

2308-2309-2316  
2317 2318

2308-2309-2316  
2317 2318

Diag. - nt Nos. 1208-1, 1210-1, 12092

Form 504	
U. S. COAST AND GEODETIC SURVEY DEPARTMENT OF COMMERCE	
DESCRIPTIVE REPORT	
Type of Survey	<i>Hydrographic</i>
Field No.	<i>2308.2309</i>
Office No.	<i>2316.2317</i> <i>2318</i>
LOCALITY	
State	<i>Mass.</i>
General locality	<i>Buzzards</i>
Locality	<i>Bay</i>
	<i>1897</i>
	<i>994</i>
CHIEF OF PARTY	
<i>St. G. C. Harris U.S.N.</i>	
LIBRARY & ARCHIVES	
DATE .....	

83  
S.H.A.  
2308  
2309  
2316

Coast and Geodetic Survey  
JAN 10 1898  
Library and Archives

2317  
2318

U. S. COAST AND GEODETIC SURVEY.

Gen. W. W. Duffield, Superintendent.

State: *Mass.*

DESCRIPTIVE REPORT.

*Hydrographic Sheets Nos. 2308,  
2309, 2316, 2317, 2318.*

LOCALITY:

*Buzzards Bay.*

1897.

CHIEF OF PARTY:

*Dr. G. C. Hannus, U.S.N.*

70  
70° 40'

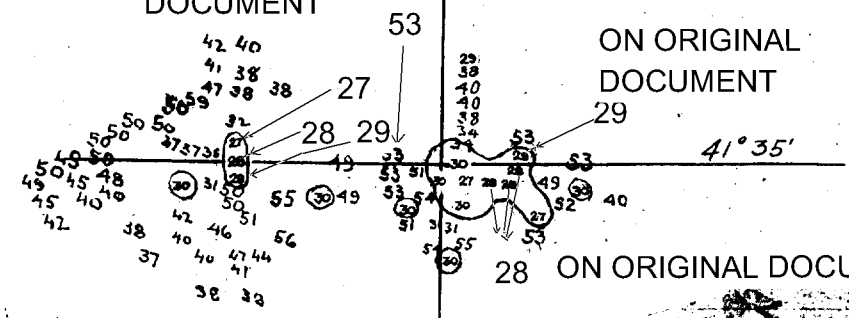
39  
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Hyd = Shoot 2316  
1897

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DOCUMENT

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DOCUMENT



28 ON ORIGINAL DOCUMENT

Paragraph 209.

2318

Sheet A.

Buzzards Bay.

Sheet No. 3

2328

✓ Nasketucket Bay and Approaches.

2309

Sheet No. 4

✓ Mattapoisett Harbor and Approaches.

Sheet No. 5

Beak, Middle and Gunpowder Rivers and Approaches.

2317

Sheet No. 9

Quauguisset Harbor and Approaches + Approaches to Woods Hole.

2316

Sheet No. 10

Cataumet, Child and Hog Islands Harbors and Approaches.

Paragraph 209

The tables of statistics required by the instructions, pages 56, 57 and 58 are transmitted rolled up in the sheets as directed.

Memorandum for Draughtsman.

There is no particular memoranda for the draughtsman except the records.

Paragraph 209 (2) (3) (4) (5) (6) (7) (8) (9) (10) (11)

There is no new information to report.

Paragraph 209 (12)

Fresh water can be procured at Mattapoisett, Hog Island, Harbor, Quanguissett and Ottaunnet from wells.

Paragraph 209 (12)

At Back River, Middle River and Gunpowder River, fresh water can be procured in small quantities from springs near the head of each river.

Coal can be procured in limited quantities at Mattapoisett but there is no convenient means of getting it at Cataumet, Wild Harbor, Hog Island Harbor, or Quaquissett.

At Back River, Middle River and Gunpowder River, coal can not be procured except by special transportation, by tug from Baltimore.

Paragraph 209 (14)

No weather service nearer to Buzzards Bay work than New Bedford.

No weather service nearer to Back, Middle and Gunpowder Rivers than Baltimore, Md.

Paragraph 209. (15)

No branch hydrographic office in Buzzards Bay, no station for reporting vessels, no special signals, no ice code.

There is a branch hydrographic office in Baltimore.

Paragraph 209 (16)

No marine railways nearer than New Bedford.

No marine railways nearer than Baltimore.

Paragraph 209 (17)

There is no steamer communication to or from any point on field of work.

There is railroad communication between, Cataumet, Niantic Harbor, Hog Island Harbor, Quamquissett & Mattapoisett also postal and telegraph facilities.

There is railroad communication between, Pack, Middle and Gunpowder Rivers also postal and telegraph facilities.

Paragraph 509 171

The most important of these places is Mattapoisett, but none of them is of any commercial importance.

Those in Buzzards Bay are more or less popular as summer resorts, but the permanent residents are very few.

There are many villages in the vicinity of East, Middle and the Gunpowder Rivers, but none of any importance. Baltimore is the market for the people and there are many trains each way daily and there is a trolley line as far as Middle River.



Tides- Season of 1897.  
Duxbury Bay

On April 6. 1897 an ordinary staff gauge was established on the west side of West Island, at the end of wharf to the Northwards of old Bridge connecting West Island with Long Island. Bench marks given in separate pages.

In April 1897 an ordinary staff gauge was established in Mattapoisett Harbor. It is on the small dock N.E. of the long stone pier at the outer entrance to small slip. The dock is known as "Holmes dock".

The latter part of May 1897 an ordinary staff gauge was erected at West Palmaruk, on the North side of "Spring Cove" wharf.

The above gauges were referred to the standard gauge at Island Point, the place of reference, - ft. mean low water, on which corresponded to reading 2.0 with the following results:-

Mattapoisett, mean low water reading (determined by comparison with West Island (previously determined)) and checked by comparison with Clark's Point on two excellent days, July 30 and August 1, corresponds to gauge reading ----- 1.6  
West Island gauge reading (previously determined) ----- 1.3  
West Palmaruk low water reading, (determined by comparison with Clark's Point, July 13, 15, 17, 18, 19, 20, 23, 26, 27, and checked by comparison with Mattapoisett on the same days) ----- 1.3

Bench marks:-


West Island. Bench mark No. 1 is a large iron ring bolt in a large rock near gauge and corresponds to gauge reading 1.7 ft.

Bench mark No. 2. two holes drilled in the top of large rocks, western corner, off end of wharf and corresponds to gauge reading 6.6 ft.


Bench mark No. 3. is one hole drilled in face of rock, northwest corner, off end of wharf and corresponds to gauge reading 5.1 ft.


~~The depth of hole is 1' 1" and is in the bed in well~~

## Bench Marks Continued.

Nest Salmon. Bench mark no. 1. is five wire nails driven into face of stringer of wharf to the westward of tide gauge, thus:  and the centre nail corresponds to a tide gauge reading of 8 ft.

Bench mark no. 2. is five wire nails driven in the same form into pile to which the gauge is attached, the centre nail corresponding to the tide gauge reading 7.95 feet.

Bench mark no. 3. is thirteen copper nails driven into the first pile East of tide gauge, forming the letter H, thus: . The horizontal line of nails corresponds to a tide gauge reading 5.4, and is nine feet from the gauge.

Mattapoisett. There is only one bench mark. It is made with five nails in form of cross () opposite the 8 ft mark on gauge and corresponds to gauge reading 8 ft.

H-2317 - Applied to 1210 Records. thru chrt 249 11/30/61 JRF  
H-2318 - Applied to 1210 Records. thru charts 249, 251 12/1/61 JRF  
H-2318 - Applied to 1210 Records. thru charts 249, 251 12/1/61 JRF

2308 *2 Reports*

*Diag. Ch. No. 1210-1*

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey *Hydrographic*  
Field No. \_\_\_\_\_ Office No. *2308*

LOCALITY

State *Massachusetts*  
General locality *Buzzards*  
Locality *Bay & Approaches*  
*1897*

194 \_\_\_\_\_

CHIEF OF PARTY

*G. C. Hannas U. S. N.*

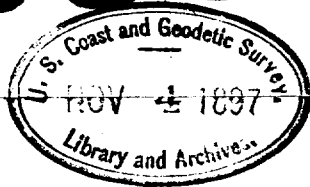
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DATE \_\_\_\_\_

*2 Reports*  
**2308**

2308

83  
SHA  
2308  
1897



U. S. COAST AND GEODETIC SURVEY.

*Gen. W. W. Duffield*, Superintendent.

State: *Massachusetts.*

DESCRIPTIVE REPORT.

*Hydrographic* Sheet No. *2308.*

LOCALITY:

*Buzzards Bay*  
*Nasketucket Bay*  
*and*  
*Approaches.*

1897.

CHIEF OF PARTY:

*Lieut. G. C. Hanns, U. S. N.*

2308

## Statistics

Date 1897	Letter	Number of			Miles	Boat.
		Volume	Angles	Soundings		
April 21	a	1	36	167	2.9	St. Launch 27
" 26	b	1	140	561	11.6	" " 27
" 29	c	<u>1</u>	<u>106</u>	<u>818</u>	<u>7.5</u>	" " 27
Totals		1	282	1546	21.0	
April 7	a	1	98	517	10.2	St. Launch 23
" 21	b	<u>1</u>	<u>80</u>	<u>362</u>	<u>4.9</u>	" " 23
Totals		1	178	909	15.1	
April 8	a	1	92	768	7.5	Whaleboat.
" 26	b	1	180	958	7.5	"
" 29	c	<u>2</u>	<u>154</u>	<u>940</u>	<u>7.3</u>	"
Totals		2	426	2666	22.3	
April 21		1	96	125	0.5	Kingly.

## Recapitulation.

Launch 27	1	282	1546	21
" 23	1	178	909	15.1
Whaleboat	2	426	2666	22.3
Kingly.	<u>1</u>	<u>96</u>	<u>125</u>	<u>0.5</u>
Totals (April)	5			

U. S. Coast and Geodetic Survey,  
W. W. Duffield, Superintendent.

Hydrography of Buzzards Bay Massachusetts.

Tackhucket Bay and Approaches.

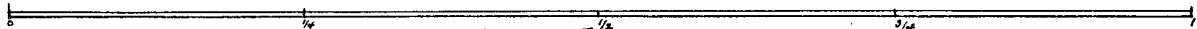
By the party in charge of  
Lieutenant J. L. Hamer, U.S. Navy, Asst.  
Schooner "Eagle".

Began April 7, 1897.

Ended July 8, 1897.

Scale 10000.

Statute Miles

  
Nautical Miles.

Observers:-

Lieutenant W. A. Edgar, Ensigns J. F. Hubbard and H. H. Wiley, Chief yeoman Sam B. Proctor, 2<sup>nd</sup> Class yeoman William Knapp, Sailmaker's mate Lyndon G. Teague and Seaman, Thomas James, U.S. Navy.

Coxswains:-

Lieutenant W. A. Edgar, Ensign H. H. Wiley, Sailmaker's mate Lyndon G. Teague, 2<sup>nd</sup> Class Quartermaster William Helmer, 3<sup>rd</sup> Class Quartermaster H. L. Shales and 3<sup>rd</sup> Class Quartermaster John Ostergren, U.S. Navy.

Leadsman:

Quartermasters H. L. Shales and William Helmer, and Seamen Isaac Bray, William Walker, Otto Johnson, G. Siren, E. J. Hally and Arthur Banner, U.S. Navy.

Deckhand:

Seaman H. L. Wapochal U.S. Navy.

Statistics

Date 1897	Letter	Number of				Boat
		Volume	Angles	Soundings	Miles	
May 4	d	1	72	325	5.9	St. Launch 22
" 7	e	2	192	1004	21.5	" 22
" 26	f	2	92	429	8.7	" 22
" 28	g	2+3	158	1031	17.0	" 22
Totals		3	514	2789	53.1	
May 4	c	1+2	219	855	13.5	St. Launch 23
" 5	a	2	128	986	11.0	" 23
" 26	e	2	38	218	4.3	" 23
" 28	f	2+3	134	814	17.4	" 23
Totals		3	519	2873	46.2	
May 5	a	2	128	819	8.1	Whaleboat
" 7	e	3	144	759	7.6	"
" 10	f	3	148	869	6.4	"
" 17	g	4	124	451	4.3	"
" 26	h	4	62	321	2.0	"
" 27	i	4	78	713	4.2	"
Totals		4	684	3932	32.6	
May 4		1	102	443	3.3	Dinghy
" 10		1+2	164	948	5.1	"
" 17		2	88	381	1.7	"
" 26		2	48	389	2.1	"
" 27		2+3	110	1074	7.1	"
Totals		3	512	3235	19.3	

Recapitulation

Launch 22	3	514	2789	53.1
" 23	3	519	2873	46.2
Whaleboat	4	684	3932	32.6
Dinghy	3	512	3235	19.3
Totals May	13	2229	12829	151.2



Statistics

Date 1897	Sector	Number of				Boat.
		Volume	Angles	Soundings	miles	
June 1	h	3	90	602	9.8	St. Lancel 22.
" 2	i	3	115	818	12.2	" " 22.
" 11	k	4	220	787	16.2	" " 22.
" 15	l	4	176	599	8.3	" " 22.
" 17	m	475	130	537	10.25	" " 22.
" 22	n	5	46	97	1.20	" " 22.
" 28	o	5	72	140	1.60	" " 22.
Totals		5	769	3580	59.55	
June 1	g	3	76	498	7.0	St Lancel 23
" 2	h	3	106	833	11.3	" " 23
" 10	i	4	86	527	10.6	" " 23
" 11	j	4	118	627	13.7	" " 23
" 15	k	475	168	912	14.6	" " 23
" 16	l	5	120	732	10.5	" " 23
" 17	m	546	236	1040	20.7	" " 23
" 18	n	6	198	775	17.6	" " 23
" 28	o	6	113	650	10.5	" " 23
Totals		6	86+1135	527+6067	120.5	
June 4	u	5	90	473	4.1	Whale boat
" 7	v	5	174	814	6.7	"
" 10	w	6	46	231	2.0	"
" 11	x	6	56	231	2.1	"
" 16	y	6	206	676	4.8	"
" 22	z	677	180	589	6.0	"
" 25	aa	7	86	233	1.7	"
" 28	ab	7	100	431	4.3	"
" 29	ac	7	150	826	6.4	"
Totals		7	1088	4504	38.1	
June 4		3	66	317	2.2	Slingsby
" 7		3	175	899	6.6	"
" 17		4	156	622	4.25	"
" 18		4	178	745	6.4	"
" 21		5	83	469	4.6	"
" 28		5	16	93	0.0	"
Totals		5	674	3145	24.50	

Statistics.

Recapitulation for June.

	Vol.	Angles.	Soundings.	Miles.
Launch 22	5	769	3580	59.55
" 23	6	1135	6067	110.90
Whaleboat.	7	1088	4504	38.10
Dinghy.	<u>5</u>	<u>674</u>	<u>3145</u>	<u>24.55</u>
Totals (June)	23.	3666	18296	233.10

Date 1897	Letter	Number of				Boat.
		Volume	Angles	Soundings	Miles	
July 1	10	5	8	47	0.8	St. Launch 22
Totals						
July 8	18	7	226	686	10.6	St. Launch 23
Totals						
July 1	5	8	156	889	5.8	Whaleboat
Totals						
Recapitulation						
		St. Launch 22.	5	8	47	.8
		" " 23	7	226	686	10.6
		Whaleboat	<u>8</u>	<u>156</u>	<u>889</u>	<u>5.8</u>
		Totals	20	390	1677	17.2

Recapitulation						
	Letter	Volume	Angles	Soundings	Miles	
Launch 22		5	1573	7962	135.45	
" 23		7	2144	11062	193.40	
Whaleboat		8	2354	11891	98.80	
Dinghy		5	1282	6505	44.35	
Grand Total		25	7353	37500	472.00	

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1210 Reconstr. 11/30/61 Applied thru Chart 252 MB

# 2309

Also See H-2308  
Combined DR

Also See H-2308  
Combined DR

# 2309

Diag. Ch. No. 1208-1 & 1210-1

Form 504	
U. S. COAST AND GEODETIC SURVEY DEPARTMENT OF COMMERCE	
<b>DESCRIPTIVE REPORT</b>	
Type of Survey	<i>Hydrographic</i>
Field No.	Office No. <i>2309</i>
LOCALITY	
State	<i>Massachusetts</i>
General locality	<i>Duxbury</i>
Locality	<i>Bay</i>
	<i>Approaches</i>
	<u>194 1896-7</u>
CHIEF OF PARTY	
LIBRARY & ARCHIVES	
DATE .....	

# 2309

U.S. AND G. SURVEY  
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Ind. No.

Diag. Cht. No. 1208-1 & 1210-1

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SHA  
2309  
1897

Department of Commerce and Labor  
COAST AND GEODETIC SURVEY

*W. W. Duffield*  
Superintendent.

State: *Mass*

## DESCRIPTIVE REPORT.

*N. 7. 1. C. Sheet No 2309*

LOCALITY:

*See also*

*2308*

*1897*  
*190*

CHIEF OF PARTY:

*G. C. Harris*

# 2309

2309

83  
SHA  
2309  
1896-7

U. S. Coast and Geodetic Survey  
NOV 4 1897  
Library and Archives

U. S. COAST AND GEODETIC SURVEY.

*Gen. W. W. Duffield*, Superintendent.

State: *Massachusetts.*

DESCRIPTIVE REPORT.

*Hydrographic Sheet No. 2309.*

LOCALITY:

*Buzzards Bay  
Mattapoisett Harbor  
and  
Approaches.*

*1896-7.*

CHIEF OF PARTY:

2309

H.S. No 4.

U. S. Coast and Geodetic Survey,  
W. W.UFFIELD, Superintendent.

Hydrography of Buzzards Bay, Massachusetts.

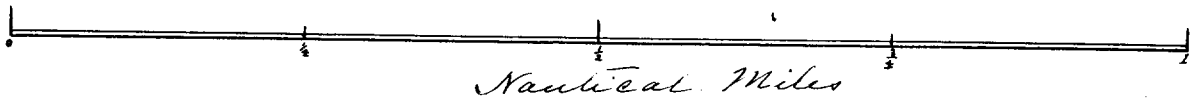
Mattapaissett Harbor and Approaches,  
By the party in charge of  
Lieutenant J. C. HANES, U. S. Navy, Asst.  
Schooner "Eagle".

Begun August 10, 1896.

Ended " 12, 1897.

Scale  $\frac{1}{10000}$

Statute Miles.



Nautical Miles

Observers:

Lieutenant W. A. Edgar, U.S.N.; Ensign J. F. Hubbard, U.S.N.;  
Ensign A. A. Wiley, U.S.N.; Chief Yeoman Wm B. Proctor U.S.N.;  
Sailmaker's Mate Lyndon G. Peague, U.S.N.; 2nd Class Yeoman  
Wm Junger, U.S.N.; Steward Thomas James, U.S.N.

Coxswains:

Lieutenant W. A. Edgar, U.S.N.; Ensign A. A. Wiley, U.S.N.; Sailmaker's  
Mate Lyndon G. Peague, U.S.N.; Second Class Quartermaster  
P. W. Lauriat and W. Hjelmner U.S.N. and Third Class Quartermaster  
A. L. Shales and John Ostergren.

Leadsmen:

Coxswains A. L. Shales, W. Hjelmner and John  
Ostergren U.S.N. Seamen Charles Cary, W. Kellman,  
S. Peterson, Isaac Bray, G. Siren, E. Grauberg, Otto  
Johnson, William Walker and Murdoch Gillis, U.S.N.

Tidegaugemen:

Seamen A. L. Wopschall, William Kellman and  
Arthur Burner, U.S.N.

## Statistics

Date 1896.	Letter (Red)	Number of				Boat.
		Vol.	Angles	Soundings	Miles	
August 10	a	1	252	1658	34.05	St. Launch 23
" 11	b	2	278	1650	39.10	"
" 12	c	3	216	1406	27.00	"
" 17	d	3+4	148	892	18.10	"
" 18	e	4	166	731	16.20	"
" 19	f	4+5	262	1434	23.00	"
" 24	g	5	221	1381	22.20	"
" 25	h	6	156	1044	15.10	"
" 26	i	6+7	245	2012	31.50	"
" 27	k	7	231	1781	28.30	"
" 31	l	8	118	708	8.55	"
Totals		8	2293	14697	263.10	
August 10	a	1	268	1546	35.30	St. Launch 22
" 11	b	2	156	1072	24.20	"
" 12	c	2+3	256	1583	33.60	"
" 13	d	3	188	1007	23.40	"
" 17	e	4	176	1080	20.50	"
" 20	f	4+5	262	1531	31.40	"
" 21	g	5	202	1144	21.60	"
" 24	h	6	178	967	21.50	"
" 25	i	6	150	862	12.40	"
Totals		6	1836	10792	223.95	
			<i>Recapitulation</i>			
Launch 23		8	2293	14697	263.10	
" 22		6	1836	10792	223.95	
Totals (Aug)		14	4129	25489	487.05	



Statistics.

Date 1896	Letter	Number of				Boat
		Vol.	Angles	Soundings	Miles	
Sept. 4	m	8	92	645	8.60	St. Launch 23
" 5	m	879	164	1160	19.00	"
" 7	o	9	216	1328	15.60	"
Totals		9	472	3133	43.20	"
Sept 4	h	7	136	947	14.20	St. Launch 22
" 5	h	7	160	903	17.00	"
Totals		7	296	1850	31.20	

Recapitulation

Launch 23	9	472	3133	43.20
" 22	7	296	1850	31.20
	16	768	4983	74.40

	Letter	Vol.	Angles	Soundings	Miles	Boat
Oct. 17-	m	8	184	883	18.00	St. Launch 22

## Statistics.

Date 1896	Letter	Number of				Boat.
		Vol	Angles	Soundings	Miles	
Nov. 9	10	10	22	154	2.40	St. Launch 23
Nov. 9	"	8	150	972	22.00	St. Launch 22
" 10	0	8+9	114	845	16.60	" "
" 12	10	9	124	936	18.60	" "
Totals		9	388	2753	57.20	
Nov. 10	u	1	96	1017	8.30	Whaleboat
" 12	6	1	122	1140	10.00	"
Totals		1	218	2157	18.30	

## Recapitulation

Launch 23	10	22	154	2.40
" 22	9	388	2753	57.20
Whaleboat	1	218	2157	18.30
Totals (Nov.)	20	628	5064	77.90

## Statistics.

Date 1897	Letter	Number of				Boat.
		Vol.	Angles	Soundings	Miles	
June 21	<sup>Blue</sup> g	9	142	786	15.8	St. Launch 27.
June 25	g	10	172	868	14.8	St. Launch 23.
June 25	n	10	111	527	10.1	" " 23.
June 29	s	"	107	571	6.7	" " 23.
Totals			392	1986	31.6	
June 21	c	172	60	287	2.0	Whaleboat
June 29	a	1	50	318	2.0	Dinghy

## Resapitulation.

Launch	22	9	142	786	15.8
"	23	11	392	1986	31.6
Whaleboat	2	60	287	2.0	
Dinghy	1	50	318	2.0	
Totals (June)	23	644	3377	51.4	

## Statistics

Date 1897	Letter	Number of				Boat
		Vbl	Angles	Soundings	Miles	
July 6	n	10	24	17	0.0	St. Launch 22
" 26	s	10	32	16	0.0	" " 22
Totals			56	28	0.0	
July 1	t	11	69	434	5.6	St. Launch 23
" 6	u	11	50	239	3.4	" " 23
" 8	w	"	16	63	1.3	" " 23
" 19	x	11+2	184	667	11.5	" " 23
Totals			319	1403	21.8	
July 6	d	2	68	192	1.5	Whaleboat
" 8	e	2	140	952	8.9	"
" 17	f	2+3	98	462	2.5	"
" 19	g	3	140	764	5.8	"
" 26	h	3+4	266	1153	13.0	"
Totals			712	3523	31.7	
July 1	b	1	57	268	2.8	Singhy

## Recapitulation

Launch 22	10	56	28	0.0
" 23	17	319	1403	21.8
Whaleboat	4	712	3523	31.7
Singhy	1	57	268	2.8
Totals (July)	27	1144	4722	56.3

Statistics

Date 1897	Letter	Number of				Boat.
		Volume	Angles	Soundings	Miles	
August 12	E	10	8	4	0.0	St. Lancel 22.
Totals		10	8	4	0.0	
August 12	y	12	130	1142	6.8	St. Lancel 23.
Totals		12	130	1142	6.8	
August 12	i	4	20	124	0.7	Whaleboat.
Totals		4	20	124	0.7	

Recapitulation

Lancel 22	19	10	2920	14096	328.15	8.2 $\square$ Miles
" 23	23	12	3628	21815	368.90	
Whaleboat	9	4	1010	6091	52.70	
Singly	2	1	107	586	4.80	
Grand Total	53	27	7655	45588	754.55	

1210 Recovstr. Appld 11/30/61 thru charts 251, 252, 249 ~~718~~

# 2316

83  
SHA  
2316  
1897

Diag. Chk. No. 1208-1, 1209-2, 1210-1

Department of Commerce and Labor  
COAST AND GEODETIC SURVEY

*W. W. Duffield*  
Superintendent.

State: *Mass*

## DESCRIPTIVE REPORT.

*Hypoc* Sheet No *2316*

LOCALITY:

*See*  
*2308 & Reports*

*1897*  
*190*

CHIEF OF PARTY:

*G. C. Hanna*

# 2316

2317 Also see #2308  
2, Reports

Diag. Cht. Nos. 1209-2 & 1210-1

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey ..... HYDROGRAPHIC

Field No. .... Office No. H-2317

LOCALITY

State ..... MASS.

General locality ..... BUZZARDS BAY

Locality EXAMINATION OF SHORE, NORTH OF

WOODS HOLE

1897- 194 05

CHIEF OF PARTY

G. C. Hanus

R. B. Derickson

LIBRARY & ARCHIVES

DATE .....

2317 Also see H-2308  
2, Reports



2317

U.S. COAST AND GEODETIC SURVEY  
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Doc No

Proj. Cht 1209-2 & 1210-1

83  
SHA  
2317  
1897

Department of Commerce and Labor  
COAST AND GEODETIC SURVEY

*W. W. Duffield*  
Superintendent.

State: *Mass*

DESCRIPTIVE REPORT.

*Hyde* Sheet No *2317*

LOCALITY:

*See*

*2308*

190

CHIEF OF PARTY:

*G. B. Harris*

2317

Department of Commerce and Labor

Sheet 2317  
Rock off Lunning Point  
Burgzards Bay Mass.

The lines seem to have been carefully run. quite a number of soundings were taken on top of rock - the least being 1.1 ft. Close to the rock and nearly if not quite surrounding it is deeper water than is shown a little distance off. The true conditions could only be shown by plotting on a large scale -

J. C. Down

COMPUTATION OF TRIANGLES

11-606

State: MASS.

NO.	STATIONS.	OBSERVED ANGLES.	CORR'N.	SPHER' L ANGLE.	SPHER' L EXCESS.	PLANE ANGLES AND DISTANCES.	LOGARITHMS.
	NEO TO BIRD						3.83488
	Ax O	25 41 31					0.36298
	NEO PT. L.H.	59 01 35					9.93319
	BIRD IS. L.H.	95 16 54					9.99815
	Ax to BIRD IS. L.H.					13522.1	4.13105
	Ax to NEO PT. L.H.					15703.9	4.19601
	BIRD IS. L.H. TO SWIFT'S HILL						4.11319
	Ax O	66 57 51					0.03609
	BIRD IS. L.H.	6 32 59					9.05715
	SWIFT'S HILL	106 29 10					9.98177
	Ax TO SWIFT'S HILL					1608.5	3.20643
	Ax TO BIRD IS. L.H.					13522.1	4.13105
	NEO PT. L.H. TO SWIFT'S HILL.						4.20031
	Ax O	92 39 22					0.00046
	NEO PT. L.H.	5 48 51					9.90562
	SWIFT'S HILL.	81 31 47					9.99524
	Ax TO SWIFT'S HILL.					1608.4	3.20639
	Ax TO NEO PT. L.H.					15703.9	4.19601
	SWIFT'S HILL TO Ax O						3.20641
	SPAR BUOY #4.	40 45 26					0.18519
	SWIFT'S HILL	65 10 19					9.95788
	Ax O	74 04 15					9.98300
	SPAR BUOY #4 TO Ax O					2236.0	3.34948
	SPAR BUOY #4 TO SWIFT'S HILL					2369.2	3.37460

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Abstract of Horizontal Angles.

Station *Ax O* State *MASS.*

Observer *R.B.D.* Repeating Theodolite

11-625

DATE.	HOUR.	STATIONS OBSERVED.	Tel. D. or R.	No. of Rep's.	ANGLE.			Mean of D. & R.	Corr.	MEAN ANGLE.		
					°	'	"			°	'	"
<i>11/22-05</i>	<i>A.M.</i>	<i>SWIFT'S HILL</i>	<i>D</i>	<i>1</i>	<i>0</i>	<i>00</i>	<i>00</i>			<i>0</i>	<i>00</i>	<i>00</i>
			<i>R</i>	<i>1</i>	<i>180</i>	<i>00</i>	<i>00</i>			<i>0</i>	<i>00</i>	<i>00</i>
		<i>WING'S NECK L.H.</i>	<i>D</i>	<i>1</i>	<i>46</i>	<i>33</i>	<i>07.5</i>			<i>46</i>	<i>33</i>	<i>07.5</i>
			<i>R</i>	<i>1</i>	<i>226</i>	<i>32</i>	<i>55.0</i>	<i>01.2</i>		<i>46</i>	<i>33</i>	<i>01.2</i>
		<i>BIRD ISLAND L.H.</i>	<i>D</i>	<i>1</i>	<i>66</i>	<i>57</i>	<i>55.0</i>			<i>66</i>	<i>57</i>	<i>55.0</i>
			<i>R</i>	<i>1</i>	<i>246</i>	<i>57</i>	<i>47.5</i>	<i>51.2</i>		<i>66</i>	<i>57</i>	<i>51.2</i>
		<i>NED POINT L.H.</i>	<i>D</i>	<i>1</i>	<i>92</i>	<i>39</i>	<i>25.0</i>			<i>92</i>	<i>39</i>	<i>25.0</i>
			<i>R</i>	<i>1</i>	<i>272</i>	<i>39</i>	<i>20.0</i>	<i>22.5</i>		<i>92</i>	<i>39</i>	<i>22.5</i>
		<i>SWIFT'S HILL</i>	<i>D</i>	<i>1</i>	<i>0</i>	<i>00</i>	<i>00</i>			<i>0</i>	<i>00</i>	<i>00</i>
			<i>R</i>	<i>1</i>	<i>180</i>	<i>00</i>	<i>00</i>			<i>0</i>	<i>00</i>	<i>00</i>
		<i>SPAR BUOY #4</i>	<i>D</i>	<i>1</i>	<i>74</i>	<i>04</i>	<i>30</i>			<i>74</i>	<i>04</i>	<i>30</i>
			<i>R</i>	<i>1</i>	<i>254</i>	<i>04</i>	<i>00</i>	<i>15.0</i>		<i>74</i>	<i>04</i>	<i>15</i>

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\* The angles in this abstract were recorded in rough note book and checked on this sheet.

*R.B.D.*

Checked *J.B.*

Compared *J.B.*

Checked *J.B.D.*



# THREE POINT PROBLEM -

Given

Azimuth SWIFT TO BIRD =  $151^{\circ} 49' 44''$

Azimuth SWIFT TO NED =  $125^{\circ} 52' 21''$

$\therefore$  Angle at SWIFT  
between NED + BIRD =  $24^{\circ} 57' 23''$

Distance NED TO SWIFT =  $15860.2 \text{ m.} = b$

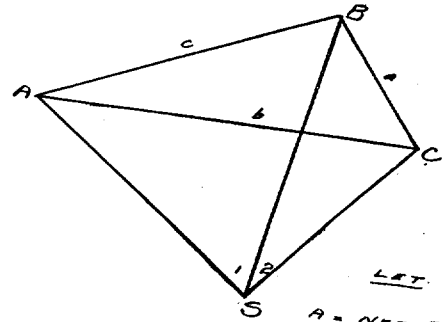
BIRD TO SWIFT =  $12977.5 \text{ m.} = a$

OBSERVED ANGLES AT AX O

$\left\{ \begin{array}{l} \text{NED TO BIRD} \\ \text{BIRD TO SWIFT} \end{array} \right. = 66^{\circ} 57' 51'' = S_1$

$\left\{ \begin{array}{l} \text{BIRD TO SWIFT} \\ \text{NED TO SWIFT} \end{array} \right. = 25^{\circ} 41' 31'' = S_2$

$\left\{ \begin{array}{l} \text{NED TO SWIFT} \end{array} \right. = 92^{\circ} 39' 22'' = S_3$



LET

- A = NED Pt. L.H.
- B = BIRD IS. L.H.
- C = SWIFT'S HILL
- S = AX O

To determine angles at NED and SWIFT, in order to solve triangles.

Equating side BS gives,  $\frac{\sin A}{\sin C} = \frac{a \sin S_1}{c \sin S_2}$  (1)

From quad. ABCS,  $A + C = 360^{\circ} - B - S$  (2)

These two equations offer a solution for  $S$  at A + C.

LET  $A + C = 2m$  also  $A - C = 2n$ .

From (2)  $m = 180^{\circ} - \frac{1}{2}(B + S) = \frac{A + C}{2}$ , leaving  $n$  to be found.

LET  $V$  be such an angle that  $\tan V = \frac{c \sin S_2}{a \sin S_1}$  (3)

From equation (1) and (3) -  $\frac{\sin(m+n)}{\sin(m-n)} = \cot V$  (4)

which reduces to  $\tan n = \tan m \cot(V + 45^{\circ})$  (5)

To find angle B and dist. c, from  $\triangle ABC$ .

$\frac{b+a}{b-a} = \frac{\tan \frac{1}{2}(B+A)}{\tan \frac{1}{2}(B-A)}$  or  $\tan \frac{1}{2}(B-A) = \frac{(b-a) \tan \frac{1}{2}(B+A)}{b+a}$

$b - a = 2882.7 - \log = 3.49580$

$\frac{1}{2}(B+A) = 77^{\circ} 31' 18.5'' - \log \tan = 0.65502$

$b + a = 28837.7 - \log = 5.54005$

$\frac{1}{2}(B-A) = 24^{\circ} 78' 35'' - \log \tan = 9.65487$

$\frac{1}{2}(B+A) = 77^{\circ} 31' 18''$

$B = 101^{\circ} 49' 53''$

$c = \frac{b \sin C}{\sin B}$

$b = 15860.2 - \log = 4.20031$

$C = 24^{\circ} 57' 23'' - \log \sin = 9.62524$

$B = 101^{\circ} 49' 53'' - \text{colog} \sin = 0.00933$

$c = 6837.2 - \log = 3.83488$

To obtain  $V$  - equation (3)

$c = 6837.2 - \log = 3.83488$

$a = 12977.5 - \text{colog} = 5.88681$

$S_2 = 25^{\circ} 41' 31'' - \log \sin = 9.96391$

$S_1 = 66^{\circ} 57' 51'' - \text{colog} \sin = 0.36298$

$V = 48^{\circ} 11' 53'' - \log \tan = 0.04858$

$V + 45 = 93^{\circ} 11' 53''$

To obtain  $n$  - Eq. (5)

$m = 82^{\circ} 45' 22'' - \log \tan = 0.89584$

$V + 45 = 93^{\circ} 11' 53'' - \log \cot = 8.74721$

$n = 23^{\circ} 43' 48'' - \log \tan = 9.64305$

$m = 82^{\circ} 45' 22''$

$A = 106^{\circ} 29' 10'' = m + n$

$C = 59^{\circ} 01' 35'' = m - n$

CHECK.

$A = 106^{\circ} 29' 10''$

$C = 59^{\circ} 01' 35''$

$S = 92^{\circ} 39' 22''$

$B = 101^{\circ} 49' 53''$

$360^{\circ} - 00' - 00''$

#####  
ANGLE OBSERVATIONS AND COMPUTATIONS OF DISTANCES TO LOCATE  
HYDROGRAPHIC SIGNALS "MASON" AND "AX"  
#####



Abstract of Horizontal Angles.

**U. S. C. & G. SURVEY,**  
**LIBRARY AND ARCHIVES,**  
**DEC 7 - 1905**  
 Ser. No.

Station  
 Observer

State  
 Repeating Theodolite

11-625

DATE.	HOOR.	STATIONS OBSERVED.	Tel. D. or R.	No. of Rep's.	ANGLE.	Mean of D. & R.	Corr.	MEAN ANGLE.
					° ' "	"	"	° ' "
<p>Angle observations and computations of distances          to locate hydrographic signals "MASON" and "Ax"</p>								

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Station *SWIFT'S HILL*

State *MASS.*

Observer *R.B.D.*

Repeating Theodolite

11-625

DATE.	HOUR.	STATIONS OBSERVED.	Tel. D. or R.	No. of Rep's.	ANGLE.	Mean of D. & R.	Corr.	MEAN ANGLE.	
					* 0 00 00				
<i>11/22</i>	<i>05 A.M.</i>	<i>WING'S NECK L.H.</i>	<i>D</i>	<i>1</i>	<i>0 00 00</i>				
			<i>R</i>	<i>1</i>	<i>179 59 57.5</i>	<i>58.8</i>	<i>+1.2</i>	<i>0 00 00</i>	
		<i>SPAR BUOY #4.</i>	<i>D</i>	<i>1</i>	<i>63 00 02.5</i>				
			<i>R</i>	<i>1</i>	<i>242 59 30.0</i>	<i>46.2</i>	<i>+1.2</i>	<i>62 59 47.4</i>	
		<i>MASON O</i>	<i>D</i>	<i>1</i>	<i>104 51 15.0</i>				
			<i>R</i>	<i>1</i>	<i>284 51 10.0</i>	<i>12.5</i>	<i>+1.2</i>	<i>104 51 13.7</i>	
		<i>AX O</i>	<i>D</i>	<i>1</i>	<i>128 10 05.0</i>				
			<i>R</i>	<i>1</i>	<i>308 10 05.0</i>	<i>05.0</i>	<i>+1.2</i>	<i>128 10 06.2</i>	
		<i>AT STATION</i>			<i>MASON.</i>				
					<i>Sextant observations to determine MASON O.</i>				
<i>B.D.B. Observer</i>									
<i>11/18-19</i>	<i>05 A.M.</i>	<i>Wing to Bird</i>			<i>21 32</i>				
		<i>Bird to Ned</i>			<i>26 14</i>				
		<i>Swift to Wing</i>			<i>70 46</i>				
		<i>Bird to Spar Buoy #4</i>			<i>23 02</i>				
		<i>Wing to Spar Buoy #4.</i>			<i>44 33</i>				

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2318

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Diag. Cht. No. 1208-1 & 1210-1

83  
SHA  
2318  
1897

Department of Commerce and Labor  
COAST AND GEODETIC SURVEY

*W. W. Duffield*  
Superintendent.

State: *Mass*

DESCRIPTIVE REPORT.

*Hyd C* Sheet No. *2318*

LOCALITY:

*Sea*

*23082, Reports*

~~1897~~  
~~190~~

CHIEF OF PARTY:

*G. C. Harris*

2318

1210 Picomate - applied thru chart 249 1/20/61 MR