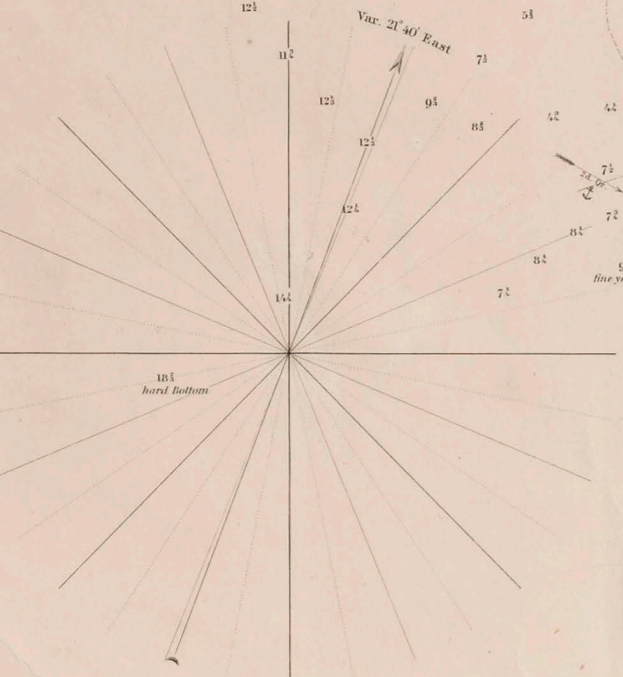
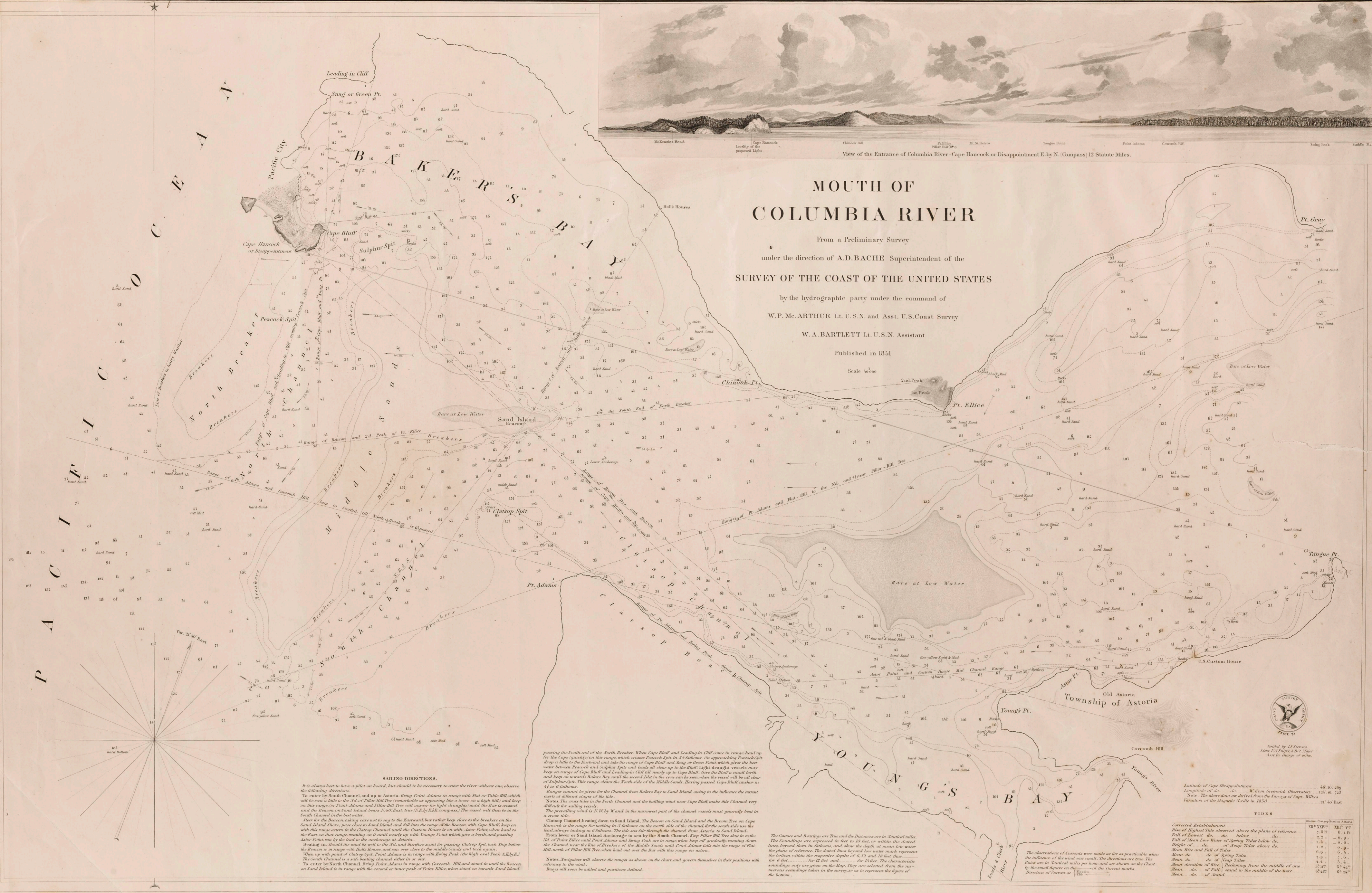


Wm. D. Smith



MOUTH OF COLUMBIA RIVER

From a Preliminary Survey
 under the direction of A.D. BACHE Superintendent of the
 SURVEY OF THE COAST OF THE UNITED STATES
 by the hydrographic party under the command of
 W.P. McARTHUR Lt. U.S.N. and Asst. U.S. Coast Survey
 W. A. BARTLETT Lt. U.S.N. Assistant
 Published in 1851



SAILING DIRECTIONS.
 It is always best to have a pilot on board, but should it be necessary to enter the river without one, observe the following directions.
 To enter by South Channel and up to Astoria, bring Point Adams in range with Flat or Table Hill which will be seen a little to the N.E. of Pillar Hill Tree remarkable as appearing like a tower on a high hill, and keep on this range or Point Adams and Pillar Hill Tree will answer for light draught vessels until the Bar is crossed and the Beacon on Sand Island bears N. 30° East true (N.E. by E. compass). The vessel will then be in the South Channel in the best water.
 Steer for the Beacon, making care not to lay to the Eastward but rather keep close to the breakers on the Sand Island Shore, pass close to Sand Island and still into the range of the Beacon with Cape Bluff, keep on with this range astern in the Clatsop Channel until the Custom House is on with Astor Point when haul to the East on that range, running on it until nearly up with Tongue Point which give a berth and passing Astor Point, run by the lead to the anchorage at Astoria.
 Heading in, should the wind be well to the N.E. and therefore scant for passing Clatsop Spit, tack Ship before the Beacon is in range with Halls House, and run over close to the middle Sands and tack again.
 When up with point of Clatsop Spit, Point Adams is in range with Youngs Pt. (the high oval Peak S.E. by E.). The South Channel is a safe heading channel either in or out.
 To enter by North Channel, bring Point Adams in range with Corcomb Hill and stand in until the Beacon on Sand Island is in range with the second or inner peak of Point Ellice when stand on towards Sand Island

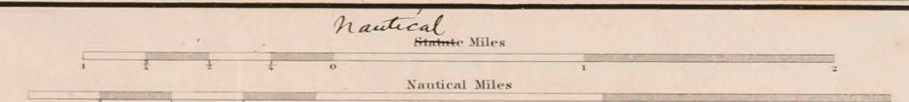
passing the South end of the North Breaker. When Cape Bluff and Landing in Cliff come in range haul up for the Cape quickly in this range, which crosses Potowick Spit in 3 1/2 fathoms. On approaching Potowick Spit drop a little to the Eastward and take the range of Cape Bluff and Ship or Iron Point which give the best water between Potowick and Sulphur Spits and leads all clear up to the Bluff. Light draught vessels may keep on range of Cape Bluff and Landing in Cliff till nearly up to Cape Bluff, give the Bluff a small berth and keep on towards Baker Bay until the second tide in the cove can be seen when the vessel will be all clear of Sulphur Spit. This range clears the North side of the Middle Sands, leaving passed Cape Bluff, anchor in 4 1/2 to 6 fathoms.
 Ranges cannot be given for the Channel from Baker Bay to Sand Island, owing to the influence the current exerts at different stages of the tide.
 Notes. The cross tides in the North Channel and the hailing wind near Cape Bluff make this Channel very difficult for sailing vessels.
 The prevailing wind is N.W. by West in the narrowest part of the channel, vessels must generally head in a cross tide.
 Clatsop Channel leading down to Sand Island. The Beacon on Sand Island and the Beacon Tree on Cape Hancock is the range for looking in 2 fathoms on the north side of the channel for the south side on the lead, always looking on 6 fathoms. The tide sets fair through the channel from Astoria to Sand Island.
 From lower or Sand Island Anchorage to sea by the South Channel, keep Pillar Hill Tree ahead in the N.E. of Point Ellice and Point Adams and Youngs Pt. are in range when keep off gradually running down the Channel near the line of Breakers of the Middle Sands until Point Adams falls into the range of Flat Hill, north of Pillar Hill Tree when haul out over the Bar with this range on astern.
 Notes. Navigators will observe the ranges as shown on the chart and govern themselves in their positions with reference to the wind.
 Boats will be added and positions defined.

The Courses and Bearings are True and the Distances are in Nautical miles.
 The Soundings are expressed in feet to 15 feet, or within the dotted lines, beyond them in fathoms, and show the depth at mean low water from the points of reference. The dotted lines beyond low water marks represent the bottom within the respective depths of 6, 12 and 18 feet. Thus 6 fathoms is 66 feet, 12 fathoms is 132 feet, 18 fathoms is 198 feet. The characteristic soundings only are given on the Map. They are selected from the numerous soundings taken in the survey, so as to represent the figure of the bottom.

Latitude of Cape Disappointment 46° 15' 26"
 Longitude of do. 124° 08' 25"
 Note. The above data are derived from the Survey of Capt. Wilkes
 Variation of the Magnetic Needle in 1851 21° 45' East

TIDES

Corrected Establishment	Mean High Water	Mean Low Water
1.8 ft	8.1 ft	1.8 ft
1.2 ft	7.5 ft	1.2 ft
0.6 ft	6.9 ft	0.6 ft
0.0 ft	6.3 ft	0.0 ft
-0.6 ft	5.7 ft	-0.6 ft
-1.2 ft	5.1 ft	-1.2 ft
-1.8 ft	4.5 ft	-1.8 ft
-2.4 ft	3.9 ft	-2.4 ft
-3.0 ft	3.3 ft	-3.0 ft
-3.6 ft	2.7 ft	-3.6 ft
-4.2 ft	2.1 ft	-4.2 ft
-4.8 ft	1.5 ft	-4.8 ft
-5.4 ft	0.9 ft	-5.4 ft
-6.0 ft	0.3 ft	-6.0 ft



Scale is wrong

Reduction for Engraving by A. Bosche Draughtman

Engraved by W. Smith and E. F. Woodward