Appended to this
was found — 60,
April 20 —
Lieut. Moser's
annual report
1888 (B)
(20)

U. S. COAST AND GEODETIC SURVEY.

F. M. Thorn, Superintendent.

States: Mass. & R. I.

DESCRIPTIVE REPORT.

Hydrographic Sheets Nos. 1787, 1788, 1789, 1790, 1791, 1792

LOCALITY:

Coasts of Mass. & Rhode Island.

1887.

CHIEF OF PARTY:

Lt. J. F. Moser, U. S. N.

Give here full address to which reply should be sent: Baltimore, Md.

Sec. 11 J. R. No. 24
Report "A" 6'
Sec. 11 5679

U. S. Coast and Geodetic Survey,
Steamer A. D. Bache
December 12th, 1887.

Mr. F. M. Thorn.
Supt. U. S. C. & G. Survey.
Washington, D.C.

Sir:

In compliance with "Instructions and Memoranda for Descriptive Reports", I herewith submit the following to accompany the original sheets of the work performed by the party under my charge during the summer of this year.

There were no channels, bays or harbors surveyed by this party. The work consisted in executing the off-shore and in-shore hydrography of the Approaches to Eastern end of Long Island Sound, Narragansett Bay, Westport, Buzzard's Bay and ~~Eastern~~ Western End of Vineyard Sound.

The limits of the work are included in the line from Block Island to Pt. Judith, thence along the coast of Rhode Island and

Massachusetts to Black Rock – a few miles east of Gooseberry Neck – thence to Sow and Pigs Reef and No Man's Land, and seaward to a line from Block Island South-east Light to Davis South Shoal Light Ship, and beyond that line to the 20 fathom curve if that depth is not reached in the above mentioned line.

The tidal currents on this work set on and off shore tending towards the entrances to the bays and Sounds, where it increases slightly in velocity. At Point Judith the flood sets towards the East and the Ebb to the West.

The character of the bottom is such as is usually met with on a rocky coast. There are many rocky patches, but generally sand and sometimes mud is found; this no doubt being the covering to the rocks, detritus, washed there by the sea. Mud is generally found in the deeper holes and gullies.

Some names will be found on the sheets which do not appear on the Charts. I notice that the people in the vicinity of Seaconnet spell the word as here given instead of Sakonnet as given on the chart.

The work is a resurvey and is much fuller and more in detail than the old work, though the latter was found in the main correct.

In the resurvey many additional rocks and ledges were located, and on some of the ledges now represented less water was obtained than heretofore recorded. The 3½ fathom spot E.S.E. about one-half mile from Point Judith was not found. Considerable time was spent in the vicinity looking for it, but as Capt. Brownson had spent several days in developing the locality only a few years ago, it was not considered necessary to keep up the search when so many other points needed our attention during calm weather. Capt. Brownson informed me that he was certain the 3½ fathom spot existed, and that his work was correct full in that locality. I would therefore suggest that this sounding be transferred from Capt. Brownson's sheet. A small rock was found near the lower pier at Narragansett, but so close in shore as to be clear of vessels unless making a landing at the pier. An uncharted ledge off Narrow River called Narrow River Ledge, and

a rock, called Old Antone making out from the shore west of Whale Rock, and a small rock called Little Whale close to and to the northward of Whale Rock. Newton Rock off Beaver Tail, formerly represented as awash at low water, is never out. Less water was developed on Seal Rock Ledge, called Seal Ledge on the chart. An uncharted ledge called the Haycock was found South of Price's Neck and east of Seal Rock. A rock represented as out of water South of Easton's Point, is never out. Less water was found on Cormorant Rock Ledge, and Elbow Ledge west of Cormorant Rock. A new ledge was developed N.E. of Flint Point. In the vicinity of Seacomet Point and Light, and from thence to the Cuttyhunk Rocks a number of uncharted rocks were developed near the shore. The northern Cuttyhunk is out of water at low water. From Quicksand Hill to Gooseberry Neck so many uncharted rocks and ledges were developed that a description would be confusing; a reference to the 1:10,000 sheets will make the matter clear. A four foot rock is charted a short distance inside

and north-east of Black Rock. I searched carefully for this rock myself, during a day when it was perfectly clear and calm, and at extreme low tide; the search was continued for at least four hours when the bottom could be seen for depths of 12 and 15 feet, but I was unable to find it. I pulled to a fleet of small boat local fishermen, and in questioning them as to the existence of the rock they all said it did not exist. I then questioned a man about 70 years of age, who had lived in the locality all his life and who had been recommended to me as the person who knew this coast thoroughly, and he said there was no rock there. I again visited the vicinity, and a fisherman who had always lived close to the Black Rock, and was then fishing there, said it did not exist. I again searched for the rock but did not find it. I think in view of these facts that the rock can be removed from our charts. It does not lie in the highway of commerce; in fact it is entirely out of the track of all vessels. Whilst searching for this rock I visited the

* According to orig. records of old survey (Blake 1844) this 4 ft rock is a sounding close to what Lt. Moser calls Black Rock — it does not exist as a separate rock. The sounding on chart is incorrectly placed. McM

locality of the rock marked with 13 feet, about one-half mile east of Black Rock, and found only 8 feet of water there. From the Black Rock, extending South, is a rocky ledge with from about 12 to 18 feet of water over it. The vicinity of the Hen and Chickens and the Young and Old Cock was developed by a very close system of lines - this was during the latter part of the season when calm days were less frequent. After completing the regular system of lines in the locality I found that we had not obtained quite as shoal water to the Eastward of Old Cock and inside of the black spar buoy as represented on the Chart. At the first favorable opportunity we returned to the locality and spent the greater part of two days - on different dates - in drifting two boats over the positions of shoalest water and I regret to say that were not successful in getting the shoal soundings given on the Chart. The current over these rocks and around the Hen and Chickens is very strong and the time for making this Examination should be during calm water at low water spring tides but the season was too far advanced to be able

to select the time. No favorable opportunity again occurred to continue the search and I was forced to abandon the hope of satisfying myself this season as to the existence or non existence of these rocks. I would request that if I am still attached to this service next summer, and the work allotted to my party should be in the vicinity of the Hen and Chickens, that I be furnished with a tracing of the Old Lock Ground when I will have the bottom dragged. I beg leave to add that I caused inquiries to be made in Westport concerning these rocks but all the replies pointed to there being more water than given on the chart. I requested Capt. Tripp of Westport, a thoroughly reliable and efficient coaster, to get all the information he could on this point and to inform me if he could find any one who knew of the existence of these rocks. It may not be out of place for me to add that I have passed the locality many times, and on several occasions with a heavy sea running, yet I have never seen it break inside of and near the Black Buoy. I would suggest

however that these rocks be retained on the charts until another search can be made.

In many places where ledges were developed particularly with the vessel, this vessel was drifted over the shoal water repeatedly with from two to six leads, as to feel thoroughly satisfied that the shoalest water was obtained.

The work on the 1:40,000 scale was furnished on two projections. It was found however that the East and West lines must be continuous and a working sheet, large enough to cover both projections in one, was constructed. The records and the signals however were kept separate so that each projection and each set of records is complete in itself. I mention this fact so that if the draughtsmen should have any difficulty — which is not probable — they may know in what manner the work was executed.

I would suggest that after the soundings are plotted on the two projections that the lines for a mile each side the line of junction be transferred from No. 1 to No 2, and from No 2 to No 1. So that there may not be a ragged edge left at these points. I would also suggest

that the ship lines be transferred to the boat sheets where they dap, merely as a matter of finish.

I would suggest before plotting No 6 Sheet Projection, Scale 1:10,000, Vicinity of Westport to Gooseberry Neck, that the data be first examined. The positions of the objects located on this sheet from the Δns had a tendency to the Westward of the topographical features, and it may be found that there is some slight error in some of the Δns or, as seems more probable, the transfer of the topography owing to the multitudinous differences and changes in data may be in error.

Projection & Sheet No 6 are all right. Topography is old (1844) M.C.W.

I desire to say, particularly to the draughtsman, that in crossing the work an allowance must be made for the sea. As I said before, there are few days on which it is perfectly smooth and in order to do the work at all, it was necessary to work whenever it was safe to do so, and in spite of the fact that the leadsman, probably, was not getting Exact Soundings. This is equally applicable to the ship work, much

of which had to be done in a moderate sea.

The statistics for the projections will be found appended.

Very respectfully

L. F. Moser.

Lieutenant U.S.N.

Comdg St. A.D. Backe

N° 3

APPROACHES to NARRAGANSETT BAY RHODE ISLAND.

Date	Letter	Number of Book	Miles	Soundings	Angles	Vessel	Observers
July 13	a	1	12.25	619	203	Whale Boat	Ens Field & Jones
" 14	b	2	9.75	598	190	"	" " "
" 15	c	1	11.62	884	248	"	" " "
" 16	d	2	10.75	602	200	"	" " "
" 19	e	3	6.00	802	254	"	Lieut. Wright, Ens. Hulme
Sept. 28	f	4	9.75	996	184	"	" " " "
October 31	g	3	3.50	266	50	"	Ens. Hulme & Parmenter
			63.62	4857	1329		
July 13	a	1	11.00	469	184	Launch	Lieut. Wright, Ens. Hulme
" 14	b	2	13.00	681	152	"	" " " "
" 15	c	1	13.50	686	168	"	" " " "
" 16	d	2	9.25	732	202	"	" " " "
" 18	e	1	11.50	338	152	"	Ens. Field & Jones
			58.25	2906	858	"	
						"	
Sept. 28	a	1	3.00	179	62	Gig	Ens. Field & Jones
July 15	A	1	14.00	217	132	Ship	Lieut. Moser, Ens. Parmenter
	14	8					

VESSEL	TOTAL NUMBER OF Miles	Soundings	Angles
Whale Boat	63.62	4857	1329
Launch	58.25	2906	858
Gig	3.00	179	62
Ship	14.00	217	132
TOTAL	138.87	8159	2381

No. 4

APPROACHES to NARRAGANSETT BAY.

Date	Letter	Number of Book	Miles	Soundings	Angles	Vessel	Observers
July 20	a	1	6.00	604	194	Whale Boat	Lieut. Wright, Ens. Hulme
" 21	b	2	6.40	683	168	"	" " " "
" 27	c	1	9.62	624	213	"	Ens. Field & Jones
" 28	d	2	6.75	439	133	"	" " "
" 29	e	1	8.00	694	177	"	" " "
August 2	f	2	2.25	271	62	"	Lieut. Wright, Ens. Hulme
" 3	g	2	7.20	553	120	"	" " " "
" 4	h	3	10.00	757	168	"	" " " "
" 5	i	3	2.50	391	52	"	" " " "
" 6	k	3	6.60	410	130	"	Ens. Field & Jones
			65.32	5511	1327		
July 19	a	1	14.10	629	222	Launch	Ens. Field & Jones
" 21	b	2	10.75	450	135	"	" " "
" 27	c	1	11.00	440	154	"	Lieut. Wright, Ens. Hulme
" 28	d	2	11.50	455	110	"	" " " "
" 29	e	1	11.25	731	141	"	" " " "
August 2	f	2	3.88	236	68	"	Ens. Field & Jones
" 3	g	3	13.00	801	198	"	" " "
" 4	h	2	13.63	737	190	"	" " "
October 1	i	3	6.50	392	94	"	Lieut. Wright, Ens. Hulme
			95.61	4871	1318	"	" " " "
July 20	a	1	4.62	448	96	Gig	Ens. Field & Jones
Septem. 28	b	1	1.10	84	22	"	" " "
			5.72	532	118		

Vessel	TOTAL NUMBER OF Miles	Soundings	Angles
Whale Boat	65.32	5511	1327
Launch	95.61	4871	1318
Gig	5.72	532	118
TOTAL	166.65	10914	2763

№ 5

SAKONNET POINT
RHODE ISLAND

Date	Letter	Number of Book	Miles	Soundings	Angles	Vessel	Observers
August 5	a	1	4.60	426	88	Whale Boat	Lieut. Wright, Ens. Hulme
" 6	b	2	5.70	556	120	"	" " " "
" 8	c	1	7.75	570	156	"	Ens. Field & Jones
" 9	d	2	10.50	841	200	"	" " "
" 10	e	1	10.25	979	191	"	" " "
" 11	f	2	3.20	261	56	"	" " "
" 29	g	3	11.60	736	250	"	Lieut. Wright, Ens. Hulme
" 30	h	3	4.30	431	94	"	" " " "
" 31	i	3	6.40	804	170	"	" " " "
Sept. 23	k	2	1.40	137	40	"	Ens. Field & Jones
" 27	l	4	2.00	145	54	"	" " "
October 6	m	4	0.63	30	16	"	" " "
			68.33	5916	1435	"	
August 5	a	1	13.75	581	196	Launch	Ens. Field & Jones
" 6	b	1	7.13	299	116	"	" " "
" 8	c	1	12.60	460	164	"	" Hulme & Parmenter
" 9	d	2	7.90	484	145	"	Lieut. Wright, Ens. Hulme
" 10	e	3	10.50	567	133	"	" " " "
" 11	f	2	3.70	163	52	"	" " " "
" 29	g	1	12.50	658	162	"	Ens. Field & Jones
" 30	h	3	16.00	728	218	"	" " "
" 31	i	2	7.88	283	98	"	" " "
September 1	k	3	3.90	183	44	"	" " "
			95.86	4406	1328	"	
August 8	a	1		4	8	Dinghy	Lieut. Moser
30	b	1		16	8	"	Ens. Parmenter
Sept. 16	c	1		6	12	"	" "
27	d	1	1.30	125	46	"	Ens. Hulme & Parmenter
			1.30	151	74	"	
Sept. 16	A	1	3.20	37	22	Ship	Lieut. Moser, Ens. Parmenter
23	B	1	10.00	199	90	"	" Wright, " Hulme
24	C	1	0.75	16	10	"	" " " "
			13.95	252	122	"	

VESSEL	TOTAL NUMBER of Miles	Soundings	Angles
Whale Boat	68.33	5916	1435
Launch	95.86	4406	1328
Dinghy	1.30	151	74
Ship	13.95	252	122
TOTAL	179.64	10725	2959

No. 6

BARNEY'S JOY POINT to WARREN POINT
MASS. and RHODE ID.

Date	Letter	Number of Book	Miles	Soundings	Angles	Vessel	Observers
August 30	a	1	5.75	624	104	Whale Boat	Lieut. Wright, Ens. Hulme
Sept. 1	b	2	9.40	754	106	"	" " " "
" 2	c	1	4.40	597	98	"	" " " "
" 5	d	2	8.00	1014	218	"	Ens. Field & Jones
" 6	e	1	1.20	97	18	"	" " "
" 9	f	1	5.40	618	140	"	" " "
" 14	g	3	7.75	719	144	"	" " "
" 15	h	4	6.50	687	130	"	" " "
" 16	i	3	8.00	877	150	"	" " "
" 17	k	4	11.00	1030	170	"	" " "
" 20	l	3	8.00	607	117	"	Ens. Hulme, Pay Yeo. Dunn
October 20	m	4	3.50	247	60	"	Lieut. Wright, Ens. Hulme
November 2	n	4		23	14	"	Ens. Field & Jones
			78.90	7894	1524	"	
Sept. 1	a	1	8.75	351	86	Launch	Ens. Field & Jones
" 2	b	2	8.50	464	94	"	" " "
" 5	c	1	27.50	929	204	"	Lieut. Wright, Ens. Hulme
" 6	d	2	8.25	436	114	"	" " " "
" 9	e	1	19.80	900	163	"	" " " "
" 14	f	2	15.00	541	112	"	" " " "
" 15	g	3	23.90	991	185	"	" " " "
" 16	h	3	19.60	708	156	"	" " " "
" 17	i	4	14.10	770	172	"	" " " "
" 20	k	3	14.50	509	162	"	Ens. Field & Jones
" 21	l	5	4.00	244	62	"	" " "
			163.90	6843	1510	"	
September 17	a	1	8.10	799	170	Gig	Lieut. Moser, Ens. Parmenter
October 20	b	1	1.25	122	32	"	Ens. Field & Jones
			9.35	921	202		
Sept. 15	A	1	11.90	239	74	Ship	Lieut. Moser, Ens. Parmenter
" 16	B	1	2.10	112	36	"	" " " "
			14.00	351	110		

VESSEL	TOTAL NUMBER OF Miles	Soundings	Angles
Whale Boat	78.90	7894	1524
Launch	163.90	6843	1510
Gig	9.35	921	202
Ship	14.00	351	110
TOTAL	266.15	16009	3346

No. 1

APPROACHES to NARRAGANSETT BAY and BLOCK ID. SOUND

Date	Letter	Number of Book	Miles	Soundings	Angles	Vessel	Observers
July 19	A	1	8.75	71	44	Ship	Lieut. Moser, Ens. Parmenter
" 21	B	2	43.25	311	158	"	" " " "
" 27	C	1	35.00	232	152	"	" " " "
" 28	D	2	30.25	187	104	"	" " " "
August 27	E	1	89.00	484	336	"	Lt Moser, Wright, Ens. Hulme, Field & Jones
" 31	F	2	17.00	143	70	"	Lieut. Moser, Ens. Parmenter
Septemb. 19	G	1	12.25	67	38	"	" Wright, " Hulme
" 24	H	2	12.75	100	48	"	" " " "
October 3	I	1	20.70	121	47	"	Lieut. Wright, Ens. Field, Hulme, & Jones
" 5	K	2	44.00	322	156	"	" " " " " "
" 6	L	1	79.00	407	113	"	" " " Hulme
" 8	M	1 & 3	72.80	424	129	"	" " " Field, Hulme & Jones
" 12	N	2	85.00	622	270	"	" " " " " "
" 13	O	3	14.25	87	36	"	" " " Hulme
" 14	P	3	44.00	261	105	"	" " " Field, Hulme, & Jones
" 15	Q	4	22.50	150	78	"	" " " " " "
" 25	R	3	72.50	414	144	"	" " " " " "
" 26	S	4	15.20	96	31	"	Ens. Field & Jones
" 27	T	3	13.70	76	34	"	Lieut Wright, Ens. Field, Hulme & Jones
" 28	U	4	58.00	365	117	"	" " " " " "
" 29	V	3	55.00	571	153	"	" " " " " "
" 30	W	4	41.50	400	202	"	Ens. Field, Hulme, Jones, & Parmenter
November 2	X	4	13.25	228	94	"	" " " " "
" 3	Y	4	1.65	69	20	"	" " " " "
	TOTAL		901.30	6208	2579		

5/16/88

N° 2

APPROACHES to NARRAGANSETT BAY & VINEYARD SOUND

Date	Letter	Number of Book	Miles	Soundings	Angles	Vessel	Observers
August 29	A	1	45.50	214	88	Ship	Lieut. Moser, Ens. Parmenter
" 30	B	2	33.00	184	96	"	" "
September 1	C	1	41.70	336	130	"	" "
" 2	D	2	40.20	210	126	"	" "
" 5	E	1	56.50	409	192	"	" "
" 6	F	2	10.30	69	32	"	" "
" 8	G	1	21.75	188	86	"	Ens. Field & Jones
" 9	H	2	38.20	691	212	"	Lieut Moser, Ens. Parmenter
" 12	I	1	10.80	128	42	"	Ens. Field & Jones
" 14	J	2	19.50	526	180	"	Lieut Moser, Ens. Parmenter
" 15	K	2	23.40	489	208	"	" "
" 16	L	2		26	26	"	" "
" 19	M	3	25.00	235	100	"	Lt. Wright, Ens. Hulme, Field & Jones
" 21	N	4	9.50	75	32	"	Lieut. Wright, Ens. Hulme
October 3	O	3	27.00	181	63	"	Lieut. Wright, Ens. Hulme, Field & Jones
" 5	P	4	28.00	167	78	"	" " " "
" 13	Q	3	14.25	75	40	"	Lieut. Wright, Ens. Hulme
" 14	R	4	47.00	280	133	"	Lt. Wright, Ens. Hulme, Field & Jones
" 15	S	3	38.00	315	126	"	" " " "
" 18	T	4	29.00	244	103	"	" " " "
" 19	U	3	39.00	243	136	"	" " " "
" 20	V	4	28.50	193	88	"	Ens. Field & Jones
26	W	3	57.00	408	212	"	Lieut Wright, Ens. Field, Hulme & Jones
27	X	485	59.00	951	279	"	" " " " " "
November 2	Y	5	9.00	102	54	"	Ens. Field, Hulme, Jones, & Parmenter
3	Z	5	7.00	123	48	"	" " " " "
		TOTAL	758.10	7062	2910		

Report 1888 77.

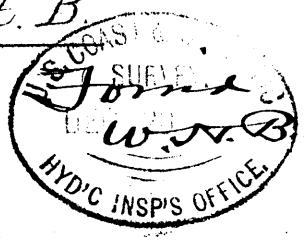
Section I

(2)

☞ Give here full address to which reply should be sent: .....

Report "B"

U. S. Coast and Geodetic Survey,



Steamer A.D. Bache

December 12th, 1887.

Prof. J.E. Hilgard

Supt U.S.C. & G. Survey.

Washington, D.C.

Sir:

In obedience to paragraph 26, Laws and Regulations, Coast & Geodetic Survey, 1887, I beg leave to submit the following report of the operations of the Hydrographic party under my charge during the summer of this year.

Agreeably to your instructions, after refitting in New York after an arduous season's work on the West Coast of Florida, the party under my charge left on June 29th, and arrived in Bristol, R.I., the following day, where we were detained a short time in taking on board and fitting a new boiler to the launch. The party arrived on the field of work July 4th, and on the following day commenced active operations.

The work for the season consisted in executing the hydrography of the waters included in the limits from Block Island to Point Judith, thence along the coast of Rhode Island and Massachusetts to Gooseberry Neck, thence to Cuttyhunk, Gay Head and No Man's Land, and seaward as far as a line from Block Island South East Light to Davis (New) South Shoal Light Ship, and as much beyond this line as would include the 20 fathom curve.

The scheme of work was laid out on a scale of 1:10,000 for the inshore, and 1:40,000 for the off-shore portions.

In executing the work the ten fathom curve was developed by normal lines, seven to the mile, and crossed by lines five to the mile, except in the vicinity of Westport where the ten fathom curve is at such a distance off shore that this system was only carried to the eight fathom curve. The off-shore work on the 1:40,000 was clapped over the 1:10,000 work, and consisted of a series of lines [illegible] a mile apart

for a distance of about six miles from shore, and thence seaward one mile apart: this system was crossed by lines, east and west, commencing near the shore one-half mile apart and after continuing this system for about six miles the distance was increased gradually until the outer seaward lines were one and one-half miles apart. This is the general system of execution; such deviations were made at different points as the nature of the work required. Where the ten fathom curve impinged close on the shore the in-shore system was carried beyond to a distance of about three-fourths of a mile. As the work was a resurvey the shoals and ledges already charted were carefully redeveloped and great attention was paid to the soundings to note any irregularity of the bottom, which when found was re-examined.

As this work did not include any channels or passages leading to bays, harbors or anchorages, the information required by "Instructions and Memoranda for Descriptive Reports", in most instances, does not apply to this work.

As the sounding was all on an exposed

rocky coast. Many difficulties were encountered and no little anxiety at times felt in running the boat lines on account of the continual swell breaking over the rocks and ledges, and the prevailing Southerly winds during Summer blowing on shore and setting in a heavy sea. It is rare, even during Summer, that the sea is perfectly quiet. I do not believe that during the whole season this condition prevails on more than three or four days; yet it is on such days that a party desires to have every available person employed in looking for the isolated rocks and pinnacle ledges which are so difficult to find.

Fog retarded our work, at intervals, for many days, and during the month of September when the sea was unusually quiet, no work could be done for a long period on account of the whole coast being enveloped in a dense smoke, rendering objects invisible at a short distance.

The depths, generally, being great the rate of running the boat lines was very much reduced, as it was not only necessary to run

at a low speed to get good up and down casts, but also to get a certain number of soundings in a certain distance.

On several of the ledges, now charted, less water was found than heretofore recorded, and several uncharted rocks and ledges were developed. Off Narragansett Pier a ledge with a least depth of 14 feet over it was found; it is called Narrow River Ledge. A short distance to the northward is a rock with but 6 feet over it, called Old Antone; this rock makes out from a point opposite to, and to the westward of Whale Rock Light, and the passage to the westward of that light, which appears perfectly clear on the chart, should not be attempted by a stranger. To the northward of Whale Rock, and close to it, is a small rock called Little Whale; this rock is, however, so close to the main rock that it is not dangerous to navigation. Newton Rock, South of Beaver Tail, which was formerly shown on our charts as out of water, at low water, is never awash. Seal Rock Ledge on which the Frigate "Tennessee" struck a few years ago and which was then

developed and a least depth of 19 feet found, was re-examined and a depth of 17 ft. found over it. An uncharted ledge with 14 feet over it, called the Haycock, was developed to the eastward of Seal Rock and off Price's Neck L.I.S. Our charts formerly indicated a rock out of water South of Easton's Pt.; it was found that the rock off this point is never out, but as there is but a few feet of water over it at low tide, it breaks there almost constantly. Three or four feet less water was found on Cormorant Rock Ledge and Elbow Ledge to the ~~east~~ west ward of Cormorant Rock, in fact the bottom from these ledges to Sheep Pen Rock is foul, and the passage between Cormorant Rock and Sachuest Point should not be attempted by a stranger drawing more than ten or twelve feet of water. North East of Flint Point an uncharted ledge marked by a black buoy was developed with a least depth of ten feet over it. In the vicinity of West Island, and thence to the East, very many new rocks and ledges were developed, some of them lying close in shore, while others are on the beating grounds of vessels making

an inshore stretch. One of the Cuttyhunk Rocks is out of water at low water; the least depth heretofore given was three feet. The bottom in the vicinity of Westport, and its approaches, is covered with bowlders, and the shore from Halfway Rock to Gooseberry Neck should be avoided by a stranger or in fact by any one not acquainted with the locality.

The deep sea ledges were developed the same as the shoal water ledges, and in most instances less water was found than given on the charts. In the vicinity of the Hen and Chickens Light Ship many such ledges exist, some with five fathoms of water over them and one to the eastward of the light ship with about four fathoms. Over such ledges, in a heavy gale from seaward, it must break and I am told it does do so. I am told that in a very heavy gale, at a distance of several miles, it appears as if a continuous line of breakers extended across the entrance to Buzzard's Bay in the vicinity of Gooseberry Neck. This appearance is no doubt caused by the breaks on the different deep water ledges in the locality which at a distance

have the appearance of being joined; this however is not the case.

I was much interested in a deep gully which extends from the sea into Buzzard's Bay and which, though partially indicated on the chart, is not fully shown. This gully has a depth of about twenty fathoms with a muddy bottom, and trending to the northward from sea it passes a little to the ~~eastward~~ west of the Sow and Pigs. In approaching Gooseberry Neck it turns sharp to the Eastward and passes between two deep water ledges — about five fathoms over them — into Buzzard's Bay. It is quite narrow in some places and it is probable that we did not in all cases get the deepest water. If this gully were well defined on the chart it might aid the navigator in approaching the Entrance to Buzzard's Bay in verifying his position. No opportunity was lost in consulting with all the local authorities, fishermen, and in fact any one who had the slightest information to impart. I spent many hours and much personal inconvenience in interviewing these people, and all the officers had instructions

never to neglect an opportunity that might be the means of giving us any information bearing upon our work.

My time did not permit me to enter into the study of the formations, and as the country has been thoroughly examined, geologically, and the craters dredged for its marine objects, I did no work of this nature even for my own satisfaction except to take such passing notes and form my own conjectures of what passed before me incidentally to my work. All the rocks which I examined along the shore were crystalline. The shore formations, in most instances, shows unmistakable signs of glacial action. This is particularly the case from West Island to the eastward, and the many sunken rocks along this section are no doubt bowlders left there by the great glaciers that once enveloped this country. Any one acquainted with glacial action would at a glance at this coast approach it with caution. At different points the regular formation sends its outcrop of rocky ledges into the sea and between these, great banks of drift are seen with many bowlders scattered in

every direction, or in places, gathered in a small space in great numbers. The drift increases as the Eastern limit of the work is approached. From Point Judith to West Island the regular rocky formation predominates; particularly is this the case between Narragansett Pier and West Island; from thence to Gooseberry Neck and Cuttyhunk the rock outcrop is subsidiary to the drift.

Judging from the shore formation a person can generally form a fair estimate as to what may be expected under water. The bottom of the sea has the same configuration as the surface of the land, subject to the condition of the action of the sea, which is a great leveller, and which in the shallower water at least would tend to lower the more prominent heights and by its deposits raise the depressions. It is not surprising therefore that so many rocks and ledges exist along this coast, in fact I am more and more surprised that there are not more dangers to the Navigator.

In general terms the waters surveyed by this party might be called the Approaches to

the Eastern end of Long Island Sound, the three Passages to Narragansett Bay, the Entrance to the Harbor of Westport, the Entrance to Buzzards Bay, and the Seaward Entrance to Vineyard Sound. This includes the great highway of commerce over which millions of tons annually pass from Long Island Sound to Vineyard Sound. A large part of the carrying trade is in schooners, mostly three masters, although four masters may frequently be seen and indeed I at one time had five of such vessels in sight. An element is growing into the carrying trade of these waters that is destined to become a power, and is increasing year by year so much that even now it is injuring individuals who have their investments in schooners I speak of the carrying of merchandise, particularly coals, by lighters, which is nearly all transported in this way. Old vessels are purchased and turned into lighters or vessels built for that purpose with a capacity of from 800 to over 2000 tons. A single small tug will tow five of these laden vessels. Some of these lighters in summer receive their cargoes in Philadelphia,

but New York is the great shipping port, and from thence they are towed to all the Sound ports, the ports in Narragansett and Buzzard's Bay, and to Boston and neighboring ports. These vessels are tight, and after receiving their cargo the hatches are firmly battened down, and they pass through almost any sea.

The harbors of refuge that vessels seek when overtaken in bad weather are Holmes Hall, Tarpaulin Cove, Newport and Dutch Island Harbor; few vessels ever enter the Seaconnet River. I frequently used this river for an anchorage, and I suppose the objection to it by coasters is that it is necessary to run a distance of about five miles from the mouth to get a smooth anchorage when the sea is heaving on shore.

These waters are so well lighted, the shores so bold, and the dangers so well marked, that neither pilots nor ranges are necessary.

Two prominent objects, seen at a long distance, should be inserted on our charts. One is a massive square granite tower over 100 feet high, marked "Spirit" on our sheets, near Narragansett Pier; it can be seen at least twenty miles on

a clear day. The other is Little Compton White Spire, which was the most useful object on our work. The Ocean House at Newport should also be indicated.

The first order lights that came within the limits of the work are excellent, but none of the other lights were visible the distance given in the Light List. We noticed this particularly as we made the attempt to do some night work on the outer lines with the aid of these lights. The condition of the atmosphere was such that few days could be found on which the signals could be carried during daylight for more than about twelve miles; before therefore resorting to the usual method of extending such lines without the aid of signals, which contains an element of uncertainty, I had the circle of visibility carefully plotted on our working sheets, using the actual height of the observers. We then made three or four attempts to do night work, but our efforts were attended with such poor success on account of the non-visibility of the lights on the outer circles that we abandoned the cherished hope of finishing the lines by that method. The first

order lights were visible but none of the others. It is possible that there may have been something peculiar in the atmosphere on those days, but the days selected were moderately clear with a smooth sea and little wind.

The L.S. Stations are three in number: one close to Point Judith Light and to the northward of the point, one north of Narragansett Pier and at the south end of the bathing beach — I am told the position of this is to be changed — and one on Price's Neck, South of Newport; the correct position of which is given on the sheet and called "Life".

I would recommend a buoy to mark the Narrow River Ledge, off Narragansett Pier, and one to mark the seaward end of the Cuttyhunk Ledge, South of Quicksand Hill. I would suggest for consideration, after the work is plotted, the placing of a buoy to mark the four fathom ledge to the eastward of the Ken and Chickens Light Ship.

The buoy off Narrow River Ledge would serve as a guide to vessels running from Newport to Narragansett Pier, and to vessels heating up to

the Western Passage of Narragansett Bay.
The buoy off the Cuttyowaugh would serve not only as a warning to vessels beating up to this ledge, but serve as a general guide to keep vessels from approaching this dangerous shore. The buoy to the eastward of the Hen and Chickens would be useful to vessels in heavy weather.

There is a display station for weather signals at Point Judith, one at Gay Head and one at Block Island.

Fogs are prevalent during the summer months, heaviest in June, though they are not wanting in July and August. They come with Easterly winds, heaviest with South East, and are cleared with winds from the Westward. During the latter part of the season we had on different days what are here called land fogs, with wind from the Northward, but they were generally cleared away, "burnt off", as the sun reached the zenith.

Wrecks are of such infrequent occurrence on this coast that no definite information can be furnished as to their immediate fate on striking. There are so many harbors in the vicinity and the entrances are so unobstructed that vessels are not

often wrecked. I should say however that a vessel striking on the rocky portion of the coast would not live very long in a heavy sea, whilst the chances on the sand beaches, of which there are many, would be favorable to the life of the vessel.

During the season the waters upon which the party were engaged was infested with all kinds of fishing craft. During a large portion of the time there were an average of at least 150 vessels so employed. Mackeral seemed to be taken in large numbers, both with the seine and by hand jigs. There are many people along the shore who make a good living by small boat fishing and by lobstering; these marine products finding a ready and extravagantly high market in Newport.

At Seaconnet Point where I was asked to go ashore to identify a fish, I was greatly surprised to find a true Acro, weighing about 16 lbs. This fish is a species of Mackeral and found in abundance on the Florida reefs; but before this I have never seen it farther north than Tybee.

We were much favored in finding many natural objects for Sts and signals, so that comparatively few signals were erected; chimneys and

cupolas of prominent houses, church spires &c were located and served a better purpose than tripods.

In executing the work the old survey, as given on the charts, was compared as far as possible, and it was found to agree, though wanting in fulness and detail. It is my opinion that when a re-survey is made on a rocky coast which is subject to little or no change, that if the original survey were placed in the hands of the field party with instructions to test the work and if found correct to fill in the open spaces and fully develop the shoals, rocks, ledges and shore approaches, that time would be saved. Some years ago I advanced the opinion to our late Superintendent, E. O. Patterson, which my subsequent experience has confirmed, that a vessel could be usefully employed in visiting the rocky sections of our coast to gather additional information for our charts. Such a vessel should make a long stay at different points, should have plenty of charts to give the local authorities, and should visit every one having even a limited knowledge of his surroundings. These charts would be

discussed at the post offices and stores where the fishermen congregate, and an officer with discretion and not afraid to smoke his pipe in a fishing hut or kiss a dirty faced baby if necessary would gain a very large amount of very useful information. It is my experience that the territory commanded by a local fisherman is very limited but it is thorough; the fish are found around the rocks and therefore it is primarily important to those so employed to find the rocks, and each fisherman seems to have his own particular rocks around which he fishes. I have frequently upon inquiry been directed to certain individuals who I was informed always fish on that particular rock.

Before establishing the tide-gauge I compared the differences in the tides at the various extreme points on the limits of our work, and found that these differences were so small that one central station would be sufficient for all the work. I therefore encamped an observer at Seaconnet Pt. and continued the observations at that place.

I extract the following from the report of Ensign Field who, under my direction, had

charge of the Tide observations.

" July 5th, 1884, established tide observer in camp at Seaconnet Point, and erected a staff gauge. The gauge was nailed to a spile under eastern end of wharf at the breakwater, where it was well exposed to the tidal movements. From July 5th to October 7th, continuous observations of high and low water were made day and night, in all one hundred and seventy-five readings of each. Ignoring abnormal tides, found by plotting the tidal curves and which were known to have been caused by heavy winds, the plane of reference, M. L. W., determined upon read one and five tenths (1.5) feet on the gauge. After October 7th and until November 3rd, the tides were observed only during the day. The mean of all the recorded observations (200) of low water read 1.47 on the gauge. The mean rise and fall of tides above the plane of reference was (4.83). The greatest observed rise above M. L. W. was (4.6) on October 18th and the greatest fall below was 1.4 on October 16th.

? 3.8

Comparative observations were made at intervals at Gooseberry Neck, the Extreme eastern limit of the boat work and these was found to be no

appreciable difference in the phases or ranges of tides from those observed at Seaconnet Pt.

A "Bench Mark" was established near the gauge at Seaconnet Pt. The "Bench" is an iron eye-bolt secured in the rock just east of the shore end of the wharf under which the gauge was. The bolt used to hold a brace for the wharf. The top of the bolt is level with the eleven (11') ft. division of the gauge and is consequently 9½ ft. above M. L. W. The top of the eye-bolt is three (3") inches above the surface of the rock into which it is soldered.

The phases of the tides observed at Seaconnet Pt. were compared with those computed and found in "Tide Tables for the Atlantic Coast, 1884" and although there were some differences at times, the average phases were the same."

The curves will be found appended.

We made no observations for currents; our time was so fully employed in the main work that it was impossible to make even the most desultory examination. The latter part of the season was unfavorable for such work. In answer to your letter requesting an opinion upon this

subject, I have already expressed my views and I cannot here refrain from again stating how important I consider these observations if made upon a broad and systematic basis.

Generally speaking, within the limits of our work, the tide sets on and off shore, deviating in the approaches to the entrances of the Sounds and bays. At Point Judith there is a moderate tidal current; the flood setting to the eastward, the ebb to the westward. The tidal current at the Entrance to Vineyard Sound and Buzzard's Bay at times is strong.

In closing my report I desire to commend to you the officers and men under my command who worked so faithfully in the execution of a season's work consisting of 720 miles of boat work on an open exposed rocky coast with its numerous isolated rocks and ledges, and 1701 miles of ship work. I do not believe that this amount of work has ever been equalled by a party in a single season, performing similar work.

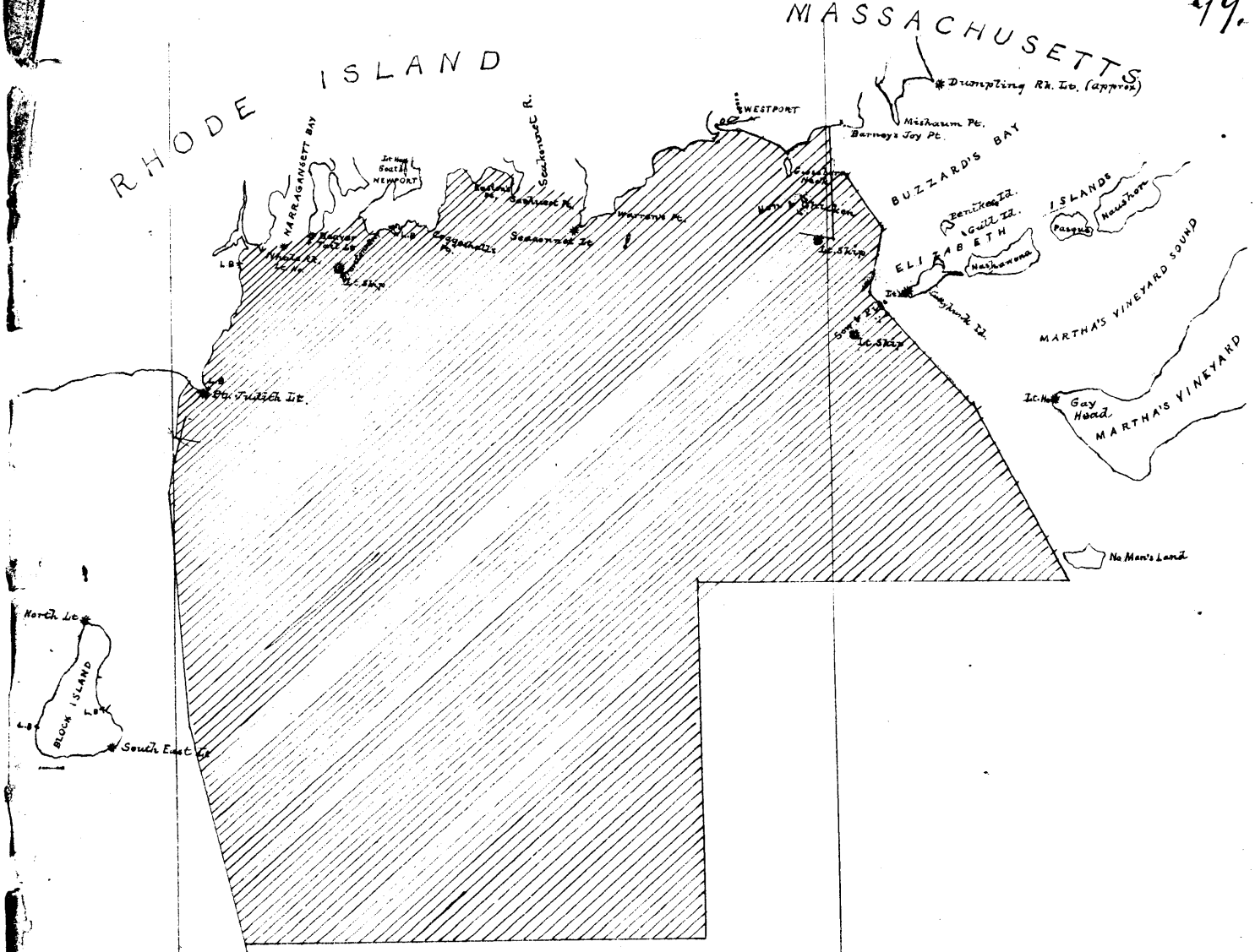
The statistics will be found appended.

The following are the names of the officers attached to party, viz.

10.

Lieutenant E. E. Wright, U.S.A.
Ensign H. A. Field, U.S.A.
Ensign W. O. Holme, U.S.A.
Ensign H. P. Jones, U.S.A.
Ensign H. E. Parmenter, U.S.A.
P.A. Surg. F. C. Stephenson, U.S.A.
Asst Eng'r S. H. Leonard, U.S.A.
Recorder Geo. R. Jones
Recorder J. L. Dunn.

Very respectfully
L. F. Moser.
Lieutenant, U.S.A.
Comdg Str. A. D. Bache



Sketch of locality showing limits of work

Approaches to
NARRAGANSETT BAY, BLOCK ISLAND SOUND &c.

Summer, 1887.

Scale $\frac{1}{400,000}$

Report of Lieut. J. F. Moser, USN.
Comdg U.S.S. "Bache"

Soundings: Approaches to Narragansett Bay.

1st Sheet

Date 1887	Letter	Number of— Book	Miles (Naut)	Soundings	Angles	Name of Vessel	Observers
July 13	a	1	12.25	619	203	Whaleboat	Ensigns Field & Jones
" 14	b	2	9.75	598	190	"	" "
" 15	c	1	11.62	384	248	"	" "
" 16	d	2	10.75	602	200	"	" "
" 19	e	3	6.00	892	254	"	Lieut Wright & Ens. Hulme.
Sept. 28	f	3/4 1	9.75	996	184	"	" "
Oct. 31	g	3	3.50	266	50	"	Ensigns Hulme & Parmenter
			63.62	4857	1329		
Sept. 28	a	1	3.00	179	62	Gig	Ensigns Field & Jones
July 13	a	1	11.00	469	184	Stm. launch	Lieut. Wright & Ens. Hulme.
" 14	b	2	13.00	681	152	"	" "
" 15	c	1	13.50	686	168	"	" "
" 16	d	2	9.25	732	202	"	" "
" 18	e	1	11.50	338	152	"	Ensigns Field & Jones
			58.25	2906	858		
July 15.	A	1	14.00	217	132	Ship	Lieut Moser & Ens. Parmenter

Recapitulation

	63.62	4857	1329	Whaleboat
	3.00	179	62	Gig
	58.25	2906	858	Stm. launch
	14.00	217	132	Ship
Total on Sheet	138.87	8159	2381	

Report of
Lieut. J. F. Moser, Asst.
Comdg. U.S. Str. Bache
Summer - 1887

Soundings: Approaches to Narragansett Bay

2nd Sheet

Date 1887	Letter	Number of— Book	Miles (Naut.)	Soundings	Angles	Name of Vessel	Observers
July 20	a	1	6.00	604	104	Whale boat	Lieut Wright & Ens. Hulme
" 21	b	2	6.40	683	168	"	" "
" 27	c	1	9.62	644	213	"	Ensigns Field & Jones
" 28	d	2	6.75	499	133	"	" " "
" 29	e	1	8.00	699	177	"	" " "
Aug 2	f	2	2.25	271	62	"	Lieut Wright & Ens. Hulme
" 3	g	2	7.20	550	120	"	" "
" 4	h	3	10.00	757	168	"	" "
" 5	i	3	2.50	391	52	"	" "
Oct. 6	k	3	6.60	410	130	"	Ensigns Field & Jones
			65.32	5511	1327		
July 20	a	1	4.62	448	96	Gig	Ensigns Field & Jones
Sept. 28	b	1	1.10	84	22	"	" "
			5.72	532	118		
July 19	a	1	14.10	629	222	Stm. launch	Ensigns Field & Jones
" 21	b	2	10.75	450	135	Stm. launch	Ensigns Field & Jones
" 27	c	1	11.00	440	154	"	Lieut. Wright & Ens. Hulme
" 28	d	2	11.50	455	110	"	Lieut. Wright & Ens. Hulme
" 29	e	1	11.25	731	141	"	" "
Aug 2	f	2	3.88	236	68	"	Ensigns Field & Jones
" 3	g	3	13.00	801	198	"	Ensigns Field & Jones
" 4	h	2	13.63	737	196	"	" "
Oct. 4	i	3	6.50	392	94	"	Lieut. Wright & Ens. Hulme
			95.61	4871	1318		

83

Recapitulation

	65.32	5511	1327	Whale boat
	5.72	532	118	Gig
	95.61	4871	1318	Stm. launch
Total on Sheet	166.65	10914	2763	

Report of
Lieut. J. J. Moser, U.S.N.
Comdg. U.S.S. A. D. Bache
Summer 1887

Soundings: Sakonnet Pt. & c. R.I.

Date 1887	Letter	Number of — Book	Miles (Naut.)	Soundings	Angles	Name of Vessel	Observers
Aug 5	a	1	4.60	426	88	Whale boat.	Lieut. Wright & Ens. Hulme
" 6	b	2	5.70	556	120	"	" "
" 8	c	1	7.75	570	156	"	Ensigns Field & Jones
" 9	d	2	10.50	841	200	"	" "
" 10	e	1	10.25	979	191	"	" "
" 11	f	2	3.20	261	56	"	" "
" 29	g	3	11.60	736	250	"	Lieut. Wright & Ens. Hulme
" 30	h	3	4.30	431	94	"	" "
" 31	i	3	6.40	804	170	"	" "
Sept. 23	k	2	1.40	137	40	"	Ensigns Field & Jones
" 27	l	4	2.00	145	54	"	" "
Oct. 6	m	4	.63	30	16	"	" "
			68.33	5916	1435		
Aug 8	a	1		4	8	Dinghy	Lieut. Moser
" 30	b	1		16	8	"	Ens. Parmenter
Sept. 16	c	1		6	12	"	" "
" 27	d	1	1.50	125	46	"	" Hulme & Parmenter
			1.50	151	74		
Aug. 5	a	1	13.75	581	196	Stm. launch	Ensigns Field & Jones
" 6	b	1	7.13	299	116	"	" "
" 8	c	1	12.60	460	164	"	" Hulme & Parmenter
" 9	d	2	7.90	484	145	"	Lieut. Wright & Ens. Hulme
" 10	e	3	10.50	567	133	"	" "
" 11	f	2	3.70	163	52	"	" "
" 29	g	1	12.50	658	162	"	Ensigns Field & Jones
" 30	h	3	16.00	728	218	"	" "
" 31	i	2	7.88	283	98	"	" "
Sept. 1	k	3	3.90	183	44	"	" "
			95.86	4406	1328		
Sept 16	A	1	3.20	37	22	Ship	Lieut. Moser & Ens. Parmenter
" 23	B	1	10.00	199	90	"	" Wright & " Hulme
" 24	C	1	.75	16	10	"	" " & " "
			13.95	252	122		

	68.33	5916	1435	Whale boat
	1.50	151	74	Dinghy
	95.86	4406	1328	Stm. launch
	13.95	252	122	Ship
Total on Sheet	179.64	10725	2959	

Report of Lieut. J. F. Moser, U.S.C.S. Comdg. Str. A.D. Bache — Summer — 1887.

Soundings: Barney's Joy Pt. to Warren Pt.
Coasts of Massachusetts & Rhode Id.

Date 1887	Letter	Number of— Book	Miles (Naut.)	Soundings	Angles	Name of Vessel	Observers
Aug 30	a	1	5.75	624	104	Whaleboat	Lieut Wright & Ens. Hulme
Sept. 1	b	2	9.40	754	166	"	" "
Sept. 2	c	1	4.40	597	98	"	" "
" 5	d	2	8.00	1014	213	"	Ensigns Field & Jones
" 6	e	1	1.20	97	18	"	" "
" 9	f	1	5.40	618	140	"	" "
" 14	g	3	7.75	719	144	"	" "
" 15	h	4	6.50	687	130	"	" "
" 16	i	3	8.00	877	150	"	" "
" 17	k	4	11.00	1030	170	"	" "
" 20	l	3	8.00	607	117	"	Ens. Hulme & Pay Yeo. Dunn
Oct. 20	m	4	3.50	247	60	"	Lieut. Wright & Ens. Hulme
Nov 2	n	4		23	14	"	Ensigns Field & Jones
			78.90	7894	1524		
Sept. 17	a	1	8.10	799	170	Gig	Lieut. Moser & Ens. Parmenter
Oct. 20	b	1	1.25	122	32	"	Ensigns Field & Jones.
			9.35	921	202		
Sept. 1	a	1	8.75	351	86	Stm. launch	Ensigns Field & Jones
" 2	b	2	8.50	464	94	"	" "
" 5	c	1	27.50	929	204	"	Lieut. Wright & Ens. Hulme
" 6	d	2	8.25	436	114	"	" "
" 9	e	1	19.80	900	163	"	" "
" 14	f	2	15.00	541	112	"	" "
" 15	g	3	23.90	991	185	"	" "
" 16	h	3	19.60	708	156	"	" "
" 17	i	4	14.10	770	172	"	" "
" 20	k	3	14.50	509	162	"	Ensigns Field & Jones
" 21	l	5	4.00	244	62	"	" "
			163.90	6843	1510		
Sept 15	A	1	11.90	239	74	Ship	Lieut Moser & Ens. Parmenter
" 16	B	1	2.10	112	36	"	" "
			14.00	351	110		

Recapitulation

	78.90	7894	1524	Whaleboat
	9.35	921	202	Gig
	163.90	6843	1510	Stm. launch
	14.00	351	110	Ship
Total on Sht	266.15	16,009	3346	

Report of Lieut J. F. Moser, U.S.N. Comdg U.S.C. & G.S. Bache Summer 1887

Soundings: Approaches to Narragansett Bay and Block Island Sound

Date	Letter	Number of — Book	Miles (Nave)	Soundings	Angles	Name of Vessel	Observers
1887							
July 19	A	1	8.75	71	44	Ship	Lieut Moser & Ens Parmenter
" 21	B	2	43.25	311	158	"	" " " "
" 27	C	1	35.00	232	152	"	" " "
" 28	D	2	30.25	187	104	"	" " " "
Aug 27	E	1	89.00	484	236	"	" " & Wright, & Ens Field, Hulme & Jones
" 31	F	2	17.00	143	70	"	" " & Ens Parmenter
Sept 19	G	1	12.25	67	38	"	" Wright " Hulme
" 24	H	2	12.75	100	48	"	" " " "
Oct. 3	I	1	20.70	121	47	"	" " " " , Field & Jones
" 5	K	2	44.00	322	156	"	" " " " " "
" 6	L	1	79.00	407	113	"	" " " "
" 8	M	1 & 3	72.80	424	129	"	" " " " , Field & Jones
" 12	N	2	85.00	622	270	"	" " " " " "
" 13	O	3	14.25	87	36	"	" " " "
" 14	P	3	44.00	261	105	"	" " " " Field & Jones
" 15	Q	4	22.50	150	78	"	" " " " " "
" 25	R	3	72.50	414	144	"	" " " " " "
" 26	S	4	15.20	96	31	"	Ensigns Field & Jones
" 27	T	3	13.70	76	34	"	Lieut Wright & Ens Field, Hulme & Jones
" 28	U	4	58.00	365	117	"	" " " "
" 29	V	3	55.00	571	153	"	" " " "
" 30	W	4	41.50	400	202	"	" " " "
Nov. 2	X	4	13.25	228	94	"	" " " "
" 3	Y	4	1.65	69	20	"	Ensigns Field & Jones.
Total on Sheet.			901.30	6208	2579		

Report of
Lieut. J. F. Moser, U.S.N.
Comdg U.S.A.S. Bache
Summer - 1887

Soundings: Approaches to Narragansett Bay and Vineyard Sound

Date	Letter	Number of— Book	Miles (Naut.)	Soundings	Angles	Name of Vessel	Observers
1887							
Aug 29	A	1	45.50	214	88	Ship	Lieut Moser & Ens. Parmenter
" 30	B	2	33.00	184	96	"	" " "
Sept. 1	C	1	41.70	336	130	"	" " "
" 2	D	2	40.20	210	126	"	" " "
" 5	E	1	56.50	409	192	"	" " "
" 6	F	2	10.30	69	32	"	" " "
" 8	G	1	21.75	188	86	"	Ensigns Field & Jones
" 9	H	2	38.20	691	212	"	Lieut. Moser & Ens. Parmenter
" 12	I	1	10.80	128	42	"	Ensigns Field & Jones
" 14	J	2	19.50	526	180	"	Lieut. Moser & Ens. Parmenter
" 15	K	2	23.40	489	208	"	" " " "
" 16	L	2		26	26	"	" " " "
" 19	M	3	25.00	235	100	"	" Wright & " Field, Hulme & Jones
" 21	N	4	9.50	75	32	"	" " & " Hulme
Oct. 3	O	3	27.00	181	63	"	" " & " " Field & "
" 5	P	4	28.00	167	78	"	" " & " " " "
" 13	Q	3	14.25	75	40	"	" " & " "
" 14	R	4	47.00	280	133	"	" " & " " Field & Jones
" 15	S	3	38.00	315	126	"	" " & " " " "
" 18	T	4	29.00	244	103	"	" " & " " " "
" 19	U	3	39.00	243	136	"	" " & " " " "
" 20	V	4	28.50	193	88	"	Ensigns Field & Jones
" 26	W	3	57.00	408	212	"	Lieut. Wright & Ens. Field, Hulme & Jones
" 27	X	4 & 5	59.00	951	279	"	" " " " " "
Nov. 2	Y	5	9.00	102	54	"	" " " " " "
" 3	Z	5	7.00	123	48	"	Ensigns Field, Hulme, Jones & Parmenter
Total on Sheet.			758.10	7062	2910		

Report of Lieut. J. F. Moser, U.S.C.S. Commdg Str. A.D. Bache Summer - 1887

Soundings: Examination of rock, Outer harbor, Newport, R. I.

Date	Letter	Number of — Book	Miles (Naut.)	Soundings	Angles	Name of Vessel	Observers
1887							
July 9		1	0.50	92	44	Whaleboat	Ensigns Field & Jones

Report of
Lieut. J. Hayward, U.S.N.
Comdg. Atl. A.S.T.Boat
Season — 1887

Soundings: Coaster's Island Harbor, Newport, R. I.

Date	Letter	Number of — Book	Miles (Naut)	Soundings	Angles	Name of Vessel.	Observers
1887							
Oct. 4	a	1	1.60	157	56	Whaleboat	Ensigns Field & Jones
" 10	b	1	4.75	390	86	"	" "
Nov. 3	c	1	3 80	397	67	"	" "
Total on Sheet			10.15	944	209		
				9r			

Report of
Lieut. J. H. Moser, U.S.N.
Comdg. Str. A.D. Bache
Summer — 1887

Soundings: Grand Recapitulation

Locality	Number of —		
	Miles (Naut)	Soundings	Angles
Appr. to Narragansett Bay, 1st Sheet.	138.87	8159	2381
" " " " 2nd "	166.65	10914	2763
Sakonnet Pt. &c. R.I.	179.64	10725	2959
Barney's Joy Pt. to Warren Pt. Mass & R.I.	266.15	16009	3346
Appr. to Narragansett Bay & Block I. Sound	901.30	6208	2579
" " " " & Vineyard "	758.10	7062	2910
Exam. of rock, Outer harbor, Newport, R.I.	0.50	92	44
Coaster's Island Harbor, " "	10.15	944	209
Grand aggregate	2421.36	60,113	17,191

Report of
Lieut J. F. Moser, U.S.N.
Comdg Str. A.S. Bache
Summer - 1887

Signals

Erected	Occupied	Determined
16	40	109

Report of
Lieut. J. F. Moser, Asst.
Comdg. St. A.S. Boche
Summer 1887

5/16/88

Number of days on station and how employed

Number of days on Station	126
" " " hydrographic work	65
" " " prevented by bad weather	31
" " " " " other causes	10
" " " building signals	2
" " Sundays	18

Report of
Lieut. J. H. Moser, U.S.N.
Comdg. Str. A.D. Bache
Summer of 1884

List of officers and men attached to party.

Lieutenants	2
Ensigns	4
P. A. Surgeon	1
Assit Engineer	1
Master-at-Arms	1
Pay. Yeoman	1
Machinists	4
Ship's Writer	1
Boatswain's Mate	1
Carpenter's Mate	1
Quartermasters	4
Ship's Cook	1
Cabin Steward	1
2nd Class Firemen	4
Seamen	15
Landsmen	3

Report of Lieut. J. J. Moss, U.S.N.
Comdg. Str. "Pache"
Summer - 1887