FE24

FE24

NOAA FORM 76-35A

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

DESCRIPTIVE REPORT
(HYDROGRAPHIC)

Type of Survey ....Field Examination.....

Field No. .....

Office No. .....FE-24.....

LOCALITY

State .....Washington.....

General Locality ..Coast of Washington.....

Locality .....

.....

19 40

CHIEF OF PARTY
J.H. Peters

LIBRARY & ARCHIVES

DATE .....1940.....

☆ U.S. GOV. PRINTING OFFICE: 1976—669-441

NOTE: A new system for registering Field Examinations (FE's) was established in 1980. All FE's are now consecutively numbered as shown hereon. The date shown in the new format is the actual date of survey. This material was previously registered as: FE No. 4 1940

FE-4
(1940)

Form 504
Rev. Dec. 1933

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

DESCRIPTIVE REPORT

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

DESCRIPTIVE REPORT

TO ACCOMPANY

OFF-SHORE FATHOMETER TEST
COAST OF WASHINGTON
U. S. C. & G. S. S. EXPLORER
J. H. PETERS, COMMANDING

State .....

LOCALITY

COAST OF WASHINGTON

1940

CHIEF OF PARTY

J. H. Peters, Comdg

U. S. GOVERNMENT PRINTING OFFICE: 1934

DESCRIPTIVE REPORT

TO ACCOMPANY

OFF-SHORE FATHOMETER TEST

COAST OF WASHINGTON

U. S. C. & G. S. S. EXPLORER

J. H. PETERS, COMMANDING

INSTRUCTIONS:

There were no specific instructions for this work. The Dorsey III fathometer had not worked on the shakedown cruise and major adjustment had been made on it by Mr. Russel B. Wright, after return to Seattle. It was deemed prudent to make a deep water test before leaving for Alaska and while Mr. Wright was still aboard. A sounding of 2400 fathoms was shown on Chart No. 5052, in Latitude 45°41' North, Longitude 129°30' West, about 250 miles southwest of Cape Flattery, so it was decided to run a line of soundings out to that vicinity, there being no other soundings nearly so deep charted closer in.

METHODS:

Usual dead reckoning methods such as are generally used on the "fish lines" in the Gulf of Alaska, were employed on this survey. No. R. A. R. control was established. "Distance run", was determined by means of the port meridian log, a taff-rail log and by engine revolutions. No log tests were made. The three counters were read at every position - which were spaced, in general, fifteen minutes apart. Courses were steered

by gyro-compass. These were corrected by frequent azimuths. Leeway was estimated by the Commanding Officer. Radio compass bearings were taken frequently when close enough inshore to permit accurate results. The airway radio beam near Portland, Oregon, was so loud when out at the off-shore end of the line, the radio compass stations could not be heard. This station was not shown on our charts.

Astronomic sights were taken by the Navigating Officer Lieutenant E. H. Bernstein, and by the officers on watch.

The line was plotted on a copy of Chart No. 5052 and is submitted as the smooth sheet, together with the following:

1 volume	Soundings
20 Sheets	Dead Reckoning Abstract, Form No. 722
17 Sheets	Astronomic Sights for Hydrographic Control, Form No. 719
1	Serial temperature and velocity report.
1 Sheet	Computation of Compass Deviations.

FATHOMETER CORRECTIONS:

A serial temperature and salinity test was made at the outer end of the line, the results of which accompany this report. Unfortunately it was impossible to obtain a temperature reading below 800 fathoms as two deep sea reversing thermometers were crushed at the 1450 fathoms depth.

ADJUSTMENT OF SOUNDING LINE:

The control was reasonably consistent and in general good enough for such work near the inshore portions of the

line, where good radio compass bearings were obtained.

Astronomic control further offshore was adequate there being sufficient sights taken by several officers and various sextants to control the line.

The line was plotted first by meridian log and gyro-compass courses run, then an approximate adjustment made to make it fit as nearly as might be to the largest possible number of lines of position. In making this adjustment, no rigid graphical process was followed, the only considerations being the use of as uniform and slight distortion of the D. R. line as would seem best to reconcile the line with the control.

As fifteen tons of pig iron had been taken aboard for ballast, a ship swing was made for deviations without compensation. A copy of the computation of deviations for the standard compass is sent herewith. The standard was checked against the gyro every fifteen minutes but only the gyro courses were considered dependable, owing to the changeable magnetic properties of the new ship. The gyrocompass courses and bearings were accepted as being correct after application of a correction for 1-1/2° East deviation, a mean of the gyrocompass errors observed.

A generally north-setting current was noted as effective upon the adjustment of the line. This was also noted while hove-to at the outer end of the line to take serial temperatures.

This approximates one knot per hour in a northerly direction.

RESULTS:

The fathometer worked quite successfully until shoal water on the return trip was reached. A transformer burned out and no further soundings could be obtained until it was repaired the next day. However the missing portion of the line was not needed as this area had been surveyed previously.

The greatest depth found was 1545 fathoms. A loop was run around the charted 2400 fathoms with the indication that this sounding should be 1400 fathoms. see note, p. 5

TIDES:

No tidal observations were made in connection with this work as the depths were so great that tidal reducers were not needed. Reduction of soundings was accomplished as regards velocity corrections, the basis being one deep water serial temperature at the outer extremity of the line. Attached hereto is a Fathometer Report covering such corrections. The Dorsey III Fathometer initial was set at two fathoms draft, and no other corrections involving the fathometer were considered owing to the depth of the soundings.

STATISTICS:

Total number of soundings	684
Total number of positions	167
Nautical miles of sounding line	521
Area in square nautical miles	3360

RECOMMENDATIONS:

It is recommended that the 2400 fathom sounding be changed * to 1400 and at the first opportunity the 525 fathom sounding * 75 miles northwest from the 2400 fathom sounding be investigated.

Respectfully submitted,

J. H. Peters,
Commanding Officer,
U.S.C. & G.S.S. EXPLORER.

* 2400 fms., lat. 45°41', long. 129°31'. This sounding originates with Bp. 23915 (1931) which is a copy of H.O. Chart 527. The sounding was still being carried on the 1939 copy of the H.O. chart. The sounding is apparently 1000 fms. too deep and should be expunged from the chart.

* 525 fms., lat. 46° 31', long. 130° 57'. This sounding originates with a blueprint of soundings obtained by the ALBATROSS attached to Chart Letter 476 of 1915. The 525 is one of three soundings, the other two being 635 and 830 fms. The sounding therefore appears to be authentic.

H.W. Murray 7/26/40

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. _____

U. S. C. AND G. S. SHIP EXPLORER, JH Peters COMMANDING. _____ (Name of Ship) STATION _____

LOCALITY off CAPE FLATTERY DATE MAY 22, 1940 _____ (Name of Ship) STATION _____

r = distance between fixed positions / log distance

A = Meridian _____ (Name of Ship) STATION _____

b = Taffrail, C = Revolution Counter

Pos. No.	Time 120 W 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 seconds	App't Horz. 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.
							A 64.29																
				+1½			B 32.4			Ratio	OF	UMATILLA		LV 95°									
1	04-00-00		235	pgc.		136½	C 687.720			Swift	Sure	LV		40°				Line	begins				
							A 66.75	2.46	✓														
							B 39.5	2.1	✓														
2	15 -			✓			C 689.856																
							A 71.24			@.04:	32	Swift	Sure	42°									
							B 42.8					Umatilla		85°									
3	30 -			✓			C 691.865																
							A 74.73																
							B 46.0																
4	45 -			✓			C 692.777																
							A 78.247			@.02		Swiftsure		LV 39					Speed reduced				
							B 49.3					Umatilla		76°					to 95, to lessen				
5	05-00 -						C 694.4					Grays Hbr		132					water noise				
		236	207	std	with	208	A 81.44																
				+1½	-1	136½	B 52.1																
6	15						C 695.904																
							A 84.13					Swift	Sure	43									
							B 54.8					Umatilla		76									
7	30 -						C 697.905					Grays	Hbr	130									
							A 87.12												Increased to 110 rpm				
							B 57.6																
8	45						C 698.730																
							A 90.40	6.27	✓			Swiftsure		46									
				+1½	-N		B 60.7	5.9	✓			Umatilla		75									
9	06-00-00		238	pgc		136½	C 700.300	3.005	✓			Grays	Hbr	129									

#2

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
FORM NO. 722
Ed. May 1935

R. A. R. AND DEAD RECKONING ABSTRACT

A - Meridian Log
B - Taffrail Log
C - Rev. Counter

Log No.	Factor
A	
B	
C	

HYDROGRAPHIC SHEET NO. _____

U. S. C. AND G. S. SHIP EXPLORER, J H Peters COMMANDING. _____ (Name of Ship) STATION _____

LOCALITY off CAPE FLATTERY DATE MAY 22, 1940 _____ (Name of Ship) STATION _____

r = distance between fixed positions / log distance DAY _____ _____ (Name of Ship) STATION _____

64.29

Pos. No.	Time 120 W 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	Bore No.	Bore Station	Bore Distance seconds	App't Horz. Velocity Assumed	App't Horz. 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.
							A 93.66																
							B 63.8																
10	06-15-00	237	236	+1½	-4	236½	C 701866																
							A 97.92						Radio @ 06:34	Swiftsure 46									
							B 66.9							Umatilla 74									
11	30-00						C 703425							Grays Hbr 123									
							A 00.10																
							B 69.9																
12	45 -						C 704960							Opr taking									
							A 3.60							weather-									
							B 73.3																
13	07-01-	237		vh stbd	210		C 706620																
							A 6.76																
							B 76.4																
14	15 -						C 708152																
							A 10.11						07:33	Swiftsure 47									
							B 79.4							Umatilla 69									
15	30 -						C 709773							Grays Hbr 117									
							A 13.38																
							B 82.5																
16	45 -						C 711343																
							A 16.72						08:08	Swiftsure 49									
							B 85.6							Grys Hbr 114									
17	08-00-00	237	237		209		C 712937																
							A 20.00	3.28															
							B 88.8	3.2															
18	15 -	15					C 714-5781	1-576															

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
FORM NO. 722
Ed. May 1935

#3

R. A. R. AND DEAD RECKONING ABSTRACT

A = Meridian Log. Port
B = Taffrail
C = Revolution Counter

Log No.	Factor
A	
B	
C	

HYDROGRAPHIC SHEET NO. _____

U. S. C. AND G. S. SHIP Explorer, J. H. Peters COMMANDING. _____ (Name of Ship) STATION _____

LOCALITY off Cape Flattery DATE May 22, 1940 _____ (Name of Ship) STATION _____

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

Pos. No.	Time 120° W. Mer. h. m. s.	Elapsed Time m. s.	Course PSC	Dev.	Var'n	True	Distance Log Reads	Log Dist.	True Dist.	r	Buoys No.	Station	Distance seconds	Apr'x 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.
							A 23.28	3.28	✓														
							B 92.90	4.1	✓			8:32	Swiftsure	50									
19	8-30-00	15	237			209	C716-096	1.583	✓				Grays Harb	110									
							A 26.59	3.31	✓														
							B 85.0	2.1	✓														
20	45	15	237			209	C717-602	1.586	✓														
							A 29.93	3.34	✓			9:00	Swiftsure	49									
							B 98.2	3.2	✓				Grays Harb	109									
21	9-00-00	15					C719-277	1.595	✓				Col. River	126									
							A 33.25	3.32	✓														
							B 06.3	3.1	✓														
22	15-	15	237				C720-862	1.585	✓														
							A 36.57	3.32	✓			9:34	Swiftsure	48									
							B 14.5	3.2	✓				Grays Harb	105									
23	30	15					C722-450	1.588	✓			9:36	Col River	128									
							A 39.89	3.32	✓														
							B 17.6	3.1	✓														
24	45-	15	237	208		118 Col.	C724-035	1.585	✓														
							A 43.18	3.29	✓			10:07	Swiftsure	50									
							B 10.7	3.1	✓				Columbia	120									
25	10-00-00	15					C725-607	1.576	✓														
							A 46.71	3.53	✓														
							B 14.1	3.4	✓														
26	16	16					C727-208	1.678	✓														
							A 49.80	3.09	✓			10:36	Swiftsure	50									
							B 17.0	2.9	✓				Col. River	117									
27	30	14					C728-745	1.479	✓														

U. S. GOVERNMENT PRINTING OFFICE 11—21514

#4

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
FORM NO. 722
Ed. May 1925

LOG NO.	FACTOR
A Meridan	
B Taffrail	
C R.C.	

R. A. R. AND DEAD RECKONING ABSTRACT

HYDROGRAPHIC SHEET NO. _____

U. S. C. AND G. S. SHIP EXPLORER, J H Peters COMMANDING. _____ (Name of Ship) STATION _____

LOCALITY Sw. of Cape Flattery DATE May 22, 1940 _____ (Name of Ship) STATION _____

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

Pos. No.	Time	Elapsed Time		Course				Distance				Bons			Aft'n Horiz. Velocity		Wind		Time	Current			Buoy Anchor to Hydrophone	
	120 Mer.			PSC	Dev.	Var'n	True	Log Reads	Log Dist.	True Dist.	r	No.	Station	Distance	Assumed	Final	Dir. True	Vel.		Station	Dir.	Vel.	Distance	Dir.
	h. m. s.	m.	s.											seconds			degrees	mi./hr.	h. m. s.			knots		
28	10 45 -						236.5	A 53.09	3.29															
								B 20.2	3.2															
								C 730-817	1582															
29	10-54 -							A 55.15	2.06						decreased speed to 8 kt. (115)									
								B 22.1	1.9															
								C 731-320	973															
30	11-00-00							A 56.46	1.31					11:03	98°-Grays Harb.									
								B 23.3	2.20						114°-Columbia Riv.									
								C 731-968	648						50°-Swiftsure Bank									
31	15-00			230	Star		232	A 59.95	3.49															
								B 26.7	3.4															
				237	208		213	C 733-680	1,712							Sun-Bad 12°53' E deviation at 11:15								
32	30 -							A 63.42																
								B 29.9																
								C 735-380																
33	45 -							A 66.90																
								B 32.3																
								C 739-098																
34	12-00-00			237				A 70.40																
								B 36.6																
								C 738-830																
35	.15 -							A 74.00							12:05 Shiftown		49							
								B 40.00							Grays Harb		91							
								C 740-580							Col. Riv		109							
36	.30 -			237	207		212	A 97.45																
								B 43.35																
								C 742-262																

U. S. GOVERNMENT PRINTING OFFICE 11—11814

#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 Meridian	.95
B Taffrail	.99
C Rev. Count	

HYDROGRAPHIC SHEET NO. _____

U. S. C. AND G. S. SHIP Explorer, J.H. Peters COMMANDING. _____ (Name of Ship) STATION _____

LOCALITY S.W. of Cape Flattery DATE May 22, 1940 _____ (Name of Ship) STATION _____

$r = \frac{\text{distance between fixed positions}}{\text{log distance}}$

DAY _____ EXPLODER (Name of Ship) STATION _____

Pos. No.	Time 120 Mer. h. m. s.	Elapsed Time m. s.	Course Pg	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.
							A 80.99						seconds	Swiftsure	52								
37	12-45-00		237	+1½	-4	236.5	B 46.7						12:40	Yaquina Hd	130								
							C 743987																
							A 84.47	14.07						Umatilla	56								
38	13 00 00	15	—				B 50.1	13.5				1302		Swiftsure	52								
							C 745100	13.34						Yaquina Head	127								
							A 88.02																
39	15 —	15	—				B 53.5																
							C 747426																
							A 91.54							Swiftsure	50								
40	30 —	15	—				B 56.9							Yaquina Head	125								
							C 749156																
							A 95.05																
41	45 —	15					B 60.25																
							C 750898																
							A 98.54	14.07						Grays Harbor	98	?							
42	14 00 —	15	10				B 63.6	13.5						Swiftsure	49								
							C 752594																
							A 02.16																
43	15 —	15	00.0				B 67.00																
							C 754317																
							A 05.58																
44	30	15	—				B 70.4																
							C 756039																
							A 09.12																
45	45	15	—				B 73.8																
							C 757770																

U. S. GOVERNMENT PRINTING OFFICE 11—11534

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
FORM NO. 722
Ed. May 1935

R. A. R. AND DEAD RECKONING ABSTRACT

Log factors based on 2-30 position to 15 00 position May 22 #6

Log No.	Factor
A Pat M	.97
B Taft	.99
C Rev.	

HYDROGRAPHIC SHEET NO. _____

U. S. C. AND G. S. SHIP EXPLORER, J. H. PETERS COMMANDING. _____ (Name of Ship) STATION _____

LOCALITY Off Cape Flattery DATE MAY 22 1940 _____ (Name of Ship) STATION _____

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

Pos. No.	Time 120 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.	Tides h. m. s.	Current Station	Current Dir.	Current Vel. knots	Buoy Anchor to Hydrophone Distance	Buoy Anchor to Hydrophone Dir.
					Lee		A 13.63	14.08	13.38					Yaquina Head	120								
46	15 00 —		237	4½	-2	236½	B 77.2		13.46					Swiftsure	49								
							C 769450		13.38					Blanco	83								
							A 16.11																
47	15						B 80.5																
							C 761185																
							A 19.60																
48	30						B 83.8																
							C 762892																
							A 23.11																
49	45						B 87.3																
							C 764620																
							A 26.59	13.97	13.30														
50	16 00						B 90.76																
							C 766372																
			4c				A 30.06																
51	15		235	+1½	—	236½	B 94.0																
							C 768036																
							A 33.53	20.91						Yakina Head									
52	30		"				B 99.4	20.2						Columbia R	95°								
							C 769046	19.57															
							A 37.01																
53	45		"			236½	B 100.80																
							C 771462																
							A 40.48	13.87	13.69	.97													
54	17-00 —		"			236½	B 104.12	13.5	13.48	.99													
							C 773180																

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	97
B	99
C	

HYDROGRAPHIC SHEET NO. _____

U. S. C. AND G. S. SHIP EXPLORER, J H PETERS COMMANDING. _____ (Name of Ship) STATION _____

LOCALITY off CAPE FLATTERY DATE MAY 22, 1960 _____ (Name of Ship) STATION _____

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

Pos. No.	Time 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 (seconds)	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.
							A 43.97																
							B 7.6					17:18	Yaquino Head	11.4	radio DF								
55	17-15-		235	1½ pg		236½	C 77490																
							A 47.47																
							B 11.1																
56	30						C 77665.1																
							A 51.96																
							B 14.5																
57	45-						C 77836.3																
							A 54.46		13.67														
							B 18.0		13.56														
58	18-00-00						C 78008.1																
							A 57.95	3.49															
							B 21.4	3.4															
59	-15-00	c/c to =	233	1½		234½	C 781-812	1.731															
							A 61.47	3.48															
							B 24.8	3.4															
60	30						C 783.526	1.714															
							A 64.91																
							B 28.2																
61	45						C 785.240																
							A 68.39	3.48															
62							B 31.70	71.0															
~~46~~	19-00	c/c	168°	+ 1½		165½	C 785.70	85.40															
							A 69.88	1.46	14.2														
63							B 32.4	14.4															
~~47~~	19-03	c/c	168°	+ 1½		164½	C																

U. S. GOVERNMENT PRINTING OFFICE 11—11514

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DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
FORM NO. 722
Ed. May 1935

LOG NO.	FACTOR
A Merid.	97
B Taff	99
C	

R. A. R. AND DEAD RECKONING ABSTRACT

HYDROGRAPHIC SHEET NO. _____

U. S. C. AND G. S. SHIP Explorer, J.H. Peters COMMANDING. _____ (Name of Ship) STATION _____

LOCALITY Cape Flattery DATE May 22, 40 _____ (Name of Ship) STATION _____

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

C: RC

Pos. No.	Time Mer. h. m. s.	Elapsed Time m. s.	Course 940 PSC	Dev.	Var'n	True	Distance Log Reads	Log Dist.	True Dist.	r	Bomb No.	Station	Distance seconds	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.
							A 71.91																
							B 35.1																
64	19-15-00		168°	+1½		168½	C 78680																
							A 75.43																
65	30-00						B 88.06																
							C 790394																
							A 78.93																
66	45-00						B 42.10																
							C 792110																
							A 82.44		12.9														
67	20-00-00						B 45.6		13.1														
							C 793840																
							A 85.96	3.52															
68	15-00						B 49.1	3.5															
							C 795550	1716															
							A 89.49	3.53															
69	30-		144° Star				B 52.6	3.5										1					
							C 797	1743															
							A 93.00	3.51															
70	45						B 56.1	3.5															
							C 799-419	1720															
							A 96.54	3.54	14.10	13.7													
71	21-00						B 59.6	3.5	14.0	12.9													
							C 800-750	1.721															
							A 00.10	3.56															
72	15						B 63.1	3.5															
							C 802495	1.745															

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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 Her.	97
B Taff	99
C R.C.	

HYDROGRAPHIC SHEET NO. _____

U. S. C. AND G. S. SHIP Explorer, J.H. Peters COMMANDING. _____ (Name of Ship) STATION _____

LOCALITY SW Cape Flattery. DATE May 22, 1940 _____ (Name of Ship) STATION _____

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

Pos. No.	Time 120° W Mer.	Elapsed Time		Course PSC	Dev.	Var'n	True	Distance Log Reads	Log Dist.	True Dist.	r	Buoy No.	Station	Distance	Aff't Horiz. Velocity Assumed	Final	Wind Dir. True	Vel.	Time	Current Station	Dir.	Vel.	Buoy Anchor to Hydrophone Distance	Dir.
	h. m. s.	m.	s.											seconds			degrees	mi./hr.	h. m. s.			knots		
								A 03.60											Supreme					
								B 66.6																
73)	21-30-00						19½	C 804-225											91° ?					
								A 07.10																
								B 70.1																
74)	-45-							C 805960																
								A 10.50	12.96	13.4					Cape Disappointment	T	8½	T	Portland	Air Beacon				
								B 73.5	13.94	13.8					Cape Blanco	T	13½	T	interferes	with radio				
75)	22-00-00	Stopped						C 807600							Yaquina Head	T	10½	T	compass	bearings				
		for serial temperature.						A																
	May 23							B																
								C																
								A																
								B																
	03 58 —	swing right to		270				C 808128																
								A 11.20	42.81	✓														
	04 06			270	+1½		21½	B																
					9 kn			C 808347	22.047	✓														
								A																
								B																
76)	04 07			270	Stop	speed	21½	C																
								A																
								B																
								C																
								A																
								B																
								C																

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 Mer	
B Taff.	
C Rc	

R. A. R. AND DEAD RECKONING ABSTRACT

HYDROGRAPHIC SHEET NO. _____

U. S. C. AND G. S. SHIP EXPLORER, J. H PETERS COMMANDING. _____ (Name of Ship) STATION _____

LOCALITY offshore SW. CAPE FLATTERY DATE MAY 23, 1940 _____ (Name of Ship) STATION _____

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

Pos. No.	Time 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	Final	Wind Dir. True (degrees)	Vel. (mi./hr.)	Time h. m. s.	Current Station	Dir.	Vel. (knots)	Buoy Anchor to Hydrophone Distance	Dir.
			(245°		STA	)	A 12.03																
			(248°		WA	)	B 74.7																
11	04-12-00		268½		PGC	4/10	C 808985				(Gyro damping off.							line begins.					
				4 ½			A 16.23																
12	04-30--		"				B 78.6																
							C 809945																
							A 19.60																
13	04-45-		"				B 82.0																
							C 812659																
							A 23.7																
4	05-00						B 85.4																
							C 814387																
							A 23.07																
5	05-03						B																
							C 814649					Half speed											
							A 27.95												Obs Amplitude				
6	05-30						B 90.2												Gyro Error 1.7° Ely.				
							C 816650							Standard speed.									
	32-		178.5		PGC	1/10	A 29.41	12.21															
			215				B 91.6	"															
7	05-37						C 817442	2.90.5															
							A 30.74																
8	45						B 92.9																
							C 817907																
							A 31.40																
9	✓✓						B 94.0																
							C 818560																

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U. S. COAST AND GEODETIC SURVEY
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R. A. R. AND DEAD RECKONING ABSTRACT

LOG NO.	FACTOR
A	
B	
C	

HYDROGRAPHIC SHEET NO. _____

U. S. C. AND G. S. SHIP EXPLORER, J H Peters COMMANDING. _____ (Name of Ship) STATION _____

LOCALITY Facific Coast offshore Sw C. FLATTERY DATE MAY 23, 1940 _____ (Name of Ship) STATION _____

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

POS. NO.	TIME 120 Mer.	ELAPSED TIME		COURSE				DISTANCE				BOMB			APP'T HORIZ. VELOCITY		WIND		TIME	CURRENT			BUOY ANCHOR TO HYDROPHONE	
				PSC	Dev.	Var'n	True	Log Reads	Log Dist.	True Dist.	r	No.	Station	Distance	Assumed	Final	Dir. True	Vel.		Station	Dir.	Vel.	Distance	Dir.
	h. m. s.	m.	s.											seconds			degrees	mi./hr.	h. m. s.			knots		
								A 33.50																
								B 95.6																
10	06-00 —			178.5	+1.5		180°	C 819310																
								A 36.97																
11	06-15 —			"				B 99.1																
								C 821045																
				c/c				A 40.44	11.03 ✓															
12	06-30 —			88½			90°	B 2.5	10.9 ✓															
								C 8272763	535 ✓															
								A																
	06 31			0/c 88½			90°	B																
								C																
								A 44.91																
13	06-45			"				B 6.1																
								C 82449 ✓																
								A 47.36																
14	07-00			"				B 9.5																
								C 826404																
				Comp	69.9 std			A 51.83																
15	07-15				72.5 wh			B 12.9																
					87.0 94 wo			C 827918																
								A 54.31																
16	30			c/c				B 16.5	13.9															
								C 829640																
	30-45			c/c 48½			99.0	A 57.74	17.3 ✓											Damping		on		
17	45			c/c 46.5			90°	B 19.8	17.3 ✓															
								C 831355	13558 ✓															

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Log No.	Factor
A Mer.	97
B Tel.	99
C R.C.	

R. A. R. AND DEAD RECKONING ABSTRACT

HYDROGRAPHIC SHEET No. _____

U. S. C. AND G. S. SHIP EXPLORER, JH Peters COMMANDING. _____ (Name of Ship) STATION _____

LOCALITY SW of CAPE FLATTERY DATE MAY 23 1940 _____ (Name of Ship) STATION _____

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

Pos. No.	Time 120 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 seconds	App'r 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.
18	08:00:00		46.5	1½ pgc.		48°	A 61.17																
							B 23.2																
							C 833063																
19	15		46.5 pgc.		33 Steer		A 14.62																
							B 26.7																
							C 834-777																
20	30-						A 68.10																
							B 30.2																
							C 836-500																
21	45-						A 71.50																
							B 33.7																
							C 838-223																
22	19-00-00						A 75.00	13.83	13.3														
							B 37.1	13.9	13.8														
							C 839-949	6886	114.8														
23	15-						A 78.88																
							B 40.7																
							C 841-671																
24	30						A 82.01																
							B 44.1																
							C 843-388																
25	45						A 85.43																
							B 47.6																
							C 845-1061																
26	10-00-00						A 88.90	13.90	13.4														
							B 51.1	14.0	13.9														
							C 846-921	6872	114.5														

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R. A. R. AND DEAD RECKONING ABSTRACT

LOG NO.	FACTOR
A Merid.	97
B Taff	99
C Rev Cent.	

HYDROGRAPHIC SHEET NO. _____

U. S. C. AND G. S. SHIP Explorer, J.H. Peters COMMANDING. _____ (Name of Ship) STATION _____

LOCALITY SW of Cape Flattery. DATE May 23, 1940 _____ (Name of Ship) STATION _____

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

POS. NO.	TIME 120 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.
				34° Star Cap.			A 92.37																
				24 Star			B 54.6																
27	10-15-00		46½	1½	—	48°	C 848-539																
							A 95.83																
28	30-		46½	1½		48°	B 58.0																
							C 850-252																
				34 Star Cap.			A 77.29																
29	45-		46½	1½		48°	B 61.5																
							C 851-970																
				35 Star Cap.			A 02.76	13.86 ✓	13.5														
30	11-00-00		46½	+1½		48°	B 65.0	13.9 ✓	13.8 13.6														
							C 853-890	6.869 ✓	114.5														
				24 Star			A 06.22																
				36 Star Cap.			B 68.4																
31	15-		46½	+1½		48°	C 855-405																
							A 09.69																
							B 71.9																
32	-30-						C 857-122																
							A 13.14																
							B 75.3																
33	45						C 858-736																
							A 16.59	13.83	13.5														
							B 78.8	13.8	13.7 13.6														
34	12:00:00		46½	+1½		48°	C 860-545	6.855	114.3														
							A 20.07																
							B 82.2																
35	15						C 862-277																

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Log No.	Factor
A Mer	97
B Taff	99
C Rov. Gun	

R. A. R. AND DEAD RECKONING ABSTRACT

HYDROGRAPHIC SHEET NO. _____

U. S. C. AND G. S. SHIP Explorer, SH Peters COMMANDING. _____ (Name of Ship) STATION _____

LOCALITY Coast of Oregon DATE May 23, 1940 _____ (Name of Ship) STATION _____

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

Pos. No.	Time (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	App't Horz. Velocity Assumed	Final	Wind Dir. True	Vel.	Time h. m. s.	Current Station	Dir.	Vel.	Buoy Anchor to Hydrophone Distance	Dir.
													seconds			degrees	mi./hr.				knots		
36	12 30 —	gyro / standard / steering	46.5 / 25.1 / 37.2	15.5E / 5.5W / 3.5W	23.0E / 23.0E	48.0 / 42.4 / 51.2	A 23.54 / B 85.87 / C 864005																
37	45 —						A 27.01 / B 89.2 / C 865735																
38	13 00	gyro	46.5	+1	+1	48	A 30.46 / B 92.7 / C 867461	13.87 / 13.91 / 13.42	13.47 / 13.76 / 13.42														
39	15						A 34.18 / B 76.4 / C 869310																
40	30.	gyro / standard / steering	44.5 / 21.8 / 35.3	2° allowance for leeway		49.0 / 39.8 / 49.5	A 37.42 / B 99.6 / C 870921									340	10						
41	45						A 40.89 / B 03.0 / C 872649																
42	14 00 —						A 44.35 / B 06.4 / C 874370	13.89 / 13.74 / 13.42	13.46 / 13.42					Sun az. obs.		gyro error =		0.6	E				
43	15						A 47.82 / B 09.9 / C 876096																
44	30						A 51.29 / B 13.3 / C 877819																

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R. A. R. AND DEAD RECKONING ABSTRACT

LOG NO.	FACTOR
A Mor	.97
B Taff	.99
C RC	

HYDROGRAPHIC SHEET NO. _____

U. S. C. AND G. S. SHIP Explorer, J H Peters COMMANDING. _____ (Name of Ship) STATION _____

LOCALITY Coast of Oregon DATE May 23 1940 _____ (Name of Ship) STATION _____

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

Pos. No.	Time 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.
					Ker		A 57.75																
45	14 45		44	1 1/2	47°	47°	B 16.8																
							C 879 540																
							A 58.21	13.86															
46	15 00						B 20.2	13.8															
							C 881 262	6892	13.38														
							A 61.66																
47	15						B 23.6																
							C 882 985																
							A 65.10																
48	30						B 27.0																
							C 884 702																
							A 66.70	108.76															
49	37 30		13°	1/2	1 1/2	15	B 28.6	108.8															
							C 885 500	5449															
		standard	350.6				A 68.51																
50	45	sleeping	03.2				B 30.4																
		9 to 10	13				C 886 413																
							A 72.92																
51	16 00						B 33.8																
							C 888 130																
							A 75.34																
52	15 –		13°	1 1/2		15	B 37.2																
							C 889 8	49															
							A 78.75																
53	30 –						B 40.6																
							C 891 564																

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LOG NO.	FACTOR
A M-	97
B T	99
C RC	

R. A. R. AND DEAD RECKONING ABSTRACT

HYDROGRAPHIC SHEET NO. _____

U. S. C. AND G. S. SHIP EXPLORER, J. H. Peters COMMANDING. _____ (Name of Ship) STATION _____

LOCALITY Pacific Coast SW. of CAPE FLATTERY DATE MAY 23 1940 _____ (Name of Ship) STATION _____

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

Pos. No.	Time Mer. h. m. s.	Elapsed Time m. s.	Course PSC	Dev.	Var'n	True	Distance Log Reads	Log Dist.	True Dist.	r	Bows No.	Station	Distance	Aff't Horz. Velocity Assumed	Final	Wind Dir. True	Vel.	Time h. m. s.	Current Station	Dir.	Vel.	Buoy Anchor to Hydrophone Distance	Dir.
													seconds			degrees	mi./hr.				knots		
							A 82.17																
							B 44.0																
54	16-45-00						C 893297																
							A 84.76	12.16	✓														
				1/4	1104 γ		B 46.6	18.6	✓														
55	52		96	45	1/2	48 pac	C 894088	8584	✓														
							A 85.55																
56	17-00-00			11			B 47.3																
							C 894997																
							A 89.70																
57	-15-00		45 9/2	+ 11/2	Lee 0 2	48	B 50.8																
							C 896730																
							A 92.46																
58	-30-00		"	"	"	"	B 54.2																
							C 898453				(17:34 Obs Sun Azl.)					gyro error 2.7 E			0 1				
							A 96.89																
59	45-00		"	"	"	"	B 57.6																
							C 900168																
							A 99.33	13.78															
60	18-00-00						B 61.0	13.7	13.3														
							C 901894	6302	✓														
							A 02.76																
61	18-15-00						B 64.3																
							C 903610																
			25° stbd				A 06.21	21.45	✓			Swiftsure		42									
		Comp	36 w.h				B 67.7	21.1	✓	RC Rear		Umatilla		55		pgc							
62	30-00		48° pac				C 905333	41125	✓			Grays Hbr		98									

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DEPARTMENT OF COMMERCE
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R. A. R. AND DEAD RECKONING ABSTRACT

LOG NO.	FACTOR
A M.	
B T.	
C R.C.	

HYDROGRAPHIC SHEET NO. _____

U. S. C. AND G. S. SHIP EXPLORER, J H PETERS COMMANDING. _____ (Name of Ship) STATION _____

LOCALITY Pacific Coast SW of CAPE FLATTERY DATE MAY 23 1940 _____ (Name of Ship) STATION _____

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

POS. NO.	TIME 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 seconds	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.
					bee		A 09.64																
63	18-45 –		155	+1/4	N	48	B 71.1																
							C 907053																
							A 13.08																
64	19-00-00						B 74.5		(13.4)														
							C 908776																
							A 16.52																
65	19-15-						B 77.9																
							C 910552																
							A 20.95																
66	19:30 –						B 81.2																
							C 912																
							A 23.41																
67	19:45		44.5	+1/2	3	48	B 84.6																
							C 913940																
							A 26.85																
68	20:00 –		Comp	345 – psc 34.0 w/h 45.0 gyro			B 88.0		(13.4)														
							C 915654							AMPL –		Gyro	Error		1.6°	E/W			
							A 30.12																
69	20:15:00		43½	+1½	+3	48	B 91.3																
							C 917370																
							A 93.73	22.52	✓			Gr Mtn	1½°	at 2031									
70	20:30 –		"	"	"	"	B 94.7	22.0	✓			Umatilla	53	2032									
							C 919088	13.754	✓			Swiftsure	37°	2032½ & 43 & 39									
							A 37.18																
71	20:45 –						B 98.1																
							C 920915																

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DEPARTMENT OF COMMERCE
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Log No.	Factor
A Mer	0.97
B Jeff	0.97
C Rd.	

R. A. R. AND DEAD RECKONING ABSTRACT

HYDROGRAPHIC SHEET No. _____

U. S. C. AND G. S. SHIP Explorer, J. H. Pitts COMMANDING. _____ (Name of Ship) STATION _____

LOCALITY Pacific Coast SW of Cape Flattery DATE MAY 23 1940 _____ (Name of Ship) STATION _____

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

Pos. No.	Time	Elapsed Time		Course				Distance				Bomb			App't Horiz. Velocity		Wind		Time	Current			Buoy Anchor to Hydrophone	
				PSC	Dev.	Var'n	True	Log Reads	Log Dist.	True Dist.	r	No.	Station	Distance	Assumed	Final	Dir. True	Vel.		Station	Dir.	Vel.	Distance	Dir.
	h. m. s.	m.	s.			Lee								seconds			degrees	mi./hr.	h. m. s.			knots		
								A 40.62	13.77	13.2														
								B 01.40	13.4	13.2														
72	21-00-00			43½	1½	3	48	C922525	6891															
				35°	Steering Course			A 44.06																
					+	+3		B 04.7																
73	15-			43½	1½	3	48°	C924247																
					+	+		A 47.47																
								B 08.0																
74	30			40½	1½	3	48°	C925949																
								A 50.93																
								B 11.4																
75	45			Same				C927677																
								A 54.35	13.75	13.2														
								B 14.7	13.3	12.8	12.9													
76	22-00-00				Same			C929377	6852	114.2														
								A 57.89																
								B 18.0																
77	22-15-00				Same			C931092																
								A 61.19	37.46						Gray Hbr	127								
								B 21.3	25.6						Unmatable	6r								
78	22 30				Same			C932804	13716						Swiftsure	38								
								A 64.58																
								B 24.6																
79	22 45							C934519																
								A 68.00	13.65	13					Unmatable	66								
								B 27.9	13.2	12.8	12.9				Swiftsure	37								
80	23 00							C936730	6853	114.					Grayhbr	125± (Poor)								

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19

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 Her	97
B Tak	97
C RC.	

HYDROGRAPHIC SHEET NO. _____

U. S. C. AND G. S. SHIP Explorer, J. H. Peters COMMANDING. _____ (Name of Ship) STATION _____

LOCALITY Pacific Coast SW. Cape Flattery. DATE May 23, 1940 _____ (Name of Ship) STATION _____

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

Pos. No.	Time 120° W 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 seconds	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.
			35° sta. dep.				A 71.42																
							B 31.9																
81	23-15-00		43½	+1½	+3	48°	C937.99																
							A 74.85																
							B 34.6																
82	-30-		same				C939.660																
							A 75.27																
							B 37.9																
83	-45-		same				C941.381																
							A 81.69	1349	13.2														
							B 41.3	13.4	13.0														
84	24-00-00						C942.185	681.5	114.5														
	May-24th						A 85.11																
							B 44.6																
85	-15-						C944.810																
			34 stg.				A 88.53							Swiftsure L.V. bears		32°	Log	89.3					
			23.9 stand.				B 48.0						40:32	Umatilla L.V. "		78	"	88.9					
86	-20-		43½	+1¼	+3	46°	C946.584																
							A 91.94																
							B 51.3																
87	-45-		"				C949.249																
							A 95.37							Umatilla L.V. bears		90° gyro		Log 95.76					
							B 54.8						1:02	Swiftsure L.V. "		28° "		" 96.04					
88	1-00-00		"				C949.957																
							A 98.80																
							B 58.0																
89	-15-		-				C951.675																

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DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
FORM NO. 722
Ed. May 1935

20/ 6

LOG NO.	FACTOR
A Mer.	
B Taff.	
C R.C.	

R. A. R. AND DEAD RECKONING ABSTRACT

HYDROGRAPHIC SHEET NO. _____

U. S. C. AND G. S. SHIP Explorer, J. H. Peters COMMANDING. _____ (Name of Ship) STATION _____

LOCALITY Pacific Coast, S.W. Cape Flattery DATE _____ _____ (Name of Ship) STATION _____

$r = \frac{\text{distance between fixed positions}}{\text{log distance}}$

DAY _____ _____ (Name of Ship) STATION _____

POS. NO.	TIME 120 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 02.25	41.06 ✓															
							B 61.4	40.1 ✓					1:32	Tatoosh	L.V. bears		65½°	Log =	03.65				
90	1:30.00						C 95339.0	20.96 ✓					1:36	Umatilla	L.V. "		110	Lg =	03.95	R.C. &	Visual. ✓		
							A						"	Swiftsure	L.V. "		25°	" =	"				
							B												Line ends.				
							C																
							A																
							B																
							C																
							A																
							B																
							C																
							A																
							B																
							C																
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							B																
							C																
							A																
							B																
							C																
							A																
							B																
							C																
							A																
							B																
							C																

U. S. GOVERNMENT PRINTING OFFICE 11—11514

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
FORM No. 717
Ed. May 1935

SHEET NO. 1
OF 1 SHEETS

RECORD OF TEMPERATURES, SALINITIES, AND THEORETICAL VELOCITIES

U. S. C. and G. S. Ship EXPLORER, J H Peters, Commanding

Project ....., Locality SW. Cape Flattery, Wash., 5/22-23/40, 19

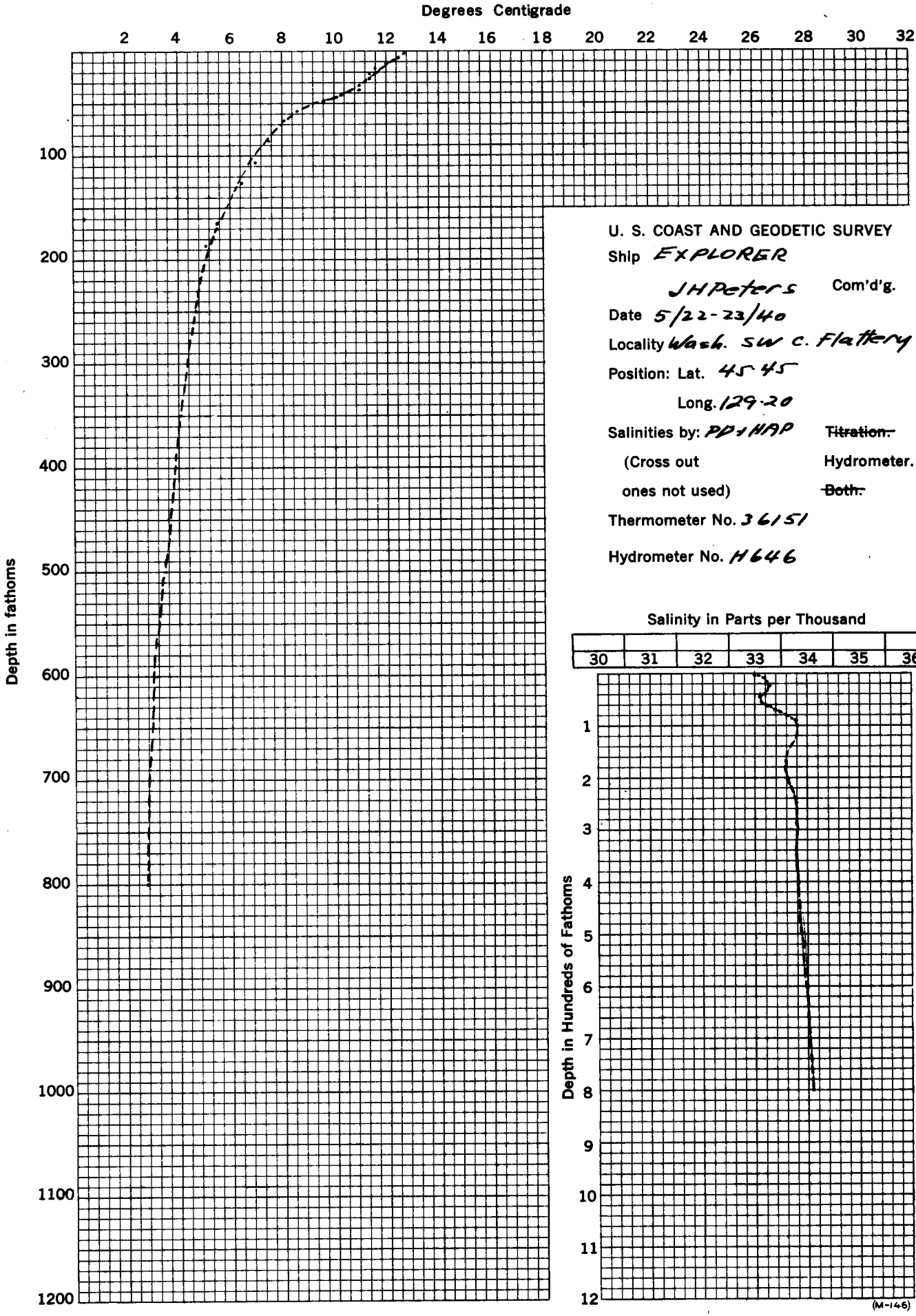
*Date	Time 120 mer.	Latitude	Longitude	Depth *	Specific Gravity	At Temp.	Salinity †	Temp. at Depth	Velocity (Theoretical)	Comp. by—	Check. by—	REMARKS
1940	h. m.	° ′	° ′	Fathoms		°C.		°C.	Meters/Sec.			
5/22	23:20	45 45	129 20	2	10248	12.9	33.0	12.7	1494.1	E.L.	R.H.T	Ther. # 361151
	:24			7	49	12.8	.1	12.5	93.6			
	:28			12	50	12.5	.2	12.0	92.2			
				17	51	12.2	.1	11.6	90.7			
				22	52	12.2	.3	11.5	90.8			
				27	52	12.1	.3	11.5	91.0			
				32	52	12.1	.3	11.0	89.3			
				37	52	12.0	.2	11.0	89.4			
				42	52	11.9	.1	10.3	87.0			
5/23				47	53	11.8	.3	9.6	84.7			
				57	53	11.2	.2	8.6	81.2			
				67	55	11.0	.4	8.1	80.0			
				87	57	11.4	.8	7.5	78.8			
				107	58	10.9	.8	7.0	77.5			
				127	57	11.0	.7	6.5	76.0			
				167	56	11.2	.6	5.5	73.1			
				187	59	9.5	.7	5.2	72.8			
				250	60	9.1	.8	4.7	72.9			
				350	60	9.5	.8	4.1	73.7			
				500	61	9.0	.9	3.5	76.2			
	02:00			800	60	11.0	34.1	2.7	82.9			
				1450	60	11.4	.2	(2.7)	(1503.0)			61 M Ther. crushed
				Ther # 360416 crushed on another try								
	Rev. Th. 361151											
	Hyd. H646											
	Ther. 32694 BS.											

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

U. S. GOVERNMENT PRINTING OFFICE 11—11600

J. R. P.

GRAPH OF WATER TEMPERATURES AND SALINITIES



U. S. COAST AND GEODETIC SURVEY

Ship EXPLORER

J H Peters Com'd'g.

Date 5/22-23/40

Locality Wash. SW C. Flattery

Position: Lat. 45 45

Long. 129 20

Salinities by: PD + HAP ~~Titration.~~

(Cross out Hydrometer.

ones not used) ~~Both.~~

Thermometer No. 36151

Hydrometer No. H646

J.R.P.

FATHOMETER CORRECTIONS

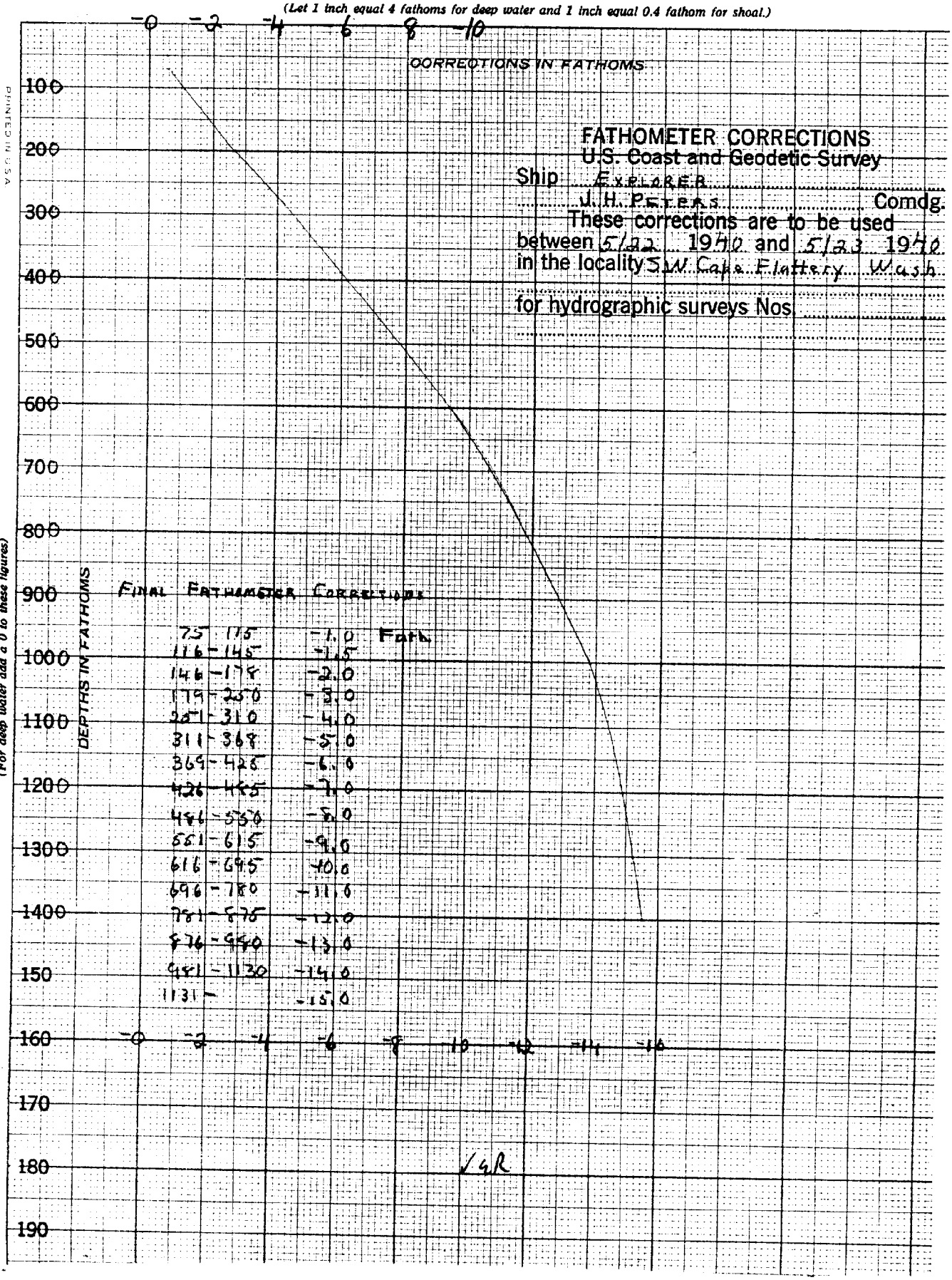
Tables I & III
Vel. = 820 fath/sec
= 1499.6 m/sec

Depth	Temp	Mean T	Sal	Mean Sal	Factor	Corr'n. fath
2	12.7					
7	12.5	12.6				
12	12.0	12.4				
17	11.8	12.2				
22	11.7	12.1				
27	11.3	12.0				
32	11.0	11.8				
37	10.6	11.7				
42	10.1	11.5				
47	9.6	11.3				
52	9.1	11.1				
57	8.6	11.0		33.5		
62	8.3	10.7				
67	8.1	10.5				
72	7.9	10.4				
77	7.8	10.2			-0.0092	-0.71
82	7.6	10.0			97	.80
87	7.5	9.9			100	.87
92	7.3	9.8			103	.95
97	7.2	9.6			107	-1.04
102	7.0	9.5			110	-1.12
120	6.6	9.0			122	-1.46
140	6.2	8.6			132	-1.85
160	5.6	8.3			140	-2.27
180	5.3	7.9			151	-2.72
200	5.0	7.6			158	-3.16

Depth	Temp.	Mean T in layer	Sal	Mean Sal in Layer	Vel in 200 fm layer	Vel-Surf. to depth	factor	Corr. in fath.
0								
200	5.0	7.6	33.8	33.5	1479.2	1479.2	-0.0136	-2.7
400	3.8	4.4	33.9	33.8	73.3	76.2	156	-6.2
600	3.2	3.5	34.0	34.0	76.3	76.2	156	-9.4
800	2.7	3.0	34.1	34.0	80.8	77.4	148	-11.8
1000	(2.2)	(2.4)	34.1	34.1	84.9	78.9	138	-13.8
1200	(2.0)	(2.1)	34.2	34.2	90.5	80.8	124	-14.9
1400	(1.8)	(1.9)	34.2	34.2	96.2	83.0	111	-15.5
1								

I.J.R.A.

(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 EXPLORER
J. H. PETERS Comdg.
These corrections are to be used
between 5/22 1940 and 5/23 1940
in the locality SW Cape Flattery Wash
for hydrographic surveys Nos

FINAL FATHOMETER CORRECTIONS

75	115	-1.0 Fath
116	-145	-1.5
146	-178	-2.0
179	-250	-3.0
251	-310	-4.0
311	-368	-5.0
369	-425	-6.0
426	-485	-7.0
486	-550	-8.0
551	-615	-9.0
616	-695	-10.0
696	-780	-11.0
781	-875	-12.0
876	-950	-13.0
951	-1130	-14.0
1131	-	-15.0

(For deep water add a 0 to these figures)

✓ GR

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U. S. COAST AND GEODETIC SURVEY
FORM NO. 719
Ed. May 1935

Sheet No. 1 of ____ sheets

ASTRONOMIC SIGHT FOR HYDROGRAPHIC CONTROL

U. S. C. & G. S. Ship Explorer, J H Peters Commanding. Date (A. M.) (P. M.) May 22, 19 40

Project ____ Locality ____

Celestial object observed ☉, Approximate bearing ____° true. R. A. h. m. s. ____

Dead reckoning position: φ ____ ° ′; λ ____ h. m. s.; λ ____ Course ____° true. δ ____ Height of eye 30 feet. Observer EHB Sextant No. ____ Recorder HAP

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

Log reading ____ Index correction −2′00″ Comp. by EHB

Sid. M. T. Watch No. ____ Sid. M. T. Chronometer No. 576 Checked by S.H.O.

	Watch Time (hrs. min. sec.)	Observed Altitude (° ′ ″)	Notes:
1	8 18 32	63 05 00	
2	20 54	05 00	
3	21 48	05 30	*
4	22 35	04 40	
5			
6			

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

			+	(−)
Sum				
Mean		63 05.5	h_o, observed altitude	
Chron.-watch		−2.0	Index correction	2.0
Chron. time	8-21-48		Arc correction A	15.6
Chron. cor'n 5	6 09		B	0.1
			C	5.4
G. C. T.	20 27 57	+15.6	Dip, refraction, semi-diameter, and parallax	15.6 / 7.65
Eq. of T or R. A. M. S. + 12h		−0.1		
Cor'n, Table III (Naut. Almanac)		−5.4		
G. A. T. or G. S. T.	(.28)	63 − 13.6	h, true altitude	
Longitude	(2h PST)			
L. A. T. or L. S. T.				
R. A.		h	log sec	
Hour angle, t		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.)	at² (Table 27, Bowditch)				
		′ ″	′ ″	′ ″	h	63-13.6
					at²	
					Meridian altitude	
					Zen. dist.	26-46.4
					δ	20-28.6
					φ	47-15.0
			Sum			
			at²			

U. S. GOVERNMENT PRINTING OFFICE 11—11668

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Sheet No. 2 of ____ sheets

ASTRONOMIC SIGHT FOR HYDROGRAPHIC CONTROL

U. S. C. & G. S. Ship Explorer, JH Peters Commanding. Date (A. M.) (P. M.) May 22, 1940

Project ____ Locality Coast of Washington

Celestial object observed ☉, Approximate bearing 243° true. R. A. h. m. s.

Dead reckoning position: φ 46° 47′ Course 238½° true. δ 20° 30′
λ 128° 18′ Height of eye 39 feet. Observer EBB
λ h. 08 m. 34 s. 12 Sextant No. 609 Recorder ____

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

B - Log reading 77.20 Index correction 00-00.0 Comp. by ____
Sid. M. T. Watch No. ____ Sid. M. T. Chronometer No. 576 Checked by SNO.

	Watch Time (hrs. min. sec.)	Observed Altitude (° ′ ″)	Notes:
1	22 53 27.5	49 40 30	8 23 / 1 12 / 8 24 12
2	47.5	49 36 20	
3	54 15.0	49 32 40	08 32 / 1 12
4	39.5	30 20	
5	55 01.0	27 10	
6	19.5	24.50	
Sum	24 150.0	49 189 190	
Mean	22-54-25.0	49-31-57.3	h_o, observed altitude
Chron.-watch		00 00	Index correction
Chron. time			Arc correction
Chron. cor'n +	00 06 09.1		
G. C. T.	23 00 34.1		
Eq. of T or *R. A. M. S.* + 12h +	00 03 25.7	+09 48	Dip, refraction, semi-diameter, and parallax
Cor'n, Table III (Naut. Almanac)	59.8		
G. A. T. or *G. S. T.*	23 03 59.8	49-41-46.3	*h*, true altitude
Longitude −	08 33 12.0		
L. A. T. or *L. S. T.*	14 30 47.8		
R. A.			
Hour angle, *t*	02 30 47.8		
φ	46 47		
δ	20 30		
φ ~ δ	26 17		
Zenith distance	40 17.8		
h (computed)	48 42.2		
h (observed)	49 41.8		
Difference	.4		

150 / 150 / 300

h	✓	log sec	0.189 23
log hav	9.018 64	log sin	9.786 40
log cos	9.835 54 ✓		
log cos	9.971 59 ✓	log cos	9.971 59
log hav	8.875 77 ✓	log sin	9.947 22
nat hav	.07695 ✓	Azimuth	S 62.3° W 242.3
nat hav	.05169 ✓		
nat hav	.17864		

9 8 10 77

For use with Polaris

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

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	

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ASTRONOMIC SIGHT FOR HYDROGRAPHIC CONTROL

U. S. C. & G. S. Ship Explorer, H. J. Peters Commanding. Date May 22, 1940

Project ____ Locality ____

Celestial object observed ☉, Approximate bearing 233° true. R. A. h. m. s. ____

Dead reckoning position: φ 46° 26', Course 233° pgc ° true. δ ____

λ 129° 37', Height of eye 38 feet. Observer Tryon

λ 8h 38m 0.8s, Sextant No. 4609 Recorder ____

Log reading 314.25 Index correction +30" Comp. by ____

Sid. M. T. Watch No. ____ Sid. M. T. Chronometer No. Cruffig Checked by S. N. O.

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

	Watch Time (hrs. min. sec.)	Observed Altitude (° ' ")	Notes:
1	18 38 31	13-51-50	
2	39 27	-42-30	
3	40 04	-34-50	
4	41 09	-25-00	
5	41 44	-18-10	
6	42 11	-14-20	
7	42 54	07-10	
Sum			
Mean	18-40-51.4	13-27-41.4	h_o, observed altitude
Chron.-watch		+ 00-30.0	Index correction
Chron. time		+ 12-00	Arc correction
Chron. cor'n +	8-00-06.6	− 5-24	
G. C. T.	26-40-53.0		Dip, refraction, semi-diameter, and parallax
Eq. of T or R. A. M. S. + 12h	+03-25.0		
Cor'n, Table III (Naut. Almanac)			
G. A. T. or G. S. T.	26-44-18.0	13-34-53.6	h, true altitude
Longitude	8-38-08		
L. A. T. or L. S. T.	18-06-10.0		

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

R. A.		h		log sec	0.01732
Hour angle, t	6-06-00	log hav	9.710 50	log sin	9.99984
φ	46-26	log cos	9.838 34		
δ	20-37	log cos	9.971 49	log cos	9.97149
		log hav	9.520 38	log sin	9.98365
		nat hav	0.331 38	Azimuth	S 74°.4 W 254.4°
φ ~ δ	25-54	nat hav	0.050 22	For use with Polaris	
Zenith distance	76-28	nat hav	0.381 60	h	
h (computed)	13-42.0			Cor'n (Table I, Naut. Almanac)	
h (observed)	13-34.9			φ, latitude	
Difference	07.1 towards				

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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U. S. COAST AND GEODETIC SURVEY
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Sheet No. 4 of ..... sheets

ASTRONOMIC SIGHT FOR HYDROGRAPHIC CONTROL

U. S. C. & G. S. Ship EXPLORER, J H Peters Commanding. Date (A.M.) 5-22, 1940

Project ..... Locality .....

Celestial object observed Venus, Approximate bearing 272 true. R. A. h. m. s. ° ′ ″ Rating of sight (Check one)

Dead reckoning position: φ 46-09 Course ..... ° true. δ ..... Excellent .....

λ 129-25 Height of eye 28 feet. Observer ..... Good ✓

λ h 8- m 37-40 Sextant No. 704 Recorder ..... Fair .....

Log reading ..... Index correction -02-30" Comp. by ..... Poor .....

Sid. M. T. Watch No. Griffiq Sid. M. T. Chronometer No. ..... Checked by ..... Poor .....

	Watch Time (hrs. min. sec.)	Observed Altitude (° ′ ″)	Notes:
1	20 05 46	31 40 20	
2	20 05 40	31 30 50	
3	20 06 06	31 24 20	
4	20 06 43	31 19 50	50
5	20 07 17	31 13 40	
6			
Sum	28 152	127 200	
Mean	20 06 06.4	31 26 04	h_o, observed altitude
Chron.-watch	8 +1.6	-2′30″	Index correction
Chron. time			Arc correction
Chron. cor'n			
G. C. T.	4-06-08.0	-7-56	Dip, refraction, semi-diameter, and parallax
Eq. of T or R. A. M. S. + 12h	[illegible] 40.4		
Cor'n, Table III (Naut. Almanac)	16-01 49.1		
G. A. T. or G. S. T.	20 08 37.5	31-16-28	h, true altitude
Longitude	8-37-40.0		
L. A. T. or L. S. T.	11-30-57.5		
R. A.	6-45-34	h 31-16.7	log sec 10.06821
Hour angle, t	4-45-23.5	log hav 9.53160	log sin 9.97657
φ	46-09	log cos 9.84059	
δ	26-22.1	log cos 9.95229	log cos 9.95229
		log hav 9.32448	log sin 9.99707
		nat hav .21110	Azimuth 83-24 276.7
φ ~ δ	19-46.9	nat hav .02951	For use with Polaris
Zenith distance	58-45.8	nat hav .24061	h
h (computed)	31 15.0		Cor'n (Table I, Naut. Almanac)
h (observed)	16.9		φ, latitude
Difference	1.5 Towards		

71°-21′

180

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

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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Sheet No. 5 of ..... sheets

ASTRONOMIC SIGHT FOR HYDROGRAPHIC CONTROL

U. S. C. & G. S. Ship Explorer, J. H. Peters Commanding. Date {A. M. / P. M.} May 27, 1940

Project ..... Locality SW Cape Hatteras

Celestial object observed Venus, Approximate bearing 275° true. R. A. h. m. s. / ° ′ ″

Dead reckoning position: φ 46 00 Course 168 ° true. δ ..... Rating of sight (Check one)

λ 129 23 Height of eye 30 feet. Observer GW — Excellent ..... Good ..... Fair ✓ Poor .....

λ 8h 37m 32s Sextant No. 22906 Recorder .....

Log reading ..... Index correction −01.0 Comp. by GW

Std. M. T. Watch No. Cutty Std. M. T. Chronometer No. ..... Checked by S. N. A.

	Watch Time (hrs. min. sec.)	Observed Altitude (° ′)	Notes:
For other than sun sights, use italicized elements in this column. 61	20 10 40	37.5	
12	20 09 08	30 51.8	
23	20 09 31	30 48.8	
34	20 09 45	45.0	
45	20 10 04	43.8	
56	20 10 21	40.2	
Sum	19 29	26.1	
Mean	20 09 54.8	30 44.4	h_o, observed altitude
Chron.-watch		−01.0	Index correction
Chron. time			Arc correction
Chron. cor'n	8 00 01.6		
G. C. T.	4 09 56.4	−07.1	Dip, refraction, semi-diameter, and parallax
Eq. of T or *R. A. M. S.* + 12h	16 01 49.1		
Cor'n, Table III (Naut. Almanac)	0 41.1		
G. A. T. or *G. S. T.*	20 12 26.6	30 36.3	*h*, true altitude
Longitude	8 37 32.0		
L. A. T. or *L. S. T.*	11 34 58.6		
R. A.	6 45 34.0		
Hour angle, *t*	4 49 20.6		
φ	46 00		
δ	+26 22.0		
φ ~ δ	19 38.0		
Zenith distance	59 26.9		
h (computed)	30 33.1		
h (observed)	30 36.3		
Difference	3.2 towards −		

h		log sec	0.06517
log hav	9.54193	log sin	9.97841
log cos	9.84177		
log cos	9.95229	log cos	9.95229
log hav	9.33599	log sin	9.99587
nat hav	.21677	Azimuth	277°53′
nat hav	.02907	For use with Polaris	
nat hav	0.24584	*h*	
		Cor'n (Table I, Naut. Almanac)	
		φ, latitude	

309
0207
277.53

run up. 50 min = 11.65 mi.

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			

Wagner

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ASTRONOMIC SIGHT FOR HYDROGRAPHIC CONTROL

U. S. C. & G. S. Ship Explorer, J. A. Peters Commanding. Date (A.M.) May 27, 1940

Project ____ Locality SW Cape Flattery

Celestial object observed Arcturus, Approximate bearing 122° true. R. A. ____ h. m. s.

Dead reckoning position: φ 46 00; λ 124 23; λ h. 8 m. 37 s. Course 168° true. δ ____ ° ′

Height of eye 30 feet. Sextant No. 22906. Observer ____ Recorder ____

Log reading ____ Index correction −01.0 Comp. by ____

Std. M. T. Watch No. Crifly Std. M. T. Chronometer No. ____ Checked by ____

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

C. Clock

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

Tafrail log 51.0

	Watch Time (hrs. min. sec.)	Observed Altitude (° ′ ″)
1	8-21-30	49-59.8
2	8-22-14	50-05.2
3	8-22-43	50-10.2
4	~~8-23~~	
5		
6		
Sum	20 -27	15.2
Mean	8 22 09.0	50 05.1

Notes: Arctur

Chron.-watch		−01.0	Index correction
Chron. time			Arc correction
Chron. cor'n	8 00 01.6		
G. C. T.	4 22 10.6	−06.2	Dip, refraction, semi-diameter, and parallax
Eq. of T or *R. A. M. S.* + 12ʰ	16 01 49.1		
Cor'n, Table III (Naut. Almanac)	0 43.0		
G. A. T. or *G. S. T.*	20 24 42.7	49 57.9	*h*, true altitude
Longitude	8 37 32.0		
L. A. T. or *L. S. T.*	11 47 10.7		
R. A.	14 12 57.8		

Hour angle, *t*	2 25 47.1	log hav	8.990 31	log sec	0.191 63
φ	46 00	log cos	9.841 77	log sin	9.7738
δ	+19 29.6	log cos	9.974 37	log cos	9.974 37
		log hav	8.806 45	log sin	9.939 82
		nat hav	.064 04	Azimuth	119° 28′
φ ~ δ	26 30.4	nat hav	.052 56	For use with Polaris	
Zenith distance	39 56.0	nat hav	.116 60	*h*	
h (computed)	50 04.0			Cor'n (Table I, Naut. Almanac)	
h (observed)	49 57.9			φ, latitude	
Difference	06.1 away				

sun up. 38 min = 8.85 mi.

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 Explorer, J. N. Peters Commanding. Date {A.M. / P.M.} May 22, 1940

Project ..... Locality S.W. Flaherty

Celestial object observed * Arcturus, Approximate bearing 124.7 true. R. A. h. m. s. ..... Rating of sight (Check one)

Dead reckoning position: φ 46° 00' Course 169½° true. δ 19° 29' 34" Observer E.B.R. Height of eye 30 feet. Sextant No. ..... Recorder RHT

λ 129° 23' λ 8h 37m 32s

Log reading 92.2 Index correction −2' 20" Comp. by EBR

Sid. M.T. Watch No. ..... Sid. M.T. Chronometer No. Crafting Checked by CJW

Excellent ..... Good X Fair ✓ Poor 8

	Watch Time (hrs. min. sec.)	Observed Altitude	Notes:
1	20 35 04.5	52-09 50	
2	37 34.0	52-31-20	
~~3~~	~~37 54.5~~	~~38 70~~	
3 4	38 53.0	-42-20	
4 5	39-40.5	-48-30	
5 6	40-38.5	-53-10	
Sum 6	41-17.0	53-00-00	
Mean	~~20 38 32.9~~	52-40-51.6	h_o, observed altitude
Chron.-watch	10 38 49.6	− 02-20	Index correction
Chron. time			Arc correction
Chron. cor'n	+ 8 + 00-01.6		
G. C. T.	4 38 51.2		
Eq. of T or *R. A. M. S.* + 12h	16-01-49.1	− 06.06	Dip, refraction, semi-diameter, and parallax
Cor'n, Table III (Naut. Almanac)	+ 00-45.8		
G. A. T. or *G. S. T.*	20-41 26.2	52-32-25.6	*h*, true altitude
Longitude	8-37-32.0		
L. A. T. or *L. S. T.*	12-03 54.7		

R. A.	14-12-57.8	*h*	52-32.6	log sec	0.21598
Hour angle, *t*	2-09-03.7	log hav	8.88765	log sin	9.72741
φ	46-00	log cos	9.84177		
δ	19-29.6	log cos	9.97437	log cos	9.97437
		log hav	8.70380	log sin	9.91776
		nat hav	0.05055	Azimuth	S 55° 50' E. 134-10
φ ~ δ	26-30.4	nat hav	0.05255	For use with Polaris	
Zenith distance	37 27.5	nat hav	0.10310	*h*	
h (computed)	52 32.5			Cor'n (Table I, Naut. Almanac)	
h (observed) 52-32.6	52 32.4			φ, latitude	
Difference	0.1				

away - - run up 21.2 min @ 233 = 4.8 mi.

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			

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ASTRONOMIC SIGHT FOR HYDROGRAPHIC CONTROL

U. S. C. & G. S. Ship Explorer, H. J. Peters Commanding. Date {A. M. / P. M.} May 22, 1940

Project ..... Locality Sw Cape Hatteras

Celestial object observed Capella, Approximate bearing 310° true. R. A. h. m. s. ° ′ ″

Dead reckoning position: φ 46° 00′ Course 170 168° true. δ

λ 129 23 Height of eye 30 feet. Observer Wayne

λ h. 8 m. 37 s. 32 Sextant No. ..... Recorder Bean

Log reading 72.25 Index correction ..... Comp. by gd

Sid. M. T. Watch No. Gnptim Sid. M. T. Chronometer No. ..... Checked by J. R. P.

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

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

	Watch Time (pm 3) hrs. min. sec.	Observed Altitude ° ′ ″	Notes:
1	08 39 53.0	24 12.0	
2	40 20.5	24 07.5	
3	40 45.0	24 03.0	
4	41 02.0	24 00.9	
5	41 22.5	23 58.0	
6	41 49.0	23 54.8	
Sum	30 245-12.0	144-36.2	
Mean	08-40-52.0 ✓	24-06.0	h_o, observed altitude
Chron.-watch		-01.0	Index correction
Chron. time			Arc correction
Chron. cor'n	8-00 +01.6		
G. C. T.	4 40 53.6 ✓	-07.6	Dip, refraction, semi-diameter, and parallax
Eq. of T or *R. A. M. S.* + 12h	16 01 49.1		
Cor'n, Table III (Naut. Almanac)	0 46.2		
G. A. T. or *G. S. T.*	20 43-28.9	23 54.6	*h*, true altitude
Longitude	8 37 32.0 ✓		
L. A. T. or *L. S. T.*	12 05 56.9		
R. A.	5 12 15.6	h 23 54.6	log sec 10.03897
Hour angle, *t*	6 23 41.3	log hav 9.79435	log sin 9.92797
φ	46 00	log cos 9.84177 ✓	
δ	+45 56.2	log cos 9.84276 ✓	log cos 9.84226
		log hav 9.458 38.475	log sin 9.81920
		nat hav .289 33.2986	Azimuth 312° 17′ T
φ ~ δ	+ 0 03.8	nat hav .00000	For use with Polaris
Zenith distance	64 49.7	nat hav .289 33.2986	h
h (computed)	23 44.5 ~~25 10.3~~		Cor'n (Table I, Naut. Almanac)
h (observed)	23 54.6		φ, latitude
Difference	9.3 T		

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 Explorer, J. H. Peters Commanding. Date (A. M. / P. M.) May 22, 1940

Project ____ Locality ____

Celestial object observed Polaris, Approximate bearing N ° true. R. A. h. m. s. ° ′ ″

Rating of sight (Check one)

Dead reckoning position: φ 46° 00′; λ 129° 23′; λ 8h 37m 32s

Course 168 ° true. δ ____ Height of eye 30 feet. Observer ____ Recorder ____ Sextant No. 27906

Excellent ____ Good ✓ Fair ____ Poor ____

Log reading ____ Index correction −01.0 Comp. by ____ Checked by S. N. O.

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

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

57.2 = Toffmil Lag =

	Watch Time (hrs. min. sec.)	Observed Altitude (° ′ ″)	Notes:
1	8-48-27.0	45-13.0	
2	48-59.0	13.1	
3	49-33.0	12.8	
4	49-54.0	12.9	
5	50-19.0	12.7	
6	50-51.0	12.0	
Sum	248 03.0	16.4	
Mean	20 49 40.5	45 12.75	h_o, observed altitude
Chron.-watch		−1.0	Index correction
Chron. time		46 11.75	Arc correction
Chron. cor'n	+01.6		
G. C. T.	4 49 42.1		Dip, refraction, semi-diameter, and parallax
Eq. of T or *R. A. M. S.* + 12h	16 07 49.5		
Cor'n, Table III (Naut. Almanac)	0 47.6	−06.4	
G. A. T. or *G. S. T.*	20 52 19.8	46-05.35	*h*, true altitude
Longitude	8 37 32.0		
L. A. T. or *L. S. T.*	12 14 46.8		

R. A.	1 42 24.9	*h*		log sec	
Hour angle, *t*	10 32 21.9	log hav		log sin	
φ		log cos			
δ	88 58.65	log cos		log cos	
		log hav		log sin	
		nat hav		Azimuth	
φ ~ δ		nat hav		For use with Polaris	
Zenith distance		nat hav		*h*	45 05.35
h (computed)				Cor'n (Table I, Naut. Almanac)	+ 56.59
h (observed)				φ, latitude	46-01.94
Difference					

run up 10.3 min @ .233 per min = 2.4 miles

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			

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ASTRONOMIC SIGHT FOR HYDROGRAPHIC CONTROL

U. S. C. & G. S. Ship Explorer, Peters Commanding. Date (A. M. / P. M.) May 23, 1940

Project * Polaris Locality

Celestial object observed * Polaris, Approximate bearing N. ° true. R. A. h. m. s.

Dead reckoning position: φ 45° 45′; λ 129° 20′; λ h. 8 m. 37 s. 20

Course Ship stopped ° true. δ

Height of eye 30 feet. Observer RHT

Sextant No. 22906 Recorder

Log reading 11.20 Index correction -1.2 Comp. by RHT

Sid. M. T. Watch No. Sid. M. T. Chronometer No. Griffing Checked by

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 (° ′ ″)	Notes:
1	3 59 21	45 49.1	
2	4 00 58	45 49.6	
3			
4			
5			
6			
Sum	4 00-19		
Mean	04-00-09.5	45-49-18	h_o, observed altitude
Chron.-watch		-1-12	Index correction
Chron. time			Arc correction
Chron. cor'n	+8-00-01.6		
G. C. T.	12-00-11.1	-6-18	Dip, refraction, semi-diameter, and parallax
Eq. of T or R. A. M. S. + 12h	16-01-49.1		
Cor'n, Table III (Naut. Almanac)	+01-58.3		
G. A. T. or G. S. T.	28 03 58.5	45-41.8	h, true altitude
Longitude	8-37-20		
L. A. T. or L. S. T.	19-26-38.5		

R. A.		h		log sec	
Hour angle, t		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	45-41.8
h (computed)				Cor'n (Table I, Naut. Almanac)	+0-05.0
h (observed)				φ, latitude	45-46.8
Difference					

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 EXPLORER, J.H. Peters Commanding. Date (A.M.) May 23, 19 40

Project ..... Locality .....

Celestial object observed Moon, Approximate bearing S x W true. R. A. h. m. s.

Dead reckoning position: φ 45° - 45', λ 129 - 20, λ 8 m. 37 s. 20. Course Ship stopped - Just getting underway true. δ

Height of eye 30 feet. Observer E.B.L. Recorder

Sextant No. Index correction -1'.2 Comp. by E.B.L.

Sid. M. T. Watch No. Crifty Sid. M. T. Chronometer No. Checked by R.H.T.

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

	Watch Time (hrs. min. sec.)	Observed Altitude	
1	04 06 07	20° 25'.3	
2	04 06 57	20 21.1	
3	04 07 35	20 18.9	
4	04 08 03	20 17.8	
5	04 08 22	20 14.9	
6	04 08 58	20 14.1	
Sum	45 - 57.6	1121	
Mean	04 - 07 - 39.6	20 - 18.7	h_o, observed altitude
Chron.-watch		-01.2	Index correction
Chron. time	+ 8 - 00 - 01.6		Arc correction
Chron. cor'n		+15.8	
G. C. T.	12 - 07 - 41.2	71.7 +58.0	Dip, refraction, semi-diameter, and parallax
Eq. of T or *R. A. M. S.* + 12h	16 - 01 - 49.1	-2.6	
Cor'n, Table III (Naut. Almanac)	+ 01 - 59.5	-5.4	
G. A. T. or *G. S. T.*	28 11 29.8	21 - 23.5	*h*, true altitude
Longitude	8 - 37 - 20.0		
L. A. T. or *L. S. T.*	19 - 34 - 09.8		
R. A.	17 - 49 - 22.4	*h* 21 - 23.5	log sec 10.02494
Hour angle, *t*	1 - 44 - 47.4	log hav 8.71064	log sin 9.64489
φ	45 - 45	log cos 9.84373	
δ	- 18 - 37.8	log cos 9.97665	log cos 9.97665
		log hav 8.57102	log sin 9.64648
		nat hav .03737	Azimuth S 26° W = 206
φ ~ δ	64 - 22.8	nat hav .28380	For use with Polaris
Zenith distance	68 - 37.5	nat hav .31848	*h*
h (computed)	21 - 22.4	.31777	Cor'n (Table I, Naut. Almanac)
h (observed)	21 - 23.5		φ, latitude
Difference	0.9	towards.	

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

Notes:

26° - 11.8

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 Explorer, J. H. Pillsbury Commanding. Date (A. M.) May 23, 1940

Project ..... Locality Sw Cape Flattery

Celestial object observed ☉, Approximate bearing 111° true. R. A. h. m. s. ° ′ ″ Rating of sight (Check one)

10:00 am. Dead reckoning position: φ 46° 00′ Course 46° true. δ ..... Excellent ..... Good ✓ Fair ..... Poor .....

λ 128° 55′ Height of eye 30 feet. Observer CAW

λ ..... h. m. s. Sextant No. H704 Recorder SKO.

Log reading ..... Index correction −03′00″ Comp. by S.N.O.

Std. M. T. Watch No. ..... Std. M. T. Chronometer No. Crifty Checked by PJR

	Watch Time (hrs. min. sec.)	Observed Altitude (° ′ ″)	Notes:
1	09 54 01	48 58 50	
2	4 23	49 02 30	
3	4 42	05 20	
4	55 06	09 00	
5	24	12 10	
6	57	17 00	
Sum	29 30	44 -50	
Mean	09 54 55.0	49 07 - 28.3	h_o, observed altitude
Chron.-watch		-3 00	Index correction
Chron. time		—	Arc correction A
Chron. cor'n	8 00 01.6	49 04.5	B
G. C. T.	17 54 56.6		C
Eq. of T or R. A. M. S. + 12h	3 22.1	+10.0	Dip, refraction, semi-diameter, and parallax
Cor'n, Table III (Naut. Almanac)			
G. A. T. or G. S. T.	17 58 18.7	49 14.5	h, true altitude
Longitude	8 35 40		
L. A. T. or L. S. T.	9 22 38.7		

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

	+	(−)
	15.3	5.
	.1	
		5.4
	15.4	5.4
	Corr. +10.0	

R. A.		h		log sec	0.18517
Hour angle, t	2 37 22	log hav	9.05427	log sin	9.80205
φ	46 00 00	log cos	9.84177		
δ	20 39 00	log cos	9.97116	log cos	9.97116
		log hav	8.86720	log sin	9.85838
		nat hav	.07365	Azimuth	S 65.3 E 155.3°
φ ~ δ	25 21 00	nat hav	.04815	For use with Polaris	
Zenith distance	40° 51 07	nat hav	.12180	h	
h (computed)	49 08 53			Cor'n (Table I, Naut. Almanac)	
h (observed)	49 14 30			φ, latitude	
Difference	5.43 Towards.				

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 Explorer, J. H. Peters Commanding. Date (A. M.) (P. M.) May 23, 1940

Project ..... Locality Coast of Washington

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

Rating of sight (Check one)

Dead reckoning position: φ 46-05, λ 128-50 (h. m. s.), λ ..... Course 46½ Gyro ° true. δ .....

Height of eye 30.2 feet. Observer EHB. Excellent ✓

Sextant No. 1 5. Recorder Ohlin. Good

Log reading 60.4 B. Index correction 01-40 (−). Comp. by EHB. Fair

Sid. M. T. Watch No. None. Sid. M. T. Chronometer No. 2069. Checked by J. R. P. Poor

	Watch Time (hrs. min. sec.)	Observed Altitude (° ′ ″)
1	10 38 59	55 41 40
2	39 34	55 46 30
3	40 09	55 52 20
4	40 38	55 55 10
5	40 58	55 58 20
6	41 33	56 02 40
Sum	~~238-23~~ 238-34	~~07 10~~
Mean	10-40-19.0	55-52-46.7

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

Notes:

			+	−
h_o, observed altitude				
Index correction				01.7
Arc correction A			15.4	
B				0.1
C				5.4
Dip, refraction, semi-diameter, and parallax			+ 8.2	7.2
h, true altitude	56-00-58.7			

Chron.-watch					
Chron. time	10-40-19.0				
Chron. cor'n Fast.	8-00-03.2				
G. C. T.	18-40-15.8				
Eq. of T or R. A. M. S. + 12h	+ 3-21.9	+ 8-12			
Cor'n, Table III (Naut. Almanac)					
G. A. T. or G. S. T.	18-43-37.7				
Longitude	8-35-20.0				
L. A. T. ~~or L. S. T.~~	10-08-17.7				
R. A.	04-01-31.3	h 56-00.98		log sec	0.25263
Hour angle, t (27-55-35) E	01-51-42.3	log hav	8.76511	log sin	9.67056
φ N	46-05-00	log cos	9.84112		
δ +	20-39.4	log cos	9.92114	log cos	9.97114
		log hav	8.57737	log sin	9.89433
		nat hav	0.03779	Azimuth	51°37.8′, 128-22.2
φ ~ δ	25-25.6	nat hav	0.04843	For use with Polaris	
Zenith distance	34-09.1	nat hav	0.08622	h	
h (computed)	55-50.9			Cor'n (Table I, Naut. Almanac)	
h (observed)	56 01.0			φ, latitude	
Difference	10.1 Towards				

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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84.5
60.4
24.1

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ASTRONOMIC SIGHT FOR HYDROGRAPHIC CONTROL

5/23

U. S. C. & G. S. Ship Explorer, J H Peters Commanding. Date (A. M.) (P. M.) Noon, 19.....

Project ..... Locality Coast of Washington

Celestial object observed ☉, Approximate bearing S ° true. R. A. h. m. s. .....

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

Dead reckoning position: φ 46° 16.5' ; λ 128° 16.5' ; λ h. m. s. .....

Course ..... ° true. δ + 20° 40.2'

Height of eye 28 feet. Observer EHB

Sextant No. 704 Recorder CAB

Log reading 84.50 (B) Index correction ..... Comp. by CAB

Sid. M. T. Watch No. None Sid. M. T. Chronometer No. 576 Checked by J. R. P.

Rod 85.5

08:19

For other than sun sights, use italicized elements in this column.		Watch Time hrs.	min.	sec.	Observed Altitude
	1	08	14	50	64-13-10
	2	08	16	22.5	64-14-50
	3	08	18	03.5	64-17-40
	4	08	19	35.5	64-17-50
	5	08	20	45.0	64-16-50
	6	08	22	08.5	64-16-50
Sum	7	08	23	21.0	64-16-00
Mean		08	19	15.1	64 16 11.4

NOTES: Run = 23.4 est. from ☉ sight
Ex-meridian sight.
LAN = 12-00-00
λ W = 8-32-42
G.A.T = 20-32-42 of L.A.N.
E (-) 3-21.3
G.C.T 20-29-20.9 of LAN
C. corr. 12-06-06.8 slow = (12-29-24 L.M.T.)
Chron = 08-23-13.9
+ (-)

Chron.-watch			
Chron. time			
Chron. cor'n			
G. C. T.			
Eq. of T or *R. A. M. S.* + 12h		-08-54	
Cor'n, Table III (Naut. Almanac)			
G. A. T. or *G. S. T.*			
Longitude			
L. A. T. or *L. S. T.*			
R. A.			
Hour angle, *t*			
φ			
δ	20°-40.2		
φ ~ δ			
Zenith distance			
h (computed)			
h (observed)			
Difference			

h_o, observed altitude	1'-10"
Index correction	
Arc correction A	15.6
B	1.2
C	0.1
	5.4
Dip, refraction, semi-diameter, and parallax	+8.9
	6.7
h, true altitude	

h		log sec	
log hav		log sin	
log cos			
log cos		log cos	
log hav		log sin	
nat hav		Azimuth	
nat hav		For use with Polaris	
nat hav		*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)	*h*	
8-23.9	2.9	03 08	64-25-12	
6-51.4		02-10	25-54	
5-10.4		01-05	27-39	
3-38.4		00-39	27-23	
2-28.9		00-18	26-42	
1-05.4		00-03	25-48	
0-07.1		00-00	Sum 25-44	
			at²	

h	
at²	5
Meridian altitude	64-25-46.6
Zen. dist.	25-34-13.4 5
δ	20-40-12.
φ	46-14-25 ✓

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ASTRONOMIC SIGHT FOR HYDROGRAPHIC CONTROL

U. S. C. & G. S. Ship Explorer, JH Peters Commanding. Date {A.M. / P.M.} May 23, 19 40

Project ____ Locality Coast of Oregon

Celestial object observed ☉, Approximate bearing 241° true. R. A. h. m. s.

Dead reckoning position: φ 46° 37′; λ 127° 36′; λ h. 8 m. 30 s. 44

Course 46 ° true. δ 20° 41.4′

Height of eye 28 feet. Observer EBB

Sextant No. 609 Recorder ____

Log reading ____ Index correction + 01′ 00″ Comp. by ____

Sid. M. T. Watch No. ____ Sid. M. T. Chronometer No. 576 Checked by J.R.P.

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

	Watch Time (hrs. min. sec.)	Observed Altitude (° ′ ″)
1	10 50 57	49 44 20
2	51 25	47 10
3	51 47	43 00
4	52 11.5	39 00
5	52 27.5	36 40
6	52 54	32 50
Sum	322.0	248 00
Mean	22 51 53.7	49 41 20

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

Notes:

Chron.-watch		+ 01 00	Index correction
Chron. time			Arc correction
Chron. cor'n	+ 06 06.4	49 42 20	
G. C. T.	22 58 00.1		Dip, refraction, semi-diameter, and parallax
Eq. of T or *R. A. M. S.* + 12h	+ 03 19.9	+ 10 13	
Cor'n, Table III (Naut. Almanac)	23 01 20.0		
G. A. T. or *G. S. T.*		49 52 33	*h*, true altitude
Longitude	08 30 44.0		
L. A. T. or *L. S. T.*	14 30 36.0		
R. A.			
Hour angle, *t*	2 30 36		
φ	46 37		
δ	20 41.4		
φ ~ δ	25 55.6		
Zenith distance	40 02.6		
h (computed)	49 57.4		
h (observed)	49 52.6		
Difference	4.8 away		

h, observed altitude

h		log sec	0.190 80
log hav	9 017 54	log sin	9.785 92
log cos	9.836 88		
log cos	9.971 05	log cos	9.971 05
log hav	8.825 47	log sin	9.947 77
nat hav	06691	Azimuth	62.5 - 242.5
nat hav	05032		
nat hav	.11723		

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.)	at^2 (Table 27, Bowditch)		
		′ ″	′ ″	′ ″
			Sum	
			at^2	

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

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ASTRONOMIC SIGHT FOR HYDROGRAPHIC CONTROL

U. S. C. & G. S. Ship Explorer, Lt Peters Commanding. Date (A. M.) (P. M.) May 23, 1940

Project ____ Locality Coast of Washington

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

Dead reckoning position: φ 46-39 Course 48° ° true. δ 20-41.6 — Rating of sight (Check one)

λ 127-32 Height of eye 30 feet. Observer EHB — Excellent ____

λ ____ h. m. s. Sextant No. 704 Recorder Rinell — Good ✓

Log reading B 2-3 / A 64.04 Index correction -01 20 Comp. by EHB — Fair ____

Sid. M. T. Watch No. ____ Sid. M. T. Chronometer No. 576 Checked by S.N.D. — Poor ____

	Watch Time (hrs. min. sec.)	Observed Altitude (° ′ ″)
1	11 18 10.5	45 34 30
2	18 39.5	28 10
3	19 07	24 10
4	19 39.5	19 00
5	20 06.0	13 50
6	20 31	09 40
Sum	20 57	05 40
Mean	11-19-35.8	45-19-17.1

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

Notes: L.M.T. = 3-25.8 h m Run = 37.6

				+	−
Chron.-watch			h_o, observed altitude		
Chron. time	11-19-35.8		Index correction		1.3
Chron. cor'n Slow	06-06.5		Arc correction A	15.2	
G. C. T.	23-25-42.3		B		-0.1
Eq. of T or *R. A. M. S.* + 12h	+ 03-25.7	8-24	C		5.4
Cor'n, Table III (Naut. Almanac)	23-29-08.0		Dip, refraction, semi-diameter, and parallax	+8.4	6.8
G. A. T. or ~~G. S. T.~~	8-30-08	45-27-41	h, true altitude		
Longitude W	14-59-00				
L. A. T. or ~~L. S. T.~~	14-59-00				

R. A.		h	45-27.7	log sec	0.15404
Hour angle, t (44°-45′) W	02-59-00	log hav	9.16109	log sin	9.84758
φ	46-39.0	log cos	9.83661		
δ N	+20-41.6	log cos	9.97104	log cos	9.97104
		log hav	8.96874	log sin	9.97266
		nat hav	0.09306	Azimuth	(64-53) 244-53
φ ~ δ	25-57.4	nat hav	0.05044	For use with Polaris	
Zenith distance	44-31.2	nat hav	0.14350	h	
h (computed)	45-28.8			Cor'n (Table I, Naut. Almanac)	
h (observed)	45-27.7			φ, latitude	
Difference	1.1 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 Explorer, Capt. T.H. Peters Commanding. Date (A.M.) May 23, 1940

Project ____ Locality ____

Celestial object observed Arcturus, Approximate bearing 128° true. R. A. 14h 12m 57.8s Rating of sight

Dead reckoning position: φ 47° 29' Course 48° true. δ 19° 29' 30" (Check one)
λ 126° 33' Height of eye 30 feet. Observer C.J.W. Excellent ____
λ 8h 26m 12s Sextant No. ____ Recorder S.N.O. Good ✓

Log reading ____ Index correction −1.8 Comp. by S.N.O. Fair ____

Sid. M.T. Watch No. ____ Sid. M.T. Chronometer No. Cipher Checked by S.R.P. Poor ____

	Watch Time (hrs. min. sec.)	Observed Altitude	Notes:
1	20 38 10	53° 47' 3"	
2	54	53.2	
3			
4			
5			
6			
Sum	64	100.5	
Mean	20 38 32.0	53 50.2	h_o, observed altitude
Chron.-watch		− 1.8	Index correction
Chron. time			Arc correction
Chron. cor'n	8 00 01.6	53 48.4	
G. C. T.	4 38 33.6		Dip, refraction, semi-diameter, and parallax
Eq. of T or R. A. M. S. + 12h	16 05 45.6	− 6.1	
Cor'n, Table III (Naut. Almanac)	45.8		
G. A. T. or G. S. T.	20 45 05.0	53 42.3	h, true altitude
Longitude	8 26 12		
L. A. T. or L. S. T.	12 18 53		

A − 4
C − 5.4
Corr. 6.1

R. A.	14 12 57.8	h 53 - 42 · 18		log sec	10.22772
Hour angle, t	1 54 04.8	log hav	8.78299	log sin	9.67895
φ	47 29	log cos	9.82982		
δ	19 29 30	log cos	9.97437	log cos	9.97437
		log hav	8.58718	log sin	9.88104
		nat hav	.03865	Azimuth	130½
φ ~ δ	27 59 30	nat hav	.05849	For use with Polaris	
Zenith distance	36 19 15	nat hav	.09714	h	
h (computed)	53 40 45			Cor'n (Table I, Naut. Almanac)	
h (observed)	53 42 18			φ, latitude	
Difference	1' 33" towards	8½ x 4'5" 1.9mm run back			

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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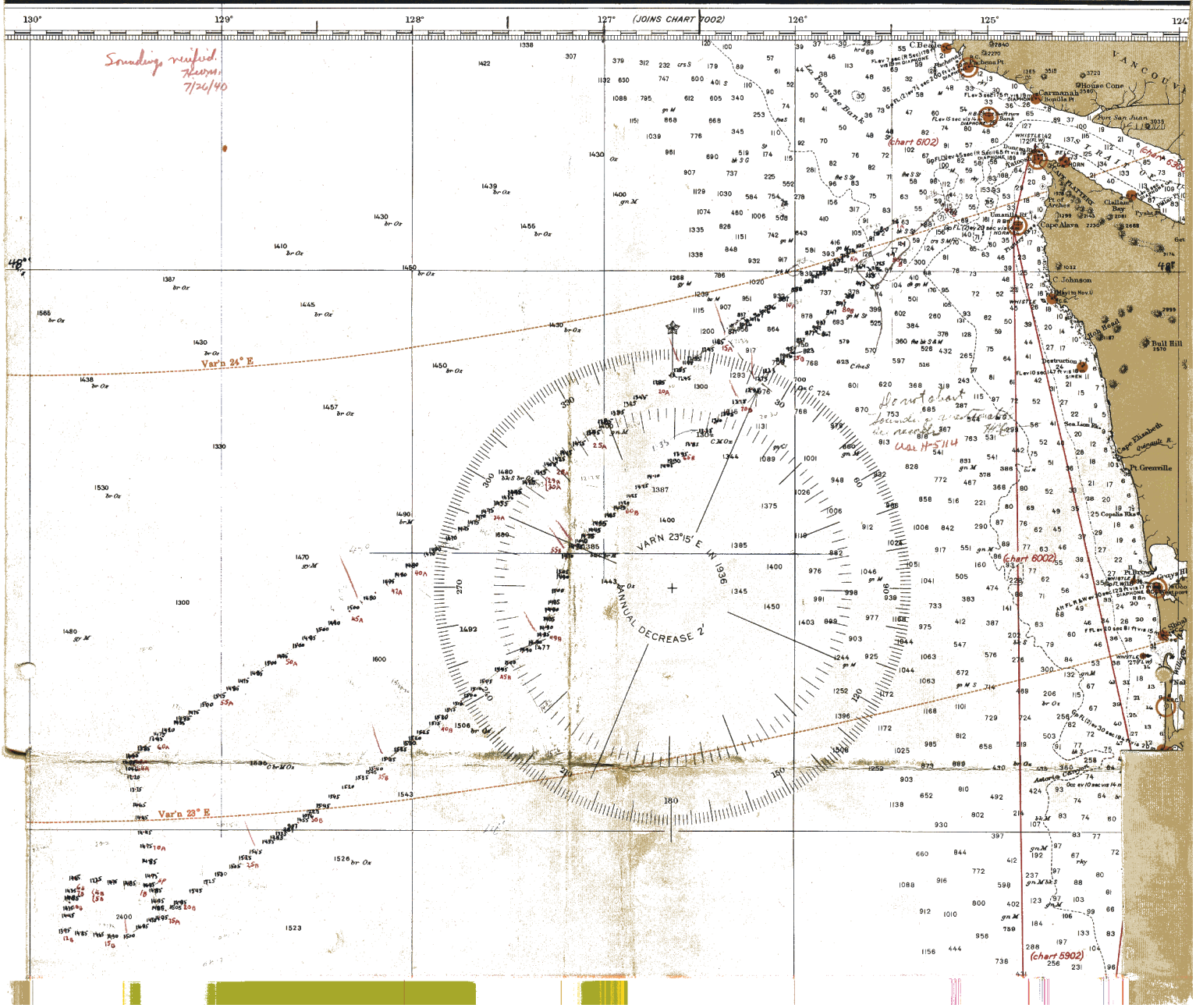
F.E. #4 (1940)

Off-Shore Fathometer Test.

"Explorer"

May, 1940.

PLATE No. 3836

Section Chart 5052