point Lighthouse. It is marked by two buoys (spar, black, No. 13) placed on its northern side at the lower end of the shoal, and (spar, black, No. 15) placed near the upper end. There is a narrow channel south of this shoal; with this exception, the bight between Mathias Point and **Metomkin Point** (about 5 miles above Mathias Point) is full of shoals.

Mid-channel Lump has only 3½ feet of water over it, and lies south of the entrance to Nanjemoy Creek. It is marked by a buoy (spar, black, No. 17) placed on its northern end. About ⅝ miles **SW.** by **W.** ½ **W.** from this lump is an unmarked spot with 5½ feet over it.

Metomkin Point Middle Ground lies northward of Metomkin Point, and is marked by a beacon (black and white screw-pile structure with ball above) placed on the north side of its shoalest part. This middle ground is 1⅛ miles long in a general **ENE.** and **WSW.** direction, and its greatest breadth is about ⅜ mile; it has depths of 2 to 14 feet over it, with a deep channel on each side. A stranger should not attempt the channel between the Middle Ground and Metomkin Point on account of several unmarked shoal spots northeastward of the point.

Jenifer Flats make out nearly ½ mile from the northern bank, just below Maryland Point. The edge of these flats is marked by two buoys—the lower (spar, red, No. 10), the upper (nun, red, No. 12).

Several shoal spots with depths of 9½ to 17 feet over them lie off the southern bank between the two Jenifer Flats buoys. To avoid these spots give the southern bank a berth of ⅜ mile.

Ten-Foot Lump has 10½ to 12½ feet of water over it and lies nearly in midstream southeast from Maryland Point. It is nearly ½ mile long in an **E.** and **W.** direction, and is marked by Maryland Point Lighthouse (see table, page 22) near its western end. This shoal is left on the port hand coming up the river.

Maryland Point Shoal is about ½ mile long in a general **NW.** and **SE.** direction, and lies in midstream **SW.** from Maryland Point. It consists of a number of detached spots with a least depth of 12 feet on one of them. The shoal is marked by a buoy (can, black, "M. P." in white letters) placed off its eastern end. There is good water on both sides of this shoal, but it is usually left on the port hand coming up the river.

Shoals with a depth of 12 to 17 feet over them make out ⅜ mile from the north bank between Maryland Point and Lower Thoms Point. A buoy (spar, red, No. 12½) is placed on the edge of these shoals.

Potomac Creek Flats is the name given to the lower part of the flats which make out from the western bank from abreast Maryland Point to the mouth of Chopawamsic Creek, leaving only a comparatively narrow deep-water channel along the eastern bank of the river. These flats have depths varying from 9½ to 16 feet, and their eastern edge is marked by four buoys: Potomac Creek Flats buoy (spar, black, No. 19) off the entrance to Potomac Creek; Aquia Creek Flats buoy (spar, black, No. 21) off the entrance to Aquia Creek; Smith Point buoy (spar, black, No. 21½) off Smith Point; Clifton Point Flats buoy (spar, black, No. 23) off Clifton Point—all left on the port hand standing up the river.

4. ***From Aquia Creek to Marshall Point (Marshall Hall).***—Leaving black spar buoy No. 21, off the entrance to Aquia Creek, about 150 yards on the port hand, steer **N.**, following the eastern bank and the buoys. Passing Clifton Point Flats buoy (No. 23), continue the **N.** course until in midstream and the northern end of the island in the

mouth of Chopawamsic Creek (low, with several summer cottages showing among the trees) bears **W.** Now steer about **NE.** by **N.**, keeping in midstream, and heading so as to leave red spar buoy No. 16 well on the starboard hand; when Chicomuxen Creek Shoal buoy (spar, red, No. 16) is 500 yards distant on the starboard beam shape the course **NE. ¼ N.** heading for High Point Flats Lower buoy (spar, black, No. 25). Leave this buoy on the port hand and steer **NE. ¼ N.** for High Point Flats Upper buoy. When up to the latter buoy, leave it on the port hand and shape the course about **NE. ½ E.**, and follow the eastern shore, giving it a berth of 300 to 400 yards when passing Indian Head and until up with the landing at Glymont (about 1½ miles above Indian Head).

Pass the landing at Glymont at a distance of about 200 yards and steer **NE. ½ N.**, and as Hallowing Point is approached haul northward so as to leave Hallowing Point Shoal buoy (spar, black, No. 31) about 300 yards on the port hand. When Hallowing Point bears **W. ½ N.**, distant 600 yards, steer **N. ⅜ W.**, heading for the high bluff on Whitestone Point. As Whitestone Point is approached leave red spar buoy No. 18 about 300 yards on the starboard hand and change course to about **NE. ¼ N.**, and follow the western bank of the river at a distance of about 300 yards until about ⅔ mile above the point. Then bring the cluster of white houses (in clearing on western bank) to bear **WSW. ¾ W.** over the stern and steer **ENE. ¾ E.**, heading so as to pass about 400 yards from the end of the landing at Marshall Point (Marshall Hall). Then follow the directions in section 5.

Remarks.—On the **N.** course, after passing Aquia Creek Flats buoy (spar, black, No. 21), **Smith Point (Clifton Beach)**, a summer resort and landing, and **Douglass** and **Liverpool** points will be passed on the eastern bank in the order named. **Mallows Creek** will be passed just northward of Liverpool Point. When the course is changed to **NE.** by **N.** Chopawamsic Creek will be on the port beam, and standing up the river on this course Quantico Creek will be left on the port hand. Just above Quantico Creek is a landing and several houses. **Cockpit Point,** on the west bank, about 2½ miles above Quantico Creek, is low with straggling trees and bushes, and shows to the right of **Possum Nose,** high bare-faced bluffs, when standing up the river. In the eastern bank nearly opposite Quantico Creek is Chicomuxen Creek.

From a point 1⅛ miles below Cockpit Point to that point the western bank should be given a berth of ⅛ mile.

Between Cockpit Point and Hallowing Point, a distance of about 8 miles, the channel favors the eastern bank, the shoals from the western bank extending out beyond the middle of the river.

High Point Flats Lower buoy lies between Powells and Mattawoman creeks, the former making into the west bank and the latter into the east bank just above Cockpit Point and **Stump Neck.** The shoal spots lying in the channel off the entrance to Mattawoman Creek are liable to pick up a vessel of over 16 feet draft unless the buoys are closely followed. On the northern side of Powells Creek Entrance is **Freestone Point** (high, covered with trees, and showing abrupt from the southward); this point is the southern point at the entrance to a large shallow bight forming the entrance to Neabsco Creek and Occoquan Creek—the latter entering the bight from the northward and the former from the westward. **Indian Head,** on the east bank, is a remarkable high, almost perpendicular, sand bluff when seen from the southward; it lies about **ESE.** from High Point, the northern point at the entrance to Occoquan Creek.

About 1½ miles above Indian Head, on the eastern bank, is **Glymont,** a summer resort and the landing for steamers. **Craney Island** is a small island with a few low trees, north of Glymont; it is on the western side of the channel and surrounded by flats. On the west bank, 1½ miles above Glymont, is **Hallowing Point.** Pamunky Creek is on the eastern bank opposite Hallowing Point. From abreast Hallowing Point the **N. ⅜ W.** course leads direct for **Whitestone Point** (high, wooded, with white and yellow precipitous faces covered in part with scrub). A long wharf is located on the west bank about ⅜ mile above Hallowing Point. Between Hallowing Point and Whitestone Point, Gunston Cove makes into the western bank. This is a large shallow cove, with two arms at its head, **Accotink Bay** and **Pohick Bay.** About 1⅝ miles above Whitestone Point, on the eastern bank, is **Marshall Point (Marshall Hall)** and steamboat landing, and opposite Marshall Point, on the west bank, is the broad and shallow entrance to Dogue Creek.

Dangers.—Smith Point Buoy (spar, black, No. 21½) marks the eastern edge of the extensive shoals making out from the western bank above Maryland Point. These shoals are described under section 3, foregoing.

Douglass Point Shoal makes out about 400 yards from the eastern shore at Douglass Point. The shoal has 5½ feet over it and is marked by a buoy (spar, red, No. 14) placed at its western edge. Between Smith Point and Douglass Point a number of pile beacons are placed near the edge of the shoal which makes off from the east bank of the river.

Clifton Point Flats is the name given to the upper end of the extensive shoal which lies off the western bank between Potomac Creek and Chopawamsic Creek. This extensive shoal ground has from 2 to 18 feet of water over it, and its eastern edge is marked by a buoy (spar, black, No. 23).

Chicomuxen Creek Shoal makes out from the mouth of Chicomuxen Creek, and has 8½ to 11 feet over it. The western edge of the shoal is marked by a buoy (spar, red, No. 16).

High Point Flats lie off the mouth of Occoquan Creek, southwestward of High Point, and occupy the western side of the river. These flats have from 6 to 9 feet of water over them and are marked at their eastern edge by two buoys. High Point Flats Lower buoy (spar, black, No. 25), is opposite the mouth of Mattawoman Creek; High Point Flats Upper buoy (spar, black, No. 27) is placed about 1⅛ miles **NE. ¼ N.** from the lower buoy. Abreast these buoys the channel is narrow and has been improved by dredging. Shoals make out some distance from the mouth of Mattawoman Creek. There are spots in the channel which have from 15½ to 18 feet over them.

Craney Island Flats surround Craney Island; they have from 2 to 9 feet of water over them and are marked at the edge of the channel by a buoy (spar, black, No. 29). This buoy is opposite the landing at Glymont.

Hallowing Point Shoal makes off eastward and southeastward from Hallowing Point. It is marked at its eastern edge by a buoy (spar, black, No. 31).

Shoals make out from the eastern bank between **Chapmans Point**, about 1 mile above Glymont, and Marshall Point, the channel favoring the western bank between these points. **Brent Shoal**, a part of these shoals, is marked by a buoy (spar, red, No. 18) placed on the edge of the shoal opposite White Stone Point.

The water shoals abruptly on the western side of the channel abreast of Gunston Cove, and also off the mouth of Dogue Creek.

5. ***From Marshall Point (Marshall Hall) to Alexandria.***—With the landing at Marshall Point bearing **S.**, distant 400 yards, steer **ENE. ½ E.**, heading for the bare bluff just eastward of Fort Washington, and keeping the end of the long wharf at Sheridan Point a very little on the port bow. Round Sheridan Point, leaving the black buoys and the end of the wharf about 150 yards on the port hand, and pass about 150 yards westward of the landing at River View. When abreast of River View landing steer **N.** for Jones Point Lighthouse at the southern end of Alexandria. When abreast of Broad Creek Flats buoy (spar, red, No. 22) steer about **N.** by **E.**, keeping Rosier Bluff a very little on the starboard bow. Pass midway between Rosier Bluff and black spar buoy No. 37, and then steer **N. ½ W.** for the wharves at Alexandria. Vessels will find good anchorage in the channel abreast the wharves at Alexandria.

Note.—The channel is narrow in places between Marshall Point and Alexandria. A sharp lookout should be kept for the buoys, which are the best guides in this part of the river.

Remarks.—After passing Marshall Point on the **ENE. ½ E.** course, **Mount Vernon** and the buoy (spar, red and black horizontal stripes) marking the dredged channel to the landing will be left on the port hand.

Fort Washington Lighthouse (see table, page 22) will be made a little on the port bow. A short distance above Mount Vernon, on the same side of the river, is **Little Hunting Creek.** Opposite this creek, on the south bank of the river, is Bryants Point, where there are two small wharves and a cluster of small houses. The long wharf at Sheridan Point is a conspicuous feature in this part of the river. When rounding Sheridan Point, Piscataway Creek (broad and shallow) will be left on the starboard hand just below Fort Washington. **River View**, a summer resort and landing, is just above Fort Washington, on the eastern bank.

Standing on the **N.** course after passing River View, **Jones Point Lighthouse** (see table, page 22) should be made ahead, backed by the city of Alexandria. The lighthouse is painted white and shows well from down the river when the sun is shining. Broad Creek, a broad, shallow body of water, will be opened out on the eastern bank. The high and almost perpendicular bluff on the northern point at the entrance to Broad Creek is conspicuous when coming up the river. On the **N.** by **E.** course, **Rosier Bluff** (high, almost perpendicular) and the landing at **Fort Foote** will be a little on the starboard bow; the shore end of the large pier on **Marbury Point** will be ahead. The city of Alexandria will be on the port bow. The broad bight south of Alexandria is shoal, with depths of 2 to 5 feet. When off Rosier Bluff the city of Washington will be in plain view, about 6 miles distant.

Dangers.—**Mount Vernon Flats** make out into the river ¼ mile from the bank at Mount Vernon. These flats extend from Ferry Point to Sheridan Point, where they join Sheridan Shoal. Abreast Mount Vernon landing a buoy (spar, red and black horizontal stripes) is placed on the edge of the flats to mark the entrance of the dredged cut to the landing.

Sheridan Shoal extends ¼ mile southward and eastward of Sheridan Point, following the contour of the bank. The edge of this shoal rises abruptly from the channel, has 2 to 3 feet of water over it, and is marked by three buoys: Sheridan Point Lower buoy (spar, black, No. 31½) is south of Sheridan Point; Sheridan Shoal Middle buoy (spar, black, No. 33) is about **W.** by **S.** from Fort Washington Lighthouse; Sheridan Shoal Upper buoy (spar, black, No. 35) is about **W.** from River View landing.

Shoals fill the bight above Bryants Point and the mouth of Piscataway Creek. These shoals rise abruptly at the edge of the channel and have from 3 to 5 feet of water over them. **Bryants Point** is opposite Mount Vernon and about 1¼ miles below Fort Washington.

Broad Creek Flats make out into the river from the mouth of Broad Creek; they rise abruptly from the channel and have 3 to 6 feet of water on them. The western edge of these flats is marked by a buoy (spar, red, No. 22) placed off the middle of the entrance of the creek.

Hunting Creek Flats fill the large bight south of the city of Alexandria and extend well over toward the eastern bank abreast Rosier Bluff. These flats have 2 to 5 feet of water over them and rise abruptly from the channel. At their eastern edge they are marked by two buoys: Hunting Creek Flats Lower buoy (spar, black, No. 37) is abreast Rosier Bluff; Hunting Creek Flats Upper buoy (spar, black, No. 39) is about 300 yards **SE.** from Jones Point Lighthouse.

Bennys Flats make out from the eastern bank above Rosier Bluff; at the mouth of Oxon Creek their name changes to **Oxon Creek Flats.** They have only 2 feet of water over them near the edge of the channel, with slightly deeper water inshore. Along their western edge are four buoys: Bennys Flats Lower Buoy (spar, red, No. 24) is about **ESE.** from Jones Point Lighthouse; Bennys Flats Middle buoy (spar, red, No. 26) is abreast the lower wharves at Alexandria; City of Alexandria Wreck buoy (spar, red, No. 26½) about ⅛ mile northward of the latter; Oxon Creek Flats Upper buoy (spar, red, No. 28) is about ⅛ mile below the end of the railroad pier on Marbury Point; this pier serves well to mark the eastern edge of the channel above Alexandria.

6. ***From Alexandria to Washington.***—When abreast the ferry wharf and about 150 yards from its end, steer **NNE. Northerly.** Leave the end of the railroad wharf, at Marbury Point, about 175 yards on the starboard hand and leave the end of the wharf at the United States Naval Magazine (about ¾ mile above Marbury Point) about 175 yards on the starboard hand. Continue the **NNE. Northerly** course and leave black spar buoys Nos. 1 and 3 about 60 yards on the port hand, and the wharf at Giesboro Point (Riverside Park) about 75 yards on the starboard hand. Then steer about **N.** by **E.** ¼ **E.**, and leave a black spar buoy No. 1 well on the port hand and a red and black horizontally striped spar buoy about 50 yards on the port hand. From this buoy, if necessary, haul a little northward so as to leave black spar buoy No. 5 about 50 yards on the port hand, and from this buoy follow the bank on the port hand giving it a berth of about 150 yards. If of less than 12 feet draft a vessel may anchor westward of the line of white buoys abreast the wharves of the city.

Note.—The channel in the Anacostia River to the United States Naval Gun Factory is very narrow and crooked, and, though it is marked by buoys, can hardly be navigated by a stranger without getting aground.

ST. MARY RIVER*

empties into Potomac River from northward, about 7 miles above Point Lookout and just westward of Smith Creek. The river is navigable nearly to its head, a distance of over 7 miles; at its mouth it is over 1¼ miles wide, and forms an excellent anchorage, well sheltered, with 4 to 5 fathoms water and soft bottom. This anchorage is the principal one in the mouth of the Potomac for vessels seeking shelter in heavy gales. **St. Inigoes Creek** and **Carthagena Creek** are two small tributaries of St. Mary River; they are of little importance.

St. Mary, a small village (post-office name St. Marys City), on the east bank of the river, about 4½ miles above its mouth, can be reached by vessels of 18 feet draft; it has some trade. Vessels owned in Chesapeake Bay and steamers plying between Washington and Baltimore, make landings on St. Mary River. There is 12 feet of water at the wharf at St. Mary and 21 feet at the anchorage just below the wharf.

The channel at the entrance, between the shoals which make out from **Kitts Point** on the east and **St. Georges Island** on the west, is nearly ½ mile wide; it narrows gradually and follows a mid-river course, but shoals make off some distance from many of the points. Above St. Mary the river makes a sharp turn northwestward, the channel shoaling gradually toward its head.

Strangers should not attempt to enter the river at night. The buoy on the southeastern end of St. Georges Island Bar is the only aid at the entrance. If a pilot is desired, one may be had from St. Georges Island at the western side of the entrance.

In severe winters the river is closed by ice down to Priests Point, about 3½ miles from its mouth.

SAILING DIRECTIONS, ST. MARY RIVER.

These directions, if closely followed, will carry a least depth of 21 feet up to St. Mary and a least depth of 24 feet up to Priests Point.

*Shown on charts **376**, scale $\frac{1}{400,000}$; **79**, scale $\frac{1}{200,000}$; **133, 134**, scale of each $\frac{1}{80,000}$, price of each $0.50; **388**, scale $\frac{1}{60,000}$, price $0.40.

1. ***Approaching and Entering, from Eastward and to St. Mary.***—Having followed the directions for approaching and entering Potomac River, section 1 or 1 A, pages 72–74, until Point Lookout Lighthouse is made, shape a course so as to be 1¾ miles distant from this lighthouse when it bears **NE.** With Point Lookout Lighthouse bearing **NE.**, distant 1¾ miles, steer **NW. ¾ N.** about 7 miles. The red and black horizontally striped spar buoy on the end of St. Georges Island Bar should be left ¾ mile on the port hand. When the southern end of St. Georges Island bears **W. ½ S.** and the shore of the island is about 1 mile distant, steer **N.**, heading for the end of Windmill Point (low, yellow bluff, with straggling trees). Round Windmill Point, giving it a berth of at least ¼ mile, and stand northward, keeping in the middle of the river until abreast of St. Mary, when anchor in 21 feet, soft bottom.

Remarks.—On the **NW. ¾ N.** course **Kitts Point**, the eastern point at entrance to St. Mary River, will be made on the starboard bow, and just eastward of the point Smith Creek will be opened out. St. Georges Island, will be made on the port bow and the entrance to St. Georges River will be ahead.

Leave Kitts Point at least ¾ mile on the starboard hand. When passing it the river will be opened to the northward. **Fort Point**, on the eastern bank, about 2¼ miles above Kitts Point, will show quite prominently, being covered with bushy trees to the water's edge; it should be given a berth of at least ⅝ mile.

Priests Point, about 1 mile above Fort Point, will be recognized by a large seminary which stands among the trees near its end, and should be given a berth of at least ¼ mile.

On the **N.** course **Windmill Point** (low, yellow bluff, with straggling trees), on the west bank opposite Priests Point, will be ahead, and **Chancellors Point**, the next point on the eastern bank above Priests Point, should be open a little eastward of Windmill Point. When abreast the seminary on Priests Point, St. Inigoes Creek will be open to the eastward. The channel leads well eastward of Windmill Point, but Chancellors Point may be passed quite close-to. When passing the latter, houses on **Portobello Point** will be seen to the northwestward, and to the northward will be seen the landing and the high bluff on which is the village of St. Mary.

There is a deep bend in the river just above St. Mary which is called **Horseshoe Bend**; it has good anchorage in 10 to 18 feet of water.

Dangers.—For a description of dangers approaching the entrance see "Sailing Directions, Potomac River," section 1.

Shoals extend southward and southwestward from Kitts Point nearly ¾ mile; these have 2 to 12 feet of water over them and are not marked; the point should be given a berth of ⅝ mile.

St. Georges Island Bar is described on page 73, and should be left on the port hand when entering St. Mary River.

Shoals extend ¼ mile eastward from the western bank just above the entrance to St. Georges River. To avoid the shoals making off in places from the eastern bank below Priests Point, give the eastern bank a berth of at least ⅝ mile.

Shoals extend nearly 300 yards from the end of Priests Point and about 400 yards from Windmill Point. Above Windmill Point to St. Mary the banks can be approached as close as 250 yards.

1 A. ***Approaching and Entering, from Westward and to St. Mary.***—Bring Piney Point Lighthouse to bear **N.**, distant ¾ mile, and then steer **SE. ½ E.**, leaving the southern end of St. Georges Island about ½ mile on the port hand. Round St. Georges Island Bar buoy (spar, red and black horizontal stripes), giving it a berth of ¼ to ½ mile, and stand up St. Mary River course about **N. ½ W.** When the end of Windmill Point bears **N.** steer for it on this bearing, and continue as directed in section 1 preceding. See also the remarks and dangers in section 1.

ST. JEROMES CREEK*

is shallow and of little importance. Some grain and oysters are shipped in vessels engaged in the bay trade. The entrance of the creek is in the western shore of Chesapeake Bay, nearly 5 miles north of Point Lookout, about midway in the bight between Point No Point on the north and Point Lookin on the south. A channel 100 feet wide and 9 feet deep was dredged, under the supervision of the United States Engineers, across the bar at the entrance of the creek; the depth in this channel is said to be decreasing. There are no buoys to mark the channel into the entrance. The deepest draft taken into the creek is 6½ feet, but strangers never enter without a pilot.

* Shown on charts **133, 134**, scale of each $\frac{1}{80,000}$, price of each $0.50; **388**, scale $\frac{1}{60,000}$, price $0.40.

PATUXENT RIVER*

empties into the western side of Chesapeake Bay 17 miles above Point Lookout. It is navigable for vessels of 15 feet draft for a distance of 21 miles, and for vessels of 8 feet draft 34 miles above its mouth; lighter draft vessels than 8 feet can be taken 9 miles farther up, to the landing at Bristol. The mouth of the river forms a good anchorage in westerly winds and is frequently used by vessels bound up or down the bay as an anchorage for the night. Just inside the entrance is an excellent well-sheltered anchorage for the largest vessels; it can be easily entered either in the daytime or at night. From the numerous landings on the river large quantities of produce are shipped in coasting vessels and sailing vessels and steamers engaged in the bay trade.

Numerous creeks empty into the river, but only five of these are navigable for vessels of over 6 feet draft.

Mill Creek empties into the river from northward, about 1⅛ miles west of Drum Point Lighthouse; 15 feet can be taken up ¼ mile above its mouth.

Cuckold Creek has several branches; it empties into the river from westward about 5 miles above Drum Point Lighthouse; 10 feet can be taken into the creek and 1¼ miles above its mouth, and this depth can be taken up about 1 mile into the southern branch (**Mill Creek**).

St. Leonards Creek empties into the river from northeastward, about 7½ miles above Drum Point Lighthouse; 13 feet can be taken up 1 mile above its mouth; above this the depth gradually decreases.

Island Creek empties into the river from the northward, about 2½ miles above the mouth of St. Leonards Creek; it has a depth of 11 feet in the channel at the entrance, but is of no commercial importance.

Battle Creek empties into the river from northward, about 13 miles above Drum Point Lighthouse. It is principally the resort of local oystermen, and has a depth of 10 feet in the channel at its entrance. Strangers should not attempt to enter without a pilot.

Solomons is a village at the mouth of Mill Creek, about 1⅛ miles above Drum Point Lighthouse; it has a little trade. A small marine railway, mostly used by oystermen, and a shipyard are located here.

Benedict, on the west bank of the river, 21 miles above its mouth, has some trade in produce and can be reached by vessels of 15 feet draft.

Lower Marlborough is on the east bank of the river, about 29 miles above its mouth. It can be reached by vessels drawing about 9 feet.

Nottingham is on the west bank, about 34 miles above the mouth of the river. It has a post office and steamboat landing.

Bristol, a small village 9 miles above Nottingham, is of little importance. The river shoals rapidly above Nottingham and only light-draft vessels and a steamer from Benedict go up as far as Bristol.

Prominent Features and Aids.—**Cove Point,** the northern point at the entrance to the river, is marked by **Cove Point Lighthouse** (see table, page 22). The shore southward of this point is hilly, with high, steep, sand bluffs facing the bay. About 4½ miles **SSW. ½ W.** from Cove Point Lighthouse is **Drum Point Lighthouse** (see table, page 22), off Drum point, on the north side of the channel. **Cedar Point,** the southern point at entrance to the river, shows a short, low, bare point, backed by higher land, with an irregular outline of trees; **Cedar Point Lighthouse** (see table, page 22) is near the end of the point and bears **S. ½ E.,** distant 5½ miles from Cove Point Lighthouse. **Solomons Island,** on the western side of the entrance to Mill Creek, and 1½ miles above Drum Point Lighthouse, will show plainly when standing into the river.

The Channel of the river has good water as far as Benedict, about 21 miles above its mouth. It is quite narrow in places, but the most prominent dangers and shoals are marked by buoys, and its navigation is comparatively easy for a steamer, or for sailing vessels with a fair wind. Shoals make out from both shores to the edge of the channel, but the water as a rule decreases in depth gradually toward the banks, except where the shoals are marked by buoys. Above Benedict the channel is narrow and obstructed by shoals, which make this part of the river difficult for a stranger, although it is buoyed; if bound above Benedict they should take a pilot at the latter place.

Anchorages.—Deep-draft vessels frequently anchor in the mouth of the river for the night. Shelter from westerly winds is found in 3½ to 5 fathoms water from 2½ to 3½ miles southward of Cove Point Lighthouse and quite close in to the shore. If seeking shelter from easterly winds stand in to the entrance and anchor in 5 to 10 fathoms in the channel about 1½ miles above Drum Point Lighthouse. Good anchorage for light-draft vessels is found close in to the north bank west of Drum Point Lighthouse, taking care not to get aground on the oyster bank, which is marked by buoys. The bottom in the channel up to Benedict is generally soft and vessels can anchor where convenient.

---

*Shown on charts **376**, scale $\frac{1}{400,000}$; **79**, scale $\frac{1}{200,000}$, price of each $0.50; and in parts on charts **386**, scale $\frac{1}{60,000}$; **387**, scale $\frac{1}{30,000}$, price of each $0.20. The entrance to St. Leonards Creek is also shown on chart **134**, scale $\frac{1}{80,000}$, price $0.50.

Pilots can be found at Solomons Island. By closely following the sailing directions a pilot is not required below Benedict, but vessels bound above this should take one there.

Repairs.—There is a small marine railway at Solomons Island. Baltimore is the nearest place for extensive repairs to vessels or machinery of steamers.

Ice closes the river in severe winters.

Tides.—The mean rise and fall of tides at Drum Point is 1.4 feet, and at Benedict 1.5 feet. It is high water at Benedict 1h. 5m. later than at Drum Point.

SAILING DIRECTIONS, PATUXENT RIVER.

The following directions, if closely followed, will take the largest vessels to an anchorage inside Drum Point. Vessels of over 15 feet draft should not attempt to go above Town Point without a pilot, as the channel is narrow and has two abrupt turns. Vessels of less than 15 feet draft can pass up the river to Benedict in the daytime, when the buoys can be seen, by closely following the directions.

1. ***Approaching and Entering, from Southward.***—Coming up Chesapeake Bay, as soon as Cedar Point Lighthouse is made steer so as to pass ¾ to 1 mile eastward of it, and when it bears **W.** steer **NW. ½ N.** When Drum Point Lighthouse bears **W.** steer for it; leave black can buoy No. 1 about 300 yards on the port hand and keep on the bearing until the lighthouse is about ½ mile distant ahead, then steer **SW.** by **W. ½ W.**, and anchor at discretion inside the lighthouse. Or, proceed as directed in section 2 following.

At night.—As soon as Cove Point Lighthouse is made, steer for it on any bearing between **NW.** by **N.** and **N.** by **W.** until Drum Point Lighthouse bears **W.**; then steer for the latter, keeping it on the bearing, and follow the directions in the preceding paragraph.

Remarks.—**Cedar Point** is a low, sandy point, 15¼ miles northward of Point Lookout Lighthouse, and is comparatively bold-to, 4 fathoms being found ⅜ mile eastward of it; the lighthouse is near the end of the point. Passing Cedar Point, **Drum Point Lighthouse** (see table, page 22) will be seen to westward in the entrance of the river. The **W.** course leads in the best water in the entrance of the river.

Dangers.—**Hog Island Shoal**, in the entrance of the river, makes out nearly ¼ mile northward from a point 1¾ miles westward of Cedar Point Lighthouse. This shoal has 5 to 17 feet of water over it, and is marked at its northern edge by a buoy (can, black, No. 1).

Little Cove Point Shoal makes out ¼ mile eastward from **Little Cove Point**, and about 1¾ miles south of Cove Point Lighthouse. It has 7 to 17 feet of water over it, and is marked by a buoy (spar, red, No. 2) placed off its eastern end. The shore southward of this shoal should be given a berth of ¼ mile until close up to Drum Point Lighthouse, which can be approached from southward as close as 150 yards.

1A. ***Approaching and Entering, from Northward.***—Standing down the bay steer so as to pass about ¾ mile eastward of Cove Point Lighthouse, and when it bears **W.** steer **S. ¼ E.** until Drum Point Lighthouse bears **W.** Now steer for Drum Point Lighthouse, bearing **W.**, and when the latter is ½ mile distant steer **SW.** by **W. ½ W.** Anchor at discretion inside Drum Point, or follow the directions in section 2 following.

Or, when Cedar Point Lighthouse is made steer for it, bearing between **S.** by **W.** and **SW.** until Drum Point Lighthouse bears **W.** Then steer for the latter, keeping it on the bearing, pass 300 yards northward of black can buoy No. 1, and when the lighthouse is ½ mile distant ahead steer **SW.** by **W. ½ W.** and anchor at discretion southwestward of the lighthouse.

These directions will answer for either day or night.

Note the remarks and dangers under section 1, foregoing.

2. ***From Drum Point Lighthouse to Benedict.***—When Drum Point Lighthouse bears **N.**, distant about ¼ mile, steer **W. ½ S.**, passing south of *Middle Ground buoy* (spar, red, No. 4) and *Sandy Point Shoal buoy* (spar, red, No. 6). When the latter buoy (red, No. 6) is well abaft the starboard beam, distant about ¼ mile, steer **NNW. ½ W.**, and

pass about midway between **Town Point** and the eastern bank. (Town Point is level and and cleared, ending abruptly, and showing bare, steep, sandy faces at extremity; a sandspit makes out some distance from the end). Round Town Point, giving it a berth of nearly ¼ mile, and steer about **WNW. ½ W.** so as to clear the end of **Point Patience** (long, low, sandy point, with cedar trees at intervals, and white sand beach), which is on the starboard bow, and give it a berth of about 200 yards. The channel between the 18-foot curves is only 400 yards wide off Point Patience.

Round Point Patience, and when the end of the point bears about **E.**, distant 200 to 300 yards, steer about **N. by E. ¾ E.** for the narrow entrance of **Helens Creek,** and keep *Hawks Nest buoy* (spar, black, No. 5), off the entrance to **Cuckold Creek,** on the port hand. When approaching black buoy No. 5, leave it 300 yards on the port beam and steer about **N. by W. ½ W.** On this course *Helens Creek Bar buoy* (spar, red, No. 8) will be left about 250 yards on the starboard hand, and the high dark bluff, forming the western point at entrance of St. Leonards Creek, will be on the starboard bow. When about 1¼ miles above buoy No. 8, and in mid-stream off the entrance of St. Leonards Creek, steer about **NW. ⅞ W.** On this course **Setterly Point** (bluff, sandy faces) and *Setterly Point Flats buoy* (spar, black, No. 7) will be left on the port hand; there is a steamboat landing about ¾ mile below Setterly Point and another about 1 mile above it. **Broome Island** or point (low, grassy, with a few scattered trees back from end of point) and *Broome Island Shoal buoy* (spar, red, No. 10) will be made a little on the starboard bow and left on the starboard hand.

When buoy No. 10 is about 250 yards on the starboard beam steer about **NW. ⅝ W.** for 3⅛ miles. Standing on this course *Battle Creek Shoal buoy* (spar, red, No. 12) should be made a little on the starboard bow and left on the starboard hand when passing. From Battle Creek Shoal buoy steer **NNW. ¼ W.** On this course *Middle Ground buoy* (spar, red, No. 14) will be left 200 yards on the starboard hand and **Sheridans Point** (long, low, white, sandy, with low, scattered trees) will be a little on the starboard bow; *Marsh Point Shoal buoy* (spar, black, No. 9), abreast Marsh Point, will be on the port bow, and is left about 100 yards on the port hand. When Sheridans Point bears **E.**, distant about 200 yards, steer about **NNW.** for the houses of Benedict.

When Flats buoy (red, No. 16) bears **N. ½ E.** head up for it and anchor a little northwestward of it. If of over 10 feet draft, vessels are advised to take a pilot at Sheridans Point, as the channel above is narrow and there are no buoys to mark it until nearly up to Benedict. A stranger should anchor in the channel northwestward of Flats buoy (spar, red, 16), opposite Benedict, or take a pilot if bound farther up the river.

HERRING BAY*

is a broad bight in the western shore of Chesapeake Bay, about 25 miles above the mouth of the Patuxent River, and 12½ miles below Severn River (Annapolis Harbor) Entrance. This bight is sometimes used by vessels as an anchorage in westerly winds, and small vessels engaged in the bay trade find anchorage and shelter behind Parker Island Bar in 9 to 10 feet of water, soft bottom. The post office of **Fairhaven** has a steamboat landing and communication by regular boat from Baltimore. **Parker Island Bar** has 1 to 3 feet of water over it and extends about 1¾ miles in a southerly direction from the northern shore of Herring Bay; at its southern end is a buoy (spar, red, No. 2). A narrow channel with 11 feet of water leads around the southern end of the bar into the anchorage. **Holland Point** (dark, heavily wooded, ending abruptly), the southern point at the entrance to Herring Bay, has extensive shoals extending off from it in an easterly and northeasterly direction. These shoals are marked by two buoys, one on the eastern side, and the other off the northern point, of the shoals; the buoys are the only guides.

GENERAL DIRECTIONS, HERRING BAY.

These directions are good for a draft of 7 feet to the head of the bay.

Approaching.—Take care to make Holland Point Bar buoy (spar, black, No. 1); pass 300 to 400 yards northward of this buoy and steer about **WSW.**, heading so as to pass about 200 yards southward of Parker Island Bar buoy (spar, red, No. 2). Round the latter buoy

*Shown on chart 135, scale $\frac{1}{80,000}$, price $0.50.

at this distance and steer about **N. ½ E.**, and having stood on this course a little over 1 mile from red buoy No. 2, anchor in 8 to 9 feet of water.

Remarks.—Care must be taken to avoid the shoal making off 1¼ miles eastward and northward from Holland Point. When standing on the **N. ½ E.** course, if the water is at all clear, the shoal water of Parker Island Bar will be plainly seen on the starboard hand.

WEST RIVER*

empties into the western side of Chesapeake Bay 122 miles above Cape Henry Lighthouse and about 6 miles below Severn River. Its entrance is **WNW.** from Bloody Point Bar Lighthouse, and has a depth of 13 feet in a channel marked by several buoys. The depth above the mouth of the river gradually decreases, but 9 feet can be carried about 3 miles up the river. **Galloway** is a post village on the west bank about 2½ miles inside of Curtis Point. **Rhode River,** emptying into the north side of West River just inside its entrance, has a depth of 9 feet in the channel for a distance of 2 miles above its mouth. The post village of **Mayo** and landing is on the eastern bank just above the mouth. Several small creeks of no importance empty into West River above Rhode River Entrance. These waters are frequented principally by vessels engaged in the bay trade; strangers seldom enter unless of light draft. Extensive shoals make out 1¼ miles northeastward from **Curtis Point,** the southern point at the entrance, and about ¼ mile from the northern side of the entrance. The buoyed channel is between these shoals.

SAILING DIRECTIONS, WEST RIVER.

The following directions are good for a draft of 11 feet or less in the daytime, when the buoys can be seen:

1. ***Approaching and Entering, from Southward.***—Coming up the bay, leave Bloody Point Bar Lighthouse about 2¼ miles on the starboard hand and steer about **N.** by **W.** When Bloody Point Bar Lighthouse bears **SE. ½ E.** steer about **NW. ½ W.** heading fair between *Saunders Point Shoal buoy* (spar, red, No. 2) on the north side of the entrance and *Curtis Point Shoal buoy* (can, black, No. 1) on the south side of the entrance. When Thomas Point Shoal Lighthouse bears **NE.** by **E.**, steer about **SW.** by **W.**, heading so as to leave black can buoy No. 1 about 300 yards on the port hand, and then steer about **SW.** so as to leave *Dutchman Point Flats buoy* (spar, red, No. 4) about 150 yards on the starboard hand. When abreast of red spar buoy No. 4 steer about **W.** by **S.** for 1 mile and anchor in 13 feet water, soft bottom, off the mouth of Rhode River.

If bound up Rhode River follow a mid-river course.

If bound up West River it is advisable for a stranger to take a pilot.

1 A. ***Approaching and Entering, from Northward.***—Coming down the bay, pass ½ mile eastward of Thomas Point Shoal Lighthouse and when the light bears **NW.**, distant ½ mile, steer **WSW.** This course will lead fair between Saunders Point Shoal buoy (spar, red, No. 2) and Curtis Point Shoal buoy (can, black, No. 1). Leave the latter buoy 300 yards on the port hand and steer about **SW.**, leaving red spar buoy No. 4 about 150 yards on the starboard hand and follow the directions under section 1 foregoing.

Remarks.—On the **WSW.** course Curtis Point Shoal buoy (can, black, No. 1) will be made on the port bow, and Saunders Point Shoal buoy (spar, red, No. 2) on the starboard bow.

The **SW.** course leads clear of dangers until up to Dutchman Point Flats buoy (spar, red, No. 4).

SOUTH RIVER*

empties into the west side of Chesapeake Bay 125 miles above its mouth and about 3 miles below Severn River entrance. **Thomas Point Shoal Lighthouse** marks the northern point at the entrance. South River is mostly frequented by vessels in the bay trade. It has a narrow channel with a depth of 15 feet for 6 miles above its mouth, and 8 feet 2 miles farther up. Numerous small creeks empty into the river; many of these have good water in their channels but are of no importance to strangers. The shoals on both sides of the entrance to South River and the narrow parts of the channel for a distance of 3¼ miles above its mouth are marked by buoys.

*See footnote on page 83.

SAILING DIRECTIONS, SOUTH RIVER.

The following directions are good for vessels of 13 feet or less draft in the daytime when the buoys can be seen:

1. ***Approaching and Entering, from Southward.***—Standing up the bay, when Bloody Point Bar Lighthouse bears **SE. ⅜ S.** steer **NW. ⅜ N.**, keeping the bearing. On this course **Turkey Point** will be ahead. *South River Entrance buoy* (nun, red, No. 2), *Marshy Point buoy* (spar, red, No. 4), and *Turkey Point Middle Ground buoy* (spar, black, No. 1) will be made on the starboard bow; the first is left well on the starboard hand and red spar buoy No. 4 should be left about 150 yards on the starboard hand. Haul northward and leave black spar buoy No. 1 close-to on the port hand. Round black spar buoy No. 1 and steer about **NW.** Anchor in the channel when inside Turkey Point.

If bound farther up the river, follow the buoys closely. A stranger should take a pilot.

1 A. ***Approaching and Entering, from Northward.***—Coming down the bay, steering about **S.** by **W. ⅜ W.**, leave Thomas Point Shoal Lighthouse (see table, page 22) and buoy (can, black, No. 29) on the starboard hand. Round black can buoy No. 29, giving it a berth of at least 200 yards, and steer **W. ½ N.**; *South River Entrance buoy* (nun, red, No. 2) will then be on the starboard bow. Leave it about ¼ mile on the starboard hand, and when *Turkey Point Middle Ground buoy* (spar, black, No 1), which will be seen to the northwestward, bears **NNW.**, steer for it and leave red spar buoy No. 4 about 150 yards on the starboard hand. Round black spar buoy No. 1 leaving it on the port hand and follow the directions in section 1 foregoing.

SEVERN RIVER AND ANNAPOLIS HARBOR.*

Severn River enters the western side of Chesapeake Bay about 128 miles above Cape Henry. For a distance of 5½ miles from its mouth it has an average width of about ⅜ mile; it then broadens into what is known as **Round Bay.** This bay is about 1 mile wide and 2 miles long, and has a general depth of 21 to 24 feet. A number of small unimportant creeks empty into the river. It has but little trade, but has a large number of small boats engaged in oyster fishing; it is of importance mainly as the approach by water to the city of Annapolis and the United States Naval Academy. About ½ mile above the Naval Academy it is crossed by a county bridge, and a railroad drawbridge about ⅜ mile farther up.

Annapolis, the capital of the State of Maryland, and the **United States Naval Academy Grounds,** are on the western bank of the river, near its mouth.

Graveyard Creek is on the north side and **Spaw Creek** on the south side of the city of Annapolis; they are both tributaries of the Severn River.

Prominent Features.—Tolly Point, the southern point at the entrance of the river, can be distinguished by several large buildings, and a wharf on its southern side. **Bay Ridge** (Chautauqua Beach) is a summer resort, on this point. About 1½ miles southward of Chautauqua Beach is **Arundel on the Bay**—another summer resort. Greenbury Point is on the northern side of the entrance; the point is gradually washing away at its end, and shows as a bare yellowish bluff about 35 feet high. Nearly ⅜ mile south of the point is **Greenbury Point Lighthouse** (see table, page 22). When the river entrance is opened out in standing up or down the bay, the **State House** at Annapolis is a prominent landmark.

The Channel entering the river is comparatively narrow and has a least depth of 19 feet. It is marked by buoys up to the anchorage off Annapolis. Extensive shoals make out to the edge of the channel from both sides of the entrance. Above Annapolis the channel is good for 19 feet of water into Round Bay, and the latter has a depth of 21 to 24 feet, with several spots of a less depth.

Anchorages.—A good anchorage for the night will be found in **Annapolis Roads,** which is fairly sheltered from westerly winds. Vessels of 18 feet draft or less can find good anchorage in the channel westward of Greenbury Point. The deep water anchorage off the Naval Academy is usually occupied by naval vessels.

Those engaged in the bay trade of 12 feet or less draft usually anchor in the bight west of Greenbury Point or in Spaw Creek on the south side of Annapolis.

*Shown on charts **135**, scale $\frac{1}{80,000}$; **385**, scale $\frac{1}{10,000}$, price of each $0.50.

Pilots and Towboats.—Fishermen or oystermen, who are competent pilots, will be found in the entrance if required. Baltimore towboats that will tow vessels up the Severn River can usually be found in the bay.

Ice seldom interferes with navigation except in very severe winters, and then only for a limited time.

Tides.—The mean rise and fall of tides 0.9 foot, but winds influence them very much.

SAILING DIRECTIONS, ANNAPOLIS HARBOR.

These directions are good for vessels of 18 feet draft or less in the daytime, in clear weather, when the buoys can be seen. A stranger should not attempt to enter at night unless of light draft. A number of black and white horizontally-striped spar buoys are placed in Annapolis Roads; these are not intended as aids for navigation, but are placed to locate targets for gun practice.

1. ***Approaching and Entering, from Southward.***—Having followed the directions in section 5. "Sailing Directions, Chesapeake Bay," pages 36–37, when Thomas Point Shoal Lighthouse bears **W.**, distant ¾ mile, steer about **N. ¼ E.**; leave Tolly Point Shoal buoy (can, black, No 31) about ⅝ mile on the port beam. Continue the **N. ¼ E.** course nearly 1 mile northward of this buoy and then steer **NW.** by **W.** with the dome of the State House directly ahead; pass about 100 yards southward of Greenbury Point Outer Shoal buoy (nun, red, No. 2), and follow the directions in section 2 following.

Light-draft vessels—less than 15 feet.—Passing eastward of Tolly Point Shoal buoy (can, black, No. 31) bring Greenbury Point Lighthouse to bear **NNW. ½ W.** and steer for it on this bearing. When about ½ mile distant from Greenbury Point Shoal bouy (nun, red, No. 2) haul westward so as to leave this buoy 100 yards on the starboard hand. When this buoy bears abeam follow the directions in section 2.

If seeking an anchorage in Annapolis Roads, anchor anywhere on the **NW.** by **W.** course in 19 to 22 feet of water, with Tolly Point bearing between **WSW.** and **SSW.**

Remarks.—Tolly Point will be recognized by the large hotel pavilion and wharf at **Bay Ridge** (Chautauqua Beach), a summer resort; the point is left about 1¼ miles on the port hand. Heading for Greenbury Point Lighthouse, the dome of the State House and the city of Annapolis will be opened out on the port bow; the buoys marking the entrance to the channel into the harbor should also be made a little on the port bow.

On the **NNW. ½ W.** course for Greenbury Point Lighthouse a black and white horizontally striped spar buoy should be left on the port hand (this is a Naval Academy target buoy).

As the red nun buoy is approached several black can buoys, marking the western edge of the channel, will be seen northwestward of the red nun buoy.

Dangers.—**Tolly Point Shoal** makes out 1 mile **SE.** by **E.** from the point and has from 2 to 13 feet of water over it. The end of the shoal is marked by a buoy (can, black, No. 31).

Greenbury Point Shoal makes out nearly ⅝ mile southward and southeastward from the point; it has from 2 to 13 feet of water over it and shoals gradually when approached from the southeastward. Near its southeastern edge the shoal is marked by a buoy (nun, red, No. 2), and about ⅝ mile **S.** of the point and 250 yards from the western edge of the shoal is Greenbury Point Lighthouse (see table, page 22).

Shoals make out from both sides of the entrance above Tolly Point, and vessels of over 14 feet draft should follow the directions closely in the first paragraph of section 1.

1A. ***Approaching and Entering, from Northward.***—Coming down the bay, leave Sandy Point Lighthouse ½ mile on the starboard hand and steer **SW.** by **S.**, giving the western shore a berth of 1 mile, and passing ¼ mile eastward of Hackett Point Shoal buoy (can, black, No. 33). When Greenbury Point Lighthouse bears **W.** by **N.** steer **W. ½ S.** until Greenbury Point Lighthouse bears **NNW. ½ W.**, when the course should be changed to **NW.** by **W.** so as to pass about 100 yards south of Greenbury Point Shoal Outer buoy (nun, red, No. 2). Then follow the directions in section 2.

Remarks.—On the **SW.** by **S.** course from Sandy Point Lighthouse, **Thomas Point** will be ahead and **Thomas Point Shoal Lighthouse** (white pile structure, see table of lights, page 22) will be made on the port bow. As **Hackett Point** (the point at the northern side of the entrance to Annapolis Roads and about midway between Sandy Point and Tolly Point) is approached, the dome of the State House at Annapolis will show over the land (**Greenbury Neck**), and **Greenbury Point Lighthouse** (see table of lights, page 22) will be seen southward of the neck.

The large bight between Hackett Point and Greenbury Point is only used by very small vessels and is of no importance. On the **W. ½ S.** course Tolly Point will be on the port bow and a buoy (spar, black and white horizontal stripes) will be left about ⅝ mile on the starboard hand. On the **NW. by W.** course the dome of the State House should be ahead.

Dangers.—**Hackett Point Shoal** makes out about 1 mile southerly and southeasterly from the point and has from 2 to 15 feet of water over it; the southeastern edge of the shoal is marked by a buoy (can, black, No. 33), which is left on the starboard hand in entering.

A black and white horizontally striped spar buoy lies 1 mile **E. ½ S.** from Greenbury Point Lighthouse. This buoy should be left on the starboard hand in entering.

See also dangers under section 1 preceding.

2. ***From Greenbury Point Shoal Outer buoy to the anchorage abreast the Naval Academy.***—With red nun buoy No. 2 about 100 yards on the starboard beam steer **NNW. ¼ W.** Leave Greenbury Point Lighthouse 350 yards and red spar buoy No. 4 about 100 yards on the starboard hand, and when Greenbury Point bears **E.** steer **N. by W. ½ W.** until abreast Sycamore Point Flats buoy (can, black, No. 5), then haul westward and bring the end of Greenbury Point over the stern, bearing **SE. ¾ E.** and steer **NW. ¾ W.** Anchor about 200 yards eastward or 100 yards northeastward of Santee wharf, or in the channel below the wharf.

Vessels of less than 12 feet draft, after passing black can buoy No. 5, can stand about **W. by N.** and anchor in the cove south of the Naval Academy, about 500 yards southwestward from the end of Santee wharf.

Vessels bound up the river above the Naval Academy should take a pilot or towboat.

Remarks.—On the **NNW. ¼ W.** course a high yellow bluff will be ahead; Carrs Creek (small, unimportant) will be opened out just westward of Greenbury Neck. On the **N. by W. ¼ W.** course the Buoy Depot wharf will be a little on the starboard bow, black can buoy No. 3 should be left 200 yards on the port hand, and when the course is changed to **NW. ¼ W.** Fort Madison Shoal buoy (spar, red, No. 6) will be on the starboard beam, and Sycamore Point Flats buoy (can, black, No. 5) will be left on the port hand. The **Santee wharf**, built out from the eastern point of the Naval Academy grounds, will be a little on the port bow, and several mooring buoys (for naval vessels) will be seen ahead. The wharves of the city of Annapolis will be seen westward of the Naval Academy.

Dangers.—**Greenbury Point Shoal** rises abruptly from the channel westward and northwestward of the lighthouse.

Chink Point Shoal is the name given to the shoal making out from the western shore between 1 and 2 miles above Tolly Point; 11 feet of water is found ½ mile offshore on this shoal, and 15 feet at the buoy (can, black, No. 1) which marks its eastern edge.

Horn Point Shoal makes out about ⅝ mile eastward from **Horn Point**, the point west from Greenbury Point, and rises abruptly from the channel; the water shoals from 25 to 6 feet within 100 yards of its end, which is marked by a buoy (can, black, No. 3).

Sycamore Point Flats buoy (can, black, No. 5) marks the eastern edge of the flats, with 13 to 16 feet of water over them, which lie in the mouth of Spaw Creek, between Horn Point Shoal and the Naval Academy. These flats afford good anchorage for vessels of 10 feet or less draft.

Greenbury Point Shoal buoy (spar, red, No. 4) marks the western edge of the 18-foot curve of the shoal which makes out southwestward from Greenbury Point. Vessels should give the buoy a berth of at least 75 yards, as the 6-foot curve extends out to the buoy.

Shoals which contract the channel to a width of about 150 yards make out from the northern shore just above the Buoy Depot wharf. The narrowest part is where the end of the Buoy Depot wharf bears about **NE. ½ E.**

MAGOTHY RIVER*

empties into the western side of Chesapeake Bay, about 134 miles above Cape Henry and 5 miles below Bodkin Point, the southern point at the entrance to the Patapsco River. The river entrance between **Mountain Point** on the north and **Persimmon Point** on the south is nearly ½ mile wide, but a bar stretches across this entrance, over which there is a narrow buoyed channel having a depth of 13 feet. The river is frequented only by vessels engaged in the bay trade; the deepest draft taken in is 12 feet, and a draft of 8 feet can be taken about 6½ miles up the river. **Sandy Point Lighthouse** (see table, page 22), 3½ miles southeastward of the river entrance, is

*Shown on charts **376**, scale $\frac{1}{400,000}$; **79**, scale $\frac{1}{200,000}$; **135**, scale $\frac{1}{80,000}$, price of each $0.50.

the principal guide in approaching. Several unimportant creeks and branches empty into the river. **Deep Creek**, on the south side, just inside the mouth of the river, is frequently used as an anchorage by local vessels in heavy weather. The channel is narrow and has a depth of 8 feet. **Sillery Bay** is a large cove with 8½ to 12 feet of water, on the west side of the northern point at the entrance to the river.

SAILING DIRECTIONS, MAGOTHY RIVER.

These directions are good for a vessel of 10 feet or less draft, in clear weather. Deeper draft vessels should take a pilot.

1. ***Approaching and Entering, from Southward.***—Standing up the bay, pass ½ to ¾ mile eastward of Sandy Point Lighthouse, and when it bears **SW.**, distant ¾ mile, steer about **NW.** by **N.** so as to pass north of *Magothy Entrance buoy* (spar, black, No. 35). On the **NW.** by **N.** course the river entrance will be on the port bow. Leave black spar buoy No. 35 about 150 yards on the port hand and steer **NW.** by **W.** When Mountain Bar buoy (nun, red, No. 2) bears **WSW. ½ W.** steer for the buoy, leave it 35 yards on the starboard hand, and then steer about **WNW.** so as to leave Persimmon Point Shoal buoy (can, black, No. 1) on the port hand. When past the latter buoy, and well inside the entrance, continue the course about ½ mile and anchor off the mouth of Deep Creek in 15 to 17 feet of water, soft bottom.

1 A. ***Approaching and Entering, from Northward.***—Coming down the bay, when Love Point Lighthouse bears **E. ¼ S.** steer **W. ¼ N.**, heading into the entrance of the river. Craighill Channel Lower Entrance buoy (bell, red) will be left on the starboard hand and Magothy River Entrance buoy (spar, black, No. 35) will be left well on the port hand. When the red nun buoy in the entrance of the river is made, bring it to bear **WSW. ½ W.** and steer for it on this bearing. Leave this buoy 35 yards on the starboard hand, and then steer about **WNW.** so as to leave Persimmon Point Shoal buoy (can, black, No. 1) on the port hand. When past the latter buoy, and well inside the entrance, continue the course about ½ mile and anchor off the mouth of Deep Creek in 15 to 17 feet of water, soft bottom.

PATAPSCO RIVER AND BALTIMORE HARBOR.*

The Patapsco River empties into Chesapeake Bay from northwestward, 140 miles above Cape Henry Lighthouse. Between Bodkin Point, the southern point at the entrance, and North Point, the northern point at the entrance, the river is about 3¾ miles wide; this width gradually decreases, and at Fort Carroll, 6½ miles above Bodkin Point, it is about 1⅞ miles wide; above Fort Carroll the river again widens and then gradually contracts until abreast of Fort McHenry, eastward of which is the entrance to Baltimore Harbor. The river turns more westward at Fort McHenry, and 1½ miles farther up is crossed by a drawbridge (Long Bridge) through which the Middle Branch is entered; the width of the draw in this bridge is 84 feet. Patapsco River is important as the approach to the city of Baltimore, which is on the north bank near the head of navigation, and about 11 miles above its mouth. The entrance to the river is obstructed by shoals through which channels have been dredged under the supervision of the United States Engineers; these channels have a depth of 30 feet at low water and their width ranges from 450 to 585 feet. Dredging is in progress to widen the channels at their narrower parts to a uniform width of 600 feet.

Bodkin Creek, making southwestward, just inside Bodkin Point, has a channel 11 feet deep and 160 feet wide at the entrance; but has a ruling depth of 8 to 10 feet inside; it is only frequented by vessels of 10 to 15 tons engaged in local produce trade.

Old Road Bay lies between North Point and Sparrow Point on the north side in the entrance of the river. Two unimportant creeks, **North Point Creek** and **Jones Creek**, empty into the head of the bay.

Rock Creek empties into the Patapsco from southwestward, about 4 miles above Bodkin Point and just westward of **Rock Point**. The channel at the entrance is 100 feet wide and 8 feet deep, and is marked by two buoys at its narrowest part. It is of little importance to strangers, but has a large local trade in produce.

*Shown on charts **378**, scale $\frac{1}{400,000}$; **79**, scale $\frac{1}{200,000}$; **136**, scale $\frac{1}{80,000}$; **549**, scale $\frac{1}{40,000}$; price of each $0.50.

carried partly by steamers running to Baltimore. **Jacobsville** is a village near the head of the creek. The creek is sometimes used as an anchorage by oystermen seeking shelter from southerly and easterly winds.

Stony Creek empties into the Patapsco from southwestward, about 1 mile above the entrance to Rock Creek. It is of little importance except as a summer resort and for its local trade in produce. The channel is about 175 feet wide and has a depth of 13 feet at low water; inside the entrance the width is greater.

Bear Creek and **Humphreys Creek** have a common entrance **NE.** from Fort Carroll and westward of Steelton. These creeks are of no importance except for the local trade in produce and cordwood. The entrance is crossed by a drawbridge, width of draw 68 feet in the clear, and the channel is marked by two buoys, one below and one above the bridge. A depth of 14 feet can be taken 2½ miles up Bear Creek.

Curtis Creek is the most important tributary of Patapsco River; its entrance (**Curtis Bay**) is in the western shore, 1¾ miles above Fort Carroll, and has a depth of 20 to 26 feet. A channel 27 feet deep and 70 feet wide, or 25 feet deep and 150 feet wide, marked by buoys, leads from the Fort McHenry channel to the large pier at the head of the bay. Large quantities of produce are shipped from the landings on the creek, and at the head of the bay at **South Baltimore**, about 1 mile above the entrance of the bay, is a large railroad pier and coal pockets, the terminus of a branch of the B. & O. R. R. Vessels bring lumber, iron, and railroad ties to the pier, and load with coal and fertilizers. A large car factory is located near the pier. A depth of 13 feet can be taken 3⅛ miles up the creek. For sailing directions see section 3 "Sailing Directions, Patapsco River and Baltimore Harbor."

Baltimore Harbor makes northward between **Lazaretto Point** on the east and **Fort McHenry** on the west, where it is about 500 yards wide; inside Fort McHenry the harbor has a width of about 850 yards until up to **Fells Point**, where it narrows to 400 yards. Above Fells Point its width gradually decreases to the head of the harbor, which is about 2⅛ miles above Fort McHenry. The upper end, above the City Dock, is called **The Basin.** On the north side, about east from the observatory on Federal Hill, is the entrance to **City Dock**—used principally by vessels in the lumber trade. A drawbridge (width of draw 82 feet) crosses the entrance to City Dock at Block Street. The depth of water in the harbor and basin ranges from 17 to 30 feet.

Middle Branch, which makes northward about 1¼ miles **W.** of Fort McHenry, is crossed by a drawbridge (width of draw 84 feet). It has a buoyed channel with a depth of 15 feet at low water, which is maintained by dredging; this depth can be carried to the principal wharves in the branch. Schooners carrying coal, wood, and ice load and discharge at the wharves; they usually take a towboat when entering and passing out, on account of the narrow channel.

The city of **Baltimore** is one of the important commercial cities in the United States; it has a large foreign and coasting trade, and is the principal market for the farm produce and oysters which are shipped from the many tributaries of Chesapeake Bay. Vessels of all classes and sizes enter and clear from the port; the deepest draft entering is about 27 feet and clearing 30 feet. Large quantities of grain are shipped to Europe; the Baltimore and Ohio Railroad and Northern Central Railway have elevators at which the largest vessels can load.

Steelton is a thriving town on the north shore of the Patapsco River, about 1¼ miles below Fort Carroll. It has large iron and steel works and a shipyard; it is reached through a dredged channel, with a depth of about 30 feet, from Brewerton Channel; it is the terminus of a branch of the Baltimore and Ohio Railroad. Steamers and sailing vessels bring iron ore to the works, unloading at the pier. The town is lit up by electric lights at night.

Channels.—The Craighill, Cutoff, and Brewerton channels lead through the shoals off the mouth of the river up to Fort Carroll, above which the Fort McHenry Channel leads into Baltimore Harbor. These channels have a depth of 30 feet and a width of 450 to 565 feet. The natural channel of the river between Seven-Foot Knoll Lighthouse and Baltimore has a depth ranging from 15 to 24 feet. Shoals make out from the shores, but the principal dangers are marked by buoys, as are also the dredged channels. The **Craighill Channel** is 30 feet deep and 565 feet wide (in 1902); its entrance from Chesapeake Bay is about 2¾ miles **N. ¼ W.** from Sandy Point Lighthouse and about 1¼ miles from the western shore of the bay, where it is marked by a red bell buoy. The channel follows a **N. ¼ E.** direction about 4 miles, on a range of two lighthouses ahead (see table of lighthouses, page 24), to its junction with the Cutoff Channel. The starboard side (entering) of Craighill Channel is marked by a number of red buoys, which are placed close to the edge of the channel and can be readily distinguished in clear weather.

The **Cutoff Channel** leads from the Craighill to the Brewerton channels in a **NNW. ¼ W.** direction. This channel has a width of 450 feet and a depth of 30 feet, and is marked by a line of black buoys left on the port hand and two range lights (see table of lighthouses, page 24) ahead when entering. **Seven-Foot Knoll Lighthouse** (see table, page 24) is about ¼ mile eastward of this channel and about midway its length.

The **Brewerton Channel,** from the junction of the Cutoff Channel to Fort Carroll, has a depth of 30 feet and a width of 460 feet (in 1902). The old extension of this channel from Chesapeake Bay to its junction with the Cutoff Channel has a depth of 17 to 22 feet; it is now used only by local vessels, and is marked by a buoy (spar, red, No. 8). The direction of the channel is **NW.** by **W.** ½ **W.** for 4 miles from its junction with the Cutoff Channel, and its starboard side is marked by a number of red buoys. Two lighthouses in range* (the front one on Hawkins Point and the rear one on Leading Point, see table, page 24) are the guides for this channel, and also indicate the points for turning into it when entering by the Cutoff or Craighill channels.

Fort McHenry Channel is 565 feet wide and 30 feet deep (in 1902); it leads in a **NW.** by **N.** direction from its junction with the Brewerton Channel to the entrance of Baltimore Harbor, between Lazaretto Point and Fort McHenry. This channel passes through a part of Patapsco River, which has a general depth of 19 to 25 feet, and was dredged for vessels of the deepest draft entering Baltimore. It leads about 400 yards westward of Fort Carroll Lighthouse, and is marked on its eastern edge by a number of red buoys, which are left on the starboard hand when entering.

Above Fort McHenry a channel with a depth of 27 to 30 feet and width of 100 yards leads along the wharves of the southern shore to **Locust Point,** and to the Northern Central Railway piers at Lazaretto Point.

Prominent features.—Seven-Foot Knoll Lighthouse and the Front Range Lighthouse of the Craighill Channel range will be readily distinguished (see table of lights, page 24). **Bodkin Point,** the southern point at the entrance, is low, but southward of the point the shore line is hilly, showing abrupt, bare bluffs. **North Point** is low, backed by trees, and has the front light of the Cutoff range and a long wharf at its southwestern side (see table of lights, page 24). **Steelton,** with its large iron and steel works, is situated on **Sparrow Point** about 2¼ miles northwestward of North Point. **Fort Carroll,** a casemated masonry structure with a lighthouse on its southwestern end (see table of lights, page 24), is in the middle of the river about 4 miles above North Point, and about the same distance below Fort McHenry. **Hawkins Point** and lighthouse (see table of lights, page 24) is westward of Fort Carroll; the **Quarantine Grounds** and anchorage are just above Hawkins Point, on the western side of the channel. **Fort McHenry** is a masonry structure on the western point at entrance to Baltimore Harbor and 4 miles above Fort Carroll; the grassy slopes of some earthworks face the channel down the river. **Lazaretto Point** and lighthouse is on the eastern side of the entrance to Baltimore Harbor (see table of lights, page 24). The grain elevators of the Baltimore and Ohio Railroad and the Northern Central Railway show very prominently to vessels approaching the city of Baltimore. **Federal Hill** is a high hill, with a tower and flagstaff on top, about 1¾ miles **NW.** from Fort McHenry.

Pilots.—Pilotage for the port of Baltimore is compulsory for foreign vessels, for vessels from a foreign port, and vessels sailing under register. Exceptions from compulsory pilotage are given in the pilotage laws and rates for the State of Maryland in Appendix I. Maryland pilots will be found cruising at the entrance of Chesapeake Bay.

Towboats.—Large and powerful towboats will be found cruising in the lower part of Chesapeake Bay or in Hampton Roads. Vessels sailing up the bay and bound to Baltimore, if of more than 15 feet draft, should take a towboat at the entrance of the Craighill or Brewerton channels. Towboats will generally be found near the mouth of the Patapsco River waiting to be engaged to tow vessels through the dredged channels.

Anchorages.—The anchorage limits in the harbor of Baltimore are prescribed by law, and it is the duty of the harbor master to carry out its provisions. Vessels can find good anchorage in 23 to 25 feet water on either side of Fort McHenry Channel above Fort Carroll, keeping at least 300 feet outside of the dredged channel marked by buoys. Vessels outward bound usually anchor westward of the Fort McHenry Channel and south of Lazaretto Point. (See laws relating to anchorages in Appendix I.)

Harbor Regulations for the port of Baltimore are given in Appendix I.

Quarantine Regulations for the Port of Baltimore are given in Appendix I.

Storm-Warning Displays of the United States Weather Bureau are shown from the building corner Broadway and Thames street, and can be seen in some parts of the harbor (see Appendix II).

A Time Ball is dropped daily (Sundays excepted) on the Baltimore and Ohio Railroad Building at noon of the 75th meridian, 5 *hours Greenwich mean time.* It is hoisted five minutes before noon and can be seen from many parts of the harbor; in case of no signal the ball is lowered slowly 5 minutes after noon.

A Branch Hydrographic Office of the Navy Department is located at the Custom-House; this office is supplied with the latest information and publications affecting navigation, for the consultation of mariners.

Wharves.—The deepest draft vessels are berthed at the piers of the Baltimore and Ohio Railroad at Locust Point and at the Northern Central Railway piers at Canton; 30 feet of water can be taken alongside the elevator of the Northern Central Railway east of Lazaretto Point. The other wharves in the harbor have

* This range is not readily distinguished. See sailing directions, section 2, following.

from 15 to 24 feet of water at their outer ends; in the Middle Branch a depth of 15 feet is found at the principal wharves. The facilities for loading and discharging cargoes are of the best, and no difficulty is experienced in berthing the largest vessels that enter the port.

Repairs.—The facilities for repairs to hulls of vessels and machinery of steamers are of the best. There are two dry docks, two floating docks, and four marine railways capable of taking out vessels of over 500 tons, besides other smaller marine railways. The dimensions of the principal ones are:

Character.	Length.	Breadth.			Draft.	Remarks.
		Entrance.	Top.	Bottom.		
	Feet.	*Feet.*	*Feet.*	*Feet.*	*Feet.*	
Dry dock	600	80	125	62	22¼	10,000 tons capacity.
" "	470	80	115	45	22	7,000 " "
Floating dock	230	66			12	1,500 tons lifting capacity.
" "	154	60			10	700 " " "
Marine railway	300				6 fwd., 20 aft.	1,400 tons capacity.
" "	225	55			11 " 15 "	1,500 " "
" "	234				7 " 20 "	800 " "
" "	200				6 " 16 "	800 " "

There are large machine and boiler shops capable of turning out any kind of work required for the machinery of steamers.

Supplies.—Coal in unlimited quantities can be obtained alongside the wharves or from lighters in the stream. Water can be had alongside wharves or from water boats. Provisions and ship chandler's stores of all descriptions can be had in the city.

Tides.—The mean rise and fall of tides is 1.2 feet. For other tidal data see table, page 26.

Ice.—Baltimore Harbor and the Patapsco River are frozen over in severe winters, but steamers and ice boats keep the dredged channels open so that vessels assisted by steam can always enter the harbor. In severe winters wooden vessels frequently put extra sheathing around their bows to prevent the chafe of drift ice.

SAILING DIRECTIONS, PATAPSCO RIVER AND BALTIMORE HARBOR.

The directions under section 1, through Craighill and Cutoff channels, are good for a least depth of 30 feet if the dredged channels are closely followed. By the directions under section 1 A, through the Brewerton Channel, depths varying from 16 to 30 feet can be carried. The directions under section 1 B carry a least depth of 12 feet. Only the smaller vessels enter the Patapsco River by following the directions in sections 1 A and 1 B. The directions under section 2 carry a depth of 30 feet to the city of Baltimore.

1. ***Approaching and Entering by the Craighill and Cutoff channels, from Southward.***—Having followed the directions under section 6, "Sailing Directions, Chesapeake Bay," page 37, when Sandy Point Lighthouse bears **W.**, distant about ¾ mile, steer **N. by W. ¾ W.**; this course should lead fair for red nun buoy No. 2 (in April, 1902, this was a red bell buoy) which marks the southern entrance to the Craighill Channel. Leave this buoy on the starboard hand and steer **N. ½ E.** following the line of red buoys which mark the eastern edge of the channel. When Bodkin Point bears about **NW.** the first of the black can buoys, which marks the turn into the Cutoff Channel, should be left on the port hand. Now steer about **N.** leaving the black buoys 75 yards on the port hand, and when Bodkin Point bears **WNW. ¾ W.**, the course should be changed to **NNW. ¼ W.**, and the line of black buoys which mark the western edge of the Cutoff Channel should be followed. When up to black can buoy No. 19 (the last buoy marking the turn from the Cutoff to the Brewerton Channel) change the course to **NW.** by **W. ⅝ W.**, and follow the directions in section 2 following.

At night.—With Sandy Point Lighthouse bearing **W.**, distant about ¾ mile, steer **NNW.**; when the color of Sandy Point Light is changed from white to red, the Craighill Channel range lights should be in line. Then follow the range, course **N. ½ E.** Standing in on the Craighill Channel range keep a lookout for the Cutoff range lights, which will

be seen westward of Seven-Foot Knoll Lighthouse on the port bow. When the Cutoff range lights are in line steer for them, course **NNW. ¼ W.** Seven-Foot Knoll Light will be left about 500 yards on the starboard hand when halfway along the Cutoff Channel. When a little past Seven-Foot Knoll Light a lookout should be kept for Hawkins Point Light, which should be seen westward and a little south from Fort Carroll Light. (Leading Point Light, the rear light of the Brewerton Channel range, will be opened out among the trees.)

When Hawkins Point Light bears **NW.** by **W. ⅝ W.** head for it on this bearing, keeping Hawkins Point and Leading Point lights in range, and follow the directions in section 2 following.

Caution.—Except with the assistance of a pilot, deep-draft vessels should not attempt to enter at night, even under favorable conditions, on account of the width of the channels, which range from 450 to 565 feet.

Note.—It should be remembered that, when approaching the entrance to the Craighill Channel, the Craighill Channel range lights will be seen eastward and the Cutoff Channel range lights westward of Seven-Foot Knoll Lighthouse. (See the characteristics of these lights in the table on page 24.)

Remarks.—Red nun buoy No. 2 (in April, 1902, a red bell buoy) at the entrance of the Craighill Channel is nearly 3 miles **N. ¼ W.** from Sandy Point Lighthouse and off the mouth of Magothy River. As soon as this buoy is made it should be steered for and left on the starboard hand. The red buoys on the eastern edge of Craighill Channel are spars. Westward of the dredged channel several black buoys are seen, which mark shoal spots lying outside the channel; these should not be mistaken for the buoys of the Cutoff Channel. Standing up the Craighill Channel the range lights (see table, page 24) will be ahead and **Seven-Foot Knoll Lighthouse** on the port bow; westward of the latter the front range lighthouse of the **Cutoff Channel Range*** will be seen on the southwestern end of North Point (see table, page 24). As the entrance of the Cutoff Channel is approached, three black can buoys will be seen, and, in a northwesterly direction, the black spar buoys marking the western edge of the Cutoff Channel. When entering the Cutoff Channel a red and black horizontally striped spar buoy, marking the junction of the Craighill and Cutoff channels, will be left on the starboard hand.

Standing up the Cutoff Channel the two range lights (see table, page 24) will be ahead; Seven-Foot Knoll Lighthouse will be on the starboard bow and is left 500 yards on the starboard hand while it is being passed; Fort Carroll and lighthouse, Hawkins Point Lighthouse, and the large iron furnaces at Steelton will be seen westward; some of the larger buildings of the city of Baltimore will be seen on a clear day. After passing Seven-Foot Knoll Lighthouse the black can buoy (No. 15), marking the turning point into Brewerton Channel, will be made, and should be left on the port hand; the red and black horizontally striped spar buoy, which will be seen on the eastern side of the channel, will be left well on the starboard hand. A long line of red spar buoys, marking the northern edge of Brewerton channel, will be seen stretching northwestward from the head of the Cutoff Channel.

Dangers.—**Lower Thirteen-Foot Lump** is on the western side of the dredged channel, about 1¾ miles above red bell buoy, and has 13 feet of water over it as indicated by its name. A buoy (can, black, No. 1) marks this spot, which should be left on the port hand; this buoy should not be mistaken for the buoy marking the entrance of the Cutoff Channel, which is nearly 2½ miles farther northward. Upper Thirteen Foot Lump buoy (spar, black, No. 3) lies nearly ¼ mile **N. ¾ E.** from black can buoy No. 1 and westward of the dredged channel.

There are numerous lumps on both sides of the Craighill and Cutoff channels which have from 8 to 13 feet of water over them; they are of a shifting nature and a detailed description of them would be useless; some are marked by buoys. Vessels entering should keep in the dredged channels; some local knowledge is necessary for vessels of over 10 feet draft to enter from southward outside of the dredged channels.

Shoals with 1 to 6 feet of water over them make out ½ mile eastward and ¾ mile northeastward from Bodkin Point.

1 A. ***Approaching and Entering by the Brewerton Channel, from Southward.***—Having followed the directions under section 6, "Sailing Directions, Chesapeake Bay," page 37, leave Sandy Point Lighthouse ¾ mile on the port hand and continue the **N.** by **E. ¾ E.** course 6 miles farther, passing ¾ mile westward of Lower Mid-channel buoy (spar, black and white perpendicular stripes). When Upper Mid-channel buoy (spar, black and white perpendicular stripes) bears **E.** distant ½ mile, change the course to **N.** for 2 miles until Seven-Foot Knoll Lighthouse bears **W.** by **N.** Then steer

* At night the electric lights on Sparrow Point (Steelton), which can be distinguished by their white color and are visible from all points, should not be mistaken for the Cutoff Channel range lights.

NW. by **W.** ⅝ **W.** for 4¾ miles, leaving red spar buoy No. 8 about 50 yards on the starboard hand, which will lead to the junction of the Brewerton and Cutoff channels, and then follow the directions in section 2 following.

Note.—A stranger should not attempt this channel at night, as some difficulty may be experienced in distinguishing the range lights.

Remarks.—On the **N.** by **E.** ¼ **E.** course Chester River Entrance will be opened out on the eastern shore and the Lower Mid-channel buoy (spar, white and black perpendicular stripes) should be made on the starboard bow. On a clear day some of the Craighill Channel buoys may be seen off the port beam. The course leads nearly in the middle of the bay and well clear of the shoals off the mouth of the Patapsco River. When the course is changed to **N.** the Upper Mid-channel buoy (spar, white and black perpendicular stripes) will be left about ¼ mile on the starboard hand and Swan Point Shoal buoy (spar, red, No. 22) will be left about 1¼ miles on the starboard hand. Brewerton Channel Entrance buoy (spar, red, No. 8) should be made a little on the port bow when on the **NW.** by **W.** ⅝ **W.** course.

Standing into Brewerton Channel, the range lighthouses of the Craighill and Cutoff channels will be on the starboard bow and Seven-Foot Knoll Lighthouse on the port bow.

Dangers.—**Shoals,** with 15 feet of water near the end, make out 1¼ miles in a northwesterly direction from **Love Point** (the southern point at the entrance to Chester River); these shoals are not marked.

Numerous shoal spots, some of them with as little as 6 and 8 feet of water over them, lie westward of the sailing lines and off the entrance to the Patapsco River. **Belvidere Shoal,** 9 feet of water, lies 5 miles **N.** ¼ **E.** from Sandy Point Lighthouse and is marked by a buoy (spar, black, No. 37). This shoal is surrounded by spots with 9 to 12 feet over them. **Nine-Foot Knoll,** 8 feet of water, lies about 2½ miles **ESE.** from Seven-Foot Knoll Lighthouse and is marked by a buoy (spar, black, No. 1). **Six-Foot Knoll,** 6 feet of water, lies westward of Nine-Foot Knoll and is marked by a buoy (spar, black, No. 3). There are several spots with 11 to 15 feet of water westward of the sailing line and eastward of a line between Belvidere and Nine-Foot Knoll buoys.

Swan Point Shoal extends a little over 1¾ miles **WSW.** from Swan Point; its western end is marked by a buoy (spar, red, No. 22).

Between Brewerton Channel buoy (spar, red, No. 8) and the junction of the Craighill Channel there are depths of from 15 to 17 feet on both sides of the channel, with a 11-foot spot about 400 yards northward of the line of the Brewerton Channel Range.

Seven-Foot Knoll, 6 to 10 feet of water, extends nearly ⅝ mile **NE.** by **E.** from the lighthouse; the western edge of the knoll borders on the Cutoff Channel.

1 B. ***Approaching and Entering around North Point, from Northward.***—These directions, if closely followed, will carry a least depth of about 12 feet.

Standing down the bay when the south end of Pooles Island bears **W.** by **S.** steer for it on this bearing. Leave black can buoy No. 3 about 75 yards on the starboard hand, and red nun buoy No. 2 about 100 yards on the port hand, and then steer **SW.** ¾ **W.** for 1½ miles. Leave Pooles Island Flats buoy (spar, black, No. 1) about 75 yards on the starboard hand, and when this buoy is abeam steer **SW.** by **W.** ¾ **W.** This course made good for 9¼ miles will lead about 200 yards northward of Matin Cutt Wreck buoy (spar, red and black horizontal stripes) and southward of North Point Shoal buoy (spar, red and black horizontal stripes), and into the Brewerton Channel south of North Point. Then follow the directions in section 2.

Currents.—The flood current sets northward and the ebb southward between North Point and Pooles Island. Allowance should be made for the current, which varies in velocity with the force and direction of the wind.

Remarks.—Standing on the **W.** by **S.** course a wharf near the southeast end of Pooles Island will be nearly ahead; the buoys marking the channel between the shoals will be easily seen in clear weather. After passing red nun buoy No. 2 (Shark Shoal buoy) care must be taken not to be set off the sailing line by the currents, and black spar buoy No. 1 should be made, and kept, on the starboard bow until up to it. Having stood on the **SW.** by **W.** ¾ **W.** course for 2¾ miles from black spar buoy No. 1, a red and black horizontally striped spar buoy should be left 200 yards on the port hand; a red spar buoy (No. ½) lies 600 yards southeastward from this buoy, and will be seen. After passing the red and black horizontally striped spar buoy, care must be taken not to be set northward by the current. The front light of the Craighill Channel Range should be left about ⅞ mile on the port hand, and as North Point is approached the buoys off the point should be made a little on the starboard bow.

Dangers.—**Shoals** with a least depth of about 7 feet over them lie 1¼ miles eastward of Pooles Island, and extend along the western edge of the channel up the bay. A channel with a least depth of 14 feet leads

between these shoals; it is marked on its northern side by a buoy (can, black, No. 3) and on its south side by Shark Shoal buoy (nun, red, No. 2). **Shark Shoal** extends 1¼ miles in a general **SW.** by **S.** direction from this buoy, and rises abruptly from depths of 6 to 9 fathoms.

Pooles Island Flats extend about ⅞ mile in a general **SSW.** direction from the southern end, and ¼ mile from the eastern side, of Pooles Island. The shoal has depths of 6 to 10 feet over it, and less water close to the island.

Nine-Foot Lump is the name of a shoal with a least depth of 7 feet over it lying southward of the sailing line and about 3¾ miles **SW.** from the southern end of Pooles Island. This shoal is marked off its northern side by a buoy (spar, red, No. 4) which lies 600 yards southward of a red and black horizontally striped spar buoy which marks the Matin Cutt wreck.

Shoals with a depth of 12 feet and less make off 1¼ miles **ESE.** from the rear light of the Craighill Channel range; and 2¼ miles **ESE.** ¼ **E.** from this light is another shoal with depths of 9 to 12 feet over it. The sailing line leads between these two shoals.

North Point Shoal extends about ⅝ mile southward from North Point; it has 1 to 7 feet of water over it, and is marked off its southern end by a buoy (spar, red and black horizontal stripes).

2. ***From North Point to Lazaretto Point, by the Brewerton and Fort McHenry channels.***—When in the Brewerton Channel continue the **NW.** by **W.** ⅝ **W.** course, following the line of red spar buoys with Hawkins Point Lighthouse ahead. When within 1⅝ miles of Hawkins Point Lighthouse a red nun buoy will be passed and the course should be changed slightly northward to follow the red buoys; black can buoy No. 21 should be left on the port hand. When abreast red nun buoy No. 24 change the course to **NW.** by **N.**, and continue to follow the line of red buoys which mark the eastern side of the Fort McHenry Channel up to Lazaretto Point.

If bound into the harbor above Lazaretto Point in a sailing vessel, take a towboat.

If of less than 23 feet draft and desiring to anchor, come to in 23 to 24 feet of water at least 300 feet westward of the dredged channel when on a line between the Northern Central Railway elevator and Tysons Wharf, with the former bearing about **NE.** by **E.** *Or vessels of 19 feet or less draft,* when the southern end of the Northern Central elevator bears about **N.** by **E.** ½ **E.**, can steer **NW.** by **W.** and anchor, in the natural channel of the river, with the flagstaff on Fort McHenry bearing between **N.** and **NE.** (See also "Anchorages" in Appendix I.)

Note.—The rear light of the Brewerton Channel range (**Leading Point Lighthouse,** see table, page 24) is not readily distinguished in the daytime until past the junction of the Cutoff Channel, and at night the light is shut out when near the junction of the Brewerton and Fort McHenry channels.

Remarks.—Standing up the Brewerton Channel above North Point, Old Road Bay and North Point and Jones creeks will be opened westward of North Point. The entrance to Rock Creek will be opened in the south shore; when abreast of Steelton, Stony Creek will be opened in the south shore. On the southeastern side of Sparrow Point (Steelton) is a large wharf; a dredged channel, marked by buoys, leads from Brewerton Channel to this wharf. At night Steelton is lighted by electric lights. Standing up the Fort McHenry Channel below Fort Carroll, Bear Creek is open westward of Steelton. Passing Fort Carroll, Curtis Bay will be gradually opened to the westward. **The Quarantine Anchorage** is in Thoms Cove, between Curtis Bay Entrance and Hawkins Point, and a yellow buoy, which marks the anchorage, are left on the port hand. The large elevators of the B. & O. R. R. are prominent ahead, with the grassy slopes of the batteries at Fort McHenry in the foreground. **Lazaretto Point** and lighthouse are a little on the starboard bow; between it and Fort McHenry is the entrance to the harbor. The Patapsco River above Fort McHenry, known locally as "**The Southern Branch,**" is opened out when about 1 mile from Lazaretto Point.

Dangers.—There are no dangers in the dredged channels; the depth outside of the Brewerton Channel above North Point ranges from 15 to 17 feet, with scattered spots having less water over them. Along the Fort McHenry Channel the depth outside of the dredged channel is from 20 to 24 feet.

Rock Point Shoal has 5 to 12 feet of water over it, and extends ⅞ mile northward from Rock Point. The northern edge of the shoal is marked by a buoy (spar, black, No. 9), which bears about **SW.**, distant 1⅝ miles from the front lighthouse of the Cutoff range.

White Rocks, a cluster of bare white rocks, lie ⅝ miles **NW.** ¼ **N.** from Rock Point, and form an excellent mark on the east side of the approach to Rock Creek.

A rock with ½ foot water over it, and marked by a buoy (spar, red and black horizontal stripes), lies in the middle of Old Road Bay on a line between North and Sparrow points.

A wreck, marked by a red and black horizontal striped spar buoy, lies 1⅛ miles **WNW.** ½ **W.** from the front light of the Cutoff Channel range.

A shoal, with 10 feet of water near its end, extends ⅝ mile southward and about the same distance westward from Sparrow Point. This shoal is not marked, and vessels should not stand northward of the line of the red buoys when passing the point.

A shoal with 5 to 11 feet of water over it, and marked near its end by a buoy (spar, red, No. 2), lies about 1¼ miles **NW.** by **W.** from Rock Point and about ¼ mile from the shore. This shoal and buoy are on the west side of the entrance to Stony Creek.

Sollers Point Shoal with 6 feet of water over it makes out nearly ¾ mile southward from **Sollers Point**, the western point at the entrance to Bear Creek, leaving a narrow channel northward of Fort Carroll with a depth of 13 feet. Strangers should pass southward of Fort Carroll.

The eastern shore of the river above Fort Carroll should be given a berth of ¼ mile.

Fishing Point Shoal makes out nearly ¼ mile eastward and southeastward from the northern point at the entrance to Curtis Bay; the northeastern edge of this shoal is marked by a buoy (spar, black, No. 13).

Fort McHenry Shoal extends southward from the point at Fort McHenry and has 17 feet of water on its end and 5 feet of water 200 yards from shore, where it is marked by a red and black horizontally striped spar buoy.

3. ***To an Anchorage in Curtis Bay.***—Following the directions in section 2 and when ¾ mile above Fort Carroll on the **NW.** by **N.** course, steer **W.** ⅛ **N.** following the line of the buoys, leaving the red spar buoys about 20 yards on the starboard hand and the black spar buoys about the same distance on the port hand. A large red-brick factory will be a little on the starboard bow. Having stood ¾ mile on the **W.** ⅛ **N.** course the direction of the line of buoys changes about ¼ point more northward, and the large factory should be brought to bear ahead.

When the last red spar buoy (No. 8) has been passed steer about **NW.** by **W.** and anchor well northward of the two black spar buoys which mark the southern edge of the channel farther in.

Remarks.—Vessels should follow the buoys closely as the dredged channel leads close to shoals in several places. A large number of coal barges will usually be found at anchor near the head of the bay waiting for coal for shipment.

EASTERN SHORE OF CHESAPEAKE BAY FROM CAPE CHARLES TO POCOMOKE SOUND.*

This stretch of shore, about 43 miles in length, includes many creeks that are navigable for small vessels. It borders a fertile agricultural country, and the transportation of farm produce employs many small sailing vessels and some of the steamers engaged in the bay trade. The creeks have many landings from which this produce is shipped. The shore is low and without any prominent natural landmarks except **Butlers Bluff**, which is about midway between Cape Charles and Old Plantation Flats Lighthouse, and shows bare, bluff faces when seen from the bay. On **Fisherman Island**, just south of Cape Charles, are the buildings and wharf belonging to the **United States Quarantine Station. Old Plantation Flats** and **Cherrystone lighthouses** (see table, page 20) are the principal aids.

Shoals extend out ¼ mile to 3 miles from the shore, and across the mouths of the creeks, where they form bars. The channels across the bars of the more important creeks are marked by buoys.

Strangers desiring to enter any of the creeks are advised to take a pilot (generally an oysterman or fisherman living in the vicinity).

FISHERMAN INLET

is a narrow channel between Fisherman Island and Cape Charles and is only used by small vessels. The channel is narrow, crooked, and has a depth of 7½ feet, but is without aids to assist a stranger. The tidal currents are very strong; their velocity westward is about 3½ miles at times.

OLD PLANTATION CREEK

is a shallow, unimportant stream about 7½ miles above Cape Charles; its entrance lies east from Old Plantation Flats Lighthouse.

CHERRYSTONE INLET†

is a narrow channel leading into a shallow creek in the eastern shore about 4½ miles above Old Plantation Flats Lighthouse. This channel is marked by Cherrystone Lighthouse, two range lights (see table, page 20), and a

*Shown in parts on charts **131, 132, 133**, scale of each $\frac{1}{80,000}$, price of each $0.50. †Shown on chart **132**, scale $\frac{1}{80,000}$, price $0.50.

number of buoys; it is the approach to Cape Charles City and to Cherrystone Wharf, a landing about 3½ miles above the lighthouse. The least depth in the channel to Cape Charles City is 11 feet and to Cherrystone Wharf 9 feet. The large red buildings on Cherrystone Island, 1½ miles **N.** by **E.** ½ **E.** from Cherrystone Lighthouse, form a conspicuous mark. Between Cherrystone Lighthouse and Wescott Point the inlet is exposed to northerly and westerly winds, but the shoals and Cherrystone Island somewhat break the sea.

Cape Charles City, on the eastern shore **NE.** from Cherrystone Lighthouse, is the terminus of the New York, Philadelphia and Norfolk Railroad, which has a dredged basin for the steamers plying to Norfolk. This basin is reached through a narrow dredged channel south of a jetty which extends out from the shore to the channel of the inlet; a lighted beacon is on the end of the jetty, and a pile beacon (lighted) marked the south side of the entrance of the channel in December, 1901. It is proposed to build a jetty on the south side of the entrance. The south side of the basin is shoaling, and about 8 feet is all that can be taken alongside the bulkhead; on the north side of the basin where the steamers land the depth is about 14 feet. The depth in the channel into the basin was 11 to 15 feet in December, 1901. Though this basin is private property, a number of small craft seek refuge in it from sudden westerly gales, taking care, however, to anchor so as not to interfere with the passage of the steamers, tugs, and barges of the Railroad Company.

Kings Creek, a narrow shallow stream, only navigable for small craft, empties into Cherrystone Inlet northward of Cape Charles City.

Cherrystone Wharf is a long wharf and small village on the eastern shore, about 2½ miles above Cape Charles City. Small steamers of the Old Dominion line, running from Norfolk, make this one of their landings.

The deepest draft of vessels engaged in the carrying trade from Cape Charles City is 10 feet, and from Cherrystone Wharf 8 feet. Strangers entering the inlet sometimes take a pilot, lying off and on southwestward of Cherrystone Lighthouse, with signal set, until one comes off from the shore. Bituminous coal in small quantities, for steamers, and water, through pipe and hose, can be had at the railroad wharf in Cape Charles City; provisions can be obtained in the town. There is no danger from ice in the winter. The tidal currents set across the entrance to the channel south of Cherrystone Lighthouse but follow the general direction of the channel above the lighthouse. The mean rise and fall of tides is 2.5 feet.

GENERAL DIRECTIONS FOR ENTERING CHERRYSTONE INLET.

These directions are good for a draft of 10 feet or less, and lead up to the entrance of the dredged channel into the basin at Cape Charles City.

Approach Old Plantation Flats Lighthouse on any course between **N.** by **E.** through **E.** to **SSE.** and pass westward of the lighthouse, giving it a berth of ½ mile. Bring Old Plantation Flats Lighthouse to bear **E.**, distant ¼ mile and steer **NE.** ⅜ **N.**, which will lead upon the range and fair between black can buoy No. 1 and red nun buoy No. 4. Make allowance for the tidal current which sets across the channel with considerable velocity at times. When the beacon on the north jetty bears about **N.** ½ **E.**, steer for it and leave black can buoy No. 1 about 40 yards and black buoy (spar, No. 3) about 75 yards on the port hand. Leave the beacons on the starboard hand and anchor in the channel northwestward of them, in 18 feet water.

If bound up to Cherrystone Wharf or to Cape Charles City a local pilot should be taken.

Remarks.—Cherrystone Lighthouse should receive a berth of at least 1¼ miles while westward of it. The water shoals abruptly on both sides of the channel above black can buoy No. 1. The range beacons do not show very distinctly in the daytime; the rear light is the higher of the two (see description in table, page 20).

HUNGERS CREEK

is 9 miles above Cherrystone Lighthouse, and is entered through a narrow channel which commences about 3 miles below the mouth of the creek. This channel leads northward on the eastern side of a long shoal, which extends along the shore with 1 foot of water over it. There is 6 feet of water on the bar at low water, but a stranger should not enter without a pilot.

Mattawoman Creek, at the mouth of Hungers Creek, is shallow and of no importance. Sailing directions of practical use can not be given; chart 132 is the best guide for approaching.

NASWADDOX CREEK

enters the eastern side of Chesapeake Bay 13 miles above Cherrystone Lighthouse and 11¼ miles **ENE.** ½ **E.** from Wolf Trap Lighthouse. A bar, with 3 to 4 feet of water over it, extends across the mouth of the creek.

Several landings on the creek ship farm produce in vessels of 5 feet or less draft engaged in the trade. Strangers seldom enter the creek. Pilots, generally local fishermen, can be had by making signal off the entrance.

OCCOHANNOCK CREEK*

enters the eastern side of Chesapeake Bay about 18 miles northward of Cherrystone Lighthouse and 14 miles **ESE. ¾ E.** from Windmill Point Lighthouse. The mouth of the creek is obstructed by extensive shoals, which make out 1¼ miles from the shore. A buoyed channel with a depth of 5 feet at low water leads into the entrance across these shoals. The outer buoy (can, black No. 1) lies west of the mouth of the creek and about 1¼ miles offshore. The deepest draft taken into the creek at high water is 6 feet, and 5 feet can be taken up to the head of navigation. The several landings on the creek ship farm produce and oysters in small sailing vessels and steamers. Strangers seldom enter, except with the assistance of a pilot, usually a fisherman living at the mouth of the creek.

Sailing directions of practical use to a stranger can not be given; the buoys are the only aids into the entrance of the creek, and above them some local knowledge is necessary to keep in the channel.

Craddock Creek is a small, shallow estuary about midway between the mouths of Occohannock and Nandua creeks. It has extensive shoals lying off the entrance and is navigable only for very small craft.

NANDUA CREEK*

enters the eastern side of Chesapeake Bay about 23 miles northward of Cherrystone Lighthouse. A buoyed channel leads across the shoals off the entrance into the mouth of the creek. This channel has been improved by dredging to a width of 75 feet and depth of 8 feet across the bar at the entrance, but it is said (in 1901) to have shoaled to a depth of about 5 feet at its inner end. The deepest draft vessels entering the creek is 7 feet; this draft can be taken up to Nandua.

Nandua, a village on the creek, has some trade in farm produce carried in sailing vessels and steamers. Strangers seldom enter. **Pilots** can be obtained by lying off and on outside of the buoys with signal set, until one comes off from shore. The channel inside the mouth of the creek is fairly marked by the shoals which rise abruptly on both sides and have but little water over them at low water.

PONGOTEAGUE CREEK*

enters the eastern side of Chesapeake Bay about 29 miles above Old Plantation Flats Lighthouse and about 6½ miles southward of Watts Island Lighthouse. The entrance is obstructed by shoals, over which a buoyed channel leads into the creek to the landings on its banks. The depth of water in the channel is 10 feet. **Boggs Wharf**, about 2½ miles above the mouth, can be reached by vessels of 7 feet draft. Farm produce is shipped from the landings in small sailing vessels and steamers.

Sailing directions of practical value can not be given; the chart and buoys are the best guides, but a stranger should not enter without a pilot.

ONANCOCK CREEK†

enters the eastern side of Chesapeake Bay about 31 miles above Old Plantation Flats Lighthouse and 4½ miles **SE.** by **S.** from Watts Island Lighthouse. The entrance is obstructed by a bar through which a channel 100 feet wide and 8 feet deep at low water was dredged in 1880 under the supervision of the United States Engineers. This channel is marked by buoys, the outer one bearing **SSE.**, distant 3½ miles from Watts Island Lighthouse.

The northern point at the entrance is low and shows a bare sand beach backed by trees; the southern point is wooded.

Onancock, a village at the head of navigation nearly 5 miles above the mouth of the creek, has considerable trade in farm produce and lumber carried in small vessels engaged in the bay trade and in steamers. The deepest draft entering and bound up to Onancock is 7 feet; this draft is taken in by the steamers and larger sailing vessels.

Strangers entering should take a pilot, as there are no marks, except those known to local pilots, to assist in keeping a vessel in the channel above the mouth of the creek. **Pilots** can be had by making signal outside the bar, coming to anchor near the entrance buoy, or standing off and on until boarded by one.

General Directions for approaching Onancock Creek.—Bring Watts Island Lighthouse to bear **NNE.**, distant 2½ miles, and steer **ESE. ¼ E.** until up to the entrance buoy (nun, white and black perpendicular stripes); anchor just northward of this buoy, or lay off and on until a pilot is obtained.

---

*Shown on chart **132**, scale $\frac{1}{80,000}$, price $0.50. †Shown in parts on charts **132, 133**, scale of each $\frac{1}{80,000}$, price of each $0.50.

CHESCONESSEX CREEK*

enters the eastern side of the bay at the entrance to Pocomoke Sound and about 4½ miles **ESE.** from Watts Island Lighthouse. When fair off the entrance of the creek the southern point at the entrance will appear as a long, low point with several small buildings; a little farther southward is a noticeable detached group of trees with bushy tops. The channel leading between shoals off the entrance is marked by buoys and has a depth of 15 feet into the mouth of the creek, but above this it shoals gradually to a depth of 7 feet, which depth can be taken nearly 2 miles above its mouth. Farm produce is shipped from the landing in vessels engaged in the bay trade. Strangers seldom enter the creek; they should take a pilot, as there are no aids above its mouth to assist a stranger.

GENERAL DIRECTIONS, OLD PLANTATION FLATS LIGHTHOUSE TO POCOMOKE SOUND ENTRANCE.

The following directions are good for vessels drawing 9 feet or less, bound into Pocomoke Sound, or to any of the numerous creeks indenting the eastern shore.

Having entered Chesapeake Bay as directed on pages 30–32, or coming from Hampton Roads, bring Old Plantation Flats Lighthouse to bear **E.**, distant about 1¾ miles. There should then be 6 to 7 fathoms of water and the course along the eastern shore is **N.** by **E.** ½ **E.** This made good for 32½ miles leads up to black buoy No. 1, at the entrance to Pocomoke Sound, and along the eastern shore at an average distance of 2 miles from the beach. The shoaling along this stretch of the eastern shore is irregular and in many places very abrupt, and vessels of more than 9 feet draft should keep farther offshore than the course given above would lead. Vessels of more than 9 feet draft would not enter any of the creeks and would therefore have nothing to gain by hugging the shore.

If the course **N.** by **E.** ½ **E.** is made good the mouths of many of the creeks will be visible and some of the buoys at the entrance to the channels leading to the mouths will be seen.

The shore presents no well-marked natural features that can be easily recognized by, or are of practical value to, a stranger navigating along it.

If desiring to enter any of the numerous creeks, take a pilot off the entrance or be guided by the aids and chart; consult the descriptions already given of the creeks and the channels leading into them.

POCOMOKE SOUND†

is an estuary of Chesapeake Bay making into the eastern shore about 43 miles above Cape Charles; it is separated from Tangier Sound by several islands and large shoals, which extend about 10 miles southward from the mainland and are marked near their southern end by Watts Island Lighthouse. The sound is about 13 miles long in a **NE.** by **N.** and **SW.** by **S.** direction and about 9 miles wide at its widest part. Large flats occupy almost the whole of it, leaving only comparatively narrow channels into Pocomoke River, at its head, and the numerous creeks which indent its eastern shore. Large oyster beds cover the bottom, where the depth ranges from 6 to 18 feet. **Watts Island Lighthouse** (see table, page 20) marks the western side of the entrance, and buoys are placed on the ends of the most prominent shoals to mark the channel up to the mouth of the Pocomoke River. There are no natural aids, the shores bordering the sound being low and marshy, backed by cultivated fields and woods.

Strangers seldom enter Pocomoke Sound or its tributaries. The deepest draft of vessels entering is 9 feet, but only 7 feet can be taken into Pocomoke River or any of the tributaries of the sound.

DEEP CREEK,

a shallow creek of little importance, is in the southeastern side of Pocomoke Sound; it is reached through a narrow and crooked channel which leads between shoals that are not marked. A draft of 7 feet can be taken up to the mouth of the creek, but the creek itself only has 8 to 5 feet of water.

---

*Shown on chart **133**, scale $\frac{1}{80,000}$, price $0.50.

†Shown on charts **376**, scale $\frac{1}{400,000}$; **79**, scale $\frac{1}{200,000}$; **133**, scale $\frac{1}{80,000}$, price of each $0.50.

HUNTING CREEK

enters the southeastern side of Pocomoke Sound eastward of Deep Creek. A channel marked by three buoys leads from the deep water of the sound to the entrance. The landings on the creek have considerable trade in farm produce, oysters, and wood. The deepest draft taken in is 7 feet; this draft can be taken about 2 miles above its mouth.

Strangers should not enter without a pilot, as there are none but local aids above the mouth of the creek and the channel is quite narrow.

GUILFORD CREEK

is a broad, shallow creek, with several branches, on the eastern side of the sound about 2½ miles **NE.** from the entrance of Hunting Creek. A draft of 7 feet can be taken into the creek and 4 to 6 feet into the branches. The same buoyed channel that leads into Hunting Creek leads part of the way to the entrance of Guilford Creek. Only vessels well acquainted with the locality enter; strangers should take a pilot off Watts Island Lighthouse.

MESSONGO CREEK

is a shallow creek in the eastern shore of the sound, north of Guilford Creek and south of the mouth of Pocomoke River. An unbuoyed channel with a depth of 8 feet leads between shoals, from the deep water of the sound to the mouth of the creek. Above its mouth several buoys are placed to mark the channel to the landing at the post village of **Messongo**. Strangers should not enter this creek without a pilot.

POCOMOKE RIVER

enters the head of Pocomoke Sound, and is the approach to several villages and landings which have a large trade in farm produce, lumber, and cordwood. Just inside the mouth of the river, where it is 1 to 1½ miles wide, are extensive shoals called the **"The Muds,"** which have 4 to 5 feet of water over them, but the bottom is so soft that vessels with a good breeze work into the river with their keels 1 foot in the mud. Above the mouth the channel has been improved under the supervision of the United States Engineers. At present (1902), a draft of 7 feet can be taken into the river and up to **Snowhill**, the head of navigation, 28 miles above its mouth.

Strangers seldom enter; the channel above Shelltown is narrow and crooked and requires local knowledge and a fair wind for its navigation.

Shelltown and **Rehoboth**, on the west bank of the river about 5 and 12 miles, respectively, above its mouth, are small villages and landings.

Pocomoke City, a village on the east bank of the river, abaut 19 miles above its mouth, has several saw and flour mills and two small marine railways for taking out vessels that trade on the river and in the sound. The deepest draft vessels trading to Pocomoke City is 7 feet.

Snowhill is a village on the east bank of the river, at the head of navigation, about 28 miles above its mouth. It has considerable trade in farm produce and general merchandise, carried in sailing vessels and steamers. The deepest draft taken up to Snowhill is 7 feet.

Freshets are not dangerous; they raise the river from 1 to 5 feet at Snowhill.

The mean rise and fall of tides is about 2.6 feet at the entrance of the river. The direction and force of the wind has considerable influence on the tides.

SAILING DIRECTIONS, POCOMOKE SOUND.

1. ***Approaching and Entering, from Southward.***—If drawing 9 feet or less, follow the directions on page 98. If drawing more than 9 feet, pass 2½ to 3 miles westward of Old Plantation Lighthouse and steer **N.** by **E.** ½ **E.**

When Watts Island Lighthouse is made steer for it, course **NNE.** ½ **E.**, and when about 2¾ miles from the lighthouse haul eastward, so as to pass 1½ to 2½ miles southward of it and about ½ mile southward of Little Watts Island Southwest Shoal buoy (spar, black, No. 1); then be guided by the directions in section 2 following.

Remarks.—Watts Island Lighthouse (see table, page 20) should be made bearing between **NNE.** and **NE.** by **N.**, and northward of it Watts Island (long, narrow, and low) will be seen. On the south side of the entrance the land, if seen, will appear low and very broken, as there are a number of small, low islands lying off the mainland northward of the entrance to Pongateague Creek.

Dangers.—Extensive shoals make out in all directions from Watts Island but their edge, bordering on the channel into Pocomoke Sound, is marked by three black spar buoys which are numbered 1, 3, and 5, and bear as follows from Watts Island Lighthouse: No. 1, 2¼ miles SW. ½ S.; No. 3, about 1 mile SE. ½ S.; No. 5, 3¼ miles NE. ½ E.

On the south side of the entrance to Pocomoke Sound shoals extend out from the mainland to a distance of 3 to 4 miles, leaving the channel into the sound about 1½ miles in width.

1A. ***Approaching and Entering, from Northward.***—Coming down the bay, pass from 1 to 3 miles eastward of Smith Point Lighthouse (see table, page 20) and steer **S.** until it bears **NNW. ½ W.**, then bring it over the stern and steer **SSE. ½ E.** On this course Tangier Island Shoal Southwest Point buoy (nun, red, No. 12) should be made a little on the port bow; pass ¼ to ¾ mile southward of it and steer **ESE. ½ E.** This course made good for about 4½ miles will lead ½ to 1 mile southward of Tangier Island Flats South End buoy (spar, black, No. 1), and made good 4 miles farther will lead ¼ to ¾ mile southward of Little Watts Island Shoal Southwest buoy (spar, black, No. 1) at the entrance to Pocomoke Sound, leaving Tangier Sound Lighthouse 2 miles on the port hand.

The above directions are good for vessels of 12 feet draft or less; vessels of greater draft should steer a more southerly course from Tangier Island Shoal Southwest Point buoy (nun, red, No. 12), but such vessels do not enter Pocomoke Sound. Allowance should be made for the tidal currents; the flood sets northward and ebb southward.

To proceed up the sound to Pocomoke River Entrance be guided by the directions in section 2 following.

Remarks.—**Tangier Island** (low, ragged, and without prominent distinguishing features) will be seen on the port hand. From its shore extensive shoals make out in all directions. On the **SSE. ½ E.** course Tangier Island Shoal Southwest Point buoy should be in line when Tangier Sound Lighthouse bears **E.** **Watts Island Lighthouse** (see table, page 20), southward of Watts Island, will be made on the port bow.

2. ***From Pocomoke Sound Entrance to Pocomoke River Entrance.***—Having *Little Watts Island Shoal Southwest buoy* (spar, black, No. 1) bearing **N.**, distant about ½ mile, steer **ENE.** about 2¼ miles. *Little Watts Island Shoal Southeast buoy* (spar, black, No. 3) will be made on the port bow; when it is about ⅝ mile distant on the port beam, change the course to **NE. ¾ N.** and continue for about 2¾ miles; *Beach Island Shoal buoy* (spar, red, No. 2) westward of Beach Island, will then be about ¼ mile on the starboard hand. Now steer **N.** by **E. ½ E.** about 4¼ miles, leave *Upper Watts Island Shoal buoy* (spar, black, No. 5) about ¼ mile on the port hand, and *Tunnel Island Spit buoy* (spar, red, No. 4) ¼ mile on starboard hand. When this buoy bears abeam, distant about ¼ mile, steer **NNE. ½ E.** This course leads eastward of Broad Creek buoy (spar, black, No. 7). Vessels going higher should take a pilot unless familiar with the channel up the river.

Having entered Pocomoke Sound and brought Little Watts Island Shoal Southwest buoy (black, No. 1) to bear **N.**, distant ½ mile,—*If bound to Onancock Creek* steer **ESE.** for 2¾ miles; *if bound to Chesconessex Creek* steer **ENE. ¾ E.** for 3½ miles. These courses made good will lead to the entrance buoys, where a pilot should be taken if going up the creeks.

Remarks.—In going up Pocomoke Sound or entering its tributaries vessels must be guided by the buoys, as the land is low and the shore very broken and without marked natural features that might be of use to a stranger. A stranger entering the sound may anchor, in 3½ to 11 fathoms of water, 1½ to 3½ miles southward of Watts Island Lighthouse, and there get a pilot for the sound or its tributaries.

TANGIER SOUND.*

This sound, on the eastern side of Chesapeake Bay with its southern entrance about 40 miles above Cape Charles, lies between the mainland of the eastern shore and several large islands which extend in a general north and south direction. The sound is about 27 miles long north and south, and has an average width of about 4 miles; it is noted for oyster beds, which are found on that portion of the bottom which has a depth of 6 to 18 feet of water over it.

*Shown on charts 376, scale $\frac{1}{400,000}$; 79, scale $\frac{1}{200,000}$; and in parts on charts 133, 134, scale of each $\frac{1}{80,000}$; price of each $0.50.

There are three principal entrances; the southern entrance, between Watts Island Lighthouse on the east and Tangier Sound Lighthouse on the west, has the best water and greatest width. The middle entrance (**Kedge Straits**), between Smith Island on the south and South Marsh on the north, is abreast the mouth of the Potomac River and leads into the sound from westward. The northern entrance (**Hooper Strait**) leads from westward, near the entrance to Honga River, into the northern end of the sound.

The shores are low, generally flat, and in some parts marshy, presenting few marked natural features. Extensive shoals and oyster beds (with channels between them leading into the tributaries of the sound) extend off from the land on both sides. **Watts Island, Little Fox Island,** and **Great Fox Island** extend in a north and south direction on the eastern side of the southern entrance and separate Tangier Sound from Pocomoke Sound; the openings between these islands are very shallow and can only be used by small boats.

The chief tributaries are Little Annemessex, Big Annemessex, and Manokin rivers, Monie Bay, Wicomico and Nanticoke rivers, and Fishing Bay. These are the approaches to several towns and villages which have a large trade in farm produce, oysters, wood, lumber, and general merchandise. A depth of over 5 fathoms can be carried the whole length of the sound in the channel, which is quite narrow in places. The deepest draft of vessels entering the sound is 13 feet, but the carrying is done principally in vessels owned in the bay and of less than 9 feet draft.

In the daytime, in clear weather, the navigation of the sound is rendered comparatively easy by the lighthouses and buoys which mark the most prominent dangers. In the tributaries local knowledge or a pilot is necessary. **Towboats** are seldom used except on occasions when ice interferes with the passage of the oyster boats to Baltimore, or during the fruit season when the wind is contrary; vessels then engage towboats, usually from Baltimore. There are no regular towboats engaged in towing vessels in the sound.

The general direction of the **tidal currents** is north and south, following the channel and diverging slightly off the entrances of the tributaries and straits. Their velocity is greatly influenced by the force and direction of the wind.

LITTLE ANNEMESSEX RIVER

enters the eastern side of the sound 4 miles above Watts Island Lighthouse. The entrance, marked by **Janes Island Lighthouse** (see table, page 20), is about ⅓ mile wide, but the channel is narrow up to the town of Crisfield. The shores of the river are low, flat marshes, covered with coarse grass; about 2 miles above its mouth the houses of the town of Crisfield, and on the north bank inside the entrance the large red buildings of a factory, show conspicuously.

Crisfield, a town on the east bank of the river, 2 miles above its mouth, is the largest oyster depot on the eastern shore of Maryland; it also has some trade in lumber and wood. A branch of the New York, Philadelphia and Norfolk Railroad enters the town. Coasting vessels and vessels in the bay trade of 10 feet draft and less are engaged in the carrying trade. Steamers from Baltimore make regular trips to Crisfield for freight and passengers.

The channel, though narrow, is well marked by two lighthouses and a number of buoys; it was dredged to a depth of 12 feet at low water, but the depth and width have decreased so that in 1902 there is about 10 feet in a narrow channel across the bar at the entrance.

Anchorage for vessels over 7 feet draft is in the channel; vessels of less draft can anchor on the flats south of Somers Cove Lighthouse (see table, page 20), or just south of the steamboat wharf.

Strangers usually take a pilot, coming to anchor ½ mile **SSW.** from Janes Island Lighthouse with signal set until one comes off from shore, or an oysterman is taken lower down the sound.

There are two marine railways at Crisfield capable of taking out the vessels that trade there. Water and bituminous coal in limited quantities can be had alongside the wharf.

The mean rise and fall of **tides** at Crisfield is 1.9 feet.

Sailing directions for vessels of 7 feet or less draft are given on page 104.

BIG ANNEMESSEX RIVER

enters the eastern side of Tangier Sound about 16 miles north of Watts Island Lighthouse and opposite Kedge Straits; its entrance bears **E. ¼ S.**, distant 6¼ miles from Solomons Lump Lighthouse. The river is wide and full of flats and shoals; several shallow creeks empty into it. **Holland Point,** about 5 miles above its mouth, is the head of navigation and can be reached by vessels of 8 feet draft. The shores are low and marshy, backed by farms. The only settlements are **Fairmount** and **Marion,** the former on the north bank and the latter on the south bank, some distance back from the shore.

There is some trade in lumber and oysters; small sailing vessels, owned in the vicinity, carry practically the whole of it. When strangers enter, which rarely occurs, they should either take a pilot at Crisfield or at

the mouth of the river. The channel, except at the entrance, is not buoyed, and there are no natural aids to assist a stranger in entering.

Ice seldom endangers shipping, though the whole river freezes over in winter.

The general direction of the **tidal currents** is with the channel, and the mean rise and fall of **tides** about 2 feet.

Sailing directions for the river would be useless; local knowledge is necessary to avoid the shoals.

MANOKIN RIVER

enters the eastern side of Tangier Sound about 20 miles above Watts Island Lighthouse, and **NE.** by **E.** from Kedge Straits. The mouth, though wide, is obstructed by extensive sand shoals and oyster beds, between which a comparatively narrow and crooked channel leads into the river from near the mouth of the Big Annemessex. Another channel, with a depth of 6 feet, leads into the river from northward, passing south of Deal and Little islands. The entrances to both of these channels are marked by buoys; there are no aids to assist a stranger to keep in the channel above the entrance. A local pilot is necessary.

The river is navigable for small craft to **Princess Anne,** the county seat of Somerset County, which is about 16 miles above its mouth. Vessels of 7 feet draft can go up abont 9 miles; their cargoes are then lightered up to Princess Anne. There are several landings on the lower part of the river, but no villages of importance. **Fairmount** is on the neck of land between the mouths of the Manokin and the Big Annemessex. At the mouth of **Teagues Creek,** near Fairmount, there is a small marine railway.

The principal trade is in oysters, lumber, and farm produce, carried entirely in small vessels owned in the vicinity. **Pilots** can be obtained at the mouth of the river, but strangers seldom enter.

The **tidal currents** follow the general direction of the channel, and the mean rise and fall of the **tides** is about 2 feet, much affected, however, by prevailing winds.

DEAL ISLAND

on the eastern side of Tangier Sound and the north side of the entrance to Manokin river, is an island and post village from which considerable farm produce and oysters are shipped to Baltimore and northern markets. **Little Island,** a small island lying just southward of Deal Island, is mostly low marsh, but little elevated above high-water mark; near its western side the land is a little higher and has a few houses. The passage between Deal Island and Little Island, called the **Lower Thoroughfare,** is available only for small craft, and should not be entered by a stranger without a pilot. A long wharf extends into Tangier Sound from near the northern end of Deal Island. This wharf has a depth of 9 feet at its outer end and is the landing for the regular steamers stopping at the island.

MONIE BAY AND WICOMICO RIVER

have a common entrance on the eastern side of Tangier Sound near its head and east of Hooper Straits. Monie Bay, shoal and of no importance, has two shallow creeks emptying into it near its head. Vessels entering the Wicomico encounter strong tidal currents setting across the channel at the mouth of Monie Bay, and in winter heavy ice from it is also a source of danger.

The entrance from Tangier Sound is more than 2 miles wide, but is obstructed by large oyster beds, between which a narrow, crooked channel leads into Wicomico River. This channel is marked by **Great Shoals Lighthouse** (see table, page 22) and a number of buoys for a distance of 4 miles; farther up there are only local aids, which are of little use to a stranger. Strangers should take a pilot if bound into the river.

Salisbury, a town about 17 miles above the mouth of the river, is at the head of navigation. A dredged channel with a depth of 8 feet (in 1901) leads to Salisbury. The greatest draft of vessels entering the river is 9 to 10 feet, but this draft requires high water. **White Haven** is a village on the north shore of the river about 6 miles above Great Shoals Lighthouse.

Salisbury, White Haven, and the different landings, have considerable trade in lumber and farm produce, carried principally in vessels owned in the vicinity; strangers are also employed in the carrying trade. Steamers make regular trips between Baltimore, Salisbury, and other landings on the river. **Pilots** for the river can be had from Long Point, or from Dames Quarter Creek, when abreast of Great Shoals Lighthouse.

The **tidal currents,** when fairly in Wicomico River, follow the general direction of the channel; but in entering the river caution is necessary, as the strong tidal current of Monie Bay, especially the flood, sets across the channel and has a tendency to set a vessel on the shoals. The mean rise and fall of the **tide** is 1.5 feet at the mouth of the river.

Directions for entering the river are given under section 3, page 105.

NANTICOKE RIVER

enters the head of Tangier Sound from northeastward; its entrance being just north of the entrance to Monie Bay and Wicomico River. About 24½ miles above its mouth the river is divided into the **East** and **West** branches; several creeks of no importance, except **Broad Creek**, enter the river and these branches. Nanticoke River has a navigable channel with a least depth of 8 feet at low water from its mouth to the town of **Seaford**, Del., 36 miles above. The deepest draft vessels entering the river is 13 feet at high water, this draft can be taken to the village of Vienna, 21 miles above the entrance.

The entrance to the river is marked by **Sharkfin Shoal Lighthouse** (see table, page 22), on the shoal opposite the entrance to the river. The channel, leading between oyster beds and shoals at the mouth of the river, is marked by buoys for a distance of 10 miles from its entrance; above this there are none but local aids.

Strangers entering the river should take a pilot; if coming through Hooper Strait one should be taken at Bishops Head; if coming up Tangier Sound a vessel can follow the buoys until up to Roaring Point, where a pilot should be taken.

Vienna is a village on the west bank about 21 miles above the mouth of the river. **Riverton**, on the east bank, about 3½ miles above Vienna, is a small village of little importance; the **East** and **West** branches join abreast the village where the river is known as **The Forks**. **Sharptown** is a village on the east bank about 28 miles above the mouth of the river on the East Branch. **Galestown** is a small village on the west bank at the mouth of a small creek about 1 mile above Sharptown. A landing is about ¼ mile above the mouth of this creek. **Laurel** is a town at the head of navigation on Broad Creek; the latter enters East Branch from eastward about 1 mile above Galestown Wharf. A dredged channel, with 4 feet at low water, leads to the town of Laurel. **Seaford** is a town on the west bank of the East Branch about 36 miles above the mouth of the river. It has railroad and steamboat communication. Two bridges cross the river at this point, the upper being a closed bridge.

Crotchers Ferry is a small village on West Branch about 3½ miles above The Forks. **Federalsburg** is a small town on the West Branch about 11 miles above The Forks. Vessels of 5 feet draft can go nearly up to the town.

These villages have considerable trade in lumber and farm produce, carried by vessels owned in the vicinity and by strangers. Steamers engaged in the bay trade ply between Seaford and landings on the river and Baltimore.

The mean rise and fall of the **tide** is about 1.5 feet at the entrance, and 1.8 feet at Vienna.

Directions for entering the river are given under section 3, page 105.

FISHING BAY

is the continuation northward of Tangier Sound, above Clay Island and Bishop Head. It is full of oyster beds and shoals, and is of little commercial importance; oysters and some ship timber are carried principally in vessels engaged in the bay trade. The prevailing depth in the lower part of the bay is 7 to 11 feet. A narrow unbuoyed channel has 14 feet of water as far up as **Fishing Point**, 5½ miles above Clay Island. Vessels of over 6 feet draft should not pass above Fishing Point without a pilot. A stranger entering the bay should take a pilot at Bishop Head or just below Clay Island. The deepest draft vessels entering the bay is 10 feet; vessels of 6 feet draft sometimes go up as far as the mouth of the **Black Water River**—about 3 miles above Fishing Point.

GENERAL DIRECTIONS—TANGIER SOUND.

1. ***Approaching and Entering the Southern end of the Sound.***—*I. Coming from Southward.*—Keep at least 3 miles from the eastern shore and 2 miles southward of Tangier Island. Bring Tangier Sound Lighthouse to bear between **N.** and **NE.** and steer for it. Pass about ¾ mile eastward of the lighthouse, and when it bears **W.** follow the directions in section 2.

II. Coming from Northward.—Follow the directions on page 100 for approaching Pocomoke Sound from northward, and when southward of Tangier Island Flats, South end, buoy (spar, black, No. 1) haul northward; pass about ¾ mile eastward of Tangier Sound Lighthouse and be guided by the directions in section 2.

Remarks.—Keep well off the eastern shore; there are no dangers in approaching the sound from southward. Watts Island should not be approached closer than 3 miles, when southwestward of it, on account of the shoals which surround the island. **Watts Island**, seen from southward, is low and flat, with scattered groups of trees and a few houses; the lighthouse shows prominently from this direction; it is near a small clump of trees on a small islet southward of Watts Island. **Tangier Island** is low, flat, and partly wooded; it has quite a

village and a landing for steamers. **Tangier Sound Lighthouse**, a screw pile structure showing a fixed white light with a red sector covering the shoals westward, shows prominently off the southeastern end of Tangier Island. **Cod Harbor** is a shallow cove in the southeastern end of Tangier Island; it is entered from Tangier Sound.

2. ***From abreast Tangier Sound Lighthouse to abreast Solomons Lump Lighthouse.***—Having entered the sound as directed in section 1 foregoing, pass about ¾ mile eastward of Tangier Sound Lighthouse and steer **N.** by **E.** about 7 miles. This course made good will lead up to Great Fox Island shoal buoy (nun, red, No. 2). As this buoy is approached leave it ¼ mile on the starboard hand and steer **N.** by **E.** until Janes Island Lighthouse bears **ESE.**, distant about ¾ mile, and Janes Island Shoal buoy (nun, red, No. 4) is about ¼ mile distant on the starboard beam. Now steer **NNE.** ¾ **E.** for 2 miles to a position about ¼ mile eastward of Terrapin Sands buoy (spar, black, No. 3), and when it bears well abaft the beam steer **NNW.** ½ **W.** about 3 miles. Piney Island Shoal buoy (spar, red, No. 6) should be made directly ahead, and Junction buoy (spar, red and black horizontal stripes) should be left ¾ mile on the starboard hand. Haul more westward so as to leave red spar buoy No. 6 about ⅝ mile on the starboard hand, then follow the directions in section 3.

When Solomons Lump Lighthouse bears **W.** by **N.** the vessel should be about 1⅝ miles south of Piney Island Shoal buoy, and may anchor in 4 to 7 fathoms by standing eastward until the water shoals to this depth.

If bound into Little Annemessex River to Crisfield.—When on the **N.** by **E.** course coming up the sound Janes Island Lighthouse bears **NE.** by **N.**, steer for it. When the lighthouse is about ½ mile distant ahead, steer about **NE.** by **E.** and be guided by the aids and chart, or take a pilot. The channel is narrow and can not readily be followed by a stranger, although it is well buoyed.

If bound into Big Annemessex River or into Manokin River take a pilot.

Remarks.—From the southern entrance of the sound to abreast Solomons Lump Lighthouse, a distance of about 17 miles, the channel is nowhere less than ½ mile wide, and in some places it has a width of about 2 miles; the depth ranges from 3 to 17 fathoms.

The land on both sides is low and without any very marked features; the shore is very broken and irregular. **Great Fox Island**, on the eastern side of the sound about 7 miles above Watts Island Lighthouse, is low, flat, and bare. It has two remarkably tall, slim poplar trees and a few houses. On the **N.** by **E.** course Great Fox Island Shoal buoy should be made nearly ahead, and if necessary the course should be altered so as to leave it ¼ mile on the starboard hand.

In standing northward after passing Great Fox Island Shoal buoy, **Janes Island Lighthouse, Somers Cove Lighthouse** (see table, page 20), the large, red, factory buildings on the northern side of the Little Annemessex River, and the houses of Crisfield will be seen northward and eastward.

Dangers and Aids.—**Shoals** with 2 to 18 feet of water extend 2¼ miles westward from Watts Island.

The broad opening between Tangier Island and Smith Island is completely filled by an extensive shoal, with ½ to 1 foot of water over it, and by numerous small islands and spots bare at low water.

Great Fox Island Shoal buoy (nun, red, No. 2) is on the western edge of the shoal, making out 1¼ miles westward from Great Fox Island.

Janes Island Lighthouse (see table, page 20) is just northward of the entrance to Little Annemessex River, near the end of the shoal which makes out westward from the northern point at the entrance.

Janes Island Shoal buoy (nun, red, No. 4), lying ¼ mile **NW.** ½ **W.** from Janes Island Lighthouse, marks the western edge of the shoals at the mouth of Little Annemessex River, and the eastern side of the channel of the sound.

Terrapin Sands buoy (spar, black, No. 3), about 2¼ miles **N.** ½ **E.** from Janes Island Lighthouse, lies on the western side of the channel and on the eastern edge of the extensive shoals making out 2¼ miles eastward from Smith Island. Southward of this buoy the edge of the shoals runs in a southwesterly direction; northward of the buoy the edge curves northwestward. The narrowest and deepest part of the channel is abreast this buoy.

Junction buoy (spar, red and black horizontal stripes) is on the south end of the large shoals which extend 4 miles southward from Deal and Little islands, and the north side of the channel into Manokin and Big Annemessex rivers.

Piney Island Shoal buoy (spar, red, No. 6), about 4 miles **N.** by **W.** ½ **W.** from Terrapin Sands buoy, marks the southwestern edge of the extensive shoal flats lying between the channel of Manokin River and the channel of Tangier Sound. This buoy is northwestward of the entrances to Big Annemessex and Manokin rivers. It is left well on the starboard hand going up the sound.

3. *From abreast Solomons Lump Lighthouse to Sharkfin Shoal Lighthouse.*—Having come from southward as directed in section 2 foregoing, when about ⅝ mile westward of Piney Island Shoal buoy, steer **N.** by **W.** ¾ **W.** This course made good for 2¾ miles will lead ¼ mile westward of Deal Island Shoal buoy (spar, red, No. 8). From this buoy steer **N.** ⅝ **E.** for 4 miles, when Haines Point buoy (spar, red) should bear **E.**, distant ¾ mile. Then change the course to **N.** by **E.** so as to pass about ½ mile westward of Drumming Shoal buoy (spar, red, No. 10), on the north end of Drumming Shoal, and leave Sharkfin Shoal Lighthouse ½ mile on the port hand. Then steer **N.** ¾ **W.** a little over 1 mile so as to leave Sharkfin Shoal buoy (spar, black, No. 5) about 100 yards on the port hand. From this buoy—

If bound up Fishing Bay, take a pilot.

If bound out through Hooper Strait, follow the directions for Hooper Strait from Tangier Sound, page 108.

Remarks.—The channel from Solomons Lump Lighthouse to Sharkfin Shoal Lighthouse is about ¾ mile wide and has a depth of from 3 to 13 fathoms. The shore on both sides is low and very broken, and presents no marked natural features that might be used by a stranger. The village on Deal Island, and the long wharf near the northern end of the island, will be readily recognized.

When standing on the **N.** ⅝ **E.** course, Sharkfin Shoal Lighthouse will be a very little on the port bow, and should be kept there while on this course.

Dangers and Aids.—Extensive shoals make out from the mainland and islands, but a detailed description of them that would be of value to a stranger can not be given. The buoys and lighthouse are the only guides. Very light draft vessels, when beating, might manage to keep off the shoals by careful and constant use of the lead.

Vessels bound into Monie Bay or Wicomico River.—When ½ mile westward of Drumming Shoal buoy (spar, red, No. 10) steer **ENE.** ¾ **E.** Leave the buoy 100 yards on the starboard hand and pass about 200 yards southward of Nanticoke Point Spit Entrance buoy (spar, red and black horizontal stripes), and continue the course until up to Long Point Flats buoy (spar, red, No. 2). Leave this buoy close-to on the starboard hand, and steer about **E.** ¾ **S.** so as to pass 200 yards southward of Great Shoals Lighthouse. Anchor near the lighthouse and take a pilot if bound up the Wicomico River; or, be guided by the aids, leaving them on the side indicated by their color.

Vessels bound into the Nanticoke River.—When about ½ mile westward of Drumming Shoal buoy (spar, red, No. 10) steer **NE.** by **E.** This course will lead north of Nanticoke Point Spit Entrance buoy (spar, red and black horizontal stripes) and just southward of Clay Island Shoal buoy (spar, black, No. 1). When about 500 yards eastward of this buoy steer **N.** by **E.** ½ **E.** and leave Flats buoy (spar, red, No. 2) 500 yards, and Oyster Rock buoy (spar, red, No. 4) about 100 yards on the starboard hand, then steer **N.** by **E.** Roaring Point buoy (spar, red, No. 6) will be made ahead and left 100 yards on the starboard hand. Strangers bound above Roaring Point should take a pilot. Good anchorage is found in the channel below and just above Roaring Point.

Remarks.—Standing up the Nanticoke River, Roaring Point (low sand spit backed by trees, with a landing and several houses on its south side) will be readily distinguished. Along the eastern bank of the river are extensive oyster beds.

KEDGE STRAITS.*

The middle entrance into Tangier Sound from Chesapeake Bay lies between South Marsh on the north and Smith Island on the south; it bears **E.** from Point Lookout Lighthouse, distant about 13 miles. This entrance to the sound is the most direct passage to the Manokin, Big Annemessex, and Little Annemessex rivers, for vessels coming down Chesapeake Bay; it is marked by **Holland Island Bar** and **Solomons Lump** lighthouses (see table, page 22). The channel has a depth of 9 feet and is marked by four buoys. On both sides of the straits the land is low, with few trees; the only marks easily recognized are the lighthouses.

The deepest draft taken through the straits is 9 feet, usually near high water; strangers seldom enter. Easterly winds raise the water, and northwesterly winds may lower it 1½ feet below the normal. The mean rise and fall of the tide is 1.5 feet. **Floating ice** in the winter makes the navigation of the straits dangerous; tugs from Baltimore are generally employed to tow oystermen through the ice.

*Shown on chart 133, scale $\frac{1}{80,000}$, price $0.50.

SAILING DIRECTIONS, ENTERING TANGIER SOUND BY KEDGE STRAITS.

These directions are good for a draft of 8 feet when the water is not low; local knowledge is necessary to carry a greater draft. Strangers are advised not to use this passage except in the daytime.

1. ***Approaching and Entering, from Southward.***—Keep at least 2 miles from the shore of Smith Island, and when Holland Island Bar Lighthouse is made steer for it on any bearing between **N.** and **NE.** When Solomons Lump Lighthouse bears **E.**, steer about **E.** by **N.** and when Entrance buoy (spar, black and white perpendicular stripes) is sighted steer for it. Leave this buoy close-to on either hand, and steer **E.** about 1¼ miles, taking care to leave Solomons Lump buoy (spar, red, No. 2) at least 50 yards on the starboard hand.

From this buoy steer about **E.** by **S.**, heading so as to leave Solomons Lump Lighthouse about 150 yards on the starboard hand, passing about 100 yards northward of Obstruction buoy (spar, red and black horizontal stripes). When the lighthouse is abeam, steer about **E.** so as to leave South Marsh Spit buoy (spar, black, No. 1) about 100 yards on the port hand. From this buoy steer about **ESE.** for 2¼ miles, when the vessel will be in the channel of Tangier Sound. Then:

If bound up the sound, when the water has deepened to 10 fathoms steer about **N.** until Piney Island Shoal buoy (spar, red, No. 6) is made, when follow the directions in section 3, "Tangier Sound," page 105.

If bound down the sound.—On the **ESE.** course, when the water has deepened to 10 fathoms or over, steer about **SSE. ½ E.** until Terrapin Sands buoy (spar, black, No. 3) is made, when the directions (reversed) in section 2, "Tangier Sound," page 104, should be followed.

Remarks.—In approaching Kedge Straits no very prominent landmarks will be noticed. The most conspicuous objects seen will be Holland Island Bar Lighthouse, on the shoal on the north side of the entrance, and Solomons Lump Lighthouse, on the shoals making out northward from Smith Island. **South Marsh**, the low, irregularly shaped island on the north side of the straits, is without any prominent marks. Northwest from South Marsh are several small islands; **Holland Island**, the largest and southernmost of these, has several houses and a few trees which will be seen in passing along westward of the island.

Dangers and Aids.—**A shoal**, with 1 to 12 feet over it, makes 2½ miles southward from Holland Island, and is marked near its southern side by **Holland Island Bar Lighthouse**.

Solomons Lump Lighthouse (see table, page 22) is on the south side of the channel, near the middle of the straits.

Entrance buoy (spar, white and black perpendicular stripes) is at the western entrance of the straits, 2 miles **W.** by **N.** from Solomons Lump Lighthouse.

South Marsh Spit buoy is on the north side of the channel, a little more than ½ mile **E. ½ N.** from Solomons Lump Lighthouse.

The red and black horizontally striped spar buoy, about 150 feet northwestward of Solomons Lump Lighthouse, marks the foundation of the old lighthouse.

1 A. ***Approaching and Entering, from Northward.***—Coming down the bay give the islands north of the entrance a berth of 2 miles. Pass at least one mile westward of Holland Island Bar Lighthouse, and when it bears northward of **E.** steer a course which will lead ½ mile southward of the lighthouse. Then bring Holland Island Bar Lighthouse to bear **WNW.**, and steer **ESE.** heading for Solomons Lump Lighthouse. Keep on this line, leave Solomons Lump buoy (spar, red, No. 2) about 50 yards on the starboard hand, and proceed as directed in section 1 preceding.

HOOPER STRAIT.*

the northern entrance from Chesapeake Bay into Tangier Sound, is the most direct passage for vessels coming down Chesapeake Bay bound to Fishing or Monie bays and the Wicomico or Nanticoke rivers. It leads between Hooper Island and the mainland on the north and Bloodsworth Island on the south. The channel

*Shown on chart 134, scale $\frac{1}{80,000}$, price $0.50.

leads between shoals which make out from the shore on both sides; it is marked by several buoys and Hooper Strait and Sharkfin Shoal lighthouses. The depth found, when closely following the channel, is 10 feet, but 9 feet usually is the deepest draft of vessels passing through the strait at high water. Strangers bound to any of the tributaries of Tangier Sound can find pilots at **Bishop Head**, the north side of the eastern entrance to Hooper Strait.

The mean rise and fall of the **tide** is 1.4 feet.

SAILING DIRECTIONS, ENTERING TANGIER SOUND BY HOOPER STRAIT.

Strangers of over 8 feet draft should take a pilot; unless the water is low on account of northerly winds, vessels of 8 feet or less draft should have no difficulty in entering by the following directions. Strangers should not attempt to enter at night.

1. ***Approaching and Entering, from Southward.***—From a position 1 mile **SE.** from Point Lookout Lighthouse, make good a **NE.** ¼ **N.** course for 14½ miles. Or, from a position 2½ miles **W.** from Holland Island Bar Lighthouse, make good a **N.** by **E.** ⅛ **E.** course about 9¼ miles. Or, from a position ½ mile westward of Kedge Straits Middle Ground Northern End buoy (spar, red, No. 16) make good a **NNE.** ⅞ **E.** course for 9½ miles.

When Hooper Strait Lighthouse bears **E.** by **N.** steer for it on this bearing; leave Bloodsworth Island Flats Northwest End buoy (nun, red, No. 2) 150 yards on the starboard hand, and continue on the course and pass 250 yards southward of the lighthouse. From this position steer **SE.** ¾ **E.**; leave Bloodsworth Island Flats North End buoy (spar, red, No. 4) about 100 yards on the starboard hand and continue the course, passing 150 yards southward of Bishop Head Shoal buoy (spar, black, No. 1). From this buoy steer **ENE.** so as to pass 50 yards northward of Sharkfin Shoal buoy (spar, black, No. 5).

Vessels of 6 feet or less draft can, when 150 yards south of Bishop Head Shoal buoy, steer **E.** ¼ **N.** so as to pass ⅜ mile northward of Sharkfin Shoal Lighthouse.

Vessels bound down the sound, reverse the directions on pages 103–105 for proceeding up the sound, or get a pilot at Bishop Head.

Remarks.—Approaching the western entrance to Hooper Strait there are no natural marks that can be recognized so as to be used as aids by a stranger. Hooper Island lighthouse may, on a clear day, be seen northwestward of the entrance. Hooper Strait Lighthouse (see table, page 22) should be looked for as the entrance is approached, and is the principal guide. After the strait is entered the buoys are the principal aids, and must be closely followed. The tidal currents sometimes have considerable velocity, and allowance should be made for them.

Dangers and Aids.—*Bloodsworth Island Flats Northwest End buoy* (nun, red, No. 2), is at the western entrance of the strait, and at the northwest extremity of the shoals making out 1¼ miles from Bloodsworth Island.

Hooper Strait Lighthouse (see table, page 22) is on the north side of the channel near the edge of the shoals making westward from Bishop Head.

Bloodsworth Island Flats North End buoy (spar, red, No. 4) is on the northern edge of the shoals making northward from Bloodsworth Island. This buoy lies about ¾ mile **S.** by **E.** ¾ **E.** from Hooper Strait Lighthouse, and the channel leads between them.

Bishop Head Shoal buoy (spar, black, No. 1) marks the southern extremity of the shoals extending southward from Bishop Head.

Sharkfin Shoal is an extensive shoal making northeastward about 2¾ miles from the eastern side of Bloodsworth Island. It is marked at its northeastern end by a buoy (spar, black, No. 5).

1A. ***Approaching and Entering, from Northward.***—Standing down the bay steer so as to pass ¾ mile westward of Hooper Island Lighthouse. Bring this lighthouse to bear **NE.** distant ¾ mile and steer **SE.** by **E.** for 5 miles; then steer **E.** by **N.** with Hooper Strait Lighthouse directly ahead and taking care to give the southern end of Hooper Island a berth of at least ¾ mile. When Hooper Strait Lighthouse is 1¼ miles distant ahead,

leave Bloodsworth Island Flats Northwest End buoy (nun, red, No. 2) 150 yards on the starboard hand, and as the lighthouse is approached pass 250 yards southward of it; then follow the directions in the second paragraph of section 1 preceding.

Remarks.—**Hooper Island Lighthouse** (see table, page 22, and addenda) is near the western edge of the shoals which extend westward and southward from Hooper Island. Vessels standing for the entrance to Hooper Strait should keep this lighthouse bearing northward of **NW. ¼ W.** until Hooper Strait Lighthouse bears **E.** to avoid depths of 12 feet on the shoal. By closely following the sailing directions a depth of 17 feet and more will be carried to Hooper Strait Lighthouse. See also the remarks, dangers and aids, under section 1 preceding.

GENERAL DIRECTIONS, HOOPER STRAIT FROM TANGIER SOUND.

Having followed the directions in section 3, page 105, leave Sharkfin Shoal buoy (spar, black, No. 5) about 75 yards on the port hand and steer **WSW.**, heading so as leave Bishop Head Shoal buoy (spar, black, No. 1) about 100 yards on the starboard hand. Round the buoy at this distance and steer for Hooper Strait Lighthouse (course about **NW. ¾ W.**); on this course leave red spar buoy No. 4 about 100 yards on the port hand. Pass 250 yards southward of the lighthouse and bring it to bear **E.** by **N.** over the stern and steer **W.** by **S.**, taking care to pass well northward of red nun buoy No. 2.

If bound up the bay, continue the **W.** by **S.** course until Hooper Island Lighthouse bears **NW.** and then shape a course to pass ½ mile westward of the lighthouse.

If bound to the Potomac River, when red nun buoy No. 2 is abeam, distant about 150 yards, steer **SW.** and pass about one mile southeastward of Point Lookout Lighthouse.

HONGA RIVER*

is a large, irregular body of water on the eastern side of Chesapeake Bay, between the mainland and Hooper island, about 70 miles above Cape Charles. It is about 12 miles long in a general **NNW.** and **SSE.** direction, full of oyster beds and shoals, and has a narrow, crooked channel with a least depth of 19 feet to within 4 miles of its head. **Hooper Island,** which separates the river from Chesapeake Bay, is about 9 miles long, in several places very narrow, and separated from the mainland at its northern end by a narrow, shallow stream called **Fishing Creek.**

The river is of little commercial importance and is seldom entered by strangers. Its trade consists of oysters, cord wood, and timber, carried mainly in vessels engaged in the bay trade. Steamers from Baltimore stop at one of the landings on the river. The western entrance to Hooper Strait is also the approach to the entrance of Honga River. The channel at the entrance is marked by two buoys, but above **Windmill Point,** about 3 miles from its mouth, there are no aids to assist in keeping a vessel in the channel except those known to local pilots. Strangers bound into the river should take a pilot at the entrance, coming to anchor, if necessary, until one is procured.

Fox Creek, a large irregular bight in the eastern shore of the river, about 2 miles above the entrance, is shallow, but has a buoyed channel with 7 feet of water. The steamboat landing is on this creek.

There are several small settlements on both shores of the river, but none of them are of commercial importance.

The mean rise and fall of the tide at the entrance of Honga River is 1.4 feet.

GENERAL DIRECTIONS, HONGA RIVER.

In approaching, follow the directions (page 107) for approaching Hooper Strait. When on the **E.** by **N.** course and ½ mile westward of *Bloodsworth Island Flats* Northwest End buoy (nun, red, No. 2), steer about **N.** by **E.** until *Outer buoy* (spar, black, No. 1) is made. Pass close eastward of this buoy and steer **N. ¾ W.** for *Inner buoy* (spar, black, No. 3). Outer and Inner buoys are on the edge of the shoals making eastward from the southeastern end of Hooper Island. These shoals rise abruptly from the channel.

When up to Inner buoy steer **NNW. ½ W.** for *Crab Point Shoal buoy* (spar, red, No. 2), marking the entrance to Fox Creek, which should be left on the starboard hand. Anchor in about 5 fathoms ¼ mile southwestward from this buoy.

If desiring to proceed farther up, a pilot should be obtained.

*Shown on chart 184, scale $\frac{1}{80,000}$, price $0.50.

If desiring to enter Fox Creek, pass 200 yards northward of *Crab Point Shoal buoy*, and steer **ENE. ¾ E.** for *Long Point Shoal buoy* (spar, black, No. 1). Leave this buoy about 75 yards on the port hand and steer **NNW.** Anchor in 8 feet of water ½ mile above the buoy or stand in for the wharf. Seven feet may be taken into Fox Creek.

TAR BAY*

is the shallow unimportant body of water east of Barren Island, on the eastern shore of Chesapeake Bay, east of Patuxent River Entrance. Large shoals extend southward of Barren Island and along the western shore of Hooper Island to its southern end. The measured mile trial-course ranges are located on the western side of Barren Island; the front beacons of these ranges are in about 9 feet of water ⅛ mile from the shore.

LITTLE CHOPTANK RIVER†

enters the eastern shore of Chesapeake Bay about 90 miles above Cape Charles and 55 miles below Baltimore. The river, for some distance above its mouth, is wide but full of extensive shoals and oyster beds. A draft of 15 feet can be taken into the mouth of the river, but strangers over 9 feet draft should not enter without a pilot. The entrance is marked by two buoys and inside the points at the entrance are two more, above which there is a good anchorage in 12½ to 19 feet water, soft bottom. A number of creeks, navigable for small vessels enter the river above its mouth; on the north shore are **Brooks, Hudson, Phillips,** and **Beckwiths** creeks, and on the south shore are **Slaughter, Wolfords, Tobacco Stick,** and **Church** creeks. There are others of less importance.

Wood, lumber, farm produce, and oysters are shipped from the landings on the river and its tributaries, in vessels engaged in the bay trade; strangers seldom enter the river.

Pilots can be had by making signal off the entrance, coming to anchor, if necessary, until boarded by one. Strangers bound into the river should take a pilot.

GENERAL DIRECTIONS, LITTLE CHOPTANK RIVER.

The following directions lead to an anchorage in the mouth of the river, and are, if closely followed, safe for vessels of 9 feet draft. Vessels should not attempt to run into this river, unless the buoys can be plainly seen; there are no lights to assist at night.

Approaching and Entering, from Southward.—Steer so as to pass 2 miles westward of **James Point** (the northwest point of James Island and the southern point at the entrance to the river), then bring the eastern shore of Sharps Island to bear **N.** by **E. ½ E.**, and stand for it. James Point Shoal buoy will be made on the starboard bow.

When James Point Shoal buoy (spar, red, No. 2) at the entrance to the river is made, steer for it; pass close northward of the buoy and then steer **SE.** by **E. ½ E.** On this course Hills Point Shoal buoy (spar, black, No. 1) should be made on the port bow and left about ½ mile on the port hand. Abbott Point Shoal buoy (spar, red, No. 4) will be made on the starboard bow and should be left about ¼ mile on the starboard hand. After passing this buoy, anchor; no directions that would be of use to a stranger can be given for proceeding up the river; a stranger should take a pilot.

Approaching and Entering, from Northward.—Give the western shore of Sharps Island a berth of at least 2 miles, pass westward of Sharps Island Shoal buoy (spar, red, No. 18) and when James Point bears **SE. ½ S.** steer for it until James Point Shoal buoy is made. Then proceed as directed in the preceding paragraph.

Dangers.—**Shoals** with 1 to 18 feet of water over them extend 1¾ miles northward from James Island. A channel with 15 feet of water leads across these shoals about 2 miles northward of James Point. On the north side of the channel the shoal has a least depth of about 9 feet.

A shoal also makes about 1⅝ miles in a northeasterly direction from James Island, but has a depth of about 15½ feet over its outer part. Abbott Point Shoal buoy (spar, red, No. 4), marking the northern edge of this shoal, lies 1 mile **NE. ½ E.** from the northeastern point of James Island.

The extremities of the shoals making westward from Hills Point and Ragged Point are marked by black spar buoys.

Anchorage.—In the bight between the northern point of James Island and Hoopers Point, the northeastern point of Taylors Island, good anchorage will be found in 12 to 18 feet water, soft bottom, by giving the shore a berth of at least ½ mile.

---

*Shown on chart **184**, scale $\frac{1}{80,000}$, price $0.50.

†Shown in parts on charts **184, 185**, scale of each $\frac{1}{80,000}$, price of each $0.50.

CHOPTANK RIVER*

enters the eastern side of Chesapeake Bay about 95 miles above Cape Charles and 50 miles below Baltimore. **Sharps Island** and lighthouse lie in Chesapeake Bay off the middle of its entrance. This river is navigable for vessels of 9 to 10 feet draft to within 2 miles of Denton, or about 50 miles above Sharps Island Lighthouse. Above Denton a dredged channel, with a depth of 6 feet, leads up to Greensboro, which is about 56 miles above Sharps Island. Two bridges cross the river between its mouth and Greensboro; the first about 35 miles above Sharps Island, and the second at Denton; these bridges have draws about 55 feet wide in the clear.

Numerous creeks enter Choptank River, many of which have from 5 to 10 feet of water and are navigable for the class of vessels trading in Chesapeake Bay. A number of villages and a few towns are situated on the river and its tributaries.

The entrance is obstructed by the shoals making out from the shores of James Island, Sharps Island, Tilghman Island, and the main land, and also by detached shoals. The principal dangers along the channel up to the mouth of Hunting Creek, 28 miles above Sharps Island Lighthouse, are marked by buoys, and **Choptank River Lighthouse,** which is off the entrance to Tred Avon River, 9 miles above Sharps Island Lighthouse. A channel leads into the entrance of the river both on the north and south sides of Sharps Island. The northern channel, marked by Sharps Island Lighthouse, has a depth of 15 feet, and leads about midway between **Tilghman Island,** the northern point at the entrance to the river, and Sharps Island. The southern channel had a least depth of 4½ fathoms, but has shoaled and is little used; it leads southward and eastward of Sharps Island; there are several shoals in this channel which are not marked. Between the points at the entrance and Choptank River Lighthouse the channel is wide and has a least depth of 3½ fathoms; above the light the channel is narrow and the depths are variable, but a depth of 4 fathoms can be carried up to Cambridge. Above Cambridge the channel is narrow and crooked; although the prominent dangers up to Hunting Creek are marked by buoys, it is advisable for strangers to take a pilot if bound above Cambridge or into any of the tributaries of the river.

Cambridge is a town on the south bank of the river, about 17 miles above Sharps Island; it has considerable trade in farm produce and oysters, carried principally in sailing vessels and steamers engaged in the bay trade. Steamers run daily between Cambridge and Baltimore. There are several marine railways where small vessels are repaired. A dredged channel, about 10 feet deep and about 100 feet wide, leads from the deep water of Choptank River to the wharf and into a creek called the inner harbor. The mean rise and fall of tides is about 1.7 feet at Cambridge.

Denton, a small town on the east bank of the river, about 50 miles above Sharps Island, was for a long time the head of steamboat navigation, the produce and lumber from higher up the river being brought down in lighters; steamers and sailing vessels up to 8 feet draft go up to Denton. A drawbridge crosses the river at this point; width of draw about 55 feet.

Greensboro is a thriving town on the west bank of the river, about 6 miles above Denton. A bridge through which lighters can pass crosses the river at this point. The town has considerable trade in farm produce and lumber, and is reached through a dredged channel 6 feet deep at low water.

Black Walnut Cove is a shallow irregular indentation in the south side of Tilghman Island; it is used by small local vessels as an anchorage in northerly winds. The depth at the anchorage is from 7 to 10 feet, bottom dark blue clay. There are several houses (a small village) on the eastern shore of the cove, and a wharf westward of **Black Walnut Point** (the eastern point of the cove).

Harris Creek enters Choptank River from northward just eastward of Tilghman Island. The entrance between **Nelsons Point** on the east and **Black Walnut Point** on the west, is about 2¼ miles wide, but there are extensive shoals making out from both shores. Above the entrance the creek becomes narrow and crooked, and as there are no aids, it can only be navigated by those well acquainted with the channel. Local vessels of 8 feet draft are taken up about 9 miles above Black Walnut Point to within 1 mile of **Wittman,** a village near its head. Several small unimportant creeks empty into Harris Creek.

Broad Creek enters Choptank River from northward on the eastern side of Nelsons Point. The creek is about 8 miles long and has several tributaries into which a draft of 8 feet can be taken. These waters are frequented only by vessels acquainted with the locality and drawing 9 feet or less water; a draft of 8 feet can be taken to within 1 mile of the town of **St. Michaels.** There are no aids to assist a stranger in entering the creek; **Back Creek, Leadenham Creek, Grace Creek,** and **Edge Creek** are the principal tributaries.

Tred Avon River enters Choptank River from northeastward, the entrance lying north of Choptank River Lighthouse. **Oxford** is a village on the east bank of the river about 2 miles above Choptank River Lighthouse. The town of **Easton** is at the head of navigation, about 9 miles above the mouth of the river. A channel 150

* Shown on chart 135, scale $\frac{1}{80,000}$, price $0.50.

feet wide and 8 feet deep has been dredged in the upper part of the river to Easton Point. Steamers and sailing vessels are engaged in the carrying trade to Baltimore from Oxford, Easton, and the landings on the river. There are no aids, except local ones, to assist in keeping a vessel in the channel. A number of unimportant creeks, into which a draft of 8 feet can be taken, enter Tred Avon River.

The principal tributaries are **Tripps, Plaindealing,** and **Goldboro creeks,** all of which are navigable for the vessels trading in these waters. The mean rise and fall of tides in the river is about 1.7 feet.

Dividing Creek (La Trappe River) enters Choptank River from northeastward about 3½ miles above Choptank River Lighthouse. A dredged channel 8½ feet deep and 150 feet wide leads through the bar at the entrance, and 7 feet deep and 75 feet wide to **Trappe Landing,** at the head of the creek. There are no aids. Steamers make regular trips to the landing.

Warwick River is a small stream entering Choptank River from eastward, about 6½ miles above the town of Cambridge. **East Newmarket** is a small thriving town at the head of the river about 3 miles above its mouth. A channel 7 feet deep and 100 feet wide was dredged from the deep water of Choptank River to **East Newmarket Wharf,** about 1½ miles above the mouth of the river and about halfway to the town. Steamers running to Baltimore, and sailing vessels engaged in the bay trade, take freight from the wharf. The mean rise and fall of tides is about 1.7 feet.

Cabin Creek enters the eastern side of Choptank River about 1½ miles above Warwick River. A channel with a depth of 5½ feet and width of 80 to 150 feet leads from the entrance to the wharf about 500 yards above. Steamers plying to landings on the Choptank River stop at this wharf.

Tuckahoe Creek enters Choptank River from northward, about 41 miles above Sharps Island Lighthouse. **Hillsboro** is the principal village on the creek about 9 miles above its mouth. A draft of 8 feet can be taken 3 miles above the mouth of the creek, and small steamers go as far as **Waymans,** 3 miles below Hillsboro. Freight shipped from Hillsboro and above is brought down to Waymans in lighters. The bridge crossing the creek at Hillsboro has a span through which lighters can pass.

Pilots for Choptank River can generally be had when near Sharps Island by making signal for one. Pilots for the tributaries can be had from the shores at their entrances or at Cambridge.

SAILING DIRECTIONS, CHOPTANK RIVER.

The northern entrance, between Sharps Island and Tilghman Island, is good for a draft of 13 feet, and can be entered without difficulty by following the directions. A draft of 13 feet can be carried up to the entrance to the dredged channel leading to Cambridge.

1. ***Approaching and Entering, from Southward.***—Coming up Chesapeake Bay, shape the course so as to pass 1 mile eastward of Cove Point Lighthouse, and then steer **N. ¾ W.** a little over 13 miles until Sharps Island Shoal buoy (spar, red, No. 18) bears **E.** distant ¾ mile; Sharps Island Lighthouse will then bear **NE. ½ E.,** and be well open westward of Sharps Island. Then change the course to **NE. ¾ N.,** pass ¾ mile westward and northward of Sharps Island Lighthouse. When the lighthouse bears **S.** distant ¾ mile, steer **SE.** by **E. ½ E.**; leave Lows Point Shoal buoy (spar, black, No. 1) about 200 yards on the port hand, and then steer **E. ¾ N.** Continuing the **E. ¾ N.** course Cook Point Shoal buoy (spar, red, No. 2) will be made on the starboard bow; leave it ¼ mile on the starboard hand and steer **E. ⅛ N.** for Choptank River Lighthouse (see table, page 22), and be guided by the directions in section 2 following.

Remarks.—Standing up the bay on the **N. ¾ W.** course, a good lookout should be kept for Sharps Island Shoal buoy (spar, red, No. 18). Sharps Island Lighthouse will be made on the starboard bow, but does not show up well against the background when seen from a distance of 4 or 5 miles. **James Point,** the southern point at the entrace to Little Choptank River, is low and flat, with trees some distance back from the extremity of the point. **Sharps Island** is low and flat; when seen from the southward it shows several groups and some scattered trees. On the **NE. ¾ N.** course care must be taken not to approach the lighthouse closer than ¾ mile; the least depth on this course should be about 17 feet.

On the **SE.** by **E. ½ E.** course Cook Point will be on the port bow, and black spar buoy No. 1 should be made on the port bow. **Tripps Bay** is the broad, shallow bight between Hills Point and Cook Point eastward of Sharps Island. **Cook Point,** the southern point at entrance to Choptank River, and about 3¼ miles east from the northern end of Sharps Island, is long, low, and flat, with scattered trees; a group of three or four trees stands near the extremity of the point. **Tilghman Island,** northward of Sharps Island, when seen from southward, is in part heavily wooded.

On the **E. ¼ N.** course red spar buoy No. 2 should be kept well on the starboard bow until it is passed; the channel north of this buoy, with greater depth than 12 feet, is about ¾ mile wide. On the **E. ¼ N.** course Choptank River Lighthouse should be kept ahead.

Dangers and Aids.—**Shoals** extend out in every direction from Sharps Island, and to avoid them its southern end should be given a berth of at least 1½ miles, and its western shore a berth of nearly 1½ miles.

Northward of the island a shoal with less than 12 feet over it extends from the island to ½ mile northward and northwestward of Sharps Island Lighthouse.

Lows Point Shoal buoy marks the southern edge of the shoal which extends about 1½ miles southward from the south end of Tilghman Island. The general depth over this shoal is from 5 to 10 feet, and the latter depth will be found a short distance northward of the buoy.

Cook Point Shoal buoy (spar, red, No. 2) marks the northern edge of the shoals making northward and westward from Cook Point. This buoy should not be approached closer than ½ mile unless it bears southward of **E.**

1 A. ***Approaching and Entering, from Northward.***—Steer for Sharps Island Lighthouse on any bearing between **S.** by **E.** ½ **E.** and **E.**, pass ¾ mile northward of it and steer **SE.** by **E.** ½ **E.** On this course Lows Point Shoal buoy (spar, black, No. 1) will be made on the port bow and should be left 200 yards on the port hand. After passing this buoy haul gradually eastward and steer about **E.** ¾ **N.**, passing about ½ mile northward of Cook Point Shoal buoy (spar, red, No. 2). When Choptank River Lighthouse bears **E.** ⅛ **N.**, steer for it on that bearing and be guided by the directions in section 2 following.

Remarks.—In standing in on the **SE.** by **E.** ½ **E.** course, Cook Point will be a very little on the port bow. On the **E.** ¼ **N.** course for Choptank River Lighthouse, Cook Point Shoal buoy will be made on the starboard bow and should be left ½ mile on the starboard hand. Light-draft vessels will find good anchorage in 7 to 12 feet, sheltered from northerly and westerly winds, ½ to 1½ miles eastward of Lows Point in Black Walnut Cove.

See also the remarks under section 1 preceding.

Dangers and Aids.—**Poplar Island Shoals** make 1½ miles westward from Poplar Island and rise abruptly from deep water. The western edge of the shoals is marked by Poplar Island Shoal buoy (spar, red, No. 20).

Shoals make out in all directions from Tilghman Island, and its shores should not be approached closer than 1½ miles.

From Black Walnut Point (the southeastern point of Tilghman Island) shoals make out over 1½ miles in a southeasterly direction, leaving the channel northward of Cook Point about ¾ mile in width.

See also the dangers and aids under section 1 preceding.

2. ***From Cook Point to Cambridge.***—Having followed the directions in section 1 or 1 A preceding, and brought Choptank River Lighthouse to bear **E.** ⅛ **N.**, steer for it on that bearing until between 1 and 2 miles from it, then haul southward so as to pass ½ to ¾ mile southward of the lighthouse; then steer **SE.** by **E.** for Castlehaven Shoal buoy (spar, red, No. 4). Pass 75 yards northward of this buoy and continue the **SE.** by **E.** course and leave Chlora Point a little over ½ mile on the port hand; when Chlora Point (see description) bears **NNW.** bring it over the stern and steer **SSE.** keeping the bearing astern. On this course a wooded prominent point, called Horn Point, will be seen on the starboard bow, and Howell Point Shoal buoy (spar, black, No. 3) will be made nearly ahead. Leave this buoy 50 yards on the port hand, and when the northern extremity of Horn Point bears **WNW.** ½ **W.**, steer **ESE.** ½ **E.**, keeping the point on the bearing astern.

Drumming Ground Shoal buoy (can, black, No. 5) will be made nearly ahead, and should be left 75 yards on the port hand; Hambrook Bar Shoal buoy (spar, red, No. 6) will be seen a little on the starboard bow. Pass about 200 yards northward and eastward of this buoy and then steer **SE.** ½ **S.** Make good this course for 1½ miles and anchor when abreast the town of Cambridge.

If going above Cambridge, take a pilot or be guided by the buoys and chart; the channel is fairly well buoyed as far as the mouth of Hunting Creek, 10 miles above Cambridge.

Remarks.—On the **E.** ¼ **N.** course Harris Creek and Broad Creek will be opened out; **Todd Point** (long and low with a few scattered trees), about 2½ miles eastward of Cook Point, will be left 1½ miles on the starboard hand, and **Benoni Point** will be seen on the port bow northward of Choptank River Lighthouse. As the lighthouse is approached, Tred Avon River will be opened out northward, and **Island Creek** (small, shallow, and unimportant) eastward (in rear) of the lighthouse.

Chlora Point, on the north bank of the river, 2 miles **SE. ¼ E.** from Choptank River Lighthouse, is low near the end, but heavily wooded a little back from its end; it will be plainly seen when on the **SE.** by **E.** course, and will be left a little over ¼ mile on the port hand. Howell Point (see description) will be seen beyond Chlora Point.

Castlehaven is the long low point on the south bank of the river opposite Chlora Point and 2 miles **S.** by **E. ¼ E.** from Choptank River Lighthouse.

Lecomptes Bay is the large shallow bight making into the southern bank eastward of Castlehaven and westward of Horn Point. Vessels of 5 feet or less draft may run in and anchor anywhere in this bay, giving the shore a berth of at least ¼ mile.

Horn Point, on the south bank of the river, is well wooded and will show quite prominently on the starboard bow when on the **SSE.** course.

On the **SSE.** course **Jenkins Creek,** making into the southern bank, will be seen, and when nearly down to Horn Point, **Dividing Creek,** making into the northern bank, will be opened out.

Howell Point, nearly due **E.** from Horn Point and on the opposite bank of the river, is a long, low, and narrow white sand spit with a few scattered trees, and a clump of trees on the extreme end of the spit. After passing Howell Point a large shallow bight with marshy islands will be seen eastward of it.

On the **ESE. ½ E.** course, **Hambrook Bar,** a long and low point on the southern bank, with a few scrub trees near its end, will be on the starboard bow and should be left ⅜ mile on the starboard hand.

Dangers and Aids.—Shoals make out 1 mile northward of Todd Point, and the bight between it and Cook Point is full of shoals.

There is only 12½ feet of water ¼ mile southward of Choptank River Lighthouse, and the lighthouse should not be approached closer unless when eastward of it.

Shoals make out a little over ¼ mile northwestward from Chlora Point and northward from Castlehaven, leaving the channel between the shoals a little less than ¼ mile in width.

Castlehaven Shoal buoy (spar, red, No. 4) is on the northern edge of the shoals making out from Castlehaven, and should be left 75 yards on the starboard hand when entering.

Drumming Ground is the shoal lying on the north side of the channel opposite Hambrook Bar and 1 mile **ESE.** from Howell Point. This shoal rises abruptly from the deep water of the channel, has from 7½ to 18 feet of water over it, and is marked by a buoy (can, black, No. 5).

Hambrook Bar Shoal buoy (spar, red, No. 6) marks the northeastern edge of the shoal making out in that direction from Hambrook Bar.

GENERAL DIRECTIONS, ENTERING TRED AVON RIVER TO OXFORD.

Following the directions in section 2, "Choptank River," page 112, when on the **E. ⅛ N.** course and about 500 yards from Choptank River Lighthouse, steer about **N.** by **E. ¼ E.** heading so as to pass about 500 yards westward of **Batchelors Point,** the first point on the eastern bank above the lighthouse. Continue the **N.** by **E. ¼ E.** course past Batchelors Point, and then haul eastward for the wharves at Oxford. Anchor in 15 feet water, soft bottom, about 350 yards from the bank.

Or, on the **E. ⅛ N.** course for Choptank River Lighthouse, haul southward so as to pass ⅜ mile southward of it, then stand northward and bring the lighthouse to bear **W.,** distant about 200 yards; then steer about **N. ¼ W.** so as to leave Batchelors Point about 300 yards on the starboard hand; continue the course and anchor as directed in the preceding paragraph.

EASTERN BAY AND TRIBUTARIES.*

Eastern Bay has its entrance on the eastern shore of Chesapeake Bay about 106 miles above Cape Charles, and 40 miles below Baltimore. It is a large, irregular body of water, with extensive shoals composed chiefly of oyster beds, and is the approach to several creeks and rivers navigable for vessels of less than 13 feet draft. Kent Point, the northern point at the entrance, is marked by Bloody Point Bar Lighthouse. Poplar Island, on the south side at the entrance, is surrounded by shoals; these and the shoals making southward from Kent Point leave an available channel into the bay about ¼ mile wide with a depth of over 18 feet.

The villages and landings on the bay and its tributaries have considerable trade in farm produce and oysters, carried principally by steamers and sailing vessels engaged in the bay trade. Strangers seldom enter these waters. The shores of the bay are low and present no natural features readily distinguished by a stranger. Buoys mark the most prominent dangers and are the only guides to keep in the channel. Good anchorage is found anywhere in the bay in from 4 to 8 fathoms water, soft bottom, or in the mouths of the tributaries. Strangers bound into any of the rivers or creeks emptying into the bay are advised to take a pilot, as there are no aids except in the Miles and Wye rivers.

*Shown on charts **376,** scale $\frac{1}{400,000}$; **79,** scale $\frac{1}{200,000}$; **135,** scale $\frac{1}{80,000}$, price of each $0.50.

Claiborne, a village and railroad terminal of the B., C. & A. R. R., is 4¼ miles **E.** from Kent Point. A long pier, at which the steamers of the railroad company land, extends from the shore, and this is reached through a narrow channel with a depth of 9 feet. A buoy marks the point where the steamers turn to stand in for the pier; this buoy bears about **W.** by **N.**, distant 1 mile from the end of the pier, and a stranger of over 6 feet draft should not attempt to land at the pier without a local pilot.

Coxes Creek enters the bay from northward about 2¾ miles northeastward of Kent Point. For a distance of 3½ miles above its mouth the least depth in the channel is 10 feet. **Shipping, Warehouse,** and **Thompsons** creeks are tributaries of Coxes Creek, which can be entered by vessels of 7 to 9 feet draft. The channel is narrow and crooked, and is not marked; strangers should take a pilot at the entrance.

Crab Alley Creek enters Eastern Bay from northward just east of Coxes Creek. The entrance to the creek between **Parsons Island** on the east and **Bodkin Island** on the west, known also as Crab Alley Bay, is about 1½ miles wide, but is much obstructed by shoals which make out from the shores. Crab Alley Creek is only frequented by local vessels carrying farm produce and oysters. Strangers should not enter without a pilot. There are no buoys or other aids.

Kent Island Narrows is a narrow passage between Kent Island and the mainland, and is crossed by a bridge with a draw 60 feet wide. A channel about 100 feet wide and 7 feet deep was dredged through this passage in 1877 under the supervision of the United States Engineers, but since then this depth has decreased, and only small craft now use this passage. The approach to Kent Island Narrows from Eastern Bay is through a large bight in the northeastern end of the bay. This bight has a narrow channel, with a least depth of 8½ feet until up to the bar, which is off the southern end of the narrows. There are no aids, and strangers should take a pilot.

Greenwood Creek is a small, unimportant creek entering the eastern end of the bay from northeastward. It has about 7 feet of water in a very narrow channel over the bar at its entrance, and 6½ to 10 feet in the channel for a distance of 2 miles above its mouth.

Wye River enters the eastern end of the bay about **SE.** by **E.** ½ **E.** from Tilghman Point; its entrance is marked by three buoys. This river has several branches, called the **Front Wye, Back Wye,** and **Big Wye**; these again have numerous small tributary creeks of no special importance. The channels of the Wye River and its branches are narrow and crooked and require local knowledge for their navigation. Vessels drawing from 6 to 9 feet, engaged in the bay trade, enter the river for cargoes of farm produce and cord wood. Strangers seldom enter, and should not attempt it without a pilot.

MILES RIVER.

entering the head of the bay from southeastward, is the most important of the tributaries of Eastern Bay, and is the approach by water to the town of St. Michaels. The entrance of the river is obstructed by shoals between which a narrow and crooked but well-buoyed channel leads up to the town of St. Michaels. A draft of 10 feet can be taken up the river 5 miles above the town. There are several creeks which empty into Miles River and are navigable for vessels of less than 10 feet draft; the most important is **Leeds Creek,** opposite the town of St. Michaels, which has a steamboat landing. Its entrance is marked by a buoy.

St. Michaels is a small town on the west bank of the river about 7 miles above Tilghman Point and 14 miles from the entrance to Eastern Bay. It has some trade in farm produce and oysters, carried principally in sailing vessels engaged in the bay trade. The greatest draft taken up to the town is 12 feet, but the vessels trading here and to the landings on the river and its tributaries are usually 6 to 10 feet draft. There is a marine railway and shipyard at St. Michaels at which small vessels repair; the cradle of the railway is 123 feet long and 23 feet wide.

The railroad from Claiborne to Easton passes through St. Michaels. Strangers entering the river, if drawing over 10 feet, should take a pilot, coming to anchor in Eastern Bay with signals set until boarded by one.

SAILING DIRECTIONS, EASTERN BAY TO ST. MICHAELS.

Although 22 feet can be taken in to an anchorage in Eastern Bay, it is seldom entered by any but vessels of 10 feet or less draft engaged in trade in Chesapeake Bay and tributaries.

1. ***Approaching and Entering Eastern Bay, from Southward.***—Having followed the directions in section 5, pages 36–37, "Sailing Directions, Chesapeake Bay," when Bloody Point Bar Lighthouse is made bring it to bear **NNE.** ½ **E.** and stand for the lighthouse on that bearing until the northern extremity of Poplar Island bears **ESE.** ½ **E.**;

then change the course to **NE.** by **E.** ½ **E.** This course made good will lead between Poplar Island Spit buoy (spar, red, No. 2) and Kent Island Spit buoy (can, black, No. 1). Pass about 600 yards south of the latter buoy, and steer **NE.** by **E.** ¼ **E.**; leave Wades Point Shoal buoy (spar, red, No. 2½) about ¼ mile on the starboard hand, and head directly for Bodkin Island Shoal buoy (spar, black, No. 3). Pass close southward of black buoy No. 3, and steer **NE.** On this course Tilghman Point Shoal buoy (spar, red, No. 4) will be made on the starboard bow; leave it about ¼ mile on the starboard hand, and if bound up the Miles River, be guided by the directions in section 2, following.

After entering the bay, if bound up any of the tributaries other than Miles River, or if drawing over 12 feet, take a pilot.

Remarks.—In standing **NNE.** ½ **E.** for Bloody Point Bar Lighthouse, Kent Point will be a little on the starboard bow. Poplar Island will be left about 1½ miles on the starboard hand. On the **NE.** by **E.** ½ **E.** course Tilghman Point (well wooded to the end and quite prominent) will be seen in the distance a little on the starboard bow.

Dangers and Aids.—**Poplar Island Shoal** makes out 1¼ miles westward from Poplar Island, and its western edge, with only 9 feet of water over it, is marked by a buoy (spar, red, No. 20).

Poplar Island Spit is a shoal, with 1 to 18 feet of water over it, making out a little over 2 miles in a northeasterly direction from the northern end of Poplar Island. The northern extremity of this spit is marked by a red spar buoy, No. 2. On the eastern side of Poplar Island shoals extend to the mainland.

Shoals make out in all directions from Kent Point; the western edge of these shoals is marked by **Bloody Point Bar Lighthouse** (see table, page 22), and the southern edge by Kent Point Shoal buoy (can, black, No. 1).

On the northern side of the bay, between the entrances to Coxes Creek and Crab Alley Creek, there is an extensive shoal, which extends about 2 miles southward from Turkey Point and Bodkin Island; it is marked at its southern edge by Bodkin Island Shoal buoy (spar, black, No. 3). Abreast this buoy the channel is about ⅝ mile in width.

From the southern shore of the bay shoals make ½ to ¾ mile.

Wades Point Shoal buoy (spar, red, No. 2½) marks the northern end of the shoals making northward from Wades Point; it is left nearly ⅝ mile on the starboard hand on the **NE.** by **E.** ¼ **E.** course. This buoy lies 1 mile **W.** by **N.** from the pier at Claiborne.

Tilghman Point Shoal buoy (spar, red, No. 4) marks the northern edge of the shoal making out ¾ mile northward from Tilghman Point.

1 A. ***Approaching and Entering Eastern Bay, from Northward.***—When abreast of Thomas Point Shoal Lighthouse (see table, page 22) steer for Bloody Point Bar Lighthouse; pass ½ mile westward of it, and then haul gradually eastward. When about ½ mile south of Bloody Point Bar Lighthouse steer **ESE.** Kent Island Spit buoy (can, black, No. 1) will be made on the port bow, and Poplar Island Spit buoy (spar, red, No. 2) on the starboard bow; pass about 600 yards south of black can buoy No. 1 and then steer **NE.** by **E.** ¼ **E.**; on this course leave red spar buoy No. 2½ about ⅝ mile on the starboard hand. When Bodkin Island shoal buoy (spar, black, No. 3) is made, steer so as to pass close southward of it, and then steer **NE.** This course will lead about ¼ mile northward of Tilghman Point Shoal buoy (spar, red, No. 4); from it, if bound up Miles River, be guided by the directions in section 2, following.

Note.—See Remarks and Dangers under section 1.

2. ***From Tilghman Point up the Miles River to St. Michaels.***—The channel of the river as far up as the town of St. Michaels has a depth of 21 feet, but is so narrow and crooked that strangers of over 12 feet draft should take a pilot.

Having followed the directions in section 1 or 1 A, preceding, until up to Tilghman Point Shoal buoy, pass about ¼ mile northward of it and then steer **SE.** for 1 mile, heading for *Coffee Point Shoal buoy* (spar, black, No. 5), which should be left close-to on the port hand. From this buoy steer **S.** ½ **E.**; this course passes about ¼ mile eastward of Middle Ground buoy (spar, red and black horizontal stripes), and will lead up to *Bozman Island Shoal buoy* (spar, red, No. 6); pass about 80 yards eastward of it and then steer about **SSW.** so as to pass about 50 yards westward of Herring Island Shoal buoy (spar, black, No. 7), which will be seen southward.

Leave black buoy No. 7 about 50 yards on the port hand, then haul eastward and steer about **SE. ¼ E.** for *Hamilton Point Shoal buoy* (spar, red, No. 8), which leave about 25 yards on the starboard hand and then steer **SSE. ½ E.**

On the **SSE. ½ E.** course *Scotland Point Shoal buoy* (spar, red, No. 10) will be ahead; pass about 25 yards eastward of this buoy and then steer **S.** by **W.** Pass 70 yards from Deep Water Point and 40 yards from *Fairview Point Shoal buoy* (spar, black, No. 9), and then steer **S.** by **E.** for *Stony Point Shoal buoy* (spar, red, No. 12). Leave red buoy No. 12 about 100 yards on the starboard hand and steer **SW. ½ W.** for about ½ mile. The last course and distance will lead to abreast the town of St. Michaels, where anchorage in 18 feet of water will be found, with the tallest church spire bearing **SW.** by **W. ¾ W.**

If bound further up the river take a pilot or be guided by the buoys and chart.

Remarks.—Shoals make out from both sides of the river, leaving the channel quite narrow in places. Off Deep Water Point the channel has a width of 460 feet. A detailed description of these shoals that would be of use to vessels navigating the river can not be given. The chart and buoys must be the principal guides.

CHESTER RIVER*

enters the eastern side of Chesapeake Bay, about 124 miles above Cape Charles and opposite the mouth of the Patapsco River; it is important as the approach, by water, to the towns of Queenstown, Centreville, Chestertown, and Crumpton, and to numerous small villages and landings which have a considerable trade in farm produce, cordwood, and timber. Crumpton, about 33 miles above its mouth, can be reached by vessels of 7 feet draft.

The deepest draft of vessels trading in the river is 9 to 15 feet, and the usual draft 6 to 8 feet. Numerous small creeks empty into the river, some of which are navigable for vessels of 8 feet draft, and are entered by the class of vessels trading in the bay. The entrance of the river, marked by Love Point Lighthouse, is somewhat obstructed by a long shoal making northeastward from Love Point and the shoals which make out from the west shore of East Neck and East Neck Island. The most prominent dangers in the river below Crumpton are marked by buoys.

The channel leads from northward into the river, and has a depth of 18 to 24 feet at the entrance; the former depth can be taken to the mouth of Southeast Creek, a distance of 25 miles, but the channel for a greater part of this distance is narrow and crooked. Though the channel is well buoyed a stranger should not go above Queenstown without a pilot. A drawbridge crosses the river at Chestertown and another at Crumpton; the draw of the latter has a width of 37½ feet. The channels leading into several of the tributaries of the river are marked by buoys, but as a rule they are narrow and require local knowledge for their navigation.

Kent Island Narrows, about 5 miles above Love Point Lighthouse, is described under the heading "Eastern Bay." The approach from Chester River is over a bar with only 4 feet of water on it.

Jackson Creek, in the south bank, about 6 miles above Love Point Lighthouse, has a buoyed channel with about 7 feet of water as far as the buoys; but from the upper buoy to the steamboat dock the depth is 4 feet and the bottom soft mud. The regular steamboat stopping at this landing usually touches bottom.

Queenstown Creek, or **Queenstown Harbor,** on the east bank of the river, about 9 miles above its mouth, is the harbor for the town of **Queenstown.** The depth of water in the creek (inner harbor) is 9 to 10 feet, and is reached through a channel 100 feet wide and 8 feet deep, which was dredged under the supervision of the United States Engineers from the deep water of the river channel into the creek Queenstown has considerable trade in farm produce and oysters, carried in sailing vessels and steamers engaged in the bay trade.

Corsica Creek, on the east bank of the river, about 15 miles above Love Point Lighthouse, is the approach to the town of **Centerville,** which is about 5 miles above the mouth of the creek. **Centerville Landing,** about 1 mile below the town, is the head of navigation on the creek and is reached through a dredged channel 80 feet wide and 8 feet deep. Steamers and sailing vessels engaged in the bay trade make landings on the creek as far up as Centerville Landing. The channel in the creek and at its entrance is marked by buoys. Strangers should not enter without a pilot.

Grays Inn Creek, on the west bank of the river, nearly opposite the entrance to Corsica Creek, is of little importance; some farm produce is shipped in vessels engaged in the bay trade from the farms on its banks. The channel has 8 to 12 feet of water for a distance of 2½ miles above its mouth. The buoys eastward of the entrance mark the channel into Langford Creek.

Langford Creek, on the west bank of the river opposite Corsica Creek, has several small creeks and two forks which are navigable for the class of vessels engaged in carrying farm produce. The channel into the creek is

*Shown on charts **376,** scale $\frac{1}{400,000}$; **79,** scale $\frac{1}{200,000}$; and in parts on charts **135, 136,** scale of each $\frac{1}{80,000}$; price of each $0.50.

marked by several buoys, but it is seldom used by strangers. The last buoy is placed about 1 mile above the eastern point at the entrance; above this there are no aids and the channel is narrow and crooked.

Chestertown is a thriving town on the west bank of the river, about 26 miles above Love Point Lighthouse. At this point the river is crossed by a drawbridge. Steamers from Baltimore and sailing vessels are engaged in the carrying trade from Chestertown. The depth in the channel up to the town is 10 feet.

Crumpton is a small town about 7 miles above Chestertown; it has some trade. The depth in the channel to Crumpton is 6 feet. A drawbridge crosses the river at Crumpton; width of draw 37½ feet.

There are numerous landings on the river and its tributaries at which the steamers stop and sailing vessels load during the season when fruit and produce is shipped.

Towboats are only used during the fruit season.

Strangers bound above Queenstown or into any of the tributaries of the river should take a pilot, making signal for one while below Queenstown, or come to anchor in the entrance with signal set until one comes off from the shore. Persons competent to take a vessel up the river will be found living on its banks. There are no regular licensed pilots.

The mean rise and fall of **tides** in Chester River varies from 1.2 feet at Love Point Lighthouse to 2 feet at Chestertown.

SAILING DIRECTIONS, CHESTER RIVER.

The following directions are available for vessels of 15 feet draft as far as Queenstown Harbor:

1. ***Approaching and Entering, from Southward.***—Pass eastward of Sandy Point Lighthouse (see table, page 22), and bring it to bear **SW.** and steer **NE.**, keeping the lighthouse on the bearing astern. When Love Point Lighthouse (see table, page 22) bears **ESE.** steer **E.**; continue this (**E.**) course past Love Point Shoal buoy, leaving it about ¼ mile on the starboard hand; round the buoy at this distance and when Love Point Lighthouse bears **SW. ¾ W.**, distant 1 mile (and is in range with the west tangent of Love Point), steer **S.** by **W. ¼ W.** and be guided by the directions in section 2, following.

Vessels of less than 10 feet draft may run across Love Point Shoal anywhere northward of Love Point Lighthouse, and those of less than 7 feet draft can cross the shoal by passing from 200 to 900 yards southward of the lighthouse, taking care to avoid a 6-foot spot which lies 700 yards southward from the lighthouse.

Remarks.—On the **NE.** course the river will be gradually opened out southeastward. On the **E.** course the tendency of both flood and ebb currents will be to set a vessel southward, toward Love Point Shoal. As Love Point Shoal buoy is appproached, the buoy marking the channel into Rockhall and Swan creeks may be seen northeastward.

Dangers and Aids.—**Shoals** make out ½ to 1 mile from the western shore of Kent Island, and near their edge the water shoals abruptly in some places from 12 or 15 fathoms to 17 or 18 feet.

Love Point Shoal makes out 2 miles in a northeasterly direction from Love Point, and is marked near the northern end by Love Point Shoal buoy (spar, red, No. 2). **Love Point Lighthouse** (see table, page 22), the principal aid in entering Chester River, is a little over 1 mile **NE.** from Love Point and is near the middle of the shoal.

Extensive Shoals make southward and westward from Swan Point and from the mouths of Swan, Rockhall, and Huntingfield creeks. The edge of these shoals is marked by two buoys.

1 A. ***Approaching and Entering, from Northward.***—Pass at least 2 miles westward of Swan Point, leaving Swan Point Shoal buoy (spar, red, No. 22), marking the western edge of Swan Point Shoal, about ⅝ mile on the port hand. When Love Point Lighthouse bears eastward of **S.** by **E. ½ E.** stand for it, and when between 1½ and 3 miles from the lighthouse haul gradually eastward so as to pass about 1 mile northward of it. Leave Love Point Shoal buoy (spar, red, No. 2), which will be seen about ¾ mile northeastward of the lighthouse, about ¼ mile on the starboard hand; when Love Point Lighthouse bears **SW. ¾ W.**, distant 1 mile, be guided by the directions in section 2, following.

See remarks and dangers under section 1, foregoing.

2. *From the Entrance to Queenstown.*—With Love Point Lighthouse bearing **SW. ¾ W.**, distant 1 mile, steer **S. by W. ¼ W.** for about 2 miles. Wickes Beach buoy (spar, black, No. 1) will be made on the port bow and should be left ¼ mile on the port hand, and Kent Island Shoal buoy (spar, red, No. 2½) will be made broad on the starboard bow. When buoy (black, No. 1) is 1 point abaft the beam, steer **SE. by S.** On this course Long Point Shoal buoy (spar, red, No. 4) should be left 500 yards on the starboard hand and Cockey Island Shoal buoy (spar, black, No. 3) about 400 yards on the port hand. When the latter buoy (No. 3) bears abeam steer **SE. by E.**, and leave Cedar Point Shoal buoy (spar, black, No. 5) about 250 yards on the port hand, and steer **ENE.** nearly 2 miles. This course will lead up to Queenstown Creek Entrance buoy (spar, red, No. 2). Anchor ¼ mile westward of this buoy in 18 feet of water. To enter Queenstown Creek take a pilot.

If bound farther up the Chester River it is advisable to take a pilot. In December, 1901, the following directions for vessels of 8 feet or less draft would lead into Queenstown Harbor: While westward of the two buoys at the entrance, bring the outer four-pile beacon in range with the lantern on a bracket on the westerly gable of the westerly red-roofed building to the right of the elevator. Stand in on this range, leave the front beacon close-to on the port hand and head for the second beacon; leave this beacon close-to on the port hand and head for the wharf.

Remarks.—**East Neck Island** is a large island in a horseshoe bend of the river east of Love Point, and is almost connected at its northern end with the mainland.

On the **S. by W. ¼ W.** course, when Love Point Lighthouse bears about **W.**, another portion of Chester River will be visible across the low marsh land of the northern end of East Neck Island.

On the **SE. by E.** course the entrances to **Macums, Piney, Muddy,** and **Jackson** creeks will be seen and left on the starboard hand. These creeks are of but little importance; the entrance to Jackson creek is buoyed, and there is a steamboat landing near its head.

On the **ENE.** course Queenstown creek will be on the starboard bow. **Winchester** and **Wolsey** creeks, making into the southern bank, will be passed, and the northern stretch of Chester River will be opened out gradually from behind the southeastern part of **East Neck Island.**

Dangers and Aids.—**Shoals** make out ⅔ mile to 1¼ miles from the western and southern shores of East Neck Island. The extreme western point of these shoals is marked by *Wickes Beach buoy* (spar, black, No. 1), lying 1⅝ miles **SSE.** from Love Point Lighthouse. From this buoy the edge of the shoal extends 2½ miles in a **SE. by S.** direction to *Cockey Island Shoal buoy* (spar, black, No. 3), then in a more easterly direction for 1⅛ miles to *Cedar Point Shoal buoy* (spar, black, No. 5), lying about 1 mile **S. by W. ¼ W.** from **Cedar Point,** the southern point of East Neck Island.

Kent Island Shoal buoy (spar, red, No. 2½) lies 2½ miles **S. ¾ W.** from Love Point Lighthouse and marks the eastern edge of the shoals making out ⅓ to ½ mile from the shore southward of Love Point.

Shoals make out a little over 1 mile from the southern shore between Macums Creek and Jackson Creek. *Long Point Shoal buoy* (spar, red, No. 4) lies on the northern edge of these shoals, 1½ miles northward of Piney Creek.

Above Cedar Point shoals make out from ⅓ to ¾ mile from both shores of the river; the channel follows, approximately, the middle of the river.

SWAN CREEK AND ROCKHALL CREEK.*

These two small creeks are in the eastern shore of Chesapeake Bay, about 5 miles northward of Love Point Lighthouse; they have some local trade carried in small vessels and steamers from Baltimore. A buoyed channel leads from the entrance of Chester River northward along the eastern edge of an extensive shoal, which makes southward from Swan Point, up to the entrance of the creeks. A draft of 8 feet can be taken to the landing in Swan Creek, but some local knowledge is necessary to keep in the best water. The entrance buoy to the southern channel leading into the creeks is 2½ miles **NE. ¾ N.** from Love Point Lighthouse. The depth to the landing at Rockhall has shoaled to about 4 feet in 1902.

Directions of practical value for entering the creeks can not be given. *To make an anchorage off their entrance,* follow the directions for entering Chester River, and bring Love Point Lighthouse to bear **SW. ¼ S.**, and steer **NE. ½ N.**; leave black spar buoy No. 3 about 30 yards on the port hand and steer **N. ¾ W.** Leave red spar buoy No. 2 about 30 yards on the starboard hand and steer **NNE.** Anchor ¼ mile northward of this buoy in 12 feet of water.

*Shown on charts **136**, scale $\frac{1}{80,000}$; **549**, scale $\frac{1}{40,000}$; price of each $0.50.

CHESAPEAKE BAY, ABOVE THE PATAPSCO RIVER.*

Chesapeake Bay, above the mouth of the Patapsco River, extends in a general **NE.** direction about 30 miles to the mouths of the Susquehanna and Northeast rivers. A number of rivers and creeks empty into the bay from eastward and westward; they are the approach by water to many landings and a number of towns and villages, of which the principal ones are Still Pond, Betterton, Georgetown, Chesapeake City, Elkton, Charlestown, Northeast, Havre de Grace, and Port Deposit.

The tributaries flow through a fertile, agricultural country, which has a large trade in fruits, vegetables, grain, and hay, and also in lumber and some ship timber. Shipments are made principally in vessels engaged only in the bay trade, but coastwise vessels are also engaged in carrying cargoes from Havre de Grace and Port Deposit. A number of small steamers ply between the landings and villages and the cities of Baltimore and Philadelphia. The western approach to the Chesapeake and Delaware Canal is through Elk River and Back Creek, the former emptying into the bay about 24 miles above the mouth of the Patapsco River.

Numerous shoals make out from the shores, and other detached ones lie in the bay, but a good channel, marked by buoys, and two lighthouses, with a least depth of 19 feet, favors the eastern shore and leads up to Turkey Point and into Elk River. This channel is quite narrow in places, its least width, until a short distance above Sassafras River, being ½ mile. Above Turkey Point a good channel, with a least depth of 14 feet, leads along the eastern shore to the mouth of Northeast River. Westward of this channel are the extensive flats, through the western part of which a narrow, buoyed channel—improved under the supervision of the United States Engineers—having a depth of 12 feet at low water, leads into the Susquehanna River.

The bay is navigable for strangers of 13 feet draft as far as Turkey Point and into the mouth of the Elk River; if bound above this, or into any of the tributaries of the bay, a pilot should be employed. If bound to Havre de Grace or Port Deposit, vessels of 10 to 12 feet draft are advised to take a tug or pilot.

Pilots are usually fishermen who will be found in the bay. **Towboats** can be had from Havre de Grace, or at the mouth of the Patapsco River.

BACK RIVER, HAWK COVE, MIDDLE RIVER, AND GUNPOWDER RIVER

enter Chesapeake Bay from westward, between the rear light of the Craighill Channel range and Pooles Island Lighthouse. They have a common entrance, which is 3 miles **W. ½ S.** from Pooles Island Lighthouse and leads between **Sprys Island** on the north and **Millers Island** on the south. These waters are of little commercial importance; they are only frequented by vessels engaged in the bay trade and by sportsmen in the shooting season. A stranger over 5 feet draft should not enter without a pilot. **Back River**, the southernmost of these waters, is entered through **Hawk Cove**; the latter lies northeastward of the entrance and just southward of the mouth of **Middle River**. A few vessels from Baltimore enter Back and Middle rivers to load fertilizers, oyster shells, and wood; 8 feet can be taken about 2 miles above their entrances. **Gunpowder River** is the northernmost of these tributaries. A narrow, deep, but crooked channel leads from the common entrance into the mouth of this river, but above its mouth the river is shallow and has only 7 feet at low water for a distance of 3 miles; above this and up to the P., W. & B. R. R. bridge, which crosses the river 5½ miles above its mouth, the depth is 5 and 6 feet.

Fairlee Creek is a small and unimportant stream, with a very narrow entrance, entering the bay on the eastern shore, 3 miles **SE.** by **E. ½ E.** from Pooles Island Lighthouse.

WORTON CREEK

enters the bay on the eastern shore about 2 miles northeastward of Fairlee Creek and **E.** from Pooles Island Lighthouse. Considerable farm produce and fruit are shipped from this creek during the season. It is a good, though small, anchorage for vessels of 8 feet or less draft. Extensive flats, with 9 to 11 feet of water over them, extend westward 1¼ miles, from the mouth of the creek to the edge of the channel in the bay; these flats are good anchorage in easterly winds. Inside the mouth of the creek good anchorage, sheltered from all winds, is found in 8 to 11 feet water. There are no aids to assist a stranger in entering. (See sailing directions following, in section 1.)

BUSH RIVER

enters the bay on the western shore, about 2¼ miles northward of Pooles Island Lighthouse. This river is shallow and full of flats, but is navigable for vessels of 8 feet draft for a distance of 4 miles above its mouth. A bridge of the P., W. & B. R. R., with a draw 24 feet wide, crosses the river nearly 7 miles above the entrance,

*Shown on charts **376**, scale $\frac{1}{400,000}$; **79**, scale $\frac{1}{200,000}$; **136**, scale $\frac{1}{80,000}$; and in part on chart **549**, scale $\frac{1}{40,000}$, price of each, $0.50.

and 6 feet of water can be carried ¼ mile above the bridge. Strangers should not enter without a pilot. There are no aids placed to mark the channel in the river or at the entrance. The rise and fall of tides at Pooles Island is 1.3 feet.

STILL POND

is a broad bight in the eastern shore of the bay, about 6½ miles NE. from Pooles Island Lighthouse. It has a depth of 10 feet, and affords good anchorage, sheltered from southerly and easterly winds, for vessels of 8 or 9 feet draft. At the head of the bight **Churn Creek** enters it from southward and **Still Pond Creek** from eastward. The village of **Still Pond** ships some farm produce in vessels engaged in the bay trade. The anchorage is easy of access to strangers, but the navigation of the creeks requires local knowledge and a light draft. There are no aids to assist a stranger in entering.

SASSAFRAS RIVER

enters the bay on the eastern shore, about 10 miles NE. of Pooles Island Lighthouse and 5 miles southward of Turkey Point Lighthouse. There is a large trade along this river in farm produce, lumber, and coal, carried principally in vessels owned in the vicinity. Steamers ply between Georgetown and the river landings and Baltimore and Philadelphia. The deepest draft vessels trading in the river is 8 to 10 feet; this draft can be taken up to **Georgetown**, 9 miles above Grove Point, the northern point at the entrance. **Betterton** is a village on the south bank at the entrance, about 2 miles east of Howell Point. The channel of the river is comparatively straight, but shoals make out from both banks, leaving the channel quite narrow in some places. There are no aids to assist a stranger, and a pilot should be taken by those who enter. The mean rise and fall of tides at Betterton is 2 feet.

ROMNEY CREEK,

on the western shore, W. ¾ N. from Howell Point, is of little importance. There is 7 feet of water on the bar at its entrance and a somewhat greater depth in the narrow, crooked channel of the creek. Strangers should not attempt to enter without a pilot.

ELK RIVER

enters Chesapeake Bay from northeastward, about 24 miles above the mouth of the Patapsco River. **Turkey Point Lighthouse**, on the southern end of Elk Neck (see table of lighthouses, page 24), marks the western point at the entrance. This river is navigable for vessels of 7 feet draft as far as the town of **Elkton**, 15 miles above its mouth. For a distance of 7 miles the channel follows a general mid-river course and has a least depth of 17 feet; above this it shoals rapidly and is narrow and crooked, and should not be attempted by a stranger. **Elk River** and **Back Creek**, one of its tributaries, are the western approach to the **Chesapeake and Delaware Canal**, through which a draft of 9 feet can be taken. The channel of the creek is narrow and has a least depth of 11 feet. There are no aids on the river above Turkey Point Lighthouse and in Back Creek, except three stake lights (see table, page 24).

Bohemia River is a tributary of Elk River, entering it from eastward about 4 miles above Turkey Point. A draft of 7 feet can be taken up about 4½ miles above its mouth through a narrow channel. There are no aids in the river, and a stranger should not enter without a pilot.

Back Creek, the most important tributary of Elk River, enters from eastward about 7½ miles above Turkey Point. **Chesapeake City**, about 4 miles above the mouth of the creek, is a small town at the entrance of the **Chesapeake and Delaware Canal**. The locks of the canal are 220 feet long, 24 feet wide, and allow a draft of 9 feet; the bridges crossing the canal are open drawbridges and do not necessitate the striking of topmasts.

Elkton is a small town at the head of navigation on the Elk River. It is reached through a dredged channel which has shoaled so that in 1901 it was good for a draft of 7 feet or less. The town has several manufactories and some trade by water, shipments being made principally in vessels engaged in the bay trade.

Strangers of 8 to 10 feet draft can pass up the Elk River as far as the mouth of Back Creek by closely following the directions in this volume, or by studying the chart. If bound to Elkton, into any of the tributaries, or through the canal, take a pilot at Turkey Point.

NORTHEAST RIVER

enters the head of Chesapeake Bay. The mouth of the river is about 5 miles N. by E. ¼ E. from Turkey Point, and between the points at the entrance is 1¼ miles wide. A channel, with a least depth of 14 feet, leads along the western shore of Turkey Neck from the point to the entrance of the river. Above the entrance the width of the river first increases and then decreases to the town of Northeast, which is at the head of navigation, about 4¼ miles above the mouth of the river. The channel above the entrance has a depth of 7 to 9 feet for a distance of 2¼ miles, and above this a depth of 5 feet to the entrance of the dredged channel, which has a width of 60 feet and depth of 5 feet to the town of Northeast. The rise and fall of tides in the river is about 2 feet.

Charlestown is a small town on the west bank of the Northeast River, 2½ miles above its mouth. The deepest draft of vessels trading here is 7 to 8 feet and the usual draft about 6 feet. **Northeast**, a small town at the head of navigation, about 2 miles above Charlestown, has several manufactories and some trade by water; the deepest draft of vessels trading there is 6 feet. It is on the line of the P., W. & B. R. R.

Strangers drawing 6 feet can enter Northeast River and pass up as far as Charlestown by close attention to the sailing directions in this volume, or by studying the chart. Local knowledge is required to pass above Charlestown, and a pilot should be taken there if bound to Northeast. **Tugs** are sometimes used and can be had from Havre de Grace.

SUSQUEHANNA RIVER

enters the northwestern part of the head of Chesapeake Bay and is the approach by water to the towns of Havre de Grace and Port Deposit. Lumber is rafted down the river and shipped from these towns. The river is approached through a narrow channel marked by buoys and Fishing Battery Lighthouse (see table, page 24); this channel has been improved by dredging, under the supervision of the United States Engineers, and is 100 feet wide and 12 feet deep at low water. The entrance of the river, about 6½ miles **NNW. ¼ W.** from Turkey Point Lighthouse, is marked on its western bank by Havre de Grace Lighthouse and the town of Havre de Grace. At the upper part of the town, and just below Watsons Island, the river is crossed by a railroad drawbridge, and ⅛ of a mile farther up another railroad drawbridge crosses the river and the northern end of Watsons Island.

Havre de Grace, on the western bank at the entrance to the river, has considerable trade in coal, lumber, and sand, carried in coasting vessels and vessels engaged in the bay trade. The mean rise and fall of tides at Havre de Grace is 1.5 feet. **Port Deposit**, on the eastern bank of the river, about 4 miles above Havre de Grace Lighthouse, has considerable trade in hay, grain, ice, and lumber, carried in coasters and bay vessels. Towboats can be had at Havre de Grace, and should be taken by vessels bound to Port Deposit, as some difficulty may be experienced in going through the two railroad drawbridges.

SAILING DIRECTIONS FOR HEAD OF CHESAPEAKE BAY, ABOVE PATAPSCO RIVER ENTRANCE.

The following directions are good for a draft of 13 feet at any stage of the tide as far as Turkey Point Lighthouse, about 33 miles above Sandy Point Lighthouse. A draft of 18 feet can be taken this distance with local knowledge.

1. ***From Sandy Point Lighthouse to abreast Worton Point.***—Having followed the directions in section 6, "Sailing Directions, Chesapeake Bay," page 37, when Sandy Point Lighthouse bears **W.**, distant about ⅝ mile, steer **NNE.** about 7¼ miles; Swan Point will then bear about **E.** and Swan Point Shoal buoy (spar, red, No. 22) should be ⅝ mile distant on the starboard beam. Then shape the course **NE. ¾ N.**, and having stood on this course 6¼ miles, leave Mitchells Bluff buoy (spar, black, No. 1) on the port hand. The wharf at Tolchester should then bear **E.** and be distant ½ mile. Then steer **NNE. ½ E.** for 7¼ miles so as to pass about ¾ mile westward of Worton Point, and leave Worton Point Shoal buoy (nun, red, No. 2) about ¼ mile on the starboard hand. Then follow the directions in section 2.

To enter Worton Creek.—Vessels of 8 feet or less draft, when on the **NNE. ½ E.** course, standing up the bay, bring Pooles Island Lighthouse to bear **W.** and steer **E.** for the entrance of the creek. Enter the creek, keeping midway between the points at the entrance, and anchor in 11 to 13 feet when inside.

Remarks.—The **NNE.** course leads a little westward of two mid-channel buoys (spar, white and black perpendicular stripes) and about ⅝ mile westward of Swan Point Shoal buoy. The numerous buoys marking the shoals off the entrance of Patapsco River and the dredged channel to Baltimore are left on the port hand. **Swan Point**, low and marshy, on the eastern shore, bearing about **E. by S.** from Seven-Foot Knoll Lighthouse, will be left about 1¼ miles on the starboard hand when on the **NE. ¾ N.** course. Swan Creek and Rockhall Creek are eastward of Swan Point.

The **NE. ¾ N.** course leads along the eastern shore and eastward of the extensive shoals lying in the middle of the bay below Pooles Island. **Mitchells Bluff**, bare, abrupt bluff with level lands back of it, is about 5 miles above Swan Point. The large summer hotel and wharf at **Tolchester Beach** are southward of the bluff.

On the **NNE. ½ E.** course **Worton Point** (abrupt, with bare yellow bluff faces) is on the starboard bow and should be left ¾ mile on the starboard hand. Middle Ground buoy (spar, black, No. 3) should be left about

400 yards on the port hand. Pooles Island, low and partly wooded, with a wharf on its east side and a lighthouse on its northwestern point (see table, page 24), will be left about 1¼ miles on the port hand. Fairlee Creek and Worton Creek entrances will be passed before reaching Worton Point; Fairlee Shoal buoy (spar, red, No. 4) should be left ⅝ mile, and Worton Point Shoal buoy ¼ mile, on the starboard hand.

Dangers.—**Shoals** make out from the eastern shore below Swan point for a distance of 2 miles; for a distance of 3 miles above Swan Point the eastern shore should be given a berth of ½ mile, and from there to Fairlee Creek it should be given a berth of ⅝ mile; in one place the water shoals abruptly from 10 fathoms to 6 feet inside of ⅝ mile from the shore. The large bight at the entrance to Fairlee and Worton creeks is full of shoals, with 5 to 15 feet of water over them, which extend out to the edge of the channel.

On the western side of the channel below Swan Point are numerous detached spots with depths of 6 to 17 feet of water over them; many of these are not marked. They are avoided by following the mid-channel buoys. About 3 miles above Swan Point, on the western side of the channel, is a large shoal, with spots having a depth of 6 to 12 feet over them; it extends northward and eastward in a broken line nearly up to Worton Point and eastward of Pooles Island.

Mitchells Bluff buoy (spar, black, No. 1) marks an 8-foot spot on the western side of the channel, about 4¾ miles above Swan Point. *Middle Ground buoy* (spar, black, No. 3) is on the eastern edge of a shoal with 7 to 12 feet water over it, and about 2½ miles **S.** by **E.** ½ **E.** from Pooles Island Lighthouse.

Eastward of Pooles Island, and on the west side of the channel, is a can buoy and a nun buoy which mark a narrow channel through the shoals east of the island; this channel is the most direct for vessels trading between Baltimore and the head of the bay.

Worton Point Shoal lies northwestward of Worton Point; it has spots with 5 to 11 feet water over them, and its western edge is marked by a buoy (nun, red, No. 2). Abreast of this buoy the channel is about ½ mile wide, and on its western side are the extensive shoals which make off from the western shore and the mouth of Bush River. The shore between Worton Point and Still Pond should not be approached closer than ½ mile.

2. ***From Worton Point to Turkey Point.***—Passing ¼ mile westward of Worton Point Shoal buoy (nun, red, No. 2), as directed in section 1, preceding, shape the course **NE.** by **E.** ½ **E.**; this course continued for 4¾ miles will lead ⅝ mile northward of Howell Point, and when the end of the point is abeam steer **ENE.** ½ **E.** for 3½ miles. When Grove Point bears **S.** by **E.** and the vessel is about ⅝ mile from the shore northward of the point, a **NE.** ⅝ **E.** course will lead into the entrance to Elk River, and about ⅝ mile southeastward of Turkey Point Lighthouse.

I. If bound up Elk River to the mouth of Back Creek.—These directions are good for a draft of 12 feet in the daytime, but 10 feet is about the deepest draft that can be taken into Back Creek. Continue the **NE.** ⅝ **E.** course as directed in the preceding paragraph, keeping in the middle of the river. When 2 miles above Turkey Point Lighthouse, *Cabin Johns Creek* will be open on the starboard hand, and 1¾ miles farther up Bohemia River Entrance will be open on the starboard hand. Nearly 1½ miles above *Town Point*, the northern point at entrance to Bohemia River, is a wharf and post light (see table, page 24). Round the post light, leaving it 300 to 400 yards on the starboard hand, and when it bears about **S.**, steer about **E.** ¼ **N.** *Old Field Point* (with a post light on the edge of the shoal making off from the point) is the next point on the north bank, about ¾ mile above the post light on the south bank of the river. When Old Field Point post light is well abaft the port beam, haul northward so as to leave *Court House Point*, the next point on the south bank, about 200 yards on the starboard hand. Anchor in the channel just northward of Court House Point, off the mouth of Back Creek.

II. If bound up the Northeast River.—From Worton Point Shoal buoy, steer **NE.** by **E.** ½ **E.** about 9½ miles, until the tangent of Grove Point bears **S.** ½ **W.**; then steer **NNE.** ½ **E.**, so as to pass ⅝ mile westward of Turkey Point. Continue the **NNE.** ½ **E.** course above Turkey Point, giving the eastern shore a berth of ⅝ mile until abreast of Red Point, the entrance to Northeast River. Vessels of 6 feet or less draft can follow a mid-river course to Charlestown.

III. If bound up the Susquehanna River.—These directions are good for vessels of 11 feet draft in the daytime. Steer **NE.** by **E.** ½ **E.** for 9½ miles from Worton Point Shoal buoy (nun, red, No. 2), and when the tangent of Grove Point bears **S.** ½ **W.** steer **N.** ½ **E.** until Fishing Battery Lighthouse bears **NW.** by **N.** Steer for the lighthouse on this bearing and anchor in the channel southeastward of black spar buoy No. 1 to await a pilot or towboat.

Vessels of 7 feet or less draft can, in daylight, leave black spar buoy No. 1 about 30 yards on the port hand and steer about **NW.** by **W.** ½ **W.**, so as to leave red nun buoy No. ½ about 20 yards on the starboard hand; then haul northward and follow the buoys up to Havre de Grace. The cut through the shoals is not regular, and the buoys must be closely followed.

Remarks.—On the **NE.** by **E.** ½ **E.** course **Howell Point** (abrupt, wooded; low spit with trees at end), the southern point at entrance to Sassafras River, about 4¼ miles above Worton Point, will be on the starboard bow and left about ½ mile on the starboard hand. **Still Pond Harbor** will be passed about midway between Worton Point and Howell Point. When up to Howell Point, Sassafras River Entrance will be opened eastward and Grove Point (bare yellow bluff, wooded on top), on the north side of the entrance, will be well on the starboard bow, and the wharves at Betterton will show on the south side of the entrance 2 miles eastward of Howell Point. **Turkey Point Lighthouse**, on the southern end of Elk Neck (see table, page 24), should be made a little on the port bow; Elk River Entrance will be right ahead. **Spesutie Island**, a large, low island on the western side of the bay opposite Turkey Point Lighthouse, is separated from the main land by a shallow body of water (**Spesutie Narrows**); **Bear Point** is the southern point of Spesutie Island, and bears about **W.** ¼ **S.** from Turkey Point Lighthouse.

On the **NNE.** ½ **E.** course, standing for the entrance to Northeast River, **Turkey Point** and lighthouse will be on the starboard bow, and **Rocky Point**, a high, steep point about 2¾ miles above Turkey Point, will be a little on the starboard bow and is left ¼ mile on the starboard hand. **Turkey Point**, seen from the southward, is a high yellowish bluff, overgrown in places, on the summit of which is Turkey Point Lighthouse. A red and black horizontally striped spar buoy, lying about ½ mile **SW.** by **W.** from Turkey Point Lighthouse, should be left about ¼ mile on the starboard hand. Red Point, the eastern point at the entrance to Northeast River, is 5 miles above Turkey Point.

On the **N.** ¼ **E.** course for the Susquehanna River, the eastern shore of Spesutie Island should be given a berth of ¼ mile. **Fishing Battery Lighthouse** (see table, page 24) will be open eastward of **Locust Point**, the northeastern point of Spesutie Island, and the town of Havre de Grace and **Havre de Grace Lighthouse** will be on the port bow. Approaching the northeastern point of Spesutie Island, Locust Point Shoal buoy (spar, black, No. 1) will be made and the buoys marking the cut up to the mouth of the Susquehanna will be seen northwestward.

Dangers.—To avoid the shoals making from the eastern shore between Worton Point and Still Pond give the shore a berth of at least ⅛ mile. The northern side of Howell Point is bold-to.

Shoals make off from the western shore between Bush River Entrance and Spesutie Island. The channel follows the eastern shore. **Shad Battery Shoal**, off the western shore, about 2¾ miles above Worton Point, is marked at its southwestern end by a buoy (spar, black, No. 5). This shoal is 1¾ miles long in a general **NE.** by **E.** direction from the buoy, and has 7 and 9 feet of water over it. Above Howell Point the western shore should receive a berth of 2 miles until well above the entrance to Sassafras River.

Shoals make southward from Turkey Point for a distance of ⅝ mile; a wreck buoy (spar, red and black horizontal stripes) is near the western edge of the shoal, about ½ mile **SW.** by **W.** from Turkey Point Lighthouse.

The head of the bay above Turkey Point is one large shoal with 2 to 10 feet of water over it. A comparatively narrow channel leads into Northeast River and another into the Susquehanna River. The channel leading into the Susquehanna River is marked by a number of buoys, and by Fishing Battery and Havre de Grace lighthouses.

BLANK PAGE

APPENDIX I.

PILOTS AND PILOTAGE, HARBOR CONTROL QUARANTINE, ETC.

VIRGINIA.

Extracts from Virginia Pilot Law, passed by the General Assembly of Virginia, April 19, 1882.

PILOTS.

12. The master of every vessel (other than a coasting vessel having a pilot license) inward bound from sea shall take the first Virginia pilot that offers his services, Cape Henry bearing west of south, to Smith's Point, Yorktown, Newport News or Norfolk, or any intermediate point; and any such vessel outward bound shall take the first pilot that offers his services at Smith's Point, Yorktown, Newport News or Norfolk, or any intermediate point to sea; and any master refusing to do so shall immediately pay to the said pilot full pilotage from the sea to Newport News, Smith's Point, Yorktown, or Norfolk, or from said ports to sea, as the case may be; but no master of a vessel coming from sea shall be compelled to take a pilot after arriving within the line at which Cape Henry bears west of south.

Provided further, that any registered vessel arriving within the line of Cape Henry, bearing west of south, without having taken a pilot, bound for Norfolk, Newport News or Richmond, shall not be liable for pilotage, but the master may pilot his own vessel to Hampton Roads, and then employ any steamboat or tow-boat to tow his vessel to her port of destination but in no instance will any master be allowed to employ any steamboat or tow-boat below Hampton Roads without paying full pilotage to the first regular pilot that offers his services to said vessel; and any master so employing any steamboat or tow-boat below Hampton Roads without a pilot on board of such vessel, when one shall have offered his services, shall be liable to the penalties prescribed in section 10 of this act. This proviso applies only to inward bound vessels.

13. No master shall be required to have a pilot to conduct his vessel or steamboat above Newport News, Yorktown, Mobjack Bay, Urbana or Smith's Point, but he may, by himself or by any person regularly employed on board, pilot his own vessel, or he may employ the services of any tow-boat to tow his vessel to her port of destination above any of the above-named points.

14. Pilots shall appoint agents one for Norfolk city and one for Richmond, who shall grant licenses to coasting vessels trading in the waters of this commonwealth, for which licenses such agents shall receive ten cents per ton for one year; and coasting vessels having such licenses shall be free to sail without pilots to or from sea, but all vessels sailing under a coasting license of the burden of seventy tons or more, coming from or going to sea, not having obtained a license from such agent, shall be subject to the same regulations and pilotage as registered vessels belonging to citizens of the United States.

15. The master of any coasting vessel wanting a pilot to any port in this State shall signify it by a signal at his foremast or foretop-mast head, whereupon a pilot shall repair to and pilot said vessel.

16. Pilots shall have pilotage at the following rates: For every vessel owned by citizens of the United States, and for every vessel owned by a citizen or subject of any foreign State, whose vessels are by treaty placed on the same footing as vessels of the United States, if the vessels be spoken or boarded to the eastward of Cape Henry, there shall be paid for each foot the vessel draws as follows: From sea to Smith's Point, West Point, Newport News, Norfolk, or any place between Smith's Point, West Point, Newport News or Norfolk, vessels drawing ten feet and under, two dollars and fifty cents; vessels drawing thirteen feet and over ten feet, three dollars; vessels drawing fourteen feet and over thirteen feet, three dollars and fifty cents; vessels drawing sixteen feet and over fourteen feet, four dollars; vessels drawing over sixteen feet, four dollars and fifty cents. If the vessel shall be boarded or spoken twenty miles or more eastward of Cape Henry, twenty-five cents per foot shall be added to the foregoing rates. There shall be paid the same pilotage from Smith's Point,

West Point, Newport News, or Norfolk, or any intermediate point to sea, as from sea to those places; and from Newport News to Jamestown, or any place between Newport News and Jamestown, one dollar and thirty-five cents per foot; from Newport News to Richmond, or any place between Jamestown and Richmond, two dollars and fifty cents per foot, and the same rates of pilotage shall be paid from said places respectively down. Vessels coming from sea to Hampton Roads, and thence to any port in Maryland, shall be subject to the same rate of pilotage as vessels bound from Newport News to sea. All vessels coming to Hampton Roads seeking, in ballast, shall only pay one-half pilotage in and one-half out; provided, however, that if such vessel coming to Hampton Roads seeking is afterwards chartered to load in any port or place in this State, she shall pay the usual pilotage in and out as though she had come to a direct port. All steamers calling in any port or place in this State for the sole purpose of coaling shall only pay one-half pilotage in and one-half pilotage out. All vessels that go from Norfolk to Newport News to load or to finish loading, and all vessels that go from Newport News to Norfolk to load or finish loading, shall, if they take a pilot, which shall be optional with the master, pay a fee of ten dollars to the pilot for transporting any such vessel to or from either place.

17. If the master of any vessel shall conceal or obscure the name thereof, or refuse to disclose the same when spoken by a pilot, he shall forfeit to the said pilot, fifty dollars.

18. If any pilot notified to attend a vessel shall be detained, he shall have three dollars for each day's detention.

19. Any pilot who shall attend any vessel with his boat, at the request of the master or owner, shall have fifty dollars per day, and any master carrying any pilot to sea, shall pay him wages at the rate of seventy-five dollars per month.

20. If any vessel having no pilot on board follow another that has a pilot, such a pilot shall have pilotage for the vessel so following.

21. Any pilot being detained on board any sea-going vessel shall be entitled to three dollars for each day he may be so detained, to be paid by the master, owner, or consignee of such vessel. If any such pilot be carried beyond the limits of his State against his will, he shall be entitled to recover the sum of three hundred dollars from the master or owner of the vessel upon which he may have been carried away. All vessels having a branch pilot and arriving at the pilot station, shall remain there fifteen hours, if required, to give such pilot an opportunity to be taken off, under a penalty of fifty dollars.

23. The first pilot who meets a vessel coming in which his branch entitles him to conduct, shall have the right to take charge of and conduct her into York River, Hampton Roads, Newport News, Norfolk, Mobjack Bay, Urbana, or Smith's Point, aforesaid, and to receive the pilotage allowed by law; but any pilot that boards a vessel off any vessel other than his boat, shall give the same up to the first authorized pilot that offers his services from a lawful Virginia pilot-boat anywhere below the Thimble Light; and the master of any such vessel employing a pilot from any other than a lawful Virginia pilot-boat, shall be liable to the first regularly licensed pilot that offers his services from a lawful pilot-boat of this State anywhere below Thimble Light.

24. Every pilot cruising or standing out to sea shall offer his services to the vessel of his class nearest to land or in most distress.

25. The master and owner of every vessel shall each be liable to the pilot for his pilotage and other allowances, and also the consignee or supercargo of any vessel not owned by a citizen of the State, and if the said consignee or supercargo refuse to become responsible to the pilot for his fee, then the master or owner of said vessel shall deposit the amount of pilotage fees due in the hands of some responsible person before leaving her port of departure, subject to the order of the pilot.

26. Pilots may state their accounts, verified by affidavits, and lodge them with their agents in Norfolk, Richmond, Newport News, or Yorktown, or wherever they may think it necessary to appoint such agent for collection; and if any person liable on any such account shall fail to pay the amount thereof to the agent or the pilot himself within three days after demand made, he shall pay five dollars (in addition to said amount) to said pilot.

27. The board of commissioners may decide any controversy between pilots to whom it has granted branches, or between any such pilots and the master, owner, or consignee of any vessel which may arise under any law concerning pilots. Its decision shall be final. If such decision requires the payment of money, the board shall enter a judgment therefor, on the record of its proceedings; and on a copy thereof being put into the hands of any sheriff, constable, or sergeant, he shall enforce payment thereof as if it were an execution against the property of the debtor, and have the same fee.

28. Nothing herein shall authorize such board to decide upon the liability of a pilot or his apprentice to any party injured by his negligence or misconduct, or to prevent such party from recovering for all damages occasioned thereby.

35. Any pilot first meeting a vessel coming from sea shall inquire into the health of her crew and the place from which she last came, and if she has a dangerous or infectious disease on board, or comes from any place from which vessels are required to perform quarantine in this State, or any port thereof, he shall direct said vessel to follow his boat, and

carefully conduct her to the nearest place appointed for vessels to quarantine, and shall, as soon as possible, give notice thereof to the health officer of the port nearest thereto, for which service said pilot shall be entitled to an extra fee of seven dollars beyond the regular fees of pilotage, to be paid by the master or owner of said vessel; and if any pilot shall be permitted to go on board a vessel without being informed of contagious disease being on board, and be obliged to remain on board, or perform quarantine in consequence thereof, he shall have three dollars for every day's detention, to be paid as aforesaid.

37. Nothing in this act shall be deemed to apply to vessels bound for any point on the Potomac, and no vessel bound to or from any point on the Potomac shall be required to pay pilotage. But if she does take a pilot she shall pay the regular rate to Smith's Point.

38. This act shall be in force from its passage.

RATES OF PILOTAGE.

Vessels drawing ten feet and under	$2.50
Vessels drawing thirteen feet and over ten	3.00
Vessels drawing fourteen feet and over thirteen	3.50
Vessels drawing sixteen feet and over fourteen	4.00
Vessels drawing over sixteen feet	4.50

NORFOLK AND PORTSMOUTH.

HARBOR CONTROL.

Extracts from an Act of the Assembly of Virginia, Approved February 26, 1890.

2033. It shall be unlawful for any vessel, lighter, or other boat to lie across the county dock in Norfolk or Portsmouth, or before any wharf, so as to obstruct the passage of any ferry boat or steamers of regular lines, under the penalty of twenty dollars for each offence.

2036. Penalties for violations by masters of vessels; presentments by grand jury—If any master of any vessel, steamer, boat, or other craft violate any section of this chapter, he shall be fined not less than twenty-five nor more than fifty dollars; and it shall, moreover, be the duty of the Harbor Master to present every person who disobeys any legal order given him, before the next grand jury of his county, and, upon conviction, the person so violating shall pay such additional fine as a jury may assess for such masters or other persons so obstructing such Harbor Master in the discharge of his duty.

Extracts from the Harbor Commissioners' Rules and Regulations, 1900.

HARBOR MASTERS—THEIR GENERAL DUTIES.

Their jurisdiction is concurrent over the harbor of Norfolk and Portsmouth. They are vested with authority to designate the anchorage grounds of all vessels, * * * . They are charged with the execution of the Police Regulations which have been or may hereafter be adopted for the better government of the harbor, * * * .

The fees of the Harbor Master shall be as follows:

1. For indicating an anchorage or mooring ground or docking

Schooners and Barges 75 feet and under 90 feet	$2.00
Schooners and Barges 90 feet to 175 feet	3.00
Schooners and Barges over 175 feet	4.00
Brigs	3.00
Barques	6.00
Sailships	8.00
Steamships	10.00

2. For shifting from one dock to another where above fee has been paid, one-half of above fee, otherwise, the same fees as above.

3. Whenever the services of a Harbor Master are requested by any wharf owner or vessel owner for the purpose of clearing his wharf or the approach thereto, or for the purpose of clearing the channel from any vessels obstructing or impeding the navigation thereof, the person requiring such service of the Harbor Master shall pay a fee of $5.00, except that no such fee shall be exacted from those who pay the fees prescribed by Section 2020 of the Code of Virginia.†

4. For any service not specifically named, the sum of $5.00.

†Section 2020 of the Code of Virginia, approved February 26, 1890, reads—Steam vessels and other vessels plying regularly as packet vessels between the said ports (Norfolk and Portsmouth) and any other port beyond the limits of this State, shall pay the fees provided for by this chapter, or, at their discretion, a harbor master's fee, to any one of the said harbor masters, of two dollars per month, if such packet vessel be of not more than one hundred and fifty tons burden, and of three dollars per month if such packet vessel be of more than one hundred and fifty tons burden.

HARBOR REGULATIONS IN EFFECT AFTER MARCH 10, 1900.

1. No vessel having gunpowder, dynamite or nitro-glycerine on board shall approach any wharf nearer than 200 yards. Such vessels shall anchor out of the way of passing steamers, and shall keep a red flag flying while receiving or discharging powder.

The handling of powder, dynamite or nitro-glycerine to and from vessels in the harbor must be under the supervision of a Harbor Master * * *.

2. All vessels at the end of wharves, or in docks, shall, when required, haul either way to accommodate vessels going in or coming out from such wharves or docks. They shall not occupy regular steamers' or sailing packets' berths, without permission from the recognized occupants of such wharves and docks. They are required to rig in all fore and aft spars, have boats hoisted up under the bows, and davits turned up, as the Harbor Master may direct.

3. Vessels when not engaged in loading or discharging cargo shall give place to such vessels as are ready to receive or deliver freights. If the captain or person in charge of any vessel refuse to move said vessel when notified by the occupants of the wharf at which she is lying, the Harbor Master shall order him to haul to some other berth, or in the stream; and should the captain or person in charge refuse to obey the orders of the Harbor Master, then the Harbor Master shall himself move the vessel at the owner's expense, by use of steamtug if necessary, and shall be entitled to a fee of $5, to be recovered from the owners of the offending vessel.

4. Vessels entering the harbor and intending to come to anchor or dropping out from wharves or docks preparatory to departure, must anchor under direction of a Harbor Master, and are forbidden to anchor in the channel.

5. All vessels, boats and lighters, over 10 tons burden, shall have at all times a ship-keeper on board, and all such are required to move whenever ordered to do so by a Harbor Master; and no vessel, boat or lighter shall anchor at or make fast to any wharf so as in any way to obstruct the passage of any regular ferry boat.

6. Whenever the services of a Harbor Master are required to move a vessel from the stream to any wharf, after being once berthed, at her wharf, to land or receive cargo, or from any wharf to the stream, or from one wharf to another, the Harbor Master, when so employed, shall be entitled to receive from the master, agent or owner of such vessel, for his services, a fee not less than $2 nor more than $5, according to size of vessel, viz:

For a medium size schooner	$2.00
For brigs and large schooners	3.00
For ships, barks, and steamers	5.00

* * * This section is designed only to provide for cases when Harbor Masters are actually employed by masters or consignees, or when the authority of a Harbor Master is invoked to move a vessel from berth to berth against the will of the master.

Whenever a Harbor Master shall require the services of a tug, to enforce an order for the removal of a vessel against the will of the master, the charges of the tug for such services may be guaranteed to be paid by the Board; but it shall be the duty of the Harbor Master to collect the costs, fines, and fees for such removal from the offending vessel in the manner provided by law.

The Harbor Master will see that due notice of this section is served on the masters of all vessels.

7. It shall not be lawful for any vessel propelled in whole or in part by steam to move in the harbor above Craney Island at a greater speed than that stated in its class, as follows:

Class No. 1, under 100 tons	8 miles per hour.
Class No. 2, 100 to 1,500 tons	6 miles per hour.
Class No. 3, over 1,500 tons	4 miles per hour.

Care must be taken to reduce this speed in passing dredgers at work, both in the upper and lower harbor, so that they shall not be damaged or their work retarded.

Nothing in these rules and regulations, fixing the maximum speed permitted to vessels of the various classes, shall be construed as exonerating any master or other officer in command of steamers from the use of all necessary care in so regulating the speed of their steamers to a lesser rate than is specified in said rules and regulations, so that no damage may result from the passage of their steamers to any vessel or craft of any sort or kind under way, anchored or made fast to wharves or docks in said harbor within the limits prescribed by said rules and regulations.

The master or commander of any such vessel who shall enter or depart from said harbor within the above limits at a greater speed than here prescribed shall forfeit and pay a fine of $50 for each and every offence, one-half the fine to go to the informer and the remaining half to go to the Commissioners' fund for defraying expenses.

* * * * * * * *

8. The Harbor Masters have full authority, and they are hereby required so to regulate the manner in which a vessel shall lie at any of the wharves, * * * Any person having charge of any vessel who shall refuse or neglect to obey the Harbor Master in carrying out this section shall forfeit and pay a fine of $5 for each and every offence.

9. No person in charge of any ship or vessel shall permit any fire to be kept on the deck thereof while lying at any wharf or dock within the harbor, between the hours of 10 o'clock at night and 5 o'clock in the morning, from the 1st of April to the 1st of October; and between the hours of 9 o'clock at night and 6 o'clock in the morning, from 1st of October to 1st of April. Anyone offending against this section shall forfeit and pay a fine of $20 for each and every offence.

10. Stone, coal, ballast, sand, manure, oyster shells, ashes or dirt of any kind whatsoever shall not be taken on board any vessel lying at a public or private wharf, under a penalty of $20, unless the master of such vessel first obtain the written permission of a Harbor Master. * * *

11. If any such person shall cast or throw any ballast, dirt, ashes, oyster shells, filth or trash into the water in any part of the harbor of Norfolk and Portsmouth, * * * such person so offending shall forfeit and pay for every offence not less than $20 nor more than $50; one-half to the informer and the remaining half to the Commissioners' fund.

12. If any vessel shall be lying in any dock, or at the entrance thereof, so as to obstruct any vessel that shall be coming into the same, or moving from one place to another therein, or going out of the same, the vessel so obstructing, unless actually engaged in loading or unloading, and then if deemed expedient by the Harbor Master, shall be removed to such place as shall be necessary to give room to the passing vessel, under a penalty at the rate of $5 per hour for the delay which shall be occasioned to the passing vessel, unless in cases where some unavoidable casualty or accident may make it impracticable to remove such obstructing vessel.

13. It shall be the duty of the captain or other person having in charge any vessel lying at any of the wharves or docks, to top the yards, rig in the jib booms, and place the anchor or anchors on the deck of such vessel whenever required so to do by the Harbor Master, or the occupant of any wharf, or his agent; and any person having charge of any vessel who shall neglect or refuse to obey the directions aforesaid shall forfeit and pay a fine of $5 for each and every offence.

14. No ballast of any kind, or coal, shall be landed on any wharf or dock in the harbor, except by permission and under the supervision of the Harbor Masters. * * * And for such supervision the supervising Harbor Masters shall be entitled to receive, from all such vessels, $1 per day for each day or part of a day they are engaged in landing ballast. Anyone offending against this section shall forfeit and pay a fine not less than $5 nor more than $20. No fee shall be charged for supervising the landing of coal, but offenders shall be liable to the fine.

15. No pitch, tar, or other inflammable matter shall be heated on board any vessel lying at any wharf or dock in the harbor. But the same may be done on a floating stage or lighter. Penalty, $5 for every offence.

16. Vessels whose draft of water will admit of loading on the flats out of the way of passing steamers will be permitted so to load, but no vessel whose draft of water when loaded is over eight feet will be allowed to load in the stream, except in cases of emergency, and then only by special permission from the Harbor Commissioners.

17. Shooting from the deck of any vessel or boat within the harbor is positively prohibited. Any violation of this order will subject the party so offending to a fine of $5.

18. Should any steamer plying in this harbor use wood as fuel "spark catcher" or some other effectual spark extinguisher must be attached to the smoke stacks of all such steamers, so as to prevent the escape of burning flakes. A non-observance of this section will subject the offending steamers and owners to a fine of $20 for each and every offence; and to full damages for any loss that may be sustained by fire traceable to any such steamer using wood for fuel.

20. Piles, painted red, have been driven along certain sections of the unimproved water front of the harbor to mark the established Port Warden Lines. Similarly painted piles will be driven in all the unimproved sections so soon as Port Warden and Limiting Lines are decided upon for those sections. Masters of all classes of craft, and all other persons, are forbidden from making fast to these piles, or to disturb them in any way, under a penalty of $6 for every offence.

21. Any person violating any rule or regulation herein contained, or disobeying any lawful order of a Harbor Master, for which no penalty is specifically provided, shall be fined not less than $5 nor more than $20, one-half to go to the informer and the other half to the Commissioners' fund.

22. All vessels loading cotton for any foreign port at any dock in this harbor shall have spark arresters on their smoke stacks at all times and shall keep the ventilators leading into their holds covered with canvas and plugged; also, they shall have one barrel and two buckets at each hatch, the barrels to be kept filled with water until the vessel is loaded.

All high pressure steamers navigating this harbor will be required to have spark arresters on their smoke stacks at all times, whether under way or not; this rule applies to stacks on donkey boilers used on vessels as well as to stacks of steamers.

Failure to comply with this rule will make the party so offending liable to a fine of twenty dollars ($20) for each offence.

QUARANTINE REGULATIONS.

Adopted by resolution of the Board of Quarantine Commissioners for the district of Elizabeth River.

1. The following classes of Vessels shall be subjected to the inspection of the Quarantine Medical Officer, to-wit:

(*a*)—Such as have on board any case of infectious or contagious disease at the time of arrival, and such as have or have had on board any case of infectious or contagious disease while in this Quarantine district.

(*b*)—Such as have had any infectious or contagious disease on board at any time during the voyage, though there is no case on board at the time of arrival.

(*c*)—Such as have sailed from any port at which any infectious or contagious disease prevailed at any time during the stay of the vessel at such port, or within sixty days previous to her arrival at such port.

(*d*)—Such as shall arrive from any American port to the southward of the latitude of Cape Lookout between the first day of April and the fifteenth day of the ensuing November in each year.

(*e*)—Such as shall arrive from any Foreign Port, including Cuba, Porto Rico and the Philippine.

(*f*)—Such as shall arrive from any other home port, which, for due reasons may have been interdicted by the Board of Quarantine Commissioners, of which due notice shall be given to all concerned.

(*g*)—Such as shall arrive from any American port between the first day of April and the fifteenth day of the ensuing November, if she shall have been in any port [Foreign or Domestic] south of Cape Lookout during any portion of thirty days previous to arrival.

2. The Quarantine Ground or Anchorage for the inspection of vessels arriving within the limits of this Quarantine district, via Hampton Roads, shall be in the bight of Craney Island Buoy No. 9† bearing east, and for those arriving from the Southward, via the Canals, at any point in the Southern Branch, not less than one and a half miles above the Navy Yard.

3. All vessels liable to inspection shall stop at said Anchorages, until visited by the Quarantine Medical Officer, and any Master, Pilot, or other persons having charge of any such vessel who shall bring her nearer to the ports of this District than the aforesaid anchorages, without the sanction of the Quarantine Medical Officer, shall be subjected to a fine not less than twenty dollars or more than one hundred dollars.

4. Any person [other than a license pilot] who shall board a vessel liable to inspection, either before or during the continuance of the Quarantine term imposed upon her, without the permission of the Quarantine Medical Officer, shall be subject to a fine of twenty dollars, and in addition to a forced residence upon said vessel, under the same restrictions as are imposed upon the crew, during her Quarantine term.

5. Any person landing from or leaving a vessel while she is under Quarantine restriction, or procuring the landing of any part of her cargo, ship furniture, clothing or chattels of passengers or crew, without the written permission of the Quarantine Medical Officer, shall be subject to a fine of not less than twenty nor more than five hundred dollars, and be prosecuted for misdemeanor.

6. Any vessel having on board damaged or infected cargo, shall be subjected to disinfection under the direction of the Quarantine Medical Officer, before being allowed to come into port, and the concealment of the fact of damaged or infected cargo, furniture or clothing, shall be punished by a fine of not less twenty dollars nor more than five hundred dollars and a prosecution for misdemeanor.

7. Any vessel may be sent back to perform a quarantine term, and disinfection, under the orders of the Quarantine Medical Officer, after arrival in port, upon the discovery of damaged cargo [or such as may effect the health of either port] during the discharge thereof; and a failure to give information to the Quarantine Medical Officer of such discovery of damaged cargo shall be punished by a fine of not less twenty nor more than five hundred dollars.

8. Every vessel subject to inspection shall display the usual Yellow Flag upon her arrival at the Quarantine Anchorage, and keep the same at her mast head until allowed pratique by the Quarantine Medical Officer.

QUARANTINE.

Extracts from Virginia Code, 1887.

Sec. 1734. ***Cities and towns may establish quarantine grounds.***—The council of any city or town may establish a quarantine ground for such city or town, and the councils of any two or more cities or towns may establish a quarantine ground for their common use, * * * .

† At present (1902) buoy No. 11.

Sec. 1735. Quarantine regulations for vessels.—The council of any city or town may from time to time prescribe the quarantine to be performed by all vessels arriving within the harbor or vicinity of such city or town, and regulations therefor, not contrary to law.

Sec. 1736. To whom and what quarantine regulations extend; penalty for violation.—Such regulations may extend to all persons, goods, and effects arriving in such vessels, and to all persons who go on board of the same. If any person violate such regulations, * * * he shall be fined not less than five nor more than five hundred dollars.

Sec. 1737. Vessel and cargo, if infected, to be put in quarantine.—The health officer in such city or town may cause any vessel arriving in its port or vicinity, if the vessel or its cargo be, in his opinion, so foul or infected as to endanger the public health, to be removed to the quarantine ground, * * * .

Sec. 1378. Penalty on master of vessel, etc., refusing to answer inquiries.—If any master, seaman, or passengers * * * refuse to answer on oath such inquiries as may be made by any health officer or other authorized person, relating to such infection or disease, he shall forfeit not less than one hundred nor more than five hundred dollars.

Sec. 1379. Masters to deliver bill of health, etc.—The master of a vessel ordered to perform quarantine shall deliver to the officer appointed to see it performed, his bills of health and manifests, and his log book and journal. If he fail to do so, or repair in proper time after notice, to the quarantine ground, or depart thence without authority to do so, he shall be fined not exceeding five hundred dollars. * * * .

MARYLAND.

Extracts from the 39th Article of the Maryland Code.

PILOTS.

12. It shall not be lawful for any person to act as pilot, notwithstanding his having obtained a warrant as aforesaid, unless he or the company to which he belongs shall keep one sufficient boat of at least twenty-six feet keel, straight rabbet and decked, and well found, under the penalty of one hundred and fifty dollars for every vessel such person shall undertake to conduct or pilot.

13. No pilot shall make any demand to pilot any vessel, unless he shall have a branch or license to the destined port of said vessel; and the name of every boat and the place she belongs to shall be put on her stern and on her mainsail and foresail in large letters.

16.† All masters of foreign vessels and vessels from a foreign port, and all vessels sailing under register bound to and from Baltimore city, except vessels employed in and licensed for the coasting trade, and American vessels laden either in whole or in part with coke or coal mined in the United States, shall take a licensed pilot, or in case of refusal to take such pilot, shall themselves, their owners or consignees, pay the said pilotage as if one had been employed, and such pilotage shall be paid to the pilot first speaking or offering his services as pilot to such vessels before Cape Henry bears south, if inward bound.

17.† Vessels employed in and licensed for the coasting trade shall be exempt from the duty of employing a pilot, and the vessels, as well as their masters, owners, agents or consignees, shall be exempt from the duty of paying pilotage, half pilotage, or any penalty whatsoever in case of their neglect or refusal to do so; any American vessel laden either in whole or in part with coke or coal mined in the United States shall be exempt from the duty of taking a pilot, and the vessel, as well as her master, owner, agent or consignee, shall be exempt from the duty of paying pilotage, or half pilotage, on any penalty whatsoever in case of his neglect or refusal to do so. But a coastwise vessel or such American vessel, laden either in whole or in part with coke or coal, mined as aforesaid, voluntarily taking a pilot, shall pay the same fee for pilotage as prescribed in the case of a vessel bound to or from a foreign port.

18. The master or owner of every vessel required to take out license under the last two preceding sections, navigating the Chesapeake bay without such license, shall either take the first licensed pilot who offers to conduct or pilot his vessel to or from sea, or shall pay him full pilotage; but the payment of full pilotage shall not be exacted from any inward bound vessel which, on her arrival and before her departure, shall obtain from the board of pilots a license in pursuance of the provisions of this article.

20. The master or owner of any vessel bound up or down the Pocomoke River, or any river whose mouth is bounded on both sides by the eastern shore of Maryland, shall not be required to take out any license from the board of pilots, or to pay any pilotage to or from any of said rivers, unless a pilot be employed; provided the master or owner of any vessel shall not touch in any of said rivers on their passage to or from Baltimore for the purpose of avoiding any of the provisions of this article.

21. No pilot shall charge or receive any greater or less reward for compensation for his services as such, than as follows: for every vessel inward bound to Baltimore or from

†As amended by the Supplement to the Code of Public General Laws of Maryland from October, 1887, to January, 1898.

Baltimore to sea, drawing fifteen feet water or over, five dollars for each foot of water she may draw; for every vessel drawing twelve feet water and not exceeding fifteen feet, four dollars for each foot she may draw; for all vessels drawing less than twelve feet water, three dollars and fifty cents for each foot she may draw, which rates shall apply to vessels to or from Georgetown.

22. Any vessel having a license under the provisions of this article, which may require a pilot, shall have the services of one at a deduction of 20 per cent on the pilot rates hereby established, on one inward passage to Baltimore during the existence of said license; and if any vessel bound to sea shall go to Hampton Roads for any other cause than distress of weather, having a Maryland pilot on board, the master or owner shall pay to said pilot twelve dollars for conducting her in, and ten dollars for taking her out.

25. If any master of any vessel shall carry any licensed pilot to sea against his inclination, he shall pay the said pilot, if said vessel be of over twelve feet draught, one hundred dollars per month, until said pilot's return or death; if said vessel be of over nine feet and not over twelve feet draught, eighty dollars a month, until said pilot's return or death; if said vessel be of nine feet draught or under, sixty-six dollars and sixty-six and two-thirds cents per month, until such pilot's return or death; and for every day's detention at quarantine, by order of the health officers, three dollars per day for every day of such detention.

27. Any pilot being detained on board any vessel, unless such detention be unavoidable, shall be allowed three dollars per day for each day he may be so detained, to be paid by the master, agent, owner, or consignee of said vessel.

28. Whenever a pilot is engaged to pilot a vessel, the master shall continue him (if inward bound) to her first port of discharge or to sea (if outward bound), or pay him full pilotage.

29. The pilots shall be required, under the direction of the board, to keep as many as three pilot-boats at sea, one of said boats to be stationed fifteen miles to the north of Cape Henry, one in the latitude of and ten miles from Cape Henry, and one fifteen miles south of Cape Henry; and the board shall have full power to make rules and regulations for their cruising, and may designate and appoint five pilots and grant them authority to enforce such rules and regulations as they may adopt, and to inspect the boats in service from time to time, and generally do all things which may be necessary for the efficiency of the pilots and the boats used in the service.

30. Nothing contained in this article shall be construed to prevent the employment of any person to pilot a vessel in any of the rivers in this State, except the Patapsco and Potomac rivers, or from any part of the Chesapeake Bay north of the Patapsco River, to any other part of said bay north of said river.

PORT OF BALTIMORE.

HARBOR REGULATIONS.

Extracts from pamphlet edition of Laws relating to Baltimore Harbor, June, 1901, published by authority of the Mayor and City Council of Baltimore.

Statutes.

8. The Harbor Master of the port of Baltimore may demand from the captain or commander of every foreign vessel coming into said port for the purpose of trade and commerce, the sum of five dollars, as an additional compensation for his care and diligence in the regulation of the harbor and providing a proper station for said vessel.

9. He may, in case of delay or refusal to make such payment, sue for and recover the same before a Justice of the Peace as small debts are recovered.

Ordinances.

8. No material, refuse or matter of any kind shall be thrown into, deposited in, or placed where the same may fall or be washed into the Patapsco river, or any of its tributaries, without written permission from the Harbor Board, which is hereby authorized to employ supervisors to see that any material permitted to be deposited is placed where directed by said Board; and the person applying for or receiving said permission shall pay for the services of said supervisors such rates as the said Board may deem reasonable and just. Any person violating this section shall pay a fine of not less than five nor more than fifty dollars, and the Harbor Board and the Harbor Masters are specially charged with the execution of this section.

15. No vessel shall move in the harbor at a greater rate of speed than the time hereby fixed to pass between the following points: From a point on a line from Patterson street wharf to the west end of Reeder's wharf to a point on a line from Henderson's wharf to the foot of Hull street, nine (9) minutes; thence to a point off Foley's wharf, eight (8) minutes; the master of any vessel violating this section shall pay a fine of twenty dollars ($20).

29. All vessels, including barges and scows, lying at any city wharf or dock, shall pay dockage according to the following rates per diem, or for any less time, namely: Under 8 tons, fifty cents; from 8 to 50 tons, one dollar; from 50 to 150 tons, one dollar and fifty cents; all over 150 tons, one cent per ton; and all vessels outside of first tier shall pay one-half of these rates; any vessel occupying the first and second tiers shall pay double the above rates for every day above six, and treble for every day above twelve that it shall remain at any wharf or dock aforesaid, unless allowed to remain longer by the Harbor Master, who is hereby authorized to extend the time for said vessels in all cases when he may think the public interest is promoted thereby.

30. The master of any vessel subject to the payment of dockage shall exhibit to the Harbor Master, upon request, the enrollment or license of said vessel to show the proper tonnage thereof; any vessel landing or receiving cargo at a city wharf shall be responsible for the wharfage for the same, and the master of such vessel shall furnish the Harbor Master, upon request, with the manifest or bills of lading of cargo, and no vessel shall leave the wharf until all charges are paid for dockage and wharfage; the master of any vessel who violates this section shall pay a penalty of twenty dollars ($20).

37. No vessel shall lie at any wharf, dock, or pier, or adjoining the same, in such manner as to obstruct or prevent the free passage of other vessels to and from other wharves, piers, or docks. The master of any vessel refusing to comply with the provisions of this section shall, after one hour from the time notice to move his vessel shall have been served, be subject to a fine of not more than twenty dollars for every hour thereafter that the said obstruction continues; said fine to be collected as other fines are collected.

38. No vessel shall enter any of the public docks of the city without first obtaining permission of the Harbor Master, whose duty it shall be to provide a suitable berth for such vessel, and to keep a free passage in such docks for vessels moving in and out of the same. The master of any vessel violating this section by entering any of said docks, or who refuses to obey the Harbor Master in carrying out this section shall pay a penalty of twenty dollars.

39. It shall be the duty of the person having in charge any vessel lying at any of the public wharves or docks to top the yards, rig in the jib-booms, and place the anchor or anchors on the deck of said vessel, whenever required so to do by the Harbor Master, or the occupier of any wharf or his agent, and any person having charge of any vessel, who shall neglect or refuse to obey directions as aforesaid, shall pay a penalty of five dollars.

40. No person in charge of any ship or vessel shall permit any fire to be kept on the deck thereof while lying at any wharf or dock within the city, between the hours of ten o'clock at night and five o'clock in the morning, and it shall be the duty of the police officers to visit the bay-craft within their respective districts and give information of this regulation to some person on board. The master of any vessel violating this section shall pay a penalty of five dollars.

41. It shall be unlawful for any person to smoke, carry or have any lighted match, pipe, cigar, or cigarette, or to carry or use any portable open light in or upon any wharf, shed, pier or warehouse wherein or whereon may be any cotton in bales or bulk, rags, hay, spirits of turpentine, petroleum, tar, pitch, rosin, gunpowder, gasoline or illuminating oils. Any person violating the provisions of this ordinance shall, upon conviction thereof, be liable to a fine of not less than five nor more than twenty-five dollars; the said fine to be collected as other fines are now collected for violations of the ordinances of the Mayor and City Council.

ANCHORAGES.

20. The Harbor Board is hereby authorized and directed to cause anchorages No. 1, No. 2, No. 3, and No. 4, to be marked by buoys or otherwise.

21. Anchorage No. 1 shall be within these lines, namely: South of a line drawn from the west corner of Shaw's coal pier to the northeast corner of the pier at Beacham and Brothers' shipyard. No vessel shall anchor within 500 feet of any pier fronting this anchorage.

22. Anchorage No. 2 shall be within these lines, namely: A line drawn from the southern corner of Waters' northern wharf to the northern corner of Baker-Whiteley Coal Company's wharf (foot of Ninth street) until it intersects a line drawn from the easternmost end of Ober's wharf to the southwestern corner of Canton Company's bulkhead; thence northeasterly along said last described line. No vessel shall anchor within 300 feet of any pier or bulkhead fronting this anchorage.

23. Anchorage No. 3 shall be within these lines, namely: A line drawn from the southern corner of Waters' northern wharf to the northern corner of Baker-Whiteley Coal Company's wharf (foot Ninth street) until it intersects a line drawn from the westernmost end of the Baltimore Dry Dock Company's wharf to the southern corner of the elevator (foot Sixth street); thence easterly along said last described line until it intersects a line five hundred feet west of the new Pierhead Line parallel to same, thence northerly along said last described line until it intersects a line drawn from the northern corner of the Baltimore

Copper Company's bulkhead to the easternmost end of Ober's wharf, thence westerly along said described line until it intersects the first described line.

24. Anchorage No. 4 shall be within the following described lines, viz: Southeast from Fort McHenry and southwest of a line drawn parallel to the ship channels and 300 feet distant therefrom.

25. The anchorages shall be used only as permitted by the Harbor Master, who may prescribe the time vessels may occupy the anchorages, and the terms and conditions upon which they may load and discharge cargoes therein. All vessels anchoring in the harbor shall anchor so as to keep within one of said anchorages, and be subject to all the rules and regulations which the said Harbor Master may enforce. All vessels when at anchor between sunset and sunrise shall show a white light where it can be seen best at a height about twenty feet above the hull. Any vessel anchored so as to obstruct the free passage of any other vessel to or from any wharf or dock shall remove to such place as the Harbor Master may direct upon a half-hour's notice, and if no person be on such vessel upon whom said notice can be served then the Harbor Master must have such vessel removed and the expense for same shall be paid to the Harbor Master by the master of such vessel. The master of any vessel violating this ordinance shall pay a penalty of twenty dollars and a further penalty of five dollars for every hour the offense continues.

QUARANTINE REGULATIONS.

Copy of regulations published by order of the Board of Health, and in force 1901.

Masters, pilots, and other persons having charge of vessels coming to the Port of Baltimore, will take notice that the following quarantine regulations are in force at said port, and that any violation thereof will subject the vessels and persons offending to the penalties therein mentioned:

I. All vessels *arriving from sea*, between April 30th and November 1st [except from ports in the United States *north of Cape Henry*], are required to stop at Quarantine Ground, and there await the arrival and orders of the Quarantine Hospital Physician or his Assistant.

Any vessel violating this regulation, or any order given by the Quarantine Hospital Physician or his Assistant, in conformity therewith, will incur a penalty of $500, and a further penalty of $50 for every hour the said vessel shall remain in any position in violation thereof.

II. Masters, Pilots or other persons having charge of vessels coming to the port of Baltimore, *whether from sea or elsewhere*, at any and all seasons of the year, on board of which there may be, or may have been, at any time during the voyage, *any sickness* of an infectious or contagious character, or which would authorize a suspicion that it might be infectious or contagious, are required to stop at Quarantine, and there await the arrival of the Quarantine Hospital Physician or his Assistant, and shall not leave there without the written permission of said Physician or his Assistant; and said Masters, Pilots, and other persons having charge of said vessels, are WARNED not to suffer any person who may be on board, or may come on board before the quarantine officers, to leave said vessels, or any baggage, goods, or other article to be landed, or brought on shore from said vessels, until the written permission of the Quarantine Hospital Physician or his Assistant shall be first obtained.

Any violation of this regulation will subject the Master, Pilot or other person so offending to a fine of $500, and a like penalty will be imposed for any violation of the orders of the Quarantine Hospital Physician or his Assistant given in pursuance thereof, or for any refusal to make full disclosure of all circumstances in relation to the health of the officers, passengers, and crew on board of said vessels, at the time of inquiry and during the voyage.

III. Any person who shall go on board, or have communication otherwise than by speaking with the persons on board any vessel brought to or detained at Quarantine, before he or she shall have obtained permission in writing from the Quarantine Hospital Physician or his Assistant, shall be fined $20 for each and every offence.

IV. If any person on board such vessel shall leave it and come on shore, without the permission of the Quarantine Hospital Physician or his Assistant, he or she shall be fined $50.

V. Any person removing, or attempting to remove, any baggage or merchandise detained at Quarantine, under any of the health ordinances of the City of Baltimore, without the permission of the Quarantine Hospital Physician or his Assistant, will be fined $20 and all expenses of returning said baggage or merchandise into the charge of said Physician or his Assistant.

VI. Persons engaged in the act of violating any of the foregoing regulations or orders of the Quarantine Hospital Physician or his Assistant, in pursuance thereof, will be subjected to SUMMARY ARREST, besides incurring the pecuniary penalties named.

VII. N. B.—Masters of vessels are authorized by Act of Congress to arrest and hold as prisoners, to be delivered to the proper authorities, any persons who, not being in the United States service or authorized by law, shall come on board their vessels without leave prior to the actual arrival of said vessels at their port of destination and before they shall be completely moored.

APPENDIX II.

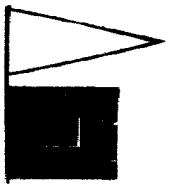
STORM-WARNING DISPLAYS OF THE U. S. WEATHER BUREAU.

STORM DISPLAYS ALONG THE SEACOAST.

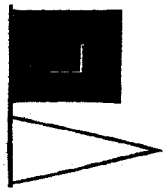
A red flag with a black center indicates that the storm is expected to be of marked violence.

The pennants displayed with the flags indicate the direction of the wind; red, easterly (from north through east to south); white, westerly (from south through west to north). The pennant above the flag indicates that the wind is expected to blow from the northerly quadrant; below, from the southerly quadrant.

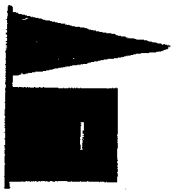
STORM-WARNING FLAGS.



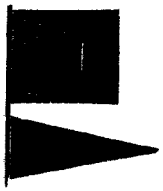
Northwesterly winds.



Southwesterly winds.



Northeasterly winds.



Southeasterly winds.

By night a red light will indicate easterly winds and a white light above a red light will indicate westerly winds.

Hurricane.

The "**Hurricane Display**" denotes the expected approach of a hurricane or of one of the severe and dangerous storms that occasionally move across the Gulf of Mexico and along the Atlantic Coast.

BLANK PAGE

APPENDIX III.

REGULATIONS U. S. MARINE-HOSPITAL SERVICE.

APPROVED NOVEMBER 27, 1897.

(*Extracts.*)

GENERAL DUTIES OF COMMISSIONED OFFICERS.

PROFESSIONAL DUTIES.

Professional duties defined.

111. The professional duties of commissioned officers are to examine all applicants for relief, to prescribe for and furnish out-patient or hospital treatment as may be required, and to make physical examinations of the seamen of the several Government services and the merchant marine, under such regulations as shall hereinafter appear.

To examine seamen, cadets, enlisted men, etc., as to their physical condition.

112. Commissioned officers will, upon the application of the United States shipping commissioner, or of the master or owner of any United States vessel engaged in the foreign, coastwise, or inland navigation trade, examine as to his physical condition any seaman brought to them for that purpose, and will give a certificate (Form 1928) as to his fitness or unfitness for service. They will physically examine, in accordance with existing regulations governing physical examinations, any foreign seamen sent them for that purpose by the duly authorized agent of a foreign line, or by the consul representing the nation to which the vessel belongs. A fee of $1 will be charged for each examination of a foreign seaman, and fees so received will be deposited with the collector of customs in the same manner as donations to the marine-hospital fund. Officers will also, upon the application of the proper authority, examine cadets, enlisted men, and persons desiring to enlist in the Revenue-Cutter, Life-Saving, Coast-Survey, and Light-House services, or to instruct them in the mode of resuscitating persons apparently drowned. No fee will be charged for this service. They will also examine alien immigrants when detailed for that purpose.

To examine applicants for pilot's license.

113. Whenever officially requested by the local inspectors of steam vessels or other proper officers, commissioned officers will examine applicants for pilot's license as to sense of hearing, color perception, and general visual capacity, and will give a certificate accordingly.

No fee to be charged.

114. No fee will be charged by any officer of the Marine-Hospital Service for the medical examination of seamen of the United States merchant marine or for making a certificate as to their physical condition.

SANITARY DUTIES.

To enforce national quarantine rules and regulations. Apr. 29, 1878, s. 3; Feb. 15, 1893.

117. It shall be the duty of commissioned officers to enforce the national quarantine rules and regulations; but no additional compensation shall be allowed said officers by reason of such service as they may be required to perform except actual and necessary traveling expenses.

To vaccinate seamen.

121. Upon the outbreak of smallpox at or near a relief station, commissioned officers will vaccinate such seamen as may come to the marine-hospital officer for the purpose; and officers are authorized, at all times, to visit vessels to examine and vaccinate crews.

RELIEF STATIONS.

Definition.

353. A relief station of the Marine-Hospital Service is a port situated on any navigable water of the United States where an officer of the Marine-Hospital Service is on duty to extend relief to seamen or where an officer of the customs service is specifically authorized to extend said relief.

Classes.

354. Relief stations shall be divided into the following classes:

Class I. United States marine hospitals.

Class II. All other stations under command of a commissioned officer.

Class III. All stations under charge of an acting assistant surgeon where there is a contract for the care of sick and disabled seamen.

Class IV. All other relief stations not included in the above classes.

Provisions for relief.

355. At all relief stations where the number of patients warrants, an officer of the Marine-Hospital Service will be assigned to the command of the station, and, whenever practicable, the patients of the Service will be treated in hospitals maintained exclusively for their benefit. At places where Congress has made no provision for the erection of a marine hospital, buildings or rooms suitable for hospital purposes, or separate wards in State, municipal, or private hospitals, may be leased or rented, for the exclusive benefit of the patients of the Service, or contracts may be made for the care and treatment of patients with local hospitals, subject to the approval of the Secretary of the Treasury.

Supervision of relief.

356. The medical and surgical treatment of the patients of the Marine-Hospital Service will be under the supervision of the commissioned and non-commissioned officers of the Service, at all relief stations where such officers are on duty, and they will be required to take direct professional charge of the patients.

Provision for marine-hospital dispensaries.

357. At each relief station of the first and second class, and whenever practicable at each relief station of the third class where an acting assistant surgeon of the Marine-Hospital Service is on duty, there shall be a Marine-Hospital office, where applicants for relief shall be received and examined, and the necessary action taken according to the regulations.

Location of offices and dispensaries.

358. The Marine-Hospital office shall be located at the custom-house whenever practicable, and suitable office room for that purpose shall be set apart by the custodian of the custom-house building, subject to the approval of the Secretary of the Treasury.

Districts.

359. The relief stations of the Marine-Hospital Service are grouped into eight districts, as follows:

The district of the North Atlantic; the district of the Middle Atlantic; the district of the South Atlantic; the district of the Gulf; the district of the Ohio; the district of the Mississippi; the district of the Great Lakes, and the district of the Pacific.

South Atlantic.

362. The district of the South Atlantic embraces the following-named relief stations:

Alexandria, Va.; Baltimore, Md.; Cambridge, Md.; Carters Creek, Va.; Crisfield, Md.; Fredericksburg, Va.; Newport News, Va.; Norfolk, Va.; Richmond, Va.; Solomons, Md.; Tappahannock, Va.; Urbana, Va., and Washington, D. C.

BENEFICIARIES.

Persons entitled to relief.

368. The persons entitled to the benefits of the Marine-Hospital Service are those employed on board in the care, preservation, or navigation of any registered, enrolled, or licensed vessel of the United States, or in the service on board of those engaged in such care, preservation, or navigation. Officers and crews of the Light-House Establishment, officers and crews of the Revenue-Cutter Service, seamen employed on the vessels of the Mississippi River Commission, seamen employed on vessels of the Engineer Corps of the Army, and keepers and crews of the United States Life-Saving Service are entitled to the facilities of the hospitals and relief stations under special rules hereinafter prescribed. Officers and seamen employed on vessels of the Coast and Geodetic Survey who are not enlisted men from the Navy are entitled to the benefits of the Marine-Hospital Service.

Yachtsmen entitled.

369. Seamen employed on yachts are entitled to treatment, provided the said yachts are enrolled, licensed, or registered as vessels of the United States.

Exceptions, R. S., s. 4804.

370. No person employed in or connected with the navigation, management, or use of canal boats engaged in the coasting trade shall, by reason thereof, be entitled to any benefit or relief from the marine-hospital fund.

Wrecked seamen entitled.

372. Seamen taken from wrecked vessels of the United States are entitled to the benefits of the Marine-Hospital Service if sick or disabled, and will be furnished care and treatment without reference to the length of time they have been employed.

Seamen sent by consular officers entitled. U. S. Rev. Stat., s. 4577.

373. Seamen employed on merchant vessels of the United States returned to the United States from foreign ports by United States consular officers, if sick or disabled at the time of their arrival in a port of the United States, shall be entitled to the benefits of the Marine-Hospital Service without reference to length of service.

Seamen must make application for relief.

374. A sick or disabled seaman, in order to obtain the benefits of the Marine-Hospital Service, must apply in person, or by proxy if too sick or disabled so to do, at the office of the Marine-Hospital Service, to an officer of that Service, or to the proper customs officer acting as the agent of the Marine-Hospital Service at stations where no Marine-Hospital officer is on duty, and must furnish satisfactory evidence that he is entitled to relief under the regulations.

Evidence to be presented by applicant.

375. Master's certificates and discharges from United States shipping commissioners, made out and signed in proper form, showing that the applicant for relief has been employed for sixty days of continuous service "in a registered, enrolled, or licensed vessel of the United States," a part of which must have been during the sixty days immediately preceding his application for relief, shall entitle him to treatment. The phrase "sixty days continuous service" shall not be held to exclude seamen whose papers show brief intermission between short services that aggregate the required sixty days.

U. S. Rev. Stat., 4803.

Certificates from owners or agents as evidence.

376. The certificate of the owner or accredited commercial agent of a vessel as to the facts of the employment of any seaman on said vessel may be accepted as evidence in lieu of the master's certificate in cases where the latter is not procurable.

Masters must furnish certificate of service.

377. Masters of documented vessels of the United States shall, on demand, furnish any seaman who has been employed on such vessel a certificate (Form 1914) of the length of time said seaman has been so employed, giving the dates of such employment. This certificate will be filed in the Marine-Hospital office or office of the customs officer, when application is made for relief, whether the relief is furnished or the claim rejected.

Masters refusing to give certificate. Secs. 5438 and 5440, R. S.

378. In case the master of any vessel shall fail or refuse to furnish a master's certificate to any seaman who may have been employed on board said vessel within sixty days, the collector of customs shall cause said master, if he be in port, to appear at the Marine-Hospital office and produce the ship's books.

False certificates.

379. Any master of a vessel or other person who shall furnish a false certificate of service, with intent to procure the admission of a seaman into any marine hospital shall be immediately reported to the nearest United States attorney for prosecution.

Exceptions.

380. When an interval has occurred in the applicant's seafaring service by reason of the closure of navigation on account of ice or low water, such interval shall not be considered as excluding him from relief unless the sickness or injury for which he applies for relief be the direct result of employment on shore.

Closure of navigation.

381. During the season when navigation is closed at any port by reason of ice or low water, seamen applying for relief at such ports shall be entitled to same, provided they present the documentary evidence required in paragraph 375, which must show that the applicants were employed within sixty days immediately preceding the said closure of navigation, and it must be satisfactorily shown that the disease or injury was also acquired during the time of their service.

Period of treatment not to be reckoned as absence from vessel.

382. The time during which a seaman has been under treatment in hospital as a patient of the Marine-Hospital Service shall not be reckoned as absence from vessel in respect to debarring him from further relief.

Affidavits may be accepted as evidence.

383. Whenever an applicant for relief presents himself at the Marine-Hospital office or the custom-house without a master's certificate or shipping commissioner's discharge and it is impracticable to obtain such certificate on account of the absence of the vessel or its master from the port, the affidavit of the applicant as to the facts of his last employment, stating names of vessels and dates of service, may be accepted as evidence in support of his claim for the benefits of the Marine-Hospital Service.

Brief service on last vessel not a bar to relief.

384. When the period of the seaman's service as shown by his certificate on last vessel is less than sixty days, his affidavit as to previous service may be accepted if supported by satisfactory evidence.

Applications for relief after sixty days' absence from vessel.

387. When a seaman applies for relief after an absence of sixty days or more from his last vessel, and it satisfactorily appears that such absence was due to sickness or injury acquired in the line of duty, and that it was impracticable for him to apply to the proper officer for treatment, a statement of the facts, together with a copy of the application and other papers in support of same, shall be forwarded to the Supervising Surgeon-General for decision.

Seamen to sign certificates.

388. Any seaman who is able to write will be expected to sign his name upon the face of the master's certificate issued to him before said certificate is signed by the master of the vessel. * * *

Out-patients to furnish new service certificates.

390. When a seaman who has received continuous treatment at the out-patient office for a period of two months applies for further treatment, he must, to entitle him to treatment, furnish a new certificate of service, showing that he is still following his vocation as seaman.

Expenses for sickness during voyage.

391. The expenses of caring for sick and disabled seamen incurred during a voyage will not be paid by the Marine-Hospital Service.

Seamen admitted to local quarantine hospitals.

392. The expenses for the care and treatment of seamen suffering from contagious diseases entitled to the benefits of the Marine-Hospital Service, who, in accordance with the State or municipal health laws and regulations, are taken to quarantine or other hospitals under charge of the local health authorities, will not be paid from the Marine-Hospital fund unless such seamen were admitted at the time by the request of an officer of the Service.

Money not to be paid to seamen for expenses of sickness.

393. In no case shall money be paid to a seaman or to his family or friends by the Marine-Hospital Service as reimbursement for expenses incurred during sickness or disability.

Seamen injured in brawls not to receive treatment.

395. Seamen who may be injured during street brawls or while committing a beach of the peace, and are therefore confined in jail or taken to civil hospitals by the local authorities for such acts, shall not receive treatment at the expense of the Marine-Hospital fund.

Seamen taken ill on vessel entitled.

396. Seamen taken seriously sick or injured while actually employed on a documented vessel shall be entitled to treatment at relief stations without reference to the length of their service.

Certificates of discharge.

397. A certificate of discharge may, at the discretion of the officer in charge of the case, be given to a hospital patient, but such certificate when presented at another relief station shall not be taken as sufficient evidence of the applicant's title to marine-hospital relief, but may be considered as collateral to other satisfactory data submitted by the seaman.

Only temporary relief contemplated.

398. Temporary relief only is contemplated and admission to hospital is not intended to permit an indefinite residence therein for cause other than actual disease or injury.

RELIEF.

OUT-PATIENT RELIEF.

Cases to be treated as out-patients.

399. Sick and disabled seamen entitled under these regulations to the benefits of the Marine-Hospital Service whose diseases or injuries are of such a nature that they can properly be relieved by medicines, dressings, or advice, without admission to hospital, shall be treated as out-patients, and furnished medicines, dressings, surgical appliances, or advice, as the case may require.

No relief furnished at homes of patients.

400. Seamen will not be furnished relief at their own homes, except by special authority from the Supervising Surgeon-General, and then only an allowance for medical attendance and medicines will be made at the rates fixed by the Treasury Department.

HOSPITAL RELIEF.

Cases for hospital treatment.

413. A sick or disabled seaman entitled to the benefits of the Marine-Hospital Service shall be admitted to hospital only in cases where the gravity of the disease or injury from which he suffers is such as to require hospital treatment in the opinion of an officer of the Service, or of a reputable physician designated by the Department to act at a place where no officer is stationed.

STATIONS OF THE FIRST CLASS.

To be valid only for day of issue.

416. A bed ticket (Form 1917) shall be prepared and delivered to the applicant for relief in a sealed envelope, addressed to the officer or other person authorized to receive the patient. The seaman should at the same time be informed that, unless presented on the day it is issued, the ticket will be invalid.

STATIONS OF THE SECOND CLASS.

To be valid only for day of issue.

424. A bed ticket (Form 1917) shall be prepared and delivered to the applicant for relief in a sealed envelope, addressed to the officer or other person authorized to receive the patient. The seaman should at the same time be informed that, unless presented on the day it is issued, the ticket will be invalid.

STATIONS OF THE THIRD CLASS.

Permits for hospital relief. Form 1916.

432. Customs officers, or acting assistant surgeons when in charge of the station by special authority of the Bureau, shall issue hospital permits for the care and treatment of such applicants as may be found to be entitled to the benefits of the Service and require hospital treatment. The period for which treatment is authorized by the permit should be based upon the certificate of the acting assistant surgeon or attending physician, as given in the relief certificates, but should in no case exceed twenty days.

STATIONS OF THE FOURTH CLASS.

Permits for hospital relief. Form 1916.

445. Customs officers, or acting assistant surgeons when in charge of the station by special authority of the Bureau, shall issue hospital permits for the care and treatment of such applicants as may be found to be entitled to the benefits of the Service and require hospital treatment. The period for which treatment is authorized by the permit should be based upon the certificate of the acting assistant surgeon or attending physician, as given in the relief certificates, but should in no case exceed twenty days.

Permits valid only on day of issue.

448. The hospital permit, before being delivered to the applicant for relief, must be enclosed in an envelope, sealed, and addressed to the person authorized to receive the patient. The seaman should at the same time be informed that unless presented on the day it is issued the permit will be invalid

Not more than two visits allowed.

410. Out-patient relief will not be furnished except in cases of emergency, such as acute illness or injury, requiring not more than one or two visits.

Foreign seamen et al. not treated.

412. Foreign seamen or employees of the various Government services, not beneficiaries, shall not be treated.

INSANE SEAMEN.

Relief for insane seamen. Mar. 3, 1875.

462. Insane seamen entitled to the benefits of the Marine-Hospital Service may be admitted to the Government Hospital for the Insane, Washington, D. C., upon the order of the Secretary of the Treasury.

DECEASED SEAMEN.

Relatives to be notified.

468. On the death of a patient while under the charge of the Marine-Hospital Service, notice to receive his effects shall be given by letter, or otherwise, to his nearest known relative. * * *

Burial expenses.

469. The necessary expenses of a plain burial for deceased patients of the Service will be paid; but no part of the expenses of the burial of any deceased seaman will be paid for at the expense of the Marine-Hospital Service, unless said seaman was at the time of his death a patient of the Service. When friends or relatives of a deceased seaman claim the body and assume charge of the funeral arrangements, no part of the expenses of the same will be paid by the Marine-Hospital Service.

SEAMEN OF THE GOVERNMENT SERVICES AND FOREIGN SEAMEN.

UNITED STATES NAVY AND COAST SURVEY.

Officers and seamen of various Government services may be admitted.

470. Officers and seamen employed on vessels of the United States Navy and the Coast Survey may be admitted for care and treatment as patients of the Marine-Hospital Service only upon the written request of their respective commanding officers. Every such admission shall be immediately reported to the Supervising Surgeon-General by the officer in charge of the station, on a daily report (Form 1942) or relief certificate (Form 1915), accompanied by a copy of the request upon which such officer or seaman was admitted. They shall be furnished treatment at stations of the first, second, and third class only. The rate of charge to be made for the care and treatment of the said officers and seamen will be fixed by the Department at the beginning of each fiscal year, and will be announced to officers and others in the annual circular entitled "Contracts for care of seamen." The above class of patients are not subject to the provisions requiring transportation to marine hospitals.

FOREIGN SEAMEN.

Foreign seamen may be treated. Sec. 6, act Mar. 3, 1875; 18 Stat. L., 485.

471. The accommodations provided for the care and treatment of the patients of the Marine-Hospital Service are also available to foreign seamen at relief stations of the first, second, and third class upon the application of the consular officer of the nation under whose flag they are sailing; or upon the application of the masters of the vessels upon which said seamen serve, provided satisfactory written security is given for the payment of the expenses of such care and treatment, at rates fixed annually by the Secretary of the Treasury. When treatment is furnished a foreign seaman, the fact will be immediately reported to the Supervising Surgeon-General, on a daily report (Form 1942) or relief certificate (Form 1915), accompanied by a copy of the application upon which he was admitted.

Bills for care and treatment. Form 1926.

472. A bill (Form 1926) in duplicate must be rendered by the officer of the Marine-Hospital Service in command for the care of each foreign seaman or other seaman admitted (not entitled to treatment free), said bill to be rendered upon the termination of treatment in each case. One copy of this bill shall be delivered to the collector of customs, who shall at once collect the amount; the other copy shall be forwarded by the officer rendering the bill to the Supervising Surgeon-General.

Monthly accounts to be rendered.

473. Customs officers acting as agents of the Marine-Hospital Service shall collect all bills for the care and treatment of seamen of the classes enumerated in paragraphs 470 and 471 when rendered by the proper Marine-Hospital officer, and will render monthly accounts for all moneys collected on account of the care and treatment of such seamen; said accounts to be accompanied by abstracts giving the name and nationality of the patient, date of admission and date of discharge, period of treatment, and amount collected in each case.

Notification of amount of bill.

474. Collectors of customs will notify the commanding officer of the vessel of the class enumerated in paragraphs 470 and 471, upon whose request the seaman was admitted, of the amount of the bill, and when paid will give a receipt therefor. The money will be deposited as a repayment to the Marine-Hospital fund in the manner provided for moneys received for the care of foreign seamen.

Charges for care and treatment.

475. The rate of charge to be made for the care and treatment of foreign seamen will be fixed by the Department at the beginning of each fiscal year, and will be announced to officers and others in the annual circular entitled "Contracts for care of seamen." Foreign seamen are not subject to the provision of paragraphs 426 and 434 requiring transportation to marine hopitals.

THE REVENUE-CUTTER SERVICE.

Admitted without regard to length of service.

476. The officers and crews of the Revenue-Cutter Service will receive hospital or out-patient treatment, as hereinafter provided, on certificate signed by the commanding officer or executive officer of a revenue cutter, without regard to length of service. The certificate shall contain a description of the applicant for relief. Officers on leave or waiting orders may sign their own certificate.

Admitted to stations of class 1 and to contract hospitals.

477. Any such officer or seaman whose condition absolutely requires treatment in hospital will be admitted to hospitals at stations of the first class and to all contract hospitals enumerated in the annual circular entitled "Contracts for care of seamen," subject to the provisions of the said circular with regard to the transfer of patients from a contract to the nearest marine hospital. No admission to hospital will be granted at any port not mentioned in said circular. At all ports mentioned in the circular, where no specific arrangements for treatment in hospitals are made, the regulations governing admissions at fourth-class (emergency) stations will be enforced.

Out-patient treatment—where and how furnished.

478. Out-patient treatment will be furnished at all stations where an officer of the Marine-Hospital Service is on duty. At all other stations out-patient relief will be granted only in case of emergency and under the provisions of the regulations relative to fourth-class (emergency) stations. No out-patient relief will be granted at any station not mentioned in the annual circular entitled "Contracts for care of seamen," and in all other respects the regulations of the Marine-Hospital Service must be complied with.

THE LIGHT-HOUSE SERVICE.

Officers and crews of the Light-House Establishment entitled.

487. Officers and crews of the several vessels belonging to the Light-House Establishment may be admitted to the benefits of the Marine-Hospital Service upon the application of their respective commanding officers. No charge will be made for care and treatment.

THE ENGINEER CORPS, UNITED STATES ARMY.

Seamen employed on vessels of the Engineer Corps, U. S. A., entitled.

480. Seamen employed on vessels under the charge of the Engineer Corps of the United States Army shall be admitted to the benefits of the Marine-Hospital Service without charge at stations of the first, second, and third class upon the written request of the commanding officers of said vessels.

NATIONAL QUARANTINES.

AN ACT granting additional quarantine powers and imposing additional duties upon the Marine-Hospital Service.

(*Extracts.*)

[Approved February 15, 1893.]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That it shall be unlawful for any merchant ship or other vessel from any foreign port or place to enter any port of the United States, except in accordance with the provisions of this act and with such rules and regulations of State and municipal health authorities as may be made in pursuance of, or consistent with, this act; and any such vessel which shall enter, or attempt to enter, a port of the United States in violation thereof shall forfeit to the United States a sum, to be awarded in the discretion of the court, not exceeding five thousand dollars, which shall be a lien upon said vessel, to be recovered by proceedings in the proper district court of the United States. In all such proceedings the United States district attorney for such district shall appear on behalf of the United States; and all such proceedings shall be conducted in accordance with the rules and laws governing cases of seizure of vessels for violation of the revenue laws of the United States.

SEC. 2. That any vessel at any foreign port clearing for any port or place in the United States shall be required to obtain from the consul, vice-consul, or other consular officer of the United States at the port of departure, or from the medical officer, where such officer has been detailed by the President for that purpose, a bill of health, in duplicate, in the form prescribed by the Secretary of the Treasury, setting forth the sanitary history and condition of said vessel, and that it has in all respects complied with the rules and regulations in such cases prescribed for securing the best sanitary condition of the said vessel, its cargo, passengers, and crew; and said consular or medical officer is required, before granting such duplicate bill of health, to be satisfied that the matters and things therein stated are true; and for his services in that behalf he shall be entitled to demand and receive such fees as shall by lawful regulation be allowed, to be accounted for as is required in other cases.

The President, in his discretion, is authorized to detail any medical officer of the Government to serve in the office of the consul at any foreign port for the purpose of furnishing information and making the inspection and giving the bills of health hereinbefore mentioned. Any vessel clearing and sailing from any such port without such bill of health, and entering any port of the United States, shall forfeit to the United States not more than five thousand dollars, the amount to be determined by the court, which shall be a lien on the same, to be recovered by proceedings in the proper district court of the United States. In all such proceedings the United States district attorney for such district shall appear on behalf of the United States; and all such proceedings shall be conducted in accordance with the rules and laws governing cases of seizure of vessels for violation of the revenue laws of the United States.

The provisions of this section shall not apply to vessels plying between foreign ports on or near the frontiers of the United States and ports of the United States adjacent thereto; but the Secretary of the Treasury is hereby authorized, when, in his discretion, it is expedient for the preservation of the public health, to establish regulations governing such vessels.

SEC. 5. That the Secretary of the Treasury shall from time to time issue to the consular officers of the United States and to the medical officer serving at any foreign port, and otherwise make publicly known, the rules and regulations made by him, to be used and complied with by vessels in foreign ports, for securing the best sanitary condition of such vessels, their cargoes, passengers, and crew, before their departure for any port in the United States, and in the course of the voyage; and all such other rules and regulations as shall be observed in the inspection of the same on the arrival thereof at any quarantine station at the port of destination, and for the disinfection and isolation of the same, and the treatment of cargo and persons on board, so as to prevent the introduction of cholera, yellow fever, or other contagious or infectious diseases; and it shall not be lawful for any vessel to enter said port to discharge its cargo, or land its passengers, except upon a certificate of the health officer at such quarantine station certifying that said rules and regulations have in all respects been observed and complied with, as well on his part as on the part of the said vessel and

its master, in respect to the same and to its cargo, passengers, and crew; and the master of every such vessel shall produce and deliver to the collector of customs at said port of entry, together with the other papers of the vessel, the said bills of health required to be obtained at the port of departure and the certificate herein required to be obtained from the health officer at the port of entry and that the bills of health herein prescribed shall be considered as part of the ship's papers, and when duly certified to by the proper consular or other officer of the United States, over his official signature and seal, shall be accepted as evidence of the statements therein contained in any court of the United States.

SEC. 6. That on the arrival of an infected vessel at any port not provided with facilities for treatment of the same, the Secretary of the Treasury may remand said vessel, at its own expense, to the nearest national or other quarantine station, where accommodations and appliances are provided for the necessary disinfection and treatment of the vessel, passengers, and cargo; and after treatment of any infected vessel at a national quarantine station, and after certificate shall have been given by the United States quarantine officer at said station that the vessel, cargo, and passengers are each and all free from infectious disease, or danger of conveying the same, said vessel shall be admitted to entry to any port of the United States named within the certificate. But at any ports where sufficient quarantine provision has been made by State or local authorities the Secretary of the Treasury may direct vessels bound for said ports to undergo quarantine at said State or local station.

SEC. 7. That whenever it shall be shown to the satisfaction of the President, that by reason of the existence of cholera or other infectious or contagious diseases in a foreign country there is serious danger of the introduction of the same into the United States, and that notwithstanding the quarantine defense this danger is so increased by the introduction of persons or property from such country that a suspension of the right to introduce the same is demanded in the interest of the public health, the President shall have power to prohibit, in whole or in part, the introduction of persons and property from such countries or places as he shall designate, and for such period of time as he may deem necessary.

REVISED STATUTES.

[Extract from act August 1, 1888.]

Whenever any person shall trespass upon the grounds belonging to any quarantine reservation, * * * such person, trespassing, * * * shall, upon conviction thereof, pay a fine of not more than three hundred dollars, or be sentenced to imprisonment for a period of not more than thirty days, or shall be punished by both fine and imprisonment, at the discretion of the court. And it shall be the duty of the United States attorney in the district where the misdemeanor shall have been committed to take immediate cognizance of the offense, upon report made to him by any medical officer of the Marine-Hospital Service, or by any officer of the customs service, or by any State officer acting under authority of section five of said act.

QUARANTINE REGULATIONS TO BE OBSERVED AT FOREIGN PORTS AND AT SEA.

ARTICLE V.—PASSENGERS AND CREW.

PAR. 15. In a port where cholera prevails, or where yellow fever prevails in epidemic form, the crews of passenger ships should remain on board during their stay. Should additional men be shipped, the same precautions should be observed with them as in the case of steerage passengers. If it is considered necessary, the crews of freight ships may be similarly treated at the discretion of the medical officer.

PAR. 17. American vessels bound for the United States, or for Porto Rico, or for Cuba, shall not ship men in ports of Cuba or Porto Rico where smallpox or yellow fever prevails, unless such men have been inspected and passed by the quarantine officer.

ARTICLE VI.—REQUIREMENTS AT SEA.

PAR. 1. The master of the vessel should cause the following rules (which comprise those recommended by the International Conference at Rome, 1885) to be observed during the voyage.

(*a*) The soiled body linen of passengers and crew suffering from infectious disease should be at once immersed in boiling water or in a disinfecting solution.

(*b*) The water-closets should be washed and disinfected twice a day.

(*c*) Rigorous cleanliness and free ventilation should be maintained during the voyage on board all ships.

PAR. 2. An inspection of the vessel, including the steerage, should be made by the ship's physician once each day.

PAR. 3. Should cholera (or cholerine), yellow fever, typhus fever, or smallpox appear on board a ship while at sea, those who first show symptoms of these diseases will be immediately sent to the hospital; the ship's physician will then immediately notify the captain, and all of the effects liable to convey infection which have been in use will be destroyed or disinfected.

PAR. 4. The compartments occupied by those who fall sick with infectious disease should be disinfected, and, as far as possible, the compartments thus disinfected should be freely exposed to the air. If the vessel is an iron steamer and the compartments suitable, the entire compartment should be disinfected by steam. The articles liable to convey infection should remain in the compartments during the disinfection. After disinfection of the compartments the bedding and clothing may be removed and dried.

PAR. 5. Patients with infectious disease should be isolated.

PAR. 6. The hospital should be disinfected as soon as it becomes vacant.

PAR. 7. The dead should be enveloped in a sheet saturated with one of the strong disinfecting solutions, without previous washing of the body, and at once placed in a coffin hermetically sealed or buried at sea.

PAR. 8. A clinical record should be kept on the prescribed form, by the ship's surgeon, of all cases of sickness on board, and delivered to the quarantine officer at the port of arrival.

PAR. 9. Under the foregoing paragraphs disinfecting solutions are limited to the following: Strong: acid solution of bichloride of mercury (1 to 500); a 1 to 20 solution of pure carbolic acid. Weak: acid solution of bichloride of mercury (1 to 1,000); pure carbolic acid, 1 to 40.

QUARANTINE REGULATIONS TO BE OBSERVED AT PORTS AND ON THE FRONTIERS OF THE UNITED STATES.

(*Extracts.*)

ARTICLE I.—INSPECTION.

1. Vessels arriving at ports of the United States under the following conditions shall be inspected by a quarantine officer prior to entry.

A. Any vessel with sickness on board.

B. All vessels from foreign ports.

C. Vessels from domestic ports where cholera or yellow fever prevails, or where smallpox or typhus fever prevails in epidemic form.

EXCEPTIONS.—Vessels not carrying passengers on inland waters of the United States. Vessels from the Pacific and Atlantic coasts of British America, provided they do not carry persons or effects of persons nonresident in America for the sixty days next preceding arrival, and provided always that the port of departure be free from quarantinable disease. Vessels from other foreign ports via these excepted ports shall be inspected.

D. Vessels from foreign ports carrying passengers having entered a port of the United States without complete discharge of passengers and cargo. Such vessels shall be subject to a second inspection before entering any other port. Vessels from ports suspected of infection with yellow fever, having entered a port north of the southern boundary of Maryland without disinfection, shall be subjected to a second inspection before entering any port south of said latitude during the quarantine season of such port.

2. The inspections of vessels required by these regulations shall be made by daylight, except in case of vessels in distress.

3. In making the inspection of a vessel, the bill of health and clinical record of all cases treated during the voyage, crew and passengers' lists and manifests, and, when necessary, the ship's log shall be examined. The crew and passengers shall be mustered and examined and compared with the lists and manifests, and any discrepancies investigated.

4. No person except the quarantine officer, his employés, United States customs officers, or agents of the vessel, shall be permitted to board any vessel subject to quarantine inspection, until after the vessel has been inspected by the quarantine officer and given its discharge.

5. Tugboats or any other vessels having had communication with vessels subject to inspection, shall be themselves subject to inspection.

ARTICLE II.—QUARANTINE.

1. For the purpose of these regulations, the quarantinable diseases are cholera (cholerine), yellow fever, smallpox, typhus fever, and leprosy.

2. Vessels arriving under the following conditions shall be placed in quarantine:

A. With quarantinable disease on board.

B. Having had such on board during the voyage or within thirty days next preceding arrival; or, if arriving in the quarantine season, having had yellow fever on board after March 1 of the current year, unless satisfactorily disinfected thereafter.

C. From ports infected with cholera, or where typhus fever prevails in epidemic form, coming directly or via another foreign port, or via United States ports, unless they have complied with the United States quarantine regulations for foreign ports, also vessels from noninfected ports but bringing persons or cargo from places infected with cholera, yellow fever, or where typhus fever prevails in epidemic form, except as subsequently noted.

D. From ports where yellow fever prevails, unless disinfected in accordance with these regulations, and not less than five days have elapsed since such disinfection.

E. Tugboats and other vessels having had communication with vessels subject to quarantine, shall be quarantined if they have been exposed to infection.

EXCEPTIONS.—The following exceptions may be made to rules C and D with regard to vessels from ports quarantined against on account of yellow fever:

(1) Vessels arriving during certain seasons of the year, to wit, from November 15 to April 1, may be admitted to entry.

(2) Vessels bound for ports in the United States north of the southern boundary of Maryland, with good sanitary condition and history, having had no sickness on board at ports of departure en route or on arrival, provided they have been five days from last infected or suspected port, may be allowed entry at port of destination. But if said vessels carry passengers destined for places south of this latitude the baggage of said passengers shall be disinfected.

(3) Vessels engaged in the fruit trade from ports declared safe for this purpose by the supervising surgeon-general M. H. S. may be admitted to entry without detention, provided that they carry no passengers and have carried no passengers from one port to another, and have no household effects or personal baggage in cargo, and have complied with the special rules and regulations made by the Secretary of the Treasury with regard to vessels engaged in said trade.

ARTICLE III.—GENERAL REQUIREMENTS AT QUARANTINES.

1. Pilots bringing infected vessels will be detained in quarantine a sufficient time to cover the period of incubation of the disease for which the vessel is quarantined, if, in the opinion of the quarantine officer, such pilots have been exposed to infection. The dunnage of pilots shall be disinfected when necessary.

2. No direct communication shall be allowed between quarantine, or any vessel in quarantine, and any person or place outside, and no communication except under the supervision of the quarantine officer.

3. No ballast shall be allowed to leave the quarantine station unless disinfected.

4. Where it is impossible to disinfect cargo *in situ*, it shall be removed and disinfected in the manner provided for articles of their class in these regulations; such articles to be unpacked and so arranged as to allow the disinfectant used to reach every part of all surfaces of said articles.

5. Vessels arriving at any port of the United States, having cholera or yellow fever aboard during the quarantine season, shall be remanded to an anchorage set apart for infected vessels, and there to remain until after the discharge of the passengers and purification of the vessel.

6. All passenger baggage disinfected under the requirements of these regulations shall be labeled.

APPENDIX IV.

RULES TO PREVENT COLLISIONS OF VESSELS.

Compiled for insertion in volumes of the U. S. Coast Pilot, Atlantic Coast.

AN ACT in regard to collisions at sea.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That in every case of collision between two vessels it shall be the duty of the master or person in charge of each vessel, if and so far as he can do so without serious danger to his own vessel, crew, and passengers (if any), to stay by the other vessel until he has ascertained that she has no need of further assistance, and to render to the other vessel, her master, crew, and passengers (if any), such assistance as may be practicable and as may be necessary in order to save them from any danger caused by the collision, and also to give to the master or person in charge of the other vessel the name of his own vessel and her port of registry, or the port or place to which she belongs, and also the names of the ports and places from which and to which she is bound. If he fails so to do, and no reasonable cause for such failure is shown, the collision shall, in the absence of proof to the contrary, be deemed to have been caused by his wrongful act, neglect, or default.

SEC. 2. That every master or person in charge of a United States vessel who fails, without reasonable cause, to render such assistance or give such information as aforesaid shall be deemed guilty of a misdemeanor, and shall be liable to a penalty of one thousand dollars, or imprisonment for a term not exceeding two years; and for the above sum the vessel shall be liable and may be seized and proceeded against by process in any district court of the United States by any person; one-half such sum to be payable to the informer and the other half to the United States

SEC. 3. That this act shall take effect at a time to be fixed by the President by Proclamation issued for that purpose.

Approved, September 4, 1890. Proclamation dated November 18, 1890, to take effect December 15, 1890.

INTERNATIONAL RULES.

I.—ENACTING CLAUSE, AND SCOPE.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the following regulations for preventing collisions at sea shall be followed by all public and private vessels of the United States upon the high seas and in all waters connected therewith, navigable by sea-going vessels.

ART. 30. Nothing in these rules shall interfere with the operation of a special rule, duly made by local authority, relative to the navigation of any harbor, river, or inland waters.

PRELIMINARY DEFINITIONS.

In the following rules every steam-vessel which is under sail and not under steam is to be considered a sailing-vessel, and every vessel under steam, whether under sail or not, is to be considered a steam-vessel.

The word "steam-vessel" shall include any vessel propelled by machinery.

A vessel is "under way" within the meaning of these rules when she is not at anchor, or made fast to the shore, or aground.

II.—LIGHTS AND SO FORTH.

The word "visible" in these rules when applied to lights shall mean visible on a dark night with a clear atmosphere.

ART. 1. The rules concerning lights shall be complied with in all weathers from sunset to sunrise, and during such time no other lights which may be mistaken for the prescribed lights shall be exhibited.

STEAM VESSELS—MASTHEAD LIGHT.

ART. 2. A steam-vessel when under way shall carry—(*a*) On or in front of the foremast, or if a vessel without a foremast, then in the fore part of the vessel, at a height above the hull of not less than twenty feet, and if the breadth of the vessel exceeds twenty feet, then at a height above the hull not less than such breadth, so, however, that the light need not be carried at a greater height above the hull than forty feet, a bright white light, so constructed as to show an unbroken light over an arc of the horizon of twenty points of the compass, so fixed as to throw the light ten points on each side of the vessel, namely, from right ahead to two points abaft the beam on either side, and of such a character as to be visible at a distance of at least five miles.

STEAM VESSELS—SIDE LIGHTS.

(*b*) On the starboard side a green light so constructed as to show an unbroken light over an arc of the horizon of ten points of the compass, so fixed as to throw the light from right ahead to two points abaft the beam on the starboard side, and of such a character as to be visible at a distance of at least two miles.

(*c*) On the port side a red light so constructed as to show an unbroken light over an arc of the horizon of ten points of the compass, so fixed as to throw the light from right ahead to two points abaft the beam on the port side, and of such a character as to be visible at a distance of at least two miles.

(*d*) The said green and red side-lights shall be fitted with inboard screens projecting at least three feet forward from the light, so as to prevent these lights from being seen across the bow.

STEAM VESSELS—RANGE LIGHTS.

(*e*) A steam-vessel when under way may carry an additional white light similar in construction to the light mentioned in subdivision (*a*). These two lights shall be so placed in line with the keel that one shall be at least fifteen feet higher than the other, and in such a position with reference to each other that the lower light shall be forward of the upper one, The vertical distance between these lights shall be less than the horizontal distance.

STEAM VESSELS WHEN TOWING.

ART. 3. A steam-vessel when towing another vessel shall, in addition to her side-lights, carry two bright white lights in a vertical line one over the other, not less than six feet apart, and when towing more than one vessel shall carry an additional bright white light six feet above or below such light, if the length of the tow measuring from the stern of the towing vessel to the stern of the last vessel towed exceeds six hundred feet. Each of these lights shall be of the same construction and character, and shall be carried in the same position as the white light mentioned in article two (*a*), excepting the additional light, which may be carried at a height of not less than fourteen feet above the hull.

Such steam-vessel may carry a small white light abaft the funnel or aftermast for the vessel towed to steer by, but such light shall not be visible forward of the beam.

SPECIAL LIGHTS.

ART. 4. (*a*) A vessel which from any accident is not under command shall carry at the same height as a white light mentioned in article two (*a*), where they can best be seen, and if a steam-vessel in lieu of that light, two red lights, in a vertical line one over the other, not less than six feet apart, and of such a character as to be visible all around the horizon at a distance of at least two miles; and shall by day carry in a vertical line one over the other, not less than six feet apart, where they can best be seen, two black balls or shapes, each two feet in diameter.

(*b*) A vessel employed in laying or in picking up a telegraph cable shall carry in the same position as the white light mentioned in article two (*a*), and if a steam-vessel in lieu of that light, three lights in a vertical line one over the other not less than six feet apart. The highest and lowest of these lights shall be red, and the middle light shall be white, and they shall be of such a character as to be visible all around the horizon at a distance of at least two miles. By day she shall carry in a vertical line, one over the other, not less than six feet apart, where they can best be seen, three shapes not less than two feet in diameter, of which the highest and lowest shall be globular in shape and red in color, and the middle one diamond in shape and white.

(*c*) The vessels referred to in this article, when not making way through the water, shall not carry the side-lights, but when making way shall carry them.

(*d*) The lights and shapes required to be shown by this article are to be taken by other vessels as signals that the vessel showing them is not under command and can not therefore get out of the way.

These signals are not signals of vessels in distress and requiring assistance. Such signals are contained in article thirty-one.

LIGHTS FOR SAILING VESSELS AND VESSELS IN TOW.

ART. 5. A sailing vessel under way and any vessel being towed shall carry the same lights as are prescribed by article two for a steam-vessel under way, with the exception of the white lights mentioned therein, which they shall never carry.

LIGHTS FOR SMALL VESSELS.

ART. 6. Whenever, as in the case of small vessels under way during bad weather, the green and red side-lights can not be fixed, these lights shall be kept at hand, lighted and ready for use; and shall, on the approach of or to other vessels, be exhibited on their respective sides in sufficient time to prevent collision, in such manner as to make them most visible, and so that the green light shall not be seen on the port side nor the red light on the starboard side, nor, if practicable, more than two points abaft the beam on their respective sides. To make the use of these portable lights more certain and easy, the lanterns containing them shall each be painted outside with the color of the light they respectively contain, and shall be provided with proper screens.

LIGHTS FOR SMALL STEAM AND SAIL VESSELS AND OPEN BOATS.

ART. 7. Steam-vessels of less than forty, and vessels under oars or sails of less than twenty tons gross tonnage, respectively, and rowing boats, when under way, shall not be required to carry the lights mentioned in article two (*a*), (*b*), and (*c*), but if they do not carry them they shall be provided with the following lights:

First. Steam-vessels of less than forty tons shall carry—

(*a*) In the fore part of the vessel, or on or in front of the funnel, where it can best be seen, and at a height above the gunwale of not less than nine feet, a bright white light constructed and fixed as prescribed in article two (*a*), and of such a character as to be visible at a distance of at least two miles.

(*b*) Green and red side-lights constructed and fixed as prescribed in article two (*b*) and (c), and of such a character as to be visible at a distance of at least one mile, or a combined lantern showing a green light and a red light from right ahead to two points abaft the beam on their respective sides. Such lanterns shall be carried not less than three feet below the white light.

Second. Small steamboats, such as are carried by seagoing vessels, may carry the white light at a less height than nine feet above the gunwale, but it shall be carried above the combined lantern mentioned in subdivision one (*b*).

Third. Vessels under oars or sails of less than twenty tons shall have ready at hand a lantern with a green glass on one side and a red glass on the other, which, on the approach of or to other vessels, shall be exhibited in sufficient time to prevent collision, so that the green light shall not be seen on the port side nor the red light on the starboard side.

Fourth. Rowing boats, whether under oars or sail, shall have ready at hand a lantern showing a white light which shall be temporarily exhibited in sufficient time to prevent collision.

The vessels referred to in this article shall not be obliged to carry the lights prescribed by article four (*a*) and article eleven, last paragraph.

LIGHTS FOR PILOT VESSELS.

ART. 8. Pilot-vessels when engaged on their station on pilotage duty shall not show the lights required for other vessels, but shall carry a white light at the masthead, visible all around the horizon, and shall also exhibit a flare-up light or flare-up lights at short intervals, which shall never exceed fifteen minutes.

On the near approach of or to other vessels they shall have their side-lights lighted, ready for use, and shall flash or show them at short intervals, to indicate the direction in which they are heading, but the green light shall not be shown on the port side, nor the red light on the starboard side.

A pilot-vessel of such a class as to be obliged to go alongside of a vessel to put a pilot on board may show the white light instead of carrying it at the masthead, and may, instead of the colored lights above mentioned, have at hand, ready for use, a lantern with a green glass on the one side and a red glass on the other, to be used as prescribed above.

Pilot-vessels when not engaged on their station on pilotage duty shall carry lights similar to those of other vessels of their tonnage.

A steam pilot-vessel, when engaged on her station on pilotage duty and in waters of the United States, and not at anchor, shall, in addition to the lights required for all pilot-boats, carry at a distance of eight feet below her white masthead light a red light, visible all around the horizon and of such a character as to be visible on a dark night with a clear atmosphere

at a distance of at least two miles, and also the colored lights required to be carried by vessels when under way.

When engaged on her station on pilotage duty and in waters of the United States, and at anchor, she shall carry in addition to the lights required for all pilot boats the red light above mentioned, but not the colored side lights.

When not engaged on her station on pilotage duty, she shall carry the same lights as other steam vessels.

LIGHTS, ETC., OF FISHING VESSELS.

ART. 9. [*Article 9, act of August 19, 1890, was repealed by act of May 28, 1894, and article 10, act of March 3, 1885, was reenacted in part by act of August 13, 1894, and is reproduced here in part as article 9. It will be the object of further consideration by the maritime powers:*]

Fishing-vessels of less than twenty tons net registered tonnage, when under way and when not having their nets, trawls, dredges, or lines in the water, shall not be obliged to carry the colored side-lights; but every such vessel shall in lieu thereof have ready at hand a lantern with a green glass on the one side and a red glass on the other side, and on approaching to or being approached by another vessel such lantern shall be exhibited in sufficient time to prevent collision, so that the green light shall not be seen on the port side nor the red light on the starboard side.

The following portion of this article applies only to fishing-vessels and boats when in the sea off the coast of Europe lying north of Cape Finisterre:

(*a*) All fishing-vessels and fishing-boats of twenty tons net registered tonnage or upward, when under way and when not having their nets, trawls, dredges, or lines in the water, shall carry and show the same lights as other vessels under way.

(*b*) All vessels when engaged in fishing with drift nets shall exhibit two white lights from any part of the vessel where they can be best seen. Such lights shall be placed so that the vertical distance between them shall be not less than six feet and not more than ten feet, and so that the horizontal distance between them, measured in a line with the keel of the vessel, shall be not less than five feet and not more than ten feet. The lower of these two lights shall be the more forward, and both of them shall be of such a character and contained in lanterns of such construction as to show all around the horizon, on a dark night, with a clear atmosphere, for a distance of not less than three miles.

(*c*) All vessels when trawling, dredging, or fishing with any kind of drag-nets shall exhibit, from some part of the vessel where they can be best seen, two lights. One of these lights shall be red and the other shall be white. The red light shall be above the white light, and shall be at a vertical distance from it of not less than six feet and not more than twelve feet; and the horizontal distance between them, if any, shall not be more than ten feet. These two lights shall be of such a character and contained in lanterns of such construction as to be visible all around the horizon, on a dark night, with a clear atmosphere, the white light to a distance of not less than three miles and the red light of not less than two miles.

(*d*) A vessel employed in line-fishing, with her lines out, shall carry the same lights as a vessel when engaged in fishing with drift nets.

(*e*) If a vessel, when fishing with a trawl, dredge, or any kind of drag-net, becomes stationary in consequence of her gear getting fast to a rock or other obstruction, she shall show the light and make the fog signal for a vessel at anchor.

(*f*) Fishing-vessels may at any time use a flare-up in addition to the lights which they are by this article required to carry and show. All flare-up lights exhibited by a vessel when trawling, dredging, or fishing with any kind of drag-net shall be shown at the after-part of the vessel, excepting that if the vessel is hanging by the stern to her trawl, dredge, or drag-net they shall be exhibited from the bow.

(*g*) Every fishing-vessel when at anchor between sunset and sunrise shall exhibit a white light, visible all around the horizon at a distance of at least one mile.

(*h*) In a fog a drift-net vessel attached to her nets, and a vessel when trawling, dredging, or fishing with any kind of drag-net, and a vessel employed in line-fishing with her lines out, shall, at intervals of not more than two minutes, make a blast with her fog horn and ring her bell alternately.

LIGHTS FOR AN OVERTAKEN VESSEL.

ART. 10. A vessel which is being overtaken by another shall show from her stern to such last-mentioned vessel a white light or a flare-up light.

The white light required to be shown by this article may be fixed and carried in a lantern, but in such case the lantern shall be so constructed, fitted, and screened that it shall throw an unbroken light over an arc of the horizon of twelve points of the compass, namely, for six points from right aft on each side of the vessel, so as to be visible at a distance of at least one mile. Such light shall be carried as nearly as practicable on the same level as the side lights.

ANCHOR LIGHTS.

ART. 11. A vessel under one hundred and fifty feet in length, when at anchor, shall carry forward, where it can best be seen, but at a height not exceeding twenty feet above the hull, a white light in a lantern so constructed as to show a clear, uniform, and unbroken light visible all around the horizon at a distance of at least one mile.

A vessel of one hundred and fifty feet or upward in length, when at anchor, shall carry in the forward part of the vessel, at a height of not less than twenty and not exceeding forty feet above the hull, one such light, and at or near the stern of the vessel, and at such a height that it shall be not less than fifteen feet lower than the forward light, another such light.

The length of a vessel shall be deemed to be the length appearing in her certificate of registry.

A vessel aground in or near a fair-way shall carry the above light or lights and the two red lights prescribed by article four (*a*).

SPECIAL SIGNALS.

ART. 12. Every vessel may, if necessary in order to attract attention, in addition to the lights which she is by these rules required to carry, show a flare-up light or use any detonating signal that can not be mistaken for a distress signal.

NAVAL LIGHTS AND RECOGNITION SIGNALS.

ART. 13. Nothing in these rules shall interfere with the operation of any special rules made by the Government of any nation with respect to additional station and signal-lights for two or more ships of war or for vessels sailing under convoy, or with the exhibition of recognition signals adopted by shipowners, which have been authorized by their respective Governments and duly registered and published.

STEAM VESSEL UNDER SAIL BY DAY.

ART. 14. A steam-vessel proceeding under sail only but having her funnel up, shall carry in daytime, forward, where it can best be seen, one black ball or shape two feet in diameter.

III.—SOUND SIGNALS IN FOG, ETC.

PRELIMINARY.

ART. 15. All signals prescribed by this article for vessels under way shall be given:

First. By "steam-vessels" on the whistle or siren.

Second. By "sailing-vessels" and "vessels towed" on the fog horn.

The words "prolonged blast" used in this article shall mean a blast of from four to six seconds' duration.

A steam-vessel shall be provided with an efficient whistle or siren, sounded by steam or by some substitute for steam, so placed that the sound may not be intercepted by any obstruction, and with an efficient fog horn, to be sounded by mechanical means, and also with an efficient bell. (In all cases where the rules require a bell to be used, a drum may be substituted on board Turkish vessels, or a gong where such articles are used on board small seagoing vessels.) A sailing vessel of twenty tons gross tonnage or upward shall be provided with a similar fog horn and bell.

In fog, mist, falling snow, or heavy rain-storms, whether by day or night, the signals described in this article shall be used as follows, namely:

STEAM VESSEL UNDER WAY.

(*a*) A steam-vessel having way upon her shall sound, at intervals of not more than two minutes, a prolonged blast.

(*b*) A steam-vessel under way, but stopped, and having no way upon her, shall sound, at intervals of not more than two minutes, two prolonged blasts, with an interval of about one second between.

SAIL VESSEL UNDER WAY.

(*c*) A sailing vessel under way shall sound, at intervals of not more than one minute, when on the starboard tack, one blast; when on the port tack, two blasts in succession, and when with the wind abaft the beam, three blasts in succession.

VESSELS AT ANCHOR OR NOT UNDER WAY.

(*d*) A vessel when at anchor shall, at intervals of not more than one minute, ring the bell rapidly for about five seconds.

VESSELS TOWING, ETC.

(*e*) A vessel when towing, a vessel employed in laying or picking up a telegraph cable, and a vessel under way, which is unable to get out of the way of an approaching vessel, through being not under command, or unable to maneuver as required by the rules, shall, instead of the signals prescribed in subdivisions (*a*) and (*c*) of this article, at intervals of not more than two minutes, sound three blasts in succession, namely: One prolonged blast followed by short blasts. A vessel towed may give this signal and she shall not give any other.

SMALL SAILING VESSELS AND BOATS.

Sailing vessels and boats of less than twenty tons gross tonnage shall not be obliged to give the above-mentioned signals, but, if they do not, they shall make some other efficient sound signal at intervals of not more than one minute.

SPEED IN FOG.

ART. 16. Every vessel shall, in a fog, mist, falling snow, or heavy rain-storms, go at a moderate speed, having careful regard to the existing circumstances and conditions.

A steam-vessel hearing, apparently forward of her beam, the fog-signal of a vessel, the position of which is not ascertained, shall, so far as the circumstances of the case admit, stop her engines, and then navigate with caution until danger of collision is over.

IV.—STEERING AND SAILING RULES.

PRELIMINARY.

Risk of collision can, when circumstances permit, be ascertained by carefully watching the compass bearing of an approaching vessel. If the bearing does not appreciably change, such risk should be deemed to exist.

SAILING VESSELS.

ART. 17. When two sailing-vessels are approaching one another, so as to involve risk of collision, one of them shall keep out of the way of the other, as follows, namely:

(*a*) A vessel which is running free shall keep out of the way of a vessel which is close-hauled.

(*b*) A vessel which is close-hauled on the port tack shall keep out of the way of a vessel which is close-hauled on the starboard tack.

(*c*) When both are running free, with the wind on different sides, the vessel which has the wind on the port side shall keep out of the way of the other.

(*d*) When both are running free, with the wind on the same side, the vessel which is to the windward shall keep out of the way of the vessel which is to the leeward.

(*e*) A vessel which has the wind aft shall keep out of the way of the other vessel.

STEAM VESSELS.

ART. 18. When two steam-vessels are meeting end on, or nearly end on, so as to involve risk of collision, each shall alter her course to starboard, so that each may pass on the port side of the other.

This article only applies to cases where vessels are meeting end on, or nearly end on, in such a manner as to involve risk of collision, and does not apply to two vessels which must, if both keep on their respective courses, pass clear of each other.

The only cases to which it does apply are when each of the two vessels is end on, or nearly end on, to the other; in other words, to cases in which, by day, each vessel sees the masts of the other in a line, or nearly in a line, with her own; and by night, to cases in which each vessel is in such a position as to see both the side-lights of the other.

It does not apply by day to cases in which a vessel sees another ahead crossing her own course; or by night, to cases where the red light of one vessel is opposed to the red light of the other, or where the green light of one vessel is opposed to the green light of the other, or where a red light without a green light, or a green light without a red light, is seen ahead, or where both green and red lights are seen anywhere but ahead.

TWO STEAM VESSELS CROSSING.

ART. 19. When two steam-vessels are crossing, so as to involve risk of collision, the vessel which has the other on her own starboard side shall keep out of the way of the other.

STEAM VESSEL SHALL KEEP OUT OF THE WAY OF SAILING VESSEL.

ART. 20. When a steam-vessel and a sailing vessel are proceeding in such directions as to involve risk of collision, the steam vessel shall keep out of the way of the sailing vessel.

COURSE AND SPEED.

ART. 21. Where, by any of these rules, one of two vessels is to keep out of the way, the other shall keep her course and speed.

NOTE.—When in consequence of thick weather or other causes, such vessel finds herself so close that collision can not be avoided by the action of the giving-way vessel alone, she also shall take such action as will best aid to avert collision. (See articles twenty-seven and twenty-nine.)

CROSSING AHEAD.

ART. 22. Every vessel which is directed by these rules to keep out of the way of another vessel shall, if the circumstances of the case admit, avoid crossing ahead of the other.

STEAM VESSEL SHALL SLACKEN SPEED OR STOP.

ART. 23. Every steam-vessel which is directed by these rules to keep out of the way of another vessel shall, on approaching her, if necessary, slacken her speed or stop or reverse.

OVERTAKING VESSELS.

ART. 24. Notwithstanding anything contained in these rules every vessel, overtaking any other, shall keep out of the way of the overtaken vessel.

Every vessel coming up with another vessel from any direction more than two points abaft her beam, that is, in such a position, with reference to the vessel which she is overtaking that at night she would be unable to see either of that vessel's side-lights, shall be deemed to be an overtaking vessel; and no subsequent alteration of the bearing between the two vessels shall make the overtaking vessel a crossing vessel within the meaning of these rules, or relieve her of the duty of keeping clear of the overtaken vessel until she is finally past and clear.

As by day the overtaking vessel can not always know with certainty whether she is forward of or abaft this direction from the other vessel, she should, if in doubt, assume that she is an overtaking vessel and keep out of the way.

NARROW CHANNELS.

ART. 25. In narrow channels every steam-vessel shall, when it is safe and practicable, keep to that side of the fair-way or mid-channel which lies on the starboard side of such vessel.

RIGHTS OF WAY OF FISHING VESSELS.

ART. 26. Sailing vessels under way shall keep out of the way of sailing vessels or boats fishing with nets, or lines, or trawls. This rule shall not give to any vessel or boat engaged in fishing the right of obstructing a fair-way used by vessels other than fishing vessels or boats.

GENERAL PRUDENTIAL RULE.

ART. 27. In obeying and construing these rules, due regard shall be had to all dangers of navigation and collision, and to any special circumstances which may render a departure from the above rules necessary in order to avoid immediate danger.

SOUND SIGNALS FOR PASSING STEAMERS.

ART. 28. The words "short blasts," used in this article, shall mean a blast of about one second's duration.

When vessels are in sight of one another, a steam-vessel under way, in taking any course authorized or required by these rules, shall indicate that course by the following signals on her whistle or siren, namely:

One short blast to mean, "I am directing my course to starboard."

Two short blasts to mean, "I am directing my course to port."

Three short blasts to mean, "My engines are going at full speed astern."

PRECAUTION.

ART. 29. Nothing in these rules shall exonerate any vessel, or the owner or master or crew thereof, from the consequences of any neglect to carry lights or signals, or of any neglect to keep a proper lookout, or of the neglect of any precaution which may be required by the ordinary practice of seamen, or by the special circumstances of the case.

ART. 30. [See p. 147.]

DISTRESS SIGNALS.

ART. 31. When a vessel is in distress and requires assistance from other vessels or from the shore, the following shall be the signals to be used or displayed by her, either together or separately, namely:

In the daytime—

First. A gun or other explosive signal fired at intervals of about a minute.

Second. The international code signal of distress indicated by N. C.

Third. The distance signal, consisting of a square flag, having either above or below it a ball or anything resembling a ball.

Fourth. A continuous sounding with any fog-signal apparatus.

At night—

First. A gun or other explosive signal fired at intervals of about a minute.

Second. Flames on the vessel (as from a burning tar barrel, oil barrel, and so forth).

Third. Rockets or shells throwing stars of any color or description, fired one at a time, at short intervals.

Fourth. A continuous sounding with any fog-signal apparatus.

INLAND RULES.

NOTE.—*The paragraphs indicated by a vertical line are identically the same as corresponding paragraphs in the International Rules.*

I.—ENACTING CLAUSE AND SCOPE.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the following regulations for preventing collision shall be followed by all vessels navigating all harbors, rivers, and inland waters of the United States, except the Great Lakes and their connecting and tributary waters as far east as Montreal, and the Red River of the North and rivers emptying into the Gulf of Mexico and their tributaries, and are hereby declared special rules duly made by local authority:

ART. 30. The exhibition of any light on board of a vessel of war of the United States or a revenue cutter may be suspended whenever, in the opinion of the Secretary of the Navy, the commander in chief of a squadron, or the commander of a vessel acting singly, the special character of the service may require it.

PRELIMINARY DEFINITIONS.

In the following rules every steam-vessel which is under sail and not under steam is to be considered a sailing-vessel, and every vessel under steam, whether under sail or not, is to be considered a steam-vessel.

The word "steam-vessel" shall include any vessel propelled by machinery.

A vessel is "under way," within the meaning of these rules, when she is not at anchor, or made fast to the shore, or aground.

II.—LIGHTS AND SO FORTH.

The word "visible" in these rules, when applied to lights, shall mean visible on a dark night with a clear atmosphere.

ART. 1. The rules concerning light shall be complied with in all weathers from sunset to sunrise, and during such time no other lights which may be mistaken for the prescribed lights shall be exhibited.

STEAM VESSELS—MASTHEAD LIGHT.

ART. 2. A steam-vessel when under way shall carry (*a*) on or in front of the foremast, or, if a vessel without a foremast, then in the fore part of the vessel, a bright white light so constructed as to show an unbroken light over an acre of the horizon of twenty points of

the compass, so fixed as to throw the light ten points on each side of the vessel, namely, from right ahead to two points abaft the beam on either side, and of such a character as to be visible at a distance of at least five miles.

STEAM VESSELS—SIDE LIGHTS.

(*b*) On the starboard side a green light so constructed as to show an unbroken light over an arc of the horizon of ten points of the compass, so fixed as to throw the light from right ahead to two points abaft the beam on the starboard side, and of such a character as to be visible at a distance of at least two miles.

(*c*) On the port side a red light so constructed as to show an unbroken light over an arc of the horizon of ten points of the compass, so fixed as to throw the light from right ahead to two points abaft the beam on the port side, and of such a character as to be visible at a distance of at least two miles.

(*d*) The said green and red side-lights shall be fitted with inboard screens projecting at least three feet forward from the light, so as to prevent these lights from being seen across the bow.

STEAM VESSELS—RANGE LIGHTS.

(*e*) A sea-going steam-vessel when under way may carry an additional white light similar in construction to the light mentioned in subdivision (*a*). These two lights shall be so placed in line with the keel that one shall be at least fifteen feet higher than the other, and in such a position with reference to each other that the lower light shall be forward of the upper one. The vertical distance between these lights shall be less than the horizontal distance.

(*f*) All steam-vessels (except sea-going vessels and ferry-boats) shall carry in addition to green and red lights required by article two (*b*), (*c*), and screens as required by article two (*d*), a central range of two white lights; the after-light being carried at an elevation at least fifteen feet above the light at the head of the vessel. The head-light shall be so constructed as to show an unbroken light through twenty points of the compass, namely, from right ahead to two points abaft the beam on either side of the vessel, and the after-light so as to show all around the horizon.

STEAM VESSELS WHEN TOWING.

ART. 3. A steam-vessel when towing another vessel shall, in addition to her side-lights, carry two bright white lights in a vertical line one over the other, not less than three feet apart, and when towing more than one vessel shall carry an additional bright white light three feet above or below such lights, if the length of the tow, measuring from the stern of the towing vessel to the stern of the last vessel towed, exceed six hundred feet. Each of these lights shall be of the same construction and character, and shall be carried in the same position as the white light mentioned in article two (*a*) or the after range light mentioned in article two (*f*).

Such steam-vessels may carry a small white light abaft the funnel or aftermast for the vessel towed to steer by, but such light shall not be visible forward of the beam.

LIGHTS FOR SAILING VESSELS AND VESSELS IN TOW.

ART. 5. A sailing-vessel under way or being towed shall carry the same lights as are prescribed by article two for a steam-vessel under way, with the exception of the white lights mentioned therein, which they shall never carry.

LIGHTS FOR SMALL VESSELS.

ART. 6. Whenever, as in the case of vessels of less than ten gross tons under way during bad weather, the green and red side-lights can not be fixed, these lights shall be kept at hand, lighted and ready for use; and shall, on the approach of or to other vessels, be exhibited on their respective sides in sufficient time to prevent collision, in such manner as to make them most visible, and so that the green light shall not be seen on the port side nor the red light on the starboard side, nor, if practicable, more than two points abaft the beam on their respective sides. To make the use of these portable lights more certain and easy, the lanterns containing them shall each be painted outside with the color of the light they respectively contain, and shall be provided with proper screens.

LIGHTS FOR ROWING BOATS.

ART. 7. Rowing boats, whether under oars or sail, shall have ready at hand a lantern showing a white light which shall be temporarily exhibited in sufficient time to prevent collision.

LIGHTS FOR PILOT VESSELS.

ART. 8. Pilot-vessels, when engaged on their station on pilotage duty, shall not show the lights required for other vessels, but shall carry a white light at the masthead, visible all around the horizon, and shall also exhibit a flare-up light or flare-up lights at short intervals which shall never exceed fifteen minutes.

On the near approach of or to other vessels they shall have their side-lights lighted, ready for use, and shall flash or show them at short intervals to indicate the direction in which they are heading, but the green light shall not be shown on the port side nor the red light on the starboard side.

A pilot-vessel of such a class as to be obliged to go alongside of a vessel to put a pilot on board may show the white light instead of carrying it at the masthead, and may, instead of the colored lights above mentioned, have at hand ready for use, a lantern with a green glass on the one side and a red glass on the other, to be used as prescribed above.

Pilot vessels, when not engaged on their station on pilotage duty, shall carry lights similar to those of other vessels of their tonnage.

A steam pilot vessel, when engaged on her station on pilotage duty and in waters of the United States, and not at anchor, shall, in addition to the lights required for all pilot boats, carry at a distance of eight feet below her white masthead light a red light, visible all around the horizon and of such a character as to be visible on a dark night with a clear atmosphere at a distance of at least two miles, and also the colored lights required to be carried by vessels when under way.

When engaged on her station on pilotage duty and in waters of the United States, and at anchor, she shall carry, in addition to the lights required for all pilot boats, the red light above mentioned, but not the colored side lights.

When not engaged on her station on pilotage duty, she shall carry the same lights as other steam-vessels.

LIGHTS, ETC., OF FISHING VESSELS.

ART. 9. (*a*) Fishing-vessels of less than ten gross tons, when under way and when not having their nets, trawls, dredges, or lines in the water, shall not be obliged to carry the colored side-lights; but every such vessel shall, in lieu thereof, have ready at hand a lantern with a green glass on one side and a red glass on the other side, and on approaching to or being approached by another vessel such lantern shall be exhibited in sufficient time to prevent collision, so that the green light shall not be seen on the port side nor the red light on the starboard side.

(*b*) All fishing-vessels and fishing-boats of ten gross tons or upward, when under way and when not having their nets, trawls, dredges, or lines in the water, shall carry and show the same lights as other vessels under way.

(*c*) All vessels, when trawling, dredging, or fishing with any kind of drag-nets or lines, shall exhibit, from some part of the vessel where they can be best seen, two lights. One of these lights shall be red and the other shall be white. The red light shall be above the white light, and shall be at a vertical distance from it of not less than six feet and not more than twelve feet; and the horizontal distance between them, if any, shall not be more than ten feet. These two lights shall be of such a character and contained in lanterns of such construction as to be visible all around the horizon, the white light a distance of not less than three miles and the red light of not less than two miles.

LIGHTS FOR RAFTS OR OTHER WATER CRAFT.

(*d*) Rafts, or other water craft not herein provided for, navigating by hand power, horse power, or by the current of the river, shall carry one or more good white lights, which shall be placed in such manner as shall be prescribed by the Board of Supervising Inspectors of Steam Vessels.*

LIGHTS FOR AN OVERTAKEN VESSEL.

ART. 10. A vessel which is being overtaken by another, except a steam-vessel with an after range-light showing all around the horizon, shall show from her stern to such last-mentioned vessel a white light or a flare-up light.

---

* *Resolved*, That all coal boats, trading-boats, produce boats, canal boats, oyster boats, fishing boats, and other water craft navigating any bay, harbor, or river, propelled by hand power, horse power, sail, or by the current of the river, or which shall be moored in or near the channel or fairway of any bay, harbor, or river, shall carry one bright white light forward, not less than 6 feet above the rail or deck.

Rafts of one crib and not more than two in length shall carry one bright white light on a pole not less than twelve feet high; three or more cribs in length, shall carry one white light at each end of the raft at the same height. Boom rafts with cross binders towed ahead of steamers on the Mississippi and Ohio rivers, and other waters flowing into the Gulf of Mexico, and on the Red River of the North, shall carry a white light *twelve feet high* at the forward end of the raft, and one such light at each side midway between the forward and after end.

Rafts of more than one crib abreast shall carry one white light on each outside corner of the raft, making four lights in all. Bag or boom rafts navigating or anchored in the fairway of any bay, harbor, or river shall carry a white light at least twelve feet high at each end of the raft, and one of such lights on each side midway between the forward and after end.

Rowboats shall carry one white light two feet above the stern.

JAS. A. DUMONT,
Supervising Inspector General,
President Board of Supervising Inspectors.

Approved, February 16, 1891.

A. B. NETTLETON,
Acting Secretary.

ANCHOR LIGHTS.

ART. 11. A vessel under one hundred and fifty feet in length when at anchor shall carry forward, where it can best be seen, but at a height not exceeding twenty feet above the hull, a white light, in a lantern so constructed as to show a clear, uniform, and unbroken light visible all around the horizon at a distance of at least one mile.

A vessel of one hundred and fifty feet or upward in length when at anchor shall carry in the forward part of the vessel, at a height of not less than twenty and not exceeding forty feet above the hull, one such light; and at or near the stern of the vessel, and at such a height that it shall be not less than fifteen feet lower than the forward light, another such light.

The length of a vessel shall be deemed to be the length appearing in her certificate of registry.

SPECIAL SIGNALS.

ART. 12. Every vessel may, if necessary, in order to attract attention, in addition to the lights which she is by these rules required to carry, show a flare-up light or use any detonating signal that can not be mistaken for a distress signal.

NAVAL LIGHTS AND RECOGNITION SIGNALS.

ART. 13. Nothing in these rules shall interfere with the operation of any special rules made by the Government of any nation with respect to additional station and signal lights for two or more ships of war or for vessels sailing under convoy, or with the exhibition of recognition signals adopted by shipowners, which have been authorized by their respective Governments, and duly authorized and published.

STEAM VESSELS UNDER SAIL BY DAY.

ART. 14. A steam vessel proceeding under sail only, but having her funnel up, may carry in daytime, forward, where it can best be seen, one black ball or shape two feet in diameter.

III.—SOUND SIGNALS IN FOG, ETC.

PRELIMINARY.

ART. 15. All signals prescribed by this article for vessels under way shall be given:

1. By "steam-vessels" on the whistle or siren.
2. By "sailing-vessels" and "vessels towed" on the fog horn.

The words "prolonged blast" used in this article shall mean a blast of from four to six seconds' duration.

A steam-vessel shall be provided with an efficient whistle or siren, sounded by steam or by some substitute for steam, so placed that the sound may not be intercepted by any obstruction, and with an efficient fog horn; also with an efficient bell. A sailing-vessel of twenty tons gross tonnage or upward shall be provided with a similar fog horn and bell.

In fog, mist, falling snow, or heavy rain-storms, whether by day or night, the signals described in this article shall be used as follows, namely:

STEAM VESSEL UNDER WAY.

(*a*) A steam-vessel under way shall sound, at intervals of not more than one minute, a prolonged blast.

SAIL VESSEL UNDER WAY.

(*c*) A sailing-vessel under way shall sound, at intervals of not more than one minute, when on the starboard tack, one blast; when on the port tack, two blasts in succession, and when with the wind abaft the beam, three blasts in succession.

VESSELS AT ANCHOR OR NOT UNDER WAY.

(*d*) A vessel when at anchor shall, at intervals of not more than one minute, ring the bell rapidly for about five seconds.

VESSELS TOWING, ETC.

(*e*) A steam-vessel when towing, shall, instead of the signals prescribed in subdivision (*a*) of this article, at intervals of not more than one minute, sound three blasts in succession, namely, one prolonged blast followed by two short blasts. A vessel towed may give this signal and she shall not give any other.

RAFTS OR OTHER WATER CRAFT.

(*f*) All rafts or other water craft, not herein provided for, navigating by hand power, horse power, or by the current of the river, shall sound a blast of the fog horn, or equivalent signal, at intervals of not more than one minute.

SPEED IN FOG.

ART. 16. Every vessel shall, in a fog, mist, falling snow, or heavy rain-storms, go at a moderate speed, having careful regard to the existing circumstances and conditions.

A steam-vessel hearing, apparently forward of her beam, the fog-signal of a vessel, the position of which is not ascertained, shall, so far as the circumstances of the case admit, stop her engines, and then navigate with caution until danger of collision is over.

IV.—STEERING AND SAILING RULES.

PRELIMINARY.

Risk of collision can, when circumstances permit, be ascertained by carefully watching the compass bearing of an approaching vessel. If the bearing does not appreciably change, such risk should be deemed to exist.

SAILING VESSELS.

ART. 17. When two sailing vessels are approaching one another, so as to involve risk of collision, one of them shall keep out of the way of the other as follows, namely:

(*a*) A vessel which is running free shall keep out of the way of a vessel which is close-hauled.

(*b*) A vessel which is close-hauled on the port tack shall keep out of the way of a vessel which is close-hauled on the starboard tack.

(*c*) When both are running free, with the wind on different sides, the vessel which has the wind on the port side shall keep out of the way of the other.

(*d*) When both are running free, with the wind on the same side, the vessel which is to the windward shall keep out of the way of the vessel which is to the leeward.

(*e*) A vessel which has the wind aft shall keep out of the way of the other vessel.

STEAM VESSELS.

ART. 18. RULE I. When steam-vessels are approaching each other head and head, that is, end on, or nearly so, it shall be the duty of each to pass on the port side of the other; and either vessel shall give, as a signal of her intention, one short and distinct blast of her whistle, which the other vessel shall answer promptly by a similar blast of her whistle, and thereupon such vessels shall pass on the port side of each other. But if the courses of such vessels are so far on the starboard of each other as not to be considered as meeting head and head, either vessel shall immediately give two short and distinct blasts of her whistle, which the other vessel shall answer promptly by two similar blasts of her whistle, and they shall pass on the starboard side of each other.

The foregoing only applies to cases where vessels are meeting end on, or nearly end on, in such a manner as to involve risk of collision; in other words, to cases in which, by day, each vessel sees the masts of the other in a line, or nearly in a line, with her own, and by night to cases in which each vessel is in such a position as to see both the side-lights of the other.

It does not apply by day to cases in which a vessel sees another ahead crossing her own course, or by night to cases where the red light of one vessel is opposed to the red light of the other, or where the green light of one vessel is opposed to the green light of the other, or where a red light without a green light or a green light without a red light is seen ahead, or where both green and red lights are seen anywhere but ahead.

RULE III. If, when steam-vessels are approaching each other, either vessel fails to understand the course or intention of the other, from any cause, the vessel so in doubt shall immediately signify the same by giving several short and rapid blasts, not less than four, of the steam-whistle.

RULE V. Whenever a steam-vessel is nearing a short bend or curve in the channel, where, from the height of the banks or other cause, a steam-vessel approaching from the opposite direction can not be seen for a distance of half a mile, such steam-vessel, when she shall have arrived within half a mile of such curve or bend, shall give a signal by one long blast of the steam-whistle, which signal shall be answered by a similar blast, given by any approaching steam-vessel that may be within hearing. Should such signal be so answered by a steam-vessel upon the farther side of such bend, then the usual signals for meeting

and passing shall immediately be given and answered; but, if the first alarm signal of such vessel be not answered, she is to consider the channel clear and govern herself accordingly.

When steam-vessels are moved from their docks or berths, and other boats are liable to pass from any direction toward them, they shall give the same signal as in the case of vessels meeting at a bend, but immediately after clearing the berths so as to be fully in sight they shall be governed by the steering and sailing rules.

RULE VIII. When steam-vessels are running in the same direction, and the vessel which is astern shall desire to pass on the right or starboard hand of the vessel ahead, she shall give one short blast of the steam-whistle, as a signal of such desire, and if the vessel ahead answers with one blast, she shall put her helm to port; or if she shall desire to pass on the left or port side of the vessel ahead, she shall give two short blasts of the steam-whistle as a signal of such desire, and if the vessel ahead answers with two blasts, shall put her helm to starboard; or if the vessel ahead does not think it safe for the vessel astern to attempt to pass at that point, she shall immediately signify the same by giving several short and rapid blasts of the steam whistle, not less than four, and under no circumstances shall the vessel astern attempt to pass the vessel ahead until such time as they have reached a point where it can be safely done, when said vessel ahead shall signify her willingness by blowing the proper signals. The vessel ahead shall in no case attempt to cross the bow or crowd upon the course of the passing vessel.

RULE IX. The whistle signals provided in the rules under this article for steam-vessels meeting, passing, or overtaking, are never to be used except when steamers are in sight of each other, and the course and position of each can be determined in the daytime by a sight of the vessel itself, or by night by seeing its signal lights. In fog, mist, falling snow, or heavy rain-storms, when vessels can not so see each other, fog-signals only must be given.

TWO STEAM VESSELS CROSSING.

ART. 19. When two steam-vessels are crossing, so as to involve risk of collision, the vessel which has the other on her own starboard side shall keep out of the way of the other.

STEAM VESSEL SHALL KEEP OUT OF THE WAY OF SAILING VESSELS.

ART. 20. When a steam-vessel and a sailing-vessel are proceeding in such directions as to involve risk of collision, the steam-vessel shall keep out of the way of the sailing-vessel.

COURSE AND SPEED.

ART. 21. Where, by any of these rules, one of the two vessels is to keep out of the way, the other shall keep her course and speed.

CROSSING AHEAD.

ART. 22. Every vessel which is directed by these rules to keep out of the way of another vessel shall, if the circumstances of the case admit, avoid crossing ahead of the other.

STEAM VESSEL SHALL SLACKEN SPEED OR STOP.

ART. 23. Every steam-vessel which is directed by these rules to keep out of the way of another vessel shall, on approaching her, if necessary, slacken her speed or stop or reverse.

OVERTAKING VESSELS.

ART. 24. Notwithstanding anything contained in these rules, every vessel overtaking any other shall keep out of the way of the overtaken vessel.

Every vessel coming up with another vessel from any direction more than two points abaft her beam, that is, in such a position with reference to the vessel which she is overtaking that at night she would be unable to see either of that vessel's side-lights, shall be deemed to be an overtaking vessel; and no subsequent alteration of the bearing between the two vessels shall make the overtaking vessel a crossing vessel within the meaning of these rules, or relieve her of the duty of keeping clear of the overtaken vessel until she is finally past and clear.

As by day the overtaking vessel can not always know with certainty whether she is forward of or abaft this direction from the other vessel she should, if in doubt, assume that she is an overtaking vessel and keep out of the way.

NARROW CHANNELS.

ART. 25. In narrow channels every steam-vessel shall, when it is safe and practicable, keep to that side of the fair-way or mid-chanel which lies on the starboard side of such vessel.

RIGHTS OF WAY OF FISHING VESSELS.

ART. 26. Sailing-vessels under way shall keep out of the way of sailing-vessels or boats fishing with nets, or lines, or trawls. This rule shall not give to any vessel or boat engaged in fishing the right of obstructing a fair-way used by vessels other than fishing-vessels or boats.

GENERAL PRUDENTIAL RULE.

ART. 27. In obeying and construing these rules, due regard shall be had to all dangers of navigation and collision, and to any special circumstances which may render a departure from the above rules necessary in order to avoid immediate danger.

SOUND SIGNALS FOR VESSELS IN SIGHT OF ONE ANOTHER.

ART. 28. When vessels are in sight of one another a steam-vessel under way whose engines are going at full speed astern shall indicate that fact by three short blasts on the whistle.

PRECAUTION.

ART. 29. Nothing in these rules shall exonerate any vessel, or the owner or master or crew thereof, from the consequences of any neglect to carry lights or signals, or of any neglect to keep a proper lookout, or of the neglect of any precaution which may be required by the ordinary practice of seamen, or by the special circumstances of the case.

ART. 30. [See page 154.]

DISTRESS SIGNALS.

ART. 31. When a vessel is in distress and requires assistance from other vessels or from the shore, the following shall be the signals to be used or displayed by her, either together or separately, namely:

In the daytime—

A continuous sounding with any fog-signal apparatus, or firing a gun.

At night—

First. Flames on the vessel, as from a burning tar barrel, oil barrel, and so forth.

Second. A continuous sounding with any fog-signal apparatus, or firing a gun.

ADDITIONAL RULES.

SEC. 2. That the supervising inspectors of steam-vessels and the Supervising Inspector-General shall establish such rules to be observed by steam-vessels in passing each other and as to the lights to be carried by ferry-boats and by barges and canal-boats when in tow of steam-vessels, not inconsistent with the provisions of this Act, as they from time to time may deem necessary for safety, which rules when approved by the Secretary of the Treasury, are hereby declared special rules duly made by local authority, as provided for in article thirty of chapter eight hundred and two of the laws of eighteen hundred and ninety. Two printed copies of such rules shall be furnished to such ferry-boats and steam-vessels, which rules shall be kept posted up in conspicuous places in such vessels.

PENALTY.

SEC. 3. That every pilot, engineer, mate, or master of any steam-vessel, and every master or mate of any barge or canal-boat, who neglects or refuses to observe the provisions of this Act, or the regulations established in pursuance of the preceding section, shall be liable to a penalty of fifty dollars, and for all damages sustained by any passenger in his person or baggage by such neglect or refusal: *Provided*, That nothing herein shall relieve any vessel, owner, or corporation from any liability incurred by reason of such neglect or refusal.

SEC. 4. That every vessel that shall be navigated without complying with the provisions of this Act shall be liable to a penalty of two hundred dollars, one-half to go to the informer, for which sum the vessel so navigated shall be liable, and may be seized and proceeded against by action in any district court of the United States having jurisdiction of the offense.

INDEX.

A.

Page.

Accaceek Point 65
Accotink Bay 70, 77
Addenda ..... faces page 11
Agencies for sale of Coast and Geodetic Survey Charts, etc 7–8
Albemarle and Chesapeake Canal 42
Alexandria, City of 70
Allmonds Wharf 59
Anacostia River 71
Anchorages, Principal 13
Annapolis, City of 85
Annapolis Roads 85
Antepoison Creek 66, 67
Appomattox River 47
Aquia Creek 70
Arrangement, General outline of 9
Arundel on the Bay 85
Assateague Lighthouse 16
Aylett 55

B.

Back Creek, Choptank River 110
Back Creek, Elk River 120
Back River, above Hampton Roads 53–54
Back River, above Patapsco River 119
Back River Lighthouse 18, 53
Bailey Creek Flats 53
Balls Creek 66
Baltimore, City of 89
Baltimore Harbor 88–95
Baltimore Harbor:
  Anchorage Grounds, Limits of 90, 133–134
  Harbor Regulations 132–134
  Pilot Laws 131–132
  Quarantine Anchorage 90, 94
  Quarantine Grounds 90
  Quarantine Regulations 134
  Wharves 132–134
Barrel Point 46
Barrett Point 51
Basin, The 89
Battle Creek 81
Bay Ridge 85, 86
Bear Creek 89
Bear Point 123
Bearings and distances from:
  Cape Charles Light-vessel 28
  Cape Henry Lighthouse 28
  Cove Point Lighthouse 28
  Pooles Island Lighthouse 29
  Sandy Point Lighthouse 29
  Smith Point Lighthouse 28
  Thomas Point Shoal Lighthouse 28
  Wolf Trap Lighthouse 28
Beckwiths Creek 109
Bells Rock Lighthouse 20, 59
Belmont Bay 70
Belvidere Shoal 93
Benedict, Town of 81
Bennet Creek 55
Bennys Flats 79
Benoni Point 112
Berkley, Town of 43
Bermuda Hundred, Village of 47
Betterton, Village of 120
Big Annemessex River 101–102
Binns Bar 47
Bishop Head 107
Black Water River, Fishing Bay 103
Blackwater River, Mobjack Bay 60
Black Walnut Cove 110
Black Walnut Point 110
Blakistons Island Lighthouse 20, 74
Bloody Point Bar Lighthouse 22, 36, 115
Bluff Point 75
Bodie Island Lighthouse 16
Bodkin Creek 88
Bodkin Island 114
Bodkin Point 90
Boggs Wharf 97
Bohemia River 120
Bowlers Rock Lighthouse 20, 64, 65
Branch Hydrographic Office:
  Baltimore 90
  Norfolk 44
Brandon Point 52
Brent Shoal 78
Bretons Bay 69
Brewerton Channel 90
Brewerton Channel Range Lights 24, 90
Bristol, Village of 81
Broad Creek, Choptank River 110
Broad Creek, Nanticoke River 103
Broad Creek, Potomac River 70, 78
Broad Creek Flats 79
Brooks Creek 109
Broome Island 83
Brown Shoal 49, 51
Bryants Point 78
Buckland Bar 55
Buckler Point 53
Buckler Point Shoal 53
Bundick 69
Buoyage, System adopted in U. S. waters 5
Burwells Bay 50
Burwells Bay Range Post Lights 18, 49
Bush River 119
Bush Bluff Light-vessel 16, 44
Bushwood Landing 69
Butlers Bluff 95

C.

Cabin Creek 111
Cambridge Range Lights 22
Cambridge, Town of 110
Cape Charles 11
Cape Charles City 96
Cape Charles City Harbor Lights 20
Cape Charles City Range Lights 20
Cape Charles Lighthouse 11, 16
Cape Charles Light-vessel 16
Cape Hatteras Lighthouse 16
Cape Henry 11
Cape Henry Lighthouse 11, 16
Carters Creek 63
Carthagena Creek 79
Castlehaven 113
Cedar Point, Chester River 118
Cedar Point, Patuxent River 81
Cedar Point Flats 61
Cedar Point Lighthouse 22, 35, 81
Centreville Landing 116
Centreville, Town of 116
Chancellors Point 80
Channels:
  Annapolis Harbor 85
  Baltimore Harbor 89–90
  Chesapeake Bay 13
  Chester River 116
  Elizabeth River 43
  Great Wicomico River 67
  Hampton Roads 38
  James River 48
  Patapsco River 89–90
  Patuxent River 81
  Potomac River 71

19502——21

Channels—Continued.	Page.
Rappahannock River	64
York River	56
See also General Description.	
Chapmans Point	78
Chaptico Bay	69
Chaptico Creek	69
Charlestown, Town of	121
Chart of Chesapeake Bay	faces page 11
Cherrystone Inlet	95–96
Cherrystone Lighthouse	20, 95, 96
Cherrystone Wharf	96
Chesapeake and Delaware Canal	120
Chesapeake Bay above the Patapsco River	119–123
Chesapeake City, Town of	120
Chesconessex Creek	98, 100
Cheseman Creek	55
Chester River	116–118
Chestertown, Town of	117
Chickahominy River	47
Chicomuxen Creek	70
Chicomuxen Creek Shoal	77
Chink Point Shoal	87
Chippoak Creek	47
Chlora Point	113
Chopawamsic Creek	70
Choptank River	110–113
Choptank River Lighthouse	22, 110
Church Creek, Little Choptank River	109
Church Point	51
Churn Creek, Still Pond	120
City Point	53
City Point, Town of	47
Claiborne, Village of	114
Claremont Landing	51
Claremont, Village of	47, 51
Claremont Wharf	51
Claybank, Village of	59
Clifton Beach, *see* Smith Point.	
Clifton Point Flats	77
Coan Landing	69
Coan River	69
Coan River North Shoal	73
Coan River South Shoal	73
Cobb Point	75
Cobb Point Bar	76
Cobb Point Bar Lighthouse	20, 69, 74
Cobham Bay	46, 50
Cobham Creek	46
Cockpit Point	77
Cockrell Creek	67
Cod Harbor	104
College Creek	46
Colonial Beach	74
Cook Point	111, 112
Cornfield Harbor	68
Corrotoman River	63
Corsica Creek	116
Courthouse Creek	47
Cove Point	81
Cove Point Lighthouse	22, 35, 81
Cowart	67
Coxes Creek	114
Crab Alley Creek	114
Craddock Creek	97
Craighill Channel	89
Craighill Channel Range Lights	24
Craney Island, Potomac River	77
Craney Island Flats, Elizabeth River	41, 44
Craney Island Flats, Potomac River	78
Craney Island Lighthouse	16, 43
Crisfield, Town of	101
Crotchers Ferry, Village of	103
Crump Bank	40
Crumpton, Town of	117
Cubbetts Creek	73
Cuckold Creek	81, 83
Curles Creek	47
Currents:	
Back River	53
Chesapeake Bay, Table of	27
Hampton Roads	39
James River	48
Nansemond River	45
Patapsco River Entrance	93

Currents—Continued.	Page.
Piankatank River	63
Potomac River	72
Rappahannock River	64
Tangier Sound	101
Wicomico River, Tangier Sound	102
York River	56
Currioman Bay	69
Currioman Landing	69
Currituck Beach Lighthouse	16
Curtis Creek	89
Curtis Point	84
Cutoff Channel	89
Cutoff Channel Range Lights	24, 92

D.

Dade Shoal	76
Dammeron Marsh	67
Dancing Point Flats	51
Day Point	46, 49
Day Point Shoal	49
Deal Island	102
Deep Creek, Magothy River	88
Deep Creek, Pocomoke Sound	98
Deep Water Shoals	50
Deep Water Shoals Lighthouse	18, 50
Denton, Town of	110
Diamond Shoal Light-vessel	16
Dimer Creek	66, 67
Dismal Swamp Canal, *see* Lake Drummond.	
Dividing Creek, Chesapeake Bay	66, 67
Dividing Creek, Choptank River	111
Dogue Creek	70
Douglass Point	77
Douglass Point Shoal	77
Drum Island Flats	55
Drumming Ground	113
Drum Point Lighthouse	22, 81
Dutch Gap Canal	47
Dutchman Bluff Flats	61

E.

East Branch, Corrotomon River	63
East Newmarket, Town of	111
East Newmarket Wharf	111
East River, Mobjack Bay	59
East River Point	61
Eastern Bay	113–116
Eastern Branch	42
East Neck Island	118
Eastern Shore, Chesapeake Bay	12
Eastern Shore from Cape Charles to Pocomoke Sound	95–98
Easton, Town of	110
Edge Creek	110
Edgewater	69
Elizabeth River	42–45
Elizabeth River, Branches	42
Elk River	120
Elkton, Town of	120
Eppes Island Flats	53
Eppes Island Shoal	53

F.

Fairhaven, Post Office of	83
Fairlee Creek	119
Fairmount, Village of	101, 102
Fairport, Village of	67
Federal Hill	90
Fredericksburg, Town of	103
Fells Point	89
Fisherman Inlet	95
Fisherman Island	11, 95
Fishing Battery Lighthouse	24, 123
Fishing Bay	103
Fishing Creek	108
Fishing Point	103
Fishing Point Shoal	95
Fleet Bay, *see* Little Bay.	
Fleet Point	67
Flowerdew Hundred Creek	52
Flowerdew Hundred Middle Ground	53
Fog Signals, Table of	16–25
Fort Carroll	90
Fort Carroll Lighthouse	24, 90
Fort Foote	78

	Page.
Fort McHenry	89, 90
Fort McHenry Channel	90
Fort McHenry Shoal	95
Fort Monroe	38
Fort Norfolk	43
Fort Norfolk Flats	44
Fort Point	80
Fort Powhatan	52
Fort Washington Lighthouse	22, 78
Fort Wool	38, 40
Fourmile Creek	47
Fox Creek	108
Fox Hill, Village of	53
Fredericksburg, City of	64
Freeport, Village of	62
Freestone Point	77
Freshets:	
James River	48
Pocomoke River	99
Potomac River	71
Rappahannock River	64
York River	56
G.	
Galestown, Village of	103
Galloway, Post Village of	84
General Description of:	
Back River	53
Baltimore Harbor	88–91
Chesapeake Bay and Tributaries	13–24
Chesapeake Bay and Tributaries above Patapsco River	119–121
Chester River and Tributaries	116–117
Choptank River and Tributaries	110–111
Eastern Bay and Tributaries	113–114
Eastern Shore from Cape Charles to Pocomoke Sound	95–98
Elizabeth River and Branches	42–44
Great Wicomico River and Tributaries	67
Hampton Roads and Newport News	38–39
Herring Bay	83
Honga River	108
Hooper Strait	106–107
James River and Tributaries	46–48
Kedge Strait	105
Little Choptank River and Tributaries	109
Magothy River	87–88
Mobjack Bay and Tributaries	59–60
Nansemond River	45
Patapsco River and Tributaries	88–91
Patuxent River and Tributaries	81–82
Piankatank River	62
Pocomoke Sound and Tributaries	98–99
Poquosin River	54
Potomac River and Tributaries	68–72
Rappahannock River and Tributaries	63–64
Severn River and Annapolis Harbor	85–86
Shore from Rappahannock River Entrance to Great Wicomico River Entrance	66
South River	84
St. Mary River	79
Tangier Sound and Tributaries	100–103
West River	84
York River and Tributaries	55–56
General Directions, *see* Sailing Directions.	
General Remarks and Directions, approaching Chesapeake Bay Entrance	29–30
Georgetown, *see* Washington.	
Georgetown, Town of	120
Glebe, The	69
Gloucester Point	58
Gloucester Point Wharf Post Light	18, 58
Glover Bluff Shoal	49
Glymont	77
Goose Hill Channel Range Post Lights	18, 50
Goose Hill Flats or Middle Ground	51
Grace Creek	110
Graveyard Creek	85
Gray Creek	46
Grays Inn Creek	116
Grays Point	64
Great Fox Island	101, 104
Great Shoals Lighthouse	22, 102
Great Wicomico River	67–68
Great Wicomico River Lighthouse	20, 67
Greenbury Neck	86
Greenbury Point	85
Greenbury Point Shoal Lighthouse	22, 85, 86
Greenbury Point Shoal	86, 87
Greensboro, Town of	110
Greenwood Creek	114
Guilford Creek	99
Gunpowder River	119
Gunston Cove	70
H.	
Hackett Point	86
Hackett Point Shoal	37, 87
Hallowing Point	77
Hallowing Point Shoal	78
Hambrook Bar	113
Hampton Bar	40
Hampton Creek	38
Hampton Roads and Newport News	38–42
Hampton, Town of	38
Hanovertown	55
Harbor Regulations:	
Baltimore	132–134
Norfolk	128–129
Hardin Bluff Shoal	50
Harris Creek, Back River	53
Harris Creek, Choptank River	110
Harrison Bar	53
Harrison Bar Range Post Lights	18, 52
Harrison Point Flats	53
Havre de Grace Lighthouse	24, 123
Havre de Grace, Town of	121
Hawk Cove	119
Hawkins Point	90
Hawkins Point Lighthouse	24
Helens Creek	83
Heron Island	74
Heron Island Shoal	74
Herring Bay	83–84
Herring Creek	47
Hicks Wharf	59
High Point	70
High Point Flats	78
Hills Bay	62
Hillsboro, Village of	111
Hocks Creek	73
Hog Island Flats	50
Hog Island Lighthouse	16
Hog Island Point Shoal	51
Hog Island Shoal	82
Hog Island Swash Channel	50
Hog Point	50
Holland Island	106
Holland Point, Chesapeake Bay	83
Holland Point, Big Annemessex River	101
Holland Point Shoal	37
Holland Island Bar Lighthouse	22, 105, 106
Homewood Post Light	18, 50
Honga River	108
Hooper Island	36, 108
Hooper Island Lighthouse	Addenda, 22, 108
Hooper Strait	106–108
Hooper Strait Lighthouse	22, 107
Horn Point, Annapolis Harbor	87
Horn Point, Choptank River	113
Horn Point Shoal	87
Horseshoe Bend	80
Horseshoe Point Shoal	37
Horseshoe, The	40
Hotel Chamberlin	38, 39
Howell Point, Chesapeake Bay	123
Howell Point, Choptank River	113
Hudson Creek	109
Hulls Creek	73
Humphreys Creek	89
Hungers Creek	96
Hunting Creek, Pocomoke Sound	99
Hunting Creek Flats, Potomac River	79
Hunt Point	55
Hygeia Hotel	38
I.	
Ice:	
Annapolis Harbor	86
Baltimore Harbor	91
Big Annemessex River	102

Ice—Continued.	Page.
Chesapeake Bay	14
Elizabeth River	44
Great Wicomico River	67
James River	48
Kedge Strait	105
Patapsco River	91
Patuxent River	82
Potomac River	72
Rappahannock River	64
St. Mary River	79
York River	56
Index Map	faces page 8
Indian Creek	66, 67
Indian Head	77
Ingrams Bay	67
Ingrams Cove	66
Inland Rules of the Road	154–160
Inland Rules of the Road, limits of their application	13
International Rules of the Road	147–154
Inner Middle Ground	33
Irvington, Post village of	63
Isaacs, The	11
Island Creek, Patuxent River	81
Island Creek, Choptank River	112

J.

Jackson Creek	116, 118
Jacobsville, Village of	89
James Point	37, 109, 111
James River	46–53
Jamestown Island	50
Jamestown Wharf	51
Janes Island Lighthouse	20, 101, 104
Jenifer Flats	76
Jenkins Creek	113
Jones Creek, James River	46
Jones Creek, Patapsco River	88
Jones Point, Rappahannock River	65
Jones Point Lighthouse	22, 78
Jordan Point Lighthouse	18, 53

K.

Kedge Strait	105–106
Kedge Strait Middle Ground	35
Kennon Flats	52
Kennon Marsh	52
Kent Island Narrows	114, 116
Kent Point	37, 113
Kettle Bottom Shoals	75
Kings Creek	96
Kingscote Creek	69
Kinsale, Village of	69
Kittewan Creek	47
Kitts Point	80
Kitts Point Beacon Light	20

L.

Lake Drummond Canal	42
Lambert Point Fog Signal	16, 43
Langford Creek	116
Latimer Shoal	33
La Trappe River, *see* Dividing River.	
Laurel, Town of	103
Lawn Creek	46
Lawn Creek Flats	50
Lazaretto Point	89, 90
Lazaretto Point Lighthouse	24, 90
Leadenham Creek	110
Leading Point Lighthouse	24, 94
Lecomptes Bay	113
Leeds Creek	114
Leonardtown	69
Lewisetta Landing	69
Life-Saving Stations, Table of	26
Lighthouse District, Fifth	16
Lighthouses and Fog Signals, Table of	16–25
Little Annemessex River	101
Little Bay	66, 67
Little Choptank River	109
Little Cove Point	82
Little Cove Point Shoal	82
Little Fox Island	101
Little Hunting Creek	78
Little Island	102
Little Wicomico River	68
Liverpool Point	77
Locust Point, Baltimore Harbor	90
Locust Point, Chesapeake Bay, Head of	123
Love Point Lighthouse	22, 117
Love Point Shoal	117
Lovett Point	44
Lower Cedar Point Beacon Light	22, 74, 75
Lower Cedar Point Lighthouse	22, 75
Lower Cedar Point Shoal	75
Lower Cut, York River	56, 58
Lower Machodoc River	69
Lower Marlborough, Town of	81
Lower Middle Ground, The	31
Lower Point Shoal	51
Lower Thirteen-Foot Lump	92
Lower Thoroughfare	102
Lynch Point Shoal	73

M.

Macum Creek	118
Magothy River	87–88
Main Channel	50
Mallows Creek	77
Manchester, Town of	47
Manokin River	102
Map, Index	faces page 8
Marbury Point	78
Marine-Hospital Service	14
Marine-Hospital Service Regulations	Appendix III
Marine Railways, *see* "Repairs," under General Descriptions.	
Marion, Village of	101
Marshall Point, or Marshall Hall	77
Maryland Point	75
Maryland Point Lighthouse	22, 76
Maryland Point Shoal	76
Mathews Court House, Village of	59
Mathias Point	76
Mathias Point Shoal	76
Mathias Point Shoal Lighthouse	22, 76
Mattaponi River	55
Mattawoman Creek, Chesapeake Bay	96
Mattawoman Creek, Potomac River	70
Mattox Creek	70
Mayo, Post village of	84
Messongo Creek	99
Messongo, Post village of	99
Metomkin Point	76
Metomkin Point Middle Ground	76
Mid-channel Lump	76
Middle Branch, Patapsco River	89
Middle Ground, The	31, 32
Middle River	119
Miles River	114
Milford Haven	62
Mill Creek, Branch of Cuckold Creek	81
Mill Creek, Great Wicomico River	67
Mill Creek, Patuxent River	81
Millenbeck, Village of	63
Millers Island	119
Minzie Middle Ground	52
Mitchells Bluff	121
Mobjack Bay	59–62
Monie Bay	102
Mosquito Point	64, 65
Mother Hawkins Hole	40
Mountain Point	87
Mount Vernon	78
Mount Vernon Flats	78
Muddy Creek	118

N.

Nandua Creek	97
Nandua, Village of	97
Nanjemoy Creek	70
Nansemond River	45–46
Nansemond River Lighthouse	16, 38, 45
Nanticoke River	103
Naseway Shoal	42, 49
Naswaddox Creek	96
National Quarantine, Government of	Appendix III
National Quarantine Station	11, 14, 95

	Page.
Naval Hospital Light	16, 43
Neabsco Creek	70
Nelsons Point	110
New Point Comfort	60
New Point Comfort Lighthouse	20, 60
New Point Comfort Shoal	61
New Point Comfort Spit	61
New Point (Middle Ground) Shoal	34, 60
Newport News, City of	38
Newport News Bar	41
Newport News Middle Ground	41
Newport News Middle Ground Lighthouse	16, 38, 41
Nine-Foot Knoll	93
Nine-Foot Shoal	33
Nomini Bay	69
Nomini Creek	69
Nomini Landing	69
Norfolk, City of	42
Norfolk Harbor, *see* Elizabeth River.	
Norfolk Harbor and Elizabeth River:	
Anchorage Grounds	43
Harbor Commissioners	127
Harbor Masters	127
Harbor Regulations	128–129
Pilot Laws	125–127
Quarantine Laws	130
North Channel	13, 31
North Flats	53
North Point	90
North Point Creek	88
North Point Shoal	94
North River, Mobjack Bay	60
Northeast River	120–121
Northeast, Town of	121
Northendean (North End) Point	53
Northwest Branch, Back River	53
Northwest Branch, Severn River	60
Northwest Yeocomico River	69
Nottingham, Town of	81

O.

Ocean View	40
Occohannock Creek	97
Occoquan Creek	70
Occoquan, Town of	70
Old Field Point Post Light	24, 122
Old Plantation Creek	95
Old Plantation Flats	34
Old Plantation Flats Lighthouse	20, 34, 95
Old Point Comfort, *see* Fort Monroe.	
Old Point Comfort Lighthouse	16, 38
Old Road Bay	88
Old Town Point Wharf Post Light	24
Onancock Creek	97
Onancock, Village of	97
Oxford, Village of	110
Oxon Creek Flats	79
Oyster Grounds	12

P.

Pagan Creek	46
Pages Rock Lighthouse	18, 59
Pamunkey River	55
Parhams Point	69
Parker Island Bar	83
Parsons Island	114
Pasquahanna Shoal	76
Patapsco River	88–95
Patuxent River	81–83
Persimmon Point, Magothy River	87
Persimmon Point Shoal Beacon, Potomac River	75
Persimmon Point Shoal	76
Petersburg, City of	47
Phillips Creek	109
Piankatank River	62–63
Pig Point	45, 46
Pilots, *see* page 13 and General Description.	
Piney Creek	118
Piney Point Lighthouse	20
Pinner Point Flats	45
Piscataway Creek	70
Plaindealing Creek	111
Plowdens, *see* Bushwood.	
Plum Point Shoal	36, 37

	Page.
Plum Tree Bar	54
Pohick Bay	70, 77
Point Look-In	80
Point Lookout	68
Point Lookout Lighthouse	20, 68
Point Lookout Shoal	73
Point No Point	80
Point No Point Shoal	36
Point of Breakers Shoal	54
Point of Shoals	49
Point of Shoals Lighthouse	18, 49
Point Patience	83
Pocomoke City	99
Pocomoke River	99
Pocomoke Sound	98–100
Pongoteague Creek	97
Pooles Island	122
Pooles Island Flats	94
Pooles Island Lighthouse	24
Popes Creek Flats	76
Poplar Island	113
Poplar Island Shoal	37, 112, 115
Poplar Island Spit	115
Poquosin Flats	55
Poquosin River	54–55
Port Conway, Village of	63
Port Deposit	121
Portobello Point	80
Port Royal, Town of	63
Portsmouth, City of	42, 43
Port Tobacco River	70
Port Tobacco River Flats	76
Port Tobacco, Town of	70
Poseys Landing	70
Possum Nose	77
Potomac Creek	70
Potomac Creek Flats	76
Potomac River	68–79
Potopotank Creek Post Light	20
Powell Creek, James River	47
Powells Creek, Potomac River	70
Powhatan Creek	46
Presleys Creek	73
Priests Point	80
Princess Anne, Town of	102
Pudding (Pullin) Creek	59
Purtan Bay Post Light	20
Purtan Island Post Light	20, 59

Q.

Quantico Creek	70
Quarantine Regulations:	
Baltimore Harbor	134
Elizabeth River	130
National	Appendix III
Quarantine Grounds, Baltimore Harbor	90, 94
Queens Creek	62
Queenstown Creek Beacon Lights	24
Queenstown Creek, or Queenstown Harbor	116, 118
Queenstown, Town of	116

R.

Ragged Point	73
Ragged Point Spit	74
Randall Wharf Post Light	24
Rappahannock River	63–66
Rappahannock Spit	35, 65
Red Point	123
Rehoboth	99
Repairs, *see* page 14 and General Description.	
Rhode River	84
Richmond, City of	47–48
Ripraps, *see* Fort Wool.	
Ripraps, Post office of	53
Riverton, Village of	103
River View	78
Robert Creek	55
Rockall Creek	118
Rockall Creek Beacon Light	24
Rock Creek	88
Rock Point	88, 95
Rock Point, Post village of	69
Rock Point Shoal	94
Rocky Point	123

Page.

Romney Creek ... 120
Rosier Bluff ... 78
Round Bay ... 85
Rules of the Road:
Inland ... 154–160
Inland, Lines defining limits within which they are to be followed ... 13
International ... 147–154

S.

Sailing directions:
Annapolis Harbor ... 86–87
Back River ... 54
Baltimore Harbor ... 91–95
Cherrystone Inlet ... 96
Chesapeake Bay ... 30–37
Chesapeake Bay above Patapsco River ... 121–123
Chester River ... 117–118
Choptank River ... 111–113
Coan River ... 73
Cornfield Harbor ... 72
Dimer Creek Entrance ... 66–67
Dividing Creek Entrance ... 67
Eastern Bay ... 114–116
Elizabeth River, Norfolk Harbor ... 44–45
Elk River ... 122
Great Wicomico River ... 67–68
Hampton Roads and Newport News ... 39–42
Herring Bay ... 83
Honga River ... 108
Hooper Strait ... 107–108
Indian Creek Entrance ... 66–67
James River ... 49–53
Kedge Strait ... 106
Little Annemessex River ... 104
Little Bay Entrance ... 66–67
Little Choptank River ... 109
Lynn Haven Roads ... 30, 31
Magothy River ... 88
Mobjack Bay ... 60–62
Monie Bay ... 105
Nansemond River ... 45–46
Nanticoke River ... 105
Newport News ... 39–42
Norfolk Harbor ... 44–45
Northeast River ... 122
Old Plantation Lighthouse to Pocomoke Sound ... 98
Patapsco River ... 91–95
Patuxent River ... 82–83
Piankatank River ... 62–63
Pocomoke Sound ... 99–100
Poquosin River ... 55
Potomac River ... 72–79
Rappahannock River ... 64–66
St. Mary River ... 79–80
Smith Creek Entrance ... 73
South River ... 85
Susquehanna River ... 122
Tangier Sound ... 103–105
Tred Avon River ... 113
West River ... 84
Wicomico River Entrance ... 105
Yeocomico River ... 73
York River ... 57–59
Salisbury, Village of ... 102
Sandy Point Lighthouse ... 22, 37, 87
Sandy Point Shoal ... 37
Santee Wharf ... 87
Sarah Creek ... 58
Sassafras River ... 120
Scotch Creek ... 45
Seacoast Telegraph Station ... 11, 26
Seaford, Del., Town of ... 103
Setterly Point ... 83
Seven-Foot Knoll ... 93
Seven-Foot Knoll Lighthouse ... 24, 89
Severn River, Annapolis Harbor ... 85–87
Severn River, Mobjack Bay ... 60
Sewall Point ... 44
Sewall Point Shoal ... 40
Sewall Point Spit Beacon ... 16
Shad Battery Shoal ... 123
Shark Shoal, Chesapeake Bay Entrance ... 31
Sharkfin Shoal ... 107
Sharkfin Shoal Lighthouse ... 22, 103
Sharps Island ... 111
Sharps Island Lighthouse ... 22, 36, 111
Sharps Island Shoal ... 37
Sharptown, Village of ... 103
Shelltown, Village of ... 99
Sheridan Shoal ... 78
Sheridan Point, Potomac River ... 78
Sheridans Point, Patuxent River ... 83
Shipping Creek ... 114
Sillery Bay ... 88
Six-Foot Knoll ... 93
Shore from Rappahannock River to Great Wicomico River ... 66–67
Skiff Creek ... 46
Slaughter Creek ... 109
Smithfield, Town of ... 46
Smith Creek ... 68
Smith Creek Beacon Light ... 20
Smith Island ... 11
Smith Island Shoal ... 31
Smith Point (Clifton Beach) ... 77
Smith Point, Potomac Entrance ... 68
Smith Point Lighthouse ... 20, 34, 68, 73
Smith Point Shoal ... 35, 73
Snowhill, Village of ... 99
Sollers Point ... 95
Sollers Point Shoal ... 95
Somers Cove Lighthouse ... 20, 104
Solomons Island ... 81
Solomons Lump Lighthouse ... 22, 105, 106
Solomons, Village of ... 81
Southern Branch, Elizabeth River ... 42
Southern Branch, Patapsco River ... 94
South Marsh ... 106
South River ... 84–85
Southwest Branch, Back River ... 53
Southwest Branch, Severn River ... 60
South Yeocomico River ... 69
Sparrow Point ... 90, 95
Spaw Creek ... 85
Spesutie Island ... 123
Spesutie Narrows ... 123
Sprys Island ... 119
St. Clement Bay ... 69
St. Georges Island Bar ... 73
St. Georges River ... 68
St. Inigoes Creek ... 79
St. Jeromes Creek ... 80
St. Leonards Creek ... 81
St. Mary, Village of ... 79
St. Mary River ... 79–80
St. Michaels, Town of ... 110, 114
Steelton, Town of ... 89, 90
Still Pond ... 120, 123
Still Pond Creek ... 120
Still Pond, Village of ... 120
Stingray Point ... 64
Stingray Point Lighthouse ... 20, 64, 65
Stingray Point Shoal ... 65
Stony Creek ... 89
Storm Warnings:
Baltimore ... 90
Cape Henry ... 11
Newport News ... 39
Norfolk ... 44
Old Point Comfort ... 39
Table of Stations ... 26
Use and meaning of ... Appendix II
Stump Neck ... 77
Sturgeon Creek Shoal ... 65
Sturgeon Point ... 52
Suffolk, Town of ... 45
Sunken Marsh Range Post Lights ... 16, 51
Supplies, see page 14 and General Description.
Susquehanna River ... 121
Swan Creek ... 113
Swan Point, Chesapeake Bay ... 117, 121
Swan Point, James River ... 51
Swan Point Shoal, Chesapeake Bay ... 93
Swan Point Shoal, James River ... 51
System of Buoyage adopted in United States waters ... 5

T.

Table of:
Bearings and Distances ... 28–29
Fog Signals ... 18–25

Table of—Continued. Page.
Life-Saving Stations 26
Lighthouses 16–25
Storm-Warning Displays 26
Tides 26
Tidal Currents, Chesapeake Bay 27
Variation of the Compass 27
Tail of the Horseshoe Light-vessel 16
Tail of the Horseshoe Shoal 33
Tangier Island 100, 103
Tangier Island Shoal 35
Tangier Sound 100–105
Tangier Sound Lighthouse 20, 104
Tanner Creek 42
Tappahannock, Village of 63
Tapps Creek 66
Tar Bay 109
Teagues Creek 102
Ten-Foot Lump 76
Tettington, Post office of 51
The Basin 89
The Forks 103
The Glebe 69
The Muds 99
Thimble Shoal 40
Thimble Shoal Lighthouse 16, 40
Thomas Point Shoal 37
Thomas Point Shoal Lighthouse 22, 37, 84, 86
Thompsons Creek 114
Thoroughfare, The 50
Tidal Currents, *see* Currents.
Tides:
Annapolis Harbor 26, 86
Back River 53
Baltimore Harbor 26, 91
Big Annemessex River 102
Cherrystone Inlet 96
Chesapeake Bay, Table of 26
Chester River 26, 117
Elizabeth River 44
Great Wicomico River 67
Hampton Roads 39
Honga River 108
Hooper Strait 107
James River 48
Little Annemessex River 101
Manokin River 102
Mobjack Bay 60
Nansemond River 45
Nanticoke River 103
Newport News 39
Patapsco River 26, 91
Patuxent River 26, 82
Plankatank River 26, 62
Pocomoke River 99
Poquosin River 54
Potomac River 72
Rappahannock River 64
Sassafras River 26, 120
Susquehanna River 26, 121
Wicomico River, Tangier Sound 102
York River 26, 56
See also General Description.
Tide Tables, Agencies for sale of 7–8
Tide Tables, Coast and Geodetic Survey, Reference to 26
Tilghman Island 110, 111
Time Ball, Baltimore 90
Tobacco Stick Creek 109
Todd Point 112
Tolchester Beach 121
Tolly Point 85
Tolly Point Shoal 37, 86
Towboats, *see* page 13 and General Description.
Town Point, Elk River 122
Town Point, Patuxent River 83
Trappe Landing 111
Tred Avon River 110
Tree Hill Shoal 51
Tree Point 52
Tripps Bay 111
Tuckahoe Creek 111
Tue Marshes Lighthouse 18, 56, 57
Tue Point Shoal 57
Turkey Creek 47
Turkey Point 123
Turkey Point Lighthouse 24, 120, 123

U.

Upper Cedar Point Lighthouse 22, 76
Upper Cut, York River 56, 58
Upper Machodoc Creek 70
Upper Machodoc Flats 75
Urbana Creek 63
Urbana, Village of 63
U. S. Branch Hydrographic Office, Baltimore 90
U. S. Branch Hydrographic Office, Norfolk 44
U. S. Life-Saving Stations, Table of 26
U. S. Marine-Hospital Service 14
U. S. Naval Academy 85
U. S. Naval Gun Factory 71
U. S. Navy Yard, Portsmouth, Va 42, 43
U. S. Quarantine Station 95
U. S. Storm-Warning and Seacoast Telegraph Stations, Table of 26

V.

Variation of the Compass, Table of 27
Vienna, Village of 103

W.

Walkertown 55
Ward Creek 47
Warehouse Creek 114
Ware River 60
Ware Point 61
Warwick River, Choptank River 111
Warwick River, James River 46
Washington, City of 70–71
Watts Island 100, 101, 103
Watts Island Lighthouse 20, 98, 100
Waymans 111
Weems, Post village of 63
West Branch, Corrotoman River 63
Westpoint, Town of 56
West River 84
West Yeocomico River 69
Western Branch 42
Western Branch Beacon 16
Western Branch Shoal 44
Western Shore, Chesapeake Bay 12
Westland, Post village of 64
Weynoak Point 52
Wharves, *see* General Description.
White Haven, Village of 102
Whitehouse R. R. bridge 55
White Rocks 94
White Shoal 49
White Shoal Lighthouse 18, 49
Whitestone Point 77
White Point, *see* East River Point.
Wicomico River, Potomac River 69
Wicomico River, Tangier Sound 102
Willcox Wharf and Post Office 52
Williams Wharf 59
Willoughby Bank 40
Willoughby Sand Spit 40
Willoughby Spit Beacon 16
Wilson Creek 60
Winchester Creek 118
Windmill Point, Honga River 108
Windmill Point, James River 52
Windmill Point Lighthouse 20, 64, 65
Windmill Point, Rappahannock River 64
Windmill Point, St. Mary River 80
Windsor Shades 47
Winter-Quarter Shoal Light-vessel 16
Wittman, Village of 110
Wolfords Creek 109
Wolf Trap Lighthouse 20, 34, 61
Wolf Trap Spit 34, 61
Wolsey Creek 118
Wormley Creek 58
Worton Creek 119
Worton Point 121
Worton Point Shoal 122
Wye River 114

Y.

	Page.
Yates Bar	75
Yeocomico River	69
York Point	55
York River	55–59
York Spit	34, 57
York Spit, Elbow of	57
York Spit Lighthouse	18, 56, 57
Yorktown Monument	56, 58
Yorktown, Town of	55