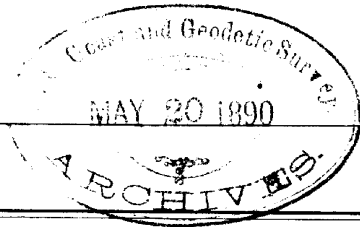


397.



U. S. COAST AND GEODETIC SURVEY.

*F. C. Mendenhall*, Superintendent.

State: *Mass.*

H01947  
H01948  
H01949

DESCRIPTIVE REPORT.

*Hydrographic Sheet No. 1947.* "A"

LOCALITY:

*Nantucket Sound,  
South Shore.*

*1889.*

CHIEF OF PARTY:

*Lieut. W. P. Elliott, U. S. N.*

298

No 1947

Report A.

- Projection  $3^{\text{rd}}$  -

Nantucket Sound and vicinity

South shore.

1889.

U.S.C.S. Schr "EAGLE"

Lieut W<sup>m</sup> F. Elliott. U.S.N.

- Chief of party.



Forwarded  
 Cha. M. Thomas, Lt. Comd'r., U. S. N.,  
 Hydrographic Inspector C. & G. Survey.

U. S. C. & G. S. S. "Espe"   
 Navy Yard, New York Dec 31 1859

Prof. J. C. Meadehall   
 Superintendent,

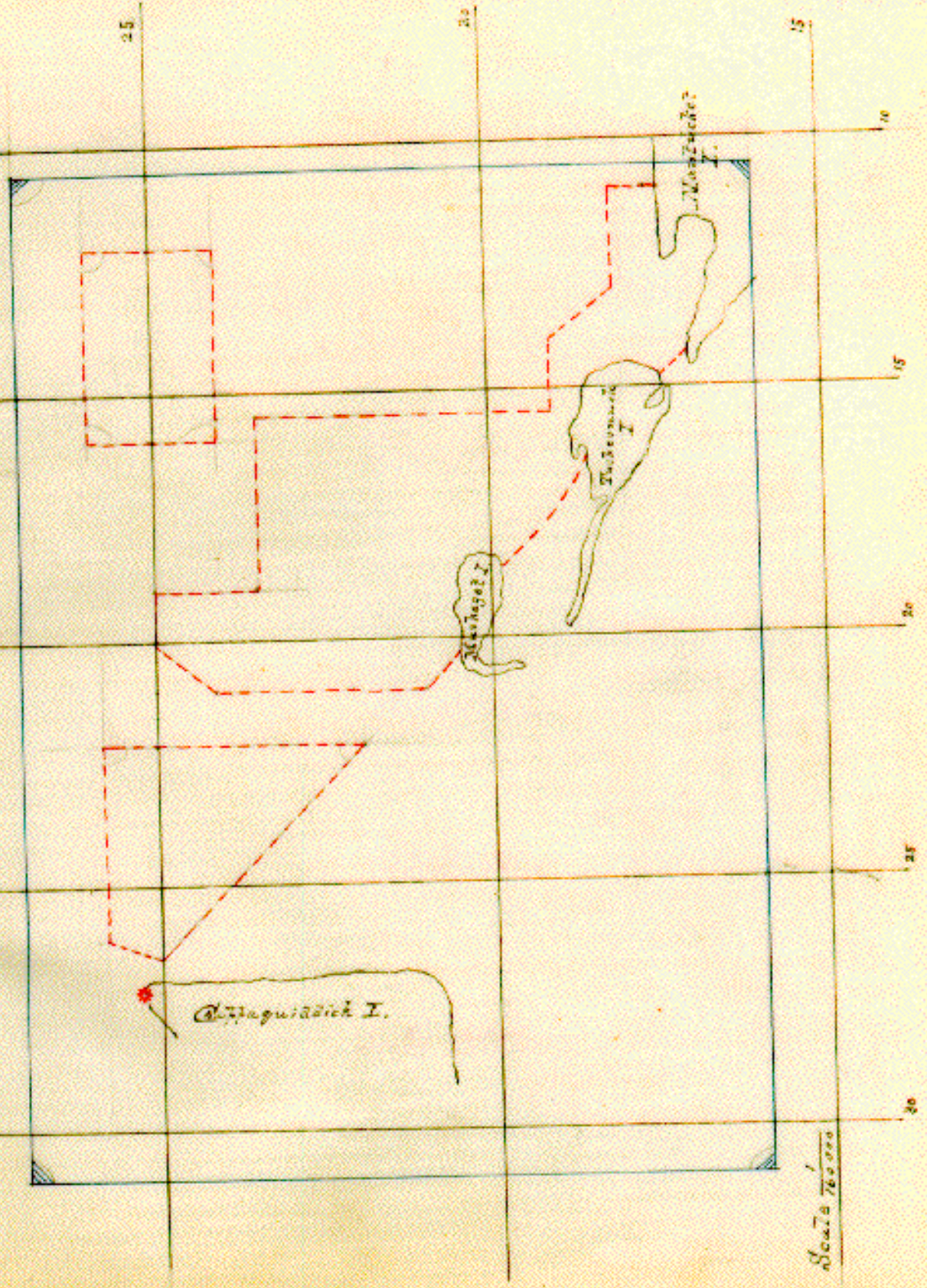
Sir:-

I have the honor to submit   
 Report "A" to accompany Projection 3<sup>a</sup>   
 Scheme for the Re-survey of Nantucket   
 Sound & Vicinity, - executed by the   
 party under my charge on board this   
 vessel, - using the tender "Waxy",   
 Steam launches 22, 23, 25, and boats   
 of this vessel.

Very respectfully   
 Wm. P. Elliott   
 Lieut U. S. Navy Comdr   
 Asst C. & G. Survey

Elliott 1100  
Report B 1889

Resurvey of Forttucket Sound and vicinity  
Coast Survey Sch. Eagle Projection 1879  
Limit of Projection shown in blue  
Work done on Projection enclosed in broken red lines



Scale 700000

A

Report Proj: 3<sup>a</sup> -

Wm P. Elliott  
Lieut U.S.N. Asst.

U.S. Coast and Geodetic Survey.

T. C. Mendenhall Superintendent.

Nantucket Sound and vicinity.

— Massachusetts. —

— South Shore. —

Began -

Ended. -

Observers -

Lieut. W. P. Elliott	-	U. S. Navy Asst.
" A. L. Hall	Ensign.	F. W. Brown
Ensign L. C. Bertolotto	"	C. M. Stone
" S. H. Durell	"	F. Washington
Pay Yeo - A. R. Hasson	Pay Yeo:	Yvring King
Seaman C. F. Smith	-	-

Recorders -

Pay Yeo: A. R. Hasson	Seaman	- J. Mc. Tiffany
" " Yvring King		C. F. Smith
Shp. W. W. B. Proctor		J. Proctor

Leadsman -

1 <sup>st</sup> M <sup>o</sup> M. Haagan	Seaman	- F. Breckett
" " C. Olsen	"	A. Johnson
2 <sup>d</sup> Fire J. Johannessen	"	A. Gundersen
Seaman A. Nelson	"	M. Pedersen

Tide observers -

Seaman	: B. V. Sinclair
"	W. Ollquist
"	J. J. Punch

- Proj: 3<sup>a</sup> -

= Table of Reference =

Nantucket Sound South Shore -  
 Schr "Eagle" and Boats - Lieut. Wm. P. Elliott U.S.N. Ass't.

Date	Letter	Angles:		Number of:					Fath.	In charge.	Observers	
		From	To:	Sound-Books	Fair-Journals	Soundings	Angles	Miles				
Aug 9	a.	1	20	1	1	218	40	2.2	L. 22	C.H.D.	C.H.D.	J.W.
" 9	a.	1	23	1	1	302	46	2.6	W.B.	F.H.B.	F.H.B.	C.W.S.
" 12	A.	1	84	1	1	1352	168	20.2	L. 23	L.C.B.	L.C.B.	F.H.
" 12	a.	1	54	1	1	877	110	11.5	L. 25	C.H.D.	C.H.D.	C.W.S.
" 17	B.	1	14	1	1	177	28	2.4	L. 25	L.C.B.	L.C.B.	F.H.
" 17	b.	1	11	1	1	149	22	2.	L. 25	C.H.D.	C.H.D.	S.K.
" 17	b.	1	21	1	1	327	42	3.3	W.B.	F.H.B.	F.H.B.	C.W.S.
" 19	b.	1	84	1-2	1	1129	168	20.	L. 25	L.C.B.	L.C.B.	F.H.
" 19	c.	1	52	1	1	593	104	8.5	L. 25	C.H.D.	C.H.D.	C.W.S.
" 21	C	1	15	1	1	324	30	2.5	W.B.	F.H.B.	F.H.B.	F.H.
" 23	D	1	47	2	1	552	94	8.	L. 23	L.C.B.	L.C.B.	F.H.
" 23	d	1	40	1	1	647	80	10.	L. 25	C.H.D.	C.H.D.	C.W.S.
" 30	E	1	39	2	2	450	78	8.5	L. 25	L.C.B.	L.C.B.	S.K.
" 30	e	1	41	2	1	620	82	9.	L. 25	C.H.D.	C.H.D.	C.W.S.
" 30	d	1	32	1	1	465	64	4.7	W.B.	F.H.B.	F.H.B.	F.H.
" 31	e	1	59	1	1	866	118	6.	W.B.	L.C.B.	L.C.B.	C.W.S.
Sept 5	F.	1	12	2	2	239	24	3.6	L. 23	L.C.B.	L.C.B.	A.R.D.
" 5	f.	1	15	2	2	312	30	4.	L. 25	C.H.D.	C.H.D.	C.W.S.
" 6	f.	1	60	2	1-2	1058	120	7.9	W.B.	L.C.B.	L.C.B.	C.W.S.
" 16	g.	1	12	2	2	153	23	3.	L. 25	L.C.B.	L.C.B.	F.H.B.
" 21	g	1	18	2	2	275	36	1.8	W.B.	L.C.B.	L.C.B.	F.H.B.
" 24	H.	1	138	3	2	1476	276	29.5	L. 23	L.C.B.	L.C.B.	F.H.B.
" 24	g	1	102	2	2	1113	204	25.75	L. 25	C.H.D.	C.H.D.	C.W.S.
" 25	h	1	55	2	2	907	110	8.5	W.B.	L.C.B.	L.C.B.	C.W.S.

Prof 3<sup>a</sup>

Table of reference

Nantucket Sound South Shore  
Schr "Eagle" and boats Lieut Wm J. Elliott U.S.N. Asst.

Date	Tide	Angles		Number of					Boat	Exchange	Observers	
		From	To	Sounding Boats	Fair Journals	Sounding	Angles	Miles				
Sept 27	i	1	17	2	2	311	34	2.8	MS	L.C.B. L.C.B.	F.H.B.	
" 27	h	1	5	1	1	70	10	1.	L. 22	E.H.D. E.H.D.	C.W.S.	
" 30	j	1	79	3	2-3	1652	158	11.25	MS	F.H.B. F.H.B.	C.W.S.	
" 30	A.	1	43	1	3	758	86	4.8	Gig	L.C.B. L.C.B.	F.W.	
Oct 3	c	1	103	1	1	1376	206	21.5	L. 22	L.C.B. L.C.B.	F.W.	
" 3	h	1	61	3	2	995	116	13.	L. 25	F.H.B. F.H.B.	C.W.S.	
" 3	A	1	89	1	1	709	178	18.	Rainy	R.H. A.L.H. E.H.D.	J.K.	
" 4	d	1	38	2	1	577	76	8.2	L. 22	F.H.B. F.H.B.	C.W.S.	
" 5	e	1	94	2	1-2	987	188	17.1	L. 22	L.C.B. L.C.B.	F.W.	
" 5	i	1	62	3	2-3	1039	124	13.6	L. 25	F.H.B. F.H.B.	C.W.S.	
" 5	B.	1	40	1	1	583	80	16.5	Rainy	R.H. A.L.H. E.H.D.	J.K.	
" 7	f	1	15	2	2	249	30	3.9	L. 22	F.H.B. F.H.B.	C.W.S.	
" 8	g	1	121	2-3	2	1893	242	24.3	L. 22	R.C.B. L.C.B.	F.W.	
" 8	j	1	80	4	3	1135	160	18.4	L. 25	F.H.B. F.H.B.	C.W.S.	
" 8	h	1	62	3	2	755	124	15.	L. 22	L.C.B. L.C.B.	F.W.	
" 9	C	1	30	1	1	324	60	12.	Rainy	R.H. A.L.H. E.H.D.	J.K.	
				27984 3969 406.8								

Report A Projection 3<sup>a</sup> 40<sup>a</sup>

The hydrography on this sheet consisted of filling in three irregularly shaped gaps left from the re-arrangement of sheets on the general scheme, and was particularly difficult from the fact that the few natural objects and signals visible were at great distance and very low. - The ground was on the various shoals to Westward of Tuckeruck Shoal and North of Muckaget Island - exposed to the full strength of the varying currents that sweep across them. - The Easternmost of these gaps lies on the Northern slope of Tuckeruck shoal, which shelves off rapidly from 10 feet to 10 fathoms.

The black buoy No 7, on the Eastern end of this shoal was located accurately by cross-cuts on the general projection (40.000) and transferred to sheet 3a. It is indicated on Chart 111, 1/2 mile North of its true location.

The Channel used by the Steamers running to Nantucket through the Blue



of Tucker's Shoal will be seen when the soundings of the "Daisy's" sheet of 1888, are combined with this season's work. - From my personal observation on several runs through the Blue in the Steamers and in the "Daisy", I am sure that the Channel as indicated on Chart 111 will be found very much out to the Southward. The course from the end of Nantucket Jetty to the "Blue buoy" is continuous, and is always so travelled - with not less than  $10\frac{1}{2}$  feet. - This buoy is indicated on the Chart .6 mile N by S of its correct position; so that if it were correctly placed on Chart, a straight course from the Jetty would carry a vessel over a very shallow part of the shoal. - This Channel will increase in value hereafter, and should be well marked with a bell-buoy.

Edwards Shoal buoy is improperly located on Chart 111  $\frac{1}{4}$  mile N. N. W. of proper position. - Buoy No 6 is indicated on Chart  $\frac{1}{4}$  mile S.W. of true position.

The general course of the Harriet Steamers bound to Cottage City, is from the "Blue buoy" to pass the red buoy No 6 on Northern point of Long Shoal. - The Master of one of these clears it about  $\frac{1}{2}$  mile running along the Southern part of Nortons Shoal, The Master of the other passes the buoy close aboard & then leaving No 13  $\frac{1}{4}$  mile to port, pick up Cape Poge Buoy No 15, - Channel lines over these localities will be found in the work done this season. -

Examination of the soundings on Long & Shovel shoals, will show that they have grown together at their southern ends, and will form a continuous bank. - Long Shoal has moved a considerable distance to the Eastward, and I cannot find the shoal water indicated on the Chart. Nothing less than 4 feet was encountered, the launches drawing over 3 feet running across the rips in apparently the shallowest places. -

Staves shoal is of the same general

4,07  
2

shape - but in this as in all of the shoals, the lumps have been found to be shifted considerably. - This could hardly be otherwise considering the strength of the tides and gales which sweep across them. - No sign of the wreck indicated <sup>on chart</sup> was observed on Staves Shoal, and she has probably rolled off and covered with sand.

The location of Buoy 11 on Chart is nearly correct, and unfortunately the location of No 13 by the "Daisy" proved to be a swinging angle and therefore useless.

A Tidegauge was established at Tuckeruck Island, the same station occupied by Prof. Mitchell U. S. C. S. in 1854. The boulder used by Prof Mitchell was again used, - and determinations repeated to guard against error gave the gauge reading of Bench Mark as 7.53 - 7.60 - 7.5 was used. -

The mean level was found to be on the gauge 5.04 from observations of the day tides for two lunar months.

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Prof. Mitchell says in his note (Tidal Data), that perhaps the true bench may not have been found, as it was not marked for a year after. - I think this certainly the case, or else the boulder has sunk 1 foot in <sup>the</sup> 35 years, for the height of B. M. above M. L. W. was found to be 3.81 feet. - Prof. Mitchell's determination of the plane of reference being 4.86 below B. M.

A second gauge was set up at Cape Poge, and the work on Staves Shoals reduced from that gauge. The data furnished by Lieut. Paine, who had a gauge at same point in 1888 was used, and the same bench could be recognized.

During the work on this projection this vessel used Nantucket and Edgartown, Martha's Vineyard as headquarters. - Coal, water, and supplies are obtainable at these places at slightly greater prices than on the Mainland.

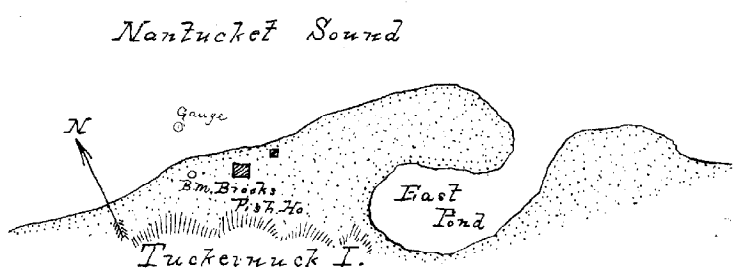
No information of value concerning these shoals could be obtained, all

Local authorities agreeing that changes take place as fast as the seasons come round and gales blow. -

Maddaquet Bay is a pretty but shallow Bay at the Western end of Nantucket. A thorough survey of it and the Tuckeruck Bank was made, but this water has no commercial value. The tide runs with a velocity of several miles through to the Atlantic between Nantucket + the Gravelly Islands as local authorities call the beaches South and West of Tuckeruck Island.

These Islands are continually changing in shape + number under the influence of the strong currents.

Tide Gauge, Tuckernuck, I., Mass.  
Established, Aug. 9, 1889.



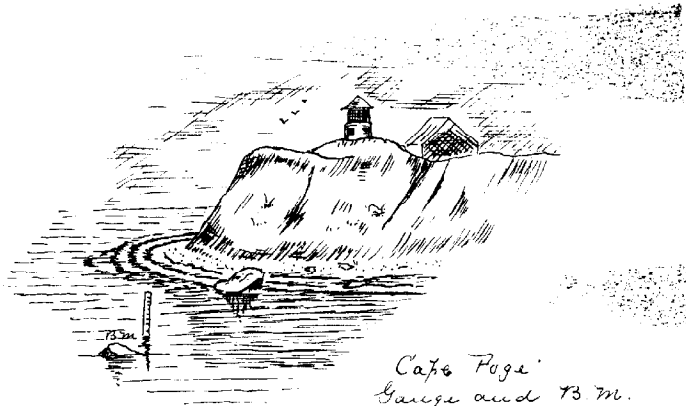
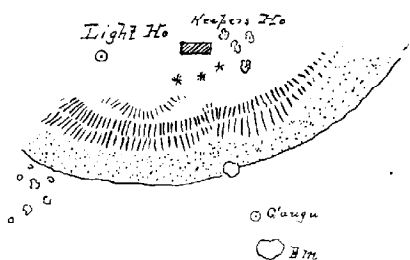
Description and Data

The gauge is situated on the northern shore of Tuckernuck Island about 100 meters N.W. of Mr. Brooks fish house.

The B.M. is the highest point of sand colored elliptical shaped stone nearly embedded in the sand at about high water mark. The letters C.S. are marked on the top of the stone. This B.M. was used by Asst. H. Mitchell in 1854.

Mean of 58 high waters	6.39
" " 59 low "	3.69
" range	2.7
" level	5.04
Height of B.M. above zero of gauge	7.5
Rise of highest high water above zero	7.4
Fall " lowest low " " "	3.5

Tide Gauge, Cape Page, Chappaquiddick I., Mass.  
Established Oct. 4, 1889.



Cape Page  
Gauge and B.M.

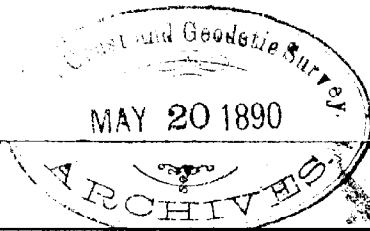
### Description and Data

The gauge is driven in the sand about 40 ft from H.W.M. and 200 yds. N.W. of Cape Page Light House. It lies between two boulders the upper surface of the outer one being the B.M. From observations taken by Lieut. P. C. Paine used in 1888 this B.M. was found to be  $\frac{17}{100}$  ft. above plane of m.l.w.

The B.M. is 2.08 ft. above zero of gauge.

Rise of highest high water above zero	4.8
Fall " lowest low " " "	1.3

From data of 1888  
mean range 2.21



U. S. COAST AND GEODETIC SURVEY.

*J. C. Mendenhall* Superintendent.

State: *Mass.*

DESCRIPTIVE REPORT.

*Hydrographic Sheet No. 1948.*

"A"

LOCALITY:

*Nantucket Sound  
and Vicinity.  
North Shore.*

*1889.*

CHIEF OF PARTY:

*Lieut. W. P. Elliott, U. S. N.*



413

1948

- Report A -

- Projection SA -

- Nantucket Sound and vicinity -

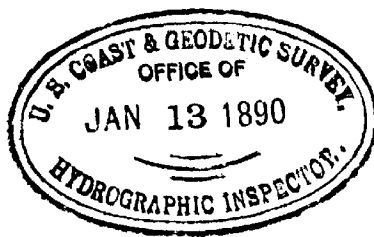
- North Shore -

- 1889 -

- U.S.C.S. Schr. EAGRE -

- Lieut W<sup>m</sup> P. Elliott - U.S.N. -

- Chief of party -



Forwarded  
Chas. M. Thomas... Lt. Comd'r., U. S. N.,  
Hydrographic Inspector C. & G. Survey

U.S.C. & S. S. "Espe" "

Navy Yard, New York Dec. 31. 1869

Prof. S. C. Meadehall,  
Superintendent,

Sir:-

I have the honor to submit Report  
"A" to accompany Projection, & A. - Scheme  
for the Re-survey of Nantucket Sound  
and Vicinity, - executed by the party  
under my charge on board this vessel,  
using the tender "Waisy", Steam launches  
22, 23, 25, and boats of this vessel.

Very respectfully

Wm. Elliot

Lieut. U.S. Navy, Comd.  
Asst. of Survey.

Report A Proj 8A.

W P Elliott  
U.S.N. Asst.

U.S. Coast and Geodetic Survey

T.C. Mendenhall Superintendent

Nantucket Sound and vicinity

Massachusetts

North Shore

{ Begun June 13  
{ Ended Oct 19

Observers

- |    |          |                          |                      |        |
|----|----------|--------------------------|----------------------|--------|
| 1  | Lieut.   | W. P. Elliott            | U.S. Navy Asst.      |        |
| 1  | "        | A. L. Hall               |                      |        |
| 2  | Ensigns: | L. S. Van Duzer (Ensign) | C. H. Durell         | 5      |
| 3  | "        | C. G. Anderson           | F. H. Brown          | 6      |
| 4  | "        | L. C. Bertolotte         | C. M. Stone          | 7      |
| 9  | Pay Geo. | A. R. Hasson             | J. Washington        | 8 (12) |
| 10 | "        | Young King               | Seaman - C. F. Smith | "      |

Recorders

- |            |               |        |               |    |
|------------|---------------|--------|---------------|----|
| Pay Geo.   | A. R. Hasson  | Seaman | J. M. Tiffany | 16 |
| "          | Young King    | "      | C. F. Smith   |    |
| Ship's Wr. | W. D. Proctor | "      | J. Proctor    |    |

Leadsman

- |                 |                      |        |              |     |
|-----------------|----------------------|--------|--------------|-----|
| 1 <sup>st</sup> | C. M. M. Haagan      | Seaman | A. Nelson    |     |
| "               | C. Olsen             | "      | F. Brettell  | (9) |
| 2 <sup>nd</sup> | C. F. J. Johannessen | "      | A. Johnson   |     |
| Seaman:         | A. Larsen            | "      | A. Gundersen |     |
| "               | M. Petersen          |        |              |     |

Tide observers

- |        |                |        |             |     |
|--------|----------------|--------|-------------|-----|
| Seaman | B. V. Sinclair | Seaman | J. J. Purck |     |
| "      | C. Allquist    |        |             | (3) |

Proj: 8A:

Table of Reference

Nantuxet Sound North Shore.  
 Schrs: "Fagre" and boats Lieut. Wm P. Elliott U.S.N. Ast.

Date	Letter	Angles.		Number of:					Boat	Tr. change	Observers
		From	To:	Sound Boats	F. Journals	Sound	Angles	Miles			
June 13	a	1	38	1	1	570	80	6.5	d. 25	ARH ARH ARH	
" 14		9	44	1	1	1270	156	16.5	d. 23	ARH ARH ARH	
" 14	A	63	104	1	1	681	37	11.	Tringlet	L.P. S. SK	
" 18		1	19	1	1	681	37	11.			
" 18		15	45	2-3	1-2	448	62	6.	d. 23	ARH ARH ARH	
" 18	f	10	42	1	1	624	65	7.75	d. 25	ARH ARH ARH	
" 20	a	10	35	1	1	430	64	4.8	d. 22	ARH ARH ARH	
" 21	b	13	121	1-2	1	1695	220	25.6	d. 22	ARH ARH ARH	
" 21	d	8	132	1-2	1-2	2298	252	33.5	d. 25	ARH ARH ARH	
" 24	e	10	95	2	2	1795	172	26.5	d. 22	ARH ARH ARH	
" 24	e	9	97	2-3	2-3	1901	177	29.7	d. 25	ARH ARH ARH	
" 25	d	15	56	3	3	870	84	11.3	d. 22	ARH ARH ARH	
" 25	d	27	56	3	3	870	84	11.3	d. 22	ARH ARH ARH	
July 1	f	32	69	4	4	648	76	8.7	d. 22	ARH ARH ARH	
" 1	h	1	59	4	4	1119	116	14.7	d. 25	ARH ARH ARH	
" 8	g	1	80	4-5	4-5	1666	160	21.6	d. 22	ARH ARH ARH	
" 8	i	1	79	4-5	4-5	1640	158	21.	d. 25	ARH ARH ARH	
" 9	h	1	84	5	5	1738	168	23.5	d. 22	ARH ARH ARH	
" 9	j	1	89	6	5-6	2004	178	28.1	d. 25	ARH ARH ARH	
" 10	k	46	93	6	6	1315	134	16.7	d. 22	ARH ARH ARH	
" 10	h	1	89	6	6	1657	178	23.	d. 20	ARH ARH ARH	
" 11	j	1	52	7	7	627	76	10.	d. 22	ARH ARH ARH	
" 11	l	1	48	7	6	1101	98	15.6	d. 25	ARH ARH ARH	
" 12	m	1	40	7	7	729	80	11.6	d. 25	ARH ARH ARH	
" 16		1	68	2	2	1394	136	23.	d. 23	ARH ARH ARH	
" 16	n	1	70	7-8	7	1542	144	20.	d. 25	ARH ARH ARH	

ON ORIGINAL DOCUMENT

ON ORIGINAL DOCUMENT

# Prof. A.

## Table of reference

Nantucket Sound South shore  
Schr. "Eagle" and boats Lieut. Wm. S. Elliott, U. S. N. Ast.

Date	Hour	Angles		Number of					Hour	In charge	Observers
		From	To	Sounding Bells	Fair haul	Sounding	Angles	Miles			
July 17	d	1	56	2-3	253	1179	142	16.4	L. 23	LCB	LCB F.H.B.
" 17	o	1	43	8	7	767	86	11	L. 25	LCB	LCB E.H.D.
" 18	e	1	77	3	3	1313	184	26	L. 23	LCB	LCB F.H.B.
" 18	f	1	81	8-9	8	1695	167	25	L. 25	LCB	LCB E.H.D.
" 19	k	1	34	7	7	504	68	7	L. 22	ARH	ARH S.K.
" 19	g	1	6	9	8	149	17	1.9	L. 25	LCB	LCB E.H.D.
" 22		1	105	3-4	3-4	1795	210	22.3	L. 23	LCB	LCB E.H.D.
" 22	n	1	103	9-10	1	1778	200	33.7	L. 25	LCB	LCB F.H.B. C.M.S.
" 23	o	1	57	4	4	1298	114	16	L. 20	LCB	LCB C.M.S.
" 23	s	1	5	10	9	110	14	1.1	L. 25	LCB	LCB F.H.B.
" 24	l	1	25	7	7	363	50	6	L. 22	LCB	LCB S.K.
" 24	u	1	70	4-5	4-5	1529	140	23	L. 23	LCB	LCB C.M.S.
" 24	t	1	53	10	9	932	106	16	L. 25	LCB	LCB F.H.B.
" 25	m	1	64	7-8	7-8	1078	128	13.5	L. 22	LCB	LCB S.K.
" 25	x	1	60	5	5	1348	120	19.5	L. 23	LCB	LCB C.M.S.
" 25	u	1	70	10	9	1315	140	23	L. 25	LCB	LCB F.H.B.
" 26	n	1	89	8	8	1420	178	22	L. 22	LCB	LCB F.H.B.
" 26		1	83	5-6	5-6	1815	166	29	L. 23	LCB	LCB C.M.S.
Aug 31	B	1	98	2	1	1040	196	22	Wainy	LCB	LCB F.H.B. S.K.
Sept 8	o	1	12	2	1	114	24	2.75	Wainy	LCB	LCB F.H.B. S.K.
" 6	f	1	56	2	1	420	72	8	Wainy	LCB	LCB F.H.B. S.K.
" 23	o	1	105	2	1-2	8219	210	40	Wainy	LCB	LCB F.H.B. S.K.
" 24	f	1	166	3	2	169	210	29	Wainy	LCB	LCB F.H.B. S.K.
" 25	g	1	52	3	2	457	104	15.6	Wainy	LCB	LCB S.K.

Prof. S. A.

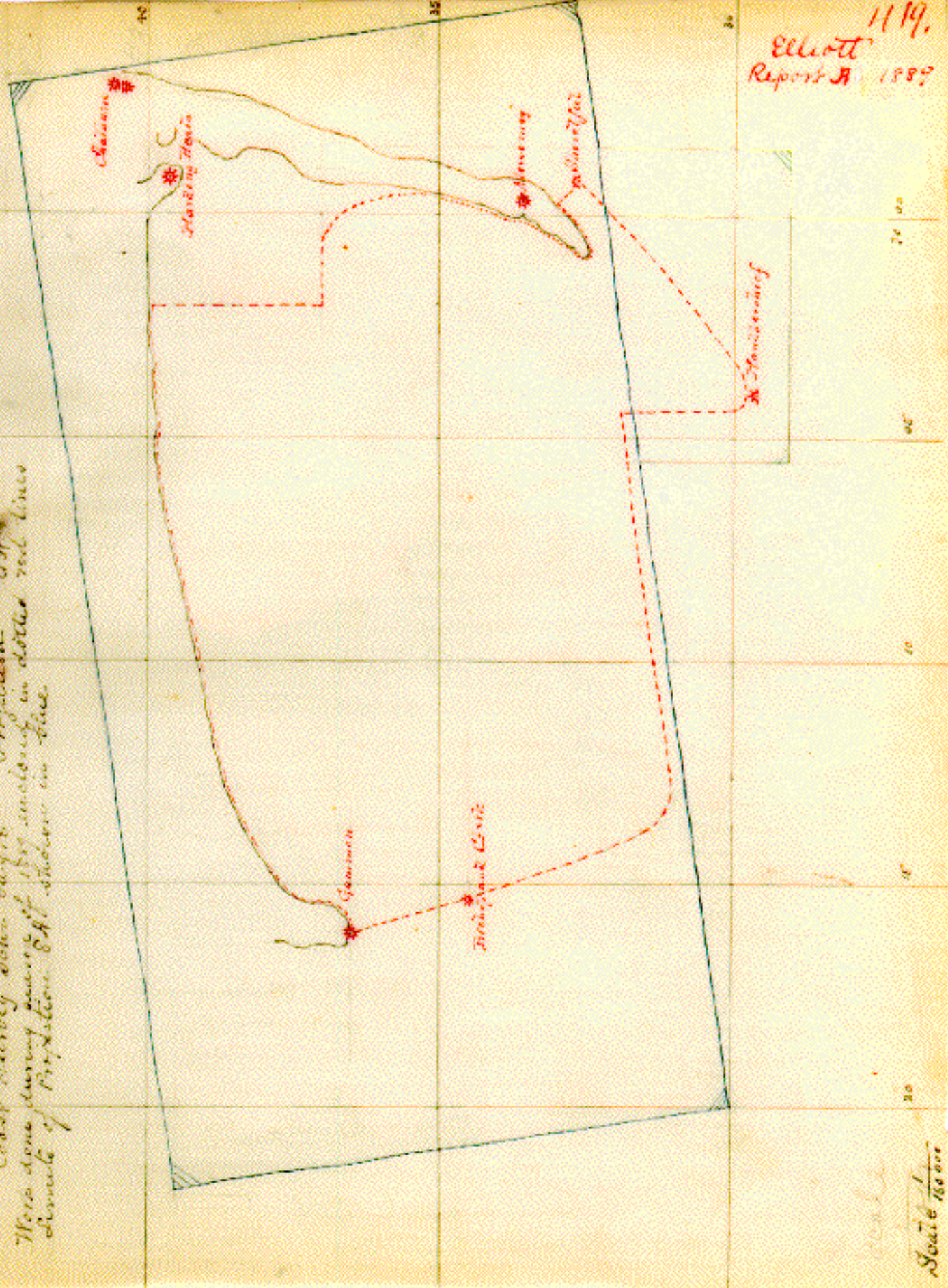
Table of reference

Nantucket Sound South Shore  
Sch "Eagle", and boats Lieut. W. J. Elliott U.S. Army

Date	Letter	Number of -						Boat	Tri-charge	Observers -	
		From	To	Sounding Boats	Tri- Journal	Sounding Boats	Angles				Miles
Oct 10	K	1	25	6	6	476	50	7.5	L 23	F.H.B. F.H.B.	CMS
10	V	1	56	11	9-10	781	112	10.5	L 25	L.C.B. L.C.B.	F.W.
11	L	1	7	6	6	7	14	-	L 23	V.P.C. V.P.C.	A.R.H.
11	W	1	125	11	10	1728	250	26	L 25	L.C.B. R.C.B.	F.W.
11	Q	1	100	3	3	2230	200	17.9	V.P.B. F.H.B. F.H.B.	F.H.B. F.H.B.	CMS
12	M	1	58	7	6	538	116	9.75	L 23	B.H.D. B.H.D.	A.R.H.
12	L	1	141	12	10-11	1758	282	25.3	L 25	L.C.B. R.C.B.	F.W.
12	H	1	65	4	3-4	1447	130	10.6	V.P.B. F.H.B. F.H.B.	F.H.B. F.H.B.	CMS
12	J	1	18	4	2	115	36	4	Dairy	V.P.C. V.P.C. B.H.D.	A.R.H.
17	O	1	47	9	9	789	94	11	L 22	F.H.B. F.H.B.	CMS
17	Y	1	87	13	11	1340	120	17	L 25	L.C.B. L.C.B.	F.W.
18	Z	1	95	13	8-11	1371	190	17.2	L 25	CMS CMS	F.W.
18	Q	1	58	4	2	535	115	14	Dairy	V.P.C. V.P.C. B.H.D.	A.R.H.
19	P	1	100	10	10	1527	200	21.2	L 22	CMS CMS	F.W.
19	aa	1	25	13	8	374	50	5.5	L 25	F.H.B. F.H.B.	S.K.
19	K	1	54	4	2-2	437	108	14	Dairy	V.P.C. V.P.C. B.H.D.	A.R.H.
19	K	39	63	5	4	468	50	6.5	V.P.B. F.H.B. F.H.B.	F.H.B. F.H.B.	S.K.
						70,400	8164	1070.65			

Recovery of Stamp Act Bound and vicinity S.A.  
 Coast Survey John Barry Projection S.A.  
 Work done during course of 1887 mentioned in dotted red lines  
 limits of Projection S.A. shown in blue.

1119,  
 Elliott  
 Report A 1889



Scale 1/100,000

120  
184

Report A Proj 8 N.

It was thought better to construct a supplementary sheet to be added to the South Eastern corner of the projection so that the great Handkerchief Shoal would be all included in the seasons work. - The difficulty in fixing positions of boats in the prosecution of this work was great, but the supplementary sheet allowed the use of Nantucket or Great Point Light, and with Shoeful and Handkerchief Light Trawls and the wreck of the schooner Benjamin Cortwright (called "Ben") the work was finally done.

A great many swinging angles were encountered, and the time for picking up new objects or signals when running across the shoals, swept by the strong currents and rips could not be taken.

It is believed that the lines are all accurately located.

Beginning at the Southeastern Corner of the finished sheet for its discussion, it is proper first to notice the discrepancy



8 A. <sup>1121</sup>  
2

in the positions of Buoys Light-Vessels  
7C as located on C.S. Chart 344. "Monomoy  
Passage". - Shovelful Lightvessel was  
located and used as a signal in July,  
and again in October of this year, and  
the second location appears on the pro-  
jection. - The error in Chart location is .2  
mile S.E. - Buoy No 6. was located by a  
launch and from the "Dairy", and the error  
in Chart location is about .2 miles N by E.  
The same error in location appears in  
report to Spar buoy No 2, and Black Can  
No 1, - about the same distance, in the same  
direction, but the locations of Sandkerchief  
Light-Vessel and Buoy No 10 are nearly  
correct. - The method of locating buoys  
used on U.S. tender Verbena is very crude  
as they are without proper instruments  
and methods. - Remarks in Atlantic Coast  
Pilot (1880-) pp 92-93 are entirely wrong.  
Where chart 344 locates Buoy No 6, there  
is less than 7 feet of water, and it would  
be extremely hazardous for vessels to  
pass 1/8 mile to northward of this buoy. -

8 A 11<sup>22</sup><sub>3</sub>

Buoy No 1 appears 2 mile South of  
Chart Location, and plotting of the sound-  
ings on the many lines run across the  
Sandkerchief will show that the general  
width of the Channel to the Northward  
is something less than at last Survey and  
its shape has varied greatly. - Comparisons  
of this seasons work on this shoal with  
Chart 344, will show great changes, in it;  
Especially in the Broken Part of the  
Sandkerchief. - ~~The~~ Hole in the North  
eastern part of the shoal has decreased  
in size and depth, and will I think  
eventually fill up, - The extension of the  
hook of Monomoy to connect with the  
shoal, is not to be expected soon, but the  
solidification and rounding of the main  
shoal, is certainly going on. I have not  
attempted to plot many soundings, as  
the lines are so closely run, and will  
need expert selection, but I think the  
dangers on the Broken Part are decreasing.  
Large schooners and the tender Daisy ran  
across this part in places marked less

8A 1123

than their draft.

Two buoys No 10 were found located at the Southern end of the shoal - presumably for the purpose of taking up one for painting or milking.

Page 102 Atlantic Coast Pilot (1880) "Sailing directions to pass between the Hawk Ketchick and Monomoy Point" should be utterly condemned. - Anyone possessing this volume and attempting to follow its precepts, would, unless warned off by its manifest inaccuracy at this paragraph inevitably ground his vessel. The course from Shovel Light Vessel to Buoy No 6 is ~~N by S 1/2 S~~ and then standing to the Northward steer for No 1 leaving Spar buoy No 2 on Starboard hand, No 1 on port hand and then the course can be shaped clear of Rodgers Shoal for Chatham Roads, Bass River or the Northern passage of Nantucket Sound. -

In standing up for Chatham or Bass River Roads the navigator would gladly find a larger iron buoy, or bell on the

S.A. 112<sup>4</sup>/<sub>5</sub>

northwestern corner of the Handkerchief. If the present buoy is not seen, in misty weather, the low shores of Monomoy, and the almost impossibility of recognizing Monomoy Light House, - the distance of Bishop + Clark's + Bass River Lights leaves him without a landmark. - At such times the Dome of Exchange Building in Starwich is perhaps visible, and as heretofore suggested should be indicated on the chart.

Kill Pond Bar is an extensive shoal lying along the northern shore, from the mouth of Bass River westward for about four miles. - It ends in a hook, inside of which is fair shelter, in S.W. gales, and in all weather but heavy S.E. winds. The point of this shoal should, in my opinion, be marked by a can buoy, and a spar buoy could be placed to advantage on the Starwich Flats, four miles further East. Minor changes will perhaps be found in the boundaries of these shoals, which have been closely developed

8-A 1495.6

by lines less than  $\frac{1}{8}$  of a mile apart.

Pass River Roads is a small place - accommodating in 15 feet of water a number of small vessels behind the Breakwater, It will be found to have filled in considerably, when the Soundings are selected and plotted in. - Large vessels bound through the Northern Channel resort to Hyannis Roads generally in bad weather.

The Northern passage between Bishop + Clark's Light House + Point Jammon has been thoroughly developed, and the position of the Buoys marking dangers accurately located. This passage is nearly a mile wide. - The Shoal or Rock marked as Skilletts Rock, was not found, though several searches were made, - I suppose it was located by Lieut Paine in 1888, if not it should be marked for research next season. -

Many lines of Soundings which are indicated on the supplementary sheet (Standkerchief Shoal) are not plotted on the main sheet, but all lines run on the shoal

8. 4. 1877

and plotted on main sheet, have been transferred to the supplementary sheet.

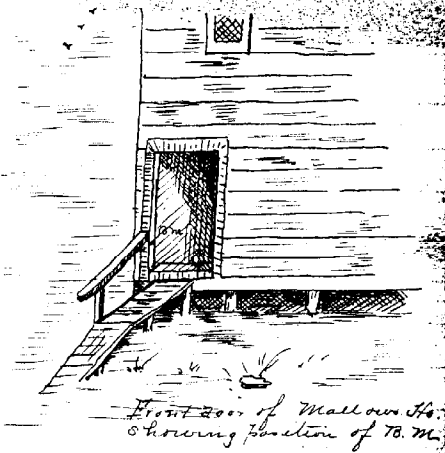
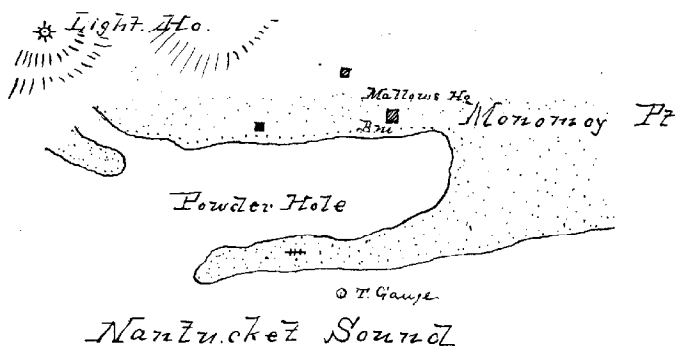
Tides were observed during the progress of this work at Monomoy Point, Bass River, and at Dennisport. The Soundings are generally reduced from the Monomoy gauge - a few reductions were made from the Dennisport gauge during the closing days of the season. All soundings between longitudes  $71^{\circ}09' - 12'$  and from the shore south to latitude  $41^{\circ}37'30''$  were reduced from the Bass River gauge. - The Dennisport gauge was set up principally for the comparison of tides on the North Shore with those at Tuckernuck Island. -

I have to regret that I was ignorant of the apparent shoal water between  $41^{\circ} + 42^{\circ}$  B. Daisy, until after the party had reached New Bedford on return to New York. A tracing of this spot has been kept, and will aid speedy investigation and development of this spot, if it exists. Many rocks under water and shoal spots to the S. S. E. of Bishop's & Clark's Light were located. - This ground is never passed

8A 49/8

over, unless some vessel misses the buoy  
(No 12) in Southern end of the chain of rocks  
and shoals

Tide Gauge, Powder Hole, Monquoy Pt., Mass.  
Established May. 29, 1889.



Front door of Mallovs Ho.  
showing position of B.M.

#### Description and Data.

Plain staff gauge attached to pile driven in the sand.

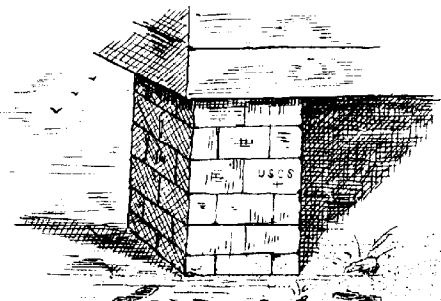
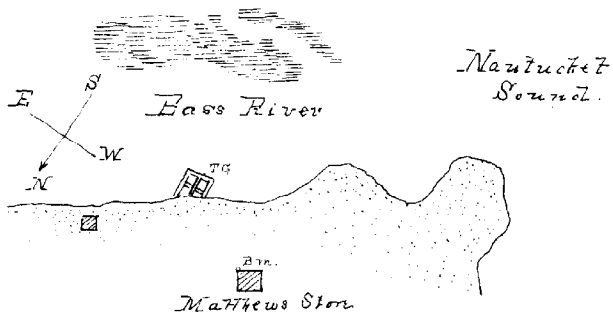
The B.M. is a nail driven in side of front door of Seth Mallovs House, established in 1887 by Asst. H. S. Marindin.

Mean of 59 high waters	5. 05 ft
" " 59 low "	1. 42 "
" range	3. 63 "
" level	3. 24 "
Height of B.M. above zero of Gauge	10. 31 "
Rise of highest high water above zero	6. 3 "
Fall " lowest low " below "	0. 0 "

Observer. James J. Ingh. Sea



Tide Gauge, South Yarmouth, Mass., (Bass River)  
Established May 28 1889



Sketch of B.M. cut in brick pillar under H. V. Matthews Store

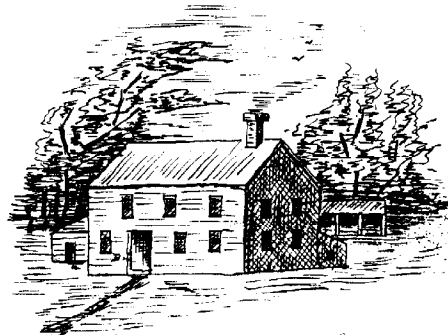
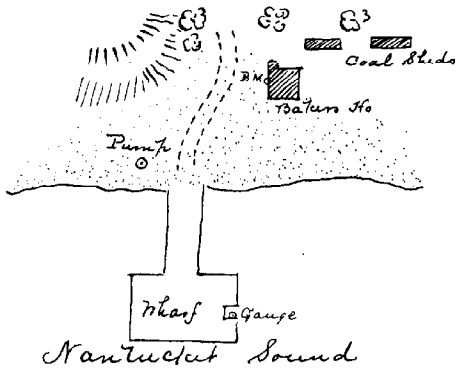
Description and Data

The gauge is situated on the outer end of H. V. Matthews wharf. The B.M. is a cross cut in the S.E. brick pillar under H. V. Matthews grocery store.

Mean of	high waters	5.5
"	low "	2.8
"	range	2.7
"	level	4.2
Height of B.M. above zero of gauge		16.00 ft.
Rise of highest high water above zero		7.40
Fall " lowest low "		1.4

Observer E. Olquist Sea

# Tide Gauge Dennisport, Mass. Established Aug. 6 1889



Store of S. S. Baker showing position of B.M.

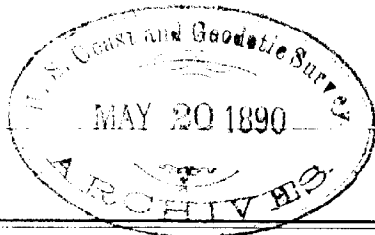
## Description and Data.

The gauge is situated near the end of wharf on E. side. B.M. No 1 is a row of tacks down in side of front door way of S. S. Bakers store. This B.M. has since been entirely destroyed by fire. B.M. No 2 is a row of tacks down in the fill alongside of the tide gauge.

Mean of 57 high waters	8.79
" " 57 low "	4.97
" range	3.82
" level	6.88
Rise of highest high water above zero	9.90
Fall " lowest low " " "	4.00
Height of B.M. No 2 above zero of gauge	12.00

Observer. B. V. Sinclair. Seas

431



U. S. COAST AND GEODETIC SURVEY.

*T. C. Mendenhall*, Superintendent.

State: *Mass.*

DESCRIPTIVE REPORT. "A"

*Hydrographic Sheet No. 1949.*

LOCALITY:

*Nantucket Sound  
and Vicinity.  
Chatham Roads  
& Stage Harbor.*

1889.

CHIEF OF PARTY:

*Lieut. W. P. Elliott, U.S.N.*

432r

REPORT-A

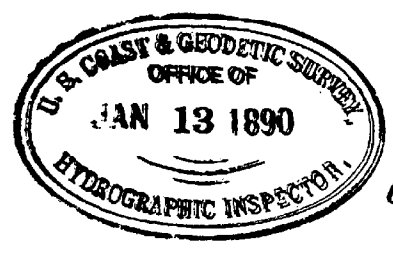
Projection 14

Nantucket Sound and vicinity.

Chatham Roads and Stage Harbor No. 1949  
1889

U.S.C.S. Schr EAGLE

Lieut W. F. ELLIOTT U.S.N.  
Chief of party



Forwarded  
Chas. M. Thomas, Lt. Comd'r., U. S. N.,  
Hydrographic Inspector C. & G. Survey

433

U.S. C + F. S. S. "Capre" 1889  
Navy Yard, New York Dec. 31<sup>st</sup>

Prof. J. A. Mendenhall  
Superintendent.

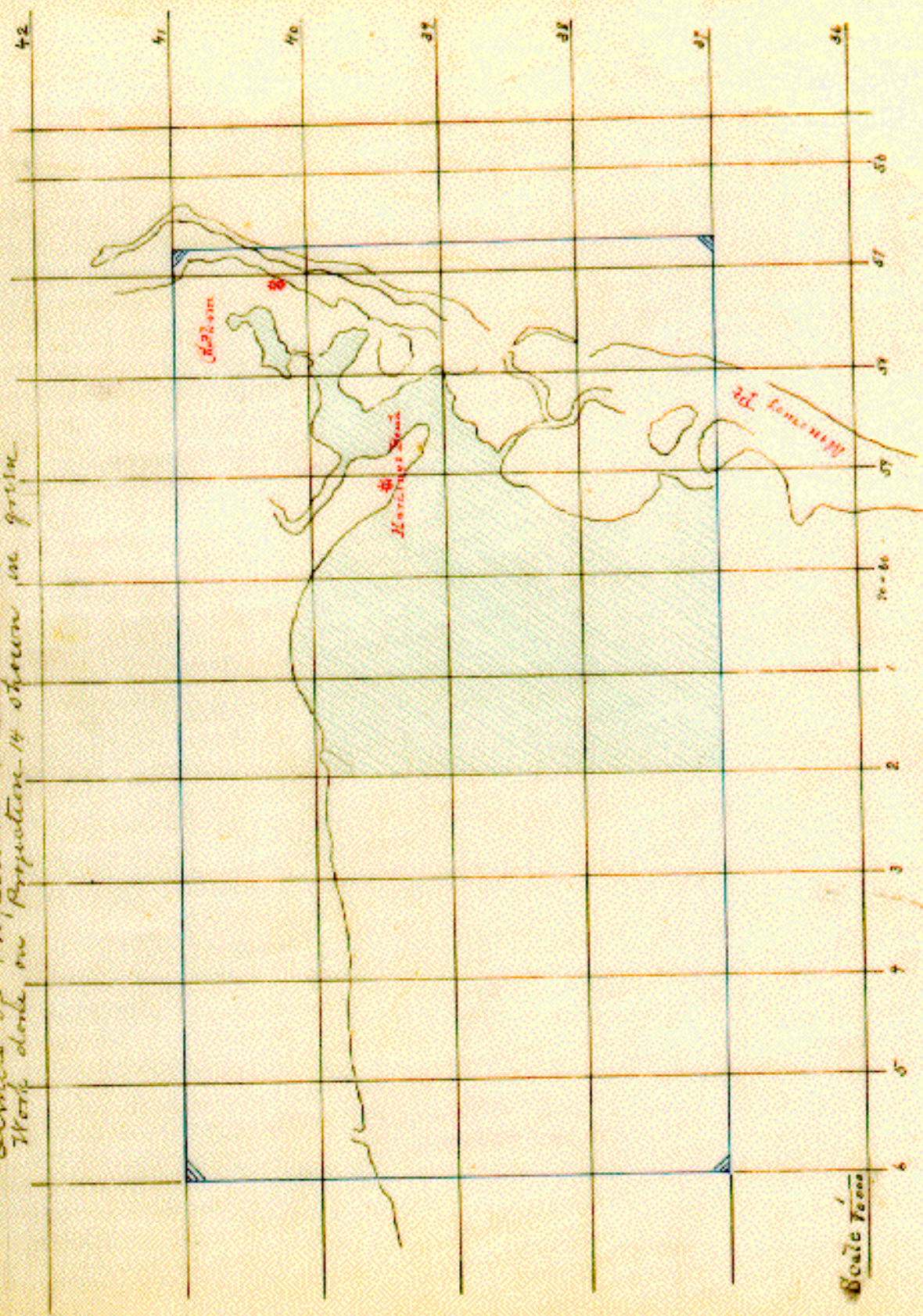
Sir:-

I have the honor to submit Report  
"A" to accompany Projection 14. Scheme  
for the Resurvey of Nantucket Sound &  
Vicinity, - executed by the party under  
my charge on board this vessel - using  
the tender "Daisy", Steam launches  
22, 23, 25, and boats of this vessel.

Very respectfully,  
Wm. F. Elliott

Lieut. U.S. Navy Comd'g  
Asst. C + F. Survey

Resurvey of Massachusetts Sound and Vicinity  
Coast Survey Schooner Eagle  
Limits of Projection shown in blue  
Work done in projection shown in green



Scale 1/10000

Report A. Proj 14. W. P. Elliott.  
U.S. Coast and Geodetic Survey. Lieut: U.S. Navy.

T. C. Mendenhall - Superintendent -  
Nantucket Sound and Vicinity -  
Massachusetts

Chatham Roads and Stage Harbor

Began - -  
Ended - -

Observers

- Lieut Wm P. Elliott - U.S. Navy Asst.
- 1 Ensigns - L. S. Van Duxet - E. H. Durell. 4
- 2 " C. A. Anderson - F. H. Brown. 5
- 3 " L. C. Bertolotti - C. M. Stone. 6
- 4 " J. Washington - (seaman C. F. Smith. 10
- 5 Pay Teas - M. J. Hasson - Irving King

Recorders

- Pay Teas - M. J. Hasson Seaman - C. F. Smith
- " " Irving King " J. Proctor
- Ship Wr. - W. P. Proctor

Leadsman

- Gr. Mrs. M. Haagan - E. Olsen - 2<sup>d</sup> M. Fire - J. Johannessen
- Seam - M. Nelson - J. Brackett - A. Johnson - S. Larsen - A. Gundersen - M. Petersen

Tide Observers - Mact: J. Tallen - Sea: R. W. Sinclair - J. Punch - E. Ollyquist

116

Profession 11

Table of Reference

Chatham Roads and Stage Harbor  
Sch. Fagre and boats W. F. Elliott U.S.N. 1857.

Date	Letter	Angles		Number of					Inlet	In charge	Observers	
		From	To	Sounding Boats	Un- sounded	Sound- ing	Angles	Miles				
June 4	a	108 <sup>45</sup>	82 <sup>113</sup>	1	1	511	72	11.7	d. 23	CAH	CAH	ARRH
" 18	b	1	14	2-3	1-2	226	28	4.	d. 25	CAH	CAH	ARRH
" 18	b	43	52	1	1	343	38	6.	d. 25	CAH	CAH	ARRH
" 20	a	36	45	1	1	279	26	5.4	d. 22	CAH	CAH	ARRH
" 20	c	1	32	1	1	752	64	10.	d. 24	CAH	CAH	ARRH
" 21	b	122	138	1-2	1	447	36	7.	d. 22	CAH	CAH	ARRH
" 21	d	133	144	1-2	1-2	323	36	6.4	d. 25	CAH	CAH	ARRH
" 24	c	1	9	2	2	127	18	2.2	d. 22	CAH	CAH	ARRH
" 24	e	98	102	2-3	2-3	166	26	2.5	d. 25	CAH	CAH	ARRH
" 25	d	17	26	3	3	227	28	3.8	d. 22	CAH	CAH	ARRH
" 25	f	1	40	3	3	448	80	5.	d. 25	CAH	CAH	ARRH
" 25	a	1	35	1	1	302	68	3.	W.B.	CAH	CAH	ARRH
" 26	e	1	59	3	3	1052	118	14.6	d. 22	CAH	CAH	ARRH
" 26	b	1	86	1	1	743	170	4.	W.B.	CAH	CAH	ARRH
" 28	c	1	11	2	2	159	21	1.	W.B.	CAH	CAH	ARRH
" 29	g	1	56	4	4	827	112	11.2	d. 25	CAH	CAH	ARRH
" 29	d	1	49	2	2	366	100	3.	W.B.	CAH	CAH	ARRH
July 1	f	1	31	4	4	531	62	8.3	d. 22	CAH	CAH	ARRH
" 8	g	81	86	4-5	4-5	90	12	1.4	d. 22	CAH	CAH	ARRH
" 10	u	28	45	6	6	426	52	6.3	d. 22	CAH	CAH	ARRH
" 12	e	1	22	2	2	335	44	2.	W.B.	CAH	CAH	ARRH
" 26	f	1	87	2-3	2-3	1747	174	11.	W.B.	CAH	CAH	ARRH
Oct 12	h	66	79	4	3-4	246	28	2.	W.B.	CAH	CAH	ARRH
" 18	e	1	32	5	5	578	64	4.3	W.B.	CAH	CAH	ARRH
" 19	h	1	38	5	4	663	76	2.8	W.B.	CAH	CAH	ARRH



Projection No 14

<u>Soundings</u>	<u>Angles</u>	<u>Miles</u>
12179	1629	138.9

Report A Proj 14.

43<sup>1/2</sup> 1

Chart III gives sailing lines for the approach of vessels to Chatham Roads. For the entrance to Stage Harbor local pilots may be obtained, - There are two very shoal spots to be crossed, and the stand of high water is short, - so that schooners drawing  $7\frac{1}{2}$  + 8 feet, no matter how quickly handled, may not go in on one tide. - Deep water is found all along to the northward of buoys 4 + 6, and beyond the middle-ground-buoy. Anchorage is safe anywhere, but better in a soft spot between M. S. Buoy and No 6. Standing in, the channel passes close to Red Spar buoy No 8, and within a vessels length of No 10, close up to the beach, when a sharp turn must be made to the southward, passing close to wharves at Fish-Houses. Then head for black spar buoy No 1, which may be closely passed, - this and a bush mark the limits of the wide shoal running out from the point of the beach towards Red buoy No 2. - This shoal extends to the southward between No 1

A 3  
1138

and the bush, so that a considerable sweep to the southward between No 1 and No 2 is necessary. - A beach channel with from 4-5 feet at three quarters tide leads close around the point. - From No 2 to No 3 there is 10 to 12 feet, and No 3 or "Punch buoy" must be rounded sharply, heading directly for the beach and normal to it, as indicated on the finished sheet by channel lines. This is the worst part of the entrance, and where vessels of full draft stick for a tide. - From the buoy to the beach the channel seems to be lumpy, and while one has 8 feet all around, there may be 7 ft under the keel. Running close to the beach, head up to the Northward to clear the bush on flats off "Hill 0". Rounding Red-buoy No 14, the channel lies close to a mid-channel buoy with a cylinder on top of it, and leads directly past wharves, avoiding flats to southward, to anchorage at short scope off Fish House. The mill pond back of the village, has

A. 3  
1739.

no commercial or hydrographic value, but a series of lines were run through it at the request of some of the village fishermen & boat builders. Oyster Pond which opens into the main inlet at the upper and inner end of Stardings Beach is of value for the propagation and fattening of oysters, and hundreds of barrels go to the Boston Market. No lines were run in this water.

To the south of Stardings Beach stretches the "Common Flat" a wide expanse of flat covered to a depth of a foot with sea clams in some places. These are shovelled up in the winter by the fishermen at low tide, as they can wade about for two or three square miles. Dory channels or "Slues" run through the flat but it was impossible to locate all of these with our boats. The general direction of one of them shows in the Eastern line of Soundings on the finished sheet, running from the point of Stardings Beach to the Head of the

A 4  
1440.

Monomoy Island. -

It is impossible for me to say whether or not the depths found in this locality are greater or less than those of previous years, as there is no sheet available for comparison. -

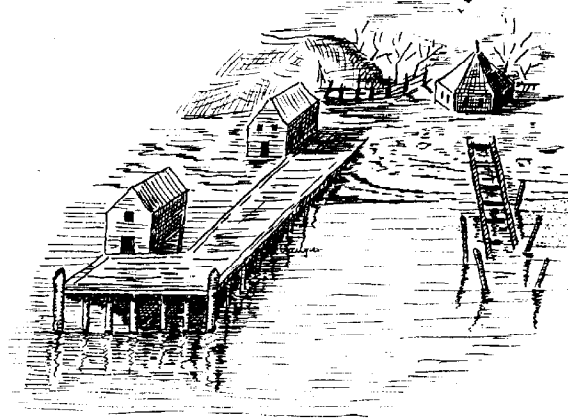
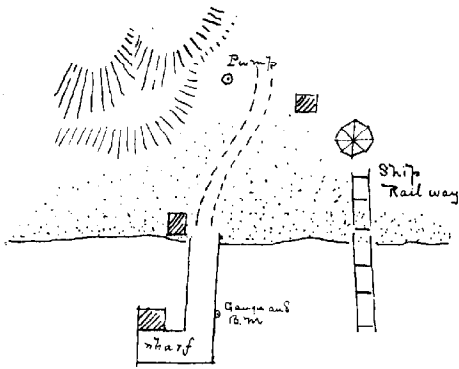
The buoys are sufficient in number and character, and are supplemented by the bushes planted by the fishermen.

Tidal currents are moderately strong, and as stated in Report B. a series of observations would be interesting. -

All sounding on this projection have been reduced to the plane of mean low water at the Fish House on wharf in Stage Harbor. - The change from reductions by this gauge to those from the Monomoy gauge at the limits of the sheet is slight, - and the character, of tide throughout does not differ greatly from the one mentioned. The range in the inlet is 6 foot greater than at Monomoy.

444

Tide Gauge, Chatham Wharf, Stage Harbor, Mass.  
Established June 13 1889

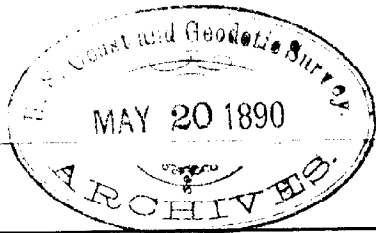


Description and Data.

The gauge is upon the eastern side of the easternmost fish wharf in Stage Harbor. It is nailed to one of the piles of the wharf and is about 10 yards from the outer end. The B.M. is 6 copper tacks driven in the pile to which the gauge is attached.

Mean of 57 high waters	9.84
" " " low "	5.84
" range	4.00
" level	7.84
Height of B.M. above zero of gauge	11.00
Rise of highest high water above zero	11.50
Fall " lowest low " " "	4.60

Observer. Seaman B. T. Sinclair



U. S. COAST AND GEODETIC SURVEY.

*J. C. Mendenhall*, Superintendent.

State: *Mass.*

DESCRIPTIVE REPORT. "B"

*Hydrographic* Sheets No. S. *1947,*  
*1948 & 1949.*

LOCALITY:

*Nantucket Sound*  
*and*  
*Vicinity.*

*1889.*

CHIEF OF PARTY:

*Lieut. W. P. Elliott, U. S. N.*

443.

1947, 1948 & 1949

- Report-B -

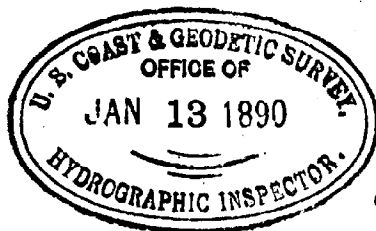
Nantuxet Sound and vicinity -

- 1889 -

- U.S.C.S. Sctr. "Fagre" -

- Lieut W. P. Elliott U.S.N. -

- Chief of party.



Forwarded  
Chas. M. Thomas, Lt. Comd'r., U. S. N.,  
Hydrographic Inspector C. & G. Survey.



B. Report B. Sch'r "Espre" 1889. 444.

U.S. C. & S. Sch'r "Espre"

Navy Yard New York. Dec 10. 1889

Prof. T. C. Mendenhall

Superintendent :-

Sir

I have the honor to submit the following "Descriptive Report" B. of the Hydrographic work executed by the party under my charge on board this vessel, in Nantucket Sound & vicinity, during the summer of this year.

I assumed command of the vessel March, 19<sup>th</sup> and the work of fitting out and necessary repairs was begun early in April. - The vessel and party were ready for work by 1<sup>st</sup> May, and on May 7<sup>th</sup> I proceeded in tow of the tender "Daisy", with three launches in company, to make the current observations off Coney Island, New York Bay, ordered by the detailed instructions of the Hydrographic Inspector dated May 3<sup>rd</sup>. - A report of this work was submitted to the Hydrographic Inspector on May 12<sup>th</sup>,

and referred to in my report to you of the work done in the fiscal year 1888-89 dated October 24<sup>th</sup> 1889. -

I then proceeded to Chatham, Mass., to carry on the hydrography of Nantucket Sound, arriving there May 23<sup>rd</sup>. In accordance with a verbal suggestion of the Hydrographic Inspector, after laying at anchor in Chatham Roads for 48 hours, I decided to take the schooner inside Stage Harbor, a small inlet to the westward of the town, (see projection 14,) which extends nearly to the Atlantic. -

This was found to be a safe and convenient headquarters for the work on the projections 8 A + 14. - The party was transferred to Nantucket Harbor August 3<sup>rd</sup> and work begun on the gaps in hydrography on the South Shore of the Sound (Projection 3a.) -

For the work at the western end of this sheet the party was transferred to Edgartown, Martha's Vineyard - on October 3<sup>rd</sup>. Having finished this

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projection I proceeded to Hyannis, Mass, on October 9<sup>th</sup> and to Chatham Roads for a day on October 17<sup>th</sup> completing the northern projections. - During to the lateness of the season, and the approaching detachment of my assistants I closed work on October 22<sup>nd</sup> and proceeded with the party to New York Navy Yard, in accordance with Instructions from you dated October 7<sup>th</sup>. - Since the arrival of the party, repairs to vessel and boats have been begun, and office work continued by the assistant and recorders remaining in the party. - Ensign L. S. Van Duzer, and C. A. Anderson were attached to the ship when I took command and remained during part of the season. - Ensign L. C. Bertollette, C. H. Durell, F. H. Brown, C. M. Stone and T. Washington reported for duty during the Month of July. Ensign Anderson was detached on July 12<sup>th</sup> and ordered to the office, - Ensign Van Duzer was detached on

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August 10<sup>th</sup> and ordered to duty in the Hydrographic office of the Bureau of Navigation Navy Department. Lieut. A. L. Hall reported for duty August 21<sup>st</sup> and was detached October 12<sup>th</sup> - ordered to Command U.S. Steamer Endeavor. -

Ensign Bertolotte was detached October 18<sup>th</sup> and ordered to the Steamer "Becke";

Ensign Stone detached and ordered to the Steamer "Blake", and Ensigns Brown & Washington were ordered to the Steamer "Endeavor" on October 27<sup>th</sup>. Pay Yeoman A. R. Hasson as Draughtsman and Recorder, Pay Yeoman Irving King as Recorder and Observer, Seaman-Recorders C. W. Smith, J. M. C. Tiffany, James Proctor, and Ships-Writer & Recorder Wm B. Proctor have been with the party, in the capacities noted and have been efficient and zealous. The coxswains of tender "Daisy" and launches, and the machinists in charge of Engines have been faithful and competent. Lieut Hall, Ensigns Anderson, & Van Duzer have had experience in the

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Survey and did valuable service in this party. - The younger Cusquis, fresh from their final examinations for a Commission rapidly became expert in the use of instruments and management of the boats. - I desire to testify to the general zeal and interest displayed by all of them.

Coast Survey Chart No 111, covers an expanse of water that is of incalculable value to our Coasting trade. - After an unfavorable wind for a few days the Schooners dot the whole expanse as they carry on for their destinations, and in the part of this re-survey entrusted to me, I have aimed to do the work with all the accuracy and refinement necessary. - The rise and fall of the tides is small - four feet, but the question of the tidal currents is a very important one. - The great ocean current coming in from the side of the gulf of Maine, and the Atlantic tide through Muskeget Channel & Vineyard Sound produce currents in Nantucket Sound.

whose laws are not easy to establish, and whose effects vary from many causes. The general rule of skippers & local authorities is crude but serves the purpose of facilitating passages through the Sound. - It is concisely stated as follows: The tide turns West at Pollock Rip 2 hours before St W. or Moon South, and at Handkerchief Shoal 1 hour before St W or Moon South. - It turns West in Vineyard Sound 2 hours later than at Pollock Rip, so that taking a new western tide at Monouoy, a vessel beating to the westward has from 7 to 8 hours fair tide. - Beating to the Eastward the Eastern tide is short, as it has made at Pollock Rip 2 hours before it did at Gay Head. - But this rule is of little account in estimating time of set or strength on such shoals as the Handkerchief or Tuckeruck and the adjoining banks. - Then the swirl and rip may or may not follow through a tide, and safety for vessels in thick weather lies

in mid channel. -

It is the practice of all schooners bound East and West through Nantucket Sound to make frequent anchorages. They are all lightly manned, and in addition to the extra vigilance required of the Master of a vessel beating to windward in a channel of varying width, it would wear the crew out to be up all day and night putting the vessel about. - So the vessels are found when the wind is foul or too fresh, or fog thick laying at anchor in all shelters and in the open sound. -

Chatham Roads is not near the thoroughfare, and therefore is not as much used as its good qualities as an anchorage make advisable, but in the Easterly gales of Autumn, and the S.W. breezes of Summer, the lee of Bishops & Clark's Shoal, Pass River Breakwaters off Dog-fish and Kill Pond Bars, and even under the tail of the latter, are much used. -

Great changes undoubtedly take place in the shoals at the Eastern end of the Sound, as has been noted by hydrographers

at Muskeget. - Powder Hole, in 1840-50, an anchorage for scores of vessels engaged in fishing and transporting fish, is now an inconsiderable inlet allowing only a dory to pass the bar at half tide. During the September gales of this year the mouth of this inlet moved up the beach a quarter mile, and it never again can be of use except as a landing place for fishermen who have been at their nets. - The Great Sand Kerchief Shoal has changed somewhat in shape and depths at various points as will be pointed out in the particular description of projections. It is no less a danger in the path of vessels than it has been. -

~~The town of Chatham~~ was originally an Atlantic Seaport, but of late years the closing of the beaches on that side has obliged the fishermen to fall back on Stage Harbor, the inlet on the West. - Landing into Chatham Roads on the range of Harding's Beach Light under



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the Chatham Lights brings one to the middle-ground or Cape buoy. - Swinging around this buoy to bring it and the outer red bar buoy equi-distant, vessels may anchor and ride out a heavy gale from any quarter. - To get into Stage Harbor, a short vessel drawing 8 feet may manage it at the top of the tide. This vessel had to be towed, kedged & dragged from lump to lump going in and out. - The turns are exceedingly short, but once inside the beach abreast the Light, a fair channel with 12 feet runs up to the wharves. -

At these wharves coal and wood from small craft are unloaded, and one of the two is devoted to packing and shipping fish for the Boston and New-York Markets. - The whole coast from Monomoy North and East <sup>West</sup> to South Yarmouth is marked by fish-weirs and when they are not in condition, fill-nets almost cross the inner Roads. -

Any fairly competent man can carry his vessel up to Chatham Roads. - though

no detailed chart of the locality of Chatham Roads + Stage Harbor has been printed. - Chart 111 showing the buoys with more or less accuracy and Entrance to Nantucket Sound Atlantic Coast Pilot No. 3. gives a line of soundings up the inlet without inner buoys. - Efforts have been made by the people of the Cape to get Congressional action towards dredging a 12 foot Channel. Eldredge's survey of the Harbor was made three years ago, but I do not understand that it was as thorough as is the practice in this service. - On that survey representations were made to the Engineer's officers and a reconnaissance was made by an officer - the scheme being to cut across Standings Beach. Nothing has been done and no money appropriated. Small vessels are laid up there during the winter and no doubt a deepening of the Channel, in the shoalest spots would be a great benefit to the fishing interests, and also enable the people of that isolated end of the Cape to land coal, lumber &c to advantage. -

I have been astonished when told by Yachtsmen of skill that they did not like to get up to the Northward as it was so far out of the way, In two or three cases they have beat all the way to Edgartown or Vineyard Haven at night, when decidedly unpleasant S.W. weather prevailed. - A reasonable amount of confidence in Chart. 111, would have taught them where to find a comfortable anchorage.

Wharves are found along the North Shore at "Deep Hole" off South Harwich, Harwich port, West Harwich, Dennisport; and at South Yarmouth on Bass River, vessels of three or four feet draft must be unloaded in barges at the Bass River Breakwater. - At no one of these wharves is there more than 7 to 8 feet - that at Dennisport having the best water. -

Coal can be bought at Stage Harbor, and taken off in small boats from other wharves, notably <sup>that</sup> of S. S. Baker at Dennisport. - Wood and lumber is also brought in small vessels for the people of

the Cape. Casks of water may be bought on wharves. - The old Colony R.R. and its Chatham branch furnish means of transportation from all parts of the Cape. -

The different towns along the Coast are large in extent, and each town is divided into villages, with the prefix of the cardinal Compass point, viz West Chatham, East Harwich &c. - Agriculture is not flourishing, - Cranberry marshes and berries of all kinds furnishing income to many however, - Fishing is general in all the Cape towns, and the fish from weirs boats & nets go to market by rail in barrels of ice. -

Wrecks are frequent, and underwriters agents are found in all towns. - When a vessel is reported ashore or in distress, tugs must be ordered from Vineyard Haven, or Boston. - Sunken wrecks are promptly buoyed by the Light House Steamer, and attempts have been made to remove them or break up by the use of torpedoes.

Several casualties occurred in September & October of this year. - One interesting derelict abandoned, waterlogged and dismantled, at "Handkerchief", drifted West, stuck a few hours on "Shovelful" or Long Shoal, - then again drifted out to sea through Muskeget Channel, along the South Shore of Long Island and was finally towed into New York. - This voyage lasted about ten days. -

Pass River Breakwater is an unfinished affair, and I should rather credit it with being an impediment in so far as it gives the sand a place to pile up, than being a place of Refuge. - The Configuration of the shoal at that point makes it a comfortable anchorage for small craft, - as they are in a bight between Dog fish & Kill Pond Bars.

The broken and rocky ground in the vicinity of Bishop & Clark's Light and Shoal may need fuller development,

At the beginning of the season and at the end I made great efforts to find a

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"15 foot spot" on which a tow of coal barges touched a year ago. A first-class local authority at Hyannis assured me that the grounding occurred either on the 17 foot spot indicated 3 miles E.S.E. Bishops + Clarks Light, or on the sunken "Seminole" in mid Sound. - At any rate I did not find any indications of such a spot until I had left the field, when in plotting on the smooth sheet part of a line run by Lieut Hall on his first day in the tender "Daisy" and which he had rejected on account of its irregularity of course, I found indications of the spot, if not the place itself. - of course this will be looked into next season, - and the locality thoroughly searched. - (see Report H. Proj 8 A.). - I desire to remark at this place that all my plotted positions of buoys locate them clear of shoals, while it is the practice of the Light House officers to indicate them on the edge or tail of the banks. - This is an

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error on the safe side, but it leads to inaccuracy, when the navigator attempts to use buoys to locate his position - by cross-bearings for instance. -

Aids to Navigation. - Buoys seem to be placed wherever needed on the North side of the Sound, but a whistling or bell buoy at the N.W. corner of Haudkerchief shoal, in place of No 3. would be a great advantage to vessels standing up for Chatham Roads and fearful of the shoals to Eastward. - The buoy which marks the wreck of the "King Philip" I located, in accordance with instructions from the Hydrographic Inspector, "Wreck of the Seminole." I never saw in all my cruising about, though a careful lookout was kept, nor has it been seen by any member of my party, The Exchange building at Harwich should be indicated, in some way on Chart 111. - It is by far the best day mark on the coast, showing up like a "bug-light" when the shore line

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is below the horizon. - It is about 50 yards from  $\Delta$  Starwich Belfry (see projection S. A.). - Bass River Light House is not distinguishable by day to any one but those who live alongside it. - My assistants often could not find it on a fair seeing day, At night the Sound is well lighted. I had on the night of August 3<sup>rd</sup> while beating across to Nantucket, - Monomoy, Great Point, Sand Kerchief Light Ship, Bishop & Clarks & Cross Rip Light Ship in view at the same time. -

~~The Hydrography~~ on South Side of the Sound presented great difficulties on account of the distance from land making seeing signals almost impossible except on exceptional days; roughness of sea and prevalence of strong breezes. - The strong and varying currents made it useless to attempt to keep the lines straight, but it is hoped that they are not the less accurately located. The general lay of the work was in and near



the track of the Steamers between  
Martha's Vineyard & Nantucket. - If  
September had afforded a few smooth  
days, an attempt would have been made  
to determine the strength and direction  
of the currents at three or four points.  
But the weather was almost all bad  
in that month, and the project was  
abandoned.

Nantucket is increasing in im-  
portance and population as a summer  
resort, and if the Entrance is deepened  
by the Jetties in course of construction  
larger Steamers will be demanded in  
a few years, and the "Slue" across  
Luckerneck shoal is of great import-  
ance to them, 10 $\frac{1}{2}$  feet can be carried  
across it at all tides, but the need of  
a bell buoy in place of the present  
small spar is in my opinion im-  
perative. - It is greatly desired by all  
the Steamer Captains, as they cross  
there in dense fogs, and a great loss  
of life might easily occur if one of

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the Steamers should miss the "blue" through mis-calculation of run, course + current, run on the shoal + break up in a moderate gale. - The different Captains have desired me to write a letter to the C.S. office to be forwarded to the Light House Board and it is my intention to do so. - With such a buoy, the Steamers are comparatively independent of currents which the Master may have misjudged. - The Course from Nantucket Jetty to the Blue Buoy is a straight line, which from the present edition of Chart 111. appears unsafe. - I am sure the shape of these shoals will be found to have changed greatly when the hydrography of 1888-89 is embodied in a new edition. -

Marine Railways, - only one small railway is found at Chatham on the North Side, and a smaller one has been built this season at Nantucket for the accommodation of the local cat-boat skippers. - The Railway at Chatham will

hold vessels of 50 to 60 feet in length - the ordinary fishing Schooner of the Sound. - Larger vessels must go to Vineyard Haven to haul out.

Boat building is quite an industry at Harwichport, where several large and able cat-boats & sloops are built every year to supply the neighborhood.

Steamer Lines. - Only one local steamer line is found in these waters, twice a day during the summer months from New Bedford, via Woods Hole to Cottage City and Nantucket and return, and in the winter season once a day from Woods Hole, via Vineyard Haven to Nantucket and return. - This line is a part of the old Colony System of Rail & Steamer travel, and affords a fairly comfortable trip in most weather. - Heavy gales such as prevailed in the early part of September of this year interrupt communication, and Nantucket is then completely isolated from Martha's Vineyard & the

Mainland. - The Military Telegraph wires are generally down at such times as well. -

Weather signals are displayed at Hyannis, Nantucket, and at Chatham Lights.

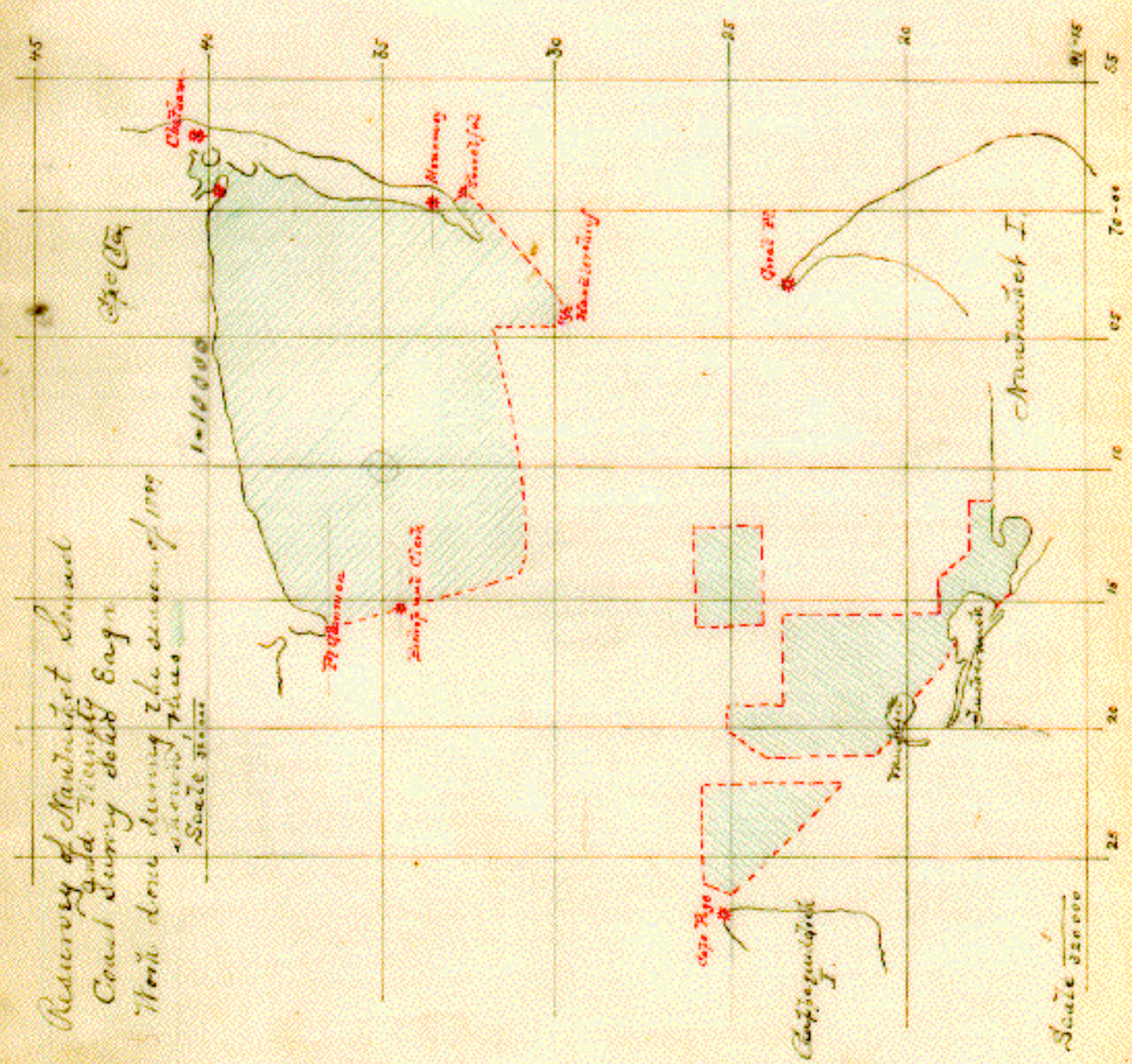
A packet schooner plies between Nantucket + Boston, making weekly trips with heavy freight.

Tides - a tracing of tide curves is appended to this report - showing the tides at five stations within the limits of the work on September 3<sup>rd</sup>. Tidal reductions have been made from different gauges according to the proximity of the sounding lines; - Tidal data for each projection appear in Reports A.

Statistics of the seasons work are tabulated herewith.

Very respectfully,  
W. F. Elliott  
Lieut USN & Asst. & S.

Reservoir of Manhattan Island  
Coast Survey dated Sept  
1889 done during the season of 1889  
Scale 1:100,000



Scale 1:100,000

U.S. C.S. Schr. "Cagre" tender "Daisy" 3 Steam Launches.

Lieutenant W.F. Elliott U.S. Navy Commanding.

Season of 1899.

Locality	Port	Month	Working Days	No. of Books	Letters	Color	Angles	Sounds	Miles
North	Steam Launches	June	5	1-2-3	a to e	Red	786	6917	101.2
"	"	July	9	4-5-6-7-8	f to m	"	1164	10406	145.0
South	"	August	1	1	a	"	40	218	2.2
"	"	September	1	1	b	"	10	70	1.0
South	"	October	8	1-2-3-4-10	e to f	"	1160	8153	122.0
North	"	June	2	1	a to b	Blue	318	2555	38.2
"	"	July	8	2-3-4-5-6	c to d	"	1152	11671	181.2
South	"	August	5	1-2	A to C	Blue	536	3660	59.1
"	"	September	3	2-3	F to H	"	323	1868	36.1
North	"	October	3	5-7	I to m	"	180	1021	17.25
"	"	June	7	1-2-3-4	a to g	Blue	930	8262	118.52
"	"	July	14	4-5-6-7-8-9-10	h to v	"	1674	16438	245.70
South	"	August	5	1-2	a to e	"	398	2886	41.0
"	"	September	2	1-2	f to g	"	234	1415	29.75
South	"	October	9	3-4-5-6-7-8-9-10-11-12-13	h to v	"	1456	10581	146.50

"	"	North Steamer "Hairy"	June	1	1	A	Red	37	681.	11.0.
"	"	"	August	1	2	B	"	196.	1050.	22.8.
"	"	"	September	5	2-3.	C to G.	"	622.	3319.	95.25
"	"	North "Sunk"	October	6	4-1.	Ia to Ie.	"	577.	2703.	78.5
"	"	North Whale Boat.	June	4	1-2	a to d.	Black	359.	1770	11.0
"	"	"	July	2	2-3.	e to f.	"	218.	2042.	13.0
"	"	South	August.	5	1.	a to e.	"	300.	2284	19.1
"	"	"	September	5	1-2-3.	f to j.	"	458.	4203	32.25
"	"	North	October	4	3-4-5.	g to h.	"	548.	5632	43.1.
"	"	North City -	September	1	1.	A.	"	86.	758	4.8.

Grand - total -

13762 110563 1615.75

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Nantucket Sound & Vicinity  
Steam Launch No 22

Date	Day	Journal	Angles	Sounding	Miles
June 20	a	1	90	709	10.2
" 21	b	1-2	276	2142	32.6
" 24	c	2	190	1922	28.7
" 25	d	3	112	1092	15.1
" 26	e	3	118	1052	14.6
			786	6917	101.2
July 1	f	4	138	1179	17.
" 8	g	4-5	172	1756	23.
" 9	h	5	168	1738	23.5
" 10	i	6	186	1741	23.
" 11	j	7	76	627	10.
" 19	k	7	68	504	7.
" 24	l	7	48	363	6.
" 25	m	7-8	128	1078	13.5
" 26	n	8	178	1420	22
			1162	10406	145.00
August 1	a	1	40	218	2.2
September 27	b	1	10	70	1.
October 3	c	1	206	1376	21.5
" 4	d	2	76	577	8.2
" 5	e	2	188	987	17.1
" 7	f	2	30	249	3.9
" 8	g	2-3	242	1893	24.3
" 9	h	3	124	755	15.
" 17	i	9	94	789	11.
" 19	j	10	200	1527	21.2
			1160	8153	122.2



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Nantucket Sound & Vicinity  
Steam Launch No. 33.

Date	Way	Journal	Angles	Soundings	Miles
June 14	a	1	228	1881	38.2
" 18	b	1-2	90	674	10
			318	3550	38.2
July 16	c	2	136	1394	23
" 17	d	2-3	112	1179	16.4
" 18	e	3	154	1313	26
" 22	f	3-4	210	1795	28.5
" 23	g	4	114	1298	16
" 24	h	4	140	2529	53
" 25	i	5	120	1348	19.5
" 26	j	5-6	166	1815	29
			1152	11571	181.20
August 12	A	1	168	1352	23
" 17	B	1	28	177	3
" 19	C	1-2	168	1129	20
" 23	D	2	94	552	8
" 30	E	2	78	450	8.5
			536	3660	59.1
September 5	F	2	24	239	3
" 16	G	2	28	153	3
" 24	H	2-3	276	1476	29.3
			323	1868	36.1
October 10	K	6	50	476	7.5
" 11	L	6	14	7	-
" 12	M	7	116	538	9.15
			180	1021	15

Nantucket Sound & Vicinity  
Steam Launch No. 55.

Date	Day	Journal	Angles	Sounding	Miles
June 13	a	1	80	578	6.5
" 18	b	1	103	967	13.75
" 20	c	1	64	752	10.
" 21	d	1-2	288	2621	39.9
" 24	e	2-3	203	2067	32.2
" 25	f	3	80	448	5.
" 29	g	4	112	837	11.2
			930	8262	118.55
July 1	h	4	116	1119	14.7
" 8	i	4-5	158	1640	21
" 9	j	5-6	178	2004	28.1
" 10	k	6	178	1657	23
" 11	l	7	98	1101	15.6
" 12	m	7	80	729	11.6
" 16	n	7-8	140	1524	20.
" 17	o	8	86	767	11.
" 18	p	8-9	162	1695	25.
" 19	q	9	12	149	1.9
" 22	r	9-10	206	1778	33.7
" 23	s	10	14	110	1.1
" 24	t	10	106	932	16.
" 25	u	10	140	1215	20.
			1674	16438	245.70
August 12	a	1	110	877	11.0
" 17	b	1	22	149	2.
" 19	c	1	104	593	8.5
" 23	d	1	80	647	10.
" 30	e	2	82	620	9.
			398	3886	41.0
September 3	f	2	30	302	4.1
" 24	g	2	204	1113	25.75
			234	1415	29.75

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Nantucket Sound Vicinity  
Steam Launch No. 35.

Date	Day	Journal	Angles	Soundings	Miles
October 3	h	3	116	995	13.
" 5	i	3	124	1039	13.60
" 8	j	4	160	1135	18.4
" 10	k	11	112	781	10.5
" 11	w	11	250	1788	26.
" 12	x	12	282	1758	25.3
" 17	y	12-13	120	1340	17.
" 18	z	13	190	1371	17.2
" 19	aa.	13	50	374	5.5
"			1404	10581	146.50

Steamer "Waisy"					
Date	Day	Journal	Angles	Soundings	Miles
June 14	A.	1	137	687	11.
August 31	B.	2	196	1050	22.8
September 5	C.	2	24	114	2.75
" 6	D.	2	72	420	8.
" 23	E.	2-3	210	1219	40.
" 24	F.	3	212	1109	29.
" 25	G.	3	104	457	15.50
			622	3319	95.25
October 3	H.	1	178	709	18.
" 5	B.	1	80	583	16.5
" 8	C.	1	60	324	12.
" 12	D.	4	36	115	4.
" 18	E.	4	115	535	14.
" 19	H.	4	108	437	14.
			577	2703	78.50

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Nantucket Sound & Vicinity  
Whale Boat.

Date	Day	Journal	Angles	Soundings	Miles
June 25	a	1	168	302	3.
" 26	b	1	170	743	4.
" 28	c	2	21	159	1.
" 29	d	2	100	566	3.
			359	1770	11.
July 12	e	2	44	335	2.
" 26	f	2-3	174	1707	11.
			218	2042	13.
August 9	a	1	46	302	2.6
" 17	b	1	42	327	3.3
" 21	c	1	30	324	2.5
" 30	d	1	64	465	4.7
" 31	e	1	118	866	6.
			300	2284	19.1
September 6	f	1-2	120	1058	7.9
" 21	g	2	36	275	1.8
" 25	h	2	110	907	8.5
" 27	i	2	34	311	2.8
" 30	j	2	158	1652	11.25
			458	4203	32.25
October 11	a	3	200	2230	17.9
" 12	b	3-4	158	1693	12.6
" 18	i	5	64	578	4.3
" 19	k	5	126	1131	8.3
			548	5632	43.1

Gig

Date	Day	Journal	Angles	Soundings	Miles
September 30	A.	1	86	758	4.8

# Recapitulation

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Month	Boat	Angles	Soundings	Miles
June	Launch 22	786	6917	101.2
July	"	1162	10406	145.
August	"	40	218	2.2
September	"	10	70	1.
October	"	1160	8153	122.2
		3158	25764	371.6
June	Launch 23	318	2555	38.2
July	"	1152	11671	181.2
August	"	536	3660	59.1
September	"	323	1868	36.1
October	"	180	1021	17.25
		2509	20775	331.85
June	Launch 25	930	8262	118.55
July	"	1671	16438	245.7
August	"	398	2886	41.
September	"	234	1415	29.75
October	"	1456	10581	146.5
		4689	39582	581.55
June	Steamer "Haisy"	37	681	11.
August	"	192	1050	22.8
September	"	622	3319	95.25
October	"	577	2703	78.5
		1428	7753	207.55
September	Opig	86	758	4.8
June	Whale Boat	359	1770	11.
July	"	218	3042	13.
August	"	300	2284	19.1
September	"	458	4203	32.25
October	"	548	5622	43.1
		1883	15931	118.45
		13.762	110.563	1615.75

A.M. Sept 3

4 5 6 7 8 9 10 11 12 Merid P.M. 1 2 3 4 5 6 7 8 9 10 11 12 Mid A.M. Sept 4

1.74

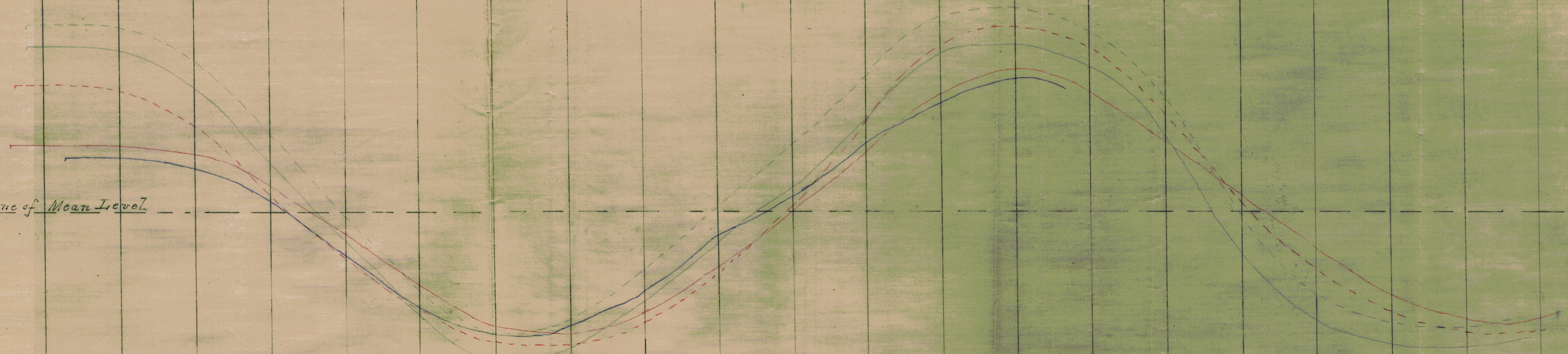
Plane of Mean Level

Resurvey Nantucket Sound and Vicinity  
 C. S. S. Eager, season of 1889  
 Tidal Curves Sept 3 1889

Tide curve at Powder Hole Monomoy Pt	thus	---
" " " Stage Harbor	"	- - - -
" " " Dennisport	"	— — — —
" " " Bass River	"	— — — —
" " " Tuckernuck I.	"	— — — —

Scale of time - 1 in = 1 hour  
 " " height - 1 " = 1 foot

Note - The curves at Dennisport, Bass R. and Tuckernuck were constructed from simultaneous observations taken on Sept 3. The curve at Stage Harbor is artificially constructed from a comparison with Bass R. on June 20 and that at Monomoy Pt from a comparison with Dennisport on Aug. 7.



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Statistics of Field Work executed by *Party on board Schooner Eagle*  
*Lieut. Wm P. Elliott, U.S.N. Comd. Lt. G. S. Surray.*

Date of beginning field work..... *May 27<sup>th</sup> 1889*

Date of closing field work..... *Oct. 19<sup>th</sup> 1889.*

RECONNAISSANCE:

Area of, in square statute miles .....

Lines of intervisibility determined as per sketch submitted.....

Number of points selected for scheme .....

BASE LINES:

Primary, length of.....

Secondary, length of.....

Beach measurements, length of.....

Number of days employed in measurements of base.....

Number of days employed in re-measurements.....

TRIANGULATION:

Area of, in square statute miles .....

Signal poles erected, number of.....

Observing tripods and scaffolds built, number of.....

Observing tripods and scaffolds built, heights of.....

Days occupied in opening and verifying lines of sight, number of.....

Stations occupied for horizontal measures, number of.....

Stations occupied for vertical measures, number of.....

Geographical positions determined, number of .....

Elevations determined trigonometrically, number of .....

GEODESIC LEVELING:

Elevations determined by spirit-leveling of precision, number of.....

Lines of geodesic leveling, length of.....

LATITUDE, LONGITUDE, AND AZIMUTH WORK:

Latitude stations occupied, number of .....

Pairs of stars observed for latitude, number of .....

Average number of observations on a pair.....

Longitude stations, telegraphic, number of.....

Longitude stations, telegraphic, number of nights on which signals were exchanged .....

Longitude stations, chronometric, etc., number of .....

Azimuth stations, number of.....

Number of nights of observations for azimuth .....

Number of stars observed for azimuth .....

GRAVITY DETERMINATIONS:

Number of pendulum stations occupied.....

MAGNETIC WORK:

Stations occupied for observations of the magnetic declination, number of.....

Stations occupied for observations of the magnetic dip, number of.....

Stations occupied for observations of the magnetic intensity, number of.....

TOPOGRAPHY:

Area surveyed in square statute miles.....

Length of general coast-line in statute miles.....

Length of shore-line of rivers in statute miles.....

Length of shore-line of creeks in statute miles.....

Length of shore-line of ponds in statute miles.....

Length of roads in statute miles.....

Topographic sheets finished, number of.....

Topographic sheets, scales of.....

Topographic sheets, limits and localities of:

HYDROGRAPHY:

Area sounded in square geographical miles.....

Number of miles (geographical) run while sounding.....

Number of angles measured.....

Number of soundings.....

Number of tidal stations established.....

Number of specimens of bottom preserved.....

Current stations, number of.....

Hydrographic sheets finished, number of.....

Hydrographic sheets, scales of.....

Hydrographic sheets, limits and localities of:

117.5
1613.75
1376.2
11056.3
6
0
0
3
1/10,000 2-20,000

Sheet No 14 - Nantucket Sound, Stage Harbor and  
 Chatham Roads. Sheet No 8A - Nantucket Sound  
 from Pt. Gammow to Monomoy Pt. including Sandbar Chief  
 Shoal. Sheet No 3a - Nantucket Sound from Cape  
 Poge to western end of Nantucket I.



