6220

Form 504
Rev. Dec. 1933

DEPARTMENT OF COMMERCE
U.S. COAST AND GEODETIC SURVEY
R. S. PATTON, DIRECTOR

DESCRIPTIVE REPORT

~~Topographic~~
Hydrographic } *Sheet No.* 6220

State New Jersey

LOCALITY
Continental Shelf off Delaware Bay
~~Coast of New Jersey~~
~~Offshore~~

193 7

CHIEF OF PARTY

Jack Senior

U.S. GOVERNMENT PRINTING OFFICE: 1934

6220

Form 537
Ed. Sept., 1929

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

REG. NO.

HYDROGRAPHIC TITLE SHEET

The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. 1201

REGISTER NO. H6220

State New Jersey

General locality ~~Coast of New Jersey~~ Off Delaware Bay

Locality ~~Offshore~~ Continental Shelf

Scale 1:120,000 Date of survey June-July, 1937

Vessel LYDONIA

Chief of Party Jack Senior

Surveyed by T. B. Reed, G. E. Boothe, J. C. Bose

Protracted by T. B. Reed, W. R. Jackson

Soundings penciled by W. R. Jackson, F. B. Kelly

Soundings in ~~fathoms~~ ~~feet~~ fathoms

Plane of reference M. L. W.

Subdivision of wire dragged areas by

Inked by G. C. McGlasson, F. B. Kelly, and W. R. Jackson.

Verified by G. C. McGlasson, L. H. McGaver, F. B. Kelly, and W. R. Jackson.

Instructions dated Apr. 9, 1936; Mar. 19, 1937; June 10, 1937.

Remarks:

U. S. GOVERNMENT PRINTING OFFICE: 1929

DESCRIPTIVE REPORT

to accompany

Hydrographic Sheet No. H-6220 (Field No. 1201)

NEW JERSEY COAST
Ship LYDONIA, Jack Senior, Commanding
June-July 1937

INSTRUCTIONS:

Original instructions for this project were dated April 9, 1936 with supplemental instructions dated March 19, 1937 to Ship OCEANOGRAPHER and supplemental instructions dated June 10, 1937 to Ships OCEANOGRAPHER and LYDONIA.

LIMITS:

This sheet includes the deep water area to seaward from the 100 fathom curve between the 1936 hydrography in the vicinity of the Hudson submarine valley and the 1933 and 1934 hydrography in the vicinity of the Delaware submarine valley with an extension of the 1933 and 1934 work eastward to approximately 1600 fathoms and southward to about Latitude 37° 54'.

CONTROL:

Control for this survey consisted of five sono-radio buoys. Positions of buoys and methods of location are shown on Form No. 714, "Abstract of Buoys Planted", attached to this report.(page 6).

SURVEY METHODS:

Standard R.A.R. methods were employed in the execution of this survey except as follows: Due to excessively bad static conditions during almost the entire period of the survey it was found necessary to "hand trip" the chronograph on a large number of bomb returns. A hand key was connected to the time pen of the chronograph and a hand mark made on the tape by an observer when the return signal was heard in the radio loud speaker. These marks usually came between second marks on the tape but could be scaled from adjoining second marks if a second mark happened to be covered by the hand mark of the return. By this method the mechanical marking of the chronograph pen was not disturbed and, if the return marked mechanically, the mechanical marking was used in the computations, with the hand mark as an additional check. It was found from a large number of bomb returns, which were registered both by hand and mechanically on the tapes, that the lag in hand marking was between 0.25 and 0.30 second, being usually 0.3 second. Three-tenths second was therefore subtracted from all hand marked returns. Hand marked distances are shown in blue pencil in the bomb records, and are also shown by a green check mark on the R.A.R. abstracts.

It was found in the execution of this survey that the major disadvantage of sono-radio buoys compared with station ships for distances of about 30 seconds or over is the comparatively low radio power of the buoys. This necessitated turning the gain of the receiving set very high for the reception of returns from the longer distances and consequently resulted in the reception of a large amount of static. Of course on days of little or no static, this condition is not present, but such days were very unusual during the time of the survey.

It was for this reason that the hand marking method was used and it can be seen from an inspection of the records that the survey could not have been accomplished with sono-radio buoys without resorting to use of the hand marked distances.

COMPUTATION OF VELOCITIES FOR R.A.R. DISTANCES:

Theoretical bottom velocities were used from the sono-radio buoys to the 400 fathom curve and the theoretical velocity at the 400 fathom layer used in the area deeper than 400 fathoms. Theoretical velocities were determined from temperature and salinity observations (7 sheets) accompanying this report.

The standard method used in previous years of plotting curves of equal velocity for each buoy on an overlay sheet and determining curves of average velocity by radial lines to all areas in which the buoy was used, was employed for computing velocities. After plotting the curves of average velocity in colors on the overlay it was found that the average curves to each buoy were almost coincident and that the computations could be shortened by using the same velocity to all buoys from each position without introducing an error in theoretical velocity of more than about 1 meter per second in any position.

SOUNDINGS:

All soundings on this sheetwere made with the 312 type fathometer using, in general, the fast speed, red light method for soundings under 100 fathoms and the slow speed red light method for soundings deeper than 100 fathoms.

Standard methods of computing temperature and salinity corrections to fathometer soundings were used and the curves and computations are included in this report.

Comparisons made between fathometer and sounding machine were as follows:

Vol. 1, Page 3 (Entire day later rejected)
Vol. 1, Page 41 (See note in sounding record regarding 4 fathom correction to soundings on this day.)
Vol. 2, Page 41
Vol. 2, Page 63
Vol. 2, Page 66
Vol. 4, Page 36

POSITION PLOTTING:

Before plotting the R.A.R. arcs on the sheet the dead reckoning for each line was plotted on an overlay tracing. The overlay was then laid over the arcs and the final positions determined, such distance arcs being rejected as were obviously incorrect according to the dead reckoning. The hand marked arcs were considered approximate and allowed to fall slightly off the positions in many cases to better check the dead reckoning. A considerable amount of time and study was spent in adjustment of positions, particularly on some of the far offshore lines, and while there still remains some doubt in several cases it is believed by the smooth plotters that all positions are plotted in their most probable locations.

In several cases a sudden "jump" (evidenced by the dead reckoning) of between 0.5 and 1.0 second was found to occur in the bomb distances to distant buoys. This is particularly evident in the returns between 9 K and 21 K to buoy "Delta", and also occurred on other lines. While no conclusive explanation can be made for these apparent "jumps" it is believed they are due to buoy "Delta" being slightly less sensitive than buoy "Gamma" and the return being made by the buoy on the third or fourth reflection from the bottom, whereas the first or second reflection had been returned previously. As no correction could be applied to these distances it was necessary to reject the arcs where it was evident a "jump" in distance had occurred. Lat. 38°10' Long. 72°50'

Sounding line crossings were considered while plotting positions and in a few cases slight adjustments were made in the plot to better check soundings.

The section of sounding line between positions 15F and 28F was rejected. (See note on page 46, Vol. 2.) Pos. 14F at Lat. 38°52', Long. 72°32'

SOUNDING LINE CROSSINGS:

The line near position 75E crosses the line between 8 and 9F about 100 fathoms deeper at this point. As no reasonable adjustment of positions could be made to bring this crossing into agreement it is believed the error was due to the fathometer. In general, the agreement of soundings on other cross lines is good, considering the uneven nature of the bottom in this region. Lat. 38°57.5' Long. 72°38.4' See Rev., par. 4 for details of adjustment of this line as well as several other lines.

JUNCTIONS:

Field Sheet No. 122, H-6219 (OCEANOGRAPHER, 1937)

The junction with the above sheet was brought into fair agreement by some slight adjustments and sounding rejections. Preference was given to soundings less than 100 fathoms by the Dorsey Fathometer when cross lines of the 312 fathometer disagreed. (Also see note by Dr. Dorsey, page 45, Vol. 1 of Sheet No. 122.) It is recommended that the following soundings be rejected: Pos. 1 to 2 M, Lat. 38°56', Long. 72°52.5'

first 5 soundings at beginning of line; 15 to 16 E, (Lat. 38°47', Long. 73°04' Lat. 38°41', Long. 73°10') soundings of 94, 76, 80 and 83 around end of line; positions 1 to 2 D, first 5 soundings at beginning of line; positions 1 to 3 A, reject soundings as noted in sounding record. (Lat. 38°44', Long. 73°05' Sdgs rejected by field plotter.)

These sdgs rejected. See Rev. par. 6c for other details

This subject will be discussed further in the descriptive report for Field Sheet No. 122 when the plotting of that sheet is completed. (H-6219)

Sheet No. H-6192 (1936)

The junction on the north was brought into good agreement by a slight shift in the line 65 to 75 L on sheet No. H-6192. (Lat. 38°55', Long. 72°21') After a study of the control on the two sheets, it was decided that, due to the weak control in that area on H-6192 the line should be shifted slightly to the northward to bring the soundings into agreement.

Sheets Nos. H-5713 (1934) and H-5350 (1933)

Soundings at the junction on the east with the above two sheets are in good agreement in some areas and only fair in others. In the few cases where discrepancies existed, no reasonable adjustment of positions could be made on this sheet to bring the soundings into agreement. It is believed that fathometer soundings on sheets Nos. H-5350 and H-5713 were obtained by the "white light method", and that in cases where no reasonable shift in positions can be made to bring the soundings at the junction into agreement, that the soundings on this sheet should be given preference due to their being obtained by the "red light method".

Junction improved by rejection and readjustment of several lines on H-5350 and H-5713. For details see Bp. 31694 of 1938. H.W.M.

Respectfully submitted:

Thos. B. Reed

Thos. B. Reed
Lieutenant, C. & G. Survey.

Descriptive Report approved and forwarded;
this hydrographic sheet and its accompanying
records have been inspected by me and are
approved.

Jack Senior

Jack Senior
Lieut. Comdr., C. & G. Survey
Commanding Ship LYDONIA.

STATISTICS FOR SHEET #1201

PROJECT H T 207

Day	Date	No. of Positions	No. of Soundings	Stat. Miles	Vol. No.
A	June 24	13	69	24.7	1
B	June 25	94	474	164.5	1
C	June 26	17	93	28.8	1
D	June 27	91	573	166.8	1 & 2
E	June 28	88	731	147.0	2
F	June 29	70	472	161.0	2
G	June 30	59	417	138.4	2 & 3
H	July 11	46	408	83.4	3
J	July 12	61	700	162.2	3
K	July 13	57	582	147.4	3 & 4
L	July 14	31	402	92.0	4
M	July 15	26	311	69.0	4
N	July 16	66	582	170.0	4
	TOTAL	719	5814	1555.2	4

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SHEET No. .....
OF ..... SHEETS

SONO-RADIO

ABSTRACT OF BUOYS PLANTED BY SHIP "LYDONIA" ON SHEET NO. 1201

U. S. C. and G. S. Ship LYDONIA, Jack Senior Commanding.

Project H-T No. 207 Locality Offshore area, Coast of New Jersey, June and July, 1937

NAME	DATE 1937	DEPTH	LATITUDE	LONGITUDE	CABLE			HORIZONTAL SCOPE	DESCRIPTION			REMARKS
					BETWEEN BUOYS	CHAIN	CABLE		BANNER	FLAG	ANCHOR	
		Fathoms	°	°	*Fathoms*	*Fathoms*	*Fathoms*	*Meters*			*Pounds*	
Gamma-2	6/26	47			5	30	70		---	---	750	704 meters, 230° T. from Gamma.
Beta-2	7/10	56			4	62	48		---	---	750	475 meters, 90° T. from Beta.
Delta	7/10	45			4	16	85		---	---	750	Located by bomb distances from buoys Gamma-2, Mike and Jig.

GEOGRAPHIC POSITIONS OF BOUYS USED FOR CONTROL ON SHEET NO. 1201 (LYDONIA, 1937)

	Latitude		Longitude		
ALPHA	39° 11' 267 m.	(1583m)	72° 50' 1422 m.	(18m)	(Positions of ALPHA, BETA and GAMMA obtained from Ship OCEANOGRAPHER)
BETA	38° 45' 914 m.	(936m)	73° 10' 519 m.	(930m)	
BETA-2	38° 45' 914 m.	(936m)	73° 10' 44 m.	(1405m)	
GAMMA-2	38° 30' 444 m.	(1406m)	73° 31' 438 m.	(1016m)	
DELTA	38° 16' 718 m.	(1132m)	73° 52' 239 m.	(1220m)	(Position of DELTA plotted and scaled from aluminum sheet on Ship OCEANOGRAPHER)

✓ H3R

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U. S. Coast and Geodetic Survey
Form No. 717
Ed. May 1935

SHEET NO. 1
OF 7 SHEETS

RECORD OF TEMPERATURES, SALINITIES, AND THEORETICAL VELOCITIES

U. S. C. and G. S. Ship LYDONIA, Jack Senior, *Commanding*

Project 207, *Locality* New Jersey Coast Sheet No. 1201, June 23, *19* 37

Date	Time 75 mer. h. m.	Latitude ° ′	Longitude ° ′	Depth* Fathoms	Specific Gravity	At Temp. °C.	Salinity†	Temp. at Depth °C.	Velocity (Theoretical) Meters/Sec.	Comp. by—	Check. by—	REMARKS
		39 11	72 51									At buoy "Alpha"
				2	1.0234	19.0	32.7	18.5	1512.1	E.F.H.	TBR	
				7				17.3				
				8				16.8				
				9				11.5				
				10				11.3				
				15				9.3				
				20				7.0				
				25	1.0250	13.0	33.2	6.0	1470.0			
				47	1.0258	12.5	34.2	4.9	1467.6			Lead line too short to reach bottom
									Comp. ALW			
									Ck. TBR			

*If depth recorded is bottom, indicate in remarks column.
†If salinity by titration, indicate in remarks column.

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RECORD OF TEMPERATURES, SALINITIES, AND THEORETICAL VELOCITIES

U. S. C. and G. S. Ship LYDONIA, Jack Senior, *Commanding*

Project H. T. 207, *Locality* New Jersey Coast Sheet No. 1201, June 25, *19* 37

Date	Time 75 mer.	Latitude	Longitude	Depth *	Specific Gravity	At Temp.	Salinity †	Temp. at Depth	Velocity (Theoretical)	Comp. by—	Check. by—	REMARKS
	h. m.	° ′	° ′	Fathoms		°C.		°C.	Meters/Sec.			
		38 58.5	72 50.7	Surface	1.0232	20.5	32.9		1517.8	EFH	TBR	
				5				18.9				
				10				11.0				
				15				6.6				
				25	1.0255	11.2	33.5	6.2	1471.2			
				40				7.4				
				50				9.2				
				69	1.0261	15.3	35.2	9.5	1486.6			Bottom
								Comp. ALW				fne. gy. S.
								Ck. TBR				

*If depth recorded is bottom, indicate in remarks column.
†If salinity by titration, indicate in remarks column.

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RECORD OF TEMPERATURES, SALINITIES, AND THEORETICAL VELOCITIES

U. S. C. and G. S. Ship LYDONIA, Jack Senior, *Commanding*

Project H. T. No. 207, *Locality* New Jersey Coast Sheet No. 1201, June 29, *19*37

Date	Time 75 mer.	Latitude	Longitude	Depth *	Specific Gravity	At Temp.	Salinity †	Temp. at Depth	Velocity (Theoretical)	Comp. by—	Check. by—	REMARKS
	h. m.	° ′	° ′	*Fathoms*		°C.		°C.	*Meters/Sec.*			
		38 57.8	72 57.6									
				47	1.0256	11.5	33.7	6.5	1473.4	EFH	TBR	Bottom
									Comp. ALW			
									Ck. TBR			

*If depth recorded is bottom, indicate in remarks column.
†If salinity by titration, indicate in remarks column.

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SHEET NO. 4
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RECORD OF TEMPERATURES, SALINITIES, AND THEORETICAL VELOCITIES

U. S. C. and G. S. Ship LYDONIA, Jack Senior, *Commanding*

Project 207, *Locality* New Jersey Coast Sheet No. 1201, June 30, *19* 37

Date	Time 75 mer. h. m.	Latitude ° ′	Longitude ° ′	Depth* Fathoms	Specific Gravity	At Temp. °C.	Salinity†	Temp. at Depth °C.	Velocity (Theoretical) Meters/Sec.	Comp. by—	Check. by—	REMARKS
	8 05	38 23.6	72 44	2	1.0232	20.5	32.90	19.9	1516.1	EFH	JCB	Position 10G
				7				18.4				
				8				18.0				
				9				14.4				
				10				14.9				
				11				13.3				
				15				9.2				
				20				7.0				
				25	1.0244	14.0	32.70	6.8	1472.8			
				37				7.0				
				50				9.7				
				57				10.0				
				65				10.0				
				100	1.0268	14.5	35.95	10.8	1493.9			
				151	1.0270	12.0	35.65	8.3	1485.9			
				200	1.0268	13.0	35.60	6.5	1480.6			
				400				4.4	1478.9			
				800	1.0270	12.3	35.70	3.7	1489.1			
				1477				2.7				Bottom
									Comp. ALW			gray-blue clay-specks
									Ck. TBR			of sand.

*If depth recorded is bottom, indicate in remarks column.
†If salinity by titration, indicate in remarks column.

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SHEET NO. 5
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RECORD OF TEMPERATURES, SALINITIES, AND THEORETICAL VELOCITIES

U. S. C. and G. S. Ship LYDONIA, Jack Senior, *Commanding*

Project H. T. No 207, *Locality* New Jersey Coast Sheet No. 1201, July 1, *1937*

Date	Time 75 mer. h. m.	Latitude ° ′	Longitude ° ′	Depth* Fathoms	Specific Gravity	At Temp. °C.	Salinity†	Temp. at Depth °C.	Velocity (Theoretical) Meters/Sec.	Comp. by—	Check. by—	REMARKS
		39 11	72 51	At buoy "Alpha"								
				2	1.0234	20.0	33.0	19.2	1514.4	EFH	TBR	
				7	1.0234	19.5	32.9	17.9	1510.6			
				9	1.0234	19.5	32.9	17.2	1508.5			
				11	1.0235	19.5	33.0	16.1	1505.2			
				12	1.0234	19.6	33.0	11.2	1488.9			
				14	1.0235	19.4	33.0	10.0	1484.6			
				16	1.0232	19.5	32.6	9.5	1482.7			
				18	1.0238	18.5	33.1	7.9	1477.4			
				25	1.0234	19.0	32.7	6.5	1471.2			
				49	1.0236	19.5	33.1	6.1	1471.2			Bottom
									Comp. AIW			Crs. bn. S.
									Ck. TBR			

*If depth recorded is bottom, indicate in remarks column.
†If salinity by titration, indicate in remarks column.

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RECORD OF TEMPERATURES, SALINITIES, AND THEORETICAL VELOCITIES

U. S. C. and G. S. Ship LYDONIA, Jack Senior, *Commanding*

Project H. T. No. 207, *Locality* Buoy "Delta", July 7/10, *1937*

Date	Time ____ mer.	Latitude	Longitude	Depth*	Specific Gravity	At Temp.	Salinity†	Temp. at Depth	Velocity (Theoretical)	Comp. by—	Check. by—	REMARKS
	h. m.	° ′	° ′	Fathoms		°C.		°C.	Meters/Sec.			
	12 2 —											
				2				23.4		EFH	TBR	
				7				19.7				
				8				15.0				
				9				15.4				
				10				13.1				
				12				12.1				
				13				8.0				
				14				7.5				
				15				8.0				
				20				6.5				
				25	1.0254	12.0	33.6	6.5	1472.4			
				35				6.3				
				40				6.6				
				45 2 —	1.0255	14.5	34.2	8.0	1480.0			Bottom:
									Comp. ALW			Crs. green S., Gravel & shell
									Leadline 45 2 —			
									Fathometer 46 3 —			

*If depth recorded is bottom, indicate in remarks column.
†If salinity by titration, indicate in remarks column.

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RECORD OF TEMPERATURES, SALINITIES, AND THEORETICAL VELOCITIES

U. S. C. and G. S. Ship LYDONIA, Jack Senior, *Commanding*

Project H. T. No. 207, *Locality* New Jersey Coast Sheet No. 1201, July 14, *19* 37

Date	Time 75 mer.	Latitude	Longitude	Depth*	Specific Gravity	At Temp.	Salinity†	Temp. at Depth	Velocity (Theoretical)	Comp. by—	Check. by—	REMARKS
July	h. m.	° ′	° ′	Fathoms		°C.		°C.	Meters/Sec.			
14		38 04.4	73 15.4	2	1.0235	22.3	33.9	22.0	1523.0	JCB	EFH	
				7	1.0236	22.0	33.9	21.9	1522.7			
				9	1.0240	20.0	33.8	18.6	1513.6			
				10	1.0250	17.3	34.4	16.1	1506.7			
				12	1.0254	16.0	34.5	11.8	1492.7			
				13	1.0254	14.5	34.1	10.5	1487.6			
				15	1.0259	14.0	34.65	12.0	1493.5			
				16	1.0256	14.0	34.25	10.5	1487.7			
				18	1.0258	13.5	34.4	10.0	1486.1			
				20	1.0258	12.8	34.25	9.6	1484.4			
				25	1.0260	12.5	34.5	9.0	1482.6			
				50	1.0265	13.3	35.3	9.5	1486.7			
				100	1.0268	15.0	36.05	10.4	1492.5			
				125	1.0266	13.6	35.5	8.2	1483.8			
				150	1.0270	12.5	35.75	6.8	1480.3			
				200	1.0272	12.0	36.0	5.1	1475.4			
				517	1.0274	12.5	36.25	3.9	1480.6			
				1127				3.4				
								Comp, ALW				
								Ck. TBR				
				400			(36.2)	(4.1)	(1478.1) int.			

*If depth recorded is bottom, indicate in remarks column.
†If salinity by titration, indicate in remarks column.

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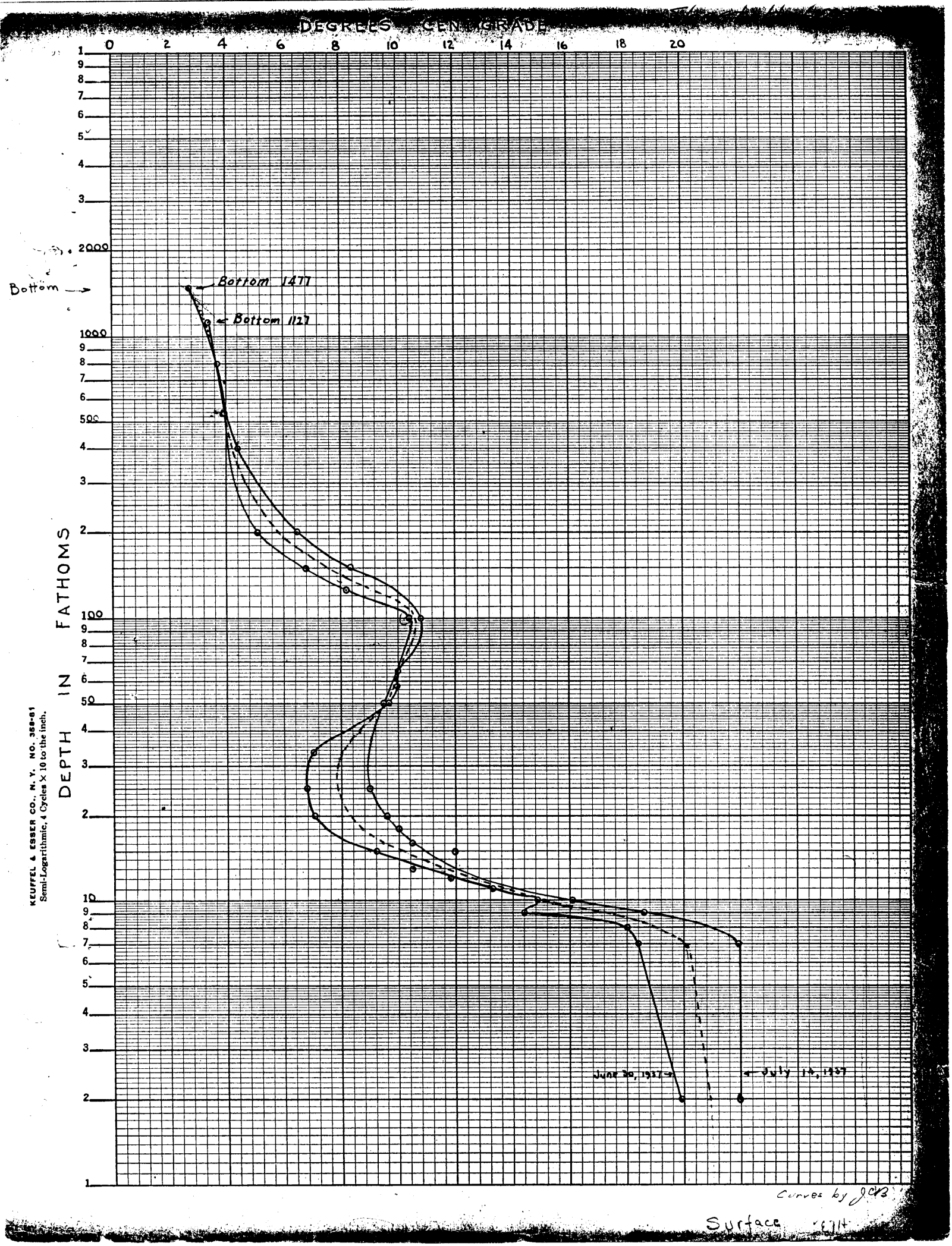
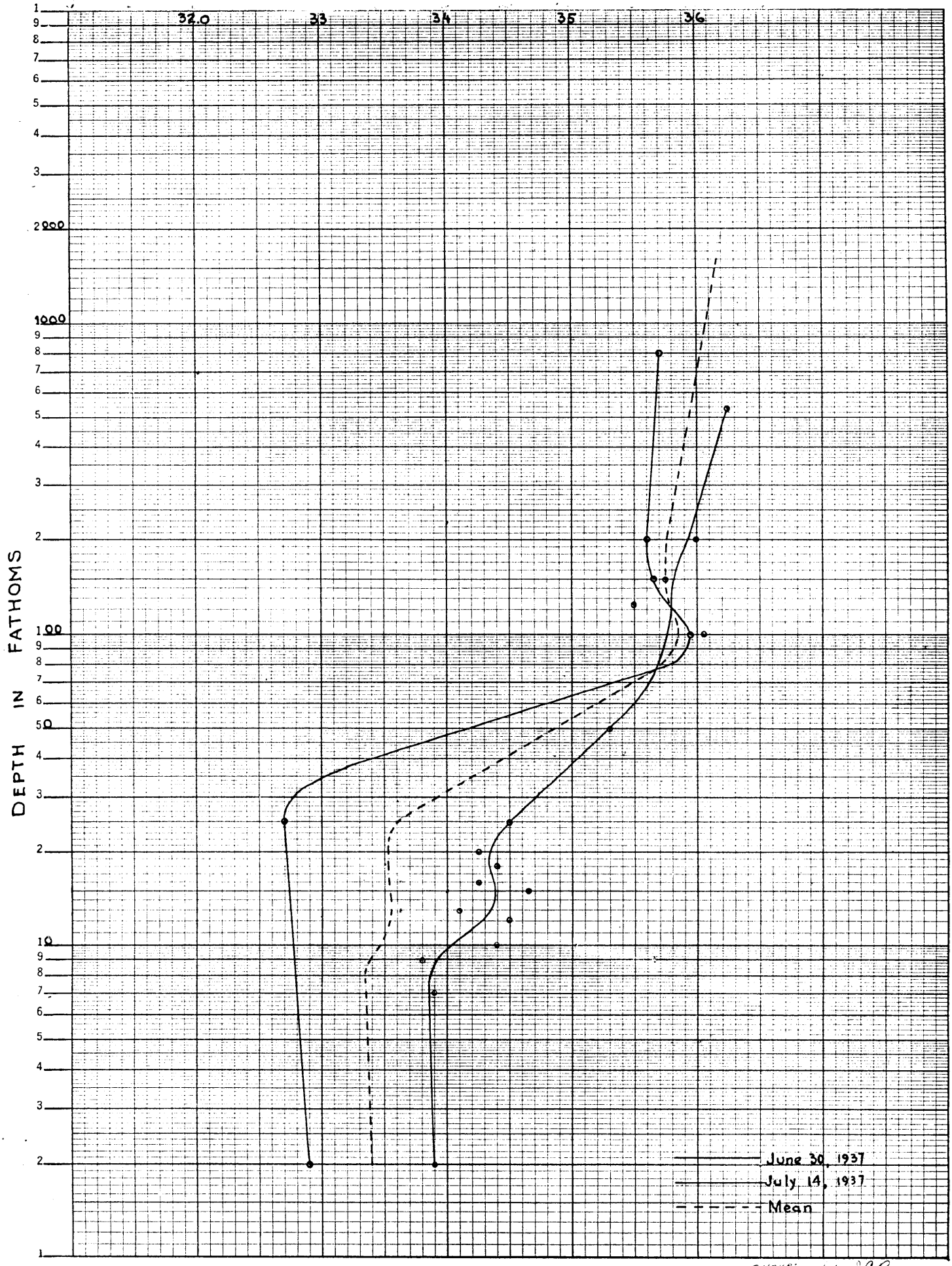


Curves by JCB

Surface 1671

Sheet H-6220

SALINITY IN PARTS PER THOUSAND



KEUFFEL & ESSER CO., N. Y. NO. 358-81
Semi-Logarithmic, 4 Cycles × 10 to the inch.

curves by J C B

TABLE III

FATHOMETER CORRECTIONS

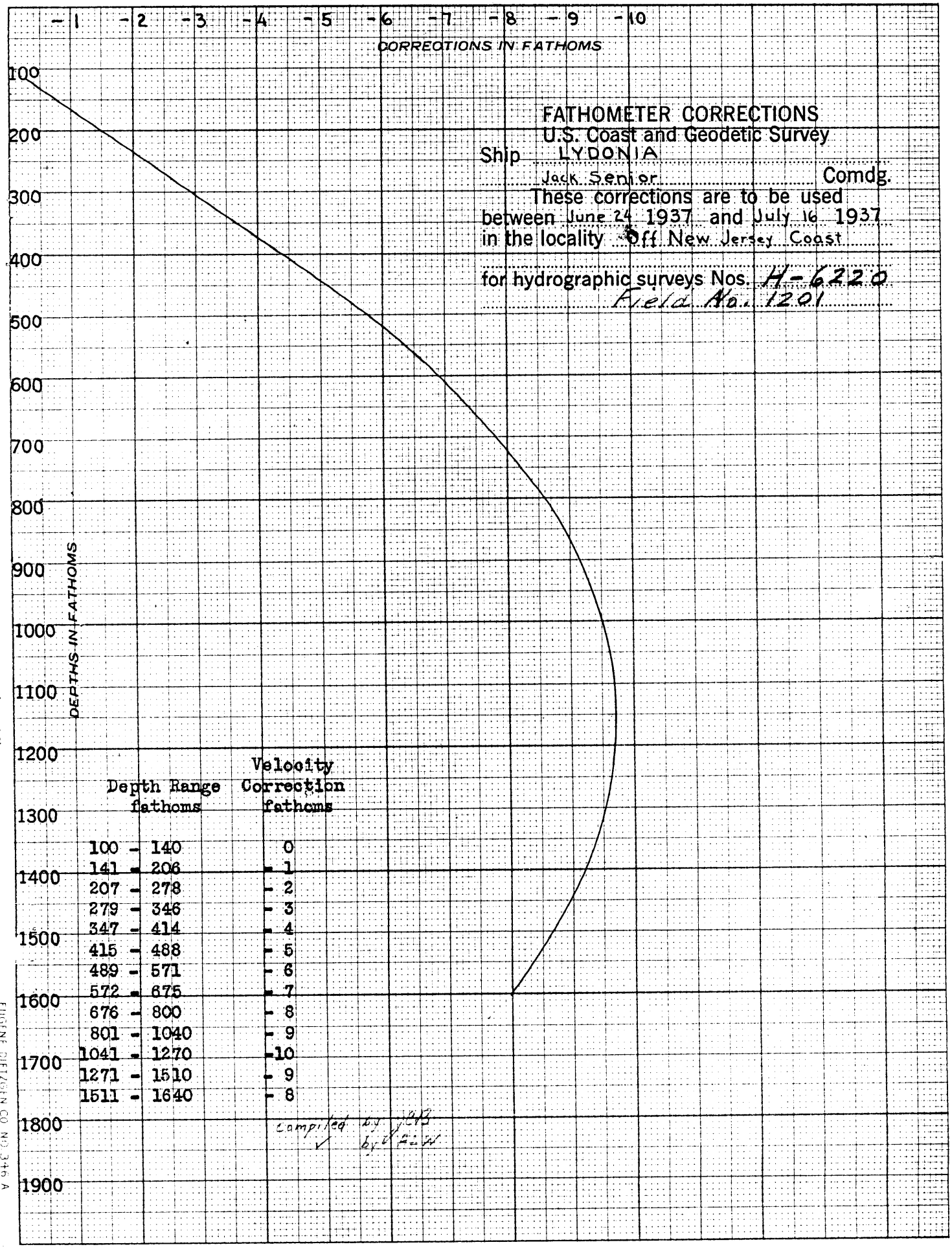
Fathometer Type 312 calibrated for 820 fathoms (1499.6 m) per second

1	2	3	4	5	6	7	8	9
Depth	Temperature	Salinity	Mean temp. in 200 Fm. layers	Mean Salinity in 200 Fm. layers	Mean velocity in 200 Fm. layers from 4 & 5 meters/sec.	Mean vel. from surface to depth col. 1	Factor	Correction Fathoms
0	21.0 26.7	33.40						
200	5.8	35.75	9.4	35.3	1488.1	1488.1	-0.0077	-1.5
400	4.2	35.90	5.0	35.8	1478.2	1483.2	-0.0109	-4.4
600	3.9	35.97	4.0	35.9	1480.9	1482.4	-0.0115	-6.9
800	3.7	36.03	3.8	36.0	1486.7	1483.5	-0.0107	-8.6
1000	3.4	36.08	3.6	36.1	1492.6	1485.3	-0.0095	-9.5
1200	3.2	36.10	3.3	36.1	1498.0	1487.4	-0.0081	-9.7
1400	2.8	36.14	3.0	36.1	1503.3	1489.7	-0.0066	-9.2
1600	2.6	36.16	2.7	36.2	1508.7	1492.1	-0.0050	-8.0

Comp. by JC BOSE
Ck. by AL WARDWELL

Copy check A.L.W.

(Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.)



FATHOMETER CORRECTIONS
U.S. Coast and Geodetic Survey
Ship LYDONIA
Jack Senior Comdg.
These corrections are to be used
between June 24 1937 and July 16 1937
in the locality Off New Jersey Coast
for hydrographic surveys Nos. H-6220
Field No. 1201

Depth Range fathoms	Velocity Correction fathoms
100 - 140	0
141 - 206	- 1
207 - 278	- 2
279 - 346	- 3
347 - 414	- 4
415 - 488	- 5
489 - 571	- 6
572 - 675	- 7
676 - 800	- 8
801 - 1040	- 9
1041 - 1270	-10
1271 - 1510	- 9
1511 - 1640	- 8

Compiled by [illegible]

(For deep water add a 0 to these figures)

Field Records Section (Charts)

H6220

HYDROGRAPHIC SHEET NO. .....

The following statistics will be submitted with the cartographer's report on the sheet:

Number of positions on sheet	719
Number of positions checked	~~0~~ 25 H.W.M.
Number of positions revised	~~0~~ 1
Number of soundings recorded	5814
Number of soundings revised	2
Number of signals erroneously plotted or transferred	0

Date: 12-13-37

Verification by G.C. McGlasson, L.A. McGann, F.B. Kelly, and W.R. Jackson.

Time: G.C. McGlasson 6 days 2 hrs.
L.A. McGann 6 hrs.
F.B. Kelly 2 days 6 hrs.
W.R. Jackson 20 days 5½ hrs.
Total 30 " 5½ "

Review by H.W. Murray

Time: 5 days 6 hrs.

HYDROGRAPHIC SURVEY NO. H-6220

Smooth Sheet Yes

Boat Sheet Yes

Sounding Records 4 Vols.

Bomb Rcords 3 Vols.

Descriptive Report Yes (Executed in the Office)

Title Sheet Yes "

List of Signals Yes (D. R.)

Landmarks for Charts (Form 567) None

Statistics Yes

Approved by Chief of Party Yes

Recoverable Station Cards (Form 524) None

Special Chart for Lighthouse Service (Circular Nov. 30,1933) None

Remarks HYDROGRAPHY
Total Days 13
Last Date July 16, 1937

13 December, 1937.

Report on H 6220
Verifying and Inking

1. The records, in general, conform to the requirements of the General Instructions.
2. The depth curves were omitted on the smooth sheet by direction of the Chief of Section.
3. The field platting was completed to the extent prescribed in the Hydrographic Manual.
4. The office draftsman did not have to do over any part of drafting done by field party except as noted on the statistic sheet.
5. The junction with contemporary adjacent sheets were satisfactory. The soundings from position #2-43D on H 5350 (1933), were omitted by direction of A. L. Sholovitz.

On H 5350 (1933), position 28A,

Disposed off. Hicm.

there is a 1162 fathom sounding which was questioned in the original records, but was inked on the smooth sheet. Another sounding of 1036 fathoms was taken simultaneously and it agrees with the surrounding hydrography on both smooth sheets. In view of the fact that this latter sounding was omitted on H 6350, and the former sounding of 1162 does not agree with surrounding hydrography, the verifier left it in pencil on H 6250 (1937), and final disposition will be made by the reviewer.

1036 fms. plotted on both sheets, See Rev.'s par. 6c for discussion.

6. There is no shoreline on the sheet and the symbols consists of five sonn-radio buoys. ✓

7. There are no aids to navigation shown on the sheet. ✓

8. The following are a list of soundings questioned in the records:

These sdg's appear to be OK and have been plotted. H.W.M

lat. 38°34',	long. 72°42',	sounding	1341 fms.
lat. 38°24',	long 73° 10',	sounding	1120 fms.
lat 38° 06',	long 73° 18',	sounding	1195 fms.
lat 38° 05',	long. 73° 17',	sounding	1170 fms.
lat 38° 04',	long 73° 34',	sounding	951 fms.

These soundings were questioned in the records but they were inked on the smooth sheet as they seem to agree with adjoining hydrography.

9. The field party has recommended that certain soundings be rejected on this sheet. Lat 38° 41', long. 73° 10', the four soundings beginning with position ID. H-6219 lat. 38° 47', long. 73° 04', four soundings between position 15-16 E. lat. 38° 05', long. 72° 50', five soundings beginning with position 1M. These soundings were left in pencil and a comparison can be made with the adjoining sheet after it has been verified and inked and final disposition will be made of the above soundings.

10. Approximately, all soundings on this sheet were inked or shown in pencil.

Disposed of H-6219.

Respectfully submitted,

L. C. McGlasson

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 6220 (1937) FIELD NO.1201

Continental Shelf, Off Delaware Bay, New Jersey
Surveyed in June - July 1937, Scale 1:120,000
Instructions dated April 9, 1936 (OCEANOGRAPHER)
March 19 and June 10, 1937 (LYDONIA).

Type 312 Fathometer Soundings. RAR control. Sono Radio Buoys.

Chief of Party - Jack Senior.
Surveyed by - T. B. Reed, G. E. Boothe and J. C. Bose.
Protracted by - T. B. Reed and W. R. Jackson.
Soundings plotted by - W. R. Jackson, and F. B. Kelly.
Verified and inked by - W. R. J., F. B. K., G. C. McGlasson and L. A. McGann.

1. Condition of Records.

The records are neat and legible and conform to the requirements of the Hydrographic Manual.

The Descriptive Report is clear and comprehensive and satisfactorily covers all items of importance. It is desirable, however, that references to specific items such as sounding line discrepancies (see Descriptive Report, pages 3 and 4), be accompanied by the geographic positions to facilitate spotting on the smooth sheet.

2. Compliance with Instructions for the Project.

The plan, character and extent of the survey satisfy the Instructions for the Project.

3. Shoreline and Signals.

a. This is an offshore survey and no shoreline is shown.

b. Hydrophone stations were located by a traverse based on taut wire and bomb distances and sun azimuths. The computations are filed in cahier marked "Traverse Computations of Buoy Control Systems" (OCEANOGRAPHER, 1937) under the accession number S-1511.

4. Sounding Line Crossings.

Agreement of sounding line crossings is satisfactory in most cases, however, portions of line 13 to 22J in lat. 38° 25', long. 72° 40'; 14 to 26 M in lat. 38° 50', long. 72° 30', 40 to 47 B in lat. 38° 54', long. 72° 45', and 71 to 77 E in lat. 38° 57', long. 72° 39' were readjusted to improve agreement at crossings and with the configuration of the bottom as delineated by the 25 fathom depth curve intervals drawn on Special Charts 1316 and 1317.

5. Depth Curves.

The usual depth curves may be satisfactorily drawn.

6. Junctions with Contemporary Surveys.

a. The junction on the north with H-6192 (1936) is generally satisfactory. (See Descriptive Report, page 4 for adjustment details on H-6192).

b. The junctions on the southwest with H-5713 (1934) and H-5350 (1933) are satisfactory.

c. The junction on the northeast with H-6219 (1937) disclosed several disagreements. These were brought into satisfactory agreement by readjustment or rejections of portions of several sounding lines on both surveys, the decisions made being arrived at through a study of the bottom based on 25 fathom depth curve intervals drawn on Special Charts 1316 and 1317.

On the present survey, portions of line 4 to 6C in lat. 38° 55', long. 72° 53'; 31 to 32 E in lat. 38° 51', long. 72° 57' and 31 to 33 G in lat. 38° 32', long. 73° 18' in addition to those listed in the Descriptive Report, page 3 "Junctions" were rejected.

Readjustments and rejections made on H-6219 (1937) are more extensive and are enumerated in par. 6c of the review of that survey.

7. Comparison with Prior Surveys.

H-100 (1842), H-101 (1844), H-670 (1859), H-1498a (1880-83), H-1531 (1882), H-1558 (1882-83), H-1720 (1886), and H-2920a (1882-87).

The above surveys are on various scales ranging from 1:200,000 to 1:1,200,000. Portions of each taken singly or together cover the entire area of the present survey. The hydrography is unusually sparse, is controlled by dead reckoning and but a few soundings fall within the limits of the present survey. Because of the small scale no satisfactory comparison can be made with the present survey. The larger scale present survey bears out the essential features in greater detail and should supersede these surveys in future charting.

8. Comparison with Chart 1000 (New Print dated May 29, 1937)
Chart 1108 (New Print dated May 13, 1938)
Chart 1109 (New Print dated March 1, 1938)

Hydrography shown on the charts originates with surveys discussed in preceding paragraphs of this review. No authority, however,

could be found for the 906 fathom sounding accompanied by a detached 1000 fathom curve in lat. 38° 12', long. 73° 18' on Chart 1000. As the 906 fathoms agrees in geographic position with a 986 fathom depth from H-5350 (1933) shown on Chart 1109, it is undoubtedly erroneous and should be corrected on Chart 1000.

9. Field Plotting.

Field protracting and plotting were exceptionally accurate and conform to the requirements of the Hydrographic Manual.

10. Additional Field Work Recommended.

This is an excellent survey and no additional field work is required.

11. Note to Compiler.

The compiler's attention is called to paragraph 8 of this review relative to the disposition of a charted 906 fathom sounding in lat. 38° 12', long. 73° 18'.

12. Superseded Prior Surveys.

Within the area covered, the present survey supersedes the following surveys for charting purposes:

H-100	(1842)	in part
H-101	(1844)	in part
H-670	(1859)	in part
H-1498a	(1880-83)	in part
H -1531	(1882)	in part
H-1558	(1882-83)	in part
H-1720	(1886)	in part
H-2920a	(1882-87)	in part

13. Reviewed by - Harold W. Murray, Dec. 21, 1937.

Inspected by - J. A. McCormick.

Examined and approved:

Thos B Reed
T. B. Reed,
Chief, Section of Field Records.

K. T. Adams
Chief, Division of Charts.

Fred. L. Veacock
Chief, Sectionof Field Work.

G Rude
Chief, Division of H. & T.

Applied to charts 1108 & 1109 J. M. C. July 1938 After review but prior to approval.
" " " 1000 " " " " " " " " " "

6220 (Additional work 1938)

6220 (Additional work, 1938)

Form 504
Rev. Dec. 1933

DEPARTMENT OF COMMERCE
U.S. COAST AND GEODETIC SURVEY
R. S. PATTON, DIRECTOR

DESCRIPTIVE REPORT

Topographic / *Hydrographic* } *Sheet No.* 1201

State .....

LOCALITY

Atlantic Coast

Cape Henry to New York

1938

CHIEF OF PARTY

R. P. Lyman

U.S. GOVERNMENT PRINTING OFFICE: 1934

Form 537
Ed. Dec. 1930

REG. NO.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. 1201

REGISTER NO. H6220 (Addl. Wk. 1938)

State

General locality Atlantic Coast

Locality Cape Henry to New York

Scale 1 : 120000 Date of survey May 1 - 3, 1938

Vessel Lydonia

Chief of Party R.P.Eyman

Surveyed by Field Party (R.P.Eyman)

Protracted by M.O.Witherbee

Soundings ~~pencilled~~ by M.O.Witherbee, and J.C.Bose

Soundings in fathoms ~~feet~~

Plane of reference

Subdivision of wire dragged areas by

Inked by Harold W. Murray

Verified by Harold W. Murray

Instructions dated March 19, 1938

Remarks: Offshore sounding line plotted on four sheets of tracing cloth

U. S. GOVERNMENT PRINTING OFFICE

DESCRIPTIVE REPORT

DEAD RECKONING ABSTRACT ASTRONOMIC SIGHTS.

CAPE HENRY TO NEW YORK

SHEET 1201.

Ship LYDONIA

Raymond P. Eyman C/Party

REPORT ON SOUNDING LINE, CAPE HENRY TO NEW YORK.

In compliance with instructions dated March 19, 1938 a line of soundings was run from May 1 to 3rd from Cape Henry Junction Lighted buoy as close as possible to the line called for in the instructions and ending on sextant fixes on shore objects 14 miles south of Scotland Light-ship.

The positions of the sounding line were determined as follows: The line started at Cape Henry Junction Buoy, and a bow and beam bearing was obtained on Chesapeake Light Vessel. A northerly set was encountered on this part of the line, and the course corrected to allow for it. The line was controlled by dead reckoning only from Chesapeake Light Vessel to the rim of the submarine canyon in Lat. 37°-01' Long. 74°-43'. At this point it was found that the ship was about three miles southeast of the point at which it had been intended to strike the canyon, probably due to the fact that the northerly set was lost as the ship proceeded farther off shore. The course was changed to the northward until back to approximately the projected line, so as to get a better determination of position by soundings. This portion of the line was tied in with soundings, using the three crossings of the 100 fathom curve, and the bottom and northeast slope of the canyon for controlling soundings. A dawn star fix was obtained while crossing the canyon, which agreed fairly well with the fix by soundings.

The line was fixed by soundings again at the head of the submarine canyon in latitude 39°-09' longitude 72°-43'.

Between the two sounding fixes the line was controlled by dead reckoning, sun sights, and one sight each on the moon and one star; conditions were favorable for sun-sights, but at dusk the sky was almost completely obscured by clouds and one sight each on the moon and Sirius were all that could be obtained. This portion of the line was adjusted as follows: the points of crossing the 100 fathom curve and the sights were plotted on Chart 1209; the line was then plotted by dead-reckoning on tracing paper on the scale of the chart, and swung in as nearly as possible to the various Sumner lines, the two points of crossing the 100 fathom curve being held fixed.

Adjustment made in office where necessary.

Between the 100 fathom curve and the end of the line no sights were obtained, and this portion of the line was swung in by dead reckoning holding the crossing of the 100 fathom curve and the sextant fixes at the end of the line as fixed.

Soundings were taken with Dorsey No. 1 Fathometer as deep as possible. Where the Dorsey Fathometer was used in depths of more than 40 fathoms the 312 was also read for a check. The 312 Fathometer was used for all deep soundings.

The Dorsey Fathometer worked well except for one hour

between positions 195 and 201, when the outgoing signal became too weak to produce an echo. This defect was remedied at once.

The 312 Fathometer worked well part of the time, but developed an electrical noise which seriously interfered with reception in deep water (about 800 fathoms and more). The cause of this electrical noise has not yet been discovered. During the period that the Dorsey Fathometer was out of service the 312 Fathometer was used but did not give satisfactory service, the flashes fluctuating from four to six fathoms; it was observed that the initial flash fluctuated about the same amount. At the time of putting the Dorsey fathometer back in service it was found that the 312 Fathometer was giving entirely erroneous soundings.

The following soundings are considered unreliable:

The series of 116 fathom soundings on and following Position 48. It is obvious that a stray was read. Not used. Outside chart 1317

Soundings between positions 108 and 111. The noise was worst at this time, and for most of this period the fathometer could not be read at all. Rejected

Soundings between positions 195 and 201. Most of these soundings are probably approximately correct but, on account of the extreme fluctuation cannot be considered accurate. Not used. Outside limits of chart 1317

The soundings were plotted on four sheets of tracing cloth on scale of 1:120,000. After the soundings were plotted on tracing cloth they were compared with the Coastal Slope charts. From this comparison it is evident that a better adjustment of the middle part of the line could have been made, since a location of that part of the line crossing chart 1317, from one to one and one half miles to the west of its adopted position would have been about as consistent with the sights, and would have made the depths agree much better. Readjusted in office

In computing true course for plotting by dead-reckoning observed azimuths were used rather than the deviation table. A summary of azimuth observations is recorded on Page 1 Vol. 1. of the sounding record.

No fathometer corrections were applied.

No tide reducers were entered in the record, but soundings of less than 100 fathoms were reduced as plotted from predicted tides.

Respectfully,

M. O. Witherbee

M. O. Witherbee
Lieutenant C&GS

Approved and forwarded,

Raymond P. Eyman.

R. P. Eyman, Lieutenant Comdr. C&GS
Commanding Ship LYDONIA

May 2, 1938 4:22 am *

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form No. 719
Ed. May 1935

Sheet No. 1 of 20 sheets

ASTRONOMIC SIGHT FOR HYDROGRAPHIC CONTROL

U. S. C. & G. S. Ship Lydonia, R. P. Eyman, Commanding. Date (A. M. / P. M.) May 2, 1938

Project Ex. Sta. Norfolk Va to New York N.Y. Locality

Celestial object observed Antares Approximate bearing ° true. R. A. h 16 m 25 s 39.7 Rating of sight

Dead reckoning position: φ 37° 02' Course ° true. δ − 26 17.8 (Check one)

λ 74° 37' Height of eye 27 feet. Observer G.F.B. Excellent

λ h. m. s. Sextant No. Recorder J.C.B. Good

Log reading 74.01 Index correction — Comp. by C.W.H. Fair

Sid. M.T. Watch No. Sid. M.T. Chronometer No. 8356 Checked by R.W.B. Poor

	Watch Time hrs. min. sec.	Observed Altitude ° ' "
1	10 [illegible]	17-04-50
2	11 44.0	16-56-00
3	12 51.5	16-49-20
4		
5		
6		
Sum	11 [illegible] 49	10 18-70
Mean	11 42.8	16-56-23

For other than sun sights, use italicized elements in this column.

Notes: 73

HI = 27'

Chron.-watch	5 02 00		Index correction
Chron. time	5 13 42.8		Arc correction
Chron. cor'n	+ 4 [illegible]		
G. C. T.	9 21 52.4	-8-23 (15)	Dip, refraction, semi-diameter, and parallax
Eq. of T or *R. A. M. S.* + 12h	14-37-00.0		
Cor'n, Table III (Naut. Almanac)	+ 1-32.3	Page 2	
G. A. T. or *G. S. T.*	24-00 24.7	16-49-08	*h*, true altitude
Longitude	4-58-28.0		
L. A. T. or *L. S. T.*	19-01-56.7		
R. A.	16-25-39.7	*h* 16 48 09	log sec 0.01894
Hour angle, *t*	2-36-17.0	log hav 9.048 51	log sin 9.799 59
φ	37-02	log cos 9.902 16	
δ	-26-17.8	log cos 9.952 55	log cos 9.952 55
		log hav 8.903 22	log sin 9.771 03
		nat hav 0.080 02	Azimuth 216° 08 216° 10.5'
φ ~ δ	63-19.8	nat hav 0.27557	For use with Polaris
Zenith distance	73-12-48	nat hav [illegible]	*h*
h (computed)	16-48-12	0.35559	Cor'n (Table I, Naut. Almanac)
h (observed)	16-49-08		φ, latitude
Difference	[illegible]		

−0 53

FOR EX-MERIDIAN SIGHTS

Intervals from Transit: Mean time min. sec.	Sidereal time min. sec.	at¹ (Table 27, Bowditch)			
					h
					at¹
					Meridian altitude
					Zen. dist.
					δ
					φ
			Sum		
			at²		

U. S. GOVERNMENT PRINTING OFFICE

May 2, 1938 4:30 am *

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form No. 719
Ed. May 1935

Sheet No. 2 of 20 sheets

ASTRONOMIC SIGHT FOR HYDROGRAPHIC CONTROL

U. S. C. & G. S. Ship Lydonia, R.P. Eyman Commanding. Date (A.M.) May 2, 1938

Project Enroute Norfolk Va Locality New York, N.Y.

Celestial object observed Arcturus Approximate bearing ____° true. R. A. 14h 12m 52.8s

Dead reckoning position: φ 37° 02′; λ 74° 37′; λ (h. m. s.) ____

Course ____° true. δ + 19°-30′-03.6″

Height of eye 27 feet. Sextant No. ____

Log reading 74.89 Index correction —

Sid. M.T. Watch No. ____ Sid. M.T. Chronometer No. 8356

Observer M O W. Recorder J. C. B. Comp. by CGM Checked by [illegible]

Rating of sight (Check one): Excellent ____ Good ____ Fair ____ Poor ____

For other than sun sights, use italicized elements in this column.

	Watch Time (hrs. min. sec.)	Observed Altitude (° ′ ″)
1	15-24.8	24-49-20
2	18-00.0	24-20-00
3	18-32.0	24-13-40
4		
5		
6		

Notes:

74.89
74.35
54

Sum	51-56.8	82-60	
Mean	17-18.9	24-27-40	h_o, observed altitude
Chron.-watch	5-02-00		Index correction
Chron. time	5-19-18.9		Arc correction
Chron. cor'n	4-08-09.6		
G. C. T.	9-27-28.5	-7-11	Dip, refraction, semi-diameter, and parallax
Eq. of T or *R. A. M. S. + 12h*	14-37-00.0		
Cor'n, Table III (Naut. Almanac)	+ 1-33.4		
G. A. T. or *G. S. T.*	24-06-01.9	24-20-29	h, true altitude
Longitude	4-58-28.0		
L. A. T. or *L. S. T.*	19-07-33.9		

H.I = 27′

R. A.	14-12-52.8			log sec	0.04052
Hour angle, t	4-54-41.1	log hav	9.55561	log sin	9.98215
φ	37-02	log cos	9.90216		
δ	+19-30-03.6	log cos	9.97435	log cos	9.97435
		log hav	9.43212	log sin	9.99702
		nat hav	0.27046	Azimuth	N83.18 W
φ ~ δ	17-31-56.4	nat hav	0.02323	For use with Polaris	
Zenith distance	65-37-50	nat hav	0.29369	h	276° 42′
h (computed)	24-22-10			Cor'n (Table I, Naut. Almanac)	
h (observed)	24-20-29			φ, latitude	
Difference	1-41 away				

FOR EX-MERIDIAN SIGHTS

Intervals from Transit: Mean time (min. sec.)	Sidereal time (min. sec.)	at² (Table 27, Bowditch) (′ ″)	(′ ″)	(′ ″)
			Sum	
			at²	

h	
at²	
Meridian altitude	
Zen. dist.	
δ	
φ	

U. S. GOVERNMENT PRINTING OFFICE

May 2, 1938. 4:30 am. *

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form No. 719
Ed. May 1935

Sheet No. 3 of 20 sheets

ASTRONOMIC SIGHT FOR HYDROGRAPHIC CONTROL

U. S. C. & G. S. Ship Lydonia, R. P. Eyman Commanding. Date {A.M. P.M.} May 2, 1938

Project Enroute Norfolk Va. to New York, N.Y. Locality

Celestial object observed Arcturus Approximate bearing ° true. R. A. 14h-12m-52.8s Rating of sight (Check one)

Dead reckoning position φ 37 02 Course ° true. δ +19 30-03.5

λ 74 37 Height of eye 27 feet. Observer G.E.B. Excellent

λ h. m. s. Sextant No. 612 Recorder J.C.B. Good

Log reading Index correction Comp. by GEB Fair

Sid. M.T. Watch No. Sid. M.T. Chronometer No. 8356 Checked by EOH Poor

	Watch Time (hrs. min. sec.)	Observed Altitude (° ′ ″)	Notes:
1	17-14.0	24-29-10	
2	18-32.0	24-14-20	
3	19-35.8	24-00-40	
4			
5			
6			

For other than sun sights, use italicized elements in this column.

Sum	54-81.8	-44-10	
Mean	18-27.3	24-14-43.3	h_o, observed altitude
Chron.-watch	5-02-00.0		Index correction
Chron. time	5-20-27.3		Arc correction
Chron. cor'n	4-08-09.6		
G. C. T.	9-28-36.9		Dip, refraction, semi-diameter, and parallax
Eq. of T or *R. A. M. S. +12h*	14-37-00.0	- 07-13.8	
Cor'n, Table III (Naut. Almanac)	+ 01-33.4		
G. A. T. or *G. S. T.*	24-07-10.3	24-07-29.5	h, true altitude
Longitude	4-58-28.0		
L. A. T. or *L. S. T.*	19-08-42.3		

R. A.	14-12-52.8	h		log sec	0.03969
Hour angle, t	4-55-49.5	log hav	9.55849	log sin	9.982~~41~~ 75
φ	37-02	log cos	9.90216		
δ	+19-30-03.5	log cos	9.97435	log cos	9.97435
		log hav	9.43500	log sin	9.996~~45~~ 79
		nat hav	0.27227	Azimuth	~~82°-41~~ 83-59 ~~262-41~~
φ ~ δ	17-31-56.5	nat hav	0.02323	For use with Polaris ~~263-0~~	
Zenith distance	65-51-30.	nat hav	0.29550	h	276°-58′
h (computed)	24-08 30.			Cor'n (Table I, Naut. Almanac)	0.39.
h (observed)	24-07-29.5			φ, latitude	
Difference	1.0 mile away				

FOR EX-MERIDIAN SIGHTS

Intervals from Transit: Mean time (min. sec.)	Sidereal time (min. sec.)	at^2 (Table 27, Bowditch) ′ ″	′ ″	′ ″		
					h	
					at^2	
					Meridian altitude	
					Zen. dist.	
					δ	
					φ	
			Sum			
			at^2			

U. S. GOVERNMENT PRINTING OFFICE

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form No. 719
Ed. May 1935

May 2, 1938 4:36 am. *

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ASTRONOMIC SIGHT FOR HYDROGRAPHIC CONTROL

U. S. C. & G. S. Ship Lydonia, R. P. Eyman, Commanding. Date (A.M.) May 2, 1938

Project Enroute Norfolk Va Locality New York N.Y.

Celestial object observed Jupiter Approximate bearing ____° true. R. A. 22h-03m-38.8s Rating of sight

Dead reckoning position: φ 37°-02' Course ____° true. δ -12°-43.5' (Check one)

λ 74°-37' (h. m. s.) Height of eye 27 feet. Observer G.E.B. Excellent ____

λ ____ Sextant No. 612 Recorder E.O.H Good ____

Log reading ____ Index correction 0 Comp. by GEB Fair ____

Std. M.T. Watch No. ____ Std. M.T. Chronometer No. 8356 Checked by EOH Poor ____

		Watch Time (hrs. min. sec.)	Observed Altitude (° ' ")
For other than sun sights, use italicized elements in this column.	1	23-52.0	26-20-30
	2	25-12.3	26-32-10
	3	26-08.0	26-40-30
	4	27-18.8	26-49-40
	5		
	6		
Sum		101-91.1	142-50
Mean		25-37.8	26-35-42.5
Chron.-watch		5-02-00	
Chron. time		5-27-37.8	
Chron. cor'n		4-08-09.6	
G. C. T.		9-35-47.4	
Eq. of T or R. A. M. S. +12h		14-37-00.0	-07-02.0
Cor'n, Table III (Naut. Almanac)		+01-34.6	
G. A. T. or G. S. T.		24-14-22.0	26-28-40.5
Longitude		4-58.28.0	
L. A. T. or L. S. T.		19-15-54.0	

Notes:

h_o, observed altitude

Index correction

Arc correction

Dip, refraction, semi-diameter, and parallax Bow. Table 46

h, true altitude

R. A.	22-03-38.8	h		log sec	0.04812
Hour angle, t	02-47-44.8	log hav	9.10740	log sin	~~9.81641~~ 9.82508
φ	37-02.0	log cos	9.90216		
δ	-12-43.5	log cos	9.98920	log cos	9.98920
		log hav	8.99876	log sin	~~9.85373~~ 9.86340
		nat hav	0.09972	Azimuth	~~45-34~~ 46-19.5 +134°-26'
φ ~ δ	49-45.5	nat hav	0.17699	For use with Polaris 133-15	
Zenith distance	63-28-30	nat hav	0.27671	h	
h (computed)	26-31-30			Cor'n (Table I, Naut. Almanac)	
h (observed)	26-28-40.5			φ, latitude	
Difference	2.8 away				

FOR EX-MERIDIAN SIGHTS

Intervals from Transit: Mean time (min. sec.)	Sidereal time (min. sec.)	at² (Table 27, Bowditch)			
					h
					at²
					Meridian altitude
					Zen. dist.
					δ
					φ
			Sum		
			at²		

U. S. GOVERNMENT PRINTING OFFICE

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ASTRONOMIC SIGHT FOR HYDROGRAPHIC CONTROL

U. S. C. & G. S. Ship Lydonia, R. P. Eyman Commanding. Date (A.M.) May 2, 1938
Project Enroute Norfolk Va to New York N.Y. Locality
Celestial object observed Jupiter Approximate bearing ° true. R. A. 22h 03m 39s Rating of sight (Check one)
Dead reckoning position: φ 37 02 Course ° true. δ -12 43.5 Excellent
λ 74 31 Height of eye 27 feet. Observer M.O.W. Good
h. m. s. λ Sextant No. — Recorder E.O.H. Fair
Log reading 76.23 Index correction — Comp. by E.O.H. & M.O.W. Poor
Sid. M.T. Watch No. Sid. M.T. Chronometer No. 8356 Checked by R.H.B.

	Watch Time (hrs. min. sec.)	Observed Altitude (° ′ ″)
1	24-51.3	26-30-30
2	25-50.0	26-40-20
3	26-36.3	26-44-10
4	27-18.8	26-52-00
5		
6		
Sum	22-15.6.4 ✓	-166-60 ✓
Mean	26-09.1 ✓	26-41-45 ✓

For other than sun sights, use italicized elements in this column.

Notes:

76.23
76.35
188

HF = 27'

Chron.-watch	5-02-00.0
Chron. time	5-28-09.1 ✓
Chron. cor'n	4-08-09.6 ✓
G. C. T.	9-36-18.7 ✓
Eq. of T or *R. A. M. S.* + 12h	14-37-00.6
Cor'n, Table III (Naut. Almanac)	1-34.6 ✓
G. A. T. or *G. S. T.*	24-14-53.3
Longitude	4-58-28.0
L. A. T. or *L. S. T.*	19-16-25.3
R. A.	22-03-39.0
Hour angle, *t*	7 47 13.7
φ	37 02.0 ✓
δ	-12 43.5 ✓
φ ~ δ	49 45.5
Zenith distance	63 23.9
h (computed)	26 36.1
h (observed)	26 34.7
Difference	1.4 away ✓

h, observed altitude		
Index correction		
Arc correction		
		✓
Dip, refraction, semi-diameter, and parallax	-7-02	
		✓
h, true altitude	26-34-43	

h		log sec	0.04859
log hav	9.10484	log sin	9.82385
log cos	9.90216		
log cos	9.98920	log cos	9.98920
log hav	8.99620	log sin	9.86184 ✓
nat hav	.09913	Azimuth	133-19.
nat hav	.17698	For use with Polaris	
nat hav	.27611	*h*	
		Cor'n (Table I, Naut. Almanac)	
		φ, latitude	

FOR EX-MERIDIAN SIGHTS

Intervals from Transit: Mean time (min. sec.)	Sidereal time (min. sec.)	*at*² (Table 27, Bowditch)		
		′ ″	′ ″	′ ″
			Sum	
			*at*²	

h	
*at*²	
Meridian altitude	
Zen. dist.	
δ	
φ	

U. S. GOVERNMENT PRINTING OFFICE

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ASTRONOMIC SIGHT FOR HYDROGRAPHIC CONTROL

U. S. C. & G. S. Ship Lydonia, R. P. Eyman Commanding. Date {A.M./P.M.} May 2, 1938

Project Enroute Norfolk Va. Locality to New York.

Celestial object observed Sun. Approximate bearing ° true. R. A. h. m. s.

Dead reckoning position φ 37 10 N; λ 74° 20' W.; λ h. m. s.

Course ° true. δ

Height of eye 22 feet. Sextant No. 711. Index correction + 2' 00"

Log reading. Sid./M.T. Watch No. Sid./M.T. Chronometer No. 8356

Observer R.P.E. Recorder R.P.E. Comp. by E.D.H. Checked by R.P.E.

Rating of sight (Check one): Excellent ✓ Good Fair Poor

NOTES:

	Watch Time (hrs. min. sec.)	Observed Altitude (° ′ ″)	
1			
2			
3			
4			
5			
6			
Sum			
Mean		19° 05.0	h_o, observed altitude
Chron.-watch		+2.0	Index correction
Chron. time	7 37 34.5	+13.3	Arc correction
Chron. cor'n	+4 08 10	−4.6	H.I.
G. C. T.	11 45 44.5	−0.1	Dip, refraction, semi-diameter, and parallax
Eq. of T or *R. A. M. S. + 12h*	+ 3 00.8		
Cor'n, Table III (*Naut. Almanac*)			
G. A. T. or *G. S. T.*	11 48 45.3	19 15.6	h, true altitude
Longitude	−4 57 20		
L. A. T. or *L. S. T.*	6 51 25.3		

For other than sun sights, use italicized elements in this column.

R. A.		h	19° 15.6'	log sec	0.025 01
Hour angle, t	5 08 34.7	log hav	9.58968	log sin	9.988 98
φ 37-10	37° 10'	log cos	9.90139		
δ +15 15.6	15 15.6	log cos	9.98441	log cos	9.984 41
		log hav	9.47548	log sin	9.998 40
		nat hav	0.29887	Azimuth	85-05
φ ~ δ 21-54.4		nat hav	0.03611	**For use with Polaris**	
Zenith distance	70-43-45	nat hav	0.33498	h	
h (computed)	19 16.3			Cor'n (Table I, Naut. Almanac)	
h (observed)	19 15.6			φ, latitude	
Difference	0.7 Away				

FOR EX-MERIDIAN SIGHTS

Intervals from Transit: Mean time (min. sec.)	Sidereal time (min. sec.)	at² (Table 27, Bowditch) ′ ″	′ ″	′ ″		
					h	
					at²	
					Meridian altitude	
					Zen. dist.	
					δ	
					φ	
			Sum			
			at²			

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ASTRONOMIC SIGHT FOR HYDROGRAPHIC CONTROL

U. S. C. & G. S. Ship Lydonia, R. P. Eyman Commanding. Date (A.M.) May 2, 1936
(P.M.)

Project Enroute Norfolk, Va to Locality New York.

Celestial object observed Sun. Approximate bearing ____° true. R. A. h. m. s. ____ Rating of sight (Check one)

Dead reckoning position: φ 37 23 N; λ 74° 07 W; λ h. m. s. ____
Course ____° true. Height of eye 22 feet. Sextant No. 711 δ ____
Observer R.P.E. Recorder G.E.B. Comp. by E.O.H. Checked by R.P.E.

Excellent ____ Good ____ Fair ____ Poor ____

Log reading ____ Index correction +2'-00" Sid. M.T. Watch No. ____ Sid. M.T. Chronometer No. 8356

NOTES:

	Watch Time hrs. min. sec.	Observed Altitude ° ' "	
1			
2			
3			
4			
5			
6			
Sum			
Mean		34° 07' 30"	h_o, observed altitude
Chron.-watch		+2.0	Index correction
Chron. time	8 52 27		Arc correction
Chron. cor'n	+4 08 09	-4.6	H.I.
G. C. T.	13 00 36	+14.6	Dip, refraction, semi-diameter, and parallax
Eq. of T or *R. A. M. S.* +12h	+ 3 01.2		
Cor'n, Table III (Naut. Almanac)			
G. A. T. or *G. S. T.*	13 03 37.2	34 19.5	h, true altitude
Longitude	-4 56 28		
L. A. T. or *L. S. T.*	8 07 09.2		

R. A.		h	34° 19.5'	log sec	0.083 10 ~~0.078 02~~
Hour angle, *t*	3 52 50.8	log hav	9.374 03	log sin	9.929 42
φ 37° 23' N.		log cos	9.900 14		
δ +15 16 N.		log cos	9.984 38	log cos	9.984 38
		log hav	9.258 55	log sin	9.996 80
		nat hav	0.181 36	Azimuth	~~83-45~~ -96°-49'
φ ~ δ 22-06.4		nat hav	0.03676	For use with Polaris	
Zenith distance	55-41-00	nat hav	0.21812	h	
h (computed)	34-19-00			Cor'n (Table I, Naut. Almanac)	
h (observed)	34-19-30			φ, latitude	
Difference	30	Toward.			

FOR EX-MERIDIAN SIGHTS

Intervals from Transit: Mean time min. sec.	Sidereal time min. sec.	at¹ (Table 27, Bowditch)				
					h	
					at¹	
					Meridian altitude	
					Zen. dist.	
					δ	
					φ	
			Sum			
			at²			

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ASTRONOMIC SIGHT FOR HYDROGRAPHIC CONTROL

U. S. C. & G. S. Ship Lydonia, R. P. Eyman Commanding. Date (A. M.) (P. M.) May 2, 1938

Project Enroute Norfolk Va Locality New York

Celestial object observed Sun Approximate bearing ° true. R. A. h. m. s.

Dead reckoning position: φ 37° 34' Course ° true. δ +15-18.0
λ 73° 47.5' Height of eye 19 feet. Observer RPE
λ h. m. s. Sextant No. 711 Recorder GEB.
Log reading 26.30 Index correction +20' Comp. by EOH
Sid. M.T. Watch No. Sid. M.T. Chronometer No. 8356 Checked by RPE

Rating of sight (Check one): Excellent ____ Good ____ Fair ____ Poor ____

	Watch Time hrs. min. sec.	Observed Altitude ° ' "
1		
2		
3		
4		
5		
6		
Sum		
Mean		56-32-30
Chron.-watch		+ 2-00
Chron. time	10-52-16	
Chron. cor'n	4 08 088	
G. C. T.	15 00 24.8	+ 11-04
Eq. of T or *R. A. M. S. +12h*	+ 3 01.8	
Cor'n, Table III (Naut. Almanac)		
G. A. T. or *G. S. T.*	15 03 26.6	56-45-37
Longitude	W 55 10	
L. A. T. or *L. S. T.*	10 08 16.6	
R. A.	+ 5	
Hour angle, *t*	1 51 43.4	
φ 37-34		
δ +15-18.0		
φ ~ δ 22-16.0		
Zenith distance	33-14.4	
h (computed)	56-45.6	
h (observed)	56-45.6	
Difference	0.0	

Notes: ✓

h, observed altitude	56-32.5		
Index correction			
Arc correction			
Dip, refraction, semi-diameter, and parallax			
h, true altitude			

h		log sec	0.26110
log hav	8.76524	log sin	9.67063
log cos	9.89908		
log cos	9.98433	log cos	9.98433
log hav	8.64865	log sin	9.91604 ✓
nat hav	.04453	Azimuth	55-31 124-29
nat hav	.03728	**For use with Polaris**	
nat hav	.08181	*h*	
		Cor'n (Table I, Naut. Almanac)	
		φ, latitude	

FOR EX-MERIDIAN SIGHTS

Intervals from Transit: Mean time min. sec.	Sidereal time min. sec.	*at*¹ (Table 27, Bowditch)		
	Sum			
	*at*¹			

h	
*at*¹	
Meridian altitude	
Zen. dist.	
δ	
φ	

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ASTRONOMIC SIGHT FOR HYDROGRAPHIC CONTROL

U. S. C. & G. S. Ship Lydonia R. P. Eyman Commanding. Date (A.M.) (P.M.) May 2, 1938

Project Enroute Norfolk, Va Locality Near York N.Y.

Celestial object observed Sun Approximate bearing ° true. R. A. h. m. s. ° ' "

Rating of sight (Check one)

Dead reckoning position: φ 37 34 Course ° true. δ

λ 73 47.5 Height of eye 19.9 feet. Observer MOW — Excellent

λ h. m. s. Sextant No. 711 Recorder GEB — Good

Log reading 27.67 Index correction Comp. by MOW — Fair

Sid. M.T. Watch No. Sid. M.T. Chronometer No. 8356 Checked by EOH — Poor

		Watch Time hrs. min. sec.	Observed Altitude ° ' "
For other than sun sights, use italicized elements in this column.	1	11- 01 13.0	57 56 20
	2	11- 01 58.0	58-04-40
	3	11- 02- 34.5	58-10-00
	4		
	5		
	6		
Sum		05,455	11 00
Mean		11- 01 55.2	58 03 40
Chron.-watch			
Chron. time		11-01-55.2	
Chron. cor'n		4 08 08.7	
G. C. T.		15 10 03.9	
Eq. of T or: R. A. M. S. +12h		+ 3 01.8	
Cor'n, Table III (Naut. Almanac)			
G. A. T. or G. S. T.		15 13 05.7	
Longitude		4 55 10.0	
L. A. T. or L. S. T.		10 17 55.7	
R. A.			
Hour angle, t		1 42 043	
φ		37 34	
δ		15 18.0	
φ ~ δ		22 16	
Zenith distance		31 41 38	
h (computed)		58-18 22	
h (observed)		58 15 13	
Difference		03 09	Away

Notes:

h_o, observed altitude	58-03-40
Index correction	+ 30
Arc correction	
Dip, refraction, semi-diameter, and parallax	+ 11-03
h, true altitude	58 15 13

h	58-15.2	log sec	0.27892
log hav	8.68820	log sin	9.63425
log cos	9.89908		
log cos	9.99833	log cos	9.99433
log hav	8.57161	log sin	9.89750
nat hav	.03729	Azimuth	127-40
nat hav	.03728		
nat hav	.07457		

For use with Polaris

h	
Cor'n (Table I, Naut. Almanac)	
φ, latitude	

FOR EX-MERIDIAN SIGHTS

Intervals from Transit: Mean time min. sec.	Sidereal time min. sec.	at¹ (Table 27, Bowditch)		
		Sum		
		at¹		

h	
at¹	
Meridian altitude	
Zen. dist.	
δ	
φ	

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ASTRONOMIC SIGHT FOR HYDROGRAPHIC CONTROL

U. S. C. & G. S. Ship Lydonia, R. P. Eyman, Commanding. Date (A. M. / P. M.) May 2, 1938

Project Enroute Norfolk Va Locality New York, N.Y.

Celestial object observed Sun. Approximate bearing ____° true. R. A. ____h ____m ____s

Dead reckoning position: φ 37° 44 N; λ 75° 30 W; λ ____h ____m ____s

Course ____° true. δ ____

Height of eye 19 feet. Sextant No. 711

Observer R.P.E. Recorder R.P.E. Comp. by E.O.H. Checked by R.P.E.

Rating of sight (Check one): Excellent ____ Good ____ Fair ____ Poor ____

Log reading ____ Index correction +2.0

Sid. M.T. Watch No. ____ Sid. M.T. Chronometer No. ____

		Watch Time hrs. min. sec.	Observed Altitude ° ′ ″	Notes:
For other than sun sights, use italicized elements in this column.	1			
	2			
	3			
	4			
	5			
	6			
Sum				
Mean			67 25 30	h_o, observed altitude
Chron.-watch			+2 00	Index correction
Chron. time		12 42 07.5		Arc correction
Chron. cor'n		+4 08 08.5	−4.3	H.I.
G. C. T.		16 50 16.0		Dip, refraction, semi-diameter, and parallax
Eq. of T or *R. A. M. S.* +12^h		+ 3 02.5	+15.5	
Cor'n, Table III (Naut. Almanac)				
G. A. T. or *G. S. T.*		16 53 18.5	67 38.7	h, true altitude
Longitude		−4 54 00.0		
L. A. T. or *L. S. T.*		11 59 18.5		

R. A.			h		log sec	
Hour angle, t	0 00 41.5	log hav			log sin	
φ		log cos				
δ +15° 19.5′		log cos			log cos	
		log hav			log sin	
		nat hav			Azimuth	
~~φ ~ δ~~ h =	67 38.7	nat hav			For use with Polaris	
Zenith distance	22 21.3	nat hav			h	
~~h (computed)~~ δ	15 19.5				Cor'n (Table I, Naut. Almanac)	
~~h (observed)~~					φ, latitude	
~~Difference~~ Lat. =	37 40.8					

FOR EX-MERIDIAN SIGHTS

Intervals from Transit: Mean time min. sec.	Sidereal time min. sec.	at^2 (Table 27, Bowditch) ′ ″	′ ″	′		
0 41.5		4			h	
					at^2	
					Meridian altitude	
					Zen. dist.	
					δ	
					φ	
			Sum			
			at^2			

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ASTRONOMIC SIGHT FOR HYDROGRAPHIC CONTROL

U. S. C. & G. S. Ship Lydonia, R. P. Eyman, Commanding. Date (A. M. / P. M.) May 2, 1938

Project Enroute Norfolk Va to Locality New York, N. Y.

Celestial object observed Sun. Approximate bearing ____° true. R. A. h. m. s. ____ ° ' "

Dead reckoning position: φ 37° 44' N. λ 73° 30' W. (h. m. s.) λ ____

Course ____° true. Height of eye 19 feet. Sextant No. ____

δ ____ Observer M.O.W. Recorder R.P.E.

Rating of sight (Check one): Excellent ____ Good ____ Fair ____ Poor ____

Log reading ____ Index correction -2.0 Comp. by M.O.W.

Sid. M.T. Watch No. ____ Sid. M.T. Chronometer No. 4356 Checked by R.P.E.

		Watch Time hrs. min. sec.	Observed Altitude ° ' "	Notes:
For other than sun sights, use italicized elements in this column.	1			
	2			
	3			
	4			
	5			
	6			
Sum				
Mean			67 26 40	h_o, observed altitude
Chron.-watch			- 2 00	Index correction
Chron. time		12 42 07.5		Arc correction
Chron. cor'n		+4 08 08.5	+11.4	
G. C. T.		16 50 16.0		Dip, refraction, semi-diameter, and parallax
Eq. of T or *R. A. M. S.* +12^h		+ 3 02.5		
Cor'n, Table III (Naut. Almanac)				
G. A. T. or *G. S. T.*		16 53 18.5	67° 36.1	*h*, true altitude
Longitude		-4 54 00.0		
L. A. T. or *L. S. T.*		11 59 18.5		
R. A.			*h*	log sec
Hour angle, *t*		0 00 41.5	log hav	log sin
φ			log cos	
δ			log cos	log cos
			log hav	log sin
			nat hav	Azimuth
φ ~ δ			nat hav	For use with Polaris
Zenith distance			nat hav	*h*
h (computed)				Cor'n (Table I, Naut. Almanac)
h (observed)				φ, latitude
Difference				

FOR EX-MERIDIAN SIGHTS

Intervals from Transit: Mean time min. sec.	Sidereal time min. sec.	at^2 (Table 27, Bowditch) ' "	' "	' "		
0 41.5		4			*h*	67 36.1
					at^2	
					Meridian altitude	
					Zen. dist.	22 23.9
					δ	15 19.4
					φ	37 43.3
			Sum			
			at^2			

U. S. GOVERNMENT PRINTING OFFICE

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ASTRONOMIC SIGHT FOR HYDROGRAPHIC CONTROL

U. S. C. & G. S. Ship Lydonia R. P. Eyman Commanding. Date (A.M.) (P.M.) May 2, 1938

Project Emount Norfolk, Va to New York, N.Y. Locality

Celestial object observed Sun Approximate bearing ° true. R. A. h. m. s. ° ′ ″

Rating of sight (Check one)

Dead reckoning position: φ 38° 02.5 Course 42.5 P.S.C. 34 True ° true. δ
λ 73° 06 Height of eye 19 feet. Observer MDW Excellent
λ h. 4 m. 52 s. 24 Sextant No. 612 Recorder R.P.E. Good
Log reading 72.39 Index correction −02′-00″ Comp. by MDW Fair
Sid. M.T. Watch No. Sid. M.T. Chronometer No. 8356 Checked by EOH Poor ✓

		Watch Time hrs. min. sec.	Observed Altitude ° ′ ″
For other than sun sights, use italicized elements in this column.	1		
	2		
	3		
	4		
	5		
	6		
Sum			
Mean			
Chron.-watch			
Chron. time		15 32 25.5	
Chron. cor'n		4 08 07.9	
G. C. T.		19 40 33.4	
Eq. of T or *R. A. M. S.* + 12h		+ 3 03.1	
Cor'n, Table III (Naut. Almanac)		~~+ 36.5~~	
G. A. T. or *G. S. T.*		19 43 36.5	
Longitude		4 52 24	
L. A. T. or *L. S. T.*		14 51 12.5	
R. A.			
Hour angle, *t*		2 51 12.5	
φ		38 02.5	
δ		15 21.5	
φ ~ δ		22 41.0	
Zenith distance		43 54.6	
h (computed)		46 05.4	
h (observed)		46 08.8	
Difference		3.6 Toward	

Notes:

0-51-51.5
.6
51 52.1
4 08 07.9
3.7/24 × 36 =

h_o, observed altitude	46° 00′ 00″
Index correction	−02′ 00
Arc correction	
Dip, refraction, semi-diameter, and parallax	+10 47 ~~55~~
h, true altitude	46 08 47 ~~55~~

		h		log sec	0.15947
		log hav	9.12433	log sin	9.83223
		log cos	9.89628		
		log cos	9.99020	log cos	9.99020
		log hav	9.00481	log sin	9.97580
		nat hav	.10111	Azimuth	71-03 251-03
		nat hav	.03867	For use with Polaris	
		nat hav	.13978	*h*	
				Cor'n (Table I, Naut. Almanac)	
				φ, latitude	

FOR EX-MERIDIAN SIGHTS

Intervals from Transit: Mean time min. sec.	Sidereal time min. sec.	at² (Table 27, Bowditch) ′ ″	′ ″	′ ″
			Sum	
			at²	

h	
at²	
Meridian altitude	
Zen. dist.	
δ	
φ	

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ASTRONOMIC SIGHT FOR HYDROGRAPHIC CONTROL

U. S. C. & G. S. Ship Lydonia, R. P. Eyman Commanding. Date (A.M.) (P.M.) May 2, 1938

Project En route Norfolk Va Locality New York.

Celestial object observed Sun. Approximate bearing ° true. R. A. h. m. s. ° ' "

Dead reckoning position: φ 38° 05.5 N; λ 73° 03.5 W; λ h. m. s. Course ° true. δ

Height of eye 19 feet. Sextant No. 711

Observer R.P.E. Recorder J.C.B. Comp. by E.A.H. Checked by R.P.E.

Rating of sight (Check one): Excellent ; Good ; Fair ; Poor ✓

Log reading ; Index correction +2.0

Sid. M.T. Watch No. ; Sid. M.T. Chronometer No. 8357

	Watch Time hrs. min. sec.	Observed Altitude ° ' "	Notes:
1			
2			
3			
4			
5			
6			
Sum			
Mean		42° 13.7	h_o, observed altitude
Chron.-watch		+ 20	Index correction
Chron. time	15 51 54		Arc correction
Chron. cor'n	+ 4 08 08	-45	H.L.
G. C. T.	20 00 02.0	+15.2	Dip, refraction, semi-diameter, and parallax
Eq. of T or R. A. M. S. +12h	+ 3 03.2		
Cor'n, Table III (Naut. Almanac)		2	
G. A. T. or G. S. T.	20 03 05.2	42 16.4	h, true altitude
Longitude	- 4 52 14		
L. A. T. or L. S. T.	15 10 51.2		

R. A.		h	42° 16.4	log sec	0.13195
Hour angle, t	3 10 51.2	log hav	9.21373	log sin	9.86908
φ 38° 05.5		log cos	9.89599		
δ + 15 21.7		log cos	9.98420	log cos	9.98420
		log hav	9.09392	log sin	9.98523
		nat hav	0.12414	Azimuth	255°-08 ✓
φ ~ δ 22-43.8		nat hav	0.03883	For use with Polaris	
Zenith distance	47-37.1	nat hav	0.16297	h	
h (computed)	42-22.9 ✓			Cor'n (Table I, Naut. Almanac)	
h (observed)	42 16.4 ✓			φ, latitude	
Difference	3.5	Toward.			

FOR EX-MERIDIAN SIGHTS

Intervals from Transit: Mean time min. sec.	Sidereal time min. sec.	at² (Table 27, Bowditch)			
					h
					at²
					Meridian altitude
					Zen. dist.
					δ
					φ
			Sum		
			at²		

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ASTRONOMIC SIGHT FOR HYDROGRAPHIC CONTROL

U. S. C. & G. S. Ship Lydonia, R. P. Eyman Commanding. Date (A. M.) (P. M.) May 2, 1938

Project Enroute Norfolk, Va. Locality New York, N.Y.

Celestial object observed Sun Approximate bearing ° true. R. A. h. m. s. Rating of sight (Check one)

Dead reckoning position: φ 38° 13.7 Course ° true. δ
λ 72° 56 Height of eye 19 feet. Observer M.O.W. Excellent
λ h. m. s. Sextant No. Recorder R.P.E. Good
Log reading Index correction −2.0 Comp. by E.O.H. Fair
Sid. M.T. Watch No. Sid. M.T. Chronometer No. 8356 Checked by R.P.E. Poor

	Watch Time hrs. min. sec.	Observed Altitude ° ′ ″	Notes:
1			
2			
3			
4			
5			
6			
Sum			
Mean		30-35-10	h_o, observed altitude
Chron.-watch		− 2-00	Index correction
Chron. time	16-51-50.5		Arc correction
Chron. cor'n	+4-08-07.8		
G. C. T.	20-59-58.3		Dip, refraction, semi-diameter, and parallax
Eq. of T or *R. A. M. S.* +12h	+ 3-03.5	+9-59	
Cor'n, Table III (Naut. Almanac)			
G. A. T. or *G. S. T.*	21-03-01.8	30-43.2	*h*, true altitude
Longitude	−4-51-99		
L. A. T. or *L. S. T.*	16-11-17.8		

For other than sun sights, use italicized elements in this column.

R. A.		*h*		log sec	0.006567
Hour angle, *t*	4-11-17.8	log hav	9.433 99	log sin	9.949 21
φ 38°-13.7 N		log cos	9.895 17		
δ +15-22.5 N		log cos	9.984 17	log cos	9.984 17
		log hav	9.313 33	log sin	9.999 05
		nat hav	0.20574	Azimuth	266 − 13
φ ~ δ 22-51.2		nat hav	0.03925	For use with Polaris	
Zenith distance	59-20.1	nat hav	0.24499	*h*	
h (computed)	30-39.9			Cor'n (Table I, Naut. Almanac)	
h (observed)	30-43.2			φ, latitude	
Difference	−3.3	Toward			

FOR EX-MERIDIAN SIGHTS

Intervals from Transit: Mean time min. sec.	Sidereal time min. sec.	at^1 (Table 27, Bowditch)			
					h
					at^2
					Meridian altitude
					Zen. dist.
					δ
					φ
			Sum		
			at^2		

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ASTRONOMIC SIGHT FOR HYDROGRAPHIC CONTROL

U. S. C. & G. S. Ship Lydonia, R. P. Eyman Commanding. Date ~~(A. M.)~~ (P. M.) May 2, 1938

Project Enroute Norfolk, Va. to New York, N.Y. Locality

Celestial object observed Sun ⊙ Approximate bearing 71° true. R. A. h. m. s.

Dead reckoning position: φ 38-13.7 Course ° true. δ 15-22.5

λ 72-56 Height of eye 19 feet. Observer E.O.H.

λ h. m. s. Sextant No. Recorder R.P.E.

Log reading Index correction -30" Comp. by E.O.H.

Sid. M.T. Watch No. ~~Sid.~~ M.T. Chronometer No. 8356 Checked by R.P.E.

Rating of sight (Check one): Excellent ____ Good ____ Fair ____ Poor ____

	Watch Time hrs. min. sec.	Observed Altitude ° ' "
1		
2		
3		
4		
5		
6		
Sum		
Mean		30-31-10.0
Chron.-watch		- 30.0
Chron. time	16-51-50.5	
Chron. cor'n	4-08-07.9	
G. C. T.	20-59-58.4	+ 10-05
Eq. of T or R. A. M. S. +12h	+ 3-03.5	
Cor'n, Table III (Naut. Almanac)		
G. A. T. or G. S. T.	21-03-01.9	30-40-45
Longitude	4-51-44.0	
L. A. T. or L. S. T.	16-11-17.9	
R. A.		
Hour angle, t	4-11-17.9	

For other than sun sights, use italicized elements in this column.

Notes:

h_o, observed altitude	
Index correction	
Arc correction	
Dip, refraction, semi-diameter, and parallax	19'-1 / +10-05
h, true altitude	

	h		log sec	0.0 b 5 4 8
φ 38-13.7	log hav	9.433 99	log sin	9.949 22
δ +15-22.5	log cos	9.895 17		
	log cos	9.984 17	log cos	9.984 17
	log hav	9.313 33	log sin	9.998 87
	nat hav	0.20574	Azimuth	265-52
φ ~ δ 22-51.2	nat hav	0.039 24	For use with Polaris	
Zenith distance 59-20-00	nat hav	0.24498	h	
h (computed) 30-40-00			Cor'n (Table I, Naut. Almanac)	
h (observed) 30-40-45			φ, latitude	
Difference 0-45	Toward			

FOR EX-MERIDIAN SIGHTS

Intervals from Transit: Mean time min. sec.	Sidereal time min. sec.	at² (Table 27, Bowditch)				
					h	
					at²	
					Meridian altitude	
					Zen. dist.	
					δ	
					φ	
			Sum			
			at²			

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ASTRONOMIC SIGHT FOR HYDROGRAPHIC CONTROL

U. S. C. & G. S. Ship Lydonia, R.P. Eyman Commanding. Date (A.M.) (P.M.) May 2, 1938

Project Enroute Norfolk Va. to New York NY. Locality

Celestial object observed Sun. Approximate bearing ° true. R. A. h. m. s. ° ' "

Dead reckoning position: φ 38° 22' N; λ 72° 49' W. (h. m. s.); λ

Course ° true. δ

Height of eye 19 feet. Observer R.P.E. & E.O.H.

Sextant No. 711 = 612 Recorder G.E.B.

Log reading Index correction +40" +45" Comp. by E.O.H.

Sid. M.T. Watch No. Sid. M.T. Chronometer No. 8356 Checked by R.P.E.

Rating of sight (Check one): Excellent ____ Good ____ Fair ____ Poor ____

		Watch Time hrs. min. sec.	Observed Altitude ° ' "	Notes:
For other than sun sights, use italicized elements in this column.	1			
	2			
	3			
	4			
	5			
	6			
Sum			R.P.E.	E.O.H.
Mean			18 40 46	18° 39' 10"
Chron.-watch			+0.7'	+ 0.7'
Chron. time		17 51 45.5		
Chron. cor'n		+4 08 08.8	-4.5	-4.5
G. C. T.		21 59 53.3	+13.4	+13.5
Eq. of T or R. A. M. S. +12h		+ 3 03.8'		
Cor'n, Table III (Naut. Almanac)				
G. A. T. or G. S. T.		22 02 57.1	18 50.3'	18° 48.8'
Longitude		-4 51 16'		
L. A. T. or L. S. T.		17 11 41.1'		

R. A.		h	18 50.3'	log sec	0.023 91
Hour angle, t	5 11 41.1'	log hav	9.597 00	log sin	9.990 29
φ 38° 22 N.		log cos	9.894 35		
δ +15 23.2 N.		log cos	9.984 14	log cos	9.984 14
		log hav	9.475 49	log sin	9.998 34
		nat hav	0.298 87	Azimuth	285°-00
φ ~ δ 22-58.8		nat hav	0.039 68	For use with Polaris	
Zenith distance	71-09.6	nat hav	0.338 55	h	
h (computed)	18-50.4 = E.O.H. 50.4'			Cor'n (Table I, Naut. Almanac)	
h (observed) R.P.E.	18 50.3		18 48.8'	φ, latitude	
Difference	0.1 Away.		1.6 Away.		

FOR EX-MERIDIAN SIGHTS

Intervals from Transit: Mean time min. sec.	Sidereal time min. sec.	at² (Table 27, Bowditch)				
		' "	' "	' "	h	
					at²	
					Meridian altitude	
					Zen. dist.	
					δ	
					φ	
			Sum			
			at²			

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ASTRONOMIC SIGHT FOR HYDROGRAPHIC CONTROL

U. S. C. & G. S. Ship Lydonia, R. P. Eyman Commanding. Date (A.M.) (P.M.) May 2, 1938

Project Enroute Norfolk Va to New York N.Y. Locality

Celestial object observed Sun. Approximate bearing ° true. R. A. h. m. s. ° ' "

Dead reckoning position: φ 38° 22' N. λ 72° 49' W. λ h. m. s.

Course ° true. δ

Height of eye 19 feet. Observer E.O.H.

Sextant No. 612 Recorder G.E.B.

Log reading Index correction +45" Comp. by MOW

Sid. M.T. Watch No. Sid. M.T. Chronometer No. 8256 Checked by R.P.E.

Rating of sight (Check one): Excellent ____ Good ____ Fair ____ Poor ____

	Watch Time hrs. min. sec.	Observed Altitude ° ' "	Notes:
1			
2			
3			
4			
5			
6			

For other than sun sights, use italicized elements in this column.

Sum			
Mean		18 22 30 ✓	h_o, observed altitude
Chron.-watch		+0.7 ✓	Index correction
Chron. time	17 53 15.5 ✓		Arc correction
Chron. cor'n	+4 08 08.0 ✓	-4.5"	H.L.
G. C. T.	22 01 23.5 ✓		Dip, refraction, semi-diameter, and parallax
Eq. of T or *R. A. M. S. +12h*	+ 3 03.8 ✓	+13.7'	
Cor'n, Table III (Naut. Almanac)			
G. A. T. or *G. S. T.*	22 04 27.3 ✓	18 32.7'	*h*, true altitude
Longitude	-4 51 16 ✓		
L. A. T. or *L. S. T.*	17 13 11.3 ✓		
R. A.		*h* 18 32.7'	log sec 0.02313
Hour angle, *t*	5 13 11.3 ✓	log hav 9.60052	log sin 9.99088
φ 38 22 N ✓		log cos 9.89435	
δ +15 23.2 N. ✓		log cos 9.98414	log cos 9.98414
		log hav 9.47901	log sin 9.99815
		nat hav .30130	Azimuth 275° 16'
φ ~ δ 22 58.8	~~71 12.3~~	nat hav .03968	**For use with Polaris**
Zenith distance	71 ~~24.7~~ 23.5	nat hav .34098	*h*
h (computed)	18 ~~27.7~~		Cor'n (Table I, Naut. Almanac)
h (observed)	18 32.7		φ, latitude
Difference	0.7 ~~7~~ Away		

FOR EX-MERIDIAN SIGHTS

Intervals from Transit: Mean time min. sec.	Sidereal time min. sec.	at^1 (Table 27, Bowditch) ' "	' "	' "	
					h
					at^1
					Meridian altitude
					Zen. dist.
					δ
					φ
			Sum		
			at^1		

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ASTRONOMIC SIGHT FOR HYDROGRAPHIC CONTROL

U. S. C. & G. S. Ship Lydonia, R. P. Eyman, Commanding. Date (A. M.) (P. M.) May 2, 1938

Project En route Norfolk, Va. to New York N.Y. Locality

Celestial object observed Sun. Approximate bearing ° true. R. A. h. m. s. ° ' "

Rating of sight (Check one)

Dead reckoning position: φ 38° 27' N. λ 72° 42' W. (h. m. s.) λ

Course °, ° true. δ

Height of eye 19 feet. Observer R.P.E.

Sextant No. 711 Recorder J.C.B.

Excellent / Good / Fair / Poor

Log reading 96.26 Index correction +46" Comp. by M.O.W.

Sid. M.T. Watch No. Sid. M.T. Chronometer No. 8252 Checked by R.P.E.

	Watch Time hrs. min. sec.	Observed Altitude ° ' "	Notes:
1			
2			
3			
4			
5			
6			
Sum			
Mean		10 55 30	h_o, observed altitude
Chron.-watch		+0.7	Index correction
Chron. time	18 31 43		Arc correction
Chron. cor'n	+4 08 07.5	-4.5	H.I.
G. C. T.	22 39 50.5		Dip, refraction, semi-diameter, and parallax
Eq. of T or *R. A. M. S.* +12h	+ 3 04.0	+11.4"	
Cor'n, Table III (Naut. Almanac)			
G. A. T. or *G. S. T.*	22 42 54.5	11 03.1	h, true altitude
Longitude	-4 50 48		
L. A. T. or *L. S. T.*	17 52 06.5		

For other than sun sights, use italicized elements in this column.

R. A.		h 11 03.1	log sec	0.00813
Hour angle, t	5 52 06.5	log hav 9.68376	log sin	9.99974
φ 38° 27' N.		log cos 9.89385		
δ +15 23.7 N.		log cos 9.98413	log cos	9.98413
		log hav 9.56174	log sin	9.99200
		nat hav .36453	Azimuth	280°58'
φ ~ δ 23 03.3		nat hav .03993	For use with Polaris	
Zenith distance	78 59.1	nat hav .40446	h	
h (computed)	11 00.9		Cor'n (Table I, Naut. Almanac)	
h (observed)	11 03.1		φ, latitude	
Difference	2.2 Toward.			

FOR EX-MERIDIAN SIGHTS

Intervals from Transit: Mean time min. sec.	Sidereal time min. sec.	at¹ (Table 27, Bowditch) ' "	' "	' "		
					h	
					at¹	
					Meridian altitude	
					Zen. dist.	
					δ	
					φ	
			Sum			
			at¹			

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ASTRONOMIC SIGHT FOR HYDROGRAPHIC CONTROL

U. S. C. & G. S. Ship Lydonia, R. P. Eyman Commanding. Date (A.M.) (P.M.) May 2, 1938

Project Enroute Norfolk to Locality New York

Celestial object observed Sirius Approximate bearing 270° true. R. A. h. m. s. ° ' "

Rating of sight (Check one)

Dead reckoning position: φ 38° 44' N; λ 72° 42.5' W; λ h. m. s.

Course ° true. δ

Height of eye 27 feet. Observer R.P.E.

Sextant No. 711 Recorder G.E.B.

Log reading Index correction + 40" Comp. by MOW

Sid. M.T. Watch No. Sid. M.T. Chronometer No. 9352 Checked by R.P.E.

Excellent
Good
Fair
Poor

	Watch Time hrs. min. sec.	Observed Altitude ° ' "
1		
2		
3		
4		
5		
6		
Sum		
Mean		16 23 20
Chron.-watch		+0.7
Chron. time	20 12 43.5	
Chron. cor'n	+4 08 07.5	-5.1
G. C. T. (May 3)	0 20 51.0	
~~Eq. of T~~ or R. A. M. S. + 12h	14 40 52.6	-3.3
Cor'n, Table III (Naut. Almanac)	0 03.4	
~~G. A. T.~~ or G. S. T.	15 01 51.0	16 15.6
Longitude	4 50 50.0	
L. A. T. or L. S. T.	10 11 01.0	
R. A.	6 42 25.9	
Hour angle, t	3 28 35.1	
φ 38 44		
δ -16 38.1		
φ ~ δ 55 22.1		
Zenith distance	73 46.1	
h (computed)	16 13.9	
h (observed)	16 15.6	
Difference	1.7 towards	

Notes:

h_o, observed altitude
Index correction
Arc correction
H.I.
Dip, refraction, semi-diameter, and parallax
h, true altitude

h	16 15.6	log sec	0.01773
log hav	9.28596	log sin	9.89740
log cos	9.89213		
log cos	9.98144	log cos	9.98144
log hav	9.15953	log sin	9.89754
nat hav	.14439	Azimuth	232° 00'
nat hav	.21585		
nat hav	.36024		

For use with Polaris

h	
Cor'n (Table I, Naut. Almanac)	
φ, latitude	

FOR EX-MERIDIAN SIGHTS

Intervals from Transit: Mean time min. sec.	Sidereal time min. sec.	at¹ (Table 27, Bowditch)			
					h
					at²
					Meridian altitude
					Zen. dist.
					δ
					φ
			Sum		
			at²		

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ASTRONOMIC SIGHT FOR HYDROGRAPHIC CONTROL

U. S. C. & G. S. Ship Lydonia, R. P. Eyman Commanding. Date (A.M.) (P.M.) May 2, 1938

Project Enroute Norfolk to New York, N.Y. Locality

Celestial object observed Moon L.L. Approximate bearing ° true. R. A. h. m. s.

Dead reckoning position: φ 38° 44' λ 72° 42.5' (h. m. s.) λ

Course ° true. δ

Height of eye 27 feet. Observer R.P.E.

Sextant No. 711 Recorder G.E.B.

Log reading Index correction +40 Comp. by MOW

Sid. M.T. Watch No. Sid. M.T. Chronometer No. 8352 Checked by R.P.E.

Rating of sight (Check one): Excellent ____ Good ____ Fair ____ Poor ____

	Watch Time hrs. min. sec.	Observed Altitude ° ' "	Notes:
1			
2			
3			
4			
5			
6			
Sum			
Mean		24 01 30	h_o, observed altitude
Chron.-watch		+0.7	Index correction
Chron. time	20 14 53.0		Arc correction
Chron. cor'n	+4 08 07.4	-5.1 ✓	H.I.
G. C. T. (May 3)	0 23 00.4		Dip, refraction, semi-diameter, and parallax
Eq. of T or R. A. M. S. +12h GHA	141 14.8 ✓	+69.5 ✓	
Cor'n, ~~Table III~~ (Naut. Almanac)	+ 5 31.0 ✓		
~~G. A. T. or G. S. T.~~ G.HA.	146 45.8 ✓	25 06.6 ✓	h, true altitude
Longitude	72 42.5 ✓		
L. A. T. or L. S. T. LHA.	74° 03.3' W		

R. A.		h	25 06.6	log sec	0.04356
Hour angle, t	4 56 13.2	log hav	9.55948	log sin	9.98296
φ 38° 44' N. ✓		log cos	9.89213		
δ +21 00.0 N ✓		log cos	9.97015	log cos	9.97015
		log hav	9.42176	log sin	9.99667 ✓
		nat hav	.26410	Azimuth	277° 05'
φ ~ δ 17 44.0		nat hav	.02376	For use with Polaris	
Zenith distance	64 53.7 ✓	nat hav	.28786	h	
h (computed)	25 06.3 ✓			Cor'n (Table I, Naut. Almanac)	
h (observed)	25 06.6			φ, latitude	
Difference	0.3 Toward				

FOR EX-MERIDIAN SIGHTS

Intervals from Transit: Mean time min. sec.	Sidereal time min. sec.	at² (Table 27, Bowditch)			
					h
					at²
					Meridian altitude
					Zen. dist.
					δ
					φ
			Sum		
			at²		

U. S. GOVERNMENT PRINTING OFFICE

#1

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form No. 722
Ed. May 1935

R. A. R. AND DEAD RECKONING ABSTRACT

Log No.	Factor
A	Meridian Alt
B	Taffrail.
C	

HYDROGRAPHIC SHEET No. 1201

U. S. C. AND G. S. SHIP Lydonia, R. P. Eyman. COMMANDING. (Name of Ship) STATION

LOCALITY Cape Henry to New York. DATE May 1, 1938 (Name of Ship) STATION

Enroute Norfolk to New York. $r = \frac{\text{distance between fixed positions}}{\text{log distance}}$ DAY (Name of Ship) STATION

Pos. No.	Time 75 Mer. h. m. s.	Elapsed Time m. s.	Course PSC	Dev.	Var'n	True	Distance Log Reads	Log Dist.	True Dist.	r	Bomb No.	Bomb Station	Bomb Distance seconds	App't Horiz. Velocity Assumed	App't Horiz. Velocity Final	Wind Dir. True degrees	Wind Vel. mi./hr.	Time h. m. s.	Current Station	Current Dir.	Current Vel. knots	Buoy Anchor to Hydrophone Distance	Buoy Anchor to Hydrophone Dir.
			90	Stg.			A 9.57	—															
							B 95.19																
1.	21 26 15		90.5	+1.0	-7.1	84.4	C				Cape Henry Junction Buoy		5 m	port									
			91	Stg.			A 10.16																
							B																
2	21 30 00		91.5	+1.0	-7.1	85.4	C																
			91	Stg.			A 14.05			0.92													
							B																
5	21 54 45		91.5				C				Fl. W. Buoy #2 on port bow												
			91	Stg.			A 15.50	1.45		0.92													
							B 0.41				Fl. W. Buoy #2 abeam.												
7	22 04 05		91.5				C																
			91	Stg.			A 18.93				Chesapeake Light Ship on Bow												
							B																
10	22 25 30		91.5				C			1.03													
			91	Stg.			A 20.42	1.49			Chesapeake Light Ship Port Beam												
							B 4.72																
12	22 34 40		91.5				C																
			91	Stg			A 21.60	1.18		~~1.021~~ 0.985	Chesapeake Light Ship Port Quarter (Ship Swinging)												
							B																
14	22 42 00		91.5				C																
			91	Stg.			A 33.95	13.53	From abeam Chesapeake L.S														
							B 16.67	11.95															
22	24-00-00		91.5				C																
							A																
							B																
							C																

U.S. GOVERNMENT PRINTING OFFICE 11—21514

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form No. 722
Ed. May 1935

R. A. R. AND DEAD RECKONING ABSTRACT

Log No.	Factor
A	
B	
C	

HYDROGRAPHIC SHEET No. 1201

U. S. C. AND G. S. SHIP Lydonia, R. P. Fyman. COMMANDING. _____ (Name of Ship) STATION _____

LOCALITY Enroute Norfolk, Va - New York. DATE May 21 1938 _____ (Name of Ship) STATION _____

$r = \frac{\text{distance between fixed positions}}{\text{log distance}}$ DAY _____ _____ (Name of Ship) STATION _____

Pos. No.	Time 75 Mer. h. m. s.	Elapsed Time m.	s.	Course PSC	Dev.	Var'n	True	Distance Log Reads	Log Dist.	True Dist.	r	Bomb No.	Station	Distance	Aff't Horiz. Velocity Assumed	Final	Wind Dir. True degrees	Vel. mi./hr.	Time h. m. s.	Current Station	Dir.	Vel. knots	Buoy Anchor to Hydrophone Distance	Dir.
				91 Stg.				A 33.95			0.985			seconds										
								B 16.67																
22	0 00 00			91.5				C																
				91 Stg.				A 43.14	9.19															
								B 24.87	8.20															
28	01 00 00			91.5				C																
				91 Stg.				A 52.47	9.33															
								B 33.18	8.31															
34	02 00 00			91.5				C																
				91 Stg.				A 61.54	9.12															
								B 41.30	8.12															
40	03 00 00			91.5				C																
				Line turns				A 68.15	6.56		0.985													
				63 Stg.				B 47.18	5.88															
45	03 43 00			61.5	+4.8	-7.8	58.5	C																
				63 Stg.				A 73.89	5.74															
								B																
49	04 10 00	37		61.5				C																
								A																
								B																
	04 22 30	Full	test					C																
				5 Stg.				A 74.35	0.46															
								B 52.71																
50	04 24 00			359	-1.4	-7.9	349.7	C																
		Full right to						A 79.16	4.81															
				63 Stg.				B 56.97	4.26															
53	04 55 00			61	-1.3	-8.0	51.8	C																

Star fix referred to this position

U.S. GOVERNMENT PRINTING OFFICE 11—11514

#3

DEPARTMENT OF COMMERCE
U. S. Coast and Geodetic Survey
Form No. 722
Ed. May 1935

R. A. R. AND DEAD RECKONING ABSTRACT

Log No.	Factor
A	
B	
C	

Hydrographic Sheet No. 1201

U. S. C. and G. S. Ship Lydonia, R.P. Eyman Commanding. _____ (Name of Ship) Station _____

Locality Enroute - Norfolk Va New York. Date May 2 1938 _____ (Name of Ship) Station _____

A Log - Meridian $r = \frac{\text{distance between fixed positions}}{\text{log distance}}$ Day _____ _____ (Name of Ship) Station _____

B Log - Taffrail

Pos. No.	Time ---/75---Mer. h. m. s.	Elapsed Time m. s.	Course PSC	Dev.	Var'n	True	Distance Log Reads	Log Dist.	True Dist.	r	Bomb No.	Bomb Station	Bomb Distance seconds	App't Horiz. Velocity Assumed	App't Horiz. Velocity Final	Wind Dir. True degrees	Wind Vel. mi./hr.	Time h. m. s.	Current Station	Current Dir.	Current Vel. knots	Buoy Anchor to Hydrophone Distance	Buoy Anchor to Hydrophone Dir.
			60	S+g			A																
	5-03-00	cc to	58	+4.9	-8.7	54.2	B																
							C																
			60	S+g.			A 80.70																-7.8
54	5-05-00		58				B																-3.2
							C																+4.6
			63	S+g.			A																
	5-07-00	cc to	61	+4.4	-8.7	56.1	B																
							C																
			63	S+g.			A 82.28																
55	5-15-00		61				B																
							C																
			63	S+g			A 85.39																
57	5-35-00		61				B																
							C																
			65	S+g.			A																
	5-41-00		64	+3.8	-8.7	59.1	B																
							C																
							A 86.93																
			65	S+g			B																
58	5-45-00		64				C																-8
							A 94.53	7.62														5-50	-4.52
			61	S+g			B 70.78																+3.18
63	6-35-00	cc to	59	+4.6	-8.7	55.2	C																
							A 96.10																
			61	S+g			B																
64	6-45-00		59				C																

U.S. GOVERNMENT PRINTING OFFICE 11—11514

#4

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form No. 722
Ed. May 1935

Log No.	Factor
A	
B	
C	

R. A. R. AND DEAD RECKONING ABSTRACT

HYDROGRAPHIC SHEET No. 1201

U. S. C. AND G. S. SHIP Lydonia, R. P. Eyman. COMMANDING. _____ (Name of Ship) STATION _____

LOCALITY Enroute Norfolk Va - New York DATE May 2, 1928 _____ (Name of Ship) STATION _____

$r = \frac{\text{distance between fixed positions}}{\text{log distance}}$ DAY _____ _____ (Name of Ship) STATION _____

Pos. No.	Time 75 Mer. h. m. s.	Elapsed Time m.	s.	Course PSC	Dev.	Var'n	True	Distance Log Reads	Log Dist.	True Dist.	r	Bomb No.	Station	Distance	App't Horiz. Velocity Assumed	Final	Wind Dir. True degrees	Vel. mi./hr.	Time h. m. s.	Current Station	Dir.	Vel. knots	Buoy Anchor to Hydrophone Distance	Dir.
				61	Stg			A 107.66						seconds										
								B 82.50																
72	8-00-00			59	+49	-8.7	55.2	C					Sun Sight											
				61	Stg.			A 16.90																8.8
								B 90.70															Comp E	-3.6
78	9-00-00			59				C															Dev	S.2
				61	Stg			A 26.30																
								B 79.10																
84	10-00-00			59				C					Sun Sight											
				61	Stg			A 35.58																
								B 107.40																
90	11-00-00			59				C																
				61	Stg			A 43.41																
								B																
95	11-50-00			59				C					Meridian Alt. of Sun.											
				61	Stg			A 45.08																
								B 15.85																
96	12-00-00			59				C																
		Line		49	Stg			A 55.43																
								B 24.95																
102	13-00-00	Turns		46	+46	-10.2	40.4	C																
				46	Stg			A 57.11																
								B																
103	13 10-00	CC to		43				C																
				46	Stg			A 65.65					Sun sight (Poor Horizon											
								B 34.00								No good								
108	14-00-00			43				C																

U. S. GOVERNMENT PRINTING OFFICE 11—11514

#5

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form No. 722
Ed. May 1935

R. A. R. AND DEAD RECKONING ABSTRACT

Log No.	Factor
A	
B	
C	

HYDROGRAPHIC SHEET No. 1201

U. S. C. AND G. S. SHIP Hydonia, R. P. Eyman COMMANDING. ______ (Name of Ship) STATION ______

LOCALITY Enroute Norfolk Va - New York DATE May 2 1938 ______ (Name of Ship) STATION ______

$r = \frac{\text{distance between fixed positions}}{\text{log distance}}$ DAY ______ ______ (Name of Ship) STATION ______

Pos. No.	Time 75 Mer. h. m. s.	Elapsed Time m.	Elapsed Time s.	Course PSC	Course Dev.	Course Var'n	Course True	Distance Log Reads	Distance Log Dist.	Distance True Dist.	Distance r	Bomb No.	Bomb Station	Bomb Distance seconds	App't Horiz. Velocity Assumed	App't Horiz. Velocity Final	Wind Dir. True degrees	Wind Vel. mi./hr.	Time h. m. s.	Current Station	Current Dir.	Current Vel. knots	Buoy Anchor to Hydrophone Distance	Buoy Anchor to Hydrophone Dir.
				46	Stg.			A ~~74.07~~ 73.39																
								B																
112	14 40 00			42.5	+4.6	-10.2	39.9	C					Sun Sight											(76.9)
								A 75.77																
								B 43.00																
114	15 00 00			42.5				C					Sun Sight											
								A 86.01																
								B 52.15																
120	16 00 00			42.5				C					Sun Sight											
								A 96.26																
								B 61.30																
126	17 00 00			42.5				C					Sun Sight											
				14	Stg.			A 103.01																
								B 67.20																
130	17 40 00	cc	to	10	-1.4	-10.8	357.8	C					Sun Sight											[358]
								A 6.32																
								B 70.14																
132	18 00 00			10				C																
								A 16.35																
								B 78.95																
138	19 00 00			10				C																(357.8)
								A 19.76																
								B																
140	19 20 00			10				C					Moon & Star Sight											
								A 26.39																
								B 87.71																
144	20 00 00			10				C																

#6

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form No. 723
Ed. May 1935

Log No.	Factor
A	
B	
C	

R. A. R. AND DEAD RECKONING ABSTRACT

HYDROGRAPHIC SHEET No. 1201

U. S. C. AND G. S. SHIP Lydonia, R.S. Eyman COMMANDING. _____ (Name of Ship) STATION _____

LOCALITY Enroute Norfolk Va – New York. DATE May 2, 1938 _____ (Name of Ship) STATION _____

$r = \frac{\text{distance between fixed positions}}{\text{log distance}}$ DAY _____ _____ (Name of Ship) STATION _____

Pos. No.	Time 75 Mer. h. m. s.	Elapsed Time m. s.	Course PSC	Dev.	Var'n	True	Distance Log Reads	Log Dist.	True Dist.	r	Bomb No.	Bomb Station	Bomb Distance seconds	Aff't Horiz. Velocity Assumed	Final	Wind Dir. True degrees	Wind Vel. mi./hr.	Time h. m. s.	Current Station	Current Dir.	Current Vel. knots	Buoy Anchor to Hydrophone Distance	Buoy Anchor to Hydrophone Dir.
			16 Stg.				A 35.96																
							B 96.45																
150	21 00 00		10	-1.4	-10.8	357.8	C																
153	Log 40.87		51	Stg.			A 45.74																
							B 105.50																
155	21 50 00	CC to	49				C																
			337	Stg			A 49.02																
							B 8.50																
158	22 20 00	CC to	333	-0.7	-10.9	321.9	C																
							A 54.95	5.93															
							B 14.10																
162	23 00 00		11				C																
							A 63.95	9.00															
							B 22.70																
168	24 00 00		11				C																
							A 40.87																
							B																
							C																
							A																
							B																
							C																
							A																
							B																
							C																
							A																
							B																
							C																

U. S. GOVERNMENT PRINTING OFFICE 11—11514

#7

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form No. 722
Ed. May 1935

R. A. R. AND DEAD RECKONING ABSTRACT

Log No.	Factor
A	
B	
C	

HYDROGRAPHIC SHEET No. 1201

U. S. C. AND G. S. SHIP Lydonia, R. P. Eyman. COMMANDING. _____ (Name of Ship) STATION _____

LOCALITY En route - Norfolk, Va. - New York. DATE May 3, 1938 _____ (Name of Ship) STATION _____

$r = \frac{\text{distance between fixed positions}}{\text{log distance}}$ DAY _____ _____ (Name of Ship) STATION _____

Pos. No.	Time 75 Mer. h. m. s.	Elapsed Time m.	s.	Course PSC	Dev.	Var'n	True	Distance Log Reads	Log Dist.	True Dist.	r	Bomb No.	Station	Distance	App't Horiz. Velocity Assumed	Final	Wind Dir. True	Vel.	Time	Current Station	Dir.	Vel.	Buoy Anchor to Hydrophone Distance	Dir.
														seconds			degrees	mi./hr.	h. m. s.			knots		
								A 63.95																
								B 22.70																
168	0 00 00			333.5				C																
								A 73.06	9.11															
								B 31.15																
174	1 00 00							C																
								A 82.50	9.44															
								B 39.92																
180	2 00 00							C																
								A 91.87	9.37															
								B 48.70																
186	3 00 00							C																
								A 101.38	9.51															
								B 57.50																
192	4 00 00							C																
								A 11.06	9.68															
								B 67.45																
198	5 00 00							C																
								A 20.93	9.87															
								B 75.68																
204	6 00 00							C																
				14	Stg			A 25.83	4.90															
								B 80.20																
207	6 30 00	cc	to	10				C																
								A 28.35					Sextant	Fix		Navesink L.H.				14	40			
								B 82.60								Branchport Gas T.								
209	6 45 30			10				C								Belmar Gas T.				35	17			

U. S. GOVERNMENT PRINTING OFFICE 11—11514

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form No. 722
Ed. May 1935

Log No.	Factor
A Meridian Elec.	
B Taffrail	
C	

R. A. R. AND DEAD RECKONING ABSTRACT

HYDROGRAPHIC SHEET No. 1201

U. S. C. AND G. S. SHIP Lydonia, R. P. Eyman COMMANDING. ______ (Name of Ship) STATION ______

LOCALITY Enroute Norfolk, Va. - New York. DATE May 3, 1938 ______ (Name of Ship) STATION ______

$r = \frac{\text{distance between fixed positions}}{\text{log distance}}$ DAY ______ ______ (Name of Ship) STATION ______

Pos. No.	Time 75° Mer. (h. m. s.)	Elapsed Time (m. s.)	Course PSC	Course Dev.	Course Var'n	Course True	Distance Log Reads	Distance Log Dist.	Distance True Dist.	Distance r	Bomb No.	Bomb Station	Bomb Distance (seconds)	App't Horiz. Velocity Assumed	App't Horiz. Velocity Final	Wind Dir. True (degrees)	Wind Vel. (mi./hr.)	Time (h. m. s.)	Current Station	Current Dir.	Current Vel. (knots)	Buoy Anchor to Hydrophone Distance	Buoy Anchor to Hydrophone Dir.
			348 Stg.				A 30.07							(Navesink L.H.					17-12				
							B							{Branchport Gas T.									
211	6 56 00	ec to					C				Sextant fix			} Belmar Gas T.					36-21				
			348 Stg.				A 30.72							{ Navesink L.H.					18-18				
							B 84.78				Sextant fix			} Branchport Gas T									
212	7 00 00						C							(Belmar Gas T.					37-11				
							A																
							B																
							C																
							A																
							B																
							C																
							A																
							B																
							C																
							A																
							B																
							C																
							A																
							B																
							C																
							A																
							B																
							C																
							A																
							B																
							C																

#8

Field Records Section (Charts)

HYDROGRAPHIC SHEET NO. H-6220 (Addl. Work 1938)
H-5713 (" " ")

The following statistics will be submitted with the cartographer's report on the sheet:

Number of positions on sheet	.....
Number of positions checked	.....
Number of positions revised	.....
Number of soundings recorded	.....
Number of soundings revised	.....
Number of signals erroneously plotted or transferred	.....

Date: July 28, 1938

Verification by Harold W. Murray Time: 8 hrs.

Review by Harold W. Murray Time: 2 "

FORM M-238

MEMORANDUM

IMMEDIATE ATTENTION

SURVEY
DESCRIPTIVE REPORT
~~PHOTOSTATIC~~

No. H-6220(Addl.Wk. 1938)
~~No. T~~

received May 18, 1938
registered June 22, 1938
verified
reviewed
approved

This is forwarded in order that your attention may be directed to the matters as indicated below. Please initial in column 3 as an acknowledgement that your attention has been thus directed. The complete original records are available if desired. If you cannot give this your immediate attention, please initial, note, and forward to the next section marked, calling for the records at your convenience.

ROUTE		Initial	Attention called to
20			
22			
24			
25			
26			
30			
40			
62			
63			
82			
83			
88			
90			

RETURN TO

82	T. B. Reed

✓ 7130R

HYDROGRAPHIC SURVEY NO. H-6220(Addl. Wk. 1938)

Smooth Sheet Original One

Boat Sheet 4 Tracings

Records; Sounding 2 Vols., Wire Drag ___ Vols., Bomb ___ Vols.

Descriptive Report Yes

Title Sheet Yes

List of Signals -----

Landmarks for Charts (Form 567) -----

Statistics -----

Approved by Chief of Party Report Only Approved

Recoverable Station Cards (Form 524) -----

Special Chart for Lighthouse Service -----
(Circular Nov.30, 1933)

Hydrography: Total Days 3 ; Last Date May 3, 1938

Remarks

3776

Form 712
DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
Ed. Feb. 1935

TIDE NOTE FOR HYDROGRAPHIC SHEET

June 27, 1938.

Division of Hydrography and Topography:

✓ Division of Charts: Attention: Mr. E. P. Ellis.

Tide Reducers are approved in
2 volumes of sounding records for

HYDROGRAPHIC SHEET 6220 (Additional Work, 1938)

Locality Enroute Norfolk, Virginia to New York, N. Y.

Chief of Party: R. P. Eyman in 1938.
Plane of reference is mean low water reading
4.1 ft. on tide staff at Atlantic City
15.8 ft. below B.M. 32

Position 1-55 used Atlantic City - 0.45 minutes. Range factor 0.9.
Height of mean high water above plane of reference 3.7 feet.

Position 153-212 used Atlantic City - 0.30 minutes. No range factor applied. Height of mean high water above plane of reference 4.1 feet.

Condition of records satisfactory except as noted below:

H A Marmer

Acting Chief, Division of Tides and Currents.

U. S. GOVERNMENT PRINTING OFFICE

Verification Report
H-5713(1938) Ad.Wk. & H-6220(1938) Ad.Wk.

Essential information relative to the verification of this work is incorporated in the review.

Harold W. Murray
July 28, 1938

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 5713 (1938) Ad. Work, and H-6220 (1938) Ad. Work - FIELD NO. 1201.

Cape Henry to New York, Atlantic Coast
Surveyed in May 1 to 3, 1938, Scale 1:120,000
Instructions dated March 19, 1938 (LYDONIA)

Fathometer Soundings.

3 Point fixes and bearings on natural objects.
Astronomical fixes and dead reckoning.

Chief of Party - R. P. Eyman.
Surveyed by - R. P. Eyman.
Protracted by - M. O. Witherbee.
Soundings plotted by - M. O. Witherbee and J. C. Bose.
Verified and inked by - Harold W. Murray.

1. Condition of Records.

The records are neat and legible and conform to the requirements of the Hydrographic Manual.

The Descriptive Report satisfactorily covers all items of importance.

2. Compliance with Instructions for the Project.

The plan, character and extent of the survey satisfy the instructions for the project.

3. Purpose.

The purpose of this survey was to furnish depths to supplement the widely spaced lines on H-5713 (1934) and H-6220 (1937) used in delineating the depth curves drawn on Coastal Slope Chart 1317.

4. Field Work.

The field work consisted of a single line beginning at Cape Henry Junction Lighted Buoy and ending at Scotland Lightship and was submitted on 4 tracings of the same scale as Coastal Slope Chart 1317, the tracings and sounding records being filed with H-6220 (1938) Ad. Work.

5. Office Work.

Positions 100 - 139 B falling on Coastal Slope Chart 1317 were adjusted to the depth curves and sounding line crossings shown thereon, and then transferred to H-5713 (1934) and H-6220 (1937).

The remaining portions of the line, Pos. 1A - 100B and 139B - 212C were not used as they fell outside the limits of Coastal Slope Chart 1317 and in areas adequately covered by H-5713 (1934), H-5994 (1935), H-5995 (1935), H-6026 (1936), H-6190 (1936), H-6192 (1936) and H-6223 (1937).

6. Additional Work.

No additional work is required.

7. Reviewed by - Harold W. Murray, July 28, 1938.

Inspected by - E. P. Ellis.

Examined and approved:

T. B. Reed,
Chief, Section of Field Records.

K. T. Adams
Chief, Division of Charts.

Fred. L. Peacock
Chief, Section of Field Work.

Chief, Division of H. & T.