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DEPARTMENT OF TERRESTRIAL MAGNETISM
J. A. Fleming, Director

Scientific Results of Cruise VII of the CARNEGIE during 1928-1929
under Command of Captain J. P. Ault

OCEANOGRAPHY — I-B

Observations and Results in
Physical Oceanography

GRAPHICAL AND TABULAR SUMMARIES

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S. L. SEATON

W. C. HENDRIX



CARNEGIE INSTITUTION OF WASHINGTON PUBLICATION 545
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1945

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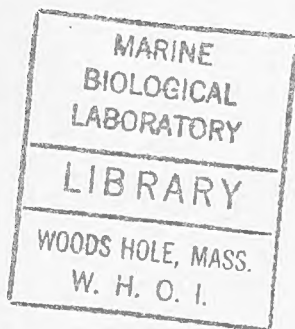
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GRAPHICAL AND TABULAR SUMMARIES

GENERAL REMARKS

Oceanography I-B.--The present volume assembles together the graphs, figures, and tables of the oceanographic data gathered on, and the abstract of log for, cruise VII of the Carnegie. These data are collected here in one volume in order that they may be available for ready cross-reference in studies of the texts of any other volume of the series.

The locations of the oceanographic stations, the sounding velocity sections, and the selected vertical regions are shown by the three maps, figures 1 to 3.

The results of the sonic depth work are presented by ten graphs, figures 4 to 13, illustrating the bottom profiles. These graphs were constructed by using the exact distances between the stations. The plotted depths to the bottom then were joined by straight lines. No attempt was made to smooth these graphs because of the usually wide separation of the stations and the probably irregular topography between them.

The physical and chemical data for each station are given graphically in figures 14 to 92. The observed values are shown by smooth curves. These graphs represent reduced reproductions of similar larger graphs from which were scaled the depths of standard values and values of the observed elements. By plotting together all observed elements at one station, a representation of the simultaneous values is obtained which serves to illustrate the interrelations between the various elements.

Figures 93 to 200 give the vertical distribution of sounding velocity, temperature, salinity, density, pH, and PO₄ for the sixteen selected sections shown in the map, figure 3. At sections 5, 7, 14, and 15 the vertical distribution of SiO₂, O₂ ml/L, and O₂ in saturation per cent are given also. The actual distances between the stations were used in constructing these sections. From curves showing the vertical distribution of the various elements at each single station, the depths of standard values were scaled and plotted in the section and joined by smooth curves. When constructing these curves, due attention was paid to the occurrence of maxima and minima.

Figures 201 to 209 illustrate the temperature-salinity relation at individual stations in the Atlantic and the Pacific oceans.

Figures 210 to 245 present the horizontal distribution of temperature, salinity, and density at standard levels. When these charts were constructed, values of the elements at standard levels were read from the smooth curves representing the observed conditions at each individual station. These values are entered on charts and, by interpolation, curves were drawn. In these graphs for the lower levels, for which few data were obtained, the course of the curves at higher levels was taken into account.

Figures 246 to 254 show the topography of standard isobaric surfaces relative to the topography of the 2000-decibar surface. The charts were constructed on the

basis of the computed values given in the tables of results.

A continuous record of surface sea-water temperature at a depth of approximately 2 meters below the surface was maintained by means of a sea-water thermograph with 24-hour movement. The data scaled from these records are given in table 1. Control of the thermograms was effected by noting the temperature of the surface water by the bucket method immediately before each change of the record at noon. When the surface temperatures were changing rapidly, a mean of several bucket readings was used for the control.

Table 2 gives the physical and chemical data and results of dynamic computations for the 162 Carnegie deep-sea stations. The observed, interpolated, and computed values are presented.

A synoptic description of the bottom samples collected in the Pacific is given in table 3. The samples are numbered consecutively from 10 to 89 in the first column of the table. Succeeding columns give information as follows: Stations at which the samples were collected; latitude and longitude; corrected depths; classification of the samples and the estimated calcium carbonate contents, together with the bases of the estimates; colors of the samples; brief descriptions of the physical characters; samplers and containers used in the collection and preservation of the samples, extracts from the field notes made on shipboard at the time the samples were collected; and descriptions of the nearest previous samples collected by other ships in the Pacific. The tabular footnotes describe briefly the organic and inorganic components and any characteristic or remarkable features of the samples which were analyzed mechanically. Except when otherwise indicated, these descriptions are based only on microscopic examination of the sand grades (particles larger than 0.05 mm in diameter). For samples which were too small for mechanical analysis, a rough petrographic examination of a part of the undifferentiated material was made.

Table 4 gives the number and geographic position of a total of 1496 soundings made in the Atlantic and Pacific oceans between May 13, 1928, and November 18, 1929.

The sounding velocities computed from the conditions found to exist at the oceanographic stations are given in table 5. In this table the values appearing below the heavy line are based on extrapolated temperatures or salinities. The values given probably are significant to a few tenths of a meter per second as representing the conditions at the time measurements were made, but must not be relied on as representing the conditions at any other time.

The volume is concluded with the abstract of log from May 1, 1928, the date of departure from Washington, D. C., through November 18, 1929, when the vessel arrived at Pago Pago, Samoa. The log from Pago Pago to Apia was lost in the destruction of the Carnegie at Samoa on November 29, 1929.

CONTENTS

Figure	Page
1 Oceanographic stations, cruise VII of the <u>Carnegie</u> , 1928 to 1929	3
2 Vertical sections, sounding velocity, Pacific Ocean	4
3 Regions in which sounding velocity correction factors are nearly the same in each region	5
4- 13 Ocean bottom profiles	6
14- 92 Physical and chemical data for each station	16
93- 98 Section I, sounding velocity, temperature, salinity, density, pH, PO ₄	56
99-104 Section II, sounding velocity, temperature, salinity, density, pH, PO ₄	59
105-110 Section III, sounding velocity, temperature, salinity, density, pH, PO ₄	62
111-116 Section IV, sounding velocity, temperature, salinity, density, pH, PO ₄	68
117-125 Section V, sounding velocity, temperature, salinity, density, pH, PO ₄ , SiO ₂ , O ₂ ml/L, and O ₂ per cent	70
126-131 Section VI, sounding velocity, temperature, salinity, density, pH, PO ₄	79
132-140 Section VII, sounding velocity, temperature, salinity, density, pH, PO ₄ , SiO ₂ , O ₂ ml/L, and O ₂ per cent	81
141-146 Section VIII, sounding velocity, temperature, salinity, density, pH, PO ₄	83
147-152 Section IX, sounding velocity, temperature, salinity, density, pH, PO ₄	89
153-158 Section X, sounding velocity, temperature, salinity, density, pH, PO ₄	92
159-164 Section XI, sounding velocity, temperature, salinity, density, pH, PO ₄	94
165-170 Section XII, sounding velocity, temperature, salinity, density, pH, PO ₄	100
171-176 Section XIII, sounding velocity, temperature, salinity, density, pH, PO ₄	102
177-185 Section XIV, sounding velocity, temperature, salinity, density, pH, PO ₄ , SiO ₂ , O ₂ ml/L, O ₂ per cent	105
186-194 Section XV, sounding velocity, temperature, salinity, density, pH, PO ₄ , SiO ₂ , O ₂ ml/L, O ₂ per cent	110
195-200 Section XVI, sounding velocity, temperature, salinity, density, pH, PO ₄	112
201-209 Temperature-salinity relation at individual stations, Atlantic and Pacific	116
210-221 Horizontal distribution of temperature at standard levels	125
222-233 Horizontal distribution of salinity at standard levels	137
234-245 Horizontal distribution of density at standard levels	149
246-254 Relative topography, 0-2000, 100-2000, 200-2000, 300-2000, 400-2000, 500-2000, 700-2000, 1000-2000, 1500-2000 decibars	161
Table 1 Hourly values of the sea-surface temperature	171
Table 2 Physical and chemical data at stations	183
Table 3 Depth of bottom samples and brief description of character of bottom	258
Table 4 Sonic depths--number and geographic position of sounding	283
Table 5 Sounding velocity in meters per second for <u>Carnegie</u> deep sea stations	295
Abstract of log	299

FIGURES AND GRAPHS 1 TO 254

After completion of the computations for the results of this table, it was found that the values of salinity of the deep water between 34.6 and 35.0 are about 0.03 per mille too low. This correction should be borne in mind in utilizing the tabular values (see Oceanography 1-A)

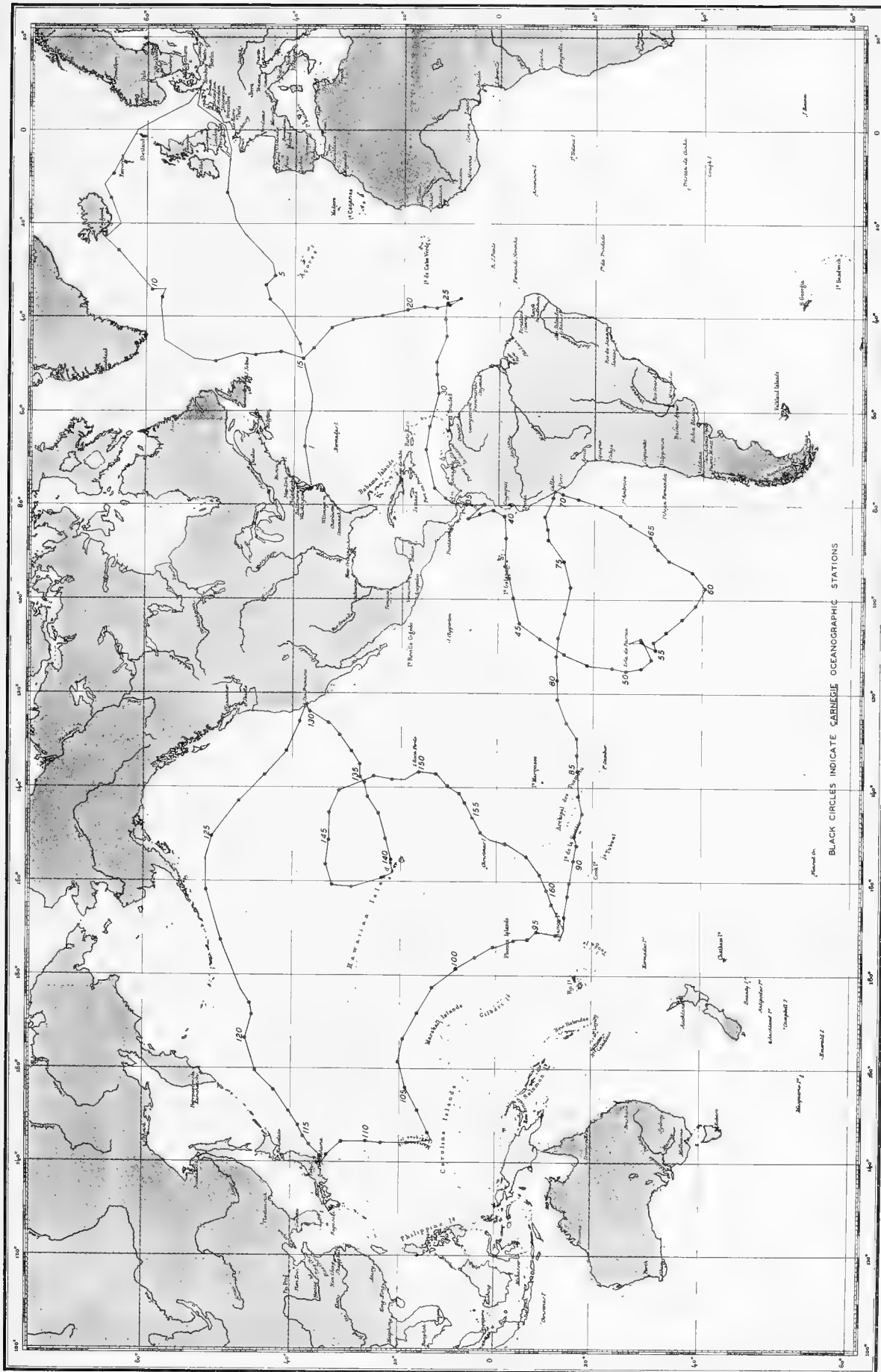


FIG. I—OCEANOGRAPHIC STATIONS, CRUISE VII OF THE CARNEGIE, 1928-1929

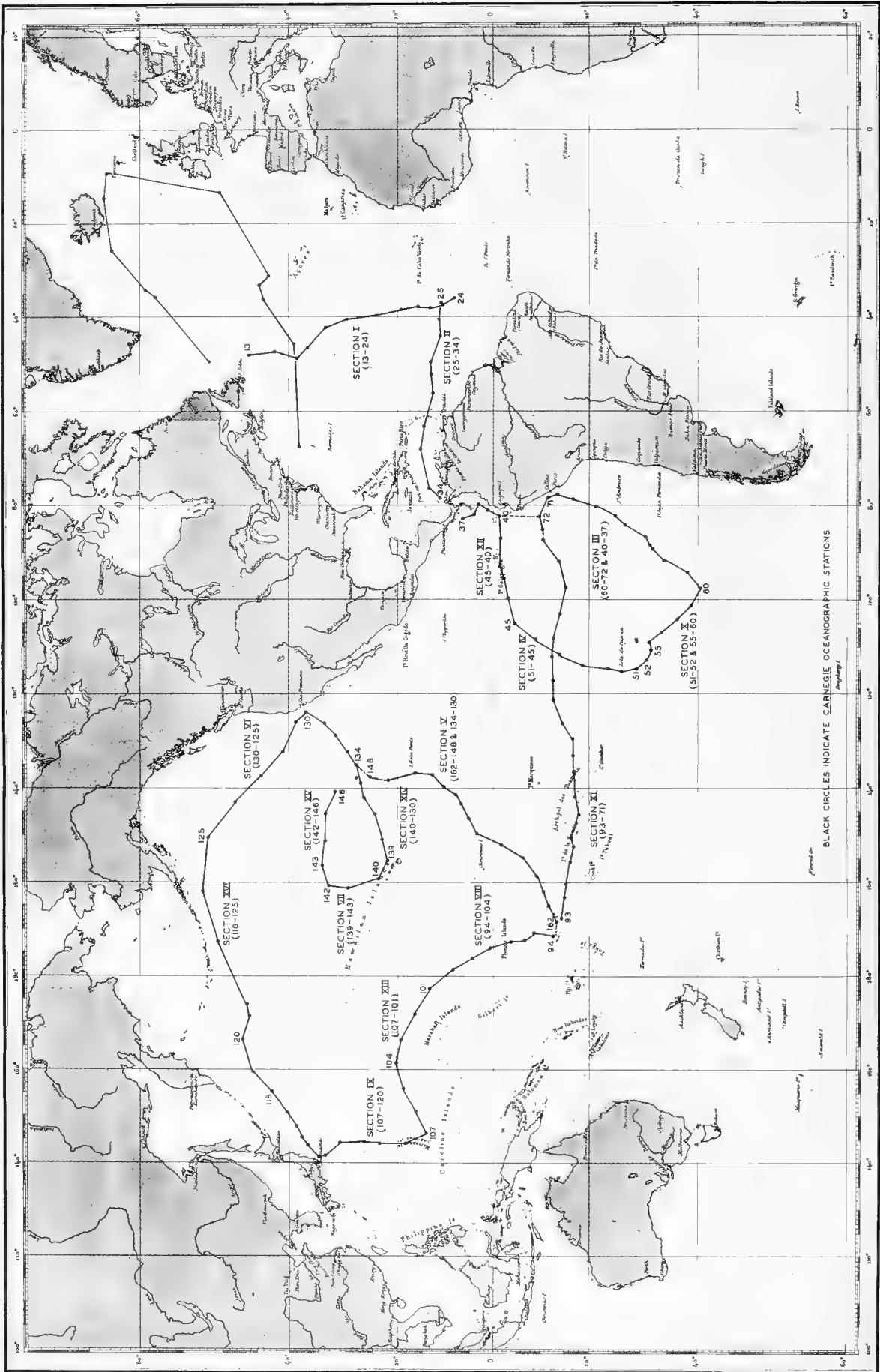


FIG. 2—VERTICAL SECTIONS SOUNDING VELOCITY, PACIFIC OCEAN, FROM CARNEGIE RESULTS, 1928—1929

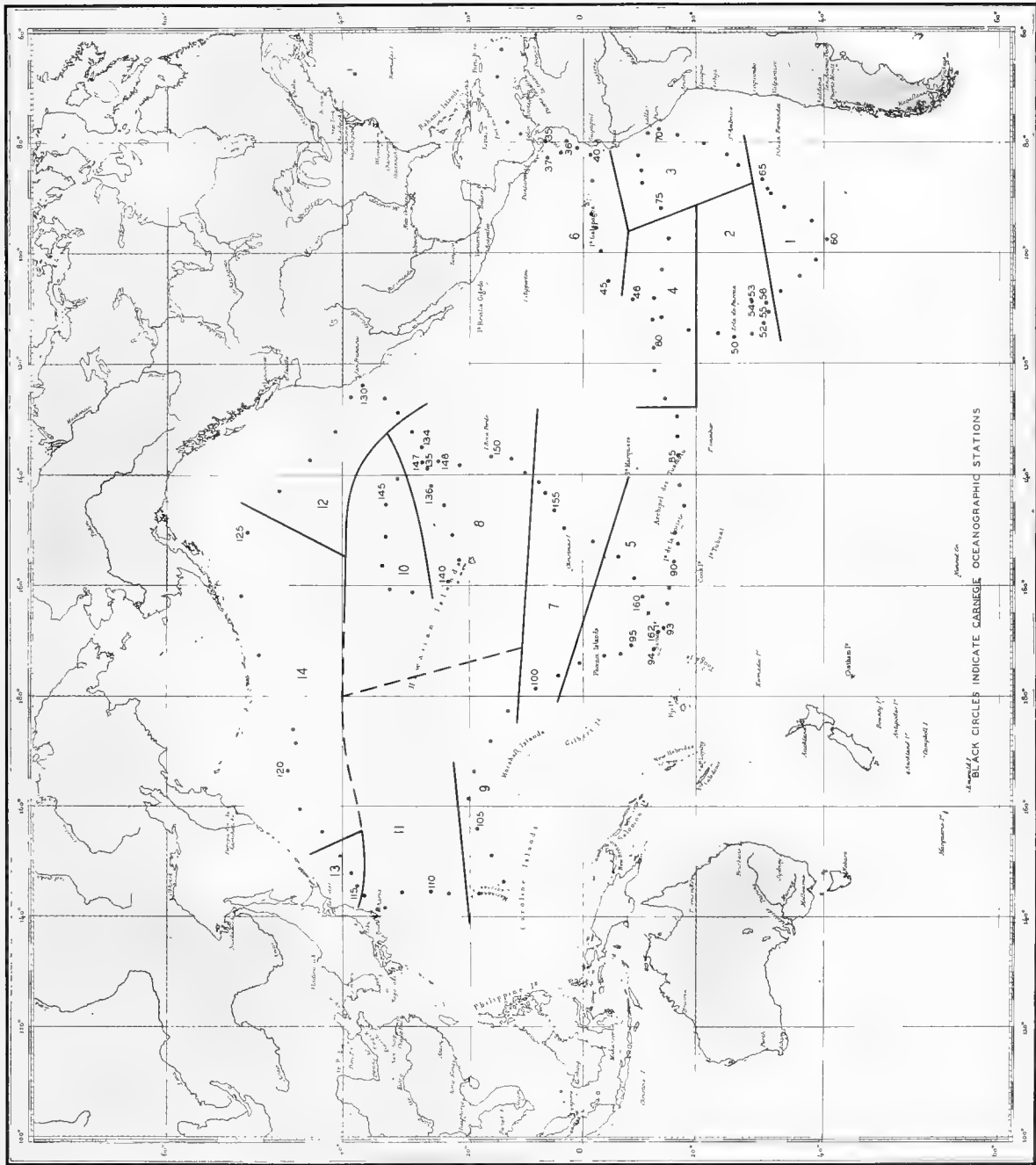


FIG. 3 - REGIONS IN WHICH SOUNDING VELOCITY CORRECTION FACTORS ARE NEARLY THE SAME IN EACH REGION, PACIFIC OCEAN, CARNEGIE RESULTS, 1928-1929

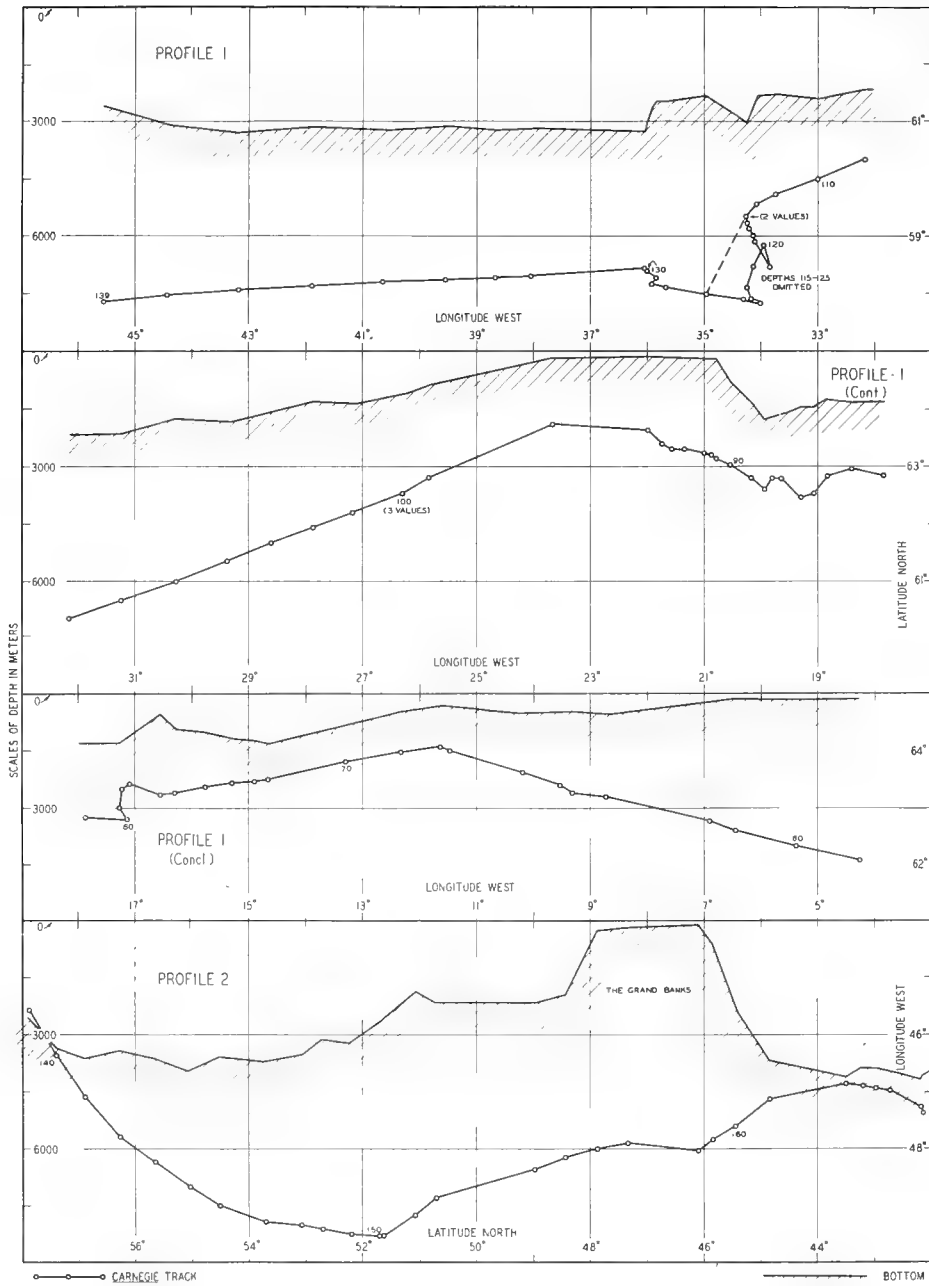


FIG 4-BOTTOM PROFILES 1-2, ATLANTIC OCEAN, CARNegie SONIC DEPTHS 59-167, JULY 12 TO AUGUST 9, 1928

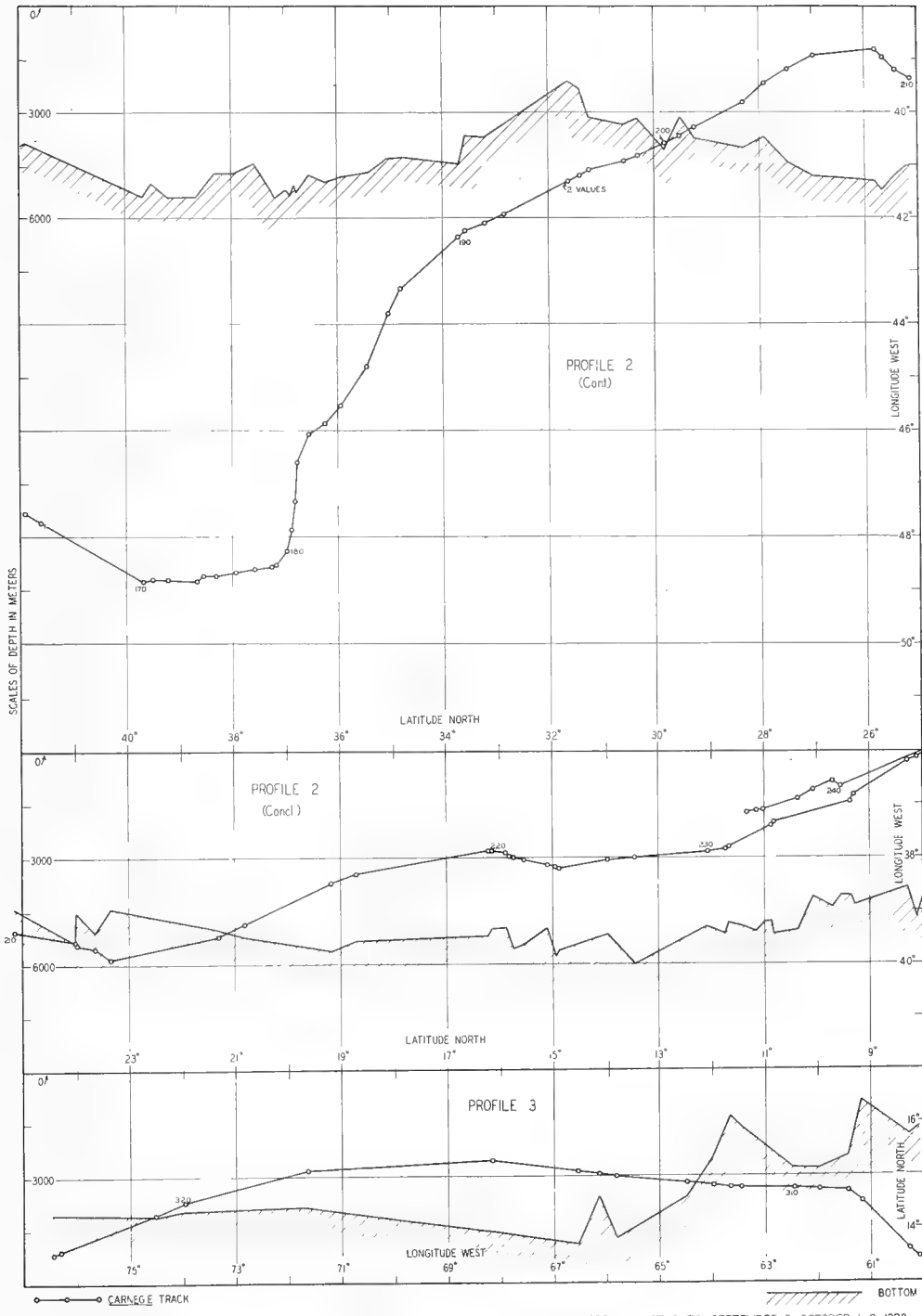


FIG. 5—BOTTOM PROFILES 2-3, ATLANTIC OCEAN, CARNEGIE SONIC DEPTHS 168-246, 305-322, AUGUST 9 TO SEPTEMBER 3, OCTOBER 1-8, 1928

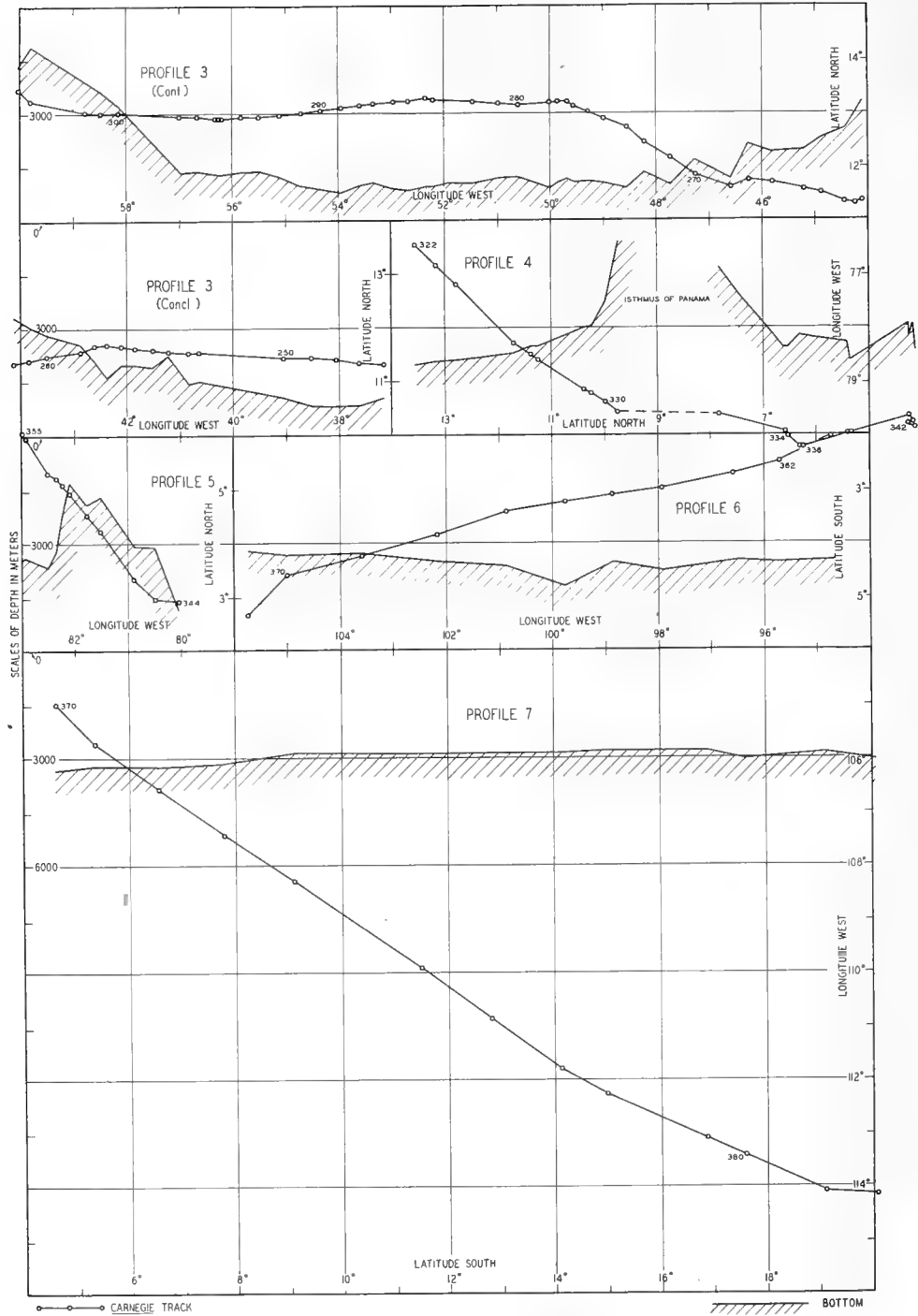


FIG 6 — BOTTOM PROFILES 3-7, ATLANTIC AND PACIFIC OCEANS, CARNegie SONIC DEPTHS 262-382, SEPTEMBER 7 TO NOVEMBER 25, 1928

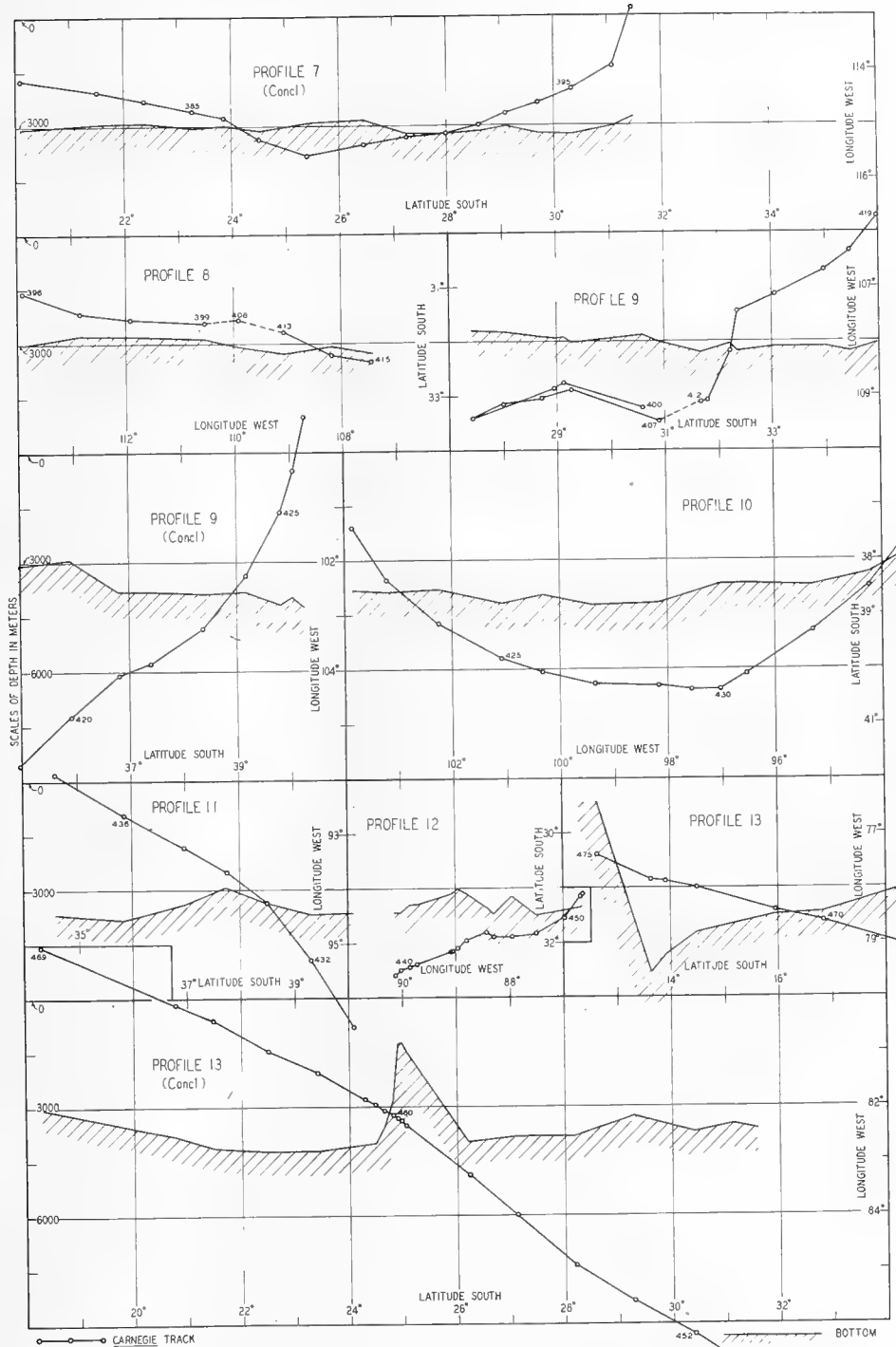


FIG 7—BOTTOM PROFILES 7-13, PACIFIC OCEAN, CARNegie SONIC DEPTHS 382-475, NOVEMBER 25, 1928 TO JANUARY 14, 1929

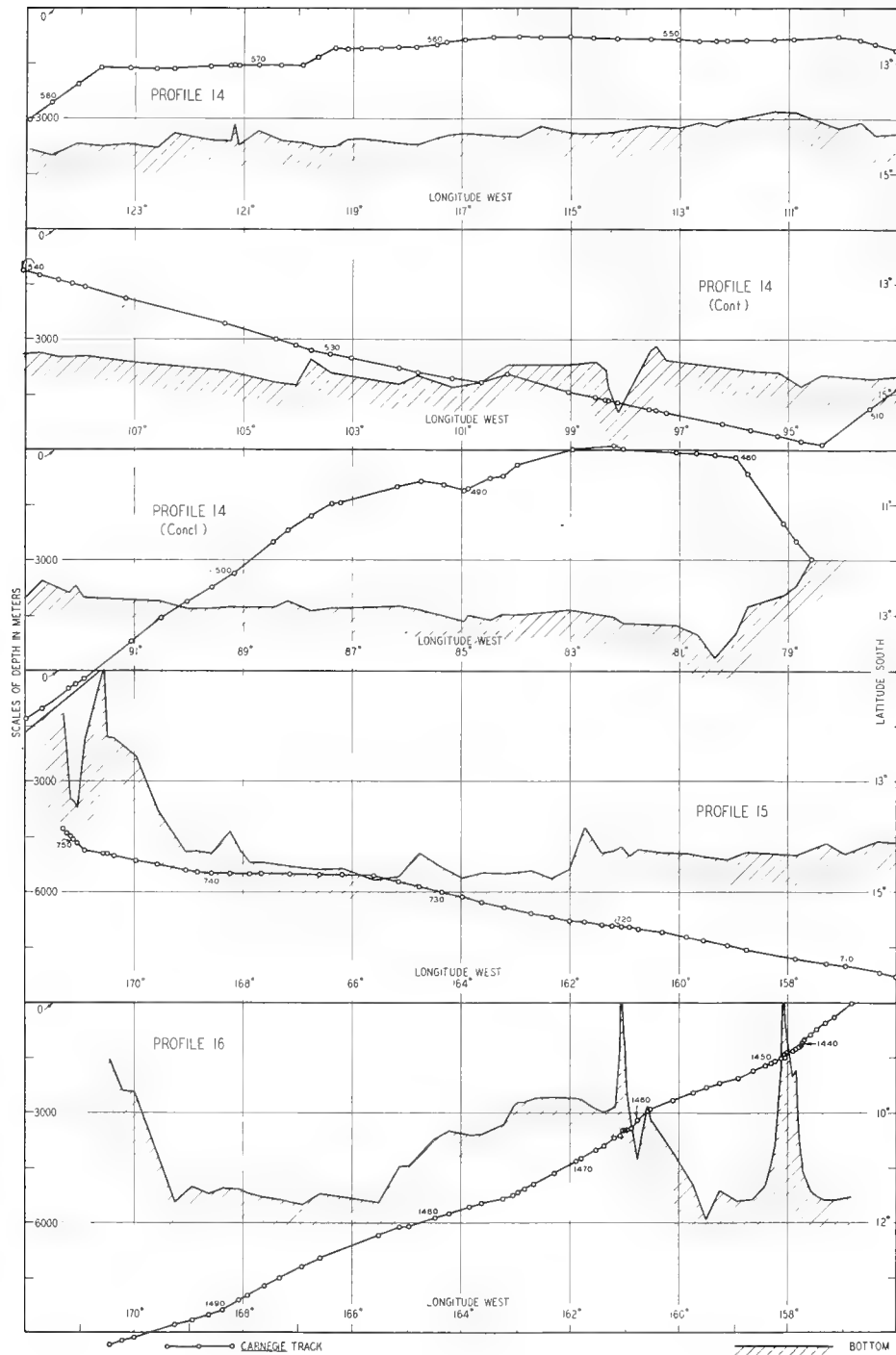


FIG. 8—BOTTOM PROFILES 14-16, PACIFIC OCEAN, CARNEGIE SONIC DEPTHS 476-581, 708-753, 1433-1496, FEBRUARY 6-27, MARCH 25 TO APRIL 6, NOVEMBER 9-18, 1929

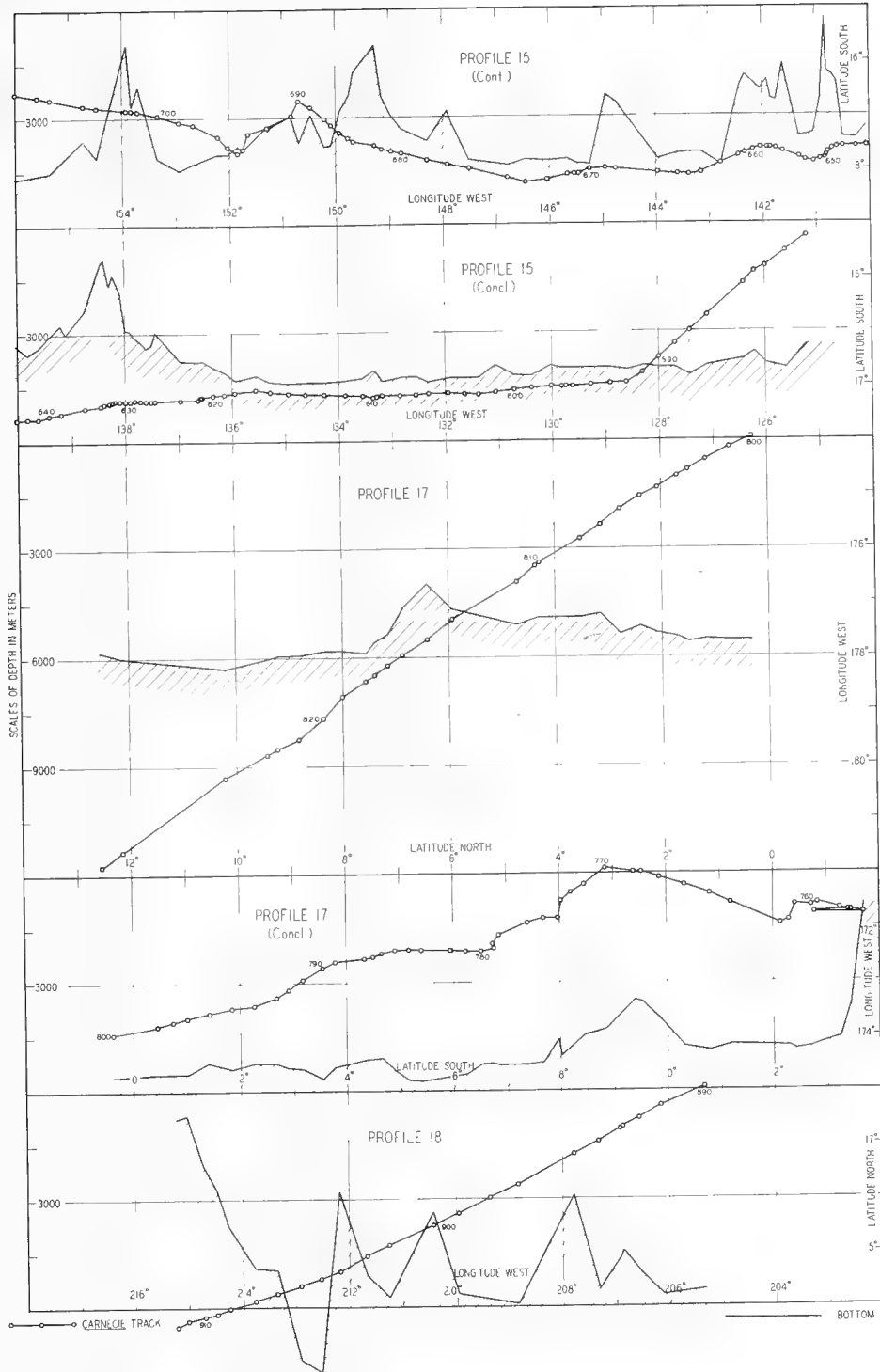


FIG 9—BOTTOM PROFILES 15-8, PACIFIC OCEAN, CARNEGIE SONIC DEPTHS 582-708, 754-826, 890-92, FEBRUARY 27 TO MARCH 24, APRIL 20 TO MAY 7, MAY 14-20, 1929

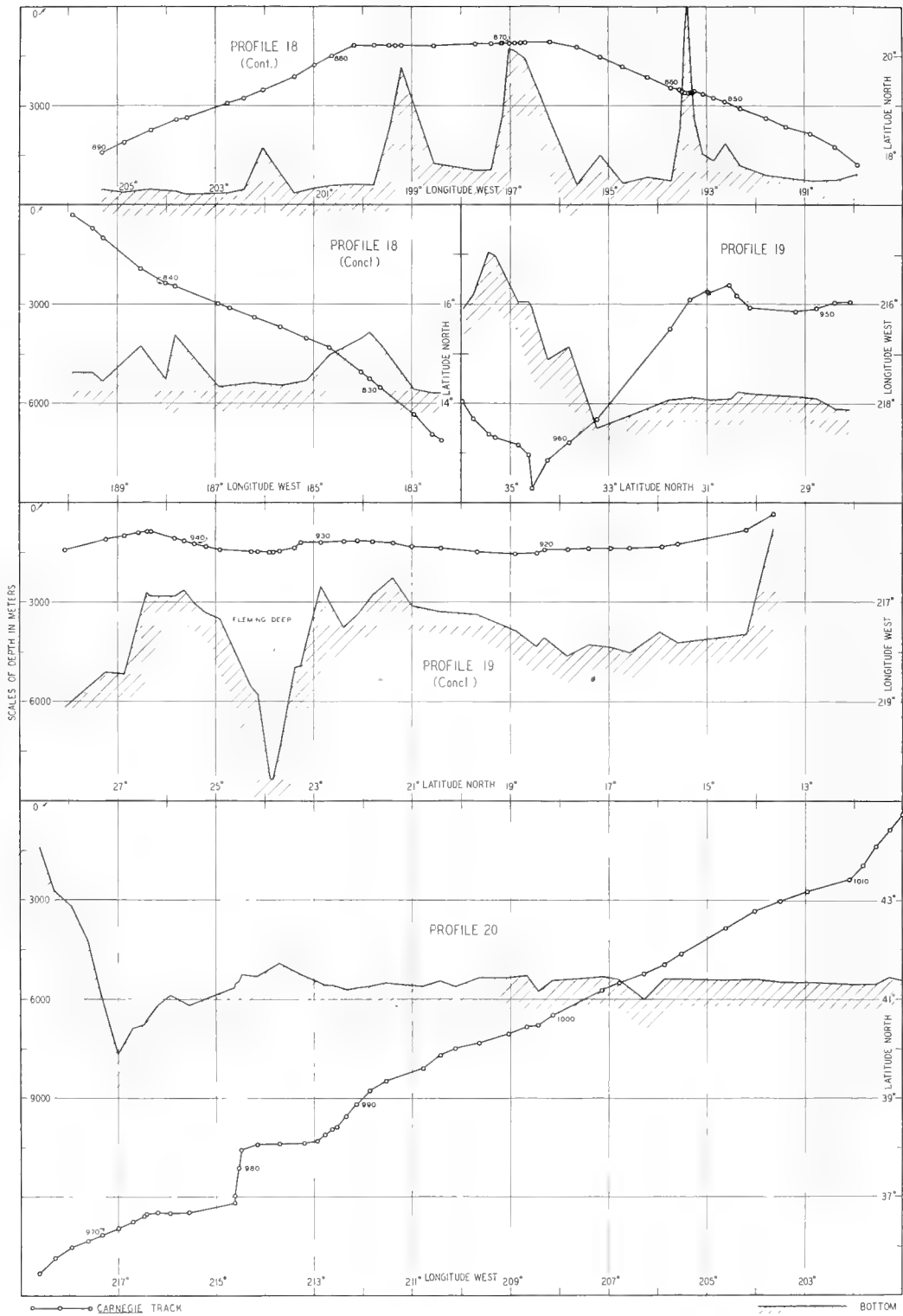


FIG 10-BOTTOM PROFILES 18-20, PACIFIC OCEAN, CARNEGIE SONIC DEPTHS 827-890, 912-1014, MAY 7-15, MAY 20 TO JULY 7, 1929

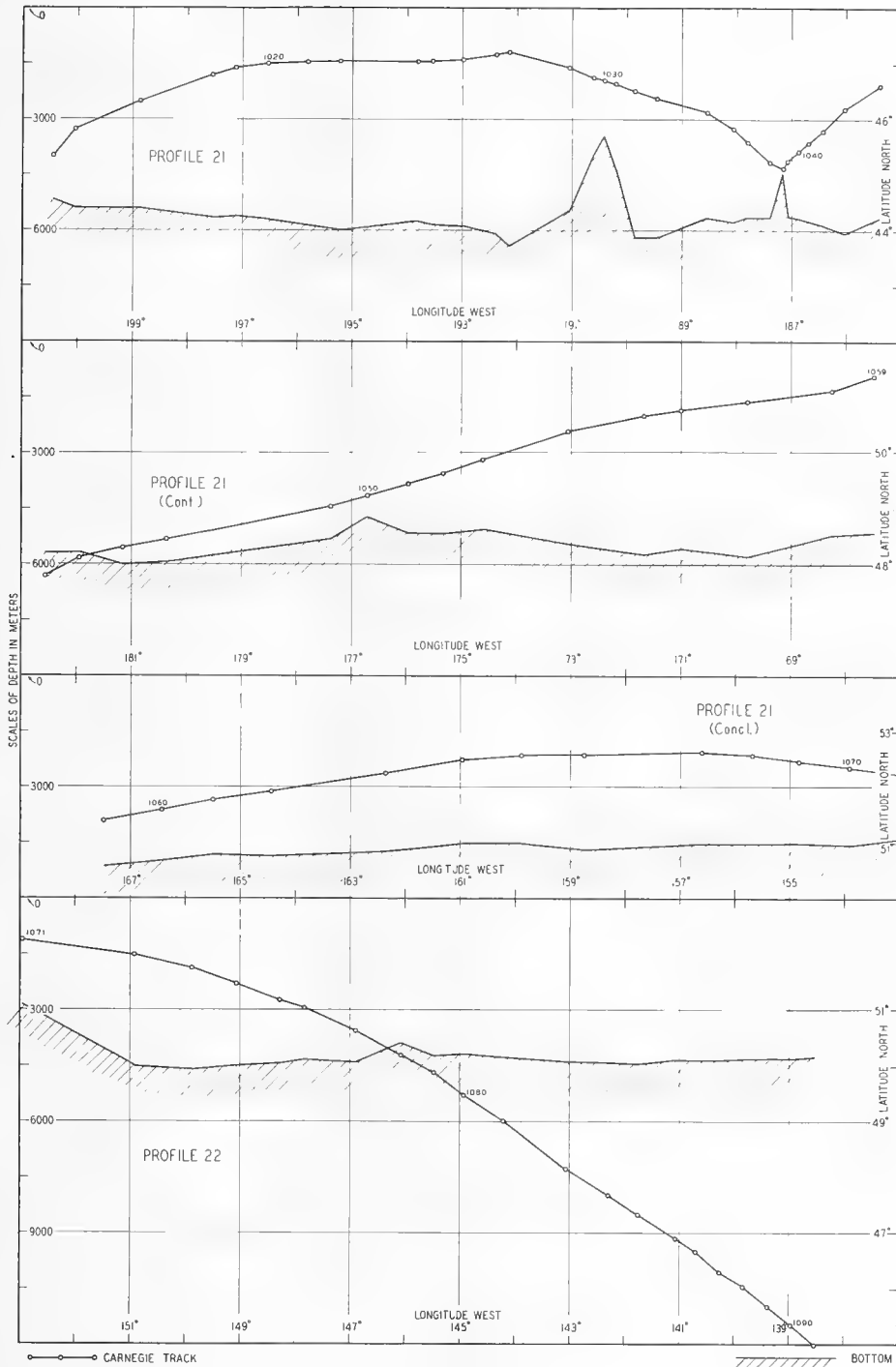


FIG. 11—BOTTOM PROFILES 21-22, PACIFIC OCEAN, CARNEGIE SONIC DEPTHS 1015-1091, JULY 7-22, 1929

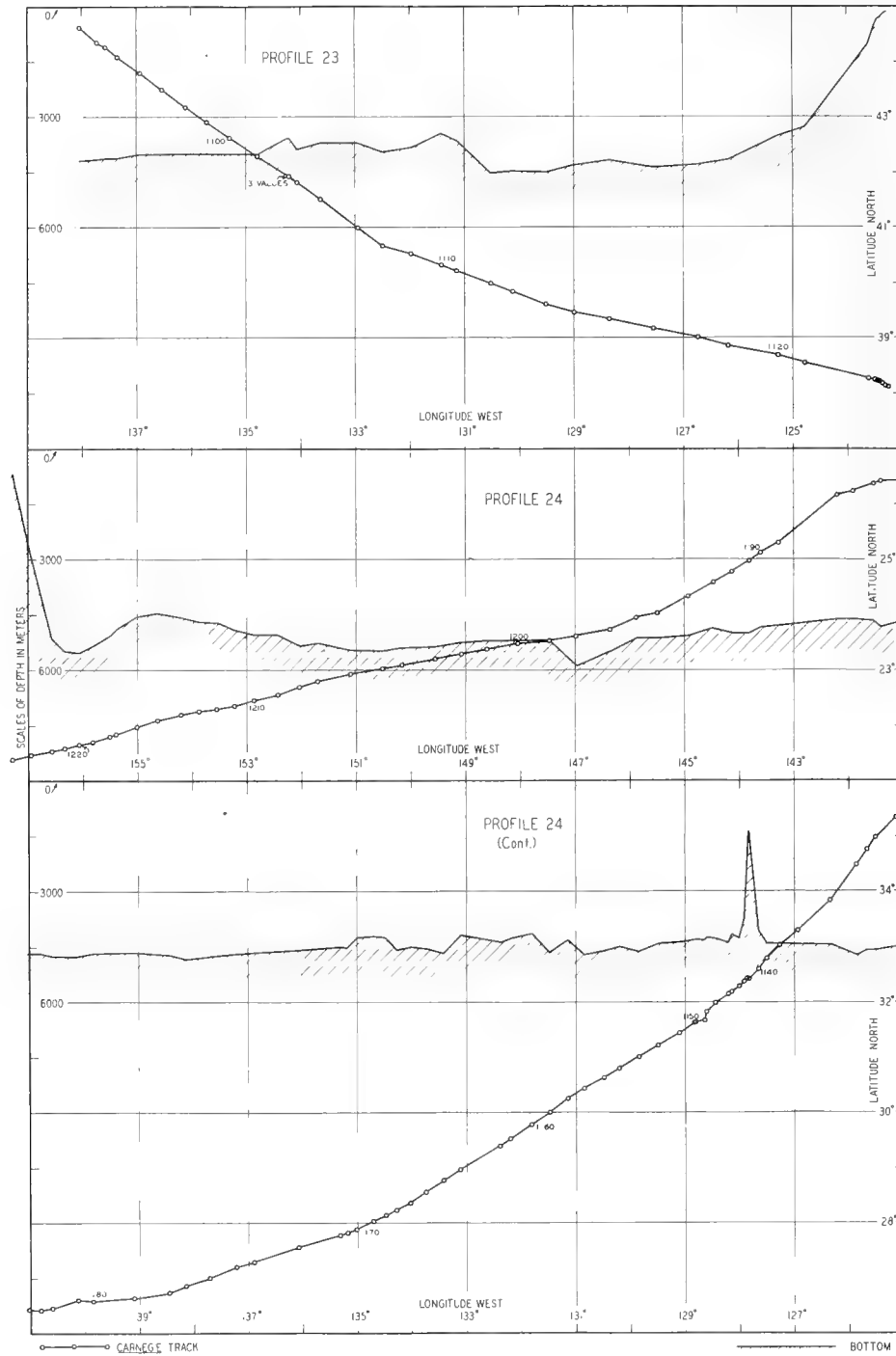


FIG 12-BOTTOM PROFILES 23-24, PACIFIC OCEAN, CARNEGIE SONIC DEPTHS 1092-1128, 1132-1224, JULY 23-26, SEPTEMBER 5-23, 1929

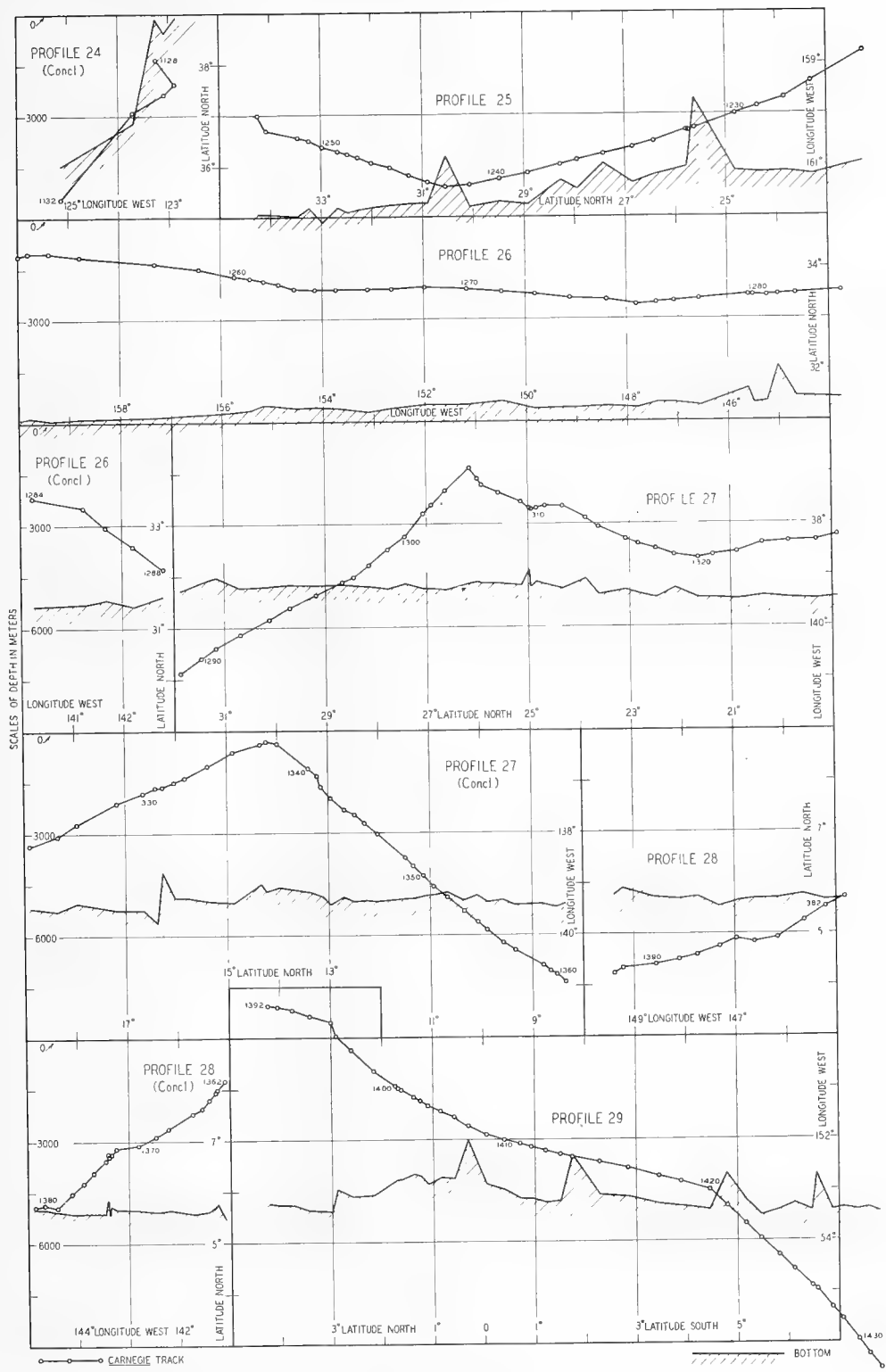
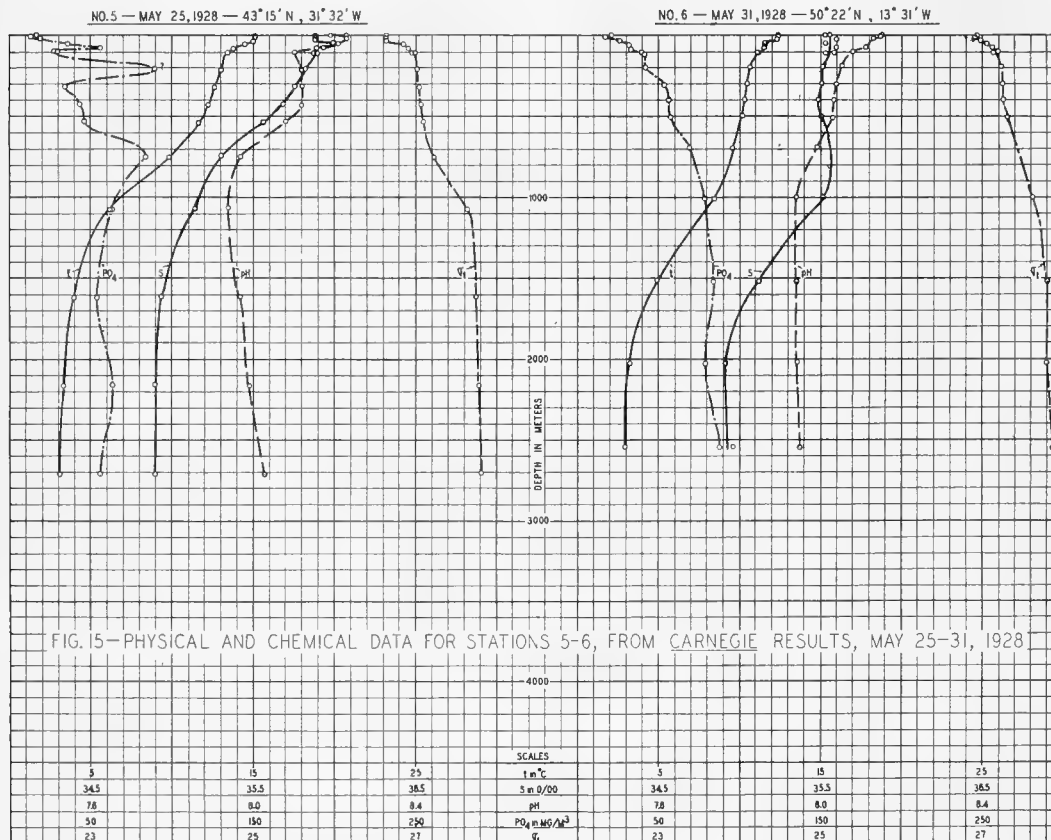
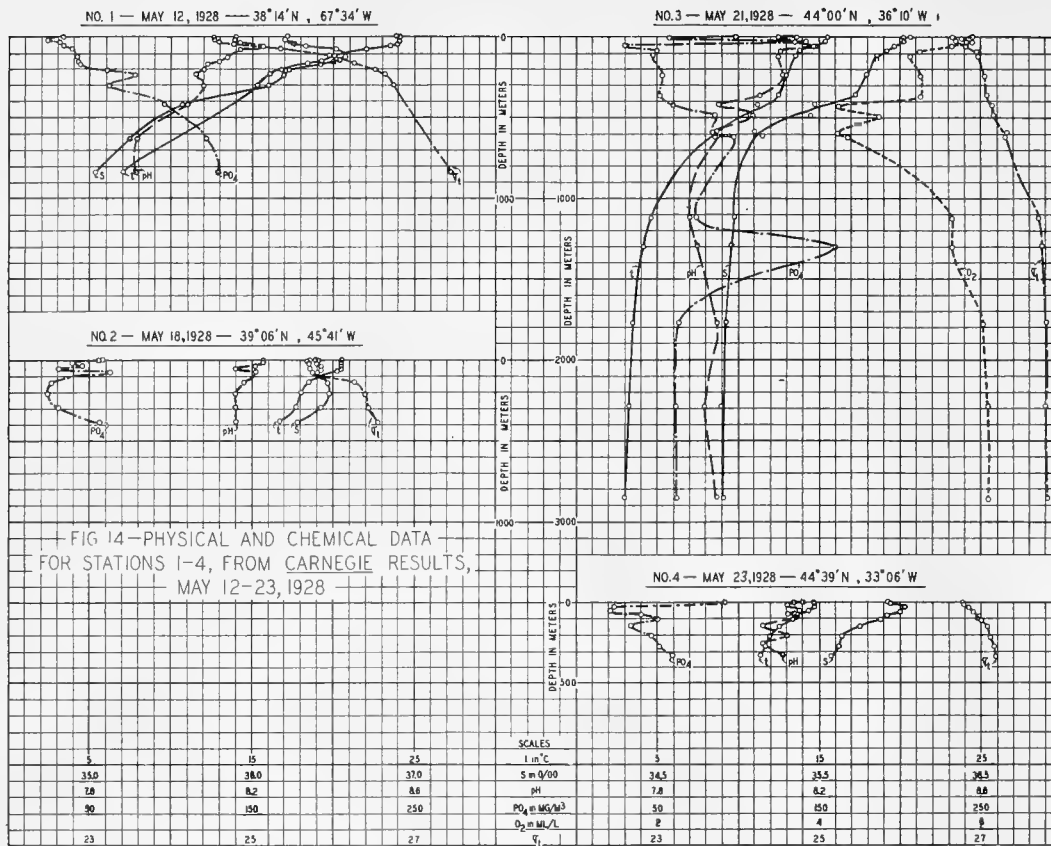
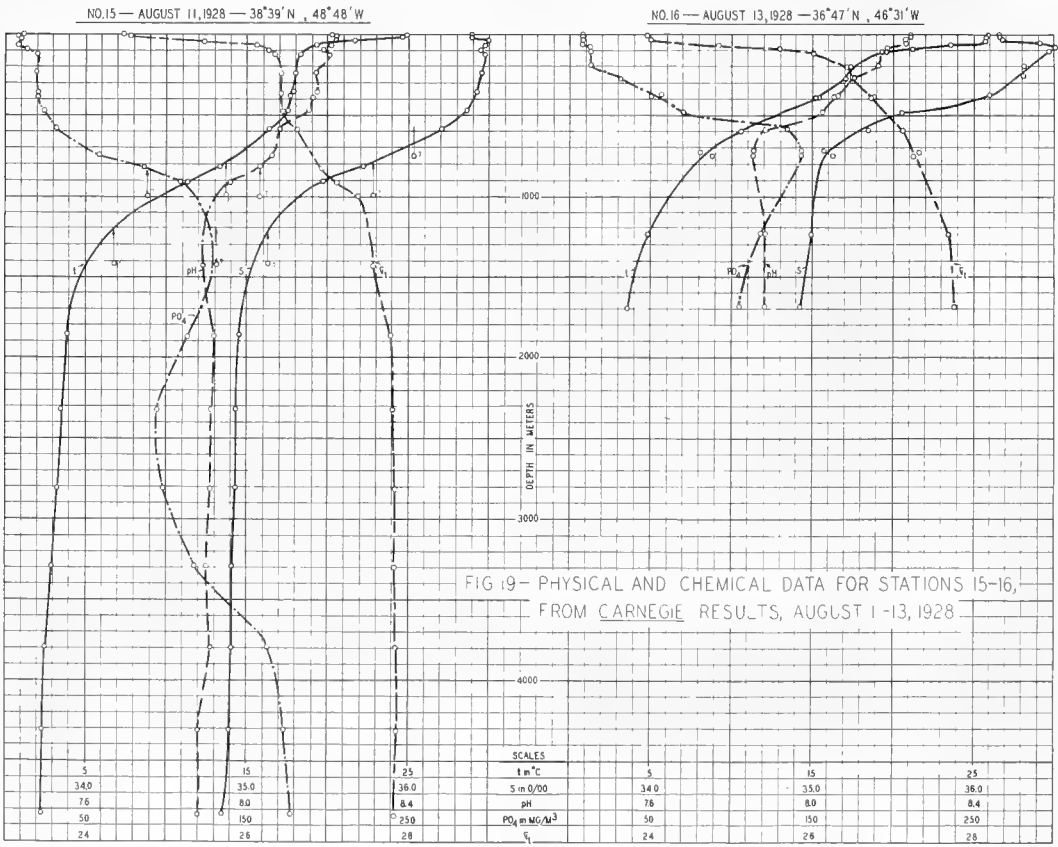
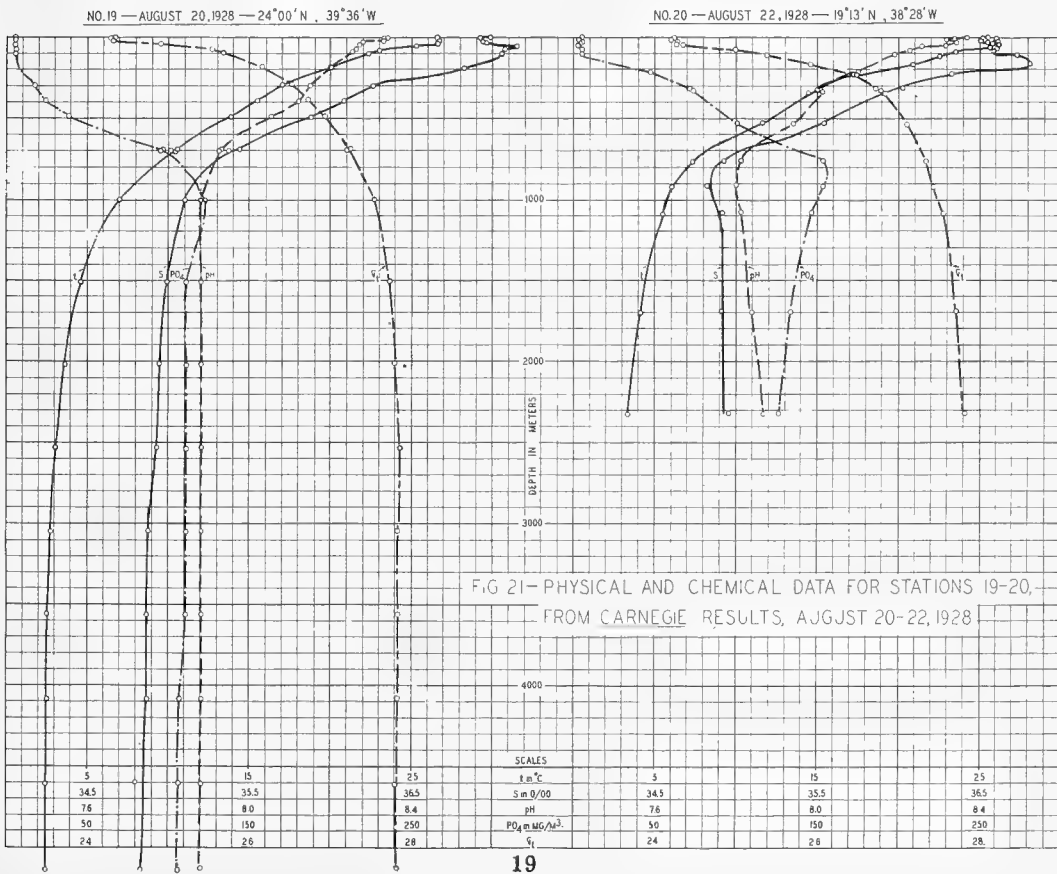
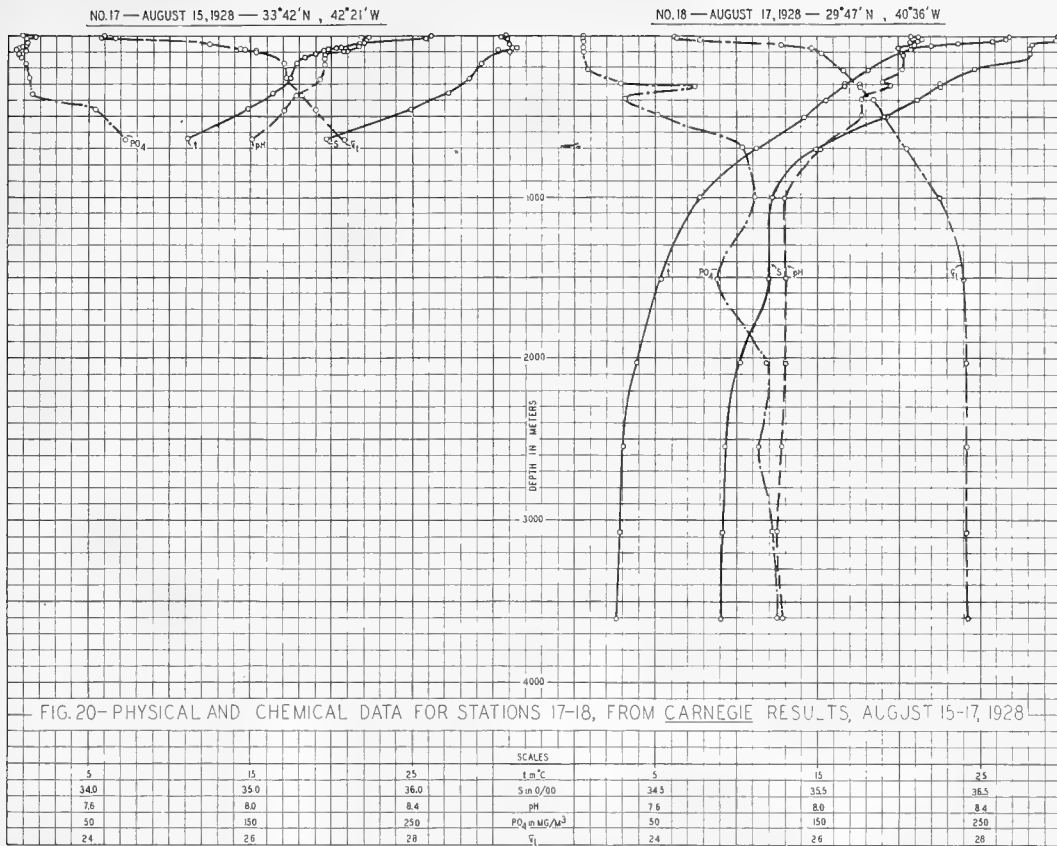


FIG. 13—BOTTOM PROFILES 24-29, PACIFIC OCEAN, CARNEGIE SONIC DEPTHS 1128-1132, 1226-1432, JULY 28 TO SEPTEMBER 5, OCTOBER 2 TO NOVEMBER 9, 1929







NO. 21—AUGUST 24, 1928—15°50' N, 37°56' W

NO. 22—AUGUST 27, 1928—13°25' N, 38°00' W

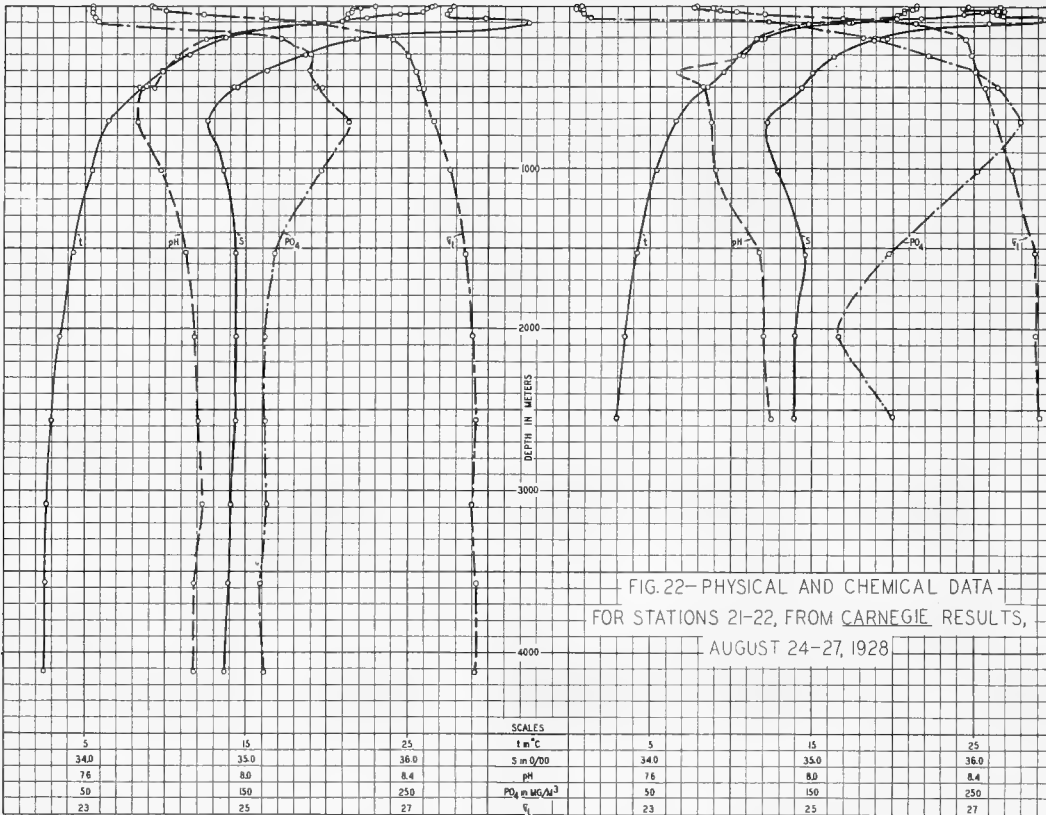


FIG. 22—PHYSICAL AND CHEMICAL DATA—
FOR STATIONS 21-22, FROM CARNEGIE RESULTS,
AUGUST 24-27, 1928

NO. 23—AUGUST 29, 1928—10°50' N, 37°24' W

NO. 24—AUGUST 31, 1928—8°15' N, 36°10' W

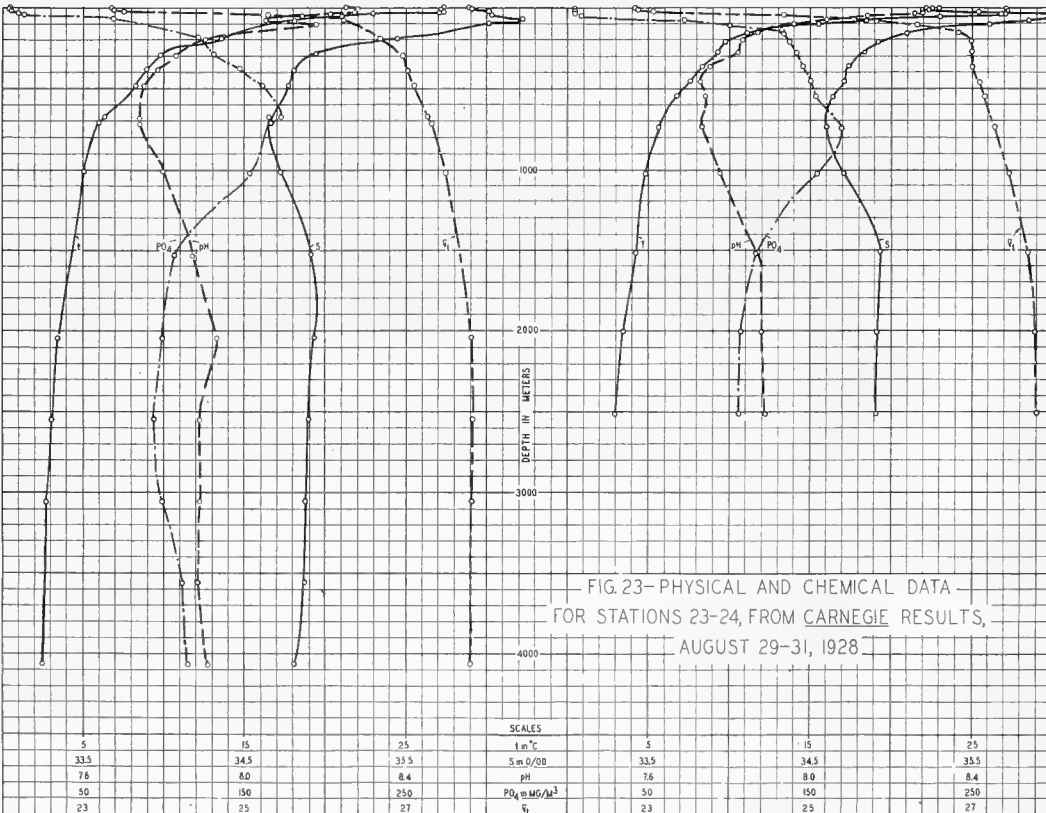


FIG. 23—PHYSICAL AND CHEMICAL DATA—
FOR STATIONS 23-24, FROM CARNEGIE RESULTS,
AUGUST 29-31, 1928

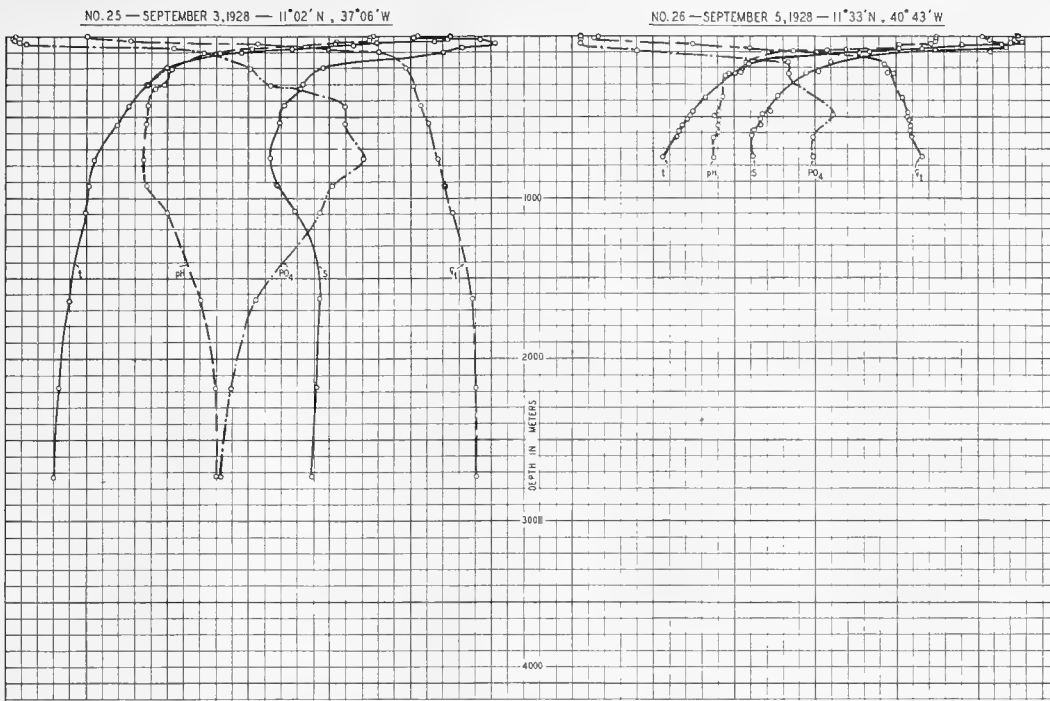


FIG. 24—PHYSICAL AND CHEMICAL DATA FOR STATIONS 25-26, FROM CARNEGIE RESULTS, SEPTEMBER 3-5, 1928

SCALES						
5	15	25	5	15	25	
33.5	34.5	35.5	34.0	35.0	36.0	
7.6	8.0	8.4	7.6	8.0	8.4	
50	150	250	50	150	250	
23	25	27	24	26	28	

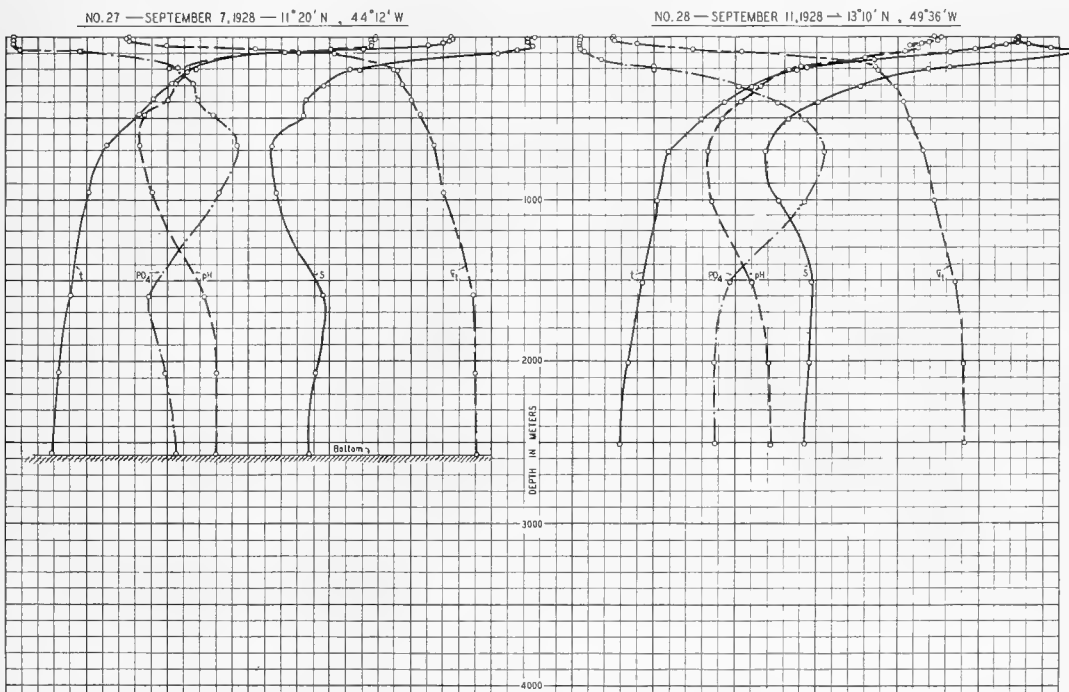
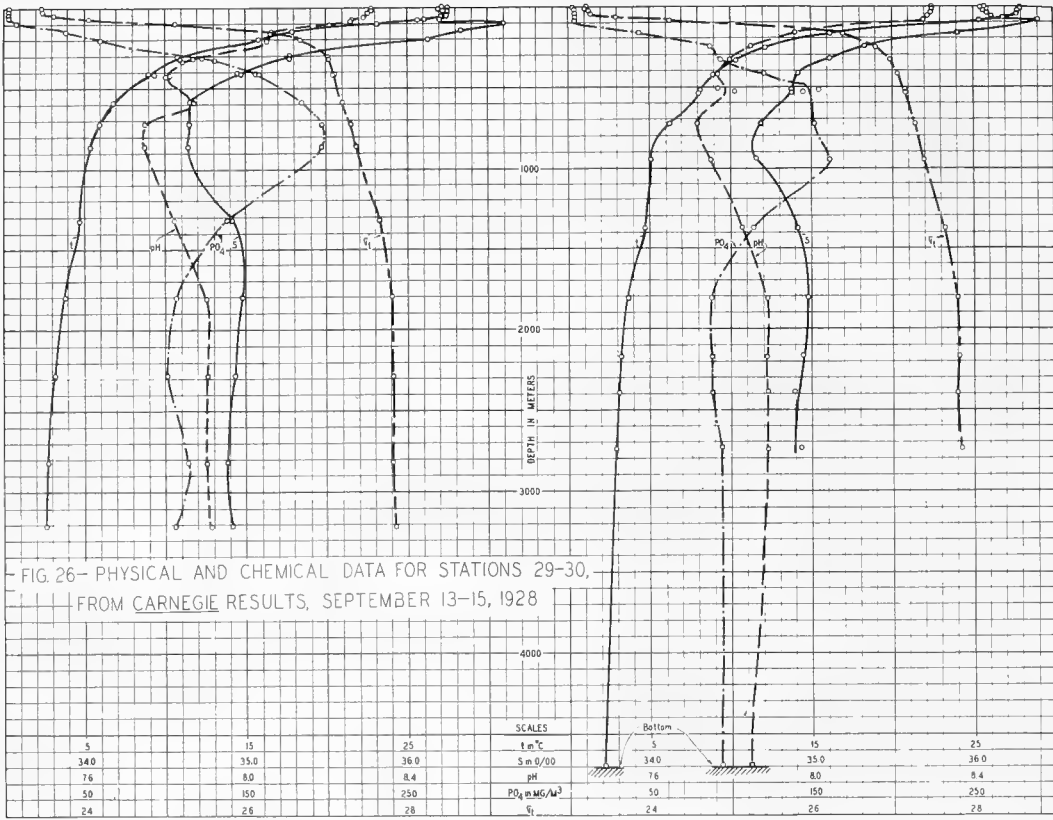


FIG. 25—PHYSICAL AND CHEMICAL DATA FOR STATIONS 27-28, FROM CARNEGIE RESULTS, SEPTEMBER 7-11, 1928

SCALES						
5	15	25	5	15	25	
33.5	34.5	35.5	34.0	35.0	36.0	
7.6	8.0	8.4	7.6	8.0	8.4	
50	150	250	50	150	250	
23	25	27	24	26	28	

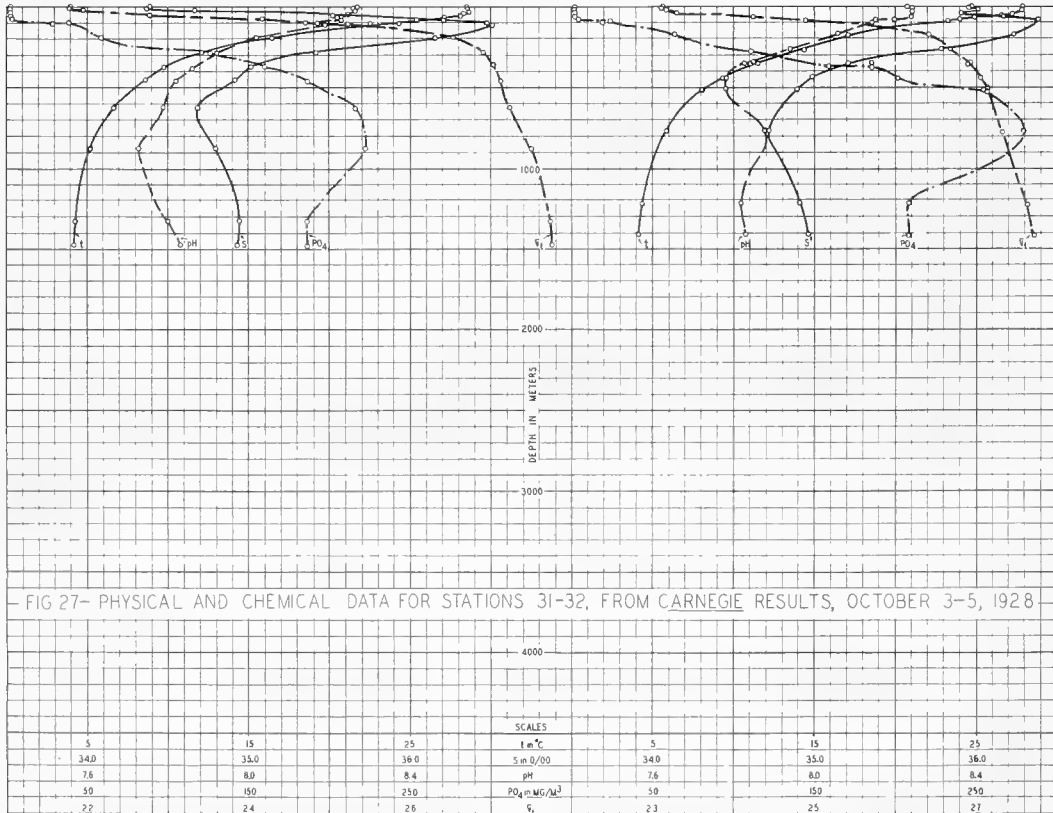
NO. 29 — SEPTEMBER 13, 1928 — 13°16' N , 52°13' W

NO. 30 — SEPTEMBER 15, 1928 — 12°54' N , 56°15' W



NO. 31 — OCTOBER 3, 1928 — 14°46' N , 63°26' W

NO. 32 — OCTOBER 5, 1928 — 15°18' N , 68°11' W



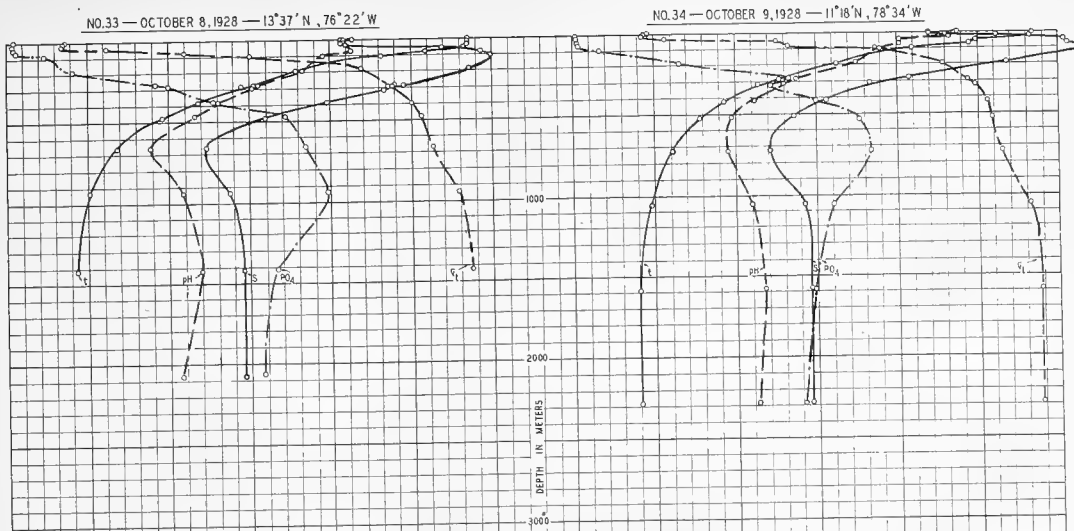


FIG. 28- PHYSICAL AND CHEMICAL DATA FOR STATIONS 33-34, FROM CARNEGIE RESULTS, OCTOBER 8-9, 1928

SCALES						
5	15	25	t m°C	5	15	25
34.0	35.0	36.0	S m 0/00	34.0	35.0	36.0
7.6	8.0	8.4	pH	7.6	8.0	8.4
50	150	250	PO ₄ in MG/L ³	50	150	250
23	25	27	sigma-t	23	25	27

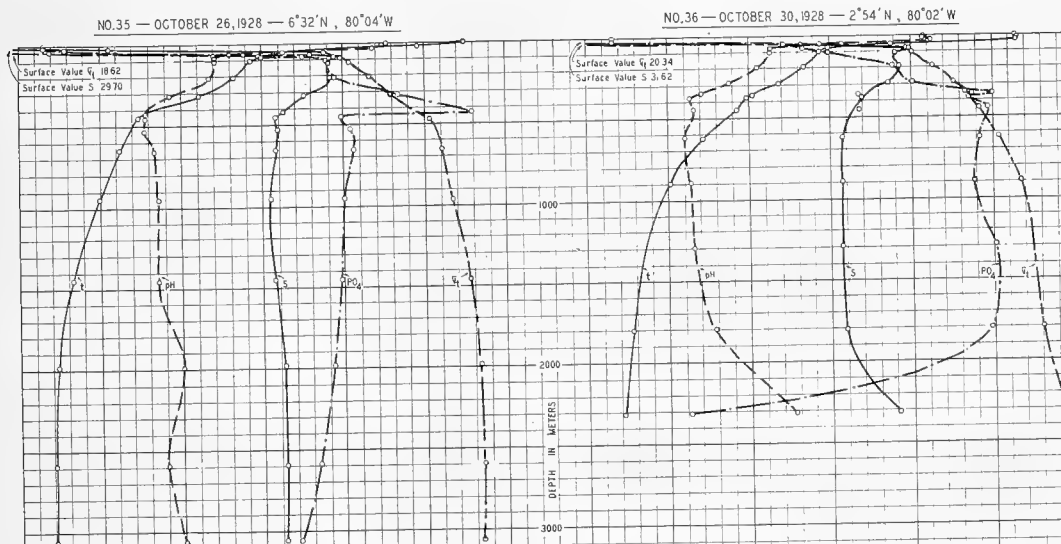


FIG. 29- PHYSICAL AND CHEMICAL DATA FOR STATIONS 35-36, FROM CARNEGIE RESULTS, OCTOBER 26-30, 1928

SCALES						
5	15	25	t m°C	5	15	25
33.5	34.5	35.5	S m 0/00	33.5	34.5	35.5
7.6	8.0	8.4	pH	7.6	8.0	8.4
50	150	250	PO ₄ in MG/L ³	50	150	250
23	25	27	sigma-t	23	25	27

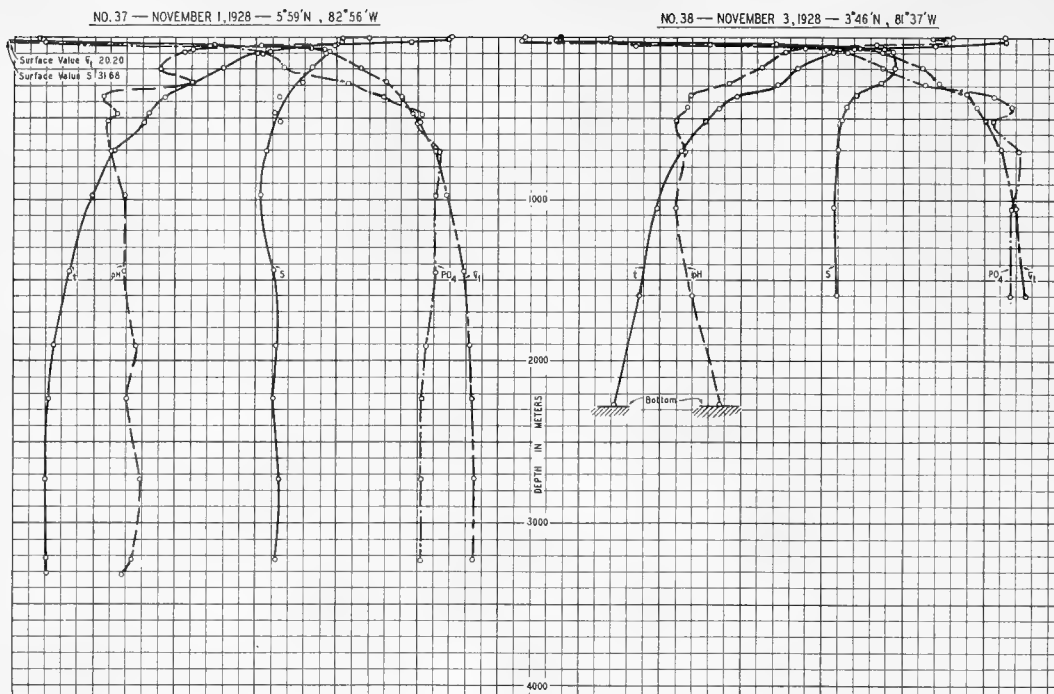


FIG. 30- PHYSICAL AND CHEMICAL DATA FOR STATIONS 37-38, FROM CARNEGIE RESULTS, NOVEMBER 1-3, 1928

SCALES						
5	15	25	1 m°C	5	15	25
33.5	34.5	35.5	5 m.0/100	33.5	34.5	35.5
7.6	8.0	8.4	pH	7.6	8.0	8.4
50	150	250	PO ₄ m.MG/L ³	50	150	250
23	25	27	σ _t	23	25	27

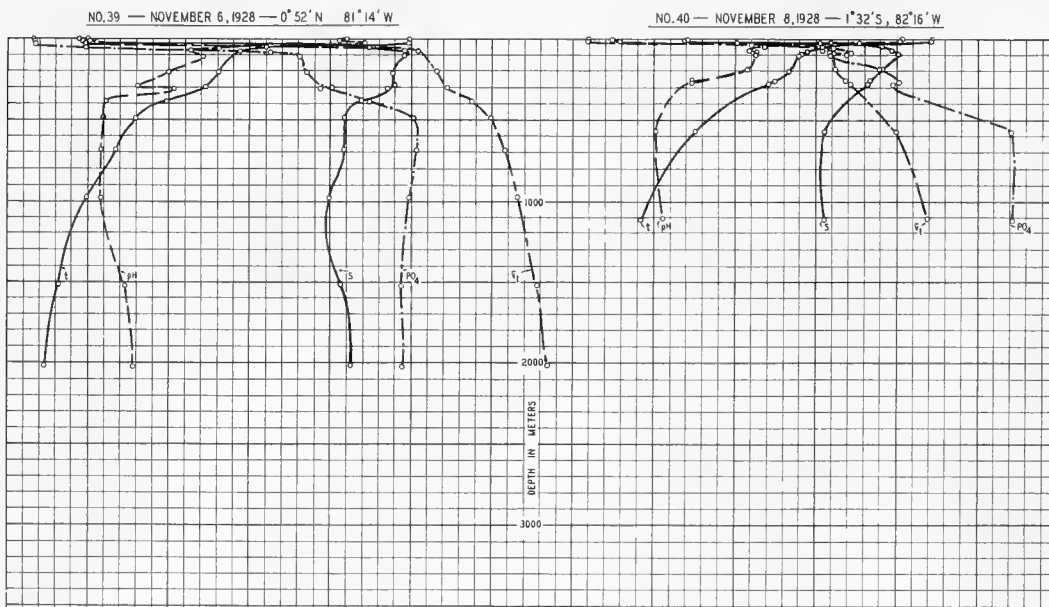


FIG. 31- PHYSICAL AND CHEMICAL DATA FOR STATIONS 39-40, FROM CARNEGIE RESULTS, NOVEMBER 6-8, 1928

SCALES						
5	15	25	1 m°C	5	15	25
33.0	34.0	35.0	5 m.0/100	33.5	34.5	35.5
7.6	8.0	8.4	pH	7.6	8.0	8.4
50	150	250	PO ₄ m.MG/L ³	50	150	250
22	24	26	σ _t	24	26	28

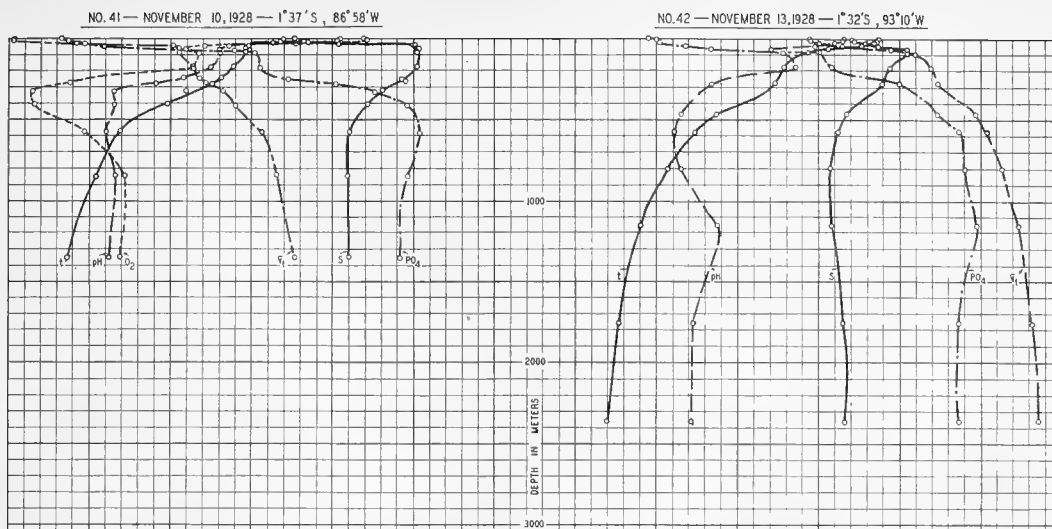


FIG. 32- PHYSICAL AND CHEMICAL DATA FOR STATIONS 41-42, FROM CARNEGIE RESULTS, NOVEMBER 10-13, 1928

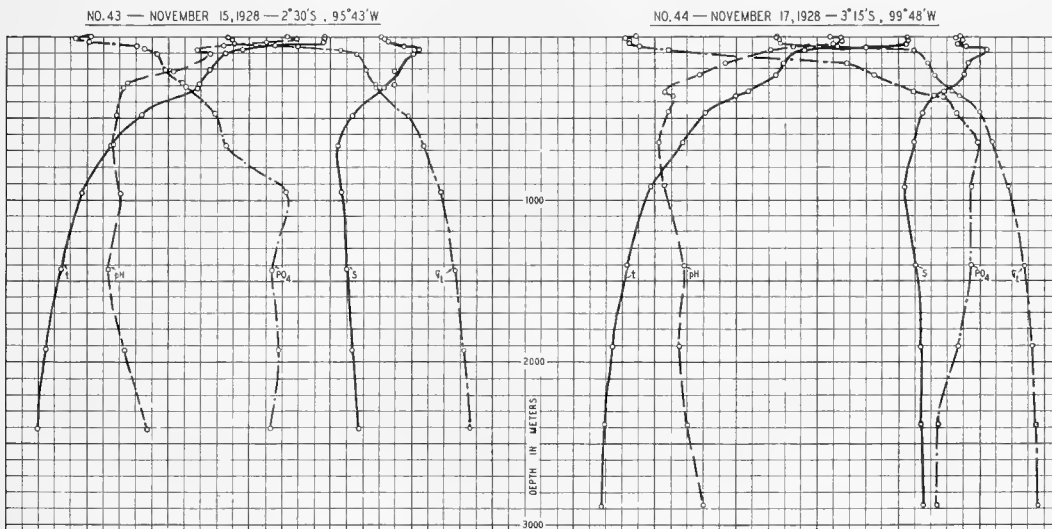
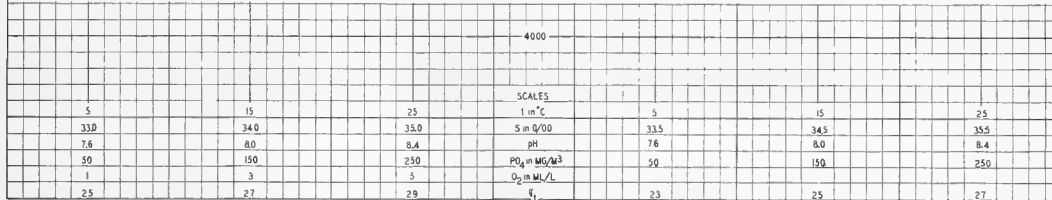
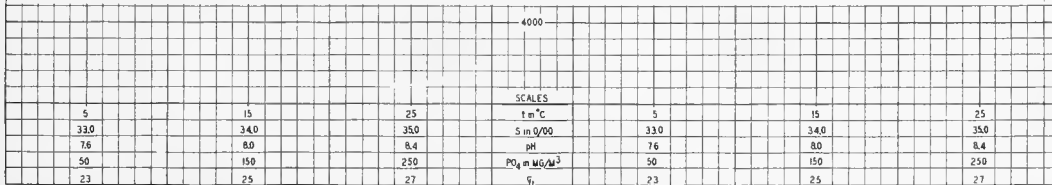


FIG. 33- PHYSICAL AND CHEMICAL DATA FOR STATIONS 43-44, FROM CARNEGIE RESULTS, NOVEMBER 15-17, 1928



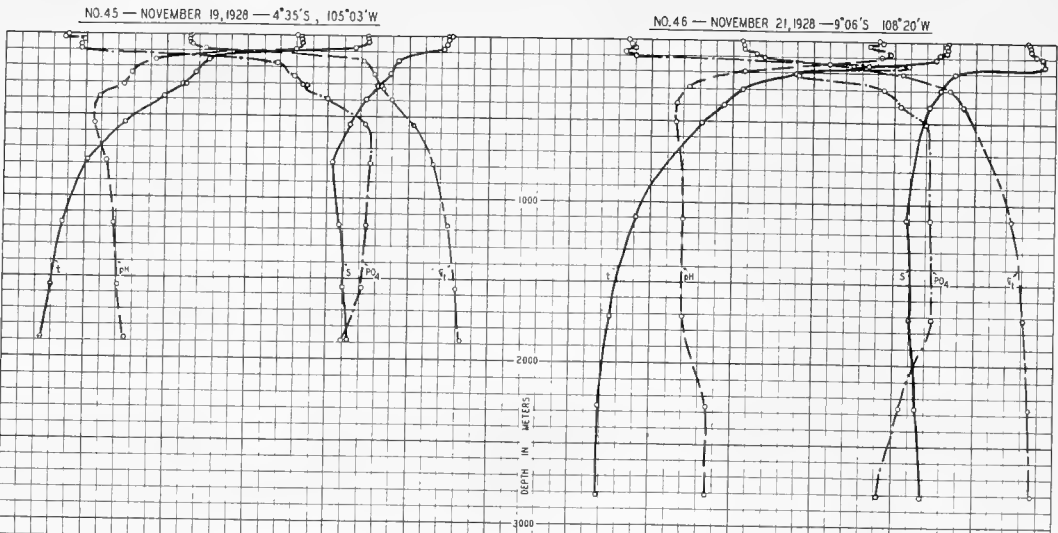


FIG 34- PHYSICAL AND CHEMICAL DATA FOR STATIONS 45-46, FROM CARNEGIE RESULTS, NOVEMBER 19-21, 1928

			SCALES			
5	15	25	t m°C	5	15	25
33.0	34.0	35.0	S m g/100	33.0	34.0	35.0
7.6	8.0	8.4	pH	7.6	8.0	8.4
50	150	250	PO ₄ m g/L	50	150	250
23	25	27	Si	23	25	27

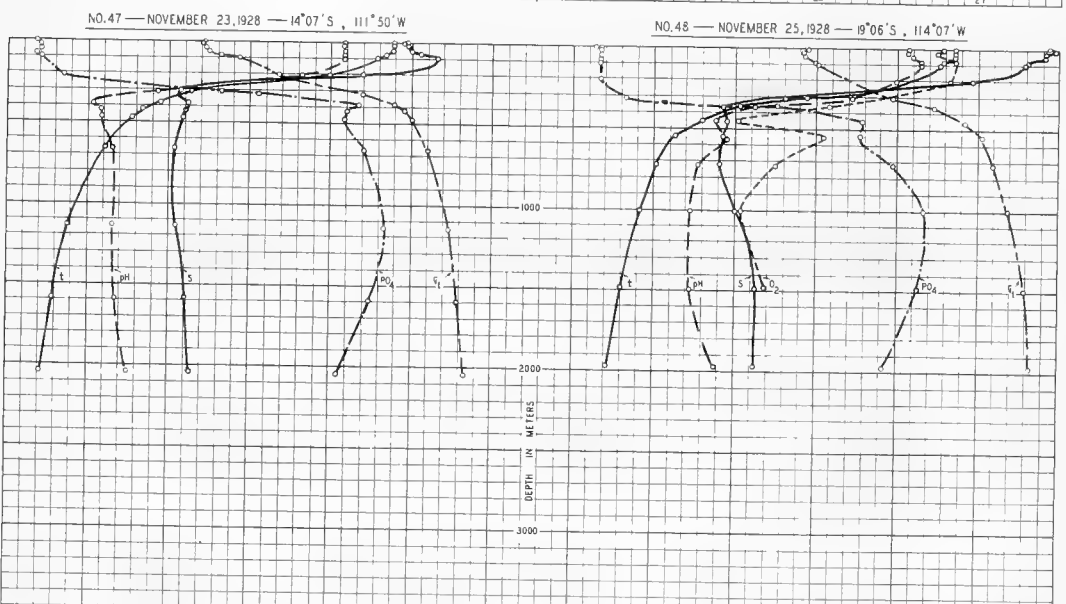


FIG 35- PHYSICAL AND CHEMICAL DATA FOR STATIONS 47-48, FROM CARNEGIE RESULTS, NOVEMBER 23-25, 1928

			SCALES			
5	15	25	t m°C	5	15	25
34.0	35.0	36.0	S m g/100	34.0	35.0	36.0
7.6	8.0	8.4	pH	7.6	8.0	8.4
50	150	250	PO ₄ m g/L	50	150	250
23	25	27	O ₂ m M/L	1	3	5
			Si	23	25	27

NO. 49 — NOVEMBER 27, 1928 — 23°16' S , 114°45' W

NO. 50 — NOVEMBER 29, 1928 — 26°27' S , 115°21' W

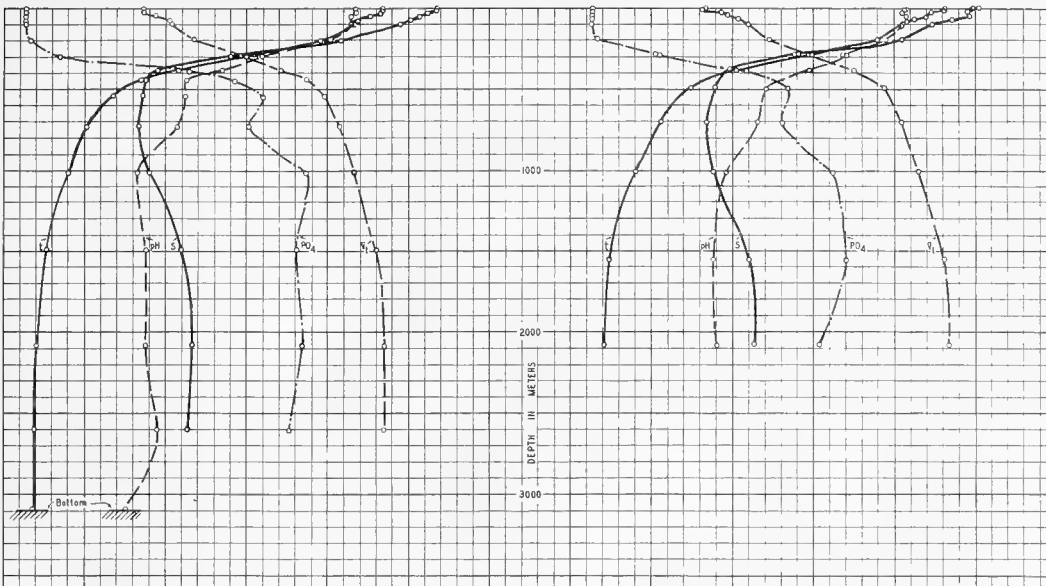


FIG. 36— PHYSICAL AND CHEMICAL DATA FOR STATIONS 49-50, FROM CARNEGIE RESULTS, NOVEMBER 27-29, 1928

			SCALES		
5	15	25	1 m°C	5	25
34.0	35.0	36.0	S m 0/100	34.0	36.0
7.6	8.0	8.4	pH	7.6	8.4
50	150	250	PO ₄ m MG/M ³	50	250
2.4	2.6	2.8	σ _t	2.4	2.8

NO. 51 — DECEMBER 1, 1928 — 29°06' S , 114°48' W

NO. 52 — DECEMBER 3, 1928 — 31°28' S , 112°51' W

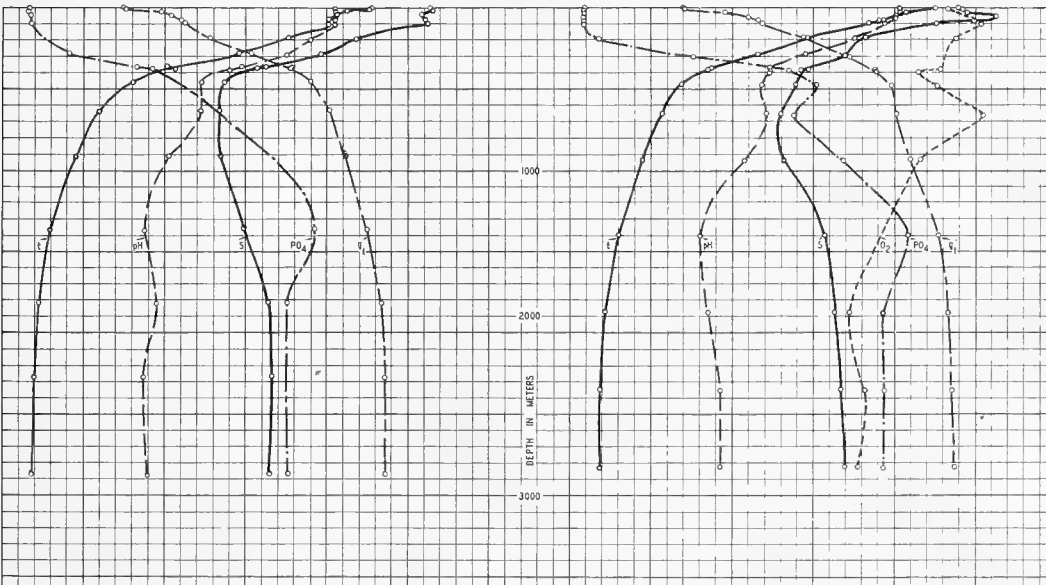


FIG. 37— PHYSICAL AND CHEMICAL DATA FOR STATIONS 51-52, FROM CARNEGIE RESULTS, DECEMBER 1-3, 1928

			SCALES		
5	15	25	1 m°C	5	25
33.5	34.5	35.5	S m 0/100	33.5	35.5
7.6	8.0	8.4	pH	7.6	8.4
50	150	250	PO ₄ m MG/M ³	50	250
2.4	2.6	2.8	O ₂ m ML/L	2.4	2.8
			σ _t		

NO.53 — DECEMBER 5, 1928 — 29°06'S, 108°44'W

NO.54 — DECEMBER 14, 1928 — 29°17'S, 108°54'W

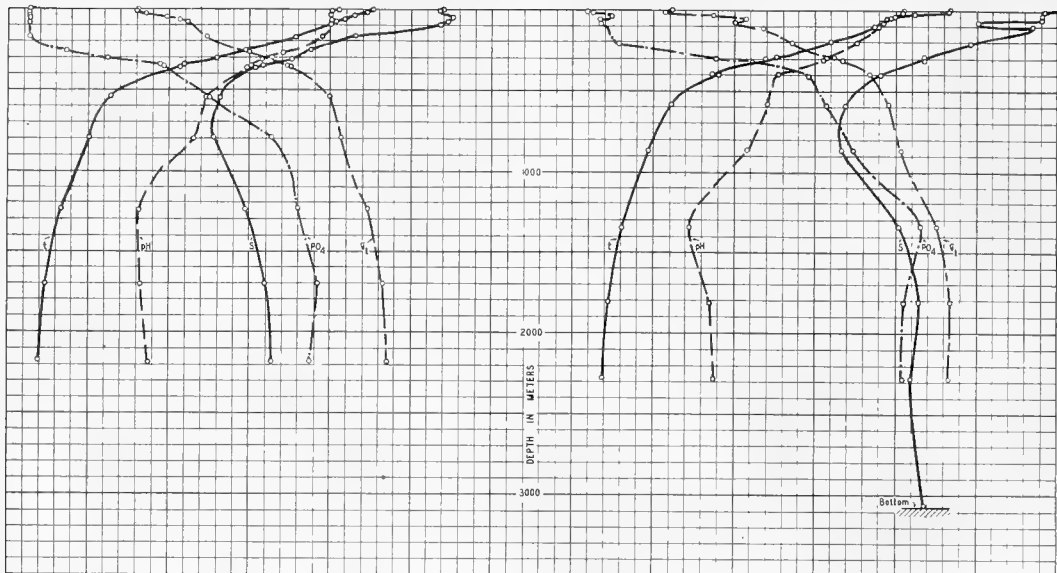
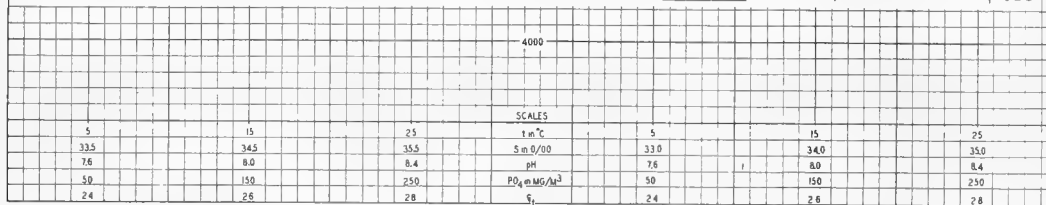


FIG. 38 — PHYSICAL AND CHEMICAL DATA FOR STATIONS 53-54, FROM CARNEGIE RESULTS, DECEMBER 5-14, 1928



NO.55 — DECEMBER 16, 1928 — 32°03'S, 110°55'W

NO.56 — DECEMBER 18, 1928 — 31°49'S, 109°04'W

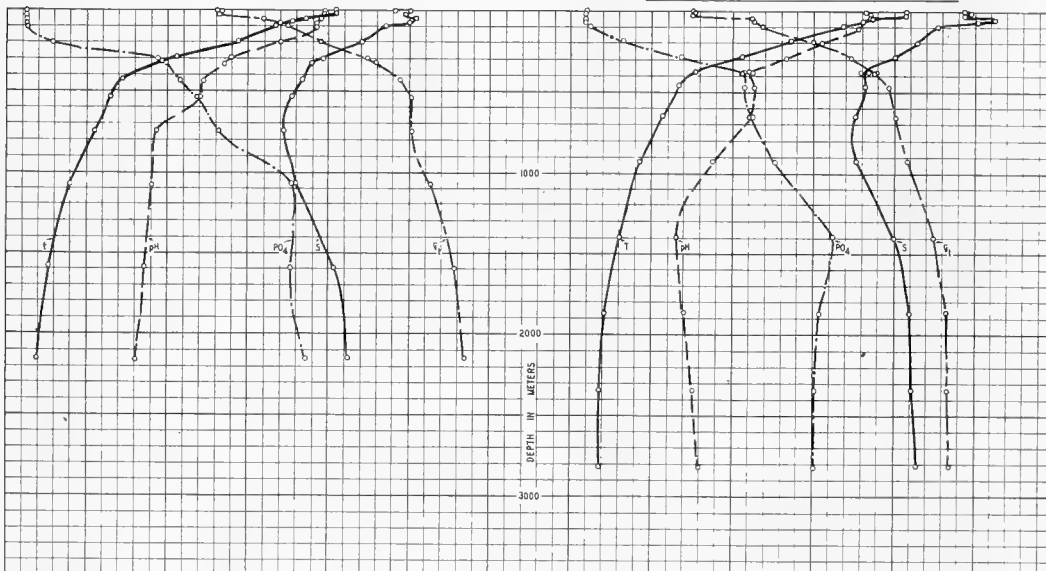
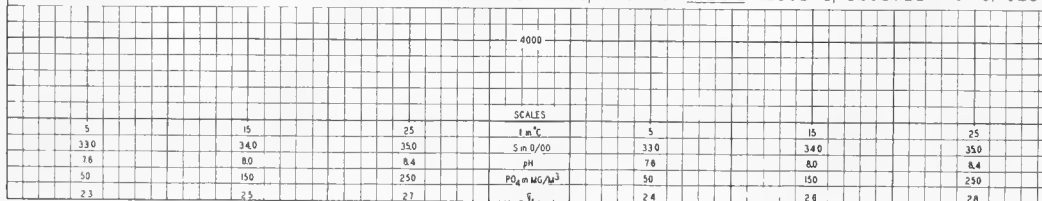


FIG. 39 — PHYSICAL AND CHEMICAL DATA FOR STATIONS 55-56, FROM CARNEGIE RESULTS, DECEMBER 16-18, 1928



NO. 57 — DECEMBER 20, 1928 — 33° 59' S, 106° 43' W

NO. 58 — DECEMBER 22, 1928 — 36° 56' S, 104° 05' W

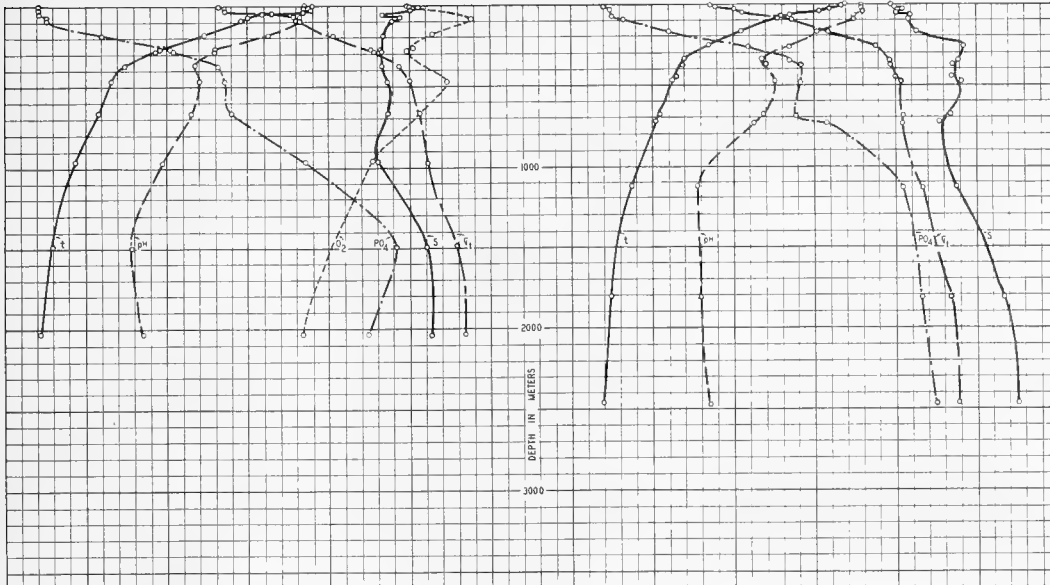


FIG. 40— PHYSICAL AND CHEMICAL DATA FOR STATIONS 57—58, FROM CARNEGIE RESULTS, DECEMBER 20—22, 1928

			SCALES			
5	15	25	t in °C	5	15	25
32.5	33.5	34.5	S in ‰/100	32.5	33.5	34.5
7.6	8.0	8.4	pH	7.6	8.0	8.4
50	150	250	PO ₄ in MG/M ³	50	150	250
1	3	5	Si ₂ in MG/L	2.4	2.6	2.8
23	25	27	σ _t			

NO. 59 — DECEMBER 24, 1928 — 39° 51' S, 101° 04' W

NO. 60 — DECEMBER 26, 1928 — 40° 24' S, 97° 33' W

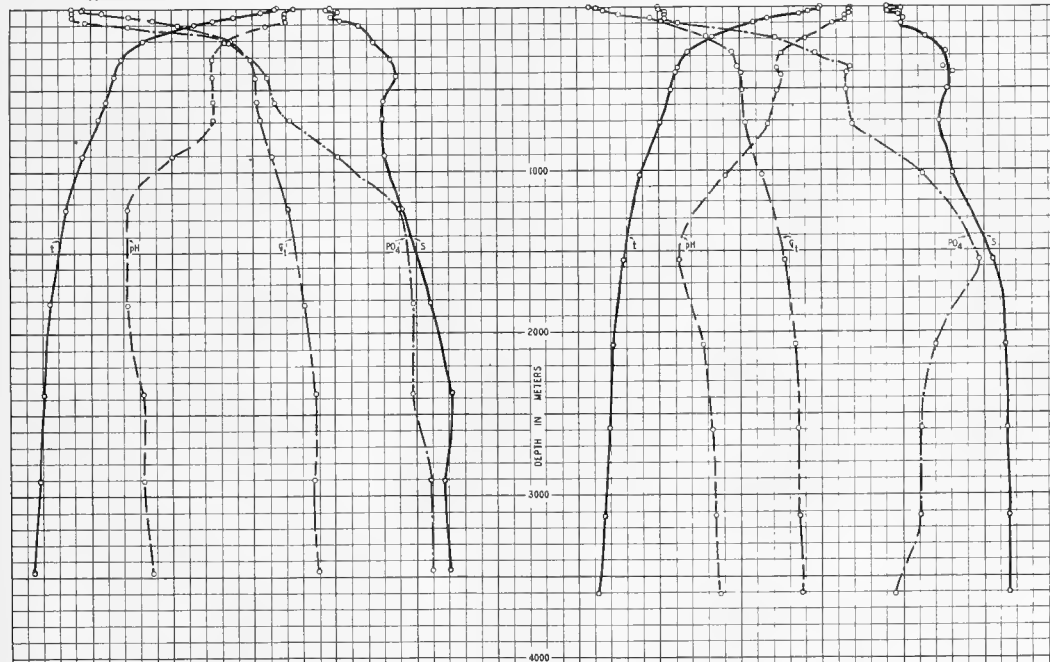


FIG. 41— PHYSICAL AND CHEMICAL DATA FOR STATIONS 59—60, FROM CARNEGIE RESULTS, DECEMBER 24—26, 1928

			SCALES			
5	15	25	t in °C	5	15	25
32.5	33.5	34.5	S in ‰/100	32.5	33.5	34.5
7.6	8.0	8.4	pH	7.6	8.0	8.4
50	150	250	PO ₄ in MG/M ³	50	150	250
2.5	2.7	2.9	Si ₂	2.6	2.8	3.0

NO.61 — DECEMBER 28, 1928 — 38°29'S, 94°14'W

NO.62 — DECEMBER 30, 1928 — 34°35'S, 91°52'W



FIG 42—PHYSICAL AND CHEMICAL DATA FOR STATIONS 61-62, FROM CARNEGIE RESULTS, DECEMBER 28-30, 1928

			SCALES			
5	15	25	t in °C	5	15	25
32.5	33.5	34.5	S in ‰/00	32.5	33.5	34.5
7.6	8.0	8.4	pH	7.6	8.0	8.4
50	150	250	PO ₄ in MG/M ³	50	150	250
2.4	2.6	2.8	σ _t	2.5	2.7	2.9

NO.63 — JANUARY 1, 1929 — 32°10'S, 89°04'W

NO.64 — JANUARY 3, 1929 — 31°54'S, 88°17'W

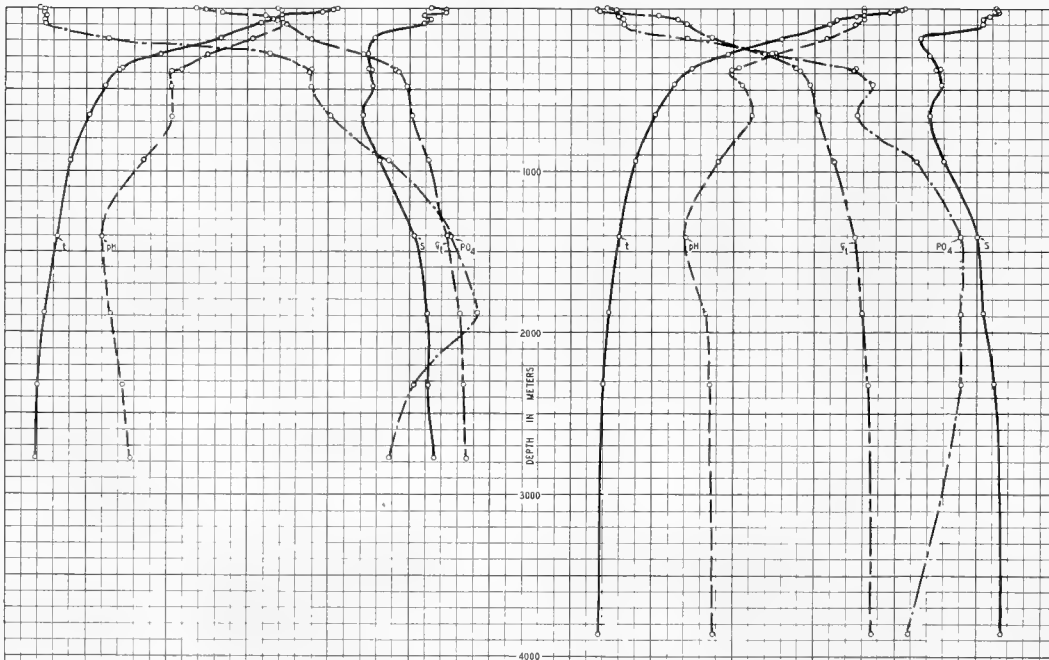


FIG.43—PHYSICAL AND CHEMICAL DATA FOR STATIONS 63-64, FROM CARNEGIE RESULTS, JANUARY 1-3, 1929

			SCALES			
5	15	25	t in °C	5	15	25
32.5	33.5	34.5	S in ‰/00	32.5	33.5	34.5
7.6	8.0	8.4	pH	7.6	8.0	8.4
50	150	250	PO ₄ in MG/M ³	50	150	250
2.3	2.5	2.7	σ _t	2.5	2.7	2.9

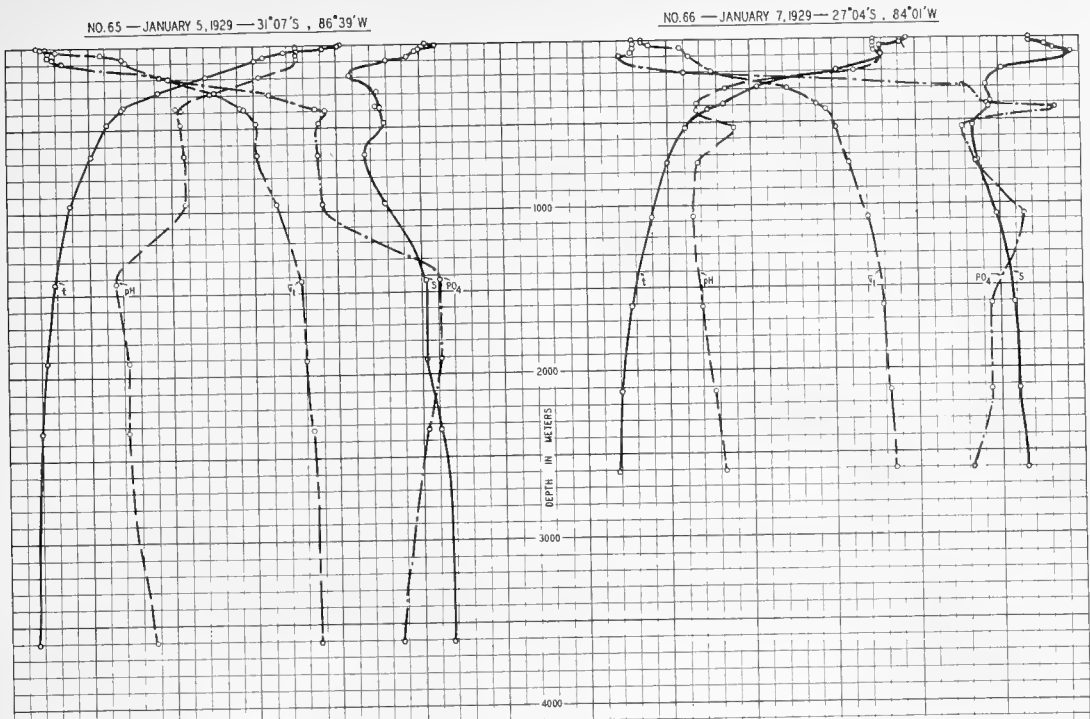


FIG 44—PHYSICAL AND CHEMICAL DATA FOR STATIONS 65-66, FROM CARNEGIE RESULTS, JANUARY 5-7, 1929

SCALES						
5	15	25	t, m°C	5	15	25
32.5	33.5	34.5	S, m 0/00	32.5	33.5	34.5
7.6	8.0	8.4	pH	7.6	8.0	8.4
50	150	250	PO ₄ in MG/L ³	50	150	250
2.5	27	29	σ _t	2.5	27	29

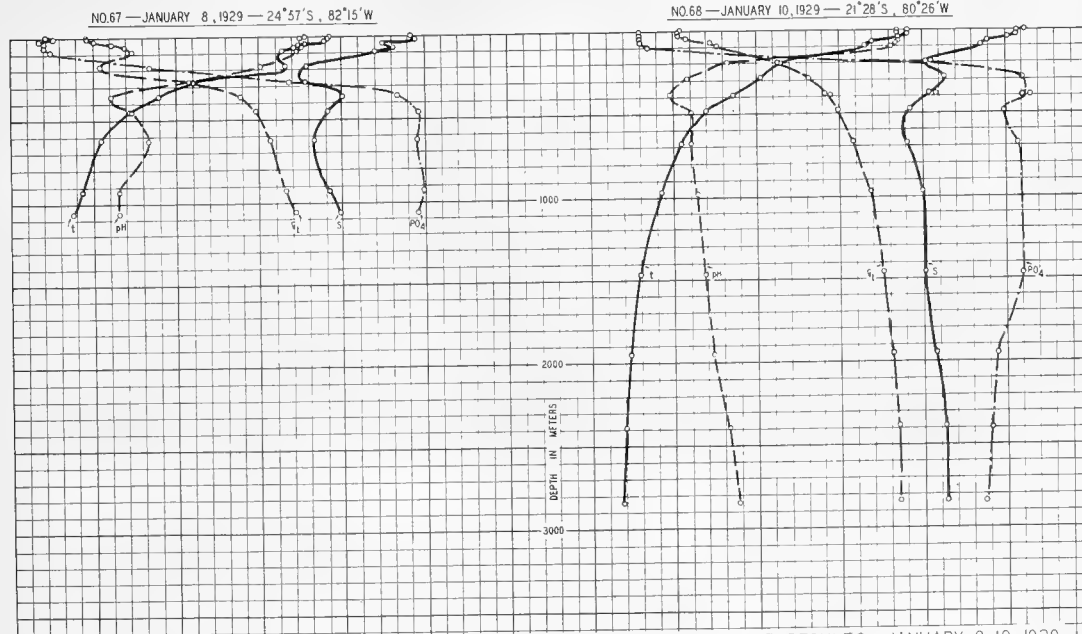


FIG 45—PHYSICAL AND CHEMICAL DATA FOR STATIONS 67-68, FROM CARNEGIE RESULTS, JANUARY 8-10, 1929

SCALES						
5	15	25	t, m°C	5	15	25
33.0	34.0	35.0	S, m 0/00	33.0	34.0	35.0
7.6	8.0	8.4	pH	7.6	8.0	8.4
50	150	250	PO ₄ in MG/L ³	50	150	250
2.5	27	29	σ _t	2.5	27	29

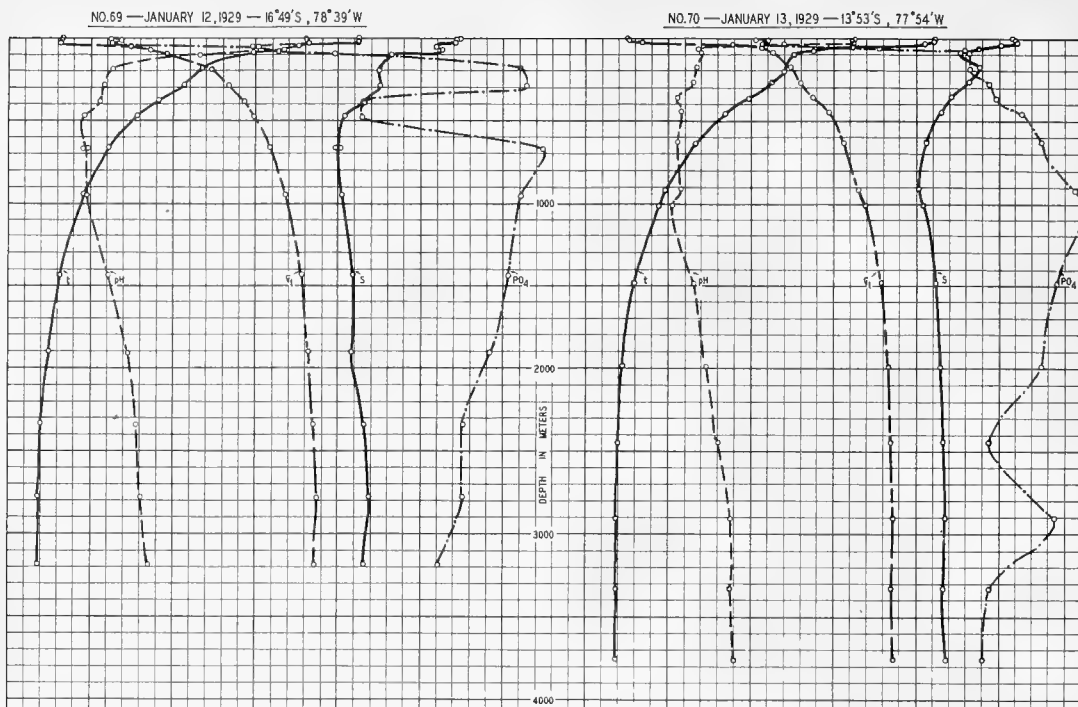


FIG.46—PHYSICAL AND CHEMICAL DATA FOR STATIONS 69-70, FROM CARNEGIE RESULTS, JANUARY 12-13, 1929

SCALES						
5	15	25	1 m°C	5	15	25
33.0	34.0	35.0	5 m σ/100	33.0	34.0	35.0
7.6	8.0	8.4	pH	7.6	8.0	8.4
50	150	250	PO ₄ in μG/μ ³	50	150	250
25	27	29	Si	25	27	29

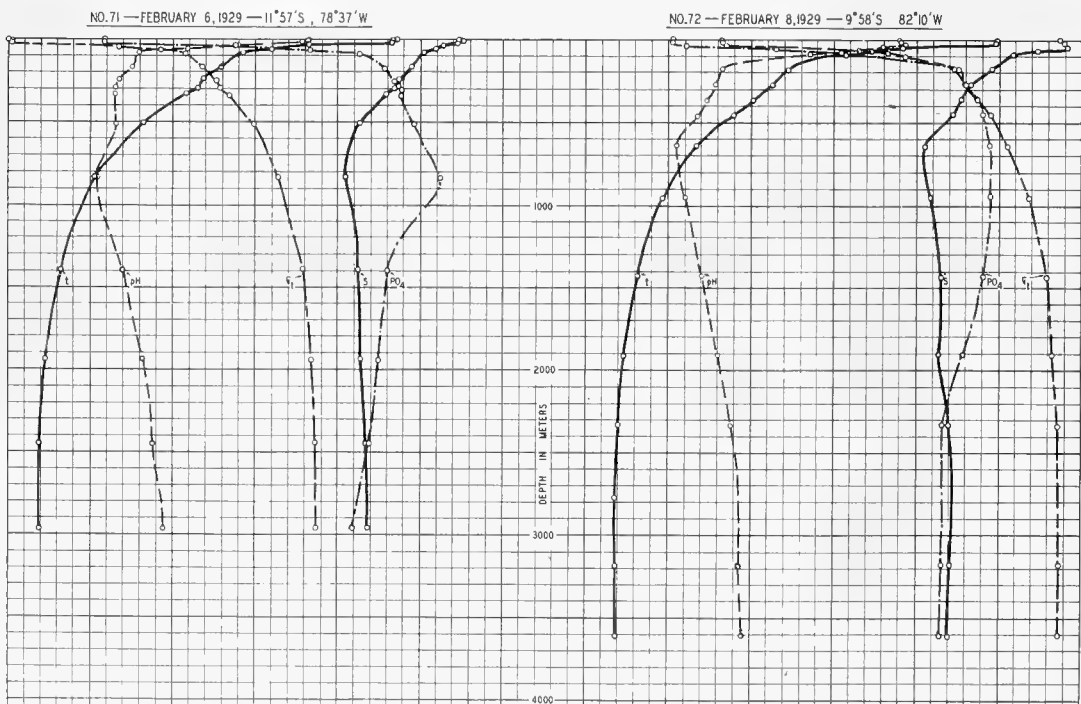


FIG.47—PHYSICAL AND CHEMICAL DATA FOR STATIONS 71-72, FROM CARNEGIE RESULTS, FEBRUARY 6-8, 1929

SCALES						
5	15	25	1 m°C	5	15	25
33.0	34.0	35.0	5 m σ/100	33.0	34.0	35.0
7.6	8.0	8.4	pH	7.6	8.0	8.4
50	150	250	PO ₄ in μG/μ ³	50	150	250
25	27	29	Si	25	27	29

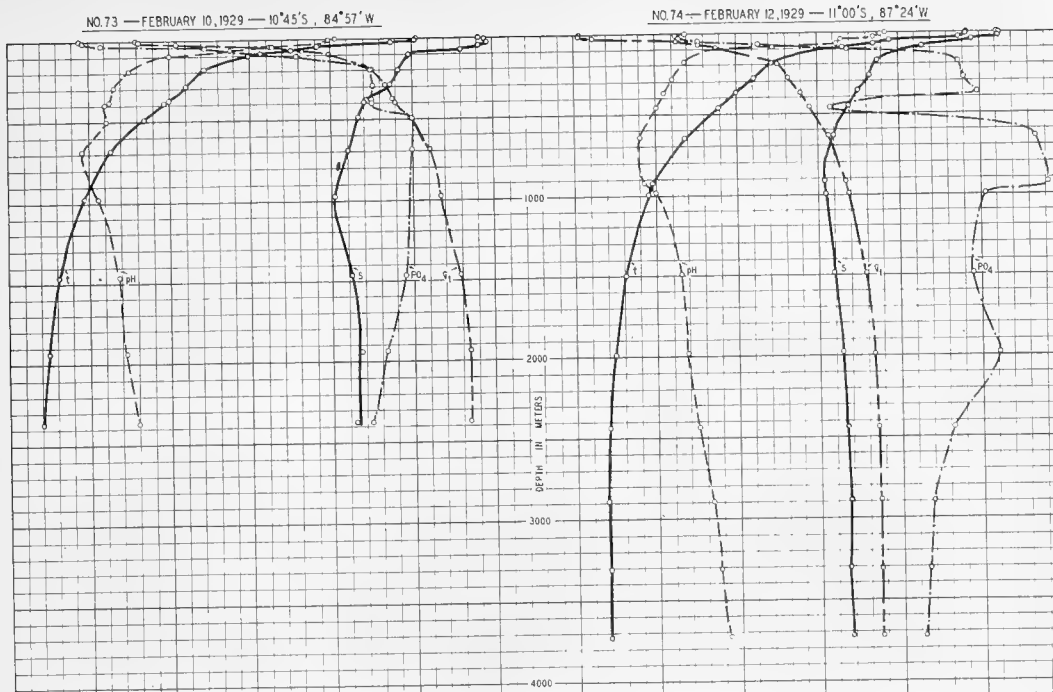


FIG. 48- PHYSICAL AND CHEMICAL DATA FOR STATIONS 73-74, FROM CARNEGIE RESULTS, FEBRUARY 10-12, 1929

			SCALES			
5	15	25	t m °C	5	15	25
33.0	34.0	35.0	S in ‰/00	33.5	34.5	35.5
7.6	8.0	8.4	pH	7.6	8.0	8.4
50	150	250	PO ₄ in MG/M ³	50	150	250
23	25	27	ϕ ₁	25	27	29

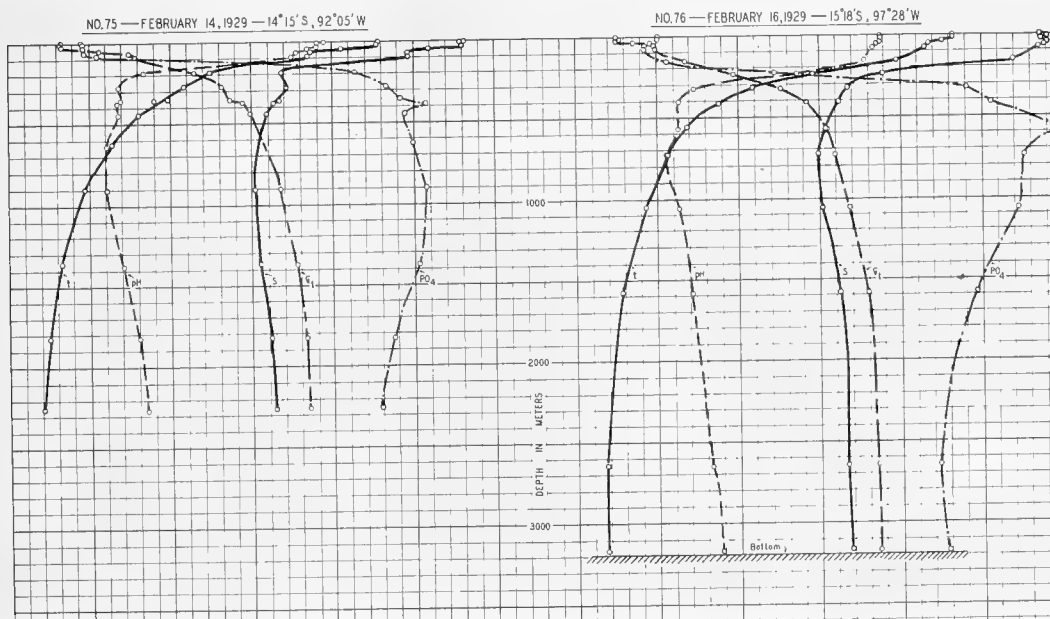


FIG. 49- PHYSICAL AND CHEMICAL DATA FOR STATIONS 75-76, FROM CARNEGIE RESULTS, FEBRUARY 14-16, 1929

			SCALES			
5	15	25	t m °C	5	15	25
33.5	34.5	35.5	S in ‰/00	33.5	34.5	35.5
7.6	8.0	8.4	pH	7.6	8.0	8.4
50	150	250	PO ₄ in MG/M ³	50	150	250
25	27	29	ϕ ₁	25	27	29

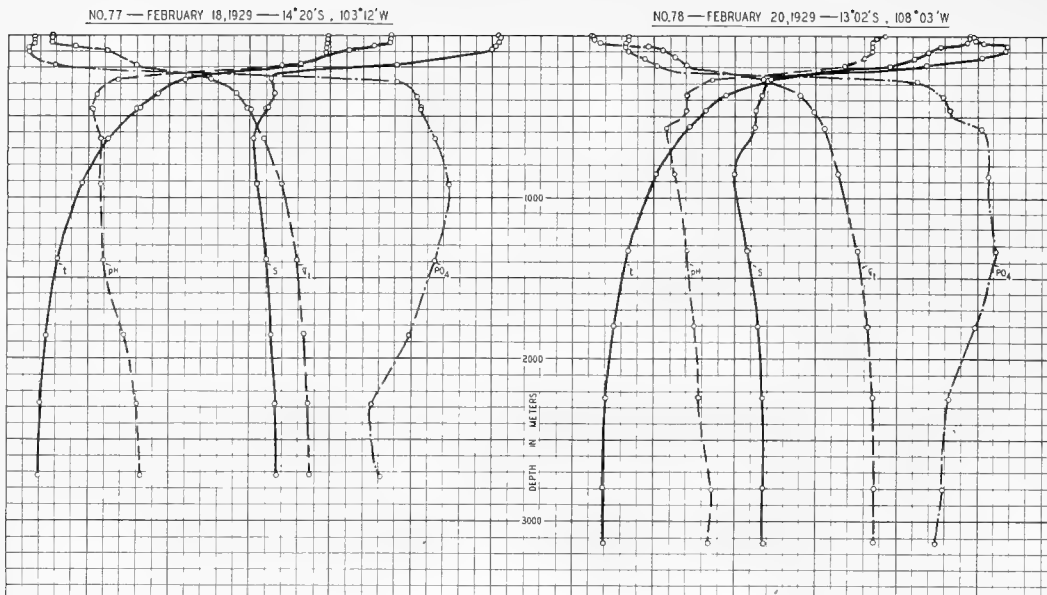


FIG. 50—PHYSICAL AND CHEMICAL DATA FOR STATIONS 77-78, FROM CARNEGIE RESULTS, FEBRUARY 18-20, 1929

SCALES						
5	15	25	1 m °C	5	15	25
33.5	34.5	35.5	S m D/100	34.0	35.0	36.0
7.6	8.0	8.4	pH	7.6	8.0	8.4
50	150	250	PO ₄ in MG/M ³	50	150	250
2.5	2.7	2.9	σ _t	2.5	2.7	2.9

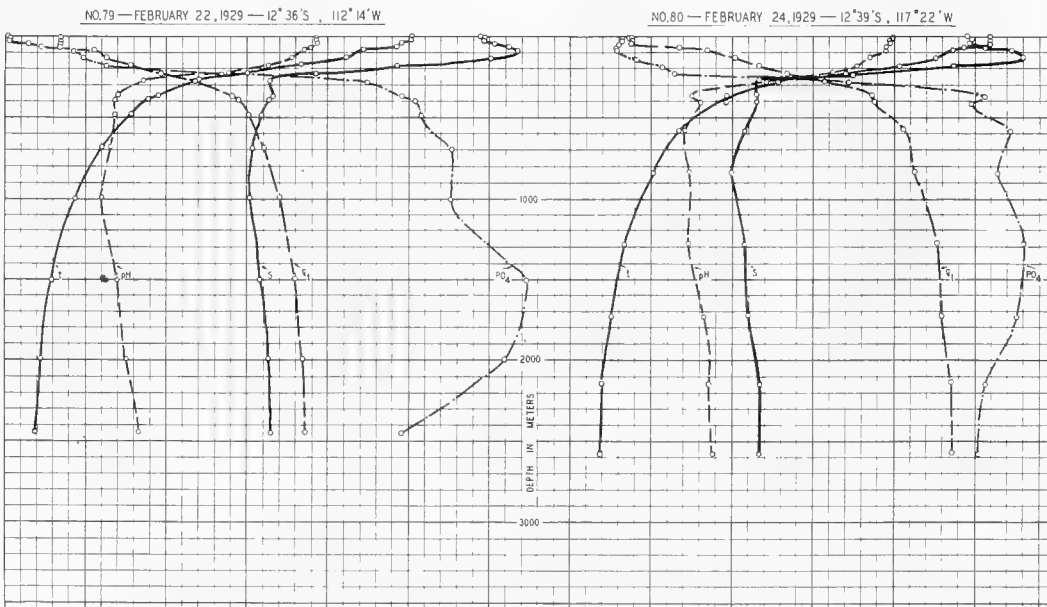


FIG. 51—PHYSICAL AND CHEMICAL DATA FOR STATIONS 79-80, FROM CARNEGIE RESULTS, FEBRUARY 22-24, 1929

SCALES						
5	15	25	1 m °C	5	15	25
33.5	34.5	35.5	S m D/100	34.0	35.0	36.0
7.6	8.0	8.4	pH	7.6	8.0	8.4
50	150	250	PO ₄ in MG/M ³	50	150	250
2.5	2.7	2.9	σ _t	2.4	2.6	2.8

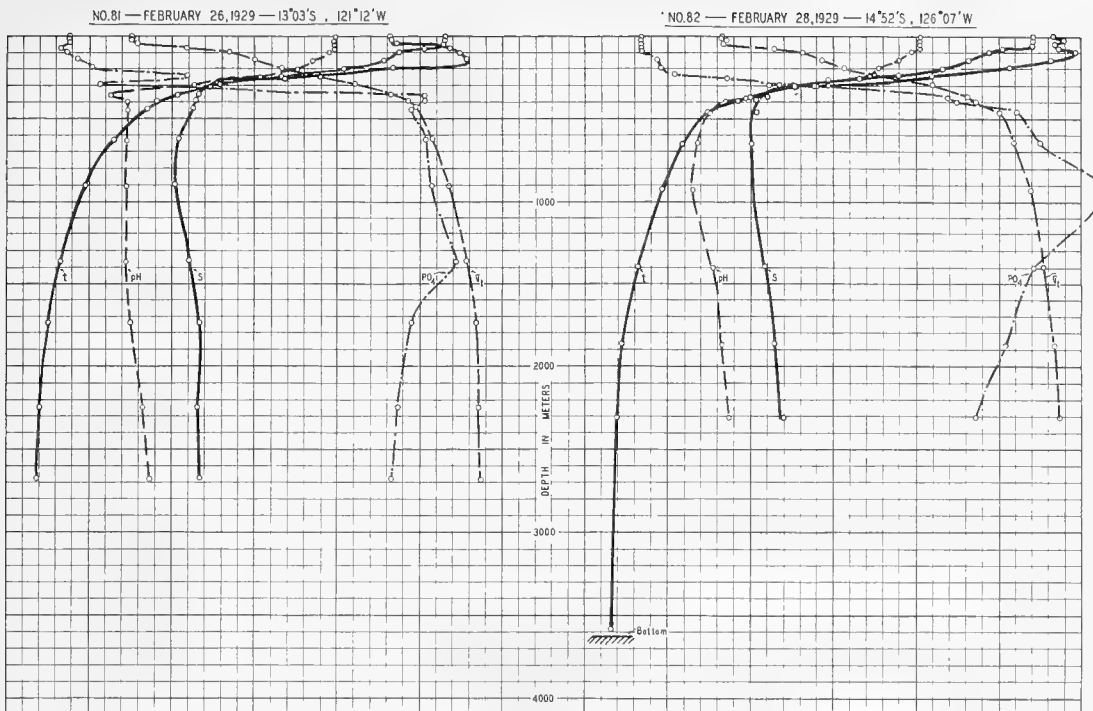


FIG. 52—PHYSICAL AND CHEMICAL DATA FOR STATIONS 81-82, FROM CARNEGIE RESULTS, FEBRUARY 26-28, 1929

SCALES						
5	15	25	t in °C	5	15	25
34.0	35.0	36.0	S in 0/00	34.0	35.0	36.0
7.6	8.0	8.4	pH	7.6	8.0	8.4
50	150	250	PO ₄ in MG/M ³	50	150	250
2.3	2.5	2.7	σ _t	2.3	2.5	2.7

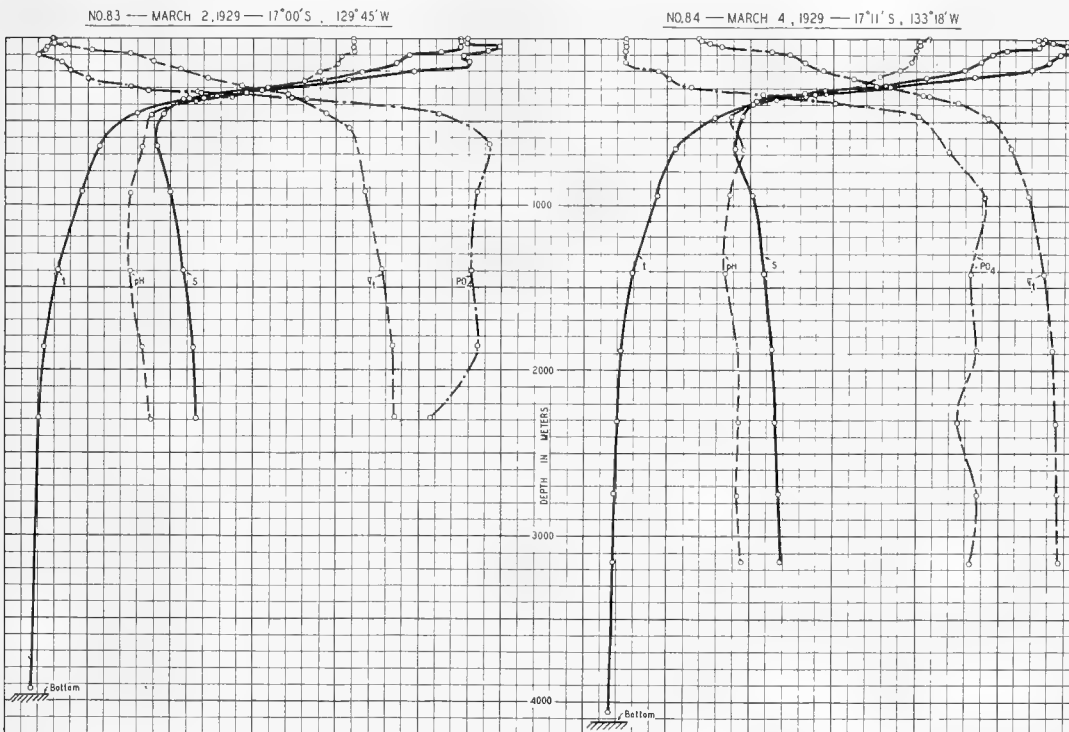


FIG. 53—PHYSICAL AND CHEMICAL DATA FOR STATIONS 83-84, FROM CARNEGIE RESULTS, MARCH 2-4, 1929

SCALES						
5	15	25	t in °C	5	15	25
34.0	35.0	36.0	S in 0/00	34.0	35.0	36.0
7.6	8.0	8.4	pH	7.6	8.0	8.4
50	150	250	PO ₄ in MG/M ³	50	150	250
2.4	2.6	2.8	σ _t	2.3	2.5	2.7

NO. 85 — MARCH 6, 1929 — 17°12'S, 136°37'W

NO. 86 — MARCH 9, 1929 — 17°36'S, 141°55'W

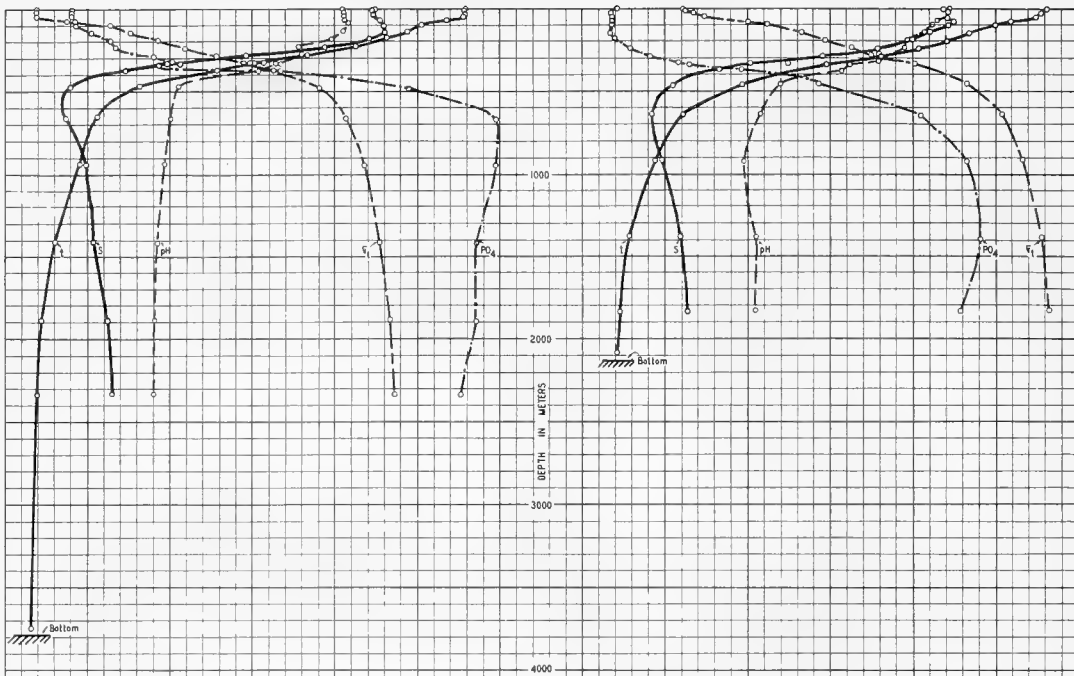


FIG 54—PHYSICAL AND CHEMICAL DATA FOR STATIONS 85-86, FROM CARNEGIE RESULTS, MARCH 6-9, 1929

STATION 85				STATION 86			
5	15	25	SCALES	5	15	25	
34.5	35.5	36.5	t in °C	34.5	35.5	36.5	
7.6	8.0	8.4	S in 0/00	7.6	8.0	8.4	
5.0	150	250	pH	5.0	150	250	
2.4	2.6	2.8	PO ₄ in MG/M ³	2.3	2.5	2.7	
			σ _t				

NO. 87 — MARCH 11, 1929 — 18°05'S, 145°33'W

NO. 88 — MARCH 21, 1929 — 16°42'S, 150°41'W

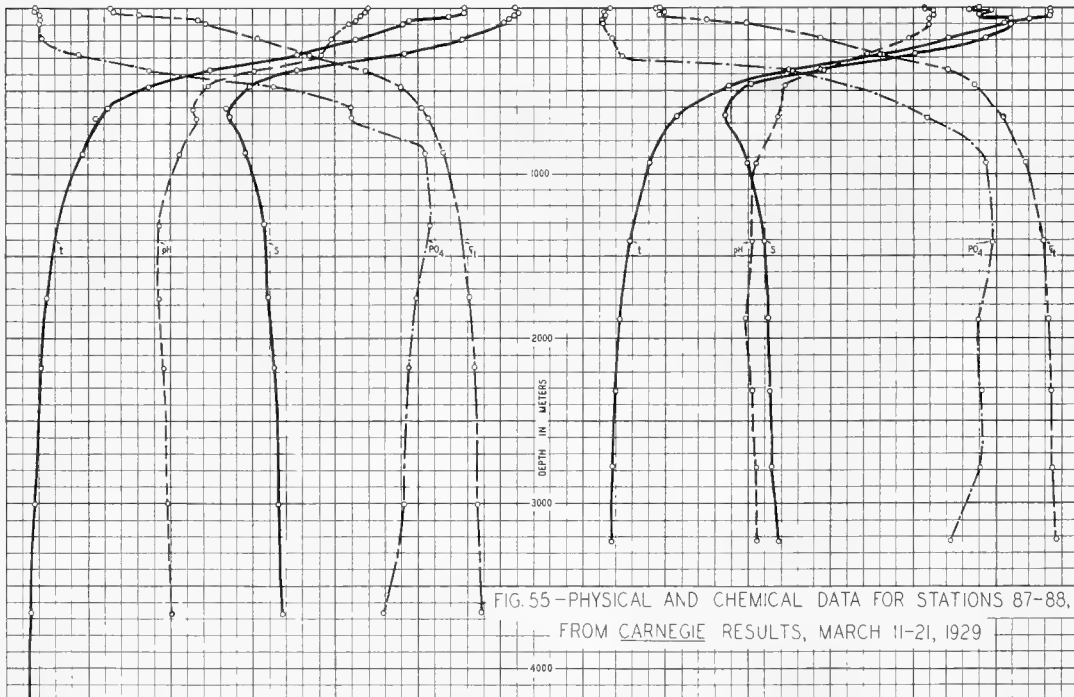


FIG 55—PHYSICAL AND CHEMICAL DATA FOR STATIONS 87-88, FROM CARNEGIE RESULTS, MARCH 11-21, 1929

STATION 87				STATION 88			
5	15	25	SCALES	5	15	25	
33.5	34.5	35.5	t in °C	34.0	35.0	36.0	
7.6	8.0	8.4	S in 0/00	7.6	8.0	8.4	
5.0	150	250	pH	5.0	150	250	
2.3	2.5	2.7	PO ₄ in MG/M ³	2.3	2.5	2.7	
			σ _t				

NO.89 — MARCH 23, 1929 — 17°09'S , 152°41'W

NO.90 — MARCH 25, 1929 — 16°35'S , 155°45'W

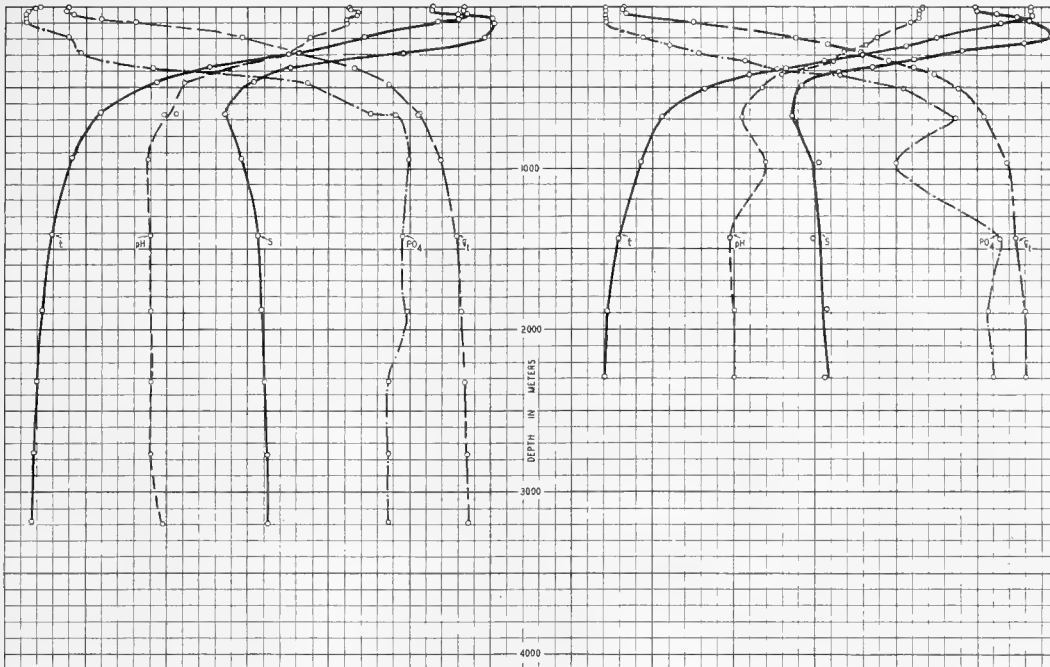


FIG.56— PHYSICAL AND CHEMICAL DATA FOR STATIONS 89-90, FROM CARNEGIE RESULTS, MARCH 23-25, 1929

			SCALES			
5	15	25	t in °C	5	15	25
33.5	34.5	35.5	S in ‰/‰	33.5	34.5	35.5
7.6	8.0	8.4	pH	7.6	8.0	8.4
50	150	250	PO ₄ in μG/M ³	50	150	250
23	25	27	σ _t	23	25	27

NO.91 — MARCH 27, 1929 — 15°44'S , 160°25'W

NO.92 — MARCH 29, 1929 — 15°18'S , 163°14'W

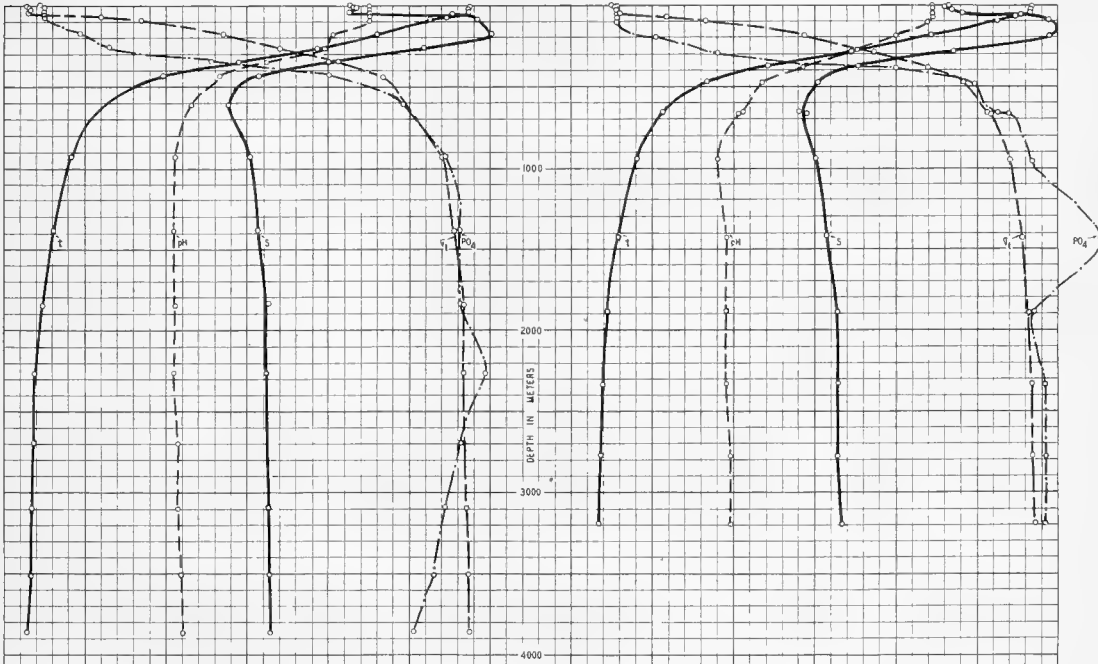


FIG.57— PHYSICAL AND CHEMICAL DATA FOR STATIONS 91-92, FROM CARNEGIE RESULTS, MARCH 27-29, 1929

			SCALES			
5	15	25	t in °C	5	15	25
33.5	34.5	35.5	S in ‰/‰	33.5	34.5	35.5
7.6	8.0	8.4	pH	7.6	8.0	8.4
50	150	250	PO ₄ in μG/M ³	50	150	250
23	25	27	σ _t	23	25	27

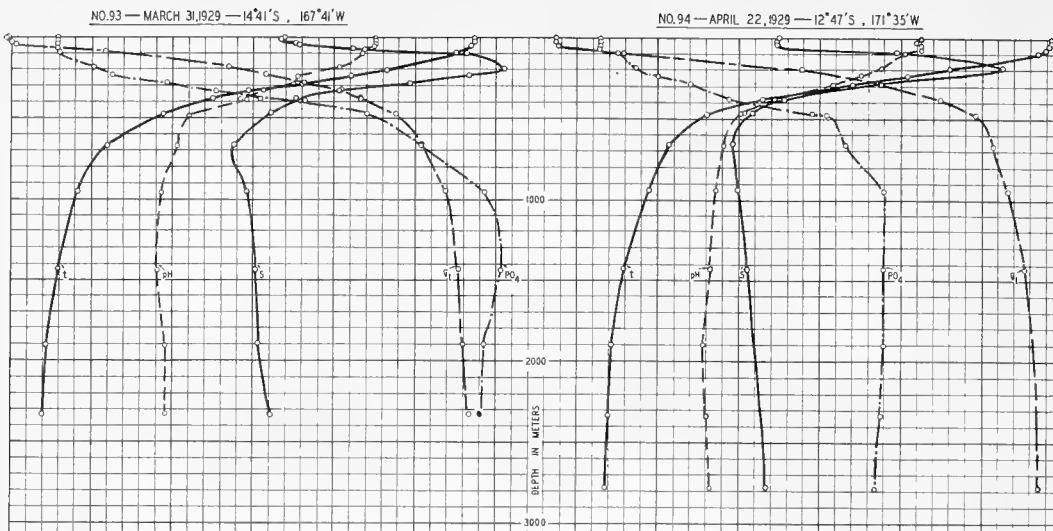


FIG. 58- PHYSICAL AND CHEMICAL DATA FOR STATIONS 93-94, FROM CARNEGIE RESULTS, MARCH 31 TO APRIL 22, 1929

SCALES						
5	15	25	t in °C	5	15	25
33.5	34.5	35.5	S in ‰/00	34.0	35.0	36.0
7.6	8.0	8.4	pH	7.6	8.0	8.4
50	150	250	PO ₄ in MG/L ³	50	150	250
23	25	27	σ _t	23	25	27

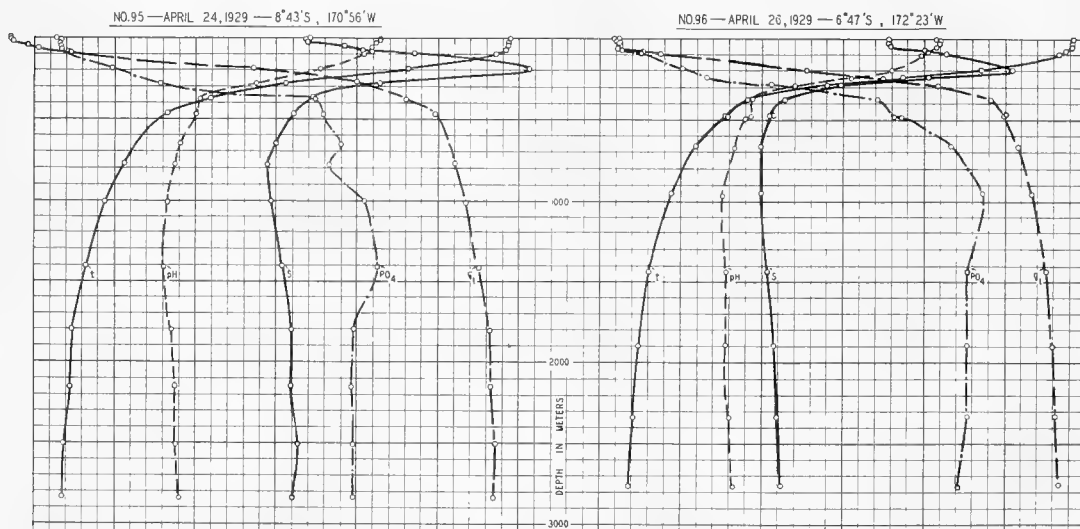


FIG. 59- PHYSICAL AND CHEMICAL DATA FOR STATIONS 95-96, FROM CARNEGIE RESULTS, APRIL 24-26, 1929

SCALES						
5	15	25	t in °C	5	15	25
33.5	34.5	35.5	S in ‰/00	34.0	35.0	36.0
7.6	8.0	8.4	pH	7.6	8.0	8.4
50	150	250	PO ₄ in MG/L ³	50	150	250
23	25	27	σ _t	23	25	27

NO. 97 — APRIL 28, 1929 — 3°47'S, 172°39'W

NO. 98 — APRIL 30, 1929 — 0°18'N, 173°59'W

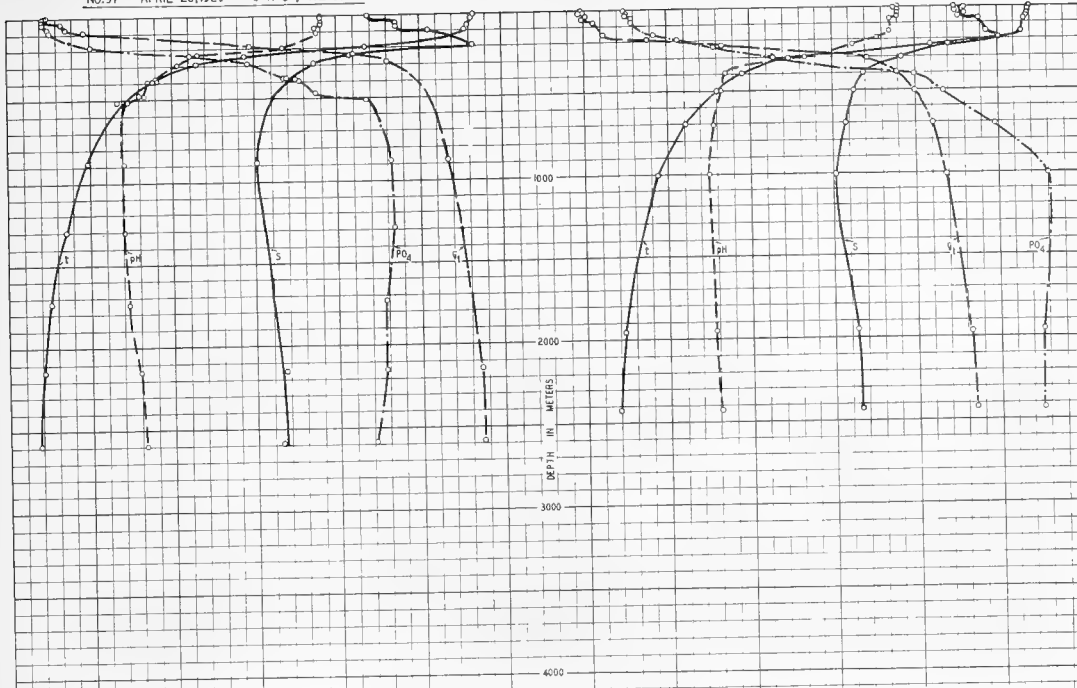


FIG. 60—PHYSICAL AND CHEMICAL DATA FOR STATIONS 97-98, FROM CARNEGIE RESULTS, APRIL 28-30, 1929

STATION 97				STATION 98			
5	15	25	SCALES	5	15	25	
33.5	34.5	35.5	1 m °C	33.5	34.5	35.5	
7.6	8.0	8.4	5 m 0/100	7.6	8.0	8.4	
50	150	250	pH	50	150	250	
23	25	27	PO ₄ m MG/M ³	24	26	28	
			Si				

NO. 99 — MAY 2, 1929 — 4°22'N, 176°23'W

NO. 100 — MAY 4, 1929 — 8°05'N, 178°48'W

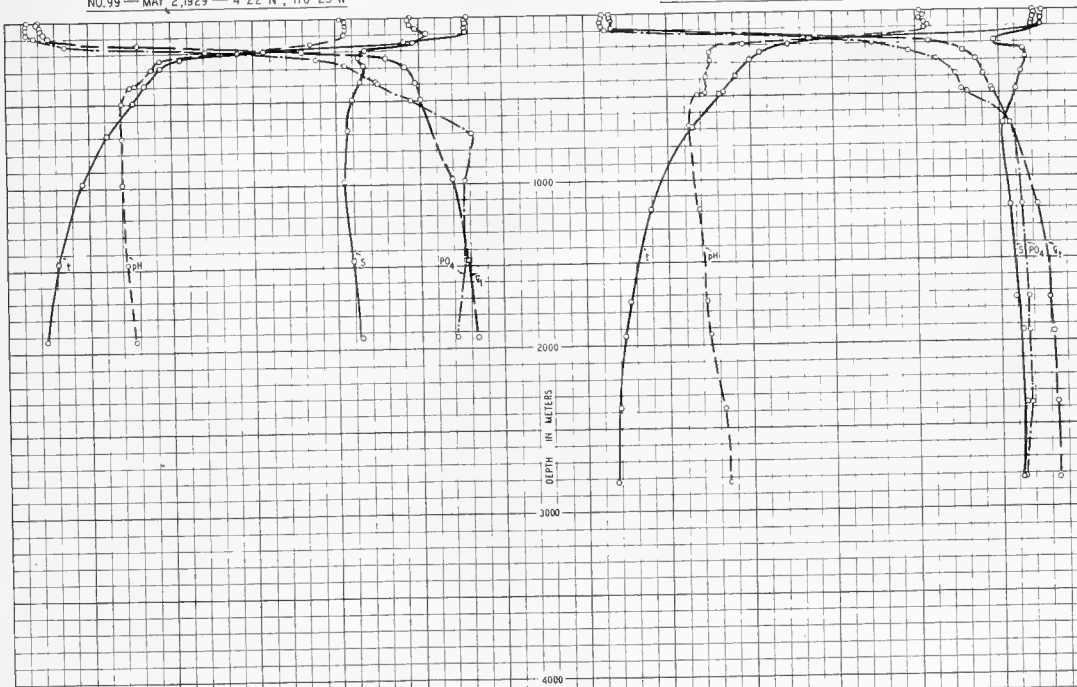


FIG. 61—PHYSICAL AND CHEMICAL DATA FOR STATIONS 99-100, FROM CARNEGIE RESULTS, MAY 2-4, 1929

STATION 99				STATION 100			
5	15	25	SCALES	5	15	25	
33.0	34.0	35.0	1 m °C	32.5	33.5	34.5	
7.6	8.0	8.4	5 m 0/100	7.6	8.0	8.4	
50	150	250	pH	50	150	250	
23	25	27	PO ₄ m MG/M ³	23	25	27	
			Si				

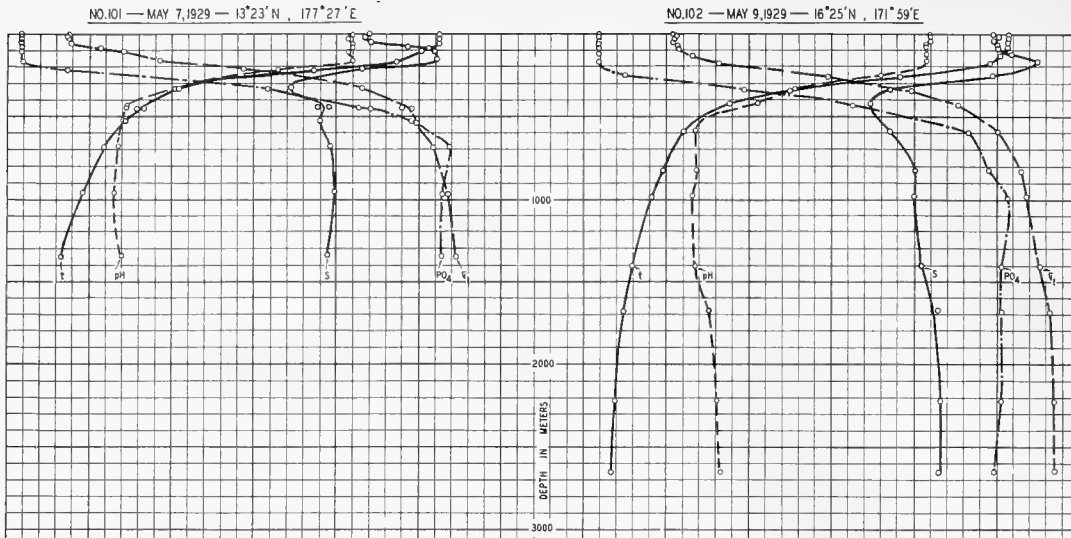


FIG. 62—PHYSICAL AND CHEMICAL DATA FOR STATIONS 10-102, FROM CARNEGIE RESULTS, MAY 7-9, 1929

SCALES						
5	15	25	1 m °C	5	15	25
33.0	34.0	35.0	S m D/100	33.0	34.0	35.0
7.6	8.0	8.4	pH	7.6	8.0	8.4
50	150	250	PO ₄ m. MG/M ³	50	150	250
23	25	27	σ _t	23	25	27

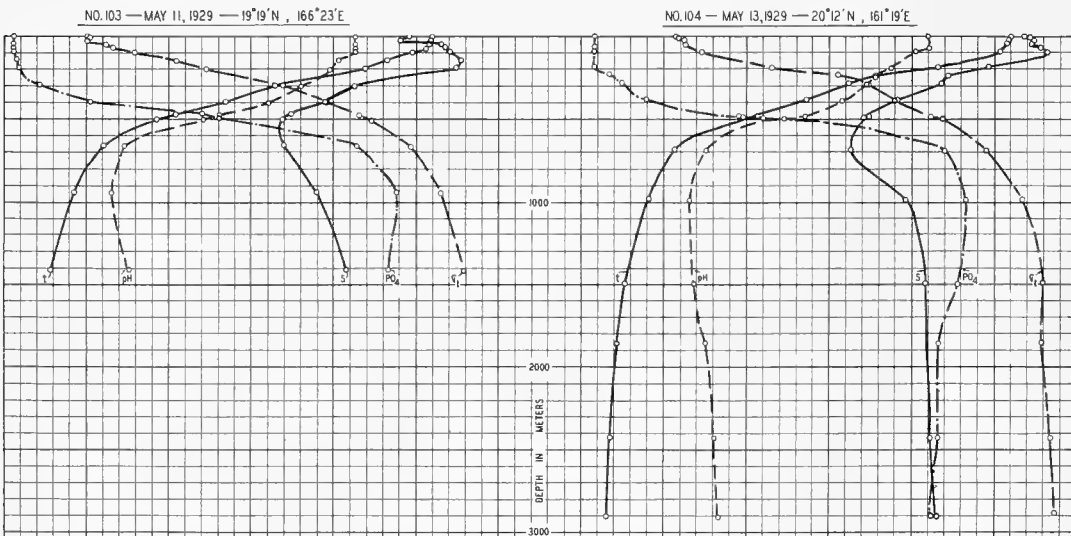


FIG. 63—PHYSICAL AND CHEMICAL DATA FOR STATIONS 103-104, FROM CARNEGIE RESULTS, MAY 11-13, 1929

SCALES						
5	15	25	1 m °C	5	15	25
33.0	34.0	35.0	S m D/100	33.0	34.0	35.0
7.6	8.0	8.4	pH	7.6	8.0	8.4
50	150	250	PO ₄ m. MG/M ³	50	150	250
23	25	27	σ _t	23	25	27

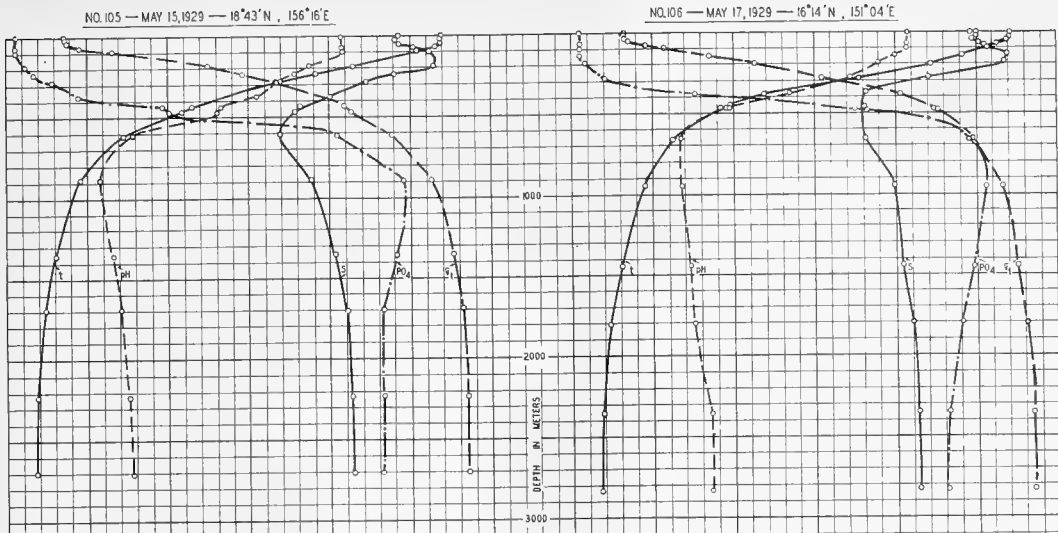


FIG.64- PHYSICAL AND CHEMICAL DATA FOR STATIONS 105-106, FROM CARNEGIE RESULTS, MAY 15-17, 1929

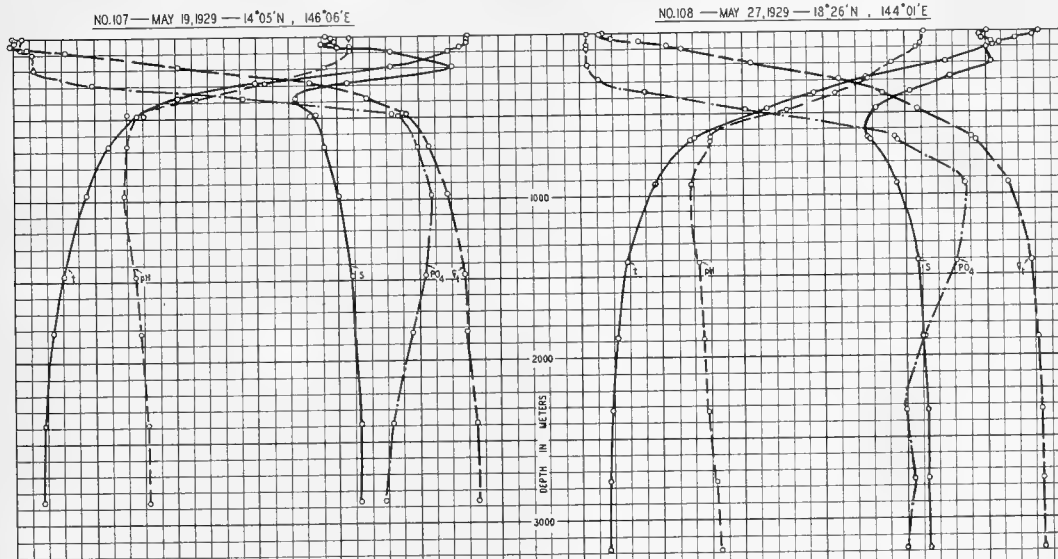
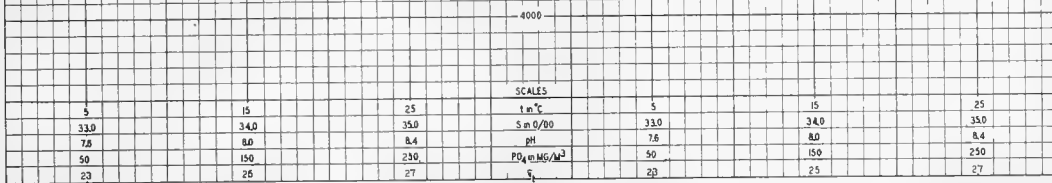
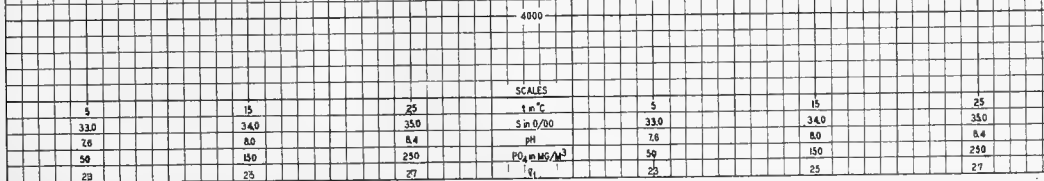


FIG.65- PHYSICAL AND CHEMICAL DATA FOR STATIONS 107-108, FROM CARNEGIE RESULTS, MAY 19-27, 1929



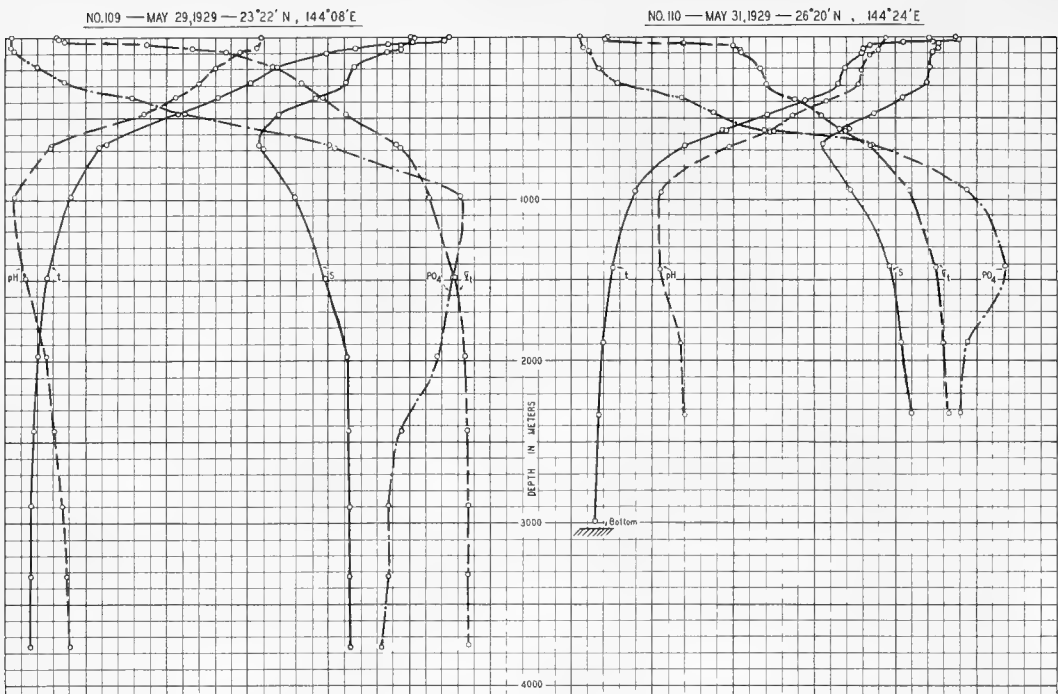


FIG.66- PHYSICAL AND CHEMICAL DATA FOR STATIONS 109-110, FROM CARNEGIE RESULTS, MAY 29-31, 1929

			SCALES			
5	15	25	t in °C	5	15	25
33.0	34.0	35.0	S in ‰/‰	33.0	34.0	35.0
7.8	8.2	8.6	pH	7.6	8.0	8.4
50	150	250	PO ₄ in MG/Lit ³	50	150	250
23	25	27	Si	24	26	28

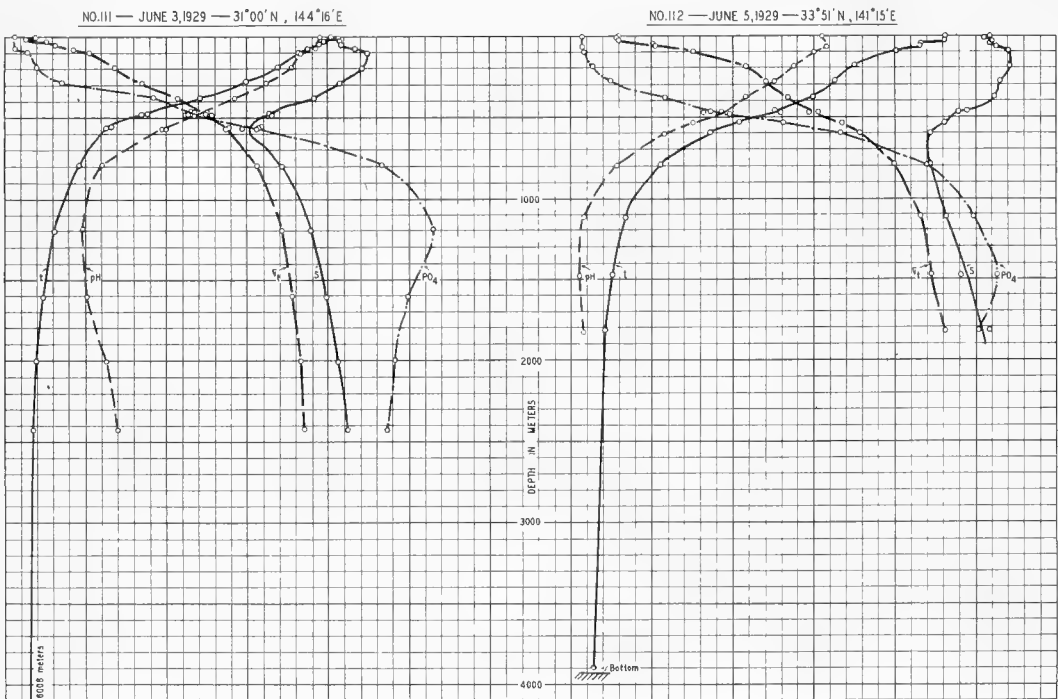


FIG.67- PHYSICAL AND CHEMICAL DATA FOR STATIONS 111-112, FROM CARNEGIE RESULTS, JUNE 3-5, 1929

			SCALES			
5	15	25	t in °C	5	15	25
33.0	34.0	35.0	S in ‰/‰	32.5	33.5	34.5
7.6	8.0	8.4	pH	7.8	8.2	8.6
50	150	250	PO ₄ in MG/Lit ³	50	150	250
25	27	29	Si	24	26	28

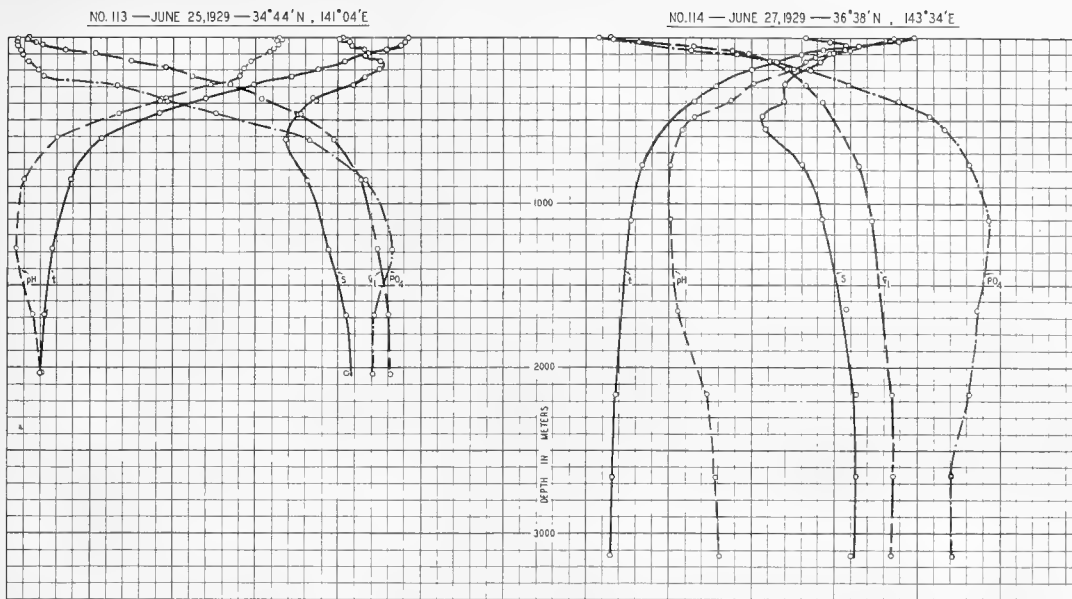


FIG. 68—PHYSICAL AND CHEMICAL DATA FOR STATIONS 113-114, FROM CARNEGIE RESULTS, JUNE 25-27, 1929

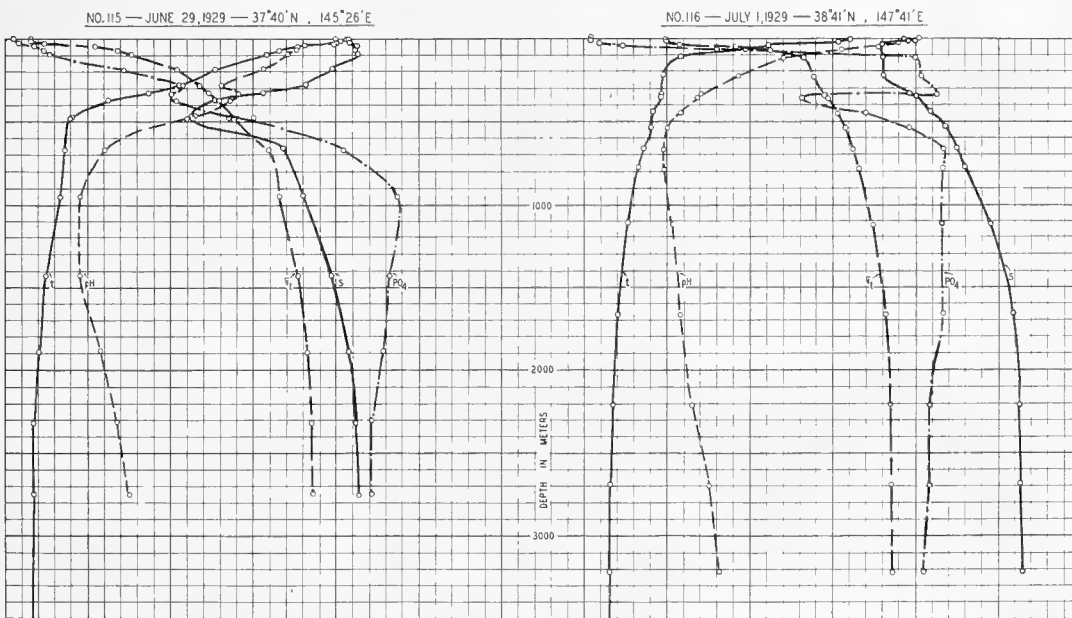
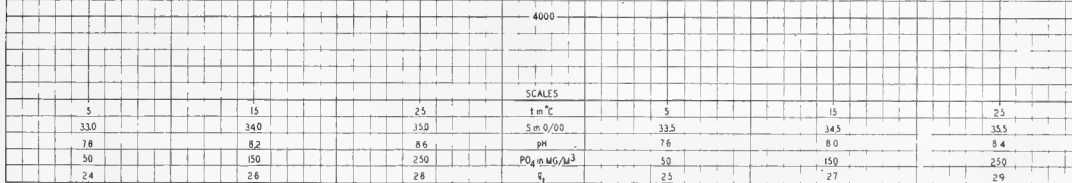
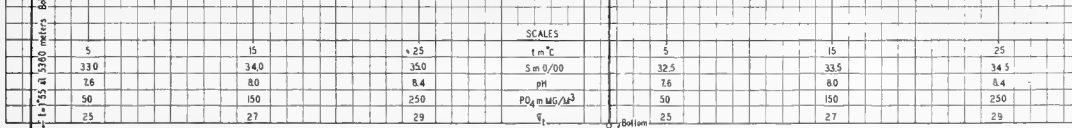


FIG. 69—PHYSICAL AND CHEMICAL DATA FOR STATIONS 115-116, FROM CARNEGIE RESULTS, JUNE 29 TO JULY 1, 1929



NO.117—JULY 3, 1929 — 40°20'N , 150°58'E

NO.118—JULY 5, 1929 — 42°29'N 155°24'E



FIG 70—PHYSICAL AND CHEMICAL DATA FOR STATIONS 117-118, FROM CARNEGIE RESULTS, JULY 3-5, 1929

NO.119—JULY 7, 1929 — 45°24'N , 159°36'E

NO.120—JULY 9, 1929 — 47°02'N , 166°20'E



FIG 71—PHYSICAL AND CHEMICAL DATA FOR STATIONS 119-120, FROM CARNEGIE RESULTS, JULY 7-9, 1929

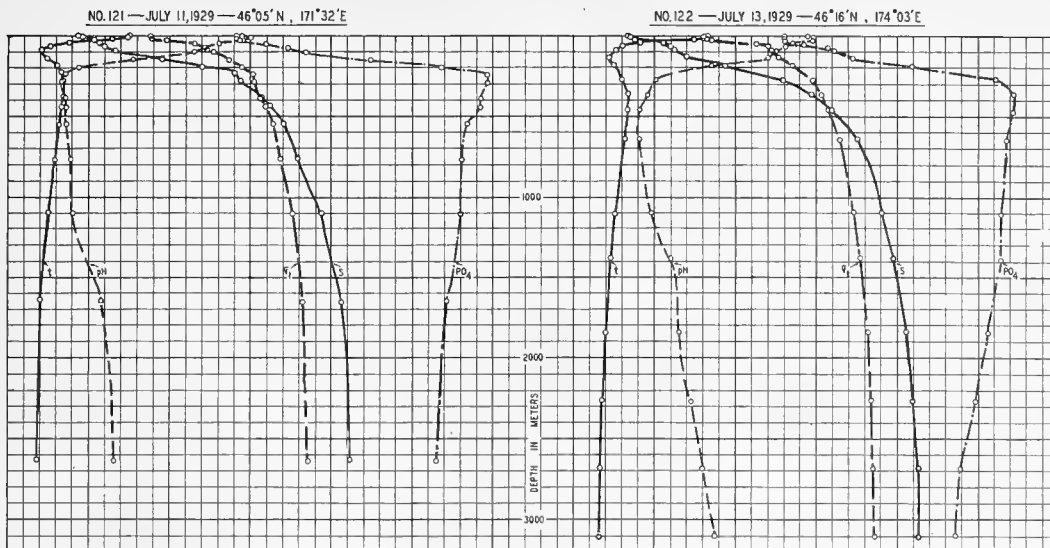


FIG. 72—PHYSICAL AND CHEMICAL DATA FOR STATIONS 121-122, FROM CARNEGIE RESULTS, JULY 11-13, 1929

5	15	25	SCALES	5	15	25
330	340	350	1 m°C	330	340	350
7.8	8.0	8.4	5 m 0/100	7.8	8.0	8.4
50	150	250	PH	50	150	250
2.5	27	29	PO ₄ in MG/L ³	2.5	27	29
			σ _t			

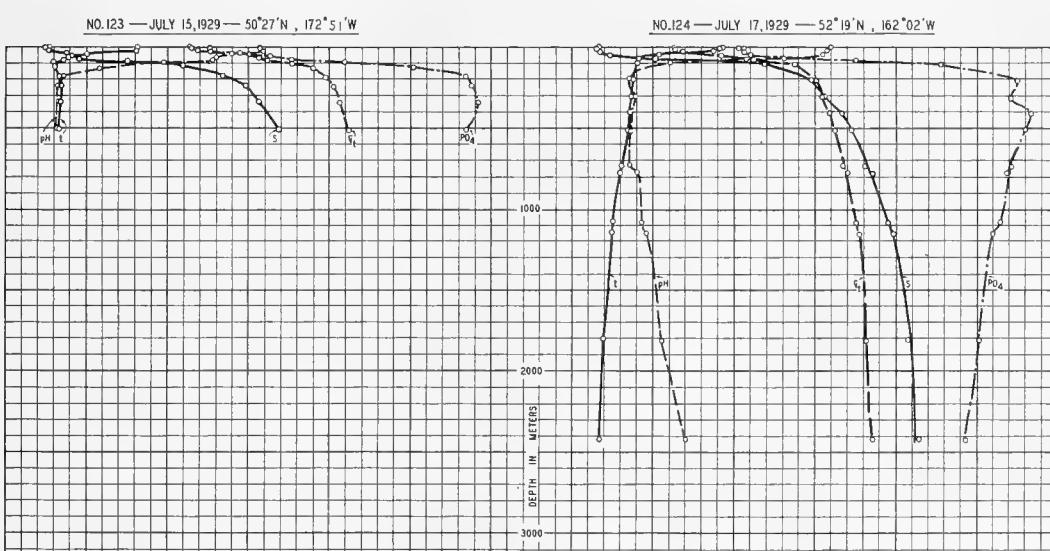
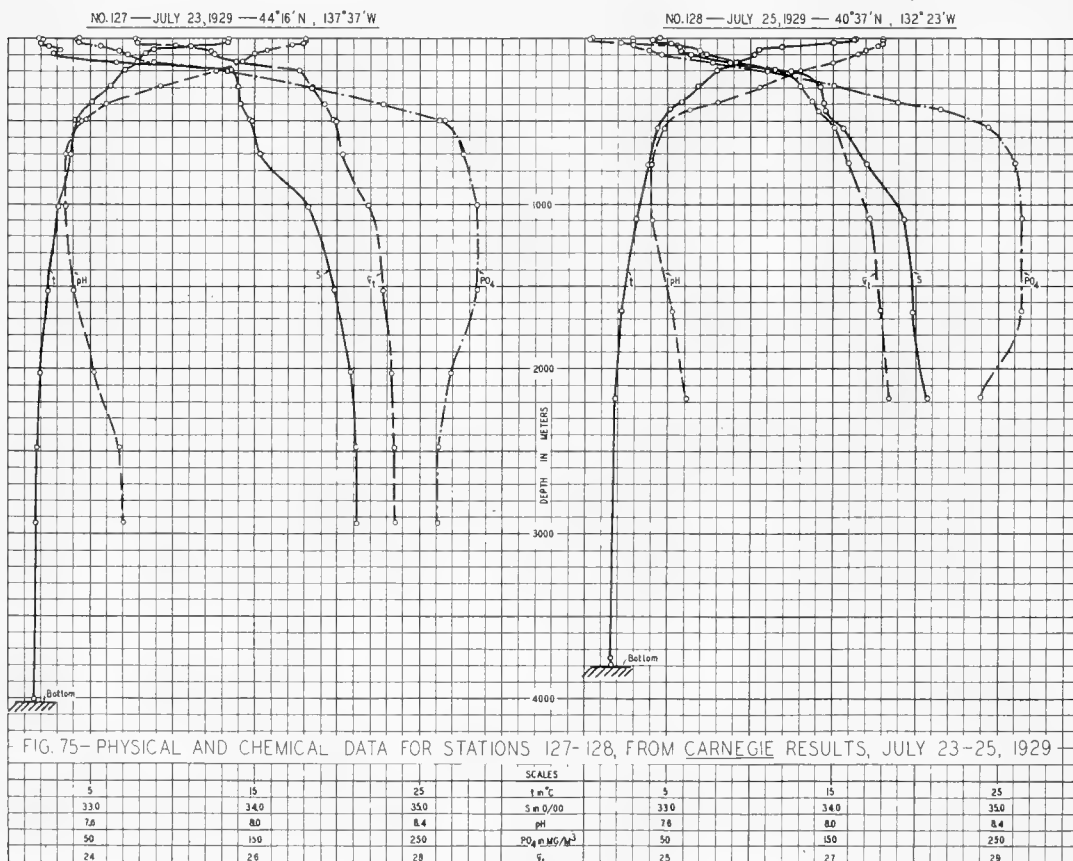
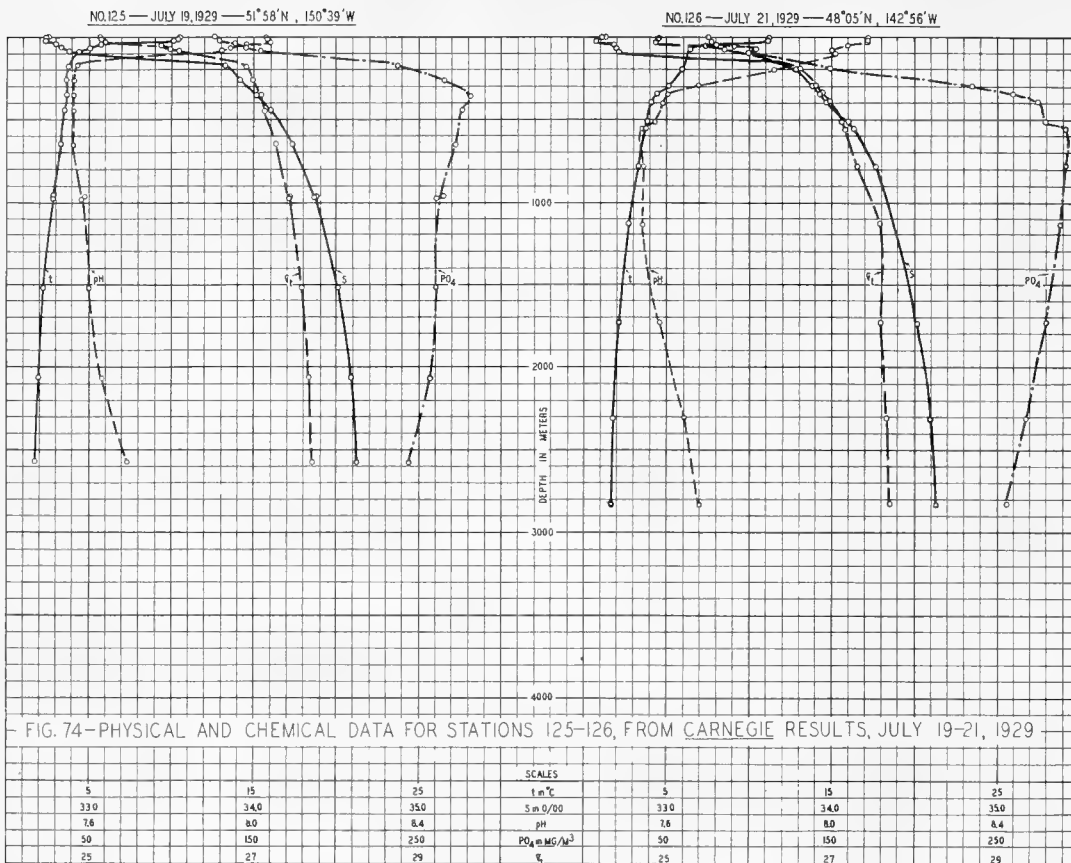


FIG. 73—PHYSICAL AND CHEMICAL DATA FOR STATIONS 123-124, FROM CARNEGIE RESULTS, JULY 15-17, 1929

5	15	25	SCALES	5	15	25
330	340	350	1 m°C	330	340	350
7.8	8.0	8.4	5 m 0/100	7.8	8.0	8.4
50	150	250	PH	50	150	250
24	28	28	PO ₄ in MG/L ³	25	27	29
			σ _t			



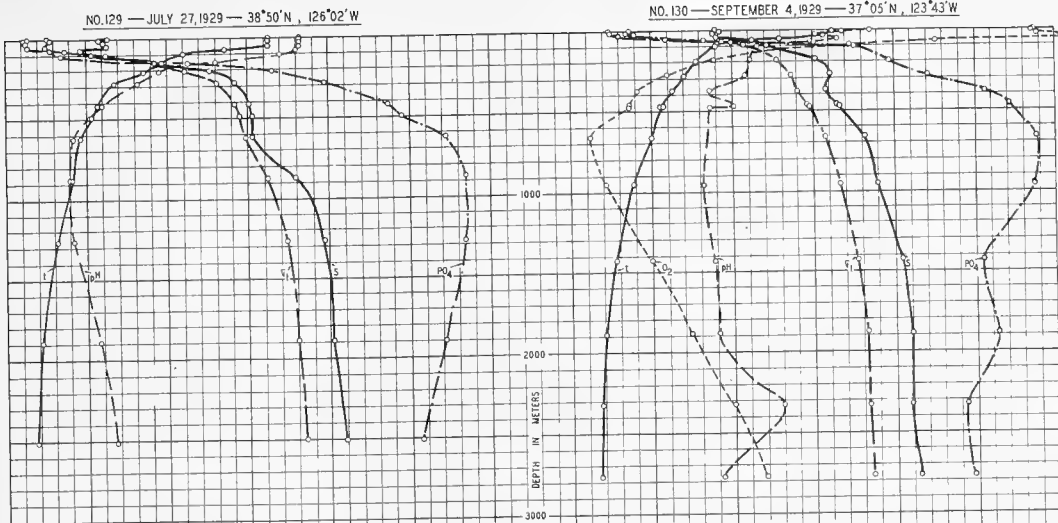


FIG. 76- PHYSICAL AND CHEMICAL DATA FOR STATIONS 129-130, FROM CARNEGIE RESULTS, JULY 27 TO SEPTEMBER 4, 1929

5	15	25	SCALES	5	15	25
330	340	350	1 in °C	330	340	350
7.6	8.0	8.4	5 m σ ₀₀	78	82	86
50	150	250	pH	50	150	250
			PO ₄ in MG/L ³	1	3	5
			O ₂ in ML/L	25	27	29
			σ _t			

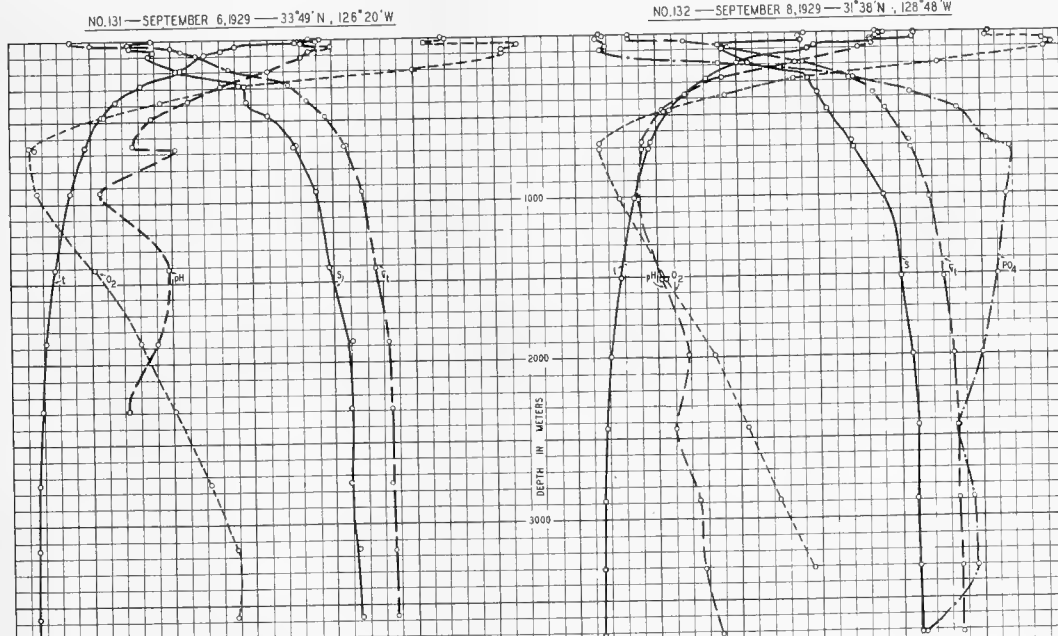
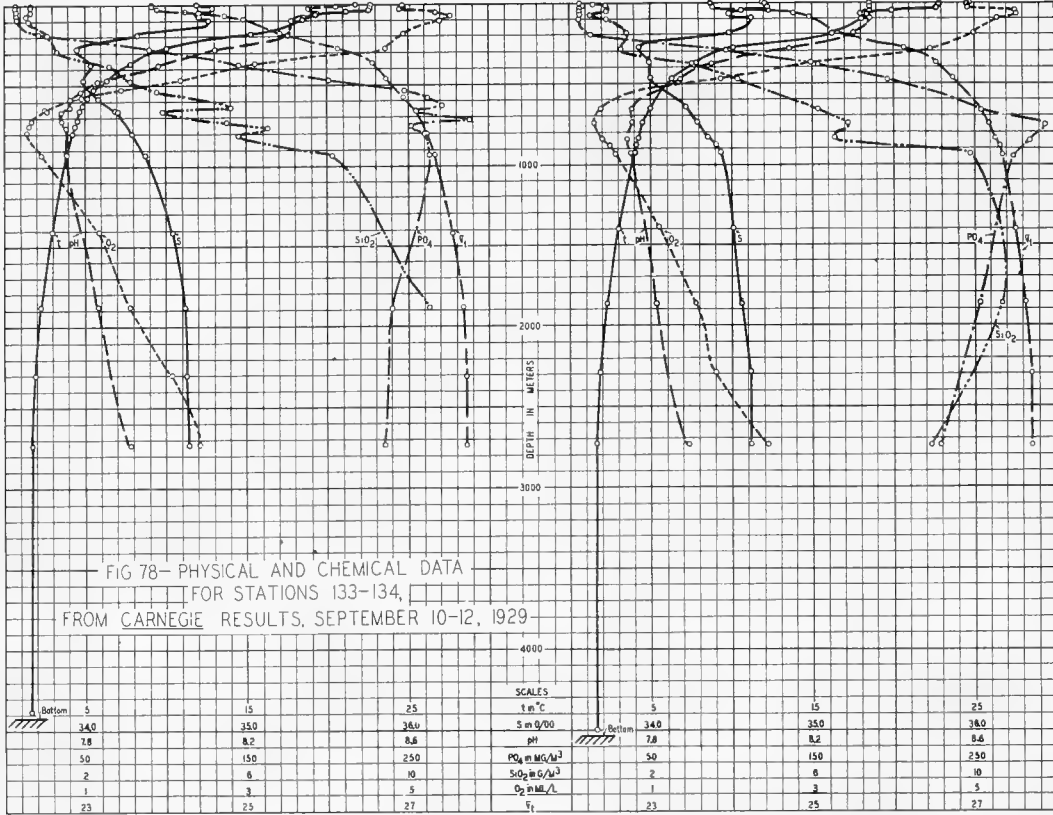


FIG. 77- PHYSICAL AND CHEMICAL DATA FOR STATIONS 131-132, FROM CARNEGIE RESULTS, SEPTEMBER 6-8, 1929

5	15	25	SCALES	5	15	25
330	340	350	1 in °C	330	340	350
78	82	86	5 m σ ₀₀	78	82	86
1	1	1	pH	50	150	250
1	3	5	PO ₄ in MG/L ³	1	3	5
			O ₂ in ML/L	24	26	28
			σ _t			

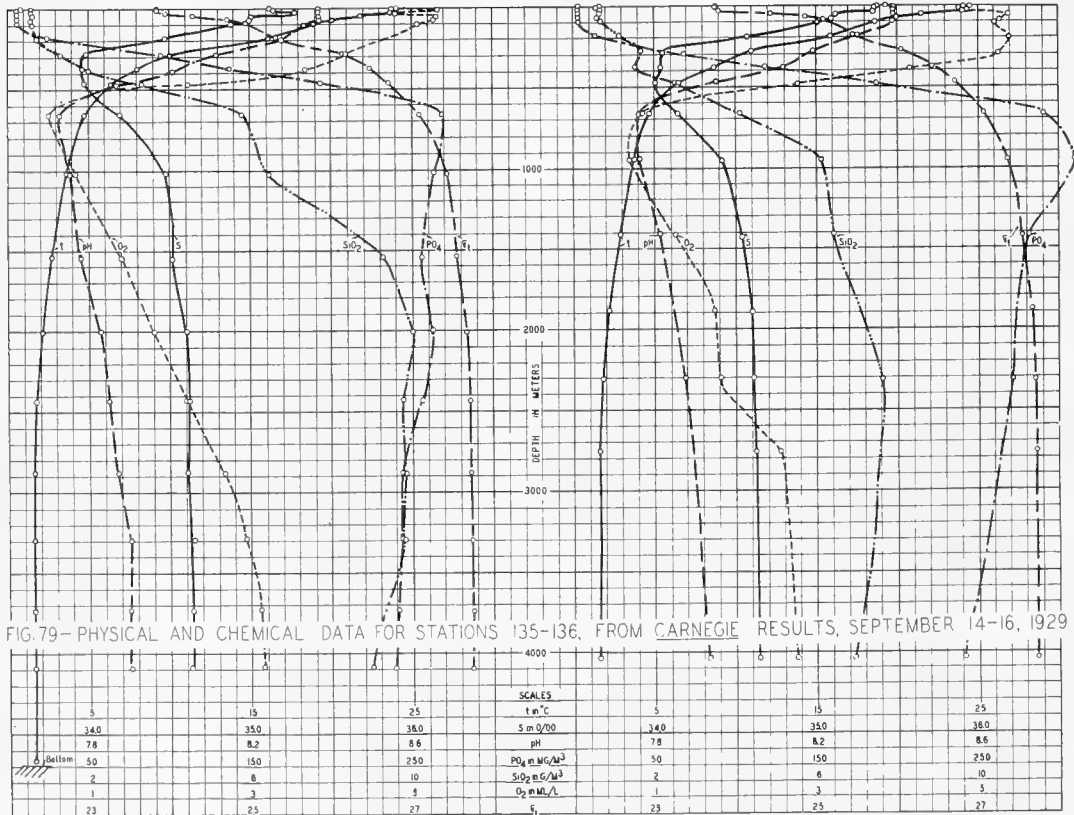
NO.133 — SEPTEMBER 10, 1929 — 29°21'N 132°30'W

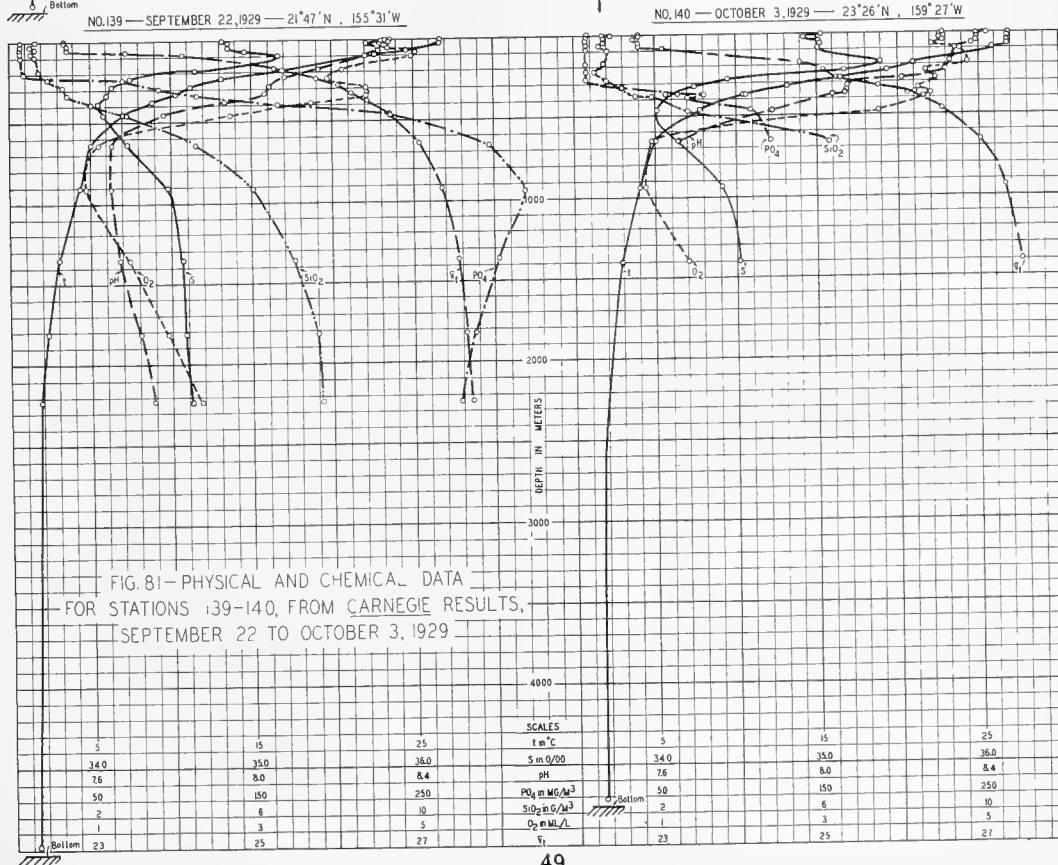
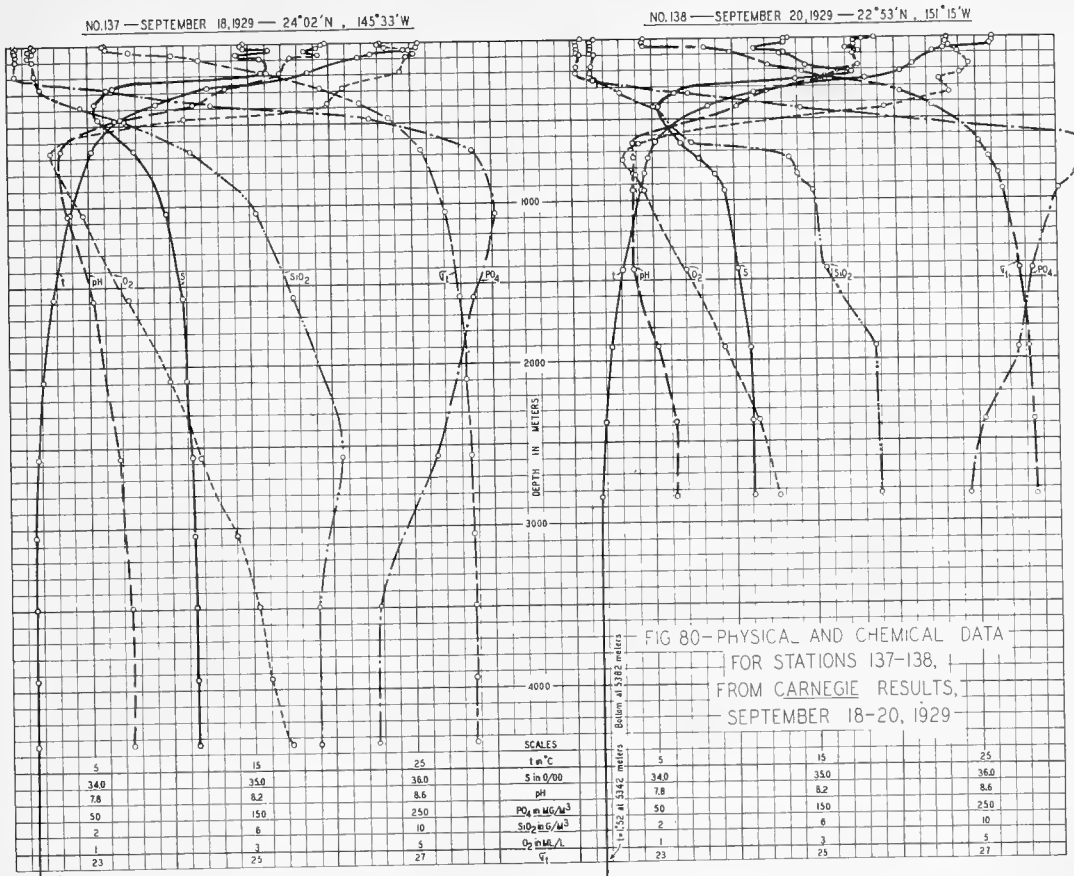
NO.134 — SEPTEMBER 12, 1929 — 27°45'N, 135°22'W



NO.135 — SEPTEMBER 14, 1929 — 26°39'N, 139°07'W

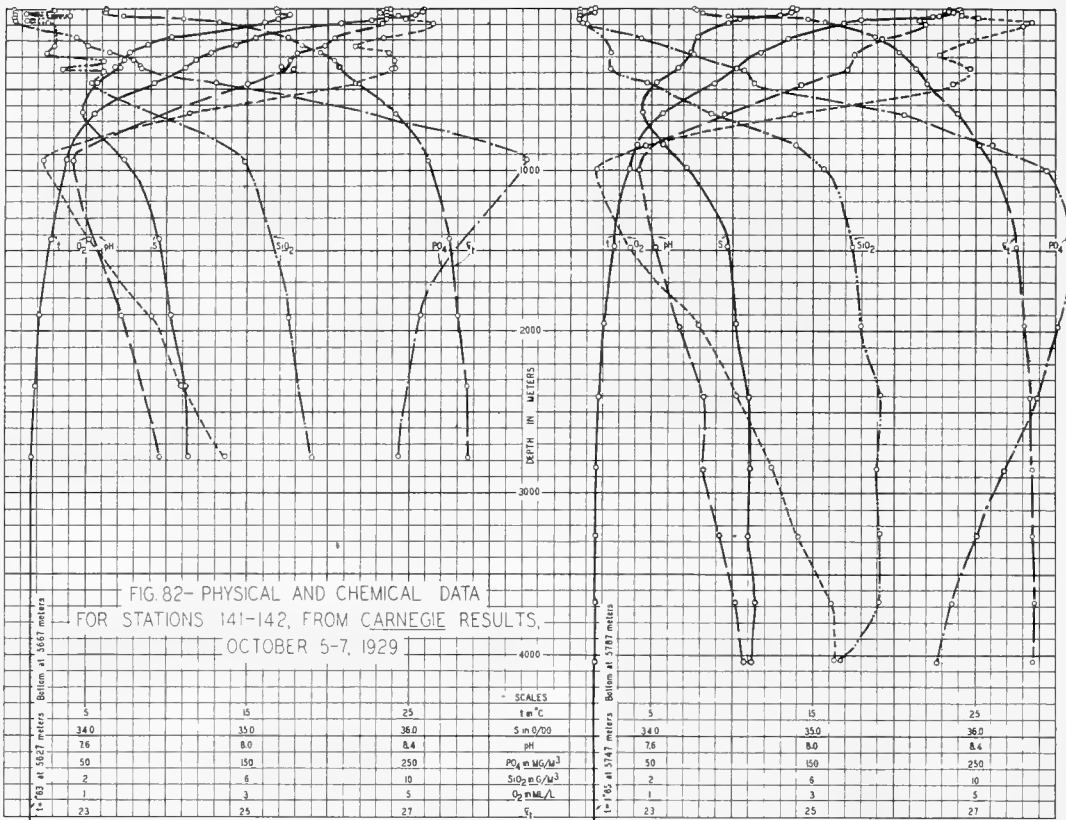
NO.136 — SEPTEMBER 16, 1929 — 26°13'N, 142°02'W





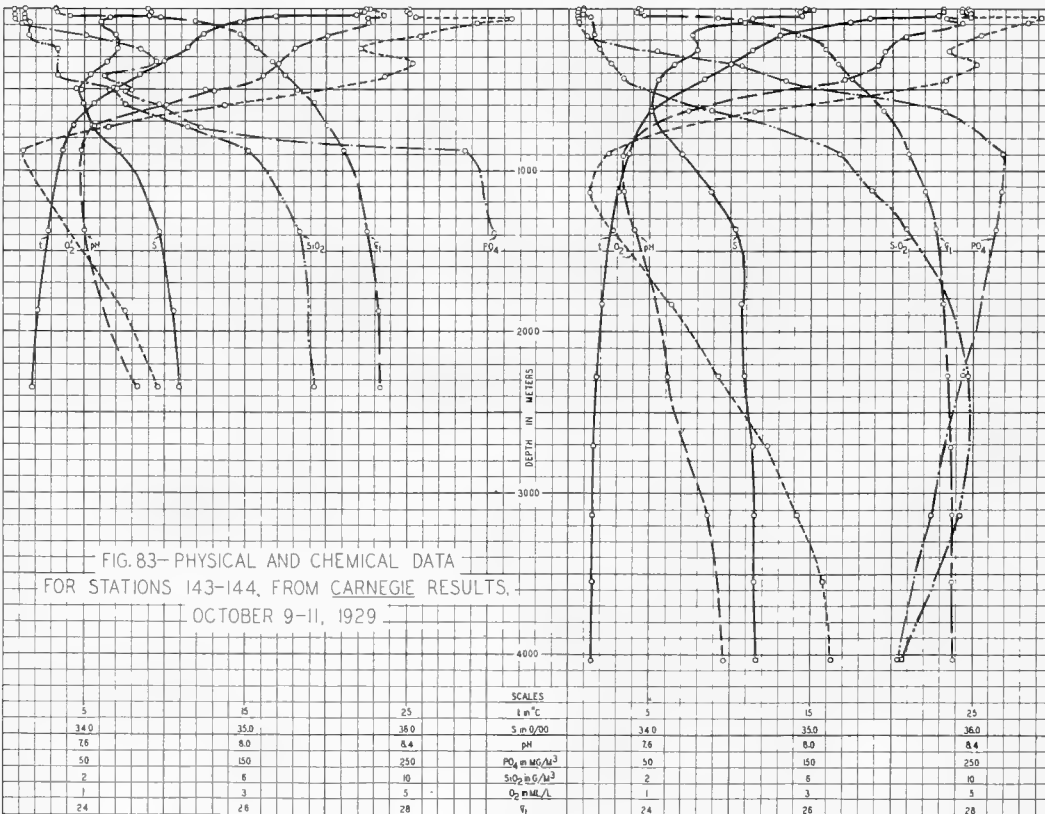
NO. 141—OCTOBER 5, 1929—29°02'N, 161°11'W

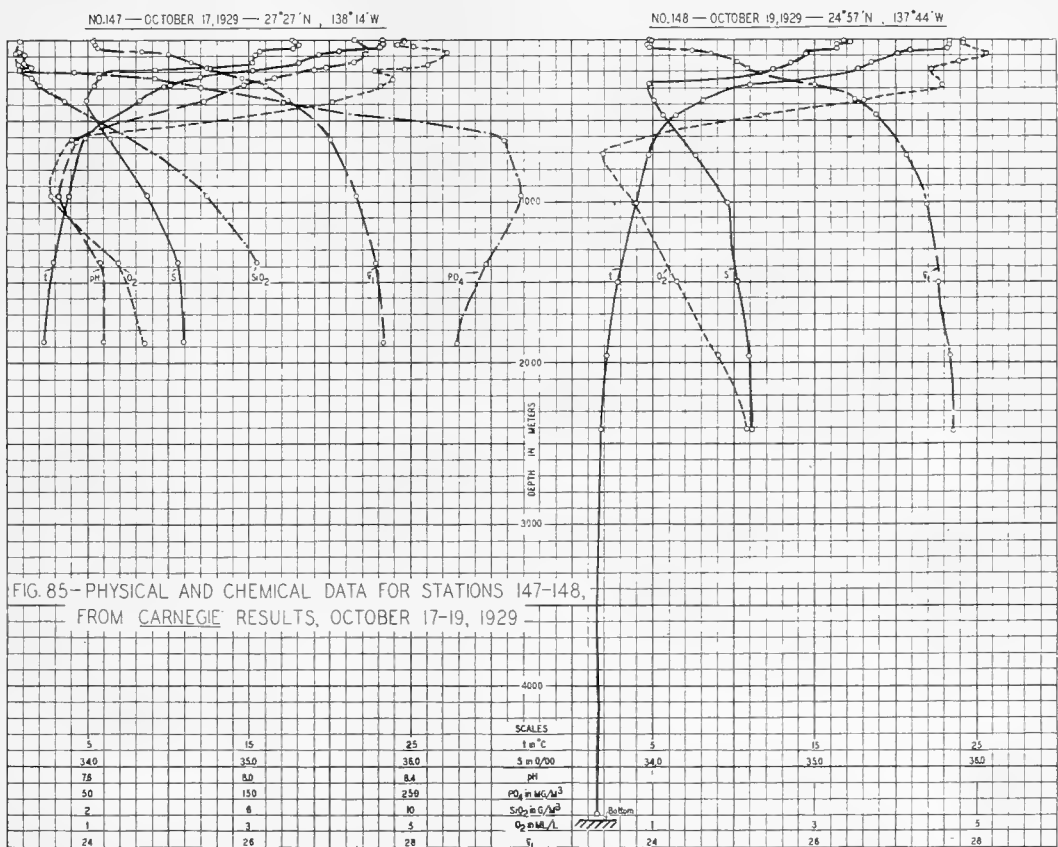
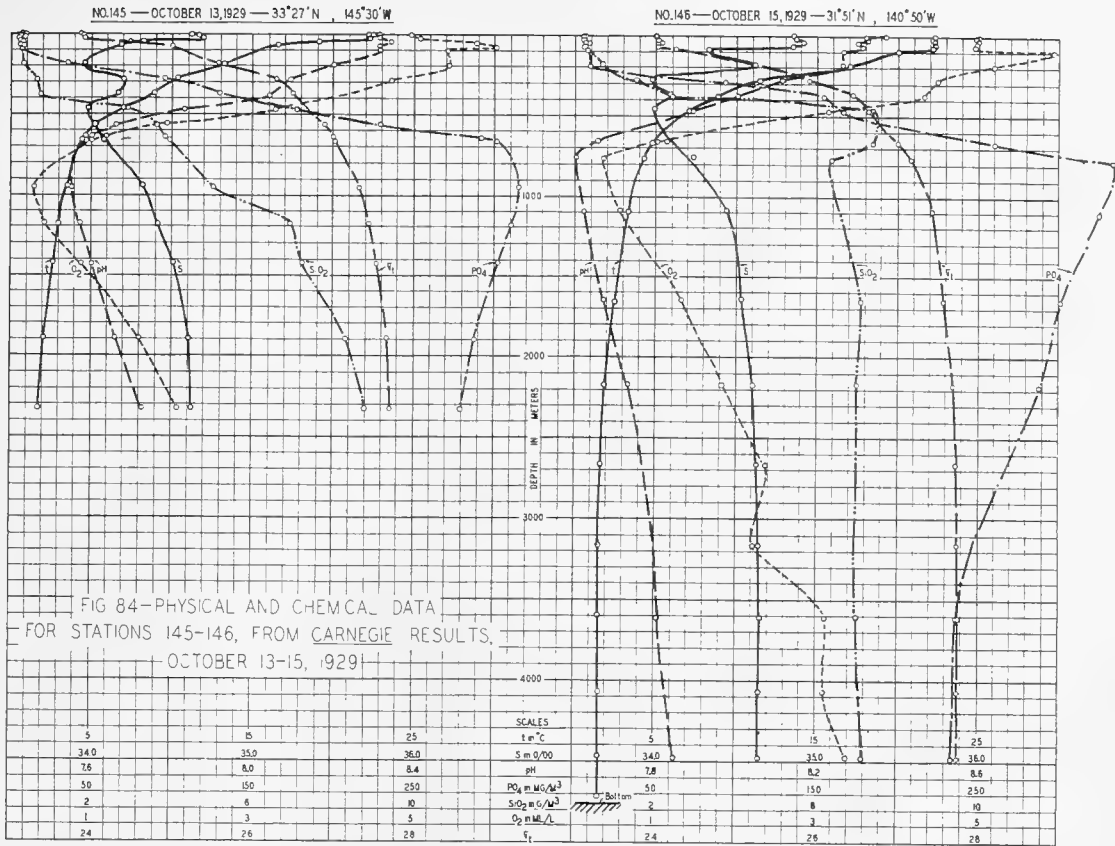
NO. 142—OCTOBER 7, 1929—32°42'N, 160°44'W



NO. 143—OCTOBER 9, 1929—34°06'N, 157°09'W

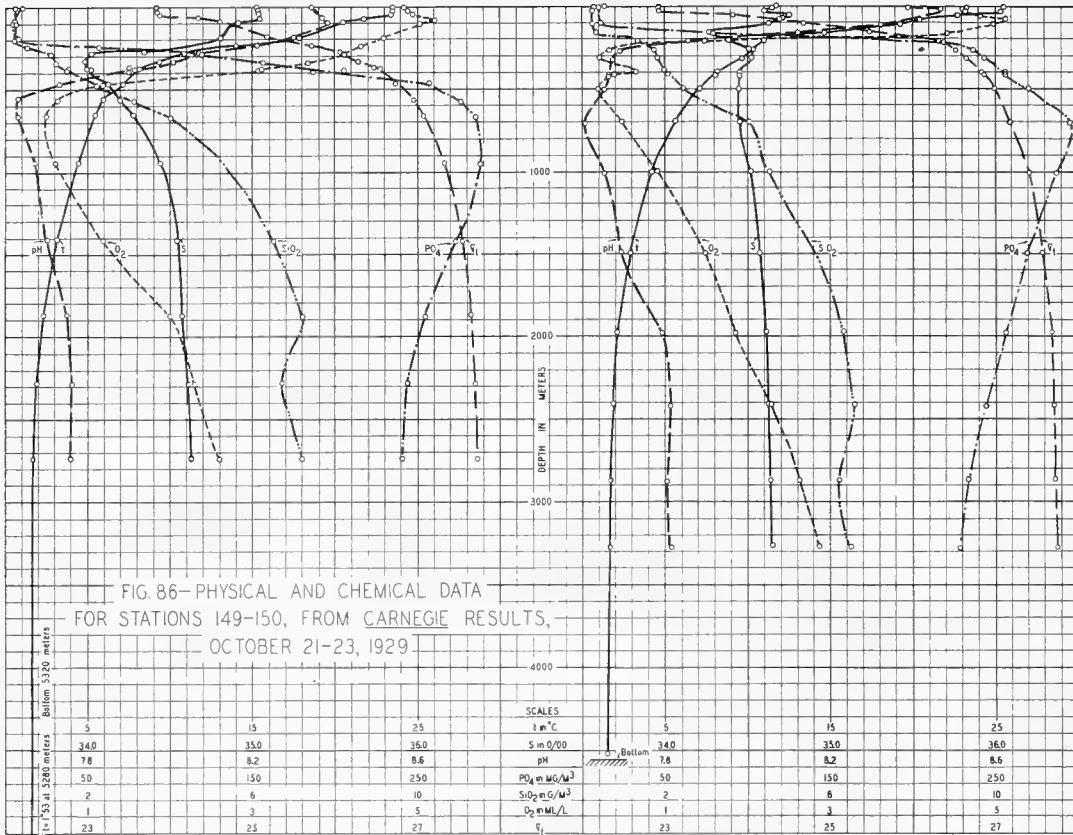
NO. 144—OCTOBER 11, 1929—33°38'N, 151°47'W





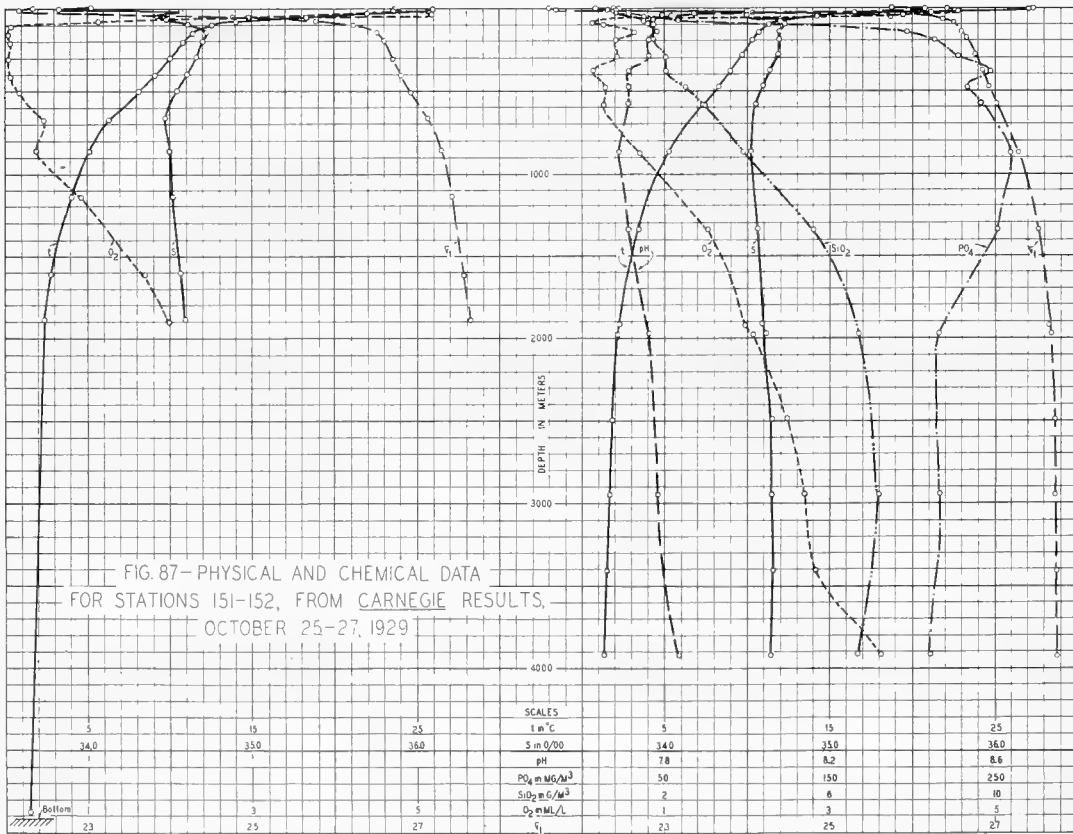
NO.149 — OCTOBER 21, 1929 — 21°18' N , 138°36' W

NO.150 — OCTOBER 23, 1929 — 16°15' N , 137°06' W



NO.151 — OCTOBER 25, 1929 — 12°40' N , 137°32' W

NO.152 — OCTOBER 27, 1929 — 10°05' N , 139°44' W



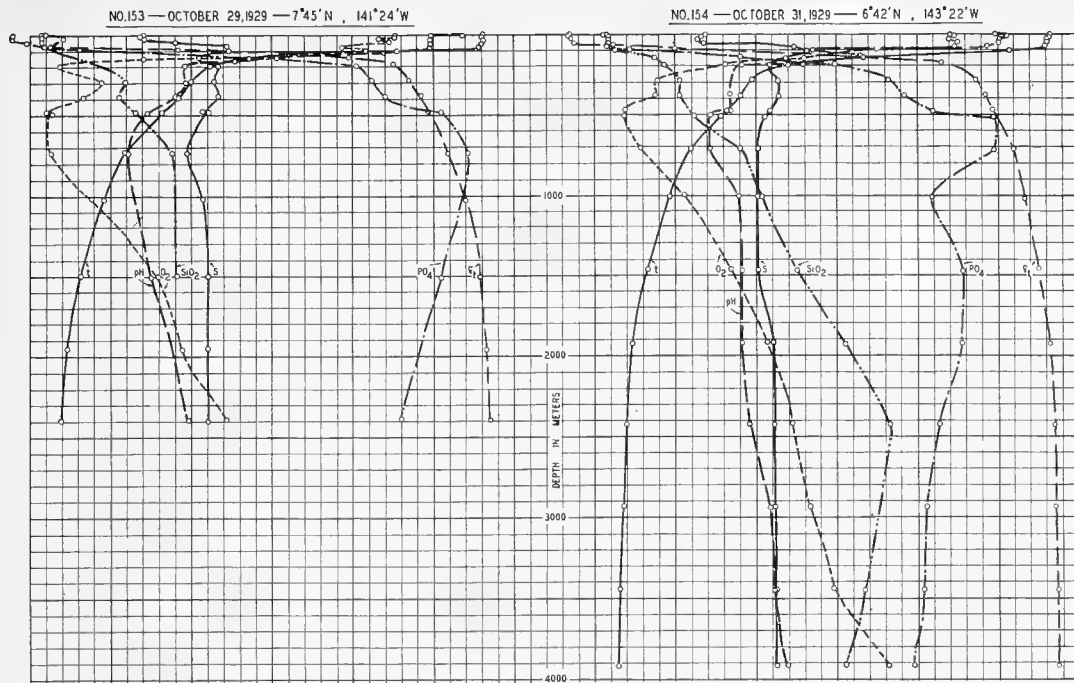


FIG. 88—PHYSICAL AND CHEMICAL DATA FOR STATIONS 153-154, FROM CARNEGIE RESULTS, OCTOBER 29-31, 1929-

SCALES						
5	15	25	t m°C	5	15	25
34.0	35.0	36.0	S in 0/100	34.0	35.0	36.0
7.6	8.0	8.4	pH	7.6	8.0	8.4
50	150	250	PO ₄ in MG/M ³	50	150	250
2	6	10	SiO ₂ in G/M ³	2	6	10
1	3	5	O ₂ in ML/L	1	3	5
23	25	27	Si	23	25	27

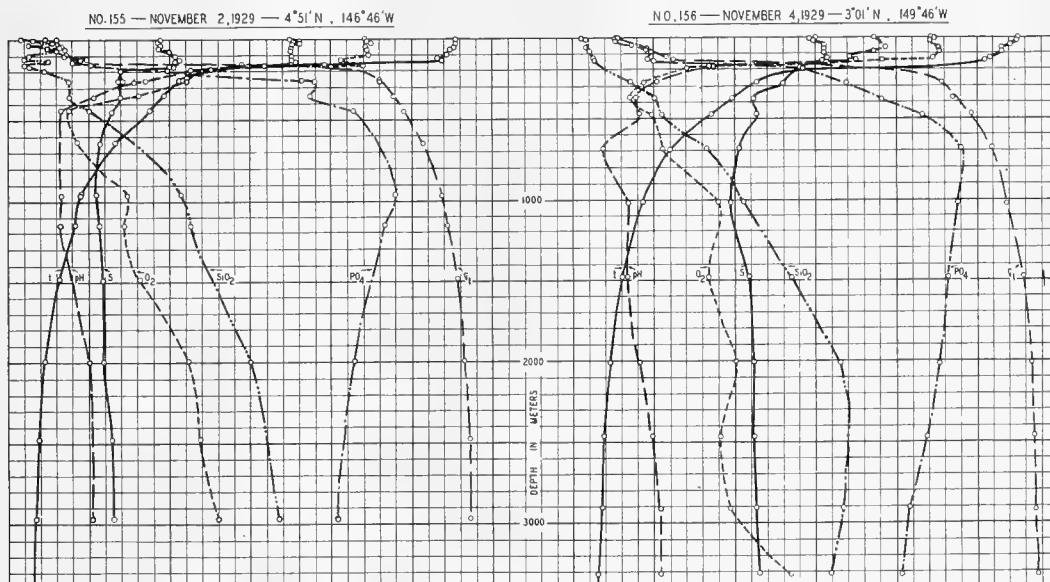


FIG. 89—PHYSICAL AND CHEMICAL DATA FOR STATIONS 155-156, FROM CARNEGIE RESULTS, NOVEMBER 2-4, 1929-

SCALES						
5	15	25	t m°C	5	15	25
34.5	35.5	36.5	S in 0/100	34.0	35.0	36.0
7.8	8.2	8.6	pH	7.8	8.2	8.6
50	150	250	PO ₄ in MG/M ³	50	150	250
2	6	10	SiO ₂ in G/M ³	2	6	10
1	3	5	O ₂ in ML/L	1	3	5
23	25	27	Si	23	25	27

NO. 157—NOVEMBER 6, 1929—1°48'S, 152°22'W

NO. 158—NOVEMBER 8, 1929—6°33'S, 154°58'W

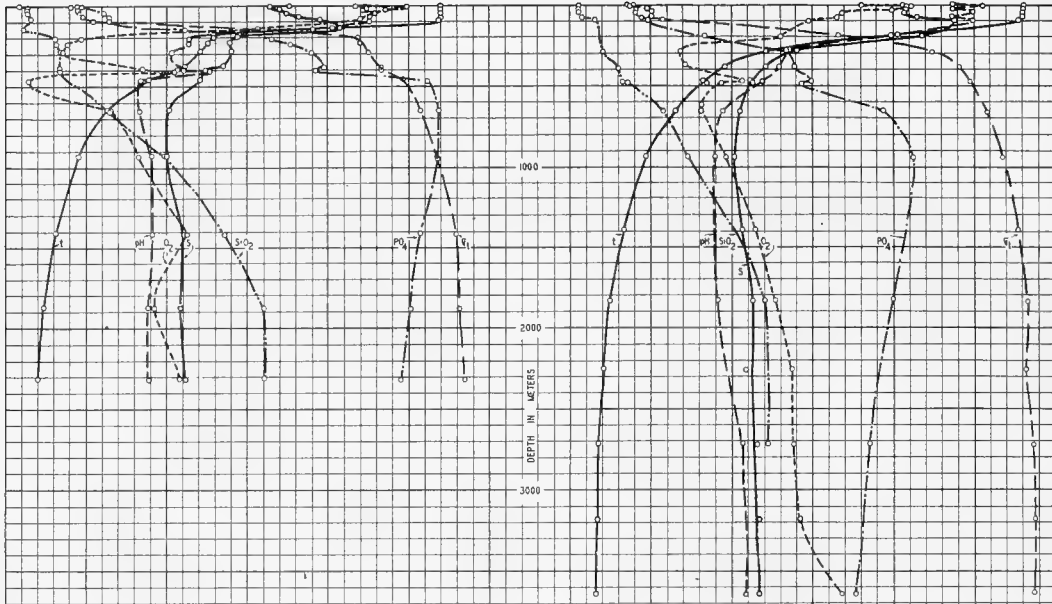
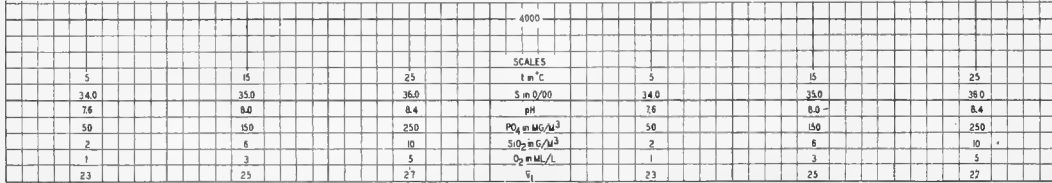


FIG. 90—PHYSICAL AND CHEMICAL DATA FOR STATIONS 157-158, FROM CARNEGIE RESULTS, NOVEMBER 6-8, 1929



NO. 159—NOVEMBER 11, 1929—9°24'S, 159°01'W

NO. 160—NOVEMBER 13, 1929—10°54'S, 161°53'W

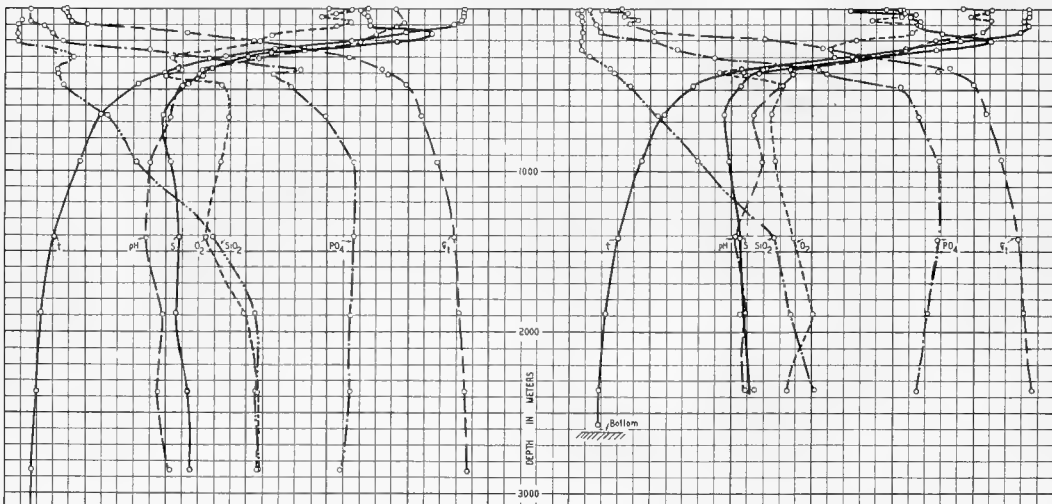
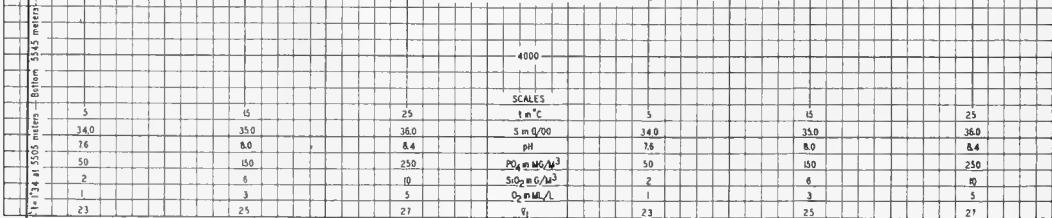


FIG. 91—PHYSICAL AND CHEMICAL DATA FOR STATIONS 159-160, FROM CARNEGIE RESULTS, NOVEMBER 11-13, 1929



NO.161—NOVEMBER 15, 1929—12°04'S, 164°57'W

NO.162—NOVEMBER 17, 1929—13°36'S, 168°23'W

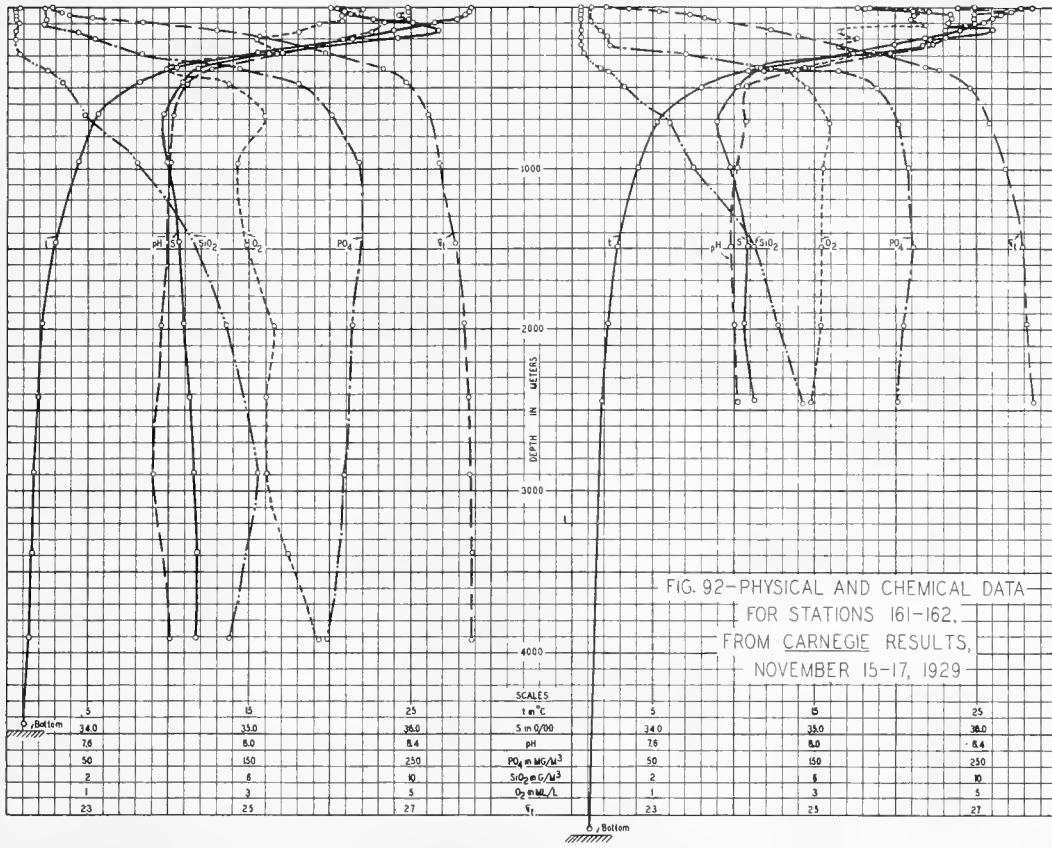


FIG. 92—PHYSICAL AND CHEMICAL DATA
FOR STATIONS 161-162,
FROM CARNEGIE RESULTS,
NOVEMBER 15-17, 1929

NO. 161		NO. 162	
5	15	5	15
34.0	35.0	34.0	35.0
7.6	8.0	7.6	8.0
50	150	50	150
2	6	2	6
1	3	1	3
23	27	23	27

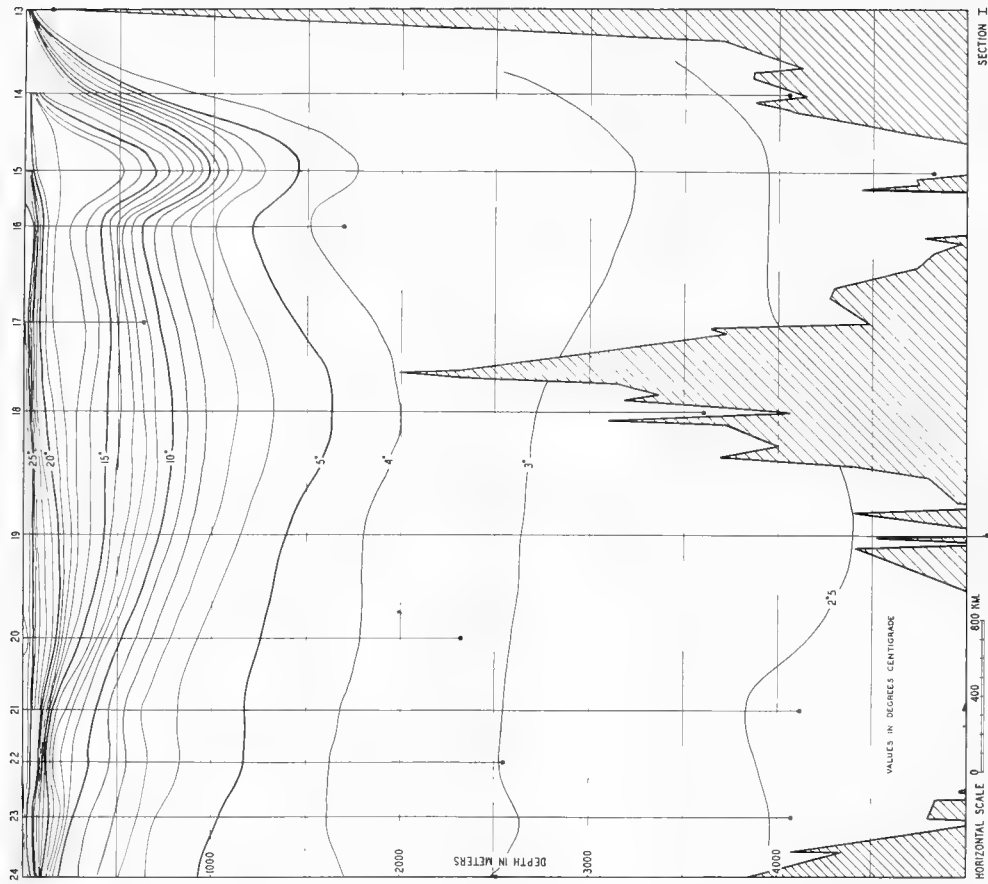


FIG. 94—VERTICAL DISTRIBUTION TEMPERATURE, ATLANTIC OCEAN, FROM CARNEGIE RESULTS, AUGUST 7-31, 1928

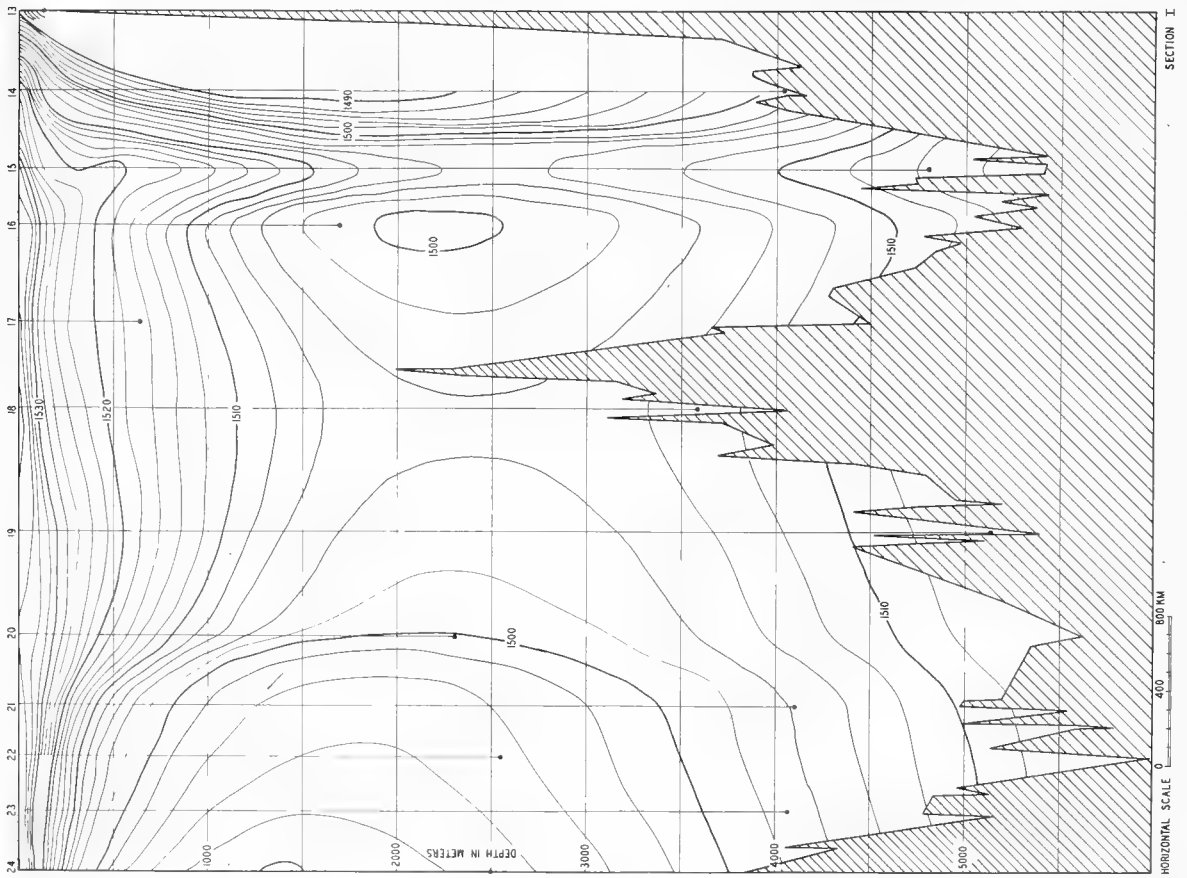


FIG. 93—VERTICAL DISTRIBUTION SOUNDING VELOCITY, ATLANTIC OCEAN, FROM CARNEGIE RESULTS, AUGUST 7-31, 1928

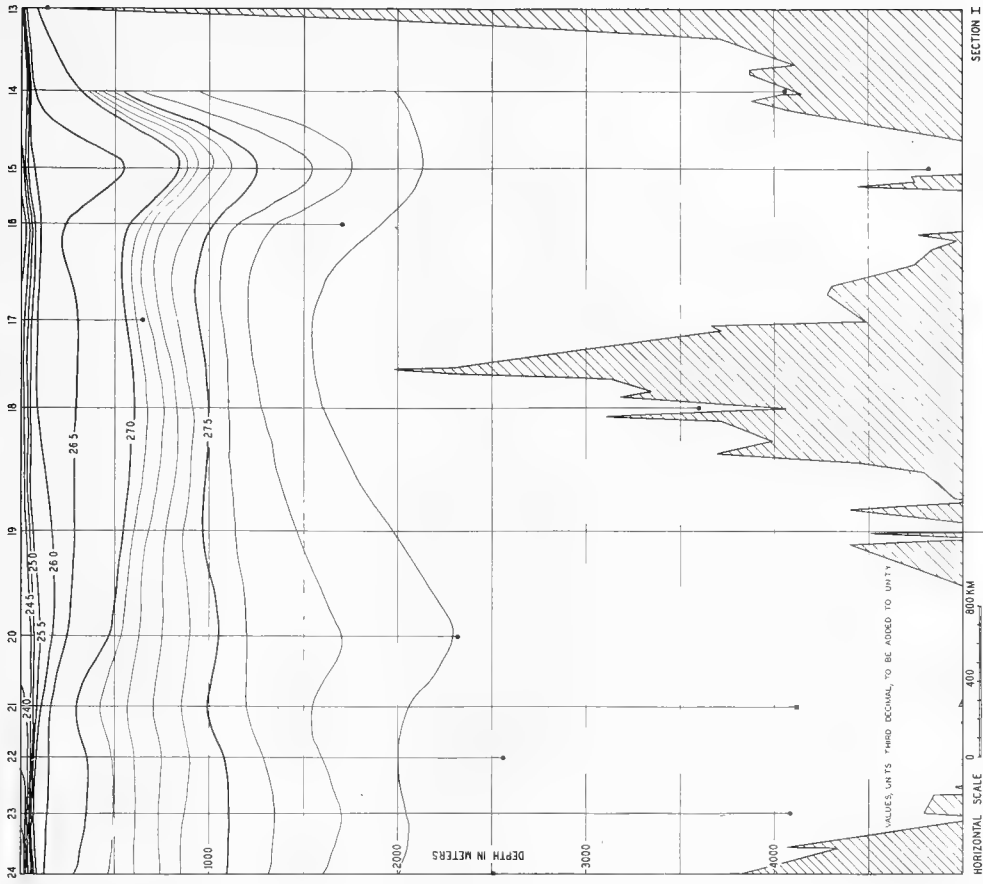


FIG 96—VERTICAL DISTRIBUTION DENSITY ATLANTIC OCEAN, FROM CARNEGIE RESULTS, AUGUST 7-31, 1928

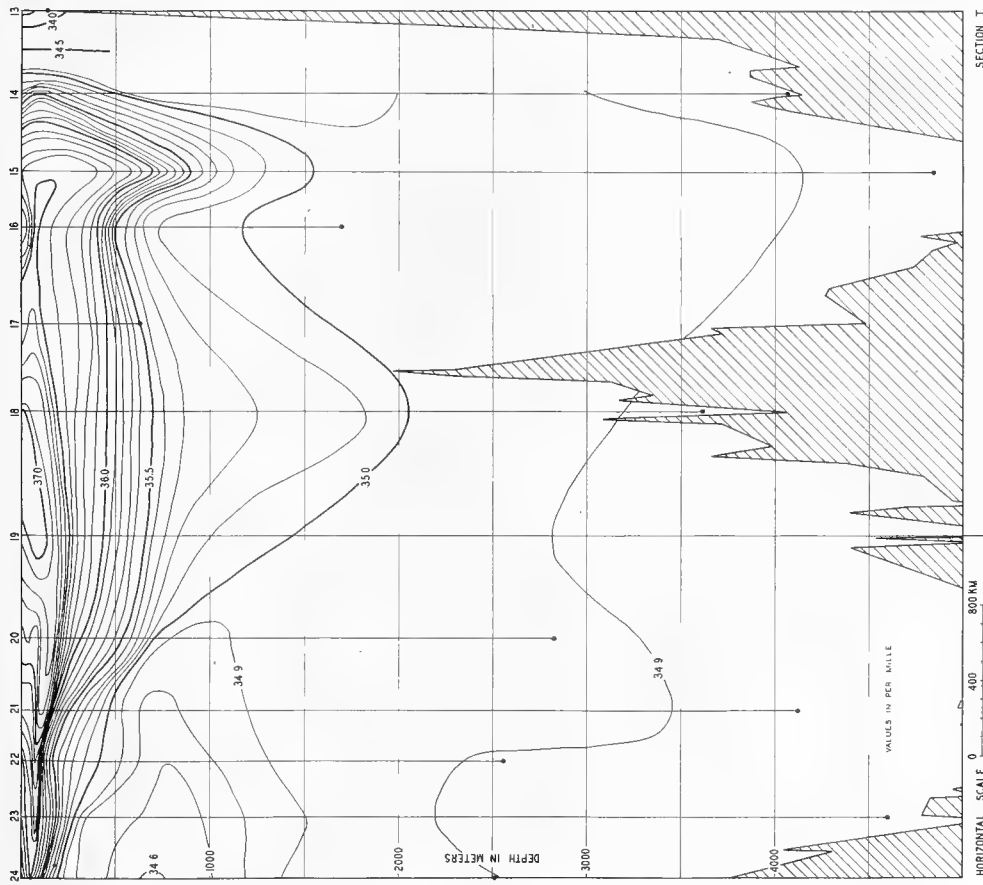


FIG 95—VERTICAL DISTRIBUTION SALINITY, ATLANTIC OCEAN, FROM CARNEGIE RESULTS, AUGUST 7-31, 1928

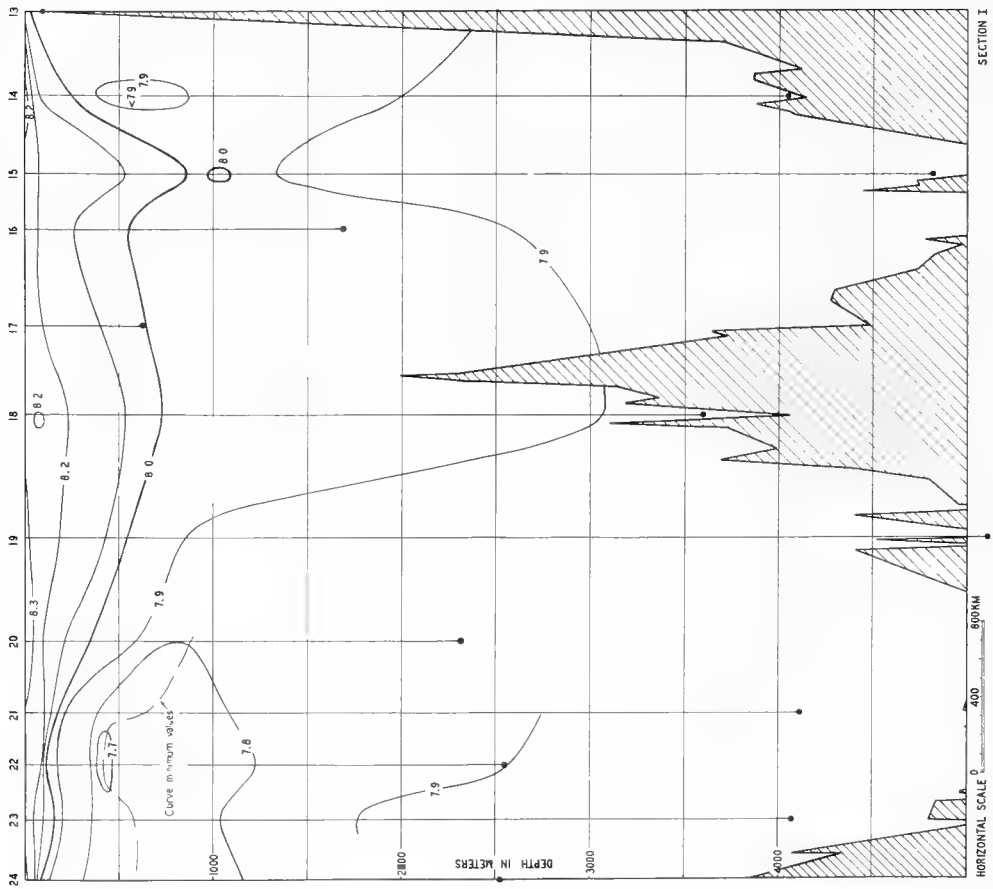


FIG 97—VERTICAL DISTRIBUTION HYDROGEN ION, ATLANTIC OCEAN, FROM CARNEGIE RESULTS, AUGUST 7-31 1928

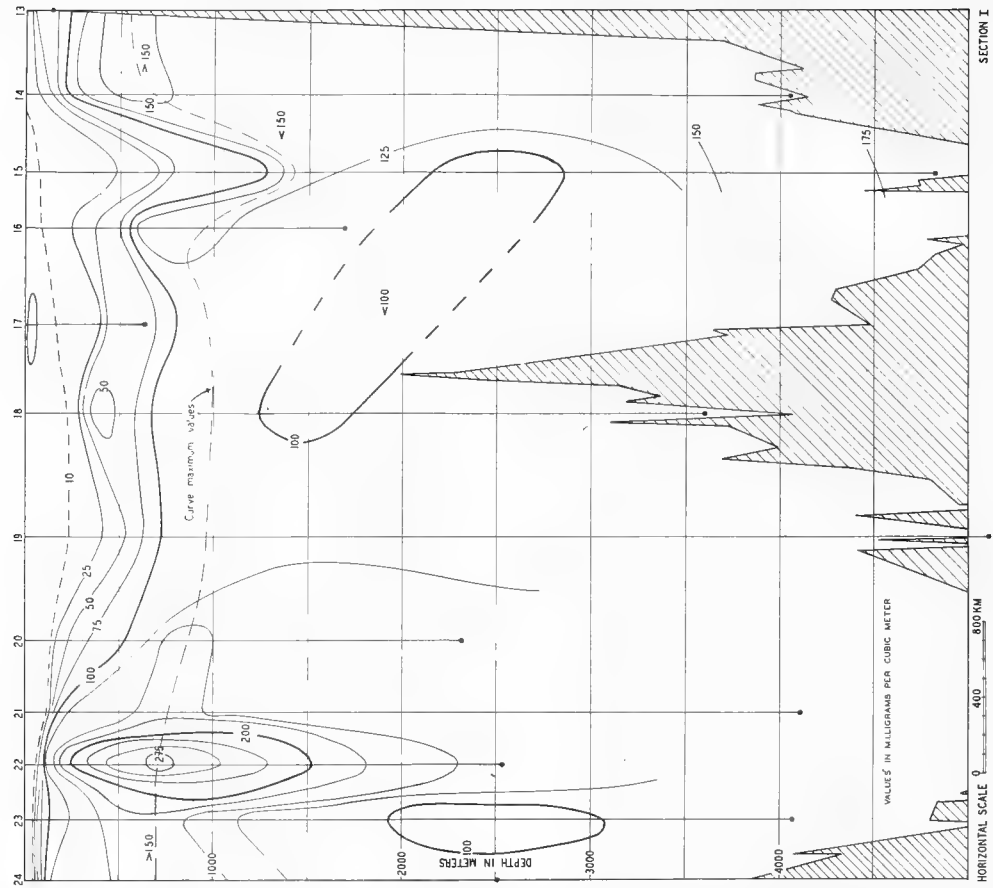


FIG 98—VERTICAL DISTRIBUTION PHOSPHATE, ATLANTIC OCEAN, FROM CARNEGIE RESULTS, AUGUST 7-31, 1928

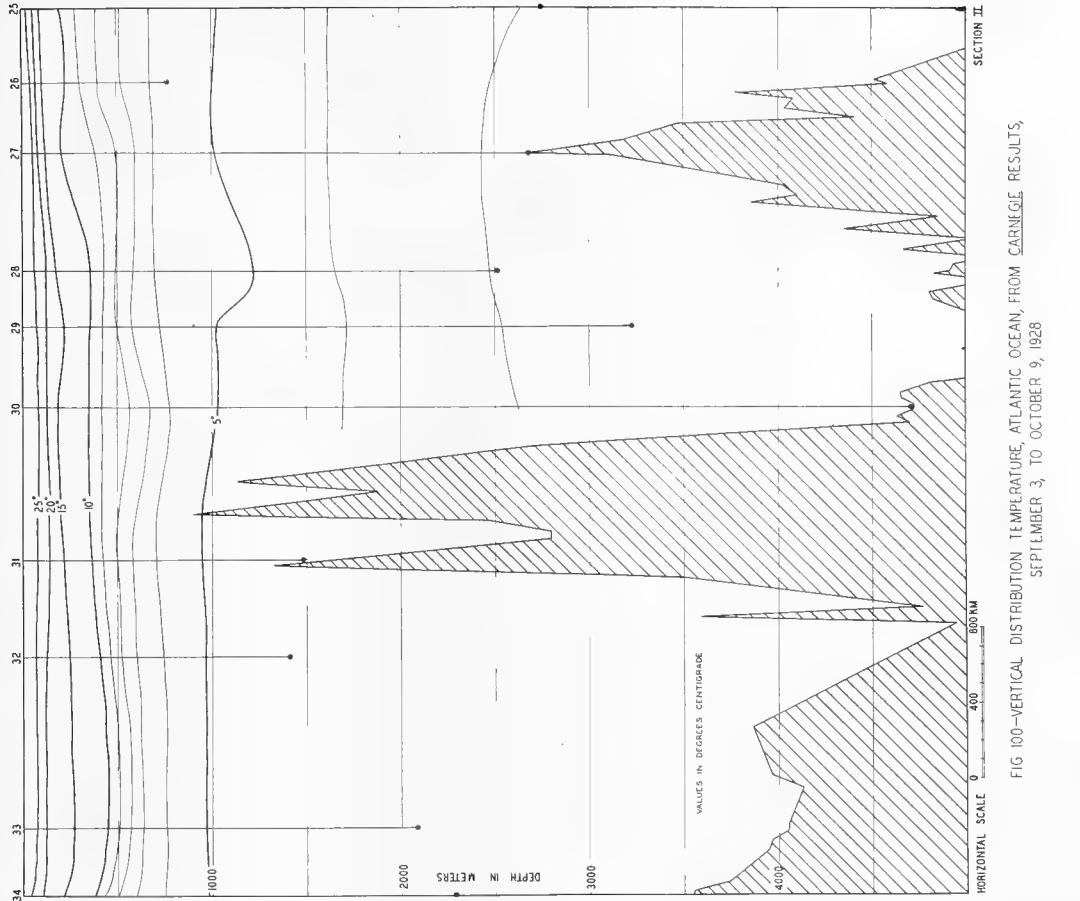


FIG 100—VERTICAL DISTRIBUTION TEMPERATURE ATLANTIC OCEAN, FROM CARNEGIE RESULTS, SEPTEMBER 3, TO OCTOBER 9, 1928

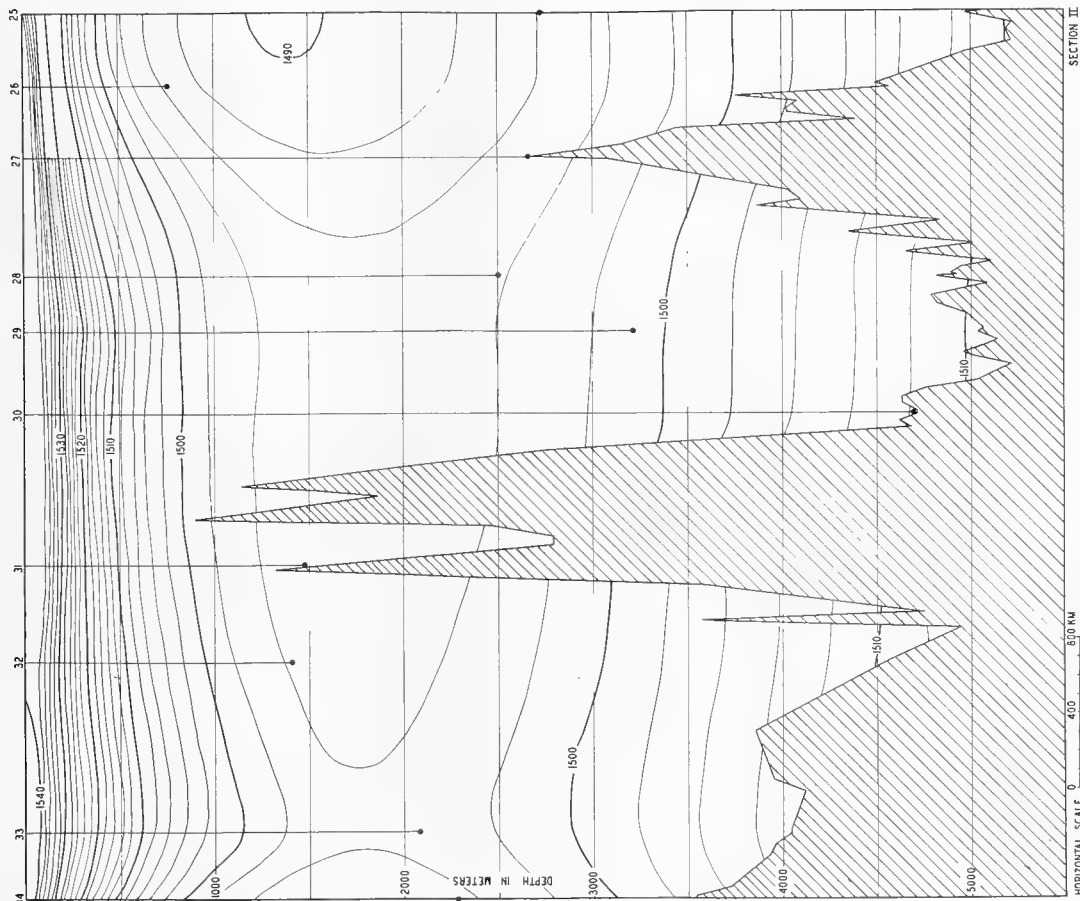


FIG. 99 —VERTICAL DISTRIBUTION SOUNDING VELOCITY, ATLANTIC OCEAN, FROM CARNEGIE RESULTS, SEPTEMBER 3 TO OCTOBER 9, 1928

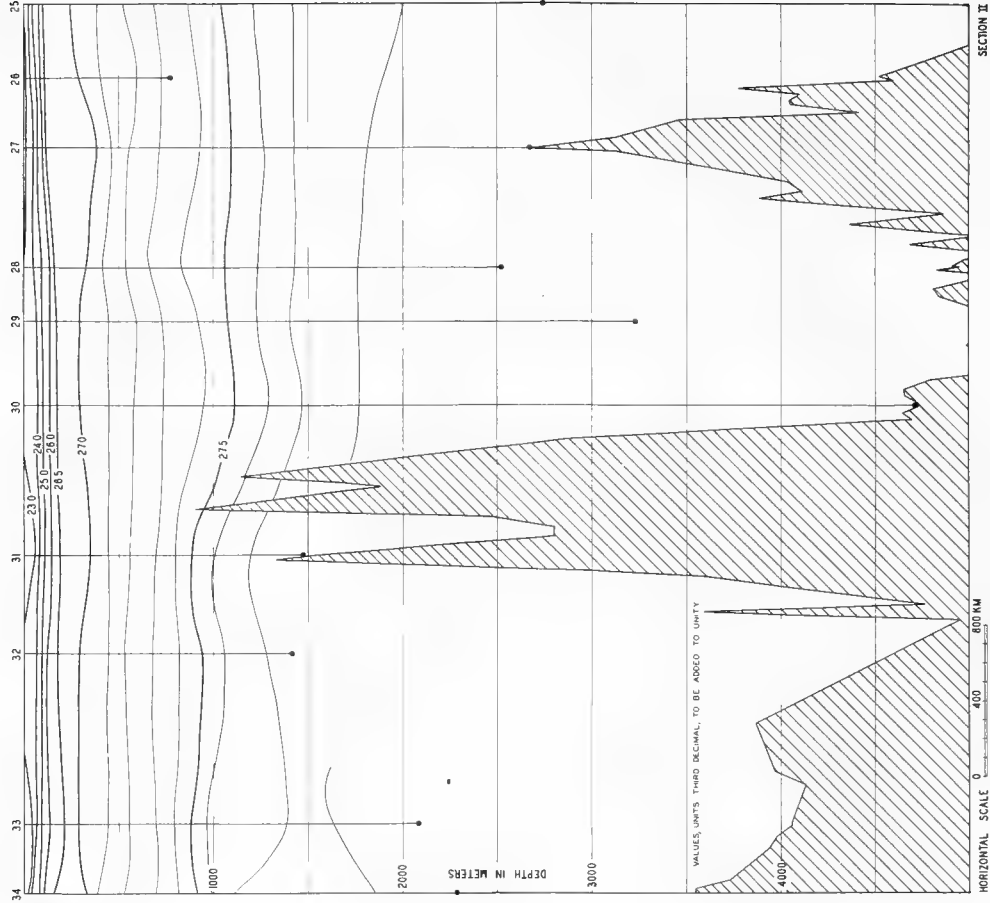


FIG 102—VERTICAL DISTRIBUTION DENSITY, ATLANTIC OCEAN, FROM CARNegie RESULTS, SEPTEMBER 3 TO OCTOBER 9, 1928

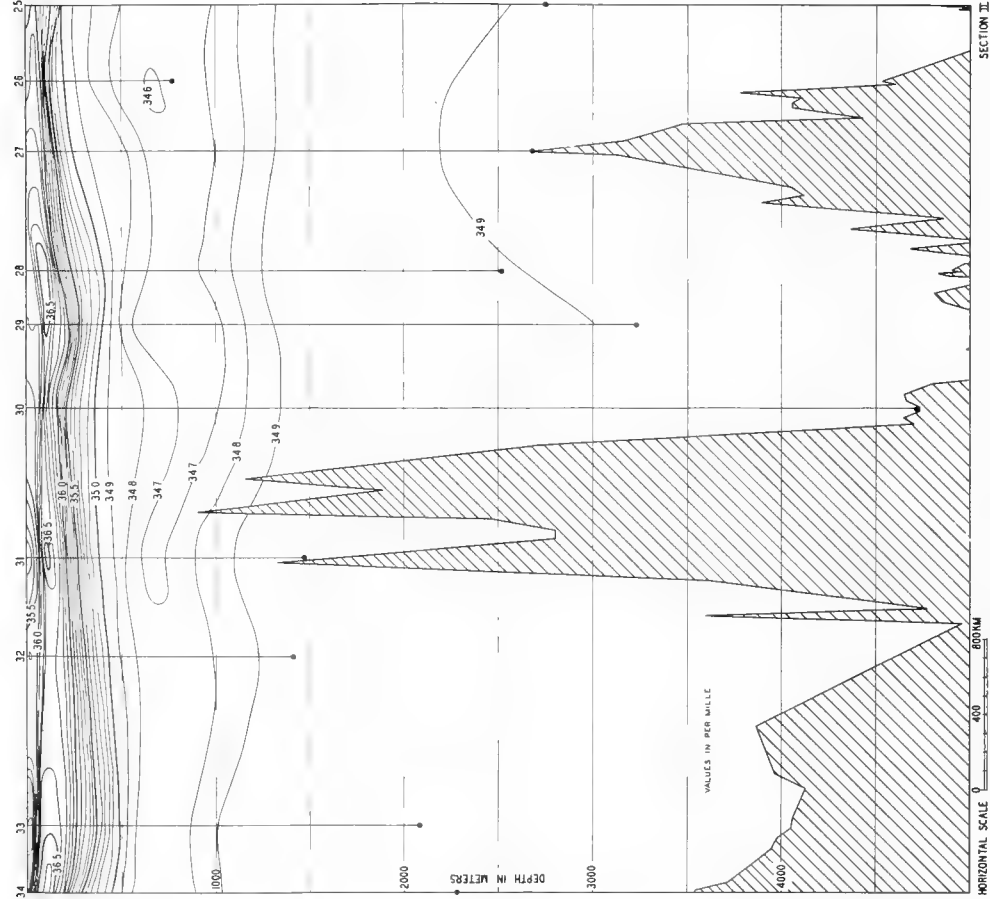


FIG 101—VERTICAL DISTRIBUTION SALINITY, ATLANTIC OCEAN, FROM CARNegie RESULTS, SEPTEMBER 3 TO OCTOBER 9, 1928

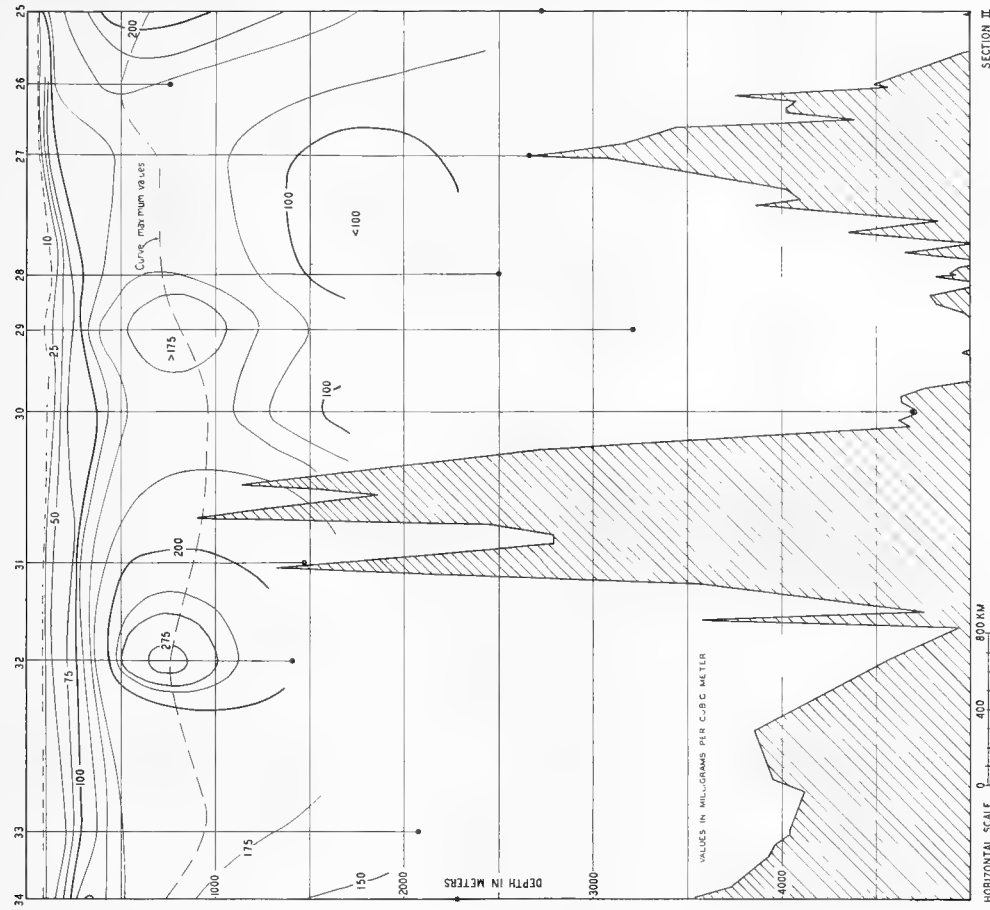


FIG 104—VERTICAL DISTRIBUTION PHOSPHATE, ATLANTIC OCEAN, FROM CARNEGIE RESULTS, SEPTEMBER 3 TO OCTOBER 9, 1928

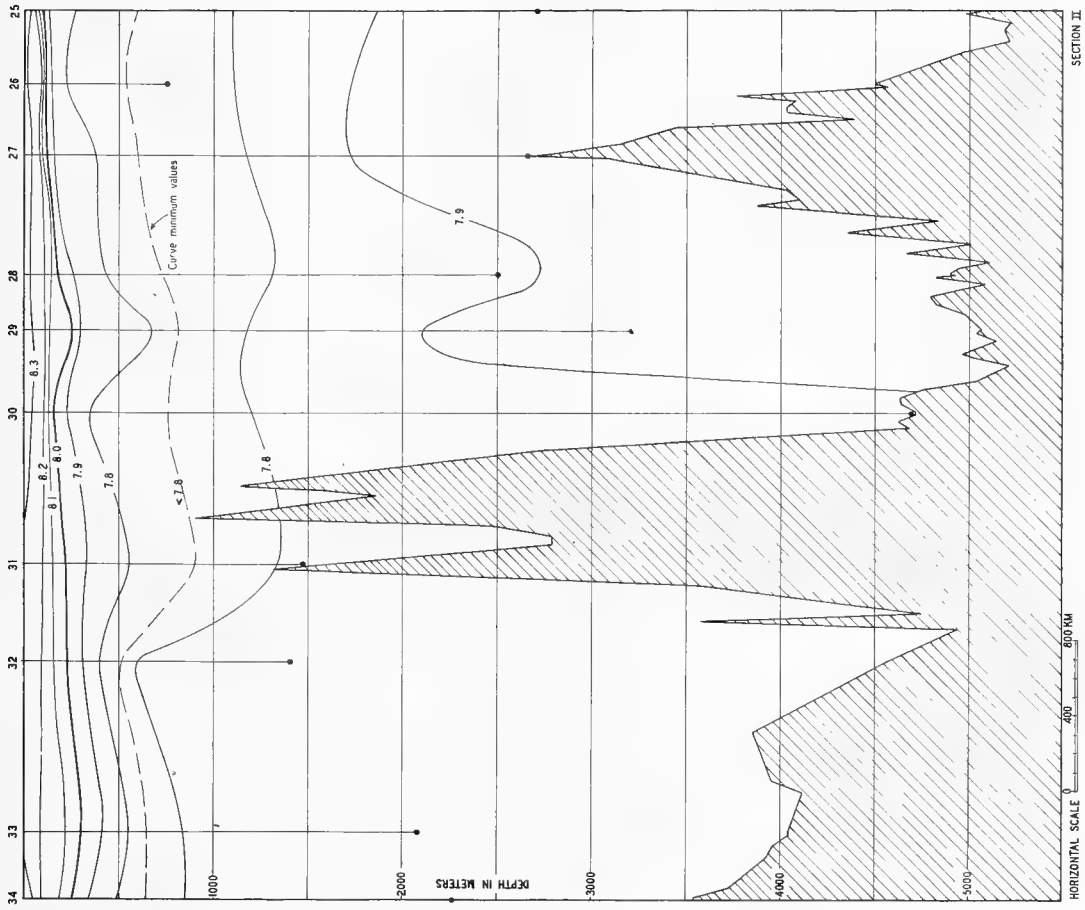
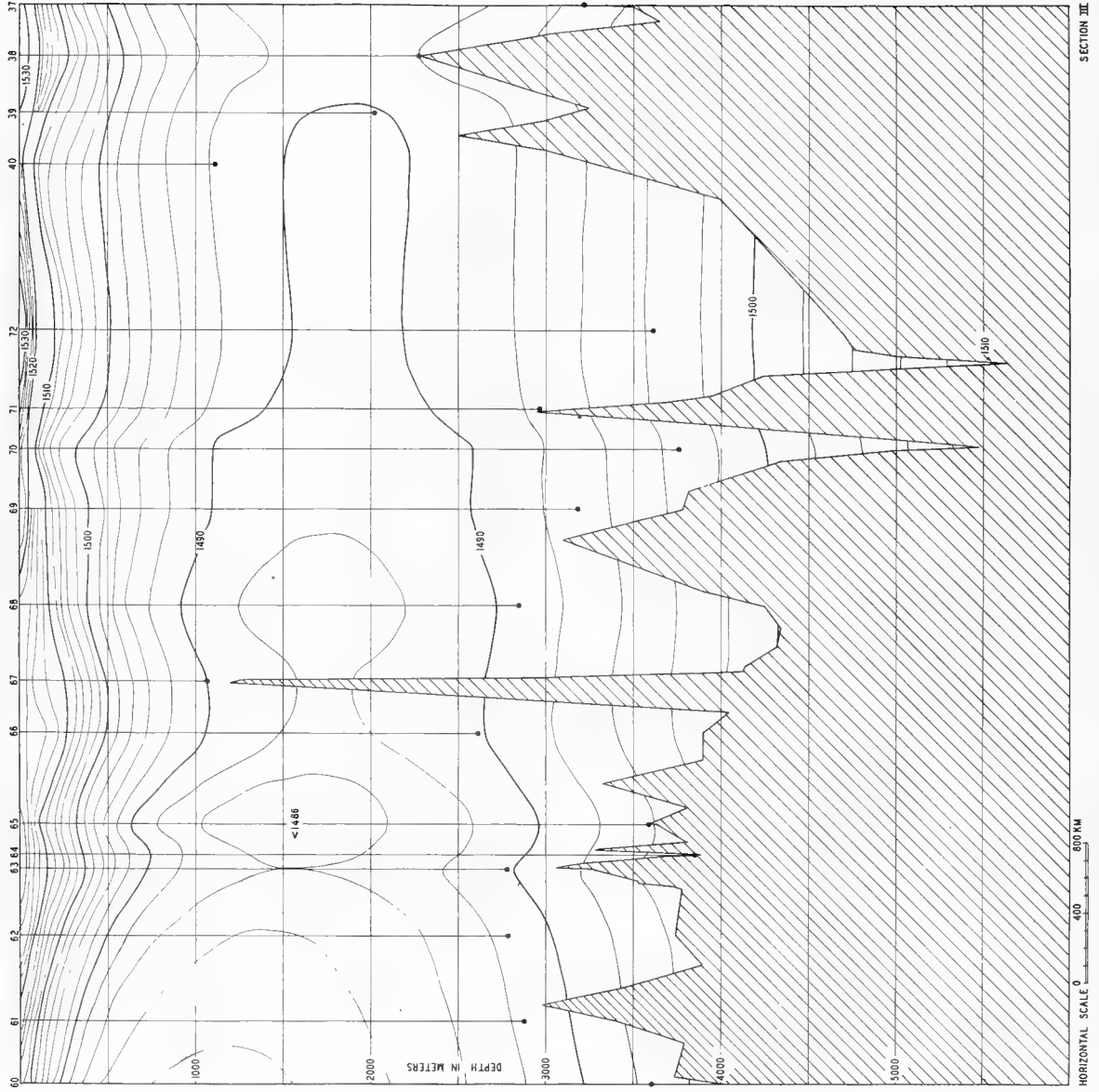


FIG 103—VERTICAL DISTRIBUTION HYDROGEN ION, ATLANTIC OCEAN, FROM CARNEGIE RESULTS, SEPTEMBER 3 TO OCTOBER 9, 1928



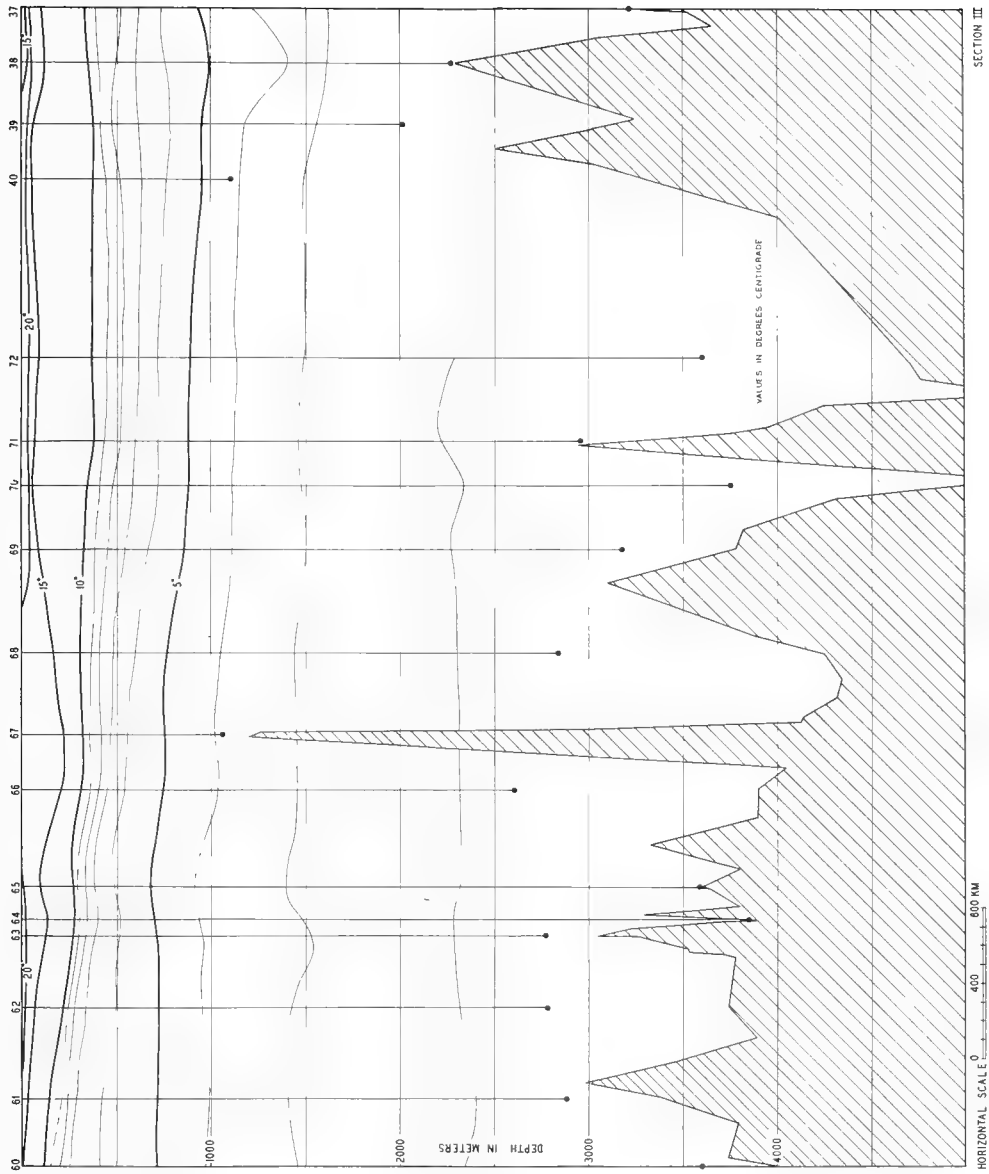
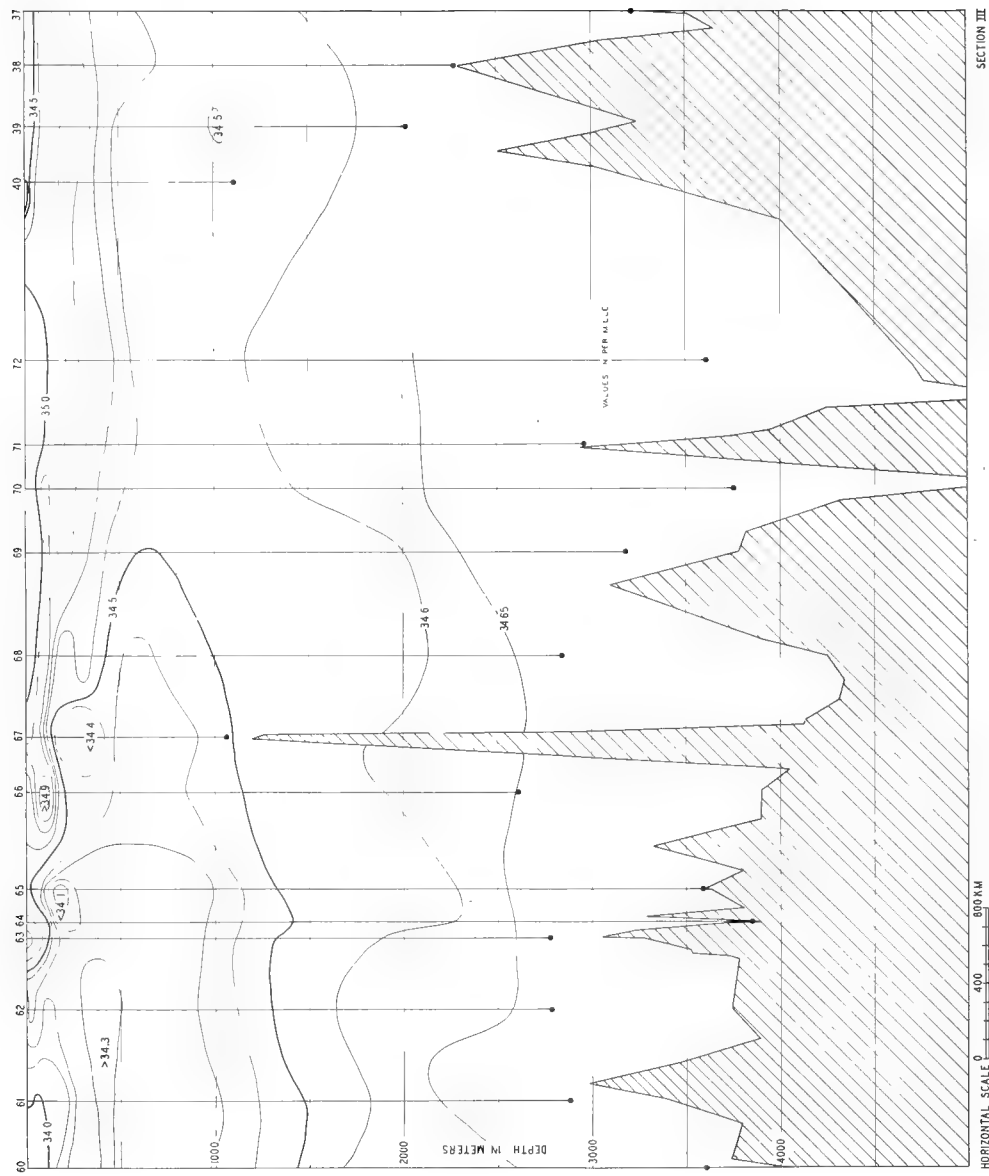


FIG 106-VERTICAL DISTRIBUTION TEMPERATURE, PACIFIC OCEAN, FROM CARNEGIE RESULTS, NOVEMBER 18, 1928 AND DECEMBER 26, 1928 TO FEBRUARY 8, 1929



SECTION III
 FIG. 107—VERTICAL DISTRIBUTION SALINITY, PACIFIC OCEAN, FROM CARNEGIE RESULTS, NOVEMBER 1-8, 1928, AND DECEMBER 26, 1928, TO FEBRUARY 8, 1929

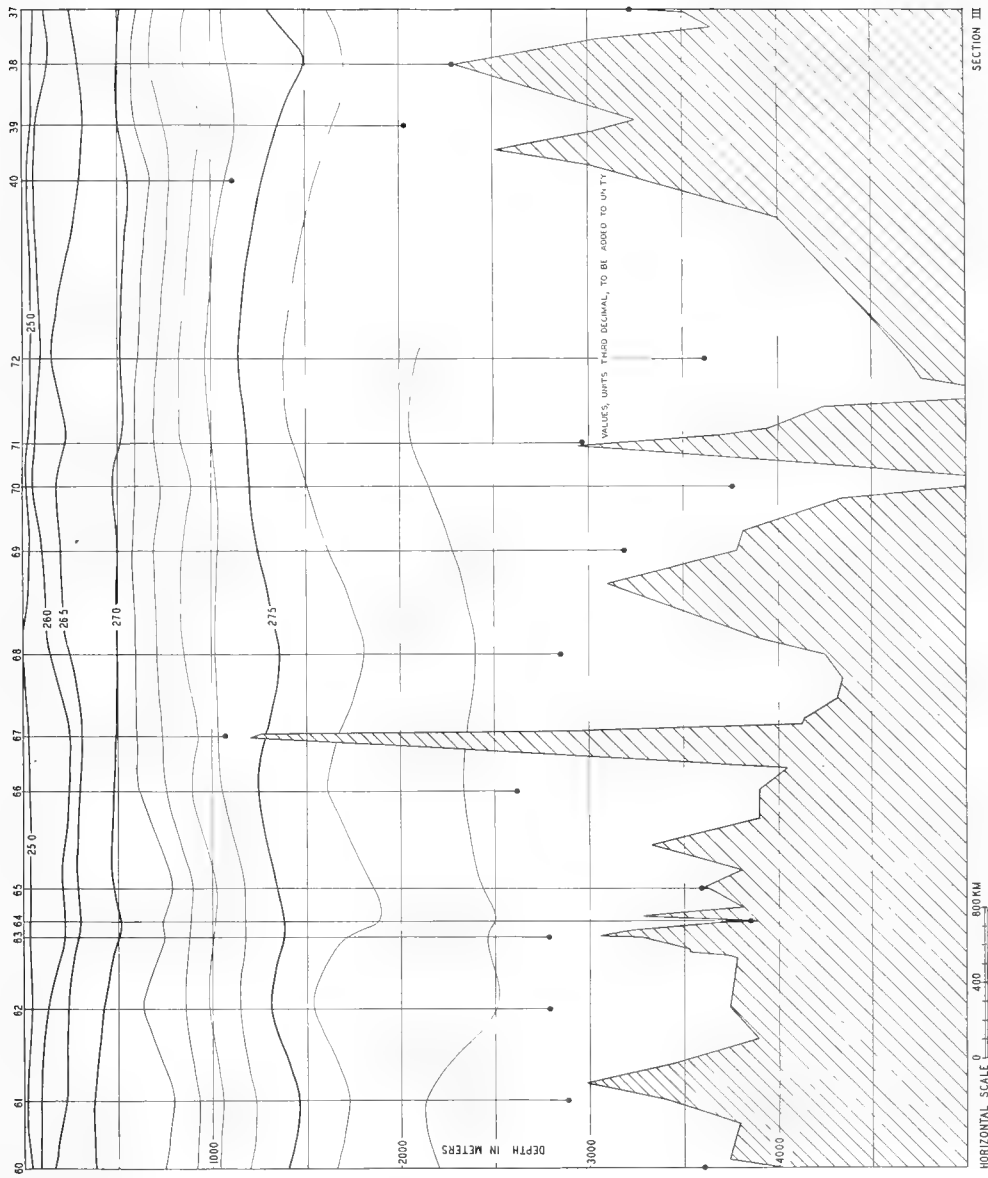
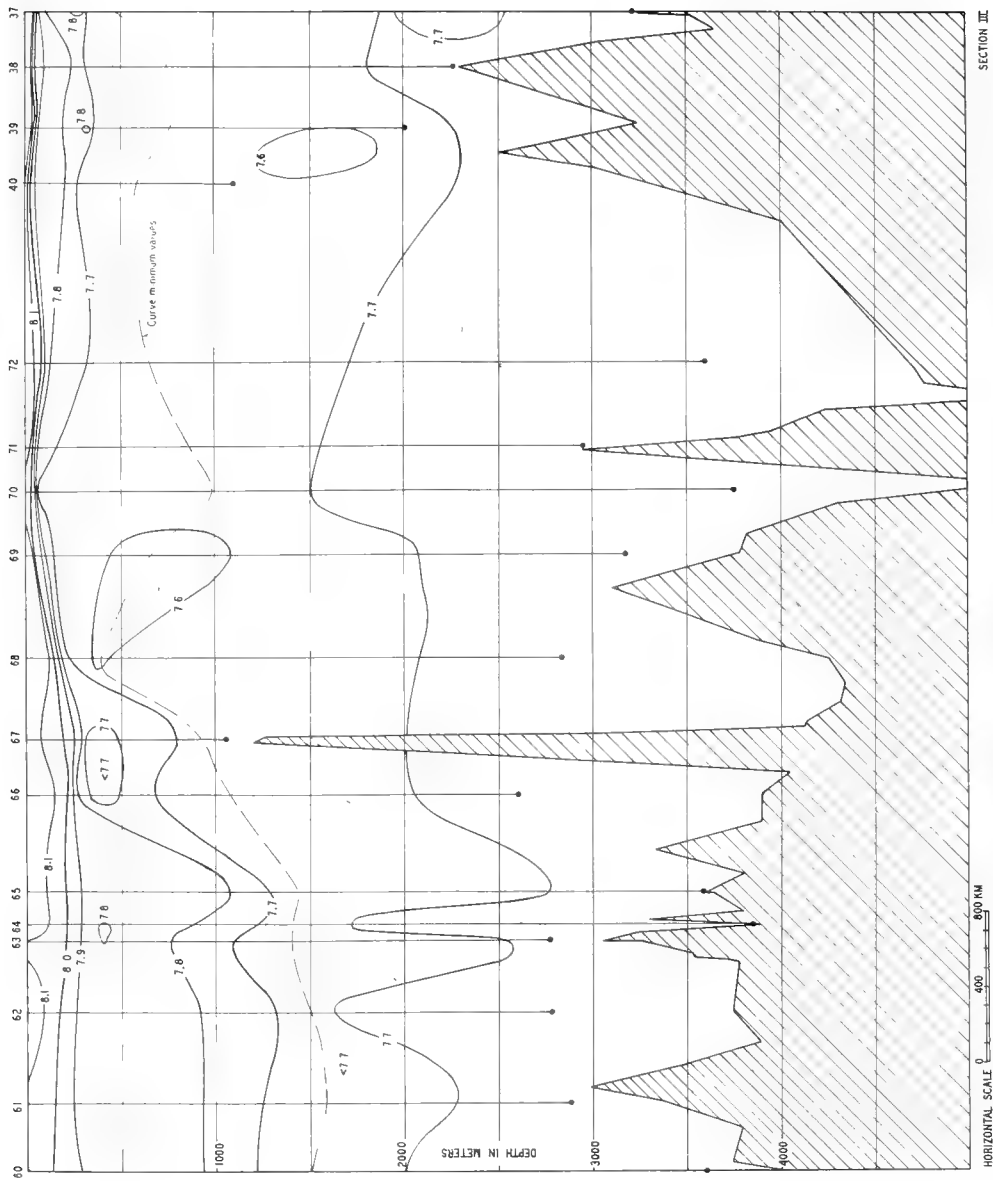
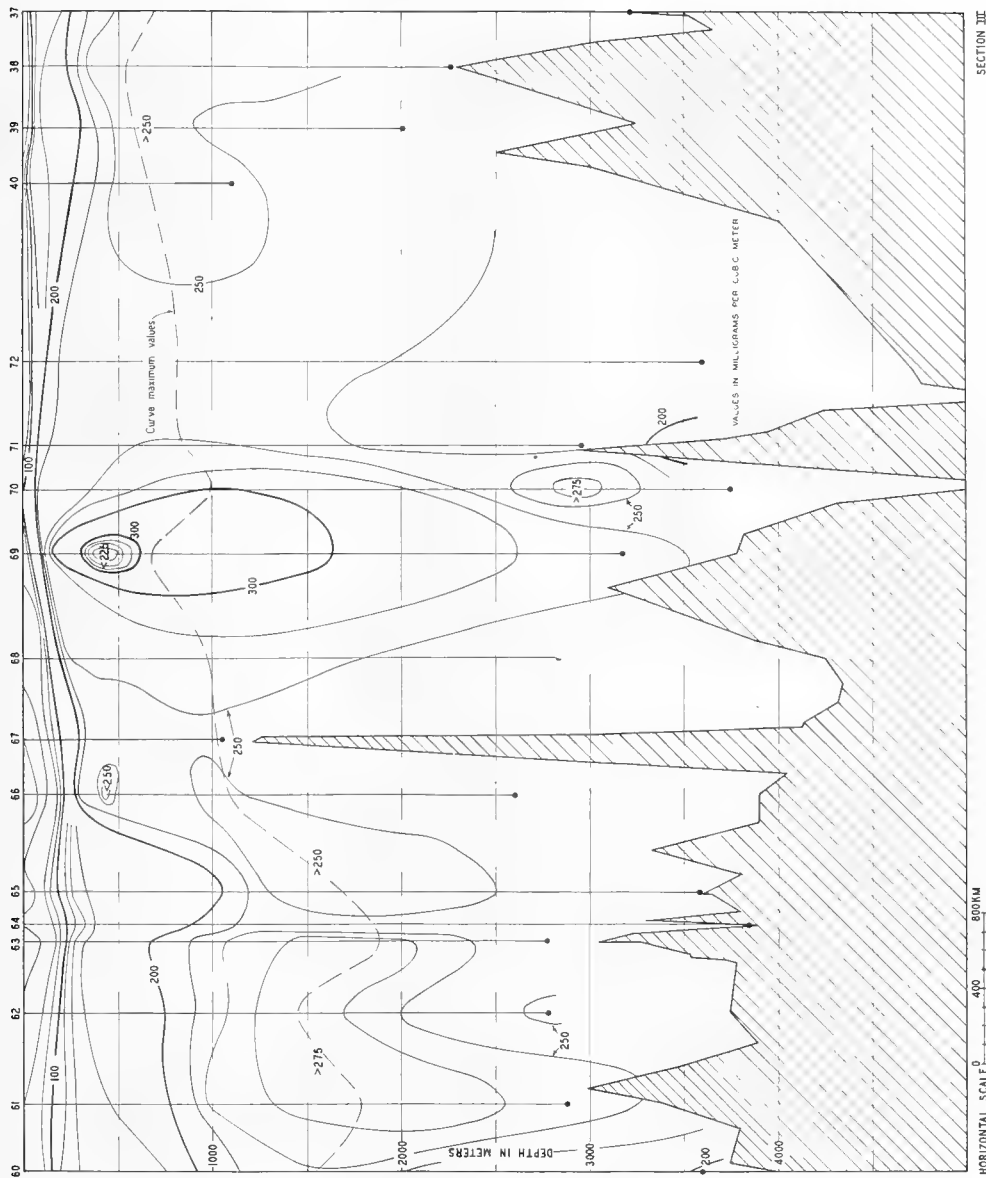


FIG 10A VERTICAL DISTRIBUTION DENSITY, PACIFIC OCEAN, FROM CARNegie RESULTS, NOVEMBER 18, 1928 AND DECEMBER 26, 1928 TO FEBRUARY 8, 1929

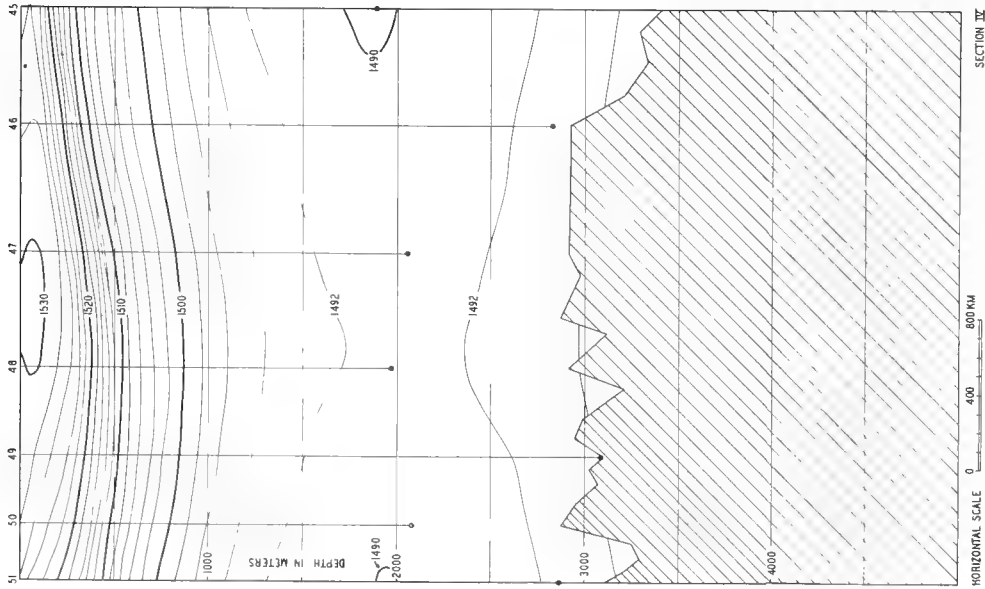


SECTION III
 FIG 109—VERTICAL DISTRIBUTION HYDROGEN ION, PACIFIC OCEAN, FROM CARNegie RESULTS, NOVEMBER 1-8, 1928, AND DECEMBER 26, 1928, TO FEBRUARY 8, 1929

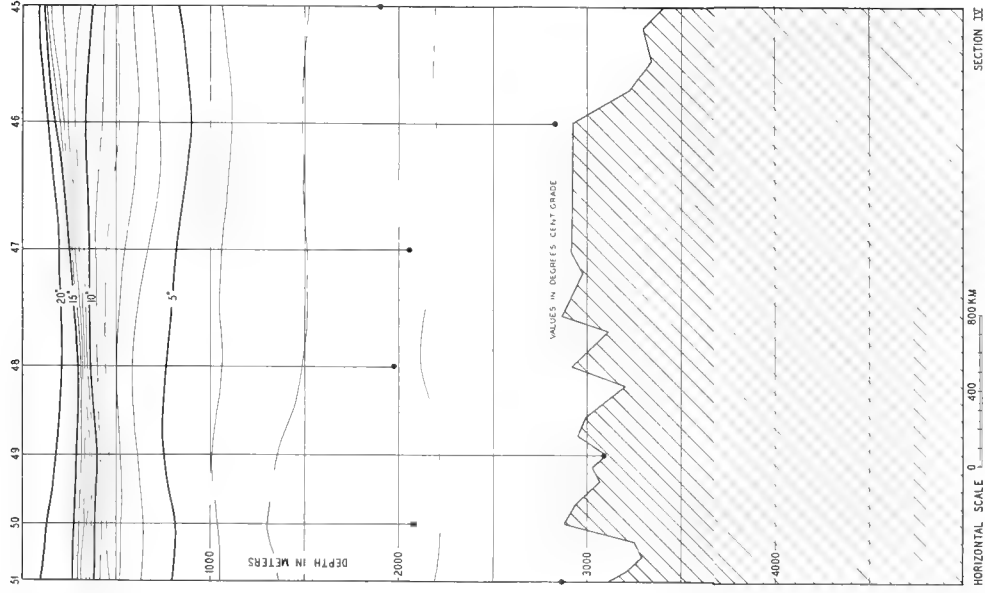


SECTION III

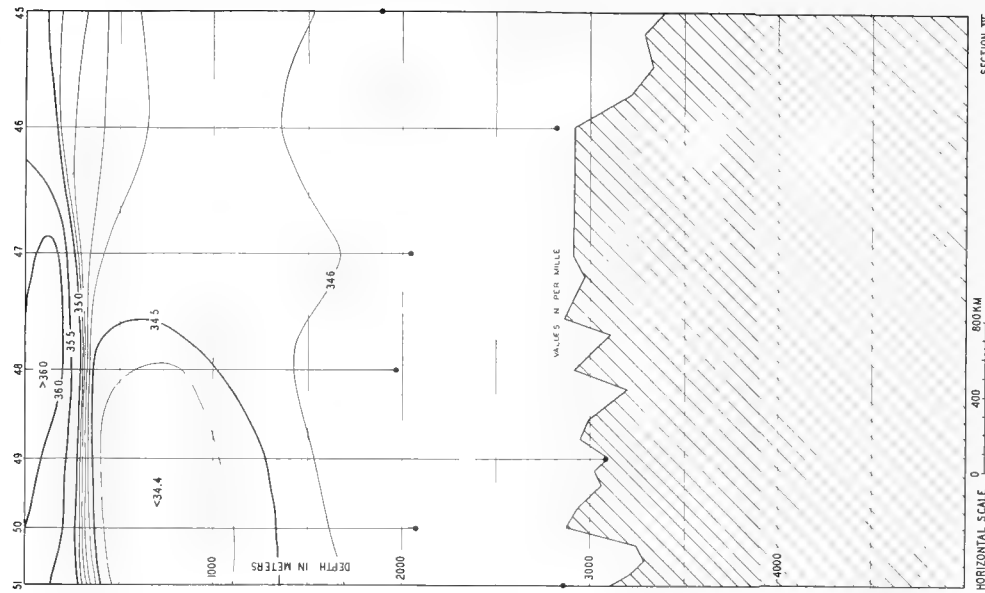
FIG.10—VERTICAL DISTRIBUTION PHOSPHATE, PACIFIC OCEAN, FROM CARNegie RESULTS, NOVEMBER 1-8, 1928, AND DECEMBER 26, 1928, TO FEBRUARY 8, 1929



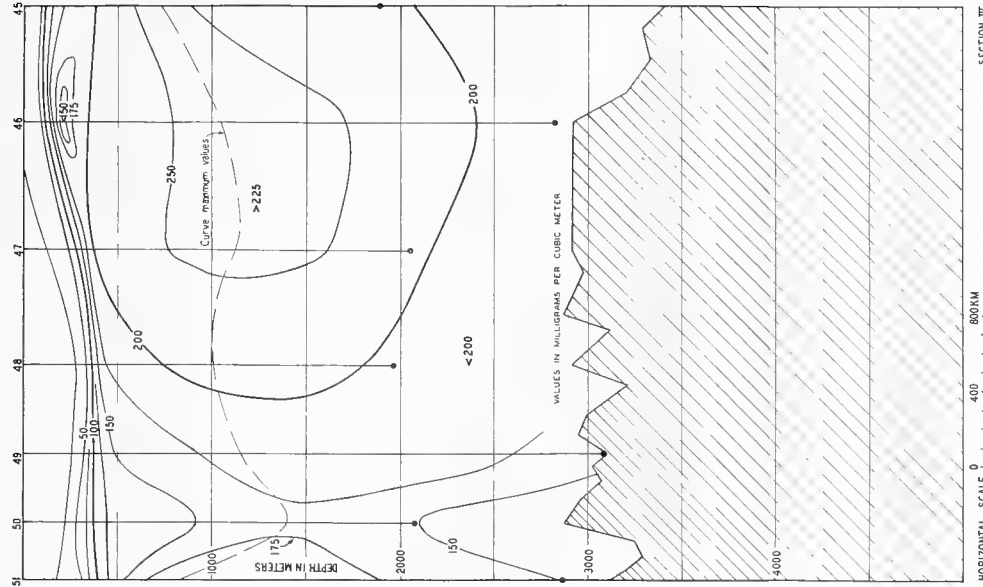
SECTION II
 FIG 111—VERTICAL DISTRIBUTION SOUNDING VELOCITY PACIFIC OCEAN,
 FROM CARNEGIE RESULTS, NOVEMBER 19 TO DECEMBER 1, 1928



SECTION III
 FIG 112—VERTICAL DISTRIBUTION TEMPERATURE PACIFIC OCEAN, FROM CARNEGIE
 RESULTS, NOVEMBER 19 TO DECEMBER 1, 1928



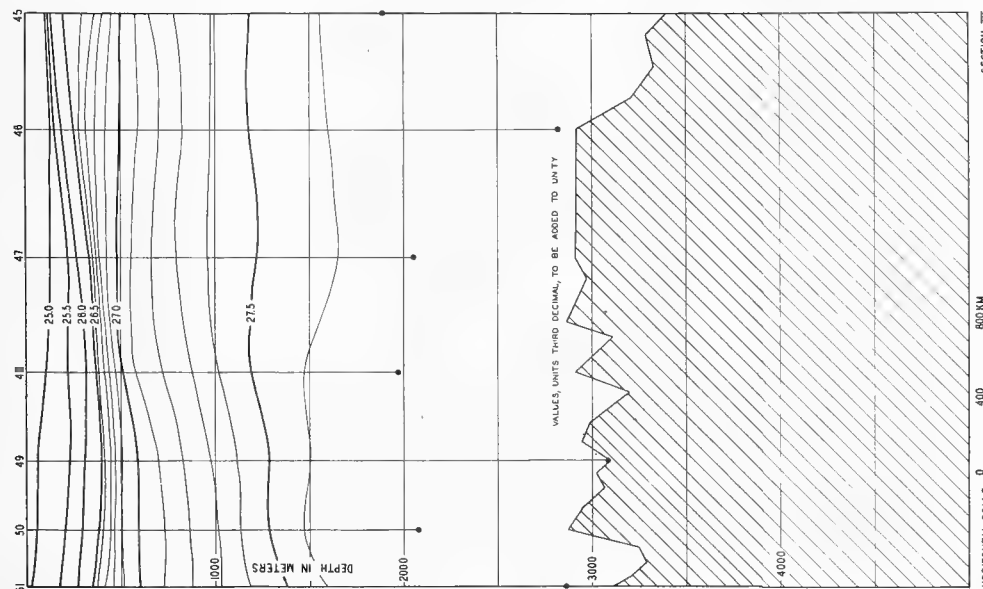
SECTION IV
 FIG 113—VERTICAL DISTRIBUTION SALINITY PACIFIC OCEAN, FROM CARNEGIE RESULTS,
 NOVEMBER 19 TO DECEMBER 1, 1928



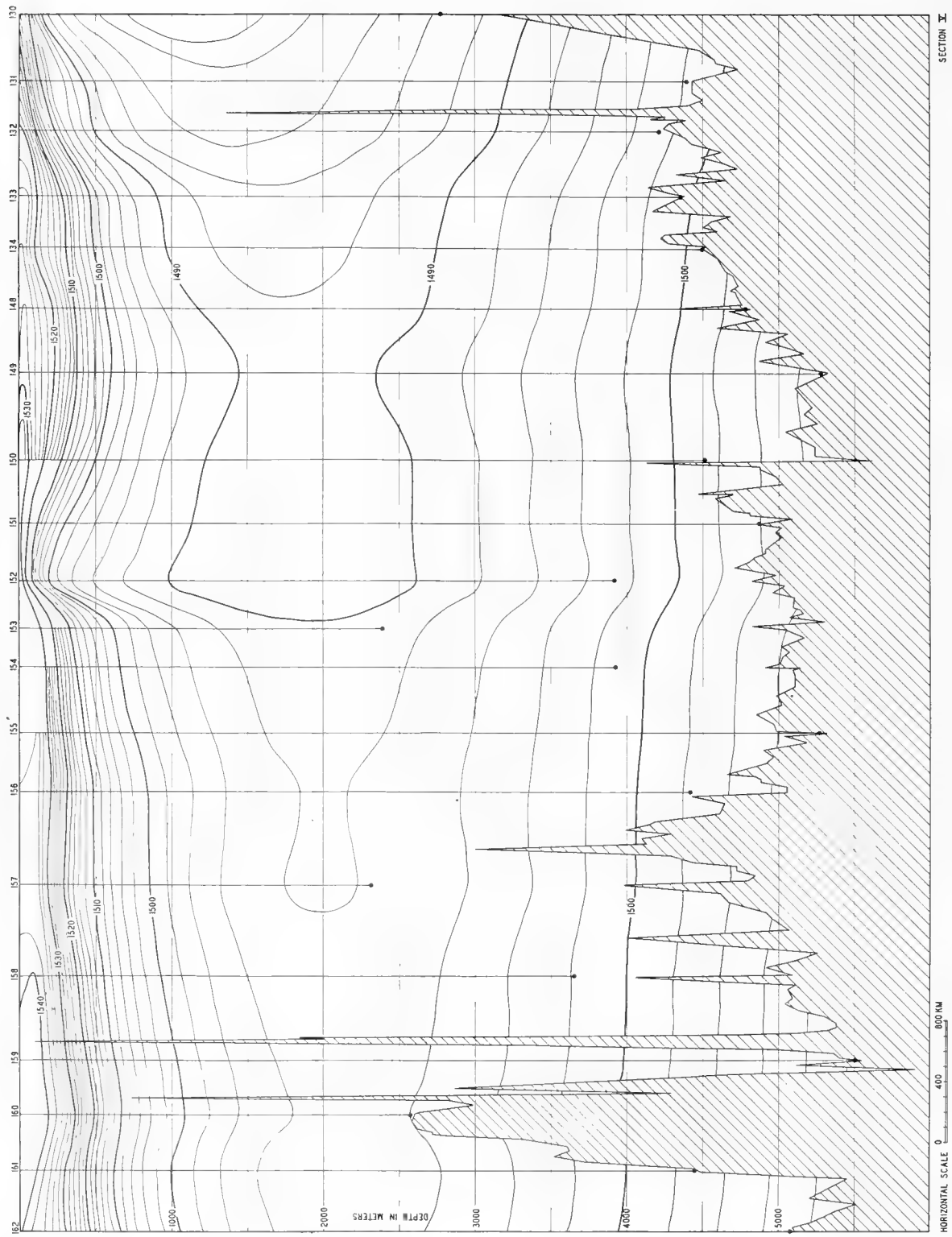
SECTION III
 HORIZONTAL SCALE 0 400 800 KM
 FIG 116—VERTICAL DISTRIBUTION PHOSPHATE, PACIFIC OCEAN,
 FROM CARNEGIE RESULTS, NOVEMBER 19 TO DECEMBER 1, 1928



SECTION III
 HORIZONTAL SCALE 0 400 800 KM
 FIG 115—VERTICAL DISTRIBUTION HYDROGEN ION, PACIFIC OCEAN,
 FROM CARNEGIE RESULTS, NOVEMBER 19 TO DECEMBER 1, 1929



SECTION III
 HORIZONTAL SCALE 0 400 800 KM
 FIG 114—VERTICAL DISTRIBUTION DENSITY PACIFIC OCEAN, FROM CARNEGIE RESULTS,
 JULY 19 TO SEPTEMBER 4, 1929



SECTION V
 FIG. 117—VERTICAL DISTRIBUTION SOUNDING VELOCITY, PACIFIC OCEAN, FROM CARNEGIE RESULTS, SEPTEMBER 4-12, AND OCTOBER 19 TO NOVEMBER 17, 1929

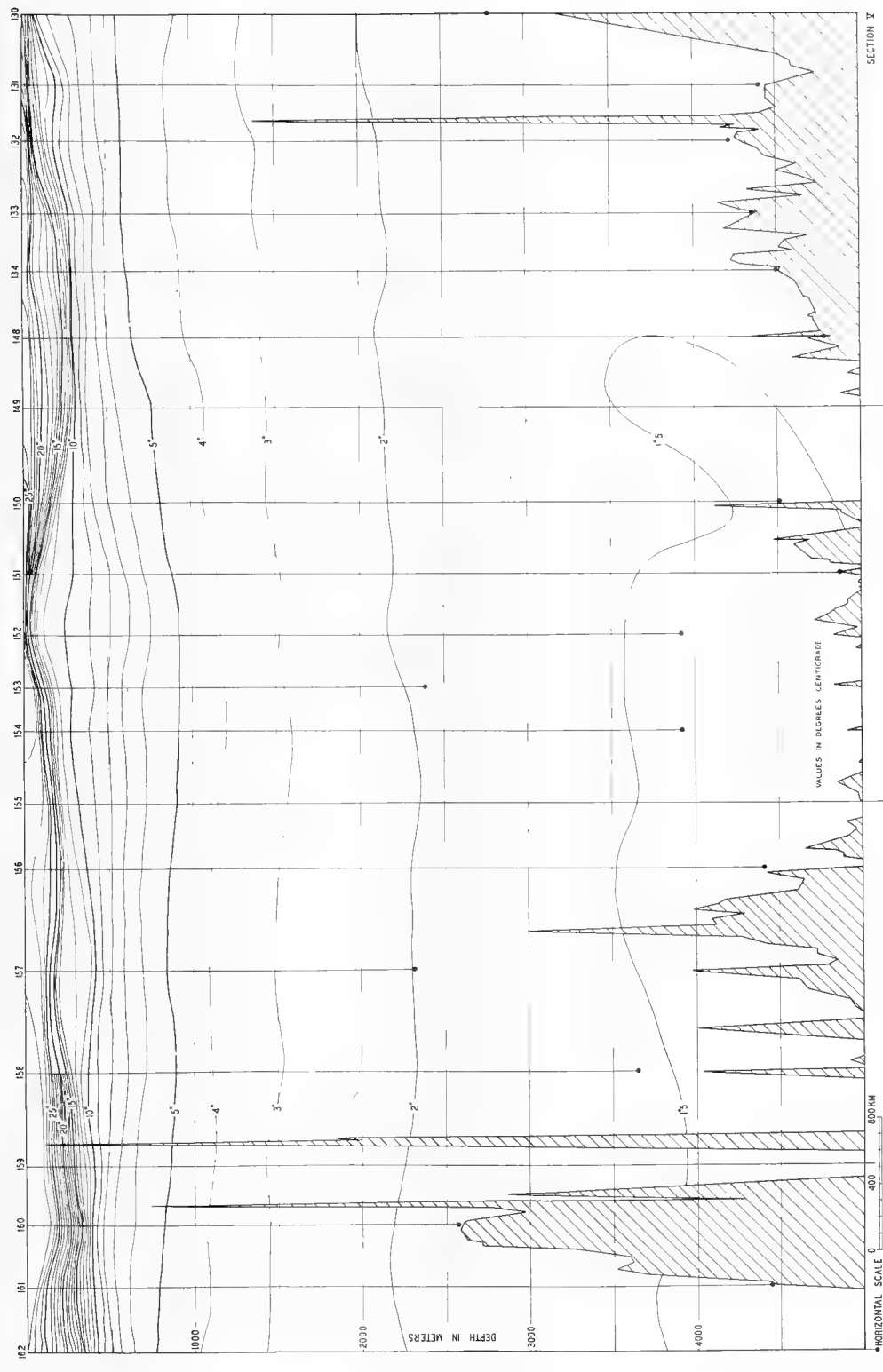
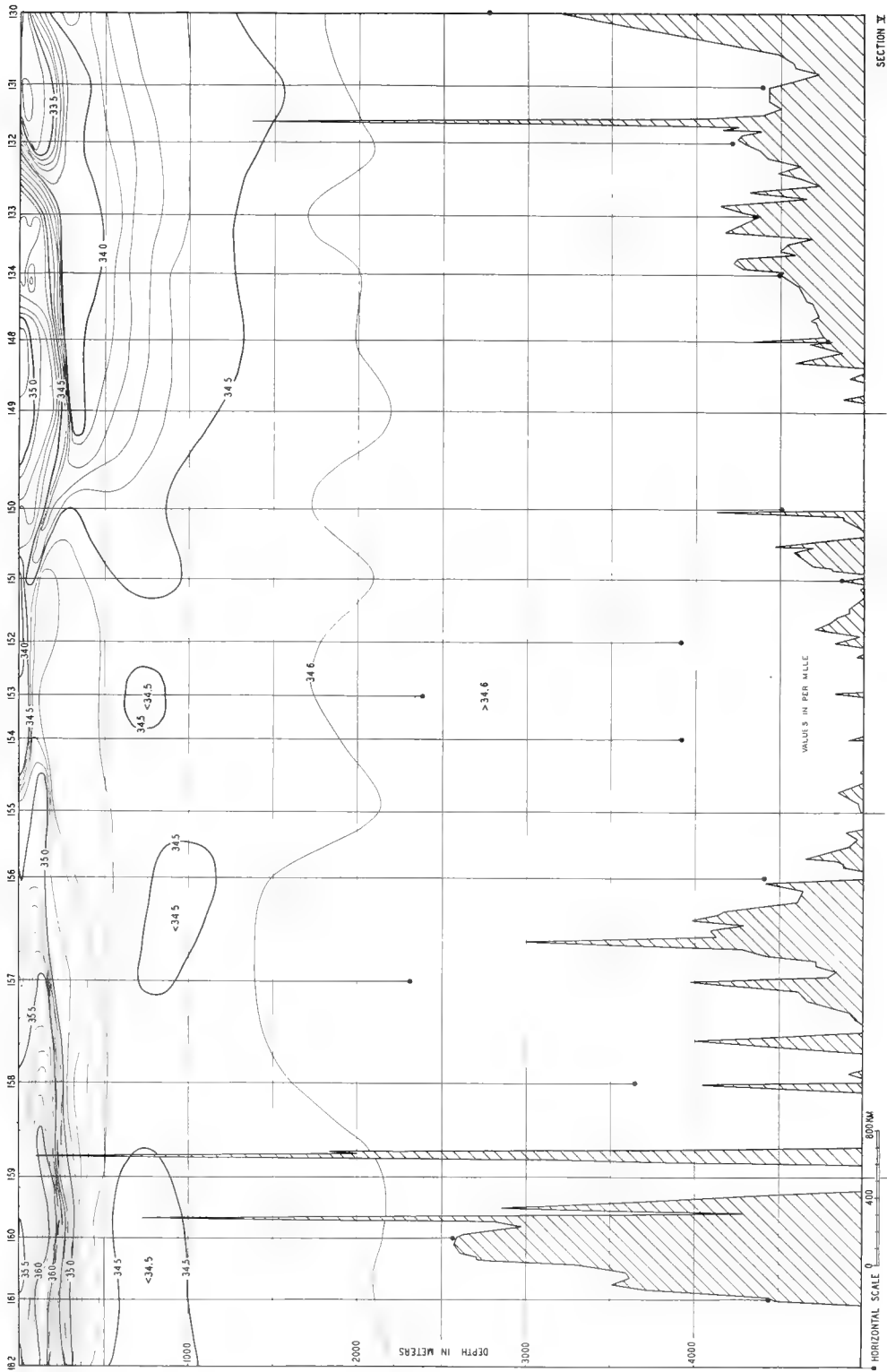


FIG 118-VERTICAL DISTRIBUTION TEMPERATURE, PACIFIC OCEAN, FROM CARNEGIE RESULTS, SEPTEMBER 4-12, AND OCTOBER 19 TO NOVEMBER 17, 1929



SECTION I
 FIG 119—VERTICAL DISTRIBUTION SALINITY, PACIFIC OCEAN, FROM CARNEGIE RESULTS, SEPTEMBER 4-12, AND OCTOBER 19 TO NOVEMBER 17, 1929

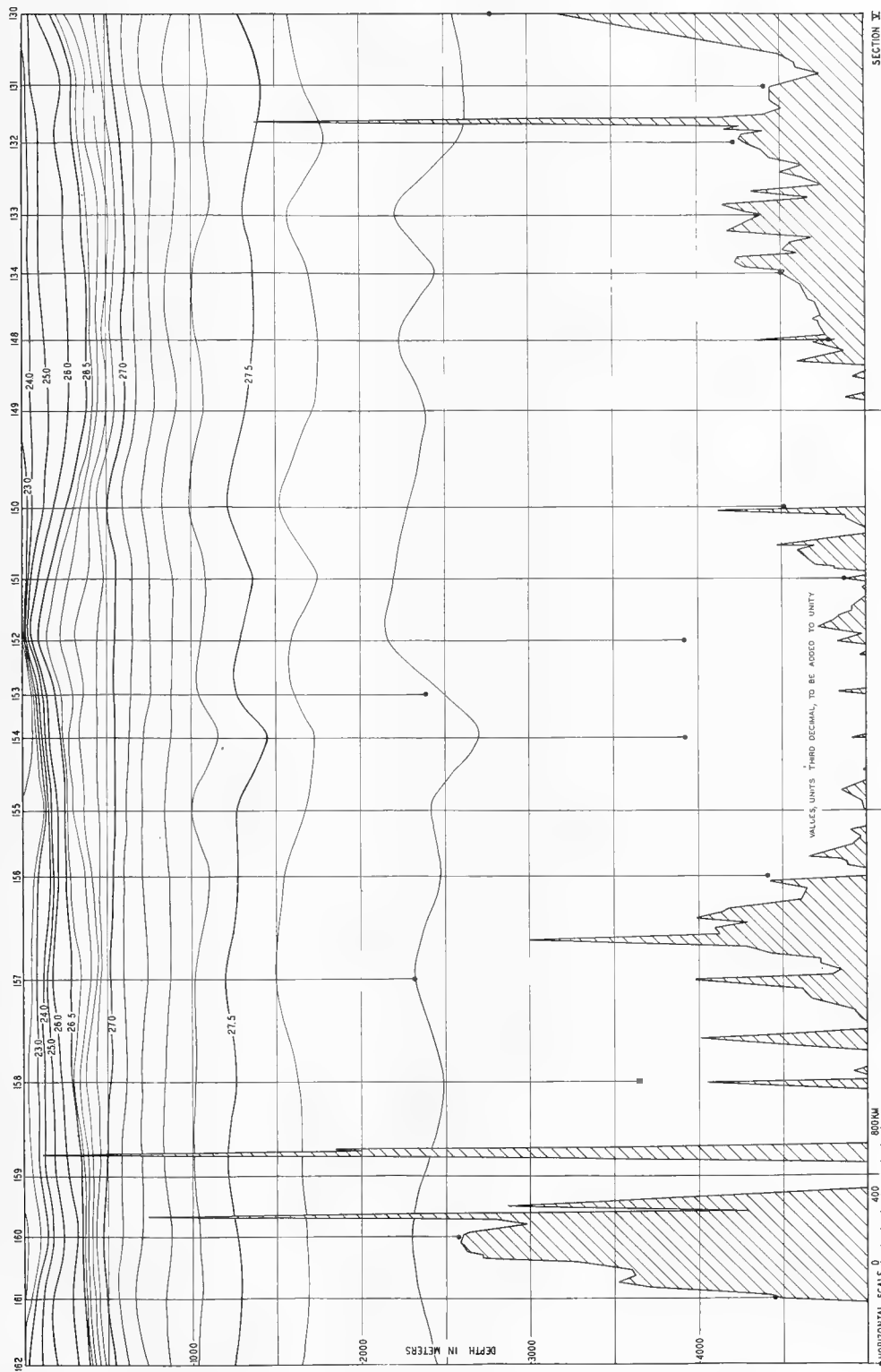
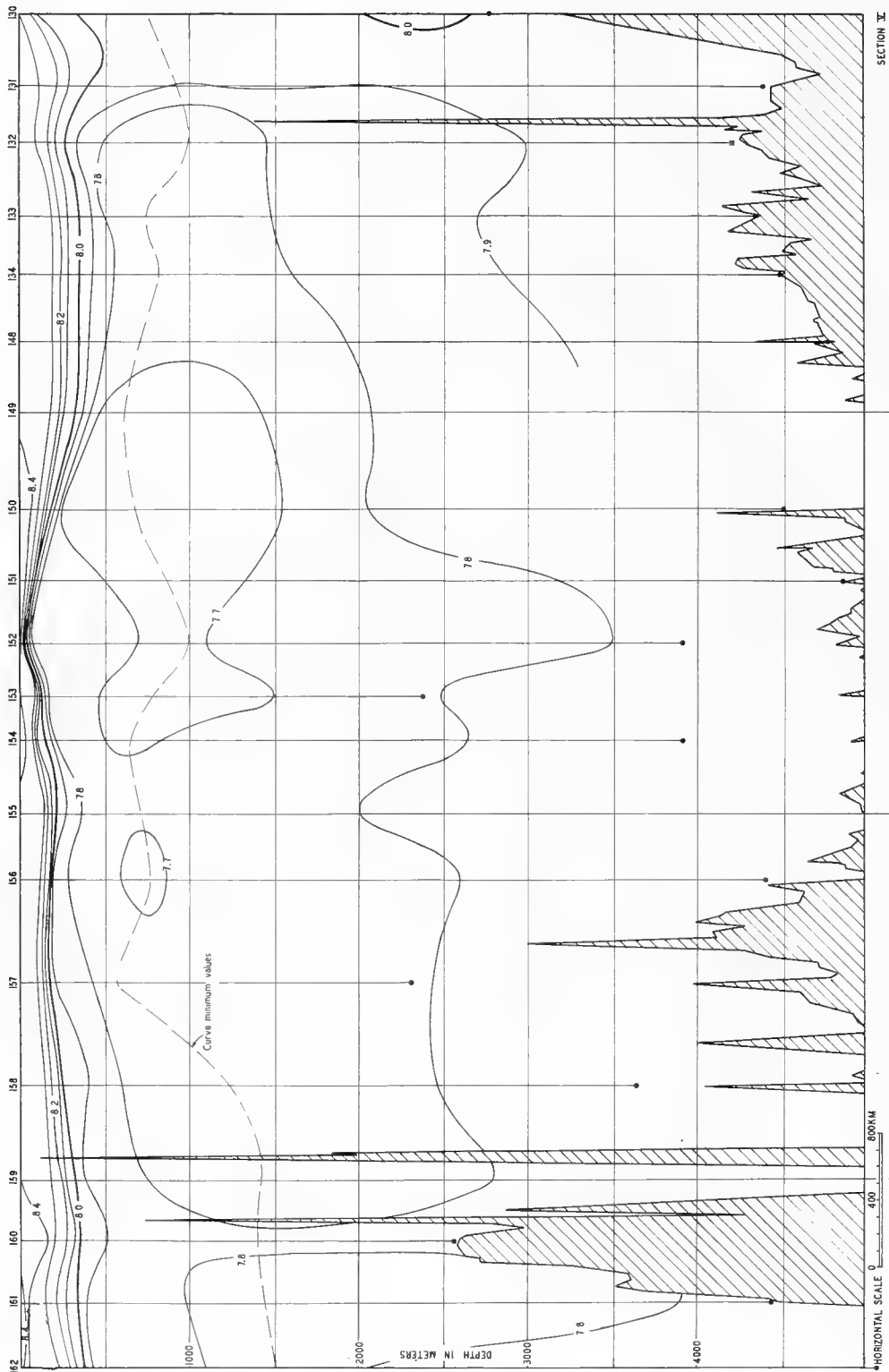


FIG 120-VERTICAL DISTRIBUTION DENSITY, PACIFIC OCEAN, FROM CARNegie RESULTS, SEPTEMBER 4-12, AND OCTOBER 19 TO NOVEMBER 17, 1929



SECTION I

FIG. 121—VERTICAL DISTRIBUTION HYDROGEN ION, PACIFIC OCEAN, FROM CARNegie RESULTS, SEPTEMBER 4-12, AND OCTOBER 19 TO NOVEMBER 17, 1929

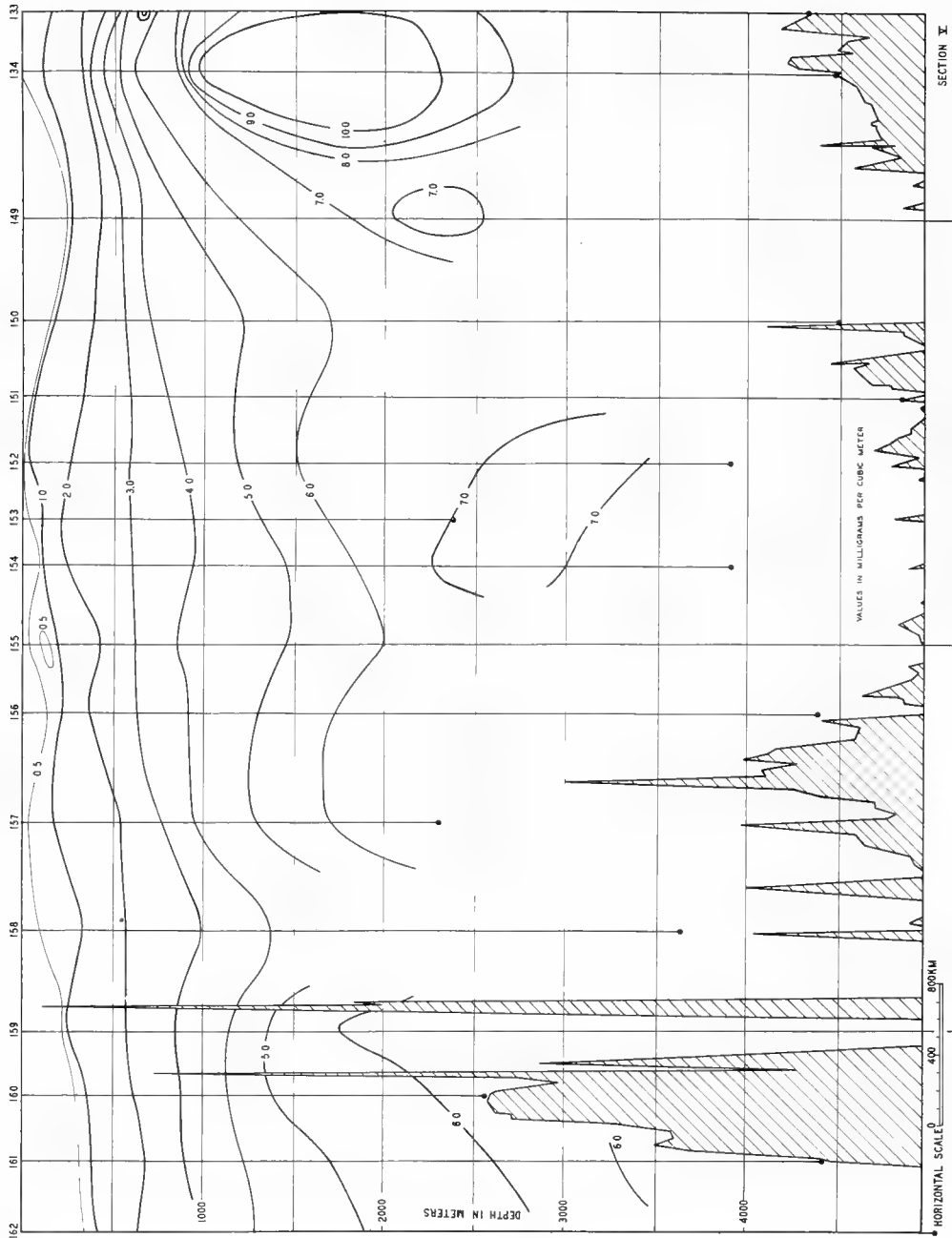
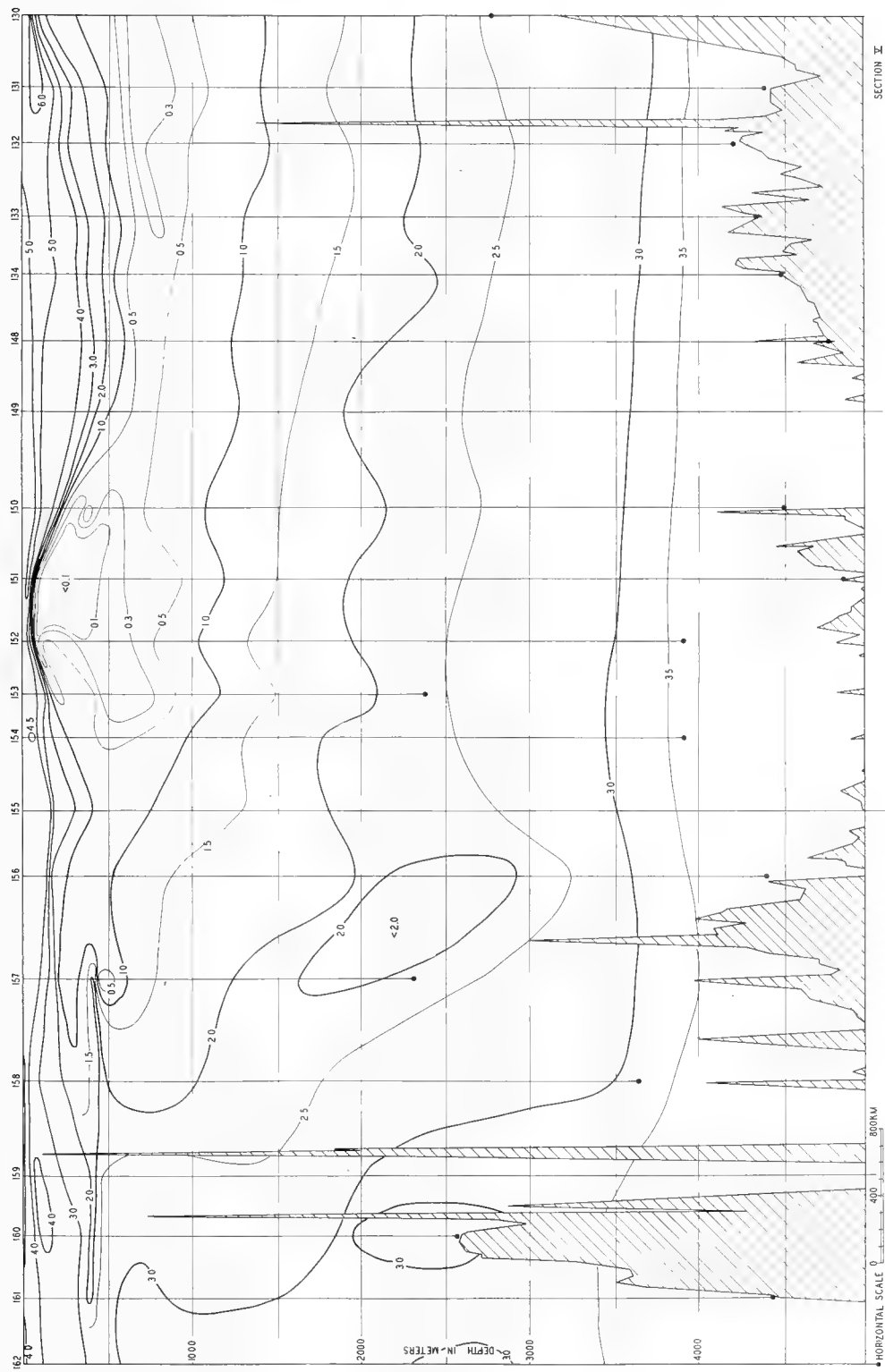
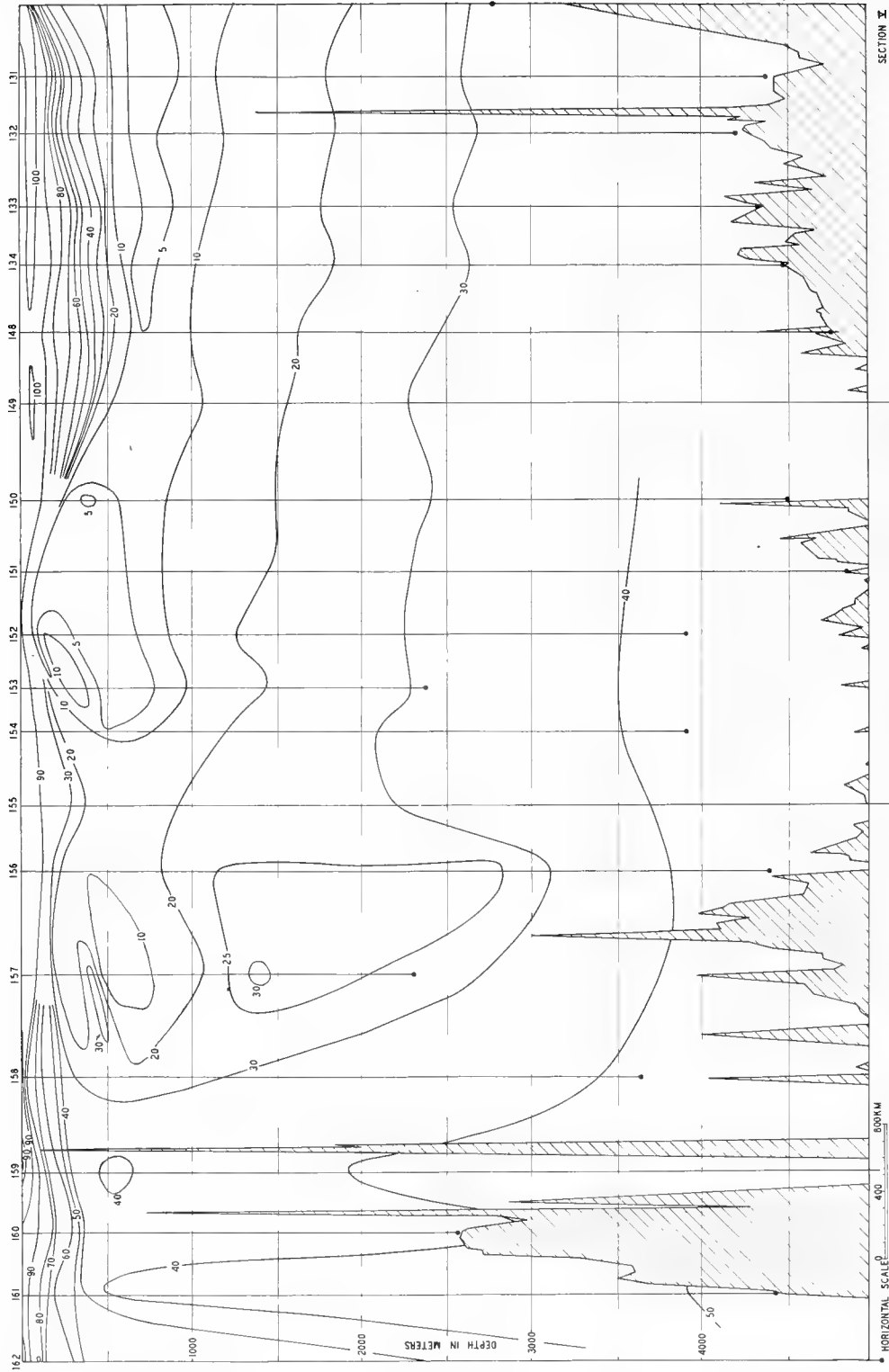


FIG. 123—VERTICAL DISTRIBUTION SILICA, PACIFIC OCEAN, FROM CARNegie RESULTS, SEPTEMBER 10-12, AND OCTOBER-19 TO NOVEMBER 17, 1929



SECTION V

FIG 124—VERTICAL DISTRIBUTION OXYGEN IN MILLILITERS PER LITER, PACIFIC OCEAN, FROM CARMICHAEL RESULTS, SEPTEMBER 4-12, AND OCTOBER 19 TO NOVEMBER 17 1929



SECTION I

FIG.125-VERTICAL DISTRIBUTION OXYGEN SATURATION IN PER CENT, PACIFIC OCEAN, FROM CARNEGIE RESULTS, SEPTEMBER 4-12, AND OCTOBER 19 TO NOVEMBER 17, 1929

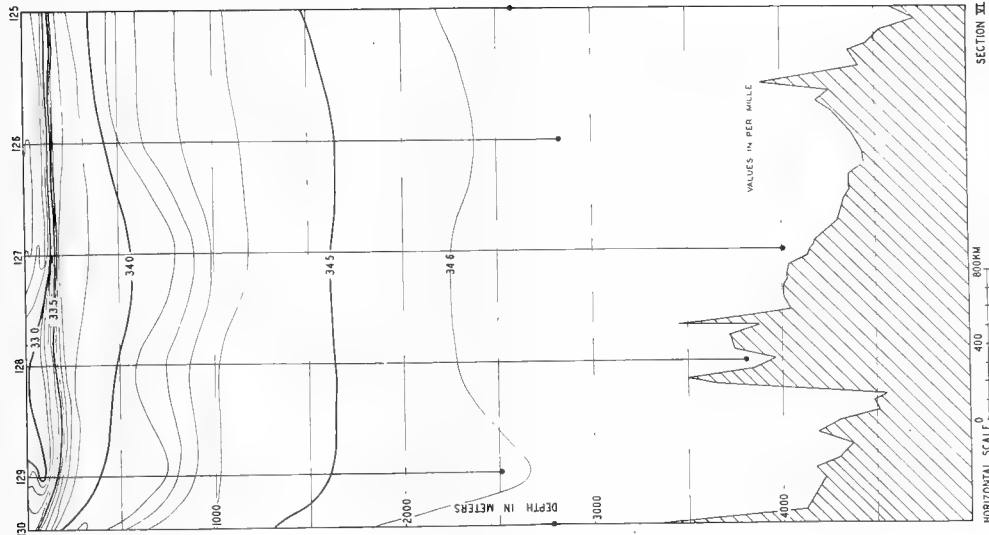


FIG. 128—VERTICAL DISTRIBUTION OF SALINITY, PACIFIC OCEAN,
FROM CARNEGIE RESULTS, JULY 19 TO SEPTEMBER 4, 1929



FIG. 127—VERTICAL DISTRIBUTION TEMPERATURE, PACIFIC OCEAN,
FROM CARNEGIE RESULTS, JULY 19 TO SEPTEMBER 4, 1929

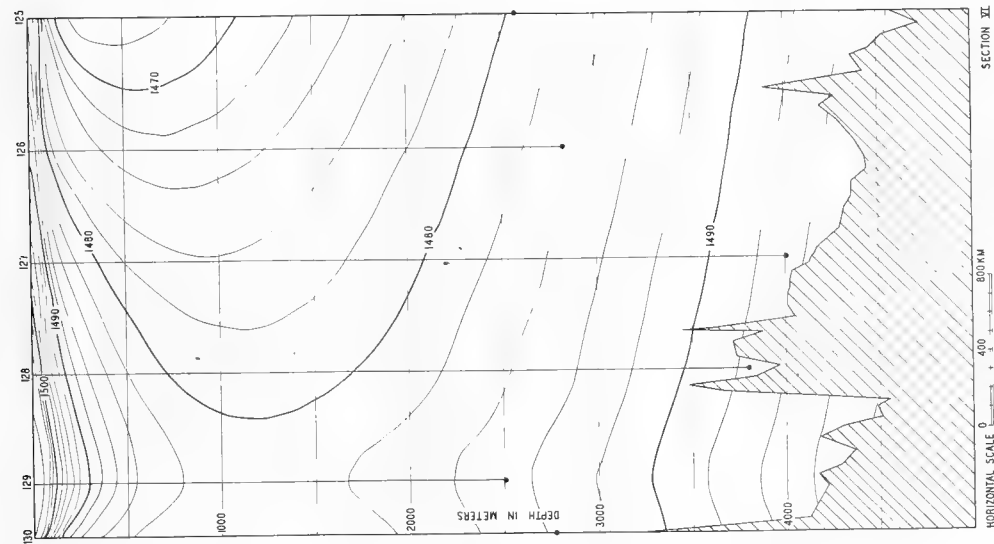


FIG. 126—VERTICAL DISTRIBUTION SOUNDING VELOCITY, PACIFIC OCEAN,
FROM CARNEGIE RESULTS, JULY 19 TO SEPTEMBER 4, 1929

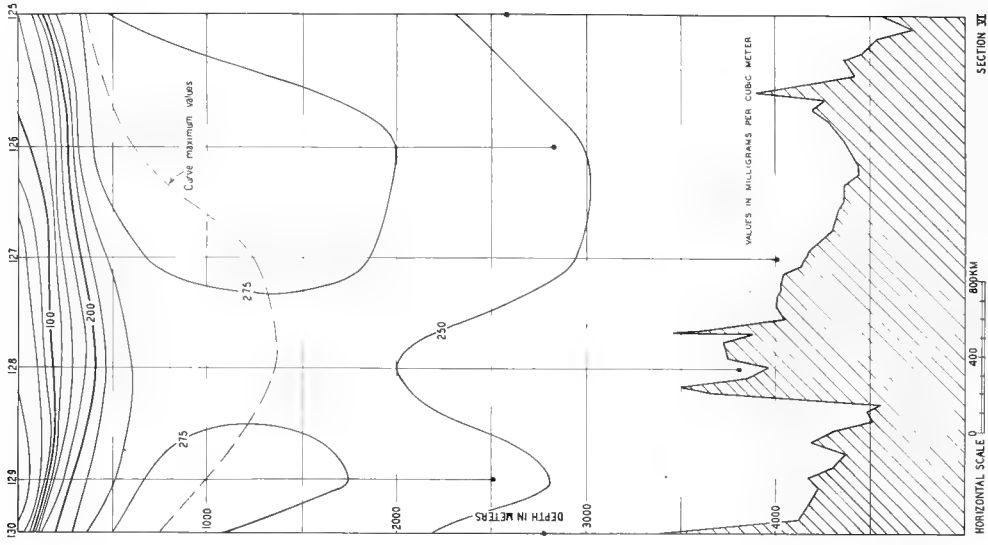


FIG 131—VERTICAL DISTRIBUTION PHOSPHATE, PACIFIC OCEAN,
FROM CARNEGIE RESULTS, JULY 19 TO SEPTEMBER 4, 1929

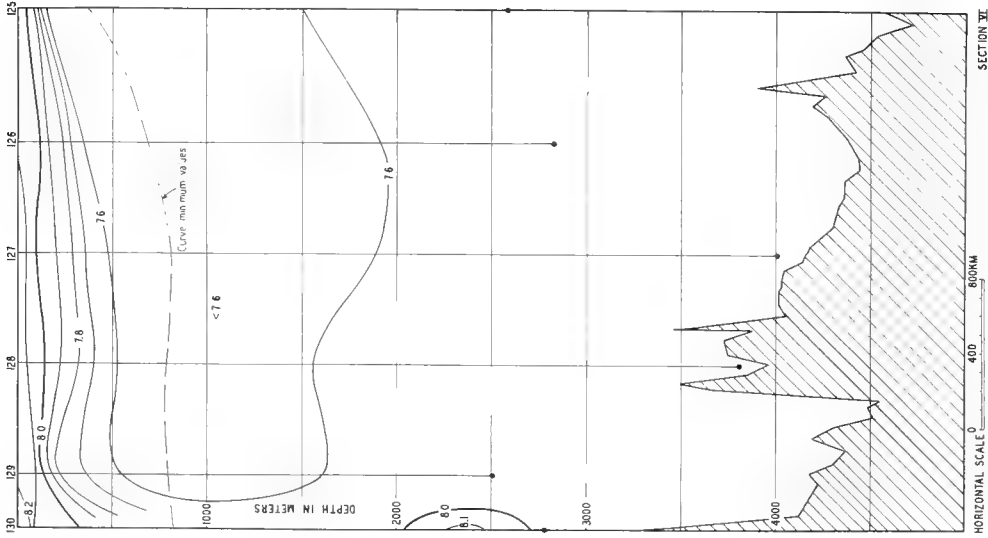


FIG 130—VERTICAL DISTRIBUTION HYDROGEN ION, PACIFIC OCEAN,
FROM CARNEGIE RESULTS, JULY 19 TO SEPTEMBER 4, 1929

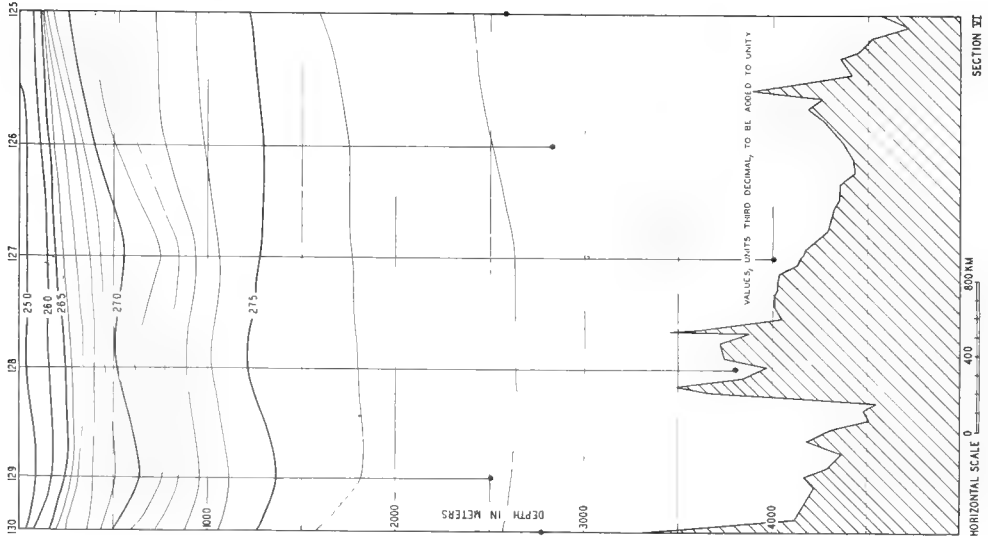


FIG 129—VERTICAL DISTRIBUTION DENSITY, PACIFIC OCEAN,
FROM CARNEGIE RESULTS, JULY 19 TO SEPTEMBER 4, 1929

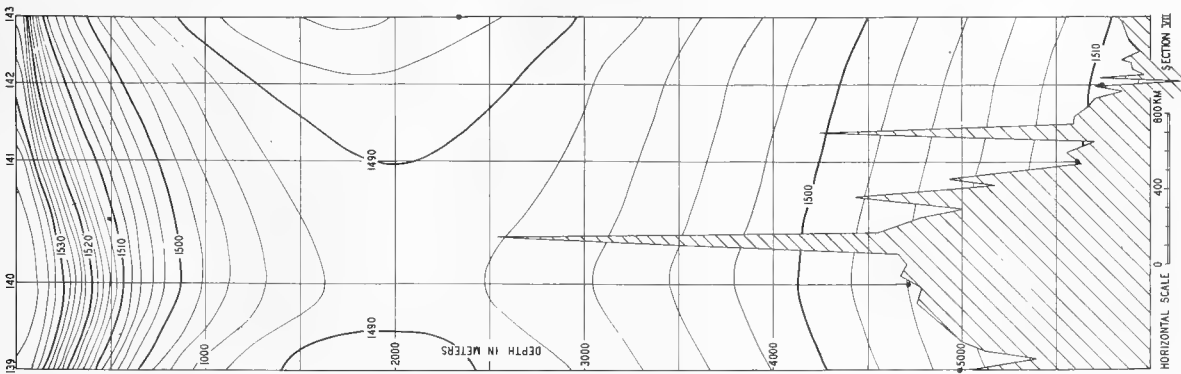


FIG. 132—VERTICAL DISTRIBUTION SOUNDING VELOCITY
PACIFIC OCEAN, FROM CARNEGIE RESULTS,
SEPTEMBER 22 TO OCTOBER 9, 1929

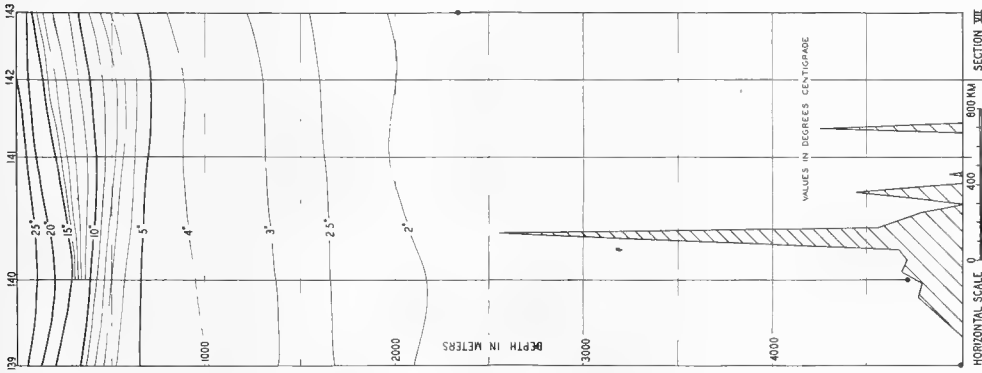


FIG. 133—VERTICAL DISTRIBUTION TEMPERATURE,
PACIFIC OCEAN, FROM CARNEGIE RESULTS,
SEPTEMBER 22 TO OCTOBER 9, 1929

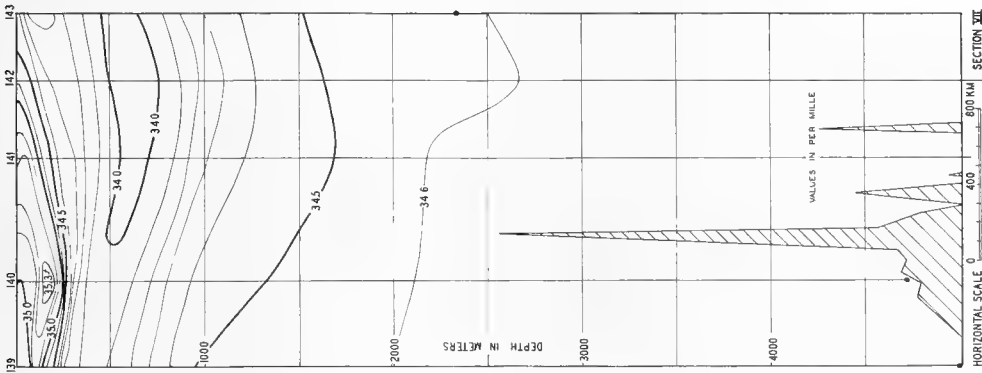


FIG. 134—VERTICAL DISTRIBUTION SALINITY
PACIFIC OCEAN, FROM CARNEGIE RESULTS,
SEPTEMBER 22 TO OCTOBER 9, 1929

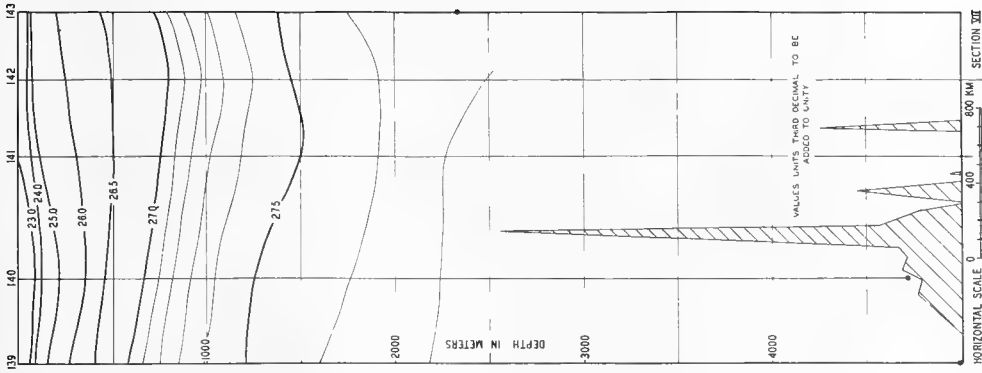


FIG. 135—VERTICAL DISTRIBUTION DENSITY, PACIFIC
OCEAN, FROM CARNEGIE RESULTS, SEPTEMBER 22
TO OCTOBER 9, 1929

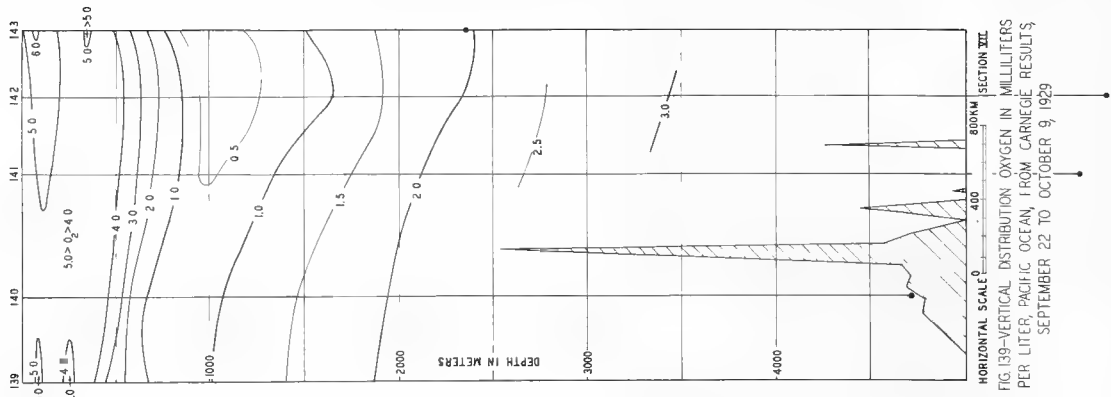


FIG 139—VERTICAL DISTRIBUTION OXYGEN IN MILLILITERS PER LITER, PACIFIC OCEAN, FROM CARNEGIE RESULTS, SEPTEMBER 22 TO OCTOBER 9, 1929

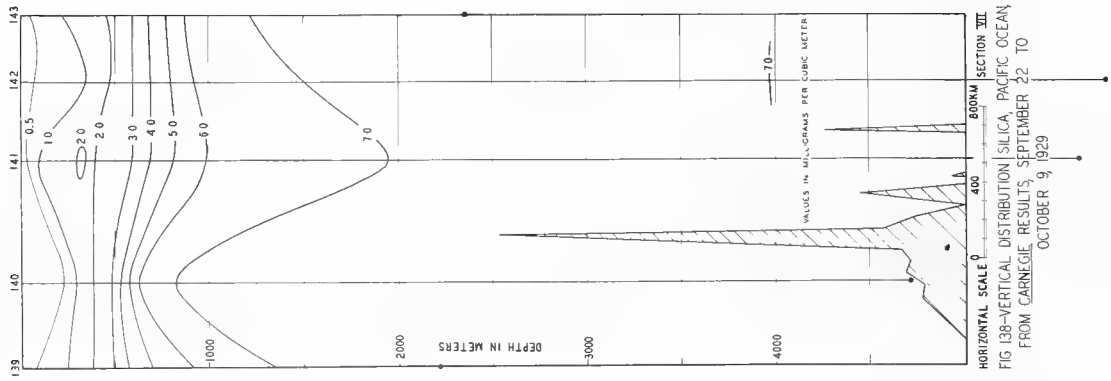


FIG 138—VERTICAL DISTRIBUTION SILICA, PACIFIC OCEAN FROM CARNEGIE RESULTS, SEPTEMBER 22 TO OCTOBER 9, 1929

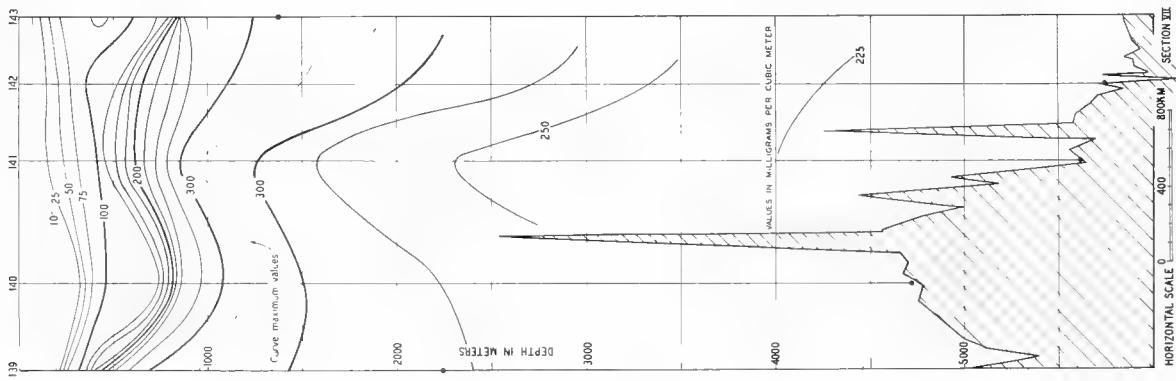


FIG 137—VERTICAL DISTRIBUTION PHOSPHATE, PACIFIC OCEAN, FROM CARNEGIE RESULTS, SEPTEMBER 22 TO OCTOBER 9, 1929

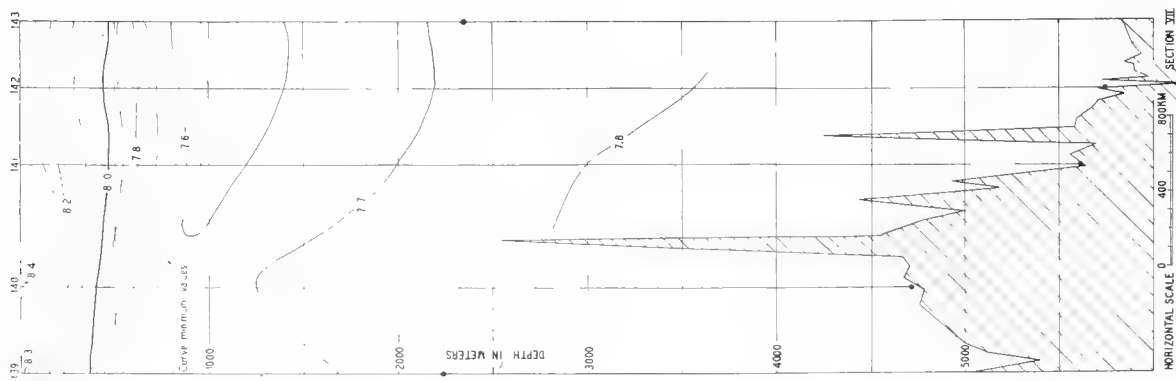


FIG 136—VERTICAL DISTRIBUTION HYDROGEN ION, PACIFIC OCEAN, FROM CARNEGIE RESULTS, SEPTEMBER 22 TO OCTOBER 9, 1929

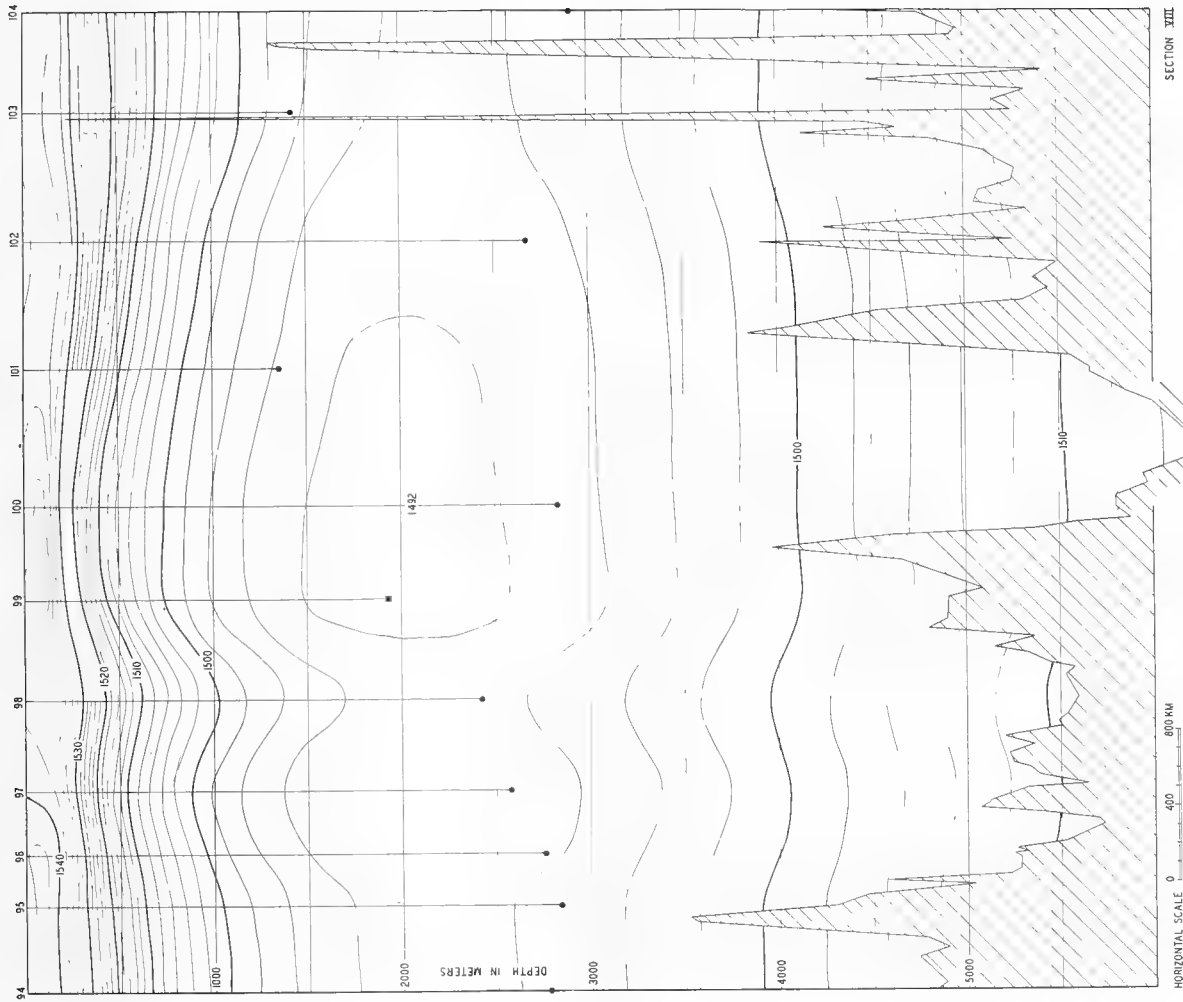


FIG 141—VERTICAL DISTRIBUTION SOUNDING VELOCITY, PACIFIC OCEAN, FROM CARNEGIE RESULTS, APRIL 22 TO MAY 13, 1929

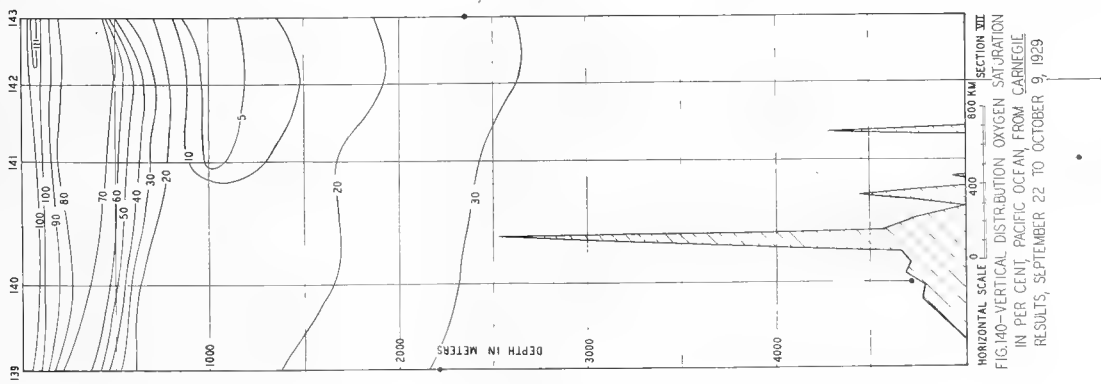


FIG 140—VERTICAL DISTRIBUTION OXYGEN SATURATION IN PER CENT, PACIFIC OCEAN, FROM CARNEGIE RESULTS, SEPTEMBER 22 TO OCTOBER 9, 1929

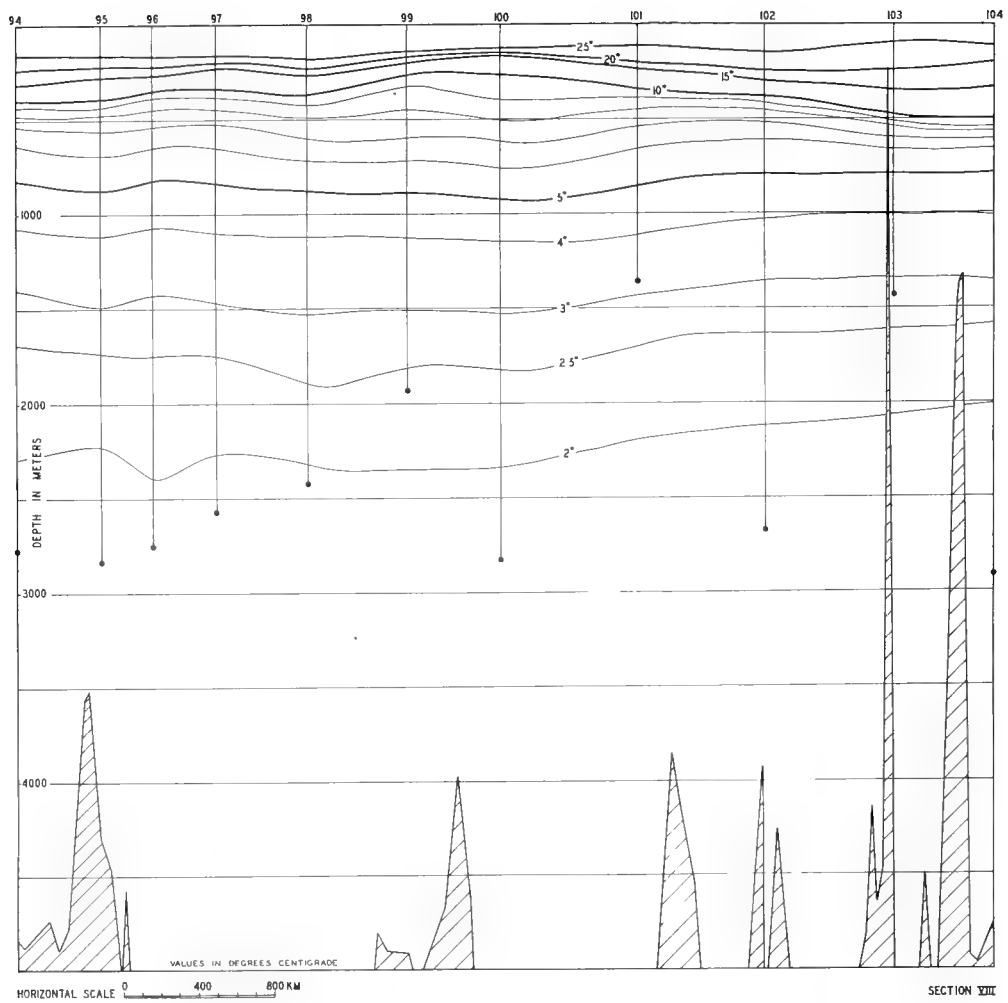


FIG 142—VERTICAL DISTRIBUTION TEMPERATURE, PACIFIC OCEAN, FROM CARNEGIE RESULTS, APRIL 22 TO MAY 13, 1929

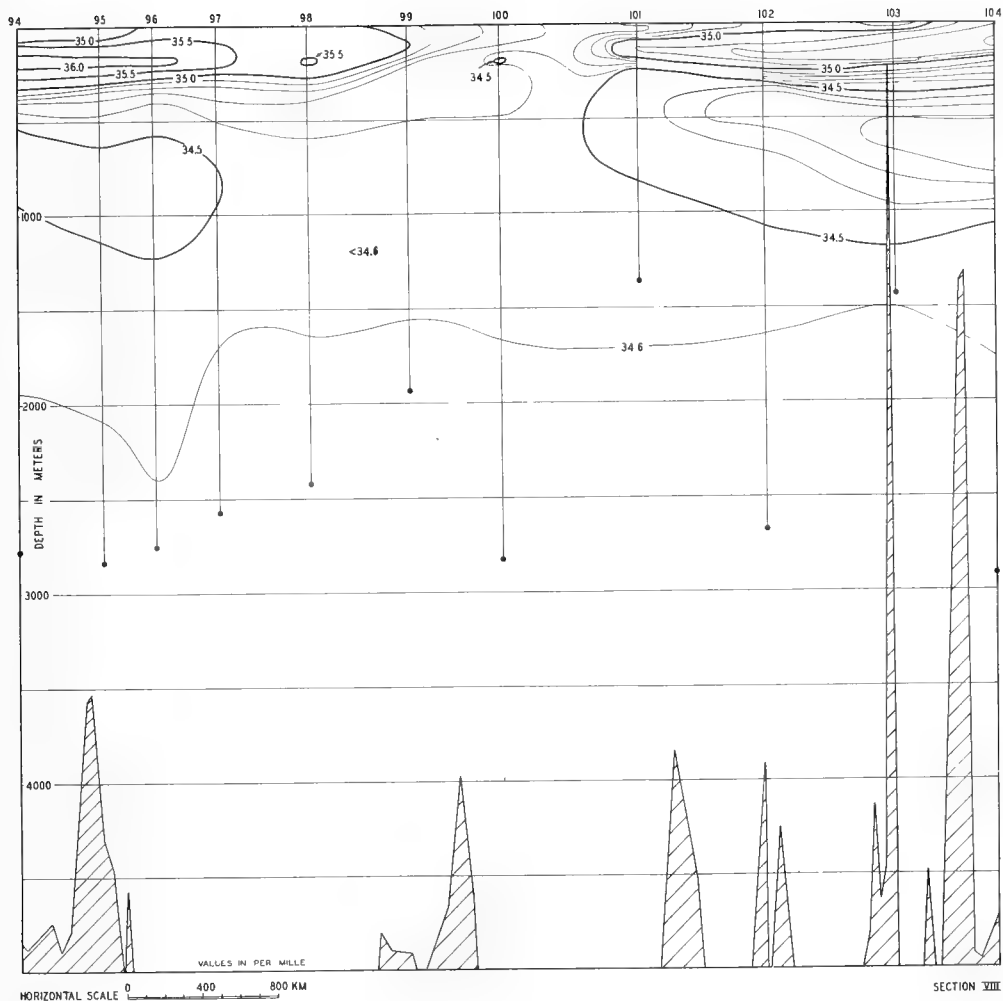


FIG 143—VERTICAL DISTRIBUTION SALINITY, PACIFIC OCEAN, FROM CARNEGIE RESULTS, APRIL 22 TO MAY 13, 1929

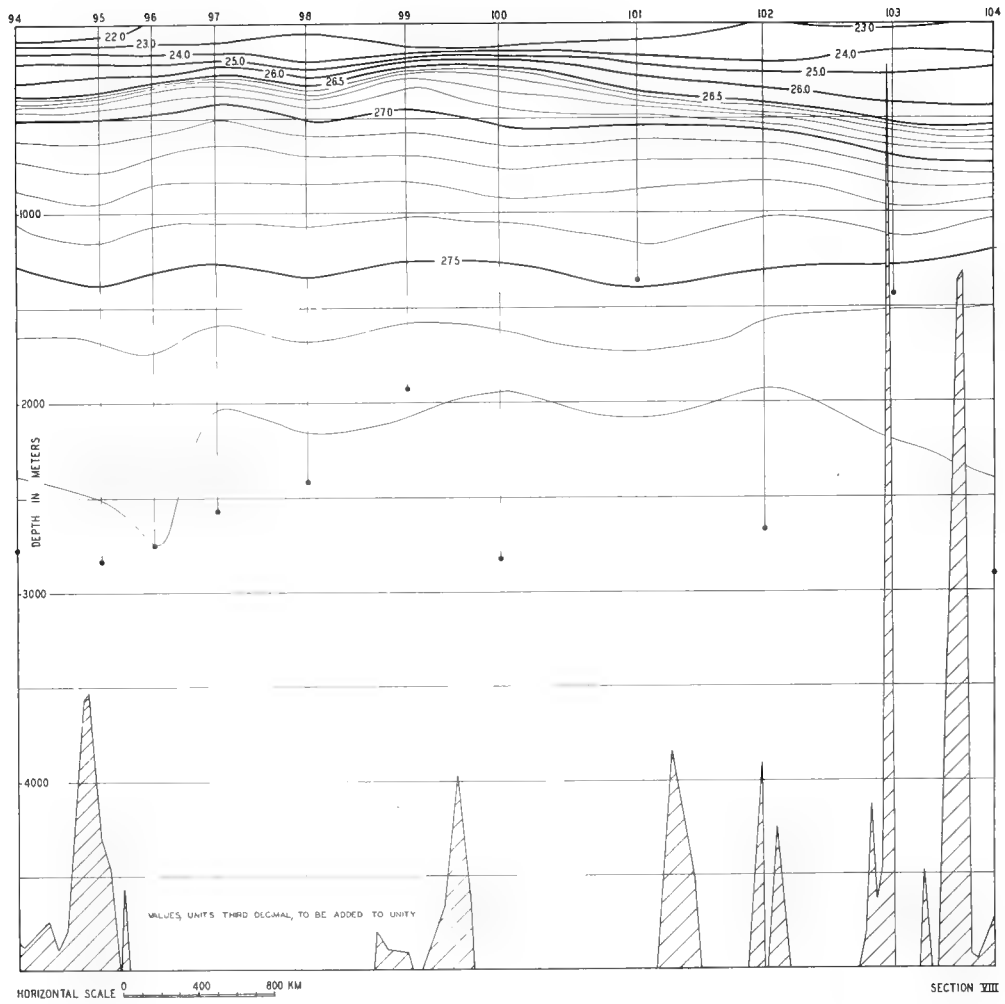


FIG 144-VERTICAL DISTRIBUTION DENSITY, PACIFIC OCEAN, FROM CARNEGIE RESULTS, APRIL 22 TO MAY 13, 1929

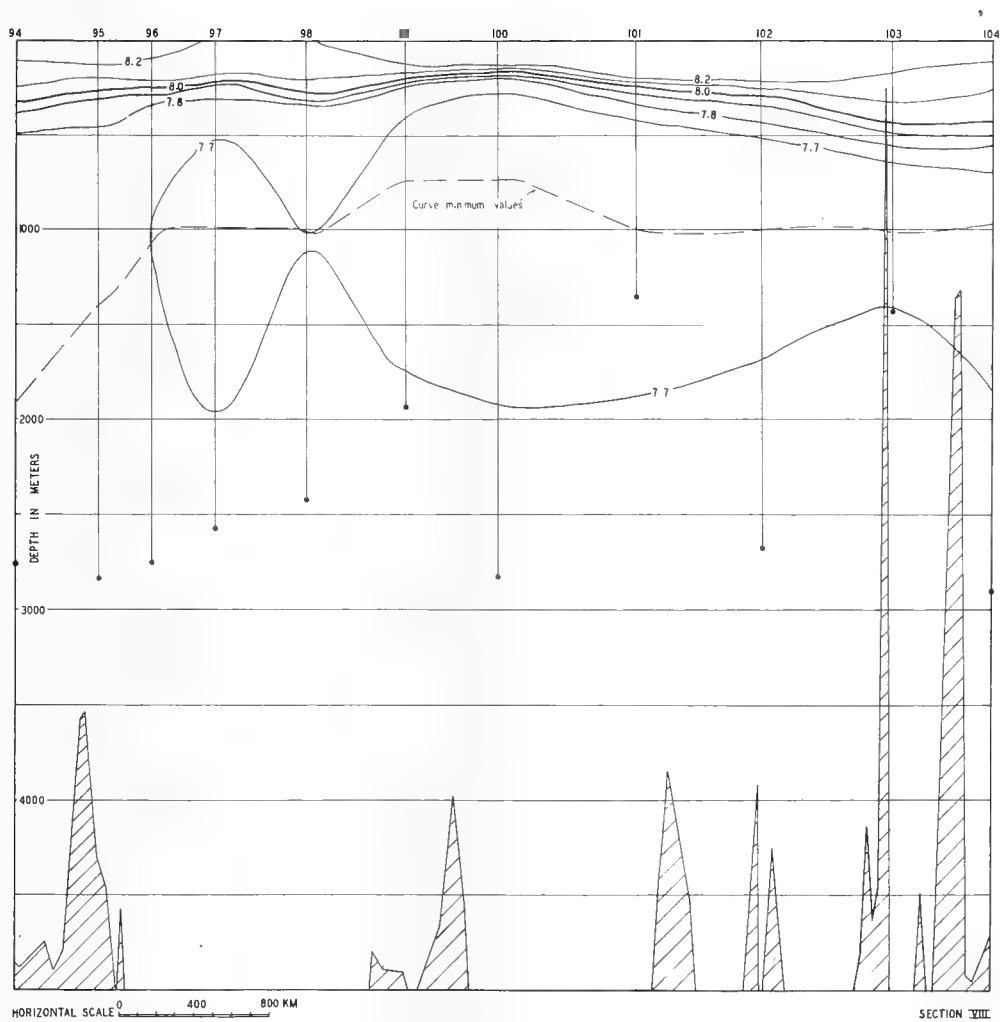


FIG. 145—VERTICAL DISTRIBUTION HYDROGEN ION, PACIFIC OCEAN, FROM CARNEGIE RESULTS, APRIL 22 TO MAY 13, 1929

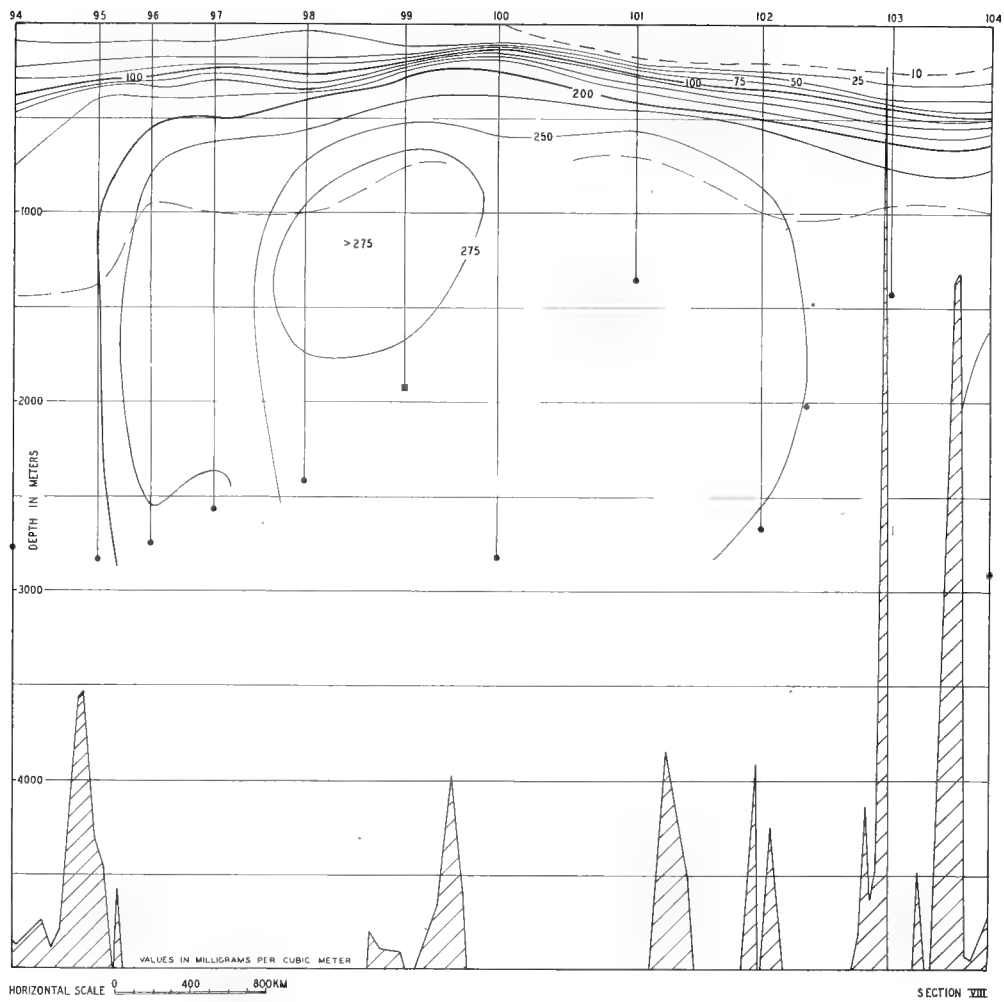


FIG 146—VERTICAL DISTRIBUTION PHOSPHATE, PACIFIC OCEAN, FROM CARNEGIE RESULTS, APRIL 22 TO MAY 13, 1929

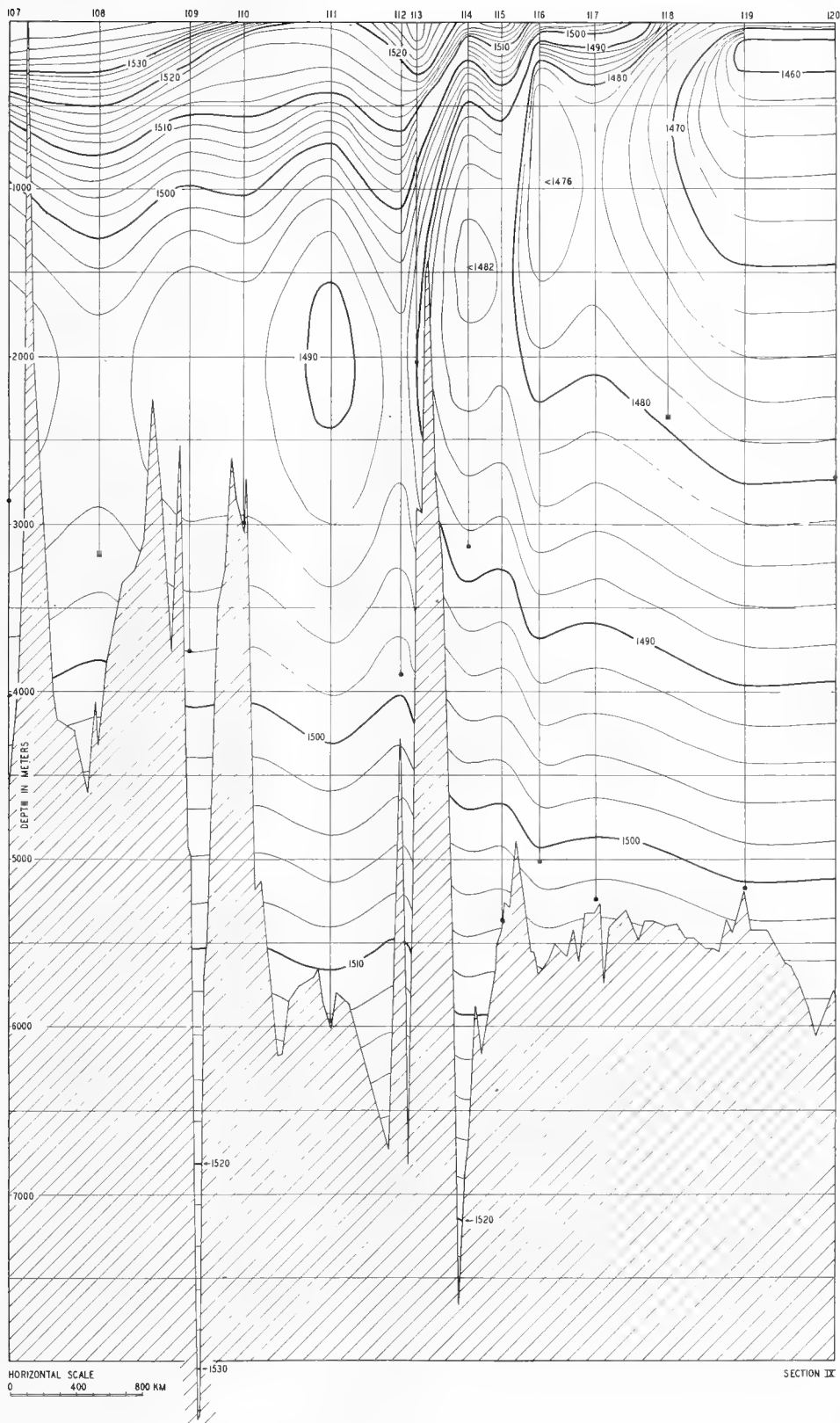


FIG 147—VERTICAL DISTRIBUTION SOUNDING VELOCITY, PACIFIC OCEAN, FROM CARNEGIE RESULTS, MAY 19 TO JULY 9, 1929

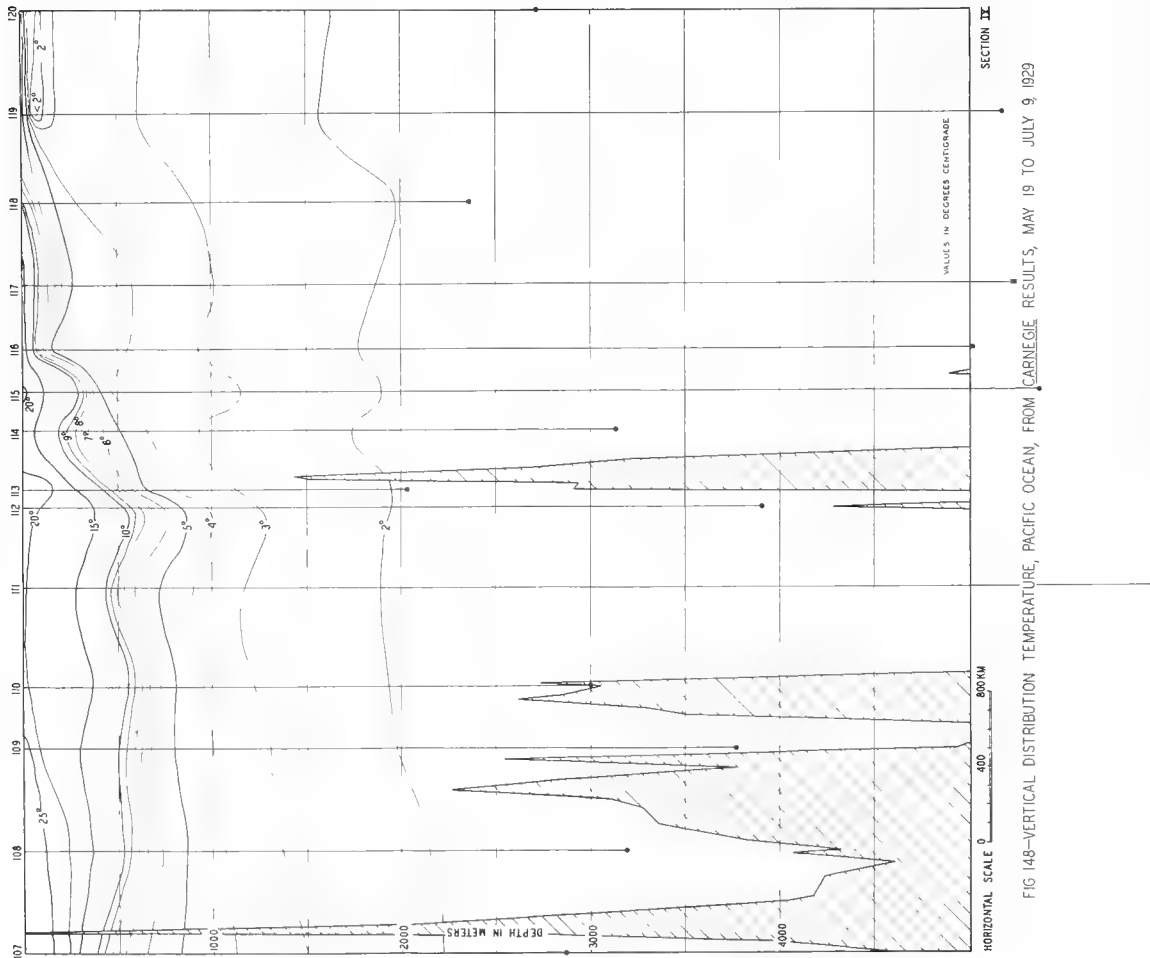


FIG 148—VERTICAL DISTRIBUTION TEMPERATURE, PACIFIC OCEAN, FROM CARNEGIE RESULTS, MAY 19 TO JULY 9, 1929

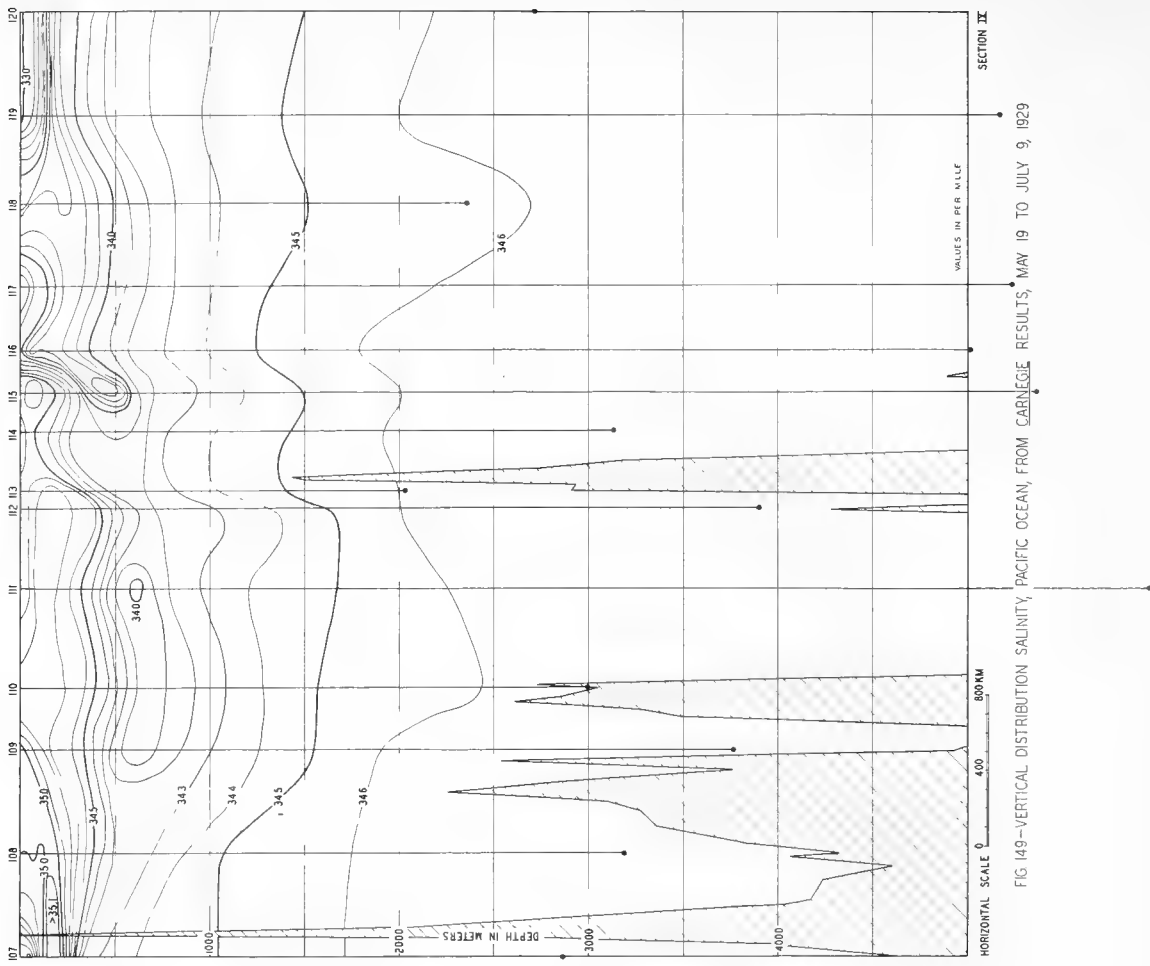


FIG 149—VERTICAL DISTRIBUTION SALINITY, PACIFIC OCEAN, FROM CARNEGIE RESULTS, MAY 19 TO JULY 9, 1929

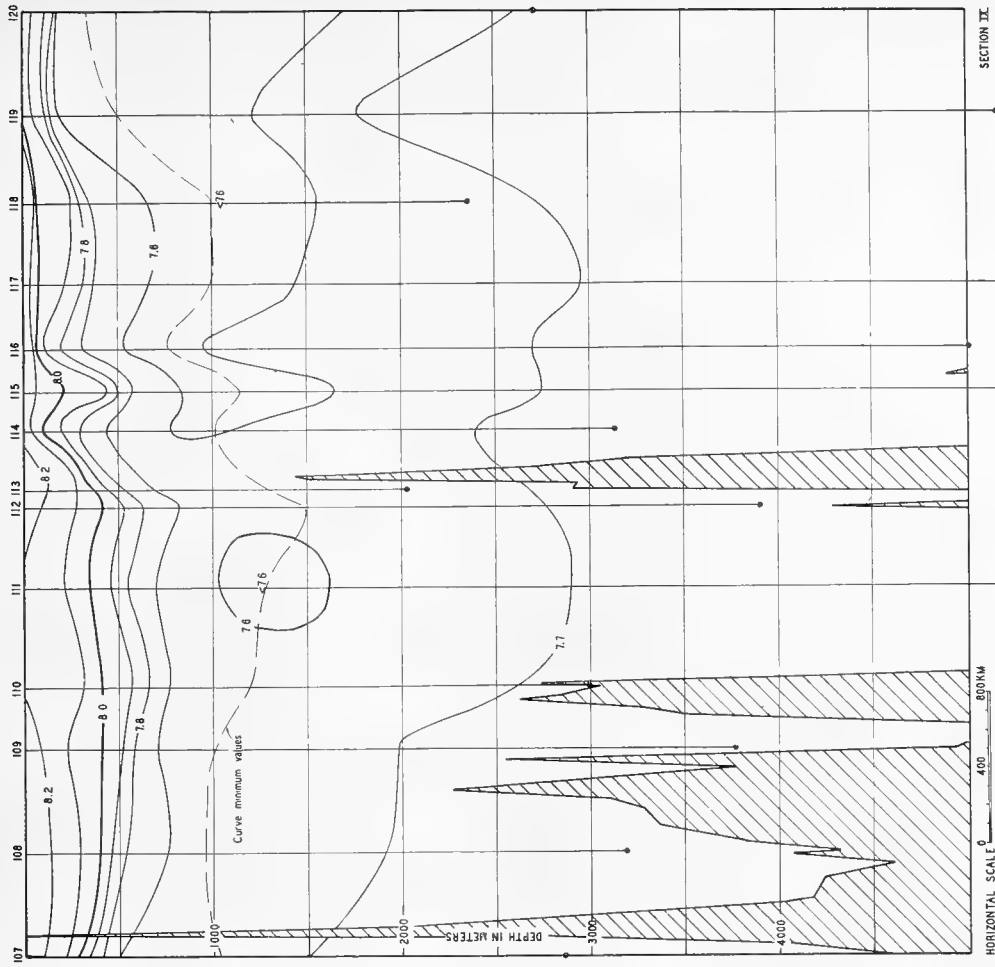


FIG. 151—VERTICAL DISTRIBUTION HYDROGEN ION, PACIFIC OCEAN, FROM CARNEGIE RESULTS, MAY 19 TO JULY 9, 1929

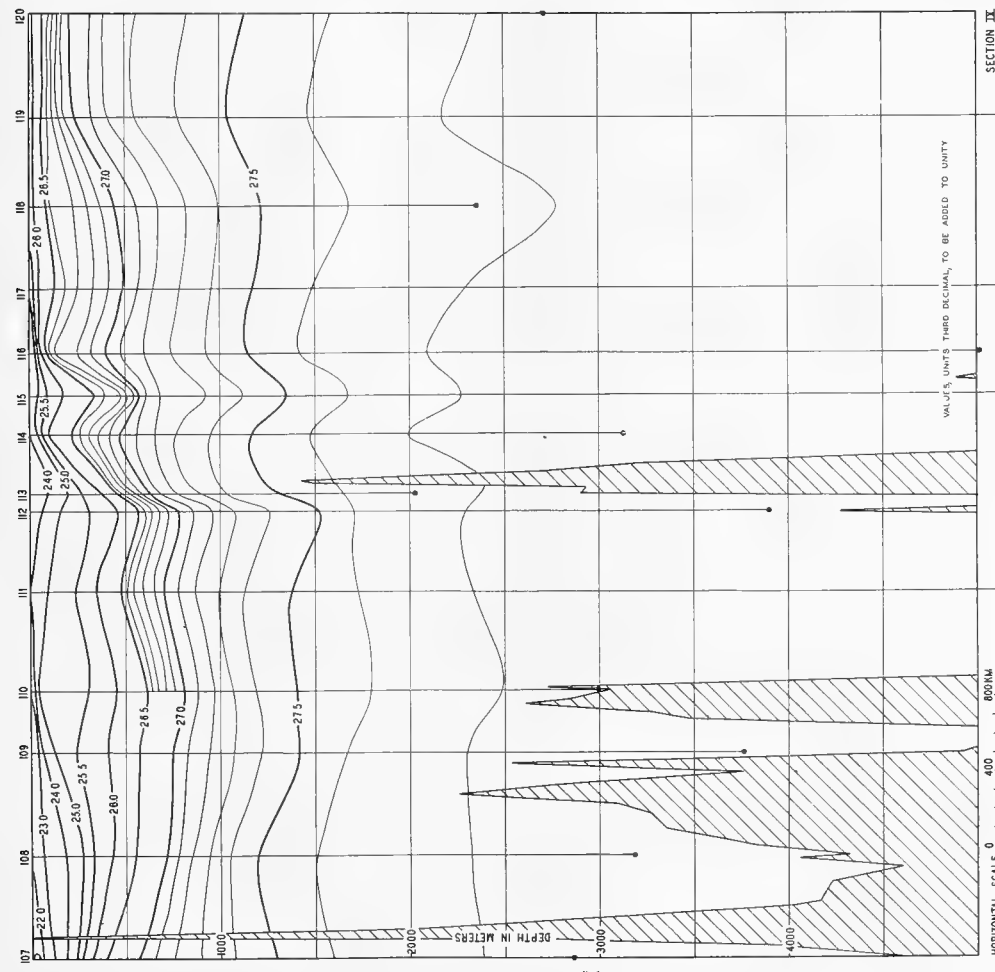


FIG. 150—VERTICAL DISTRIBUTION DENSITY, PACIFIC OCEAN, FROM CARNEGIE RESULTS, MAY 19 TO JULY 9, 1929

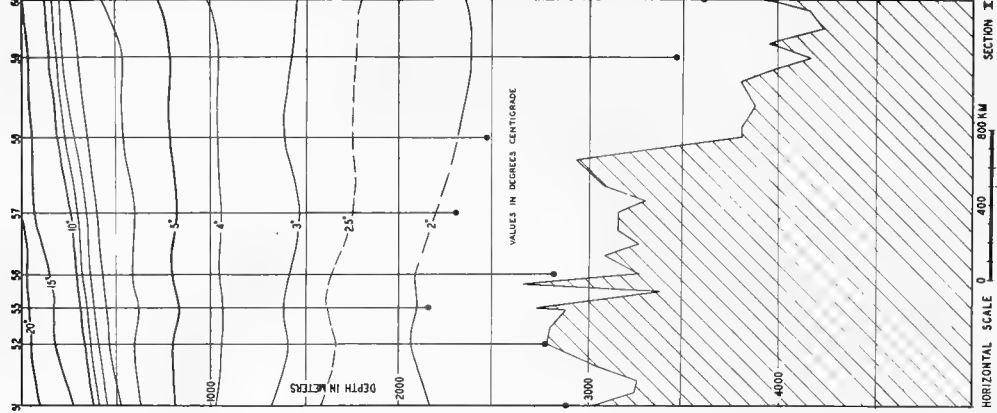


FIG. 154—VERTICAL DISTRIBUTION TEMPERATURE,
PACIFIC OCEAN, FROM CARNEGIE RESULTS,
DECEMBER 1-3 AND DECEMBER 16-26, 1928

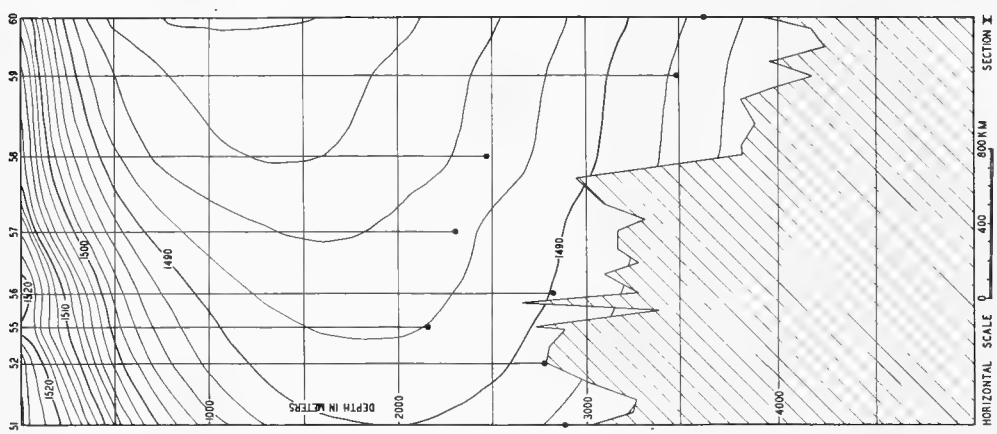


FIG. 153—VERTICAL DISTRIBUTION SOUNDING VELOCITY,
PACIFIC OCEAN, FROM CARNEGIE RESULTS,
DECEMBER 1-3 AND DECEMBER 16-26, 1928

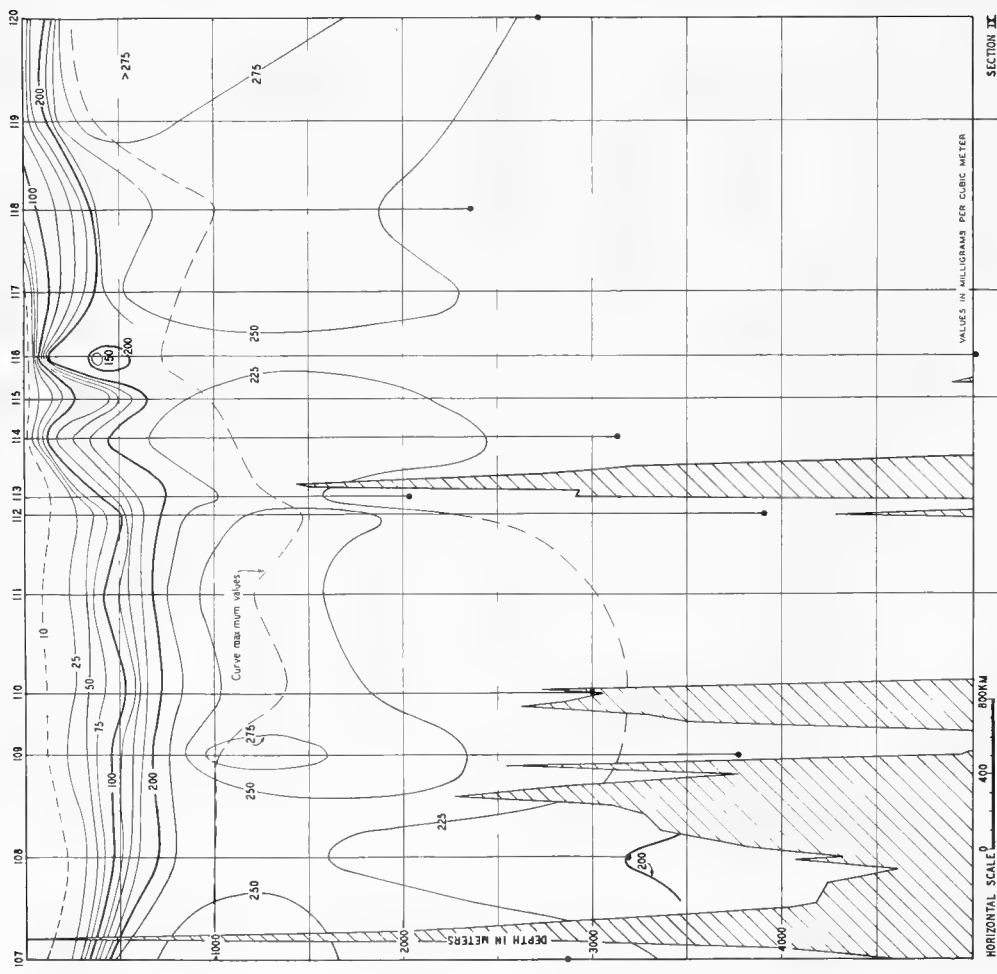


FIG. 152—VERTICAL DISTRIBUTION PHOSPHATE, PACIFIC OCEAN, FROM
CARNEGIE RESULTS, MAY 19 TO JULY 9, 1929

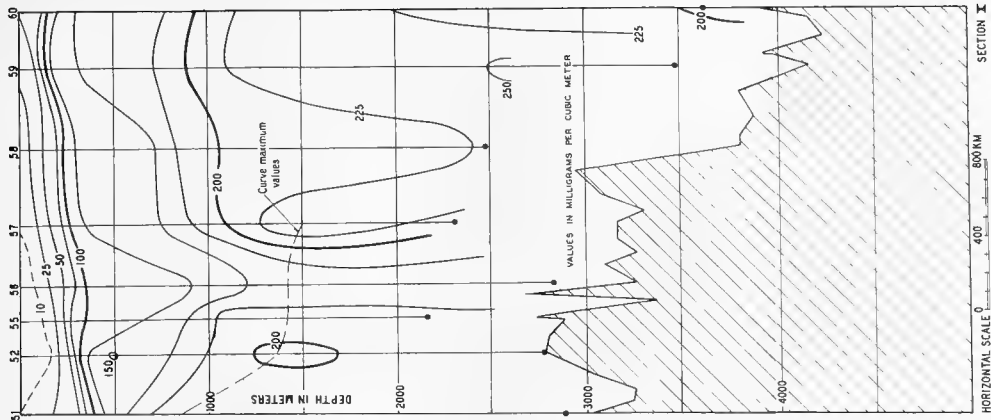


FIG. 158—VERTICAL DISTRIBUTION PHOSPHATE, PACIFIC OCEAN, FROM CARNEGIE RESULTS, DECEMBER 1-3 AND DECEMBER 16-26, 1928

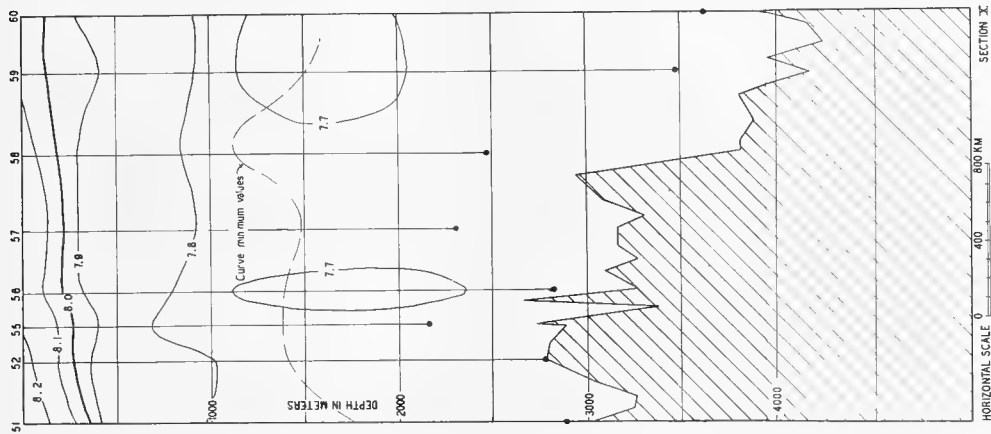


FIG. 157—VERTICAL DISTRIBUTION HYDROGEN ION, PACIFIC OCEAN, FROM CARNEGIE RESULTS, DECEMBER 1-3 AND DECEMBER 16-26, 1928

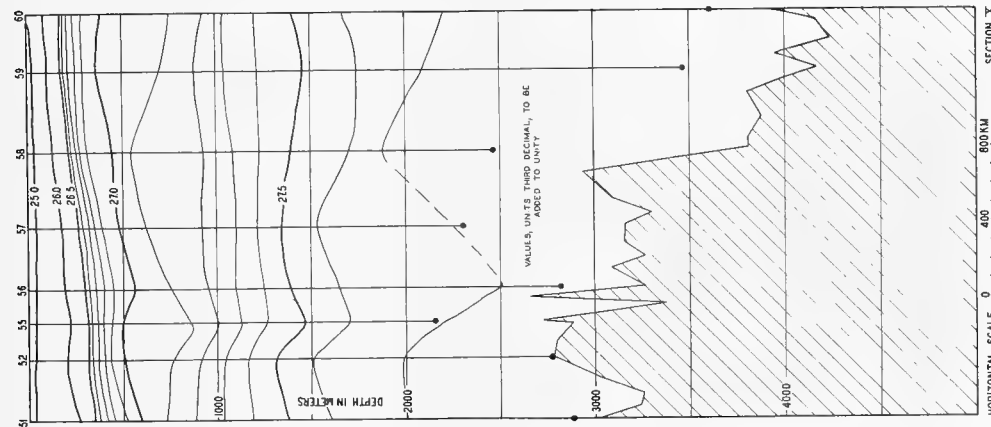


FIG. 156—VERTICAL DISTRIBUTION DENSITY, PACIFIC OCEAN, FROM CARNEGIE RESULTS, DECEMBER 1-3, AND DECEMBER 16-26, 1928

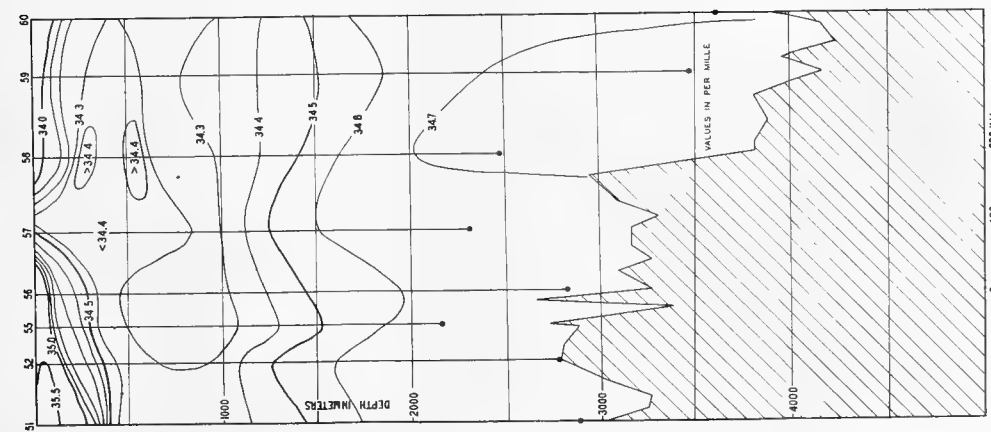


FIG. 155—VERTICAL DISTRIBUTION SALINITY, PACIFIC OCEAN, FROM CARNEGIE RESULTS, DECEMBER 1-3, AND DECEMBER 16-26, 1928

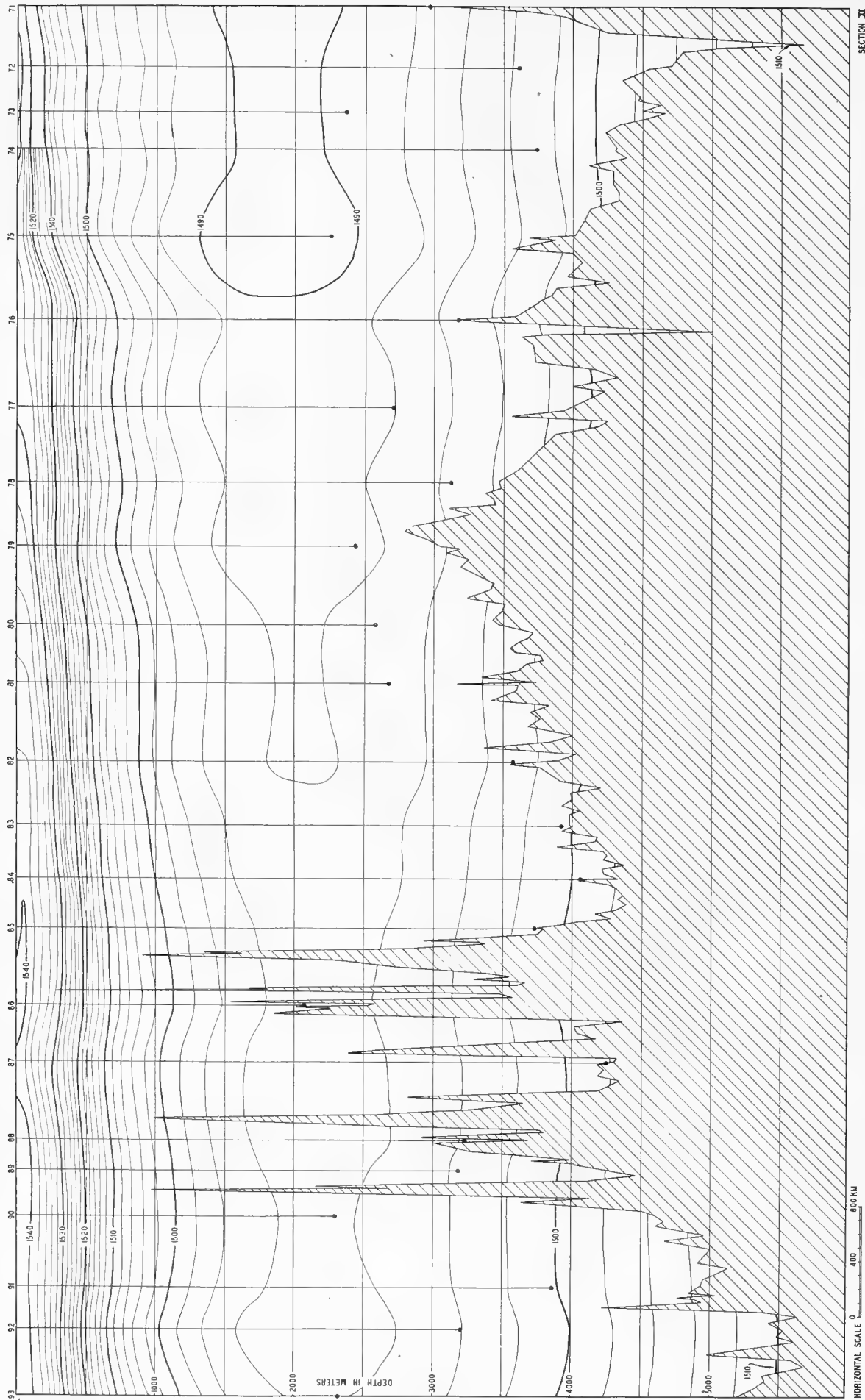
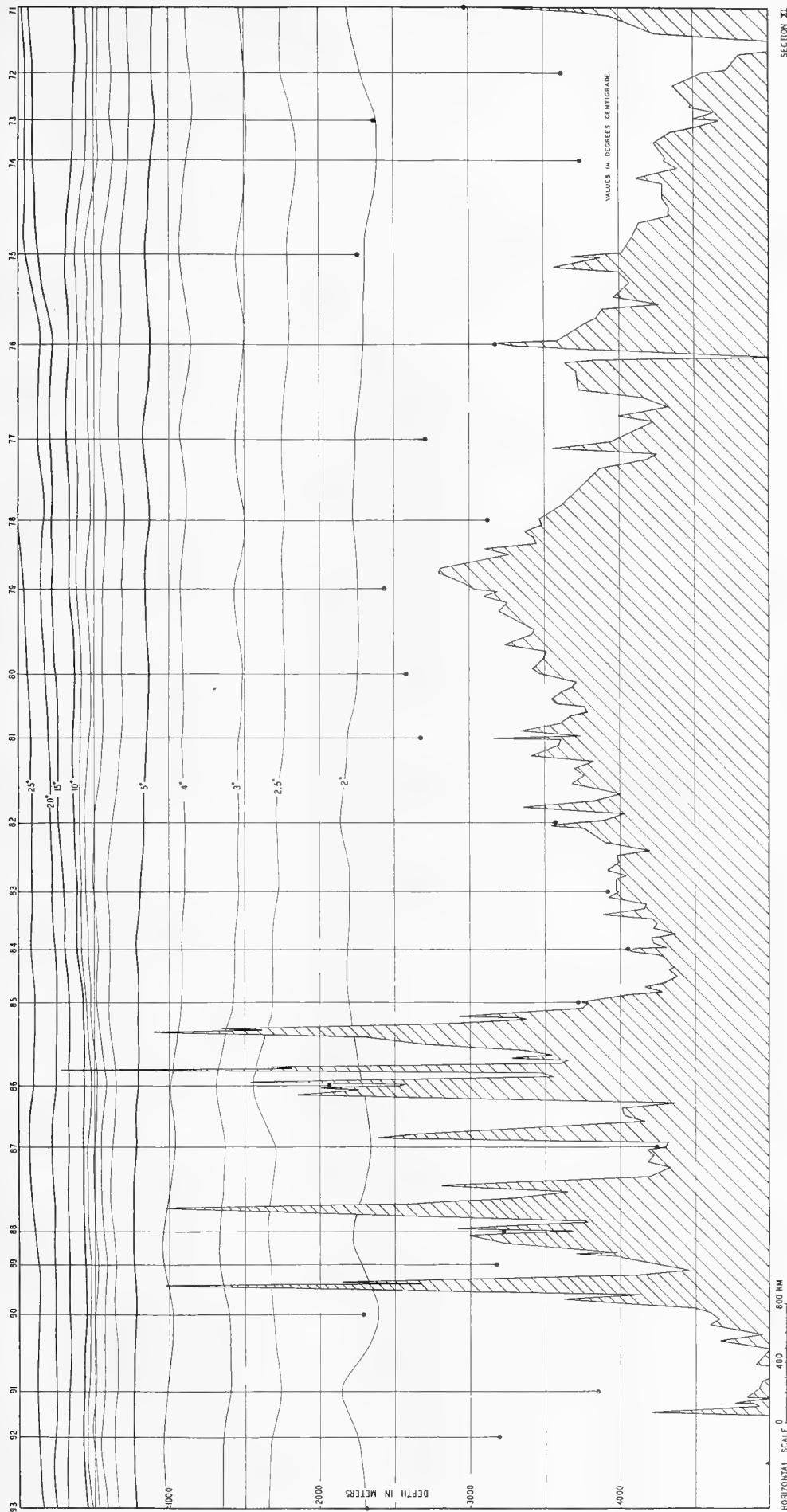
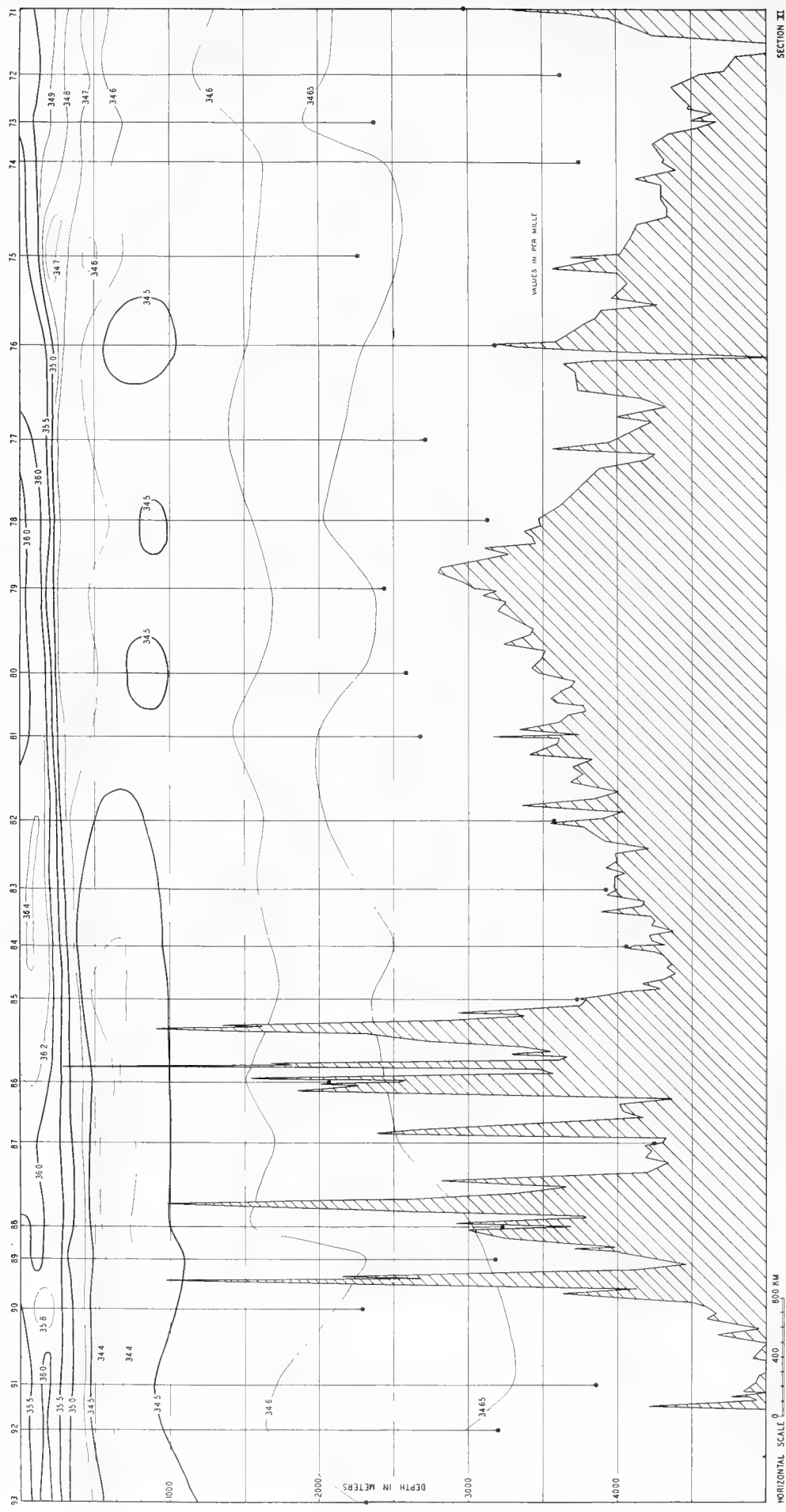


FIG.159--VERTICAL DISTRIBUTION SOUNDING VELOCITY, PACIFIC OCEAN, FROM CARNEGIE RESULTS, FEBRUARY 6 TO MARCH 31, 1929



SECTION XI

FIG 160 - VERTICAL DISTRIBUTION TEMPERATURE, PACIFIC OCEAN, FROM CARNEGIE RESULTS, FEBRUARY 6 TO MARCH 31, 1929



SECTION XI

FIG 16.—VERTICAL DISTRIBUTION SALINITY, PACIFIC OCEAN, FROM CARNEGIE RESULTS, FEBRUARY 6 TO MARCH 31, 1929

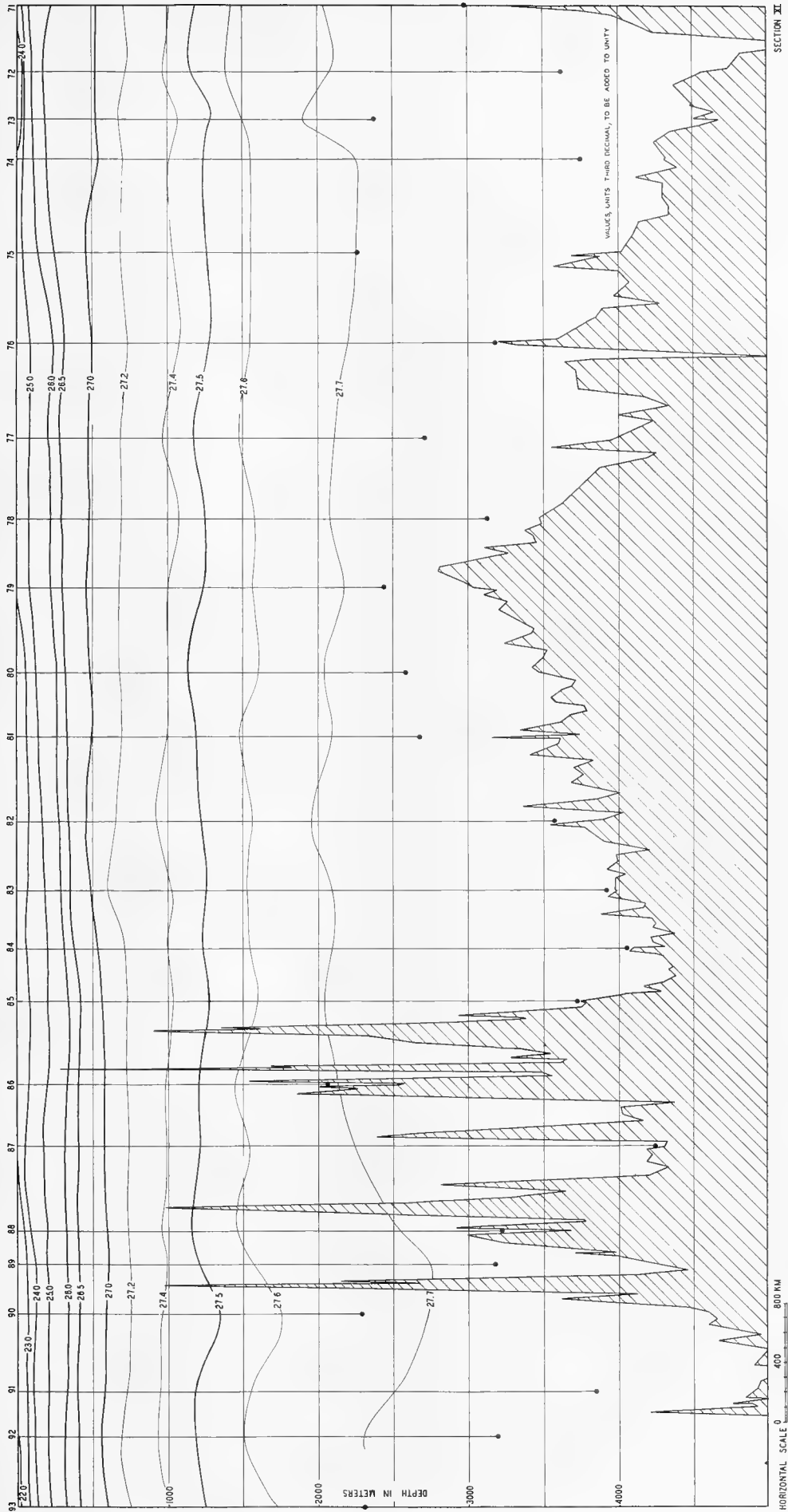


FIG 162—VERTICAL DISTRIBUTION DENSITY, PACIFIC OCEAN, FROM CARNEGIE RESULTS, FEBRUARY 6 TO MARCH 3, 1929

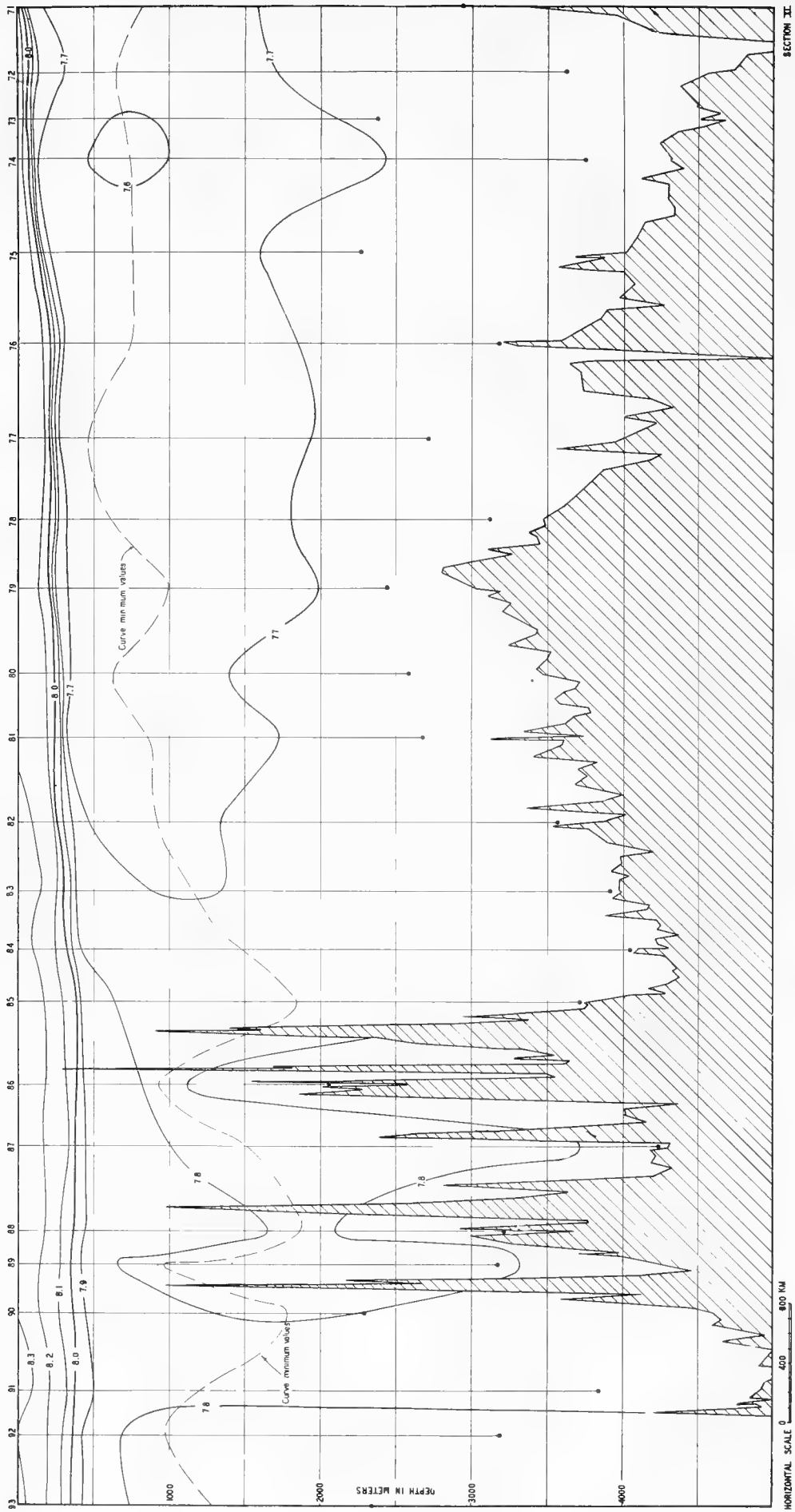


FIG. 163—VERTICAL DISTRIBUTION HYDROGEN ION, PACIFIC OCEAN, FROM CARNEGIE RESULTS, FEBRUARY 6 TO MARCH 31, 1929

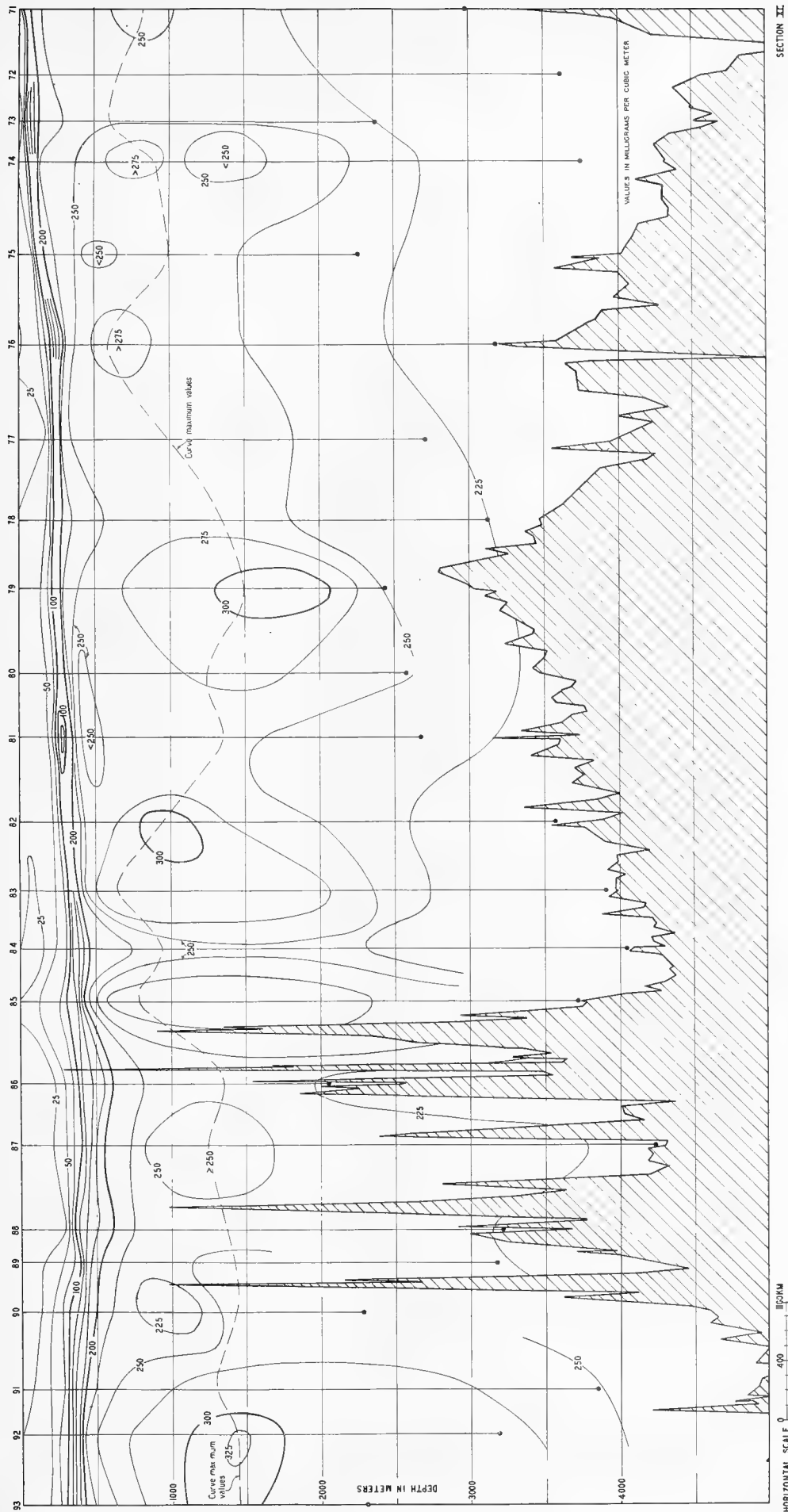
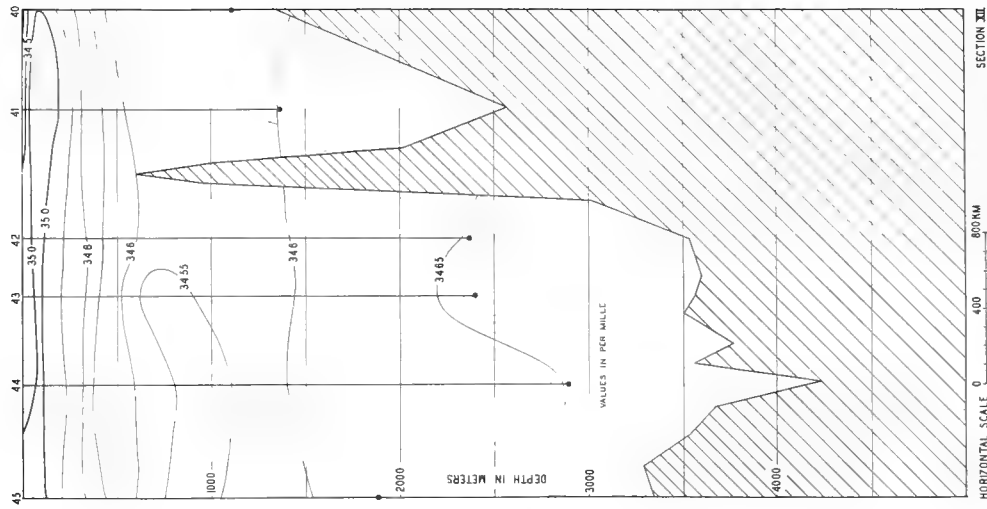
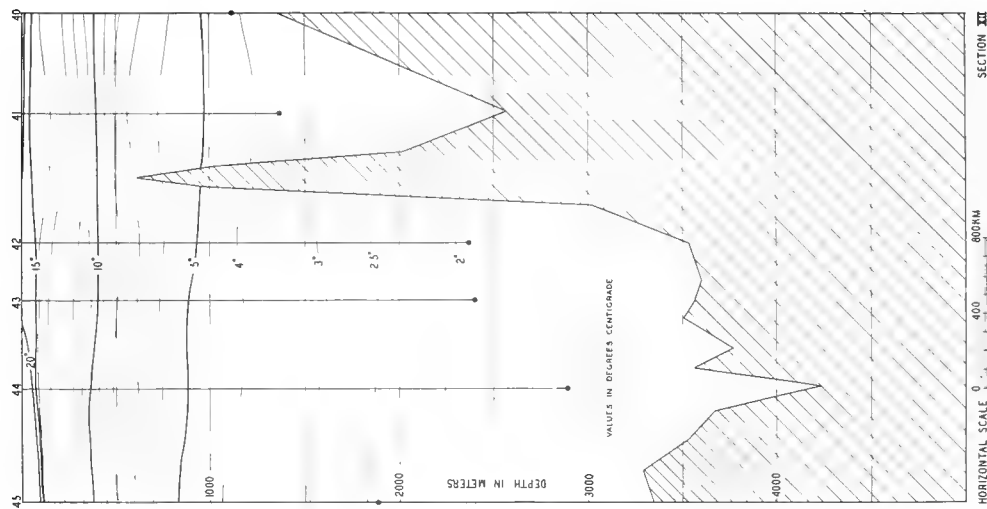


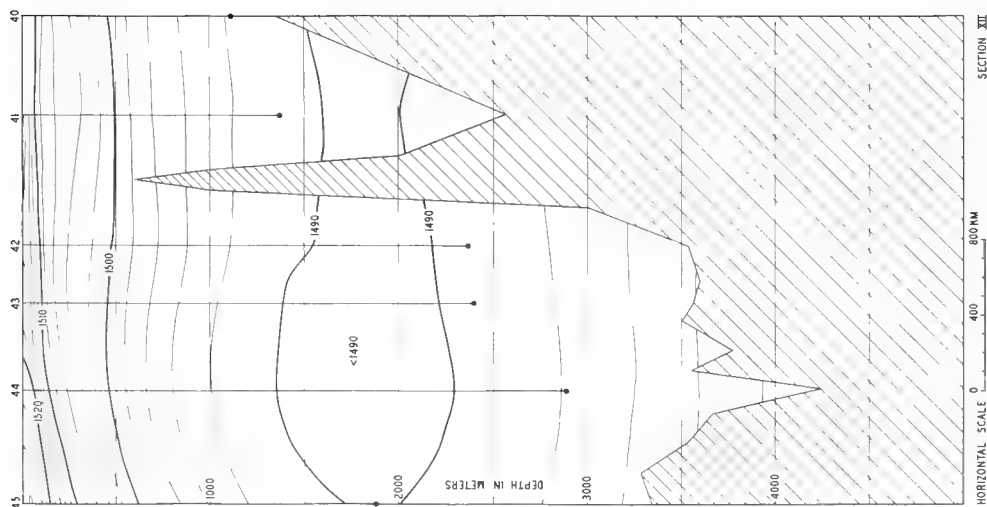
FIG 164 --VERTICAL DISTRIBUTION PHOSPHATE, PACIFIC OCEAN, FROM CARNEGIE RESULTS, FEBRUARY 6 TO MARCH 3, 1929



SECTION XII
 HORIZONTAL SCALE 0 400 800 NM
 FIG. 167—VERTICAL DISTRIBUTION SALINITY, PACIFIC OCEAN,
 FROM CARNEGIE RESULTS, NOVEMBER 8-19, 1929



SECTION XIII
 HORIZONTAL SCALE 0 400 800 NM
 FIG. 166—VERTICAL DISTRIBUTION TEMPERATURE, PACIFIC OCEAN,
 FROM CARNEGIE RESULTS, NOVEMBER 8-19, 1929



SECTION XIV
 HORIZONTAL SCALE 0 400 800 NM
 FIG. 165—VERTICAL DISTRIBUTION SOUNDING VELOCITY, PACIFIC OCEAN,
 FROM CARNEGIE RESULTS, NOVEMBER 8-19, 1929

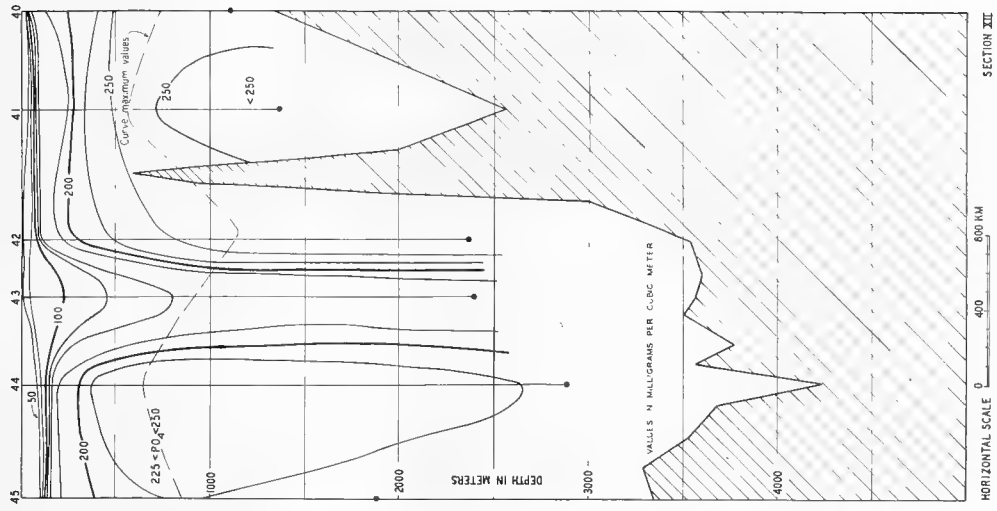


FIG. 170—VERTICAL DISTRIBUTION PHOSPHATE, PACIFIC OCEAN,
FROM CARNegie RESULTS, NOVEMBER 8-19, 1929

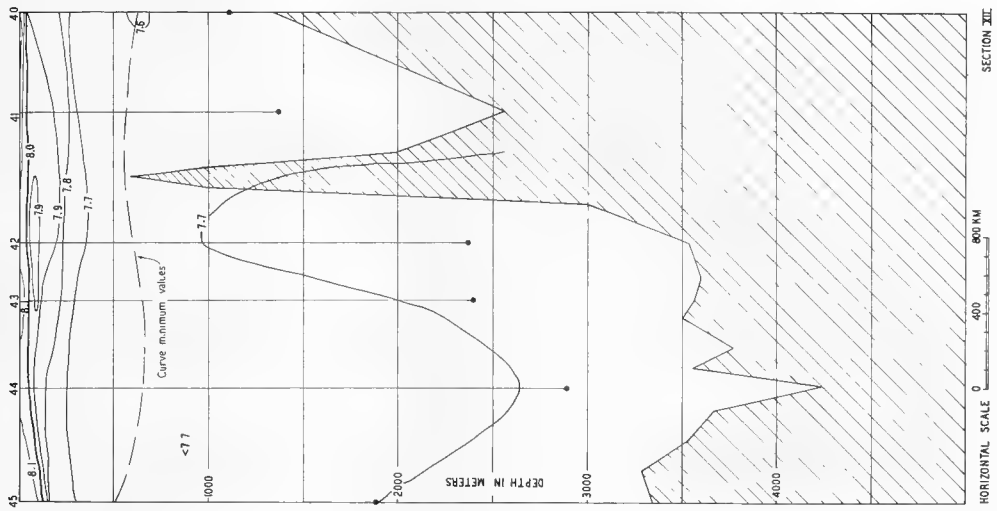


FIG. 169—VERTICAL DISTRIBUTION HYDROGEN ION, PACIFIC OCEAN,
FROM CARNegie RESULTS, NOVEMBER 8-19, 1929



FIG. 168—VERTICAL DISTRIBUTION DENSITY, PACIFIC OCEAN,
FROM CARNegie RESULTS, NOVEMBER 8-19, 1929

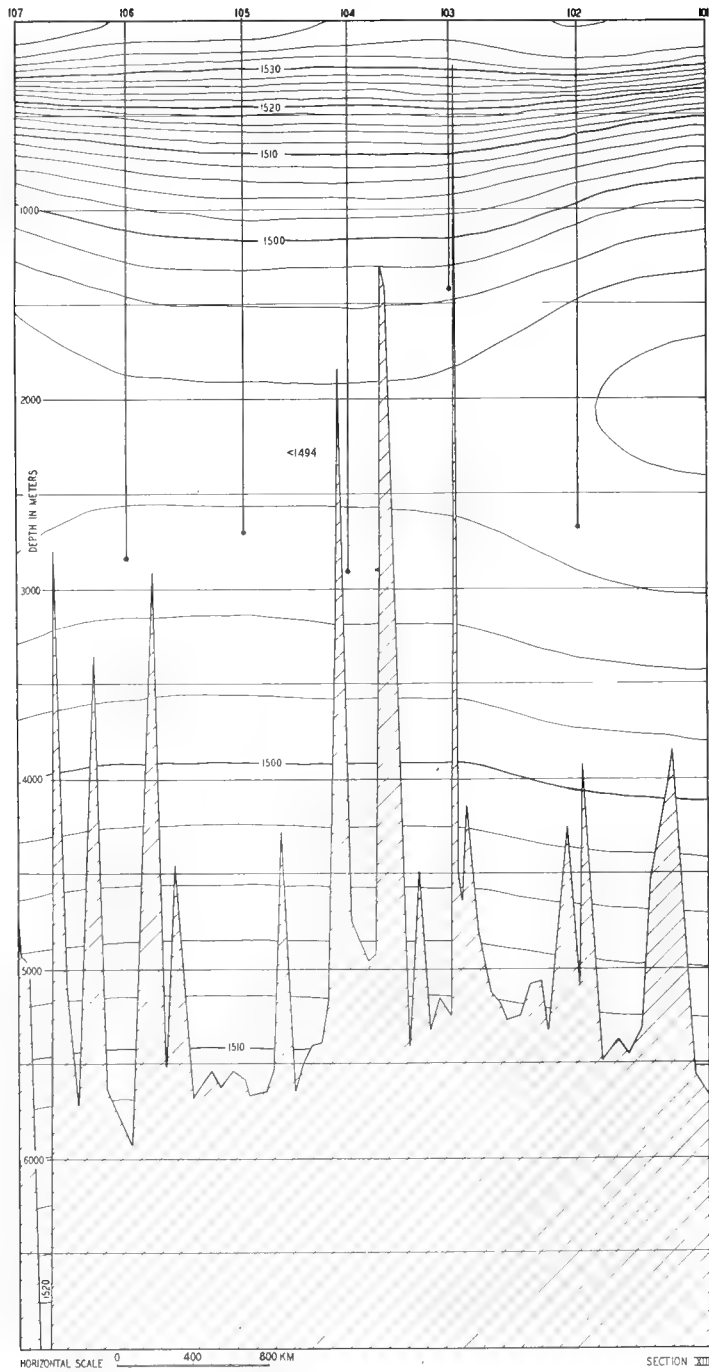


FIG. 171—VERTICAL DISTRIBUTION SOUNDING VELOCITY, PACIFIC OCEAN, FROM CARNEGIE RESULTS, MAY 7-19, 1929

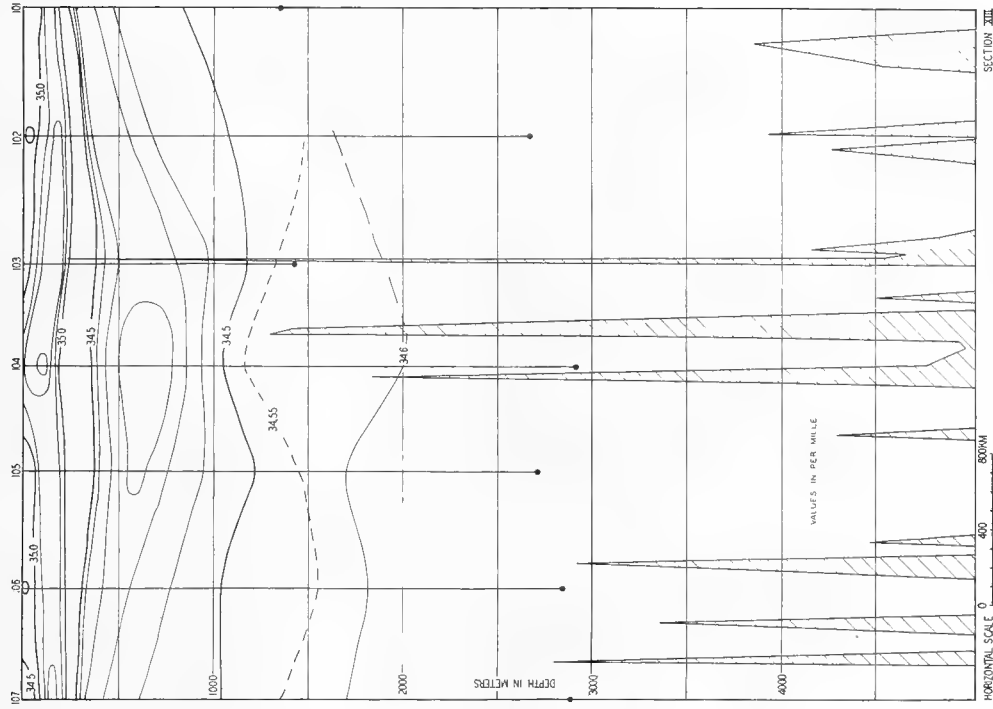


FIG 173—VERTICAL DISTRIBUTION SALINITY, PACIFIC OCEAN, FROM CARNEGIE RESULTS, MAY 7-19, 1929

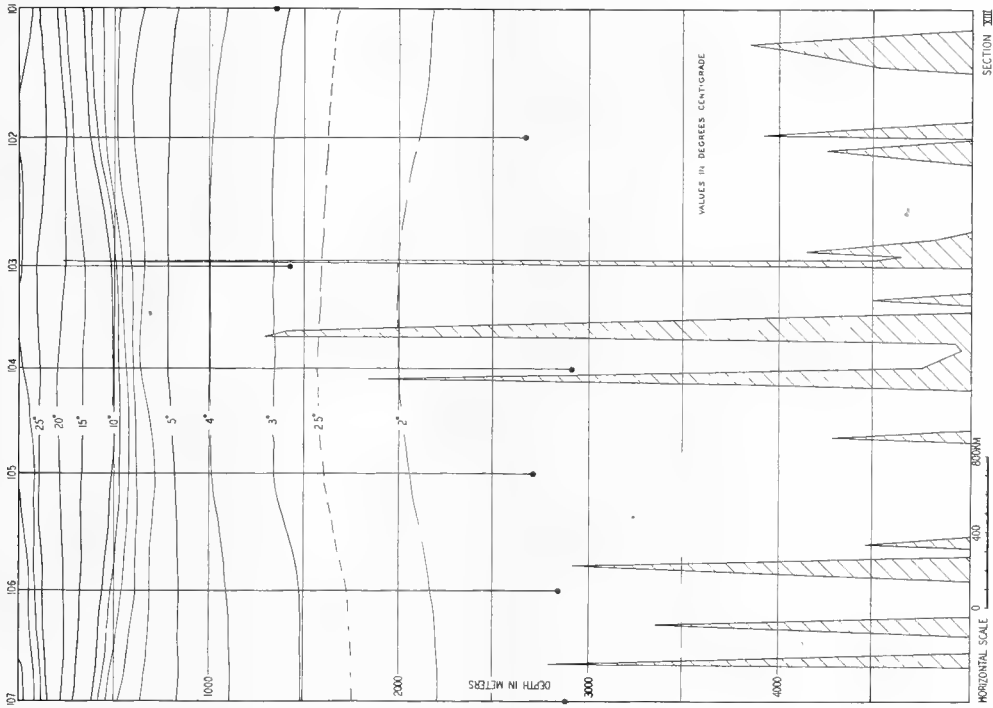


FIG 172—VERTICAL DISTRIBUTION TEMPERATURE, PACIFIC OCEAN, FROM CARNEGIE RESULTS, MAY 7-19, 1929

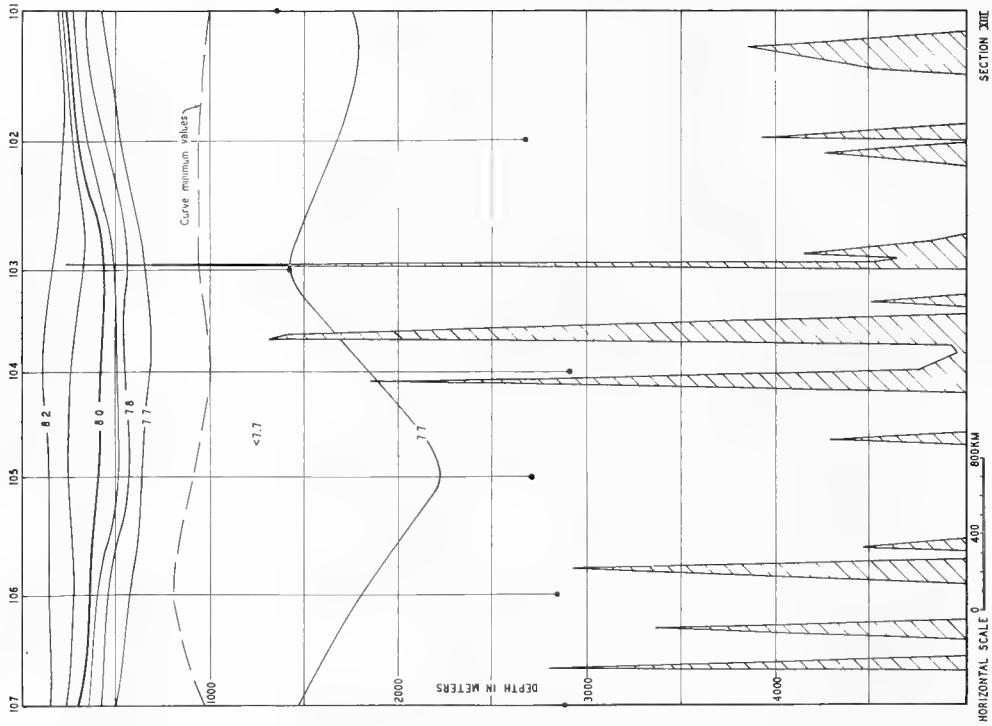


FIG. 175—VERTICAL DISTRIBUTION HYDROGEN ION, PACIFIC OCEAN, FROM CARNEGIE RESULTS, MAY 7-19, 1929

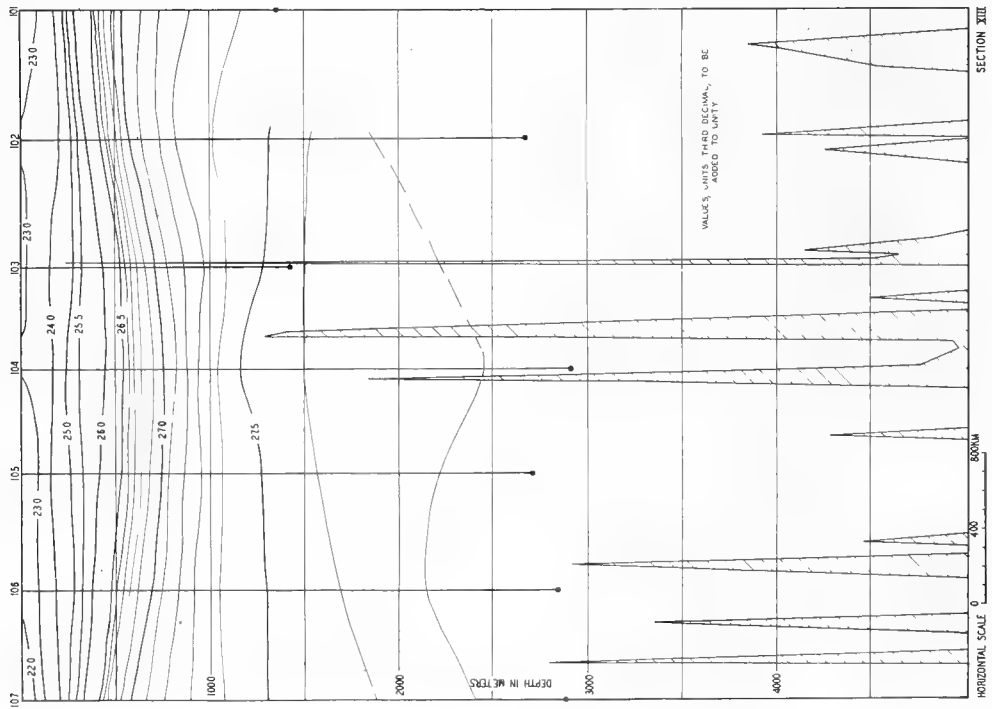


FIG. 174—VERTICAL DISTRIBUTION DENSITY, PACIFIC OCEAN, FROM CARNEGIE RESULTS, MAY 7-19, 1929

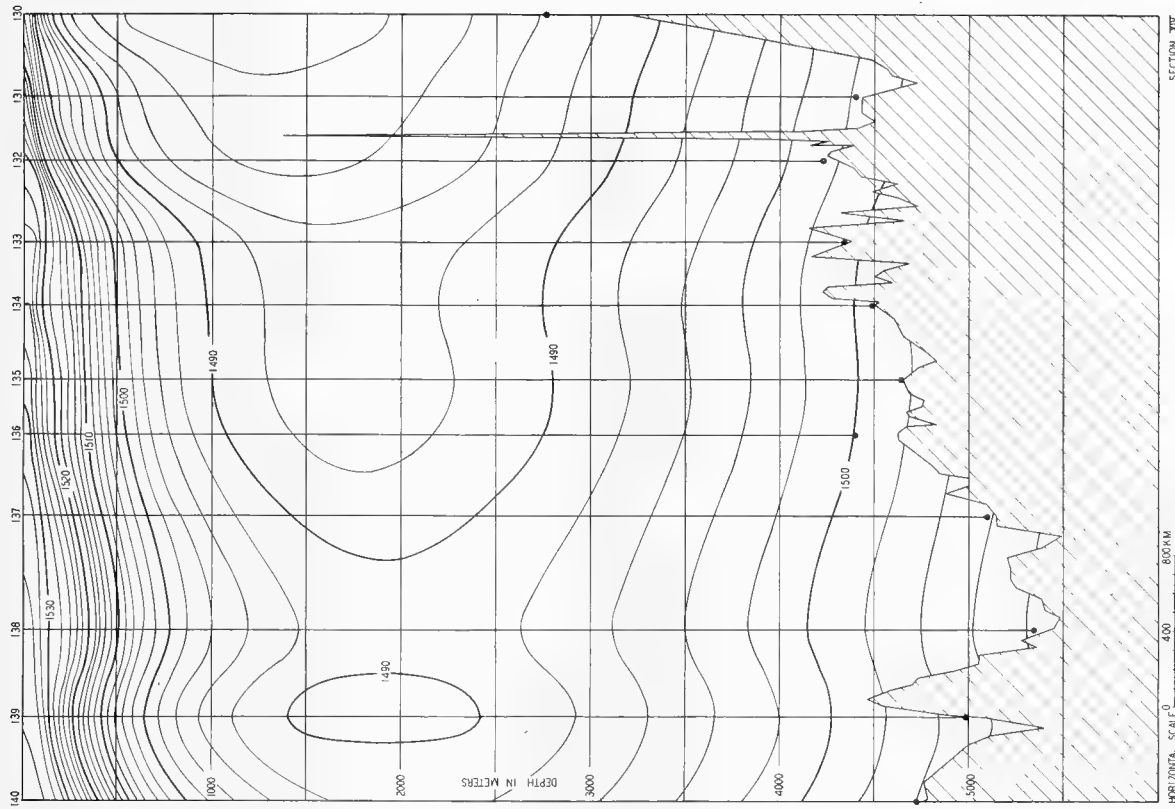


FIG 177—VERTICAL DISTRIBUTION SOUNDING VELOCITY, PACIFIC OCEAN, FROM CARNEGIE RESULTS
SEPTEMBER 4 TO OCTOBER 3, 1929

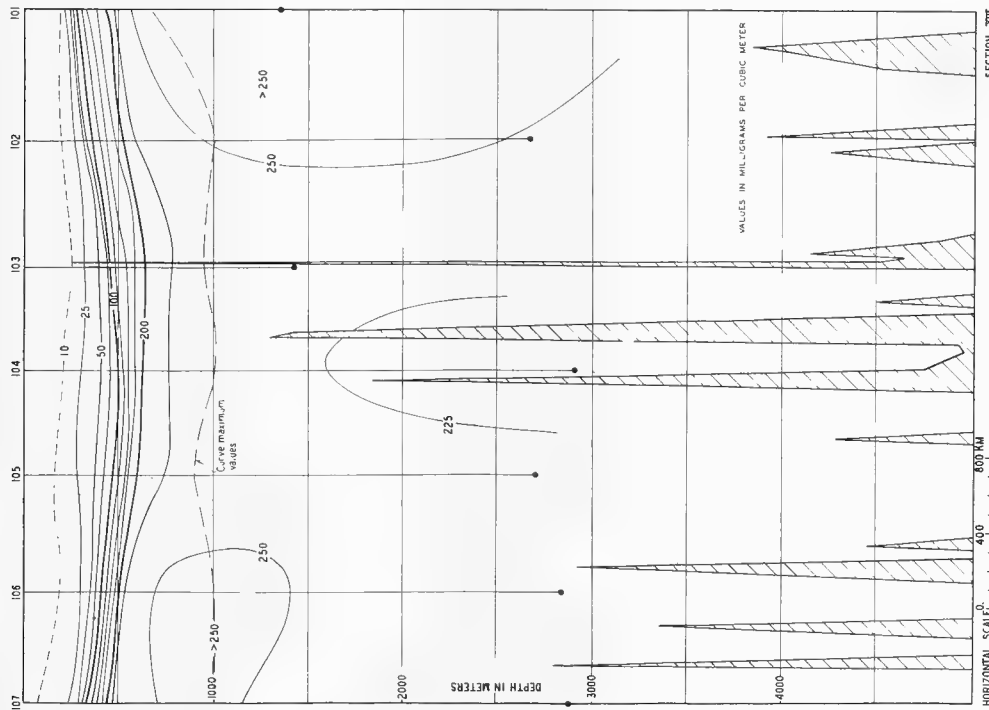
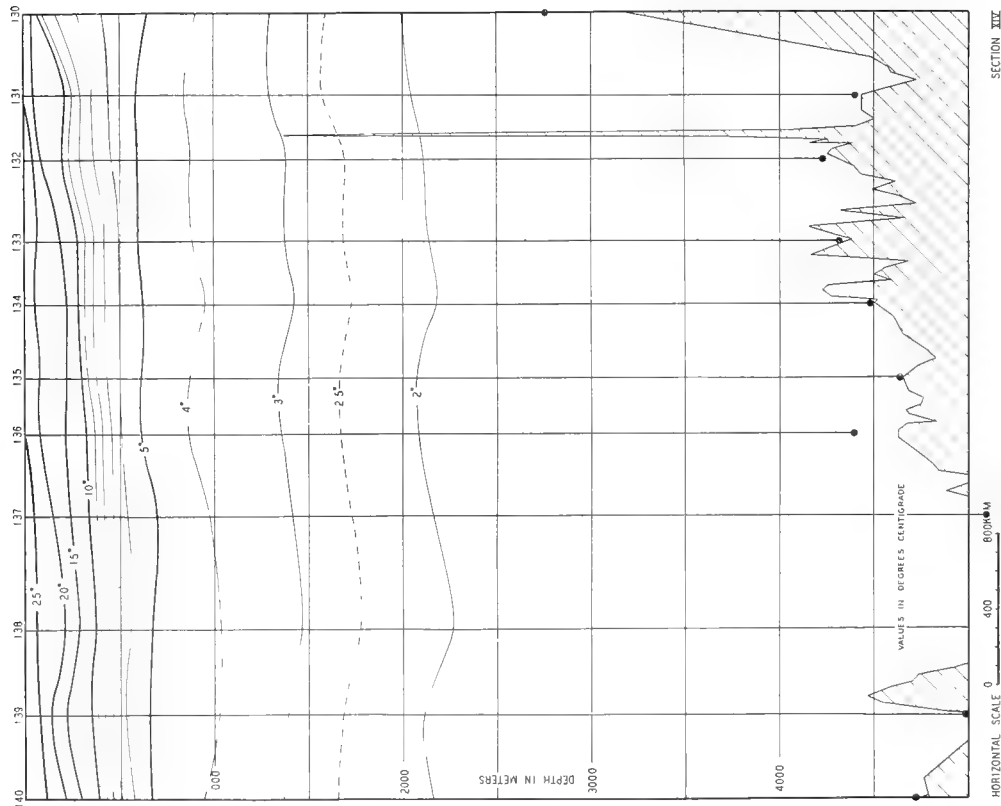
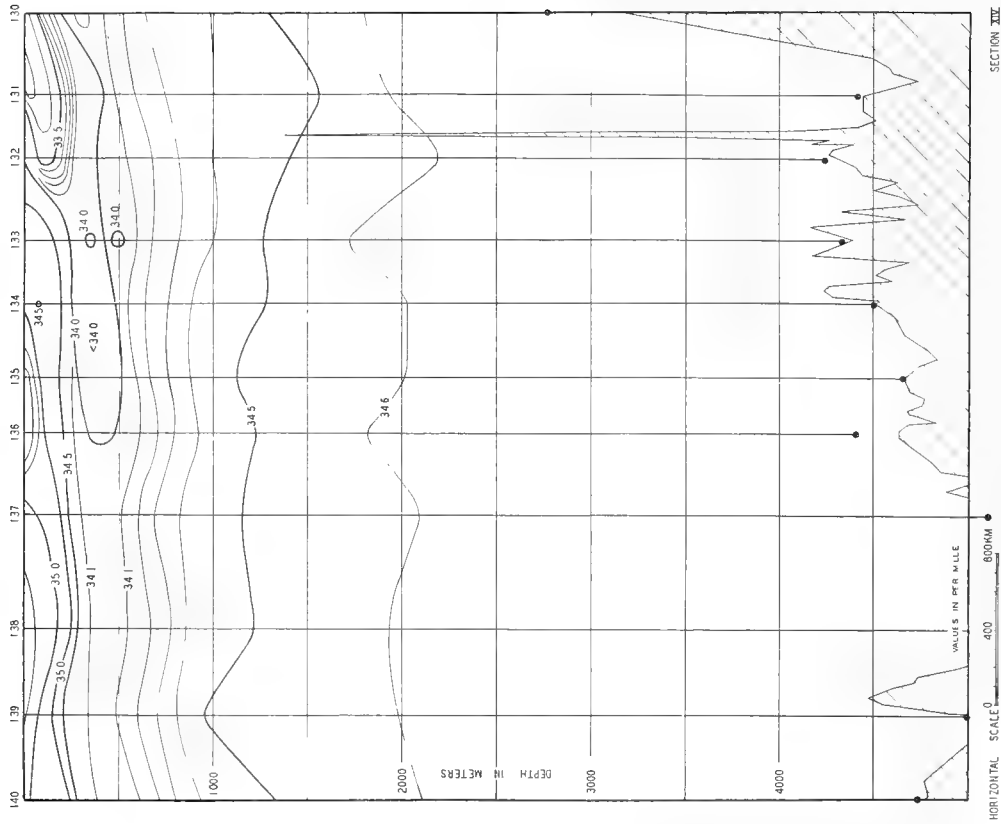
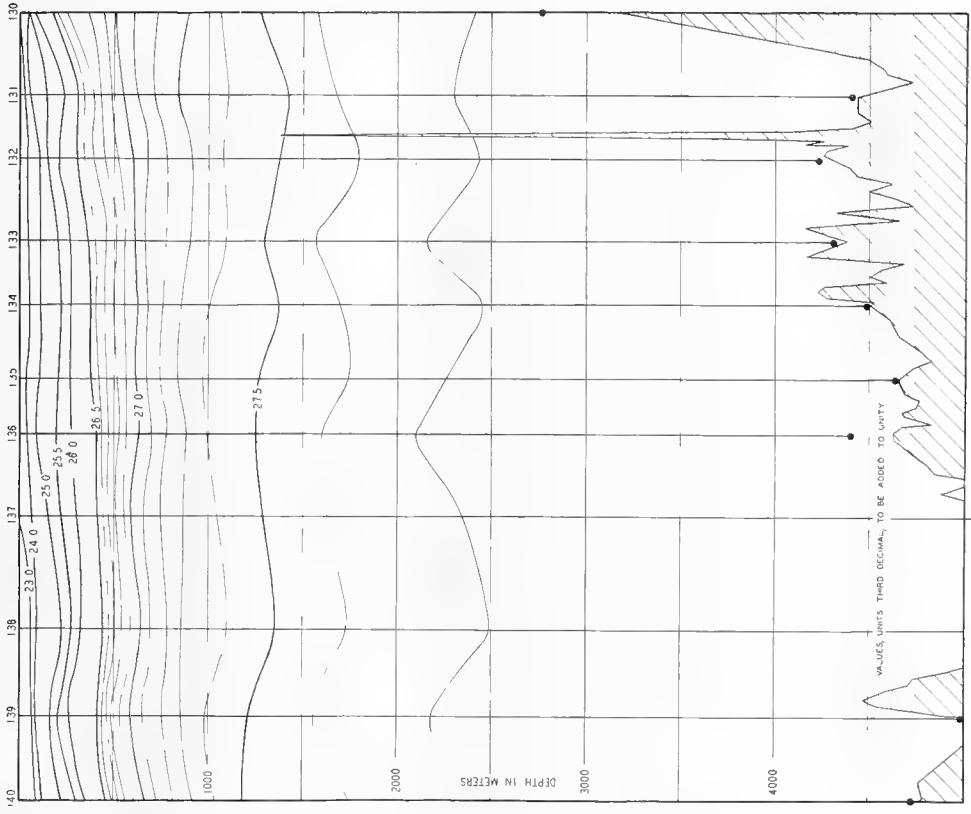


FIG 176—VERTICAL DISTRIBUTION PHOSPHATE, PACIFIC OCEAN, FROM CARNEGIE RESULTS,
MAY 7-19, 1929





HORIZONTAL SCALE 0 400 800 M SECTION XIII
 FIG. 181—VERTICAL DISTRIBUTION HYDROGEN ION, PACIFIC OCEAN, FROM CARNEGIE RESULTS, SEPTEMBER 4 TO OCTOBER 3, 1929



HORIZONTAL SCALE 0 400 800 M SECTION XIII
 FIG. 180—VERTICAL DISTRIBUTION DENSITY, PACIFIC OCEAN, FROM CARNEGIE RESULTS, SEPTEMBER 4 TO OCTOBER 3, 1929

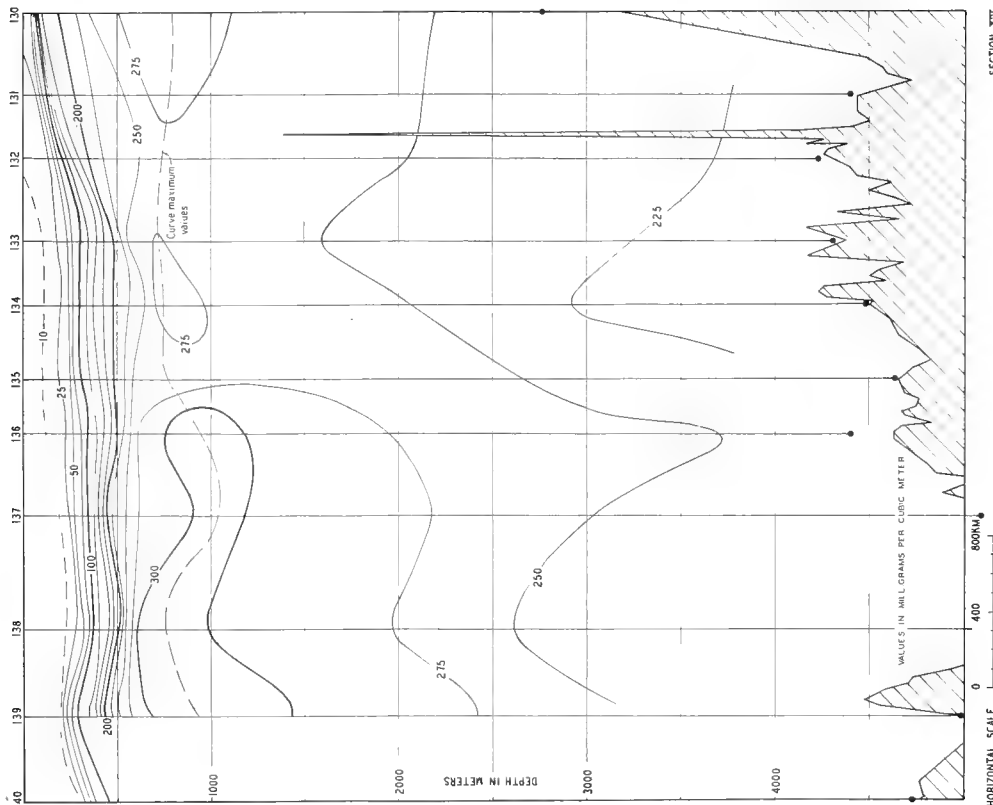


FIG. 182—VERTICAL DISTRIBUTION PHOSPHATE, PACIFIC OCEAN, FROM CARNEGIE RESULTS, SEPTEMBER 4 TO OCTOBER 3, 1929

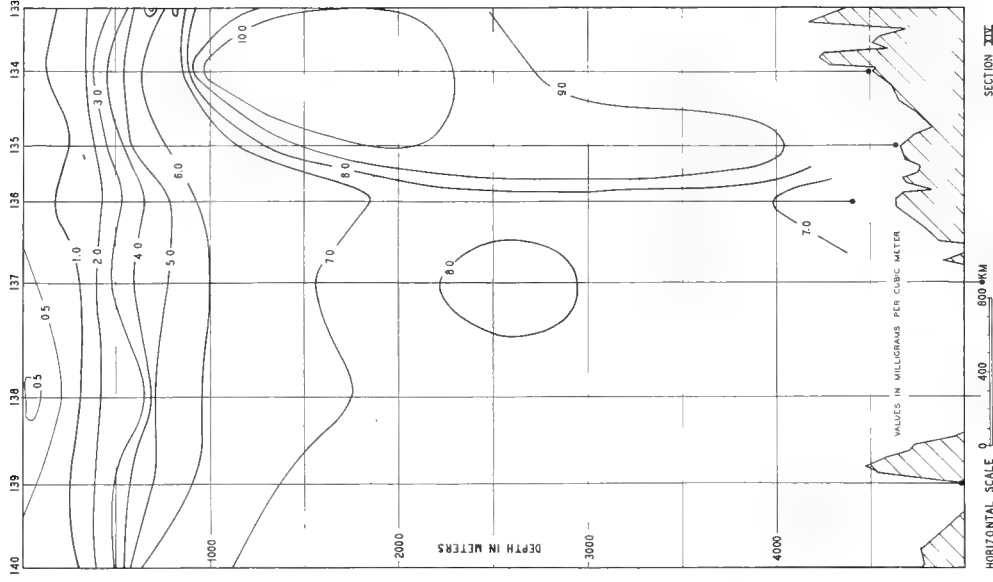


FIG. 183—VERTICAL DISTRIBUTION SILICA, PACIFIC OCEAN, FROM CARNEGIE RESULTS, SEPTEMBER 4 TO OCTOBER 3, 1929

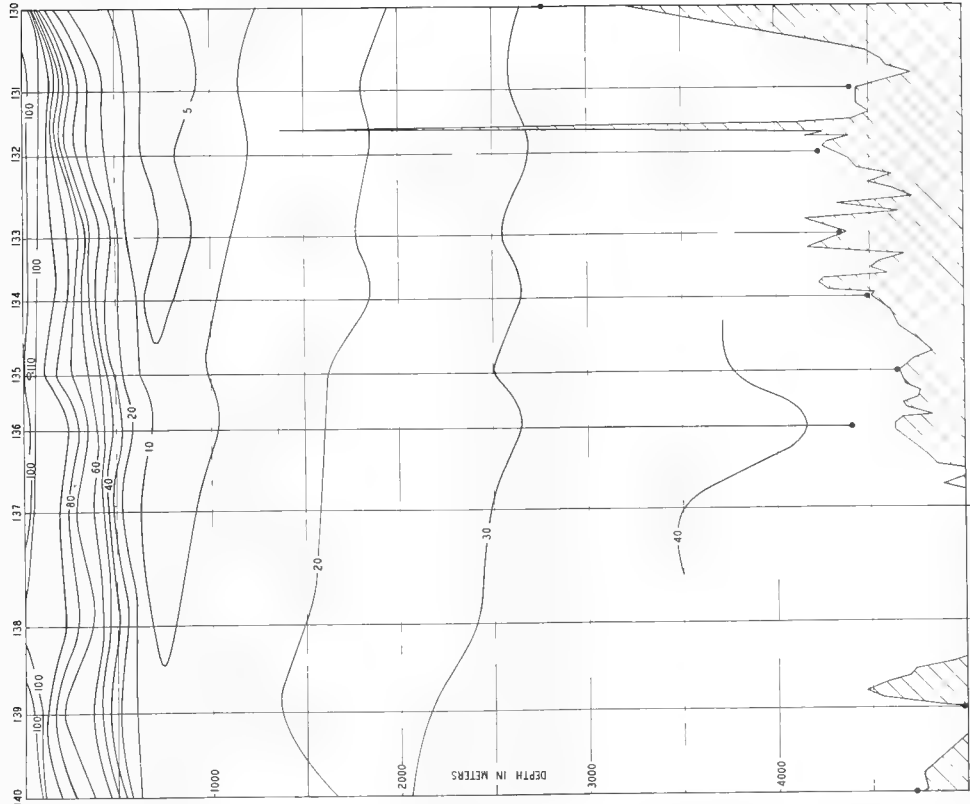


FIG. 85—VERTICAL DISTRIBUTION OXYGEN SATURATION IN PER CENT, PACIFIC OCEAN, FROM CARNegie RESULTS, SEPTEMBER 4 TO OCTOBER 3, 1929



FIG. 84—VERTICAL DISTRIBUTION OXYGEN IN MILLILITERS PER LITER, PACIFIC OCEAN, FROM CARNegie RESULTS, SEPTEMBER 4 TO OCTOBER 3, 1929

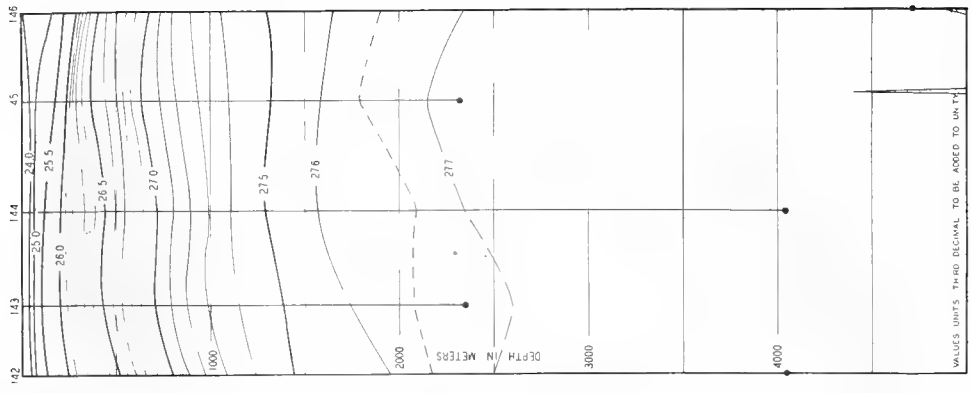


FIG. 189—VERTICAL DISTRIBUTION DENSITY, PACIFIC OCEAN, FROM CARNEGIE RESULTS, OCTOBER 7-15, 1929

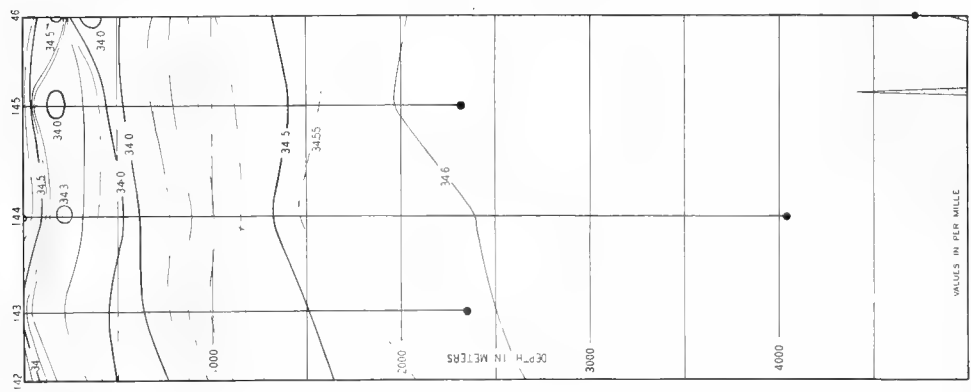


FIG. 188—VERTICAL DISTRIBUTION SALINITY, PACIFIC OCEAN, FROM CARNEGIE RESULTS, OCTOBER 7-15, 1929

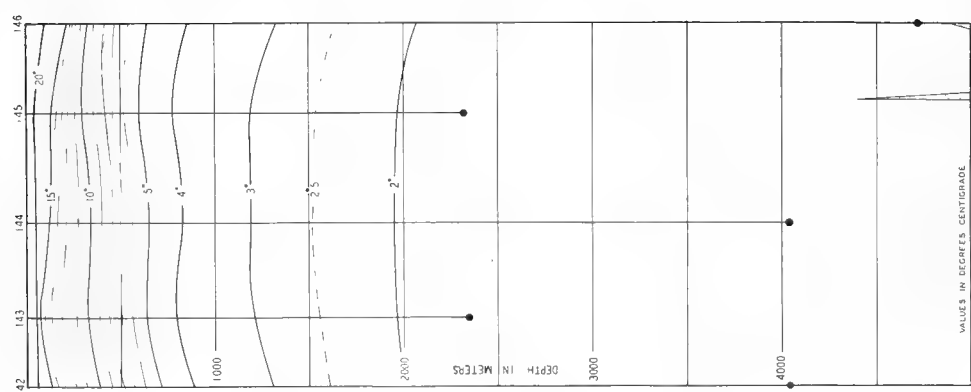


FIG. 187—VERTICAL DISTRIBUTION TEMPERATURE, PACIFIC OCEAN, FROM CARNEGIE RESULTS, OCTOBER 7-15, 1929

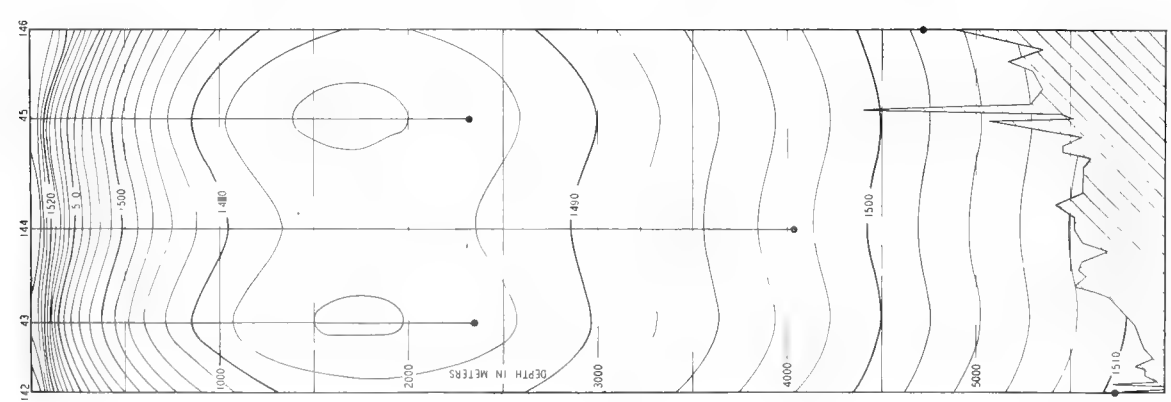
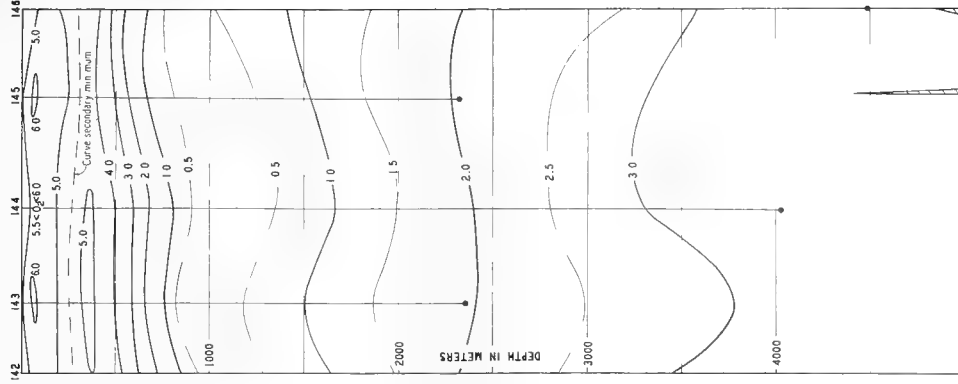
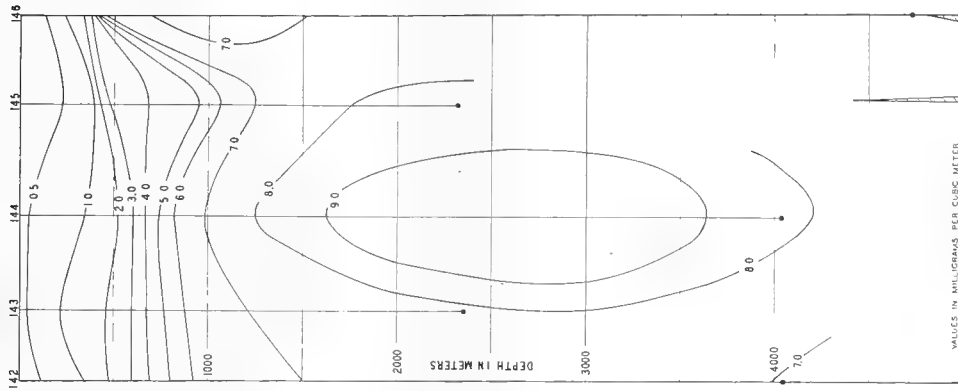


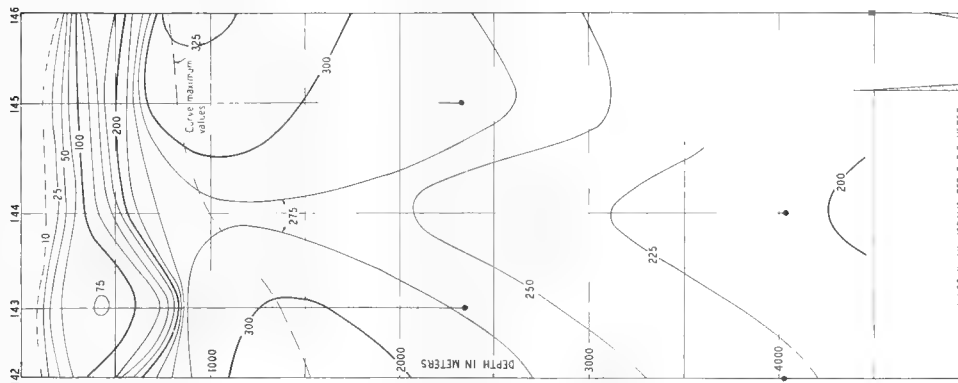
FIG. 186—VERTICAL DISTRIBUTION SOUNDING VELOCITY, PACIFIC OCEAN, FROM CARNEGIE RESULTS, OCTOBER 7-15, 1929



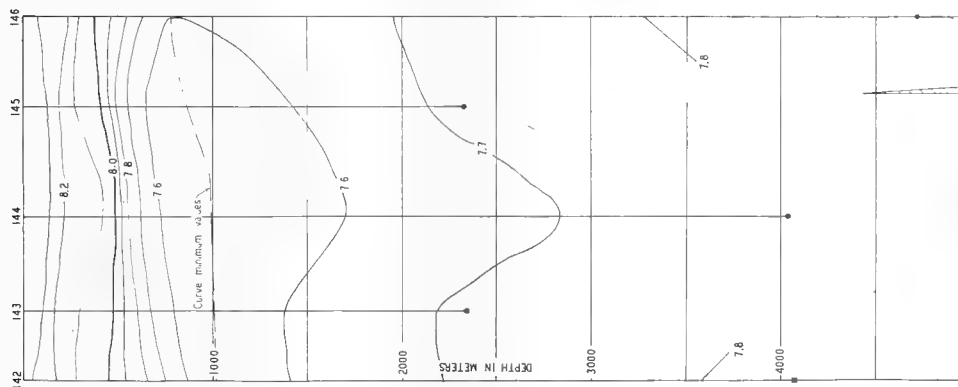
HORIZONTAL SCALE 0 400 800KM SECTION XI
 FIG. 193—VERTICAL DISTRIBUTION OXYGEN IN MILLILITERS PER LITER, PACIFIC OCEAN, FROM CARNEGIE RESULTS, OCTOBER 7-15, 1929



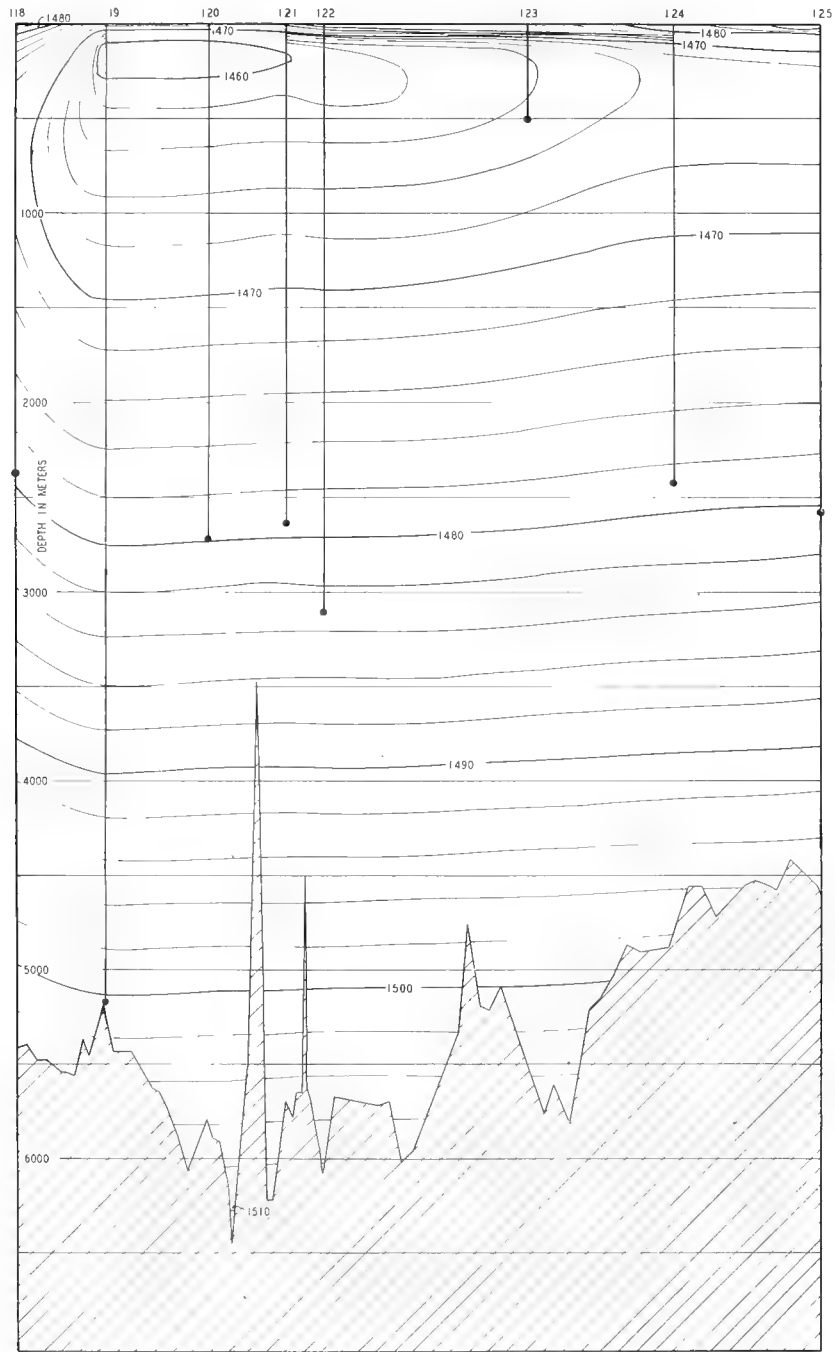
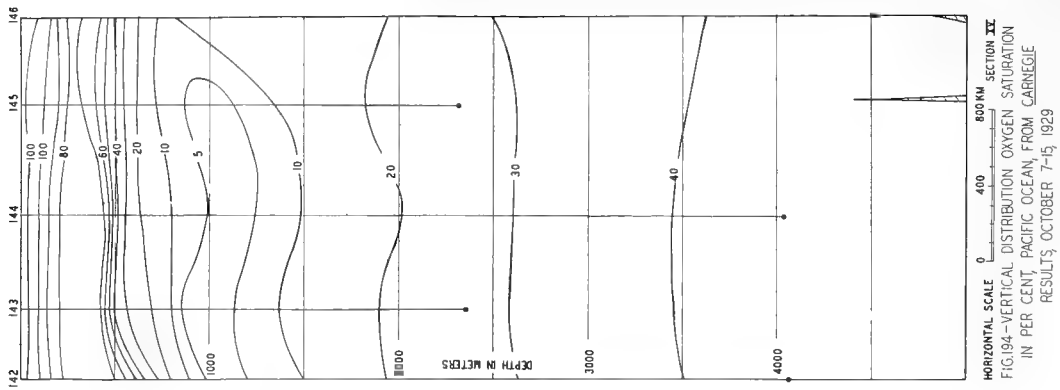
HORIZONTAL SCALE 0 400 800KM SECTION XI
 FIG. 192—VERTICAL DISTRIBUTION SILICA, PACIFIC OCEAN, FROM CARNEGIE RESULTS, OCTOBER 7-15, 1929



HORIZONTAL SCALE 0 400 800KM SECTION XI
 FIG. 191—VERTICAL DISTRIBUTION PHOSPHATE, PACIFIC OCEAN, FROM CARNEGIE RESULTS, OCTOBER 7-15, 1929



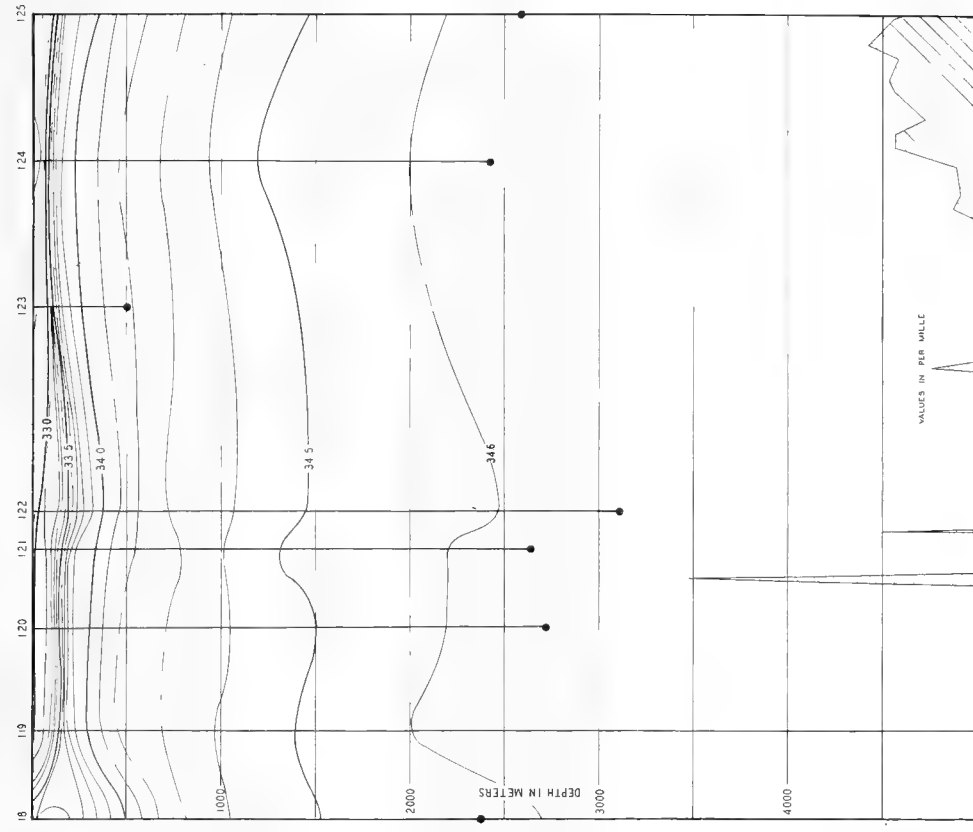
HORIZONTAL SCALE 0 400 800KM SECTION XI
 FIG. 190—VERTICAL DISTRIBUTION HYDROGEN ION, PACIFIC OCEAN, FROM CARNEGIE RESULTS, OCTOBER 7-15, 1929





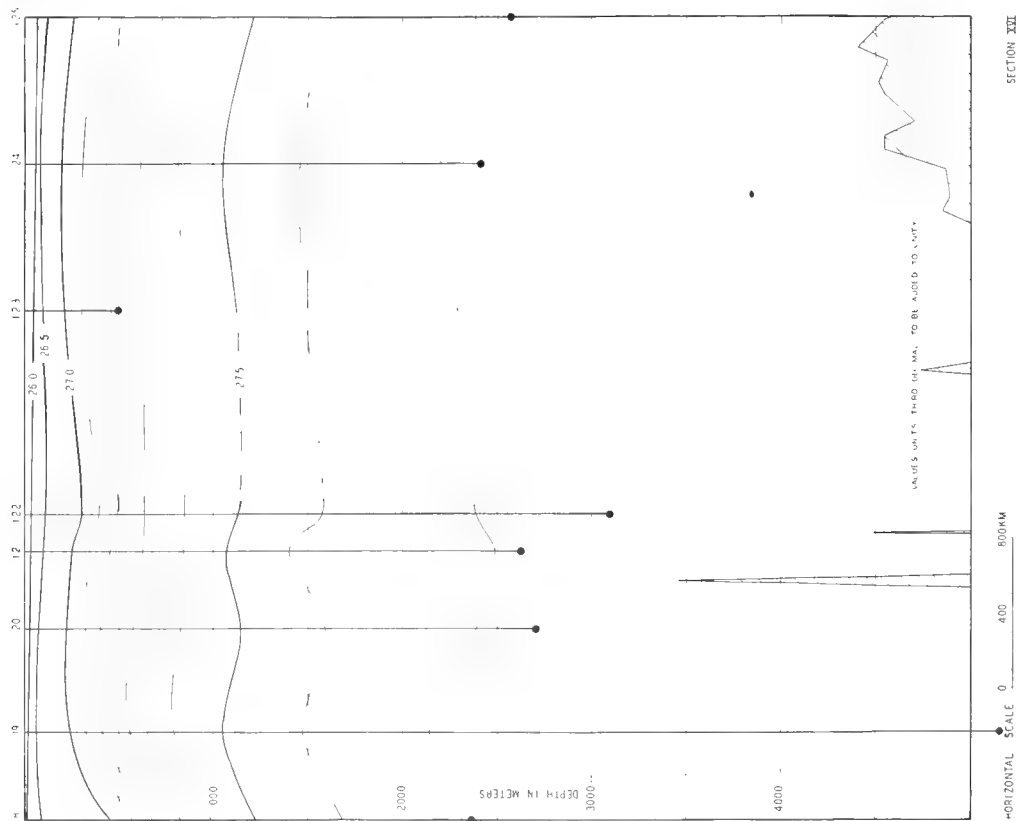
SECTION XIII

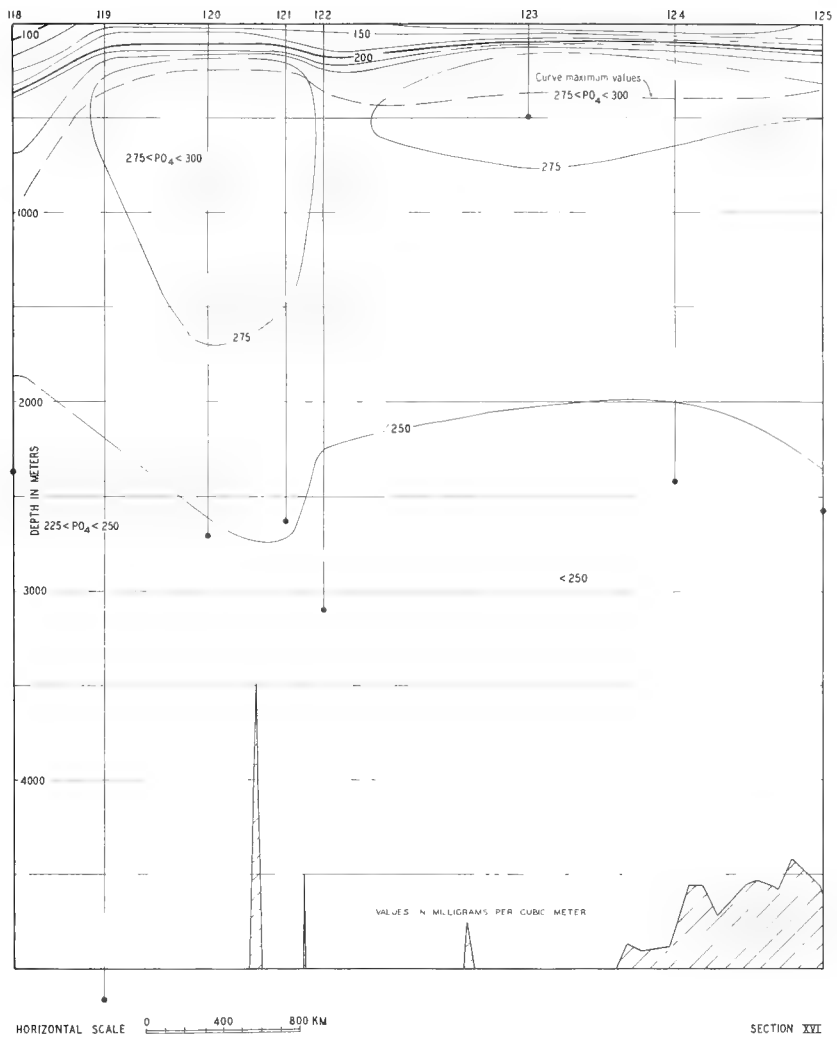
FIG. 196—VERTICAL DISTRIBUTION TEMPERATURE, PACIFIC OCEAN, FROM CARNegie RESULTS, JULY 5-19, 1929



SECTION XVI

FIG. 197—VERTICAL DISTRIBUTION SALINITY, PACIFIC OCEAN, FROM CARNegie RESULTS, JULY 5-19, 1929





HORIZONTAL SCALE 0 400 800 KM SECTION XXI
 FIG. 200—VERTICAL DISTRIBUTION PHOSPHATE, PACIFIC OCEAN, FROM CARNEGIE RESULTS, JULY 5-19, 1929

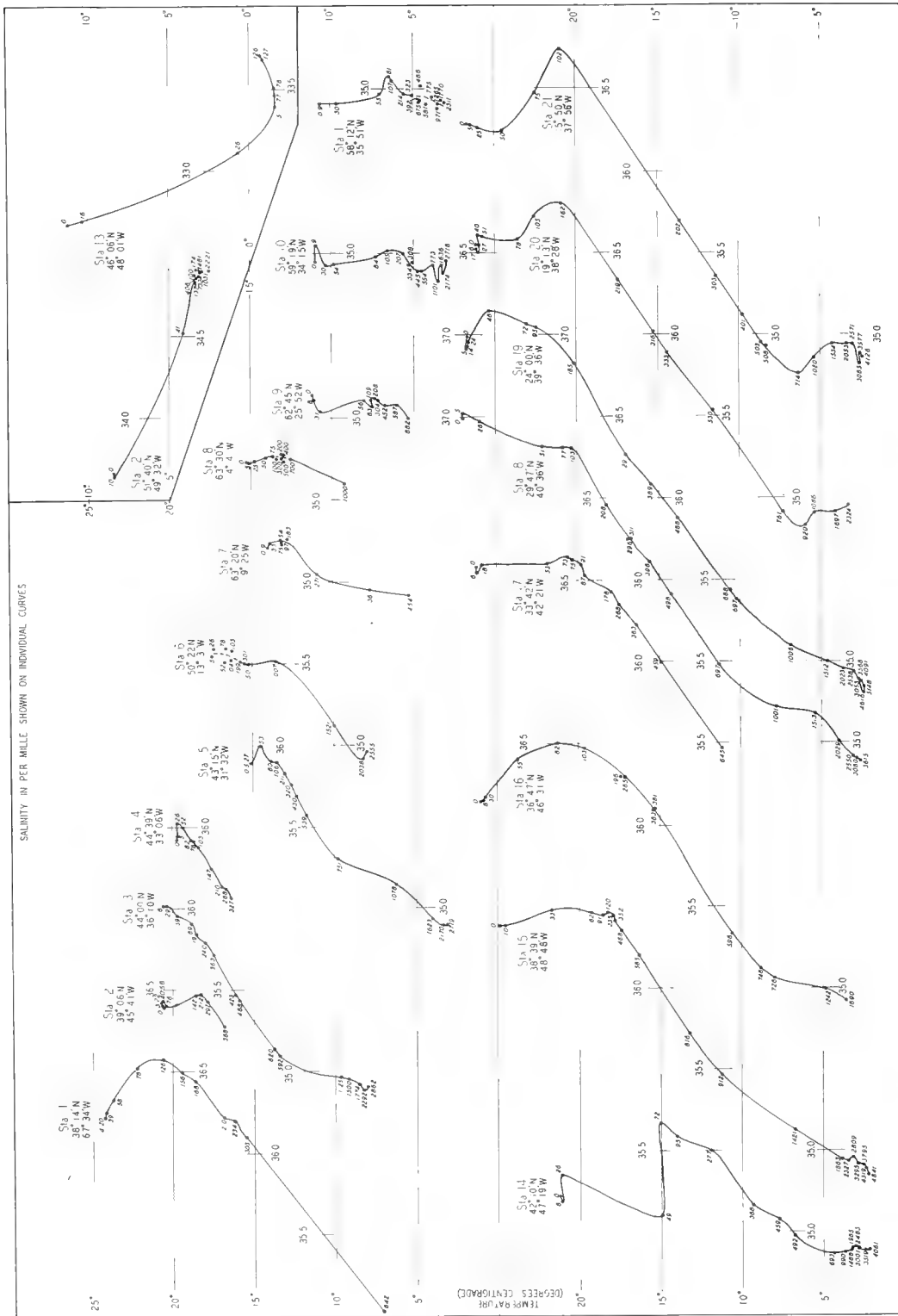


FIG. 201.—TEMPERATURE-SALINITY RELATION, STATIONS 1-21, ATLANTIC OCEAN, FROM CARNEGIE RESULTS, 1928

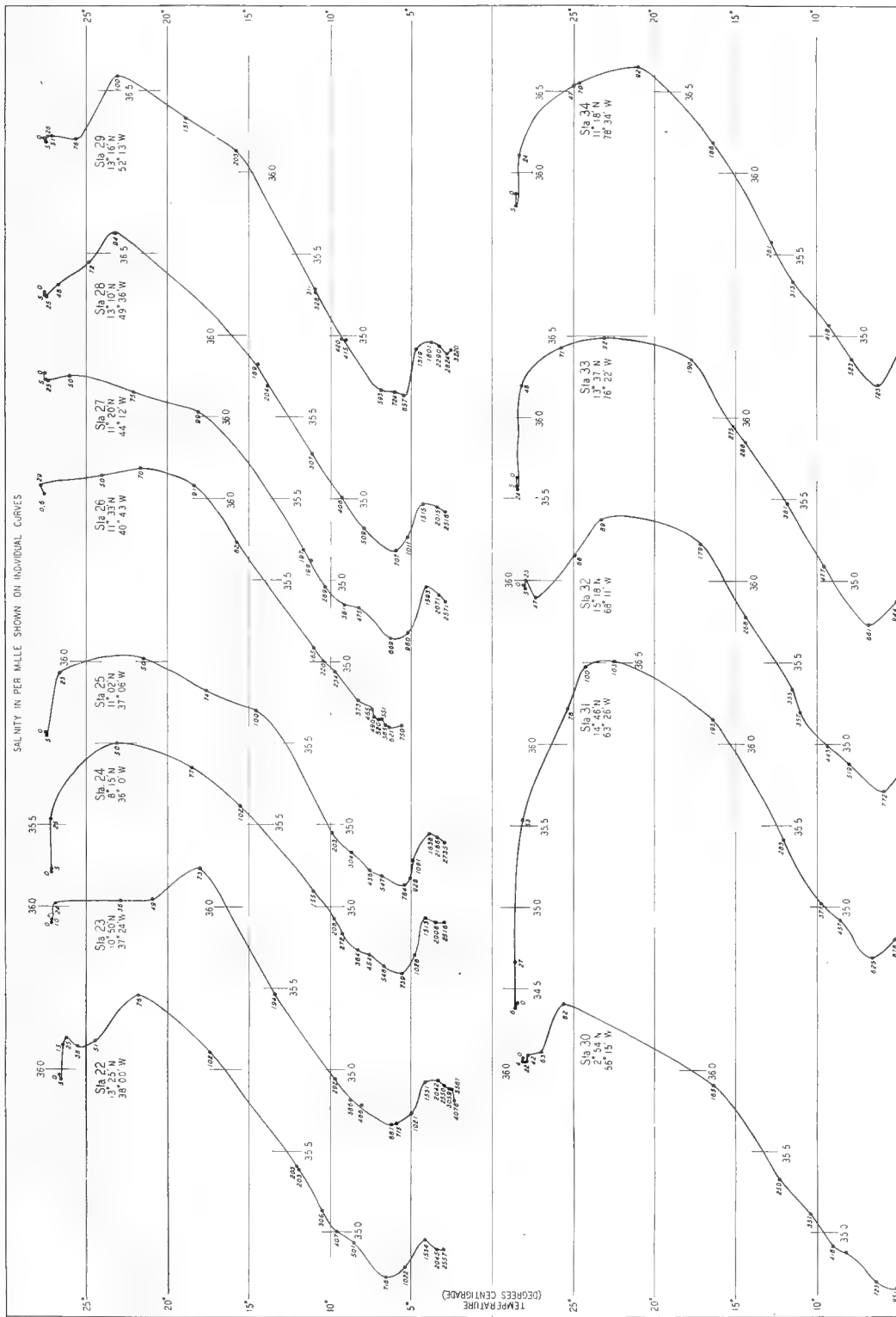


FIG 202—TEMPERATURE-SALINITY RELATION, STATIONS 22-34, ATLANTIC OCEAN, FROM CARNEGIE RESULTS, 1928

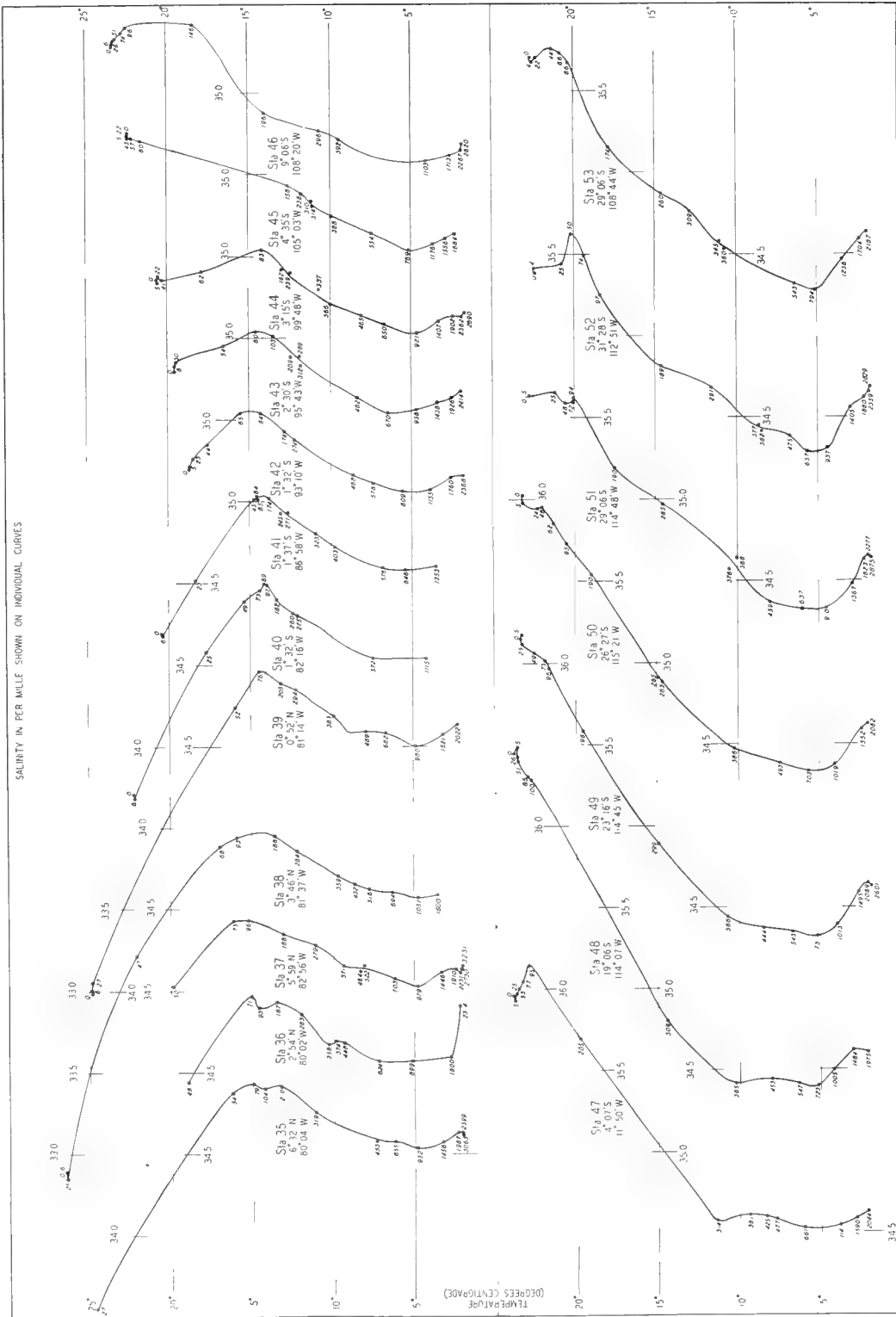


FIG 203—TEMPERATURE-SALINITY RELATION, STATIONS 35-53, PACIFIC OCEAN, FROM CARNEGIE RESULTS, 1928

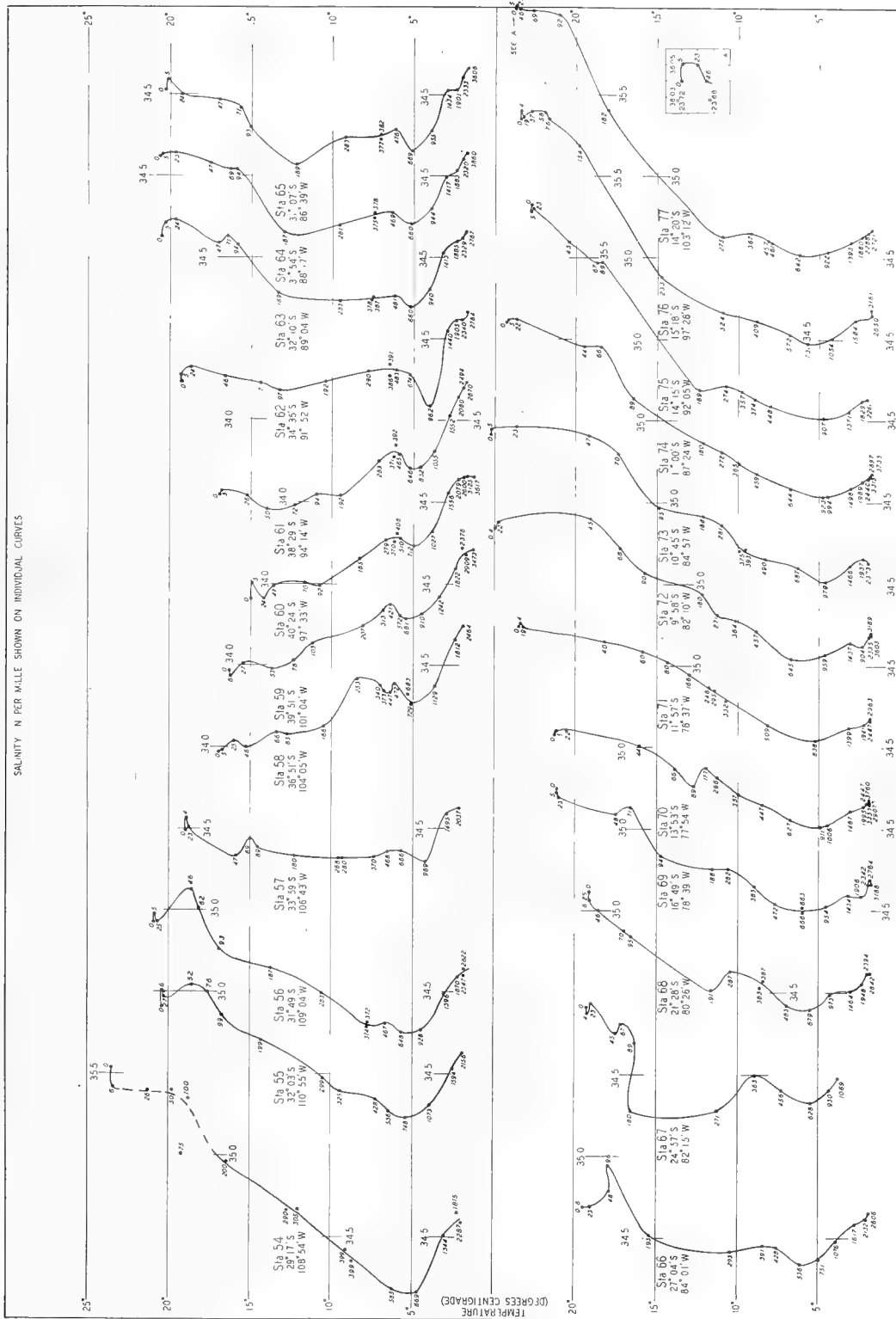


FIG. 204—TEMPERATURE-SALINITY RELATION, STATIONS 54-77, PACIFIC OCEAN, FROM CARNegie RESULTS, 1928-1929

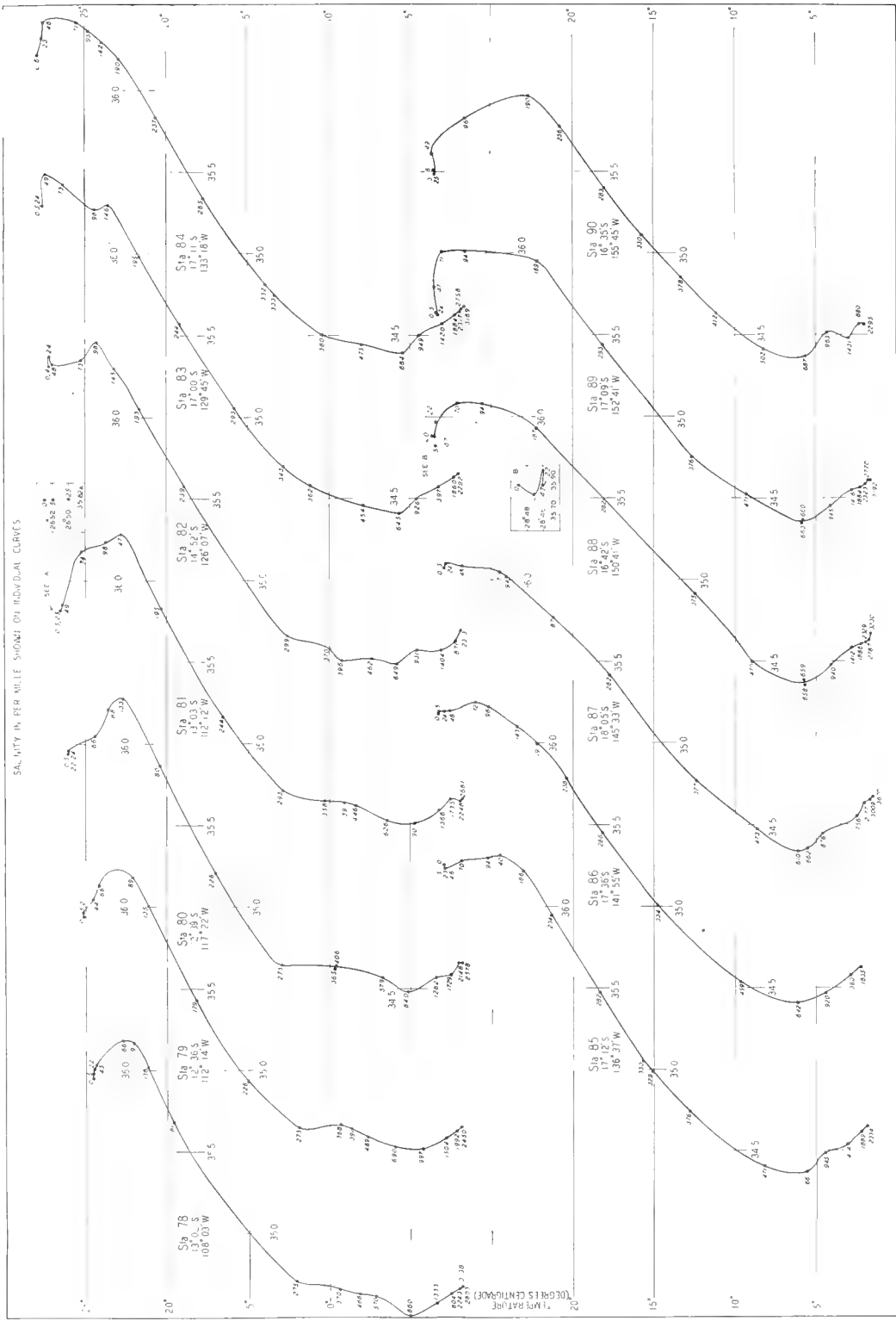


FIG. 205.—TEMPERATURE-SALINITY RELATION, STATIONS 78-90, PACIFIC OCEAN, FROM CARNEGIE RESULTS, 1929

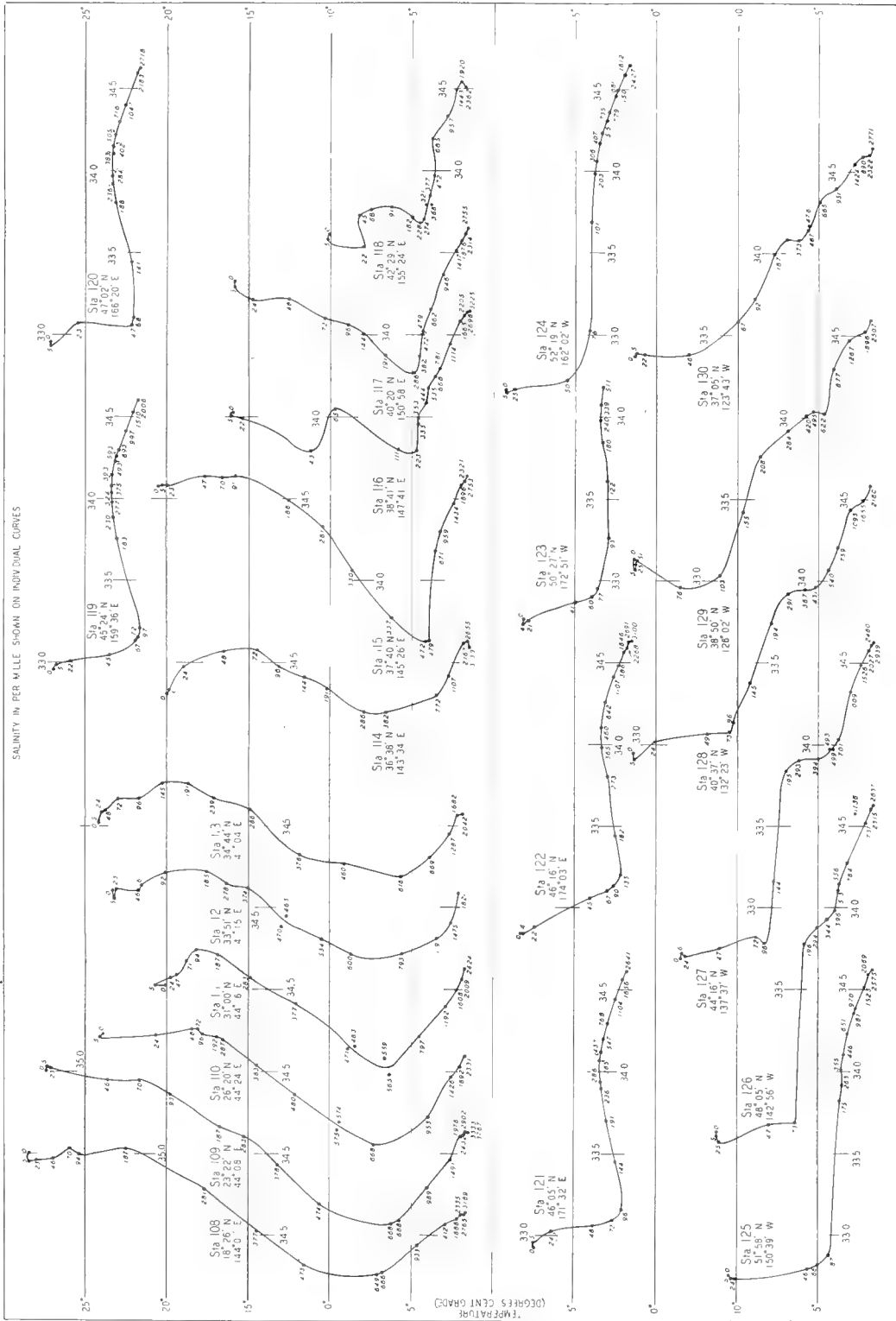


FIG 207.—TEMPERATURE-SALINITY RELATION, STATIONS 108-130, PACIFIC OCEAN, FROM CARNEGIE RESULTS, 1929

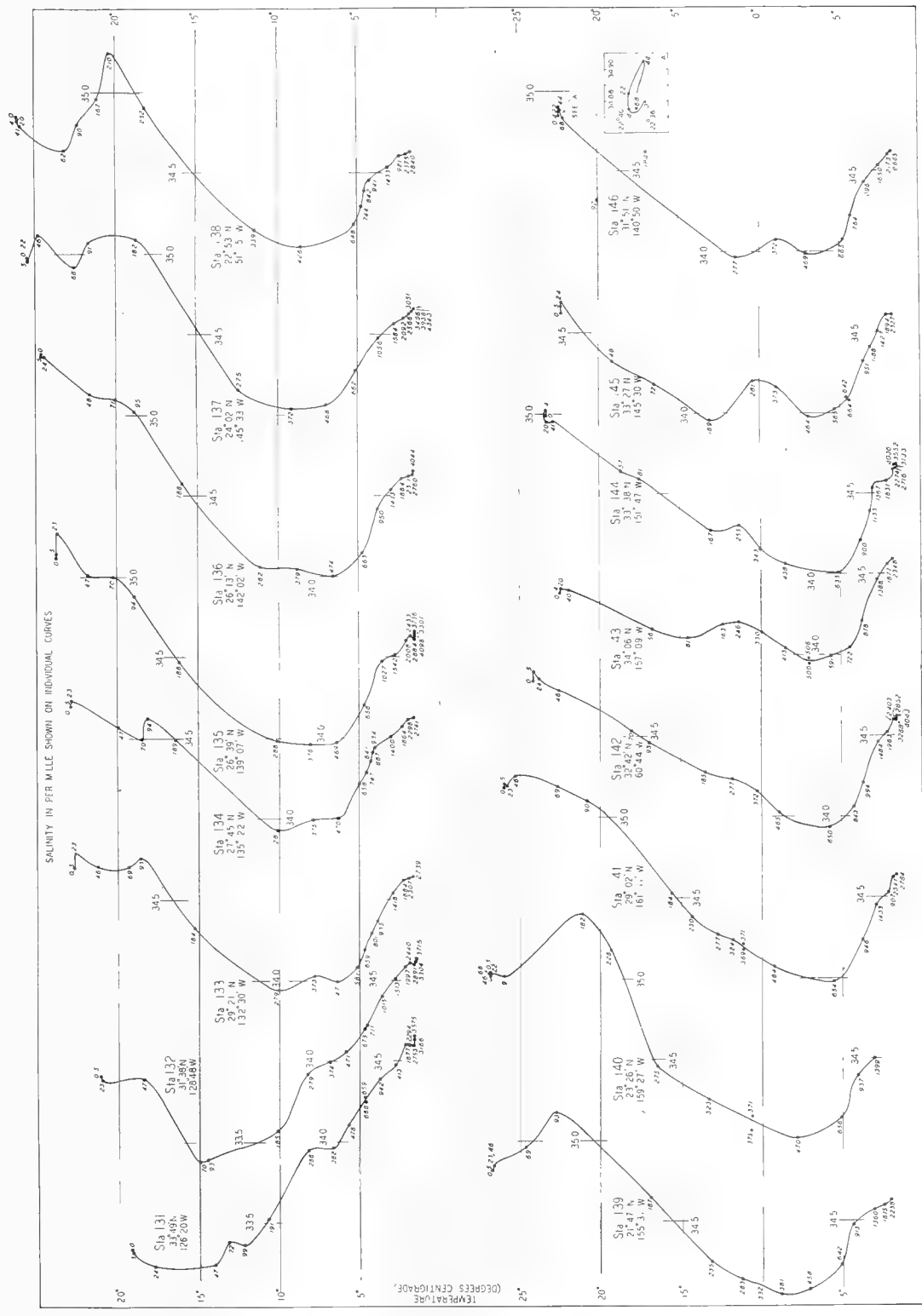


FIG. 208 — TEMPERATURE-SALINITY RELATION, STATIONS 131-146, PACIFIC OCEAN, FROM CARNEGIE RESULTS, 1929

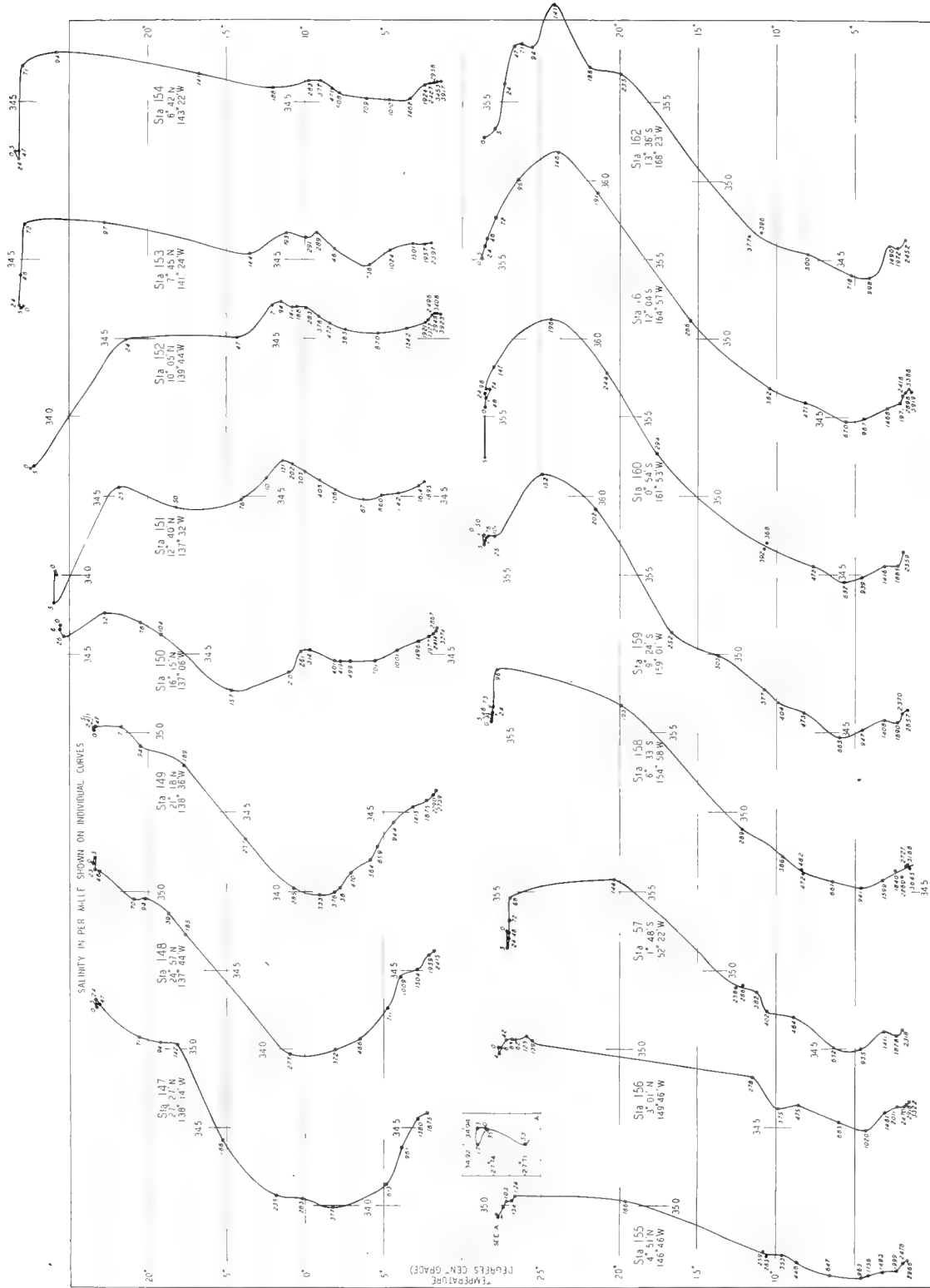


FIG. 209.—TEMPERATURE-SALINITY RELATION, STATIONS 147-162, PACIFIC OCEAN, FROM CARNEGIE RESULTS, 1929

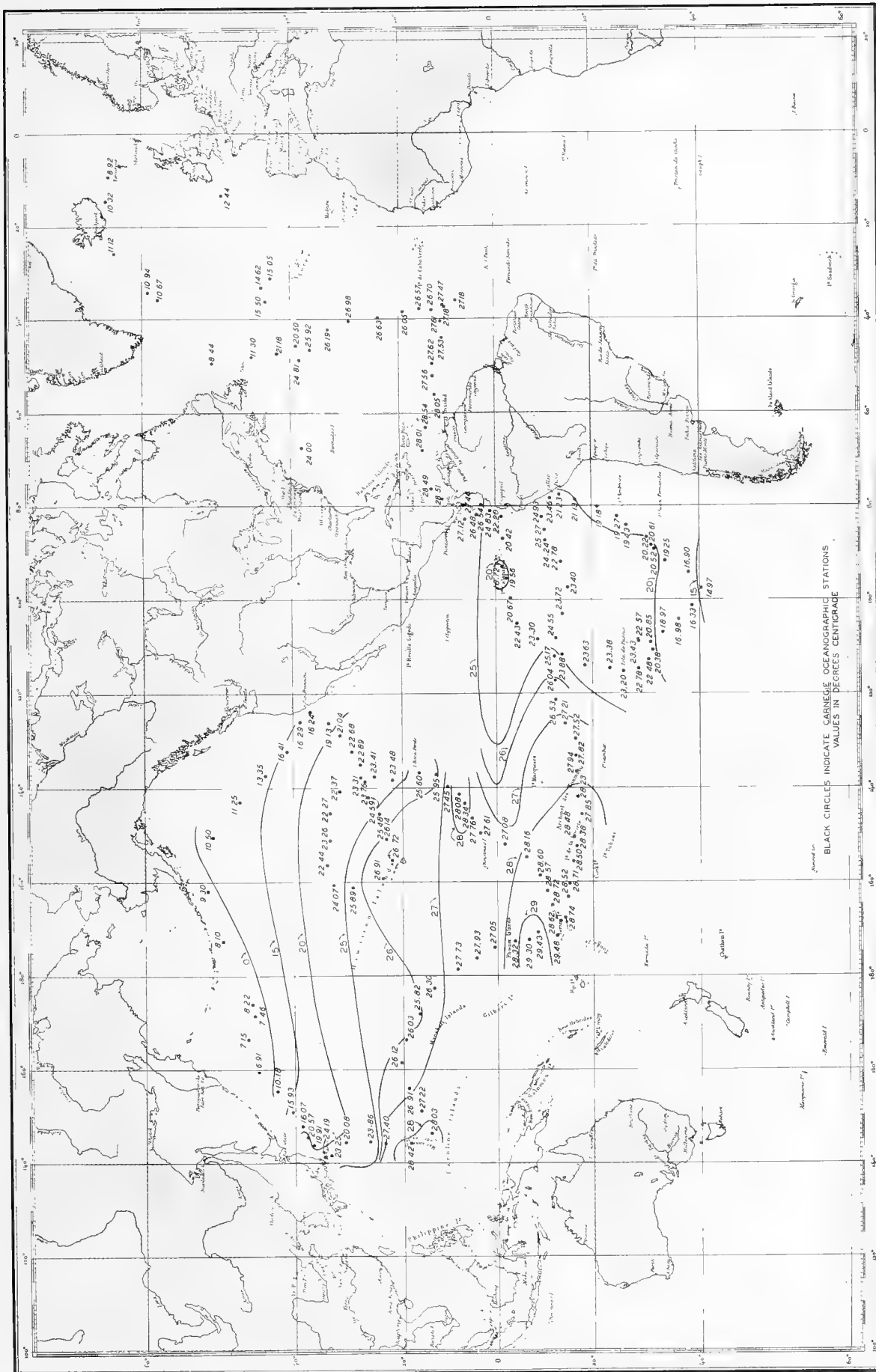


FIG. 210—HORIZONTAL DISTRIBUTION TEMPERATURE AT SURFACE, FROM CARNEGIE RESULTS, 1928-1929

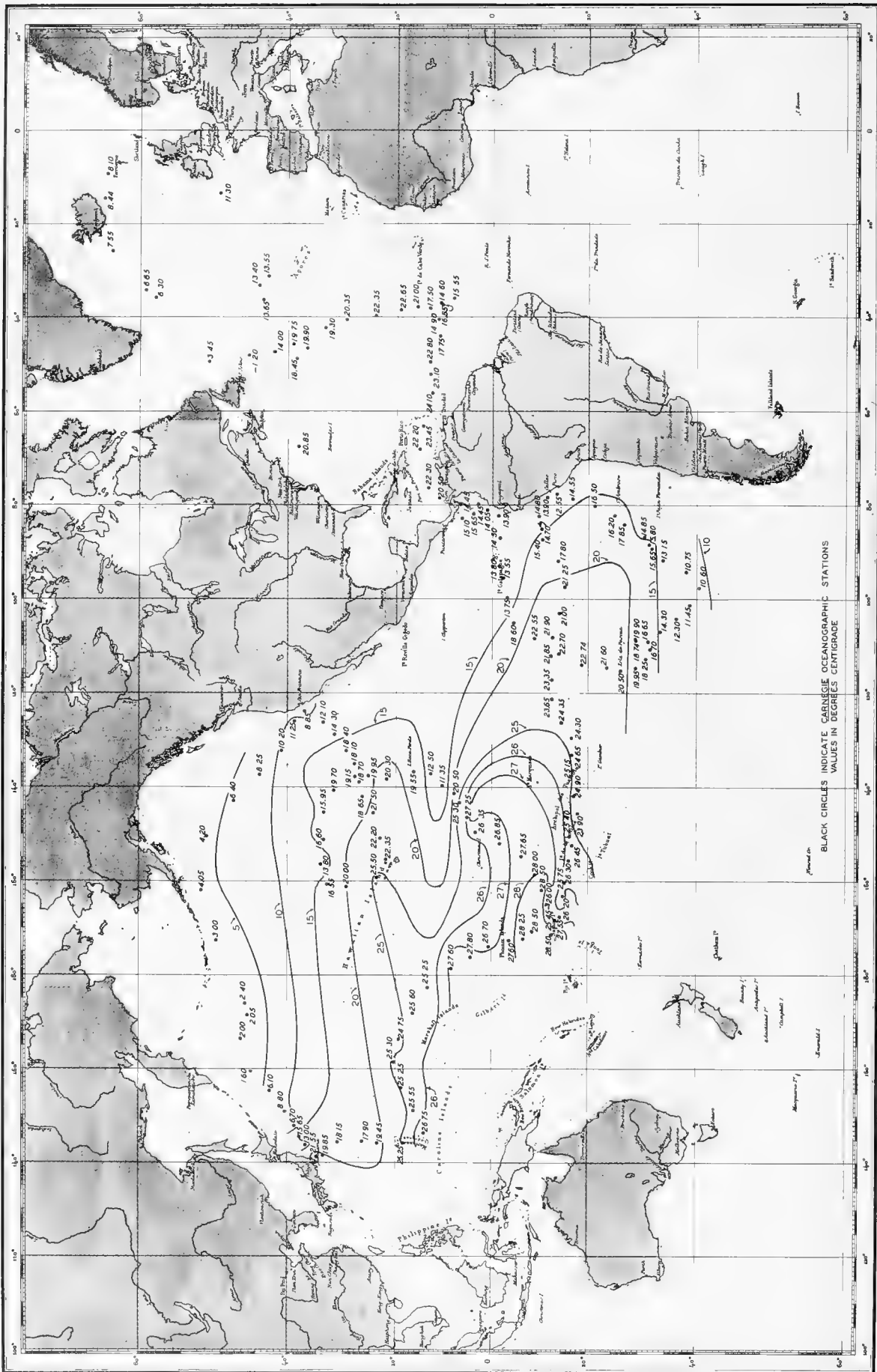


FIG. 211—HORIZONTAL DISTRIBUTION TEMPERATURE AT 100 METERS, FROM CARNEGIE RESULTS, 1928-1929

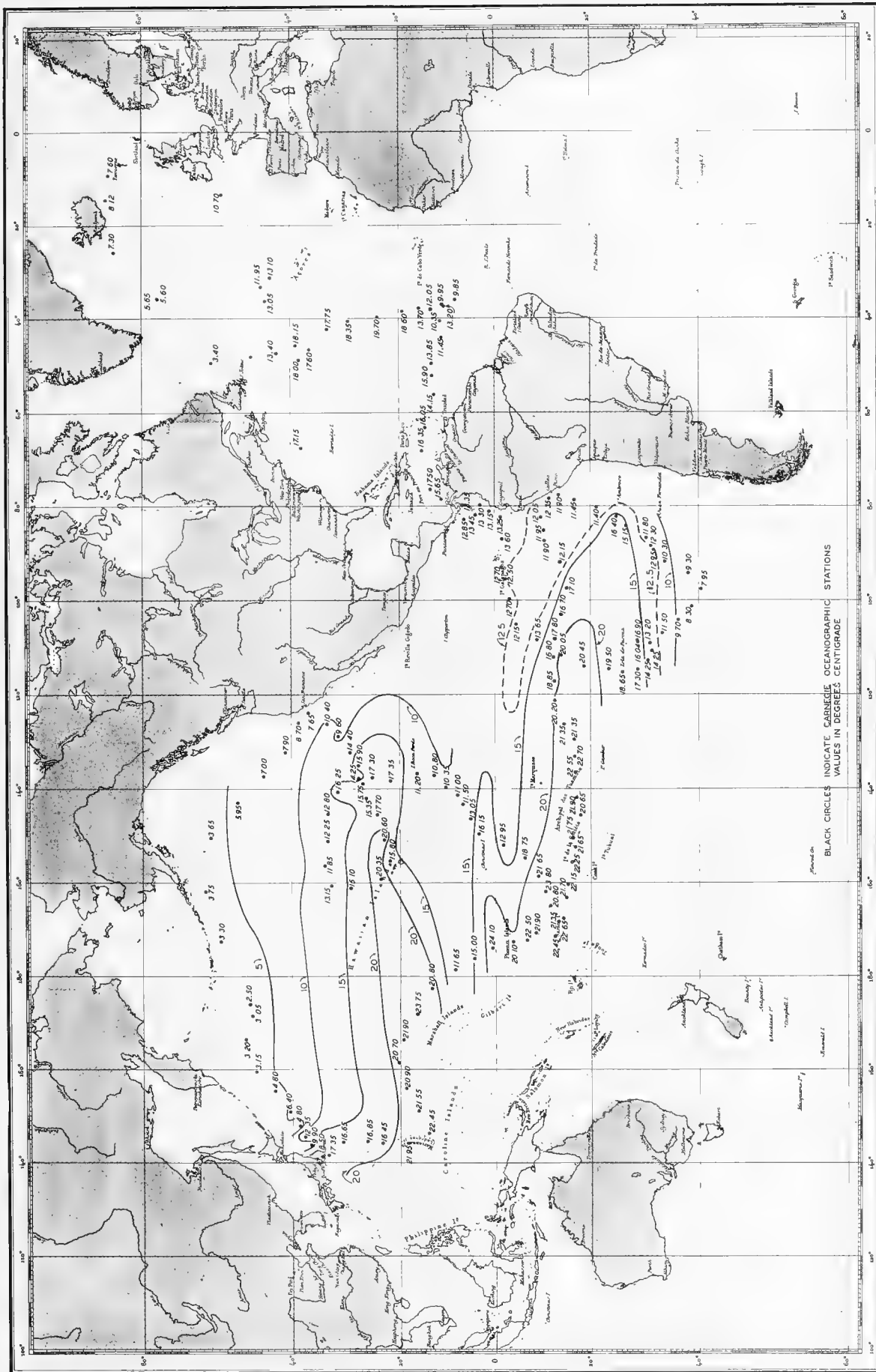


FIG. 212—HORIZONTAL DISTRIBUTION TEMPERATURE AT 200 METERS, FROM CARNEGIE RESULTS, 1928-1929

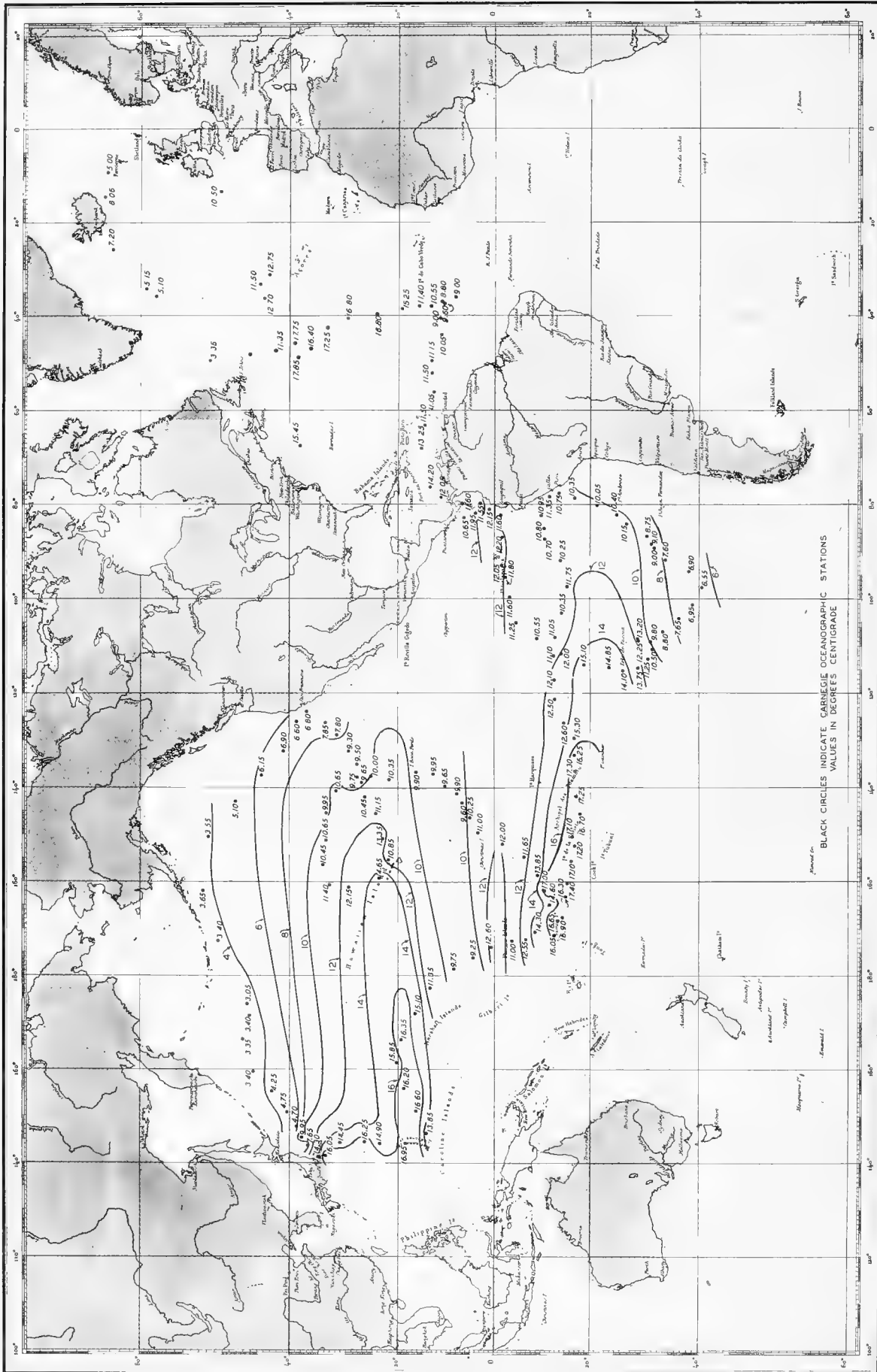
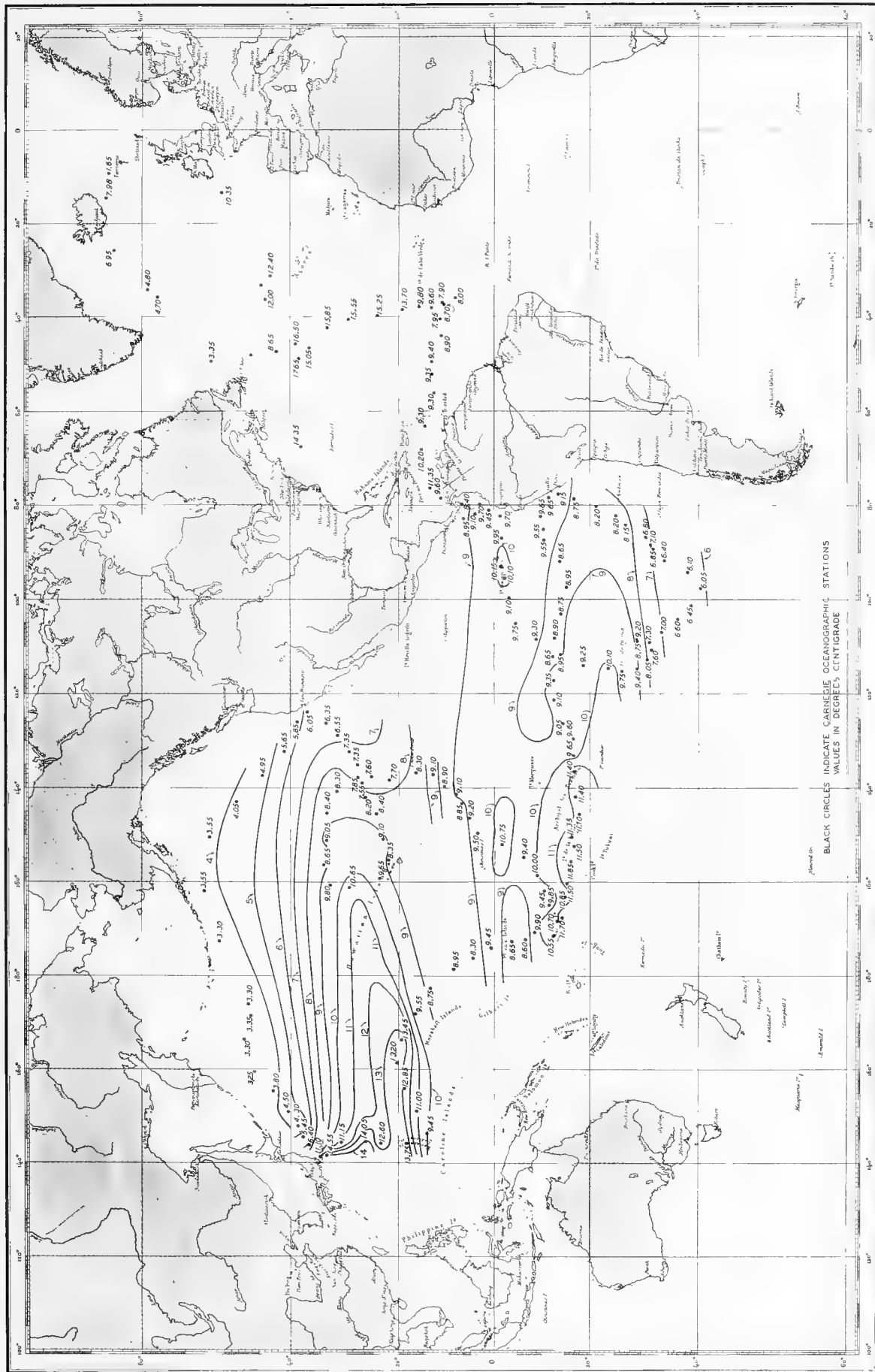


FIG. 213—HORIZONTAL DISTRIBUTION TEMPERATURE AT 300 METERS, FROM CARNEGIE RESULTS, 1928-1929



BLACK CIRCLES INDICATE CARNEGIE OCEANOGRAPHIC STATIONS
VALUES IN DEGREES CENTIGRADE

FIG. 214—HORIZONTAL DISTRIBUTION TEMPERATURE AT 400 METERS, FROM CARNEGIE RESULTS, 1928-1929

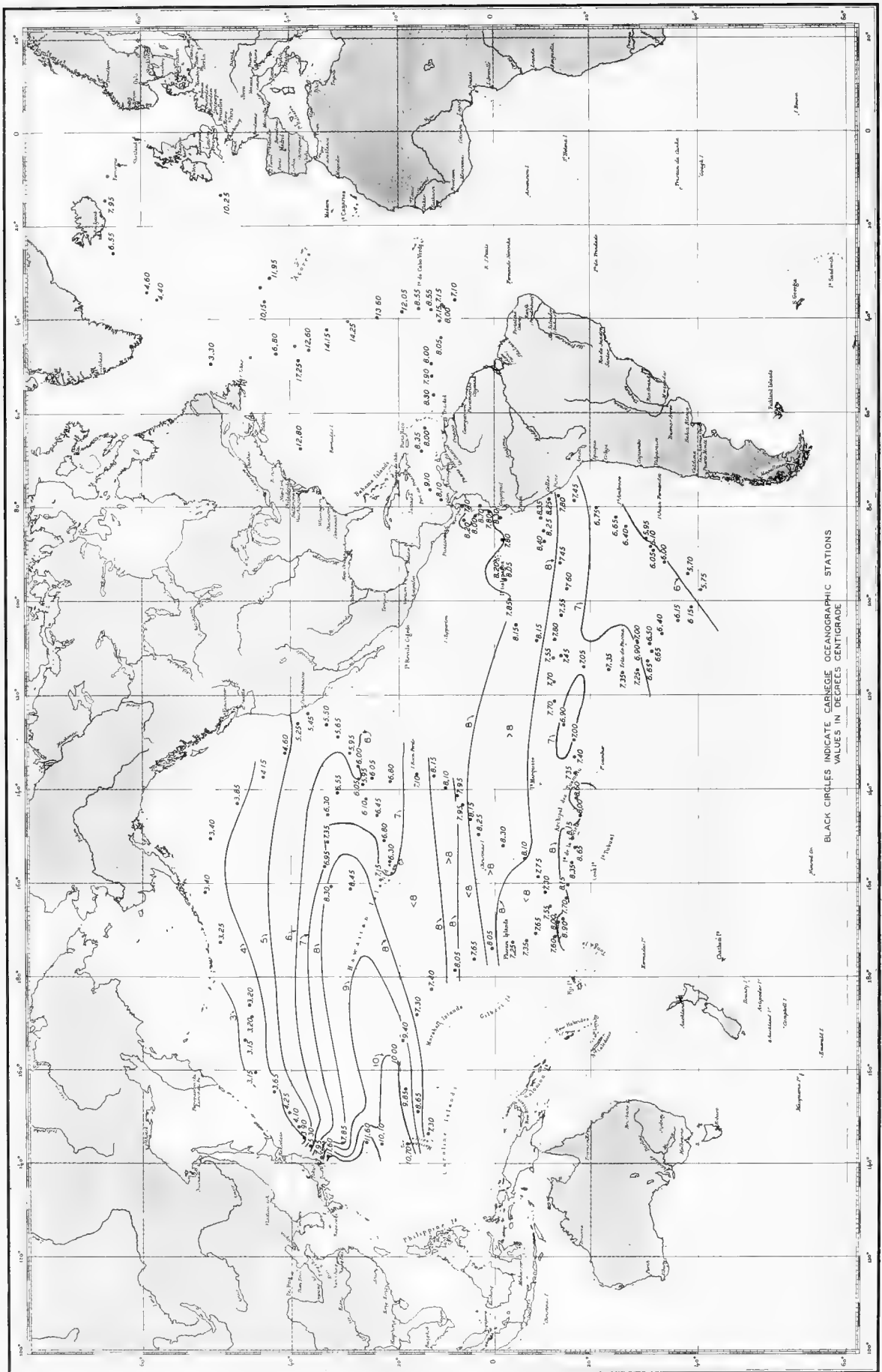


FIG.215—HORIZONTAL DISTRIBUTION TEMPERATURE AT 500 METERS, FROM CARNEGIE RESULTS, 1928-1929

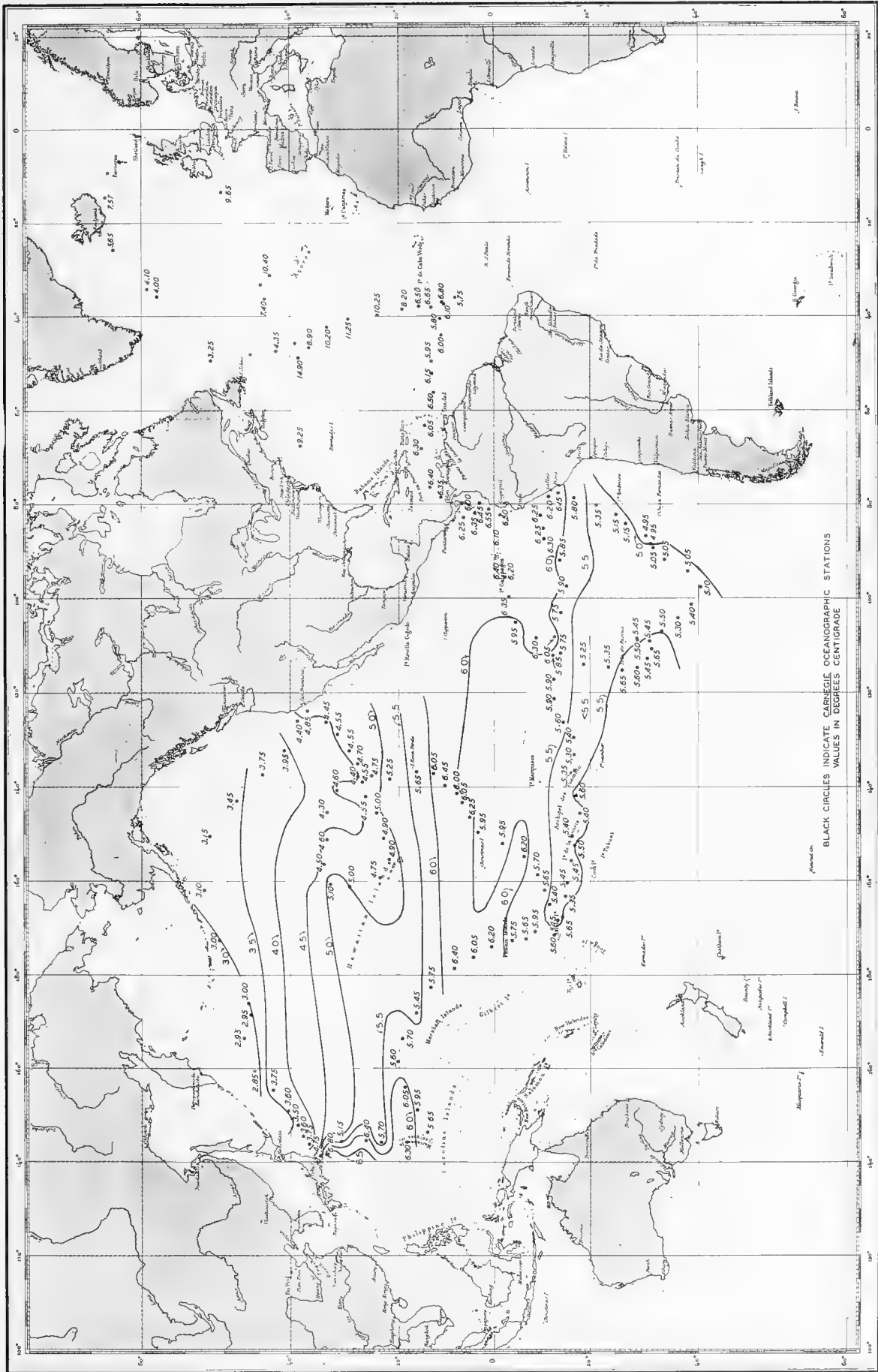


FIG. 2/6-HORIZONTAL DISTRIBUTION TEMPERATURE AT 700 METERS, FROM CARNEGIE RESULTS, 1928-1929

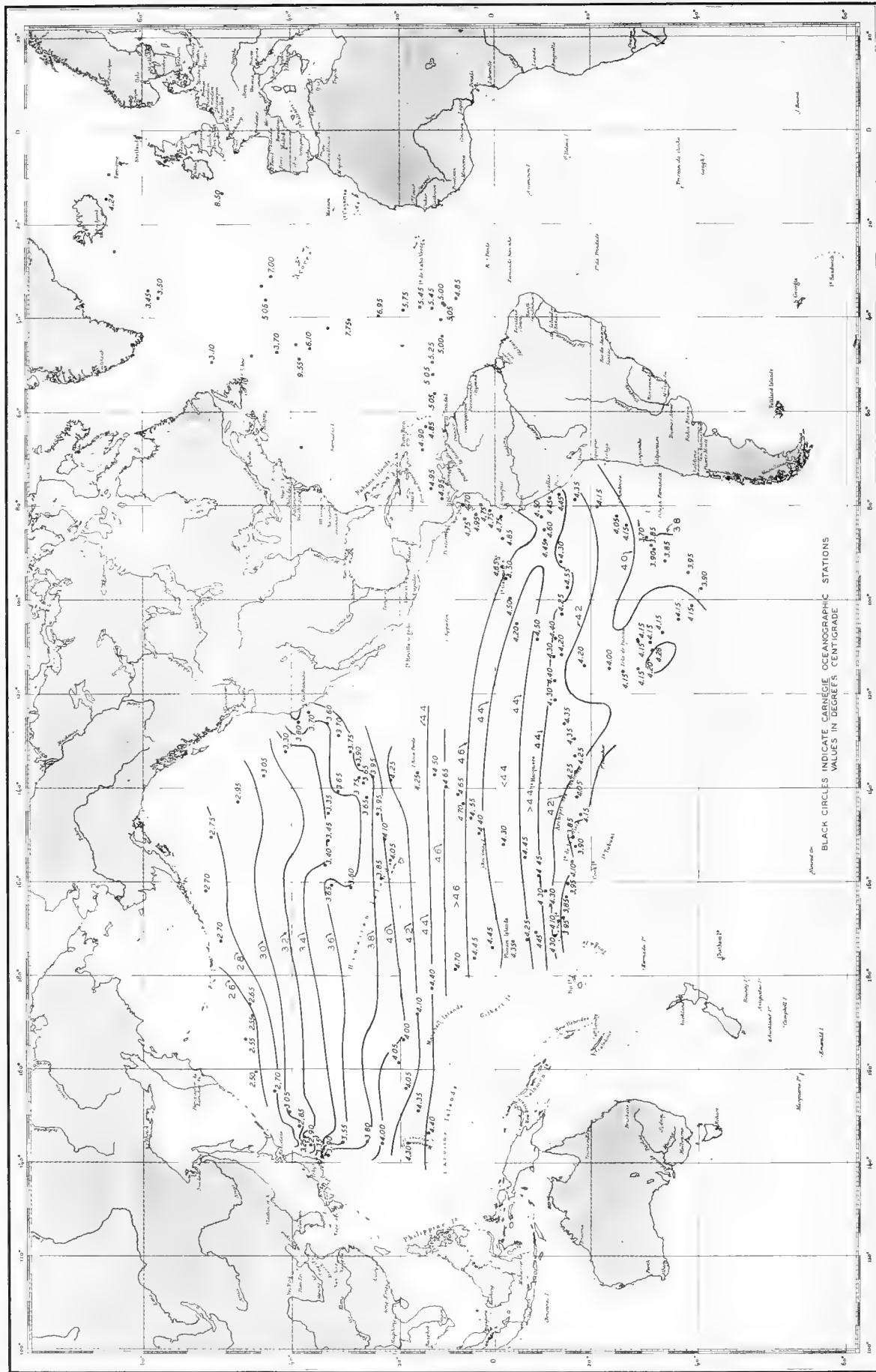
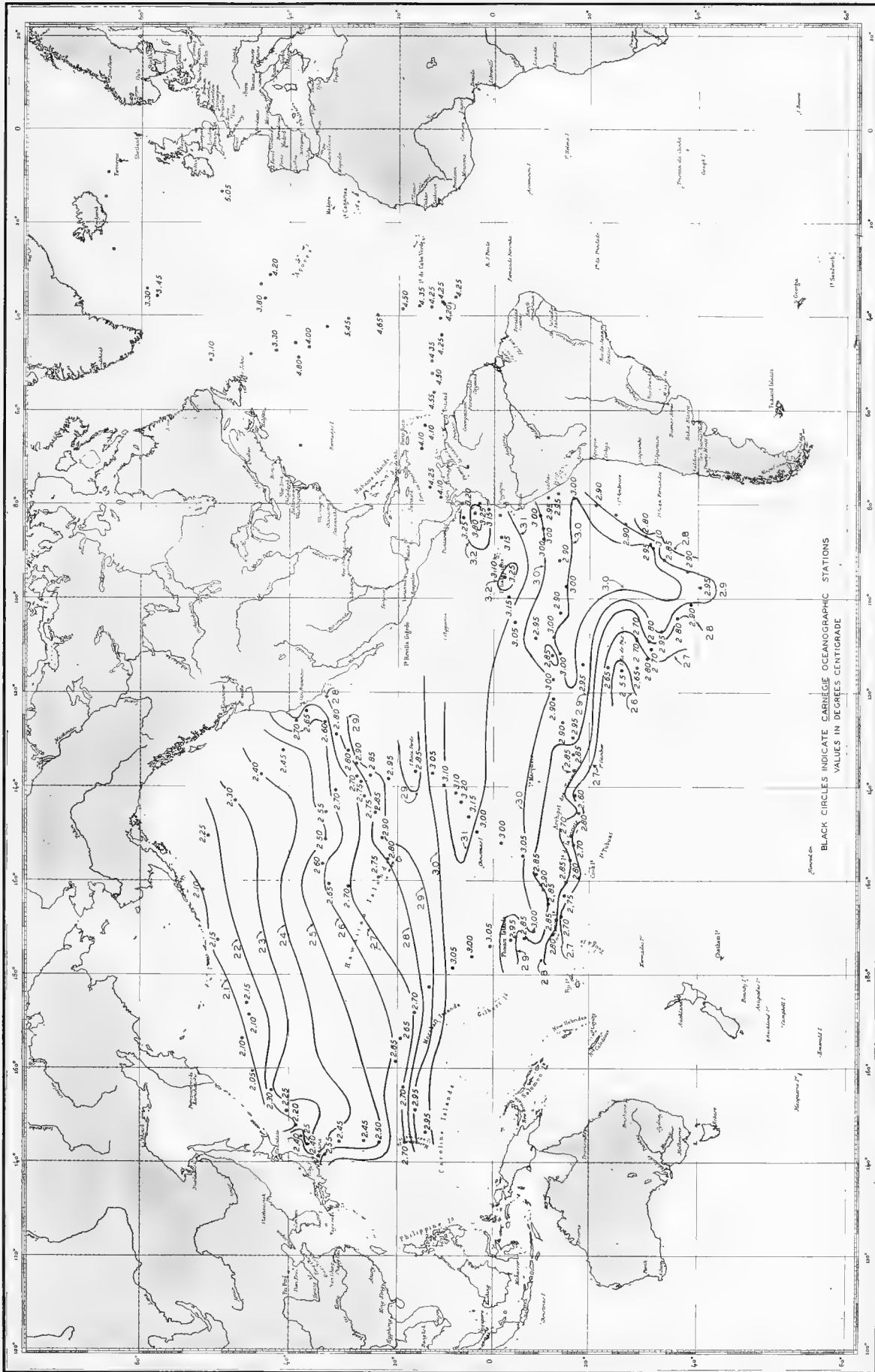
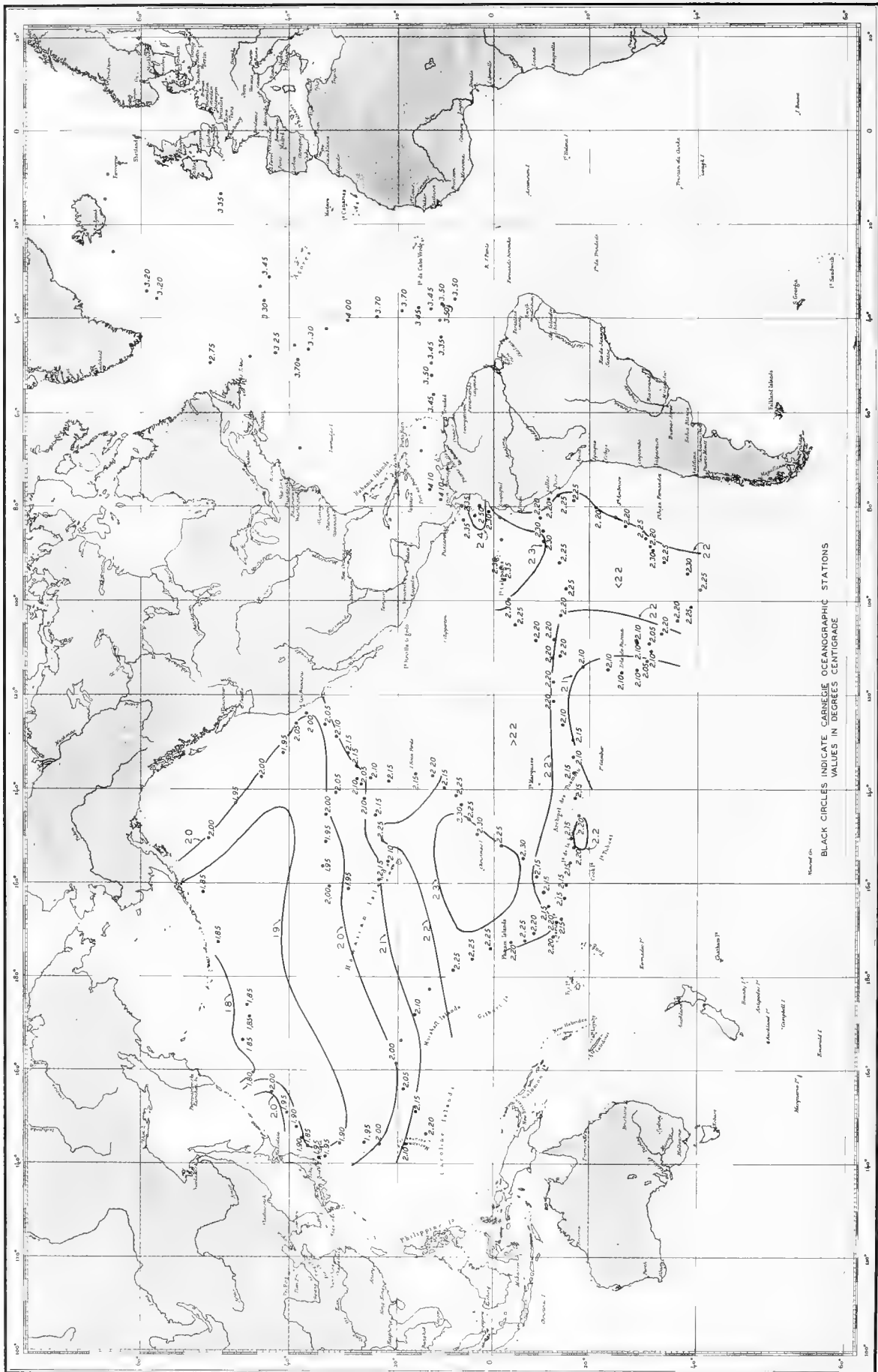


FIG. 217—HORIZONTAL DISTRIBUTION TEMPERATURE AT 1000 METERS, FROM CARNEGIE RESULTS, 1928-1929



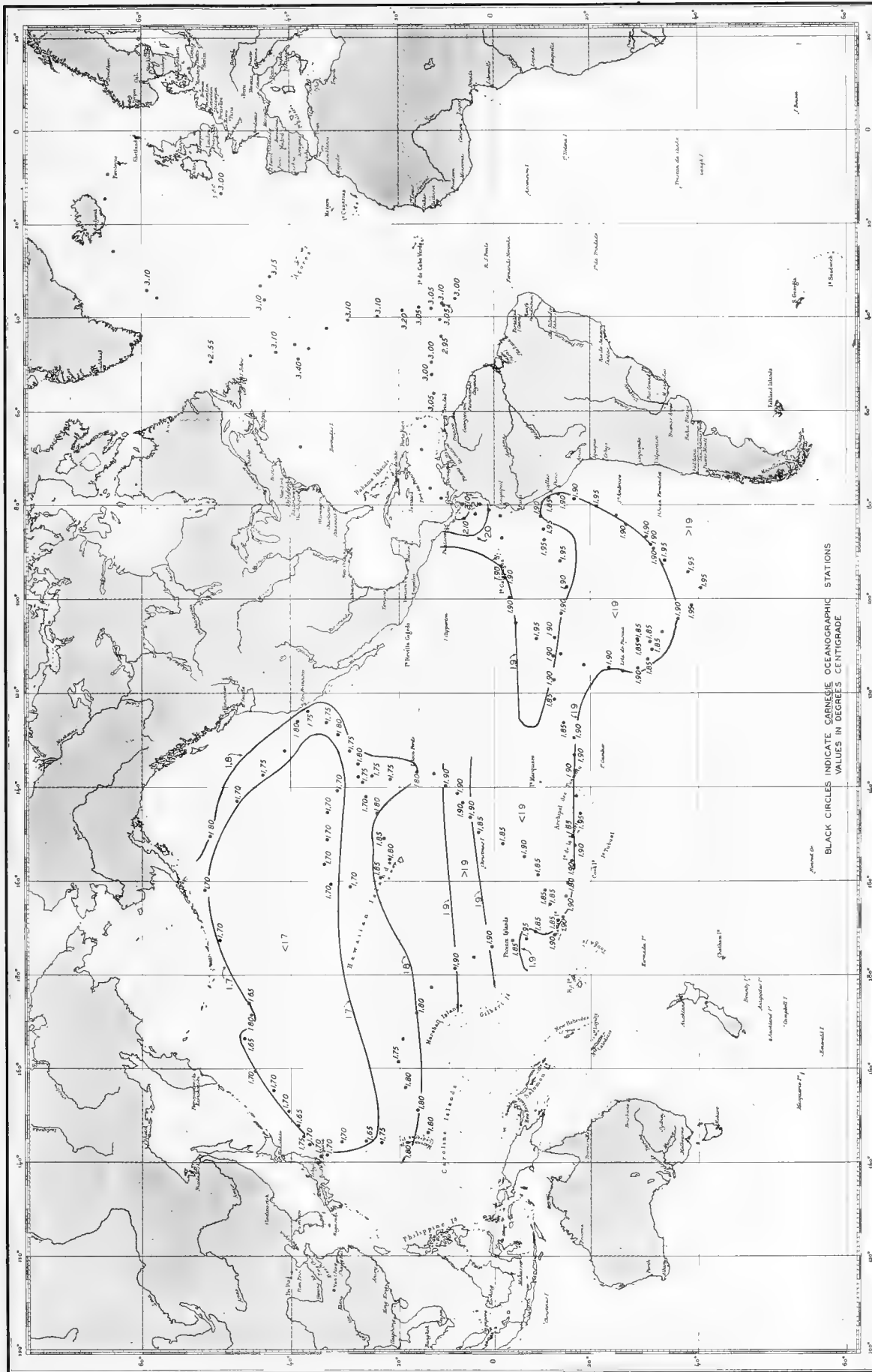
BLACK CIRCLES INDICATE CARNEGIE OCEANOGRAPHIC STATIONS
VALUES IN DEGREES CENTIGRADE

FIG. 218—HORIZONTAL DISTRIBUTION. TEMPERATURE AT 1500 METERS, FROM CARNEGIE RESULTS, 1928-1929



BLACK CIRCLES INDICATE CARNEGIE OCEANOGRAPHIC STATIONS
 VALUES IN DEGREES CENTIGRADE

FIG. 219—HORIZONTAL DISTRIBUTION TEMPERATURE AT 2000 METERS, FROM CARNEGIE RESULTS, 1928-1929



BLACK CIRCLES INDICATE CARNEGIE OCEANOGRAPHIC STATIONS
VALUES IN DEGREES CENTIGRADE

FIG. 220—HORIZONTAL DISTRIBUTION TEMPERATURE AT 2500 METERS, FROM CARNEGIE RESULTS, 1928-1929

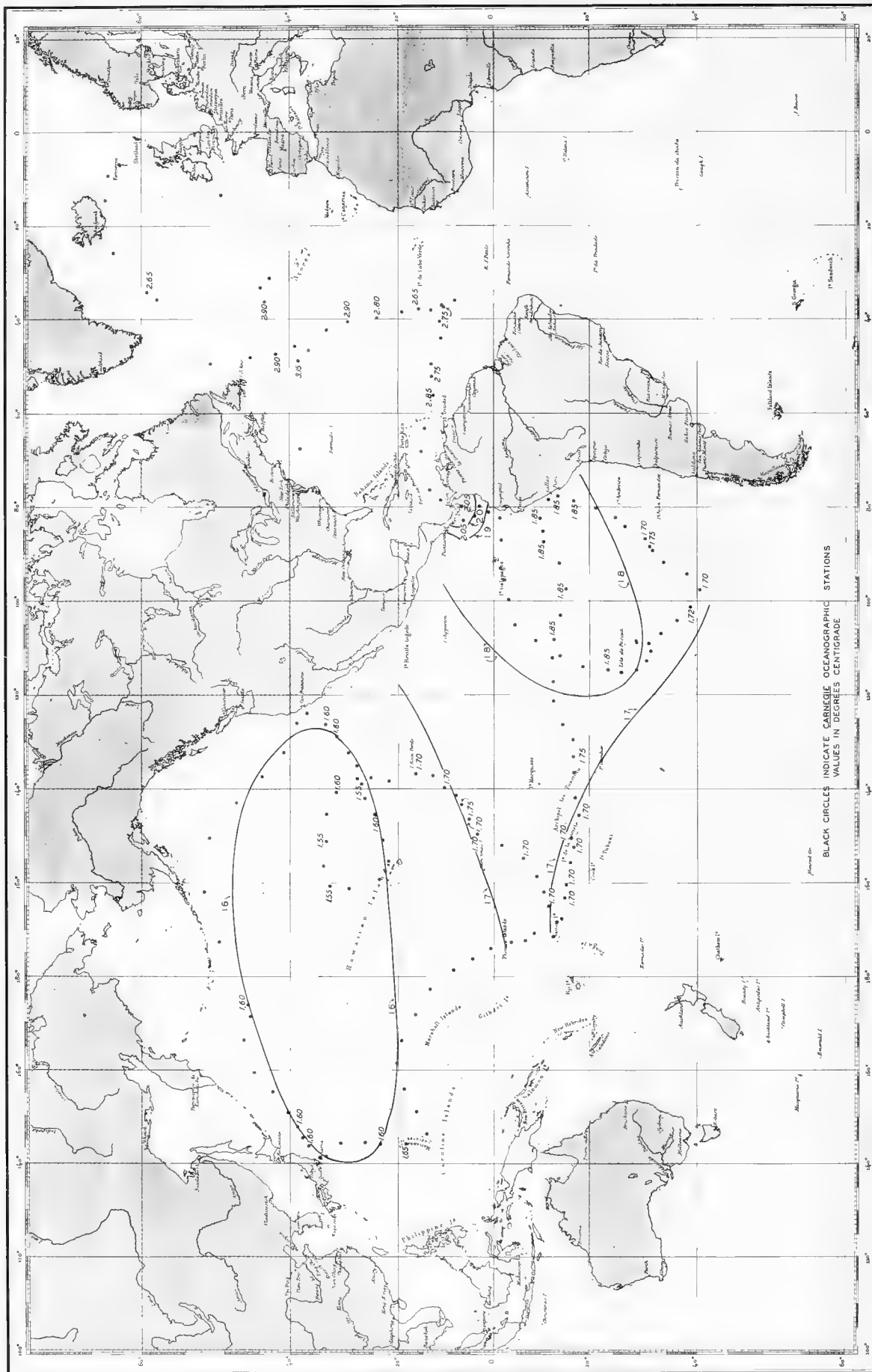


FIG. 22—HORIZONTAL DISTRIBUTION TEMPERATURE AT 3000 METERS, FROM CARNEGIE RESULTS, 1928-1929

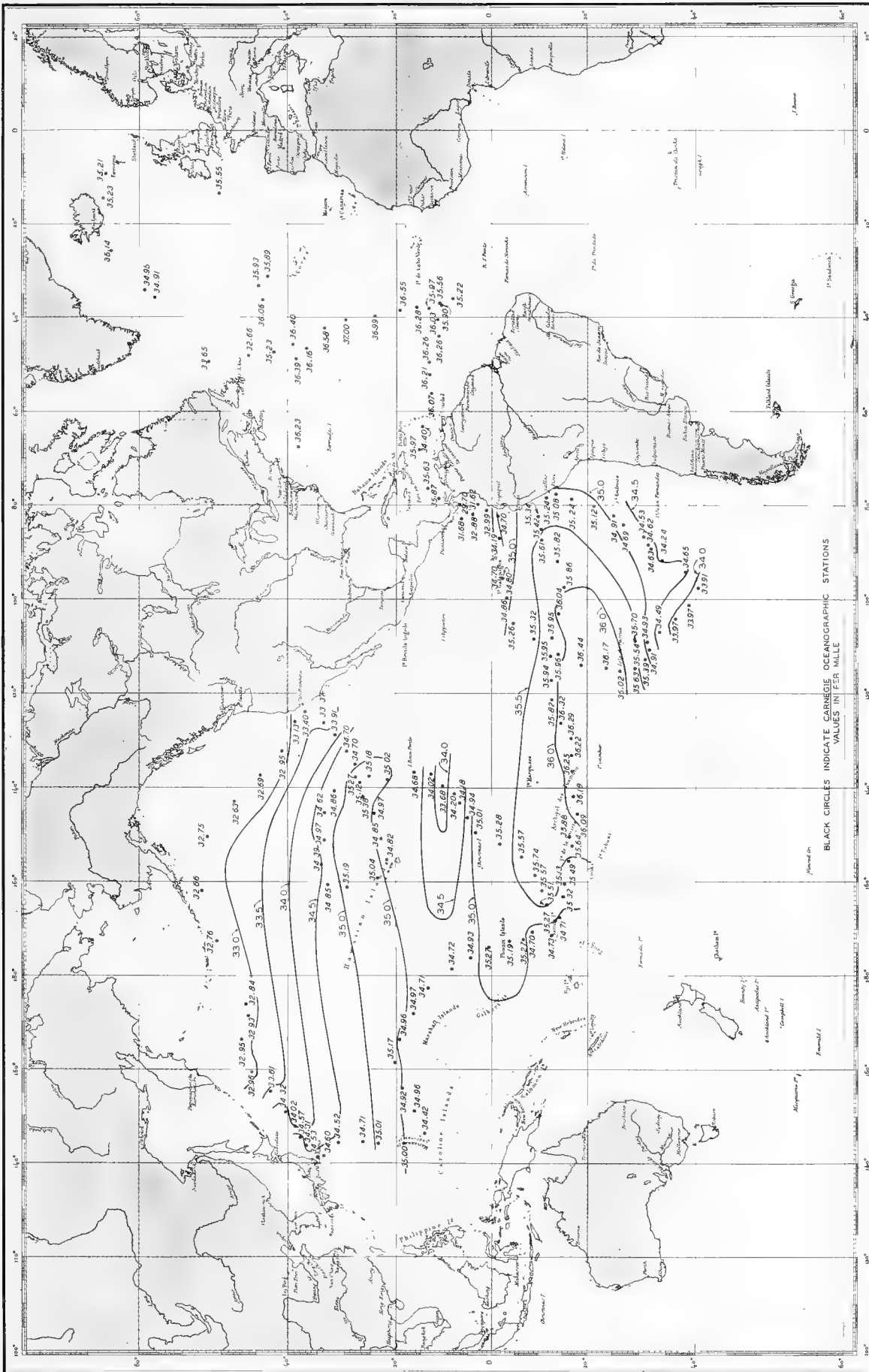


FIG. 222—HORIZONTAL DISTRIBUTION SALINITY AT SURFACE, FROM CARNEGIE RESULTS, 1928-1929

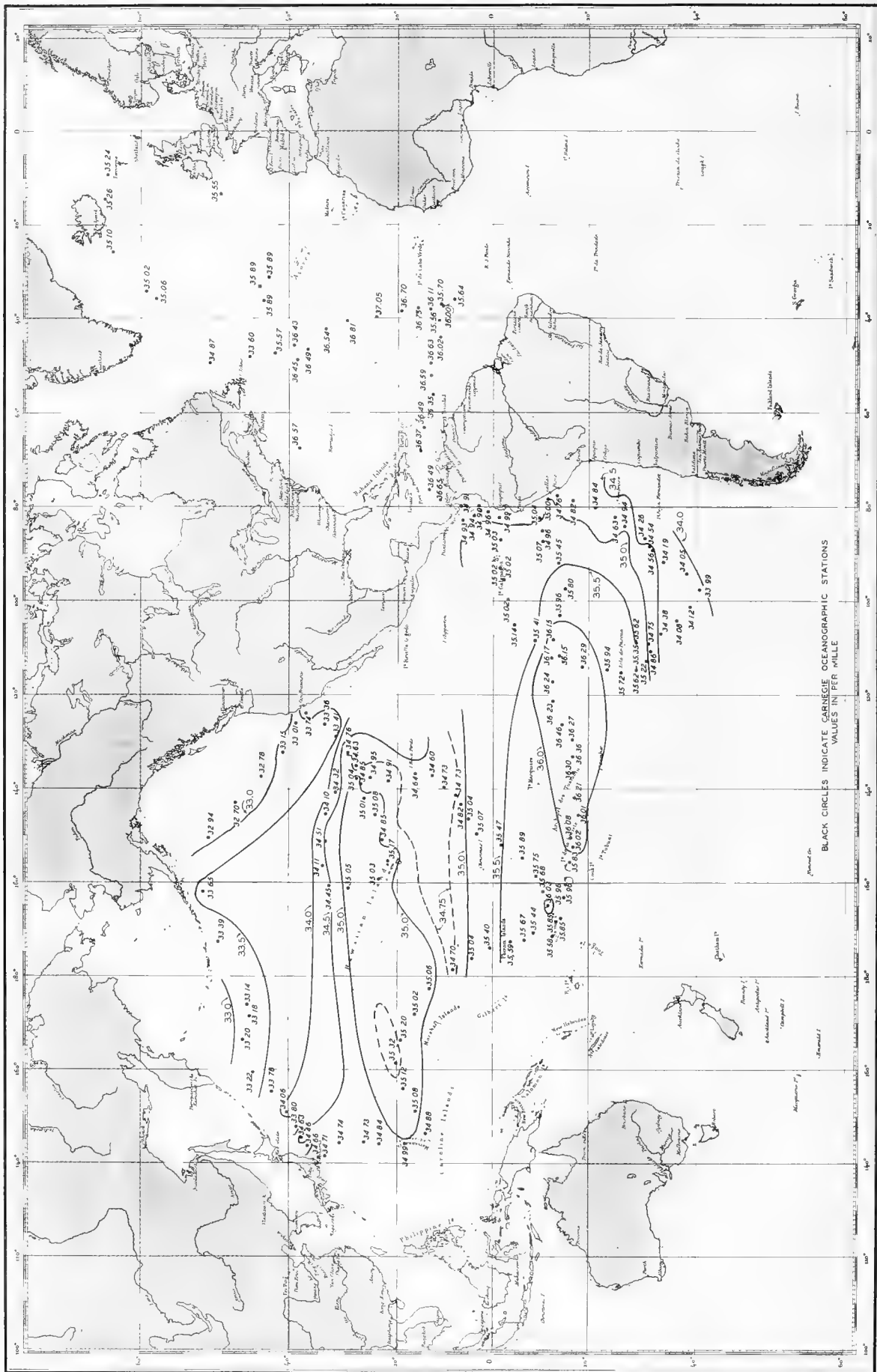


FIG. 223—HORIZONTAL DISTRIBUTION SALINITY AT 100 METERS, FROM CARNEGIE RESULTS, 1928-1929

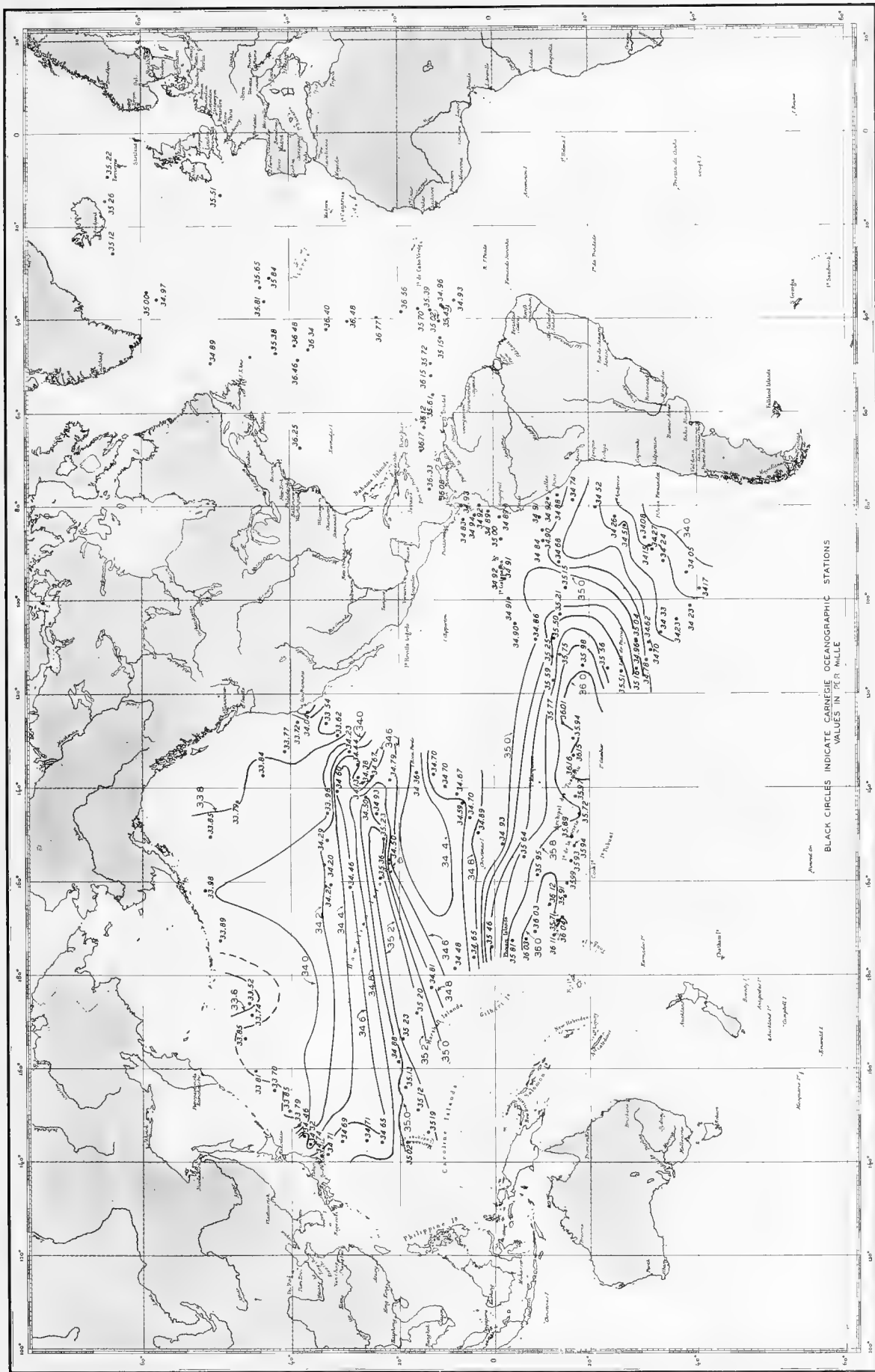


FIG. 224—HORIZONTAL DISTRIBUTION SALINITY AT 200 METERS, FROM CARNEGIE RESULTS, 1928-1929

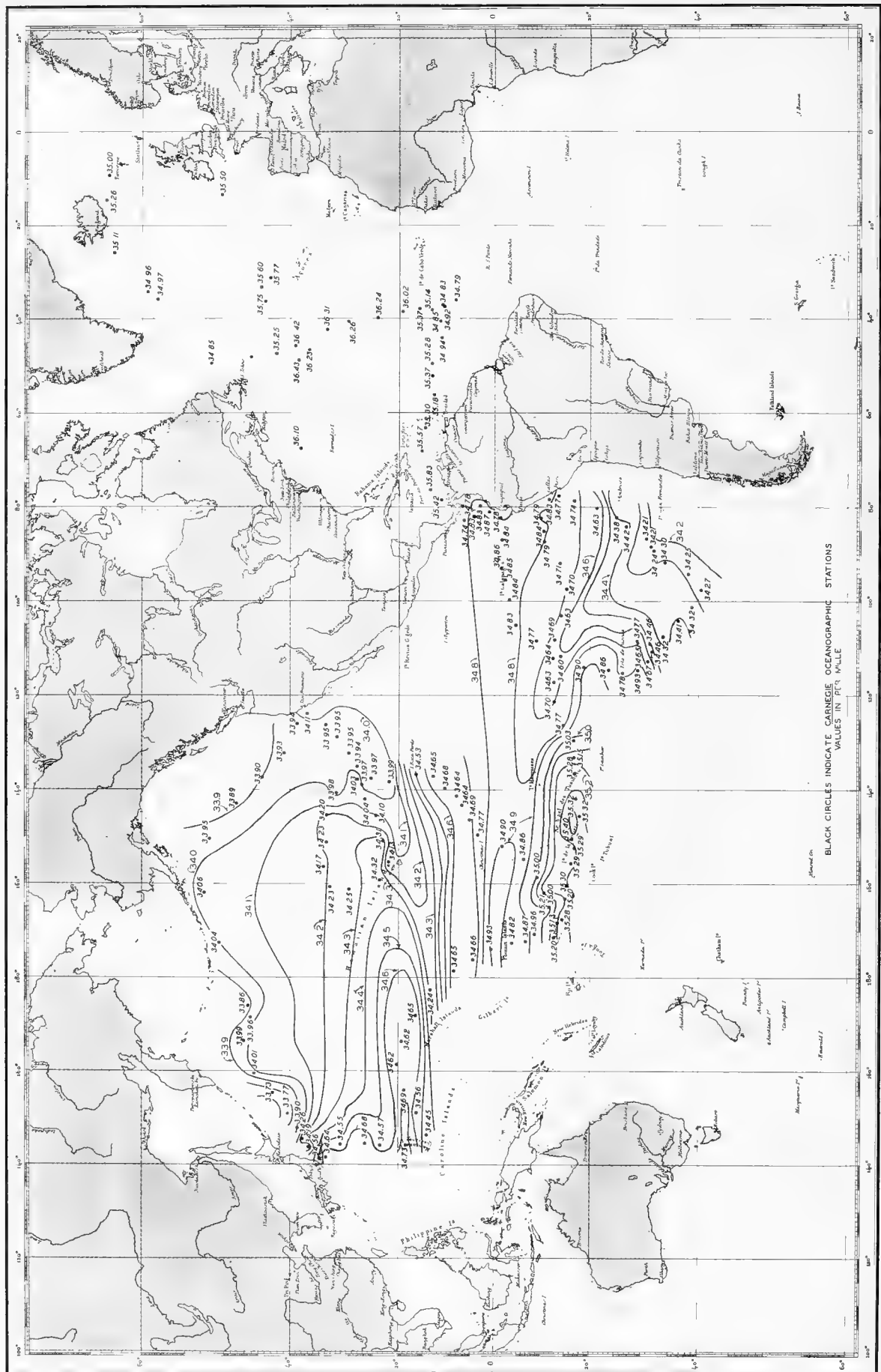


FIG. 225—HORIZONTAL DISTRIBUTION SALINITY AT 300 METERS, FROM CARNEGIE RESULTS, 1928—1929

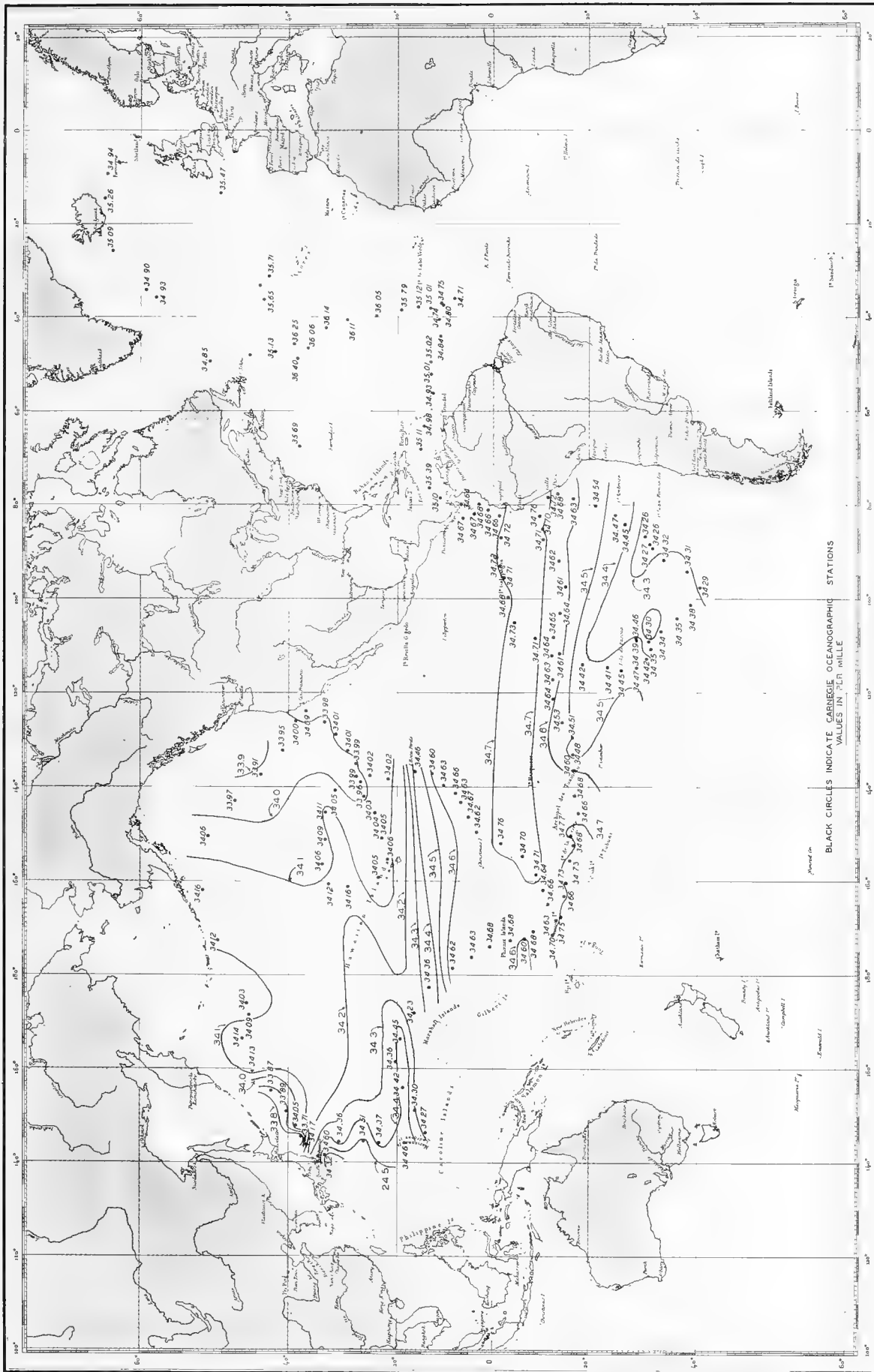


FIG. 226—HORIZONTAL DISTRIBUTION SALINITY AT 400 METERS, FROM CARNegie RESULTS, 1928-1929

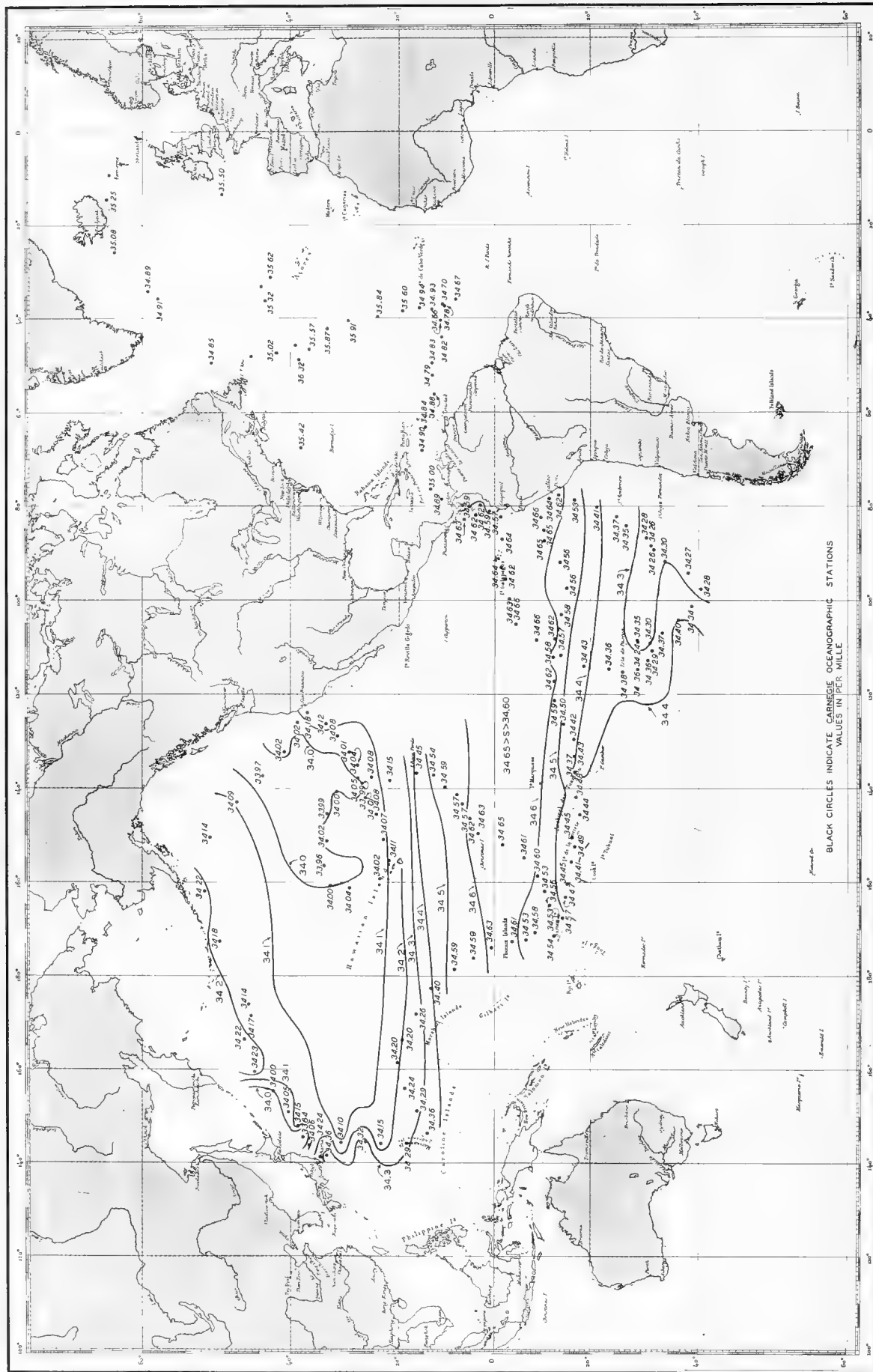


FIG. 227—HORIZONTAL DISTRIBUTION SALINITY AT 500 METERS, FROM CARNEGIE RESULTS, 1928-1929

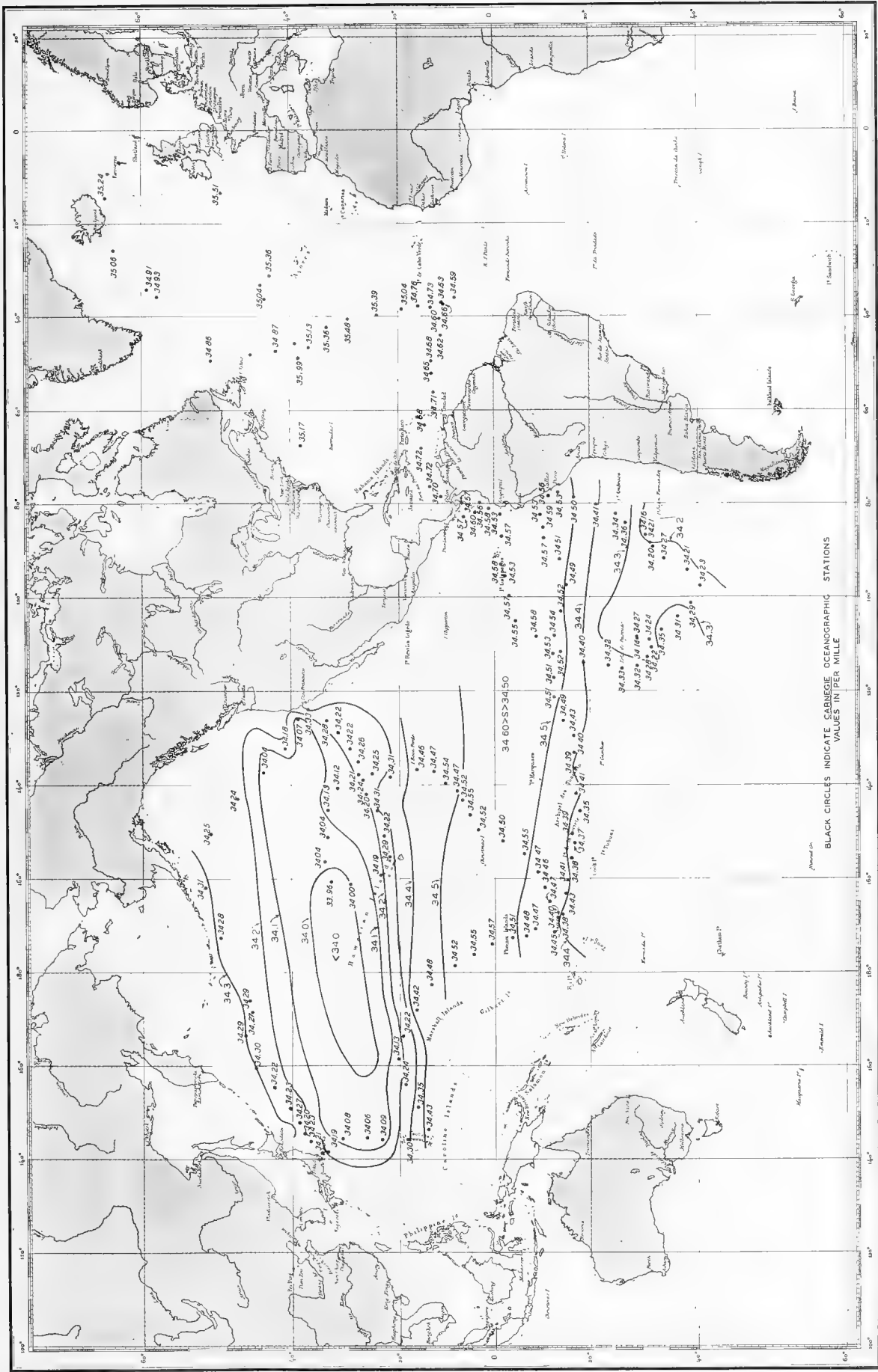


FIG. 228-HORIZONTAL DISTRIBUTION SALINITY AT 700 METERS, FROM CARNegie RESULTS, 1928-1929

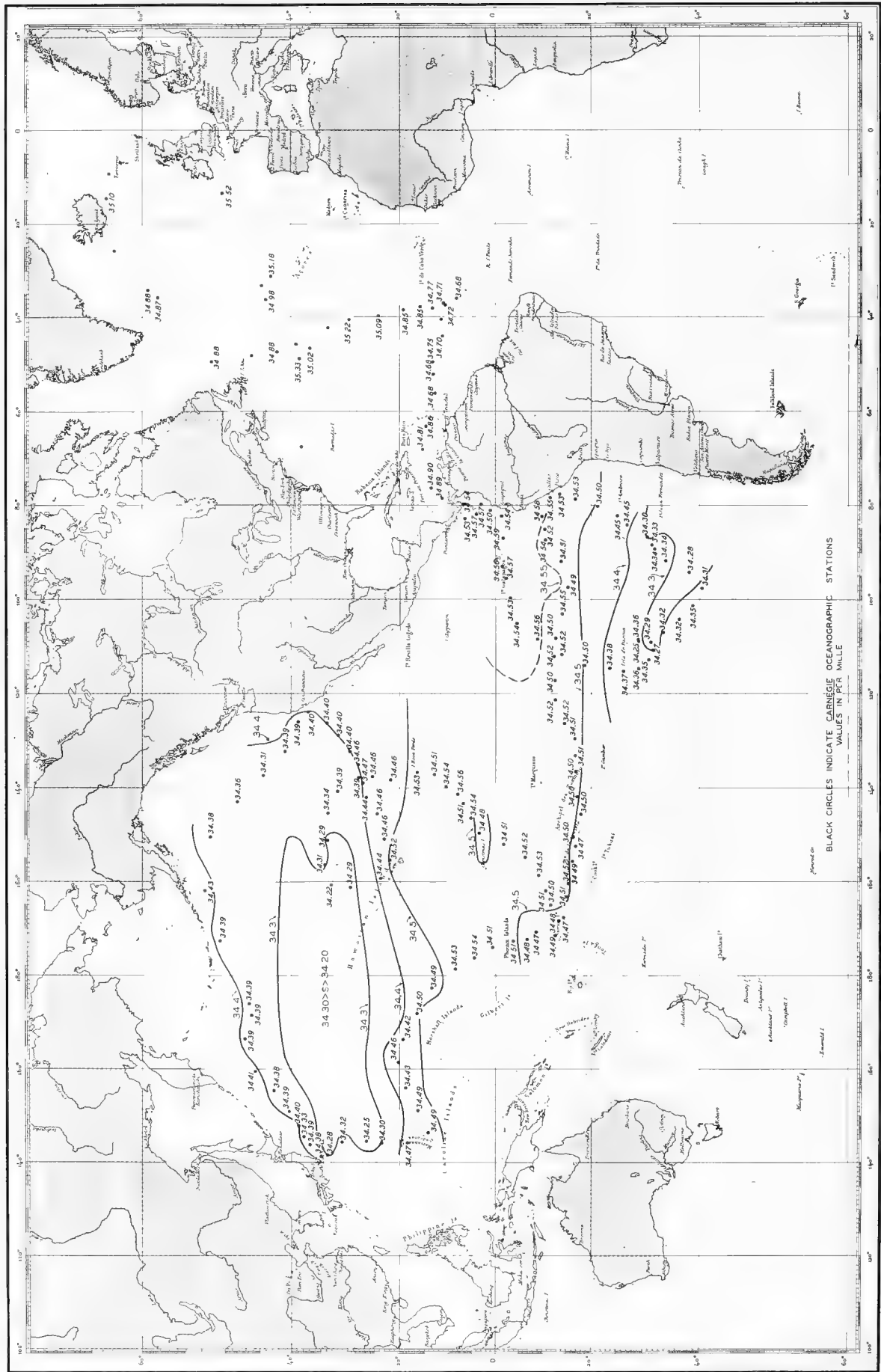


FIG. 229—HORIZONTAL DISTRIBUTION SALINITY AT 1000 METERS, FROM CARNEGIE RESULTS 1928-1929

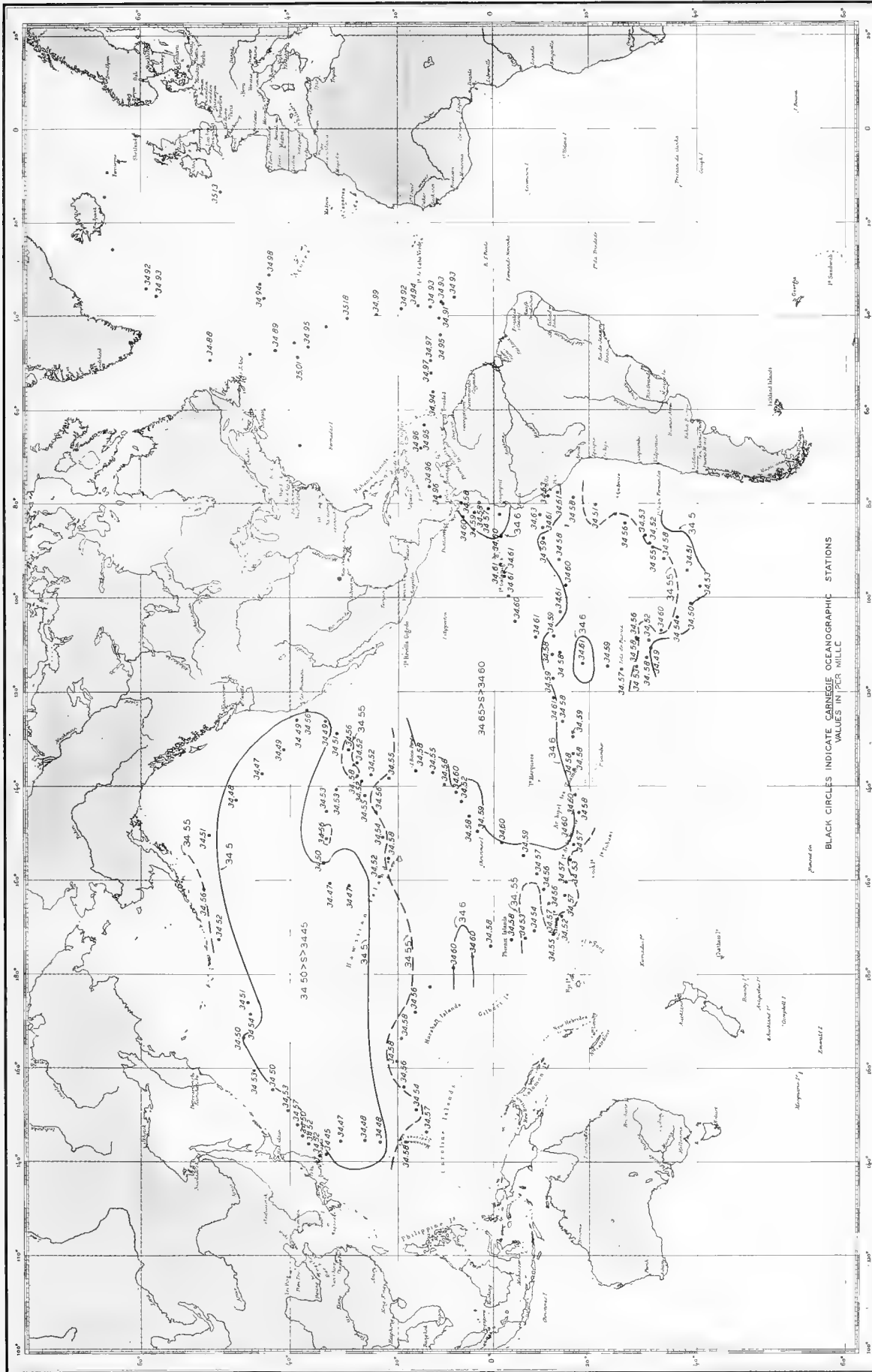


FIG.230—HORIZONTAL DISTRIBUTION SALINITY AT 1500 METERS, FROM CARNEGIE RESULTS, 1928-1929

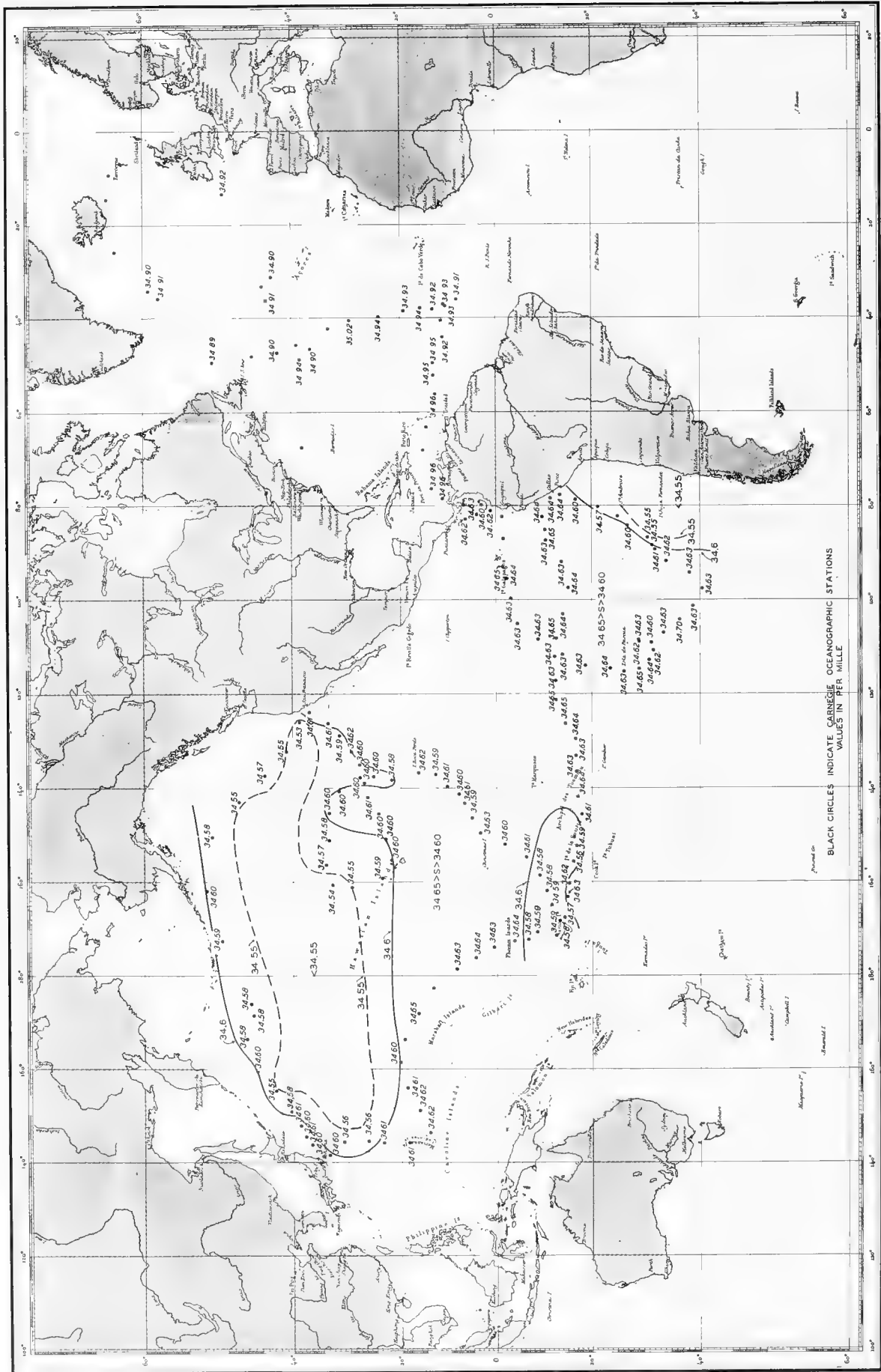


FIG. 23—HORIZONTAL DISTRIBUTION SALINITY AT 2000 METERS FROM CARNEGIE RESULTS, 1928-1929

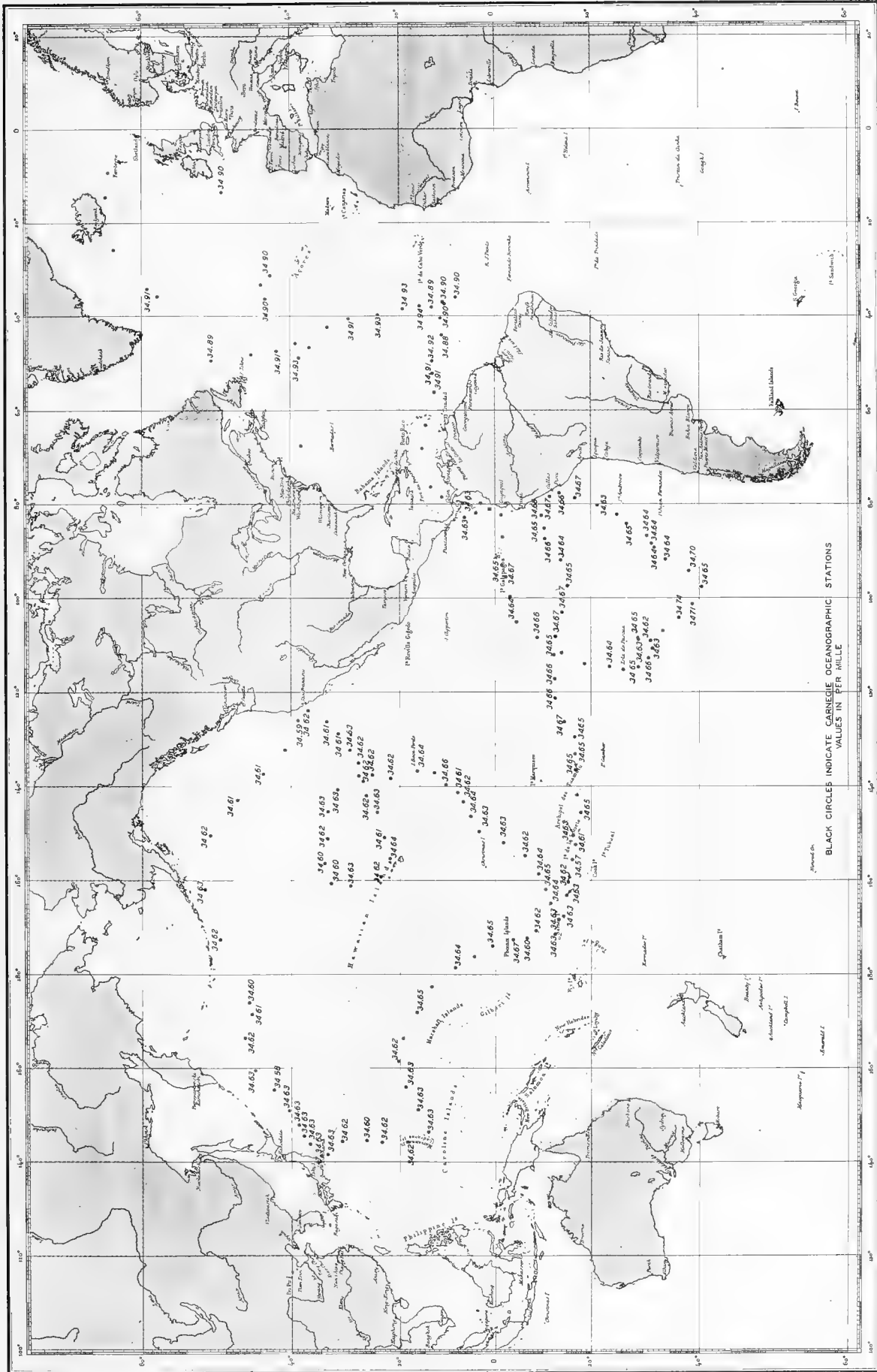


FIG. 232—HORIZONTAL DISTRIBUTION SALINITY AT 2500 METERS, FROM CARNEGIE RESULTS, 1928-1929

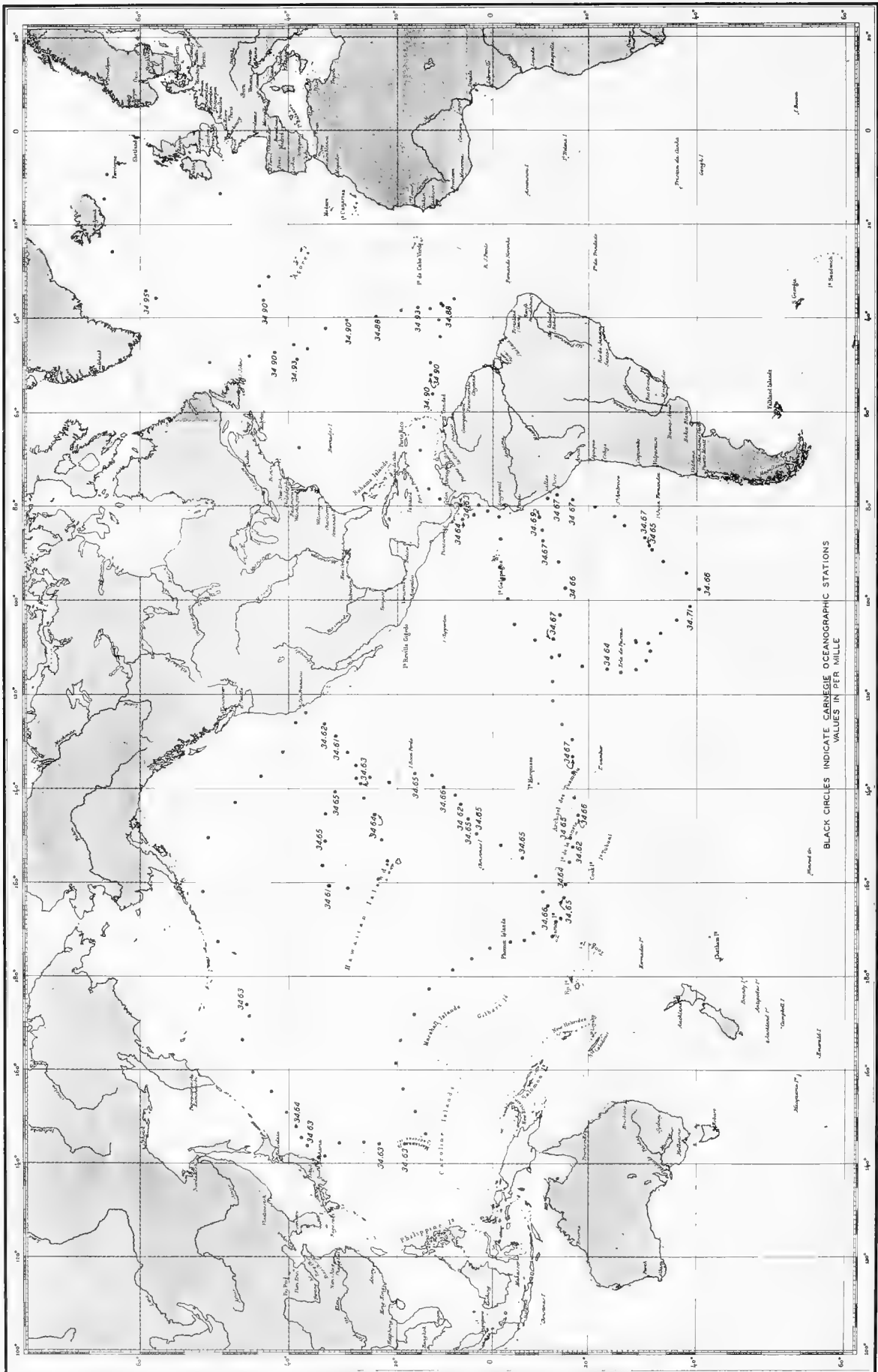


FIG. 233—HORIZONTAL DISTRIBUTION SALINITY AT 3000 METERS, FROM CARNEGIE RESULTS, 1928-1929

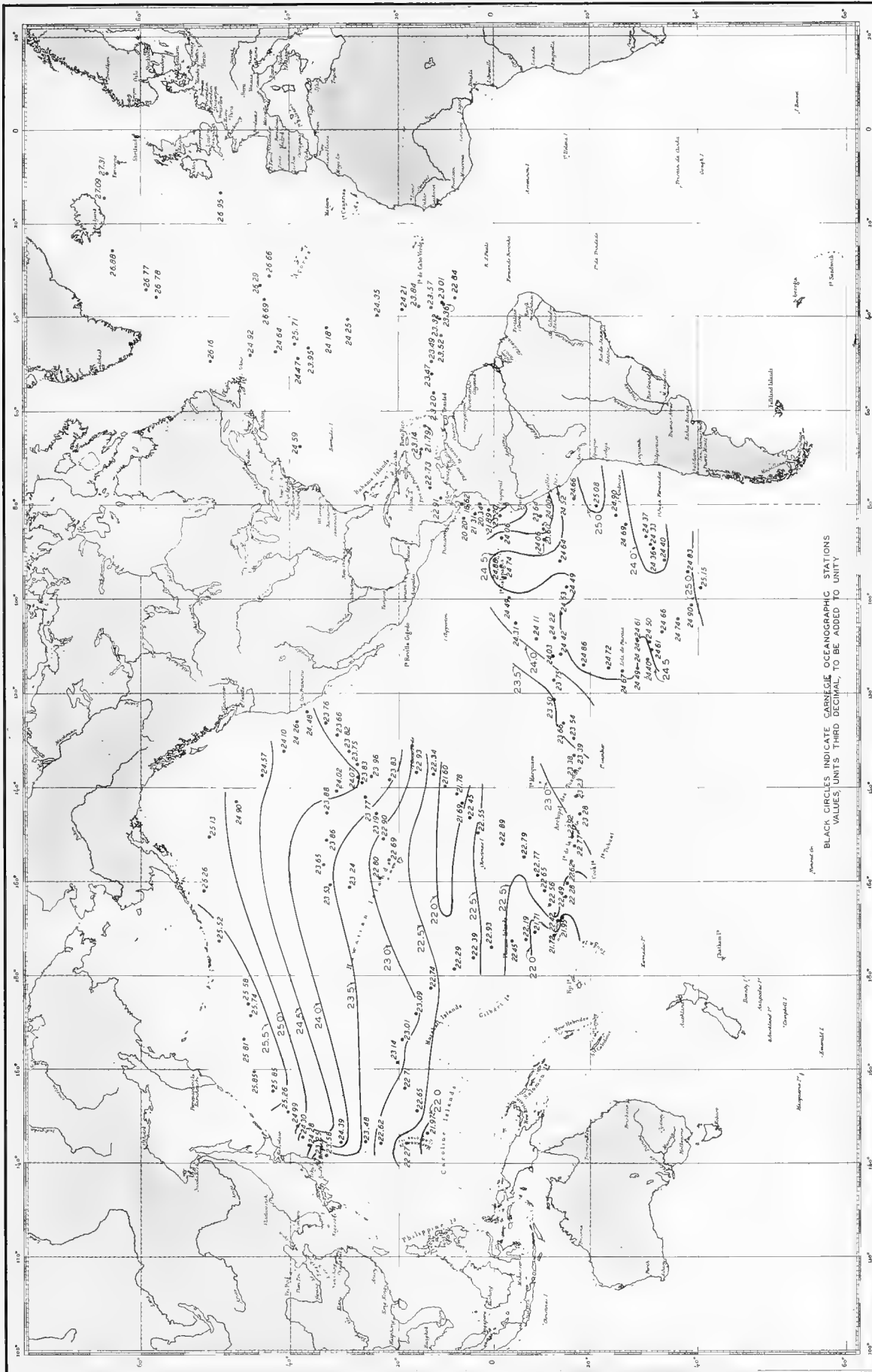


FIG.234—HORIZONTAL DISTRIBUTION DENSITY AT SURFACE, FROM CARNEGIE RESULTS, 1928-1929

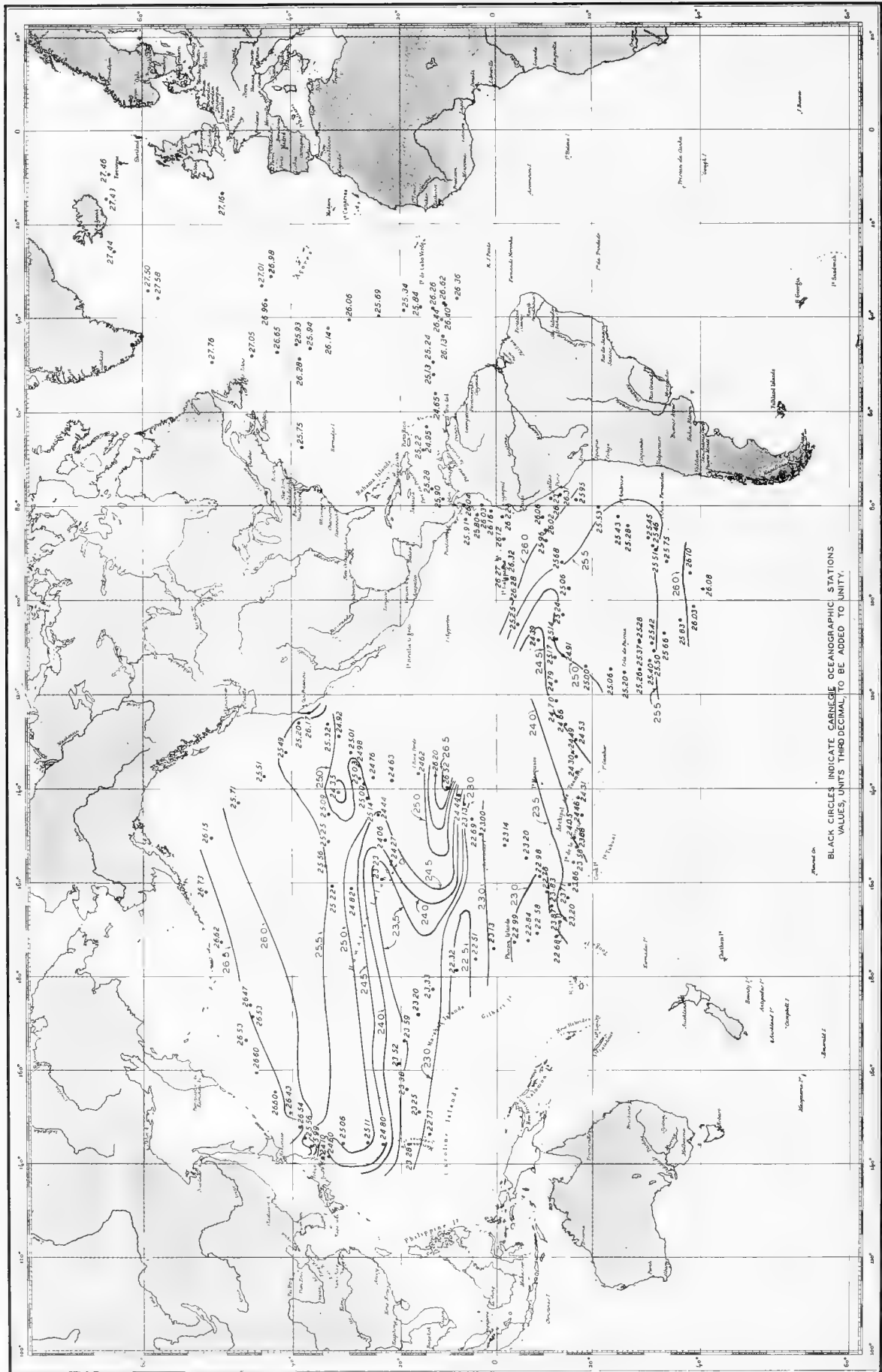


FIG.235—HORIZONTAL DISTRIBUTION DENSITY AT 100 METERS, FROM CARNEGIE RESULTS, 1928-1929

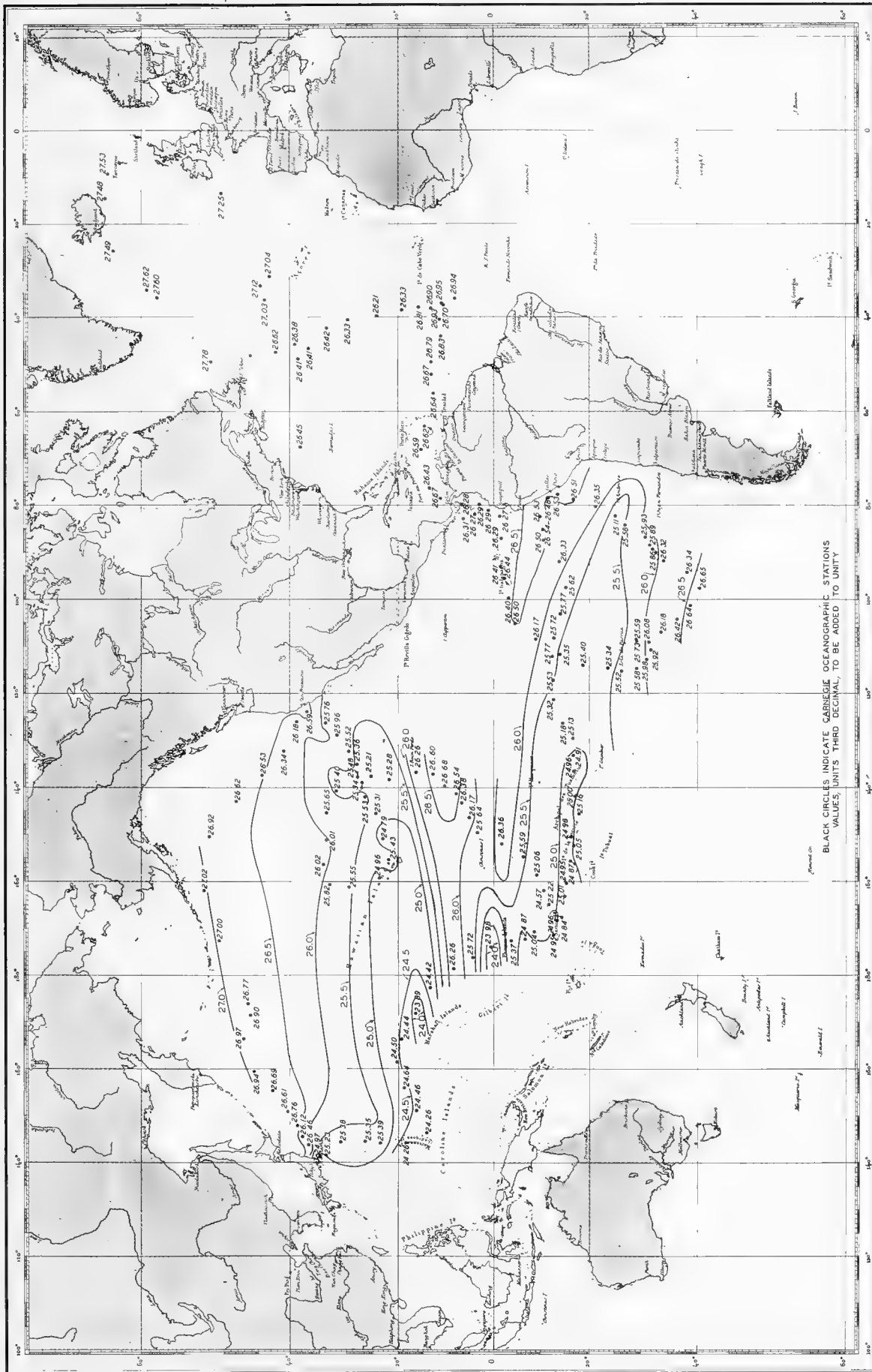


FIG.236—HORIZONTAL DISTRIBUTION DENSITY AT 200 METERS, FROM CARNEGIE RESULTS, 1928-1929

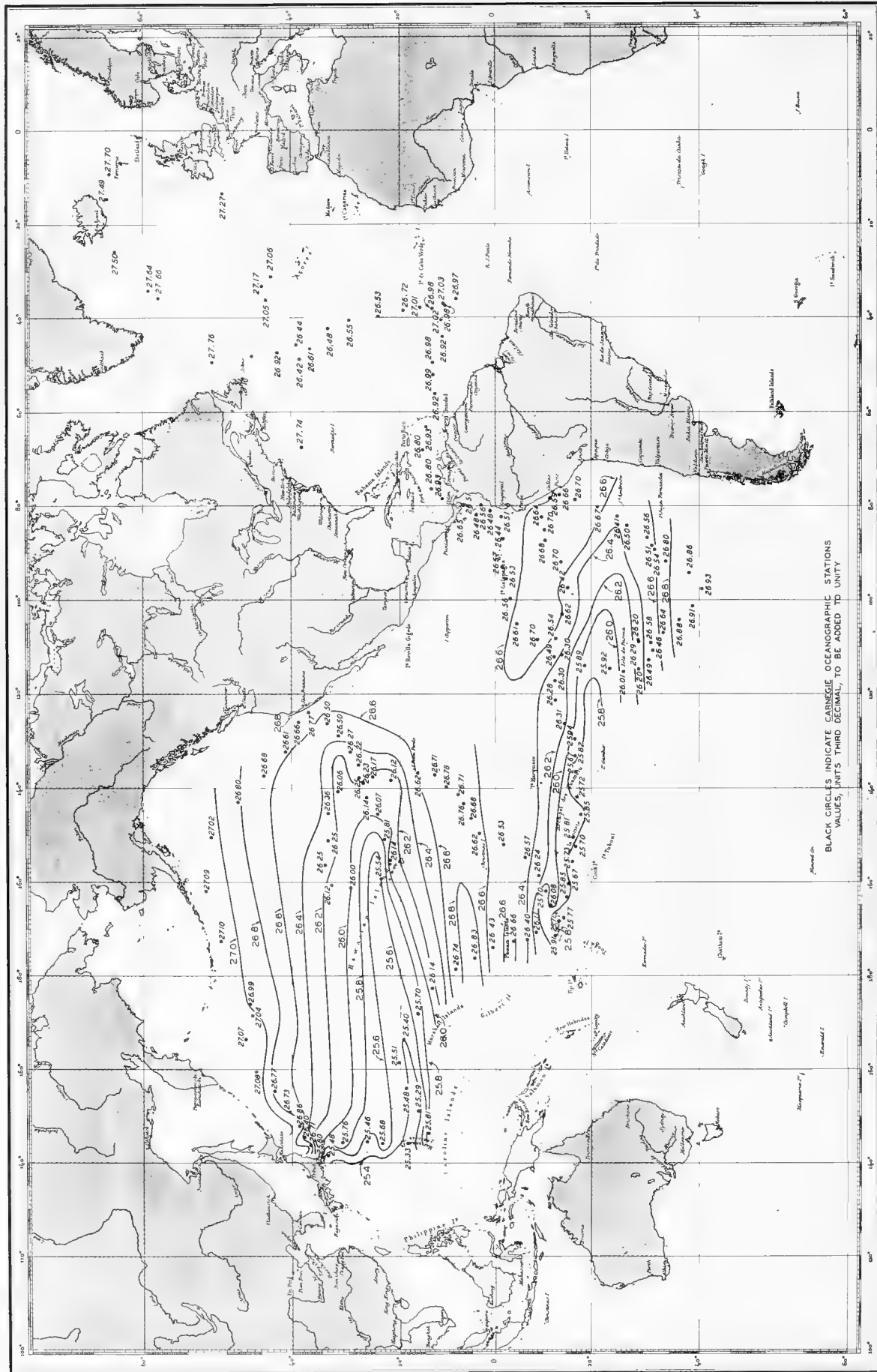


FIG. 237—HORIZONTAL DISTRIBUTION DENSITY AT 300 METERS, FROM CARNEGIE RESULTS, 1928-1929

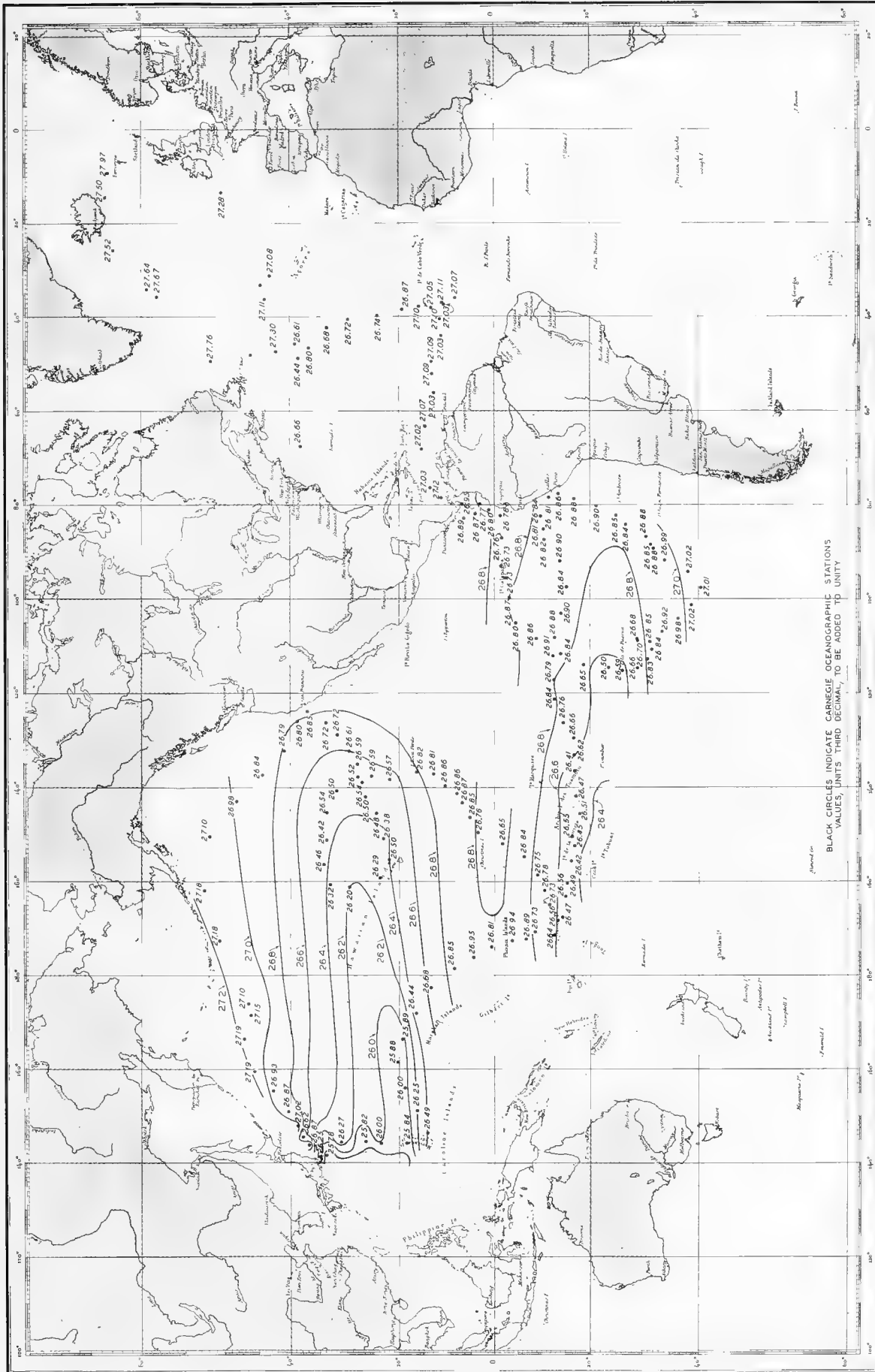
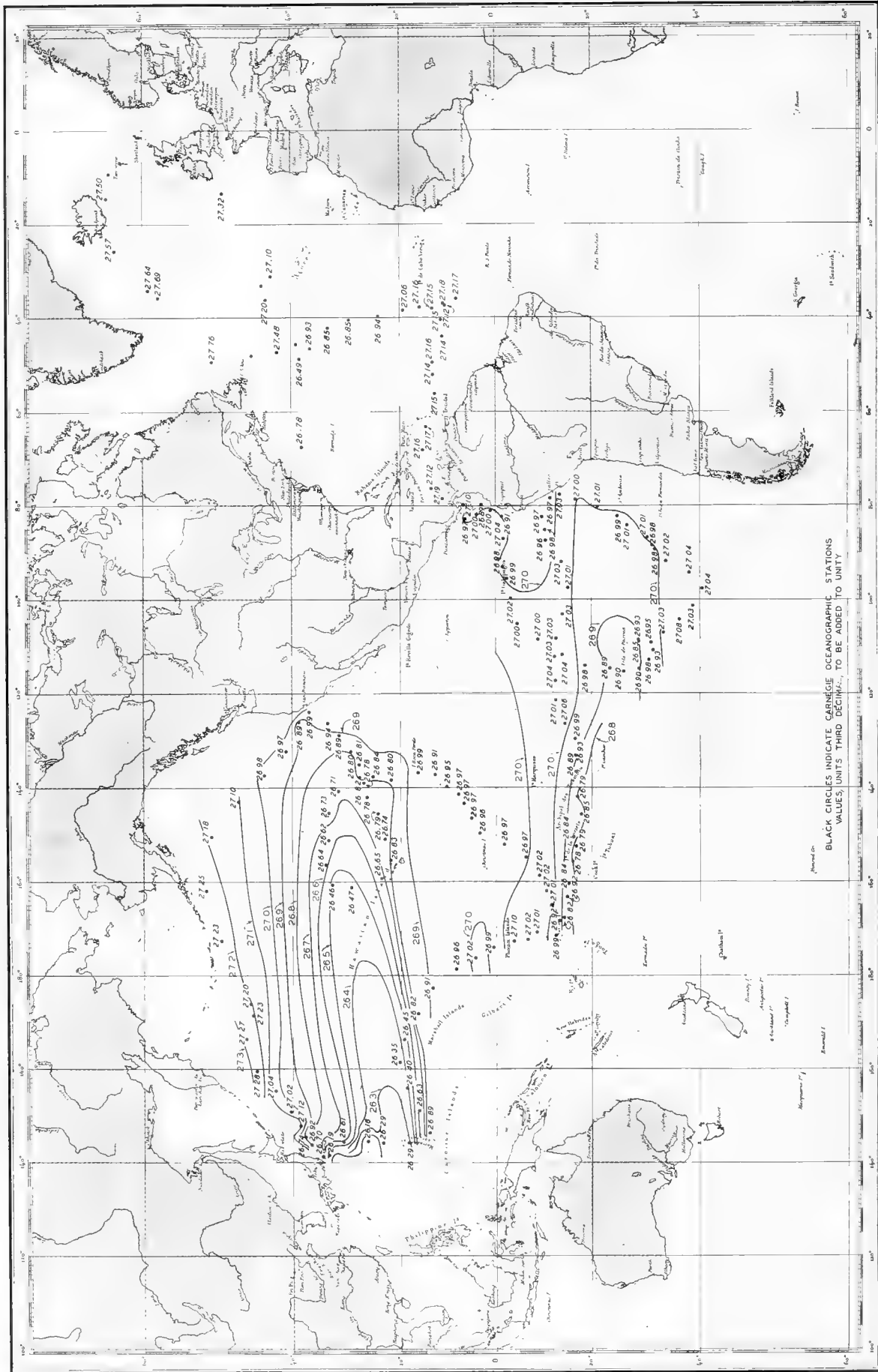


FIG 238—HORIZONTAL DISTRIBUTION DENSITY AT 400 METERS FROM CARNegie RESULTS 1928-1929



BLACK CIRCLES INDICATE CARNEGIE OCEANOGRAPHIC STATIONS
 VALUES UNITS THIRD DECIMAL, TO BE ADDED TO UNITY

FIG.239—HORIZONTAL DISTRIBUTION DENSITY AT 500 METERS, FROM CARNEGIE RESULTS, 1928-1929

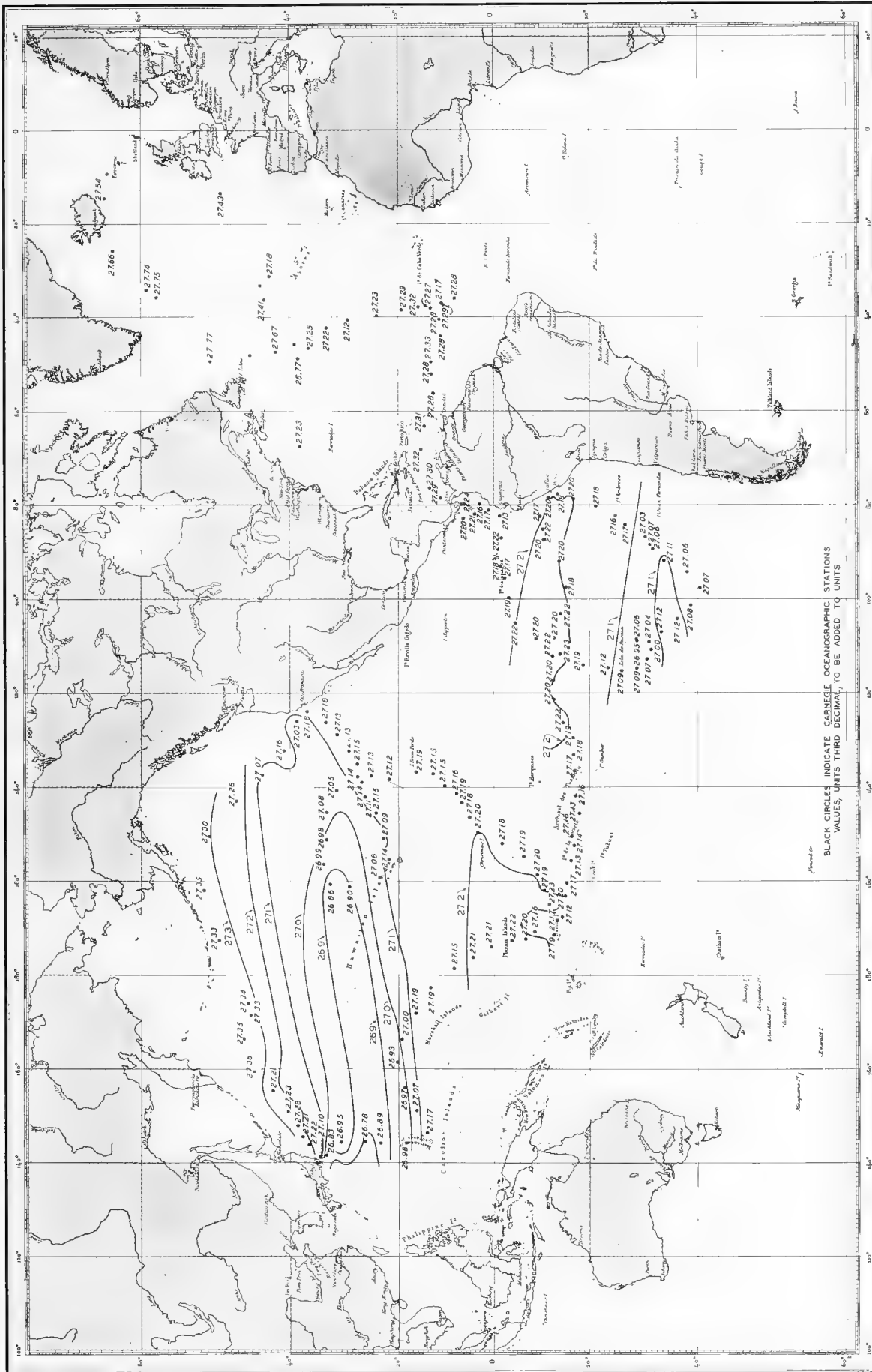


FIG. 240—HORIZONTAL DISTRIBUTION DENSITY AT 700 METERS, FROM CARNEGIE RESULTS, 1928-1929

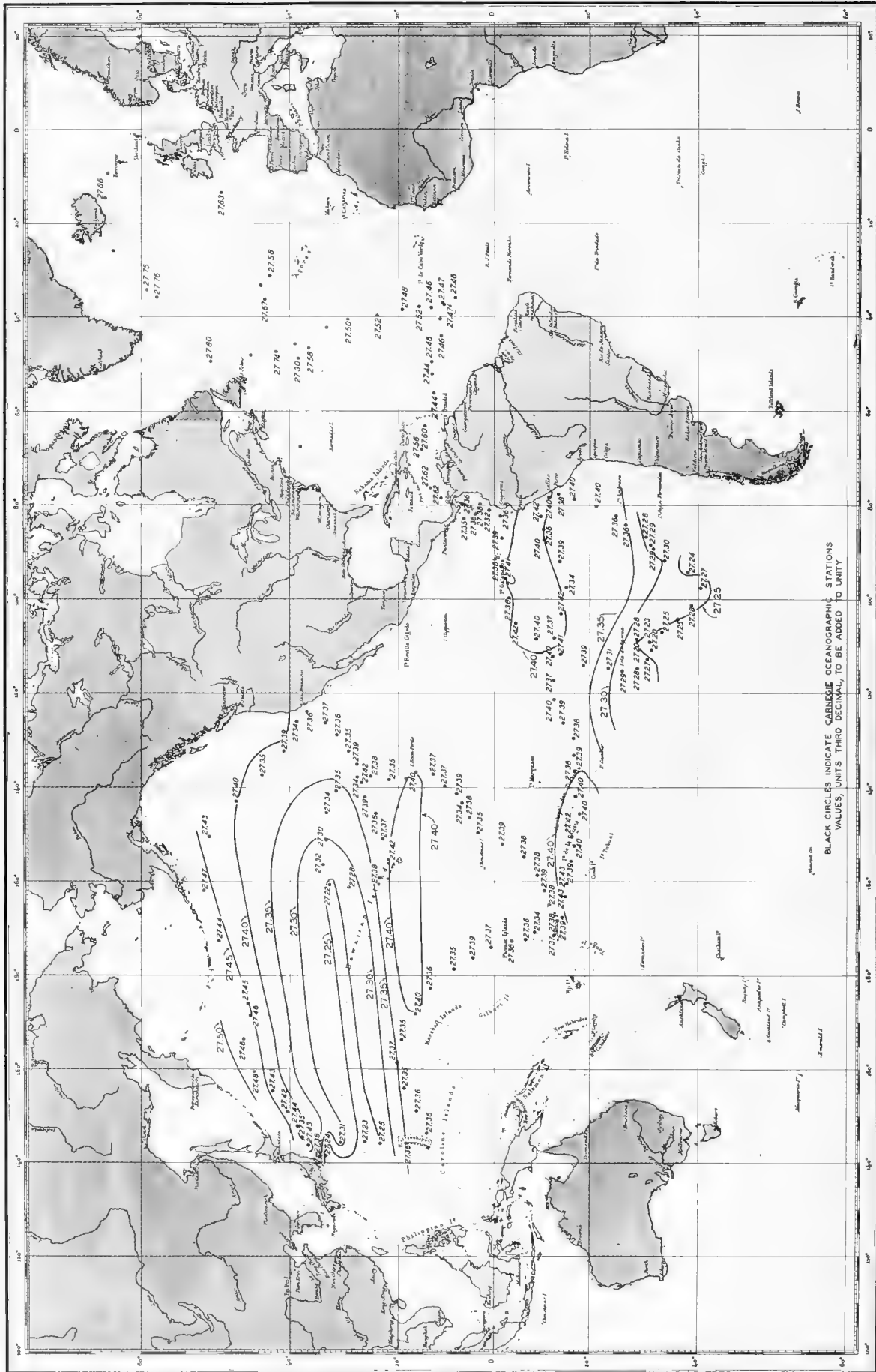


FIG.24I—HORIZONTAL DISTRIBUTION DENSITY AT 1000 METERS, FROM CARNegie RESULTS, 1928-1929

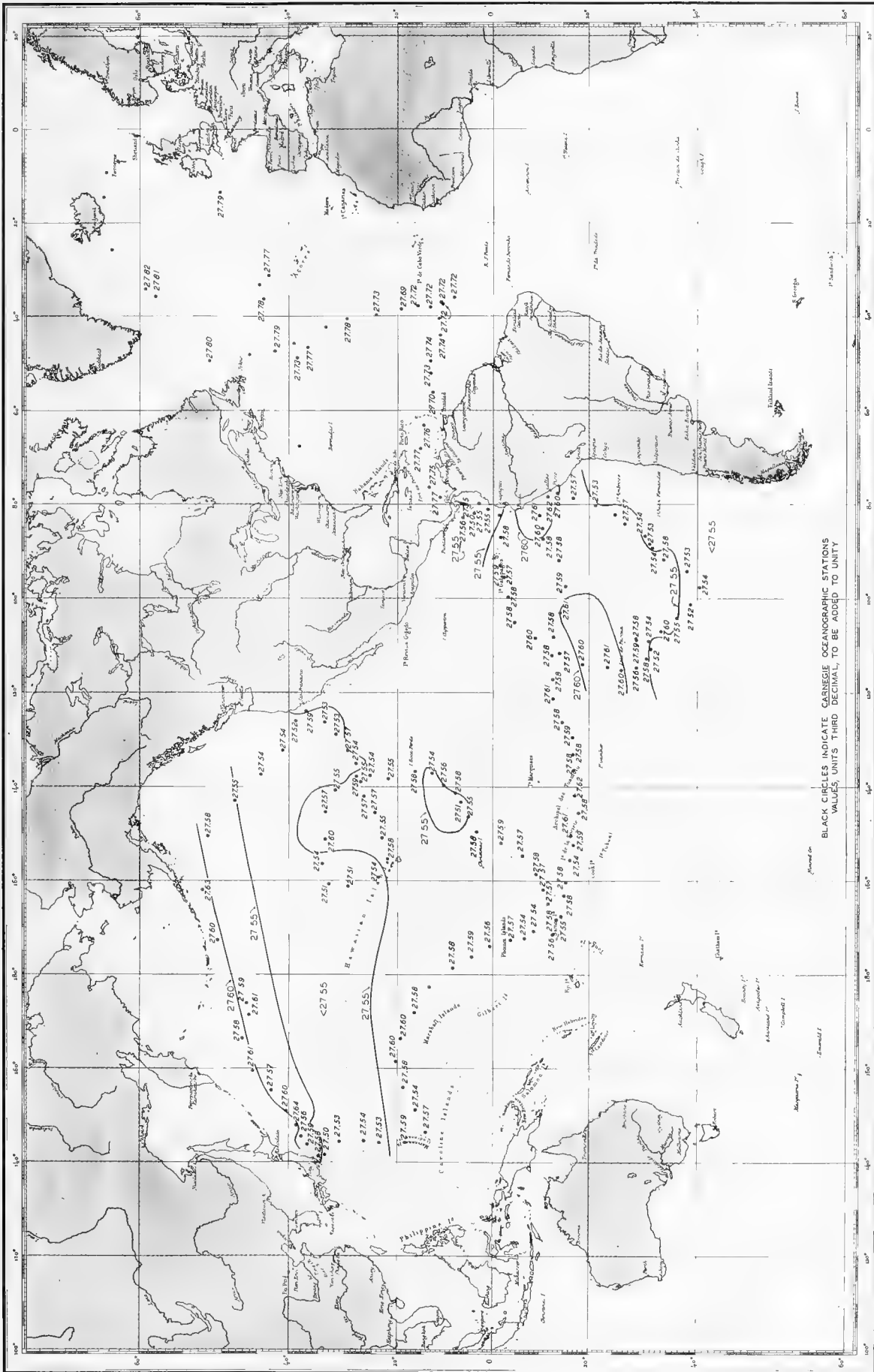


FIG. 242—HORIZONTAL DISTRIBUTION DENSITY AT 1500 METERS, FROM CARNEGIE RESULTS, 1928-1929

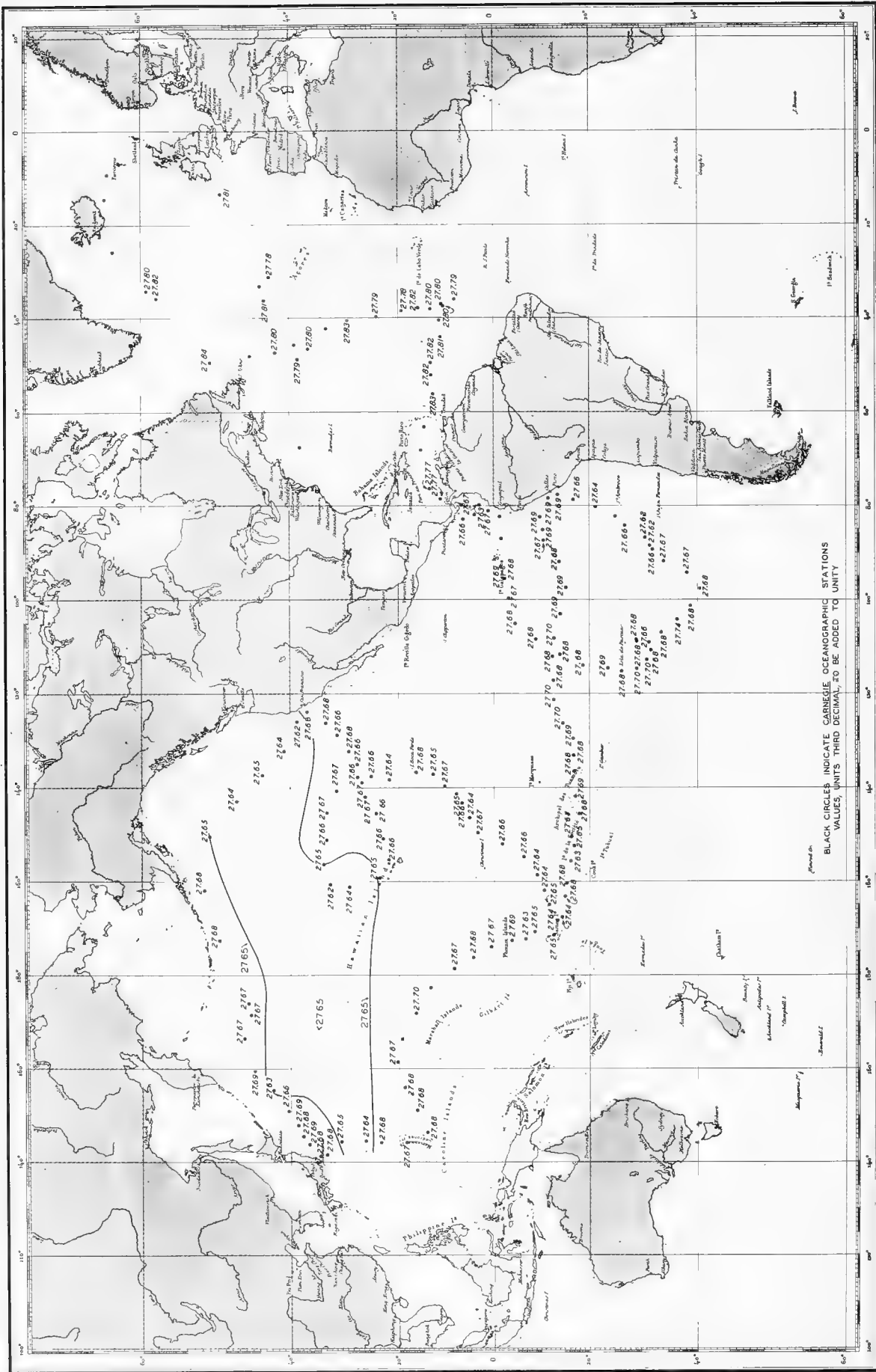


FIG. 243—HORIZONTAL DISTRIBUTION DENSITY AT 2000 METERS, FROM CARNegie RESULTS, 1928-1929

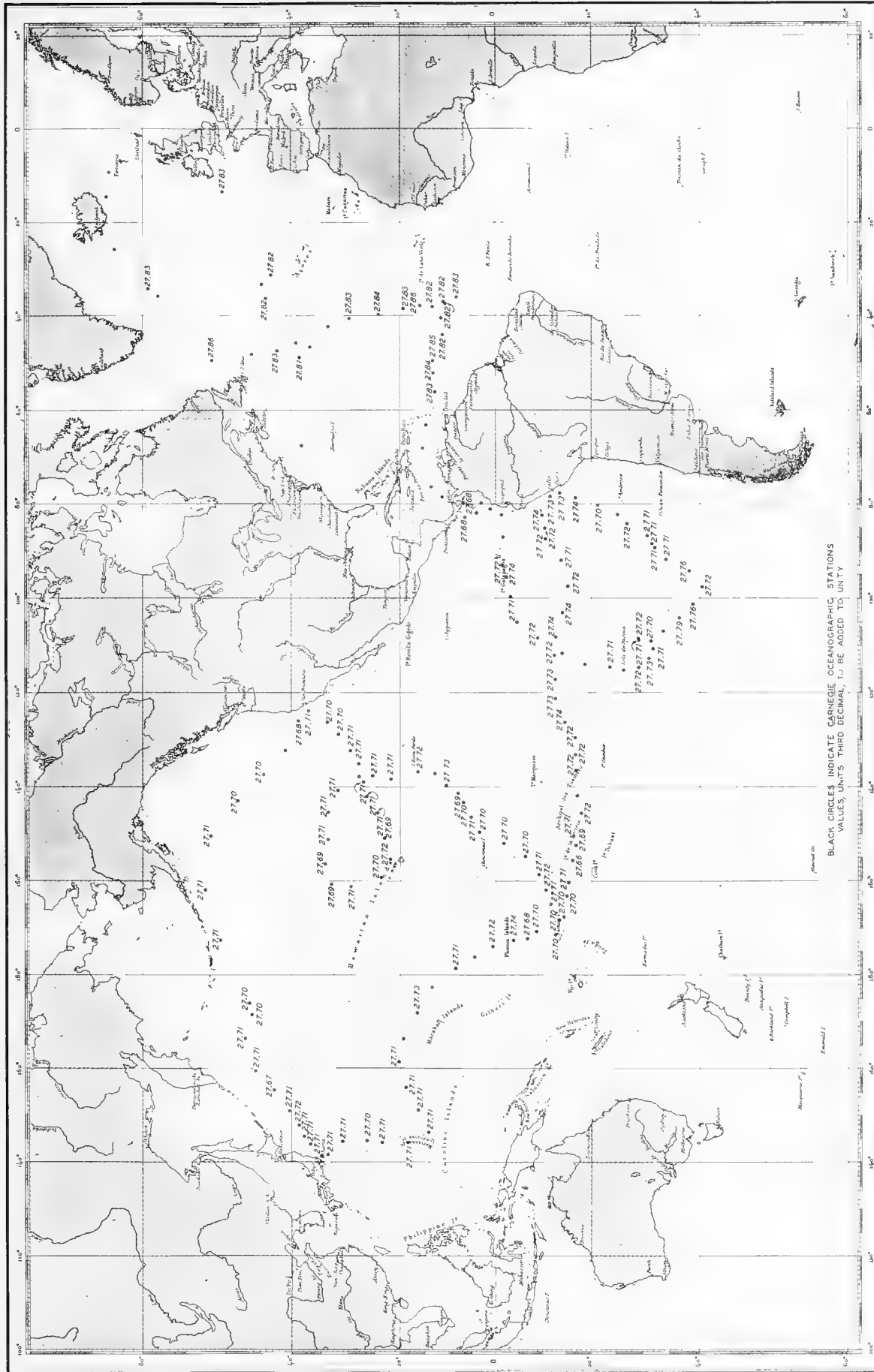


FIG.244—HORIZONTAL DISTRIBUTION DENSITY AT 2500 METERS, FROM CARNEGIE RESULTS, 1928-1929

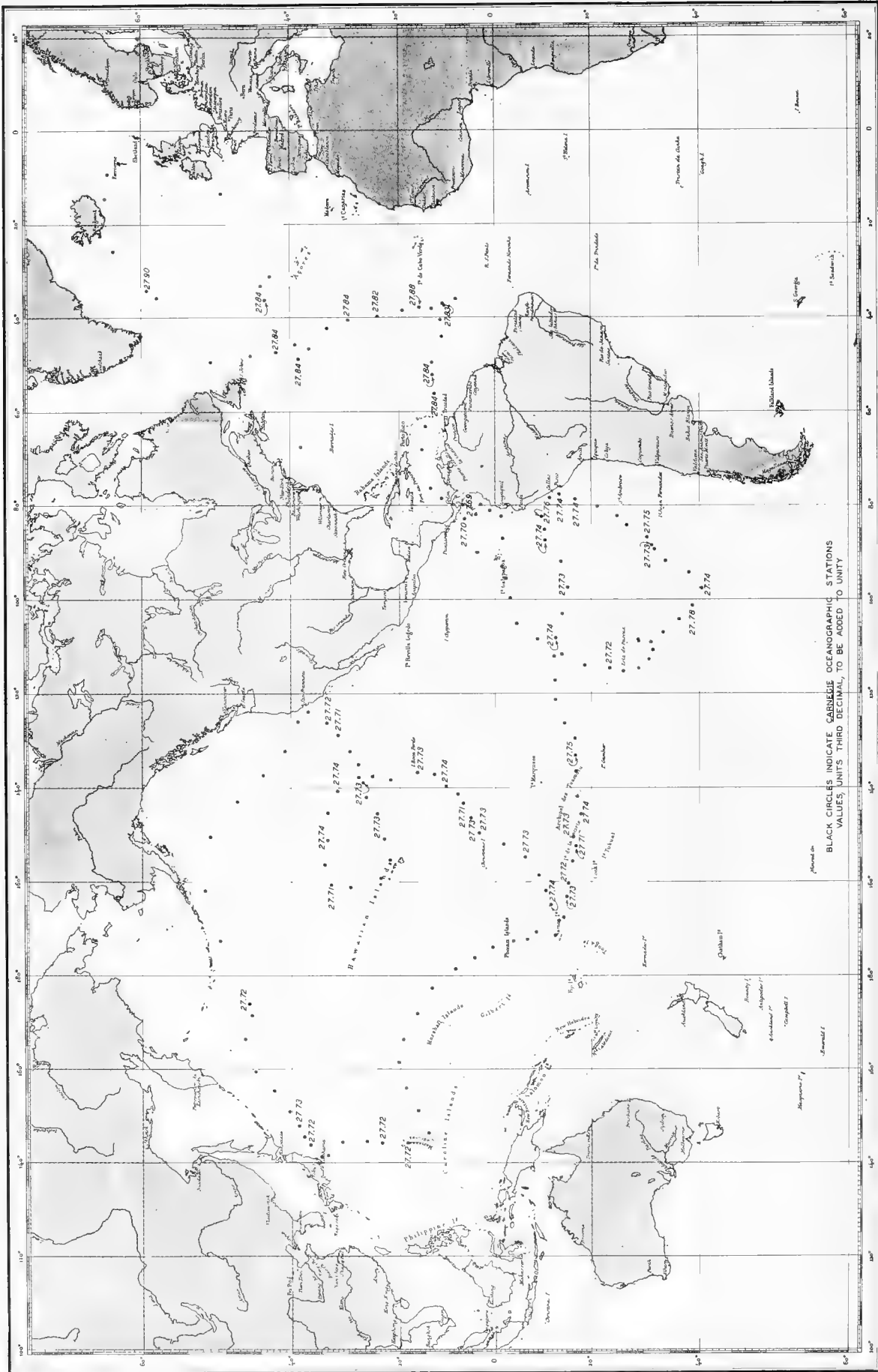


FIG. 245—HORIZONTAL DISTRIBUTION DENSITY AT 3000 METERS, FROM CARNEGIE RESULTS, 1928-1929

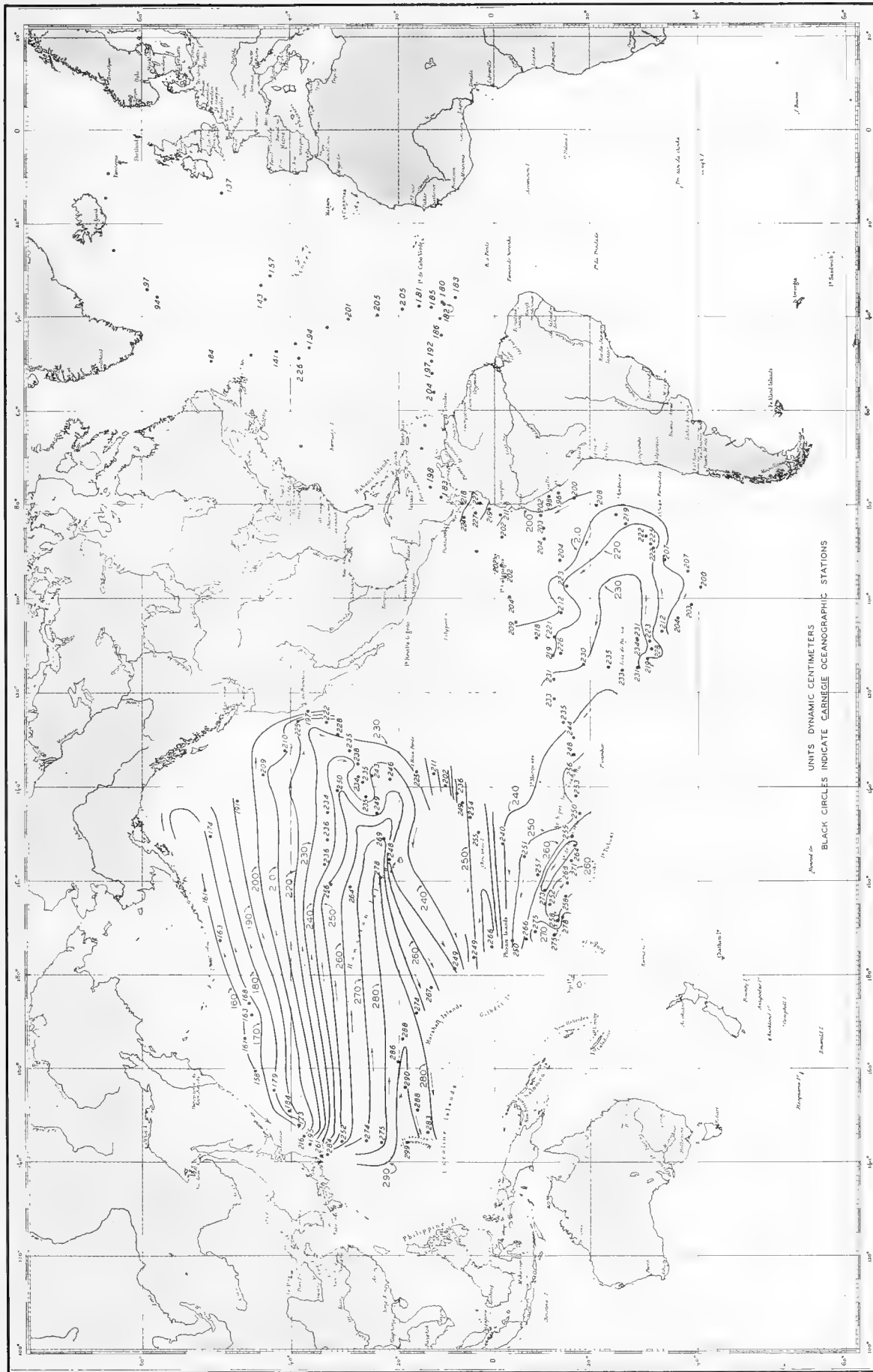


FIG.246—RELATIVE TOPOGRAPHY, 2000-0 DECIBARS, FROM CARNEGIE RESULTS, 1928-1929

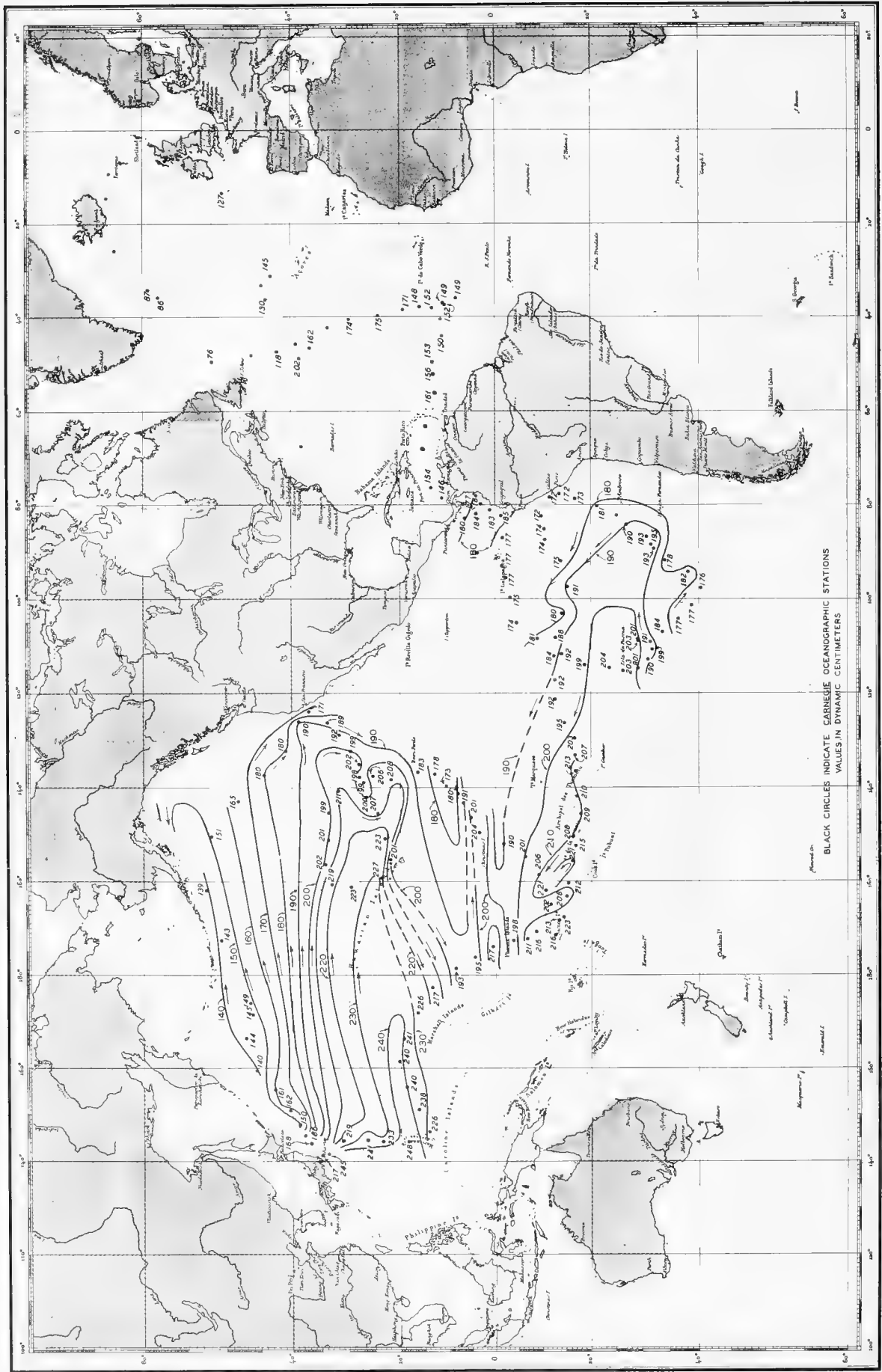


FIG. 247—RELATIVE TOPOGRAPHY, 2000-100 DECIBARS, FROM CARNEGIE RESULTS, 1928-1929

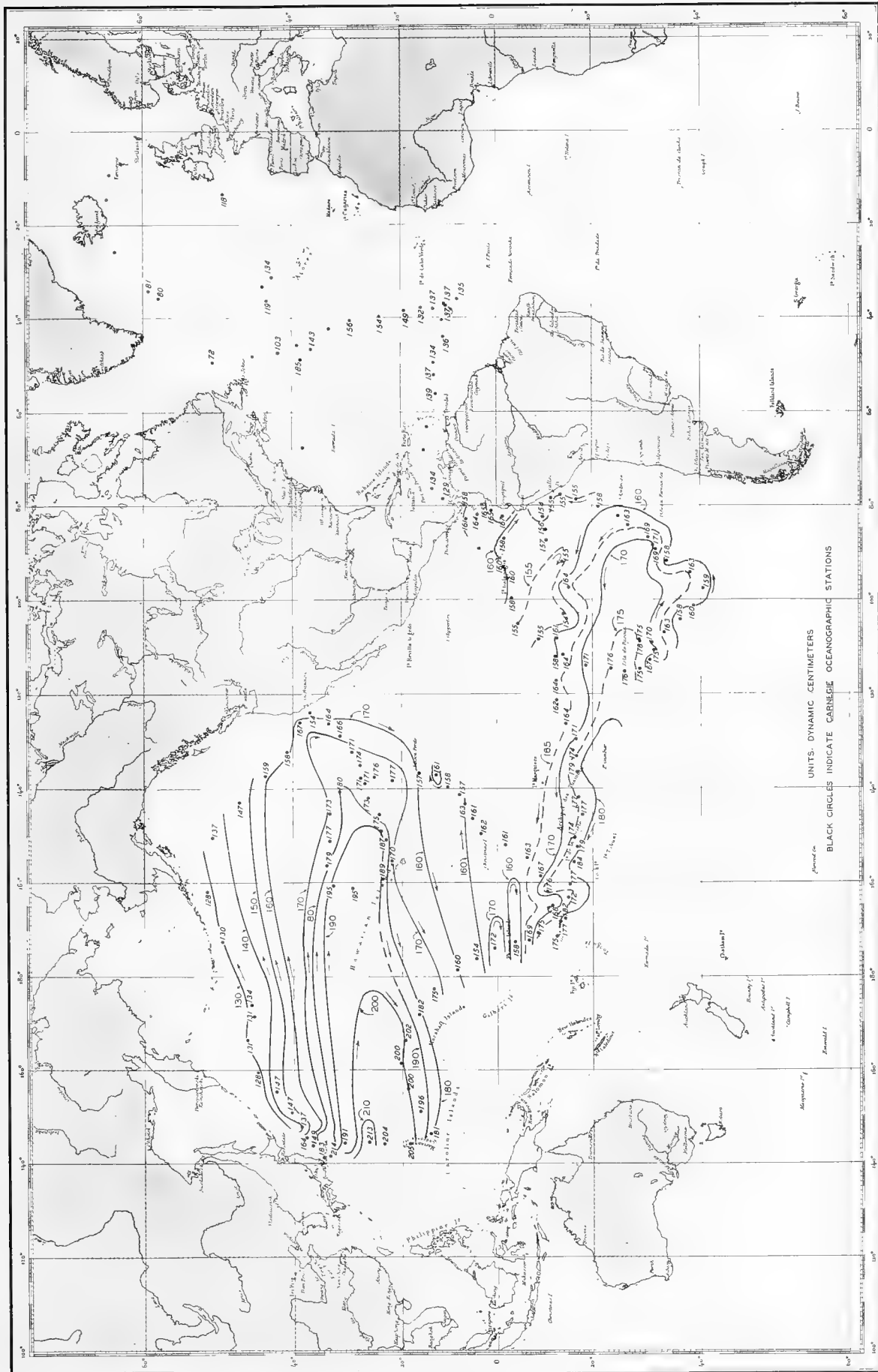


FIG. 248—RELATIVE TOPOGRAPHY 2000—200 DECIBARS, FROM CARNEGIE RESULTS, 1928—1929

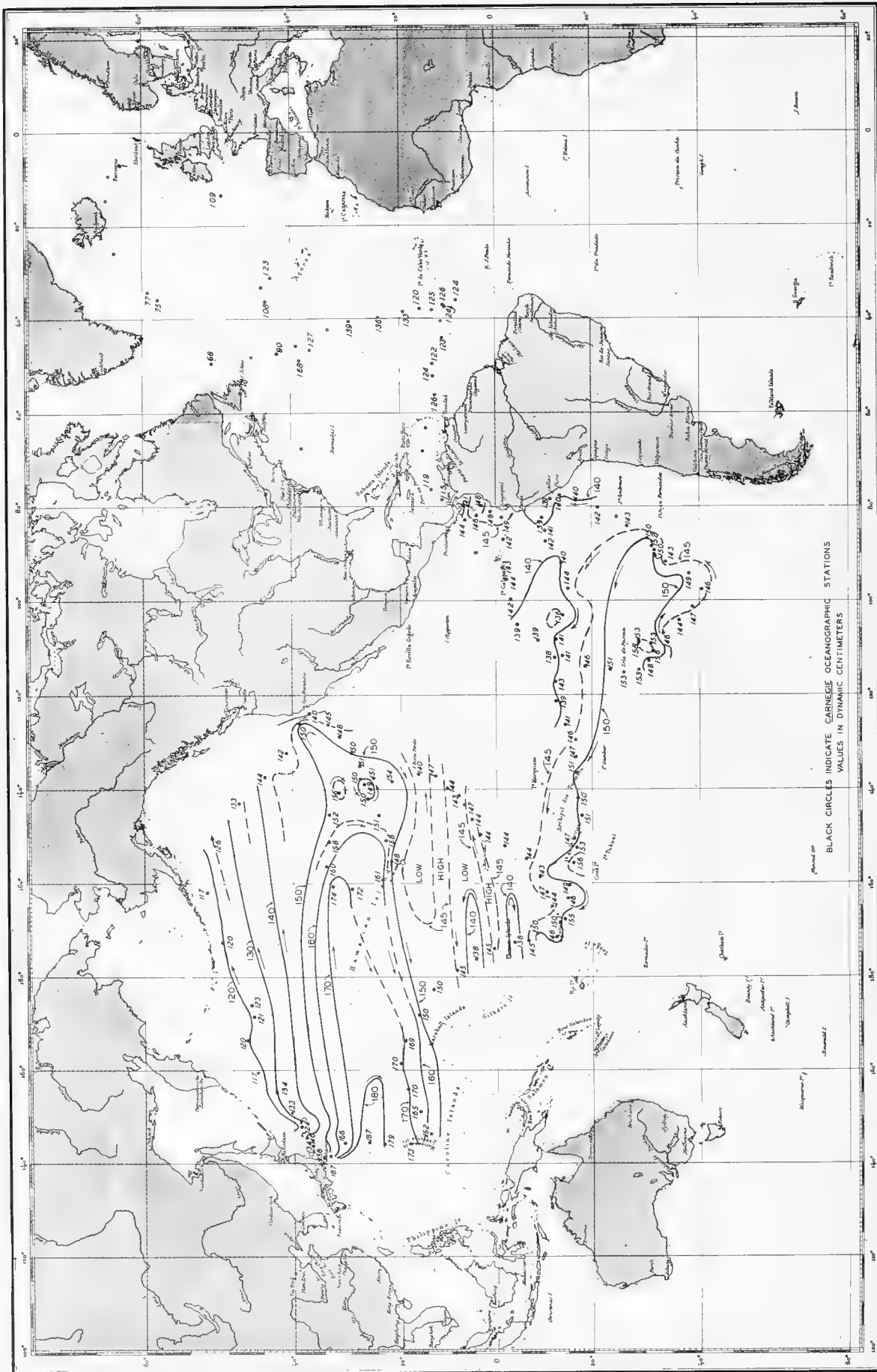


FIG. 249—RELATIVE TOPOGRAPHY 2000—300 DECIBARS, FROM CARNEGIE RESULTS, 1928—1929

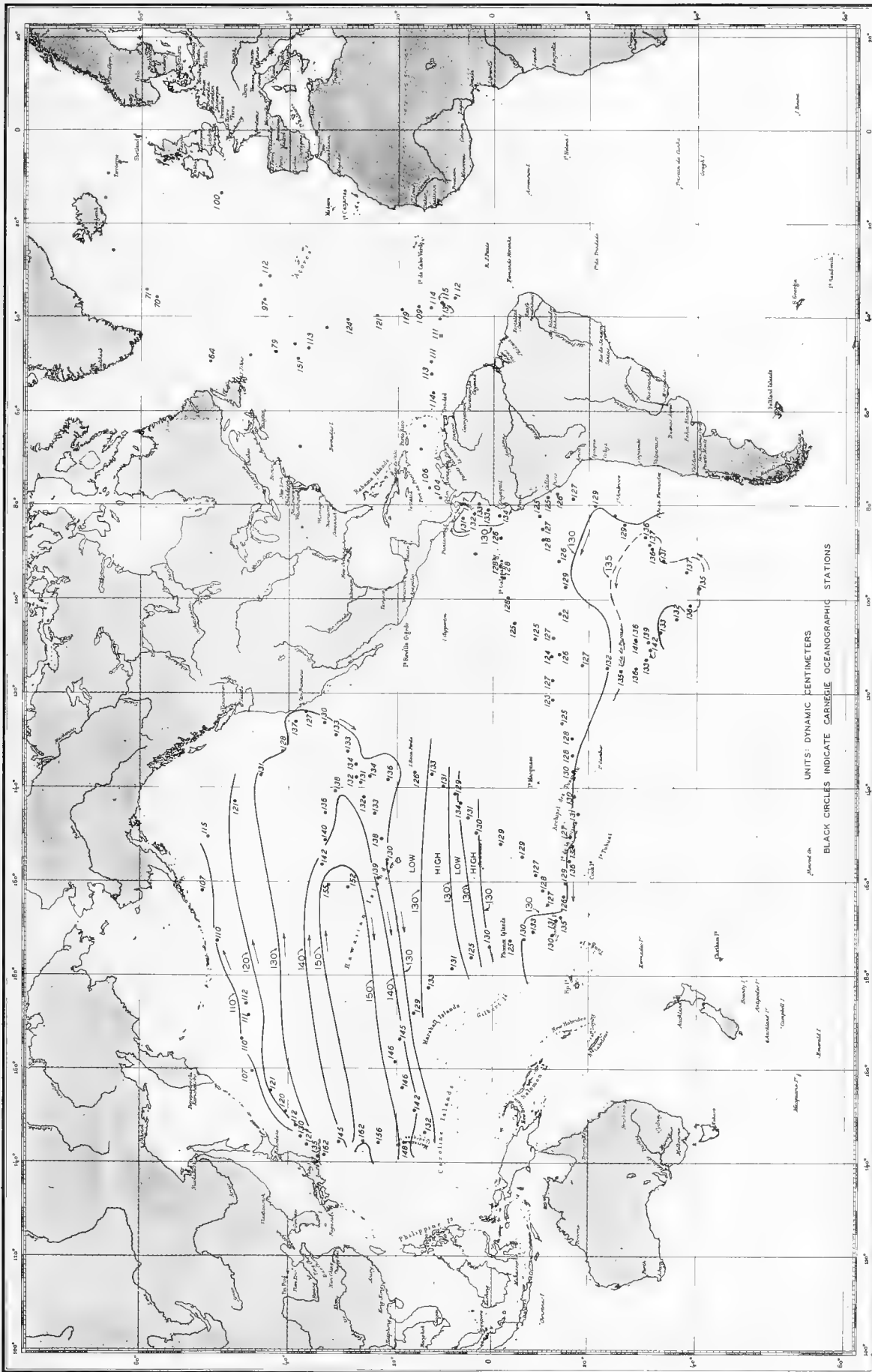


FIG. 250—RELATIVE TOPOGRAPHY 2000—400 DECIBARS, FROM CARNEGIE RESULTS, 1928 - 1929

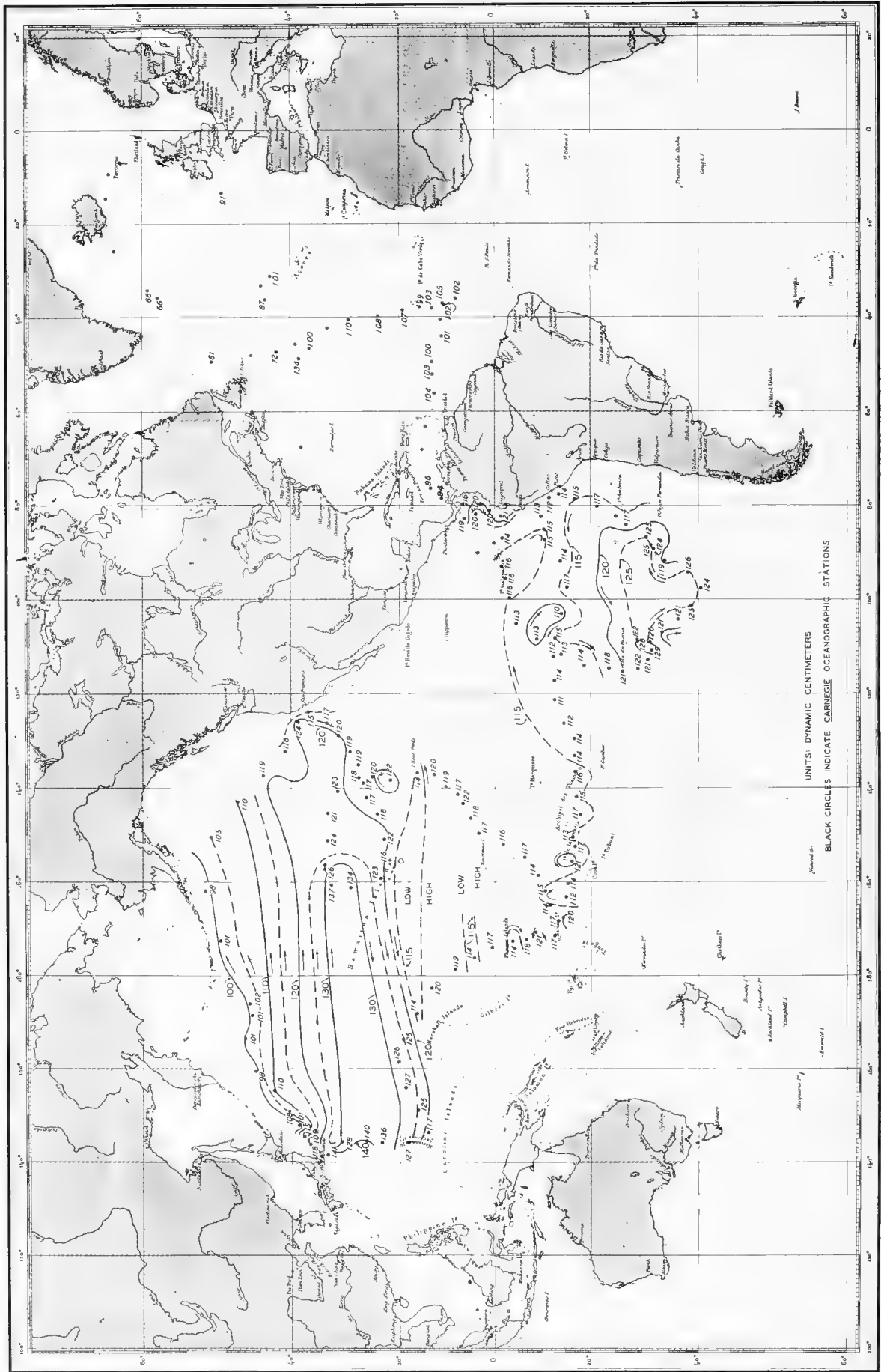


FIG. 25.—RELATIVE TOPOGRAPHY 2000—500 DECIBARS, FROM CARNEGIE RESULTS, 1928 - 1929

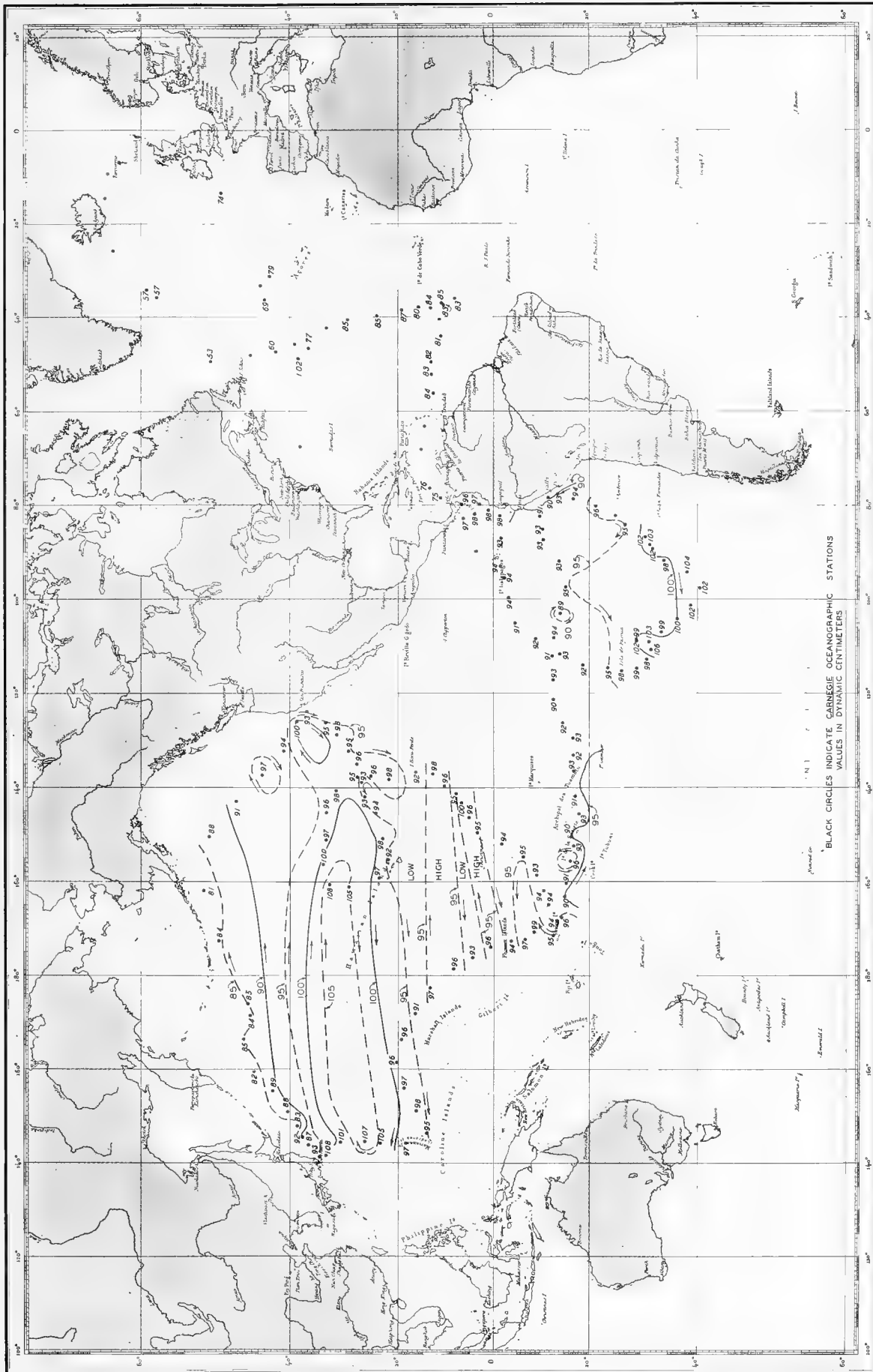
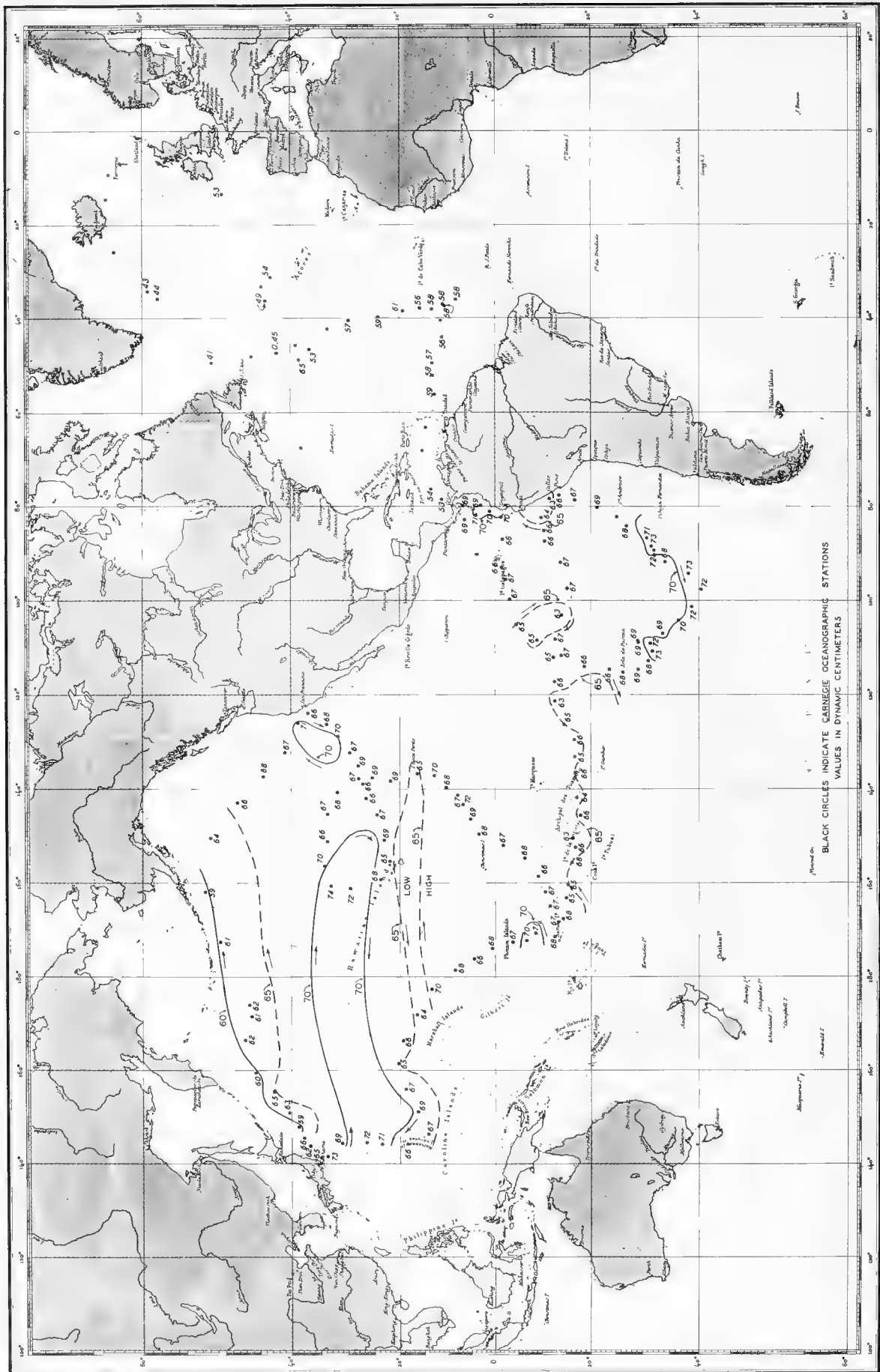


FIG. 252—RELATIVE TOPOGRAPHY 2000-700 DECIBARS, FROM CARNEGIE RESULTS, 1928-1929



BLACK CIRCLES INDICATE CARNEGIE OCEANOGRAPHIC STATIONS
VALUES IN DYNAMIC CENTIMETERS

FIG. 253—RELATIVE TOPOGRAPHY, 2000—1000 DECIBARS, FROM CARNEGIE RESULTS, 1928—1929

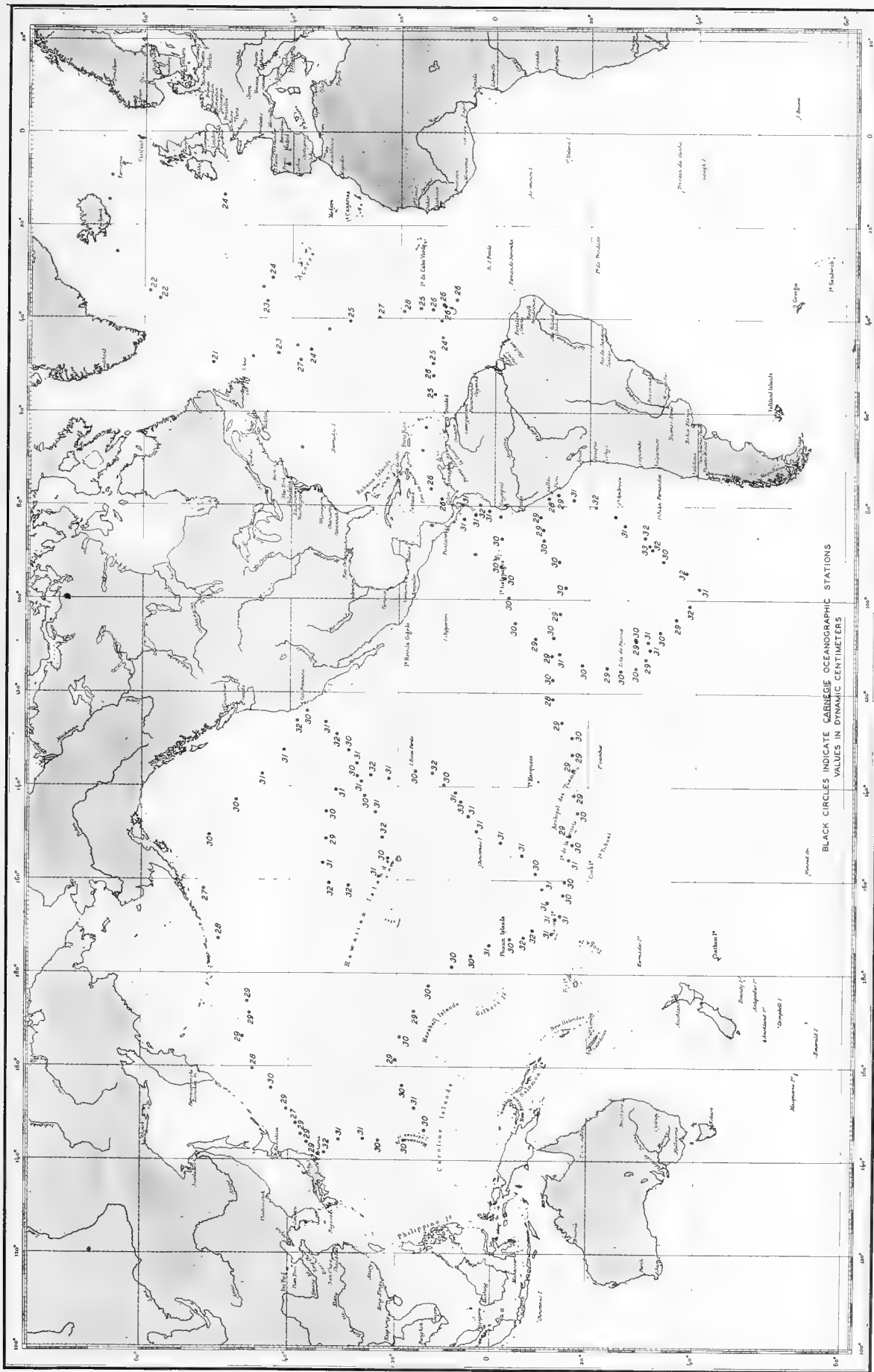


FIG. 254—RELATIVE TOPOGRAPHY 2000—1500 DECIBARS, FROM CARNEGIE RESULTS, 1928 - 1929

TABLES 1 TO 5

After completion of the computations for the results of this table, it was found that the values of salinity of the deep water between 34.6 and 35.0 are about 0.03 per mille too low. This correction should be borne in mind in utilizing the tabular values (see Oceanography 1-A)

Table 1. Hourly values of sea-surface

Values are thermogram readings

Date	Latitude	Longitude east	Values in °C,										
			00	01	02	03	04	05	06	07	08	09	10
1928													
May 18	39.2 N	314.4	18.4	20.0	20.3	20.0	20.2	19.9	20.2	20.4	20.4	20.4	20.6
19	40.6 N	318.2	17.5	17.9	17.2	16.0	15.9	15.6	15.9	16.0	16.0	16.2	16.2
20	42.0 N	321.2	16.1	15.9	16.0	16.1	16.0	15.9	15.6	15.7	15.4	15.5	15.2
21	44.0 N	324.0	14.9	15.0	14.7	14.7	14.8	14.9	14.6	15.0	15.1	15.2	15.3
22 ^a	45.5 N	326.7	15.5	15.6	15.9	15.5	15.9	15.0	14.4	14.8	14.9	14.4	14.0
23	45.0 N	326.9	15.5	15.5	15.6	15.1	15.1	15.0	15.0	14.9	14.6	14.6	14.6
24	43.9 N	328.4	15.2	15.4	15.5	15.6	15.3	15.1	15.8	16.0	16.1	16.1	16.0
25	43.2 N	328.6	15.2	15.2	15.0	15.0	15.0	15.0	14.9	14.9	15.0	15.0	15.3
26 ^b	44.0 N	331.6	15.6	15.5	15.5	15.0	14.8	14.8	14.8	14.9	15.3	14.3	14.3
27	45.8 N	334.5	13.9	13.9	13.9	13.8	13.9	13.9	13.9	13.7	13.6	13.6	13.8
28	48.2 N	338.9	13.4	13.4	13.4	13.4	13.3	13.1	12.9	13.0	13.5	13.2	13.1
29	48.8 N	341.2	12.6	12.5	12.5	12.8	12.6	12.5	12.5	12.6	12.9	12.9	13.0
June 1	50.0 N	346.9	12.5	12.5	12.4	12.4	12.4	12.4	12.4	12.4	12.5	12.6	12.6
2	49.5 N	348.0	13.2	12.8	13.6	13.1	13.1	13.1	13.2	13.2	13.2	13.1	13.2
3	50.2 N	347.4	12.9	12.8	12.7	12.7	12.6	12.6	12.6	12.7	12.7	12.6	12.5
4	50.5 N	347.7	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.4	12.4	12.5	12.7
5	49.9 N	348.9	12.5	12.6	12.6	12.5	12.7	12.7	12.7	12.6	12.6	12.6	12.8
6	50.2 N	350.0	12.7	12.6	12.6	12.8	12.8	12.8	12.9	12.6	12.6	12.7	12.9
7	50.2 N	352.0	12.9	12.9	12.6	12.6	12.7	12.6	12.6	12.7	12.8	12.8	12.9
8 ^c	50.0 N	354.9	13.1	13.1	13.1	13.1	12.9	12.9	12.8	12.9	13.1	12.4	12.3
19	50.5 N	359.0	12.4	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.4	12.5	12.8
20	51.7 N	2.3	12.6	12.4	12.4	12.8	12.8	12.6	12.6	12.6	12.5	12.6	12.9
21 ^c	53.4 N	4.4	12.3	12.3	12.3	12.4	12.3	12.3	12.4	12.5	12.5	12.5	12.6
July 8 ^d	54.1 N	7.6	15.5	15.4	15.2	15.3	15.1	15.0	14.6	14.5	13.9	13.5	13.5
11	60.5 N	0.3	11.3	11.3	11.2	11.2	11.2	11.2	11.2	11.2	11.1	10.8	10.8
12	62.3 N	355.0	10.4	10.4	10.4	10.4	10.4	10.4	9.5	9.5	9.6	9.7	9.7
13	63.3 N	350.6	9.7	9.9	10.0	9.6	9.5	9.5	9.7	9.6	9.8	10.0	9.7
14 ^e	64.1 N	348.6	9.3	9.4	9.4	9.1	8.9	8.0	6.9	8.4	9.1	9.3	9.5
15 ^f	63.5 N	345.2	9.9	9.9	9.9	9.9	10.1	10.2	10.2	10.2	10.6	10.8	10.9
16	63.3 N	342.6	10.6	10.6	10.5	10.6	10.6	10.5	10.7	11.0	11.4	11.5	11.3
17	63.0 N	341.4	11.2	11.2	11.2	10.8	11.2	11.3	11.3	11.2	11.3	11.5	11.6
18	62.6 N	340.0	11.7	11.8	11.7	11.7	11.7	11.7	11.8	11.8	11.7	11.7	11.7
19 ^g	63.6 N	338.0	11.9	12.2	12.3	12.3	12.1	12.1	11.9	11.9	12.0	12.3	12.2
28 ^c	62.5 N	333.7	10.5	11.1	11.3	11.4	11.4	11.2	11.0	11.1	11.2	11.1	11.1
29	60.7 N	328.8	11.5	11.5	11.5	11.4	11.4	11.4	11.0	11.3	11.4	11.2	11.5
30	59.3 N	325.8	10.8	10.8	11.1	11.0	11.0	11.1	11.2	11.2	11.0	11.1	11.1
31	57.9 N	325.6	11.0	11.0	10.8	10.9	11.1	11.1	11.1	10.9	10.9	10.9	11.3
Aug. 1	58.3 N	324.2	10.5	10.9	10.8	10.8	11.1	10.6	10.5	10.5	10.5	10.6	10.3
2	58.3 N	321.3	10.9	11.1	11.1	11.0	11.0	11.0	10.8	10.8	10.9	10.9	11.0
3	57.9 N	314.5	9.1	9.1	9.1	9.2	9.1	9.0	9.0	9.0	8.9	9.0	9.2
4	54.5 N	311.0	8.9	9.3	9.6	9.7	9.9	9.7	10.0	9.8	9.1	9.6	9.9
5	51.6 N	310.4	10.2	10.0	9.7	9.6	8.8	8.7	9.1	8.7	8.5	8.5	8.5
6	48.4 N	311.8	10.1	10.0	10.5	10.5	10.6	10.6	10.5	10.4	10.9	11.0	11.4
7 ^h	45.9 N	312.1	11.5	12.1	12.2	12.3	12.3	11.9	11.7	11.3	10.8	11.3	11.2
8	43.2 N	313.0	17.7	17.5	17.5	17.1	16.7	16.1	16.7	16.5	16.5	15.7	15.1
9	42.2 N	312.7	20.8	21.0	21.1	21.3	21.3	21.3	21.3	21.1	21.1	21.1	21.6
10 ⁱ	39.8 N	311.1	21.7	22.1	21.9	21.8	21.6	22.1	21.6	23.8	24.6	24.2	24.6
11	38.6 N	311.2	24.9	24.6	24.6	24.7	24.7	24.6	24.6	24.6	24.6	24.7	24.8
12	37.0 N	311.6	25.6	25.6	25.5	25.2	25.1	25.1	25.2	25.3	25.4	25.6	25.7
13	36.8 N	313.4	26.1	25.9	26.0	25.7	25.2	25.3	25.7	25.7	25.8	25.9	26.0
14	35.2 N	315.6	26.0	26.0	26.0	26.1	26.2	26.2	26.2	26.2	26.2	26.1	25.8
15	33.6 N	317.7	26.6	26.4	26.4	26.3	26.4	26.3	26.4	26.5	26.4	26.4	26.4
16	31.2 N	318.8	26.4	26.3	26.3	26.7	26.8	26.7	26.7	26.7	26.7	26.8	27.2
17	29.8 N	319.4	27.2	27.2	27.1	27.1	26.9	27.0	26.7	26.8	26.8	26.8	26.9
18	27.9 N	320.5	27.0	27.0	26.9	27.1	26.9	26.7	27.0	27.0	27.0	26.9	27.0
19	25.7 N	321.0	26.8	26.8	26.9	26.9	26.8	26.8	26.8	26.8	26.5	26.8	26.9
20	24.0 N	320.4	26.7	26.8	26.8	26.6	26.7	26.7	26.5	26.5	26.5	26.6	26.8
21	21.8 N	320.4	26.8	26.5	26.5	26.5	26.5	26.5	26.4	26.4	26.5	26.5	26.5
22	19.2 N	321.5	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	25.9	26.0
23	16.6 N	322.2	26.0	26.0	26.1	26.1	26.0	26.1	26.0	26.1	26.1	26.1	26.2
24 ^j	15.8 N	322.1	26.3	26.2	26.2	26.2	26.2	26.2	26.2	26.3	26.5	26.6	27.0
27	13.4 N	322.0	26.9	26.7	26.7	26.7	26.6	26.7	26.6	26.6	26.6	26.7	27.0
28	11.9 N	322.2	27.0	26.9	27.0	27.2	27.2	27.2	27.2	27.2	27.2	27.3	27.7
29	10.8 N	322.6	27.2	27.4	27.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2	27.3

^a Small, rapid fluctuations in surface temperature morning hours; cloudy, moderate breeze. ^b Small, rapid fluctuations in surface temperature between 13h and 20h; cloudy, fresh. ^c Carnegie at Plymouth June 9-18; at Hamburg June 22-July 7; at Reykjavik July 20-27. ^d Gradual fall of 2.3 between 00h and 17h; leaving Helgoland. ^e Sharp fall and rise of 2° between 04h and 08h. Another sudden fall and rise of 1.5 between 14h and 17h; squalls during day. ^f Small, rapid fluctuations between 11h and 24h; partly cloudy

temperature, Carnegie, 1928-29

corrected from bucket readings

local mean hour													Mean
11	12	13	14	15	16	17	18	19	20	21	22	23	
20.7	20.8	20.8	20.5	20.3	19.9	18.0	18.3	18.6	19.0	18.2	17.5	17.7	19.63
16.3	16.3	15.9	16.1	16.1	16.6	17.3	16.9	16.9	16.3	16.3	16.4	16.3	16.42
15.5	15.6	15.5	16.1	16.4	16.6	16.5	16.2	16.2	16.1	15.9	15.9	15.1	15.88
15.4	15.4	15.5	15.5	15.2	15.0	15.3	15.2	15.1	15.1	15.1	15.0	15.0	15.08
15.2	15.3	15.2	15.1	15.7	15.8	15.6	15.4	15.4	15.7	15.6	15.6	15.6	15.30
14.6	14.6	14.6	13.8	14.1	14.1	14.1	14.3	14.1	14.1	15.1	15.1	15.1	14.72
16.2	16.1	15.9	15.6	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.53
15.3	15.3	15.9	15.8	15.8	15.8	15.8	15.8	15.7	15.7	15.8	15.8	15.7	15.40
14.6	15.4	15.0	14.5	14.4	15.0	14.8	14.9	13.9	14.3	14.3	14.0	13.9	14.74
13.8	13.8	13.8	13.9	13.9	13.7	13.9	14.0	13.6	13.5	13.5	13.5	13.5	13.76
13.2	13.4	13.2	13.1	12.9	12.9	12.9	12.8	12.8	12.7	12.7	12.7	12.6	13.07
13.0	13.2	13.4	13.4	13.4	13.4	13.4	13.3	13.2	12.9	12.8	12.8	12.7	12.93
12.6	12.6	12.6	12.6	12.8	12.8	13.0	13.1	13.1	13.1	12.9	13.0	13.0	12.68
13.2	13.3	13.2	13.3	13.3	13.3	13.3	13.2	13.0	13.0	12.9	12.8	12.8	13.14
12.6	12.6	12.6	12.6	12.6	12.5	12.5	12.4	12.4	12.4	12.4	12.4	12.4	12.58
12.7	12.9	12.9	12.9	12.9	12.9	13.0	13.1	13.0	13.0	13.1	12.9	12.6	12.73
12.4	12.4	12.4	12.4	12.4	12.4	12.5	12.5	12.5	12.4	12.6	12.6	12.7	12.55
13.0	12.9	12.9	12.9	12.9	12.9	12.9	12.9	13.0	12.9	12.9	12.9	12.8	12.83
13.1	13.1	12.9	13.0	13.0	13.0	13.1	13.1	13.2	13.0	13.0	12.9	12.9	12.89
12.6	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	13.3	13.2	13.2	13.4	12.94
12.9	13.4	13.5	12.9	12.6	12.6	12.5	12.5	12.4	12.4	12.4	12.4	12.5	12.55
12.9	13.1	13.1	13.1	13.0	12.8	12.6	12.5	12.5	12.4	12.4	12.4	12.4	12.67
12.8	12.9	13.2	13.2	13.1	13.0	13.3	13.3	13.2	13.3	13.2	12.8	12.6	12.76
13.9	13.9	13.8	13.8	13.7	13.7	13.2	13.8	13.9	14.0	14.2	14.4	14.2	14.25
10.8	10.8	10.9	10.9	11.1	11.2	11.0	10.9	10.9	10.9	10.9	10.9	10.4	11.00
9.6	9.4	9.7	9.5	9.4	9.2	9.3	9.4	10.0	9.6	9.8	9.5	9.9	9.78
9.5	9.5	9.4	9.3	9.3	9.5	9.0	9.4	9.4	9.4	9.5	9.5	9.4	9.55
9.6	9.6	9.6	9.3	8.6	8.2	9.6	9.7	9.7	9.7	9.7	10.0	10.4	9.21
11.2	11.2	10.9	10.7	10.8	10.8	10.9	11.0	10.7	10.8	10.8	10.6	10.5	10.56
11.6	11.6	11.5	11.4	11.7	11.7	11.7	11.7	11.6	11.4	10.7	11.0	11.2	11.17
11.7	11.6	11.9	11.8	11.8	11.7	11.8	11.8	11.8	11.8	11.7	11.7	11.8	11.53
11.3	11.7	11.6	11.8	11.9	12.0	12.0	12.1	12.1	11.9	11.8	11.8	12.1	11.80
12.4	12.6	12.6	12.0	11.6	12.2	12.2	12.3	9.5	9.6	10.4	11.3	11.3	11.80
11.3	11.4	11.3	11.3	11.4	11.4	11.4	11.4	11.3	11.3	11.0	11.1	11.3	11.22
11.6	11.6	11.6	11.4	11.5	11.6	11.4	11.5	11.3	11.3	11.2	11.3	11.3	11.40
11.2	11.3	11.3	11.1	11.1	11.3	11.1	11.1	11.1	10.7	11.0	10.8	11.0	11.06
11.3	11.3	11.3	11.4	11.2	11.0	11.0	11.5	11.4	11.3	11.0	10.8	10.5	11.08
11.0	11.0	11.0	11.1	11.1	11.0	11.0	11.0	11.0	11.0	10.7	11.0	11.0	10.83
11.0	11.1	11.0	10.9	10.3	10.2	10.0	9.9	10.5	10.4	9.7	9.8	9.8	10.64
8.8	8.8	9.2	9.2	9.2	9.5	9.7	9.7	9.7	9.6	9.4	9.4	9.5	9.23
10.2	10.6	10.6	10.7	11.1	11.1	10.7	10.8	10.9	11.0	10.9	10.1	10.0	10.18
8.5	8.9	9.0	9.4	9.3	9.4	9.5	9.8	9.8	9.5	9.5	9.8	10.0	9.28
11.5	11.2	11.2	9.7	9.3	9.2	9.8	10.1	10.1	10.8	10.8	10.9	11.2	10.51
11.2	10.8	11.2	11.8	13.7	14.4	14.0	15.6	16.3	16.2	17.1	18.3	17.7	13.20
16.6	16.1	17.6	18.1	19.1	19.1	19.0	19.3	20.5	21.1	21.1	21.1	20.9	18.03
21.4	21.3	21.3	21.6	21.6	21.8	21.1	21.2	21.2	21.6	21.8	21.8	21.6	21.35
25.0	25.1	25.8	25.8	26.0	26.1	26.1	26.1	26.0	25.6	25.3	25.1	25.1	24.30
24.9	24.8	24.9	25.1	25.1	25.1	25.2	25.2	25.2	25.3	25.3	25.3	25.6	24.93
26.0	26.1	26.2	26.1	26.2	26.2	26.1	25.8	25.7	25.3	25.8	25.9	26.1	25.70
26.1	26.2	26.1	25.3	25.6	25.5	25.4	25.4	25.8	26.0	26.0	26.0	26.0	25.78
25.7	25.9	26.1	26.2	26.2	26.5	26.7	26.1	25.9	26.0	26.7	26.7	26.7	26.18
26.3	26.0	26.1	26.2	26.2	26.2	25.8	25.8	26.2	26.1	26.0	26.2	26.6	26.26
27.1	27.1	26.8	27.1	27.2	27.3	27.3	27.5	27.5	27.4	27.2	27.2	27.2	26.97
27.0	27.0	27.2	27.4	27.3	27.3	27.3	27.2	27.1	27.0	27.1	27.2	27.0	27.07
27.1	27.0	27.1	27.3	27.4	27.4	27.3	27.0	27.0	27.0	27.0	27.0	26.9	27.04
27.1	27.2	27.2	27.2	27.2	27.1	27.2	27.0	27.0	27.0	27.0	27.0	26.9	26.95
26.9	27.0	27.0	27.1	27.1	27.2	27.0	27.0	27.0	27.0	26.9	26.8	26.9	26.84
26.5	26.5	26.5	26.5	26.5	26.3	26.3	26.2	26.1	26.0	26.0	26.0	26.0	26.38
26.0	26.1	26.2	26.1	26.1	26.0	26.0	26.0	26.1	26.0	26.1	26.1	26.1	26.03
26.3	26.5	26.5	26.6	26.6	26.6	26.6	26.6	26.3	26.5	26.6	26.5	26.4	26.31
27.2	27.2	26.8	27.7	29.1	28.2	28.1	27.3	27.2	27.0	27.0	27.5	26.7	26.95
26.9	27.5	27.3	28.2	28.4	27.1	27.1	27.6	27.1	27.4	27.2	27.2	27.0	27.08
27.7	27.8	27.9	28.1	27.9	27.7	27.9	27.7	27.6	27.5	27.4	27.3	27.2	27.45
27.3	27.5	27.7	28.0	27.5	27.6	27.4	27.4	27.5	27.4	27.6	27.4	27.5	27.39

gentle breeze. ^g Sudden fall of 2° between 18h and 19h; approaching Reykjavik. ^h Very irregular fluctuations with rise of 7.5° between 12h and 20h; in boundary zone between Gulf Stream and Labrador Current; clear, moderate breeze. ⁱ Rapid rise in temperature of 3° with irregular fluctuations between 06h and 08h; entering Gulf Stream. ^j Small, rapid fluctuations in temperature between 10h and 18h; partly cloudy, calm to light airs.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929

L.M.T. and wire angle	Depth (D) meters	Observed values							Interpolated values					Computed values			
		Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen ml/L	Oxygen o/o	Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{TP})	Pressure (ΔP)	Dynamic depth (ΔD)	Specific volume (ΔG)
Station 1: May 12, 1928; 38°14' N, 67°34' W; depth bottom, (4900) m; weather, c; sea, M; wind, N 4; conditions not very favorable; considerable drift; strong current to eastward; depths uncertain; depth of bottom from U. S. Hydrographic Office chart No. 1412, published March 1930																	
	0	24	36.23	24.54	.....	.....	.....	.....	0	24.00	36.23	24.59	24.59	0.0000	0.0000	0.00336
	4	24.17	36.23	24.54	.....	.....	.....	.....	0	24.15	36.23	24.54	24.54	0.0178	0.0170	341
h	30	24.16	36.22	24.54	.....	.....	.....	.....	25	24.15	36.22	24.54	24.65	0.0897	0.0853	342
15.5	30	24.06	36.25	24.59	.....	.....	.....	.....	50	23.90	36.30	24.67	24.90	0.1781	0.1693	330
	58	23.62	36.33	24.78	.....	.....	.....	.....	75	22.50	36.48	25.22	25.56	0.2583	0.2454	278
	78	22.14	36.52	25.35	.....	.....	.....	.....	100	20.85	36.57	26.07	26.20	0.325	0.308	229
	156	19.40	36.50	26.08	.....	.....	.....	.....	150	19.50	36.52	26.07	26.75	0.438	0.415	199
	234	16.19	36.20	26.64	.....	.....	.....	.....	200	17.15	36.25	26.45	27.36	0.535	0.507	165
	126	20.05	36.58	25.96	.....	.....	.....	.....	250	15.90	36.18	26.69	27.84	0.616	0.594	143
	168	18.51	36.43	26.25	.....	.....	.....	.....	300	15.45	36.10	26.74	28.11	0.692	0.654	140
16.8	45	16.82	36.22	26.51	.....	.....	.....	.....	400	14.35	35.59	26.66	28.49	0.846	0.800	151
	303	15.43	36.10	26.74	.....	.....	.....	.....	500	12.80	35.42	26.78	29.09	1.001	0.946	140
	421	>9a)	35.57	.....	.....	.....	.....	.....	700	9.25	35.17	27.23	30.50	1.254	1.185	0.00099
	631	>9a)	35.25	.....	.....	.....	.....	.....				
	842	7.09	35.03	27.45	.....	.....	.....	.....					
Station 2: May 18, 1928; 39°06' N, 45°41' W; depth bottom, (3900) m; weather, cq; sea, R; wind, SSW 6; sea too rough for deeper series; sounding platform under water at times; depths uncertain; depth of bottom from U. S. Hydrographic Office chart No. 1412, published March 1930																	
	0	20.5	36.40	25.71	.....	.....	.....	.....	0	20.50	36.40	25.71	25.71	0.0000	0.0000	0.00229
	3	20.58	36.41	25.69	.....	.....	.....	.....	5	20.60	36.41	25.69	25.71	0.0121	0.0115	231
	22	20.56	36.41	25.70	.....	.....	.....	.....	25	20.55	36.41	25.70	25.81	0.0609	0.0578	231
	40	20.57	36.43	25.71	.....	.....	.....	.....	50	20.55	36.43	25.72	25.95	0.1217	0.1151	228
h	58	20.57	36.43	25.71	.....	.....	.....	.....	75	20.35	36.41	25.76	26.10	0.1820	0.1721	227
50	78	20.35	36.41	25.76	.....	.....	.....	.....	100	19.75	36.43	25.93	26.38	0.240	0.227	211
	142	18.56	36.47	26.27	.....	.....	.....	.....	150	18.45	36.47	26.30	26.98	0.343	0.323	177
	212	18.12	36.48	26.40	.....	.....	.....	.....	200	18.15	36.48	26.38	27.29	0.436	0.412	173
	297	17.79	36.43	26.44	.....	.....	.....	.....	250	18.00	36.46	26.41	27.55	0.526	0.497	171
	388	16.80	36.28	26.56	.....	.....	.....	.....	300	17.75	36.42	26.44	27.80	0.616	0.583	170
					.....	.....	.....	.....	400	16.50	36.25	26.61	28.42	0.769	0.747	0.00157
Station 3: May 21, 1928; 44°00' N, 36°10' W; depth bottom, (3738 m ^b); weather, bcq; sea, M; wind, SSE 3; fairly good conditions; drift estimated at 1.5 miles per hour																	
	0	15.49	36.06	26.66	5.90	105	8.15	99	0	15.50	36.06	26.69	26.69	0.0000	0.0000	0.00136	
	6	15.36	36.02	26.69	5.90	104	8.14	142	5	15.50	36.02	26.66	26.68	0.0073	0.0069	139	
	29	15.36	36.02	26.69	5.90	104	8.14	142	25	15.40	36.02	26.69	26.80	0.0365	0.0345	137	
	59	14.66	35.96	26.81	5.55	99	8.19	30	50	14.95	35.98	26.75	26.98	0.0720	0.0679	130	
	89	13.79	35.91	26.95	5.26	90	8.10	50	75	14.00	35.92	26.92	27.27	0.1048	0.0987	116	
h	119	13.52	35.85	26.96	5.13	88	8.11	48	100	13.65	35.89	26.96	27.42	0.135	0.127	114	
23	240	12.91	35.79	27.04	5.26	89	8.11	53	150	13.30	35.83	26.99	27.68	0.194	0.183	111	
	363	12.46	35.72	27.07	5.26	88	8.03	52	200	13.05	35.78	27.03	27.95	0.254	0.239	109	
	488	10.89	35.44	27.15	4.74	77	8.03	86	250	12.85	35.78	27.04	28.20	0.311	0.293	109	
	620	8.67	35.14	27.30	4.36	67	7.95	98	300	12.70	35.75	27.05	28.43	0.369	0.348	0.00110	

a) Thermometer off scale.

b) Mean of two sonic depths, 3733 and 3743 meters, at beginning and end of observations.

c) Depths uncertain.

d) Temperature not read.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep-sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values							Interpolated values							Computed values		
		Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Oxygen ml/L	Oxygen o/o	Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Density (σ_{tp})	Pressure (ΔP)	Dynamic depth (ΔD)	Specific volume ($\Delta \alpha$)	
Station 3--Continued																		
	423a}	11.13	35.47	27.14	4.23	69	7.95	60	....	400	12.00	35.65	27.11	28.96	0.484	0.457	0.00107
	523a}	8.35	35.10	27.32	4.23	65	7.95	84	....	500	10.15	35.32	27.20	29.52	0.594	0.560	0.098
	1125	4.54	34.97	27.72	5.65	79	7.88	74	....	700	7.40	35.04	27.41	30.70	0.784	0.737	0.080
h	1300	4.11	34.95	27.76	5.65	79	7.90	160	....	1000	5.05	34.98	27.67	32.41	1.00	0.94	0.055
43°	1774	3.40	34.92	27.81	6.03	82	7.95	64	....	1500	3.80	34.94	27.78	34.91	1.27	1.20	0.045
	2232	3.21	34.89	27.80	6.09	83	7.92	62	....	2000	3.50	34.91	27.81	37.29	1.52	1.43	0.046
	2862	2.93	34.91	27.84	6.09	82	7.95	63	....	2500	3.10	34.90	27.82	39.62	1.76	1.65	0.047
									....	3000	2.90	34.90	27.84	41.96	2.02	1.90	0.00047
Station 4: May 23, 1928; 44°39' N, 33°06' W; depth bottom, 2439 m; weather, cq; sea, MG; wind, ESE 4; wind increasing during observations; considerable side drift; depths uncertain																		
	0	14.62	35.93	26.79	....	....	8.16	92	....	0	14.62	35.93	26.79	26.79	0.0000	0.0000	0.00127
h	5	14.65	35.94	26.79	....	....	8.15	23	....	5	14.65	35.94	26.79	26.81	0.0067	0.0064	0.127
12.4	26	14.69	36.03	26.85	....	....	8.15	23	....	25	14.70	36.03	26.84	26.95	0.0331	0.0314	0.123
26°	52	14.32	36.00	26.91	....	....	8.15	21	....	50	14.35	36.01	26.91	27.14	0.0648	0.0611	0.115
	78	13.69	35.92	26.98	....	....	8.12	40	....	75	13.80	35.94	26.97	27.32	0.0949	0.0896	0.112
	103	13.37	35.88	27.01	....	....	8.12	50	....	100	13.40	35.89	27.01	27.47	0.124	0.117	0.109
	82	13.74	35.92	26.97	....	....	8.14	..	....	150	12.50	35.75	27.09	27.79	0.179	0.170	0.102
h	147	12.53	35.75	27.08	....	....	8.06	34	....	200	11.95	35.65	27.12	28.05	0.233	0.221	0.101
11.0	210	11.89	35.64	27.12	....	....	8.12	46	....	250	11.70	35.63	27.15	28.31	0.285	0.270	0.099
45°	268	11.64	35.62	27.16	....	....	8.06	51	....	300	11.50	35.60	27.17	28.56	0.337	0.320	0.00099
	327b}	11.32	35.57	27.18	....	....	8.11	59	....								
	.....b}	13.36	35.88	27.01	....	....	8.14	..	....							
	.....b}	11.95	35.69	27.15	....	....	8.12	..	....							
Station 5: May 25, 1928; 43°15' N, 31°32' W; depth bottom, >2719 m; weather, bc; sea, RC; wind, NE 4; fairly good conditions; wind and sea increased toward end																		
h	0	15.05	35.89	26.66	....	....	8.19	16	....	0	15.05	35.89	26.66	26.66	0.0000	0.0000	0.00139
<15°	5	15.06	35.89	26.66	....	....	8.23	13	....	5	15.06	35.89	26.66	26.68	0.0073	0.0070	0.139
	27	15.04	35.89	26.66	....	....	8.23	19	....	25	15.05	35.89	26.66	26.77	0.0369	0.0349	0.140
	53	14.52	36.00	26.87	....	....	8.21	36	....	50	14.60	36.00	26.85	27.08	0.0715	0.0675	0.121
	80	13.83	35.90	26.93	....	....	8.17	56	....	75	13.90	35.93	26.94	27.29	0.1028	0.0970	0.114
	106	13.51	35.90	27.00	....	....	8.15	27	....	100	13.55	35.89	26.98	27.44	0.132	0.125	0.112
	106	13.51	35.88	26.98	....	....	8.10	29	....	150	13.20	35.87	27.05	27.74	0.190	0.179	0.105
	211	13.08	35.83	27.04	....	....	8.12	90?	....	200	12.95	35.84	27.04	27.96	0.247	0.233	0.108
	320c)	12.67	35.76	27.06	....	....	8.12	34	....	250	12.95	35.81	27.05	28.21	0.304	0.286	0.108
h	430c)	11.69	35.69	27.08	....	....	8.12	43	....	300	12.40	35.77	27.06	28.44	0.362	0.341	0.110
11.0	539	11.69	35.57	27.11	....	....	8.08	46	....	400	12.40	35.71	27.08	28.92	0.478	0.452	0.109
38°	751	9.86	35.31	27.24	....	....	7.97	84	....	500	11.95	35.62	27.10	29.41	0.595	0.561	0.105
	1078	6.19	35.15	27.66	....	....	7.94	63	....	700	10.40	35.36	27.18	30.43	0.823	0.775	0.067
	1623	3.96	34.94	27.77	....	....	7.97	54	....	1000	7.00	35.18	27.58	32.28	1.10	1.03	0.048
	2170	3.28	34.90	27.80	....	....	7.99	64	....	1500	4.20	34.98	27.77	34.88	1.41	1.33	0.048
	2719	3.09	34.90	27.82	....	....	7.99	56	....	2000	3.45	34.90	27.78	37.25	1.68	1.57	0.049
					....	....	8.03	56	....	2500	3.15	34.90	27.82	39.62	1.93	1.81	0.00047

a) Depths uncertain. b) Water-bottles reversed when hauling up, messengers probably caught on wire for some time. c) Water-bottle not locked

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values						Interpolated values						Computed values		
		Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen		Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{TP})	Pressure (ΔP)	Dynamic depth (ΔD)	Specific volume (ΔX)
					ml/L	o/o											Pressure (ΔP)	Dynamic depth (ΔD)	Specific volume (ΔX)
Station 6: May 31, 1928; 50°22' N, 13°31' W; depth bottom, 2604 m; weather, or; sea, MS; wind, E 0-1; good conditions; little wind and sea fairly smooth																
	0	12.44	35.55	26.95	.....	.....	.....	0	12.44	35.55	26.95	26.95	0.0000	0.0000	0.00112
h	5	12.45	35.52	26.92	.....	.....	.....	5	12.45	35.55	26.94	26.96	0.0059	0.0057	112
13.1	26a)	12.36	35.59	26.99	.....	.....	.....	25	12.40	35.55	26.96	27.08	0.0295	0.0280	111
12°	52	11.62	35.51	27.07	.....	.....	.....	50	11.65	35.55	27.10	27.34	0.0571	0.0541	098
	78	11.59	35.59	27.14	.....	.....	.....	75	11.60	35.55	27.11	27.46	0.0830	0.0788	099
	104	11.28	35.52	27.15	.....	.....	.....	100	11.30	35.55	27.16	27.63	0.108	0.103	094
	103	11.20	35.58	27.21	.....	.....	.....	150	10.90	35.53	27.22	27.92	0.156	0.148	088
	199	10.71	35.51	27.24	.....	.....	.....	200	10.70	35.51	27.25	28.18	0.204	0.193	088
	301	10.52	35.50	27.27	.....	.....	.....	250	10.60	35.51	27.26	28.43	0.249	0.236	088
	400a)	10.37	35.47	27.27	.....	.....	.....	300	10.50	35.50	27.27	28.67	0.296	0.281	089
h	501	10.24	35.50b)	27.32	.....	.....	.....	400	10.35	35.47	27.28	29.15	0.389	0.371	090
18°	702	9.63	35.50	27.32	.....	.....	.....	500	10.25	35.50	27.32	29.55	0.483	0.459	087
	1007	8.49	35.51	27.62	.....	.....	.....	700	9.65	35.51	27.43	30.69	0.661	0.626	080
	1521	4.98	35.12	27.80	.....	.....	.....	1000	8.50	35.52	27.63	32.29	0.89	0.84	064
	2038	3.28	34.91	27.81	.....	.....	.....	1500	7.94	35.13	27.79	34.88	1.20	1.13	049
	2555	2.99	34.96	27.88	.....	.....	.....	2000	7.94	34.92	27.81	37.29	1.46	1.37	046
					.....	.....	.....	2500	7.95	34.90	27.83	39.64	1.70	1.60	0.00046
Station 7: July 13, 1928; 63°20' N, 9°25' W; depth bottom, 454 m; weather, qor; sea, R; wind, SW by S 7; not good conditions; gale and rough sea; lower water-bottle on bottom, partly filled with mud and sand																
	0	8.92	35.21	27.31	.....	.....	.....	0	8.92	35.21	27.31	27.31	0.0000	0.0000	0.00078
	9	8.90	35.23	27.33	.....	.....	.....	5	8.90	35.21	27.31	27.33	0.0041	0.0039	78
h	33	8.16	35.25	27.46	.....	.....	.....	25	8.20	35.22	27.33	27.45	0.0203	0.0194	76
57°	75	8.12	35.23	27.45	.....	.....	.....	50	8.12	35.25	27.46	27.70	0.0387	0.0368	64
	97	7.79	35.24	27.46	.....	.....	.....	75	8.10	35.24	27.46	27.80	0.0559	0.0532	66
	183	7.95	35.26	27.53	.....	.....	.....	100	8.10	35.24	27.46	27.93	0.073	0.070	66
	271	5.95	35.04	27.61	.....	.....	.....	150	7.95	35.26	27.50	28.21	0.106	0.101	62
	361	2.72	34.95c)	27.89	.....	.....	.....	200	7.60	35.22	27.53	28.47	0.139	0.133	61
	454	0.31	34.92c)	28.04	.....	.....	.....	250	6.60	35.08	27.55	28.73	0.170	0.162	58
					.....	.....	.....	300	5.00	35.00	27.70	29.13	0.198	0.188	45
					.....	.....	.....	400	1.65	34.94	27.97	29.91	0.230	0.219	0.00017
Station 8: July 15, 1928; 63°30' N, 14°41' W; depth bottom, 1308 m; weather, b; sea, S; wind, calm; good conditions																
	0	10.32	35.23	27.09	6.11	98	7.93	0	10.32	35.23	27.09	27.09	0.0000	0.0000	0.00099	
	5	10.22	35.22	27.10	6.48	104	8.01	5	10.22	35.22	27.10	27.12	0.0052	0.0050	98	
	25	9.72	35.23	27.20	6.24	99	8.02	25	9.72	35.23	27.20	27.32	0.0248	0.0236	88	
	50	9.08	35.25	27.32	6.42	100	7.95	50	9.08	35.25	27.32	27.56	0.0466	0.0443	77	
	75	8.60	35.26	27.40	6.29	97	7.95	75	8.60	35.26	27.40	27.75	0.0661	0.0628	71	
h	100	8.44	35.25	27.42	6.17	95	7.95	100	8.44	35.26	27.43	27.90	0.084	0.080	68	
9°	200	8.12	35.28	27.49	6.17	94	7.94	150	8.25	35.26	27.46	28.17	0.119	0.113	66	
	300	8.06	35.25	27.48	5.98	91	7.93	200	8.12	35.26	27.48	28.42	0.155	0.147	66	
	400	7.98	35.27	27.51	5.11	93	7.94	250	8.10	35.26	27.48	28.66	0.189	0.179	66	
	500	7.98	35.23	27.48	5.80	88	7.93	300	8.06	35.26	27.49	28.90	0.224	0.213	66	
	700	7.57	35.24	27.54	5.86	89	7.91	400	7.98	35.26	27.50	29.38	0.294	0.280	67	
	1000	4.24	35.09	27.85	6.24	87	7.93	500	7.95	35.25	27.50	29.85	0.366	0.347	68	
								700	7.57	35.24	27.54	30.83	0.510	0.483	68	
								1000	4.24	35.10	27.86	32.62	0.67	0.64	0.00035	

a) Water bottles not locked. b) Salinity (35.24) regarded as erroneous. c) By titration.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values										Interpolated values					Computed values		
		Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{TP})	Pressure (ΔP)	Anomalies			
					ml/L	o/o										Dynamic depth (ΔD)	Specific volume (Δα)		
Station 9: July 28, 1928; 62°45' N, 25°52' W; depth bottom, 882 m; weather, b; sea, M; wind, NNE 4; fairly good conditions																			
h	0	11.12	35.14	26.88	.....	.....	20	.....	0	11.12	35.14	26.88	26.88	0.0000	0.0000	0.00118
8.9	8	11.09	35.11	26.86	.....	.....	20	.....	5	11.10	35.12	26.87	26.89	0.0053	0.0059	0.00118
50°	31	10.72	35.04	26.88	.....	.....	28	.....	25	10.90	35.05	26.85	26.97	0.0317	0.0398	0.00121
	56	8.06	35.11	27.37	.....	.....	55	.....	50	8.35	35.11	27.31	27.55	0.0580	0.0547	0.00078
	83	7.54	35.07	27.42	.....	.....	55	.....	75	7.75	35.07	27.37	27.72	0.0780	0.0738	0.00074
	109	7.62	35.11	27.44	.....	.....	56	.....	100	7.55	35.10	27.44	27.91	0.096	0.091	0.00067
h	208	7.32	35.12	27.48	.....	.....	58	.....	150	7.40	35.12	27.48	28.19	0.131	0.124	0.00064
9.4	304	7.30	35.11	27.50	.....	.....	58	.....	200	7.30	35.12	27.49	28.43	0.155	0.156	0.00064
50°	452	6.80	35.08	27.53	.....	.....	58	.....	250	7.25	35.12	27.50	28.68	0.198	0.188	0.00063
	587	6.00	35.08	27.63	.....	.....	58	.....	300	6.95	35.11	27.50	28.92	0.232	0.220	0.00064
	832a)	5.37	35.00	27.65	.....	.....	58	.....	400	6.95	35.08	27.52	29.41	0.300	0.285	0.00064
					.....	.....	58	.....	500	6.55	35.08	27.57	29.93	0.367	0.345	0.00059
					.....	.....	58	.....	700	5.65	35.06	27.56	30.98	0.488	0.459	0.00054
Station 10: July 30, 1928; 59°19' N, 34°15' W; depth bottom, 3031 m; weather, c; sea, M; wind, WNW 1-2; good conditions																			
h	0	10.94	34.95	26.77	.....	.....	28	.....	0	10.94	34.95	26.77	26.77	0.0000	0.0000	0.00129
11.5	9	10.94	35.05	26.84	.....	.....	28	.....	5	10.94	34.95	26.82	26.84	0.0067	0.0063	0.00123
18°	30	10.32	34.93	26.86	.....	.....	29	.....	25	10.55	34.93	26.82	26.94	0.0329	0.0310	0.00124
	54	9.86	34.94	27.96	.....	.....	34	.....	50	10.05	34.94	26.92	27.16	0.0644	0.0608	0.00114
	84	7.19	34.98	27.40	.....	.....	56	.....	75	7.80	34.96	27.29	27.64	0.0903	0.0854	0.00082
	105	6.56c)	35.02	27.52	.....	.....	52	.....	100	6.65	35.02	27.50	27.97	0.109	0.103	0.00062
	207	5.62	35.00	27.62	.....	.....	55	.....	150	6.00	35.02	27.59	28.30	0.139	0.131	0.00052
	308	5.01	34.95	27.66	.....	.....	58	.....	200	5.65	35.00	27.62	28.57	0.167	0.158	0.00051
	334	5.26	34.93	27.61	.....	.....	58	.....	250	5.35	34.98	27.62	28.82	0.194	0.183	0.00050
h	445	4.69	34.89	27.64	.....	.....	60	.....	300	5.15	34.96	27.64	29.07	0.220	0.208	0.00050
10.1	554	4.54	34.89	27.66	.....	.....	60	.....	400	4.80	34.90	27.64	29.55	0.273	0.259	0.00051
18°	773	3.80	34.93	27.77	.....	.....	60	.....	500	4.60	34.89	27.64	30.03	0.328	0.310	0.00051
	1101	3.45	34.83	27.73	.....	.....	60	.....	700	4.10	34.91	27.74	31.08	0.429	0.405	0.00044
	1636	3.25	34.93	27.83	.....	.....	60	.....	1000	3.45	34.88	27.75	32.53	0.57	0.54	0.00043
	2174	3.14	34.88	27.80	.....	.....	60	.....	1500	3.30	34.92	27.82	34.97	0.79	0.75	0.00040
	2718b)	2.98	34.96	27.87	.....	.....	60	.....	2000	3.20	34.90	27.80	37.28	1.03	0.97	0.00046
	3031b)	2.53	.....	.....	.....	.....	62	.....	2500	3.10	34.91	27.83	39.63	1.27	1.19	0.00047
					.....	.....	62	.....	3000	2.65	34.95	27.90	42.04	1.51	1.42	0.00041
Station 11: August 1, 1928; 58°12' N, 35°51' W; depth bottom, 2633 m; weather, fc; sea, ML; wind, WSW; vessel rolling heavily in southwest swell; nearly calm; thick fog																			
h	0	10.67	34.91	26.78	.....	.....	27	.....	0	10.67	34.91	26.78	26.78	0.0000	0.0000	0.00128
23°	9	10.63	34.91	26.79	.....	.....	25	.....	5	10.65	34.91	26.79	26.82	0.0067	0.0054	0.00127
	30	9.68	34.91	26.95	.....	.....	28	.....	25	10.00	34.91	26.91	27.03	0.0322	0.0306	0.00115
	55	7.01c)	34.97	27.42	.....	.....	63	.....	50	7.30	34.95	27.36	27.60	0.0571	0.0541	0.00073
	81	6.42	35.08	27.58	.....	.....	59	.....	75	6.55	35.07	27.56	27.91	0.0742	0.0703	0.00056
	107	6.26	35.05	27.58	.....	.....	67	.....	100	6.30	35.06	27.58	28.05	0.088	0.084	0.00053
	214	5.52	34.97	27.60	.....	.....	66	.....	150	5.95	35.00	27.58	28.29	0.117	0.110	0.00053
	323	5.02	34.97	27.67	.....	.....	67	.....	200	5.60	34.97	27.60	28.55	0.146	0.137	0.00053

a) Water-bottle on bottom, sand in sample. b) Water-bottle on bottom, mud in sample. c) Temperature from pressure thermometer and wire depth.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values										Interpolated values					Computed values		
		Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Density (σ_{tp})	Pressure (ΔP)	Anomalies			
					mi/L	o/o										Dynamic depth (ΔD)	Specific volume ($\Delta \alpha$)		
Station 11--Continued																			
	392a)	4.58	34.93	27.69	.....	.....	66	.....	250	5.35	34.97	27.62	28.82	0.173	0.162	0.00050
	486a)	4.52	35.02	27.76	.....	.....	67	.....	300	5.10	34.97	27.66	29.09	0.199	0.187	0.00049
h	675a)	4.24	34.91	27.71	.....	.....	70	.....	400	4.70	34.93	27.67	29.58	0.249	0.237	0.00049
9.2	775	3.80	34.92	27.67	.....	.....	51	.....	700	4.40	34.93	27.69	30.08	0.300	0.284	0.00046
25°	971	3.50	34.88	27.79	.....	.....	62	.....	1000	4.00	34.93	27.75	31.09	0.395	0.373	0.00043
	1265	3.47	34.88	27.76	.....	.....	64	.....	1500	3.50	34.87	27.76	32.54	0.53	0.50	0.00043
	1770	3.28	34.91	27.79	.....	.....	67	.....	2000	3.45	34.93	27.81	34.95	0.76	0.72	0.00042
	2311	3.08	34.92	27.83	.....	.....	68	.....	2500	3.20	34.91	27.82	37.30	1.00	0.94	0.00044
Station 12: August 5, 1928; 51°40' N, 49°32' W; depth bottom, 2792 m; weather, bc; sea, GL; wind, N 4; not very good conditions; vessel rolling heavily; one wave over quarter-deck																			
	0	8.44	33.65	26.16	.....	.....	27	.....	0	8.44	33.65	26.16	26.16	0.0000	0.0000	0.00187
	10	8.41	33.63	26.15	.....	.....	27	.....	5	8.40	33.64	26.16	26.19	0.0098	0.0094	0.00187
h	41	4.18	34.51	27.40	.....	.....	78	.....	25	6.50	33.95	26.58	26.80	0.0439	0.0418	0.00187
11.0	100	3.46	34.87	27.76	.....	.....	95	.....	50	3.95	34.74	27.51	27.86	0.0685	0.0650	0.00187
18°	137	3.42	34.83	27.73	.....	.....	80	.....	75	3.60	34.86	27.74	28.10	0.0799	0.0760	0.00187
	174	3.41	34.90	27.79	.....	.....	82	.....	100	3.45	34.87	27.76	28.24	0.085	0.085	0.00187
	391	3.39	34.85	27.75	.....	.....	86	.....	150	3.40	34.84	27.74	28.47	0.108	0.103	0.00187
	288	3.37	34.85	27.75	.....	.....	87	.....	200	3.40	34.89	27.78	28.74	0.122	0.122	0.00187
	435	3.32	34.85	27.76	.....	.....	105	.....	250	3.40	34.86	27.76	28.97	0.146	0.139	0.00187
	582	3.30	34.85	27.76	.....	.....	91	.....	300	3.35	34.85	27.76	29.20	0.166	0.157	0.00187
	732	3.24	34.87	27.78	.....	.....	90	.....	400	3.35	34.85	27.76	29.69	0.206	0.195	0.00187
h	9.6	3.08	34.88	27.81	.....	.....	90	.....	500	3.30	34.85	27.76	30.17	0.247	0.233	0.00187
30°	1031	3.11	34.88	27.80	.....	.....	91	.....	700	3.25	34.86	27.77	31.13	0.329	0.311	0.00187
	1381	2.81	34.88	27.80	.....	.....	91	.....	1000	3.10	34.88	27.80	32.59	0.45	0.43	0.00187
	2221b)	2.62	34.89	27.85	.....	.....	90	.....	1500	3.10	34.88	27.80	34.96	0.66	0.63	0.00187
	2792b)	2.41	.....	.....	.....	.....	138	.....	2000	2.75	34.89	27.84	37.34	0.89	0.84	0.00187
									2500	2.55	34.89	27.85	39.70	1.10	1.03	0.00042			
Station 13: August 7, 1928; 46°06' N, 48°01' W; depth bottom, 126 m; weather, b; sea, SL; wind, W 2-3; good conditions																			
	0	11.27	32.68	24.94	.....	.....	.....	.....	0	11.30	32.66	24.92	24.92	0.0000	0.0000	0.00304
h	7c)	11.20	32.67	24.95	.....	.....	.....	.....	5	11.25	32.67	24.92	24.95	0.0160	0.0153	0.00304
9.4	51	1.64	33.40	26.90	.....	.....	.....	.....	25	0.75	33.18	26.52	26.74	0.0631	0.0600	0.00304
8°	77	1.52	33.47	26.95	.....	.....	.....	.....	50	1.60	33.39	26.88	27.13	0.0975	0.0924	0.00304
	127	0.80	33.69	27.11	.....	.....	.....	.....	75	1.50	33.50	26.97	27.35	0.1274	0.1209	0.00304
	0	11.40	32.64	24.89	.....	.....	.....	.....	100	1.20	33.60	27.05	27.55	0.155	0.147	0.00101
	3	11.34	32.66	24.92	.....	.....	19	.....										
	6	11.33	32.69	24.94	.....	.....	19	.....										
h	16	10.33	32.70	25.12	.....	.....	19	.....										
8°	26	0.72	33.11	26.57	.....	.....	31	.....										
	51	1.59	33.40	26.89	.....	.....	59	.....										
	76	1.54	33.52	26.99	.....	.....	59	.....										
	126	0.71	33.72	27.12	.....	.....	63	.....										

a) Water-bottles probably reversed at wrong levels since depths by thermometers are wrong. b) Water-bottle on bottom. c) Thermometers off scale.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values										Interpolated values						Computed values		
		Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{TP})	Pressure (ΔP)	Anomalies				
					ml/L	o/o										Dynamic depth (ΔD)	Specific volume (Δv)			
Station 14: August 9, 1928; 42°10' N, 47°19' W; depth bottom, 4154 m; weather, bc; sea, SL; wind, NE 1-2; good conditions																				
	0	21.18	35.23	24.64	...	...	11	...	0	21.18	35.23	24.64	24.64	0.0000	0.0000	0.00331		
	8	21.16	35.20	24.62	...	...	12	...	5	21.15	35.21	24.63	24.63	0.0175	0.0166	331		
	33	21.07	35.36	24.77	...	...	12	...	25	14.95	35.36	24.77	24.88	0.0862	0.0817	320		
	49	14.95	35.10	26.08	...	...	16	...	50	14.95	35.10	26.08	26.31	0.1541	0.1459	194		
h	72	15.04	35.68	26.51	...	...	28	...	75	15.05	35.68	26.50	26.85	0.2005	0.1898	156		
28°	95	14.02a	35.59	26.66	...	...	34	...	100	14.00	35.57	26.65	27.11	0.240	0.227	143		
	186	13.66a	35.40	26.59	...	...	87	...	150	13.85	35.46	26.59	27.28	0.317	0.300	150		
	277	11.99	35.51	27.22	...	...	117	...	200	13.40	35.38	26.62	27.54	0.396	0.375	148		
	368	9.32	35.17	27.22	...	...	139	...	250	12.50	35.31	26.76	27.92	0.471	0.446	136		
	459	7.77	35.08	27.39	...	...	146	...	300	11.35	35.25	26.92	28.31	0.539	0.510	121		
	492	6.83	34.98	27.44	...	...	176	...	400	8.65	35.12	27.30	29.17	0.619	0.615	087		
	593	4.40	34.87	27.66	...	...	153	...	500	6.80	35.02	27.48	29.84	0.733	0.693	069		
	990	3.73	34.88	27.74	...	...	143	...	700	4.35	34.88	27.67	31.01	0.860	0.813	051		
h	1488	3.34	34.89	27.79	...	...	137	...	1000	3.70	34.88	27.74	32.51	1.01	0.96	045		
18°	1985	3.25	34.90	27.80	...	...	134	...	1500	3.30	34.89	27.79	34.94	1.25	1.18	043		
	2483	3.10	34.91	27.83	...	...	134	...	2000	3.25	34.90	27.80	37.28	1.50	1.41	046		
	3001	2.92	34.90	27.84	...	...	139	...	2500	3.10	34.91	27.83	39.63	1.74	1.64	047		
	3519	2.50	34.89	27.86	...	...	131	...	3000	2.90	34.90	27.84	41.95	1.99	1.88	048		
	4061	2.22	34.89	27.89	...	...	142	...	3500	2.55	34.89	27.86	44.29	2.24	2.12	047		
					...	...		...	4000	2.25	34.89	27.89	46.60	2.48	2.34	0.00043
Station 15: August 11, 1928; 38°39' N, 48°48' W; depth bottom, 5408 m; weather, b; sea, ML; wind, WNW 1-2; fairly good conditions; vessel rolling heavily																				
	0	24.81	36.39	24.47	...	...	11	...	0	24.81	36.39	24.47	24.47	0.0000	0.0000	0.00348		
	10	24.54	36.39	24.55	...	...	9	...	5	24.70	36.39	24.50	24.53	0.0182	0.0173	344		
	33	21.66	36.49	25.46	...	...	8	...	25	19.80	36.46	25.06	25.17	0.0852	0.0810	292		
	62	19.27	36.47	26.12	...	...	13	...	50	18.80	36.48	25.96	26.19	0.1510	0.1432	206		
	91	18.56	36.45	26.26	...	...	13	...	75	18.85	36.46	26.19	26.53	0.2029	0.1923	186		
h	120	18.25	36.47	26.35	...	...	19	...	100	18.45	36.45	26.39	26.73	0.251	0.238	178		
26°	235	17.96	36.45	26.41	...	...	19	...	150	18.10	36.47	26.39	27.07	0.343	0.324	169		
	352	17.82	36.42	26.42	...	...	20	...	200	18.00	36.46	26.41	27.31	0.433	0.409	169		
	468	17.44	36.36	26.46	...	...	24	...	250	17.95	36.45	26.42	27.56	0.523	0.493	169		
	585	16.32	36.20	26.61	...	...	31	...	300	17.85	36.43	26.42	27.78	0.613	0.579	171		
	816	13.29	35.72	26.91	...	...	86	...	400	17.65	36.44	26.44	28.25	0.795	0.751	172		
	912	11.28	35.47	27.11	...	...	109	...	500	17.25	36.32	26.49	28.76	0.979	0.921	169		
	380	17.62	...	...	...	...	20	...	700	14.90	35.99	26.77	29.96	1.319	1.238	148
	749	...	36.03	...	...	...	58	...	1000	9.55	35.33	27.30	31.94	1.71	1.59	098	
	994	13.70d	35.78	26.86	...	...	88	...	1500	4.80	35.01	27.73	34.83	2.12	1.99	054		
	1421	6.75	35.13	27.57	...	...	131	...	2000	3.70	34.94	27.79	37.25	2.40	2.26	050		
h	1863	3.87	34.95	27.78	...	...	113	...	2500	3.40	34.93	27.81	39.60	2.66	2.50	050		
46°	2327	3.47	34.93	27.81	...	...	94	...	3000	3.15	34.93	27.84	41.94	2.93	2.78	049		
	2809	3.27	34.96	27.85	...	...	98	...	3500	2.80	34.91	27.85	44.26	3.18	3.00	048		
	3295	2.96	34.91	27.84	...	...	118	...	4000	2.50	34.91	27.88	46.57	3.44	3.23	046		
	3795	2.58	34.91	27.87	...	...	163	...	4500	2.40	34.87	27.86	48.81	3.69	3.47	0.00051		
	4319	2.41	34.89	27.87	...	...	173	...										
	4841	2.36	34.85	27.84	...	...	178	...										

a) Temperature from pressure thermometer and wire depth. b) Water-bottle not locked; salinity rejected. c) Thermometer off scale.

d) Temperature (11.10) by second thermometer rejected; bottles probably reversed on way down at about 800 and 1200 meters instead of at 994 and 1421 meters.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values										Interpolated values					Computed values		
		Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{tP})	Pressure (ΔP)	Anomalies			
					ml/L	o/o										Dynamic depth (ΔD)	Specific volume (ΔC)		
Station 16: August 13, 1928; 36°47' N, 46°31' W; depth bottom, 5287 m; weather, bc; sea, C; wind, SW 5; fair conditions; fresh breeze																			
	0	25.92	36.16	23.95	.....	.....	8.24	8	.....	0	25.92	36.16	23.95	0.0000	0.0000	0.00397
	8	25.88	36.16	23.96	.....	.....	8.24	8	.....	5	25.90	36.16	23.96	0.0209	0.0199	395
	30	25.81	36.17	24.00	.....	.....	8.23	8	.....	25	25.85	36.17	24.00	0.1041	0.0988	395
	55	23.64	36.41	24.84	.....	.....	8.23	8	.....	50	24.40	36.38	24.81	0.2006	0.1905	338
	82	21.22	36.51	25.60	.....	.....	8.17	12	.....	75	21.85	36.51	25.43	0.2792	0.2650	258
10.8	103	19.62	36.48	26.01	.....	.....	8.17	13	.....	100	19.90	36.49	26.01	0.341	0.323	210
28°	196	17.37	36.31	26.45	.....	.....	8.16	13	.....	150	18.35	36.40	26.27	0.444	0.421	180
	381	15.30	36.11	26.78	.....	.....	8.06	56	.....	200	17.60	36.34	26.41	0.538	0.509	169
	746	8.80 ^{a)}	35.12	27.27	.....	.....	7.85	143	.....	250	17.00	36.28	26.51	0.625	0.590	160
	1242	4.80	34.99	27.71	.....	.....	7.88	118	.....	300	16.40	36.23	26.61	0.708	0.669	153
	1690	3.57	34.92	27.79	.....	.....	7.88	105	.....	400	15.05	36.06	26.80	0.863	0.814	137
					.....	.....			.....	500	12.60	35.57	26.93	1.004	0.945	124
					.....	.....			.....	700	8.90	35.13	27.25	1.241	1.157	093
	265	17.10	36.30	26.50	.....	.....	8.10	32	.....	1000	6.10	35.02	27.58	1.50	1.41	065
9.7	383	15.40 ^{b)}	35.55	26.75	.....	.....	8.05	50	.....	1500	4.00	34.95	27.77	1.80	1.70	047
32°	489	.....	.....	.....	.....	.....	7.88	134	.....	2000	3.30	34.90	27.80	2.06	1.94	0.00047
	596	10.52	35.34	27.14	.....	.....	7.88	134	.....									
	726	8.00	35.06	27.34	.....	.....	7.85	143	.....									
Station 17: August 15, 1928; 33°42' N, 42°21' W; depth bottom, 4492 m; weather, bc; sea, C; wind, SW 5; poor conditions; vessel rolling, pitching, and drifting																			
	0	26.19	36.58	24.18	.....	.....	8.29	9	.....	0	26.19	36.58	24.18	0.0000	0.0000	0.00375
	18	25.82	36.59	24.31	.....	.....	8.28	12	.....	5	26.19	36.55	24.16	0.0198	0.0189	377
	35	23.05 ^{a)}	36.60	25.49	.....	.....	8.28	12	.....	25	24.20	36.59	24.80	0.0929	0.0882	317
10.0	53	20.65	36.64	25.86	.....	.....	8.27	12	.....	75	21.90	36.60	25.48	0.1679	0.1592	251
45°	73	19.82	36.60	26.05	.....	.....	8.23	9	.....	100	20.50	36.63	25.89	0.2296	0.2174	214
	91	19.05	.....	.....	.....	.....	8.23	11	.....	150	18.10	36.44	26.37	0.283	0.268	191
	113	18.38	.....	.....	.....	.....	8.18	17	.....	200	17.75	36.40	26.42	0.379	0.358	171
			.....	.....	.....	.....			.....	250	17.60	36.37	26.44	0.469	0.444	169
	75	20.34	36.62	25.92	.....	.....	8.18	8	.....	300	17.25	36.31	26.44	0.558	0.528	168
	87	19.56	36.53	26.06	.....	.....	8.23	7	.....	400	15.85	36.14	26.48	0.645	0.611	165
	176	17.89	36.42	26.40	.....	.....	8.18	11	.....	500	14.15	35.87	26.85	0.812	0.768	148
	363	16.40	36.35	26.44	.....	.....	8.17	13	.....	700	10.20	35.36	27.22	0.964	0.910	135
9.2	459	14.84	35.99	26.61	.....	.....	8.11	15	.....									
50°	645 ^{c)}	11.14	35.47	27.14	.....	.....	8.08	54	.....									
			35.68	27.07	.....	.....	8.00	72	.....									
					.....	.....	8.01	67	.....									
Station 18: August 17, 1928; 29°47' N, 40°36' W; depth bottom, 4054 m; weather, b; sea, S; wind, NNE 2; good conditions																			
	0	26.98	37.00	24.25	.....	.....	8.23	5	.....	0	26.98	37.00	24.25	0.0000	0.0000	0.00368
	5	26.99	37.02	24.26	.....	.....	8.25	5	.....	5	26.99	37.02	24.26	0.0194	0.0185	368
11.0	14	26.76	36.97	24.56	.....	.....	8.26	5	.....	25	25.95	36.97	24.56	0.0539	0.0492	340
15°	26	25.93	36.97	24.56	.....	.....	8.25	5	.....	50	25.35	36.82	25.52	0.1714	0.1626	247
	39	23.76	.....	.....	.....	.....	8.23	5	.....	75	20.85	36.81	25.94	0.2320	0.2197	0.00209

a) Temperature from pressure thermometer and wire depth. b) Thermometer off scale. c) Water bottle reversed at wrong level.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values					Interpolated values					Computed values					
		Temperature (t) °C	Salinity (S) o/oo	Density (σ_t^0)	Oxygen		Hydrogen ion (pH)	Phos-phate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t^0)	Density (σ_{tP}^0)	Pressure (ΔP)	Anomalies	
					ml/L	o/o										Dynamic depth (ΔD)	Specific volume (Δα)
Station 18--Continued																	
	51	22.12	36.82	25.58	...	8.24	5	...	100	20.35	36.81	26.06	26.51	0.286	0.270	0.00199	
h	77	20.84	36.81	25.94	...	8.20	5	...	150	19.25	36.73	26.29	26.57	0.386	0.364	0.178	
15°	103	20.32	36.81	26.07	...	8.21	5	...	200	18.35	36.48	26.33	27.24	0.481	0.454	0.177	
	208	18.20	36.46	26.36	...	8.21	8	...	250	17.55	36.35	26.43	27.57	0.571	0.540	0.169	
	311	16.74	36.25	26.55	...	8.18	74	...	300	16.80	36.26	26.55	27.92	0.658	0.622	0.159	
	296	16.81	36.25	26.54	...	8.16	28	...	400	15.55	36.11	26.72	28.54	0.819	0.774	0.144	
	398	15.58	36.11	26.71	...	8.11	31	...	500	14.25	35.91	26.85	29.14	0.969	0.913	0.133	
	498	14.26	35.91	26.85	...	8.11	51	...	700	11.25	35.48	27.12	30.36	1.231	1.158	0.112	
	697	11.30	35.48	27.11	...	8.01	103	...	1000	7.75	35.22	27.50	32.18	1.53	1.44	0.076	
h	1001	7.76	35.22	27.50	...	7.92	111	...	1500	4.45	35.18	27.78	34.85	1.87	1.76	0.051	
23°	1513	5.39	35.18	27.80	...	7.92	88	...	2000	4.00	35.02	27.83	37.28	2.14	2.01	0.047	
	2029	3.90	35.01	27.83	...	7.92	118	...	2500	3.10	34.91	27.83	39.63	2.38	2.24	0.047	
	2550	3.05	34.91	27.83	...	7.91	114	...	3000	2.90	34.90	27.84	41.96	2.64	2.48	0.047	
	3080	2.85	34.80	27.84	...	7.90	123	...	3500	2.70	34.89	27.84	44.25	2.89	2.72	0.00049	
	3615	2.66	34.69	27.85	...	7.91	125	...									
Station 19: August 20, 1928; 24°00' N, 39°36' W; depth bottom, 5392 m; weather, bcq; sea, M; wind, ESE 1-2; good conditions																	
	0	26.63	36.99	24.35	...	8.34	5	...	0	26.63	36.99	24.35	24.35	0.0000	0.0000	0.00359	
5	5	26.71	36.92	24.28	...	8.33	5	...	5	26.71	36.92	24.28	24.30	0.0191	0.0182	0.365	
14	14	26.69	36.95	24.30	...	8.28	5	...	25	25.20	37.15	24.92	24.41	0.0960	0.0913	0.365	
48	48	25.31	36.89	24.89	...	8.27	5	...	75	22.90	37.07	25.55	25.15	0.1843	0.1750	0.305	
h	72	23.00	37.07	25.62	...	8.26	5	...	100	22.35	37.05	25.69	25.89	0.2572	0.2441	0.247	
26°	95	22.42	37.05	25.67	...	8.25	5	...	150	21.05	36.97	25.97	26.14	0.320	0.304	0.234	
	185(a)	20.10	36.82	26.14	...	8.20	7	...	200	19.70	36.77	26.21	26.65	0.438	0.414	0.203	
	291	16.98	36.86	26.50	...	8.15	17	...	250	18.20	36.50	26.39	27.10	0.544	0.514	0.188	
	389	15.47	36.08	26.71	...	8.12	24	...	300	16.80	36.24	26.54	27.50	0.639	0.604	0.172	
	488	13.81	35.87	26.91	...	8.05	38	...	400	15.25	36.05	26.74	28.56	0.888	0.839	0.143	
	688	10.57	35.43	27.20	...	7.93	95	...	500	13.60	35.84	26.94	29.23	1.033	0.973	0.124	
	697	10.25	35.37	27.22	...	7.93	95	...	700	10.25	35.39	27.23	30.49	1.273	1.197	0.100	
	1006	6.92	35.09	27.52	...	7.88	121	...	1000	6.95	35.09	27.52	32.22	1.55	1.46	0.073	
	1512	4.64	34.99	27.75	...	7.88	111	...	1500	4.65	34.99	27.72	34.83	1.88	1.78	0.054	
h	2023	3.67	34.94	27.79	...	7.88	111	...	2000	3.70	34.94	27.79	37.25	2.16	2.05	0.050	
36°	2538	3.08	34.83	27.85	...	7.88	111	...	2500	3.10	34.95	27.84	39.64	2.41	2.28	0.046	
	3063	2.78	34.88	27.83	...	7.88	111	...	3000	2.80	34.87	27.84	41.95	2.66	2.52	0.049	
	3568	2.58	34.87	27.84	...	7.88	111	...	3500	2.60	34.87	27.84	44.26	2.92	2.77	0.048	
	4091	2.58	34.87	27.84	...	7.88	107	...	4000	2.60	34.87	27.84	46.52	3.19	3.01	0.050	
	4616	2.47	34.80	27.79	...	7.88	107	...	4500	2.50	34.84	27.82	48.76	3.47	3.27	0.055	
	5148	2.44	34.83	27.82	...	7.88	107	...	5000	2.45	34.82	27.81	50.98	3.75	3.55	0.00058	
Station 20: August 22, 1928; 19°13' N, 38°28' W; depth bottom, 5626 m; weather, bcq; sea, MR; wind, ENE 4; fair conditions; considerable drift																	
	0	26.05	36.55	24.21	...	8.37	5	...	0	26.05	36.55	24.21	24.21	0.0000	0.0000	0.00372	
h	6	26.05	36.52	24.18	...	8.34	5	...	5	26.05	36.52	24.18	24.20	0.0197	0.0187	0.375	
40°	17	26.02	36.51	24.19	...	8.33	4	...	25	25.90	36.54	24.25	24.35	0.0981	0.0913	0.369	
	27	25.87	36.35	24.27	...	8.34	5	...	50	25.75	36.60	24.34	24.57	0.1943	0.1843	0.361	
	40	25.99	36.61	24.27	...	8.33	4	...	75	23.70	36.70	24.94	25.28	0.2820	0.2677	0.305	
	51	25.72	36.60	24.34	...	8.26	3	...	100	22.65	36.70	25.34	25.79	0.357	0.339	0.00268	

a) Water bottle not locked.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values						Interpolated values						Computed values				
		Temperature (t) °C	Salinity (S) o/oo	Density (σ_t^*)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t^*)	Density (σ_{TP})	Pressure (ΔP)	Anomalies		
					ml/L	o/o										Density depth (ΔD)	Specific volume (Δv)	
Station 20--Continued																		
h																		
11.6	78	23.57	36.58	24.98	.....	8.23	5	.....	150	21.30	36.81	25.81	26.49	0.487	0.462	0.00224	
4.0°	105	22.56	36.73	25.38	.....	8.19	5	.....	200	18.50	36.56	26.33	27.23	0.594	0.563	0.00224	
h																		
9.5	162	20.89a)	36.81	25.92	.....	8.10	48	.....	300	15.25	36.17	26.57	27.71	0.682	0.645	1.55	
35°	316	17.42	36.33	26.45	.....	8.01	72	.....	400	13.70	35.79	26.87	28.09	0.761	0.720	1.42	
	333	14.47	36.02	26.72	.....	8.01	74	.....	500	12.05	35.60	27.06	28.70	0.905	0.856	1.29	
	530	11.52	35.54	27.10	.....	7.94	100	.....	700	8.20	35.04	27.29	29.37	1.036	0.977	1.13	
	761	7.50	34.92	27.34	.....	7.81	154	.....	1000	5.75	34.85	27.48	30.57	1.254	1.183	0.93	
	920	6.04	34.82	27.43	.....	7.80	154	.....	1500	4.50	34.92	27.68	32.20	1.52	1.44	0.75	
	1086	5.49	34.91	27.56	.....	7.81	147	.....	2000	3.70	34.93	27.78	33.74	1.87	1.77	0.51	
h																		
9.5	1697	4.14	34.91	27.72	.....	7.84	134	.....	2500	3.20	34.93	27.83	37.24	2.16	2.05	0.51	
4.0°	2324	3.55	34.95	27.84	.....	7.87	126	.....						2.42	2.29	0.00048	
Station 21: August 24, 1928; 15°50' N, 37°56' W; depth bottom, 4977 m; weather, b; sea, S; wind, calm; good conditions																		
h																		
11.6	0	26.57	36.28	23.84	.....	8.32	4	.....	0	26.57	36.28	23.84	23.84	0.0000	0.0000	0.0000	0.00407
10°	5	26.46	36.28	23.87	.....	8.28	4	.....	5	25.46	36.28	23.87	23.89	0.0214	0.0203	0.405	
	15	26.13	36.26	24.00	.....	8.28	4	.....	25	25.98	36.26	24.01	24.12	0.1053	0.1000	0.405	
	25	25.98	36.26	24.00	.....	8.26	4	.....	75	24.44	36.24	24.47	24.70	0.2028	0.1927	0.405	
	38	25.84	36.24	24.17	.....	8.26	4	.....	150	22.38	36.48	25.25	25.59	0.2851	0.2708	0.405	
	50	24.44	36.24	24.47	.....	8.25	4	.....	300	21.00	36.75	25.84	26.29	0.350	0.332	0.405	
	102	20.93	36.48	25.86	.....	8.25	5	.....	150	16.10	36.32	26.76	27.45	0.444	0.421	0.405	
	202	13.66	35.59	26.81	.....	8.20	7	.....	200	13.70	35.70	26.81	27.75	0.514	0.487	0.405	
	303	11.39	35.36	27.00	.....	7.90	121	.....	250	12.40	35.52	26.93	28.09	0.580	0.549	0.405	
	401	9.78	35.12	27.10	.....	7.83	139	.....	300	11.40	35.37	27.01	28.40	0.641	0.608	0.405	
	503	8.65	34.95	27.15	.....	7.77	142	.....	400	9.80	35.12	27.10	28.97	0.757	0.719	0.405	
	508	8.34	34.93	27.19	.....	7.74	142	.....	500	8.55	34.94	27.16	29.50	0.867	0.823	0.405	
	714	6.39	34.76	27.33	.....	7.74	146	.....	700	6.50	34.75	27.32	30.52	1.067	1.011	0.405	
	1020	5.41	34.86	27.54	.....	7.73	163	.....	1000	5.45	34.85	27.52	32.25	1.32	1.25	0.405	
h																		
9.8	1534	4.27	34.94	27.73	.....	7.79	146	.....	1500	4.35	34.94	27.72	34.85	1.65	1.56	0.405	
15°	2053	3.42	34.94	27.82	.....	7.85	117	.....	2000	3.45	34.94	27.82	37.29	1.92	1.81	0.405	
	2571	2.99	34.94	27.86	.....	7.88	111	.....	2500	3.05	34.94	27.86	39.67	2.15	2.03	0.405	
	3085	2.61	34.83	27.80	.....	7.89	113	.....	3000	2.65	34.93	27.88	42.02	2.38	2.25	0.405	
	3577	2.54	34.89	27.86	.....	7.87	109	.....	3500	2.55	34.90	27.86	44.29	2.61	2.47	0.405	
	4126	2.45	34.87	27.85	.....	7.87	111	.....	4000	2.50	34.88	27.85	46.53	2.86	2.71	0.00048	
Station 22: August 27, 1928; 13°25' N, 38°00' W; depth bottom, 5980 m; weather, bcq; sea, S; wind, S O-1; good conditions; big squall passed ahead																		
h																		
10.1	0	26.70	35.97	23.57	.....	8.26	8	.....	0	26.70	35.97	23.57	23.57	0.0000	0.0000	0.0000	0.00433
4°	5	26.68	35.94	23.55	.....	8.26	4	.....	5	26.68	35.94	23.55	23.57	0.0229	0.0217	0.435	
	15	26.50	36.15	23.76	.....	8.23	4	.....	25	26.27	36.19	23.86	23.97	0.1115	0.1060	0.407	
	25	26.27	36.19	23.86	.....	8.23	8	.....	50	24.50	36.18	24.40	24.63	0.2117	0.2012	0.00355	

a) Mean of 17.31 and 17.54. b) Water bottles not locked.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values						Interpolated values						Computed values			
		Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{TP})	Pressure (ΔP)	Anomalies	
					ml/L	o/o										Dynamic depth (ΔD)	Specific volume (ΔV)
Station 22--Continued																	
	38	25.59	36.14	24.04	.....	.....	8.23	.....	75	22.00	36.45	25.34	25.68	0.2938	0.2789	0.00266
h	51	24.44	36.18	24.42	.....	.....	8.21	.....	100	17.50	36.11	26.26	26.71	0.353	0.334	180
10.1	76a)	21.80	36.45	25.40	.....	.....	8.21	.....	150	13.80	35.61	26.72	27.41	0.436	0.413	137
4°	100a)	17.50	.....	.....	.....	.....	.....	.....	200	12.05	35.39	26.90	27.53	0.506	0.479	121
	102	17.34	36.10	26.29	.....	.....	7.99	.....	250	11.20	35.24	26.94	28.10	0.568	0.538	117
	203	12.05	35.40	26.91	.....	.....	7.87	.....	300	10.55	35.14	26.98	28.38	0.630	0.596	116
	203	11.93	35.38	26.92	.....	.....	7.86	.....	400	9.60	35.01	27.05	28.92	0.749	0.710	111
h	306	10.49	35.13	26.99	.....	.....	7.83	.....	500	8.55	34.93	27.15	29.49	0.863	0.817	102
	407	9.56	35.00	27.04	.....	.....	7.83	.....	700	6.65	34.73	27.27	30.57	1.069	1.012	093
9.2	501	8.54	34.93	27.16	.....	.....	7.73	.....	1000	5.45	34.77	27.46	32.10	1.34	1.27	075
13°	716	6.57	34.72	27.28	.....	.....	7.75	.....	1500	4.25	34.95	27.72	34.85	1.68	1.59	053
	1022	5.38	34.78	27.48	.....	.....	7.76	.....	2000	3.45	34.92	27.80	37.27	1.96	1.85	047
	1534	4.17	34.95	27.75	.....	.....	7.87	.....	2500	3.05	34.89	27.92	39.63	2.20	2.08	0.00047
	2045	3.39	34.89	27.78	.....	.....	7.88	.....								
	2557	2.98	34.89	27.82	.....	.....	7.90	.....								
Station 23: August 29, 1928; 10°50'N, 37°24' W; depth bottom, 4787 m; weather, bcu; sea, S; wind, 0; Good conditions																	
	10 ^b)	27.18	35.90	23.36	.....	.....	8.25	.....	0	27.18	35.90	23.36	23.36	0.0000	0.0000	0.00454
h	15 ^b)	27.11	35.91	23.38	.....	.....	8.28	.....	5	27.15	35.91	23.37	23.39	0.0238	0.0227	453
	24	25.99	36.02	23.51	.....	.....	8.27	.....	25	27.00	36.02	23.51	23.62	0.1177	0.1120	440
	36	22.90	36.04	25.30	.....	.....	8.21	.....	50	20.90	36.04	25.33	25.56	0.2108	0.2001	265
11.3	49	20.99	36.23	26.22	.....	.....	8.14	.....	75	18.00	36.23	26.23	26.57	0.2700	0.2561	182
15°	73	18.05	36.02	26.68	.....	.....	8.05	.....	100	16.55	36.00	26.40	26.86	0.316	0.300	167
	97 ^b)	13.43	35.46	26.68	.....	.....	8.18	.....	150	14.70	35.71	26.60	27.29	0.399	0.378	149
	194	9.74	34.94	26.96	.....	.....	7.90	.....	200	13.20	35.43	26.70	27.62	0.476	0.451	140
	292	8.81	34.81	27.02	.....	.....	7.83	.....	250	10.70	34.92	26.98	28.08	0.545	0.516	120
	386	8.12	34.78	27.10	.....	.....	7.78	.....	300	9.60	34.80	27.03	28.38	0.607	0.575	116
	486	6.26	34.66	27.27	.....	.....	7.75	.....	400	8.70	34.80	27.03	28.90	0.707	0.690	112
	681	5.99	34.67	27.32	.....	.....	7.74	.....	500	8.00	34.78	27.12	29.47	0.843	0.798	104
	715	5.02	34.73	27.48	.....	.....	7.74	.....	700	6.10	34.66	27.29	30.60	1.048	0.991	090
h	1531	3.42	34.92	27.81	.....	.....	7.80	.....	1000	5.05	34.72	27.47	32.21	1.31	1.24	074
9.7	2042	2.04	34.90	27.83	.....	.....	7.87	.....	1500	4.20	34.91	27.72	34.83	1.65	1.56	053
0°	2550	2.70 ^c)	34.88	27.83	.....	.....	7.89	.....	2000	3.50	34.93	27.80	37.27	1.92	1.82	047
	3567	2.43	34.81	27.80	.....	.....	7.93	.....	2500	3.05	34.90	27.82	39.63	2.17	2.04	048
	4076	2.43	34.81	27.80	.....	.....	7.89	.....	3000	2.75	34.88	27.83	41.95	2.42	2.29	047
					.....	.....	7.88	.....	3500	2.55	34.88	27.85	44.28	2.67	2.53	047
					.....	.....	7.88	.....	4000	2.50	34.84	27.82	46.51	2.93	2.77	0.00052

a) Depth by pressure tube, 107 meters. b) Water bottles not properly locked. c) Thermometers not functioning.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values										Interpolated values					Computed values		
		Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Density (σ_{TP})	Pressure (ΔP)	Anomalies			
					ml/L	o/o										Dynamic depth (ΔD)	Specific volume (Δv)		
Station 24: August 31, 1928; 8°15' N; 36°10' W; depth bottom, 3636 m; weather, bc; sea, ML; wind, W by N 3; good conditions; some pitching																			
	0	27.18	35.22	22.84	...	...	4	...	0	27.18	35.22	22.84	22.84	0.0000	0.0000	0.0000	0.0000
	5	27.16	35.23	22.86	...	...	4	...	5	27.16	35.23	22.86	22.86	0.0264	0.0251	0.0264	0.0251
	15	27.22	35.54	23.07	...	...	4	...	25	27.22	35.54	23.07	23.18	0.1598	0.1234	0.1598	0.1234
	25	27.22	35.54	23.07	...	...	4	...	50	27.22	35.54	23.07	24.90	0.2366	0.2249	0.2366	0.2249
	37	26.82	35.00	24.67	...	...	4	...	75	18.55	35.85	26.14	26.14	0.3095	0.2942	0.3095	0.2942
	50	23.12	35.85	25.82	...	...	8	...	100	15.55	35.64	26.36	26.36	0.361	0.343	0.361	0.343
	77	18.49	35.81	26.34	...	...	72	...	150	11.20	35.10	26.83	27.53	0.439	0.417	0.439	0.417
	102	15.55	35.61	26.84	...	...	93	...	200	9.85	34.93	26.94	27.87	0.504	0.478	0.504	0.478
	155	11.01	35.09	26.86	...	...	133	...	250	9.45	34.86	26.95	28.12	0.566	0.535	0.566	0.535
	208	9.76	34.92	26.95	...	...	137	...	300	9.00	34.79	26.97	28.38	0.627	0.594	0.627	0.594
	272	8.30	34.83	27.03	...	...	141	...	400	8.00	34.71	27.07	28.95	0.745	0.706	0.745	0.706
	364	7.55	34.70	27.12	...	...	145	...	500	7.10	34.67	27.17	29.53	0.855	0.809	0.855	0.809
	454	7.55	34.70	27.12	...	...	153	...	700	5.75	34.59	27.28	30.60	1.054	0.998	1.054	0.998
	548	6.72	34.55	27.18	...	...	153	...	1000	4.85	34.68	27.46	32.20	1.31	1.25	1.31	1.25
	739	5.61	34.59	27.30	...	...	159	...	1500	4.25	34.93	27.72	34.83	1.66	1.57	1.66	1.57
	1028	4.81	34.70	27.48	...	...	154	...	2000	3.50	34.91	27.79	37.26	1.93	1.83	1.93	1.83
	1513	4.24	34.93	27.73	...	...	117	...	2500	3.00	34.90	27.83	39.64	2.18	2.06	2.18	2.06
	2008	3.47	34.90	27.78	...	...	107	...									
	2516	2.98	34.90	27.83	...	...	107	...									
Station 25: September 3, 1928; 11°02' N, 37°06' W; depth bottom, 4851 m; weather, bc; sea, SL; wind, W 3; good conditions; heavy swell from southwest																			
	0	27.47	35.56	23.01	...	...	5	...	0	27.47	35.56	23.01	23.01	0.0000	0.0000	0.0000	0.0000
	15	27.45	35.55	23.01	...	...	5	...	5	27.45	35.55	23.01	23.03	0.0256	0.0244	0.0256	0.0244
	25	26.64	35.93	23.55	...	...	4	...	25	26.64	35.93	23.55	23.66	0.1227	0.1167	0.1227	0.1167
	38	23.84	36.02	25.15	...	...	8	...	50	21.49	36.02	25.15	25.38	0.2175	0.2064	0.2175	0.2064
	50	21.49	36.02	25.15	...	...	12	...	75	17.65	35.82	26.00	26.34	0.2819	0.2673	0.2819	0.2673
	74	17.68	35.82	25.99	...	...	103	...	100	14.60	35.70	26.62	27.06	0.328	0.311	0.328	0.311
	100	14.60	35.70	26.62	...	...	121	...	160	11.35	35.36	27.01	27.71	0.395	0.374	0.395	0.374
	203	9.91	34.95	26.95	...	...	151	...	200	9.95	34.96	26.95	28.88	0.455	0.431	0.455	0.431
	304	8.73	34.83	27.05	...	...	163	...	250	9.30	34.87	27.00	28.43	0.574	0.543	0.574	0.543
	328	7.60	34.82	27.13	...	...	181	...	300	8.90	34.75	27.11	28.99	0.687	0.651	0.687	0.651
	436	6.87	34.72	27.21	...	...	209	...	400	7.15	34.70	27.18	29.54	0.795	0.751	0.795	0.751
	547	5.47	34.63	27.35	...	...	220	...	500	6.80	34.63	27.17	30.47	1.005	0.950	1.005	0.950
	928	5.12	34.67	27.42	...	...	201	...	700	5.00	34.71	27.47	32.21	1.28	1.22	1.28	1.22
	1091	4.95	34.78	27.53	...	...	194	...	1000	4.25	34.93	27.72	34.83	1.54	1.54	1.54	1.54
	1638	3.95	34.94	27.77	...	...	154	...	1500	3.50	34.93	27.80	37.27	1.90	1.80	1.90	1.80
	2186	3.32	34.92	27.81	...	...	139	...	2000	3.10	34.90	27.82	37.27	2.03	1.90	2.03	1.80
	2735	2.96	34.89	27.83	...	...	131	...	2500	3.10	34.90	27.82	39.62	2.15	2.03	2.15	2.03

a) Thermometer not functioning.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values					Interpolated values					Computed values					
		Temperature (t) °C	Salinity (S) o/oo	Density (σ_t^*)	Oxygen ml/L	Oxygen o/o	Hydrogen ion (pH)	Phosphate (PO4) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t^*)	Density (σ_{tP}^*)	Pressure depth (ΔP)	Anomales	Specific volume (ΔC)
Station 26: September 5, 1928; 11°33' N, 40°43' W; depth bottom, 4492 m; weather, bc; sea, CR; wind, NE 4; very bad conditions; heavy tide-rips and vessel drifting badly in cross-currents; apparently unusual currents at various depths																	
	0	27.61	36.03	23.32	.....	8.30	5	.....	0	27.61	36.03	23.32	23.32	0.0000	0.0000	0.00457
	6	27.60	36.03	23.32	.....	8.30	..5	.....	5	27.60	36.03	23.32	23.34	0.0241	0.0229	457
	17	27.40	36.08	23.26	.....	8.30	..5	.....	25	27.70	36.07	23.32	23.43	0.1203	0.1144	458
h	29	27.87	36.08	23.26	.....	8.30	..5	.....	50	24.10	36.14	24.49	24.72	0.2263	0.2150	347
10.1	41	27.19	36.14	24.49	.....	8.29	.....	.....	75	20.00	35.18	25.68	26.02	0.3029	0.2977	234
41°	50	24.10	36.14	24.49	.....	8.21	.....	.....	100	14.90	35.56	26.44	26.90	0.355	0.337	163
	70	21.71	35.18	25.20	.....	8.21	.....	.....	150	11.40	35.16	26.84	27.54	0.431	0.409	125
	91	18.40	35.08	25.01	.....	8.11	40	.....	200	10.35	35.02	26.93	27.86	0.495	0.470	117
	155	11.00	35.09	25.86	.....	7.83	134	.....	250	9.65	34.93	26.97	28.14	0.557	0.528	115
	234	9.64	34.94	26.98	.....	7.78	134	.....	300	9.00	34.85	27.02	28.42	0.617	0.584	111
	82a)	15.76	35.73	26.38	.....	7.95	.....	.....	400	7.15	34.74	27.10	28.98	0.731	0.693	105
	220	10.38	35.01	26.91	.....	7.80	.....	.....	500	7.15	34.66	27.15	29.51	0.841	0.795	100
	373	8.21	34.76	27.08	.....	7.77	.....	.....	700	5.80	34.60	27.28	30.59	1.043	0.986	0.00091
h	485	7.38	34.71	27.16	.....	7.76	.....	.....							
9.4	490	7.27	34.66	27.14	.....	7.75	161	.....								
61°	520	7.06	34.65	27.15	.....	7.76	.....	.....							
	551	6.81	34.65	27.19	.....	7.76	.....	.....							
	585	6.57	34.61	27.19	.....	7.75	149	.....								
	621	6.44	34.60	27.20	.....	7.75	149	.....								
	750	5.57	34.61	27.32	.....	7.75	149	.....								
Station 27: September 7, 1928; 11°20' N, 44°12' W; depth bottom, 2571 m; weather, bc; sea, SL; wind, NNE 0-1; good conditions though still some evidence of current; vessel practically becalmed																	
h	0	27.53	36.26	23.52	.....	8.31	4	.....	0	27.53	36.26	23.52	23.52	0.0000	0.0000	0.00438
10.2	15	27.41	36.22	23.49	.....	8.30	4	.....	5	27.53	36.22	23.49	23.51	0.0231	0.0230	441
30°	25	27.39	36.22	23.53	.....	8.30	4	.....	25	27.39	36.22	23.53	23.64	0.1156	0.1099	438
	37	27.02	36.25	23.53	.....	8.30	4	.....	50	26.04	36.25	23.98	24.21	0.2233	0.2140	395
	50	26.04	36.25	23.98	.....	8.30	4	.....	75	22.09	35.15	25.08	25.42	0.3158	0.2999	291
	75	22.09	36.15	25.08	.....	8.20	4	.....	100	17.75	36.02	26.13	26.58	0.379	0.360	192
	99	18.08	36.03	26.06	.....	8.09	46	.....	150	13.00	35.50	26.80	27.49	0.465	0.440	129
	199	11.17	35.12	26.85	.....	7.84	100	.....	200	11.45	35.15	26.83	27.76	0.533	0.505	128
	197	11.63	35.18	26.82	.....	7.84	106	.....	250	10.70	35.02	26.87	28.04	0.599	0.568	124
	229	10.23	34.96	26.90	.....	7.82	115	.....	300	10.05	34.94	26.92	28.90	0.664	0.629	121
h	351	8.28	34.85	27.00	.....	7.80	118	.....	400	8.90	34.84	27.03	29.30	0.787	0.746	112
38°	475	8.23	34.83	27.12	.....	7.74	127	.....	500	8.05	34.82	27.14	29.49	0.902	0.853	102
	669	6.22	34.64	27.26	.....	7.73	142	.....	700	6.00	34.62	27.28	30.59	1.106	1.046	091
	900	5.11	34.67	27.42	.....	7.73	142	.....	1000	5.00	34.55	27.46	32.20	1.37	1.30	075
	1593	4.02	34.96	27.78	.....	7.76	131	.....	2000	4.25	34.95	27.74	34.85	1.71	1.62	051
	2071	3.29	34.91	27.81	.....	7.89	98	.....	2000	3.35	34.92	27.81	37.29	1.97	1.86	046
	2571	2.88	34.87	27.82	.....	7.92	98	.....	2500	2.95	34.88	27.82	39.63	2.21	2.09	0.00047

a) Water bottle not locked.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep-sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values										Interpolated values					Computed values			
		Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Density (σ_{tp})	Pressure (AP)	Anomalies				
					ml/L	o/o										Dynamic depth (AD)	Specific volume (ΔV)			
Station 28: September 11, 1928; 13°10' N, 49°36' W; depth bottom, 4925 m; weather, bc; sea, CL; wind, SSW 4; fair conditions																				
	0	27.62	36.26	23.49	...	...	4	...	0	27.62	36.26	23.49	23.49	0.0000	0.0000	0.0044		
	5	27.57	36.25	23.48	...	...	4	...	5	27.57	36.25	23.48	23.50	0.0232	0.0221	442		
h	25	27.52	36.24	23.49	...	...	4	...	25	27.52	36.24	23.49	23.50	0.1162	0.1105	442		
10°	36	27.56	36.31	23.49	...	...	4	...	50	26.70	36.32	23.83	24.06	0.2283	0.2169	409		
	48	26.79	36.31	23.79	...	...	4	...	75	24.70	36.48	24.57	24.91	0.3370	0.3107	341		
	60	26.00	36.45	24.49	...	...	4	...	100	23.80	36.63	25.24	25.69	0.408	0.368	278		
	72	23.34	36.63	25.03	...	...	4	...	150	17.70	36.21	26.29	26.97	0.529	0.502	178		
	94	23.34	36.63	25.03	...	...	7	...	200	13.85	35.72	26.79	27.71	0.612	0.580	133		
	142	18.63	35.82	26.74	...	...	17	...	250	12.30	35.47	26.92	28.08	0.741	0.643	120		
	189	14.46	35.82	26.74	...	...	50	...	300	11.15	35.28	26.98	28.37	0.741	0.702	116		
	204	13.86	35.69	26.77	...	...	50	...	400	9.40	35.02	27.09	28.96	0.858	0.814	107		
h	307	11.08	35.27	26.99	...	...	102	...	500	8.00	34.83	27.16	29.51	0.969	0.918	100		
9.0	406	9.33	35.01	27.09	...	...	126	...	700	5.95	34.68	27.33	30.64	1.166	1.104	086		
11°	509	7.91	34.82	27.17	...	...	143	...	1000	5.25	34.75	27.46	32.20	1.42	1.35	076		
	707	5.92	34.68	27.33	...	...	155	...	1500	4.35	34.97	27.74	34.85	1.76	1.67	051		
	1011	5.24	34.76	27.47	...	...	143	...	2000	3.45	34.95	27.82	37.29	2.02	1.92	046		
	1515	4.33	34.97	27.74	...	...	98	...	2500	3.00	34.92	27.85	39.66	2.26	2.14	0.00044		
	2015	3.44	34.95	27.83	...	...	88	...										
	2516	2.97	34.92	27.85	...	...	88	...										
Station 29: September 13, 1928; 13°16' N, 52°13' W; depth bottom, 5068 m; weather, bc; sea, MC; wind, NE 4; fair conditions; considerable wind and swell																				
	0	27.56	36.21	23.47	...	...	3	...	0	27.56	36.21	23.47	23.47	0.0000	0.0000	0.00443		
h	5	27.55	36.19	23.46	...	...	3	...	5	27.55	36.19	23.46	23.48	0.0233	0.0222	443		
30°	26	27.51	36.22	23.49	...	...	3	...	25	27.50	36.22	23.50	23.50	0.1164	0.1105	441		
	51	27.11	36.22	23.62	...	...	3	...	50	27.15	36.22	23.61	23.64	0.2311	0.2195	430		
	64	26.08	36.20	24.06	...	...	3	...	75	25.70	36.20	24.05	24.59	0.3391	0.3222	391		
	76	25.67	36.20	24.06	...	...	3	...	100	23.10	36.59	25.13	25.58	0.428	0.407	288		
	100	23.10	36.59	25.13	...	...	8	...	150	17.90	36.33	26.33	27.01	0.550	0.522	174		
	151	17.84	36.33	26.35	...	...	38	...	200	15.90	36.15	26.67	27.58	0.636	0.602	144		
	203	15.79	35.13	26.68	...	...	59	...	250	13.45	35.80	26.99	28.09	0.767	0.667	118		
	311	10.84	35.26	27.02	...	...	123	...	300	11.50	35.01	27.09	28.36	0.884	0.726	107		
	415	9.03	34.96	27.10	...	...	168	...	400	9.35	34.79	27.14	29.49	0.936	0.842	102		
	328	10.89	35.27	27.03	...	...	130	...	500	7.90	34.65	27.28	30.59	1.200	1.135	091		
	420	9.28	34.97	27.07	...	...	157	...	700	6.15	34.65	27.28	30.59	1.200	1.135	091		
h	593	6.81	34.66	27.20	...	...	184	...	1000	5.05	34.68	27.41	32.19	1.46	1.39	075		
45°	724	6.00	34.65	27.30	...	...	197	...	1500	4.50	34.97	27.75	34.34	1.81	1.71	053		
	857	5.34	34.63	27.36	...	...	197	...	2000	3.50	34.95	27.82	37.29	2.07	1.97	046		
	1319	4.76	34.91	27.55	...	...	139	...	2500	3.00	34.91	27.84	39.65	2.31	2.19	045		
	1801	3.80	34.57	27.81	...	...	106	...	3000	2.75	34.90	27.84	41.98	2.55	2.42	0.00047		
	2290	3.20	34.93	27.83	...	...	101	...										
	2824	2.81	34.89	27.83	...	...	114	...										
	3220	2.64	34.91	27.86	...	...	106	...										

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values					Interpolated values					Computed values					
		Temperature (t) °C	Salinity (S) o/oo	Oxygen		Density (σ_t^*)	Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t^*)	Density (σ_{ρ}^*)	Pressure (ΔP)	Anomalies	
				ml/L	o/o											Dynamic depth (ΔD)	Specific volume (ΔV)
Station 30: September 15, 1928; 12°54' N, 56°15' W; depth bottom, 4703m; weather, bc; sea, MC; wind, ESE 3; considerable drift; cup above upper valve of lowest water-bottle full of bottom ooze																	
	0	28.05	36.07	...	...	8.30	2	...	0	28.05	36.07	23.20	23.20	0.0000	0.0000	0.00459
	4	28.04	36.05	...	...	8.30	2	...	5	28.05	36.05	23.19	23.21	0.0247	0.0235	469
	22	27.90	36.06	...	...	8.30	3	...	25	27.90	36.06	23.24	23.35	0.1231	0.1170	466
	42	27.88	36.08	...	...	8.30	3	...	50	27.75	36.09	23.31	23.54	0.2447	0.2326	459
h	63	26.99	36.11	...	...	8.29	3	...	75	26.30	36.23	23.88	24.22	0.3586	0.3410	407
44°	82a)	25.54	36.40	...	...	8.28	3	...	100	24.10	36.35	24.65	25.10	0.4594	0.433	334
	165	16.29	35.90	...	...	7.96	43	...	150	17.65	36.03	26.16	26.84	0.594	0.564	191
	250	12.20	35.32	...	...	7.85	87	...	200	14.15	35.61	26.54	27.56	0.684	0.649	146
	331	10.43	35.11	...	...	7.80	94	...	250	12.30	35.32	26.80	27.96	0.757	0.718	132
	418	9.01	34.91	...	...	7.77	121	...	300	11.05	35.18	26.92	28.31	0.825	0.782	121
	519	8.22	34.87	...	...	7.77	155	...	400	9.30	34.93	27.03	28.90	0.948	0.899	112
h	951	5.12	34.65	...	...	7.75	161	...	500	8.30	34.88	27.15	29.50	1.062	1.005	101
10.2	1376	4.75	34.91	...	...	7.83	114	...	700	6.50	34.71	27.28	30.59	1.265	1.198	92
46°	1811	3.70	34.97	...	...	7.89	88	...	1000	5.05	34.68	27.44	32.18	1.45	1.45	076
	2171	3.28	34.94	...	...	7.89	88	...	1500	4.55	34.94	27.70	34.81	1.79	1.79	056
	2398	3.35	34.89	...	...	7.89	88	...	2000	3.45	34.86	27.83	37.30	2.16	2.04	047
	2745	2.91	34.93	...	...	7.89	94	...	2500	3.05	34.91	27.83	39.64	2.39	2.26	044
h	531	8.14	34.87	...	...	7.81	145	...	3000	2.85	34.90	27.84	41.97	2.64	2.50	0.00047
9.5	723	6.30	34.69	...	...	7.72	151	...								
36°	4703	2.17	...	...	...	7.85	94	...								
Station 31: October 3, 1928; 14°46' N, 63°26' W; depth bottom, 1635 m; weather, bc; sea, S; wind, E; good conditions																	
	0	28.54	34.40	...	...	8.27	2	...	0	28.54	34.40	21.79	21.79	0.0000	0.0000	0.00604
	6	28.54	34.38	...	...	8.26	2	...	5	28.54	34.38	21.77	21.79	0.0317	0.0303	606
h	27	28.65	34.67	...	...	8.26	2	...	25	28.65	34.65	21.94	22.05	0.1573	0.1499	590
9.9	40	28.27	...	...	...	8.25	2	...	50	28.20	35.36	22.62	22.85	0.3039	0.2893	525
8°	53	27.11	35.53	...	...	8.23	2	...	75	25.90	36.12	23.33	24.27	0.4258	0.4052	402
	66	27.11	35.53	...	...	8.23	2	...	100	23.45	36.19	23.35	25.40	0.519	0.493	305
	78	25.38	36.22	...	...	8.23	3	...	150	19.85	36.58	25.87	26.55	0.624	0.624	218
	103	22.56	36.51	...	...	8.19	28	...	200	16.05	36.12	26.62	27.53	0.755	0.716	149
	100	24.30	36.48	...	...	8.17	38	...	250	13.25	35.66	26.37	28.03	0.827	0.784	125
h	195	16.48	36.15	...	...	8.02	58	...	300	11.50	35.30	26.33	28.32	0.892	0.846	120
9.2	283	12.11	35.42	...	...	7.92	126	...	400	9.30	34.98	27.07	28.94	1.013	0.961	109
25°	371	9.75	35.02	...	...	7.86	159	...	500	8.00	34.84	27.17	29.52	1.124	1.065	98
	457	8.58	34.92	...	...	7.82	186	...	700	6.05	34.68	27.31	30.62	1.322	1.252	88
	625	6.84	34.69	...	...	7.79	226	...	1000	4.85	34.86	27.60	32.35	1.56	1.48	61
	878	5.26	34.80	...	...	7.73	222	...	1500	4.10	34.95	27.76	34.58	1.85	1.76	0.00049
	1327	4.26	34.95	...	...	7.80	186	...								
	1477	4.12	34.94	...	...	7.83	186	...								

a) Water bottle not locked.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values										Interpolated values					Computed values		
		Temper-ature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen		Hydrogen ion (pH)	Phos-phate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temper-ature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{tp})	Pressure (ΔP)	Dynamic depth (ΔD)	Specific volume (ΔQ)		
					ml/L	o/o													
Station 32: October 5, 1928; 15°18' N, 68°11' W; depth bottom, 4566 m; weather, bc; sea, MS; wind, E																			
0	28.01	35.97	23.14	....	....	8.23	2	....	0	28.01	35.97	23.14	23.14	0.0000	0.0000	0.00474
5	28.01	35.96	23.13	....	....	8.24	2	....	5	28.01	35.96	23.13	23.15	0.0250	0.0237	474
23	27.96	36.01	23.19	....	....	8.24	2	....	25	27.95	36.01	23.19	23.30	0.1245	0.1182	471
47	27.30	35.90	23.32	....	....	8.24	2	....	50	27.20	35.90	23.35	23.58	0.2463	0.2340	455
h	26.67	36.16	24.26	....	....	8.20	4	....	75	24.20	36.27	24.56	24.90	0.3512	0.3337	342
10.2	24.11	36.38	24.91	....	....	8.15	24	....	100	22.20	36.37	25.22	25.67	0.411	0.411	279
22°	17.16	36.23	26.44	....	....	8.06	19	....	150	18.50	36.30	26.16	26.84	0.557	0.528	191
	14.36	35.78	26.73	....	....	7.94	64	....	200	16.35	36.17	26.59	27.50	0.648	0.615	152
	11.52	35.54	26.95	....	....	7.83	111	....	350	14.90	35.91	26.71	27.86	0.735	0.698	141
	9.31	34.99	27.08	....	....	7.78	202	....	400	13.25	35.57	26.80	28.18	0.829	0.787	134
	11.05	35.20	26.94	....	....	7.85	186	....	500	10.20	35.11	27.02	28.89	0.929	0.881	114
h	8.05	34.88	27.19	....	....	7.88	279	....	700	8.35	34.90	27.16	29.51	1.042	0.988	88
11.5	5.84	34.71	27.36	....	....	7.83	209	....	1000	6.30	34.72	27.32	30.63	1.240	1.176	065
33°	4.37	34.90	27.68	....	....	7.83	209	....	1500	4.90	34.81	27.56	32.31	1.48	1.41	065
	4.16	34.95	27.75	....	....	7.83	209	....		4.10	34.96	27.77	34.89	1.78	1.69	0.00047
Station 33: October 8, 1928; 13°37' N, 76°22' W; depth bottom, 4039 m; weather, bc; sea, MR; wind, E, 4; fairly good conditions; vessel rolling and pitching; lowest water bottle on first series not removed until end of second series; apparently overturned during second lowering																			
0	28.49	35.63	22.73	....	....	8.23	4	....	0	28.49	35.63	22.73	22.73	0.0000	0.0000	0.00513
5	28.48	35.58	22.70	....	....	8.23	4	....	5	28.49	35.58	22.70	22.72	0.0271	0.0257	515
h	28.45	35.56	22.68	....	....	8.24	4	....	25	28.45	35.56	22.69	22.80	0.1359	0.1290	518
9.8	28.25	36.19	23.25	....	....	8.24	4	....	50	28.15	36.20	23.26	23.49	0.2651	0.2518	464
30°	25.80	36.43	24.19	....	....	8.25	5	....	75	25.40	36.44	24.33	24.67	0.3740	0.3554	364
	23.17	36.49	25.03	....	....	8.18	23	....	100	22.30	36.49	25.28	25.73	0.458	0.435	273
	17.77	36.36	26.38	....	....	8.13	40	....	150	19.15	36.44	26.10	26.78	0.592	0.552	195
	15.19	35.95	26.68	....	....	8.02	91	....	200	17.50	36.33	26.43	27.33	0.679	0.643	167
	14.45	35.85	26.76	....	....	8.01	99	....	250	15.80	36.10	26.66	28.00	0.762	0.721	145
h	11.82	35.47	27.00	....	....	7.92	127	....	300	14.20	35.83	26.80	28.17	0.837	0.791	134
8.8	9.56	35.09	27.12	....	....	7.86	172	....	400	11.35	35.39	27.03	28.89	0.968	0.915	113
31°	6.74	34.73	27.26	....	....	7.75	184	....	500	9.10	35.00	27.12	29.46	1.084	1.024	105
	5.08	34.87	27.58	....	....	7.83	197	....	700	6.40	34.72	27.30	30.60	1.230	1.219	090
	4.52	34.96	27.74	....	....	7.88	166	....	1000	4.95	34.90	27.62	32.36	1.53	1.44	059
	.....	34.96	.....	....	....	7.83	158	....	1500	4.25	34.96	27.75	34.86	1.82	1.72	050
				....	....			....	2000	4.10	34.96	27.77	37.22	2.10	1.98	0.00053
Station 34: October 9, 1928; 11°18' N, 78°34' W; depth bottom, 3536 m; weather, cu; sea, MC; wind, E, 4; not very good conditions; vessel rolling and pitching; evidence of strong currents																			
0	28.51	35.87	22.91	....	....	8.28	2	....	0	28.51	35.87	22.91	22.91	0.0000	0.0000	0.00496
5	28.51	35.80	22.85	....	....	8.28	2	....	5	28.51	35.80	22.85	22.87	0.0263	0.0250	501
h	28.32	36.11	23.14	....	....	8.23	2	....	25	28.35	36.12	23.14	23.25	0.1291	0.1226	475
14.7	24.92	36.53	24.52	....	....	8.21	3	....	50	24.95	36.53	24.53	24.76	0.2367	0.2248	343
15°	21.02	36.55	24.65	....	....	8.21	3	....	75	20.00	36.57	24.85	25.19	0.3232	0.3070	214
	16.37	36.18	26.58	....	....	8.16	16	....	100	20.50	36.65	25.90	26.35	0.393	0.373	163
	12.80	35.57	26.89	....	....	8.10	66	....	150	17.75	36.44	26.45	27.13	0.467	0.447	153
				....	....	7.95	134	....	200	15.65	36.08	26.67	27.55	0.575	0.544	0.00144

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values										Interpolated values					Computed values			
		Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{tp})	Anomalies		Specific volume (Δα)			
					ml/L	o/o									Pressure (ΔP)	Dynamic depth (ΔD)				
Station 34--Continued																				
	313	11.42	35.33	26.97	...	7.92	122	...	250	13.70	35.70	26.81	27.96	0.647	0.613	0.00131				
h	418	9.32	35.06	27.13	...	7.85	150	...	300	12.05	35.42	26.93	28.32	0.714	0.676	0.121				
13.5	523	7.85	34.85	27.20	...	7.79	177	...	400	9.60	35.10	27.12	28.99	0.833	0.789	0.104				
16°	723	6.19	34.70	27.31	...	7.78	184	...	500	8.10	34.89	27.19	29.54	0.940	0.890	0.097				
	1053	4.75	34.52	27.66	...	7.84	161	...	700	6.32	34.70	27.29	30.60	1.138	1.076	0.090				
	1582	4.10	34.36	27.77	...	7.87	149	...	1000	4.95	34.89	27.62	32.36	1.38	1.30	0.059				
	2287	4.07	34.96	27.77	...	7.85	142	...	1500	4.10	34.96	27.77	34.89	1.57	1.57	0.048				
					...			...	2000	4.10	34.96	27.77	37.22	1.94	1.83	0.00053
Station 35: October 26, 1928; 6°32' N, 80°04' W; depth bottom, 3583 m; weather, crtl; sea, L; wind, SE O-1; fair conditions; raining most of time; little wind, heavy swell, strong current																				
	0	27.44	29.70	18.62	...	8.31	15	...	0	27.44	29.70	18.62	18.62	0.0000	0.0000	0.00908				
	6	27.48	29.81	18.69	...	8.30	15	...	5	27.50	29.80	18.68	18.70	0.0474	0.0453	0.902				
	27	24.62	33.55	22.38	...	8.28	28	...	25	24.65	33.21	22.11	22.22	0.2022	0.1929	574				
h	54	16.30	34.88	25.60	...	7.92	138	...	50	16.80	34.75	25.39	25.62	0.3120	0.2971	260				
38°	79	14.99	34.94	25.94	...	7.88	174	...	75	15.15	34.94	25.92	26.27	0.3743	0.3561	211				
	104	14.33	34.81	26.06	...	7.88	169	...	100	14.45	34.91	26.04	26.50	0.407	0.407	201				
	210	13.25	34.92	26.30	...	7.87	194	...	150	13.35	34.92	26.18	26.98	0.531	0.504	187				
	319	11.11	34.76	26.59	...	7.77	233	...	200	12.60	34.85	26.37	27.53	0.721	0.684	180				
	421	.....	34.63	.....	...	7.71	279	...	250	12.60	34.78	26.51	27.90	0.810	0.768	161	
	533	.....	34.59	.....	...	7.71	204	...	300	11.60	34.64	26.95	28.43	0.957	0.909	120	
h	453	7.37	34.58	27.06	...	7.71	198	...	400	8.40	34.59	27.10	29.46	1.077	1.022	105				
10.6	655	6.22	34.50	27.21	...	7.73	206	...	500	7.10	34.57	27.24	30.55	1.288	1.221	094				
54°	952	4.88	34.54	27.34	...	7.74	200	...	700	6.00	34.54	27.35	32.12	1.57	1.49	084				
	1456	3.29	34.57	27.54	...	7.74	198	...	1000	4.70	34.58	27.55	34.71	1.96	1.87	085				
	1987	2.35	34.63	27.66	...	7.80	193	...	2000	2.35	34.63	27.67	37.20	2.28	2.18	056				
	2599	2.08	34.63	27.69	...	7.76	184	...	2500	2.10	34.63	27.68	39.56	2.56	2.45	057				
	3063	2.04	34.62	27.68	...	7.80	172	...	3000	2.05	34.63	27.69	41.89	2.85	2.75	0.00058				
Station 36: October 30, 1928; 2°54' N, 80°02' W; depth bottom, 4880 m; weather, cor; sea, CL; wind, SSW 4; conditions not very good; rain and squally																				
	0	26.54	31.62	20.34	...	8.23	16	...	0	26.54	31.62	20.34	20.34	0.0000	0.0000	0.00742				
	4	26.57	31.62	20.33	...	8.23	16	...	5	26.55	31.62	20.34	20.36	0.0389	0.0371	742				
h	23	26.71	31.73	20.37	...	8.25	16	...	25	26.70	31.84	20.46	20.57	0.1937	0.1846	732				
9.6	41	18.87	34.44	24.64	...	8.03	122	...	50	18.50	34.50	24.78	25.01	0.3317	0.3158	318				
14°	71	14.97	34.97	25.97	...	7.85	134	...	75	14.90	34.97	25.99	26.34	0.4007	0.3812	205				
	93	14.51	34.90	26.02	...	7.85	145	...	100	14.45	34.90	26.03	26.49	0.454	0.432	202				
	187	13.45	34.93	26.25	...	7.82	190	...	150	13.30	34.94	26.18	26.87	0.557	0.529	189				
	283	11.91	34.86	26.52	...	7.75	201	...	200	12.55	34.89	26.41	27.21	0.655	0.622	169				
	374	9.86	34.69	26.75	...	7.65	236	...	250	11.55	34.83	26.56	27.57	0.746	0.709	157				
h	358	10.28	34.67	26.66	...	7.68	252	...	300	9.70	34.68	26.77	27.95	0.832	0.832	138				
8.8	448	9.30	34.58	26.83	...	7.66	248	...	400	8.70	34.62	26.89	28.64	0.987	0.938	126				
22°	624	7.15	34.57	27.03	...	7.64	243	...	500	7.00	34.55	27.16	29.24	1.127	1.070	103				
	899	5.12	34.57	27.34	...	7.65	239	...	700	6.45	34.55	27.38	30.47	1.368	1.299	083				
	1296	3.45	34.57	27.60	...	7.65	251	...	1000	4.75	34.57	27.68	32.13	1.66	1.58	082				
	1800	2.74	34.59	27.60	...	7.71	248	...	1500	3.25	34.58	27.55	34.71	2.05	1.95	086				
	2314	2.18	34.91	27.91	...	7.91	63	...	2000	2.50	34.60	27.63	37.16	2.38	2.27	0.00060				

a) Thermometer off scale. b) Thermometer not functioning properly.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values					Interpolated values					Computed values				
		Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Oxygen		Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Density (σ_{tp})	Pressure (ΔP)	Anomalies	
					ml/L	o/o									Dynamic depth (AD)	Specific volume (AV)
Station 37: November 1, 1928; 5°59' N, 82°56' W; depth bottom, 3324 m; weather, cd; sea, M; wind, WSW 2; good conditions																
	0	27.12	31.68	20.23	...	...	...	0	27.12	31.68	20.20	20.20	0.0000	0.0000	0.0000	0.00756
	7	27.10	31.70	20.23	...	...	...	5	27.10	31.70	20.23	20.23	0.0396	0.0396	0.0396	753
	28	24.62	31.69	20.98	...	...	...	25	25.00	31.69	20.87	20.98	0.1913	0.1913	0.1824	693
	50	19.82	34.53	24.47	...	...	...	50	19.82	34.53	24.47	24.70	0.3281	0.3126	0.3851	348
	73	16.11	34.93	25.69	...	...	...	75	16.10	34.93	25.70	26.05	0.4046	0.440	0.541	232
	10.3	15.21	34.93	25.89	...	...	...	100	13.75	34.88	26.16	26.85	0.569	0.633	0.718	213
	8°	13.05	34.85	26.28	...	...	...	150	11.12	34.78	26.60	27.23	0.667	0.757	0.858	190
	188	11.12	34.78	26.60	...	...	...	200	11.80	34.79	26.48	27.64	0.757	0.858	0.959	177
	279	9.56	34.65	26.80	...	...	...	250	11.80	34.79	26.48	28.05	0.858	0.959	1.060	162
	371	8.37	34.62	26.94	...	...	...	300	8.95	34.74	26.65	28.75	0.959	1.060	1.161	147
	464	8.11	34.65	27.00	...	...	...	400	8.25	34.63	26.89	29.32	1.060	1.161	1.262	125
	522	6.22	34.57	27.20	...	...	...	500	4.75	34.53	27.35	30.51	1.161	1.262	1.363	118
	703	4.82	34.53	27.54	...	...	...	1000	3.25	34.60	27.56	32.10	1.363	1.464	1.565	099
	979	3.42	34.61	27.56	...	...	...	1500	2.35	34.62	27.66	34.72	1.565	1.666	1.767	066
	1446	2.49	34.61	27.67	...	...	...	2000	2.10	34.63	27.68	37.19	1.767	1.868	1.969	057
	1910	2.22	34.61	27.71	...	...	...	2500	2.05	34.63	27.68	39.56	1.969	2.070	2.171	057
	2231	2.05	34.65	27.71	...	...	...	3000	2.05	34.64	27.70	41.91	2.171	2.272	2.373	057
	2730	2.10	34.63	27.68	...	...	...									0.0057
	3231	2.12	...	...	...	...	...				
	3324	2.12	...	...	...	...	...				
Station 38: November 3, 1928; 3°46' N, 81°37' W; depth bottom, 2264 m; weather, crq; sea, CL; wind, SW 4; fair conditions; heavy current; bottom mud in lower water-bottle																
	0	26.48	32.88	21.31	...	...	...	0	26.48	32.88	21.31	21.31	0.0000	0.0000	0.0000	0.00649
	6	26.49	32.88	21.31	...	...	...	5	26.50	32.88	21.30	21.32	0.0341	0.0341	0.0325	650
	25	26.50	32.85	21.28	...	...	...	25	21.30	34.35	23.94	24.17	0.3093	0.2942	0.3748	398
	9.7	22.13	34.21	23.60	...	...	...	50	16.65	34.91	25.55	25.90	0.3944	0.3748	0.453	246
	41°	15.32	34.89	25.45	...	...	...	75	15.65	34.94	25.80	26.26	0.456	0.433	0.512	224
	68	16.99	34.89	25.74	...	...	...	100	13.45	34.94	26.27	26.79	0.512	0.489	0.568	196
	93	15.32	34.94	25.74	...	...	...	150	12.45	34.94	26.27	27.19	0.568	0.545	0.624	181
	188	12.27	34.86	26.44	...	...	...	200	12.80	34.90	26.37	27.53	0.624	0.601	0.680	163
	284	9.76	34.71	26.79	...	...	...	250	8.00	34.62	27.00	28.74	0.721	0.698	0.777	127
	359	8.70	34.65	26.91	...	...	...	300	6.35	34.60	27.21	29.35	0.822	0.799	0.878	115
	432	7.81	34.62	27.02	...	...	...	400	6.35	34.60	27.21	30.52	0.923	0.900	0.979	098
	516	6.36	34.60	27.21	...	...	...	500	4.95	34.57	27.36	32.11	1.024	1.001	1.080	084
	694	4.82	34.57	27.38	...	...	...	700	3.80	34.59	27.50	34.64	1.125	1.102	1.181	073
	1051	3.66	34.59	27.51	...	...	...	1000								
	1600	2.17	...	...	...	...	...	1500								
	2264	2.17	...	...	...	...	...				
Station 39: November 6, 1928; 0°52' N, 81°14' W; depth bottom, (3200) m; weather, bc; sea, MS; wind, SSW 2; good conditions; depth of bottom taken from U. S. Hydrographic Office chart No. 1176, published October 1930																
	0	24.83	32.99	21.89	...	...	...	0	24.83	32.99	21.89	21.89	0.0000	0.0000	0.0000	0.00594
	6	24.84	33.00	21.90	...	...	...	5	24.85	33.00	21.90	21.92	0.0312	0.0297	0.0312	593
	27	24.83	33.05	21.94	...	...	...	25	24.85	33.05	21.94	22.05	0.1555	0.1480	0.1555	590
	9.3	15.98	34.74	25.57	...	...	...	50	14.45	34.96	26.08	26.43	0.2869	0.2537	0.3104	256
	10°	14.49a	34.96	26.07	...	...	...	75	14.05	34.96	26.16	26.62	0.3267	0.3104	0.3267	196
	76	13.11	34.96	26.30	...	...	...	100	13.50	34.92	26.25	26.94	0.377	0.358	0.377	190
	102	13.11	34.89	26.30	...	...	...	150	13.15	34.89	26.29	27.21	0.475	0.451	0.475	181
	205	12.34	34.85	26.44	...	...	...	200					0.571	0.542	0.571	179
	294	12.34	34.85	26.44	...	...	...						

a.) Thermometer off scale.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values					Interpolated values					Computed values				
		Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen ml/L	Oxygen o/o	Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{tp})	Anomalies	
															Pressure (ΔP)	Dynamic depth (ΔD)	Specific volume (ΔV)
Station 39--Continued																
	307	...	34.90	...	...	7.72	201	...	250	12.80	34.88	26.36	27.52	0.664	0.629	0.00174
h	383	9.59	34.69	26.74	...	7.64	254	...	300	12.15	34.87	26.48	27.87	0.753	0.714	164
8.6	489	7.90	34.59	26.98	...	7.64	251	...	400	9.45	34.66	26.80	28.67	0.910	0.864	135
29°	682	6.68	34.58	27.15	...	7.63	253	...	500	7.80	34.59	27.00	29.35	1.043	0.989	115
	980	4.81	34.50	27.32	...	7.63	249	...	700	6.55	34.58	27.17	30.48	1.272	1.206	103
	1521	3.11	34.57	27.56	...	7.69	244	...	1000	4.75	34.50	27.32	32.07	1.57	1.49	088
	2022	2.24	34.63	27.68	...	7.71	244	...	1500	3.15	34.57	27.55	34.71	1.98	1.88	086
									2000	2.30	34.52	27.57	37.20	2.30	2.19	0.00056
Station 40: November 8, 1928; 1°32' S, 82°16' W; depth bottom, 1344 m; weather, bc; sea, M; wind, SSW 2; good conditions; about 10 meters of wire tangled at end of first series; lower water bottle not reversed and no bottom sample on weights, but red crayfish tangled with them																
	0	22.20	33.70	23.20	...	8.21	24	...	0	22.20	33.70	23.20	23.20	0.0000	0.0000	0.00469
h	25	17.55	34.58	25.05	...	8.21	29	...	5	22.20	33.69	23.29	23.22	0.0247	0.0255	470
9.4	49	15.35	34.89	25.83	...	7.87	171	...	25	17.65	34.58	25.05	25.16	0.1049	0.0998	293
29°	73	14.40	34.96	26.09	...	7.83	161	...	50	15.30	34.91	25.86	26.09	0.1720	0.1633	215
	97	13.33	34.99	26.21	...	7.85	159	...	75	14.40	34.97	26.10	26.45	0.2262	0.2145	194
	182	13.54	34.90	26.26	...	7.83	152	...	100	13.90	34.99	26.22	26.68	0.276	0.262	184
	260	12.38	34.82	26.39	...	7.69	223	...	150	13.60	34.94	26.24	26.93	0.372	0.353	182
									200	13.25	34.89	26.27	27.19	0.444	0.444	181
h	89	14.06 ^{b)}	35.00	26.18	...	7.85	199	...	250	12.60	34.84	26.36	27.52	0.563	0.533	174
8.7	275	12.04	34.81	26.45	...	7.69	198	...	300	11.60	34.78	26.51	27.90	0.651	0.617	162
29°	572	7.47	34.54	27.01	...	7.60	272	...	400	9.70	34.66	26.76	28.63	0.809	0.768	139
	1115	4.17	34.54	27.42	...	7.62	272	...	500	8.30	34.57	26.91	29.26	0.948	0.899	123
									700	6.50	34.53	27.13	30.44	1.190	1.128	106
									1000	4.75	34.54	27.36	32.11	1.49	1.41	0.00084
Station 41: November 10, 1928; 1°37' S, 86°58' W; depth bottom, 2568 m; weather, bc; sea, MS; wind, S by E 2; good conditions; heavy current																
	0	20.42	34.19	24.06	4.39	83	32	...	0	20.42	34.19	24.06	24.06	0.0000	0.0000	0.00387
h	6	20.41	34.18	24.06	4.40	84	36	...	5	20.41	34.18	24.06	24.08	0.0203	0.0194	388
8.3	23	18.45	34.52	24.82	3.54	65	46	...	25	18.35	34.54	24.85	24.96	0.0939	0.0894	312
35°	45	14.78	35.01	26.04	2.41	42	58	...	50	14.65	35.02	26.09	26.32	0.1607	0.1525	193
	64	14.59	35.03	26.11	2.17	38	139	...	75	14.55	35.03	26.11	26.46	0.2119	0.2009	193
	85	14.55	35.02	26.11	2.33	40	139	...	100	14.50	35.03	26.12	26.58	0.263	0.249	193
	174	13.84	35.02	26.25	2.25	39	134	...	150	14.10	35.02	26.20	26.89	0.363	0.344	187
	323	11.00 ^{b)}	34.93	26.42	0.72	12	201	...	200	13.60	35.00	26.29	27.21	0.460	0.436	179
	403	9.84	34.72	26.78	0.29	5	235	...	250	13.05	34.94	26.35	27.51	0.553	0.522	174
	576	6.88	34.59	27.13	0.31	14	243	...	300	12.20	34.84	26.44	27.83	0.644	0.605	168
	845	5.48	34.58	27.30	1.41	20	245	...	400	9.95	34.72	26.76	28.63	0.805	0.758	139
h	1353	3.58	34.60	27.53	1.55	19	241	...	500	7.80	34.64	27.04	29.39	0.938	0.883	111
9.1	245	13.14	34.93	26.33	...	...	172	...	700	6.10	34.57	27.22	30.53	1.158	1.090	086
48°					...	...	172	...	1000	4.85	34.59	27.59	32.14	1.36	1.36	081
					...	...	172	...	1500	3.15	34.60	27.58	34.74	1.82	1.72	0.00063

a) Thermometer off scale.

b) Temperature from pressure thermometer and wire depth.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle		Observed values										Interpolated values					Computed values		
		Depth (D) meters	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t^*)	Oxygen ml/L	Oxygen o/o	Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t^*)	Density (σ_{tP}^*)	Pressure (ΔP)	Anomalies Dynamic depth (ΔD)	Specific volume (Δv)	
Station 42: November 13, 1928; 1°32' S, 93°10' W; depth bottom, 3539 m; weather, bc; sea, MS; wind, SE 1/2; heavy current caused tangling of wire with plankton pump																			
	0	18.72	34.70	24.88	.....	.....	8.06	45	.....	0	18.72	34.70	24.88	24.88	0.0000	0.0000	0.00308
	5	18.72	34.70	24.88	.....	.....	8.06	50	.....	5	18.72	34.70	24.88	24.91	0.0162	0.0155	308
	23	18.50	34.76	24.98	.....	.....	8.04	52	.....	25	18.45	34.77	25.00	25.11	0.0800	0.0780	298
	44	17.64	34.85	25.26	.....	.....	7.99	68	.....	50	17.20	34.92	25.42	25.65	0.1533	0.1454	257
	86	15.64	35.04	25.88	.....	.....	7.88	84	.....	75	14.80	35.04	26.06	26.41	0.2135	0.2024	198
	174	14.33	35.04	26.17	.....	.....	7.91	150	.....	100	13.80	35.02	26.27	26.73	0.283	0.249	179
	274	12.26	34.93	26.38	.....	.....	7.94	158	.....	150	12.05	34.95	26.36	27.05	0.337	0.337	171
	468	8.66	34.66	26.93	.....	.....	7.66	224	.....	250	12.70	34.92	26.41	27.33	0.446	0.422	168
	573	7.38	34.61	27.08	.....	.....	7.64	237	.....	300	12.05	34.86	26.57	27.96	0.534	0.505	166
	803	5.63	34.56	27.27	.....	.....	7.66	241	.....	400	10.15	34.73	26.98	28.60	0.775	0.735	156
	1155	3.96	34.57	27.47	.....	.....	7.75	248	.....	500	8.20	34.64	26.98	29.33	0.912	0.864	141
	1760	2.62	34.64	27.65	.....	.....	7.69	237	.....	700	6.40	34.58	27.18	30.49	1.142	1.085	101
	2368	1.92	34.65	27.72	.....	.....	7.69	237	.....	1000	4.65	34.56	27.38	32.13	1.43	1.36	082
					.....	.....			.....	1500	3.10	34.61	27.59	34.75	1.81	1.72	062
					.....	.....			.....	2000	2.30	34.65	27.69	37.23	2.12	2.02	054
					.....	.....			.....	2500	1.90	34.65	27.72	39.61	2.38	2.28	0.00052
Station 43: November 15, 1928; 2°30' S, 95°43' W; depth bottom, 3352 m; weather, bc; sea, M; wind, SE 3; good conditions; not much current																			
	0	19.56	34.80	24.74	.....	.....	8.09	52	.....	0	19.56	34.80	24.74	24.74	0.0000	0.0000	0.00322
	8	19.55	34.83	24.77	.....	.....	8.11	42	.....	5	19.55	34.82	24.77	24.80	0.0169	0.0161	319
	30	19.52	34.85	24.80	.....	.....	8.04	50	.....	25	19.55	34.85	24.81	24.92	0.0837	0.0796	316
	54	16.53	34.95	25.60	.....	.....	7.93	80	.....	50	17.00	34.91	25.47	25.70	0.1587	0.1505	252
	80	14.54	35.04	26.12	.....	.....	7.87	84	.....	75	14.80	35.04	26.06	26.41	0.2182	0.2059	198
	103	13.45	35.01	26.33	.....	.....	7.90	92	.....	100	13.55	35.02	26.32	26.78	0.267	0.255	174
	209	12.42	34.89	26.44	.....	.....	7.81	98	.....	150	12.90	34.94	26.58	27.07	0.358	0.339	169
	312	11.74	34.83	26.53	.....	.....	7.69	110	.....	200	12.50	34.91	26.44	27.37	0.447	0.423	165
	289	11.86	34.89	26.55	.....	.....	7.70	107	.....	300	12.15	34.89	26.49	27.65	0.532	0.504	161
	482	8.28	34.63	26.96	.....	.....	7.67	127	.....	400	11.80	34.85	26.53	27.92	0.617	0.584	159
	670	6.42	34.54	27.16	.....	.....	7.66	135	.....	500	10.10	34.71	26.73	28.60	0.775	0.735	141
	958	4.68	34.56	27.38	.....	.....	7.68	172	.....	600	8.05	34.62	26.99	29.34	0.912	0.863	116
	1438	3.38	34.60	27.55	.....	.....	7.65	163	.....	700	6.20	34.53	27.17	30.48	1.142	1.081	102
	1926	2.43	34.63	27.66	.....	.....	7.69	168	.....	1000	4.50	34.57	27.41	32.16	1.43	1.35	078
	2414	1.96	34.67	27.73	.....	.....	7.69	168	.....	1500	3.25	34.61	27.57	34.73	1.80	1.72	065
					.....	.....			.....	2000	2.35	34.64	27.68	37.21	2.12	2.02	055
					.....	.....			.....	2500	1.90	34.67	27.74	39.63	2.38	2.28	0.00050
Station 44: November 17, 1928; 3°15' S, 99°48' W; depth bottom, 3423 m; weather, b; sea, MC; wind, SE 3; fair conditions																			
	0	20.67	34.86	24.49	.....	.....	8.03	38	.....	0	20.67	34.86	24.49	24.49	0.0000	0.0000	0.00346
	5	20.66	34.85	24.49	.....	.....	8.06	32	.....	5	20.66	34.85	24.49	24.52	0.0182	0.0173	346
	22	20.61	34.89	24.53	.....	.....	8.06	34	.....	25	20.65	34.89	24.52	24.63	0.0907	0.0864	344
	41	20.52	34.86	24.53	.....	.....	8.04	34	.....	50	20.45	34.87	24.56	24.79	0.1807	0.1717	339
	62	17.92	34.91	25.24	.....	.....	7.94	40	.....	75	14.65	35.02	26.08	26.43	0.2514	0.2387	196
	83	14.92	35.04	26.19	.....	.....	7.88	40	.....	100	13.75	35.02	26.28	26.74	0.300	0.285	178
	162	12.22	34.92	26.36	.....	.....	7.77	168	.....	150	13.05	34.95	26.54	27.03	0.393	0.375	173
	239	12.47	34.90	26.44	.....	.....	7.71	185	.....	200	12.70	34.93	26.40	27.33	0.484	0.459	169
	337	10.78	34.77	26.65	.....	.....	7.62	209	.....	250	12.35	34.89	26.45	27.61	0.572	0.542	0.00165

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values						Interpolated values						Computed values			
		Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{tp})	Pressure (ΔP)	Anomalies	
					ml/L	o/o										Dynamic depth (ΔD)	Specific volume (Δv)
Station 44--Continued																	
	365	10.00	34.71	26.75	.....	.....	228	.....	300	11.60	34.84	26.56	27.95	0.657	0.623	0.00157
	465	8.14	34.64	26.99	.....	.....	236	.....	400	9.10	34.68	26.87	28.74	0.806	0.765	0.00127
	650	6.75	34.59	27.15	.....	.....	249	.....	500	7.85	34.63	27.02	29.37	0.935	0.885	0.00113
h	921	4.76	34.53	27.35	.....	.....	245	.....	700	6.35	34.57	27.19	30.50	1.160	1.098	0.00100
40°	1407	3.37	34.60	27.55	.....	.....	245	.....	1000	4.50	34.53	27.38	32.13	1.45	1.37	0.00081
	1902	2.43	34.63	27.66	.....	.....	237	.....	1500	3.15	34.61	27.58	34.74	1.83	1.74	0.00063
	2382	1.99	34.63	27.70	.....	.....	225	.....	2000	2.30	34.63	27.67	37.21	2.14	2.04	0.00056
	2890	1.75	34.65	27.73	.....	.....	224	.....	2500	1.90	34.64	27.71	39.60	2.41	2.30	0.00053
Station 45: November 19, 1928; 4°35' S, 105°03' W; depth bottom 3342 m; weather, bc; sea, MR; wind, SE 4; strong trade wind; considerable drift																	
	0	22.43	35.26	24.31	.....	.....	38	.....	0	22.43	35.26	24.31	24.31	0.0000	0.0000	0.00353
	5	22.45	35.24	24.29	.....	.....	36	.....	5	22.45	35.24	24.29	24.31	0.031	0.0182	0.00364
	22	22.45	35.24	24.29	.....	.....	48	.....	25	22.45	35.24	24.29	24.40	0.0981	0.0912	0.00366
h	43	22.45	35.23	24.29	.....	.....	46	.....	50	22.40	35.23	24.30	24.53	0.1825	0.1825	0.00351
40°	57	22.37	35.23	24.30	.....	.....	46	.....	75	18.60	35.22	24.46	24.80	0.2885	0.2719	0.00376
	80	21.69	35.21	24.48	.....	.....	46	.....	100	18.60	35.14	25.25	25.70	0.369	0.350	0.00369
	158	12.59	34.93	26.44	.....	.....	168	.....	150	12.70	34.94	26.42	27.11	0.486	0.460	0.00365
	238	11.78	34.88	26.56	.....	.....	178	.....	200	11.25	34.90	26.50	27.43	0.572	0.542	0.00359
	314	11.11	34.81	26.63	.....	.....	182	.....	250	11.65	34.87	26.57	27.73	0.654	0.620	0.00354
	310	11.20	34.83	26.62	.....	.....	186	.....	300	11.25	34.83	26.61	28.00	0.735	0.696	0.00352
	388	9.91	34.74	26.78	.....	.....	200	.....	400	9.75	34.73	26.80	28.67	0.885	0.840	0.00335
	554	7.47	34.63	27.08	.....	.....	224	.....	500	8.15	34.66	27.00	29.35	1.018	0.965	0.00315
h	789	5.20	34.53	27.30	.....	.....	225	.....	700	5.95	34.55	27.22	30.53	1.242	1.176	0.00296
53°	1176	3.69	34.57	27.50	.....	.....	224	.....	1000	4.20	34.54	27.42	32.18	1.52	1.44	0.00277
	1556	2.94	34.60	27.60	.....	.....	220	.....	1500	3.05	34.60	27.58	34.74	1.89	1.79	0.00263
	1884	2.40	34.63	27.66	.....	.....	209	.....	2000	2.25	34.63	27.68	37.22	2.20	2.09	0.00255
Station 46: November 21, 1928; 9°06' S, 108°20' W; depth bottom, 2905 m; weather, b; sea, MR; wind, SE 4; rough sea																	
	0	23.30	35.32	24.11	.....	.....	36	.....	0	23.30	35.32	24.11	24.11	0.0000	0.0000	0.00382
	6	23.28	35.32	24.11	.....	.....	36	.....	5	23.30	35.32	24.11	24.13	0.0201	0.0391	0.00381
	26	23.26	35.33	24.13	.....	.....	38	.....	25	23.25	35.33	24.13	24.24	0.1004	0.0953	0.00381
h	51	23.26	35.33	24.13	.....	.....	40	.....	50	23.25	35.33	24.13	24.36	0.2007	0.1905	0.00366
20°	74	22.76	35.37	24.29	.....	.....	34	.....	75	22.75	35.37	24.30	24.64	0.2991	0.2840	0.00340
	96	22.60	35.40	24.37	.....	.....	34	.....	100	22.55	35.41	24.39	24.84	0.394	0.374	0.00358
	196	13.96	34.87	26.11	.....	.....	139	.....	150	17.75	35.40	25.66	26.34	0.552	0.523	0.00338
	296	10.63	34.77	26.68	.....	.....	194	.....	200	13.65	34.86	26.17	27.09	0.666	0.631	0.00319
	392	9.40	34.71	26.85	.....	.....	205	.....	250	11.55	34.81	26.56	27.72	0.757	0.717	0.00291
	146	18.36 ^{a)}	35.42	25.52	.....	.....	210	.....	300	10.55	34.77	26.70	28.10	0.835	0.792	0.00273
	502	8.10	34.48 ^{b)}	27.47	.....	.....	221	.....	400	9.30	34.71	26.86	28.73	0.978	0.928	0.00243
h	1103	4.05	34.58	27.47	.....	.....	224	.....	500	8.15	34.66	27.00	29.35	1.108	1.049	0.00215
25°	1713	2.58	34.61	27.63	.....	.....	225	.....	700	6.30	34.58	27.20	30.51	1.334	1.263	0.00199
	2267	1.97	34.64	27.70	.....	.....	205	.....	1000	4.50	34.56	27.40	32.15	1.62	1.53	0.00179
	2820	1.91	34.68	27.74	.....	.....	192	.....	1500	3.46	34.61	27.60	34.77	1.99	1.89	0.00161
					.....	.....		.....	2000	2.20	34.63	27.68	37.22	2.29	2.18	0.00155
					.....	.....		.....	2500	1.95	34.66	27.72	39.61	2.55	2.44	0.00152

a) Temperature from pressure thermometer and wire-depth. b) Salinity rejected.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep-sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values					Interpolated values					Computed values					
		Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen ml/L	Oxygen o/o	Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{tp})	Pressure (ΔP)	Dynamic depth (ΔD)	Specific volume (Δσ)	Anomalies
Station 47: November 23, 1928; 14°07' S, 111°50' W; depth bottom, 3080 m; weather, R; wind, E 2-4; rough sea; larger wire angle for second series due to increase in wind																	
	0	23.88	35.96	24.42	...	...	...	0	23.88	35.96	24.42	24.42	0.0000	0.0000	0.00352		
	5	23.86	35.94	24.41	...	...	...	5	23.86	35.94	24.41	24.41	0.0186	0.0177	0.00352		
h	25	23.86	35.97	24.44	...	...	...	25	23.86	35.97	24.44	24.55	0.0928	0.0880	0.351		
8.4	53	23.77	35.99	24.48	...	...	...	50	23.80	35.99	24.47	24.98	0.1849	0.1754	0.349		
10°	77	23.35	36.05	24.64	...	...	...	75	23.35	36.05	24.64	25.36	0.2748	0.2609	0.334		
	95	22.86	36.15	24.86	...	...	...	100	22.70	36.15	24.91	25.92	0.359	0.341	0.308		
	205	19.82	35.70	25.36	...	...	...	150	21.40	36.11	25.25	26.25	0.514	0.487	0.277		
	314	11.36	34.57	26.39	...	...	...	200	20.05	35.75	25.35	26.25	0.660	0.625	0.271		
	425	8.35	34.60	26.92	...	...	...	250	15.50	34.95	25.84	26.99	0.790	0.748	0.224		
	381	9.41	34.61	26.77	...	...	...	300	12.00	34.60	26.50	27.69	0.897	0.849	0.181		
	477	7.72	34.59	27.00	...	...	...	400	8.95	34.61	26.84	28.71	1.061	1.005	0.130		
h	561	6.01	34.53	27.20	...	...	...	500	7.43	34.57	27.04	29.40	1.189	1.126	0.111		
10.7	661	3.73	34.54	27.47	...	...	...	700	5.75	34.52	27.23	30.55	1.406	1.332	0.095		
36°	1241	2.85	34.59	27.59	...	...	...	1000	4.20	34.52	27.41	32.17	1.68	1.59	0.078		
	1590	2.11	34.63	27.68	...	...	...	1500	3.00	34.58	27.57	33.74	2.05	1.95	0.064		
	2044				...	...	...	2000	2.20	34.63	27.68	37.22	2.36	2.26	0.0055		
Station 48: November 25, 1928; 19°06' S, 114°07' W; depth bottom, 2874 m; weather, bc; sea, MR; wind, E by S 5; strong trade wind; rolling and pitching																	
	0	23.63	36.44	24.86	...	...	...	0	23.63	36.44	24.86	24.86	0.0000	0.0000	0.00310		
	5	23.64	36.42	24.88	...	...	...	5	23.64	36.48	24.88	24.90	0.0163	0.0155	0.307		
h	26	23.63	36.42	24.84	...	...	...	25	23.63	36.42	24.84	24.95	0.0818	0.0775	0.313		
9.5	51	23.59	36.41	24.85	...	...	...	50	23.60	36.41	24.85	25.08	0.1642	0.1556	0.312		
25°	85	22.88	36.30	24.98	...	...	...	75	23.15	36.31	24.90	25.24	0.2461	0.2333	0.309		
	100	22.74 ^{a)}	36.29	25.00	...	...	...	100	22.74	36.29	25.00	25.45	0.326	0.309	0.301		
	203	14.45	35.95	25.95	...	...	...	150	20.45	35.98	25.24	25.92	0.479	0.454	0.278		
	309		34.80	25.95	...	...	...	200	20.45	35.98	25.40	26.30	0.623	0.591	0.266		
	365	10.26	34.42	26.47	...	...	...	250	18.50	35.41	25.48	26.61	0.762	0.721	0.259		
	453	7.98	34.44	26.86	...	...	...	300	15.10	34.90	25.89	27.26	0.889	0.842	0.221		
	547	6.32	34.41	27.07	...	...	...	400	9.25	34.42	26.65	28.53	1.083	1.027	0.149		
h	723	5.16	34.40	27.20	...	...	...	500	7.05	34.42	26.98	29.35	1.223	1.160	0.117		
8.9	1005	4.18	34.50	27.39	...	...	...	700	5.25	34.40	27.19	30.52	1.448	1.375	0.098		
28°	1484	2.98	34.62	27.61	...	...	...	1000	4.20	34.50	27.39	32.15	1.73	1.64	0.080		
	1894	2.13	34.61	27.67	...	...	...	1500	2.95	34.61	27.60	34.77	2.10	2.00	0.061		
	1975				...	...	...	2000	2.10	34.63	27.68	37.23	2.40	2.30	0.0055		
Station 49: November 27, 1928; 23°16' S, 114°45' W; depth bottom, 3098 m; weather, bcu; sea, ML; wind, E by S 2; good conditions; lower water bottle full of muddy water; left-hand thermometer and brass tube missing, while end of wire was torn and charred as if caught in crevasse of sharp rock																	
	0	23.38	36.17	24.72	...	...	...	0	23.38	36.17	24.72	24.72	0.0000	0.0000	0.00324		
	5	23.38	36.17	24.72	...	...	...	5	23.38	36.17	24.72	24.72	0.0171	0.0162	0.323		
h	25	23.32	36.12	24.71	...	...	...	25	23.32	36.12	24.71	24.82	0.0855	0.0811	0.326		
10.0	49	22.60	36.06	24.87	...	...	...	50	22.55	36.06	24.88	25.11	0.1631	0.1603	0.308		
18°	73	21.85	36.01	25.04	...	...	...	75	21.85	36.01	25.04	25.38	0.2489	0.2358	0.295		
	96	21.61	35.95	25.07	...	...	...	100	21.60	35.94	25.06	25.51	0.326	0.309	0.294		
	198	19.55	35.58	25.34	...	...	...	150	20.80	35.76	25.14	25.82	0.480	0.454	0.287		
	299	14.94	34.89	25.92	...	...	...	200	19.50	35.56	25.34	26.24	0.629	0.594	0.271		
	388	10.71	34.44	26.41	...	...	...	250	17.30	35.26	25.66	26.80	0.764	0.722	0.00341		

a) Thermometer not functioning.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.F. and wire angle	Depth (D) meters	Observed values					Interpolated values					Computed values			
		Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen		Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{TP})	Anomalies	
					ml/L	o/o								Pressure (ΔP)	Dynamic depth (ΔD)	Specific volume (ΔC)
Station 49--Continued															
	444	8.49	34.37	26.73	....	7.85	142	300	14.85	34.86	25.92	27.29	0.885	0.837	0.00218
	543	6.72	34.35	26.95	....	7.85	159	400	10.10	34.41	26.50	28.38	1.086	1.028	164
	731	5.17	34.32	27.14	....	7.83	151	500	7.35	34.36	26.89	29.25	1.238	1.173	125
h	1013	3.98	34.29	27.32	....	7.73	186	700	5.35	34.32	27.12	30.45	1.480	1.403	105
30°	1495	2.67	34.59	27.60	....	7.75	180	1000	4.00	34.38	27.31	32.08	1.78	1.69	87
	2089	2.06	34.65	27.70	....	7.75	184	1600	2.65	34.59	27.61	34.79	2.46	2.38	59
	2601	1.89	34.63	27.70	....	7.78	176	2000	2.10	34.64	27.69	37.24	2.46	2.35	54
	3098	1.86a)	....	....	....	7.70	....	2500	1.90	34.64	27.71	39.60	2.72	2.61	53
								3000	1.85	34.64	27.72	41.95	2.98	2.88	0.00053
Station 50: November 29, 1928; 26°27' S, 115°21' W; weather, bcq; sea, ML; wind, ENE 3; good conditions															
	0	23.20	36.02	24.57	....	8.23	13	0	23.20	36.02	24.57	24.57	0.0000	0.0000	0.00329
	5	23.21	34.64	24.64	....	8.23	13	5	23.21	35.99	24.64	24.66	0.0174	0.0165	380
h	24	22.32	35.94	24.86	....	8.22	13	25	22.30	35.94	24.86	24.97	0.0851	0.0806	311
9.3	48	21.29	34.94	25.08	....	8.23	13	50	22.00	35.94	24.96	25.19	0.1659	0.1571	301
5°	62	21.29	35.85	25.08	....	8.23	13	75	21.00	35.80	25.12	25.46	0.2436	0.2307	287
	95	20.57	35.73	25.18	....	8.22	13	100	20.50	35.72	25.20	25.55	0.318	0.302	281
	190	19.00	35.54	25.45	....	8.18	16	150	19.70	35.61	25.35	26.01	0.464	0.459	269
	285	14.89	34.90	25.94	....	8.08	54	200	18.65	35.51	25.52	26.42	0.603	0.570	253
	283	14.73	34.88	25.96	....	8.07	52	250	16.35	35.16	26.81	26.96	0.730	0.709	227
h	386	10.26	34.47	26.51	....	7.99	107	300	14.10	34.78	26.01	27.59	0.945	0.929	210
8.7	493	7.42	34.38	26.88	....	7.88	134	400	9.75	34.45	26.59	28.47	1.036	1.021	155
12°	703	5.60	34.33	27.09	....	7.86	131	500	7.35	34.38	26.90	29.26	1.184	1.121	124
	1019	4.06	34.27	27.30	....	7.77	162	700	5.65	34.37	27.09	30.41	1.351	1.351	103
	1552	2.45	34.27	27.63	....	7.75	170	1000	4.15	34.37	27.29	32.05	1.429	1.429	90
	2082	2.06	34.62	27.68	....	7.75	154	1500	2.55	34.57	27.60	34.78	2.13	2.03	60
								2000	2.10	34.63	27.68	37.23	2.43	2.33	0.00055
Station 51: December 1, 1928; 29°06' S, 114°48' W; weather, b; sea, S; wind, ENE 0-1; nearly calm															
	0	22.78	35.63	24.49	....	8.22	16	0	22.78	35.63	24.49	24.49	0.0000	0.0000	0.00345
h	25	22.71	35.65	24.51	....	8.22	16	5	22.71	35.63	24.51	24.53	0.0181	0.0173	344
8.8	48	21.18	35.58	25.08	....	8.22	17	25	21.18	35.58	24.96	25.07	0.0861	0.0819	302
0°	72	20.10	35.60	25.21	....	8.22	17	50	20.50	35.60	25.21	25.32	0.1641	0.1556	288
	94	20.10	35.62	25.24	....	8.22	17	75	20.10	35.60	25.21	25.55	0.2391	0.2266	279
	190	17.51	35.19	25.56	....	8.16	40	100	19.95	35.62	25.26	25.71	0.312	0.296	275
	285	14.55	34.97	26.07	....	8.10	92	150	18.65	35.35	25.40	26.08	0.454	0.430	263
	376	10.52	34.57	26.54	....	7.96	92	200	17.30	35.15	25.58	26.49	0.590	0.558	248
	368	10.10	34.64	26.67	....	7.99	82	250	15.75	35.05	25.86	27.01	0.713	0.675	233
	459	8.00	34.37	26.80	....	7.89	82	300	13.75	34.93	26.20	27.58	0.823	0.779	192
h	637	6.00	34.33	27.04	....	7.89	....	400	9.40	34.47	26.66	28.54	1.001	0.960	148
10.5	910	4.55	34.33	27.22	....	7.81	....	500	7.25	34.36	26.90	29.26	1.145	1.086	124
6°	1367	2.93	34.48	27.50	....	7.75	192	700	5.60	34.32	27.09	30.41	1.390	1.319	109
	1823	2.21	34.63	27.68	....	7.75	176	1000	4.15	34.36	27.28	32.05	1.70	1.62	91
	2377	1.94	34.63	27.72	....	7.75	176	1500	2.10	34.53	27.56	34.74	2.10	2.01	64
	2875b)	1.80	34.64	27.72	....	7.75	176	2000	1.90	34.65	27.70	37.24	2.41	2.31	52
								2500	1.90	34.65	27.72	39.51	2.67	2.56	0.00052

a) Temperature from pressure-thermometer and wire-depth. b) Piano wire. c) Temperature from pressure-thermometer and wire-depth.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep-sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values							Interpolated values					Computed values			
		Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{tp})	Pressure (ΔP)	Anomalies	
					ml/L	o/o										Dynamic depth (ΔD)	Specific volume (Δv)
Station 52: December 3, 1928; 31°28' S, 112°51' W; depth bottom, 2851 m; weather, bc; sea, SL; wind, N; Good conditions; long south swells																	
	0	22.48	35.39	24.40	4.68	.93	8.21	8	0	22.48	35.39	24.40	24.40	0.0000	0.0000	0.00354	
	4	22.50	35.41	24.41	.....	.....	8.21	8	5	22.50	35.41	24.41	24.43	0.0186	0.0177	353
	50	20.71	35.44	24.92	.....	.....	8.21	8	25	20.71	35.45	24.93	25.04	0.0879	0.0834	304
h	74	19.37	35.49	25.32	.....	.....	8.16	8	75	19.36	35.62	25.20	25.43	0.1649	0.1561	278
8.8	97	18.41	35.25	25.38	5.07	.94	8.17	8	100	18.25	35.49	25.32	25.66	0.2371	0.2245	262	
7°	189	14.69	34.81	25.91	4.77	.83	8.10	17	150	16.00	34.95	25.70	25.85	0.307	0.291	231	
	291	11.52	34.68	26.45	.....	.....	7.98	76	200	14.25	34.72	25.98	26.90	0.437	0.414	210
	382	8.52	34.42	26.75	4.30	.66	7.89	122	250	12.85	34.72	26.23	27.39	0.554	0.525	186	
	377	8.69	34.45	26.75	4.58	.70	7.89	134	300	11.25	34.67	26.49	27.88	0.750	0.710	162	
	475	6.87	34.38	26.97	4.54	.67	7.87	151	400	8.05	34.43	26.83	28.71	0.905	0.867	131	
	657	5.68	34.29	27.06	5.09	.73	7.88	168	500	6.65	34.36	26.98	29.35	1.036	0.981	116	
h	937	4.42	34.31	27.23	4.33	.60	7.83	188	700	5.45	34.28	27.07	30.40	1.273	1.208	111	
9.7	1405	3.02	34.56	27.56	.....	.....	7.72	209	1000	4.20	34.35	27.27	32.04	1.59	1.51	092
11°	1880	2.18	34.62	27.68	3.46	.46	7.74	194	1500	3.80	34.64	27.58	34.75	1.99	1.90	052	
	2359	1.87	34.66	27.73	3.64	.48	7.77	194	2000	3.05	34.64	27.70	37.25	2.29	2.19	052	
	2829 ^a)	1.82	34.69	27.76	3.55	.46	7.77	194	2500	1.85	34.66	27.73	39.62	2.54	2.44	0.00050	
Station 53: December 5, 1928; 29°06' S, 108°44' W; depth bottom, 2871 m; weather, bc; sea, MC; wind, W 5; not very good conditions; considerable drift																	
	0	22.57	35.70	24.61	.....	.....	8.20	13	0	22.57	35.70	24.61	24.61	0.0000	0.0000	0.00334
	22	22.23	35.70	24.70	.....	.....	8.20	13	25	22.20	35.71	24.72	24.83	0.0177	0.0168	327
h	44	21.44	35.76	24.96	.....	.....	8.20	13	50	21.25	35.75	25.01	25.24	0.0874	0.0850	325
8.7	66	20.83	35.73	25.12	.....	.....	8.20	13	75	20.65	35.71	25.17	25.51	0.1633	0.1605	296
25°	86	20.28	35.68	25.22	.....	.....	8.20	13	100	19.90	35.62	25.28	25.73	0.2468	0.2330	283
	174	17.81	35.15	25.45	.....	.....	8.18	13	150	16.60	35.32	25.39	26.07	0.319	0.302	273
	260	14.61	34.87	25.97	.....	.....	8.08	36	200	16.90	35.04	25.59	26.50	0.461	0.436	264
	345	10.99	34.58	26.47	.....	.....	8.00	94	250	15.00	34.89	25.90	27.05	0.597	0.585	247
	309	12.85	34.76	26.26	.....	.....	8.03	62	300	13.20	34.77	26.20	27.58	0.719	0.681	218
	360	10.66	34.53	26.50	.....	.....	7.99	96	400	9.20	34.46	26.68	28.55	0.827	0.783	191
h	543	6.39	34.32	26.99	.....	.....	7.89	123	500	7.00	34.35	26.93	29.29	1.005	0.962	146
9.7	794	5.03	34.28	27.12	.....	.....	7.86	163	700	5.45	34.27	27.06	30.39	1.147	1.086	121
45°	1238	3.31	34.47	27.46	.....	.....	7.73	180	1000	4.15	34.36	27.28	32.05	1.391	1.319	112
	1704	2.34	34.60	27.65	.....	.....	7.73	192	1500	3.70	34.56	27.58	34.76	1.71	1.62	091
	2187	1.96	34.64	27.71	.....	.....	7.73	188	2000	3.10	34.63	27.68	37.23	2.10	2.01	062
							7.75	186	2500	1.85	34.65	27.72	39.61	2.41	2.31	055	
														2.67	2.57	0.00052	
Station 54: December 14, 1928; 29°17' S, 108°54' W; depth bottom, 3061 m; weather, bcqr; sea, MS; wind, NE; Good conditions; Meteor tube sampler used, getting 24-inch sample with water in top of glass tube																	
	0	23.43	35.54	24.24	.....	.....	8.22	9	0	23.43	35.54	24.24	24.24	0.0000	0.0000	0.00369
	6	23.43	35.42	24.15	.....	.....	8.20	12	5	23.43	35.42	24.15	24.17	0.0197	0.0187	378
h	26	21.27	35.40	24.74	.....	.....	8.20	24	25	21.30	35.40	24.73	24.84	0.0936	0.0889	324
8.6	50	19.75	35.40	25.15	.....	.....	8.19	17	50	19.75	35.40	25.15	25.38	0.1736	0.1747	282
0°	75	18.16	35.01	25.01	.....	.....	8.17	17	75	18.16	35.01	25.01	25.35	0.2504	0.2372	298
	100	18.74	35.35	25.37	.....	.....	8.16	20	100	18.74	35.35	25.37	25.82	0.324	0.308	265
	200	16.04	34.96	25.73	.....	.....	8.10	28	150	17.45	35.15	25.54	26.23	0.460	0.436	249
	290	12.69	34.67	26.22	.....	.....	8.03	88	200	16.04	34.96	25.73	26.65	0.588	0.557	233
	399	9.01	34.42	26.68	.....	.....	7.91	146	250	14.30	34.80	25.99	27.14	0.704	0.667	0.00310

a) Piano wire.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values										Interpolated values					Computed values			
		Temperature (t) °C	Salinity (S) o/oo	Density (σ_t^*)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t^*)	Density (σ_{tp}^*)	Pressure (ΔP)	Anomalies		Specific volume (Δc)		
					ml/L	o/o										Dynamic depth (ΔD)	Pressure (ΔD)			
Station 54--Continued																				
	305	12.00	34.67	26.35	....	....	8.02	111	....	300	12.25	34.65	26.29	27.68	0.808	0.765	0.00182
	399	8.64	34.35	26.68	....	....	7.91	147	....	400	8.75	34.39	26.70	28.58	0.979	0.928	1.43
	585	6.13	34.18	26.91	....	....	7.88	158	....	500	6.90	34.24	26.85	29.22	1.123	1.064	1.29
h	869	4.70	34.16	27.07	....	....	7.83	174	....	700	5.50	34.14	26.95	30.28	1.385	1.315	1.22
5°	1344	3.04	34.52	27.52	....	....	7.69	216	....	1000	4.15	34.25	27.20	31.97	1.73	1.65	0.98
	1815	2.22	34.64	27.69	....	....	7.74	205	....	1500	2.70	34.58	27.59	34.77	2.14	2.05	0.61
	2287	1.90	34.59 _a	27.67	....	....	7.75	205	....	2000	2.10	34.62	27.68	37.23	2.44	2.34	0.55
	3061	....	34.68 _a	....	....	....	....	....	....	2500	1.85	34.63	27.71	39.60	2.71	2.61	0.00053
Station 55: December 16, 1928; 32°03' S, 110°55' W; depth bottom, 2725 m; weather, bc; sea, RC; wind, SE 5; not very good conditions; rough sea after gale; rolling and pitching																				
	0	20.38	34.91	24.61	....	....	8.19	12	....	0	20.38	34.91	24.61	24.61	0.0000	0.0000	0.00334
	6	20.39	35.01	24.68	....	....	8.19	12	....	5	20.40	34.97	24.65	24.76	0.0174	0.0162	328
h	27	30.39	34.97	24.68	....	....	8.19	12	....	25	30.40	34.97	24.65	24.76	0.0868	0.0825	331
9.6	52	18.54	35.04	25.18	....	....	8.18	12	....	50	17.70	35.00	25.36	25.37	0.1680	0.1592	283
13°	76	17.67	35.00	25.37	....	....	8.17	12	....	75	16.70	34.86	25.50	25.96	0.308	0.2278	252
	99	16.75	34.86	25.48	....	....	8.17	12	....	100	15.50	34.76	25.69	26.38	0.414	0.414	235
	199	14.29	34.70	25.91	....	....	7.96	94	....	200	14.25	34.70	25.92	26.84	0.556	0.527	215
	299	10.50	34.47	26.47	....	....	7.96	94	....	250	12.35	34.60	26.23	27.39	0.662	0.627	186
	325	9.52	34.39	26.58	....	....	7.94	98	....	300	10.50	34.46	26.46	27.86	0.754	0.715	165
h	428	7.25	34.34	26.88	....	....	7.89	107	....	400	7.60	34.35	26.84	28.73	0.909	0.862	129
19°	536	6.42	34.37	27.02	....	....	7.88	118	....	500	6.65	34.29	27.93	29.30	1.041	0.987	120
	748	5.33	34.22	27.02	....	....	7.77	131	....	700	5.65	34.22	27.00	30.32	1.291	1.224	117
	1073	3.33	34.30	27.26	....	....	7.76	178	....	1000	4.28	34.27	27.20	31.97	1.63	1.55	98
	1594	2.53	34.53	27.57	....	....	7.74	176	....	1500	2.70	34.62	27.52	34.70	2.06	1.97	68
	2155	1.91	34.62	27.70	....	....	7.72	186	....	2000	2.10	34.62	27.68	37.23	2.38	2.28	65
					....	....			....	2500	1.85	34.63	27.71	39.60	2.64	2.54	0.00053
Station 56: December 18, 1928; 31°49' S, 109°04' W; depth bottom 3135 m; weather, b; sea, MS; wind, N 2; good conditions																				
	0	20.85	34.93	24.50	....	....	8.13	9	....	0	20.85	34.93	24.50	24.50	0.0000	0.0000	0.00345
h	5	20.84	34.97	24.53	....	....	8.14	9	....	5	20.84	34.97	24.53	24.55	0.0181	0.0172	342
9.7	25	18.81	34.93	24.51	....	....	8.14	9	....	25	18.81	34.93	24.51	24.62	0.0904	0.0859	345
8°	48	18.88	35.12	25.24	....	....	8.14	9	....	50	18.50	35.12	25.26	25.49	0.1718	0.1630	292
	62	18.16	35.01	25.28	....	....	8.13	9	....	75	17.60	34.91	25.32	25.66	0.2433	0.2306	268
	93	16.90	34.76	25.37	....	....	8.11	12	....	100	16.65	34.75	25.42	25.88	0.313	0.418	260
	187	13.70	34.64	25.99	....	....	8.02	32	....	150	14.90	34.68	25.76	26.45	0.441	0.418	229
	283	10.59	34.49	26.47	....	....	7.93	68	....	200	13.20	34.62	26.08	27.00	0.555	0.526	199
	374	7.73	34.29	26.77	....	....	7.85	106	....	250	11.65	34.55	26.32	27.48	0.654	0.620	177
	467	6.66	34.32	26.79	....	....	7.84	107	....	300	9.80	34.40	26.58	27.98	0.742	0.703	154
h	648	5.72	34.51	26.94	....	....	7.85	107	....	400	7.30	34.30	26.85	28.74	0.890	0.844	128
9.7	928	4.40	34.26	27.02	....	....	7.85	111	....	500	6.50	34.30	26.95	29.32	1.021	0.968	119
20°	1396	3.06	34.49	27.18	....	....	7.84	126	....	700	5.45	34.24	27.04	30.37	1.264	1.259	113
	1870	2.18	34.59	27.50	....	....	7.75	162	....	1000	4.15	34.29	27.23	32.00	1.59	1.51	95
	2347	1.85	34.60	27.65	....	....	7.66	154	....	1500	2.80	34.62	27.54	34.72	2.01	1.92	66
	2822	1.81	34.54	27.72	....	....	7.70	151	....	2000	2.05	34.60	27.65	37.21	2.33	2.23	56
					....	....	7.72	181	....	2500	1.85	34.62	27.70	39.69	2.60	2.50	0.00054

^a By titration of water in bottom-sample.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values						Interpolated values						Computed values		
		Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen		Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{tp})	Pressure (ΔP)	Dynamic depth (ΔD)	Specific volume (Δα)
					ml/L	o/o											Pressure (ΔP)	Dynamic depth (ΔD)	Specific volume (Δα)
Station 57: December 20, 1928; 33°59' S, 106°43' W; depth bottom, 3139 m; weather, bc; sea, MC; wind, NE 4; fair conditions; considerable drift																
	0	18.97	34.49	24.66	4.99	93	20	8.14	7.92	103	0	18.97	34.49	24.66	0.0000	0.00330
	4	18.98	34.56	24.70	4.99	93	20	8.14	7.87	131	5	19.00	34.56	24.70	0.0173	0.0165
	23	18.82	34.51	24.71	4.99	93	20	8.14	7.88	135	25	18.80	34.51	24.72	0.0857	0.0816
h	47	15.85	34.33	25.28	5.76	99	25	8.13	7.85	139	50	15.55	34.33	25.35	0.1634	0.1551
25°	69	14.99	34.44	25.56	5.76	99	25	8.13	7.85	139	75	14.75	34.33	25.60	0.2302	0.2185
	89	14.57	34.39	25.61	5.27	87	60	8.05	7.82	102	100	14.30	34.38	25.66	0.293	0.278
	180	12.30	34.34	26.04	5.03	79	102	7.92	7.79	102	150	13.05	34.35	25.90	0.412	0.391
	268	9.54	34.32	26.52	4.97	77	102	7.92	7.77	102	200	11.50	34.33	26.18	0.520	0.492
	360	7.30	34.32	26.56	4.97	77	103	7.92	7.77	103	250	10.00	34.32	26.44	0.613	0.581
	468	6.53	34.35	26.86	5.47	80	131	7.87	7.77	131	300	9.80	34.32	26.64	0.695	0.659
h	666	5.68	34.36	27.11	5.47	80	139	7.86	7.77	139	400	7.00	34.34	26.92	0.836	0.793
9.5	969	4.28	34.30	27.22	4.54	63	186	7.79	7.86	186	700	6.40	34.35	27.03	0.959	0.909
40°	1495	2.96	34.60	27.59	3.67	48	241	7.71	7.74	241	1000	4.15	34.32	27.12	1.186	1.126
	2037	2.14	34.63	27.68	3.67	48	224	7.74	7.74	224	1500	2.95	34.60	27.60	1.50	1.43
											2000	2.20	34.63	27.68	1.90	1.82
												2.20			2.12	0.00055
Station 58: December 22, 1928; 36°51' S, 104°05' W; depth bottom, 3810 m; weather, fw; sea, ML; wind, NE 3; fair conditions but heavy current																
	0	16.98	33.97	24.74	...	...	20	8.12	7.87	142	0	16.98	33.97	24.74	0.0000	0.00322
	5	16.84	33.98	24.78	...	...	20	8.12	7.87	142	5	16.84	33.98	24.78	0.0169	0.0161
	25	16.02	34.04	25.03	...	...	24	8.12	7.87	142	25	16.02	34.04	25.03	0.0815	0.0774
h	46	13.38	34.09	25.13	...	...	25	8.10	7.85	135	50	14.85	34.09	25.26	0.1566	0.1484
8.8	66	12.47	34.09	25.61	...	...	25	8.10	7.85	135	75	13.10	34.09	25.68	0.2335	0.2118
35°	85	12.79	34.08	25.74	...	...	32	8.01	7.85	135	100	12.30	34.08	25.83	0.283	0.268
	166	10.52	34.12	26.19	...	...	60	7.94	7.85	135	150	10.95	34.10	26.10	0.392	0.372
	253	8.48	34.42	26.76	...	...	110	7.87	7.87	135	200	9.70	34.23	26.42	0.489	0.462
	340	7.01	34.38	26.95	...	...	135	7.87	7.87	135	250	8.55	34.42	26.76	0.568	0.537
	373	6.85	34.35	26.95	...	...	142	7.88	7.88	142	300	7.65	34.41	26.88	0.636	0.601
h	472	5.28	34.40	27.06	...	...	142	7.90	7.87	142	400	6.60	34.35	26.98	0.721	0.683
48°	683	5.47	34.34	27.11	...	...	139	7.87	7.87	139	500	6.15	34.40	27.08	0.879	0.833
	447	6.41	34.34	27.00	...	...	158	7.85	7.85	158	700	5.30	34.31	27.12	1.101	1.045
h	729	5.20	34.27	27.10	...	...	158	7.85	7.85	158	1000	4.15	34.31	27.25	1.41	1.34
32°	1129	3.65	34.37	27.34	...	...	205	7.71	7.85	205	1500	2.80	34.54	27.55	1.75	1.75
	1812	2.42	34.66	27.69	...	...	217	7.72	7.72	217	2000	2.20	34.70	27.74	2.04	2.04
	2464	1.91	34.74	27.79	...	...	226	7.74	7.74	226	2500	1.90	34.74	27.79	2.12	2.12
												2.20			2.35	0.00044
Station 59: December 24, 1928, 39°51' S, 101°04' W; depth bottom, 4116 m; weather, cq 10; sea, MC; wind, N 3; fairly good conditions; not much drift																
	0	16.33	33.97	24.90	...	...	38	8.10	7.90	158	0	16.33	33.97	24.90	0.0000	0.00306
	6	15.28	33.94	24.89	...	...	38	8.10	7.90	158	5	16.30	33.97	24.90	0.0162	0.0154
h	27	13.77	34.03	25.13	...	...	38	8.08	7.88	158	25	15.50	34.02	25.34	0.0788	0.0747
9.0	53	12.41	34.03	25.46	...	...	38	8.08	7.88	158	50	13.95	33.98	25.42	0.1503	0.1433
18°	78	11.26	34.14	25.77	...	...	46	8.08	7.88	158	75	12.50	34.03	25.66	0.2142	0.2029
	103	8.13	34.24	26.08	...	...	72	8.03	7.85	158	100	11.45	34.12	26.03	0.270	0.256
	207	6.83	34.34	26.68	...	...	135	7.93	7.85	135	150	9.65	34.30	26.40	0.367	0.348
	313	6.83	34.34	26.94	...	...	150	7.90	7.85	150	200	8.30	34.23	26.64	0.450	0.426
	421	6.40	34.38	27.03	...	...	158	7.90	7.85	158	250	7.50	34.28	26.80	0.522	0.495

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values							Interpolated values					Computed values			
		Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{TP})	Pressure (ΔP)	Dynamic depth (ΔD)	Specific volume (Δα)
					ml/L	o/o											
Station 59--Continued																	
	572	5.83	34.30	27.04	.....	.....	162	.....	300	6.95	34.32	26.91	28.33	0.589	0.557	0.00120
	681	5.46	34.29	27.08	.....	.....	172	.....	400	6.45	34.36	27.02	28.92	0.710	0.674	112
	910	4.49	34.32	27.23	.....	.....	201	.....	700	6.15	34.34	27.03	29.40	0.828	0.785	111
h	1242	3.38	34.43	27.41	.....	.....	240	.....	700	5.40	34.29	27.08	30.41	1.059	1.006	110
33°	1822	2.44	34.59	27.63	.....	.....	248	.....	1000	4.15	34.35	27.28	32.05	1.370	1.309	091
	2376	2.00	34.72	27.77	.....	.....	248	.....	1500	2.90	34.50	27.52	34.69	1.79	1.71	069
	2909	1.79	34.68	27.75	.....	.....	260	.....	2000	2.25	34.63	27.68	37.22	2.11	2.03	055
	3473	1.36	34.71	27.80	.....	.....	260	.....	2500	1.95	34.71	27.76	39.64	2.36	2.28	048
					.....	.....		.....	3000	1.72	34.71	27.78	42.00	2.60	2.52	0.00046
Station 60: December 26, 1928: 40°24' S, 97°33' W; depth bottom, 4007 m; weather, b; sea, S; wind, N 1-2; good conditions																	
	0	14.97	33.91	25.15	.....	.....	50	.....	0	14.97	33.91	25.15	25.15	0.0000	0.0000	0.00282
	5	14.92	34.00	25.24	.....	.....	50	.....	5	14.92	34.00	25.24	25.27	0.0147	0.0139	374
	24	14.20	33.91	25.32	.....	.....	54	.....	25	14.20	33.91	25.32	25.43	0.0717	0.0680	267
h	47	13.62	33.99	25.51	.....	.....	54	.....	50	13.45	34.00	25.55	25.78	0.1333	0.1320	245
13°	70	11.68	34.01	25.90	.....	.....	54	.....	75	11.50	34.01	25.93	26.28	0.1935	0.1890	210
	92	10.83a)	33.99	26.04	.....	.....	62	.....	100	10.60	33.99	26.08	26.55	0.253	0.240	196
	185	8.28a)	34.15	26.58	.....	.....	122	.....	150	9.10	34.08	26.40	27.11	0.348	0.330	166
	279	6.71	34.27	26.90	.....	.....	147	.....	200	7.95	34.17	26.65	27.59	0.431	0.408	144
	370	6.18	34.26	26.97	.....	.....	168	.....	250	7.05	34.24	26.83	28.01	0.502	0.475	126
	408	6.02	34.31	27.03	.....	.....	166	.....	300	6.55	34.27	26.93	28.35	0.567	0.535	113
	510	5.70a)	34.28	27.04	.....	.....	166	.....	400	6.05	34.29	27.01	28.92	0.687	0.652	113
	712	5.03	34.32	27.08	.....	.....	170	.....	500	5.75	34.28	27.04	29.42	0.804	0.765	109
h	1027	3.83	34.32	27.28	.....	.....	213	.....	700	5.10	34.23	27.07	30.41	1.033	0.982	110
22°	1556	2.82	34.56	27.57	.....	.....	248	.....	1000	3.90	34.31	27.27	32.04	1.35	1.28	091
	2079	2.19	34.64	27.69	.....	.....	281	.....	1500	2.95	34.53	27.54	34.70	1.76	1.69	067
	2600	1.90	34.65	27.72	.....	.....	281	.....	2000	2.25	34.63	27.68	37.22	2.08	2.00	055
	3123	1.68	34.66	27.74	.....	.....	212	.....	2500	1.95	34.65	27.72	39.61	2.34	2.26	052
	3617	1.23	34.65	27.77	.....	.....	196	.....	3000	1.70	34.66	27.74	41.97	2.60	2.52	050
					.....	.....		.....	3500	1.55	34.66	27.76	44.30	2.84	2.76	0.00048
Station 61: December 28, 1928: 38°29' S, 94°14' W; depth bottom, 3299 m; weather, cq; sea, MC; wind, WSW 3; good conditions; smooth sea; some current																	
	0	16.90	34.05	24.83	.....	.....	46	.....	0	16.90	34.05	24.83	24.83	0.0000	0.0000	0.00313
h	26	15.24	34.07	24.86	.....	.....	50	.....	5	16.88	34.07	24.86	24.89	0.0184	0.0156	310
18°	50	14.03	33.96	25.40	.....	.....	60	.....	25	15.25	34.04	25.20	25.31	0.0784	0.0745	279
	72	12.50	33.98	25.75	.....	.....	68	.....	50	14.03	33.96	25.40	25.63	0.1495	0.1417	269
	94	10.98	34.05	26.06	.....	.....	80	.....	75	12.20	33.99	25.78	26.13	0.2134	0.2024	225
	192	9.49	34.04	26.30	.....	.....	88	.....	100	10.75	34.05	26.10	26.57	0.268	0.254	194
	283	7.15	34.25	26.83	.....	.....	111	.....	150	9.95	34.03	26.23	26.93	0.368	0.348	182
	392	6.14	34.35	27.04	.....	.....	151	.....	200	9.30	34.05	26.34	27.28	0.452	0.438	173
	465	5.80a)	34.29	26.98	.....	.....	176	.....	250	7.75	34.17	26.68	27.86	0.545	0.516	141
	646	5.26	34.21	27.04	.....	.....	176	.....	300	6.90	34.25	26.86	28.28	0.615	0.582	125
h	832	4.62	34.22	27.12	.....	.....	212	.....	400	6.10	34.31	27.02	28.93	0.739	0.702	112
10.0	1055	3.72	34.31	27.29	.....	.....	248	.....	500	5.70	34.27	27.04	29.42	0.855	0.812	109
28°	1552	2.82	34.53	27.54	.....	.....	293	.....	700	5.05	34.31	27.06	30.40	1.085	1.032	111
	2080	2.23	34.64	27.69	.....	.....	293	.....	1000	3.95	34.28	27.24	32.01	1.40	1.34	094
	2494	1.94	34.70	27.76	.....	.....	277	.....	1500	2.90	34.51	27.53	34.70	1.83	1.75	068
	2870	1.79	34.73	27.79	.....	.....	268	.....	2000	2.30	34.63	27.67	37.21	2.15	2.07	056
					.....	.....		.....	2500	1.95	34.70	27.76	39.64	2.41	2.32	0.00048

a) Temperature from pressure-thermometer and wire-depth.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values					Interpolated values					Computed values				
		Temperature (t) °C	Salinity (S) o/oo	Density (σ_t^*)	Oxygen		Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t^*)	Density (σ_{tP}^*)	Pressure (ΔP)	Anomalies	
					ml/L	o/o									Dynamic depth (ΔD)	Specific volume (ΔV)
Station 62: December 30, 1928; 34°35' S, 91°52' W; depth bottom, 3610 m; weather, bc; sea, MC; wind, SE 4; good conditions; very little drift; considerable rolling, westerly drift balanced by westerly current																
	0	19.25	34.24	24.40	...	...	...	0	19.25	34.24	24.40	24.40	0.0000	0.0000	0.00354
	5	19.28	34.28	24.44	...	32	...	5	19.28	34.28	24.44	24.47	0.0185	0.0177	350	
	24	18.71	34.33	24.60	...	34	...	25	18.70	34.33	24.60	24.71	0.0907	0.0862	336	
	46	16.62	34.27	25.06	...	28	...	50	16.30	34.26	25.16	25.39	0.1723	0.1535	282	
	71	14.42	34.23	25.52	...	29	...	75	14.30	34.23	25.54	25.89	0.2422	0.2297	247	
	97	13.28	34.19	25.73	...	48	...	100	13.15	34.19	25.75	25.21	0.305	0.289	229	
	192	10.45	34.24	26.30	...	103	...	150	11.55	34.20	26.07	26.77	0.417	0.395	198	
	290	7.72	34.30	26.79	...	163	...	200	10.30	34.24	26.32	27.25	0.517	0.489	175	
	391	6.44	34.35	27.00	...	192	...	250	8.65	34.28	26.62	27.80	0.601	0.569	147	
	386	6.47	34.28	26.94	...	194	...	300	7.60	34.30	26.80	28.22	0.675	0.639	131	
	483	5.01	34.31	27.03	...	188	...	400	6.40	34.32	26.99	28.89	0.803	0.763	115	
	674	5.18	34.28 ^{b)}	27.11	...	188	...	500	6.00	34.30	27.02	29.40	0.923	0.876	106	
	962	3.97	34.09 ^{b)}	27.57	...	233	...	700	5.05	34.27	27.11	30.45	1.150	1.094	88	
	1440	2.92	34.56	27.57	...	297	...	1000	3.85	34.34	27.30	32.08	1.45	1.39	62	
	1905	2.35	34.62	27.66	...	257	...	1500	2.85	34.58	27.58	34.75	1.84	1.77	56	
	2340	1.98	34.62	27.69	...	241	...	2000	2.25	34.62	27.67	37.21	2.15	2.07	56	
	2784	1.70 ^{a)}	34.67	27.75	...	257	...	2500	1.95	34.64	27.71	39.60	2.42	2.33	0.00053	
Station 63: January 1, 1929; 32°10' S, 89°04' W; depth bottom, 3593 m; weather, b; sea, S; wind, O; good conditions																
	0	20.52	34.63	24.36	...	21	...	0	20.52	34.63	24.36	24.36	0.0000	0.0000	0.00358	
	5	20.32	34.72	24.48	...	24	...	5	20.52	34.72	24.48	24.51	0.0185	0.0177	347	
	24	19.55	34.73	24.69	...	24	...	25	19.50	34.73	24.70	24.81	0.0893	0.0851	327	
	47	17.01	34.59	25.22	...	25	...	50	16.95	34.59	25.23	25.46	0.1637	0.1603	275	
	71	15.49	34.63	25.37	...	24	...	75	16.45	34.63	25.38	25.73	0.2338	0.2276	263	
	94	15.84	34.58	25.48	...	24	...	100	15.65	34.56	25.51	25.97	0.307	0.292	251	
	189	13.29	34.28	25.80	...	64	...	150	14.35	34.37	25.65	26.34	0.436	0.414	239	
	283	9.60	34.24	26.44	...	163	...	200	12.95	34.27	25.86	26.79	0.558	0.529	220	
	378	7.12	34.25	26.84	...	188	...	250	10.80	34.25	26.24	27.41	0.664	0.630	185	
	387	7.01	34.26	26.86	...	188	...	300	9.00	34.26	26.54	27.94	0.754	0.716	156	
	481	6.16	34.20	26.98	...	188	...	400	6.85	34.26	26.88	28.78	0.902	0.857	125	
	660	5.23	34.20	27.04	...	200	...	500	6.05	34.26	26.98	29.36	1.029	0.977	116	
	940	4.02	34.30	27.25	...	237	...	700	5.05	34.20	27.06	30.40	1.265	1.204	111	
	1413	3.21	34.53	27.51	...	276	...	1000	3.90	34.34	27.29	32.07	1.58	1.50	89	
	1885	2.43	34.60	27.64	...	292	...	1500	3.10	34.55	27.54	34.70	1.98	1.90	67	
	2329	1.98	34.62	27.69	...	253	...	2000	2.30	34.61	27.66	37.20	2.31	2.22	57	
	2787	1.80	34.66	27.74	...	237	...	2500	1.90	34.64	27.71	39.60	2.58	2.48	0.00053	
Station 64: January 3, 1929; 31°54' S, 88°17' W; depth bottom, 3679 m; weather, b; sea, S; wind, O; good conditions; vessel becalmed																
	0	20.61	34.62	24.33	...	21	...	0	20.61	34.62	24.33	24.33	0.0000	0.0000	0.00361	
	5	20.51	34.63	24.36	...	28	...	5	20.51	34.63	24.36	24.39	0.0189	0.0180	358	
	23	19.64	34.64	24.60	...	28	...	25	19.60	34.63	24.60	24.71	0.0919	0.0874	336	
	47	17.51	34.58	25.09	...	29	...	50	17.25	34.56	25.13	25.36	0.1738	0.1649	284	
	69	16.36	34.54	25.33	...	32	...	75	16.25	34.54	25.36	25.71	0.2454	0.2336	265	
	94	15.90	34.54	25.43	...	32	...	100	15.80	34.54	25.46	25.92	0.315	0.299	256	
	187	12.96	34.15	25.76	...	72	...	150	14.55	34.22	25.49	26.18	0.449	0.426	254	
	281	9.58	34.20	26.41	...	126	...	200	12.30	34.15	26.89	26.82	0.574	0.544	217	
	375	7.43	34.25	26.79	...	174	...	250	10.50	34.17	26.124	27.41	0.679	0.644	0.00185	

a) Temperature from pressure thermometer and wire depth. b) Salinity rejected.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values						Interpolated values					Computed values				
		Temperature (t) °C	Salinity (S) o/oo	Density (σ_t^*)	Oxygen		Hydrogen ion (pH)	Phos- phate (PO_4) mg/m ³	Silicate (SiO_2) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t^*)	Density (σ_{-t}^*)	Pressure (ΔP)	Anomalies	
					ml/L	o/o										Dynamic depth (ΔD)	Specific volume ($\Delta \alpha$)
Station 64--Continued																	
	378	7.41	34.27	26.81	....	....	174	....	300	9.10	34.21	26.51	27.91	0.770	0.731	0.00159
	469	6.34	34.28	26.96	....	....	186	....	400	7.10	34.27	26.85	28.75	0.921	0.875	128
	660	5.19	34.21	27.05	....	....	176	....	400	6.10	34.26	26.98	29.36	1.060	0.997	116
b	94	3.98	34.30	27.25	....	....	213	....	700	4.95	34.21	27.07	30.41	1.285	1.223	89
10°	147	3.04	34.50	27.51	....	....	241	....	1000	3.85	34.33	27.29	32.07	1.59	1.52	089
	183	2.32	34.54	27.60	....	....	241	....	1500	2.95	34.52	27.53	34.70	2.00	1.92	068
	2380	1.98	34.61	27.68	....	....	241	....	2000	2.20	34.55	27.62	37.16	2.34	2.25	060
	3860a	1.70	34.65	27.73	....	....	209	....	3500	1.75	34.64	27.71	39.60	2.62	2.52	053
					....	....		....	3000	1.75	34.65	27.73	41.95	3.88	3.79	052
					....	....		....	3500	1.70	34.65	27.73	44.24	3.14	3.05	0.00053
Station 65: January 5, 1929; 31°07' S, 86°39' W; depth bottom, 3626 m; weather, b; sea, S; wind, WSW 3; good conditions																	
	0	20.22	34.53	24.37	....	....	24	....	0	20.22	34.53	24.37	24.37	0.0000	0.0000	0.00357
	5	20.15	34.59	24.42	....	....	24	....	5	19.25	34.59	24.42	24.45	0.0187	0.0178	352
h	24	19.22	34.50	24.60	....	....	25	....	25	19.20	34.50	24.61	25.47	0.0909	0.0866	335
9.1	47	16.96	34.47	25.14	....	....	28	....	70	16.50	34.46	25.24	25.47	0.1714	0.1626	274
10°	71	15.61	34.42	25.40	....	....	28	....	50	15.60	34.41	25.40	25.75	0.2420	0.2396	261
	93	15.03	34.30	25.44	....	....	34	....	150	14.85	34.26	25.45	25.91	0.310	0.294	257
	12.17	12.17	34.07	25.85	....	....	98	....	150	13.30	34.09	25.64	26.33	0.441	0.418	240
	189	9.25	34.24	26.50	....	....	158	....	200	11.80	34.08	25.93	28.85	0.561	0.532	213
	383	7.04	34.23	26.82	....	....	186	....	250	10.55	34.16	26.26	27.43	0.665	0.630	182
	377	6.98	34.25	26.85	....	....	192	....	300	8.75	34.21	26.56	27.96	0.754	0.715	153
	482	6.11	34.29	27.00	....	....	188	....	400	6.80	34.26	26.88	28.78	0.901	0.855	125
h	669	5.09	34.16	27.02	....	....	188	....	500	5.95	34.28	27.01	29.39	1.027	0.974	113
15°	955	3.96	34.28	27.25	....	....	192	....	700	4.95	34.16	27.03	30.37	1.263	1.200	90
	1434	2.96	34.53	27.54	....	....	261	....	1000	3.70	34.30	27.28	32.06	1.58	1.51	090
	1901	2.34	34.53	27.59	....	....	261	....	1500	2.80	34.53	27.54	34.71	1.99	1.90	066
	2333	2.00	34.61	27.68	....	....	253	....	2000	2.85	34.55	27.62	37.16	2.32	2.22	060
	3606a	1.65	34.67	27.75	....	....	237	....	2500	1.90	34.64	27.71	39.60	2.60	2.50	053
					....	....		....	3000	1.70	34.67	27.75	41.98	2.85	2.76	049
					....	....		....	3500	1.65	34.67	27.75	44.27	3.10	3.01	0.00051
Station 66: January 7, 1929; 27°04' S, 84°01' W; depth bottom, 3812 m; weather, O; sea, CR; wind, ESE 5; strong trade wind; vessel yawing; tried piano wire but angle too great																	
	0	19.43	34.69	24.69	....	....	29	....	0	19.43	34.69	24.69	24.69	0.0000	0.0000	0.00327
	23	19.49	34.69	24.68	....	....	29	....	5	19.50	34.69	24.67	24.70	0.0172	0.0165	329
h	48	17.86	34.78	25.16	....	....	29	....	25	17.00	34.70	24.81	24.92	0.0850	0.0810	316
15°	72b	17.94c	34.83	25.26	....	....	28	....	50	17.00	34.85	25.18	25.42	0.1636	0.1553	279
	95	15.36d	34.94	25.34	....	....	21	....	75	17.35	34.85	25.18	25.52	0.2377	0.2255	282
	193	10.34d	34.52	25.54	....	....	60	....	100	17.85	34.94	25.38	25.73	0.311	0.295	273
	293	8.35	34.42	26.46	....	....	245	....	150	16.85	34.75	25.57	26.06	0.453	0.429	266
	391	7.51	34.44	26.81	....	....	245	....	200	16.15	34.51	26.18	26.50	0.589	0.568	248
	428	6.08	34.34	27.04	....	....	285	....	250	11.95	34.44	26.50	27.34	0.704	0.668	191
h	751	4.96	34.37	27.20	....	....	237	....	300	10.15	34.42	26.84	27.90	0.797	0.756	161
9.9	1075	3.88	34.48	27.41	....	....	265	....	400	8.15	34.45	26.92	28.72	0.950	0.902	130
15°	1617	2.69	34.58	27.50	....	....	245	....	500	6.40	34.35	27.01	29.38	1.079	1.023	113
	2132	2.07	34.61	27.67	....	....	245	....	700	5.15	34.36	27.17	30.50	1.303	1.235	100
	2606	1.87	34.65	27.72	....	....	233	....	1000	4.15	34.45	27.36	32.13	1.59	1.51	083
					....	....		....	1500	2.90	34.56	27.57	34.74	1.97	1.88	064
					....	....		....	2000	2.20	34.60	27.66	37.20	2.29	2.19	057
					....	....		....	2500	1.90	34.65	27.72	39.61	2.55	2.46	0.00052

a) Piano wire. b) Water-bottle probably reversed but not closed when being lowered. c) Temperature mean of 17°30 and 17°39. d) Temperature mean of 10°30 and 10°39.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values					Interpolated values					Computed values				
		Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Oxygen ml/L	Oxygen o/o	Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Density (σ_{tp})	Pressure (ΔP)	Dynamic depth (ΔD)	Anomalies Specific volume (Δα)
Station 67: January 8, 1929; 24°57' S, 82°15' W; depth bottom, 1089 m; weather, oc; sea, MR; wind, ESE 2; fair conditions																
	0	19.27	34.91	24.90	.....	.....	8.11	21	0	19.27	34.91	24.90	24.90	0.0000	0.0000	0.000306
	4	19.21	34.88	24.90	.....	.....	8.10	25	5	19.20	34.89	24.90	24.93	0.0161	0.0153	306
	23	19.02	34.94	24.98	.....	.....	8.10	17	25	19.05	34.94	24.98	25.09	0.0799	0.0760	300
	45	17.50	34.74	25.21	.....	.....	8.11	20	50	17.35	34.75	25.26	25.49	0.1555	0.1474	272
	67	17.11	34.81	25.36	.....	.....	8.10	20	75	16.95	34.79	25.38	25.73	0.2261	0.2144	263
	89	16.36	34.70	25.45	.....	.....	8.09	24	100	16.20	34.63	25.43	25.89	0.294	0.280	259
	180	16.50b)	34.28	25.07	.....	.....	8.00	84	180	16.35	34.58	25.41	25.90	0.437	0.414	281
	271	11.19b)	34.28	26.20	.....	.....	7.83	168	200	16.40	34.26	25.11	26.03	0.588	0.558	293
	363	8.92	34.50	26.76	.....	.....	7.64	233	250	12.10	34.26	26.02	27.18	0.719	0.683	206
	456	7.22c)	34.41	26.94	.....	.....	7.69	245	300	10.40	34.38	26.41	27.81	0.818	0.777	170
	628	5.45	34.33	27.11	.....	.....	7.73	245	400	8.20	34.47	26.85	28.73	0.975	0.927	129
	920	4.31	34.41	27.31	.....	.....	7.66	249	500	6.65	34.37	26.99	29.36	1.105	1.049	115
	1069a)	3.75	34.48	27.42	.....	.....	7.66	245	700	5.05	34.54	27.16	30.49	1.332	1.265	101
									1000	4.05	34.45	27.36	32.13	1.52	1.54	0.00083
Station 68: January 10, 1929; 21°28' S, 80°26' W; depth bottom, 4156 m; weather, o; sea, MS; wind, SE 3; good conditions																
	0	19.18	35.12	25.08	.....	.....	8.14	29	0	19.18	35.12	25.08	25.08	0.0000	0.0000	0.00289
	6	19.17	35.07	25.05	.....	.....	8.14	29	5	19.17	35.07	25.05	25.07	0.0153	0.0145	251
	25	18.60	35.01	25.05	.....	.....	8.14	29	25	19.16	35.07	25.05	25.16	0.0770	0.0730	293
	46	18.50	34.89	25.15	.....	.....	8.14	29	50	18.23	35.00	25.23	25.46	0.1521	0.1439	275
	70	16.99	34.89	25.45	.....	.....	8.14	29	75	16.85	34.88	25.48	25.83	0.2218	0.2100	253
	95	16.56	34.85	25.52	.....	.....	8.13	34	100	16.50	34.84	25.53	25.99	0.288	0.273	249
	191	11.58	34.52	26.32	.....	.....	7.73	205	150	15.40	34.65	26.32	26.32	0.417	0.395	241
	287	10.28	34.63	26.63	.....	.....	7.63	251	200	11.40	34.52	26.55	27.28	0.527	0.499	173
	383	8.66	34.54	26.83	.....	.....	7.59	285	250	10.70	34.57	26.82	27.69	0.614	0.581	158
	387	8.42	34.58	26.90	.....	.....	7.59	281	300	10.05	34.53	26.87	28.07	0.694	0.657	145
	453	6.95	34.42	26.99	.....	.....	7.64	249	400	8.20	34.54	26.90	28.78	0.835	0.792	124
	679	5.49	34.40	27.16	.....	.....	7.64	257	500	6.75	34.41	27.01	29.38	0.961	0.911	113
	973	4.24	34.50	27.38	.....	.....	7.65	138e)	700	5.35	34.41	27.18	30.51	1.184	1.123	099
	1464	2.98	34.51	27.52	.....	.....	7.69	261	1000	4.15	34.50	27.40	32.17	1.46	1.39	079
	206	2.29	34.56	27.62	.....	.....	7.69	245	1500	2.90	34.51	27.53	34.70	1.85	1.76	068
	2394	1.99	34.63	27.70	.....	.....	7.73	231	2000	2.20	34.57	27.74	37.18	2.08	2.08	058
	2842	1.80d)	34.63	27.71	.....	.....	7.75	237	2500	1.95	34.63	27.70	39.59	2.45	2.36	0.00054
Station 69: January 12, 1929; 16°49' S, 78°39' W; depth bottom, 3657 m; weather, o; sea, MS; wind, SE 4; good conditions																
	0	21.13	35.24	24.66	.....	.....	8.12	62	0	21.13	35.24	24.66	24.66	0.0000	0.0000	0.00330
	5	21.16	35.22	24.64	.....	.....	8.12	68	5	21.16	35.22	24.64	24.66	0.0174	0.0165	330
	23	21.17	35.21	24.63	.....	.....	8.12	62	25	21.15	35.21	24.64	24.76	0.0872	0.0826	331
	48	17.52	35.09	25.48	.....	.....	7.99	151	50	17.35	35.10	25.52	25.75	0.1636	0.1549	247
	71	16.65	35.13	25.71	.....	.....	8.00	163	75	16.45	35.13	25.76	26.11	0.2263	0.2142	229
	94	14.77	34.83	25.91	.....	.....	7.86	198	100	14.55	34.82	25.95	26.41	0.283	0.268	207
	188	11.68	34.75	26.47	.....	.....	7.65	310	150	13.50	34.77	26.33	27.03	0.384	0.364	173
	282	10.59	34.75	26.67	.....	.....	7.63	314	200	11.45	34.74	26.51	27.44	0.473	0.447	158
	383	9.04	34.65	26.86	.....	.....	7.62	274	250	10.95	34.75	26.51	27.78	0.553	0.524	143
	472	7.74	34.54	26.97	.....	.....	7.58	244	300	10.35	34.74	26.61	28.10	0.630	0.596	149
	663	6.09	34.52	27.18	.....	.....	7.59	323	400	8.75	34.63	26.88	28.76	0.771	0.731	0.00126

a) Piano wire. b) Temperature mean of 11.09 and 11.29. c) Temperature mean of 7.25 and 7.19. d) Temperature from pressure thermometer and wire-depth. e) Value rejected.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Temperature (t) °C	Observed values					Interpolated values					Computed values			
			Salinity (S) o/oo	Density (σ_t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Density (σ_{tp})	Anomalies	
					ml/L	o/o									Pressure (ΔP)	Dynamic depth (ΔD)	Specific volume ($\Delta\alpha$)
Station 69--Continued																
	666	6.03	34.49	27.17	...	7.58	323	...	500	7.45	34.53	27.00	29.36	0.899	0.852	0.00115
	954	4.55	34.52	27.36	...	7.59	310	...	700	5.80	34.50	27.20	30.52	1.123	1.065	0.00098
h	1434	3.12	34.59	27.57	...	7.64	303	...	1000	4.35	34.53	27.40	32.16	1.40	1.33	0.00079
10.5	1906	2.39	34.58	27.63	...	7.69	292	...	1500	3.00	34.58	27.57	34.74	1.78	1.69	0.00064
16°	2342	1.95	34.66	27.72	...	7.71	276	...	2000	2.25	34.60	27.66	37.20	2.09	2.00	0.00057
	2781	1.83	34.69	27.76	...	7.72	276	...	2500	1.90	34.67	27.74	39.63	2.35	2.26	0.00050
	3188	1.81	34.66	27.74	...	7.74	261	...	3000	1.85	34.67	27.74	41.96	2.61	2.52	0.00051
Station 70: January 13, 1929; 13°53' S, 77°54' W; depth bottom, 4742m; weather, bc; sea, MS; wind, SE 4; good conditions; salinities determined January 15, 1929																
	0	21.23	35.08	24.52	...	8.05	103	...	0	21.23	35.08	24.52	24.52	0.0000	0.0000	0.00343
	5	21.21	35.09	24.53	...	8.05	107	...	5	20.45	35.11	24.74	24.55	0.0180	0.0171	0.00034
	22	20.59	35.11	24.70	...	7.88	178	...	25	13.40	34.95	26.09	24.85	0.0880	0.0835	0.00033
	44	16.03	34.87	26.14	...	7.67	229	...	50	13.10	34.80	26.24	26.09	0.1591	0.1507	0.00044
h	66	13.83	34.87	26.14	...	7.68	233	...	75	13.10	34.80	26.24	26.59	0.2115	0.2004	0.00044
14.9	89	12.07	34.88	26.28	...	7.67	233	...	100	12.55	34.86	26.31	26.78	0.258	0.245	0.00044
20°	177	12.07	34.88	26.50	...	7.67	233	...	150	12.20	34.86	26.46	27.16	0.346	0.328	0.00044
	266	11.23	34.82	26.61	...	7.66	249	...	200	11.90	34.88	26.53	27.46	0.431	0.408	0.00044
	357	9.67	34.71	26.86	...	7.62	249	...	250	11.45	34.88	26.53	27.74	0.512	0.485	0.00044
	447	8.47	34.65	26.95	...	7.53	265	...	300	10.75	34.77	26.68	28.06	0.591	0.560	0.00044
	627	6.70	34.56	27.13	...	7.53	276	...	400	9.15	34.68	26.86	28.73	0.735	0.698	0.00044
	911	4.84	34.51	27.32	...	7.63	297	...	500	7.80	34.63	27.03	29.39	0.863	0.818	0.00044
	1006	4.42	34.53	27.39	...	7.61	303	...	700	6.15	34.53	27.18	30.49	1.087	1.031	0.00044
h	1487	2.99	34.61	27.60	...	7.66	285	...	1000	4.45	34.53	27.38	32.14	1.37	1.30	0.00044
16.3	1995	2.23	34.64	27.69	...	7.69	276	...	1500	2.95	34.61	27.60	34.77	1.75	1.67	0.00044
20°	2447	1.95	34.66	27.72	...	7.72	245	...	2000	2.25	34.64	27.69	37.23	2.05	1.96	0.00044
	2907	1.82	34.67	27.74	...	7.75	245	...	2500	1.90	34.66	27.73	39.62	2.30	2.21	0.00044
	3333	1.83	34.66	27.73	...	7.75	245	...	3000	1.85	34.67	27.74	41.96	2.56	2.48	0.00044
	3760	1.84	34.68	27.75	...	7.76	241	...	3500	1.85	34.67	27.74	44.24	2.82	2.74	0.00054
Station 71: February 6, 1929; 11°57' S, 78°37' W; depth bottom, 3357m; weather, bc; sea, M; wind, SE 4; good conditions but considerable current																
	0	23.46	35.24	24.00	...	8.13	58	...	0	23.46	35.24	24.00	24.00	0.0000	0.0000	0.00332
	4	23.30	35.26	24.06	...	8.13	58	...	5	23.30	35.26	24.06	24.08	0.0206	0.0195	0.00332
	19	18.15	35.24	25.36	...	8.11	139	...	25	21.10	35.20	24.64	24.75	0.0962	0.0914	0.00332
h	40	15.85	35.09	25.86	...	7.96	139	...	50	16.70	35.11	25.69	25.92	0.1706	0.1618	0.00332
35°	60	15.85	35.09	25.86	...	7.83	182	...	75	14.45	35.03	26.13	26.48	0.2265	0.2146	0.00332
	80	14.30	35.02	26.38	...	7.72	213	...	100	13.90	35.00	26.23	26.69	0.275	0.261	0.00332
	166	12.91	34.94	26.58	...	7.70	225	...	150	13.15	34.95	26.34	27.03	0.370	0.350	0.00332
	248	11.76	34.87	26.85	...	7.67	235	...	200	12.35	34.92	26.46	27.41	0.458	0.434	0.00332
	332	10.74	34.79	26.68	...	7.66	237	...	250	11.70	34.88	26.57	27.73	0.541	0.512	0.00332
	295	11.42	34.85	26.60	...	7.66	237	...	300	11.35	34.83	26.59	27.98	0.622	0.589	0.00332
h	509	8.16	34.64	27.29	...	7.66	245	...	400	9.65	34.73	26.81	28.58	0.773	0.734	0.00332
10.2	1399	3.15	34.62	27.59	...	7.68	261	...	500	8.25	34.66	27.20	29.32	0.907	0.860	0.00332
40°	2447	2.25	34.64	27.69	...	7.73	224	...	700	6.20	34.56	27.40	30.51	1.136	1.078	0.00332
	2847	1.87	34.67	27.74	...	7.75	217	...	1000	4.45	34.63	27.62	32.16	1.42	1.35	0.00332
	2963	1.81	34.68	27.75	...	7.78	209	...	1500	2.95	34.65	27.62	34.79	1.78	1.70	0.00332
					...			...	2000	2.25	34.67	27.62	37.23	2.07	1.98	0.00332
					...			...	2500	1.85	34.67	27.73	39.62	2.33	2.24	0.00332

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values										Interpolated values					Computed values		
		Temperature (t) °C	Salinity (S) o/oo	Density (σ_t^*)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t^*)	Density (σ_{tF})	Pressure (ΔP)	Anomalies			
					ml/L	o/o										Dynamic depth (ΔD)	Specific volume (Δv)		
Station 72: February 8, 1929; 9°58' S, 82°10' W; depth bottom, 4480 m; weather, bc; sea, M; wind, SE 4; good conditions																			
	0	24.93	35.34	23.64	.....	.....	52	.....	0	24.93	35.34	23.64	23.64	0.0000	0.0000	0.00426
	4	24.98	35.34	23.64	.....	8.16	52	.....	5	24.90	35.34	23.65	23.67	0.0213	0.0213	426	
	22	24.88	35.38	23.68	.....	8.17	52	.....	25	24.90	35.34	23.65	23.67	0.1112	0.1058	418	
	45	19.15	35.40	25.30	.....	8.12	60	.....	50	18.70	35.39	25.41	25.64	0.2004	0.1902	258	
h	68	17.25	35.22	25.64	.....	8.06	115	.....	75	16.70	35.16	25.73	26.08	0.2648	0.2512	229	
20°	90	15.77	35.07	25.87	.....	7.94	154	.....	100	14.80	35.04	26.06	27.12	0.321	0.304	199	
	180	12.26	34.94	26.51	.....	7.73	224	.....	150	12.80	34.97	26.43	27.46	0.417	0.395	164	
	271	11.30	34.81	26.59	.....	7.71	229	.....	200	12.06	34.91	26.53	27.46	0.502	0.476	156	
	364	10.13	34.78	26.78	.....	7.69	237	.....	250	11.50	34.83	26.57	27.73	0.584	0.553	154	
	457	8.93	34.71	26.92	.....	7.67	241	.....	300	10.95	34.79	26.64	28.03	0.664	0.628	148	
	645	6.73	34.54	27.12	.....	7.62	245	.....	400	9.65	34.76	26.84	28.71	0.811	0.768	131	
	959	4.67	34.57	27.39	.....	7.64	245	.....	500	8.35	34.66	26.97	29.32	0.943	0.893	119	
	1337	3.14	34.64	27.61	.....	7.58	241	.....	700	6.25	34.53	27.17	30.48	1.175	1.114	102	
	1904	2.31	34.62	27.67	.....	7.72	229	.....	1000	4.50	34.58	27.42	32.18	1.46	1.38	077	
h	2335a)	1.82	34.68	27.74	.....	7.72	217	.....	1500	3.00	34.63	27.61	34.78	1.82	1.73	060	
25°	3189	1.82	34.70	27.77	.....	7.75	217	.....	2000	1.90	34.68	27.74	37.23	2.11	2.02	054	
	3603	1.84	34.69	27.76	.....	7.77	217	.....	2500	1.85	34.69	27.76	41.98	2.37	2.27	050	
					.....	7.78	216	.....	3000	1.85	34.69	27.76	44.26	2.62	2.53	049	
					.....			.....	3500	1.85	34.69	27.76		2.87	2.78	0.00051
Station 73: February 10, 1929; 10°45' S, 84°57' W; depth bottom, 4670 m; weather, bc; sea, S; wind, SE 0-1; good conditions																			
	0	25.27	35.42	23.60	.....	8.21	44	.....	0	25.27	35.42	23.60	23.60	0.0000	0.0000	0.00430	
	5	25.26	35.45	23.62	.....	8.19	46	.....	5	25.25	35.45	23.62	23.64	0.0226	0.0215	428	
	23	23.70	35.46	24.09	.....	8.18	58	.....	25	23.20	35.46	24.24	24.35	0.1067	0.1013	370	
h	47	19.21	35.41	25.30	.....	8.05	132	.....	50	18.70	35.38	25.40	25.63	0.1897	0.1799	259	
20°	70	17.46	35.30	25.65	.....	7.95	155	.....	75	16.50	35.25	25.84	26.19	0.2529	0.2398	219	
	95	14.93	34.97	25.98	.....	7.80	178	.....	100	14.70	34.96	26.02	26.48	0.308	0.292	203	
	188	12.20	34.91	26.50	.....	7.70	224	.....	150	12.95	34.92	26.36	27.05	0.407	0.386	171	
	281	11.04	34.86	26.68	.....	7.66	225	.....	200	11.95	34.90	26.54	27.47	0.494	0.468	155	
	375	9.92	34.71	26.76	.....	7.65	235	.....	250	11.40	34.88	26.62	27.78	0.574	0.543	149	
	533	8.64	34.71	26.80	.....	7.64	225	.....	300	10.80	34.84	26.70	28.10	0.651	0.616	142	
	490	8.40	34.66	26.97	.....	7.64	225	.....	400	9.55	34.70	26.81	28.68	0.796	0.755	134	
	687	6.31	34.60	27.22	.....	7.58	249	.....	500	8.25	34.65	26.98	29.32	0.929	0.881	118	
h	979	4.67b)	34.52	27.35	.....	7.62	249	.....	700	6.25	34.59	27.22	30.53	1.155	1.095	097	
1°	1466	3.10b)	34.61	27.59	.....	7.67	245	.....	1000	4.60	34.52	27.36	32.12	1.44	1.37	084	
	1937	2.35	34.67	27.70	.....	7.69	233	.....	1500	3.00	34.61	27.60	34.75	1.82	1.74	061	
	2373	2.01	34.63	27.69	.....	7.69	233	.....	2000	2.30	34.65	27.69	37.23	2.13	2.03	054	
					.....	7.72	224	.....	2500	1.95	34.65	27.72	39.61	2.39	2.29	0.00052	
Station 74: February 12, 1929; 11°00' S, 87°24' W; depth bottom, 4141 m; weather, b; sea, M; wind, SE 3; good conditions																			
	0	24.24	35.61	24.06	.....	8.17	68	.....	0	24.24	35.61	24.06	24.06	0.0000	0.0000	0.00387	
	5	24.24	35.62	24.06	.....	8.16	62	.....	5	24.24	35.62	24.06	24.08	0.0203	0.0194	387	
	22	23.72	35.62	24.21	.....	8.14	64	.....	25	23.60	35.60	24.23	24.34	0.1001	0.0952	371	
h	44	19.47	35.45	25.26	.....	8.06	76	.....	50	19.25	35.39	25.27	25.50	0.1849	0.1754	271	
25°	66	18.43	35.45	25.53	.....	8.05	114	.....	75	17.35	35.19	25.59	25.94	0.2528	0.2398	243	
	89	16.52	35.14	25.75	.....	7.89	168	.....	100	15.40	35.07	25.96	26.42	0.312	0.296	209	
180	12.19	34.86	26.46	.....	7.67	237	.....	150	12.85	34.89	26.55	27.04	0.412	0.391	0.00171		

a) Water-bottle came up open, messenger-chain in valve. b) Temperature from pressure thermometer and wire depth.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values						Interpolated values						Computed values			
		Temperature (t) °C	Salinity (S) o/oo	Density (σ_t^*)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t^*)	Density (σ_{tP}^*)	Pressure (ΔP)	Anomalies	
					ml/L	o/o										Dynamic depth (ΔD)	Specific volume ($\Delta \alpha$)
Station 74--Continued																	
	272	11.04	34.81	26.64	.....	7.64	241	.....	200	11.90	34.84	26.50	27.43	0.501	0.474	0.00159
h	365	9.96	34.74	26.78	.....	7.62	249	.....	250	11.30	34.82	26.60	27.76	0.582	0.551	0.00151
25°	459	8.82	34.68	26.90	.....	7.60	157	.....	300	10.70	34.79	26.68	28.08	0.660	0.625	0.00144
	644	6.82	34.59	27.14	.....	7.56	285	.....	400	9.55	34.71	26.82	28.69	0.805	0.764	0.00133
	933	4.77	34.53	27.35	.....	7.57	292	.....	500	8.40	34.65	26.96	29.31	0.939	0.891	0.00120
	994	4.48	34.54	27.38	.....	7.60	253	.....	700	6.30	34.57	27.20	30.51	1.169	1.110	0.00099
	1498	3.04	34.59	27.58	.....	7.66	245	.....	1000	4.45	34.54	27.40	32.15	1.45	1.38	0.00079
h	1959	2.32	34.63	27.67	.....	7.67	261	.....	1500	3.00	34.59	27.58	34.75	1.82	1.74	0.00063
	2440	1.97	34.65	27.71	.....	7.70	233	.....	2000	2.30	34.63	27.67	37.21	2.13	2.04	0.00056
11.1	2897	1.84	34.67	27.74	.....	7.73	220	.....	2500	1.95	34.66	27.72	39.61	2.40	2.30	0.00052
26°	3213	1.82	34.66	27.74	.....	7.75	217	.....	3000	1.85	34.67	27.74	41.96	2.65	2.57	0.00051
	3735	1.81	34.67	27.75	.....	7.77	213	.....	3500	1.80	34.67	27.75	44.25	2.91	2.83	0.00052
Station 75: February 14, 1929; 14°15' S, 92°05' W; depth bottom, 3480 m; weather, bc; sea, MC; wind, SE 5; fair conditions; some rolling																	
	0	22.78	35.82	24.64	.....	8.18	44	.....	0	22.78	35.82	24.64	24.64	0.0000	0.0000	0.00331
	5	22.75	35.79	24.63	.....	8.16	44	.....	5	22.75	35.79	24.63	24.64	0.0175	0.0167	0.00333
23	45	20.43	35.59	25.11	.....	8.14	46	.....	25	20.00	35.52	25.18	24.74	0.0877	0.0832	0.00333
h	67	18.68	35.46	25.48	.....	8.11	46	.....	50	18.55	35.46	25.58	25.41	0.1686	0.1599	0.00280
20°	89	18.40	35.47	25.55	.....	8.10	54	.....	75	17.80	35.45	25.68	25.84	0.2389	0.2265	0.00251
	129	12.39	34.68	26.29	.....	7.73	213	.....	100	13.75	34.81	26.11	26.80	0.417	0.394	0.00235
	174	10.75	34.71	26.61	.....	7.67	233	.....	150	12.15	34.68	26.33	27.26	0.515	0.487	0.00194
	374	8.99	34.63	26.85	.....	7.67	257	.....	200	11.15	34.70	26.53	27.70	0.681	0.644	0.00175
	357	8.78	34.67	26.75	.....	7.68	241	.....	300	10.25	34.71	26.70	28.10	0.681	0.644	0.00156
	438	8.00	34.59	26.97	.....	7.67	249	.....	400	9.65	34.62	26.90	28.78	0.821	0.775	0.00142
	630	6.36	34.63a)	.....	.....	7.64	249	.....	500	7.45	34.56	27.03	29.39	0.947	0.895	0.00124
9.2	907	4.71	34.51	27.34	.....	7.64	257	.....	700	5.85	34.51	27.20	30.52	1.168	1.105	0.00098
25°	1371	3.17	34.56	27.54	.....	7.68	253	.....	1000	4.30	34.58	27.39	32.15	1.45	1.37	0.00080
	1829	2.41	34.62	27.66	.....	7.72	237	.....	1500	2.90	34.58	27.58	34.75	1.82	1.74	0.00063
	2261	2.06	34.63	27.69	.....	7.74	229	.....	2000	2.25	34.63	27.68	37.22	2.13	2.04	0.00055
					.....			.....	2500	1.95	34.64	27.71	39.60	2.40	2.30	0.00053
Station 76: February 16, 1929; 15°18' S, 97°28' W; depth bottom, 3197 m; weather, bcqd; sea, CR; wind, E 4; vessel rolling in rough sea; sonic depths showed rapid change in bottom this day																	
	0	23.40	35.86	24.49	.....	8.15	50	.....	0	23.40	35.86	24.49	24.49	0.0000	0.0000	0.00346
	4	23.39	35.90	24.52	.....	8.15	50	.....	5	23.40	35.90	24.52	24.54	0.0181	0.0173	0.00343
	19	23.38	35.86	24.49	.....	8.15	46	.....	25	22.25	35.88	24.55	24.66	0.0901	0.0857	0.00341
h	37	22.73	35.90	24.71	.....	8.15	46	.....	50	22.10	35.89	24.88	25.11	0.1758	0.1688	0.00308
	58	21.83	35.89	24.96	.....	8.14	42	.....	75	21.65	35.85	24.98	25.32	0.2563	0.2430	0.00301
	76	21.66	35.85	24.98	.....	8.13	42	.....	100	21.25	35.80	25.06	25.51	0.335	0.317	0.00294
42°	154	19.83b)	35.69	25.35	.....	8.11	56	.....	150	20.00	35.70	25.31	25.99	0.484	0.458	0.00271
	233	14.77b)	34.88	25.95	.....	7.94	123	.....	200	17.10	35.15	25.62	26.53	0.621	0.588	0.00244
	324	10.97	34.66	26.53	.....	7.69	241	.....	250	13.95	34.82	26.08	27.23	0.738	0.698	0.00201
	409	8.89	34.61	26.85	.....	7.65	257	.....	300	11.75	34.70	26.42	27.81	0.836	0.791	0.00170
	572	6.85	34.53	27.09	.....	7.65	297	.....	400	8.55	34.61	26.64	28.71	0.994	0.942	0.00130

a) Salinity rejected. b) Temperature mean of 14.74 and 14.80.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values							Interpolated values							Computed values		
		Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen ml/L	Oxygen o/o	Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{tp})	Pressure (ΔP)	Anomalies Dynamic depth (ΔD)	Specific volume (Δα)	
Station 79: February 22, 1929; 12°36' S, 112°14' W; depth bottom, 3090 ^a m; weather, bc; sea, MC; wind, E 4; fair conditions																		
	0	25.17	35.95	24.03	...	...	34	...	0	25.17	35.95	24.03	24.03	0.0000	0.0000	0.00389
	5	25.16	35.97	24.04	...	...	34	...	5	25.16	35.97	24.04	24.06	0.0205	0.0195	388
	21	25.16	35.97	24.05	...	...	34	...	25	25.15	35.98	24.06	24.17	0.1022	0.0371	388
	44	24.55	36.04	24.28	...	...	34	...	50	24.50	36.06	24.31	24.54	0.2011	0.1911	364
b	66	24.25	36.13	24.44	...	...	34	...	75	23.15	36.16	24.79	25.13	0.2911	0.2766	320
	89	23.11	36.18	25.10	...	...	42	...	100	21.85	36.17	25.17	25.62	0.370	0.352	284
8.9	155	21.12	36.01	25.25	...	...	48	...	150	20.10	35.85	25.40	26.08	0.515	0.488	263
27°	179	18.23	35.43	25.66	...	...	62	...	200	16.80	35.25	25.77	26.68	0.612	0.612	230
	226	15.00	34.93	26.93	...	...	134	...	250	13.15	34.70	26.15	27.31	0.751	0.718	194
	275	11.90	34.64	26.35	...	...	224	...	300	11.10	34.64	26.49	27.88	0.851	0.807	162
	368	9.35	34.66	26.81	...	...	245	...	400	8.65	34.64	26.91	28.79	1.002	0.950	123
	391	8.75	34.64	26.90	...	...	253	...	500	7.55	34.58	27.03	29.39	1.127	1.088	112
	480	7.71	34.59	27.01	...	...	257	...	700	5.85	34.53	27.22	30.54	1.346	1.278	096
	600	5.96	34.53	27.21	...	...	276	...	1000	4.30	34.52	27.40	32.16	1.62	1.54	079
h	997	4.30	34.52	27.40	...	...	276	...	1500	2.85	34.58	27.58	34.75	1.99	1.90	062
9.7	1504	2.88	34.58	27.58	...	...	323	...	2000	2.20	34.63	27.68	37.22	2.30	2.19	055
24°	1992	2.21	34.63	27.68	...	...	310	...	2500	1.90	34.65	27.72	39.61	2.56	2.45	0.00052
	2450	1.89	34.65	27.72	...	...	245	...								
Station 80: February 24, 1929; 12°39' S, 117°22' W; depth bottom, 3515 m; weather, c; sea, ML; wind, NE 3-4; fair conditions; considerable current																		
	0	26.04	35.94	23.75	...	...	36	...	0	26.04	35.94	23.75	23.75	0.0000	0.0000	0.00416
	5	26.05	35.94	23.75	...	...	32	...	5	26.05	35.94	23.75	23.77	0.0219	0.0209	416
	22	26.05	35.96	23.76	...	...	32	...	25	26.05	35.95	23.76	23.87	0.1055	0.1040	416
	44	26.06	35.95	23.75	...	...	29	...	50	25.90	35.95	23.80	24.03	0.2185	0.2075	412
h	66	24.34	36.05	24.35	...	...	28	...	75	23.90	36.13	24.54	24.88	0.3181	0.3021	344
	88	23.58	36.21	24.70	...	...	28	...	100	23.35	36.24	24.79	25.24	0.405	0.385	321
9.0	137	22.63	36.25	25.03	...	...	40	...	150	21.90	36.24	25.21	25.89	0.564	0.535	281
23°	190	20.40	35.87	25.34	...	...	56	...	200	18.85	35.59	25.53	26.43	0.706	0.670	253
	228	17.04	35.21	25.69	...	...	64	...	250	14.60	34.86	25.97	27.12	0.828	0.785	212
	273	12.90	34.64	26.15	...	...	172	...	300	12.10	34.63	26.30	27.69	0.932	0.884	181
	365	9.65	34.63	26.74	...	...	257	...	400	9.35	34.63	26.30	28.66	1.098	1.043	136
	496	9.62	34.64	26.76	...	...	249	...	500	7.70	34.62	27.04	29.40	1.229	1.186	111
	579	6.78	34.57	27.13	...	...	272	...	700	5.90	34.51	27.20	30.52	1.449	1.375	098
	840	5.14	34.48	27.27	...	...	265	...	1000	4.40	34.50	27.37	32.13	1.73	1.65	082
h	1222	3.36	34.57	27.53	...	...	281	...	1500	3.00	34.59	27.58	34.75	2.11	2.01	063
9.9	1739	2.54	34.59	27.61	...	...	276	...	2000	2.20	34.63	27.68	37.22	2.42	2.31	055
40°	2148	2.01	34.66	27.72	...	...	257	...	2500	1.90	34.66	27.73	39.62	2.68	2.57	0.00051
	2578	1.86	34.66	27.73	...	...	253	...								
Station 81: February 26, 1929; 13°03' S, 121°12' W; depth bottom, 2953 m; weather, bc; sea, MC; wind, E 4; fair conditions																		
	0	26.53	35.82	23.50	...	...	38	...	0	26.53	35.82	23.50	23.50	0.0000	0.0000	0.00440
	5	26.52	35.82	23.51	...	...	38	...	5	26.52	35.82	23.51	23.53	0.0231	0.0230	439
	25	26.50	35.82	23.51	...	...	38	...	25	26.50	35.82	23.51	23.62	0.1155	0.1099	440
h	49	26.42	35.85	23.56	...	...	32	...	50	26.40	35.86	23.58	23.81	0.2505	0.2190	433
	74	25.24	36.18	24.17	...	...	32	...	75	25.20	36.18	24.19	24.63	0.3372	0.3204	377
9.1	98	23.69	36.23	24.68	...	...	36	...	100	23.55	36.23	24.70	25.15	0.430	0.409	330
21°	147	22.74	36.28	25.00	...	...	42	...	150	22.70	36.28	25.01	25.68	0.596	0.566	301
	195	20.35	35.83	25.32	...	...	52	...	200	20.20	35.77	25.32	26.22	0.749	0.710	273
	244	16.51	35.17	25.78	...	...	110	...	250	16.20	35.10	25.80	26.95	0.880	0.835	228
	293	12.84	34.71	26.22	...	...	58	...	300	12.50	34.70	26.28	27.65	0.969	0.938	183
	391	9.09	34.65	26.85	...	...	253	...	400	9.10	34.64	26.84	28.71	1.155	1.095	0.00130

a) Mean of 3064 and 3116 meters.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values						Interpolated values					Computed values			
		Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen ml/L	Oxygen o/o	Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{tp})	Anomalies	
															Pressure (ΔP)	Dynamic depth (ΔD)	Specific volume (Δα)
Station 81--Continued																
	358	10.23	34.64	26.65	.....	.....	253	.....	500	7.70	34.59	27.01	29.37	1.285	1.217	0.00114
	448	8.41	34.62	26.93	.....	.....	245	.....	700	5.90	34.51	27.20	30.52	1.508	1.429	0.00098
h	626	6.47	34.53	27.14	.....	.....	253	.....	1000	4.30	34.52	27.40	32.16	1.79	1.70	0.00079
10.0	901	4.75	34.51	27.34	.....	.....	257	.....	1500	2.90	34.61	27.61	34.78	2.15	2.05	0.00059
28°	1368	3.21	34.59	27.56	.....	.....	272	.....	2000	2.20	34.65	27.70	37.24	2.45	2.33	0.00053
	1728	2.44	34.66	27.68	.....	.....	245	.....	3500	1.85	34.66	27.73	39.62	2.70	2.58	0.00050
	2248	1.96	34.65	27.71	.....	.....	237	.....							
	2681	1.88	34.66	27.74	.....	.....	233	.....							
Station 82: February 28, 1929; 14°52' S, 126°07' W; depth bottom, 3631 m; weather, bc; sea, MC; wind, E; fair conditions																
	0	27.21	36.32	23.66	.....	.....	34	.....	0	27.21	36.32	23.66	23.66	0.0000	0.0000	0.00425
	4	27.21	36.32	23.66	.....	.....	34	.....	5	27.21	36.32	23.66	23.68	0.0223	0.0213	425
	24	27.21	36.38	23.71	.....	.....	34	.....	25	27.21	36.38	23.71	23.82	0.1113	0.1059	421
h	48	27.21	36.33	23.67	.....	.....	34	.....	50	27.20	36.35	23.67	23.90	0.2227	0.2116	425
9.2	73	25.29	36.35	24.29	.....	.....	34	.....	75	25.25	36.35	24.30	24.64	0.3268	0.3107	367
21°	98	24.34	36.46	24.65	.....	.....	34	.....	100	24.35	36.46	24.66	25.11	0.419	0.398	334
	145	23.25	36.30	24.86	.....	.....	44	.....	150	23.10	36.27	24.89	25.56	0.589	0.559	312
	193	21.65	36.05	25.13	.....	.....	46	.....	200	21.35	36.01	25.18	26.08	0.748	0.710	287
	239	18.92 ^b	35.57	25.50	.....	.....	54	.....	250	17.15	35.31	26.33	26.87	0.885	0.840	234
	297	9.53	34.88	26.71	.....	.....	111	.....	300	12.60	34.77	26.51	27.69	0.995	0.943	180
	396	16.61	34.51	26.71	.....	.....	225	.....	400	9.05	34.53	26.76	28.63	1.163	1.103	139
h	256	12.67	34.66	26.81	.....	.....	86	.....	500	6.90	34.50	27.06	29.43	1.227	1.163	109
27°	299	10.00	34.52	27.01	.....	.....	139	.....	700	5.60	34.49	27.22	30.54	1.509	1.432	096
	370	5.90	34.57	27.18	.....	.....	220	.....	1000	4.35	34.52	27.39	32.15	1.79	1.70	080
h	462	3.14	34.57	27.40	.....	.....	272	.....	1500	2.90	34.58	27.58	34.75	2.16	2.06	063
10.0	931	2.26	34.63	27.58	.....	.....	253	.....	2000	2.10	34.65	27.70	37.25	2.46	2.35	052
29°	1404	1.93	34.69	27.75	.....	.....	237	.....	2500	1.85	34.67	27.74	39.63	2.71	2.60	00049
	1871	1.57	.....	.....	.....	.....	.....	.....		
	2313	.....	.....	.....	.....	.....	.....	.....	
	3596 ^a	.....	.....	.....	.....	.....	.....	.....	
Station 83: March 2, 1929; 17°00' S, 129°45' W; depth bottom, 3966 m; weather, b; sea, MS; wind, E 3; good conditions																
	0	27.52	36.29	23.54	.....	.....	29	.....	0	27.52	36.29	23.54	23.54	0.0000	0.0000	0.00436
	5	27.51	36.29	23.55	.....	.....	29	.....	5	27.51	36.29	23.55	23.57	0.0229	0.0218	435
	24	27.51	36.29	23.55	.....	.....	29	.....	25	27.50	36.29	23.55	23.66	0.1146	0.1089	436
h	49	27.46	36.49	23.71	.....	.....	25	.....	50	27.45	36.49	23.72	23.95	0.2273	0.2159	420
	73	26.29	36.42	24.04	.....	.....	24	.....	75	26.20	36.42	24.06	24.40	0.3338	0.3172	390
9.3	98	24.59	36.27	24.50	.....	.....	20	.....	100	24.30	36.27	24.63	24.98	0.430	0.409	346
5°	146	23.53	36.30	24.78	.....	.....	34	.....	150	23.35	36.29	24.83	25.50	0.505	0.476	318
	195	21.50	35.98	25.12	.....	.....	40	.....	200	21.35	35.94	25.13	26.03	0.767	0.728	291
	244	19.19	35.57	25.43	.....	.....	50	.....	250	18.80	35.55	25.51	26.64	0.911	0.864	266
	293	15.80	35.05	25.85	.....	.....	76	.....	300	15.30	35.03	25.94	27.31	1.036	0.982	216
	343	12.73	34.94	26.42	.....	.....	119	.....	400	9.60	34.51	26.66	28.53	1.228	1.165	0.00148

a) Piano wire. b) Thermometer off scale.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values						Interpolated values						Computed values			
		Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Density (σ_{tp})	Pressure (ΔP)	Anomalies	
					ml/L	o/o										Dynamic depth (ΔD)	Specific volume (ΔC)
Station 83--Continued																	
	314	11.10	34.69	26.44	...	7.86	86	...	500	7.00	34.42	26.99	29.36	1.368	1.297	0.00116	
	362	11.10	34.57	26.44	...	7.86	182	...	700	5.40	34.43	27.19	30.52	1.592	1.511	0.00116	
	454	7.88	34.45	26.88	...	7.75	291	...	1000	4.35	34.51	27.38	32.14	1.87	1.78	0.00116	
h	645	5.65	34.41	27.15	...	7.73	292	...	1500	2.95	34.59	27.59	34.76	2.25	2.14	0.00116	
10.2	926	4.59	34.50	27.24	...	7.70	285	...	2000	2.15	34.64	27.99	37.23	2.55	2.44	0.00116	
12°	1397	3.20	34.57	27.55	...	7.70	281	...	2500	1.90	34.65	27.72	39.61	2.81	2.70	0.00052	
	1860	2.28	34.53	27.88	...	7.73	285	...									
	2292	1.97	34.65	27.71	...	7.75	257	...									
	3921a)	1.55	...	...	...	...	...	...			
Station 84: March 4, 1929; 17°11' S, 133°18' W; depth bottom, 4121 m; weather, b; sea, MS; wind, E 3; good conditions																	
	0	27.82	36.22	23.39	...	8.23	24	...	0	27.82	36.22	23.39	23.39	0.0000	0.0000	0.00451	
	6	27.80	36.22	23.40	...	8.23	24	...	5	27.80	36.22	23.40	23.42	0.0237	0.0226	0.00451	
	23	27.71	36.32	23.50	...	8.21	24	...	25	27.70	36.32	23.51	23.62	0.1173	0.1116	0.00451	
h	48	27.52	36.42	23.64	...	8.20	24	...	50	25.50	36.41	24.32	23.88	0.2313	0.2199	0.00451	
11.5	71	25.53	36.42	24.27	...	8.20	24	...	75	25.35	36.41	24.32	24.66	0.3355	0.3190	0.00451	
12°	95	24.76	36.37	24.47	...	8.19	24	...	100	24.65	36.36	24.49	24.94	0.429	0.408	0.00451	
	142	23.90	36.30	24.65	...	8.19	24	...	150	23.85	36.28	24.67	25.34	0.609	0.579	0.00451	
	190	22.90	36.19	24.88	...	8.16	44	...	200	22.70	36.15	24.91	25.80	0.781	0.741	0.00451	
	237	20.68	35.54	25.24	...	8.11	50	...	250	19.85	35.68	25.35	26.48	0.935	0.887	0.00451	
	286	17.63	35.33	25.64	...	8.07	64	...	300	16.25	35.15	25.82	27.19	1.067	1.012	0.00451	
	333	13.30	34.75	26.16	...	7.98	115	...	400	9.65	34.48	26.62	28.50	1.266	1.203	0.00451	
	332	13.89	34.81	26.08	...	7.98	107	...	500	7.40	34.43	26.93	29.29	1.411	1.339	0.00451	
	380	10.40	34.50	26.51	...	7.86	151	...	700	5.30	34.40	27.18	30.51	1.643	1.559	0.00451	
	475	7.84	34.44	26.88	...	7.75	201	...	1000	4.25	34.51	27.39	32.15	1.93	1.83	0.00451	
	664	5.43	34.39	27.25	...	7.75	220	...	1500	2.85	34.58	27.58	34.75	2.30	2.19	0.00451	
h	949	4.42	34.50	27.37	...	7.75	241	...	2000	2.10	34.65	27.68	37.23	2.60	2.48	0.00451	
10.4	1420	3.01	34.57	27.67	...	7.74	233	...	2500	1.90	34.65	27.72	39.61	2.86	2.74	0.00451	
15°	1884	2.23	34.62	27.71	...	7.77	225	...	3000	1.75	34.67	27.75	41.97	3.12	3.00	0.00050	
	2317	1.92	34.64	27.74	...	7.77	237	...									
	2758	1.79	34.66	27.74	...	7.77	237	...									
	3169	1.70	34.67	27.75	...	7.78	233	...									
	4076a)	1.51	...	...	...	...	...	...			
Station 85: March 6, 1929; 17°12' S, 136°37' W; depth bottom, 3791 m; weather, b; sea, S; wind, E 2; excellent conditions																	
	0	27.94	36.25	23.38	...	8.22	40	...	0	27.94	36.25	23.38	23.38	0.0000	0.0000	0.00452	
	5	27.92	36.24	23.38	...	8.22	40	...	5	27.92	36.24	23.38	23.40	0.0237	0.0227	0.00452	
	23	27.91	36.24	23.38	...	8.22	40	...	25	27.90	36.24	23.38	23.40	0.1189	0.1132	0.00452	
h	46	27.89	36.24	23.38	...	8.22	40	...	50	27.85	36.24	23.40	23.63	0.2377	0.2261	0.00452	
	70	26.89	36.28	23.74	...	8.22	42	...	75	26.60	36.29	23.83	24.17	0.3510	0.3340	0.00452	
9.3	94	25.26	36.30	24.26	...	8.22	42	...	100	25.15	36.30	24.30	24.75	0.453	0.431	0.00452	
5°	140	24.45	36.31	24.51	...	8.22	52	...	150	24.20	36.30	24.58	25.34	0.608	0.580	0.00452	
	186	23.08	36.32	24.85	...	8.19	64	...	200	22.55	36.16	24.96	25.85	0.813	0.772	0.00452	
	234	21.24	35.95	25.17	...	8.11	66	...	250	20.45	35.81	25.28	26.41	0.967	0.918	0.00452	
	282	18.39	35.47	25.55	...	8.12	90	...	300	17.30	35.28	25.67	27.03	1.105	1.048	0.00452	
	329	15.12	35.00	25.97	...	8.07	102	...	400	11.40	34.60	26.41	28.27	1.324	1.256	0.00173	

a) Piano wire.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values							Interpolated values							Computed values		
		Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Density (σ_{TP})	Pressure (ΔP)	Dynamic depth (ΔD)	Specific volume (Δv)	
					ml/L	o/o												
Station 85--Continued																		
	330	15.63	35.05	25.89	....	....	90	....	500	7.35	34.37	26.89	29.25	1.482	1.405	0.00125
	376	12.86	34.74	26.24	....	....	168	....	700	5.35	34.39	27.17	30.50	1.719	1.630	100
	471	8.14	34.40	26.80	....	....	245	....	1000	4.25	34.50	27.38	32.14	2.00	1.90	081
h	661	5.54	34.37	27.15	....	....	297	....	1500	2.85	34.58	27.58	34.75	2.38	2.27	062
10.3	1414	4.48	34.49	27.35	....	....	297	....	2000	2.15	34.63	27.68	37.22	2.69	2.56	055
2°	1889	3.01	34.54	27.54	....	....	285	....	2500	1.90	34.65	27.72	39.61	2.95	2.82	0.00052
	2334	2.22	34.62	27.67	....	....	276	....									
	3746a)	1.53	34.65	27.72	....	....	...	....						
Station 86: March 9, 1929; 17°36' S, 141°55' W; depth bottom, 2132 m; weather, b; sea, MS; wind, E 2-3; good conditions; soundings during early morning indicated existence of ridge 2000 meters higher than general bottom																		
	0	28.23	36.18	23.23	....	....	20	....	0	28.23	36.18	23.23	23.23	0.0000	0.0000	0.00466
	5	28.22	36.19	23.24	....	....	20	....	5	28.22	36.19	23.24	23.25	0.0245	0.0233	465
	24	27.91	36.20	23.35	....	....	17	....	25	27.90	36.20	23.35	23.46	0.1213	0.1153	455
	48	27.51	36.20	23.48	....	....	17	....	50	27.45	36.20	23.50	23.73	0.2392	0.2273	441
h	72	25.11	36.25	24.00	....	....	17	....	75	25.90	36.25	24.03	24.37	0.3488	0.3315	392
8.9	143	23.42	36.22	24.25	....	....	17	....	100	24.90	36.21	24.31	24.76	0.448	0.426	367
5°	191	23.17	36.10	24.66	....	....	17	....	150	23.25	36.09	24.71	25.38	0.600	0.500	330
	238	23.17	36.00	24.95	....	....	20	....	200	21.90	35.97	25.00	25.90	0.800	0.759	304
	286	18.14	35.78	25.27	....	....	29	....	250	19.75	35.70	25.38	26.51	0.951	0.902	269
	334	14.78	35.01	26.04	....	....	40	....	300	17.25	35.32	25.72	27.08	1.085	1.029	237
	321	.....	35.24	.....	....	....	58	....	400	11.40	34.68	26.47	28.33	1.231	1.231	167
	367	.....	34.82	.....	....	....	96	....	500	8.60	34.48	26.79	29.14	1.459	1.383	136
h	459	9.62	34.54	26.68	....	....	143	....	700	5.60	34.41	27.16	30.48	1.709	1.621	102
9.6	642	6.09	34.41	27.10	....	....	205	....	1000	4.05	34.50	27.40	32.17	1.99	1.89	079
14°	920	4.38	34.47	27.35	....	....	233	....	1500	2.60	34.60	27.62	34.80	2.35	2.24	058
	1380	2.80	34.58	27.58	....	....	241	....	2000	2.15	34.64	27.69	37.23	2.64	2.53	0.00054
	1835a)	2.27	34.63	27.67	....	....	229	....									
	2087a)	2.09	.....	.....	....	....	...	....				
Station 87: March 11, 1929; 18°05' S, 145°33' W; depth bottom, 4315 m; weather, bou; sea, MS; wind, NE 2-4; good conditions																		
	0	27.85	36.09	23.28	....	....	17	....	0	27.85	36.09	23.28	23.28	0.0000	0.0000	0.00461
	5	27.84	36.09	23.28	....	....	17	....	5	27.84	36.09	23.29	23.31	0.0242	0.0231	460
	24	27.84	36.11	23.30	....	....	17	....	25	27.84	36.11	23.30	23.41	0.1210	0.1151	460
h	48	26.83	36.09	23.61	....	....	20	....	50	26.50	36.05	23.71	23.94	0.2369	0.2252	421
	71	24.45	36.05	24.32	....	....	20	....	75	24.40	36.05	24.34	24.68	0.3401	0.3233	363
9.2	94	24.07	36.03	24.41	....	....	20	....	100	23.90	36.01	24.45	24.91	0.434	0.413	353
12°	187	21.71	35.77	25.05	....	....	21	....	150	22.40	35.88	24.79	25.47	0.611	0.581	321
	282	17.37	35.42	25.68	....	....	44	....	200	20.65	35.72	25.16	26.06	0.773	0.734	289
	377	12.37	34.77	26.36	....	....	80	....	300	18.85	35.54	25.49	26.62	0.917	0.870	258
	473	8.62	34.48	26.79	....	....	162	....	350	16.70	35.32	25.85	27.22	1.045	0.991	225
	662	5.46	34.35	27.12	....	....	209	....	400	11.10	34.66	26.51	28.38	1.249	1.186	0.00163

a) Piano wire. b) Thermometer off scale.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values					Interpolated values					Computed values				
		Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Density (σ_{TP})	Anomalies	
					ml/L	o/o									Pressure (AP)	Dynamic depth (AD)	Specific Volume (AC)
Station 87--Continued																
	610	5.11	34.34	27.04	.....	.....	209	.....	500	8.00	34.44	26.85	29.21	1.404	1.332	0.00130
	876	4.61 ^{b)}	34.45	27.30	.....	.....	253	.....	700	5.40	34.35	27.13	30.46	1.649	1.566	0.00104
h	1318	.....	34.56	.....	.....	.....	247	.....	1000	4.15	34.50	27.40	32.17	1.94	1.84	0.079
10.3	1756	2.45	34.59	27.62	.....	.....	259	.....	1500	2.80	34.58	27.58	34.75	2.31	2.20	0.062
26°	2177	2.07	34.62	27.69	.....	.....	245	.....	2000	2.20	34.62	27.68	37.22	3.61	2.50	0.055
	3009	1.71	34.65	27.73	.....	.....	241	.....	2500	1.95	34.65	27.72	39.61	2.89	2.76	0.052
	3670	1.48	34.68	27.77	.....	.....	229	.....	3000	1.70	34.66	27.74	41.97	3.13	3.02	0.050
	4270a)	1.40	.....	.....	.....	.....	.....	.....	3500	1.55	34.67	27.76	44.29	3.38	3.27	0.00049
Station 88: March 21, 1929; 16°42' S, 150°41' W; depth bottom, 3697 m; weather, bcq; sea, ML; wind, NNW; fair conditions; heavy rolling and long southerly swell																
	0	28.48	35.88	22.92	.....	.....	16	.....	0	28.48	35.88	22.92	22.92	0.0000	0.0000	0.00495
	5	28.46	35.82	22.88	.....	.....	.....	.....	5	28.46	35.82	22.88	22.90	0.0261	0.0249	499
	22	28.45	35.96	22.99	.....	.....	13	.....	25	28.45	35.96	22.99	23.10	0.1301	0.1238	490
	47	28.45	35.88	22.93	.....	.....	13	.....	50	28.45	35.88	22.93	23.16	0.2597	0.2469	495
h	70	27.16	36.08	23.50	.....	.....	12	.....	75	26.90	36.08	23.58	23.92	0.3821	0.3632	435
9.4	94	25.59	36.08	24.00	.....	.....	12	.....	100	25.40	36.08	24.00	24.50	0.430	0.466	392
0°	187	22.20	35.93	24.88	.....	.....	17	.....	150	22.45	36.00	24.05	25.25	0.624	0.650	342
	282	18.12	35.50	25.64	.....	.....	24	.....	200	22.75	35.89	24.98	25.88	0.853	0.812	306
	375	18.51	34.92	26.44	.....	.....	126	.....	250	19.70	35.40	25.39	26.52	1.006	0.956	268
	470	8.88	34.50	26.76	.....	.....	.....	.....	300	17.10	35.40	25.81	27.18	1.138	1.080	229
	658	5.73	34.36	27.10	.....	.....	.....	.....	400	11.35	34.77	26.55	28.41	1.342	1.275	160
	659	5.75	34.38	27.11	.....	.....	209	.....	500	8.15	34.45	26.84	29.19	1.496	1.420	131
	940	4.06	34.48	27.38	.....	.....	245	.....	700	5.40	34.39	27.16	30.49	1.740	1.652	101
h	1412	2.85c)	34.59	27.59	.....	.....	249	.....	1000	2.85	34.50	27.42	32.19	2.02	1.92	076
10.5	1886	2.25	34.61	27.66	.....	.....	240	.....	1500	2.70	34.60	27.61	34.79	2.37	2.26	059
5°	2329	1.96	34.62	27.69	.....	.....	241	.....	2000	2.15	34.61	27.67	37.21	2.67	2.55	056
	2787	1.78	34.63	27.71	.....	.....	224	.....	2500	1.85	34.63	27.71	39.60	2.94	2.82	053
	3230	1.63	34.67	27.75	.....	.....	224	.....	3000	1.70	34.65	27.73	41.96	3.20	3.09	0.00051
Station 89: March 23, 1929; 17°09' S, 152°41' W; depth bottom, 4286 m; weather, b; sea, S; wind, O; good conditions																
	0	28.38	35.64	22.77	.....	.....	21	.....	0	28.38	35.64	22.77	22.77	0.0000	0.0000	0.00510
	5	28.36	35.64	22.78	.....	.....	17	.....	5	28.36	35.64	22.78	22.80	0.0268	0.0255	509
	24	28.38	35.63	22.76	.....	.....	13	.....	25	28.38	35.63	22.76	22.87	0.1341	0.1276	512
	47	28.53	35.80	22.84	.....	.....	12	.....	50	28.55	35.84	22.86	23.09	0.2674	0.2543	502
h	71	28.03	36.01	23.17	.....	.....	12	.....	75	27.90	36.02	23.21	23.55	0.3761	0.3761	471
9.0	94	26.70	35.92	23.60	.....	.....	12	.....	100	26.45	36.02	23.68	24.13	0.513	0.488	427
5°	189	22.16	35.95	24.92	.....	.....	38	.....	150	23.95	36.00	24.44	25.11	0.719	0.693	355
	283	18.14	35.45	25.50	.....	.....	46	.....	200	21.65	35.94	25.05	25.95	0.892	0.848	299
	376	12.62	34.76	26.30	.....	.....	186	.....	250	19.50	35.73	25.46	26.59	1.040	0.987	261
	471	9.34	34.53	26.72	.....	.....	225	.....	300	17.20	35.29	25.70	27.07	1.112	1.112	239
	660	5.85	34.37	27.10	.....	.....	.....	.....	400	11.50	34.68	26.45	28.31	1.387	1.317	169
	663	5.87	34.36	27.08	.....	.....	241	.....	500	8.65	34.49	26.79	29.14	1.549	1.469	136
	945	4.11	34.46	27.37	.....	.....	249	.....	700	5.50	34.47	27.14	30.47	1.800	1.709	104
h	1416	2.88	34.56	27.57	.....	.....	245	.....	1000	3.90	34.47	27.40	32.17	2.08	1.98	078
10.3	1884	2.30	34.58	27.63	.....	.....	248	.....	1500	2.70	34.57	27.59	34.77	2.45	2.34	061
7°	2523	1.99	34.60	27.67	.....	.....	237	.....	2000	2.20	34.59	27.65	37.47	2.76	2.64	068
	3192	1.79	34.62	27.71	.....	.....	237	.....	2500	1.90	34.61	27.69	39.58	3.04	2.91	055
	3192	1.64	34.62	27.71	.....	.....	237	.....	3000	1.70	34.62	27.71	41.94	3.31	3.19	0.00053

a) Piano wire.

b) Thermometer did not function properly.

c) Temperature from pressure thermometer and wire-depth.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire-angle	Depth (D) meters	Observed values										Interpolated values					Computed values		
		Temperature (t) °C	Salinity (S) o/oo	Oxygen		Density (σ_t)	Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Density (σ_{tp})	Pressure (ΔP)	Anomalies			
				ml/L	o/o											Dynamic depth (AD)	Specific volume ($\Delta\sigma$)		
Station 90: March 25, 1929; 16°35' S, 155°45' W; depth bottom, 4630 m; weather, bc; sea, MC; wind, E 4; stiff trade-wind																			
	3	28.50	35.49	...	...	8.27	21	...	0	28.50	35.49	22.62	22.62	0.0000	0.0000	0.000524	
	8	28.48	35.50	...	...	8.27	21	...	5	28.50	35.50	22.63	22.65	0.0275	0.0262	523	
	25	28.46	35.49	...	...	8.26	21	...	25	28.46	35.49	22.63	22.74	0.1376	0.1309	524	
	49	28.60 ^{a)}	35.52	...	...	8.26	21	...	75	28.60	35.52	22.68	22.91	0.2748	0.2613	519	
	70	...	35.74	...	...	8.24	21	...	100	27.50	35.76	23.15	23.49	0.4057	0.3859	477	
	96	26.55	35.82	...	...	8.24	21	...	150	26.30	35.82	23.58	24.03	0.525	0.500	436	
	190	22.66	35.96	...	...	8.15	44	...	200	24.20	35.93	24.31	24.98	0.737	0.701	368	
	235	20.74	35.78	...	...	8.13	60	...	250	22.25	35.93	24.87	25.77	0.918	0.872	316	
	283	18.03	35.40	...	...	8.07	78	...	300	19.85	35.69	25.35	26.48	1.073	1.019	272	
	330	15.85 ^{b)}	35.11	...	...	8.05	107	...	400	17.10	35.29	25.73	27.10	1.208	1.146	235	
	378	13.25 ^{b)}	34.85	...	...	7.98	127	...	500	11.85	34.73	26.42	28.28	1.423	1.351	172	
	412	11.01	34.63	...	...	7.92	166	...	700	8.35	34.41	26.78	29.13	1.586	1.505	137	
	502	8.22	34.41	...	...	7.87	205	...	1000	5.45	34.36	27.13	30.46	1.839	1.747	105	
	687	5.58	34.36	...	...	7.82	237	...	1500	4.10	34.43	27.39	32.16	2.13	2.03	80	
	953	4.23	34.52	...	...	7.88	201	...	2000	2.80	34.53	27.54	34.72	2.51	2.40	66	
	27°	2.51	34.58	...	...	7.79	265	...	2500	2.15	34.55	27.63	37.18	2.83	2.71	65	
	1880	2.27	34.57	...	...	7.80	257	...		1.90	34.57	27.66	39.55	3.12	3.00	0.00058	
	2295	2.03	34.56	...	...	7.80	261	...									
Station 91: March 27, 1929; 15°44' S, 160°25' W; depth bottom, 4937 m; weather, bc; sea, MCL; wind, ENE 4; stiff trade-wind																			
	0	28.71	35.13	...	...	8.30	21	...	0	28.71	35.13	22.28	22.28	0.0000	0.0000	0.0000	
	4	28.70	35.17	...	...	8.30	21	...	5	28.70	35.17	22.30	22.32	0.0292	0.0279	555	
	20	28.65	35.17	...	...	8.30	24	...	25	28.65	35.17	22.33	22.44	0.1256	0.1256	553	
	42	27.40	35.76	...	...	8.30	24	...	50	28.50	35.25	22.44	22.67	0.2895	0.2785	542	
	66	26.26	35.92	...	...	8.30	24	...	75	26.90	35.86	23.86	24.31	0.4199	0.3996	450	
	86	23.01	36.01	...	...	8.21	46	...	100	25.75	36.00	24.46	25.13	0.533	0.507	410	
	173	19.34	35.59	...	...	8.19	64	...	150	22.15	35.99	24.95	25.85	0.724	0.698	354	
	261	14.45	35.00	...	...	8.05	127	...	200	19.95	35.69	25.32	26.45	0.909	0.864	309	
	349	9.80 ^{a)}	34.57	...	...	7.93	200	...	250	17.40	35.30	25.67	27.04	1.063	1.009	274	
	432	...	34.56	...	...	7.86	245	...	300	11.50	34.73	26.49	28.35	1.199	1.139	242	
	615	...	34.51	...	...	7.82	272	...	400	8.15	34.45	26.84	29.19	1.414	1.343	165	
	927	4.19	34.51	...	...	7.82	272	...	500	5.45	34.41	27.17	30.50	1.571	1.491	131	
	1390	3.01	34.56	...	...	7.83	281	...	700	3.95	34.52	27.43	32.20	1.814	1.722	100	
	1844	2.34	34.63	...	...	7.83	281	...	1000	3.85	34.52	27.58	33.20	2.09	1.98	75	
	2269	1.87	34.60	...	...	7.83	297	...	1500	2.85	34.57	27.68	34.75	2.45	2.33	62	
	2701	1.81	34.48 ^{c)}	...	...	7.83	281	...	2000	2.15	34.62	27.68	37.22	2.75	2.63	62	
	27°	1.68	34.54	...	...	7.83	281	...	2500	1.80	34.62	27.71	39.61	3.02	2.89	62	
	3102	1.58	34.66	...	...	7.83	272	...	3000	1.70	34.64	27.72	41.95	3.28	3.16	62	
	3504	1.58	34.66	...	...	7.84	265	...	3500	1.60	34.65	27.74	44.26	3.54	3.42	0.00052	
	3863	1.47	34.65	...	...	7.84	253	...									
Station 92: March 29, 1929; 15°18' S, 163°14' W; depth bottom, 5530 m; weather, b; sea, S; wind, O; good conditions																			
	0	28.52	35.32	...	...	8.29	28	...	0	28.52	35.32	22.49	22.49	0.0000	0.0000	0.0000	
	5	28.43	35.30	...	...	8.29	28	...	5	28.43	35.30	22.50	22.52	0.0282	0.0259	536	
	23	28.42	35.34	...	...	8.29	28	...	25	28.40	35.34	22.54	22.65	0.1205	0.1238	526	
	47	28.43	35.41	...	...	8.29	28	...	50	28.40	35.41	22.58	23.61	0.2797	0.2661	526	
	70	27.48 ^{b)}	35.77	...	...	8.29	28	...	75	27.30	35.82	23.26	23.60	0.4100	0.3902	466	
	94	26.38	35.95	...	...	8.28	28	...	100	25.20	35.95	23.71	24.16	0.527	0.501	0.00424	

^{a)} Thermometer did not function properly. ^{b)} Temperature from pressure-thermometer and wire-depth. ^{c)} Salinity regarded as erroneous.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values						Interpolated values						Computed values			
		Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Density (σ_{tp})	Pressure (ΔP)	Anomalies	
					ml/L	o/o										Dynamic depth (ΔD)	Specific volume (ΔG)
Station 92--Continued																	
	189	22.29	35.95	24.87	...	8.20	52	...	150	24.05	36.00	24.40	25.07	0.733	0.697	0.00359	
	281	17.31	35.35	25.73	...	8.10	90	...	200	21.70	35.91	25.01	25.91	0.908	0.863	0.00359	
	372	12.13	34.76	26.40	...	7.97	200	...	250	19.00	35.60	25.00	26.63	1.056	1.002	0.00359	
10.3 8°	470	8.37	34.51	26.85	...	7.87	249	...	300	16.30	35.20	25.85	27.22	1.184	1.123	0.00359	
	657	5.62	34.40	27.15	...	7.82	265	...	400	10.85	34.66	26.56	28.43	1.385	1.316	0.00359	
	663	5.61	34.44	27.18	...	7.81	272	...	500	7.70	34.47	26.52	29.28	1.534	1.456	0.00359	
	948	4.02	34.50	27.41	...	7.76	285	...	700	5.35	34.43	27.20	30.53	1.765	1.675	0.00359	
	1423	2.90	34.56	27.57	...	7.78	330	...	1000	3.85	34.51	27.43	32.20	2.04	1.93	0.00359	
9.1 8°	1892	2.23	34.63	27.68	...	7.78	385	...	1500	2.75	34.57	27.58	34.76	2.40	2.28	0.00359	
	2330	1.98	34.63	27.70	...	7.78	292	...	2000	2.15	34.63	27.68	37.22	2.70	2.58	0.00359	
	2774	1.80	34.63	27.71	...	7.79	292	...	2500	1.90	34.63	27.70	39.59	2.97	2.84	0.00359	
	3194	1.67	34.67	27.75	...	7.79	292	...	3000	1.70	34.65	27.73	41.96	3.23	3.11	0.00051	
Station 93: March 31, 1929; 14°41' S, 167°41' W; depth bottom, 5208 m; weather, bcqr; sea, S; wind, 0 to NE 3; good conditions																	
	0	28.74	34.71	21.95	...	8.30	28	...	0	28.74	34.71	21.95	21.95	0.0000	0.0000	0.00588	
	5	28.75	34.68	21.92	...	8.30	28	...	5	28.75	34.68	21.92	21.95	0.0309	0.0295	0.00588	
	23	28.74	34.76	21.99	...	8.30	28	...	25	28.75	34.76	21.99	22.10	0.1545	0.1471	0.00588	
222	47	28.57	34.78	22.06	...	8.28	28	...	50	28.50	34.78	22.08	22.31	0.3071	0.2923	0.00588	
	70	27.65	35.12	23.16	...	8.28	28	...	75	28.05	35.40	22.70	23.04	0.4512	0.4294	0.00588	
	94	27.65	35.83	23.16	...	8.27	29	...	100	27.65	35.85	23.20	23.66	0.581	0.553	0.00588	
	188	23.25	36.07	24.69	...	8.21	50	...	150	25.90	36.03	23.86	24.53	0.814	0.774	0.00588	
	235	21.07	35.84	25.13	...	8.11	62	...	200	22.65	36.04	24.84	25.73	1.007	0.957	0.00588	
	283	18.04	35.47	25.64	...	8.10	96	...	250	20.25	35.76	25.29	26.42	1.164	1.106	0.00588	
	329	14.74	35.04	26.07	...	8.02	127	...	300	16.90	35.28	25.77	27.13	1.300	1.233	0.00588	
	377	12.52	34.77	26.32	...	7.97	178	...	400	11.70	34.75	26.47	28.33	1.511	1.434	0.00588	
	383	12.79	34.83	26.32	...	7.98	154	...	500	8.90	34.57	26.82	29.17	1.670	1.584	0.00588	
	478	9.47	34.51	26.75	...	7.84	220	...	700	6.65	34.38	27.12	30.44	1.921	1.823	0.00588	
	668	5.98	34.38	27.09	...	7.81	253	...	1000	3.95	34.47	27.39	32.16	2.21	2.10	0.00588	
	955	4.12	34.46	27.37	...	7.77	292	...	1500	2.70	34.52	27.55	34.73	2.59	2.47	0.00588	
8.8 6°	1433	2.85	34.53	27.54	...	7.76	303	...	2000	2.15	34.57	27.64	37.18	2.91	2.78	0.00588	
	1900	2.23	34.53	27.60	...	7.78	292	...	2500	1.90	34.63	27.70	39.59	3.19	3.06	0.00054	
	2335	1.99	34.61	27.68	...	7.78	292	...	...	...	...	...	...	...	...	...
Station 94: April 22, 1929; 12°47' S, 171°35' W; depth bottom, 4760 m; weather, bcqr; sea, MC; wind, E 3; fairly good conditions																	
	0	29.48	34.73	21.72	...	8.25	14	...	0	29.48	34.73	21.72	21.72	0.0000	0.0000	0.00610	
	5	29.48	34.73	21.72	...	8.25	14	...	5	29.48	34.73	21.72	21.75	0.0320	0.0305	0.00610	
	24	29.44	34.72	21.72	...	8.24	14	...	25	29.45	34.72	21.73	21.84	0.1601	0.1526	0.00610	
	47	29.35	34.72	21.76	...	8.25	14	...	50	29.30	34.72	21.77	22.00	0.3199	0.3047	0.00610	
	71	29.10	35.47	22.66	...	8.25	14	...	75	29.05	34.85	21.95	22.29	0.4772	0.4545	0.00610	
	95	28.66	36.12	24.78	...	8.21	25	...	100	28.50	36.08	22.68	23.13	0.623	0.594	0.00610	
10.8 10°	190	23.09	36.12	24.78	...	8.15	36	...	150	25.75	36.04	23.91	24.57	0.868	0.825	0.00610	
	235	20.52	35.36	26.76	...	8.10	60	...	200	22.45	36.11	24.95	25.84	1.057	1.005	0.00610	
	285	17.17	35.36	26.50	...	8.03	70	...	250	19.45	35.72	25.48	26.61	1.207	1.146	0.00610	
	379	11.57	34.76	26.50	...	7.89	94	...	300	16.05	35.20	25.91	27.28	1.334	1.266	0.00610	
	478	8.10	34.76	26.50	...	7.80	154	...	400	10.55	34.70	26.64	28.51	1.528	1.451	0.00151	

a) Thermometer did not function properly.

b) One cell of salinity bridge out of order.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values						Interpolated values					Computed values			
		Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Density (σ_{tp})	Anomalies	
					ml/L	o/o									Pressure (Δp)	Dynamic depth (ΔD)	Specific volume ($\Delta v$)
Station 94--Continued																
	470	8.15	34.57	25.94	.....	.....	146	.....	500	7.60	34.54	26.99	29.35	1.669	1.585	0.00116
	561	5.85	34.45	27.16	.....	.....	166	.....	700	5.60	34.45	27.19	30.51	1.895	1.800	0.099
	347	4.51	34.48	27.34	.....	.....	190	.....	1000	4.30	34.45	27.37	32.13	2.18	2.07	0.082
h	1428	2.96	34.54	27.55	.....	.....	1500	.....	1500	2.80	34.55	27.56	34.73	2.57	2.44	0.064
25°	1902	2.29	.....^a	.....	.....	.....	2000	.....	2000	2.20	34.59	27.65	37.19	2.89	2.75	0.058
	2339	1.98	.....^a	.....	.....	.....	2500	.....	2500	1.90	34.63	27.70	39.59	3.16	3.03	0.00054
	2783	1.83	34.66	27.73	.....	.....	184	.....	.....	.....	.....	.....	.....	.....	.....	.....
Station 95: April 24, 1929; 8°43' S, 170°56' W; depth bottom, 4298 ^b m; weather, bc; sea, MC; wind, E 4; fair conditions; strong surface current apparently about 100 meters deep																
	0	29.43	34.70	21.70	.....	.....	14	.....	0	29.43	34.70	21.71	21.71	0.0000	0.0000	0.00611
	4	29.41	34.68	21.70	.....	.....	16	.....	5	29.40	34.68	21.71	21.74	0.0321	0.0306	611
	23	29.36	34.69	21.73	.....	.....	16	.....	25	29.35	34.69	21.73	21.84	0.1603	0.1527	610
	46	29.34	34.91	21.90	.....	.....	16	.....	50	29.30	34.92	21.92	22.15	0.3182	0.3029	592
	70	29.21	35.03	22.04	.....	.....	21	.....	75	29.15	35.08	22.09	22.43	0.4718	0.4493	578
h	93	28.74	35.35	22.43	.....	.....	21	.....	100	28.50	35.44	22.58	23.03	0.617	0.588	532
40°	185	23.16	36.06	24.71	.....	.....	48	.....	150	25.95	35.94	23.78	24.44	0.867	0.825	418
	278	15.57	35.14	25.97	.....	.....	78	.....	200	21.90	36.03	25.04	25.93	1.058	1.005	300
	372	10.92	34.72	26.59	.....	.....	174	.....	250	17.50	35.46	25.76	26.90	1.198	1.138	232
	467	8.22	34.61	26.95	.....	.....	178	.....	300	14.50	34.96	26.11	27.48	1.313	1.246	200
	655	.....^c	34.49	.....	.....	.....	190	.....	400	9.50	34.68	27.73	28.50	1.417	1.417	141
	777	5.53	34.45	27.20	.....	.....	182	.....	500	7.65	34.58	27.01	30.37	1.628	1.545	114
	1015	4.42	34.47	27.34	.....	.....	205	.....	700	5.95	34.47	27.16	32.47	1.856	1.761	102
	1412	3.21	34.53	27.51	.....	.....	213	.....	1000	4.45	34.47	27.34	33.10	2.15	2.04	086
h	1806	2.36	34.59	27.64	.....	.....	198	.....	1500	3.00	34.54	27.54	34.71	2.55	2.43	067
9.2	2155	2.26	34.59	27.65	.....	.....	198	.....	2000	2.20	34.59	27.65	37.19	2.87	2.75	057
43°	2519	1.84	34.63	27.71	.....	.....	198	.....	2500	1.85	34.62	27.70	39.59	3.15	3.02	0.00054
	2842	1.74	34.60	27.69	.....	.....	198	.....	.....	.....	.....	.....	.....	.....	.....	.....
Station 96: April 26, 1929; 6°47' S, 172°23' W; depth bottom, 5269 m; weather, bc; sea, S; wind, O; good conditions, vessel becalmed																
	0	29.30 ^d	35.27	22.19	.....	.....	12	.....	0	29.30	35.27	22.19	22.19	0.0000	0.0000	0.00565
	6	29.25	35.27	22.21	.....	.....	12	.....	5	29.25	35.27	22.21	22.23	0.0297	0.0282	562
	24	29.23	35.27	22.22	.....	.....	12	.....	25	29.20	35.27	22.22	22.33	0.1481	0.1407	563
	47	29.21	35.28	22.22	.....	.....	12	.....	50	29.20	35.28	22.22	22.45	0.2961	0.2815	563
	71	28.79 ^e	35.49	22.52	.....	.....	13	.....	75	28.75	35.51	22.55	23.29	0.4402	0.4187	534
	94	28.41	35.63	22.75	.....	.....	15	.....	100	28.25	35.67	22.84	23.29	0.577	0.549	507
h	189	23.59	36.04	24.56	.....	.....	50	.....	150	26.45	35.94	23.62	24.28	0.824	0.783	433
9°	227	18.74	35.52	25.50	.....	.....	66	.....	200	22.50	36.03	24.87	25.76	1.023	0.971	316
	254	13.59	34.97	26.18	.....	.....	106	.....	250	17.25	35.54	25.73	26.87	1.169	1.108	234
	377	9.08	34.63	26.84	.....	.....	172	.....	300	12.55	34.87	26.40	27.78	1.276	1.210	172
	473	7.65 ^e	34.56	27.00	.....	.....	182	.....	400	8.60	34.60	26.59	28.77	1.433	1.359	0.00125

^aOne cell of salinity-bridge out of order. ^bSonic depths 4298 m at 8°51' S, 170°54' W and 4473 m at 8°27' S, 171°12' W. ^cThermometer did not function properly. ^dTemperature mean of 29.26 and 29.34. ^eTemperature from pressure thermometer and wire depth.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values						Interpolated values						Computed values		
		Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Oxygen		Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Density (σ_{tp})	Pressure (ΔP)	Dynamic depth (ΔD)	Specific volume (Δα)
					ml/L	o/o										
Station 96--Continued																
	477	7.80 ^a	34.54	26.96	.....	.....	.....	500	7.35	34.53	27.02	29.38	1.559	1.478	0.00113
	667	5.88	34.48	27.18	.....	.....	.....	700	5.65	34.48	27.20	30.52	1.781	1.689	0.00098
h	954	4.42	34.48	27.35	.....	.....	.....	1000	4.25	34.48	27.36	32.12	2.07	1.96	0.00083
10°	1430	3.00	34.52	27.53	.....	.....	.....	1500	2.85	34.53	27.54	34.71	2.46	2.34	0.00067
	1899	2.37	34.57	27.62	.....	.....	.....	2000	2.25	34.58	27.63	37.17	2.79	2.66	0.00059
	2332	2.03	34.59	27.66	.....	.....	.....	2500	1.95	34.60	27.68	39.57	3.07	2.94	0.00056
	2769	1.80	34.61	27.70	.....	.....	.....						
Station 97: April 28, 1929; 3°47' S, 172°39' W; depth bottom, 5253 m; weather, bc; sea, ML; wind, NE 1-2; good conditions																
	0	28.32	35.19 ^b	22.45	.....	.....	.....	0	28.32	35.19	22.45	22.45	0.0000	0.0000	0.00540
	5	28.35	35.19	22.45	.....	.....	.....	5	28.32	35.19	22.45	22.47	0.0284	0.0270	0.00539
	25	28.05	35.35	22.56	.....	.....	.....	25	28.15	35.28	22.56	22.67	0.1410	0.1340	0.00531
h	71	27.90	35.35	22.71	.....	.....	.....	75	27.85	35.35	22.68	22.91	0.2791	0.2653	0.00519
11.4	93	27.68	35.55	22.93	.....	.....	.....	100	27.60	35.36	22.73	23.07	0.4152	0.3947	0.00516
22°	189	21.71	35.82	24.94	.....	.....	.....	150	25.65	35.76	22.99	23.44	0.547	0.521	0.00493
	288	14.38	35.07	26.18	.....	.....	.....	200	20.10	35.81	23.74	24.41	0.788	0.749	0.00482
	286	11.43 ^a	34.85	26.60	.....	.....	.....	250	13.40	34.99	26.32	26.27	0.971	0.923	0.00470
	380	9.04	.....	.....	.....	.....	.....	300	11.00	34.82	26.56	27.48	1.088	1.033	0.00477
	477	7.99	.....	.....	.....	.....	.....	400	8.65	34.88	26.94	28.06	1.174	1.115	0.00477
	515	6.99	.....	.....	.....	.....	.....	500	7.25	34.81	27.10	28.82	1.314	1.249	0.00480
			.....	.....	.....	.....	.....	700	5.75	34.51	27.22	30.54	1.646	1.564	0.00496
h	394	8.78	34.50	27.32	.....	.....	.....	1000	4.35	34.51	27.38	32.14	1.83	1.83	0.00481
10.1	887	3.41	.....	.....	.....	.....	.....	1500	2.95	34.58	27.57	34.74	2.30	2.30	0.00464
43°	1300	2.56	.....	.....	.....	.....	.....	2000	2.20	34.64	27.69	37.23	2.61	2.50	0.00464
	2151	2.10	34.67	27.72	.....	.....	.....	2500	1.85	34.67	27.74	39.63	2.87	2.75	0.00050
	2595	1.83	34.65	27.73	.....	.....	.....						
Station 98: April 30, 1929; 0°18' N, 173°59' W; depth bottom, 5599 m; weather, bc; sea, MCL; wind, NE 4; vessel drifting; strong trade wind; observations at 1500-meter level omitted because water bottle probably reversed when being lowered																
	1	27.05	35.24	22.90	.....	.....	.....	0	27.05	35.27	22.93	22.93	0.0000	0.0000	0.00494
	4	26.04	35.30	22.95	.....	.....	.....	5	27.05	35.27	22.93	22.95	0.0260	0.0247	0.00493
	19	26.98	35.25	22.95	.....	.....	.....	25	26.95	35.27	22.96	23.07	0.1298	0.1233	0.00493
	38	26.91	35.30	23.00	.....	.....	.....	50	26.90	35.30	23.00	23.23	0.2589	0.2461	0.00489
h	57	26.89	35.26	22.97	.....	.....	.....	75	26.75	35.38	23.10	23.44	0.3864	0.3674	0.00481
11.0	75	26.76	35.38	23.10	.....	.....	.....	100	26.70	35.40	23.13	23.58	0.512	0.487	0.00479
45°	151	26.51	35.43	23.22	.....	.....	.....	150	26.60	35.43	23.19	23.86	0.763	0.725	0.00475
	188	24.98	35.52	23.76	.....	.....	.....	200	24.10	35.46	23.98	24.87	0.995	0.945	0.00402
	226	21.01	35.20	24.67	.....	.....	.....	250	17.20	35.09	25.55	26.69	1.167	1.108	0.00351
	301	12.50	34.92	26.45	.....	.....	.....	300	12.60	34.93	26.43	27.82	1.278	1.213	0.00316
			.....	.....	.....	.....	.....	400	9.45	34.68	26.81	28.68	1.437	1.365	0.00281
h	398	9.57	34.68	26.79	.....	.....	.....	500	8.05	34.63	26.99	29.34	1.570	1.490	0.00281
9.0	501	8.05	34.63	26.99	.....	.....	.....	700	6.20	34.63	27.21	30.52	1.796	1.704	0.00298
38°	704	6.17	34.57	27.22	.....	.....	.....	1000	4.45	34.51	27.37	32.13	2.08	1.98	0.00282
	1016	4.41	34.51	27.38	.....	.....	.....	1500	3.05	34.58	27.56	34.72	2.47	2.35	0.00265
h	1959	2.32	34.63	27.67	.....	.....	.....	2000	2.25	34.63	27.67	37.21	2.78	2.66	0.00256
45°	2430	1.96	34.65	27.71	.....	.....	.....	2500	1.90	34.65	27.72	39.61	3.05	2.92	0.00052

^aTemperature from pressure-thermometer and wire depth. ^bAll salinities by titration because salinity bridge out of order.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values						Interpolated values						Computed values			
		Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{tp})	Pressure (ΔP)	Anomalies	
					ml/L	o/o										Dynamic depth (ΔD)	Specific volume (Δα)
Station 99: May 2, 1929; 4°22' N, 176°23' W; depth bottom, 4951 m; weather, bcq; sea, CL; wind, NE by E 4; poor conditions; rolling, chopping sea; vessel surging heavily																	
	0	27.93	34.94	22.39	.....	.....	.....	.....	0	27.93	34.93	22.39	22.39	0.0000	0.0000	0.00546
	5	27.93	34.93	22.38	.....	.....	.....	.....	5	27.93	34.93	22.38	22.41	0.0387	0.0274	547
	23	27.63	34.93	22.42	.....	.....	.....	.....	25	27.85	34.93	22.41	22.52	0.1434	0.1366	545
	47	27.83	34.94	22.43	.....	.....	.....	.....	50	27.85	34.94	22.42	22.65	0.2866	0.2727	544
	71	27.82	34.97	22.46	.....	.....	.....	.....	75	27.80	34.96	22.46	22.80	0.4294	0.4086	543
13.9	96	27.84	35.04	22.50	.....	.....	.....	.....	100	27.80	35.04	22.51	22.96	0.571	0.544	539
17°	145	24.16	34.96	23.58	.....	.....	.....	.....	150	23.60	34.95	23.74	24.41	0.824	0.784	422
	194	15.68	34.67	25.58	.....	.....	.....	.....	200	15.00	34.53	26.72	26.54	0.997	0.948	234
	242	10.51	34.63	26.59	.....	.....	.....	.....	250	10.25	34.56	26.83	27.81	1.097	1.043	146
	291	9.34	34.56	26.81	.....	.....	.....	.....	300	9.25	34.56	26.83	28.23	1.170	1.112	129
	390	8.45	34.64	26.94	.....	.....	.....	.....	400	8.30	34.63	26.95	28.83	1.301	1.237	120
	392	8.42	34.63	26.94	.....	.....	.....	.....	500	6.65	34.59	27.02	29.38	1.425	1.353	115
	492	7.74	34.59	27.01	.....	.....	.....	.....	700	6.05	34.55	27.21	30.52	1.647	1.563	97
	587	6.10	34.56	27.21	.....	.....	.....	.....	1000	4.45	34.54	27.39	32.15	1.93	1.83	80
14.6	983	4.57	34.54	27.38	.....	.....	.....	.....	1500	3.00	34.60	27.59	34.76	2.30	2.19	62
19°	1468	3.09	34.59	27.57	.....	.....	.....	.....	2000	2.25	34.54	27.68	37.22	2.60	2.49	0.00055
	1937	2.32	34.64	27.68	.....	.....	.....	.....					
225	397	8.36	.....	.....	.....	.....	.....	.....			
	498	7.65	.....	.....	.....	.....	.....	.....			
	701	6.10	.....	.....	.....	.....	.....	.....			
Station 100: May 4, 1929; 8°05' N, 178°48' W; depth bottom, 5800 m; weather, bc; sea, MF; wind, E 3; fair conditions																	
	0	27.73	34.72	22.29	.....	.....	.....	.....	0	27.73	34.72	22.29	22.29	0.0000	0.0000	0.00556
	5	27.72	34.72	22.29	.....	.....	.....	.....	5	27.72	34.72	22.29	22.32	0.0292	0.0279	556
	23	27.67	34.72	22.31	.....	.....	.....	.....	25	27.65	34.72	22.32	22.43	0.1457	0.1388	554
	47	27.67a)	34.71	22.31	.....	.....	.....	.....	50	27.65	34.71	22.31	22.54	0.2913	0.2775	555
	70	.....	34.70	22.31	.....	.....	.....	.....	75	27.65	34.70	22.30	22.64	0.4375	0.4167	558
10.2	94	27.62	34.70	22.31	.....	.....	.....	.....	100	18.15	34.64	24.38	25.66	0.583	0.556	557
15°	188	12.22	34.47	26.15	.....	.....	.....	.....	150	11.65	34.48	26.26	27.19	0.810	0.771	303
	235	10.62	34.65	26.58	.....	.....	.....	.....	200	10.35	34.66	26.55	27.82	0.938	0.893	182
	283	9.94	34.66	26.72	.....	.....	.....	.....	250	9.75	34.66	26.74	28.14	1.024	0.974	145
	379	9.13	34.63	26.83	.....	.....	.....	.....	300	8.95	34.58	26.85	28.72	1.099	1.045	138
	474	8.35	34.60	26.93	.....	.....	.....	.....	400	8.05	34.59	26.96	29.31	1.240	1.179	129
	489	8.19	34.59	26.94	.....	.....	.....	.....	500	6.40	34.52	27.15	30.46	1.373	1.303	119
	684	6.48	34.52	27.14	.....	.....	.....	.....	700	6.40	34.52	27.15	30.46	1.608	1.526	104
	1175	3.91	34.56	27.47	.....	.....	.....	.....	1000	3.05	34.53	27.35	32.10	1.81	1.81	085
9.0	1736	2.64	34.59	27.61	.....	.....	.....	.....	1500	3.05	34.60	27.58	34.74	2.39	2.19	063
18°	1939	2.32	34.63	27.67	.....	.....	.....	.....	2000	2.25	34.63	27.67	37.21	2.61	2.49	056
	2376	1.99	34.65	27.71	.....	.....	.....	.....	2500	1.90	34.54	27.71	39.50	2.87	2.75	0.00053
	2825	1.79	34.63	27.71	.....	.....	.....	.....					
Station 101: May 7, 1929; 13°23' N, 177°27' E; depth bottom, 5663 m; weather, bc; sea, CL; wind, NE by E 5; fair conditions; heavy westerly drift																	
	0	26.30	34.71	22.74	.....	.....	.....	.....	0	26.30	34.71	22.74	22.74	0.0000	0.0000	0.00512
	5	26.30	34.70	22.73	.....	.....	.....	.....	5	26.30	34.70	22.73	22.76	0.0269	0.0257	514
10.4	26	26.24	34.68	22.74	.....	.....	.....	.....	25	26.25	34.68	22.73	22.84	0.1349	0.1284	514
35°	52	26.24	34.72	22.77	.....	.....	.....	.....	50	26.25	34.72	22.77	23.00	0.2697	0.2565	0.00511

a) Thermometer did not function properly.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle		Observed values											Interpolated values					Computed values		
		Depth (D) meters	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t^*)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t^*)	Density (σ_{TP})	Pressure (ΔP)	Anomalies			
						ml/L	o/o										Dynamic depth (AD)	Specific volume ($\Delta \alpha$)		
Station 101--Continued																				
	80	25.59	34.94	23.13	....	....	8.24	8	....	75	25.75	34.87	23.04	23.38	0.4009	0.3813	0.00487
h	106	25.12	35.10	23.40	....	....	8.23	8	....	100	25.25	35.06	23.33	23.78	0.525	0.500	460
10.4	161	23.66	35.12	23.85	....	....	8.24	9	....	150	24.00	35.12	23.76	24.45	0.757	0.719	420
35°	216	18.68	34.66	24.86	....	....	8.06	36	....	200	14.00	34.81	24.42	25.32	0.963	0.915	359
	329	10.42	34.23	26.30	....	....	7.81	158	....	250	11.35	34.43	26.76	26.92	1.118	1.062	332
	449	7.82	34.45	26.90	....	....	7.69	220	....	300	8.75	34.24	26.14	27.53	1.231	1.169	196
	447	8.18	34.39	26.79	....	....	7.69	213	....	400	7.40	34.36	26.68	28.56	1.410	1.340	145
h	523	7.15	34.40	26.95	....	....	7.69	245	....	500	7.40	34.40	26.91	29.27	1.553	1.474	123
9.2	681	5.86	34.47	27.17	....	....	7.67	268	....	700	5.75	34.48	27.12	30.51	1.787	1.696	99
44°	964	4.55	34.49	27.34	....	....	7.66	264	....	1000	4.40	34.49	27.36	32.18	2.07	1.97	0.00083
	1347	3.22	34.44	27.44	....	....	7.68	264	....										
Station 102: May 9, 1929; 16°25' N, 171°59' E; depth bottom, 5245 m; weather, bc; sea, ML; wind, ENE 4; fair conditions																				
	0	25.82	34.97	23.09	....	....	8.24	8	....	0	25.82	34.97	23.09	23.09	0.0000	0.0000	0.00479
	5	25.82	35.01	23.12	....	....	8.24	8	....	5	25.82	35.01	23.12	23.14	0.0251	0.0239	475
	21	25.82	35.00	23.11	....	....	8.24	8	....	25	25.80	34.99	23.11	23.22	0.1355	0.1192	478
	42	25.83	34.97	23.09	....	....	8.24	8	....	50	25.80	34.98	23.10	23.33	0.2515	0.2388	479
h	64	25.78a)	35.00	23.13	....	....	8.23	8	....	75	25.75	35.00	23.13	23.47	0.3774	0.3585	478
8.7	84	25.73	35.00	23.14	....	....	8.23	8	....	100	25.60	35.02	23.20	23.65	0.502	0.477	473
35°	126	25.31	35.08	23.32	....	....	8.23	8	....	150	23.05	35.16	23.47	24.14	0.744	0.707	448
	170	24.72	35.24	23.63	....	....	8.23	8	....	200	23.75	35.20	23.89	24.78	0.971	0.923	411
	255	19.25	34.96	24.95	....	....	8.12	24	....	300	19.80	35.00	24.83	25.96	1.164	1.105	321
	338	12.58	34.34	25.98	....	....	7.91	96	....	350	15.10	34.65	25.70	27.07	1.312	1.245	239
	423	8.83	34.22	26.55	....	....	7.82	162	....	400	9.55	34.23	26.44	28.32	1.526	1.450	169
	594	6.16	34.34	27.03	....	....	7.67	233	....	500	7.50	34.26	26.82	29.18	1.685	1.600	132
	825	4.84	34.49	27.31	....	....	7.67	245	....	1000	5.45	34.42	27.19	30.52	1.927	1.830	98
h	987	4.18	34.49	27.38	....	....	7.66	257	....	1500	4.70	34.50	27.40	32.17	2.20	2.10	079
9.8	1404	2.90	34.53	27.54	....	....	7.66	253	....	2000	2.70	34.56	27.58	34.76	2.57	2.45	062
47°	1679	2.45	34.63	27.66	....	....	7.70	253	....	2500	2.10	34.65	27.70	37.25	2.87	2.74	052
	2223	1.92	34.65	27.72	....	....	7.72	253	....										
	2655	1.72	34.64	27.72	....	....	7.73	249	....	2500	1.80	34.65	27.73	39.63	3.12	2.99	0.00060
Station 103: May 11, 1929; 19°19' N, 166°23' E; depth bottom, 3708 m; weather, bc; sea, MC; wind, ENE 4; fair conditions																				
	0	26.03	34.96	23.01	....	....	8.25	5	....	0	26.03	34.96	23.01	23.01	0.0000	0.0000	0.00487
	5	26.02	34.97	23.02	....	....	8.25	5	....	5	26.02	34.96	23.01	23.05	0.0255	0.0244	486
	24	25.93	34.91	23.01	....	....	8.25	5	....	25	25.95	34.91	23.00	23.11	0.1279	0.1219	489
	49	25.85	35.15	23.22	....	....	8.25	5	....	50	25.85	35.15	23.22	23.45	0.2537	0.2415	468
	73	25.62	35.17	23.30	....	....	8.25	5	....	75	25.60	35.17	23.31	23.65	0.3759	0.3577	461
h	98	24.81	35.20	23.57	....	....	8.25	5	....	100	24.75	35.20	23.59	24.04	0.493	0.470	435
22°	148	23.26	35.27	23.87	....	....	8.21	7	....	150	23.20	35.27	24.10	24.77	0.675	0.655	388
	199	21.93	35.24	24.08	....	....	8.19	8	....	200	21.90	35.23	24.44	25.33	0.908	0.862	357
	299	16.46	34.63	25.38	....	....	8.12	21	....	300	19.95	34.85	24.68	25.81	1.090	1.038	336
	400	13.44	34.45	25.89	....	....	8.04	52	....	350	16.35	34.62	25.40	26.77	1.250	1.186	268
	502	9.32	34.19	26.45	....	....	7.88	130	....	400	13.40	34.45	25.89	27.74	1.508	1.432	224
	472	10.44	34.24	26.30	....	....	7.92	120	....	500	9.40	34.20	26.45	28.79	1.716	1.629	170
	662	6.03	34.19	26.93	....	....	7.69	213	....	1000	5.70	34.22	27.00	30.32	2.017	1.915	117
h	944	4.27	34.39	27.29	....	....	7.66	237	....	1000	4.00	34.42	27.35	32.12	2.33	2.22	84
12.8	1414b)	2.82	34.57	27.58	....	....	7.70	233	....	1500	2.65	34.58	27.60	34.78	2.71	2.58	0.00060
	1744b)	3.65	35.12	....	....	....	8.24	....	....									

a) temperature from pressure thermometer and wire depth. b) water-bottle probably reversed at wrong level; values rejected.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values						Interpolated values						Computed values		
		Temperature (t) °C	Salinity (S) o/oo	Density (σ_t^*)	Oxygen		Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t^*)	Density (σ_{TP})	Pressure (AP)	Anomalies	
					ml/L	o/o									Dynamic depth (AD)	Specific volume (AC)
Station 104: May 13, 1929; 20°12' N, 161°19' E; depth bottom, 4741 ^a m; weather, b; sea, MC; wind, ENE 4; good conditions																
	0	26.12	35.17	23.14	...	...	...	0	26.12	35.17	23.14	23.14	0.0000	0.0000	0.00474
	5	26.11	35.21	23.17	...	...	...	5	26.11	35.21	23.17	23.19	0.0249	0.0237	471
	23	26.97	35.24	23.25	...	...	...	25	26.95	35.24	23.25	23.36	0.1234	0.1173	465
	46	25.87 ^b	35.22	23.26	...	...	...	50	25.85	35.22	23.27	23.50	0.2454	0.2333	453
	69	25.45	35.32	23.46	...	...	...	75	25.70	35.29	23.32	23.70	0.3663	0.3484	457
	93	25.45	35.32	23.46	...	...	...	100	25.30	35.32	23.52	23.97	0.484	0.464	442
	188	21.83	34.96	24.31	...	...	...	150	23.75	35.18	23.87	24.54	0.708	0.673	410
	237	17.84	34.71	25.11	...	...	...	200	20.70	34.88	24.50	25.40	0.910	0.864	352
	286	16.22	34.67	25.46	...	...	...	250	17.25	34.70	25.24	26.38	1.076	1.022	282
	385	13.66	34.40	25.81	...	...	...	300	15.85	34.62	25.51	26.88	1.219	1.158	257
	486	10.69	34.23	26.25	...	...	...	400	13.20	34.36	25.88	27.73	1.472	1.399	225
					...	...	...	500	10.00	34.20	26.35	28.69	1.685	1.601	179
	492	9.81	34.20	26.38	...	...	...	700	5.60	34.13	26.93	30.26	2.002	1.903	123
	530	5.35	34.12	26.92	...	...	...	1000	4.05	34.46	27.37	32.14	2.32	2.21	82
	988	4.05	34.45	27.36	...	...	...	1500	2.65	34.58	27.60	34.78	2.69	2.57	60
	1497	2.67	34.58	27.50	...	...	...	2000	2.00	34.60	27.67	37.22	2.99	2.86	55
	1856	2.14	34.51	27.59	...	...	...	2500	1.75	34.62	27.71	39.61	3.26	3.12	0.00052
	2433	1.77	34.61	27.70	...	...	...						
	2908	1.64	34.65	27.74	...	...	...						
Station 105: May 15, 1929; 18°43' N, 156°16' E; depth bottom, 5576 m; weather, bcqr; sea, MC; wind, ESE 3-4; fair conditions																
	0	26.91	34.92	22.71	...	...	...	0	26.91	34.92	22.71	22.71	0.0000	0.0000	0.00515
	4	26.91	34.92	22.71	...	...	...	5	26.91	34.92	22.71	22.74	0.0271	0.0258	515
	23	26.84	34.91	22.73	...	...	...	25	26.85	34.91	22.72	22.83	0.1354	0.1288	515
	47	26.83	34.94	22.75	...	...	...	50	26.80	34.94	22.76	22.99	0.2704	0.2571	512
	70	26.53	35.02	23.31	...	...	...	75	26.40	35.05	22.95	23.29	0.4028	0.3831	495
	93	25.47	35.12	23.41	...	...	...	100	25.25	35.12	23.38	23.53	0.527	0.502	456
	188	21.46	35.15	24.50	...	...	...	150	20.90	35.13	24.00	24.67	0.752	0.715	397
	235	19.14	34.90	24.93	...	...	...	200	20.90	34.83	24.64	25.14	0.947	0.899	300
	282	16.96 ^c	34.73	25.34	...	...	...	250	18.45	34.69	25.05	26.19	1.114	1.058	260
	376	10.81	34.50	26.26	...	...	...	300	16.20	34.63	25.48	26.85	1.262	1.199	260
	471	10.81	34.28	26.26	...	...	...	400	13.85	34.42	26.00	27.95	1.511	1.436	235
	437	11.51	34.32	26.18	...	...	...	500	9.85	34.24	26.40	28.74	1.716	1.630	175
	617	7.22	34.19	26.77	...	...	...	700	6.05	34.24	26.97	30.29	1.926	1.826	121
	893	4.57	34.38	27.25	...	...	...	1000	4.05	34.43	27.35	32.12	2.34	2.23	84
	1359	2.99	34.53	27.53	...	...	...	1500	2.70	34.56	27.58	34.76	2.72	2.60	62
	1693	2.37	34.60	27.64	...	...	...	2000	2.05	34.61	27.68	37.23	3.03	2.90	54
	2237	1.90	34.63	27.70	...	...	...	2500	1.80	34.63	27.71	39.61	3.29	3.16	0.00052
	2709	1.72	34.64	27.72	...	...	...						
Station 106: May 17, 1929; 16°14' N, 151°04' E; depth bottom, 5925 m; weather, bc; sea, ML; wind, ESE 5; fair conditions; strongest breeze so far at ocean station																
	0	27.22	34.96	22.65	...	...	...	0	27.22	34.96	22.65	22.65	0.0000	0.0000	0.00521
	4	27.22	35.00	22.66	...	...	...	5	27.20	35.00	22.67	22.69	0.0273	0.0261	519
	23	27.21	35.00	22.67	...	...	...	25	27.20	35.00	22.67	22.78	0.1367	0.1300	520
	45	27.02	34.97	22.71	...	...	...	50	26.95	34.97	22.73	22.96	0.2727	0.2592	514
	102	26.41	35.01	22.93	...	...	...	75	26.20	35.03	23.01	23.35	0.4047	0.3848	490
	306	25.82	35.05	23.15	...	...	...	100	25.55	35.08	23.25	23.70	0.530	0.504	468
	89	24.36	35.19	23.72	...	...	...	150	23.75	35.19	23.88	24.55	0.761	0.723	0.00409
	137	24.36	35.19	23.72	...	...	...						

a) Sonic Depths 4741 m at 20°12' N, 161°26' E and 1940 m at 20°13' N, 160°46' E. b) Thermometer did not function properly. c) Thermometer off scale.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.F. and wire angle	Depth (D) meters	Observed values										Interpolated values					Computed values		
		Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{TP})	Pressure (ΔP)	Anomalies			
					mL/L	o/o										Dynamic depth (ΔD)	Specific volume (Δv)		
Station 106--Continued																			
h	184	22.30	35.17	24.28	.....	.....	8	.....	200	21.55	35.12	24.46	25.36	0.963	0.915	0.00356
30°	372	17.81	34.70	25.11	.....	.....	20	.....	350	19.10	34.88	24.92	26.05	1.139	1.082	0.00312
	468	11.92	34.31	26.08	.....	.....	182	.....	500	16.60	34.56	25.29	26.86	1.295	1.230	0.00278
		9.23	34.30	26.55	.....	.....	.....	.....	500	11.00	34.30	26.25	28.12	1.540	1.464	0.00189
h	466	9.56	34.30	26.50	.....	.....	176	.....	700	8.65	34.29	26.63	28.98	1.719	1.634	0.00151
33°	658	6.32	34.31	26.99	.....	.....	245	.....	1000	5.95	34.35	27.07	30.39	1.994	1.897	0.00112
	950	4.52	34.48	27.34	.....	.....	257	.....	1500	4.35	34.49	27.36	32.12	2.30	2.19	0.00083
	1465	3.08	34.54	27.53	.....	.....	249	.....	2000	2.95	34.54	27.54	34.71	2.69	2.57	0.00067
	1902	2.38	34.60	27.64	.....	.....	241	.....	2500	2.15	34.62	27.68	37.22	3.01	2.88	0.00055
	2353	1.89	34.63	27.70	.....	.....	233	.....		1.80	34.63	27.71	39.61	3.27	3.15	0.00052
	2832	1.72	34.63	27.71	.....	.....	232	.....										
Station 107: May 19, 1929; 14°05' N, 146°06' E; depth bottom, 4920 ^a m; weather, bc; sea, ML; wind, E by S 3-4; fair conditions; observations at 140-meter level omitted because water bottle probably reversed when being lowered																			
	0	28.03	34.42	21.97	.....	.....	5	.....	0	28.03	34.42	21.97	21.97	0.0000	0.0000	0.00586
h	4	28.01	34.45	22.00	.....	.....	.....	.....	5	28.00	34.45	22.00	22.02	0.0307	0.0293	0.00583
30°	22	28.01	34.47	22.01	.....	.....	.....	.....	25	28.00	34.47	22.02	22.13	0.1532	0.1458	0.00582
	46	27.99	34.39	21.95	.....	.....	.....	.....	50	27.95	34.39	21.97	22.20	0.3069	0.2919	0.00587
	69	27.60	34.49	22.16	.....	.....	4	.....	75	27.45	34.55	22.26	22.60	0.4578	0.4356	0.00562
	92	26.92	34.82	22.63	.....	.....	11	.....	100	26.75	34.88	23.73	23.18	0.599	0.570	0.00517
	186	23.28	35.20	24.03	.....	.....	12	.....	150	24.95	35.15	23.49	24.16	0.853	0.811	0.00446
	283	14.99	34.56	25.65	.....	.....	48	.....	200	22.45	35.19	24.26	25.16	1.070	1.017	0.00375
	373	10.15	34.24	26.35	.....	.....	142	.....	250	18.20	34.85	25.12	26.26	1.245	1.183	0.00293
	482	7.60	34.33	26.82	.....	.....	237	.....	300	13.85	34.45	25.81	27.19	1.383	1.314	0.00229
	479	5.64	34.37	26.85	.....	.....	233	.....	400	9.45	34.27	26.49	28.37	1.589	1.511	0.00164
h	675	4.83	34.42	27.13	.....	.....	249	.....	500	7.30	34.36	26.89	29.25	1.742	1.656	0.00125
32°	973	3.04	34.49	27.35	.....	.....	253	.....	700	5.65	34.43	27.17	30.49	1.980	1.881	0.00083
	1470	2.41	34.57	27.56	.....	.....	253	.....	1000	4.40	34.49	27.36	32.12	2.27	2.16	0.00064
	1821	1.88	34.54	27.59	.....	.....	245	.....	1500	2.96	34.57	27.57	34.74	2.65	2.53	0.00055
	2389	1.88	34.53	27.70	.....	.....	233	.....	2000	2.20	34.62	27.68	37.22	2.96	2.83	0.00052
	2869	1.71	34.63	27.71	.....	.....	228	.....	2500	1.80	34.63	27.71	39.61	3.23	3.09	0.00052
Station 108: May 27, 1929; 18°26' N, 144°01' E; depth bottom, 3573 m; weather, bc; sea, MC; wind, E 4; fair conditions																			
	0	28.42	35.00	22.27	.....	.....	4	.....	0	28.42	35.00	22.27	22.27	0.0000	0.0000	0.00558
h	5	28.41b)	34.95	22.24	.....	.....	.....	.....	5	28.41	34.95	22.24	22.26	0.0294	0.0280	0.00560
33°	23	28.02	34.96	22.38	.....	.....	.....	.....	25	28.05	34.96	22.37	22.48	0.1460	0.1389	0.00549
	46	26.96c)	34.97	22.73	.....	.....	.....	.....	75	26.75	35.03	23.13	23.02	0.2850	0.2711	0.00509
	70	25.98	35.03	23.08	.....	.....	4	.....	100	25.85	35.03	23.13	23.47	0.418	0.3946	0.00478
h	94	25.36	34.99	23.24	.....	.....	4	.....	150	25.25	34.99	23.28	23.73	0.538	0.512	0.00465
23°	187	23.55	35.03	23.03	.....	.....	4	.....	200	23.96	35.02	23.69	24.36	0.773	0.735	0.00427
	281	17.70	34.78	25.19	.....	.....	11	.....	250	13.95	35.02	24.26	25.16	0.985	0.936	0.00375
	377	14.45	34.53	25.74	.....	.....	102	.....	300	10.35	34.87	24.85	25.98	1.168	1.109	0.00319
	473	11.56	34.32	26.17	.....	.....	102	.....	300	16.95	34.73	25.33	26.70	1.325	1.258	0.00274
	666	6.79	34.27	26.89	.....	.....	196	.....	400	13.75	34.46	25.84	27.69	1.589	1.510	0.00229

a) Sonic depths 4920 m at 14°07' N, 146°14' E and 3736 m at 18°59' N, 145°45' E. b) Temperature 28.70 by second thermometer rejected.

c) Temperature 26.87 by second thermometer rejected.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Observed values										Interpolated values					Computed values		
	Depth (D) meters	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{TP})	Pressure (ΔP)	Anomalies		
					ml/L	o/o										Dynamic depth (AD)	Specific volume (ΔC)	
Station 108--Continued																		
	649	7.06	34.26	26.84	....	....	194	....	500	10.70	34.29	26.29	28.62	1.808	1.717	0.00185
	933	4.61	34.44	27.29	....	....	237	....	700	6.30	34.30	26.98	30.39	2.129	2.022	120
	1412	2.88	34.57	27.58	....	....	232	....	1000	4.30	34.47	27.36	32.12	2.45	2.33	083
h	1888	2.23	34.60	27.66	....	....	212	....	1500	2.70	34.58	27.59	34.77	2.83	2.69	081
30°	2335	1.88	34.63	27.70	....	....	200	....	2000	2.10	34.61	27.67	37.22	3.33	2.99	085
	2765	1.70	34.63	27.71	....	....	204	....	2500	1.80	34.62	27.71	39.61	3.39	3.25	052
	3189	1.68	34.64	27.72	....	....	200	....	3000	1.65	34.63	27.72	41.95	3.65	3.52	0.00052
Station 109: May 29, 1929; 23°22' N, 144°08' E; depth bottom, 5252 m; weather, bc; sea, MS; wind, ESE 3; fair conditions																		
	0	27.40	35.01	22.62	....	....	3	....	0	27.40	35.01	22.62	22.62	0.0000	0.0000	0.00524
	5	27.39	35.03	22.53	....	....	...	....	5	27.39	35.03	22.63	22.55	0.0275	0.0262	523
	23	27.13	35.02	22.72	....	....	...	....	25	27.10	34.95	22.72	22.53	0.1367	0.1300	515
	46	23.60a)	34.95	23.74	....	....	...	....	50	23.10	34.95	23.88	24.11	0.2578	0.2450	405
h	70	21.60	34.95	24.31	....	....	3	....	75	21.00	34.94	24.47	24.81	0.3572	0.3395	350
9.1°	93	19.81	34.86	24.72	....	....	5	....	100	19.45	34.84	24.80	25.25	0.445	0.423	319
21°	187	16.79	34.66	25.32	....	....	19	....	150	17.60	34.72	25.17	25.65	0.574	0.574	285
	283	15.17	34.60	25.55	....	....	35	....	200	16.45	34.65	25.39	26.30	0.701	0.712	265
	378	13.16	34.42	25.95	....	....	78	....	250	15.65	34.63	25.56	26.71	0.887	0.841	251
	474	10.69	34.19	26.21	....	....	110	....	300	14.90	34.57	25.68	27.06	1.017	0.964	241
	668	6.20	34.07	26.82	....	....	200	....	400	12.60	34.37	26.00	27.85	1.255	1.192	213
	688	5.74	34.09	26.89	....	....	204	....	500	10.10	34.15	26.29	28.63	1.465	1.391	186
h	989	4.04	34.29	27.24	....	....	281	....	700	5.70	34.09	26.89	30.22	1.792	1.704	127
	1491	2.51	34.48	27.53	....	....	277	....	1000	4.00	34.30	27.25	32.02	2.14	2.04	094
10.2°	1975	2.00	34.61	27.68	....	....	268	....	1500	2.50	34.48	27.53	34.72	2.55	2.45	067
32°	2402	1.77	34.62	27.71	....	....	245	....	2000	2.00	34.61	27.68	37.33	2.86	2.75	054
	2932	1.61	34.63	27.72	....	....	237	....	2500	1.75	34.62	27.71	39.61	3.12	3.01	052
	3333	1.52	34.63	27.73	....	....	237	....	3000	1.60	34.63	27.72	41.96	3.38	3.28	052
	3767	1.52	34.63	27.73	....	....	233	....	3500	1.50	34.63	27.73	44.26	3.64	3.54	0.00052
Station 110: May 31, 1929; 26°20' N, 144°24' E; depth bottom, 3036 m; weather, b; sea, S; wind, S 2; good conditions; very little current																		
	0	23.86	34.71	23.48	....	....	5	....	0	23.86	34.71	23.48	23.48	0.0000	0.0000	0.00442
	5	24.06	34.71	23.43	....	....	...	....	5	24.06	34.71	23.43	23.45	0.0234	0.0223	447
	24	20.61	34.72	24.40	....	....	...	....	25	20.50	34.72	24.44	24.55	0.1074	0.1021	351
	48	18.07	34.76	24.99	....	....	...	....	50	18.35	34.76	25.02	25.25	0.1927	0.1828	295
h	72	18.47	34.76	25.08	....	....	7	....	75	18.05	34.75	25.10	25.44	0.2700	0.2559	289
8.8°	95	17.96	34.73	25.10	....	....	11	....	100	17.90	34.73	25.11	25.56	0.346	0.328	289
10°	192	16.90	34.71	25.34	....	....	17	....	150	17.35	34.72	25.24	25.93	0.469	0.469	278
	287	16.51	34.69	25.41	....	....	17	....	200	16.85	34.72	25.34	26.26	0.641	0.607	270
	383	14.43	34.54	25.76	....	....	68	....	250	16.70	34.70	25.37	26.51	0.783	0.741	269
	480	12.17	34.36	26.08	....	....	88	....	300	16.25	34.68	25.46	26.83	0.923	0.874	262
	575	9.54	34.15	26.38	....	....	119	....	400	14.05	34.51	25.82	27.66	1.183	1.121	231
	674	7.41	34.19	26.44	....	....	123	....	500	11.60	34.32	26.16	28.48	1.410	1.334	199
	668	7.03	34.05	26.59	....	....	185	....	700	6.40	34.05	26.78	30.09	1.765	1.674	139
h	953	4.00	34.22	27.19	....	....	245	....	1000	5.80	34.25	27.23	32.01	2.13	2.02	094
9.6°	1426	2.56	34.46	27.51	....	....	268	....	1500	3.45	34.48	27.54	34.73	2.55	2.43	065
10°	1892	2.02	34.53	27.61	....	....	245	....	2000	1.95	34.56	27.64	37.20	2.86	2.74	057
	2331	1.75	34.59	27.68	....	....	241	....	2500	1.65	34.60	27.70	39.61	3.13	3.00	0.00052
	2995b)	1.49	....	....	....	....	....	....	....	....	....	....	....	....	....	....

a) Temperature 21.90 by second thermometer rejected. b) Piano wire.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values										Interpolated values					Computed values		
		Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{TP})	Pressure (ΔP)	Anomalies			
					ml/L	o/o										Dynamic depth (ΔD)	Specific volume (Δα)		
Station 111: June 3, 1929; 31°00' N, 144°16' E; depth bottom, 6008 m; weather, bcz; sea, MC; wind, W by N 3; good conditions																			
	0	20.08	34.52	24.39	.....	.....	5	.....	0	20.08	34.52	24.39	24.39	0.0000	0.0000	0.00355
	5	20.60	34.52	24.26	.....	.....	.....	.....	5	20.60	34.52	24.26	24.28	0.0190	0.0181	368
	24	19.73	34.57	24.52	.....	.....	.....	.....	25	19.75	34.57	24.52	24.87	0.0939	0.0893	344
	47	19.39	34.58	24.62	.....	.....	.....	.....	50	19.35	34.59	24.64	24.87	0.1830	0.1737	331
	71	18.75	34.67	24.85	.....	.....	5	.....	75	18.70	34.68	24.87	25.21	0.2679	0.2540	311
h	94	18.21	34.74	25.04	.....	.....	13	.....	100	18.15	34.74	25.06	25.51	0.347	0.330	294
	187	16.86	34.71	25.35	.....	.....	19	.....	150	17.45	34.75	25.33	25.92	0.499	0.472	279
8°	283	14.86	34.57	25.69	.....	.....	34	.....	200	16.65	34.69	25.38	26.29	0.643	0.610	267
	377	12.02	34.41	26.14	.....	.....	92	.....	250	15.60	34.62	25.56	26.71	0.779	0.739	251
	471	8.80	34.14	26.49	.....	.....	115	.....	300	14.45	34.55	25.76	27.13	0.907	0.860	284
	565	6.26	33.97	26.73	.....	.....	155	.....	400	11.15	34.36	26.27	28.14	1.128	1.071	186
	483	8.42	34.15	26.56	.....	.....	111	.....	500	7.85	34.10	26.61	30.29	1.592	1.514	153
	569	6.59	34.07	26.76	.....	.....	158	.....	700	5.15	34.08	26.95	32.10	1.91	1.83	121
	792	4.56	34.21	27.12	.....	.....	232	.....	1000	2.45	34.32	27.31	34.72	2.31	2.21	86
h	1197	2.95	34.39	27.43	.....	.....	264	.....	2000	1.90	34.56	27.65	37.21	2.63	2.52	66
10.2	1608	2.31	34.49	27.56	.....	.....	241	.....	2500	1.70	34.62	27.71	39.61	2.89	2.79	52
27°	2009	1.90	34.56	27.65	.....	.....	237	.....								0.00052
	2424	1.72	34.63	27.71											
	5973a)	1.49											
Station 112: June 5, 1929; 33°51' N, 141°15' E; depth bottom, 3931 m; weather, obc; sea, MC; wind, W by S 3; fair conditions; evidence of strong current																			
	0	23.25	34.60	23.58	.....	.....	7	.....	0	23.25	34.60	23.58	23.58	0.0000	0.0000	0.00432
	5	23.23	34.56	23.56	.....	.....	.....	.....	5	23.23	34.56	23.55	23.57	0.0228	0.0217	435
	23	23.52	34.61	23.59	.....	.....	.....	.....	25	23.20	34.61	23.60	23.71	0.1140	0.1083	431
	46	21.71	34.60	24.02	.....	.....	.....	.....	50	21.70	34.60	24.02	24.25	0.3223	0.3109	390
	61	21.67	34.63	24.04	.....	.....	7	.....	75	20.90	34.67	24.29	24.63	0.5222	0.5086	367
h	92	20.16	34.71	24.52	.....	.....	8	.....	100	19.85	34.71	24.60	25.05	0.415	0.394	338
15°	185	17.57	34.72	25.17	.....	.....	13	.....	150	18.30	34.73	25.01	25.69	0.583	0.553	300
	278	16.39	34.65	25.40	.....	.....	24	.....	200	17.35	34.71	25.34	26.14	0.738	0.699	281
	374	15.01	34.62	25.69	.....	.....	58	.....	250	16.75	34.67	25.48	26.48	0.883	0.836	271
	470	12.96	34.39	25.95	.....	.....	82	.....	300	16.05	34.64	25.78	27.62	1.024	0.969	260
	465	12.63	34.45	26.06	.....	.....	86	.....	400	14.55	34.60	26.19	28.51	1.284	1.217	235
	534	10.45	34.31	26.36	.....	.....	131	.....	500	11.60	34.36	26.53	30.14	1.512	1.433	196
	600	8.68	34.22	26.58	.....	.....	166	.....	700	6.80	34.19	26.83	32.02	1.859	1.764	135
	793	5.57	34.22	27.01	.....	.....	221	.....	1000	3.90	34.28	27.24	32.02	2.22	2.11	93
h	1119	3.40	34.32	27.33	.....	.....	249	.....	2000	2.55	34.45	27.50	34.68	2.64	2.54	68
10.0	1475	2.58	34.41	27.47	.....	.....	264	.....	2500	1.95	34.60	27.68	37.24	2.96	2.84	54
42°	1621	2.31	34.59	27.65	.....	.....	233	.....								0.00052
	3901a)	1.41											
Station 113: June 25, 1929; 34°44' N, 141°04' E; depth bottom, 2911 m; weather, obc; sea, MC; wind, E 3; heavy current carried wire under vessel and necessitated putting her about on starboard tack and use of diving hood to clear piano wire from oscillator in keel; considerable delay but no loss of equipment																			
h	0	24.19	34.53	23.25	.....	.....	5	.....	0	24.19	34.53	23.25	23.25	0.0000	0.0000	0.00464
	5	24.20	34.52	23.24	.....	.....	5	.....	5	24.20	34.52	23.24	23.26	0.0244	0.0233	465
9.15	24	24.00	34.58	23.34	.....	.....	5	.....	25	24.00	34.58	23.34	23.46	0.1213	0.1154	456
5°	48	23.77	34.59	23.42	.....	.....	5	.....	50	23.75	34.59	23.43	23.66	0.2403	0.2283	448
	72	22.98	34.66	23.70	.....	.....	7	.....	75	22.95	34.66	23.71	24.05	0.3548	0.3373	423

a) Piano wire. b) Temperature mean of 20.38 and 20.81.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values										Interpolated values					Computed values		
		Temp ^r -ature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen		Hydrogen ion (pH)	Phos-phate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temp ^r -ature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{TP})	Anomalies				
					ml/L	o/o									Pressure (ΔP)	Dynamic depth (ΔD)	Specific volume (Δα)		
Station 113--Continued																			
	96	21.74	34.66	24.06	.....	.....	8.23	8	.....	100	21.55	34.66	24.10	24.55	0.461	0.438	0.00386
	145	20.37	34.76	24.50	.....	.....	8.19	12	.....	150	20.25	34.77	24.54	25.22	0.654	0.621	0.345
h	191	18.80	34.76	24.91	.....	.....	8.17	17	.....	200	18.50	34.74	24.97	25.87	0.826	0.784	0.307
9.5	239	17.17	34.67	25.24	.....	.....	8.16	21	.....	250	16.65	34.66	25.36	26.50	0.978	0.928	0.270
5°	283	14.91 ^{a)}	34.60	25.70	.....	.....	8.09	66	.....	300	14.30	34.56	25.80	27.17	1.110	1.053	0.230
	383	.....	34.36	.....	.....	.....	7.97	96	.....	400	11.10	34.32	26.25	28.12	1.330	1.263	0.188
	376	11.98	34.33	26.09	.....	.....	7.98	94	.....	500	7.95	34.24	25.70	29.06	1.505	1.429	0.144
	460	9.18	34.27	26.54	.....	.....	7.87	125	.....	700	4.75	34.21	27.10	30.44	1.767	1.680	0.107
	616	5.66	34.19	26.98	.....	.....	7.72	182	.....	1000	3.35	34.38	27.38	32.17	2.06	1.96	0.079
h	869	3.81	34.32	27.29	.....	.....	7.64	216	.....	1500	2.40	34.52	27.58	34.77	2.43	2.32	0.061
32°	1287	2.69	34.45	27.49	.....	.....	7.62	232	.....	2000	1.95	34.60	27.68	37.24	2.72	2.61	0.054
	1682	2.23	34.56	27.62	.....	.....	7.66	221	.....	2500	1.70	34.63	27.71	39.61	2.98	2.87	0.00052
	2042	1.93	34.56	27.64	.....	.....	7.68	221	.....									
Station 114: June 27, 1929; 36°38' N, 143°34' E; depth bottom, 6630 m; weather, bcoz; sea, S; wind, SSE 2; good conditions; apparently very little current																			
	0	19.91	34.31	24.28	.....	.....	8.15	7	.....	0	19.91	34.31	24.28	24.28	0.0000	0.0000	0.00366
	5	18.86	34.32	24.30	.....	.....	.....	.....	.....	5	18.86	34.32	24.30	24.32	0.0192	0.0183	0.364
	48	16.55	34.56	25.30	.....	.....	.....	.....	.....	25	16.20	34.47	24.66	24.77	0.0923	0.0878	0.331
	72	14.40	34.56	25.78	.....	.....	8.04	63	.....	50	13.00	34.56	25.38	25.61	0.1703	0.1618	0.261
h	96	13.17	34.47	25.97	.....	.....	8.00	91	.....	75	14.15	34.56	25.84	26.19	0.2338	0.2219	0.219
10.3	144	11.58	34.41	26.23	.....	.....	7.93	114	.....	100	13.00	34.40	26.24	26.45	0.289	0.275	0.206
	191	10.15	34.34	26.43	.....	.....	7.90	135	.....	150	11.45	34.40	26.46	26.94	0.392	0.372	0.182
	286	7.91	34.19	26.67	.....	.....	7.80	159	.....	200	9.90	34.32	26.59	27.39	0.483	0.458	0.162
	382	6.58 ^{a)}	34.19	26.86	.....	.....	7.75	189	.....	250	8.60	34.22	26.59	27.76	0.566	0.536	0.150
	478	.....	34.06	.....	.....	.....	7.66	208	.....	300	7.65	34.17	26.71	28.12	0.643	0.608	0.139
	554	.....	34.08	.....	.....	.....	7.63	217	.....	400	6.40	34.17	26.87	28.77	0.782	0.741	0.126
	772	3.45	34.30	27.30	.....	.....	7.60	232	.....	500	5.30	34.06	26.92	29.31	0.912	0.864	0.120
h	1107	2.76 ^{a)}	34.42	27.46	.....	.....	7.60	244	.....	700	3.75	34.23	27.22	30.57	1.136	1.077	0.093
9.2	1654	.....	34.57	.....	.....	.....	7.62	237	.....	1000	2.90	34.39	27.43	32.24	1.40	1.33	0.072
10°	2167	1.81	34.63	27.71	.....	.....	7.69	232	.....	1500	2.25	34.52	27.59	34.78	1.74	1.66	0.060
	2655	1.64	34.63	27.72	.....	.....	7.69	232	.....	2000	1.85	34.61	27.69	37.25	2.03	1.95	0.052
	3139	1.58	34.60	27.70	.....	.....	7.71	221	.....	2500	1.70	34.63	27.71	39.61	2.29	2.20	0.052
					.....	.....	7.72	221	.....	3000	1.60	34.63	27.72	41.96	2.55	2.47	0.00052
Station 115: June 29, 1929; 37°40' N, 145°26' E; depth bottom, 5396 m; weather, oz; sea, MS; wind, E by S 3; good conditions; some drift towards northwest																			
h	0	20.57	34.57	24.30	.....	.....	8.19	4	.....	0	20.57	34.57	24.30	24.30	0.0000	0.0000	0.00364
9.4	23	20.03	34.58	24.46	.....	.....	8.20	..8	.....	5	20.58	34.57	24.30	24.32	0.0191	0.0183	0.364
13°	47	17.71	34.63	25.08	.....	.....	8.19	17	.....	25	20.00	34.59	24.47	24.58	0.0941	0.0896	0.349
	70	16.60	34.62	25.34	.....	.....	8.10	23	.....	50	17.50	34.63	25.13	25.36	0.1777	0.1687	0.284
	95	15.85	34.63	25.51	.....	.....	8.08	27	.....	75	16.50	34.62	25.36	25.71	0.2502	0.2374	0.265
					.....	.....	8.08	27	.....	100	15.65	34.63	25.56	26.02	0.317	0.301	0.00247

a) Thermometer did not function properly.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values										Interpolated values					Computed values		
		Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{tF})	Pressure (ΔP)	Anomalies			
					mL/L	o/o										Dynamic depth (ΔD)	Specific volume (ΔC)		
Station 115--Continued																			
	185	12.69	34.48	26.07	....	8.02	71	....	150	13.90	34.54	25.87	26.56	0.440	0.417	0.00218	
b	281	10.56	34.32	26.34	....	7.92	107	....	200	12.35	34.46	26.12	27.05	0.549	0.521	195	
	330	8.66	34.06	26.46	....	7.96	100	....	250	11.35	34.38	26.24	27.40	0.649	0.616	185	
13°	377	6.30	33.77	26.57	....	7.94	103	....	300	9.95	34.26	26.40	27.80	0.743	0.705	171	
	472	4.07b	33.63	26.70	....	7.86	138	....	400	5.45	33.71	26.62	28.54	0.910	0.865	149	
	479	4.01	33.63	26.71	....	7.84	150	....	500	3.90	33.64	26.74	29.16	1.059	1.007	135	
	671	3.64	34.18	27.19	....	7.64	204	....	700	3.60	34.20	27.21	30.57	1.298	1.236	94	
	959	3.35	34.30	27.31	....	7.58	237	....	1000	3.25	34.33	27.25	32.15	1.57	1.50	81	
h	1434	2.49	34.47	27.53	....	7.58	232	....	1500	2.40	34.50	27.56	34.75	1.95	1.87	63	
10.3	1896	2.00	34.58	27.65	....	7.63	238	....	2000	1.90	34.60	27.68	37.24	2.25	2.16	54	
20°	2321	1.77	34.61	27.70	....	7.67	221	....	2500	1.75	34.63	27.71	39.61	2.51	2.42	0.00052	
	2753	1.75b	34.63	27.71	....	7.70	221	....										
	5360a)	1.55	.....	.....	....	.....	....	....					
Station 116: July 1, 1929; 38°41' N, 147°41' E; depth bottom, 5545 m; weather, bz; sea, MS; wind, SE I-2; good conditions; drifting toward north																			
	0	16.07	34.02	24.99	....	8.17	4	....	0	16.07	34.02	24.99	24.99	0.0000	0.0000	0.00398	
	5	15.41	33.99	25.12	....	8.19	4	....	5	16.10	34.01	24.98	25.00	0.0157	0.0150	399	
	22	11.18	33.79	25.83	....	8.16	9	....	25	15.10	33.99	25.19	25.30	0.0767	0.0750	280	
h	43	9.77	34.05	26.27	....	8.11	23	....	50	10.65	33.79	25.91	26.15	0.1414	0.1341	210	
9.4	65	4.69	34.00	26.94	....	8.02	79	....	75	8.95	33.79	26.20	26.55	0.1936	0.1836	185	
24°	353	4.15	34.09	27.07	....	7.67	131	....	100	6.70	33.80	26.54	27.01	0.238	0.226	152	
	444	4.02	34.18	27.15	....	7.63	170	....	150	5.10	33.79	26.72	27.44	0.313	0.297	134	
	535	5.88	33.80	26.65	....	7.60	196	....	200	4.80	33.79	26.76	27.71	0.385	0.364	122	
	111	4.74	33.96	26.78	....	7.88	200	....	250	4.75	33.83	26.80	28.00	0.453	0.428	128	
	223	4.64	34.25	27.25	....	7.77	204	....	300	4.70	33.90	26.86	28.29	0.520	0.492	124	
	335	3.60	34.25	27.25	....	7.68	213	....	400	4.30	34.05	27.02	28.95	0.642	0.609	110	
	668	3.32	34.30	27.32	....	7.59	217	....	500	4.10	34.15	27.12	29.53	0.752	0.715	101	
h	781	2.67	34.45	27.49	....	7.59	217	....	700	3.50	34.27	27.28	30.64	0.904	0.904	98	
10.8	1114	2.09	34.59	27.65	....	7.61	217	....	1000	2.85	34.40	27.44	32.25	1.19	1.14	87	
21°	1665	1.79	34.62	27.71	....	7.63	217	....	1500	2.20	34.57	27.64	34.83	1.52	1.46	84	
	2205	1.52	34.62	27.71	....	7.66	208	....	2000	1.90	34.61	27.69	37.25	1.80	1.73	71	
	2898	1.55	34.64	27.73	....	7.70	208	....	2500	1.85	34.63	27.72	39.63	2.05	1.98	60	
	3225	1.53	34.64	27.74	....	7.73	204	....	3000	1.60	34.64	27.75	41.97	2.30	2.24	0.00051	
	5513a)	1.53	.....	.....	....	.....	....	....					
Station 117: July 3, 1929; 40°20' N, 150°59' E; depth bottom, 5296 m; weather, o; sea, S; wind, SE O-2; good conditions; practically calm																			
	0	15.93	34.32	25.26	....	8.17	3	....	0	15.93	34.32	25.26	25.26	0.0000	0.0000	0.00272	
h	5	15.94	34.29	25.23	....	8.18	3	....	5	15.94	34.29	25.23	25.25	0.0144	0.0137	275	
9.3	24	14.80	34.21	25.43	....	8.16	4	....	25	14.80	34.21	25.43	25.54	0.0705	0.0669	257	
5°	48	12.56	34.22	25.89	....	8.06	51	....	50	12.56	34.22	25.89	26.14	0.1323	0.1254	211	
	72	10.40	34.10	26.20	....	8.04	76	....	75	10.15	34.09	26.23	26.58	0.1842	0.1746	182	
	96	8.93	34.06	26.41	....	7.98	84	....	100	8.80	34.06	26.43	26.90	0.229	0.218	0.00163	

a) Piano wire. b) Temperature from pressure-thermometer and wire depth.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.F. wire angle	Depth (D) meters	Temperature (t) °C	Observed values					Interpolated values					Computed values			
			Salinity (S) o/oo	Density (σ_t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Density (σ_{tp})	Anomalies	
					ml/L	o/o									Pressure (ΔP)	Dynamic depth (AD)	Specific volume (AV)
Station 117--Continued																
h	144	7.95	34.01	26.52	....	7.96	106	....	150	7.80	34.00	26.54	27.25	0.313	0.296	0.00152
	191	6.64	33.88	26.50	....	7.91	129	....	200	6.40	33.85	26.61	27.56	0.392	0.372	0.00147
9.3	286	4.86	33.77	26.74	....	7.85	157	....	300	5.25	33.78	26.70	27.90	0.457	0.442	0.00137
5°	382	4.57	33.87	26.85	....	7.70	208	....	500	4.75	33.77	26.73	28.16	0.539	0.511	0.00136
	479	4.33	34.02	26.99	....	7.63	244	....	400	4.50	33.89	26.87	28.79	0.676	0.642	0.00125
	472	4.34	34.02	26.99	....	7.64	244	....	500	4.25	34.05	27.02	29.42	0.799	0.759	0.00092
	662	3.71	34.20	27.20	....	7.59	261	....	700	3.60	34.33	27.23	30.53	1.010	0.961	0.00074
	946	3.16	34.37	27.39	....	7.61	261	....	1000	3.05	34.33	27.42	32.22	1.27	1.21	0.00072
h	1417	2.54	34.52	27.58	....	7.50	256	....	1500	2.25	34.53	27.60	34.79	1.62	1.55	0.00059
	1876	2.00	34.57	27.65	....	7.64	256	....	2000	1.95	34.58	27.66	37.22	1.91	1.84	0.00056
10.4	2314	1.78	34.62	27.71	....	7.66	249	....	2500	1.70	34.63	27.71	39.61	2.18	2.10	0.00052
7°	2755	1.65	34.65	27.74	....	7.69	244	....	....	....	....	....	....	....	....	....
	5261(a)	1.56	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Station 118: July 5, 1929; 42°29' N, 155°24' E; depth bottom, 5404 m; weather, omf; sea, S; wind, SSE 3; fair conditions; considerable current																
233	0	10.18	33.61	25.85	....	8.21	90	....	0	10.18	33.61	25.85	25.85	0.0000	0.0000	0.00216
	5	10.21	33.58	25.82	....	8.21	90	....	5	10.21	33.58	25.82	25.84	0.0115	0.0109	0.00219
	22	7.99	33.54	26.14	....	8.21	92	....	25	8.00	33.54	26.14	26.26	0.0545	0.0516	0.00188
	45	8.33	33.72	26.24	....	8.21	92	....	50	8.15	33.73	26.27	26.51	0.1237	0.0971	0.00176
	68	7.53	33.76	26.35	....	8.00	103	....	75	6.90	33.77	26.48	26.83	0.1468	0.1390	0.00158
10.2	91	6.27	33.78	26.57	....	7.94	114	....	100	6.10	33.78	26.60	27.07	0.177	0.177	0.00146
23°	182	4.98	33.72	26.68	....	7.91	129	....	150	5.35	33.70	26.69	27.38	0.252	0.248	0.00140
	228	4.62	33.68	26.68	....	7.91	138	....	200	4.80	33.70	26.71	27.65	0.337	0.318	0.00138
	274	4.32	33.70	26.74	....	7.84	162	....	250	4.45	33.68	26.77	27.91	0.409	0.386	0.00136
	321	4.00	33.79	26.82	....	7.73	185	....	300	4.25	33.73	26.93	28.21	0.480	0.454	0.00133
	368	3.88	33.79	26.86	....	7.68	213	....	400	3.80	33.87	26.93	28.86	0.610	0.580	0.00118
	377	3.95	33.85	26.90	....	7.67	228	....	500	3.65	34.00	27.04	29.45	0.729	0.693	0.00108
	472	3.69	33.97	27.02	....	7.61	237	....	700	3.75	34.22	27.21	30.56	0.940	0.895	0.00094
	665	3.78	34.19	27.18	....	7.50	249	....	1000	2.70	34.38	27.43	32.22	1.20	1.14	0.00072
9.3	957	2.82	34.33	27.39	....	7.56	261	....	1500	2.30	34.50	27.57	34.76	1.55	1.49	0.00062
25°	1443	2.33	34.49	27.56	....	7.59	256	....	2000	2.00	34.55	27.63	37.18	1.87	1.79	0.00058
	1920	2.02	34.54	27.62	....	7.63	249	....	2500	1.70	34.58	27.67	39.57	2.15	2.07	0.00056
	2362	1.79	34.51	27.62	....	7.67	244	....	....	....	....	....	....	....	....	....
Station 119: July 7, 1929; 45°24' N, 159°36' E; depth bottom, 5196 m; weather, fmr; sea, S; wind, SSE 2; some current setting to north-northwest																
	0	6.91	32.96	25.85	....	7.96	142	....	0	6.91	32.96	25.85	25.85	0.0000	0.0000	0.00216
	5	6.90	32.98	25.86	....	7.96	146	....	5	6.90	32.98	25.86	25.86	0.0114	0.0108	0.00215
	22	5.87	33.01	26.01	....	7.96	150	....	25	5.00	33.01	26.00	26.12	0.0554	0.0525	0.00202
	45	3.42	33.05	26.31	....	7.93	165	....	50	3.00	33.07	26.37	26.62	0.1029	0.0985	0.00166
	67	1.71(b)	33.13	26.52	....	7.85	185	....	75	1.65	33.15	26.54	26.90	0.1438	0.1382	0.00151
h	90	....	33.13	....	....	7.85	193	....	100	1.60	33.22	26.60	27.08	0.183	0.175	0.00146
9.6	183	3.02	33.75	26.90	....	7.59	249	....	150	1.60	33.53	26.77	27.50	0.257	0.244	0.00129
24°	230	3.29	33.89	26.99	....	7.54	269	....	200	3.15	33.81	26.94	27.90	0.332	0.305	0.00113
	277	3.38	33.98	27.06	....	7.53	276	....	250	3.35	33.93	27.02	28.23	0.380	0.359	0.00106
	324	3.41	34.04	27.10	....	7.53	284	....	300	3.40	34.01	27.08	28.52	0.435	0.411	0.00102
	375	3.36	34.08	27.14	....	7.53	276	....	400	3.25	34.13	27.19	29.13	0.557	0.509	0.00093

a) Piano wire. b) Thermometer off scale.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.F. and wire angle	Depth (D) meters	Observed values						Interpolated values						Computed values		
		Temperature (t) °C	Salinity (S) o/oo	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{tp})	Pressure (ΔP)	Anomalies	
				ml/L	o/o										Dynamic depth (ΔD)	Specific volume (Δα)
Station 119--Continued																
	72	1.77	33.15	26.53	.....	7.86	180	.....	500	3.15	34.23	27.28	29.70	0.629	0.598	0.00085
	97	1.60	33.21	26.59	.....	7.84	185	.....	700	2.85	34.30	27.36	30.73	0.798	0.762	0.079
	393	3.30	34.15	27.20	.....	7.54	276	.....	1000	2.50	34.41	27.48	32.30	1.02	0.98	0.68
h	493	3.18	34.23	27.27	.....	7.53	276	.....	1500	2.05	34.51	27.51	34.81	1.35	1.30	0.57
10.6	593	3.06	34.26	27.31	.....	7.56	276	.....	2000	1.80	34.60	27.69	37.25	1.63	1.58	0.52
30°	693	2.90	34.30	27.36	.....	7.56	276	.....	2500	1.70	34.63	27.71	39.61	1.89	1.83	0.00052
	997	2.49	34.41	27.48	.....	7.57	269	.....							
	1510	2.07	34.53	27.61	.....	7.64	269	.....							
	2006	1.78	34.60	27.69	.....	7.76	256	.....							
5170 ^{a)}		1.54	.....	.....	.....	.....	.....	.....		
Station 120: July 9, 1929; 47°02' N, 166°20' E; depth bottom, 5674 ^{b)} m; weather, omf; sea, MC; wind, W 4; fair conditions																
	0	7.15	32.95	25.81	.....	7.98	137	.....	0	7.15	32.95	25.81	25.81	0.0000	0.0000	0.00230
	5	7.13	32.94	25.80	.....	7.99	138	.....	5	7.13	32.94	25.80	25.82	0.0115	0.0111	0.0000
	23	5.48	33.07	26.11	.....	7.96	133	.....	25	5.45	33.07	26.11	26.23	0.0551	0.0523	0.191
	47	2.17	33.06	26.41	.....	7.90	177	.....	50	2.15	33.07	26.44	26.69	0.1014	0.0960	0.159
	68	2.06 ^{d)}	33.11	26.48	.....	7.88	185	.....	75	2.05	33.13	26.53	26.85	0.1431	0.1365	0.156
h	93	.....	33.18	.....	.....	7.84	197	.....	100	2.00	33.20	26.58	27.01	0.183	0.174	0.128
10.4	141	2.14	33.45	26.74	.....	7.72	224	.....	150	2.20	33.50	26.97	27.51	0.257	0.244	0.111
19°	188	3.13	33.80	26.94	.....	7.56	234	.....	200	3.20	33.85	26.97	27.93	0.321	0.304	0.104
	236	3.32	33.93	27.03	.....	7.53	236	.....	250	3.35	33.95	27.04	28.25	0.378	0.357	0.103
	284	3.25	33.97	27.06	.....	7.53	233	.....	300	3.35	33.99	27.07	28.51	0.433	0.409	0.103
	383	3.29	34.11	27.17	.....	7.53	239	.....	400	3.30	34.14	27.19	29.13	0.535	0.508	0.033
	402	3.27	34.15	27.20	.....	7.53	239	.....	500	3.15	34.22	27.27	29.69	0.628	0.597	0.086
	505	3.15	34.22	27.27	.....	7.55	231	.....	700	2.95	34.29	27.35	30.72	0.799	0.763	0.080
	716	2.92	34.30	27.36	.....	7.57	231	.....	1000	2.55	34.39	27.46	32.28	1.03	0.99	0.070
h	1047	2.52	34.40	27.47	.....	7.59	231	.....	1500	2.10	34.50	27.58	34.78	1.36	1.32	0.050
9.4	1605 ^{c)}	2.39	34.45	27.52	.....	7.59	227	.....	2000	1.85	34.58	27.67	37.23	1.66	1.61	0.055
35°	2183	1.80	34.60	27.69	.....	7.66	260	.....	2500	1.65	34.62	27.71	39.62	1.92	1.87	0.00051
	2718	1.63	34.63	27.72	.....	7.71	248	.....							
Station 121: July 11, 1929; 46°05' N, 171°32' E. depth bottom, 5684 m; weather, co; sea, MS; wind, MNE 2; good conditions; very little current																
	0	7.45	32.93	25.74	.....	7.98	141	.....	0	7.45	32.93	25.74	25.74	0.0000	0.0000	0.00226
	5	7.45	32.95	25.76	.....	8.00	141	.....	5	7.45	32.95	25.76	25.78	0.0119	0.0115	0.0000
	24	6.38	33.03	25.94	.....	7.98	142	.....	25	6.30	33.03	25.98	26.10	0.0671	0.0542	0.225
	48	3.77	33.06	26.28	.....	7.92	159	.....	50	3.55	33.06	26.31	26.56	0.1067	0.1012	0.204
	72	2.56	33.09	26.42	.....	7.89	172	.....	75	2.35	33.09	26.44	26.80	0.1506	0.1429	0.161
h	96	2.01	33.16	26.52	.....	7.86	184	.....	100	2.05	33.18	26.53	27.01	0.191	0.182	0.153
11°	144	2.37	33.45	26.72	.....	7.71	224	.....	150	2.40	33.47	26.74	27.47	0.267	0.252	0.111
	191	3.01	33.70	26.87	.....	7.57	224	.....	200	3.05	33.74	26.90	27.86	0.333	0.315	0.117
	236	3.24	33.90	27.01	.....	7.54	226	.....	250	3.30	33.91	27.01	28.22	0.392	0.371	0.107
	286	3.36	33.94	27.03	.....	7.53	226	.....	300	3.30	33.96	27.04	28.48	0.449	0.424	0.105
	383	3.40	34.07	27.13	.....	7.54	232	.....	400	3.35	34.09	27.15	29.09	0.554	0.525	0.00097

^{a)} Plano wire. ^{b)} Sonic depths 5777 m at 47°03' N, 166°11' E and 5874 m at 47°02' N, 166°28' E. ^{c)} Water-bottle probably reversed at higher level; values rejected. ^{d)} Thermometer off scale.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values						Interpolated values						Computed values			
		Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Density (σ_{tP})	Pressure (ΔP)	Anomalies	
					ml/L	o/o										Dynamical depth (ΔD)	Specific volume (Δα)
Station 121--Continued																	
	437	3.25	34.12	27.18	....	....	7.54	292	....	500	3.20	34.17	27.23	29.65	0.651	0.618	0.00089
	547	3.15	34.20	27.25	....	....	7.54	284	....	700	2.95	34.27	27.33	30.70	0.828	0.789	0.082
	768	2.85	34.29	27.36	....	....	7.55	280	....	1000	2.55	34.39	27.46	32.28	1.06	1.02	0.070
h	1104	2.46	34.44	27.51	....	....	7.56	280	....	1500	2.10	34.54	27.61	34.81	1.39	1.34	0.057
9.2	1656	1.98	34.56	27.64	....	....	7.63	272	....	2000	1.85	34.58	27.67	37.23	1.58	1.53	0.055
13°	2170a)	2.21	34.48	27.56	....	....	7.60	276	....	2500	1.80	34.61	27.70	39.60	1.94	1.89	0.00053
	2641	1.77	34.62	27.71	....	....	7.66	265	....	....	....	....	....	....	....	....	....
Station 122: July 13, 1929; 46°16' N, 174°03' E; depth bottom, 6077 ^{b)} m; weather, fr; sea, MC; wind, SSE 2-4; bad conditions; some current towards northeast																	
	0	8.22	32.84	25.58	....	....	7.98	130	....	0	8.22	32.84	25.58	25.58	0.0000	0.0000	0.00242
	4	8.19	32.84	25.59	....	....	7.99	130	....	5	8.20	32.84	25.59	25.61	0.0127	0.0121	241
	22	7.44	32.88	25.70	....	....	7.99	130	....	25	7.30	32.85	25.74	25.86	0.0620	0.0588	226
	45	4.03	33.06	26.26	....	....	7.94	142	....	50	3.60	33.07	26.31	26.56	0.1146	0.1085	172
	67	2.92	33.10	26.40	....	....	7.92	157	....	75	2.70	33.11	26.42	26.78	0.1587	0.1505	163
	90	2.54	33.13	26.45	....	....	7.90	161	....	100	2.40	33.14	26.47	26.95	0.201	0.190	159
h	135	2.41	33.20	26.54	....	....	7.88	172	....	150	2.20	33.22	26.77	27.32	0.281	0.266	146
27°	182	2.41	33.44	26.71	....	....	7.74	209	....	200	2.50	33.52	26.91	27.74	0.354	0.336	130
	273	2.93	33.80	26.96	....	....	7.60	261	....	250	3.80	33.75	26.99	28.12	0.419	0.397	116
	365	3.30	33.98	27.06	....	....	7.58	272	....	300	3.05	33.86	26.99	28.43	0.479	0.454	110
	460	3.38	34.10	27.16	....	....	7.56	272	....	400	3.30	34.03	27.10	29.04	0.590	0.560	102
	642	3.10	34.26	27.31	....	....	7.56	268	....	500	3.20	34.14	27.20	29.82	0.691	0.657	92
	1107	2.52	34.41	27.48	....	....	7.59	265	....	700	3.00	34.29	27.34	30.71	0.870	0.830	81
	1366	2.27	34.48	27.55	....	....	7.64	265	....	1000	2.65	34.39	27.45	32.26	1.11	1.06	70
h	1846	1.94	34.57	27.65	....	....	7.66	257	....	1500	2.15	34.51	27.59	34.78	1.45	1.39	69
9.3	2268	1.75	34.59	27.68	....	....	7.69	249	....	2000	1.85	34.58	27.67	37.23	1.74	1.68	55
31°	2691	1.63	34.63	27.72	....	....	7.72	240	....	2500	1.60	34.60	27.70	39.61	2.00	1.94	45
	3100	1.57	34.63	27.73	....	....	7.75	237	....	3000	1.60	34.63	27.72	41.96	2.26	2.20	0.00052
Station 123: July 15, 1929; 50°27' N, 172°51' W; depth bottom, 5464 ^{c)} m; weather, ofm; sea, RC; wind, S by E 5-6; almost impossible conditions; deep series not reversed because of large wire angle																	
	0	8.10	32.76	25.52	....	....	8.03	113	....	0	8.10	32.76	25.52	25.52	0.0000	0.0000	0.00247
h	4	8.08	32.74	25.51	....	....	8.03	114	....	5	8.05	32.74	25.51	25.53	0.0131	0.0124	248
10.8	21	8.05	32.75	25.52	....	....	8.04	118	....	25	8.00	32.80	25.55	25.67	0.0551	0.0616	244
43°	41	5.00	32.87	26.00	....	....	7.96	145	....	50	4.40	32.95	26.08	26.33	0.1229	0.1163	194
	60	3.97	32.90	26.13	....	....	7.92	163	....	75	3.45	32.98	26.23	26.59	0.1723	0.1633	181
	77	3.54	32.95	26.22	....	....	7.91	176	....	100	3.00	33.39	26.62	27.10	0.215	0.204	144
	93	2.94	33.26	26.52	....	....	7.79	209	....	150	3.15	33.73	26.88	27.61	0.284	0.269	118
h	122	2.98	33.60	26.79	....	....	7.63	252	....	200	3.30	33.89	27.96	28.27	0.345	0.326	103
56°	180	3.30	33.84	26.95	....	....	7.54	284	....	250	3.40	33.99	27.06	28.27	0.400	0.378	108
					....	....			....	300	3.40	34.04	27.10	28.54	0.454	0.429	0.00100

a) Water bottle probably reversed at higher level; values rejected. b) Sonic depths 6077 m at 46°11' N, 173°57' E and 5662 m at 46°37' N, 174°36' E. c) Sonic depths 5464 m at 50°22' N, 173°03' W and 5755 m at 50°40' N, 171°41' W.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deer sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values							Interpolated values							Computed values		
		Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{tp})	Pressure (ΔP)	Anomalies		
					ml/L	o/o										Dynamic depth (ΔD)	Specific volume (ΔX)	
Station 123--Continued																		
h	240	3.38	33.98	27.05	.....	.....	288	.....	400	3.30	34.12	27.18	29.12	0.555	0.527	0.00094
11.2	339	3.36	34.07	27.13	.....	7.53	292	.....	500	3.25	34.16	27.23	29.65	0.650	0.618	0.089
56°	511	3.24	34.19	27.24	.....	7.53	284	.....	700a)	3.00	34.28	27.33	30.70	0.827	0.789	0.082
									1000	2.70	34.39	27.44	32.25	1.07	1.02	0.071		
									1500	2.15	34.52	27.60	34.80	1.40	1.35	0.058		
									2000	1.85	34.59	27.68	37.24	1.69	1.63	0.053		
									2500	1.70	34.62	27.71	39.61	1.95	1.89	0.0052		
Station 124: July 17, 1929; 52°19' N, 162°02' W; depth bottom, 4780 ^{b)} m; weather, o; sea, RC; wind, S 6; bad conditions; drifting; used two 85-pound weights on bottle-wire																		
	0	9.30	32.66	25.26	.....	8.04	103	.....	0	9.30	32.66	25.26	25.26	0.0000	0.0000	0.00272
	5	9.29	32.65	25.26	.....	8.04	106	.....	5	9.29	32.65	25.26	25.28	0.0143	0.0137	0.272
	25	8.71	32.67	25.36	.....	8.04	106	.....	25	8.71	32.67	25.36	25.48	0.0707	0.0672	263
	50	5.38	32.73	25.85	.....	8.02	110	.....	50	5.38	32.73	25.85	26.10	0.1338	0.1270	216
h	76	4.12	33.02	26.22	.....	7.83	176	.....	75	4.15	33.01	26.19	26.55	0.1366	0.1272	185
9.5	101	4.05	33.69	26.76	.....	7.64	228	.....	100	4.05	33.65	26.73	27.21	0.228	0.217	133
38°	203	3.78	33.98	27.01	.....	7.54	276	.....	150	3.85	33.89	26.94	27.66	0.253	0.278	113
	306	3.65	34.06	27.09	.....	7.55	272	.....	200	3.75	33.98	27.02	27.98	0.333	0.333	105
	407	3.54	34.17	27.19	.....	7.54	284	.....	250	3.70	34.02	27.06	28.26	0.407	0.386	107
	515	3.38	34.23	27.26	.....	7.54	280	.....	300	3.65	34.06	27.09	28.53	0.462	0.438	102
	735	3.08	34.31	27.35	.....	7.57	272	.....	400	3.55	34.16	27.18	29.11	0.564	0.537	094
	1081	2.54	34.46	27.51	.....	7.57	265	.....	500	3.40	34.22	27.25	29.66	0.659	0.628	088
	779	2.98	34.36	27.40	.....	7.56	269	.....	700	3.10	34.31	27.35	30.71	0.834	0.786	080
h	1150	2.45	34.49	27.55	.....	7.58	261	.....	1000	2.70	34.43	27.47	32.28	1.07	1.02	069
10.4	1812	1.95	34.58	27.66	.....	7.62	252	.....	1500	2.10	34.56	27.61	34.83	1.39	1.34	059
45°	2427	1.72	34.65	27.73	.....	7.68	244	.....	2000	1.85	34.60	27.68	37.24	1.67	1.61	053
									2500	1.70	34.63	27.71	39.61	1.93	1.87	0.00052		
Station 125: July 19, 1929; 51°58' N, 150°39' W; depth bottom, 4536 ^{c)} m; weather, om; sea, R; wind, SW by W 6; poor conditions; vessel rolling in rough sea; 170 pounds and heavy messengers on bottle-wire																		
	0	10.50	32.75	25.13	.....	8.03	125	.....	0	10.50	32.75	25.13	25.13	0.0000	0.0000	0.00284
	5	10.48	32.74	25.13	.....	8.03	126	.....	5	10.48	32.74	25.13	25.15	0.0150	0.0143	284
	24	10.10	32.73	25.18	.....	8.04	129	.....	25	10.10	32.73	25.18	25.30	0.0745	0.0706	280
	46	5.68 ^{d)}	32.79	25.88	.....	7.98	138	.....	50	5.50	32.80	25.89	26.13	0.1394	0.1321	212
	66	5.02 ^{d)}	32.82	25.97	.....	7.94	145	.....	75	4.70	32.84	26.02	26.38	0.1940	0.1838	201
h	87	4.34	32.87	26.09	.....	7.92	154	.....	100	4.20	32.94	26.15	26.63	0.245	0.232	199
9.3	175	3.71	33.82	26.90	.....	7.57	237	.....	150	3.80	33.75	26.83	27.55	0.327	0.310	124
35°	263	3.54	33.91	26.99	.....	7.56	265	.....	200	3.55	33.85	26.98	27.88	0.392	0.371	116
	355	3.60	34.01	27.06	.....	7.56	280	.....	250	3.55	33.90	27.02	28.19	0.451	0.427	111
	446	3.49	34.10	27.14	.....	7.56	276	.....	300	3.55	33.95	27.02	28.46	0.509	0.482	108
	651	3.26	34.23	27.27	.....	7.56	272	.....	400	3.55	34.06	27.10	29.03	0.618	0.588	102
	970	2.79	34.38	27.43	.....	7.59	265	.....	500	3.40	34.15	27.18	29.59	0.721	0.686	094
h	981	2.80	34.36	27.41	.....	7.58	261	.....	700	3.15	34.25	27.30	30.66	0.908	0.865	085
10.3	1523	2.23	34.51	27.58	.....	7.58	261	.....	1000	2.75	34.38	27.43	32.24	1.15	1.10	072
45°	2059	1.94	34.59	27.67	.....	7.63	257	.....	1500	2.25	34.51	27.58	34.77	1.50	1.44	061
	2575	1.74	34.62	27.71	.....	7.69	244	.....	2000	2.00	34.58	27.65	37.20	1.81	1.74	057
									2500	1.80	34.62	27.71	39.61	2.08	2.00	0.00052		

a) Values below 500 meters extrapolated. b) Sonic depths 4780 m at 52°14' N, 162°22' W and 4550 m at 52°29' N, 160°58' W. c) Sonic depths 4536 m at 51°59' N, 150°55' W and 4717 m at 51°45' N, 149°52' W. d) Temperature (5°44) by second thermometer rejected.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values						Interpolated values						Computed values			
		Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{TP})	Pressure (ΔP)	Anomalies	
					ml/L	o/o										Dynamic depth (ΔD)	Specific volume (ΔQ)
Station 126: July 21, 1929; 48°05' N, 142°56' W; depth bottom, 4382 ^a m; weather, cm; sea, RL; wind, W 6; strong wind, up to 7 at times; 170 pounds and heavy messengers on bottle wire																	
	0	11.25	32.63	24.90	...	...	76	...	0	11.25	32.63	24.90	24.90	0.0000	0.0000	0.000306
	5	11.26	32.61	24.89	...	8.09	76	...	5	11.26	32.61	24.89	24.91	0.0162	0.0154	0.00307	
	25	11.20	32.57	24.87	...	8.09	78	...	25	11.20	32.57	24.87	24.99	0.0812	0.0770	0.309	
	47	8.03	32.58	25.47	...	8.04	91	...	50	7.75	32.68	25.75	25.75	0.3547	0.1466	248	
h	73	6.48 ^b	32.59	25.69	...	8.00	105	...	75	6.45	32.69	26.04	26.04	0.2182	0.2067	232	
10.4	98	...	32.70	...	...	8.01	100	...	100	6.40	32.70	26.18	26.18	0.2779	0.264	230
34°	196	5.98	33.78	26.51	...	7.86	149	...	150	6.25	33.61	26.44	26.44	0.383	0.362	161	
	294	5.13	33.88	26.80	...	7.68	236	...	200	5.95	33.79	26.62	27.57	0.485	0.439	146	
	344	4.49	33.93	26.91	...	7.60	261	...	250	5.55	33.84	26.71	27.91	0.539	0.509	137	
	396	4.10	33.97	26.98	...	7.59	276	...	300	5.10	33.89	26.80	28.23	0.609	0.576	130	
	513	3.80	34.11	27.12	...	7.57	280	...	400	4.05	33.97	26.98	28.91	0.736	0.699	114	
	556	3.73	34.14	27.15	...	7.54	292	...	500	3.85	34.09	27.10	29.51	0.849	0.807	103	
h	784	3.29	34.27	27.30	...	7.54	292	...	700	3.45	34.24	27.26	30.62	1.048	1.000	090	
9.3	1136	2.72	34.57	27.59	...	7.54	288	...	1000	2.95	34.36	27.40	32.20	1.31	1.25	076	
36°	1731	2.14	34.52	27.60	...	7.58	280	...	1500	2.30	34.48	27.55	34.74	1.67	1.61	064	
	2315	1.62	34.60	27.68	...	7.64	269	...	2000	1.95	34.55	27.64	37.20	1.99	1.91	057	
	2837	1.65	34.63	27.72	...	7.68	257	...	2500	1.70	34.61	27.70	39.60	2.26	2.18	0.00053	
Station 127: July 23, 1929; 44°16' N, 137°37' W; depth bottom, 4026 ^c m; weather, bc; sea, M; wind, W by S 4; good conditions; 120 pounds and heavy messengers on bottle wire																	
	0	13.35	32.69	24.57	...	...	43	...	0	13.35	32.69	24.57	24.57	0.0000	0.0000	0.00338
	6	13.35 ^e	32.72	24.58	...	8.12	42	...	5	13.35	32.72	24.58	24.58	0.0177	0.0169	337	
	24	13.32 ^e	32.70	24.57	...	8.13	42	...	25	13.30	32.70	24.58	24.65	0.0887	0.0844	338	
	47	11.04	32.75	25.04	...	8.09	56	...	50	10.50	32.76	25.38	25.38	0.1707	0.1620	283	
h	72	8.80	32.82	25.46	...	8.03	67	...	75	8.65	32.82	25.48	25.83	0.2414	0.2291	253	
9.2	96	8.30	32.78	25.50	...	8.00	72	...	100	8.25	32.78	25.51	25.99	0.307	0.292	250	
22°	144	7.78	33.16	25.78	...	7.97	88	...	150	7.75	33.24	25.95	26.67	0.428	0.406	209	
	195	7.03	33.64	26.52	...	7.91	133	...	200	7.00	33.84	26.52	27.48	0.54	0.498	155	
	293	6.20	33.90	26.88	...	7.77	184	...	250	6.55	33.86	26.62	27.81	0.673	0.63	147	
	394	4.98	33.91	26.84	...	7.64	228	...	300	6.15	33.91	26.68	28.11	0.819	0.746	142	
	493	4.24	33.97	26.96	...	7.59	261	...	400	4.95	33.97	26.84	28.76	0.819	0.746	128	
	499	4.16	33.97	26.98	...	7.58	265	...	500	4.15	33.97	26.98	29.39	0.946	0.902	114	
h	701	3.73	34.03	27.06	...	7.54	276	...	700	3.75	34.04	27.07	30.42	1.177	1.124	108	
	1009	3.08	34.32	27.36	...	7.54	284	...	1000	3.05	34.31	27.35	32.15	1.48	1.41	081	
	1526	2.38	34.48	27.55	...	7.56	284	...	1500	2.40	34.47	27.54	34.73	1.85	1.78	065	
10.2	2027	1.95	34.58	27.65	...	7.61	269	...	2000	2.00	34.57	27.65	37.20	2.17	2.09	057	
31°	2480	1.75	34.51	27.69	...	7.67	261	...	2500	1.75	34.61	27.70	39.60	2.44	2.36	0.00053	
	2939	1.62	34.62	27.71	...	7.68	261	...									
	3988 ^d	1.56	...	...	...	...	...	...			
	4004 ^d	1.56	...	...	...	...	...	...			

a) Sonic depths 4382 m at 48°09' N, 143°04' W and 4424 m at 47°40' N, 142°18' W. b) thermometer did not function properly. c) Mean of 4018 and 4034 meters. d) Piano wire. e) Temperature (13.71) by second thermometer rejected.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values					Interpolated values					Computed values				
		Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen		Phos- phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{tp})	Pressure (ΔP)	Anomalies	
					ml/L	o/o									Dynamic depth (ΔD)	Specific volume (ΔC)
Station 128: July 25, 1929; 40°37' N, 132°23' W; depth bottom, 3806 m; weather, o; sea, ML; wind, SW 4-5; fair conditions; considerable drift; 170 pounds on bottle wire																
	0	16.41	32.95	24.10	...	...	...	0	16.41	32.95	24.10	24.10	0.0000	0.0000	0.00383
	5	16.39	32.91	24.07	...	29	...	5	16.39	32.91	24.07	24.10	0.0202	0.0193	386	
	24	15.05	33.02	24.45	...	29	...	25	15.05	33.02	24.45	24.56	0.0976	0.0930	351	
	49	11.88	33.07	25.13	...	29	...	50	11.75	33.07	25.16	25.40	0.1809	0.1721	282	
h	73	10.48	33.08	25.39	...	29	...	75	10.45	33.08	25.40	25.75	0.2524	0.2400	261	
10.4	96	10.23	33.14	25.48	...	46	...	100	10.20	33.15	25.49	25.96	0.320	0.304	252	
22°	145	9.21	33.38	25.84	...	78	...	150	9.00	33.42	26.00	26.62	0.442	0.420	213	
	194	7.97	33.75	26.31	...	110	...	200	7.90	33.77	26.34	27.29	0.544	0.517	173	
	291	6.93	33.93	26.61	...	151	...	250	7.40	33.88	26.50	27.69	0.631	0.599	158	
	367	5.83	33.95	26.76	...	189	...	300	6.90	33.93	26.61	28.04	0.712	0.676	149	
	431	5.13	33.96	26.85	...	216	...	400	6.65	33.95	26.79	28.70	0.859	0.818	134	
	540	4.40	34.07	27.05	...	244	...	500	6.40	34.00	26.97	29.37	0.989	0.943	116	
	759	3.83	34.21	27.19	...	261	...	700	6.30	34.18	27.16	30.51	1.213	1.159	100	
h	1093	3.12	34.44	27.45	...	285	...	1000	6.30	34.39	27.39	32.18	1.439	1.43	078	
9.5	1655	2.24	34.49	27.57	...	265	...	1500	6.45	34.49	27.54	34.73	1.86	1.79	065	
33°	2180	1.86	34.58	27.67	...	240	...	2000	1.95	34.55	27.64	37.20	2.18	2.10	0.00057	
	3755b}	1.58	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	3796b}	1.58	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Station 129: July 27, 1929; 38°50' N, 126°02' W; depth bottom, 4171 m; weather, cbc; sea, RCL; wind, NW by N 6-7; conditions seemed hopeless but current was against wind and wire angle only 20°, so program was carried out; very heavy seas																
	0	16.29	33.13	24.26	...	25	...	0	16.29	33.13	24.26	24.26	0.0000	0.0000	0.00368	
	5	16.29	33.07	24.22	...	27	...	5	16.29	33.07	24.22	24.25	0.0194	0.0185	371	
	25	16.27	33.10	24.24	...	25	...	25	16.27	33.10	24.24	24.35	0.0974	0.0926	370	
	51	16.26	33.12	24.25	...	25	...	50	16.25	33.12	24.26	24.39	0.1947	0.1849	368	
h	76	13.51	32.96	24.73	...	27	...	75	13.60	32.96	24.71	25.06	0.2862	0.2718	327	
10.1	103	11.07	33.03	25.24	...	34	...	100	11.25	33.01	25.20	25.67	0.366	0.348	281	
20°	155	9.70	33.42	25.79	...	114	...	150	9.80	33.37	25.73	26.44	0.500	0.475	229	
	208	8.60	33.76	26.22	...	165	...	200	8.70	33.72	26.18	27.13	0.611	0.580	190	
	284	6.82	33.92	26.61	...	198	...	250	7.65	33.86	26.45	27.64	0.702	0.668	164	
	420	5.72	34.01	26.82	...	235	...	300	6.60	33.94	26.60	28.09	0.783	0.746	144	
	495	5.30	34.03	26.89	...	245	...	400	5.85	34.00	26.80	28.71	0.827	0.885	133	
h	622	4.61	34.02	26.97	...	272	...	500	5.25	34.02	26.89	29.28	1.052	1.013	123	
9.2	877	4.10	34.29	27.23	...	284	...	700	4.40	34.07	27.03	30.38	1.308	1.248	112	
18°	1267	3.17	34.47	27.47	...	284	...	1000	3.80	34.39	27.34	32.12	1.61	1.54	084	
	1896	2.14	34.52	27.60	...	272	...	1500	2.70	34.49	27.52	34.70	2.01	1.93	068	
	2507	1.81	34.59	27.68	...	257	...	2000	2.05	34.53	27.62	37.17	2.34	2.25	059	
					...		...	2500	1.80	34.59	27.68	39.56	2.62	2.53	0.00056
Station 130: September 4, 1929; 37°05' N, 123°43' W; depth bottom, 3188 m; weather, o; sea, MS; wind, S O-1; good conditions; new German meter wheel No. 2 used for piano wire																
	0	16.24	33.40	24.48	...	36	...	0	16.24	33.40	24.48	24.48	0.0000	0.0000	0.00347	
h	5	16.23	33.43	24.50	...	34	...	5	16.23	33.43	24.50	24.53	0.0182	0.0173	345	
8.6	22	15.63	33.38	24.60	...	39	...	25	15.50	33.38	24.63	24.74	0.0895	0.0852	333	
15°	46	12.91	33.40	25.19	...	83	...	50	11.70	33.42	25.44	25.68	0.1670	0.1586	255	
	67	9.98	33.62	25.89	...	149	...	75	9.45	33.66	26.01	26.36	0.2274	0.2160	0.00203	
a) Mean of 3785 and 3826 meters. b) Piano wire. c) Sonic depths 4171 m at 38°52' N, 126°11' W and 3511 m at 38°41' N, 125°16' W.																

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values										Interpolated values					Computed values		
		Temperature (t) °C	Salinity (S) o/oo	Density (σ_t^*)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t^*)	Density (σ_{tp})	Pressure (ΔP)	Anomalies			
					ml/L	o/o										Dynamic depth (AD)	Specific volume ($\Delta\alpha$)		
Station 130--Continued																			
	92	8.96	33.72	26.14	3.46	53	8.06	176	...	100	8.85	33.74	26.17	0.279	0.265	0.00188			
h	187	7.77	34.02	26.56	1.78	27	8.04	198	...	150	8.15	33.91	26.41	0.372	0.353	0.00165			
8.6	379	7.00	34.11	26.70	1.20	18	8.03	221	...	200	7.65	34.04	27.59	0.455	0.432	0.00150			
15°	373	6.26	34.08	26.81	0.82	12	7.94	257	...	250	7.20	34.10	28.70	0.531	0.504	0.00139			
	467	5.70	34.15	26.94	0.72	10	8.00	271	...	300	6.80	34.11	28.77	0.603	0.578	0.00134			
	476	5.59	34.16	26.96	0.72	10	7.94	270	...	400	6.05	34.09	28.85	0.704	0.678	0.00128			
h	665	4.99	34.32	27.16	0.25	4	...	287	...	500	5.45	34.18	28.99	0.867	0.835	0.00114			
10.8	951	3.86	34.39	27.34	0.43	6	7.93	286	...	700	4.85	34.33	27.18	1.090	1.038	0.00099			
	1424	2.80	34.54	27.55	0.98	13	7.95	254	...	1000	3.70	34.40	27.36	1.37	1.31	0.00082			
9°	1890	2.10	34.60	27.66	1.48	19	7.98	263	...	1500	2.65	34.56	27.59	1.74	1.67	0.00061			
	2322	1.84	34.60	27.68	2.00	26	8.12	243	...	2000	2.00	34.61	27.68	2.04	1.97	0.00054			
	2771	1.70	34.64	27.72	2.38	31	7.97	247	...	2500	1.75	34.62	27.71	2.30	2.22	0.00052			
Station 131: September 6, 1929; 33°49' N, 126°20' W; depth bottom, 4418 m; weather, od; sea, MS; wind, NW 3; good conditions																			
	0	19.13	33.37	23.76	5.38	98	8.34	...	...	0	19.13	33.37	23.76	0.0000	0.0000	0.00415	
	5	17.12 ^{b)}	33.37	24.00	5.11	92	8.35	...	...	5	19.14	33.37	23.76	0.0218	0.0208	415	
	24	13.98	33.24	25.00	6.28	106	8.32	...	...	25	17.70	33.23	24.01	0.1067	0.1015	392	
h	47	13.14	33.24	25.13	6.08	101	8.34	...	...	50	13.85	33.25	24.88	0.1891	0.1890	308	
9.4	99	12.61	33.36	25.31	6.08	100	8.32	...	...	75	13.00	33.38	25.16	0.2773	0.2631	284	
8°	191	10.61	33.52	25.71	4.99	80	8.24	...	...	100	12.10	33.36	25.32	0.350	0.332	269	
	286	8.11	33.95	26.45	2.89	44	8.12	...	...	150	11.15	33.43	25.55	0.486	0.461	247	
	382	6.58	33.95	26.68	1.85	27	8.04	...	...	200	10.40	33.54	25.76	0.612	0.591	231	
	478	5.69	34.10	26.90	1.11	16	7.95	...	...	250	8.90	33.73	26.20	0.721	0.685	188	
	668	4.61	34.25	27.14	0.29	4	8.01	...	...	300	7.85	33.95	26.50	0.813	0.772	160	
	659	4.61	34.27	27.16	0.22	3	7.90	...	...	400	6.55	34.12	26.94	0.969	0.923	140	
	942	3.74	34.39	27.35	0.33	5	7.82	...	...	500	5.50	34.12	26.94	1.106	1.052	118	
h	1413	2.78	34.47	27.50	1.03	14	7.99	...	...	700	4.45	34.28	27.18	1.334	1.268	098	
	1877	2.15	34.60	27.66	1.60	21	7.96	...	...	1000	3.60	34.40	27.37	1.61	1.54	080	
10.7	2294	1.84	34.60	27.69	2.00	26	7.89	...	...	1500	2.60	34.49	27.53	2.00	1.91	067	
22°	2753	1.58	34.59	27.69	2.44	32	7.97 ^{c)}	...	...	2000	2.05	34.61	27.68	2.31	2.28	054	
	3166	1.53	34.54	27.73	2.76	36	8.03 ^{c)}	...	...	2500	1.75	34.61	27.70	2.58	2.48	053	
	3575	1.53	34.65	27.75	2.77	36	8.20 ^{c)}	...	...	3000	1.60	34.62	27.72	2.84	2.75	052	
	4388 ^{a)}	1.55	...	...	...	...	...	...	...	3500	1.55	34.65	27.75	3.09	3.00	0.00050
Station 132: September 8, 1929; 31°38' N, 128°48' W; depth bottom, 4251 m; weather, bc; sea, S; wind, NW 2-0; good conditions																			
	0	21.04	33.91	23.66	5.10	97	8.34	15	...	0	21.04	33.91	23.66	0.0000	0.0000	0.00425			
h	5	21.05	33.91	23.66	5.09	97	8.36	17	...	5	21.05	33.91	23.66	0.0233	0.0213	425			
	23	18.38	33.88	24.35	5.78	106	8.34	13	...	25	17.55	33.88	23.66	0.1117	0.1064	426			
	47	14.86	33.88	24.77	5.90	102	8.33	...	...	50	14.75	33.87	24.55	0.2127	0.2021	340	
9.6	93	14.42	33.40	24.88	5.82	99	8.35	19	...	75	14.30	33.38	24.80	0.2894	0.2845	318			
15°	185	10.07	33.57	25.84	4.49	71	8.14	16	...	100	14.30	33.41	24.92	0.381	0.362	307			
	279	8.13	33.94	26.44	2.72	41	7.95	90	...	150	11.45	33.50	25.55	0.527	0.501	247			
	374	6.83	34.00	26.68	1.86	27	7.81	170	...	200	9.60	33.62	25.96	0.649	0.616	211			
	471	5.87	34.06	26.84	1.10	16	7.81	208	...	250	8.60	33.91	26.34	0.749	0.713	174			
	673	4.66	34.21	27.11	0.29	4	7.75	255	...	300	7.80	33.95	26.50	0.837	0.795	160			
									...	400	6.55	34.01	26.72	0.994	0.946	0.00140			

a) Piano wire. b) temperature mean of 17.67 and 17.78. c) Sample bottles not completely filled; value rejected.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values					Interpolated values					Computed values					
		Temperature (t) °C	Salinity (S) o/oo	Density (σ_t^*)	Oxygen ml/L	Oxygen o/o	Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t^*)	Density (σ_{TP})	Pressure (ΔP)	Dynamic depth (ΔD)	Specific volume (Δα)
Station 132--Continued																	
	711	4.50	34.22	27.14	0.29	4	7.76	269	....	500	5.65	34.08	26.89	29.27	1.134	1.078	0.00124
	1015	3.55	34.41	27.37	0.54	7	7.75	267	....	700	4.55	34.22	27.13	30.47	1.372	1.305	1.03
	1513	2.79	34.51	27.53	1.10	15	7.81	251	....	1000	3.70	34.40	27.36	32.14	1.66	1.58	0.82
	1997	2.12	34.59	27.65	1.70	22	7.87	251	....	1500	2.80	34.51	27.53	34.70	2.05	1.96	0.67
h	2440	1.82	34.61	27.70	2.10	28	7.84	236	....	2000	2.10	34.59	27.66	37.21	2.37	2.28	0.57
6°	2891	1.64	34.60	27.70	2.48	32	7.90	248	....	2500	1.80	34.61	27.70	39.60	2.64	2.54	0.53
	3304	1.55	34.62	27.73	2.89	38	7.91	248	....	3000	1.60	34.61	27.71	41.95	2.90	2.82	0.53
	3715	1.55	34.63	27.73	....	....	7.95	218	....	3500	1.55	34.63	27.73	44.26	3.16	3.08	0.00052
	4221 ^{a)}	1.55	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Station 133: September 10, 1929; 29°21' N, 132°30' W; depth bottom, 4426 m; weather, oc; sea, MS; wind, NNE 3; good conditions																	
	0	22.68	34.70	23.82	4.95	98	8.47	7	640	0	22.68	34.70	23.82	23.82	0.0000	0.0000	0.00409
	5	22.68	34.70	23.82	5.00	99	8.42	7	610	5	22.68	34.70	23.82	23.85	0.0215	0.0205	4.09
	23	22.68	34.79	23.89	4.89	97	8.35	7	4850 ^{b)}	25	22.65	34.79	23.89	24.00	0.1070	0.1018	4.04
	46	21.21	34.70	24.23	5.33	103	8.37	7	630	50	20.75	34.70	24.35	24.58	0.2076	0.1971	3.59
h	69	19.28	34.70	24.74	5.52	103	8.34	7	510	75	19.05	34.72	24.82	25.16	0.2967	0.2816	3.16
9.2	93	18.51	34.76	24.98	5.38	99	8.30	7	600	100	18.40	34.76	25.01	25.46	0.358	0.358	2.89
15°	184	15.25	34.32	25.41	4.93	86	8.30	21	1000	150	16.95	34.54	25.19	25.68	0.531	0.504	2.83
	279	9.99	33.94	26.14	4.71	74	8.12	90	1300	200	14.40	34.23	25.52	26.44	0.673	0.638	2.53
	373	7.80	34.03	26.56	3.10	47	7.98	145	2390	250	11.10	33.96	25.97	27.14	0.795	0.754	2.11
	471	6.34	33.99	26.72	2.19	32	7.83	201	3100	300	9.30	33.95	26.27	27.68	0.898	0.853	1.83
	661	4.68	34.19	27.09	0.53	7	7.74	255	3900	400	7.35	34.01	26.61	28.51	1.073	1.020	1.51
	533	5.51	....	....	1.43	20	7.79	247	3750	500	5.95	34.01	26.80	29.18	1.222	1.162	1.33
h	581	5.11	34.08	26.95	0.95	13	7.76	263	7250 ^{b)}	700	4.55	34.22	27.13	30.47	1.469	1.398	1.03
11.2	630	4.85	....	....	....	....	7.76	271	5600	1000	3.75	34.40	27.35	32.13	1.76	1.68	0.83
17°	723	4.61	....	....	0.33	..5	7.74	288	5500	1500	2.80	34.58	27.57	34.74	2.14	2.05	0.63
	657	4.68	34.19	27.09	0.51	7	7.75	251	6510	2000	2.15	34.62	27.58	37.22	2.45	2.35	0.55
	758	4.37	....	....	0.30	4	7.75	251	6510	2500	1.75	34.63	27.71	39.61	2.73	2.61	0.00052
	801	4.23	34.29	27.22	0.27	4	7.75	260	5800	....	....	....	....	....	....	....	....
h	935	3.89	34.37	27.32	0.46	6	7.75	263	8150	....	....	....	....	....	....	....	....
10.2	1418	2.25	34.54	27.55	1.17	16	7.83	240	10540	....	....	....	....	....	....	....	....
28°	2307	1.89	34.63	27.67	1.55	21	7.91	236	....	....	....	....	....	....	....	....	....
	2739	1.67	34.63	27.71	2.07	27	7.91	236	....	....	....	....	....	....	....	....	....
	4396 ^{a)}	1.57	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Station 134: September 12, 1929; 27°45' N, 135°22' W; depth bottom, 4528 m; weather, bc; sea, MS; wind, SE 1; good conditions																	
	0	22.89	34.70	23.75	4.95	98	8.34	6	590	0	22.89	34.70	23.75	23.75	0.0000	0.0000	0.00416
	23	22.89	34.70	23.75	4.90	97	8.34	7	325 ^{b)}	5	22.91	34.70	23.75	23.78	0.0219	0.0209	4.16
h	47	19.47	34.57	24.46	4.92	97	8.34	6	3300 ^{b)}	25	22.85	34.73	23.79	23.90	0.1091	0.1087	4.16
8.9	70	18.47	34.49	24.78	5.52	102	8.32	6	920	50	19.75	34.56	24.51	24.74	0.2089	0.1983	3.44
5°	94	18.18	34.63	24.36	5.29	97	8.34	6	530	75	18.40	34.49	24.80	25.14	0.2963	0.2812	3.18
									910	100	18.10	34.63	24.98	25.43	0.378	0.358	0.00302

a) Piano wire. b) Value rejected.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle		Observed values										Interpolated values					Computed values		
		Depth (D) meters	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Oxygen ml/L	Oxygen o/o	Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Density (σ_{tP})	Pressure (ΔP)	Anomalies Dynamic depth (ΔD)	Specific volume ($\Delta \alpha$)	
Station 134--Continued																			
	189	16.32	34.49	25.30	5.01	89	8.30	13	1400	150	17.25	34.59	25.16	25.85	0.533	0.505	0.00286		
h	281	10.01	33.95	26.13	4.46	70	8.14	96	1260	200	15.90	34.44	25.36	26.28	0.680	0.645	0.269		
8.9	375	7.86	33.99	26.52	2.99	45	7.97	154	3100	250	12.30	33.99	26.93	0.810	0.769	0.231			
5°	470	6.33	34.00	26.74	1.88	27	7.85	197	4150	300	9.50	33.94	28.22	0.920	0.874	0.188			
	658	4.96	34.22	27.08	0.38	5	7.75	255	6170	400	7.35	33.99	26.59	1.098	1.045	0.153			
	747	4.50	34.29	27.19	0.32	4	7.75	295	6850	500	6.00	34.04	26.81	1.248	1.188	0.132			
	841	4.24	34.35	27.27	0.41	6	7.74	285	6580	700	4.70	34.26	27.15	1.492	1.421	0.101			
	887	4.12	34.41	27.33	0.49	7	7.75	276	6200	1000	3.90	34.46	27.39	1.78	1.69	0.080			
h	934	4.03	34.44	27.36	0.57	8	7.75	276	5880	1500	2.90	34.52	27.54	2.16	2.07	0.067			
9°	1400	3.04	34.51	27.51	1.11	15	7.81	255	10700	2000	1.15	34.60	27.66	2.48	2.38	0.057			
	1864	2.91	34.57	27.63	1.58	21	7.81	255	10700	2500	1.80	34.62	27.71	2.75	2.65	0.00052			
	2298	1.91	34.62	27.70	1.81	24	7.69	230	8950										
	2741	1.67	34.62	27.71	2.45	32	7.69	230	8950										
	4498a)	1.58	.....	.....	.....	.....	.....	.....	.....			
Station 135: September 14, 1929; 26°39' N, 139°07' W; depth bottom, 4695 m; weather, o; sea, S; wind, 0; good conditions																			
	0	23.76	35.12	23.83	4.78	96	8.37	7	550	0	23.76	35.12	23.83	23.83	0.0000	0.0000	0.00408		
	5	23.77	35.14	23.83	5.30	107	8.37	5	550	5	23.77	35.14	23.83	23.85	0.0215	0.0204	0.407		
	23	23.72	35.27	23.95	4.76	116	8.37	5	540	25	23.70	35.27	23.96	24.07	0.1065	0.1008	0.365		
	47	21.83	35.01	24.25	5.31	104	8.37	5	590	50	21.50	34.98	24.39	24.62	0.2055	0.1948	0.318		
h	70	18.95	34.88	24.73	5.07	94	8.34	5	580	75	19.85	34.85	25.00	25.14	0.2944	0.2790	0.300		
8.9	94	18.95	34.88	24.96	5.07	94	8.34	5	580	100	18.70	34.85	25.23	25.92	0.376	0.356	0.279		
5°	188	16.13	34.47	25.33	4.17	66	8.28	24	670	150	15.75	34.38	25.34	26.26	0.528	0.501	0.270		
	288	10.03	33.98	26.16	3.67	56	8.01	137	1270	250	12.20	34.10	25.87	27.04	0.674	0.639	0.220		
	376	8.05	33.95	26.48	2.20	32	7.97	193	3230	300	9.65	33.97	26.23	27.64	0.802	0.751	0.187		
	469	6.40	33.97	26.71	2.20	32	7.73	268	5750	400	7.55	33.96	26.54	28.43	0.909	0.853	0.158		
	658	4.74	34.19	27.08	0.50	7	7.73	268	5750	500	5.95	33.99	26.78	29.16	1.090	1.036	0.135		
	1027	3.60	34.48	27.43	0.83	11	7.75	263	6400	700	4.55	34.24	27.14	30.48	1.244	1.182	0.102		
	1542	2.70	34.52	27.55	1.40	19	7.78	256	9250	1000	3.65	34.47	27.42	32.20	1.492	1.419	0.075		
	2008	2.06	34.60	27.66	1.80	24	7.83	263	10000	1500	2.75	34.52	27.55	34.73	1.77	1.69	0.065		
	2433	1.79	34.63	27.71	2.20	29	7.85	257	9750	2000	2.05	34.62	27.67	36.04	2.14	2.04	0.055		
h	2884	1.58	34.61	27.71	2.67	35	7.87	244	9750	2500	1.75	34.62	27.71	37.22	2.45	2.35	0.052		
5°	3301	1.52	34.64	27.74	2.92	38	7.90	244	9750 ^{b)}	3000	1.55	34.63	27.73	39.61	2.71	2.61	0.052		
	3736	1.51	34.65	27.75	3.11	40	7.90	241	9000	3500	1.55	34.63	27.73	41.97	2.97	2.87	0.050		
	4098	1.53	34.65	27.75	3.11	41	7.90	241	9000	4000	1.50	34.64	27.74	44.27	3.22	3.12	0.051		
	4660a)	1.56	.....	.....	.....	.....	.....	.....	.....	4000	1.55	34.64	27.74	46.54	3.48	3.38	0.00052
Station 136: September 16, 1929; 26°13' N, 142°02' W; depth bottom, 4713 m; weather, bc; sea, S; wind, SE 3; good conditions; piano wire fouled reversing frame and thermometers were about horizontal																			
	0	24.59	35.38	23.77	4.82	99	8.37	3	600	0	24.59	35.38	23.77	23.77	0.0000	0.0000	0.00414		
h	24	24.60	35.37	23.80	4.77	98	8.39	3	560	5	24.60	35.37	23.76	23.78	0.0218	0.0207	0.410		
8.8	48	21.62	35.13	24.44	5.38	105	8.39	3	620	25	24.40	35.37	23.82	23.93	0.1087	0.1032	0.345		
13°	71	20.00	35.10	24.86	5.28	100	8.39	3	560	50	21.40	35.12	24.50	24.73	0.2083	0.1975	0.307		
	95	18.87	35.02	25.09	5.21	97	8.39	3	650	75	19.75	35.09	24.91	25.25	0.2944	0.2791	0.307		
	188	15.95	34.58	25.45	5.39	95	8.30	13	1100	100	16.65	35.01	25.14	25.59	0.373	0.353	0.286		
										150	17.35	34.80	25.32	26.01	0.520	0.492	0.00270		

a) Piano wire. b) Value rejected.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values							Interpolated values					Computed values			
		Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{tp})	Pressure (ΔP)	Anomalies	
					ml/L	o/o										Dynamic depth (ΔD)	Specific volume (Δα)
Station 136--Continued																	
h	282	11.04	34.05	26.05	5.26	85	8.19	67	1650	200	15.35	34.50	25.53	26.45	0.658	0.623	0.00252
8.8	379	8.71	34.04	26.43	4.16	84	8.12	119	1510	250	12.70	34.17	25.83	26.99	0.783	0.742	224
13°	474	6.57	34.00	26.71	2.77	41	7.95	188	2500	400	10.45	34.04	26.14	27.54	0.894	0.847	196
	663	4.71	34.15	27.06	0.83	12	7.76	292	4100	300	8.20	34.03	26.50	28.39	1.081	1.026	162
	950	3.80	34.42	27.37	0.69	9	7.76	311	6100	700	6.10	34.01	26.78	29.16	1.238	1.175	135
h	1413	2.92	34.54	27.55	1.26	17	7.81	283	6400	1000	4.55	34.20	27.11	30.45	1.489	1.415	105
	1884	2.21	34.61	27.67	1.74	23	7.87	271	7600	1500	3.65	34.44	27.39	32.17	1.78	1.69	078
12.0	2311	1.83	34.62	27.70	1.82	24	7.87	271	7600	2000	2.75	34.55	27.57	34.75	2.15	2.05	063
19°	2760a)	1.61	34.63	27.72	2.55	33	.....	.....	.....	2000	2.10	34.61	27.67	37.22	2.45	2.35	056
	.....a)	2.48	34.53	.....	.....	.....	.....	.....	.....	2500	1.70	34.62	27.71	39.61	2.72	2.61	0.00052
	.....a)	1.99	34.62	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	4044b)	1.57	34.65	27.74	2.80	36	7.93	241	6950	.....	.....	.....	.....	.....	.....	.....	.....
Station 137: September 18, 1929; 24°02' N, 145°33' W; depth bottom, 5208 m; weather, b; sea, MC; wind, NE by E 4; fair conditions																	
242	0	25.48	34.97	23.19	4.64	96	8.39	4	600	0	25.48	34.97	23.19	23.19	0.0000	0.0000	0.00470
	5	25.50	34.96	23.18	4.62	95	8.38	5	610	5	25.50	34.96	23.18	23.20	0.0247	0.0236	471
	22	25.47	34.97	23.20	4.71	97	8.37	4	510	25	25.45	34.97	23.20	23.31	0.1236	0.1177	470
	46	24.84	35.12	23.50	4.94	101	8.34	4	600	50	24.45	35.11	23.61	23.84	0.2421	0.2301	430
h	68	21.52	34.92	24.03	5.05	100	8.37	5	530	75	22.25	34.93	24.11	24.45	0.3493	0.3320	384
9.6	91	22.72	35.07	24.37	4.98	97	8.30	5	620	100	21.50	35.08	24.44	24.89	0.446	0.424	353
22°	182	18.60c)	34.15	25.20	4.88	91	8.28	4	660	150	19.85	35.10	24.90	25.58	0.621	0.589	310
	285	12.40c)	34.15	25.87	4.17	69	8.14	62	770	200	17.70	34.93	25.31	26.22	0.776	0.736	274
	372	9.15	34.04	26.36	3.97	62	8.06	126	1830	250	14.15	34.27	25.61	26.76	0.913	0.866	246
	468	6.96	34.06	26.70	2.18	32	7.87	234	2920	300	11.15	34.10	26.07	27.46	1.031	0.978	202
	662	5.17	34.28	27.11	0.54	8	7.73	288	4500	400	6.40	34.04	26.48	28.37	1.224	1.161	134
	1056	3.80	34.48	27.41	0.93	13	7.75	302	6100	500	6.45	34.08	26.79	29.15	1.381	1.310	134
	1584	2.73	34.57	27.58	1.49	20	7.81	288	7050	700	5.00	34.31	27.15	30.49	1.628	1.546	102
	2092	2.08d)	34.60	27.66	1.99	26	7.87	265	8200	1000	3.95	34.46	27.38	32.15	1.91	1.82	080
	2566	1.77	34.63	27.71	2.36	31	7.87	265	8200	1500	2.85	34.56	27.57	34.74	2.29	2.18	063
h	3051	1.57	34.64	27.73	2.80	36	7.90	229	7600	2000	2.15	34.60	27.66	37.20	2.61	2.49	057
10.9	3496	1.52	34.65	27.75	3.07	40	7.90	229	7600	2500	1.80	34.63	27.71	39.61	2.87	2.75	052
22°	3938	1.51	34.65	27.75	3.20	42	7.90	226	7600	3000	1.60	34.64	27.73	41.97	3.13	3.05	051
	5168b)	1.52	34.65	27.75	3.46	45	7.90	226	7600	3500	1.50	34.65	27.75	44.28	3.38	3.27	050
			.....	.....	.....	.....	.....	.....	.....	4000	1.50	34.65	27.75	46.55	3.63	3.52	0.00051
Station 138: September 20, 1929; 22°53' N, 151°15' W; depth bottom, 5382 m; weather, bc; sea, MC; wind, NE by E 4; rather bad conditions; vessel drifting and surging																	
h	0	26.14	34.85	22.90	4.65	97	8.35	5	580	0	26.14	34.85	22.90	22.90	0.0000	0.0000	0.00497
8.9	4	26.15	34.83	22.88	4.65	97	8.32	3	580	5	26.15	34.83	22.88	22.90	0.0262	0.0249	499
35°	20	26.14	34.83	22.88	4.54	97	8.30	3	520	25	26.10	34.83	22.89	23.00	0.1312	0.1248	499
	41	26.05	34.81	22.89	4.66	97	8.30	3	520	50	25.60	34.74	22.98	23.21	0.2614	0.2485	491
	62	23.11	34.64	23.65	1.99e)	40	8.28	3	520	75	22.90	34.75	23.79	24.13	0.3805	0.3618	0.00415
a) Water bottles probably reversed at depths of about 2200 and 1800 meters when being lowered; values rejected. b) Piano wire.																	
c) Temperature mean of 12°35 and 12°45. d) Temperature (2°81) by second thermometer rejected. e) Value rejected.																	

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.F. and wire angle	Depth (D) meters	Temperature (t) °C	Observed values					Interpolated values					Computed values				
			Salinity (S) o/oo	Density (σ_t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Density (σ_{tp})	Pressure (AP)	Anomalies	
					ml/L	o/o										Dynamic depth (AD)	Specific volume (Δα)
Station 138--Continued																	
	83	21.18	34.83	24.43	4.77	94	8.31	3	500	23.20	34.85	24.06	24.51	0.486	0.462	0.00390	
	167	20.56	34.96	24.66	4.92	95	8.31	3	500	21.45	34.94	24.34	25.02	0.685	0.650	0.364	
h	210	18.24	35.25	24.86	4.81	92	8.26	3	470	20.60	35.23	24.79	25.69	0.867	0.823	0.324	
8.9	252	18.24	34.90	25.15	4.54	84	8.23	13	610	18.50	34.94	25.12	26.26	1.029	0.977	0.283	
35°	339	11.33	34.14	26.07	4.68	76	8.08	72	1220	9.10	34.81	26.38	27.19	1.167	1.107	0.288	
	426	8.48	34.04	26.47	3.86	59	8.01	142	2140	6.80	34.05	26.74	28.26	1.379	1.309	0.175	
	90	22.40c)	34.80	23.97	..	..	8.30	5	570	4.90	34.22	27.09	29.11	1.544	1.466	0.139
	648	5.17	34.18	27.03	0.82	12	7.75	315	3030	4.10	34.46	27.37	30.43	1.802	1.713	0.108	
	744	4.73	34.29	27.16	0.62	19	7.75	312	5440	2.90	34.54	27.55	32.14	2.10	2.00	0.082	
	842	4.45	34.39	27.28	0.76	12	7.75	302	5620	2.25	34.61	27.69	33.72	2.48	2.37	0.066	
h	941	4.27	34.45	27.34	0.88	12	7.75	285	6020	1.85	34.60	27.72	34.72	2.80	2.69	0.057	
9.9	1433	3.07	34.53	27.52	1.40	19	7.81	276	6330	1.40	34.61	27.69	37.20	3.08	2.96	0.00055	
37°	1921	2.33	34.60	27.64	1.87	25	7.85	255	7460	1.28	34.61	27.69	39.58	3.08	2.96	0.00055	
	2375	1.92	34.61	27.69	2.28	30	7.85	245	7810d)	1.85	34.61	27.69	39.58	3.08	2.96	0.00055	
	2840	1.70	34.62	27.71	2.53	33	7.85	245	7580	1.85	34.61	27.69	39.58	3.08	2.96	0.00055	
	5342a)	1.52	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Station 139: September 22, 1929; 21°47' N, 155°31' W; depth bottom, 5030 m; weather, bc; sea, M; wind, ESE 3; fair conditions; two lowest water bottles probably reversed when lowered; values rejected																	
	0	26.72	34.82	22.69	4.65	98	8.34	6	560	26.72	34.82	22.69	22.69	0.0000	0.0000	0.00517	
	5	26.72	34.82	22.69	4.63	97	8.34	6	560	26.70	34.85	22.72	22.71	0.0272	0.0259	0.517	
	23	26.70	34.85	22.72	4.58	96	8.28	6	530	26.70	34.85	22.72	22.83	0.1358	0.1291	0.515	
	46	26.70	34.85	22.72	4.67	98	8.31	6	560	25.75	34.87	23.03	23.26	0.2675	0.2542	0.468	
h	69	24.00	34.96	23.45	5.05	103	8.31	6	570	24.20	35.01	23.61	23.95	0.3882	0.3690	0.432	
8.8	93	22.78	35.18	24.15	4.98	99	8.28	6	570	22.35	35.17	24.27	24.72	0.493	0.469	0.370	
16°	187	16.32	34.65	25.28	4.11	74	8.16	8	720	15.80	34.96	25.02	25.70	0.670	0.636	0.299	
	235	13.17	34.25	25.80	3.91	66	8.08	70	940	10.85	34.20	25.43	26.35	0.819	0.777	0.262	
	282	10.30	34.14	26.08	4.40	71	8.04	92	1270	8.35	34.13	26.14	27.08	0.944	0.896	0.215	
	332	10.30	34.11	26.23	4.42	70	8.03	115	1370	8.35	34.13	26.14	27.53	1.053	0.999	0.195	
	381	8.94	34.05	26.42	3.71	57	7.93	165	2000	6.35	34.05	26.50	28.39	1.241	1.178	0.162	
	458	7.03	34.08	26.71	2.73	40	7.78	235	2900	6.30	34.11	26.83	29.21	1.355	1.324	0.130	
	642	5.05	34.23	27.08	1.08	15	7.65	297	4570	4.90	34.29	27.14	30.48	1.638	1.567	0.103	
h	913	4.33	34.48	27.36	0.92	13	7.65	319	6020	4.05	34.52	27.42	32.19	1.92	1.83	0.077	
9.8	1360	3.02	34.57	27.56	1.47	20	7.67	302	7050	2.80	34.58	27.58	34.75	2.28	2.18	0.062	
25°	1815	2.32	34.59	27.64	1.94	26	7.72	288	7580	2.10	34.60	27.66	37.21	2.59	2.48	0.057	
	2238	1.89	34.63	27.71	2.35	31	7.75	279	7700	1.80	34.64	27.72	39.62	2.86	2.75	0.00051	
	4990a)	1.49	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Station 140: October 3, 1929; 23°26' N, 159°27' W; depth bottom, 4762 m; weather, bc; sea, MR; wind, ENE 5; fair conditions; strong trade wind																	
	0	26.91	35.04	22.80	4.56	96	8.42	7	860	26.91	35.04	22.80	22.80	0.0000	0.0000	0.00507	
h	5	26.92	35.04	22.80	4.55	96	8.39	7	720	26.92	35.04	22.80	22.82	0.0267	0.0254	0.507	
9.0	22	26.91	34.93	22.72	4.54	96	8.39	7	660	26.90	34.93	22.72	22.83	0.1341	0.1276	0.515	
22°	46	26.87	35.02	22.80	4.58	97	8.39	7	660	26.90	35.02	22.79	23.02	0.2688	0.2556	0.509	
	68	26.89	35.03	22.80	4.46	94	8.38	7	550	26.85	35.03	22.81	23.15	0.4026	0.3829	0.509	
	91	25.94	35.02	23.09	4.80	100	8.34	7	760	25.50	35.03	23.23	23.68	0.531	0.505	0.00470	

a) Plano wire. b) Thermometer did not function. c) Temperature (22.01) by second thermometer rejected. d) Value rejected.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep-sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values						Interpolated values						Computed values			
		Temperature (t) °C	Salinity (s) o/oo	Density (σ _t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{TP})	Pressure (ΔP)	Anomalies	
					ml/L	o/o										Dynamic depth (ΔD)	Specific volume (ΔC)
Station 140--Continued																	
	182	21.05	35.40	24.80	4.88	94	8.33	7	740	150	22.75	35.33	24.28	24.95	0.752	0.715	0.00371
h	228	19.39	35.18	25.08	4.35	82	8.32	7	530	200	20.35	35.36	24.96	25.86	0.932	0.886	308
9.0	275	16.52	34.46	25.23	4.48	80	8.21	7	760	250	18.00	34.90	25.21	26.35	1.088	1.033	285
22°	323	13.23	34.25	25.78	4.27	72	8.07	20	1450	300	14.65	34.32	25.54	26.91	1.230	1.168	254
	371	10.57	34.15	26.21	4.43	71	8.07	80	1540	400	9.65	34.05	26.29	28.17	1.450	1.388	184
	375	10.64	34.06	26.12	4.34	69	8.04	68	1920	500	7.15	34.02	26.65	29.02	1.655	1.554	148
	470	7.78	34.01	26.55	3.77	57	7.89	110	2780	700	4.75	34.19	27.08	30.42	1.905	1.811	109
	656	5.02	34.14	27.01	0.97	14	7.66	121	6330	1000	3.85	34.44	27.38	32.16	2.20	2.10	80
h	937	4.03	34.41	27.33	0.88	12	7.54	150	34.59	1500	2.75	34.52	27.54	34.72	2.58	2.47	058
10.2	1335a)	3.18	34.53	27.52	1.36	18	7.71	201	7700	2500	2.15	34.59	27.65	37.19	2.90	2.78	058
39°	1399	2.95	34.51	27.52	1.41	19	7.71	201	7700	2500	1.85	34.62	27.70	39.59	3.17	3.05	0.00054
	1646a)	2.95	34.57	27.52	1.50	20	7.73	190	6750	2500	1.85	34.62	27.70	39.59	3.17	3.05	0.00054
	1961b)	2.23	34.60	27.52	2.05	27	7.73	190	6750	2500	1.85	34.62	27.70	39.59	3.17	3.05	0.00054
	4722b)	1.55	34.60	27.52	2.05	27	7.73	190	6750	2500	1.85	34.62	27.70	39.59	3.17	3.05	0.00054
Station 141: October 5, 1929; 29°02' N, 161°11' W; depth bottom, 5667 m; weather, bc; sea, MC; wind, ENE 5; fair conditions; no trace of bottom sample																	
	0	25.89	35.19	23.24	4.74	99	8.34	5	890c)	0	25.89	35.19	23.24	23.24	0.0000	0.0000	0.00465
	5	25.91	35.20	23.24	4.65	97	8.34	5	1160	5	25.91	35.20	23.24	23.26	0.0245	0.0233	465
	23	25.90	35.19	23.23	4.63	96	8.34	5	470	25	25.90	35.19	23.23	23.34	0.1225	0.1165	467
	46	25.31	35.26	23.46	4.86	100	8.34	5	1630	50	24.75	35.26	23.63	23.86	0.2403	0.2283	428
h	69	22.65	35.19	24.20	4.93	98	8.34	5	530	75	22.20	35.16	24.30	24.64	0.3449	0.3277	366
16°	90	20.79	35.10	24.64	5.29	102	8.33	5	980	100	20.00	35.05	24.82	25.27	0.413	0.413	317
	184	15.55	34.53	25.50	4.66	82	8.21	43	1880c)	150	16.90	34.74	25.36	26.05	0.589	0.569	267
	220	14.29	34.38	25.67	4.32	74	8.19	50	1160	200	15.10	34.45	25.55	26.47	0.725	0.689	250
	277	12.71	34.27	25.90	4.73	79	8.12	64	1010	250	13.65	34.32	25.75	26.91	0.852	0.809	232
	324	11.76	34.24	26.06	4.80	79	8.10	78	2380	300	12.15	34.25	26.00	27.39	0.969	0.919	210
	371	11.14	34.21	26.15	4.77	77	8.11	83	2380	400	10.65	34.16	26.20	28.07	1.180	1.121	193
	369	11.14	34.18	26.13	4.80	77	8.08	83	1440	500	8.45	34.04	26.47	28.83	1.369	1.301	166
	464	9.20	34.07	26.38	4.31	67	8.00	129	2060	700	5.00	34.00	26.90	30.24	1.674	1.593	125
	654	5.48	33.98	26.83	2.26	33	7.57	322	5950	1500	3.60	34.29	27.28	32.07	2.01	1.92	090
h	946	3.75	34.24	27.23	0.46	6	7.57	322	5950	2000	2.70	34.47	27.51	34.69	2.42	2.32	069
10.2	1433	2.83	34.46	27.49	1.12	15	7.69	257	7050	2500	1.95	34.55	27.64	37.20	2.75	2.64	057
31°	1907	2.10	34.53	27.60	1.80	24	7.69	257	7050	2500	1.70	34.63	27.71	39.61	3.01	2.90	0.00052
	2341	1.80	34.63	27.71	2.19	29	7.78	244	7580	2500	1.70	34.63	27.71	39.61	3.01	2.90	0.00052
	2784b)	1.63	34.64	27.73	2.72	35	7.78	244	7580	2500	1.70	34.63	27.71	39.61	3.01	2.90	0.00052
	5637b)	1.63	34.64	27.73	2.72	35	7.78	244	7580	2500	1.70	34.63	27.71	39.61	3.01	2.90	0.00052
Station 142: October 7, 1929; 32°42' N, 160°44' W; depth bottom, 5787 m; weather, bc; sea, MS; wind, O; fairly good conditions																	
	0	24.07	34.85	23.53	4.83	98	8.33	5	560c)	0	24.07	34.85	23.53	23.53	0.0000	0.0000	0.00437
h	5	24.08	34.90	23.57	4.84	98	8.33	5	470	5	24.08	34.90	23.57	23.59	0.0229	0.0218	433
9.0	24	23.75	34.86	23.63	4.83	97	8.33	5	620	25	23.70	34.86	23.64	23.75	0.1135	0.1078	427
7°-15°	46	22.45	34.79	23.95	5.20	102	8.30	5	200	50	21.80	34.76	24.11	24.34	0.2202	0.2089	382
	70	17.97	34.54	24.94	5.72	105	8.26	5	220	75	17.65	34.52	25.01	25.35	0.3100	0.2940	298
	93	16.90	34.47	25.15	5.60	101	8.27	7	450	100	16.55	34.45	25.22	25.68	0.386	0.366	0.00279

a) Water bottles probably reversed when being lowered; values rejected. b) Piano wire. c) Value rejected.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values										Interpolated values					Computed values		
		Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{tP})	Pressure (ΔP)	Anomalies			
					ml/L	o/o										Dynamic depth (ΔD)	Specific volume (ΔC)		
Station 142--Continued																			
	185	13.43	34.28	25.77	4.97	84	8.17	.43	1330 ^b	150	14.45	34.34	25.60	0.523	0.496	0.00244			
	277	11.78	34.24	26.06	4.56	75	8.10	107	980	200	13.15	34.27	25.82	0.648	0.614	224			
h	372	10.25	34.16	26.26	4.97	79	8.08	107	1030	250	12.20	34.25	25.99	0.761	0.722	209			
7°-15°	455	8.88	34.05	26.40	4.71	73	7.97	113	1900	300	11.40	34.23	26.12	0.869	0.824	197			
	650	5.69	33.94	26.79	2.76	40	7.78	206	3490	400	9.80	34.12	26.32	1.067	1.013	181			
	843	4.16	34.07	27.05	0.92	13	7.60	261	5560	500	8.30	34.00	26.46	1.250	1.187	167			
	994	3.68	34.22	27.22	0.32	4	7.57	295	6340	700	6.10	33.96	26.86	1.560	1.485	129			
	1484	2.70	34.47	27.51	0.74	10	7.61	311	7050	1000	3.65	34.22	27.32	1.91	1.82	995			
h	2063	1.79	34.53	27.61	1.58	21	7.67	302	7250	1500	2.00	34.47	27.51	2.33	2.24	069			
10.2	2852	1.60	34.60	27.69	2.08	27	7.73	288	7580	2000	1.70	34.54	27.62	2.67	2.56	059			
11°-15°	3258	1.54	34.61	27.71	2.50	33	7.73	268	7580	2500	1.55	34.60	27.69	2.95	2.84	054			
	3682	1.52	34.60	27.71	2.82	37	7.77	251	7700	3000	1.50	34.61	27.71	3.21	3.11	052			
	4043	1.53	34.64	27.74	3.23	43	7.81	237	7700	3500	1.55	34.62	27.73	3.47	3.37	052			
	5747a)	1.65	34.62	27.72	3.29	42	7.83	228	6660	4000	1.55	34.62	27.72	3.74	3.63	0.00054			
Station 143: October 9, 1929; 34°06' N, 157°09' W; depth bottom, 5841 ^c m; weather, qqr; sea, RC; wind, SSW 6; bad conditions; vessel drifting and plunging																			
	0	22.44	34.39	23.65	5.01	98	8.30	6	460 ^b	0	22.44	34.39	23.65	0.0000	0.0000	0.00426			
	4	22.44	34.39	23.65	4.99	98	8.30	...	...	5	22.44	34.39	23.65	0.0224	0.0213	426	
	20	22.42	34.41	23.67	5.01	98	8.30	...	...	25	22.35	34.41	23.69	0.1117	0.1062	423	
	40	21.85	34.40	23.82	5.08	99	8.34	6	460	75	19.00	34.21	24.44	0.2136	0.2039	350			
	56	16.77	34.16	24.94	6.27	112	8.30	6	460	100	14.90	34.10	25.32	0.2953	0.2802	268			
h	81	14.57	34.10	25.38	5.83	101	8.30	10	620	150	13.80	34.11	25.56	0.363	0.344	247			
40°	143	12.33	34.19	25.92	5.14	85	8.20	51	620	200	12.55	34.18	25.86	0.486	0.460	218			
	246	11.31	34.20	26.12	4.40	71	8.12	84	1300 ^b	250	11.25	34.20	26.13	0.598	0.566	205			
	330	9.89	34.14	26.32	5.05	80	8.08	94	1300	300	10.45	34.17	26.25	0.703	0.666	185			
	413	8.42	34.04	26.48	4.71	72	8.04	61	1300	400	8.65	34.06	26.46	0.988	0.938	167			
	500	6.95 ^d	33.95	26.63	...	...	7.90	79	2670	500	6.95	33.96	26.64	1.155	1.096	149	
	506	7.01	33.98	26.63	2.73	...	7.92	74	2600	700	4.50	34.04	26.99	1.433	1.361	116			
	591	5.56	33.99	26.83	2.73	...	7.80	95	3050	1000	3.40	34.31	27.32	1.75	1.66	085			
	722	4.34	34.05	27.02	1.30	18	7.62	122	4550	1500	2.60	34.50	27.54	2.14	2.05	066			
h	878	3.69	34.21	27.21	0.24	3	7.59	285	6020	2000	1.35	34.57	27.85	2.46	2.36	057			
9.6	1388	2.74	34.47	27.50	...	...	7.60	304	7350	2500	1.70	34.60	27.89	2.73	2.63	0.00054	
45°	1897	2.08	34.56	27.63	1.50	20	7.73	462 ^b	7700										
	2348	1.79	34.59	27.67	1.90	25	7.73	462 ^b	7700										
Station 144: October 11, 1929; 33°38' N, 151°47' W; depth bottom, 5523 ^e m; weather, qqr; sea, MC; wind, SW by S 4; fair conditions; considerable drift																			
	0	23.26	34.97	23.86	4.93	98	8.37	6	300 ^b	0	23.26	34.97	23.86	0.0000	0.0000	0.00406			
h	4	23.28	35.02	23.89	4.95	99	8.37	6	300	5	23.30	35.02	23.88	0.0213	0.0203	404			
9.1	20	23.27 ^f	34.94	23.83	4.96	99	8.37	6	280	25	23.25	34.94	23.84	0.1068	0.1015	408			
40°	41	22.91 ^f	34.95	23.94	4.94	98	8.39	6	340	50	21.00	34.74	24.29	0.2087	0.1981	365			
	57	18.69	34.64	24.84	5.83	108	8.33	6	500 ^b	75	17.70	34.61	25.07	0.2955	0.2803	292			
	81	17.46	34.59	25.11	5.67	103	8.37	6	7700	100	16.60	34.51	25.25	0.370	0.351	0.00276			

a) Piano wire. b) Value rejected. c) Sonic depths 5841 m at 34°06' N, 157°18' W and 5889 m at 34°16' N, 158°48' W. d) Temperature from pressure thermometer and wire depth. e) Sonic depths 5523 m at 33°38' N, 151°59' W and 5523 m at 33°36' N, 151°10' W. f) Temperature (23.62) by second thermometer rejected.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values										Interpolated values					Computed values		
		Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{tp})	Pressure (ΔP)	Anomalies			
					ml/L	o/o										Dynamic depth (ΔD)	Specific volume (ΔV)		
Station 144--Continued																			
h	167	13.09	34.27	25.83	5.09	85	8.23	11	610	150	13.65	34.28	25.72	26.41	0.504	0.478	0.00231		
	255	11.37	34.30	26.18	4.70	76	8.18	55	710	200	12.25	34.29	26.01	26.94	0.588	0.588	0.00206		
9.1	343	10.00	34.16	26.32	5.04	80	8.16	106	1000	250	11.45	34.31	26.18	27.34	0.724	0.686	0.00191		
40°	438	8.45a)	34.06	26.49	4.66	71	8.08	134	1350	300	10.65	34.23	26.25	27.65	0.824	0.781	0.00185		
	635	5.15a)	34.01	26.89	3.29	32	7.69	233	3530	400	9.05	34.09	26.42	28.30	1.010	0.959	0.00171		
	900	3.73	34.21	27.20	0.49	7	7.53	268	6670	700	7.35	34.02	26.62	28.99	1.180	1.120	0.00151		
	1133	3.12	34.39	27.41	0.27	4	7.53	268	7470	1000	4.60	34.04	26.98	30.32	1.461	1.389	0.00118		
	1367	3.03	34.54	27.54	0.54	7	7.56	265	8350	1500	2.50	34.56	27.30	32.09	1.78	1.70	0.00087		
h	1821	1.81	34.58	27.64	1.28	17	7.64	245	9870	2000	1.95	34.58	27.66	34.78	2.16	2.07	0.00059		
40°	2274	1.82	34.55	27.68	1.87	24	7.64	245	9870	2500	1.70	34.62	27.71	37.22	2.46	2.36	0.00056		
	2716	1.82	34.65	27.74	2.47	32	7.74	224	9740	3000	1.55	34.65	27.74	41.98	2.98	2.88	0.00049		
	3133	1.54	34.66	27.75	2.83	41	7.74	224	9740	3500	1.50	34.66	27.76	44.29	3.22	3.13	0.00049		
	3552	1.50	34.65	27.75	3.15	41	7.78	206	8540	4000	1.50	34.66	27.76	46.56	3.47	3.38	0.00050		
	4036	1.51	34.67	27.77	3.27	43	7.78	206	8540										
Station 145: October 13, 1929; 33°27' N, 145°30' W; depth bottom, 5584 m; weather, bc; sea, ML; wind, WNW 2-3; good conditions																			
	0	22.27	34.62	23.88	4.96	97	8.29	6	310d)	0	22.27	34.62	23.88	23.88	0.0000	0.0000	0.00404		
	5	22.29	34.67	23.90	5.07	99	8.31	6	260	5	22.29	34.67	23.90	23.93	0.0212	0.0202	402		
	24	22.33	34.69	23.91	5.07	108	8.31	6	210	25	18.70	34.69	23.91	24.02	0.1057	0.1006	402		
	48	19.16	34.32	24.48	5.77	108	8.34	6	310	50	18.70	34.31	24.59	24.82	0.2030	0.1928	336		
h	72	16.58b)	34.18	25.00	6.01	107c)	8.31	6	310d)	75	15.95	34.18	25.00	25.35	0.2668	0.2723	299		
9.2	95	13.12	34.71d)	25.58	5.41	95c)	8.20	6	590c)	150	15.95	34.10	25.09	25.55	0.364	0.346	291		
6°	189	10.34	35.95	25.58	5.43	91	8.20	35	310	150	14.45	33.97	25.32	26.02	0.512	0.486	270		
	281	8.90	34.20	26.29	4.73	75	8.09	95	610	200	12.60	33.96	25.65	26.58	0.647	0.614	241		
	373	6.97	34.16	26.50	4.73	75	8.04	129	650	250	11.20	34.12	26.08	27.25	0.762	0.724	200		
	454	5.30	33.98	26.63	3.27	48	7.83	177	2860	300	9.95	34.20	26.36	27.76	0.861	0.818	175		
	555	4.58	34.02	26.89	1.91	27	7.66	229	3570	400	8.40	34.11	26.54	28.43	1.035	0.985	158		
	642	4.58	34.09	27.02	1.13	16	7.60	292	3750	500	6.30	33.99	26.73	29.11	1.192	1.134	139		
	684	4.46	34.08	27.03	0.99	14	7.58	302	3500	700	4.30	34.13	27.08	30.42	1.451	1.381	108		
h	951	3.50	34.32	27.32	0.28	6	7.58	315	3000	1000	3.35	34.34	27.34	32.13	1.75	1.67	83		
9.0	1188	2.66	34.41	27.44	0.43	6	7.57	311	2500	1500	2.55	34.53	27.57	33.75	2.13	2.04	63		
	1827	2.04	34.51	27.57	0.87	11	7.60	302	1850	2000	2.00	34.60	27.67	37.22	2.44	2.34	0.00055		
	1894	2.04	34.61	27.67	1.60	21	7.66	288	8340	2500	1.70	34.63	27.71	39.61	2.70	2.60	0.00052		
	2327	1.79	34.62	27.71	2.08	27	7.73	279	8770										
Station 146: October 15, 1929; 31°51' N, 140°50' W; depth bottom, 4756 m; weather, bc; sea, MC; wind, SW to NW; fair conditions; considerable drift																			
	0	22.37	34.86	24.02	5.01	99	8.37	6	260d)	0	22.37	34.86	24.02	24.02	0.0000	0.0000	0.00390		
h	4	22.39	34.85	24.01	4.99	98	8.32	6	250	5	22.40	34.85	24.01	24.04	0.0205	0.0196	391		
9.0	22	22.39	34.87	24.03	5.00	98	8.30	6	180	25	22.40	34.88	24.03	24.14	0.1027	0.0977	390		
28°	44	22.37	34.91	24.07	4.99	98	8.30	6	290	44	22.35	34.91	24.07	24.30	0.2051	0.1947	386		
	68	22.38	34.85	24.02	4.96	98	8.31	6	240	75	22.30	34.67	23.90	24.24	0.3092	0.2935	404		
	92	20.07	34.32	24.24	5.97	113	8.26	7	560d)	100	19.70	34.32	24.35	24.80	0.410	0.389	0.00362		

a) Temperature from pressure-thermometer and wire depth. b) Thermometer did not function properly. c) Value approximate. d) Value rejected.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values							Interpolated values							Computed values		
		Temperature (t) °C	Salinity (S) o/oo	Density (σ_t^*)	Oxygen ml/L	Oxygen o/o	Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t^*)	Density (σ_{tp})	Pressure (ΔP)	Anomalies		
																Dynamic depth (ΔD)	Specific volume ($\Delta \alpha$)	
Station 146--Continued																		
	184	17.00	34.62	25.24	5.20	94	8.26	9	660	150	17.95	34.50	24.92	25.61	0.597	0.556	0.00308	
	277	11.43	33.97	25.91	4.51	73	8.11	93	1470	200	16.25	34.60	25.40	26.32	0.738	0.700	265	
	372	8.89	33.08	26.44	4.24	67	8.00	155	2380	250	12.65	34.01	26.72	26.88	0.869	0.825	235	
	469	7.07	33.99	26.63	3.14	47	7.89	166	7350	300	10.65	33.98	26.06	27.46	0.985	0.935	204	
	665	4.79	34.07	26.99	1.01	14	7.66	260	7350	400	8.30	34.05	28.39	1.176	1.118	162		
	764	4.28	34.23	27.17	0.38	5	7.60	335	6400	500	6.55	34.00	26.71	29.08	1.337	1.270	142	
	1096	3.42	34.44	27.42	0.56	8	7.62	327	6400	700	4.60	34.12	27.05	30.39	1.602	1.523	111	
	1650	2.47	34.54	27.58	1.33	18	7.67	302	7150	1000	3.65	34.39	27.35	32.13	1.82	1.80	83	
	2173	1.89	34.61	27.69	1.85	24	7.73	288	7050	1500	2.70	34.53	27.55	34.73	2.19	2.19	65	
	2665	1.67	34.63	27.72	2.28	31	7.73	288	7050	2000	2.05	34.60	27.67	37.22	2.60	2.50	65	
	3159	1.54	34.65	27.75	2.28	29	7.81	237	7050	2500	1.70	34.63	27.71	39.61	2.86	2.76	65	
	3610	1.50	34.66	27.76	3.11	40	7.81	237	7050	3000	1.60	34.65	27.74	41.98	3.12	3.02	65	
	4059	1.51	34.65	27.75	3.11	40	7.85	234	7150	3500	1.50	34.65	27.75	44.28	3.36	3.26	65	
	4486	1.55	34.65	27.75	3.40	44	7.85	234	7150	4000	1.50	34.65	27.75	46.55	3.61	3.52	65	
	4716a)	1.55	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.00051
Station 147: October 17, 1929; 27°27' N, 138°14' W; depth bottom, 4840 m; weather, bc; sea, MS; wind, S by W 2; good conditions; series not carried deeper for fear of losing water bottles on account of frayed wire; water-bottle on piano wire did not reverse at proper level or was overturned coming up, and thermometers were not locked																		
	0	23.31	35.27	24.07	4.89	98	8.26	8	400 ^{c)}	0	23.31	35.27	24.07	24.07	0.0000	0.0000	0.00386	
	5	23.34	35.28	24.06	4.91	98	.....	.....	.....	5	23.34	35.28	24.06	24.08	0.0203	0.0193	386
	24	23.31	35.31	24.09	4.83	97	.....	.....	.....	25	23.30	35.26	24.10	24.21	0.1014	0.0964	384
	47	23.15	35.26	24.12	5.02	100	.....	.....	.....	50	20.30	35.06	24.12	24.35	0.2022	0.1921	382
	71	20.62	35.07	24.67	5.45	104	8.29	1.5	200	75	19.15	35.04	24.75	25.09	0.2951	0.2803	323	
	94	19.27	35.04	25.00	5.20	96	8.29	5	220	100	17.65	35.00	25.37	25.48	0.377	0.358	297	
	142	18.09	35.02	25.28	4.56	80	8.26	7	220	150	14.25	34.13	25.37	26.05	0.525	0.498	266	
	188	15.25	34.42	25.49	4.78	78	8.16	42	310	200	11.15	34.06	26.04	26.40	0.664	0.630	257	
	235	11.89	34.07	25.91	4.78	78	8.06	92	570	250	9.75	34.03	26.28	27.21	0.785	0.744	257	
	283	10.13	34.04	26.20	4.60	73	7.99	121	770	300	9.75	34.03	26.28	27.21	0.785	0.744	257	
	377	8.23	33.99	26.46	4.01	61	7.89	172	1450	400	7.85	33.99	26.28	27.65	0.887	0.842	204	
	173	.....	34.74	.....	4.93	88	8.19	9	610	500	6.05	34.05	26.52	28.41	1.068	1.015	160
	613	4.80	34.14	27.04	0.80	11	7.57	308	.....	700	4.40	34.21	27.14	30.48	1.222	1.176	103
	9.8	3.83	34.37	27.32	0.57	8	7.53	319	4950	1000	3.75	34.39	27.34	32.12	1.466	1.393	84	
	1360b)	2.87	34.56	27.57	1.37	18	7.63	297	6250	1500	2.70	34.58	27.59	34.77	2.13	2.04	61	
	1875b)	2.23	34.59	27.65	1.70	22	7.64	279	6950 ^{c)}	2000	2.10	34.60	27.66	37.21	2.44	2.34	67	
Station 148: October 19, 1929; 24°57' N, 137°44' W; depth bottom, 4835 m; weather, bc; sea, MS; wind, 2; good conditions; considerable drift to northwest; second series was delayed to avoid tangling of piano wire																		
	0	23.41	35.18	23.96	4.84	97	.....	.....	.....	0	23.41	35.18	23.96	23.96	0.0000	0.0000	0.00396
	5	23.43	35.22	23.99	4.84	97	.....	.....	.....	5	23.43	35.22	23.99	24.01	0.0208	0.0197	392
	23	23.41	35.14	23.94	4.84	97	.....	.....	.....	25	23.40	35.14	23.94	24.05	0.1042	0.0988	399
	46	23.32	35.14	23.97	.....	.....	.....	.....	.....	50	23.00	35.11	24.04	24.27	0.2080	0.1973	389
	70	20.93	34.95	24.49	.....	.....	.....	.....	.....	75	20.70	34.95	24.56	24.90	0.3042	0.2887	341
	94	20.10	34.95	24.72	5.13	97	.....	.....	.....	100	19.95	34.95	24.76	25.21	0.3591	0.352	341
	a) Piano wire. b) Depths uncertain. c) Value rejected.																	

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values					Interpolated values					Computed values				
		Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen ml/L	Oxygen o/o	Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{tp})	Pressure (ΔP)	Dynamic depth (ΔD)	Specific volume (ΔV)
Station 148--Continued																
	139	18.58	34.85	25.03	4.78	89	....	....	150	18.30	34.82	25.08	25.76	0.554	0.525	0.00293
h	195	17.65	34.73	25.17	4.44	81	....	....	200	17.30	34.67	25.21	26.12	0.707	0.670	284
8.8	277	11.01	35.97	26.00	4.57	73	....	....	250	13.95	33.05	25.48	26.64	0.849	0.805	258
15°	378	8.15	34.00	26.49	3.62	55	....	....	300	10.00	33.97	26.17	27.58	0.968	0.918	193
	466	6.46	34.06	26.77	2.33	34	....	....	400	7.60	34.02	26.59	28.48	1.149	1.092	154
	711	4.71	34.26	27.14	0.38	5	....	....	500	6.05	34.08	26.84	29.22	1.298	1.234	129
h	1009	3.92	34.46	27.39	0.75	10	....	....	700	4.75	34.25	27.13	30.47	1.541	1.467	104
10.9	1504	2.86	34.50	27.52	1.30	18	....	....	1000	3.95	34.46	27.38	32.15	1.83	1.74	80
14°	1959	2.15	34.60	27.66	1.82	24	....	....	1500	2.85	34.52	27.54	34.71	2.21	2.11	66
	2415a)	1.80	34.62	27.71	2.17	28	....	....	2000	2.10	34.60	27.66	37.21	2.53	2.43	57
	4795a)	1.50	....	....	....	....	....	....	2500	1.75	34.62	27.71	39.61	2.80	2.69	0.00052
Station 149: October 21, 1929; 21°18' N, 138°36' W; depth bottom, 5320 m; weather, bcq; sea, MC; wind, E by N 4; good conditions; piano wire fouled bottle wire just before surface; cleared all right																
248	0	23.48	35.02	23.83	4.84	97	8.34	6	440	23.48	35.02	23.83	23.83	0.0000	0.0000	0.00408
	5	23.50	35.03	23.83	4.85	97	....	....	0	23.50	35.03	23.83	23.85	0.0215	0.0204	407
	24	23.48	35.03	23.84	4.87	98	....	....	5	23.50	35.03	23.83	23.94	0.1075	0.1020	409
h	47	21.72	35.04	23.87	4.94	99	8.37	....	50	21.40	35.03	23.90	24.13	0.2145	0.2035	403
8.8	71	20.49	34.92	24.35	5.21	102	....	....	75	20.30	34.91	24.42	24.76	0.3145	0.2962	354
12°	94	17.86	34.81	25.18	4.59	84	8.38	6	160	18.95	34.79	24.63	25.08	0.405	0.384	335
	189	13.92	34.34	25.71	4.30	73	8.21	7	200	17.35	34.79	25.28	26.19	0.574	0.544	306
	237	10.81	34.02	26.06	4.11	66	8.07	56	510	12.75	34.79	25.85	27.01	0.729	0.691	277
	285	9.76	33.98	26.28	3.67	57	8.01	118	1060	10.35	33.99	26.12	27.52	0.860	0.815	223
	333	7.92	34.02	26.55	3.08	46	7.90	186	1200	7.70	34.02	26.57	28.46	0.971	0.920	197
	381	....	....	....	....	....	....	....	400	6.80	34.15	26.80	28.46	1.156	1.097	156
	376	8.11	33.99	26.48	3.11	47	7.90	205	1520	5.25	34.15	26.80	28.46	1.308	1.242	134
	470	7.12	34.12	26.73	1.18	17	7.73	257	2180	4.25	34.31	27.12	30.45	1.558	1.481	105
h	564	5.88	34.20	26.95	0.62	9	7.63	276	3080	2.95	34.46	27.35	32.11	1.86	1.77	84
	659	5.42	34.28	27.07	0.49	7	7.63	285	4000b)	2.15	34.55	27.55	34.72	2.25	2.15	66
10.2	944	4.40	34.44	27.32	0.60	8	7.67	288	5200b)	1.75	34.58	27.64	37.18	2.57	2.46	58
22°	1415	3.13	34.54	27.53	1.19	16	7.70	273	6500	1.75	34.62	27.71	39.61	2.85	2.73	0.00052
	1875	2.89	34.57	27.63	1.59	26	7.75	255	7250	1.75	34.62	27.71	39.61	2.85	2.73	0.00052
	2290	1.89	34.61	27.69	2.28	30	7.76	244	8670	1.75	34.62	27.71	39.61	2.85	2.73	0.00052
	2739	1.69	34.63	27.72	2.60	34	7.76	241	7250	1.75	34.62	27.71	39.61	2.85	2.73	0.00052
	5280a)	1.53	....	....	....	....	....	....	....	1.75	34.62	27.71	39.61	2.85	2.73	0.00052
Station 150: October 23, 1929; 16°15' N, 137°06' W; depth bottom, 4553 m; weather, bc; sea, MC; wind, ENE 4; poor conditions; vessel heading east with westerly current; second series delayed to avoid tangling piano wire																
h	0	25.60	34.68	22.93	4.66	96	8.39	7	520	25.60	34.68	22.93	22.93	0.0000	0.0000	0.00494
8.9	6	25.61	34.66	22.92	4.63	96	8.47	10	200	25.60	34.66	22.92	22.95	0.0260	0.0248	495
8°	26	25.41	34.61	22.94	4.67	96	....	....	25	25.45	34.61	22.93	23.04	0.1301	0.1238	495
	52	22.80	34.76	23.83	4.83	95	....	....	50	22.85	34.76	23.81	24.70	0.2494	0.2370	411
	78	20.49	34.70	24.42	5.15	98	....	....	75	20.55	34.70	24.41	24.75	0.3504	0.3328	355
	104	19.27	34.63	24.68	4.98	93	8.32	11	240	19.55	34.64	24.62	25.07	0.441	0.419	0.00336

a) piano wire. b) value rejected.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Temperature (t) °C	Observed values					Interpolated values					Computed values			
			Salinity (S) o/oo	Density (σ_t)	Oxygen		Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Density (σ_{TP})	Pressure (ΔP)	Anomalies	
					ml/L	o/o									Dynamic depth (ΔD)	Specific volume (ΔG)
Station 150--Continued																
	157	14.73	34.27	25.48	4.44	77	8.12	80	300	150	15.50	34.27	25.32	26.01	0.570	0.00270
	h	11.00	34.39	26.32	1.50	24	7.85	220	1300	200	11.20	34.36	26.26	27.19	0.684	183
	8.9	10.37	34.52	26.53	0.33	5	7.69	237	1670	250	10.50	34.48	26.48	27.65	0.811	161
	8°	9.71	34.53	26.65	0.20	3	7.67	244	1770	300	9.90	34.53	26.62	28.02	0.847	150
	4.19	8.09	34.46	26.86	0.40	6	7.66	257	2080	400	8.30	34.46	26.82	28.70	0.989	132
	4.01	8.19	34.46	26.84	0.65	10	7.66	257	1960	500	7.10	34.45	26.99	29.35	1.113	116
	4.99	7.16	34.46	26.99	0.19	3	7.65	271	2380	1000	4.25	34.43	27.19	30.51	1.328	099
	7.01	5.63	34.46	27.19	0.48	7	7.60	297	4050	1500	2.85	34.58	27.40	32.16	1.60	079
	10.01	4.23	34.53	27.41	0.91	13	7.65	288	4550	2000	2.15	34.62	27.58	34.75	1.95	062
	h	14.96	34.58	27.58	1.48	20	7.69	271	5880 b)	2500	1.80	34.64	27.72	37.22	2.36	055
	10.6	19.77	34.62	27.68	1.85	24	7.79	257	6330	3000	1.70	34.65	27.73	39.62	2.51	051
	10°	24.14	34.63	27.71	2.28	30	7.81	244	6580					2.62		
	28.67	1.87	34.65	27.73	2.61	34	7.80	234	6250					2.57		
	32.74	1.61	34.65	27.75	2.88	38	7.81	229	6500					2.87		0.00051
	45.13a)	1.44	.....	.....	.....	...	.....	...	.....
Station 151: October 25, 1929; 12°40' N, 137°32' W; depth bottom, 4918 m; weather, qr; sea, MS; wind, NW to NE 0-1; fair conditions; raining nearly throughout observations; salinity values by titration																
	0	25.95	34.02	22.34	4.70	97	.....	.....	.....	0	25.95	34.02	22.34	22.34	0.0000	0.00551
	5	25.97	33.82	23.92	4.70	97	.....	.....	.....	5	25.97	33.82	23.92	22.21	0.0293	566
	25	21.94	34.56	23.92	5.17	101	.....	.....	.....	25	21.94	34.56	23.92	24.03	0.1247	401
	50	18.28	34.42	24.77	4.44	82	.....	.....	.....	50	18.28	34.42	24.77	25.00	0.2259	319
	76	14.08	34.47	25.78	1.13	19	.....	.....	.....	75	14.10	34.47	25.78	26.13	0.2976	225
	101	12.44	34.61	26.22	0.06	1	.....	.....	.....	100	12.50	34.60	26.20	26.67	0.351	186
	151	11.38	34.72	26.51	0.03	0.5	.....	.....	.....	150	11.35	34.72	26.52	27.22	0.441	155
	203	10.79	34.70	26.60	0.05	1	.....	.....	.....	200	10.80	34.70	26.60	27.53	0.522	149
	303	9.95	34.65	26.71	0.04	1	.....	.....	.....	300	10.35	34.68	26.66	27.83	0.599	144
	405	9.07	34.60	26.81	0.06	1	.....	.....	.....	400	9.95	34.65	26.71	28.11	0.675	141
	506	8.09	34.54	26.92	0.16	2	.....	.....	.....	500	8.10	34.60	26.81	28.68	0.777	133
	671	6.26	34.47	27.12	0.47	7	.....	.....	.....	700	6.15	34.54	26.91	29.26	0.956	124
	860	5.10	34.50	27.29	0.38	5	.....	.....	.....	1000	4.50	34.47	27.15	30.47	1.195	103
	1142	4.01	34.51	27.42	0.33	13	.....	.....	.....	1500	3.45	34.51	27.37	32.13	1.41	082
	1614	2.77	34.56	27.57	1.69	23	.....	.....	.....	2000	3.05	34.59	27.54	34.70	1.88	067
	1895	2.33	34.59	27.64	1.99	26	.....	.....	.....		2.20	34.59	27.65	37.19	2.21	0.00058
	4878a)	1.49	.....	.....	.....	...	.....	.....	.....
Station 152: October 27, 1929; 10°05' N, 139°44' W; depth bottom, 4830 m; weather, bc; sea, S; wind, 0 to NE 1; poor conditions; using 2000 meters of 6 mm-wire spliced to 2000 meters of 4 mm-wire																
	0	27.45	33.68	21.60	4.43	94	8.35	20	310	0	27.45	33.68	21.60	21.60	0.0000	0.00622
	5	27.33	33.69	21.68	4.66	96	8.43	19	560	5	27.33	33.69	21.68	21.71	0.0324	614
	24	21.50	34.50	24.05	3.89	75	8.26	28	770	25	20.50	34.50	24.27	24.38	0.1355	368
	47	14.52	34.50	25.75	0.95	16	7.87	53	1520	50	14.15	34.51	25.80	26.03	0.2132	221
	71	12.04	34.71	26.38	0.12	2	7.77	58	1540	75	12.40	34.71	26.31	26.66	0.2655	174
	94	11.48	34.73	26.50	0.25	4	7.76	...	1750	100	11.35	34.73	26.52	26.99	0.293	0.00154

a) Piano-wire. b) Value rejected.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values							Interpolated values							Computed values		
		Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{TP})	Pressure (ΔP)	Anomalies		
					ml/L	o/o										Dynamic depth (ΔD)	Specific volume (Δv)	
Station 152--Continued																		
	141	10.77	34.70	26.60	0.62	10	197	2040 ^{b)}	150	10.70	34.70	26.61	27.31	0.388	0.368	0.00146		
h	168	10.42	34.70	26.67	0.40	6	214	1740	200	10.35	34.70	26.68	27.61	0.465	0.440	0.00146		
11.4	283	9.76	34.69	26.77	0.41	6	238	1960	250	10.00	34.69	26.73	27.90	0.538	0.509	0.00146		
4°	378	9.02	34.64	26.85	0.14	2	248	1980	300	9.65	34.68	26.78	28.18	0.610	0.578	0.00146		
	472	8.52 ^{a)}	34.60	26.93	0.28	4	254	2530	400	8.90	34.63	26.86	28.73	0.749	0.710	0.00146		
									500	8.10	34.59	26.95	29.30	0.881	0.834	0.00146		
h	583	7.39	34.56	27.04	0.26	4	241	2860	700	6.45	34.54	27.15	30.46	1.117	1.059	0.00146		
10.7	870	5.29	34.53	27.29	0.69	10	3950		1000	4.65	34.54	27.37	32.13	1.41	1.34	0.00146		
4°	1342	3.49	34.57	27.52	1.54	21	5620		1500	3.10	34.58	27.56	34.72	1.80	1.72	0.00146		
	1921	2.28	34.60	27.65	1.98	26	....		2000	2.15	34.61	27.67	37.21	2.11	2.02	0.00146	
									2500	1.70	34.66	27.73	39.62	2.38	2.28	0.00146		
h	1977	2.18	34.62	27.68	2.08	27	6750		3000	1.70	34.66	27.74	41.97	2.63	2.54	0.00146		
9.2	2496	1.89	34.66	27.73	2.50	33	7260		3500	1.55	34.66	27.76	44.29	2.87	2.79	0.00049		
0°	2948	1.73	34.66	27.74	2.71	35												
	3408	1.58	34.66	27.75	2.84	37												
	3923	1.39	34.65	27.76	3.63	47												
Station 153: October 29, 1929; 7°45' N, 141°24' W; depth bottom, 5003 m; weather, bc; sea, MS; wind, NE by E 3; good conditions except for heavy easterly current																		
	0	28.08	34.20	21.78	4.51	96	7	270	0	28.08	34.20	21.78	21.78	0.0000	0.0000	0.00605		
h	5	28.07	34.19	21.78	4.51	96	7	770	5	28.07	34.19	21.78	21.80	0.0317	0.0303	0.00605		
10.7	24	28.12	34.20	21.77	4.31	92	7		25	28.10	34.20	21.78	21.89	0.1589	0.1514	0.00605		
15°	48	28.05	34.40	21.95	4.45	95	8	550	50	28.05	34.42	21.96	22.19	0.3157	0.3006	0.00605		
	72	27.84	34.72	22.25	3.84	82	8		75	27.80	34.72	22.27	22.61	0.4666	0.4444	0.00605		
h	97	22.73	34.73	23.83	4.17	82	31	1820 ^{b)}	100	20.50	34.73	24.44	24.89	0.586	0.558	0.00605		
8.7	144	13.51	34.54	25.95	1.39	24	154		150	13.10	34.54	26.93	26.72	0.733	0.697	0.00605		
10°	193	11.16	34.57	26.50	0.36	6	202		200	11.00	34.57	26.54	27.47	0.828	0.787	0.00605		
	291	9.52	34.64	26.70	0.87	14	2270		250	10.35	34.64	26.53	27.80	0.908	0.861	0.00605		
	389	9.20	34.67	26.85	0.66	10 ^{d)}	2220		300	9.90	34.64	26.71	28.11	0.984	0.934	0.00605		
	487	.....^{c)}	34.60	.....	0.26	4	2560		400	9.10	34.66	26.86	28.73	1.126	1.069	0.00605
									500	7.95	34.57	26.97	29.32	1.257	1.192	0.00605		
h	481	8.11	34.57	26.94	0.19	3			700	6.00	34.47	27.16	30.47	1.490	1.412	0.00605		
	736	5.86	34.47	27.17	0.25	4	3510		1000	4.65	34.56	27.39	32.14	1.78	1.69	0.00605		
10.7	1024	4.86	34.57	27.40	0.76	11	3640		1500	3.10	34.60	27.58	34.74	2.16	2.05	0.00605		
15°	1501	3.10	34.60	27.58	1.56	21	285		2000	2.25	34.60	27.65	37.19	2.48	2.36	0.00605		
	1957	2.50	34.60	27.65	1.86	25	....		2500	1.90	34.61	27.69	39.58	2.75	2.64	0.00605	
	2397	1.33	34.61	27.69	2.41	32	....										
Station 154: October 31, 1929; 6°42' N, 143°22' W; depth bottom, 5149 m; weather, bc; sea, S; wind, O; practically calm; short series fouled pump wire; cleared without damage by passing line under keel																		
h	0	28.34	34.18	21.69	4.42	95	7	250	0	28.34	34.18	21.69	21.69	0.0000	0.0000	0.00613		
	5	28.36	34.16	21.67	4.47	96	...	300	5	28.36	34.16	21.67	21.69	0.0323	0.0307	0.00613		
10.5	24	28.20	34.14	21.70	4.37	94	...	300	25	28.20	34.14	21.70	21.81	0.1613	0.1536	0.00613		
4°	47	28.18	34.18	21.74	4.51	97	...	260	50	28.20	34.19	21.74	21.97	0.3218	0.3063	0.00613		
	71	28.01	34.74	22.23	4.48	96	7	300	75	27.95	34.75	22.24	22.58	0.4758	0.4529	0.00613		
	94	25.81	34.62	22.98	3.49	72	21	550	100	25.30	34.62	23.13	23.58	0.612	0.583	0.00613		

a) Temperature from pressure-thermometer and wire-depth. b) Value rejected. c) Thermometer did not function properly. d) Value approximate.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.F. and wire angle	Depth (D) meters	Observed values					Interpolated values					Computed values				
		Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{TP})	Anomalies	
					ml/L	o/o									Pressure (ΔP)	Dynamic depth (ΔD)	Specific volume (Δv)
Station 154--Continued																
	141	16.74	34.68	25.35	2.59	46	8.06	1540	150	15.35	34.66	25.65	26.34	0.801	0.762	0.00239
h	188	12.03	34.59	26.39	1.61	26	7.91	1670	200	11.50	34.59	26.38	27.31	0.910	0.865	0.00171
10.5°	283	9.77	34.64	26.73	0.77	12	7.76	2080	350	10.20	34.63	26.64	27.81	0.993	0.944	0.00146
4°	377	9.06	34.64	26.85	0.74	11	7.73	2080 ^a	300	9.60	34.64	26.76	28.16	1.068	1.015	0.00137
	471	8.25	34.59	26.93	0.37	6	7.73	8220 ^a	400	8.85	34.63	26.87	28.74	1.207	1.148	0.00127
	508	7.86	34.56	26.96	0.36	5	7.68	2530	400	7.95	34.57	26.97	29.32	1.338	1.270	0.00118
	709	6.00	34.52	27.20	0.57	8	7.68	3620	700	6.05	34.52	27.19	30.50	1.588	1.487	0.00099
	1010	4.64	34.51	27.54	1.12	18	7.75	4100	1000	4.70	34.51	27.34	32.09	1.86	1.77	0.00086
h	1462	3.30	34.52	27.50	1.69	23	7.76	5000	2000	3.20	34.61	27.51	34.67	2.27	2.16	0.00071
9.0°	1924	2.35	34.61	27.65	2.14	28	7.76	6250	2000	2.30	34.61	27.66	37.21	2.60	2.49	0.00057
6°	2427	1.96	34.62	27.69	2.45	32	7.78	6250	2500	1.90	34.62	27.70	39.59	2.87	2.76	0.00054
	2938	1.77	34.62	27.71	2.67	35	7.83	7350 ^a	3000	1.75	34.62	27.71	41.93	3.14	3.04	0.00054
	3453	1.56	34.63	27.73	2.97	39	7.84	6670	3500	1.55	34.63	27.72	44.25	3.41	3.30	0.00053
	3917	1.43	34.63	27.74	3.65	47	7.87	6250								

Station 155: November 2, 1929; 4°51' N, 145°46' W; depth bottom, 5304 m; weather, ou; sea, MC; wind, SSE 4; bad conditions; heavy westerly current about 75 meters deep

	0	27.76	34.94	22.45	4.41	94	8.39	310	0	27.76	34.94	22.45	23.45	0.0000	0.0000	0.00540
h	17	27.77	34.94	22.45	4.42	94	8.32	600	5	27.75	34.94	22.45	23.47	0.0284	0.0271	0.00540
	35	27.76	34.93	22.44	4.42	96	8.30	1110	25	27.75	34.93	22.44	23.55	0.1322	0.1352	0.00541
h	69	27.71	34.93	22.43	4.42	94	8.30	1320	75	27.35	35.04	22.46	22.69	0.2845	0.2706	0.00521
8.7°	103	27.42	34.99	22.50	4.43	94	8.30	1560 ^a	100	27.25	35.04	22.69	23.14	0.4562	0.4041	0.00521
45°	134	26.88 ^c	35.03	22.59	4.46	94	8.30	470	150	24.50	35.03	23.53	24.20	0.815	0.775	0.00442
	165	.....^d	35.00	22.80	4.10	86	8.30	980	200	13.05	34.70	26.17	27.09	0.983	0.934	0.00344
	197	.....^d	35.00	.....	3.98	80	8.23	460	250	10.95	34.68	26.55	27.72	1.074	1.020	0.00215
	259	10.85	34.71	26.60	2.50	47	8.05	890	300	10.20	34.67	26.85	28.08	1.153	1.095	0.00144
h	124	26.63	35.06	22.90	4.39	83	8.31	420	400	8.15	34.62	26.97	28.72	1.257	1.232	0.00129
45°	166	19.62 ^e	35.03	24.90	4.39	83	8.31	420	500	6.25	34.62	26.97	29.32	1.429	1.386	0.00118
	263	10.68	34.68	26.60	2.18	35	7.91	1520	1000	4.55	34.55	27.18	30.49	1.660	1.575	0.00101
h	353	9.68	34.59	27.56	1.60	25	7.81	186	1500	3.15	34.54	27.38	32.14	1.95	1.85	0.00082
10.4°	448	8.76	34.64	26.90	0.74	11	7.73	1490	2000	2.25	34.58	27.55	34.71	2.33	2.23	0.00066
48°	647	6.64	34.56	27.14	0.83	12	7.73	1960	2500	1.90	34.64	27.71	37.18	2.66	2.54	0.00058
	963	4.58	34.54	27.38	1.48	21	7.73	4270	3000	1.70	34.65	27.73	39.60	2.94	2.81	0.00053
	1156	4.13	34.56	27.44	1.42	20	7.73	4500					41.96	3.20	3.08	0.00051
h	1493	3.16	34.58	27.56	1.62	22	7.80	6020								
	1999	2.28	34.59	27.64	2.22	29	7.80	214								
12.3°	2478	1.92	34.64	27.71	2.37	31	7.81	6670								
42°	2966 ^b	1.73	34.65	27.73	2.60	34	7.81	.....							
	5273	1.44	.....	.....	.....	.....	.....	.....		

a) Value rejected.

b) Piano wire.

c) Thermometer off scale.

d) Temperatures by two thermometers, 10.73 and 15.11.

e) Temperature mean

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values					Interpolated values					Computed values				
		Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen ml/L	Oxygen o/o	Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{tp})	Pressure (ΔP)	Anomalies Dynamic depth (ΔD)	Specific volume (Δα)
Station 156: November 4, 1929; 3°01' N, 149°46' W; depth bottom, 4953 m; weather, bc; sea, MS; wind, SE by S 3; bad conditions; heavy cross-currents; bottle wire fouled net wire tearing off two thermometers from one water bottle and displacing another bottle; southerly current to depth of 200 meters and westerly current lower down																
	0	27.61	35.01	22.55	4.44	95	8.34	28	250	0	27.61	35.01	22.55	0.0000	0.0000	0.00531
	4	27.51	34.97	22.52	4.47	95	.....	.....	.....	5	27.60	34.97	22.55	0.0280	0.0267	534
h	18	27.59	34.99	22.54	4.42c	94c	.....	.....	.....	25	27.50	35.02	22.59	0.1395	0.1329	528
8.7	42	27.18	35.06	22.72	4.52	95	8.37	46	310	50	27.00	35.06	22.78	0.2760	0.2626	510
32°	62	26.58	35.06	22.92	4.52	95	8.34	48	450	100	26.65	35.07	23.23	0.4089	0.3891	501
	83	26.52	35.08	22.90	4.54	95	8.34	47	500	150	26.35	35.02	23.45	0.539	0.513	492
	123	25.90	35.08	23.15	4.46	93	8.28	47	500	200	25.15	35.02	23.33	0.790	0.751	461
	139	25.56b	35.05	23.23	3.84	80	8.30	50	540	250	16.15	34.89	25.64	0.976	0.927	242
	185	11.40	34.91	26.57	1.40	27	7.94	142	1330c	300	11.95	34.77	26.49	1.081	1.028	161
h	278	9.85	34.81	26.70	0.86	14	7.81	170	1390	400	11.00	34.62	26.62	1.164	1.105	150
10.6	375	9.85	34.62	26.92	0.71	11	7.75	192	1980	500	9.50	34.53	26.76	1.316	1.251	139
39°	475	6.07	34.54	27.19	0.97	15	7.67	217	2220	700	8.25	34.52	27.20	1.455	1.380	119
	683	6.07	34.53	27.19	1.10	16	7.67	241	3330	1000	4.40	34.48	27.35	1.683	1.597	98
	1020	4.31	34.48	27.36	1.80	25	7.73	239	4170	1500	3.30	34.59	27.58	2.36	2.24	63
	1481	3.06	34.59	27.58	1.68	23	7.73	233	5430	2000	3.00	34.63	27.67	2.67	2.55	56
h	2011	2.30	34.53	27.57	2.02	24	7.76	228	6580	2500	1.85	34.63	27.70	2.94	2.81	53
11.5	2470	1.87	34.63	27.70	1.82	27	7.79	220	7250c	3000	1.70	34.65	27.73	3.20	3.08	0.0051
40°	2918	1.77	34.64	27.72	1.95	26	7.81	209	6670							
	3322	1.55	34.66	27.75	2.70	35	7.81	204	6400							
	4913a)	1.39	.....	.....	.....	..	.....	.....	.....
25	52															
Station 157: November 6, 1929; 1°48' S, 152°22' W; depth bottom, 4693 m; weather, bc; sea, MCL; wind, E 5; fair conditions																
	0	27.08	35.25	22.89	4.47	95	8.27	47	260	0	27.08	35.28	22.89	0.0000	0.0000	0.00498
	5	27.09	35.14	22.81	4.47	95	8.39	.....	.....	5	27.09	35.14	22.81	0.0264	0.0251	506
	24	27.03	35.20	22.88	4.42	93	8.34	60	510	25	27.05	35.20	22.87	0.1323	0.1258	501
	48	27.04	35.24	22.91	4.57	97	8.32	64	620	50	27.05	35.24	22.90	0.2637	0.2507	498
h	72	26.98	35.32	22.96	4.39	93	8.30	64	990c	75	27.05	35.33	22.97	0.3941	0.3748	494
	96	26.92	35.45	23.09	3.10	59	8.30	64	420	100	26.85	35.47	23.14	0.521	0.496	478
13°	144	20.32	35.57	25.13	3.10	59	8.16	111	420	150	19.20	35.57	25.33	0.716	0.680	260
	201	12.92	34.93	26.37	0.95	16	7.85	165	1190	200	12.95	34.93	26.36	0.831	0.790	174
	238	12.61	34.89	26.40	0.76	13	7.85	176	1250	250	12.50	34.90	26.43	0.920	0.874	167
	286	12.14	34.90	26.50	0.68	11	7.81	189	1300	300	12.00	34.90	26.52	1.007	0.956	159
	382	11.14	34.85	26.65	1.69	27	7.83	198	1300	400	10.75	34.76	26.65	1.169	1.111	149
	402	10.66	34.74	26.65	2.10	34	7.90	192	1280	500	8.30	34.65	26.97	1.312	1.244	118
h	464	8.90	34.70	26.92	0.27	4	7.73	261	2130c	1000	4.30	34.50	27.18	1.542	1.462	100
	652	6.35	34.51	27.14	1.28	19	7.73	268	2500	1500	3.00	34.51	27.39	1.83	1.73	90
10.8	935	4.56	34.50	27.32	1.65	23	7.76	268	3900	2000	2.25	34.60	27.59	2.51	2.40	82
23°	1411	3.18	34.62	27.59	2.19	30	7.75	257	5440	2500	2.25	34.60	27.66	2.51	2.40	82
	1878	2.40	34.58	27.62	1.84	24	7.75	251	6410		1.85	34.63	27.70	2.78	2.66	0.0053
	2318	2.00	34.62	27.69	2.18	29	7.75	245	6410							

a) Piano wire. b) Thermometer off scale. c) Value rejected.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values						Interrelated values					Computed values				
		Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ _t)	Density (σ _{tp})	Pressure (ΔP)	Anomalies	
					ml/L	o/o										Dynamic depth (ΔD)	Specific volume (Δα)
Station 158: November 8, 1929; 6°33' S, 154°58' W; depth bottom, 4065 m; weather, bc; sea, ML; wind, NE 4; fair conditions																	
	0	28.16	35.57	22.79	3.64	78	8.34	36	220	0	28.16	35.57	22.79	0.0000	0.0000	0.000508	
	5	28.17	35.59	22.80	4.25	92	8.42	35	230	5	28.17	35.59	22.80	0.0267	0.0254	507	
	24	28.14	35.58	22.81	3.98	86	8.34	48	220	25	28.15	35.58	22.81	0.1333	0.1268	507	
	48	28.14	35.58	22.80	3.36	72	8.39	50	220	50	28.15	35.58	22.80	0.2667	0.2537	508	
	73	28.08	35.66	22.88	3.30	71	8.34	50	300	75	28.10	35.66	22.88	0.3995	0.3800	502	
10.3	96	27.81	35.89	23.14	2.95	63	8.39	48	620	100	27.65	35.89	23.20	0.527	0.502	473	
17°	133	19.93	35.68	25.32	2.59	49	8.20	83	650b)	150	25.10	35.83	23.55	0.757	0.720	403	
	289	12.15	34.89	26.49	1.36	25	7.94	135	760	200	18.75	35.64	25.59	0.929	0.883	248	
	386	9.58	34.72	26.82	1.42	22	7.91	139	1200	250	13.85	35.14	26.34	1.040	0.989	176	
	462	8.42	34.63	26.94	1.87	29	7.87	143	1370	300	11.65	34.86	26.57	1.128	1.072	156	
	472	8.31	34.62	26.95	2.14	33	7.77	149	1330	400	9.40	34.70	26.84	1.278	1.216	130	
	661	6.50	34.56	27.16	1.62	24	7.77	194	2320	700	6.20	34.61	26.97	1.411	1.340	118	
	941	4.69	34.52	27.35	1.92	27	7.75	213	2860	1000	4.45	34.52	27.19	1.641	1.558	100	
h	1399	3.30	34.57	27.54	2.26	31	7.75	213	2860	1000	4.45	34.52	27.38	1.93	1.83	981	
8.8	1840	2.48	34.63	27.66	2.54	34	7.76	200	4850	1500	3.05	34.59	27.57	2.31	2.20	954	
24°	2260	2.07	34.59	27.65	2.74	36	7.82	186	4900	2000	2.30	34.61	27.66	2.51	2.51	857	
	2727	1.75	34.66	27.74	2.78	36	7.82	186	4900	2500	1.90	34.62	27.70	2.89	2.78	854	
	3188	1.67	34.67	27.75	2.86	37	7.82	177	5750b)	3000	1.70	34.65	27.73	3.16	3.05	851	
	3645	1.57	34.65	27.74	2.77a)	36a)	7.83	177	5750b)	3500	1.60	34.66	27.75	3.41	3.30	0.00050	
					3.37	44											
Station 159: November 11, 1929; 9°24' S, 159°01' W; depth bottom, 5545m; weather, bc; sea, MS; wind, N 3; good conditions																	
	0	28.60	35.74	22.77	3.99	87	8.37	15	670b)	0	28.60	35.74	22.77	0.0000	0.0000	0.000510	
	5	28.60	35.70	22.74	4.28	93	8.37	15	670b)	5	28.60	35.70	22.74	0.0269	0.0256	512	
	25	28.53	35.72	22.78	4.09	89	8.37	15	670b)	25	28.53	35.72	22.78	0.1344	0.1278	510	
	50	28.53	35.74	22.80	3.91	85	8.37	15	670b)	50	28.53	35.74	22.80	0.2682	0.2550	508	
	76	28.45	35.75	22.83	4.27	93	8.39	15	430	75	28.45	35.75	22.83	0.4016	0.3820	507	
h	101	27.90	35.75	23.01	4.10	88	8.37	23	300	100	28.00	35.75	22.88	0.532	0.507	494	
7°	152	24.92	36.14	24.25	3.31	68	8.32	29	280	150	25.10	36.14	24.19	0.762	0.725	379	
	202	21.48	35.92	25.08	3.14	61	8.28	35	300b)	200	21.65	35.95	25.06	0.942	0.895	298	
	252	16.72	35.14	26.70	2.06	35	8.14	90	1550b)	250	16.85	35.14	25.67	1.083	1.029	240	
	303	13.69	34.99	26.26	2.06	35	8.03	127	1720	300	13.85	35.00	26.24	1.196	1.136	188	
	404	9.93	34.70	26.75	1.96	31	7.89	165	1310	400	10.00	34.71	26.54	1.368	1.300	139	
	377	10.73	34.77	26.66	2.17	35	7.89	184	1260	500	7.75	34.60	27.02	1.502	1.426	113	
	473	8.27d)	34.63	26.96	2.58	41	7.84	177	1430	700	5.70	34.47	27.20	1.724	1.637	98	
	665	5.93	34.47	27.16	2.66	40	7.81	198	2470	1000	4.45	34.53	27.28	2.01	1.91	981	
	947	4.09	34.52	27.36	2.66	37	7.76	216	3160	1500	2.85	34.57	27.38	2.38	2.27	952	
h	1408	3.09	34.58	27.57	2.50	34	7.75	216	5150	2000	2.15	34.58	27.54	2.70	2.57	858	
9.2	1890	2.24	34.56	27.62	2.96	39	7.79	214	6250	2500	1.85	34.64	27.71	2.97	2.84	858	
22°	2370	1.96	34.63	27.70	3.12	41	7.81	206	6250								
	2857	1.70	34.65	27.73	3.12	41	7.81	206	6250								
	5505c)	1.34	34.65	27.73	3.12	41	7.81	206	6250								

a) Sample contaminated with ooze. b) Value rejected. c) Piano wire. d) Temperature mean of 8.22 and 8.32.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep-sea stations, 1928-1929--Continued

L.M.T. and wire angle	Depth (D) meters	Observed values					Interpolated values					Computed values				
		Temperature (t) °C	Salinity (S) o/oo	Oxygen		Density (σ_t)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Density (σ_{tp})	Pressure (AP)	Anomalies	
				ml/L	o/o										Dynamic depth (AD)	Specific volume (AC)
Station 160: November 13, 1929; 10°54' S, 161°53' W; depth bottom, 2614m; weather, oqr; sea, MS; wind, NE 3; good conditions																
	0	28.57	35.57	3.91	85	8.37	12	480b)	0	28.57	35.57	22.65	0.0000	0.0000	0.00521	
	5	28.58	35.24	4.08	89	8.44	...	300	5	28.58	35.24	22.40	0.0280	0.0267	545	
	24	28.57	35.65	4.14	90	8.33	...	220	25	28.55	35.65	22.83	0.1395	0.1327	515	
	48	28.58	35.62	4.11	89	8.39	...	260	50	28.55	35.62	22.70	0.2753	0.2617	517	
h	74	28.26	35.68	3.75	81	8.44	...	260b)	75	28.25	35.68	22.84	0.4098	0.3896	506	
	98	28.52	35.68	4.32	94	8.44	16	630b)	100	28.50	35.68	22.76	0.544	0.517	515	
15°	147	27.98	35.82	4.24	91	8.42	19	290	150	27.80	35.83	23.10	0.806	0.766	483	
	196	24.31	36.12	4.41	72	8.30	52	280	200	23.80	36.12	24.57	1.026	0.974	346	
	244	20.87	35.78	3.23	62	8.23	67	270	250	20.60	35.75	25.19	1.192	1.132	287	
	294	17.63	35.27	3.27	60	8.16	90	460	300	17.00	35.21	25.70	1.332	1.264	239	
	392	10.82	34.67	1.84	30	7.95	159	1120	400	9.45	34.64	26.78	1.530	1.452	132	
	368	10.70	34.70	2.42	39	7.94	154	1030	500	7.30	34.55	27.02	1.662	1.576	112	
	472	7.72	34.56	2.62	39	7.92	205	1520	700	4.65	34.46	27.19	1.885	1.787	89	
	652	5.91	34.46	2.49	36	7.85	216	2200	1000	4.30	34.51	27.39	2.17	2.06	089	
	939	4.54	34.49	2.54	36	7.87	229	3160	1500	2.90	34.56	27.57	2.54	2.42	063	
h	1416	3.10	34.56	2.77	37	7.81	229	5100	2000	2.15	34.58	27.64	2.86	2.73	058	
22°	1885	2.31	34.55	3.01	40	7.82	221	5500	2500	1.85	34.65	27.72	3.14	2.99	0.00051	
	2359a)	1.90	34.65	2.70	35	7.83	214	6100								
	2574a)	1.81	.....	.....	.....	.....	.....	.....		
Station 161: November 15, 1929; 12°04' S, 164°57' W; depth bottom, 4484 m; weather, b; sea, S; wind, E 1-2; good conditions																
	0	28.72	35.51	4.08	89	8.39	23	270	0	28.72	35.51	22.56	0.0000	0.0000	0.00530	
	5	28.70	35.51	4.39	95	8.39	...	240	5	28.70	35.51	22.57	0.0278	0.0265	529	
	24	28.54	35.59	4.33	94	8.39	...	210	25	28.55	35.59	22.67	0.1361	0.1314	520	
	48	28.33	35.63	4.13	89	8.37	...	190	50	28.30	35.64	22.80	0.2733	0.2599	508	
h	72	27.85	36.01	4.14	89	8.39	24	220	75	27.80	35.78	23.07	0.4037	0.3840	484	
5°	96	26.44	36.01	3.84	81	8.33	23	270	100	26.00	36.03	23.80	0.521	0.496	412	
	146	23.87	36.18	3.59	73	8.30	44	240	150	23.65	36.18	24.66	0.682	0.642	335	
	191	21.35	35.92	3.08	60	8.23	54	200	200	20.80	35.86	25.22	0.862	0.838	283	
	286	15.48	35.11	3.36	59	8.07	83	300	250	17.55	35.40	25.71	1.018	0.967	237	
	382	10.41	34.68	1.97	31	7.90	145	960	300	14.60	35.00	26.08	1.195	1.077	203	
	471	8.14	34.59	2.74	42	7.84	181	1310	400	9.85	34.66	26.73	1.316	1.250	141	
	670	5.58	34.47	3.18	46	7.81	201	1940	500	7.55	34.56	27.01	1.452	1.377	114	
	967	4.41	34.49	2.85	40	7.80	218	3160	700	5.40	34.47	27.23	1.671	1.585	094	
	1468	2.94	34.56	2.96	40	7.82	218	3160	1000	4.30	34.50	27.38	1.95	1.85	081	
h	1971	2.14	34.59	3.30	44	7.78	214	5440	1500	2.85	34.56	27.57	2.33	2.21	063	
8.7	2418	1.90	34.64	2.71	42	7.76	209	6250	2000	2.15	34.59	27.65	2.64	2.52	058	
9°	2898	1.72	34.66	3.21	42	7.76	209	6250	2500	1.85	34.64	27.71	2.91	2.79	052	
	3386	1.59	34.66	3.21	45	7.80	198	5500	3000	1.70	34.66	27.74	3.17	3.05	050	
	3919	1.44	34.67	3.48	45	7.80	198	5500	3500	1.60	34.66	27.76	3.42	3.29	049	
	4444a)	1.09	.....	.....	.....	.....	.....	.....	4000	1.40	34.68	27.78	3.66	3.54	0.00047

a) Piano wire. b) Value rejected.

Table 2--Physical and chemical data and results of dynamic computations for Carnegie deep sea stations, 1928-1929--Concluded

L.M.T. and wire angle	Depth (D) meters	Observed values						Interpolated values						Computed values				
		Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)		Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Density (σ_{tp})	Pressure (ΔP)	Anomalies	
				ml/L	o/o	Dynamic depth (AD)	Specific volume (ΔV)											
	0	28.62	35.27	22.42	3.65	79	8.39	11	230	0	28.62	35.27	22.42	22.42	0.0000	0.0000	0.00543	
	5	27.88	35.52	22.70	4.20	90	8.35	...	210	5	27.88	35.52	22.70	22.70	0.0279	0.0265	516	
	24	26.77	35.61	23.07	4.42	94	8.47	...	210	25	27.35	35.61	23.09	23.20	0.1331	0.1261	480	
	47	26.20	35.85	23.46	4.25	90	8.39	...	240	50	26.70	35.85	23.48	23.71	0.2545	0.2415	443	
h	71	26.20	35.86	23.64	4.20	88	8.39	...	200	75	26.10	35.86	23.67	24.01	0.3689	0.3503	427	
	94	25.61	35.84	23.81	4.40	91	8.39	...	250	100	25.45	35.85	23.87	24.32	0.478	0.455	409	
0°	141	24.20	36.12	24.45	3.30	67	8.32	17	230	150	23.85	36.10	24.54	25.21	0.677	0.643	346	
	186	21.90	35.72	24.81	3.52	69	8.32	21	200	200	21.35	35.71	24.96	25.86	0.850	0.808	308	
	235	19.97 ^{b)}	35.68	25.30	3.30	63	8.29	23	220	250	19.30	35.61	25.43	26.56	1.001	0.950	264	
	283	11.73	34.65	26.38	3.49	63	8.18	70	260	300	16.65	35.13	25.71	27.08	1.134	1.076	238	
	377	10.94	34.67	26.55	2.88	47	7.99	123	660	400	10.70	34.63	26.92	28.43	1.342	1.274	188	
	396	8.03	34.53	26.92	2.91	44	7.95	165	910	500	8.00	34.53	27.17	30.50	1.491	1.414	122	
	500	5.32	34.40	27.18	3.19	45	7.83	189	1300	700	5.45	34.40	27.38	32.14	1.726	1.617	101	
h	718	4.11	34.48	27.38	3.11	43	7.81	202	2440	1000	4.10	34.48	27.58	34.75	2.01	1.91	81	
	998	2.85	34.59	27.59	3.09	42	7.70	209	3030	1500	2.85	34.57	27.58	34.75	2.39	2.27	62	
8.4	1490	2.23	34.57	27.65	3.08	41	7.60	212	4550	2000	2.20	34.58	27.64	37.18	2.71	2.58	058	
0°	1972	1.89	34.63	27.71	2.95	39	7.81	205	5100	2500	1.85	34.63	27.70	39.59	2.98	2.85	0.00053	
	2452	1.08	34.63	27.71	2.95	39	7.81	202	5690	...	...	...	...	...	...	...	...
	5084 ^{a)}	1.08	34.63	27.71	2.95	39	7.81	202	5690	...	...	...	...	...	...	...	...

Station 162: November 17, 1929; 13°36' S, 168°23' W; depth bottom, 5124 m; weather, b; sea, S; wind, 0; good conditions; large difference in temperatures for surface and 5 meters probably due to four calm days and no mixing of surface layers

a) Piano wire. b) Thermometer did not function properly.

Table 2a--Physical data and results of dynamic computations from observations in the Gulf of Alaska, January and February 1929, by the International Fisheries Commission and supplied by the Scripps Institution of Oceanography

L.M.T. and wire angle	Observed values					Interpolated values					Computed values					
	Depth (D) meters	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Oxygen ml/L	Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Density (σ_{tp})	Pressure (ΔP)	Dynamic depth (ΔD)	Specific volume (ΔΔ)
Group I (station Nos. 9, 11, 12) January 1929; 57°31' N, 141°57' W																
0	5.23	32.54	25.72					0	5.23	32.54	25.72	25.72	0.0000	0.0000	0.00238	
25	5.00	32.57	25.77					5	5.10	32.54	25.73	25.75	0.0120	0.0114	0.00227	
50	5.30	32.51	25.77					25	5.30	32.57	25.77	25.75	0.0596	0.0585	0.00224	
100	5.10	33.04	26.13					50	5.26	32.61	25.77	26.02	0.1185	0.1125	0.00224	
200	3.97	33.86	26.91					75	3.77	33.82	25.94	26.30	0.1754	0.1666	0.00208	
300	3.77	34.00	27.03					100	3.77	33.04	26.13	26.61	0.228	0.216	0.00190	
400	3.77	34.05	27.07					150	3.97	33.56	26.61	27.33	0.317	0.300	0.00145	
500	3.67	34.16	27.17					200	3.83	33.86	26.91	27.87	0.386	0.366	0.00117	
600	3.60	34.23	27.23					250	3.88	33.95	26.99	28.19	0.446	0.422	0.00110	
700	3.27	34.27	27.30					300	3.77	34.00	27.03	28.47	0.503	0.477	0.00107	
800	3.30	34.33	27.34					400	3.67	34.05	27.07	29.00	0.614	0.584	0.00106	
900	3.07	34.36	27.39					500	3.27	34.16	27.17	29.58	0.719	0.685	0.00095	
1000	2.90	34.40	27.44					700	3.27	34.28	27.30	30.66	0.907	0.866	0.00085	
1200a	2.6	34.43	27.48					1000	2.90	34.40	27.44	32.25	1.15	1.10	0.00071	
1300b	2.5	34.47	27.52					1500	2.35	34.54	27.60	34.79	1.49	1.43	0.00059	
1400a	2.4	34.51	27.57													
Group II (station Nos. 106, 107) January 1929; 59°15' N, 147°16' W																
0	5.78	32.16	25.37					0	5.78	32.16	25.37	25.37	0.0000	0.0000	0.00262	
25	5.98	32.23	25.39					5	5.82	32.17	25.35	25.38	0.0138	0.0132	0.00263	
50	6.30	32.36	25.45					25	5.98	32.23	25.39	25.51	0.0689	0.0655	0.00260	
100	5.95	32.52	26.32					50	6.30	32.36	25.45	26.59	0.1367	0.1297	0.00254	
200	5.84	32.53	26.35					75	6.15	32.44	25.54	26.89	0.2029	0.1923	0.00246	
300	4.84	33.89	26.85					100	5.95	32.52	25.62	26.09	0.267	0.253	0.00239	
400	4.22	33.98	26.96					150	5.90	33.10	26.08	26.80	0.381	0.361	0.00235	
500	3.95	34.07	27.07					200	5.84	33.53	26.43	27.39	0.477	0.451	0.00234	
600	3.80	34.14	27.14					250	5.40	33.77	26.67	27.87	0.556	0.527	0.00231	
700	3.58	34.21	27.25					300	4.84	33.89	26.83	28.27	0.627	0.594	0.00227	
800	3.45	34.29	27.29					400	4.22	33.98	26.95	28.89	0.753	0.716	0.00216	
900	3.25	34.34	27.35					500	3.95	34.07	27.07	29.48	0.868	0.827	0.00206	
1000	2.16	34.40	27.41					700	3.60	34.25	27.25	30.61	1.071	1.024	0.00191	
1200	2.72	34.47	27.51					1000	2.10	34.40	27.42	32.21	1.53	1.47	0.00174	
1400	2.42	34.49	27.55					1500	2.30	34.49	27.56	34.75	1.59	1.52	0.00063	
Group III (station Nos. 108, 109, 110, 111) January 1929; 57°42' N, 146°38' W																
0	5.15	32.38	25.60					0	5.15	32.38	25.60	25.60	0.0000	0.0000	0.00240	
25	5.30	32.50	25.68					5	5.18	32.40	25.61	25.63	0.0126	0.0120	0.00239	
50	5.22	32.56	25.74					25	5.30	32.50	25.68	25.80	0.0623	0.0591	0.00232	
100	5.42	33.24	26.25					50	5.22	32.56	25.74	26.59	0.1227	0.1163	0.00228	
200	4.79	33.89	26.84					75	5.32	32.92	26.01	26.37	0.1792	0.1700	0.00202	
300	4.11	33.96	26.97					100	5.15	33.24	26.25	26.73	0.229	0.217	0.00192	
400	3.94	34.07	27.07					150	5.15	33.70	26.64	27.36	0.314	0.297	0.00182	
500	3.83	34.13	27.13					200	4.79	33.89	26.84	27.80	0.385	0.365	0.00185	
600	3.62	34.22	27.22					250	4.40	33.93	26.91	28.11	0.448	0.425	0.00182	
700	3.43	34.25	27.27					300	4.11	33.95	26.97	28.41	0.509	0.483	0.00184	
800	3.30	34.33	27.34					400	3.94	34.07	27.07	29.00	0.623	0.594	0.00186	
900	3.18	34.36	27.39					500	3.83	34.13	27.13	29.54	0.729	0.697	0.00180	
1000	2.91	34.40	27.44					700	3.45	34.25	27.26	30.63	0.925	0.887	0.00190	
1200	2.65	34.43	27.48					1000	2.95	34.40	27.42	32.23	1.18	1.13	0.00187	
1400	2.39	34.49	27.55					1500	2.25	34.53	27.59	34.78	1.53	1.47	0.00060	

a) Station 12 only. b) Station 9 only.

Table 2a--Physical data and results of dynamic computations from observations in the Gulf of Alaska, January and February 1929, by the International Fisheries Commission and supplied by the Scripps Institution of Oceanography

L.M.T. and wire angle	Depth (D) meters	Temperature (t) °C	Observed values					Interpolated values					Computed values				
			Salinity (S) o/oo	Density (σ_t)	Oxygen		Hydrogen ion (pH)	Phosphate (PO ₄) mg/m ³	Silicate (SiO ₂) mg/m ³	A	Temperature (t) °C	Salinity (S) o/oo	Density (σ_t)	Density (σ_{TP})	Pressure (ΔP)	Anomalies	
					ml/L	o/o										Dynamic depth (ΔD)	Specific volume ($\Delta \Delta$)
Group IV (station Nos. 112, 113, 114, 115) January 1929; 56°18' N; 145°46' W																	
0	0	4.68	32.65	25.87					0	4.68	32.65	25.87	25.87	0.0000	0.0000	0.00214	
25	25	4.75	32.66	25.87				5	4.69	32.65	25.87	25.89	0.0113	0.0107	0.0107	214	
50	50	4.78	32.66	26.36				25	4.75	32.66	26.36	25.99	0.0565	0.0536	0.0536	214	
100	100	4.79	33.96	26.97				50	4.78	32.66	26.97	26.12	0.1129	0.1070	0.1070	214	
200	200	4.78	34.04	27.06				75	4.78	33.92	26.07	26.43	0.1670	0.1584	0.1584	196	
300	300	3.69	34.11	27.13				100	4.79	33.23	26.35	26.84	0.215	0.204	0.204	169	
400	400	3.61	34.18	27.19				150	4.50	33.76	26.77	27.49	0.293	0.278	0.278	130	
500	500	3.46	34.25	27.26				200	4.17	33.96	26.97	27.93	0.358	0.340	0.340	112	
600	600	3.32	34.31	27.33				250	3.90	34.00	27.02	28.22	0.415	0.394	0.394	107	
700	700	3.18	34.34	27.36				300	3.78	34.04	27.06	28.50	0.471	0.447	0.447	105	
800	800	3.02	34.38	27.41				400	3.69	34.11	27.13	29.06	0.577	0.550	0.550	099	
900	900	2.85	34.43	27.46				500	3.61	34.18	27.19	29.60	0.678	0.646	0.646	093	
1000	1000	2.85	34.43	27.46				700	3.32	34.31	27.33	30.59	0.861	0.821	0.821	082	
1200	1200	2.59	34.47	27.52				1000	2.85	34.43	27.46	32.26	1.10	1.05	1.05	070	
1400	1400	2.34	34.49	27.57				1500	2.25	34.50	27.57	34.77	1.44	1.39	1.39	0.00062	
Group V (station Nos. 207, 208, 209) February 1929; 56°29' N, 150°06' W																	
0	0	4.53	32.65	25.88				0	4.53	32.65	25.88	25.88	0.0000	0.0000	0.0000	0.00213	
25	25	4.40	32.74	25.97				5	4.57	32.68	25.91	25.93	0.0112	0.0106	0.0106	210	
50	50	4.33	32.77	26.01				25	4.40	32.74	25.97	26.09	0.0550	0.0521	0.0521	205	
100	100	4.33	32.90	26.11				50	4.33	32.77	26.01	26.26	0.1084	0.1029	0.1029	201	
200	200	4.00	33.89	26.93				75	4.33	32.82	26.04	26.40	0.1610	0.1530	0.1530	199	
300	300	3.67	34.04	27.07				100	4.33	32.90	26.11	26.59	0.212	0.202	0.202	192	
400	400	3.60	34.07	27.11				150	4.18	33.44	26.55	27.27	0.303	0.287	0.287	181	
500	500	3.50	34.14	27.17				200	4.00	33.89	26.93	27.89	0.374	0.354	0.354	175	
600	600	3.37	34.23	27.25				250	3.83	34.00	27.03	28.24	0.452	0.409	0.409	165	
700	700	3.23	34.31	27.33				300	3.67	34.04	27.07	28.51	0.532	0.487	0.487	166	
800	800	3.10	34.33	27.36				400	3.60	34.07	27.11	29.04	0.593	0.565	0.565	104	
900	900	2.77	34.40	27.42				500	3.50	34.14	27.17	29.58	0.696	0.664	0.664	095	
1000	1000	2.47	34.43	27.47				700	3.23	34.31	27.33	30.69	0.881	0.841	0.841	082	
1200	1200	2.47	34.45	27.51				1000	2.80	34.43	27.46	32.27	1.12	1.07	1.07	070	
1400	1400	2.27	34.49	27.56				1500	2.15	34.51	27.59	34.78	1.46	1.40	1.40	0.00060	

Table 3. Synoptic table of bottom samples collected

Sam- ple	Sta- tion	Date	Position and depth in meters	Type of sample	Estimated CaCO ₃ con- tent in per cent; basis of estimate	For discussion see footnotes on
						Color and physical characters
10	37	1928 Nov. 1	5 59 N 82 56 W 3324 m	Green (coprolitic) mud	3; acid solu- ble CaO	(Wet) grayish-olive 21 ⁴ (O-YY) Sandy clay (U.S.B.S. class = clay); rounded grains; moderately co- herent, slippery, granular
11	40	8	1 32 S 82 16 W 1344 m	Volcanic gravel	5; inspection	(Dry) from near deep mouse-gray 15 ⁹ i(Y-O) to pinkish-buff 17 ² d(O-Y) Angular rock fragments; (Went- worth class = sandy gravel)
12	42	13	1 32 S 93 10 W 3539 m	Siliceous globiger- ina ooze ?	30; inspection	(Dry) tulleul-buff 17 ³ f(O-Y) Clay; few shells of foraminifera; slightly coherent, pulverulent
13	43	15	2 30 S 95 43 W 3352 m	Siliceous globiger- ina ooze	67; total CO ₂	(Moist) buffy-brown 17 ³ i(O-Y) Sandy clay (U.S.B.S. class = clay); small shells of foraminifera; moderately coherent, slightly plastic, crumbly, granular
14	44	17	3 15 S 99 48 W 3423 m	Siliceous globiger- ina ooze	76; acid solu- ble CaO	(Moist) between sayal-brown and tawny-olive 16 ² i(Y-O, O-Y) Sandy clay (U.S.B.S. class = clay); small shells of foraminifera; moderately coherent, slightly plastic, crumbly, granular
15	46	21	9 06 S 108 20 W 2905 m	Volcanic globiger- ina ooze	80; inspection	(Wet) avellaneous 17 ³ b(O-Y) Silty sand; small shells of fora- minifera; incoherent; granular
16	47	23	14 07 S 111 50 W 3080 m	Ferruginous glo- bigerina ooze	87; acid solu- ble CaO	(Dry) Saccardo's umber 17 ² k(O-Y) Clayey sand (U.S.B.S. class = clay); small shells of foraminifera; slightly coherent, crum- bly
17	49	27	23 16 S 114 45 W 3098 m	Ferruginous (vol- canic) globigerina ooze	74; acid solu- ble CaO	No material available as entire sample was used in mechanical analysis. (U.S.B.S. class = clay)

Sample 10. Contains over 5 per cent organic matter, nearly 2 per cent MnO₂, and relatively high ZrO₂. Constituent particles of sand size include abundant dark grayish-green elongated ellipsoidal aggregates about 0.3 mm in diameter, probably coprolitic pellets (see Murray and Philippi, 1908, p. 103, pl. XX, and Moore, 1933, p. 24); together with a few broken pelagic and bottom foraminifera, echinoid spines, abundant radiolaria, sponge spicules, very common manganese grains, brown mica (-2E large), quartz, green-brown hornblende, augite, epidote, plagioclase feldspar, basic volcanic glass, and small rhombohedral calcite crystals.

Sample 11. Consists principally of angular fragments of altered volcanic material and iron concretions greater than 0.5 and less than 8 mm in diameter, partly encrusted with worm tubes; together with a few pelagic foraminifera, sponge spicules, wood fibers, but no mud.

Sample 12. Contains abundant fragments of radiolarian skeletons, diatom frustules, and sponge spicules in addition to foraminifera, but only small amounts of clay minerals.

on cruise VII of the Carnegie in the Pacific

each page under sample number

Sampler and container used	Field notes	Nearest previous samples
Ross snapper; 18-oz. bottle	Black mud in Ross snapper, top of Nansen bottle, and in lower end of 80-lb. weight. Sample smelled strongly of oil	<u>Albatross</u> 4631 (p. 41); 06° 26' N, 81° 49' W; 776 fathoms. Green mud, CaCO ₃ = 25.2 per cent; containing rock fragments, casts of foraminifera, echinoid spines, sponge spicules, glauconitic grains, a little quartz
Ross snapper; vial	Small amount of black gravel in Ross snapper. Hard bottom	None
Ross snapper; vial	Ross snapper failed to shut, but small sample adhered to jaws	<u>Albatross</u> 4521 (p. 64); 02° 14.3' S, 92° 29.9' W; 1871 fathoms. Globigerina ooze, CaCO ₃ = 45 per cent. Mostly broken pelagic and many benthonic foraminifera, gray clay residue containing many fragments of siliceous organisms and minute minerals, including augite, and a little manganese and hematite
Ross snapper; 18-oz. bottle	Good bottom sample	<u>Albatross</u> 4523 (p. 65); 03° 34' S, 95° 35.4' W; 2031 fathoms. Globigerina ooze, CaCO ₃ = 55.9 per cent. Light gray, flocculent residue, almost entirely fragments of siliceous organisms, little clay, few minerals
Ross snapper; 18-oz. bottle	Good bottom sample. Red clay and globigerina ooze	<u>Albatross</u> 4717 (p. 65); 05° 10' S, 98° 56' W; 2153 fathoms. Globigerina ooze, CaCO ₃ = 60.3 per cent. Rich brown, very flocculent clay residue, many fragments of siliceous organisms, few minerals, coccoliths
Ross snapper; 3 vials	Ross snapper closed, but brought up only small sample. Small particles of volcanic rock in lead weight	<u>Albatross</u> 4723 (p. 75); 10° 14.3' S, 107° 45.5' W. Depth? Globigerina ooze; washed sample, CaCO ₃ not determined. Principally pelagic forams, etc., containing few manganese grains, angular augite grains, splinters of volcanic glass
Ross snapper; 18-oz. bottle		<u>Albatross</u> 4726 (p. 67); 12° 30.1' S, 111° 42.2' W. 1700 fathoms. Globigerina ooze, CaCO ₃ = 68 per cent. Pelagic and few benthonic foraminifera, brown clay residue very rich in manganese and limonite grains. Few remains of diatoms and sponge spicules. Minute mineral particles
Ross snapper; 2 vials and 18-oz. bottle	Ross snapper with 98-lb. lead weight on shaft let down on end of 4-mm wire, 50 m below Nansen water bottle. When hauled in, Nansen bottle was full of	None

Sample 13. Abundant fragments of radiolarian skeletons and diatom frustules occur in sand grades, in addition to predominant amounts of broken pelagic and benthonic foraminifera; also present are arenaceous foraminifera, echinoid spines, sponge spicules, and brown mica.

Sample 14. Sand grades contain smaller amounts of remains of siliceous organisms than sample 13, and correspondingly larger amounts of pelagic and some benthonic foraminifera, also present are echinoid spines, gastropod shell, and a few disk-shaped and ellipsoidal pellets.

Sample 15. Appears to be partly washed. Contains angular cinder of altered basic volcanic rock, 1 cm in longest diameter, coated with manganese; also small fragments of volcanic glass and shells of bryozoa, in addition to predominant amounts of pelagic foraminifera and a few remains of siliceous organisms.

Sample 16. Sand and coarse silt grades consist almost entirely of unbroken pelagic and a very few benthonic foraminifera, together with numerous minute manganese grains less than 0.01 mm in diameter. Diatoms, radiolaria, etc., are scarce.

Table 3. Synoptic table of bottom samples collected

Sam- ple	Sta- tion	Date	Position and depth in meters	Type of sample	Estimated CaCO ₃ con- tent in per cent; basis of estimate	Color and physical characters
1928						
18	51	Dec. 1	29 06 S 114 48 W 2898 m	Globigerina ooze	94; acid solu- ble CaO	(Wet) near vinaceous-buff 18 ² -1 ² / ₂ d(O-Y) Clayey sand (U.S.B.S. class = clay); moderately coherent, granular
19	52	3	31 28 S 112 51 W 2851 m	Ferruginous glo- bigerina ooze	86; acid solu- ble CaO	(Wet) buffy-brown 17 ³ i(O-Y) Sandy clay (U.S.B.S. class = clay); shells of foraminifera; moderately coherent, sticky, granular
20	54	14	29 17 S 108 54 W 3061 m	Globigerina ooze	Top 76, bot- tom 80; total CO ₂	Top: (moist) olive-brown 17 ³ k(O-Y); bottom: (moist) olive-brown 17 ³ k(O-Y) Sandy clay; shells of foramini- fera; (top, U.S.B.S. class = clay; bottom, U.S.B.S. class = silty clay loam)
21	57	20	33 59 S 106 43 W 3139 m	Ferruginous glo- bigerina ooze	84; acid solu- ble CaO	(Dry) avellaneous 17 ³ b(O-Y) Sandy clay (U.S.B.S. class = clay); small shells of foraminifera; slightly coherent, crumbly
22	59	24	39 51 S 101 04 W 4116 m	Ferruginous glo- bigerina ooze	42; acid solu- ble CaO	(Wet) between Brussels brown and raw umber 16 m(Y-O,O-Y) Sandy clay (U.S.B.S. class = clay); small shells of foraminifera, and aggregates of fine material; coherent
23	60	26	40 24 S 97 33 W 4007 m	Globigerina ooze	75; acid solu- ble CaO	(Dry) avellaneous 17 ³ b(O-Y) Sandy clay (U.S.B.S. class = clay); shells of foraminifera; when

Sample 17. Sand grades consist largely of unbroken pelagic foraminifera, together with manganese grains and small volcanic glass shards, whereas silt grade contains very abundant small manganese and iron hydroxide grains. Sample also contains fragments several cm in diameter of a black, slightly vesicular, very brittle basic glass exhibition conchoidal fracture. These appear to have been thickly coated with manganese only on one side, indicating the top of a submarine lava flow. There are numerous cracks lined with orange and greenish palagonitic material containing phillipsite crystals. The glass itself (see plate XIII) is very fresh and unaltered, containing microscopic glomeroporphyritic clusters of basic plagioclase feldspar, small, euhedral partially altered olivine crystals, wedge and triangular shaped titanite, twinned alteration products, and augite. The relatively low content of alkalis shown by chemical analysis indicates that this rock is a member of the circum-Pacific suite, as contrasted with the rocks of Tahiti and other Pacific islands which are alkaline.

Sample 18. Sand grades consist almost entirely of unbroken pelagic foraminifera together with traces of echinoid spines, ostracod shells, benthonic foraminifera. Clay grade makes up nearly 60 per cent of sample, consists largely of finely divided calcium carbonate, with a few coccoliths.

Sample 19. Sand grades consist principally of light brownish-colored pelagic foraminifera, almost entirely unbroken, and a few benthonic foraminifera, together with pink and black irregularly shaped grains of organic (?) origin, echinoid spines, ostracod shells, and sponge spicules, one light gray fragment of acid pumice, and manganese grains.

on cruise VII of the Carnegie in the Pacific--Continued

Sampler and container used	Field notes	Nearest previous samples
	muddy water, and left-hand thermometer and brass tube were missing. End of wire for 4 m was torn and chafed, showing it had been caught in crevice on bottom. Snapper jaws badly bent at end, and fragments of black manganese-coated obsidian were mixed with globigerina ooze. Snapper fairly full	
Ross snapper; vial and 18-oz. bottle		None
Ross snapper; 2 vials and 18-oz. bottle	Brown chocolate clay and sand	None
<u>Meteor</u> tube; 2 vials	Used <u>Meteor</u> tube-sampler for first time. Got 24-in. sample with water in top of glass tube (only vial of top of section and vial of bottom of section saved)	<u>Albatross</u> 4517 (p. 56); 25° 50.9' S, 109° 12.5' W. 1723 fathoms. CaCO ₃ = 63.55 per cent. Many species of pelagic forams, numerous small individuals. Augite, magnetite, microlites of basic plagioclase, dark brown clay with minute mineral particles
Ross snapper; vial and 18-oz. bottle	Good bottom sample. Hard reddish-brown clay-mud	None
Ross snapper; vial and 18-oz. bottle	Snapper no. 3 had not closed, but stiff red clay stuck to inside of both jaws. Good sample	None
Ross snapper; vial and 18-oz. bottle	Red clay	<u>Challenger</u> 294 (p. 128); 39° 22' S, 98° 46' W. 2270 fathoms. Red clay; CaCO ₃ = trace (more CaCO ₃ in lower part of core). Pelagic foraminifera and coc-

Sample 20. (Top) In addition to pelagic foraminifera, very few of which are broken, there are a few flakes of plant material and echinoid spines in sand grades. Silt grades contain numerous manganese-iron grains. (Bottom) Same as top of core.

Sample 21. Contains more broken pelagic foraminifera than last sample. Benthonic foraminifera are common (Cassidulina fava noticeable). A few flakes of plant material, manganese grains, sponge spicules, echinoid spines, ostracod tests are present. Some of pelagic foraminifera, notably Globigerina truncatulinoides, exhibit recrystallization.

Sample 22. Very high in manganese, iron, and phosphate. Contains relatively more benthonic foraminifera than any other sample except no. 31. Most of pelagic foraminifera are broken. Numerous manganese grains are present in sand grades, in addition to radiolaria, twinned crystals of phillipsite, euhedral crystals of magnetite, plagioclase feldspar and basaltic hornblende, also many ellipsoidal and flat pellets, possibly formed in mechanical analysis. Fine material is very difficult to disperse. Manganese grains contain as nuclei aggregates of white, acid volcanic glass shards (index of refraction about 1.50).

Sample 23. Large proportion of pelagic foraminifera are broken, some exhibit recrystallization. Benthonic foraminifera and manganese grains are abundant in sand grades, also present are sponge spicules, echinoid spines, ostracods, white vesicular pumice, subrounded, polished quartz grains, and greenish fine-grained mica schist fragments. Manganese grains contain nuclei of acid volcanic glass.

Table 3. Synoptic table of bottom samples collected

Sam- ple	Sta- tion	Date	Position and depth in meters	Type of sample	Estimated CaCO ₃ con- tent in per cent; basis of estimate	Color and physical characters
		1928				moist, coherent and plastic; when dry, moderately coherent and crumbly
24	61	Dec. 28	38 29 S 94 14 W 3299 m	Globigerina ooze	86; total CO ₂	(Moist) avellaneous 17 ³ b(O-Y) Sandy silt;(U.S.B.S. class = clay loam); shells of foraminifera and manganese nodules up to 1 cm; slightly coherent, crumbly
25	62	30	34 35 S 91 52 W 3610 m	Ferruginous glo- bigerina ooze	74; acid solu- ble CaO	(Dry) avellaneous 17 ³ b(O-Y); (wet) Saccardo's umber 17 ² k(O-Y) Sandy clay (U.S.B.S. class = clay); shells of foraminifera; coher- ent, brittle
		1929				
26	63	Jan. 1	32 10 S 89 04 W 3393 m	Globigerina ooze	91; acid solu- ble CaO	(Moist) between wood-brown and buffy-brown 17 ³ h(O-Y) Clayey sand (U.S.B.S. class = clay loam); shells of foraminifera; moderately coherent, crumbly, granular
27	64	3	31 54 S 88 17 W 3879 m	Globigerina ooze	43; acid solu- ble CaO	(Dry) between cinnamon-brown and Saccardo's umber 161-1/2k(Y-O) Sandy clay (U.S.B.S. class = silt loam); small shells of foramin- ifera; coherent, brittle
28	65	5	31 07 S 86 39 W 3626 m	Globigerina ooze	66; total CO ₂	(Dry) vinaceous-buff 17 ³ d(O-Y) Sand (U.S.B.S. class = fine sand); shells of foraminifera; slightly coherent, crumbly
29	67	8	24 57 S 82 15 W 1089 m	Globigerina ooze	94; acid solu- ble CaO	(Dry) light pinkish-cinnamon 15 ² d(Y-O) (Moist) Sand (U.S.B.S. class = fine sandy loam); shells of foramin- ifera; slightly coherent, crumbly
30	68	10	21 28 S 80 26 W 4156 m	Red clay	3; total CO ₂	(Wet) raw umber 17 m(O-Y) Sandy clay; shells of foramin- ifera and angular mineral grains, plastic, greasy feel

Sample 24. Contains abundant irregularly shaped manganese grains and nodules up to 6 mm in largest diameter. The silt grade consists largely of broken pelagic foraminifera, with only a small proportion of manganese grains, hence is very light in color when compared with the silt grades of samples 20 to 23.

Sample 25. Sand grades consist largely of pelagic foraminifera, many broken, some exhibiting recrystallization; benthonic foraminifera are common, manganese grains, echinoid spines, sponge spicules, and ostracods are rare. Phillipsite in small, twinned crystals, cloudy plagioclase feldspar, chlorite palagonite, and altered volcanic glass are also present in sand grades.

Sample 26. Many pelagic foraminifera are broken, some exhibit recrystallization; benthonic foraminifera are fairly common (*Cassidulina fava* noticeable); sand grades also contain manganese grains, radiolaria, sponge spicules, echinoid spines, and ostracod tests.

Sample 27. Sample is very high in manganese, iron, and phosphate. Benthonic foraminifera are extremely abundant. Practically all pelagic foraminifera are broken, and many exhibit recrystallization. Manganese grains are not so abundant as in sample 22 but contain as usual nuclei of acid volcanic glass. About half of sand grades consist of ellipsoidal or ovoid pellets, 0.1 mm to 1 mm in diameter, possibly formed

on cruise VII of the Carnegie in the Pacific--Continued

Sampler and container used	Field notes	Nearest previous samples
		coliths; numerous manganese particles, some phillipsite and fragments of palagonite, also feldspar, augite, quartz, magnetite, volcanic glass. Dark chocolate-colored clay, 97 per cent
Ross snapper; vial and 18-oz. bottle	Small amount of gray sand in snapper; apparently hard bottom. Jaws had not penetrated far. Slight trace of black substance on edge of jaws	<u>Challenger</u> 295 (p. 130); 38° 07' S, 94° 04' W. . 1500 fathoms. CaCO ₃ not determined, globigerina ooze. Contains pelagic and benthonic foraminifera, pteropods, ostracods, echinoid spines, cephalopod beaks, siliceous organisms, many particles of manganese, black volcanic glass and augite andesite
Ross snapper; 18-oz. bottle and vial	Red clay and sand	None
Ross snapper; 18-oz. bottle and vial	Sample gray sand; soft; snapper V ₃ full	None
Ross snapper; 18-oz. bottle and 2 vials	Good sample. Red clay, mud, and ooze	None
Ross snapper; vial	Snapper did not close, spring too tight, but small amount of chocolate-red clay was brought up	None
Ross snapper; 18-oz. bottle and vial	Good sample. Gray-white sand, globigerina ooze	None
Sigsbee tube; 18-oz. bottle and 2 vials	Chocolate mud	None

in mechanical analysis, since fine material is very difficult to disperse. Sample contains much phillipsite, also plagioclase feldspar and serpentine (?).

Sample 28. Coarse sand grades consist largely of broken fragments of pelagic foraminifera, with relatively small proportion of unbroken shells, together with numerous benthonic foraminifera, fairly common manganese grains and plant material, rare echinoid spines, sponge spicules and ostracods. Twinned crystals and aggregates of phillipsite are very common in fine sand and silt grades. Finer material is quite flocculent.

Sample 29. Sand grades consist almost entirely of unbroken shells of pelagic foraminifera, some stained yellowish brown; together with rare benthonic foraminifera (the shells of arenaceous species consist of broken pelagic shells), ostracods, calcareous algae, bryozoa, unidentified remains of calcareous organisms, and fragments of crustacea. Silt and clay grades are very small in amount.

Sample 30. Sand grades consist principally of rounded and angular aggregates of fine material; also common manganese and palagonite grains, some broken shells of pelagic foraminifera, and rare flakes of muscovite and biotite.

Table 3. Synoptic table of bottom samples collected

Sam- ple	Sta- tion	Date	Position and depth in meters	Type of sample	Estimated CaCO ₃ con- tent in per cent; basis of estimate	Color and physical characters
31	69	1929 Jan. 12	16 49 S 78 39 W 3657 m	Siliceous (calcar- eous) red clay	20; total CO ₂	(Moist) buffy-brown 17 ³ i(O-Y) Clay (U.S.B.S. class = clay); few small shells of foraminifera; coherent, moderately plastic
32	70	13	13 53 S 77 54 W 4742 m	Green diatom mud	< 1; total CO ₂	(Dry) smoke-gray 21 ⁴ d(O-YY) Clayey silt (U.S.B.S. class = sand); moderately coherent, brittle
33	71	Feb. 6	11 57 S 78 37 W 3357 m	Green silty mud	< 1; inspection	(Dry) pale smoke-gray 21 ⁴ f(O-YY) Silty clay; moderately coherent, crumbly, slightly gritty
34	72	8	9 58 S 82 10 W 4480 m	Green clayey mud	0.25; acid soluble CaO	(Moist) smoke-gray 21 ⁴ b(O-YY) Clay (U.S.B.S. class = clay); co- herent, brittle
35	74	12	11 00 S 87 24 W 4141 m	Siliceous red clay	0.91; acid soluble CaO	(Moist) Saccardo's umber 17 ² k(O-Y) Clay (U.S.B.S. class = clay); mod- erately coherent, sticky, greasy feel
36	75	14	14 15 S 92 05 W 3480 m	Globigerina ooze	91; acid soluble CaO	(Moist) between vinaceous-buff and avellaneous 17 ³ c(O-Y) Sandy silt (U.S.B.S. class = clay); shells of foraminifera; moder- ately coherent, granular
37	76	16	15 18 S 97 28 W 3197 m	Globigerina ooze	93; total CO ₂	(Moist) (U.S.B.S. class = sand); incoher- ent, granular; shells of fora- minifera

Sample 31. Sand grades consist principally of remains of radiolaria, sponge spicules, and diatoms, together with numerous calcareous benthonic and some arenaceous and pelagic foraminifera, the latter exhibiting slight recrystallization; also present are echinoid spines, chitinous remains, light-colored rod and disk-shaped pellets, green-brown mica (sometimes considerably altered), euhedral green-brown hornblende in colorless pumice, plagioclase feldspar (Ab₅₀An₅₀), angular quartz, and olivine (?).

Sample 32. Consists largely of remains of siliceous organisms, especially diatoms, together with light grayish-green clayey material. The sand grades contain numerous light grayish-green rounded and irregularly shaped aggregates of clayey material and siliceous organisms, together with plant material, flakes of brown and greenish mica, sometimes considerably altered, quartz, and feldspar.

Sample 33. Too small for detailed examination. Appears to be similar to sample 32, except that remains of siliceous organisms are relatively less in amount. Contains abundant fresh and partially decomposed plagioclase (labradorite and oligoclase), quartz, green mica, green hornblende, augite, epidote or clinzoisite (2 V about 90°), green garnet or ceylonite, rutile, apatite, magnetite (?), basic volcanic glass, calcite crystals, little clay.

on cruise VII of the Carnegie in the Pacific--Continued

Sampler and container used	Field notes	Nearest previous samples
Ross snapper; 18-oz. bottle and 2 vials	Snapper not closed but brought up good specimen of gray mud and ooze	None
Ross snapper; 18-oz. bottle and 2 vials	Jaws not closed but sample stuck on inside; blackish-green mud	<u>Albatross</u> 4672 (p. 47); 13° 11.6' S, 78° 18.3' W. 2845 fathoms. Red clay or blue mud; CaCO ₃ = zero per cent; nearly 50 per cent fine minerals, 0.01-mm diameter; angular quartz grains, green chlorite, decomposed feldspar, augite, hematite, hornblende (?), some sponge spicules and diatoms; gray flocculent clay
Ross snapper; vial	Snapper failed to close, but thimble full of blue-green mud was found back of tongue	<u>Albatross</u> 4671 (p. 47); 12° 06.9' S, 12° 28.2' W. 1490 fathoms. Blue mud; CaCO ₃ = zero per cent; fine greenish-colored clay, containing many very minute mineral particles, 0.01-mm diameter, and diatoms. Quartz, glauconite, little feldspar, magnetite, and hematite
Ross snapper; 18-oz. bottle and 2 vials	Snapper failed to close, but good amount of grayish clay came up in both jaws	None
Ross snapper; 18-oz. bottle and vial	Snapper failed to close again, but brought up good sample	<u>Albatross</u> 4658 (p. 46); 08° 29.5' S, 85° 35.6' W. 2370 fathoms. Red clay; CaCO ₃ = zero per cent; many genera of arenaceous foraminifera, manganese nodules, sharks' teeth, cetacean ear bones; small grains of manganese and iron oxide; scarce plagioclase, augite, magnetite, hematite; 95 per cent dark gray clay with few undeterminable mineral particles and diatoms
Ross snapper; 18-oz. bottle and 2 vials	Snapper no. 5, made in Callao, Peru, used. White ooze	None
Ross snapper; 2 vials	Snapper closed but most of loose white ooze had washed out	<u>Albatross</u> 4705 (p. 59); 15° 05.3' S, 99° 19' W. 2031 fathoms. Globigerina ooze; CaCO ₃ = 78.62 per cent; 82 species of pelagic and benthonic foraminifera observed; traces of siliceous organisms and the following minerals: basic labradorite, pyrite, decomposed feric mineral, augite?; 21 per cent rich red-brown colored flocculent clay

Sample 34. Coarser material consists of skeletons of radiolaria, diatom frustules, sponge spicules, few pelagic and benthonic foraminifera, brown disk-shaped pellets, plant material and small mineral particles. The considerable amount of clayey material is very low in magnesium and calcium. One entire skeleton of a small crustacean was seen.

Sample 35. Sand grades consist of brown and light-colored (coprolitic?), disk-shaped and ellipsoidal pellets of fine material, together with abundant siliceous remains, common manganese grains, also fine-grained igneous rock, palagonite, angular quartz, and plagioclase.

Sample 36. Although this sample is high in calcium carbonate and in pelagic foraminifera (consequently very light in color), about 50 per cent of shells of foraminifera are broken sand grades. Also contains a few benthonic and arenaceous foraminifera, ostracods, echinoid spines, fish teeth, radiolaria, sponge spicules, manganese grains, and somewhat decomposed plagioclase feldspar. The tests of Globorotalia exhibit recrystallization.

Sample 37. Appears to have been partly washed, as it is very low in fine material. Consists almost entirely of pelagic foraminifera, about three-fourths of which are unbroken.

Table 3. Synoptic table of bottom samples collected

Sam- ple	Sta- tion	Date	Position and depth in meters	Type of sample	Estimated CaCO ₃ con- tent in per cent; basis of estimate	Color and physical characters
38	77	1929 Feb. 18	14 20 S 103 12 W 4094 m	Red clay	<10; inspec- tion	(Wet) between Brussels-brown and mummy-brown 16 ^{1/2} m(O-Y) Sandy clay; shells of foraminifera and angular mineral grains; lumpy, greasy feel
39	78	20	13 02 S 108 03 W 3337 m	Globigerina ooze?	?	No material received
40	79	22	12 36 S 112 14 W 3090 m	Globigerina ooze	78; total CO ₂	(Moist) Saccardo's umber 17 ² k(O-Y) (U.S.B.S. class = clay)
41	80	24	12 39 S 117 22 W 3515 m	Ferruginous glo- bigerina ooze	90; acid soluble CaO	(Moist) between Saccardo's um- ber and tawny-olive 17 ² j(O-Y) Sandy clay (U.S.B.S. class = clay); shells of foraminifera; slightly coherent, granular, crumbly
42	81	26	13 03 S 121 12 W 2953 m	Globigerina ooze	93; total CO ₂	(Dry) pale pinkish-cinnamon 15 ² f(Y-O) Silty sand (U.S.B.S. class = sand); shells of foraminifera; slightly coherent, granular
43	82	28	14 52 S 126 07 W 3631 m	Globigerina ooze	89; total CO ₂	Sample used up in mechanical analysis. (U.S.B.S. class = clay)
44	83	Mar. 3	17 00 S 129 45 W 3966 m	Globigerina ooze	75; acid soluble CaO and total CO ₂	(Dry) avellaneous 17 ³ b(O-Y); (moist) mummy-brown 17 ¹ m(O-Y); (wet) between Saccardo's umber and snuff-brown 16 ² k(YO-OY) Sandy clay (U.S.B.S. class = clay loam); shells of foraminifera; when moist, moderately coher- ent, very slightly plastic, greasy feel; when dry, moder- ately coherent, pulverulent, granular

Sample 38. Too small for detailed examination, but appears to be quite similar to sample 30, except that there is a higher percentage of fragments of tests of pelagic foraminifera, and twinned crystals of phillipsite (?) are present.

Sample 39. No sample was received in Washington. According to Seiwel, this sample consisted entirely of broken and intact skeletons of foraminifera together with some "yellowish brown amorphous matter."

Sample 40. Sand grades consist almost entirely of pelagic foraminifera, about 20 per cent of which are broken, together with rare benthonic foraminifera and manganese grains. Silt fractions contain numerous small manganese grains, besides finely divided calcium carbonate and siliceous remains. Bright orange color of colloidal material indicates that it is high in iron.

Sample 41. Similar to no. 40, except that very few of pelagic foraminifera are broken, and small manganese grains are much less common. In both these samples the foraminifera are grayish-tan in color. In addition to pelagic foraminifera, traces of benthonic and arenaceous foraminifera, echinoid spines, ostracods, fish teeth, sponge spicules, and radiolaria are present in sand grades.

Sample 42. Consists almost entirely of pelagic foraminifera, very few of which are broken. Many of these are yellowish-brown in color and some exhibit slight recrystallization. Many very small tests are present. A few siliceous remains, and twins of phillipsite also occur.

on cruise VII of the Carnegie in the Pacific--Continued

Sampler and container used	Field notes	Nearest previous samples
Ross snapper; vial	Snapper not closed, spring too tight. Thimble full of black ooze back of clappers	None
Ross snapper	Snapper closed, but nearly all of white-sand ooze had washed out while hauling in	None
Sigsbee tube; 18-oz. bottle and vial	Snapper not closed, and sample washed out. Sent down Sigsbee tube; good sample black mud	<u>Albatross</u> 4726 (p. 67); 12° 30'S, 111° 42.2' W. 1700 fathoms. Globigerina ooze; CaCO ₃ = 68 per cent. Pelagic and few benthonic foraminifera, brown clay residue very rich in manganese and limonite grains; few remains of diatoms and sponge spicules; minute mineral particles
Ross snapper; 18-oz. bottle and vial	Snapper, readjusted to hair trigger, closed and brought up good sample, light brown clay and sand	None
Ross snapper; 18-oz. bottle and vial	Snapper closed. One-third full of hard, gray sand and ooze	None
Sigsbee tube; 18-oz. bottle and vial	Good sample; gray globigerina ooze	<u>Albatross</u> 4534 (p. 71); 13° 51'S, 126° 53.5' W. 2185 fathoms. Globigerina ooze. CaCO ₃ = 72.7 per cent. Pelagic and few bottom-living foraminifera; chocolate-brown flocculent clayey residue, numerous very small phillipsite crystals, few manganese grains, and angular splinters of colorless glass
Ross snapper; 18-oz. bottle and vial	Chocolate mud and ooze. Snapper full	<u>Albatross</u> 4532 (p. 70); 18° 29.4' S, 130° 50.8' W. 2319 fathoms. Red clay, CaCO ₃ = 18 per cent. Pelagic and bottom-living foraminifera and fish teeth; very dark brown flocculent clay residue; great abundance of phillipsite crystals, few manganese grains, and angular splinters of colorless glass

Sample 43. Sand grades consist almost entirely of pelagic foraminifera, about one-fourth of which are broken. The mechanical analysis shows two maxima in the sand and clay grades respectively, and the calcium carbonate content is similarly distributed, indicating two sources of calcareous material. Siliceous organic remains are common, and very small twinned crystals of phillipsite are rare constituents of sand grades.

Sample 44. Coarse sand grades consist largely of remains of pelagic foraminifera, many of which are broken or considerably recrystallized, together with benthonic foraminifera, ostracods, echinoid spines, fish teeth, some siliceous remains, including radiolaria, sponge spicules, and arenaceous foraminifera, few manganese grains, large subhedral grains of fresh plagioclase feldspar, and one of basaltic hornblende, both over 1 mm long. The fine sand grades contain many twinned crystals and aggregates of phillipsite (identified by X-ray powder diagrams) in addition to the above. The clayey material of this sample is quite flocculent; it consists largely of small irregularly shaped grains of calcite, together with some small calcite spherules and rectangular plates, numerous horseshoe-shaped coccoliths, fragments of globigerina shells, large single and some twinned crystals of phillipsite, rounded reddish grains (iron oxide), mottled reddish aggregates (beidellite?), and crescent-shaped shards of brown altered volcanic glass.

Table 3. Synoptic table of bottom samples collected

Sam- ple	Sta- tion	Date	Position and depth in meters	Type of sample	Estimated CaCO ₃ content in per cent; basis of estimate	Color and physical characters
45	85	1929 Mar. 6	17 12 S 136 37 W 3791 m	Ferruginous glo- bigerina ooze	94; acid soluble CaO	(Dry) pale pinkish-cinnamon 15 ² f(Y-O); (moist) between avellaneous and wood-brown 17 ³ a(O-Y) Clayey sand (U.S.B.S. class = sandy loam); shells of foraminifera; when wet, slightly coherent, granular; when dry, moderately coherent, pulverulent granular
46	86	9	17 36 S 141 55 W 2132 m	Globigerina ooze?	90; inspection	(Dry) fuscous 13 ⁴ k(OY-O) Manganese nodules up to 1 cm in diameter partly covered with small unbroken shells of pelagic foraminifera
47	87	11	18 05 S 145 33 W 4315 m	Calcareous red clay	15; total CO ₂	(Moist) between bister and sepia 16 ² m(Y-O, O-Y) (Dry) clay; coherent, brittle
48	94	Apr. 22	12 47 S 171 35 W 4760 m	Red clay	< 10; inspection	(Dry) between light drab and avellaneous 17 ^{3-1/2} b(O-Y) Clay; moderately coherent, pulverulent
49	96	26	6 47 S 172 23 W 5269 m	Red clay	< 1; total CO ₂	(Moist) between snuff-brown and bister 15 ² 1(Y-O); (dry) avellaneous 17 ³ b(O-Y) Clay (U.S.B.S. class = clay); coherent, brittle
50	97	28	3 47 S 172 39 S 5253 m	Red clay	< 10; inspection	(Dry) between Saccardo's umber and buffy-brown 17 ^{2-1/2} j(O-Y) Color of coarser fraction (dry) between avellaneous and light drab 17 ^{3-1/2} b(O-Y) Silty clay; moderately coherent, pulverulent, somewhat gritty

Sample 45. Sand grades are similar to sample 44, except that a greater proportion of pelagic shells are unbroken and phillipsite crystals and aggregates are less common. The silt and clay grades apparently contain much more calcium carbonate than sample 44.

Sample 46. The estimate of CaCO₃ content for this region is based on the fact that the small tests of pelagic foraminifera found on the manganese nodules are unbroken and fresh in appearance.

Sample 47. Well-formed, ovoid-shaped pellets of fine material, usually containing fragments of foraminiferal shells and sometimes cemented together by a coating of manganese, predominate in the coarser sand grades. Benthonic foraminifera make up a large part of the calcium carbonate content, together with broken shells of pelagic foraminifera, fish teeth, and unidentified calcareous materials; sponge spicules are also present. Manganese grains, volcanic rock fragments, palagonite and phillipsite are common, whereas biotite, feldspar, and hornblende are rare constituents of the sand grades.

Sample 48. The sample is very fine-grained but too small for mechanical analysis. Contains radiolaria, sponge spicules, coccoliths, and unidentified, irregular-shaped calcareous material, as well as basic

on cruise VII of the Carnegie in the Pacific--Continued

Sampler and container used	Field notes	Nearest previous samples
Ross snapper 18-oz. bottle and vial	Good sample; coffee-colored ooze	None
Ross snapper; vial	Snapper closed; hard bottom, few manganese nodules; no trace of ooze	<u>Albatross 37</u> (p. 95); 18° 08' S, 141° 49' W. 2187 fathoms. Globigerina ooze; CaCO ₃ = 74.2 per cent. Pelagic and benthonic foraminifera, echinoid spines, ostracods, alcyonarian spicules, coccoliths, rhabdoliths, tunicate spicules, siliceous organisms, obsidian, feldspar, augite, magnetite, manganese grains; single and aggregate crystals of phillipsite
Ross snapper; vial	Snapper not closed, but brought up small amount of reddish-brown clay-ooze	<u>Albatross 34</u> (p. 94); 17° 10' S, 145° 19' W. 1679 fathoms. Globigerina ooze. CaCO ₃ = 84.3 per cent. Pelagic and benthonic foraminifera, echinoid spines, ostracods, otoliths, tunicate spicules, coccoliths, rhabdoliths; few remains of radiolaria, sponge spicules; small angular grains of plagioclase, obsidian, chloritized hornblende, magnetite
Ross snapper; vial		<u>Penguin 331</u> . Murray (1906, p. 132); 14° 49.4' S, 171° 51.9' W. 2532 fathoms. Red clay or volcanic mud; CaCO ₃ = 5 per cent. Small pelagic foraminifera; 50 per cent small pumice particles, 10 per cent radiolaria, sponge spicules, diatoms; 35 per cent brown "amorphous" matter and minute mineral particles
Sigsbee tube; 12-oz. bottle	Sigsbee tube; weight detached; chocolate mud and ooze	<u>Egeria 47</u> . Murray (1906, p. 131); 07° 52' S, 171° 01.5' W. 2766 fathoms. Red clay; CaCO ₃ not determined. Few fragments of pelagic foraminifera and fish teeth, pumice fragments and manganese grains, sponge spicules, radiolaria, diatoms; dark brown or chocolate color. "Fine washings," 77 per cent
Sigsbee tube; 12-oz. bottle	Small sample chocolate ooze	<u>Tuscarora</u> , Dec. 25, 1875. Murray (1906, p. 127); 03° 21' S, 171° 23' W. 2835 fathoms. Globigerina ooze (with many radiolaria); CaCO ₃ = 42.1 per cent. Mostly fragmentary pelagic foraminifera; numerous coccoliths, few tunicate spicules, much crystalline and "amorphous" calcareous matter, 25 per cent remains of siliceous organisms, a few manganese grains, palagonitic and glassy volcanic particles

volcanic glass, pumice, palagonite, small manganese grains, plagioclase feldspar, augite, euhedral hypersthene (?), magnetite (?), birefringent clay minerals (?) and unidentified, small mineral particles. Sample 49. One distinction of the sand grades of this sample is the presence of an extraordinary number of fish teeth and chitinous fragments. Sponge spicules, radiolaria, and both benthonic and pelagic foraminifera are other common organic constituents. Another feature is the presence of many compact, irregularly rounded particles probably of altered pumice, containing palagonite, augite, and unaltered plagioclase feldspar, together with much isotropic material. In addition, brownish, ovoid aggregates probably formed during mechanical analysis are present, as well as manganese grains. Sample 50. Too small for mechanical analysis. Contains arenaceous foraminifera, fish teeth, pelagic foraminifera, radiolaria, sponge spicules, diatoms, unidentified calcareous fragments, biotite, manganese grains and flakes, basic volcanic glass (some grains of which are slightly birefringent), palagonite, a euhedral augite crystal, penninite (?), brown-colored clay mineral showing moderate birefringence, negative elongation, indices of refraction about 1.565, large 2 E.

Table 3. Synoptic table of bottom samples collected

Sam- ple	Sta- tion	Date	Position and depth in meters	Type of sample	Estimated CaCO ₃ con- tent in per- cent; basis of estimate	Color and physical characters
51	108	1929 May 27	18 26 N 144 01 E 3573 m	Volcanic mud	16; total CO ₂	(Moist) between light brownish- olive and brownish-olive 19 ² ₁ (Y-O-Y) (U.S.B.S. class = clay loam)
52	109	29	23 22 N 144 08 E 5252 m	Red clay	< 5; inspection	(Dry) avellaneous 17 ³ _b (O-Y) Clay; moderately coherent, crumbly
53	110	31	26 20 N 144 24 E 3036 m	Volcanic globiger- ina mud	48; total CO ₂	(Dry) pale pinkish-cinnamon 15 ² _f (Y-O) Sandy clay (U.S.B.S. class = clay); foraminifera; volcanic glass; slight- ly coherent, pulverulent, gritty
54	111	June 3	31 00 N 144 16 E 6008 m	Brown volcanic mud	5; total CO ₂	(Moist) light drab 17 ³ _b (O-Y) Silty clay (U.S.B.S. class = silty clay loam); moderately coher- ent, pulverulent
55	112	5	33 51 N 141 15 E 3931 m	Gray volcanic mud	< 10; inspec- tion	(Dry) between hair-brown and deep grayish-olive 19 ⁴ _i (Y-O-Y); (moist) silt; angular grains; slightly coherent, crumbly, grit- ty feel
56	113	25	34 44 N 141 04 E 2911 m	Gray siliceous volcanic mud	4; acid solu- ble CaO	(Moist) deep grayish-olive 21 ⁴ _i (O-YY) Silty clay (U.S.B.S. class = clay); angular grains; moderately coher- ent, slightly sticky, gritty
57	115	29	37 40 N 145 26 E 5396 m	Volcanic radiolar- ian ooze	1; acid soluble CaO	(Dry) between buffy-brown and drab 17 ^{3-1/2} _h (O-Y) Silty clay (U.S.B.S. class = clay); coherent, crumbly

Sample 51. Organic remains include abundant pelagic foraminifera, common arenaceous and benthonic foraminifera, and radiolaria. Predominant constituents of sand grades are angular fragments of fresh pumice (index of refraction about 1.50), fresh, dark-colored vesicular basic glass (index of refraction about 1.56), quartz, plagioclase feldspar, and hornblende.

Sample 52. Very small fine-grained sample. Organic skeletal material is scarce, chiefly radiolaria and sponge spicules. Basic volcanic glass (index of refraction somewhat less than 1.545), vesicular pumice, plagioclase feldspar (labradorite and some andesine), green augite, quartz, magnetite, manganese grains and flakes, limonite, clay mineral similar to that described for sample 50, and much fine unidentified material make up bulk of the sample.

Sample 53. Similar to sample 51, except that pelagic foraminifera are much more abundant and pumice fragments are replaced in the sand grades largely by vesicular basic volcanic glass. Quartz is abundant.

Sample 54. The organic remains consist of radiolaria shells (sometimes coated with manganese), fish teeth, occasional diatoms, sponge spicules, fragments of pelagic foraminifera, and arenaceous foraminifera, the latter consisting largely of angular grains of feldspar, sometimes coated with iron oxide, and volcanic glass. About 60 per cent of the sand grades is made up of pumice (index of refraction about 1.50), other inorganic materials are biotite, manganese grains, some basic volcanic glass, and plagi-

on cruise VII of the Carnegie in the Pacific--Continued

Sampler and container used	Field notes	Nearest previous samples
Sigsbee tube; vial	Bottom sample brown mud in Sigsbee tube no. 2 with detachable weight	<u>Nero 1036</u> . Flint (1905, p. 24); 18° 08.5' N, 144° 04.7' E. 2155 fathoms. Volcanic mud; CaCO ₃ not determined. Light brown, finely granular, nonadhesive mud, containing few foraminifera and relatively little "amorphous" matter. Remainder consists of fine angular mineral fragments
Sigsbee tube; vial	Hard bottom; small fragments of sample; two dents in Sigsbee tube no. 2; no water in tube	<u>Nero 1084</u> . Flint (1905, p. 24); 22° 45.5' N, 143° 40.7' W. 2313 fathoms. Volcanic mud; CaCO ₃ not determined. Light brownish-gray, granular. Occasional foraminifera, many radiolaria and much volcanic glass, some grains brown and porous, others filamentous, remainder sharp, angular, transparent fragments
Sigsbee tube; 12-oz. bottle	Used Sigsbee tube no. 2, detachable weight. Good sample of cream-colored clay-ooze and volcanic sand	<u>Nero 1126</u> . Flint (1905, p. 25); 26° 12.7' N, 143° 08' E. 972 fathoms. Volcanic mud; CaCO ₃ not determined. Mostly volcanic sand with a few pelagic and benthonic foraminifera
Sigsbee tube; 12-oz. bottle	Good conditions	None
Sigsbee tube; vial	Tube had small fragment clay and black mud. Hard bottom	<u>Nero 1207</u> . Flint (1905, p. 25); 33° 22' N, 140° 35.7' E. 635 fathoms. Blue mud; CaCO ₃ not determined. Few small foraminifera and radiolaria; coarse mineral fragments, many of them black; many fragments coated with palagonite
Sigsbee-Ross snapper; 12-oz. bottle	Good sample	<u>Challenger 237</u> (p. 112); 34° 37' N; 140° 32' E. 1875 fathoms. Blue mud; CaCO ₃ = 4.45 per cent; 1.5 per cent pelagic; 1 per cent benthonic foraminifera, 2 per cent otoliths and vertebrae of fish, cephalopod beaks, pteropod and heteropod fragments, echinoid spines. Siliceous organisms 5 per cent, remainder clay and a large amount of volcanic material including orthoclase and plagioclase, augite, hornblende, magnetite, black vesicular glass, pumice, biotite, manganese
Sigsbee-Ross snapper; 12-oz. bottle		None

clase feldspar (labradorite).
 Sample 55. Very small, fine-grained sample. The small amount of siliceous organic material is made up of the remains of radiolaria, diatoms, and sponge spicules. Basic volcanic glass, pumice, and fine-grained material make up approximately one-half of sample. Other constituents are abundant plagioclase, some quartz, green hornblende, biotite, magnetite, augite, chlorite, colorless garnet, and palagonite.
 Sample 56. Radiolaria make up about 60 per cent by volume of the sand grades of this sample; most of the remainder is of basic volcanic glass (index of refraction about 1.56), containing many microlites of feldspar and augite--some of the fragments of glass are slightly altered around the borders. Other constituents of sand grades are arenaceous foraminifera, few pelagic foraminifera, sponge spicules, some diatoms; colorless and light green pumice, quartz, biotite, euhedral hypersthene, plagioclase feldspar (labradorite), palagonite (?), hornblende, monoclinic feldspar, and augite. Magnetite is not common. The silt and clay fractions consist largely of plagioclase, monoclinic feldspar, volcanic glass, and the other minerals noted above, together with some diatoms and fragments of radiolaria. A clay mineral of high index of refraction (about 1.56) and appreciable birefringence is present in the clay grade.
 Sample 57. Similar to sample 56, except for brown rather than gray color, greater abundance of siliceous organisms, and smaller amounts of basic volcanic glass and heavy minerals. Contains one large rounded

Table 3. Synoptic table of bottom samples collected

Sam- ple	Sta- tion	Date	Position and depth in meters	Type of sample	Estimated CaCO ₃ con- tent in per cent; basis of estimate	Color and physical characters
58	116	1929 July 1	38 41 N 147 41 E 5545 m	Volcanic diatom or radiolarian ooze	1; acid soluble CaO	(Dry) olive-brown 17 ³ k(O-Y); (moist) silty clay (U.S.B.S. = clay); frustules of diatoms; moderately coherent, crumbly
59	117	3	40 20 N 150 58 E 5296 m	Diatom ooze	0.46; acid soluble CaO	(Moist) mummy-brown 17 ¹ m(O-Y) Silty clay (U.S.B.S. class = clay); frustules of diatoms; moderate- ly coherent, crumbly
60	119	7	45 24 N 159 36 E 5198 m	Diatom ooze	0.93; acid soluble CaO	(Dry) between vinaceous-buff and avellaneous 17 ³ c(O-Y) Clayey silt (U.S.B.S. class = clay); frustules of diatoms; moderate- ly coherent, crumbly
61	127	23	44 16 N 137 37 W 4026 m	Gray clayey mud	1; acid solu- ble CaO	(Dry) near light grayish-olive 21 ^{4-1/2} c(OYY); (moist) brown- ish-olive 19 ² m(YO-Y) Clay (U.S.B.S. class = clay); co- herent; when moist, somewhat plastic; when dry, brittle
62	128	25	40 37 N 132 23 W 3806 m	Red clay	7; total CO ₂	(Dry) between tilleul-buff and vi- naceous-buff 17 ³ e(O-Y) Clay (U.S.B.S. class = clay); few shells of foraminifera; coher- ent; when moist, slightly plas- tic, moderately sticky; when dry, brittle
63	130	Sep. 4	37 05 N 123 43 W 3188 m	Green mud	<5; inspec- tion	(Dry) between light grayish-olive and grayish-olive 21 ⁴ a(O-YY) Clay; coherent, brittle
64	131	6	33 49 N 126 20 W 4418 m	Red clay	0.57; acid soluble CaO	(Dry) between light drab and dark gray 17 ⁴ c(O-Y) Clay (U.S.B.S. class = clay); co- herent, brittle

piece of fresh pumice over 1 cm in diameter and 2 manganese-palagonite nodules of about the same size. One of these, when sectioned (see plate XIII) shows the spherulitic alteration of colorless isotropic volcanic glass in the center, to reddish-orange palagonite, containing fresh phenocrysts of monoclinic feldspar and hornblende, near the surface. The palagonite spherulites are often surrounded by manganese; some of them are entirely replaced by manganese, which is distributed in more or less laminar fashion. Nearer the surface there are only isolated fragments of palagonite spherulites in the thick manganese coating.

Sample 58. Radiolaria are very abundant in this sample, but the principal component is perhaps diatoms at least in the finer grades. Other organic components are sponge spicules and arenaceous foraminifera. Inorganic components of sand grades include: rounded grains of fresh pumice, 3 mm in longest diameter, in which there are porphyritic clusters of magnetite, hypersthene, green hornblende and plagioclase feldspar (labradorite, Ab₄₅An₅₅); a few semiangular fine-grained volcanic rock particles about 1 mm in diameter which contain small crystals of plagioclase feldspar; together with plagioclase, quartz, basic volcanic glass, and monoclinic feldspar. Subhedral hornblende is the chief heavy mineral, followed by euhedral hypersthene, magnetite crystals, biotite, and colorless augite. Some of the plagioclase particles are zoned.

Sample 59. Both diatoms and radiolaria make up a very large proportion of this sample, but diatoms predominate, especially in the finer grades. Other organic remains are arenaceous foraminifera, sponge fragments, and pelagic foraminifera. Semiangular grains of quartzite, limestone, and a fine-grained volcanic rock are apparently ice-borne. Besides these, there are small amounts of basic volcanic glass (index of refraction greater than 1.56) and pumice (index of refraction 1.515). These are exactly similar in appearance to the glass and pumice from samples 56 on, the glass being packed as usual with micro-lites of feldspar. Some of the grains of the pumice are rounded. Very fresh plagioclase feldspar (labradorite), quartz, monoclinic feldspar, biotite, hypersthene in euhedral single and twinned crystals, hornblende, magnetite and pyroxene (?) are also present in the sand grades.

on cruise VII of the Carnegie in the Pacific--Continued

Sampler and container used	Field notes	Nearest previous samples
Sigsbee-Ross snapper; 12-oz. bottle	Snapper successful; weights detached. Good sample, reddish-brown and green mud	None
Sigsbee-Ross snapper; 12-oz. bottle	Good sample brown-gray mud	None
Sigsbee-Ross snapper; 12-oz. bottle	Good reddish-brown ooze in snapper	None
Sigsbee-Ross snapper; 2 12-oz. bottles		None
Sigsbee-Ross snapper; 2 12-oz. bottles		None
Sigsbee-Ross snapper; vial	Snapper did not close. Small amount of dark green mud in jaws	None
Sigsbee-Ross snapper; 12-oz. bottle	Snapper full of light brown clay	None

Sample 60. Diatoms greatly predominate in this sample. A few radiolaria and arenaceous foraminifera are present. Subrounded to subangular grains of volcanic rock, quartzite and unidentified fine-grained rocks, together with pumice, quartz, and volcanic minerals, as above, are present in the sand grades. Samples 56 to 60 are strikingly similar in chemical composition, but show a progressive increase in number of siliceous organisms, especially diatoms, and a decrease in volcanic components, particularly heavy minerals, toward the east. Ice-borne fragments also increase in number toward the east.

Sample 61. Radiolaria predominate in the sand grades. Arenaceous foraminifera are common, and sponge spicules and fish teeth are found. A few diatoms occur in the finer sand and silt, as well as some unidentified calcareous material. The inorganic constituents of the sand grades include pumice (index of refraction about 1.50), plagioclase feldspar (oligoclase $Ab_{75}An_{25}$), manganese flakes, and basic volcanic glass, the latter sometimes coated with iron oxide. The color of this sample indicates terrigenous influence even though the distance from shore is great and the nitrogen content is not larger than that of other north Pacific clays.

Sample 62. Radiolaria predominate in the sand grades. Other components of sand size are fragments of pelagic foraminifera, abundant benthonic foraminifera (ratio of pelagic to benthonic foraminifera about 7 to 1), fish teeth, echinoid spines, arenaceous foraminifera, manganese grains, biotite, feldspar, and hornblende.

Sample 63. Very small, fine-grained sample. Contains abundant radiolaria, also diatoms and sponge spicules, green hornblende, green garnet, titanite or octahedrite, quartz, brown mica (2E about 15 degrees), monoclinic feldspar, basic volcanic glass, brownish glauconite (?) magnetite, and unidentified fine-grained material.

Sample 64. Radiolarian skeletons are most abundant organic remains; arenaceous foraminifera are common; sponge spicules, black volcanic rock fragments, manganese grains, biotite, pumice and basic volcanic glass, the latter sometimes slightly birefringent, palagonite, plagioclase feldspar, and hornblende are observed in the sand grades.

Table 3. Synoptic table of bottom samples collected

Sam- ple	Sta- tion	Date	Position and depth in meters	Type of sample	Estimated CaCO ₃ con- tent in per- cent; basis of estimate	Color and physical characters
65	132	1929 Sep. 8	31 38 N 128 48 W 4251 m	Red clay	0.46; acid soluble CaO	(Dry) between vinaceous-buff and avellaneous 17 ³ c(O-Y); (moist) olive-brown 17 ³ k(O-Y) Clay (U.S.B.S. class = clay); when moist, moderately coherent, moderately plastic, slightly sticky; when dry, coherent, brittle
66	133	10	29 21 N 132 20 W 4426 m	Red clay	0.68; acid soluble CaO	(Dry) between light drab and drab 17 ⁴ a(O-Y); (moist) between raw umber and mummy-brown 17 ^{1/2} m(O-Y) Clay (U.S.B.S. class = clay); co- herent; when moist, plastic, when dry, brittle
67	134	12	27 45 N 135 22 W 4528 m	Red clay	< 1; inspection	(Dry) sepia 17 ² m(O-Y) (Slightly moist) clay; coherent, plastic (?)
68	135	14	26 39 N 139 07 W 4695 m	Red clay	< 1; inspection	(Dry) avellaneous 17 ³ b(O-Y) Clay; coherent, brittle, smooth feel
69	136	16	26 13 N 142 02 W 4713 m	Red clay	0.80; acid soluble CaO	(Dry) between vinaceous-buff and avellaneous 17 ³ c(O-Y); (moist) between snuff-brown and Sac- cardo's umber 16 ² k(YO-OY) Clay (U.S.B.S. class = clay); co- herent; when moist, moderately plastic, slightly sticky; when dry, coherent, brittle
70	137	18	24 02 N 145 33 W 5208 m	Red clay	1; acid solu- ble CaO	(Dry) vinaceous-buff 17 ³ d(O-Y); (moist) between mummy-brown and Saccardo's umber 17 ^{1-1/2} l(O-Y) Clay (U.S.B.S. class = clay); when moist, moderately coherent, moderately plastic, moderately sticky; when dry, coherent, brittle
71	138	20	22 53 N 151 15 W 5382 m	Red clay	< 1; inspection	(Dry) between tilleul-buff and vi- naceous-buff 17 ³ e(O-Y) Clay; coherent, brittle

Sample 65. Sand grades are very small in amount, as in most north Pacific red clays. They consist largely of radiolaria, arenaceous foraminifera, and sponge spicules, together with some flakes and grains of iron manganese oxide, somewhat altered fragments of plagioclase feldspar (oligoclase), and fresh microcline.

Sample 66. Radiolaria make up about 70 per cent of the sand grades. Fragments of arenaceous foraminifera, sponge spicules, diatom frustules, and fragments of fish teeth are other organic remains. Manganese grains and limonitic and manganese flakes, plagioclase feldspar (andesine), orthoclase, colorless pumice, and one magnetic spherule, are other identified components of sand size.

Sample 67. Small, fine-grained sample. Remains of organisms are rare--a few diatom fragments.

Contains much birefringent material (clay minerals), also augite grains, hornblende needles and cleavage fragments, green garnet (?), oligoclase feldspar (or quartz?), basic glass, and manganese grains.

Sample 68. Very small, fine-grained sample. Remains of organisms are rare. Much birefringent ma-

on cruise VII of the Carnegie in the Pacific--Continued

Sampler and container used	Field notes	Nearest previous samples
Carnegie-Ross pelican-snapper; 12-oz. bottle and glass jar	New triple-size pelican snapper sent down for first time. Struck something at 542 m, closed and weights detached. Hauled up, new weights put on and sent down again. Came up full, about 1 and 1/2 qts. dark brown clay, stiffer than usual	None
Carnegie-Ross pelican-snapper; 2 glass jars	Snapper not quite full of dark brown clay; fairly stiff	None
Carnegie-Ross pelican-snapper; vial	Snapper closed, but came up empty. Enough dark brown mud on outside of jaws for examination. Mud may have been too stiff to allow jaws to grip when the snapper was pulled off bottom	None
Carnegie-Ross pelican-snapper; vial	Snapper apparently closed going down, and struck closed. Small sample of dark brown mud on outside	None
Carnegie-Ross pelican-snapper; 3 glass jars	Snapper was full of dark brown mud, as for all previous samples since San Francisco. Sample weighed 4 lbs., 4 oz.	None
Carnegie-Ross pelican-snapper; 2 glass jars	Snapper full of dark brown mud as before	None
Carnegie-Ross pelican-snapper; vial	Snapper did not close owing to new spring being too stiff. Small sample dark brown mud inside jaws	None

terial, probably mostly clay minerals, is present. Feldspar, hornblende, and a few manganese grains also were identified.

Sample 69. Remains of organisms are fairly common, and include radiolaria, sponge spicules, arenaceous foraminifera, and fish teeth. In addition, the sand grades contain cleavage fragments of brown hornblende (-2V=80), plagioclase feldspar (andesine, Ab₆₀An₄₀), and round manganese grains.

Sample 70. Sand grades are very small in amount. Remains of organisms are principally diatoms, together with radiolaria, sponge spicules, arenaceous foraminifera, and fish teeth. Round manganese-iron grains of sand size are also present.

Sample 71. Very small, fine-grained sample. Contains very few remains of organisms, chiefly radiolaria. Also contains augite, orthoclase, hornblende, plagioclase (andesine), basic volcanic glass, and manganese.

Table 3. Synoptic table of bottom samples collected

Sam- ple	Sta- tion	Date	Position and depth in meters	Type of sample	Estimated CaCO ₃ con- tent in per- cent; basis of estimate	Color and physical characters
		1929				
72	142	Oct. 7	32 42 N 160 44 W 5787 m	Red clay	0.57; acid soluble CaO	(Moist) raw umber 17 ^m (O-Y) (Slightly moist) clay (U.S.B.S. class = clay); coherent, plastic
73	145	13	33 27 N 145 30 W 5584 m	Red clay	0.72; acid soluble CaO	(Dry) wood-brown 17 ³ (O-Y) Clay (U.S.B.S. class = clay); co- herent, brittle
74	146	15	31 50 N 141 50 W 4756 m	Red clay	1; total CO ₂	(Moist) mummy-brown 17 ¹ _m (O-Y) Clay (U.S.B.S. class = clay); mod- erately coherent, brittle, when dry
75	147	17	27 27 N 138 14 W 4840 m	Red clay (?)	<1; inspection	(Dry) between fuscous and fus- cous-black 13 ⁴ ₁ (OY-O) Sandy silt; angular grains of man- ganese; slightly coherent, gritty
76	148	19	24 57 N 137 44 W 4835 m	Red clay	<1; inspection	(Moist) olive-brown 17 ³ _k (O-Y) Clay; coherent, plastic
77	149	21	21 18 N 138 36 W 5320 m	Red clay	0.72; acid soluble CaO	(Dry) drab 17 ⁴ (O-Y) Clay (U.S.B.S. class = clay); co- herent, brittle
78	150	23	16 15 N 137 06 W 4553 m	Red clay (?)	<1; inspection	(Dry) between dark Quaker-drab and sooty-black 15 ¹ ₁ (red) Two cinders of volcanic rock coated with manganese. Average diameter approximately 1 cm
79	151	25	12 40 N 137 32 W 4918 m	Radiolarian ooze	1; acid solu- ble CaO	(Moist) near wood-brown; 17 ⁵ ₁ ^{-1/2} (O-Y) Clay (U.S.B.S. class = clay); mod- erately coherent, slightly plas- tic, sticky
80	153	29	7 45 N 141 24 W 5003 m	Radiolarian ooze	Trace; acid soluble CaO	(Moist) Saccardo's umber 17 ² _k (O-Y) Clay (U.S.B.S. class = clay); few shells of foraminifera; moder- ately coherent, slightly plastic

Sample 72. Contains large amounts of siliceous organisms including radiolaria, sponge spicules, and arenaceous foraminifera; a few pelagic foraminifera and fish teeth are also present. Inorganic constituents of sand grades include pumice (in grains ranging up to 3 mm in diameter), manganese grains, feldspar, and hornblende.

Sample 73. Sand grades are small in amount. Organic remains include radiolaria, sponge spicules, arenaceous foraminifera and a few fish teeth. Manganese grains are common; other constituents of sand size are fresh and partially altered feldspar, hornblende, brown mica, and augite.

Sample 74. The small amounts of sand grades contain radiolaria, sponge spicules, fish teeth, arenaceous and pelagic foraminifera, also abundant manganese grains, pumice (often stained red brown), feldspar, and fractured euhedral grains of magnetite.

Sample 75. Consists of opaque angular grains of volcanic ash (less than 2 mm in longest diameter), coated with manganese, together with angular manganese grains, reddish-yellow, irregularly shaped, birefringent aggregates (beidellite), rare plagioclase feldspar, and considerable iron oxide.

Sample 76. Small, fine-grained sample, contains much birefringent material, also basic volcanic glass, small irregular grains of calcium carbonate of unknown origin, plagioclase feldspar, augite, needles of

on cruise VII of the Carnegie in the Pacific--Continued

Sampler and container used	Field notes	Nearest previous samples
Sigsbee-Ross snapper; glass jar	Full of light brown clay	None
Sigsbee-Ross snapper; 12-oz. bottle	Snapper did not close, but one jaw was full of light brown mud	None
Sigsbee-Ross snapper; 12-oz. bottle	Most of sample had washed out. Same color as before--light brown mud	None
Carnegie-Ross pelican-snapper; vial	Pelican snapper closed but brought up very small amount of fragments of manganese grains and black volcanic ash	None
Carnegie-Ross pelican-snapper; vial	Snapper not closed, but small sample of light brown clay on jaws	None
Carnegie-Ross pelican-snapper; 3 glass jars	Snapper closed; good sample; light brown mud	None
Carnegie-Ross pelican-snapper; vial	Snapper closed but only one small cinder of black lava inside	<u>Albatross</u> 11 (p. 83); 14° 38' N, 136° 44' W. 2646 fathoms.- Red clay; CaCO ₃ = 1 per cent; fish teeth; few siliceous organisms and small angular mineral grains; feldspar, glass, augite, magnetite, manganese grains; phillipsite. Dark mottled brown in color. Largely "amorphous" clayey matter
Carnegie-Ross pelican-snapper; 3 glass jars	Snapper came up full of light brown mud. Sample streaked with white clay and contained one manganese nodule, size of lemon	<u>Albatross</u> 12 (p. 83); 12° 07' N, 137° 18' W. 2883 fathoms. Radiolarian ooze; CaCO ₃ = 1 per cent; greater than 30 per cent siliceous organisms, 2 per cent glass, feldspar, hornblende; the remainder "amorphous" clayey matter. Light brown in color
Carnegie-Ross pelican-snapper; 3 glass jars	Good sample. Snapper full of light brown, black-gray, white mixture mud-ooze	None

hornblende, and manganese grains.

Sample 77. Sand grades contain radiolaria, sponge spicules, and fish teeth in addition to abundant manganese grains, pumice, plagioclase feldspar (andesine), and pyroxene.

Sample 78 consists of two volcanic cinders about 1 cm in diameter coated with manganese and cemented together with the same material.

Sample 79. According to Piggott, the manganese nodule occurring in this sample contains alternating rings of clay and manganese dioxide, but no nucleus of other material. It was not received in La Jolla. Sand grades, large in amount when compared with samples 61 to 77, consist largely of radiolaria, together with diatoms, sponge spicules, arenaceous foraminifera, white (coprolitic?) pellets, manganese grains (containing nuclei of colorless volcanic glass), pumice, and green volcanic rock fragments.

Sample 80. Sand grades contain, besides radiolaria, numerous large manganese grains, white rod-shaped coprolitic pellets and tubes, gray ellipsoidal pellets, fish teeth, sponge spicules, arenaceous foraminifera, very few pelagic foraminifera, olivine, euhedral plagioclase (over 1 mm in diameter), quartz, hornblende, augite, and volcanic scoria.

Table 3. Synoptic table of bottom samples collected

Sam- ple	Sta- tion	Date	Position and depth in meters	Type of sample	Estimated CaCO ₃ con- tent in per cent; basis of estimate	Color and physical characters
81	156	1929 Nov. 4	3 01 N 149 46 W 4953 m	Siliceous globig- erina ooze	40; acid soluble CaO	(Moist) partly pinkish-buff 17 ² d(O-Y); partly Saccardo's umber 17 ² k(O-Y). Sample has two colors but both parts have same physical characters Silty clay (U.S.B.S. class = clay); small shells of foraminifera and radiolarian tests; moder- ately coherent, sticky, greasy feel
82	157	6	1 48 S 152 22 W 4693 m	Siliceous globig- erina ooze	85; acid soluble CaO	(Dry) pale pinkish-cinnamon 15 ² f(Y-O); (moist) vinaceous- buff 17 ³ d(O-Y) Sandy clay (U.S.B.S. class = clay); shells of foraminifera and radi- olarian tests; when moist, slightly coherent, crumbly; when dry, moderately coherent, pulverulent, gritty
83	158	8	6 33 S 154 58 W 4065 m	Globigerina ooze	90; inspec- tion	(Wet) between tilleul-buff and white 17 ³ g(O-Y) Sand; all foraminifera shells and manganese grains; incoherent
84	159	11	9 24 S 159 01 W 5545 m	Red clay	<5; inspec- tion	(Dry) mummy-brown 17 ¹ m(O-Y) Clay; coherent, brittle
85	160	13	10 54 S 161 53 W 2614 m	Globigerina ooze	94; acid soluble CaO	(Dry) pale pinkish-cinnamon 15 ² f(Y-O); (moist) between vi- naceous-buff and avellaneous 17 ³ c(O-Y) Clayey sand (U.S.B.S. = clay); shells of foraminifera; slightly coherent; when moist, crumbly, granular; when dry, crumbly
86	161	15	12 04 S 164 57 W 4484 m	?	?	
87	162	17	13 36 S 168 23 W 5124 m	?	?	

Sample 81. Sand grades consist almost entirely of remains of foraminifera, radiolaria, and other calcareous and siliceous organisms, including sponge spicules, arenaceous foraminifera, diatoms, echinoid spines, and fish teeth, but a few manganese grains are also present. Pronounced recrystallization is evident in tests of *Globorotalia tumida*. Eighty-five per cent of the tests of pelagic foraminifera are broken.

Sample 82. Many species of calcareous and arenaceous benthonic foraminifera; also radiolaria, diatoms, sponge spicules, fish teeth, echinoid spines, ostracods, are present in sand grades in addition to mostly broken tests of pelagic foraminifera, the latter exhibiting some recrystallization, and coccoliths. Inorganic constituents of sand size include manganese grains, fine-grained igneous rock fragments, plagi-

on cruise VII of the Carnegie in the Pacific--Continued

Sampler and container used	Field notes	Nearest previous samples
Carnegie-Ross pelican-snapper; 2 glass jars	Good bottom sample. Used Pelican no. 1. [Evidence of stratification of red clay and globigerina ooze. Contains one cinder (?)]	<u>Challenger</u> 270 (p. 120); 02° 34' N, 149° 09' W. 2925 fathoms. Globigerina ooze; CaCO ₃ = 71.47 per cent; 65 per cent pelagic foraminifera; 1 per cent benthonic foraminifera; 5 per cent fish teeth, echinoid spines, abundant coccoliths; 5 per cent radiolaria, diatoms; 1 per cent angular volcanic glass, feldspar, manganese grains; 23 per cent fine "amorphous" matter and siliceous organisms. Lower part of core nearly pure globigerina ooze, upper part half and half siliceous and calcareous organisms
Carnegie-Ross pelican-snapper; 2 glass jars	Pelican no. 1 full of white globigerina ooze	<u>Challenger</u> 271 (p. 120); 00° 33' S, 157° 34' W. 2425 fathoms. Globigerina ooze; CaCO ₃ = 81.27 per cent. Pelagic foraminifera 70 per cent; 3 per cent benthonic foraminifera; 8 per cent fish teeth, lamelibranchs, ostracods, echinoderm fragments, bryozoa, coccoliths; 10 per cent radiolaria, sponge spicules, arenaceous foraminifera; 9 per cent clay and siliceous remains; 1 egg-sized pumice fragment collected
Nansen water bottle; vial	Small amount of globigerina ooze in Nansen bottle Y	<u>Challenger</u> 274 (p. 122); 07° 25' S, 152° 15' W. 2750 fathoms. Radiolarian ooze; CaCO ₃ = 3.89 per cent; red-brown colored, unctuous, slightly coherent, earthy; largely siliceous organisms, some angular small mineral grains, feldspar, augite, magnetite, magnetic spherules, manganese, phillipsite, pumice. Numerous manganese nodules, earbones of cetaceans, shark teeth, pumice, palagonitic and zeolitic materials obtained in trawl
Carnegie-Ross pelican-snapper; vial	Snapper not closed. Small amount red clay inside jaws	None
Carnegie-Ross pelican-snapper; 2 glass jars	Snapper half full of white globigerina ooze	None
Carnegie-Ross pelican-snapper; ?	Snapper came up with jaws held partly open by small black nodule; small amount ooze and clay inside jaws	
Carnegie-Ross pelican-snapper	Pelican no. 1 came up closed, but only smear of bottom mud. Must have closed going down	

clase feldspar, angular quartz grains (possibly owing to contamination), basic volcanic glass, and magnetite.

Sample 83. Probably partially washed on being brought up. Consists of pelagic foraminifera and small amount of manganese grains.

Sample 84. Too small for detailed microscopic examination.

Sample 85. Consists almost entirely of unbroken tests of pelagic foraminifera, together with traces of calcareous and arenaceous benthonic foraminifera, echinoid spines, radiolaria, and sponge spicules.

Sample 86. Lost in destruction of Carnegie at Apia.

Sample 87. Lost in destruction of Carnegie at Apia.

Table 3. Synoptic table of bottom samples collected

Sam- ple	Sta- tion	Date	Position and depth in meters	Type of sample	Estimated CaCO ₃ con- tent in per cent; basis of estimate	Color and physical characters
		1930				
88	Callao harbor Peru	Between Jan. 13 and Feb. 6	12 00 S 77 00 W ?	Gray mud	4; acid solu- ble CaO	None
89	Hanga Rua, Easter Island		27 00 S 109 00 W ?	Volcanic calcar- eous sand	70; acid soluble CaO	None

Sample 89. Contains over 5 per cent MgCO₃; 70 per cent of sample consists of calcareous organisms: madreporarian corals 15 per cent; coralline algae 12 per cent, Halimeda 3 per cent, foraminifera 10 per cent, gastropods 10 per cent, pelecypods 10 per cent, echinoid spines 8 per cent, tunicate spicules 1 per

on cruise VII of the Carnegie in the Pacific--Concluded

Sampler and container used	Field notes	Nearest previous samples
Mann diatom dredge; 7 18-oz. bottles	Field notes destroyed	None
Mann diatom dredge; 18-oz. bottle (alcoholic)	Field notes destroyed except label	None

cent, trace alcyonarian spicules and worm tubes; inorganic remains make up 30 per cent: fragments of volcanic rock and volcanic minerals.

Table 4. Sonic depths--number and geographic position of sounding

Sounding no.	Date	Latitude N	Longitude W	Station no.	Depth in meters	Sounding no.	Date	Latitude N	Longitude W	Station no.	Depth in meters
1928						1928					
		Atlantic	Ocean					Atlantic	Ocean		
0	May 13	37 42.1	63 36.0	..	5092 ±200 ^a	68	July 14	64 04.8	11 38.3	7	341
1	13	37 43.0	63 21.8	..	4882 ±200 ^a	69	14	63 58.7	12 19.1	8	470
2	15	36 58.7	56 49.3	2	5321	70	14	63 47.6	13 17.1	8	859
3	16	37 53.8	52 37.7	2	5282	71	15	63 29.9	14 14.0	8	1308
4	17	38 10.0	50 03.1	2	5302	72	15	63 28.5	14 53.4	8	1239
5	17	38 12.1	49 38.6	2	5263	73	15	63 25.2	15 17.9	8	1172
6	17	38 09.5	48 57.7	2	5224	74	15	63 22.1	15 46.0	8	1005
7	17	38 07.1	48 14.9	2	5224	75	15	63 16.0	16 17.2	8	929
8	19	40 36.6	41 50.8	2	4868	76	16	63 15.0	16 33.0	8	571
9	20	41 51.8	38 57.8	3	4307	77	16	63 26.1	17 06.7	8	137
10	21	43 59.9	36 09.6	3	3743 ^b	78	16	63 20.2	17 14.5	8	99 ± 1
11	21	43 59.9	36 09.6	3	3733 ^c	79	16	63 01.0	17 15.4	8	1284
12	22	45 18.0	33 34.1	4	3581	80	16	62 47.0	17 08.7	8	1786
13	22	45 40.7	32 54.4	4	2530	81	17	62 50.6	17 53.0	8	1284
14	23	44 45.0	33 05.2	4	2439	82	17	62 57.2	18 23.1	8	1314
15	25	43 17.1	31 33.0	5	2006 ^d	83	17	62 49.7	18 49.4	8	1239
16	25	43 17.1	31 33.0	5	2449	84	17	62 32.7	19 04.7	8	1449
17	25	43 13.2	31 13.6	5	2232	85	18	62 28.2	19 17.1	8	1421
18	26	44 03.5	28 15.5	5	1748 ± 20	86	18	62 45.2	19 37.2	8	1626
19	27	45 49.1	25 31.6	5	2318	87	18	62 47.6	19 47.9	8	1705
20	27	46 06.5	25 05.1	5	2271	88	18	62 36.9	19 55.2	8	1784
21	28	48 17.1	20 46.9	6	3300	89	18	62 49.0	20 09.5	9	1344
22	29	48 50.2	19 16.1	6	4400	90	18	63 02.7	20 32.2	9	782
23	29	48 50.2	18 49.6	6	3024	91	18	63 08.8	20 45.2	9	241 ± 3
24	30	49 50.3	15 05.0	6	4442	92	18	63 11.8	20 52.1	9	168 ± 2
25	30	49 59.8	14 26.6	6	3974	93	18	63 14.8	20 59.5	9	136
26	30	50 03.6	14 10.1	6	3886	94	19	63 17.7	21 19.3	9	160
27	31	50 20.6	13 31.2	6	2613	95	19	63 17.8	21 34.2	9	162 ± 2
28	31	50 21.1	13 31.1	6	2604	96	19	63 24.7	21 43.1	9	142
29	31	50 16.9	13 24.3	6	2574	97	19	63 37.8	22 00.8	9	143 ± 2
30	31	50 04.3	13 17.0	6	2653	98	27	63 44.4	23 39.8	9	159
31	June 1	50 06.7	13 10.7	6	2673	99	28	62 47.7	25 49.6	9	868 ± 10
32	1	50 07.8	13 06.9	6	2575	100	28	62 31.4	26 18.1	9	1174 ^f
33	1	50 05.5	13 03.4	6	2622 ± 30	101	28	62 31.4	26 18.1	9	1102 ^f
34	1	50 03.3	12 58.9	6	2553	102	28	62 31.4	26 18.1	9	1123 ^f
35	1	49 55.8	12 47.1	6	2506	103	28	62 12.4	27 09.4	9	1363
36	1	49 47.5	12 39.3	6	2441 ± 25	104	28	61 56.6	27 51.8	9	1312
37	2	49 26.7	12 10.8	6	1238 ± 25	105	28	61 39.7	28 35.4	9	1586
38	2	49 34.5	12 09.6	6	1357	106	29	61 21.0	29 22.0	9	1841
39	2	49 40.5	12 16.1	6	1508	107	29	61 00.6	30 15.6	10	1756
40	3	50 10.8	12 30.2	6	2445	108	29	60 40.3	31 14.0	10	2138
41	4	50 21.7	12 25.9	6	2420 ± 30	109	29	60 20.0	32 10.1	10	2152
42	4	50 13.2	11 54.9	6	2066	110	29	60 00.9	33 00.2	10	2397
43	4	49 56.5	11 25.7	6	678 ± 20	111	30	59 43.2	33 43.2	10	2294
44	4	49 45.0	11 24.5	6	614 ± 10	112	30	59 33.3	34 04.8	10	2329
45	5	50 07.0	11 17.4	6	745 ± 10	113	30	59 21.5	34 15.8	10	3000
46	5	50 01.4	11 13.3	6	631 ± 15	114	30	59 20.2	34 15.4	10	3030
47	5	50 00.4	11 13.3	6	850 ± 10	115	30	59 14.8	34 13.8	10	2456
48	5	49 54.0	11 07.6	6	477 ± 10	116	30	59 08.2	34 11.1	10	2368
49	5	49 53.7	10 56.9	6	362 ± 10	117	30	59 01.2	34 08.3	10	2306 ± 25
50	5	49 57.8	10 48.3	6	193	118	30	58 54.1	34 05.7	10	2619
51	5	49 58.1	10 47.2	6	161	119	30	58 28.5	33 50.4	10	2566
52	5	50 02.6	10 34.3	6	149	120	31	58 50.6	33 55.3	10	2298
53	6	50 18.2	10 04.1	6	122	121	31	58 27.4	34 07.3	10	2217
54	6	50 10.9	10 01.8	6	128	122	31	58 06.4	34 14.2	10	1682
55	6	50 20.7	9 28.1	6	118	123	31	57 53.5	34 09.9	10	2284
56	7	50 17.3	8 04.1	6	110 ^e	124	31	57 49.9	33 59.2	11	2020
57	7	50 17.3	8 04.1	6	105 ^e	125	31	57 53.2	34 18.8	11	2193
			E			126	31	57 59.1	34 57.1	11	2349
58	July 10	58 36.1	1 58.5	7	99	127	Aug. 1	58 05.5	35 39.8	11	2474
			W			128	1	58 10.7	35 53.5	11	2633
59	12	62 05.9	4 15.3	7	145	129	1	58 15.2	35 50.0	11	2453
60	12	62 20.6	5 23.1	7	157	130	1	58 24.4	35 59.4	11	3063
61	12	62 35.8	6 25.3	7	130	131	1	58 25.2	36 01.4	11	3243 ± 75
62	12	62 46.7	6 53.9	7	200	132	2	58 18.5	38 01.8	11	3192
63	13	63 11.0	8 44.9	7	545	133	2	58 16.6	38 40.9	11	3212
64	13	63 16.2	9 19.6	7	467	134	2	58 14.4	39 31.3	11	3147
65	13	63 24.4	9 31.3	7	496	135	2	58 11.3	40 38.4	11	3220
66	13	63 38.3	10 13.0	7	512	136	2	58 07.7	41 51.6	11	3140
67	14	64 00.8	11 27.9	7	341	137	3	58 03.2	43 09.1	11	3281

Table 4. Sonic depths--number and geographic position of sounding--Continued

Sound- ing no.	Date	Latitude N	Longitude W	Sta- tion no.	Depth in meters	Sound- ing no.	Date	Latitude N	Longitude W	Sta- tion no.	Depth in meters
1928						1928					
Atlantic Ocean						Atlantic Ocean					
138	Aug. 3	57 58.5	44 25.0	11	3063	212	Aug. 20	23 58.3	39 37.5	19	4522
139	3	57 51.7	45 32.7	11	2604	213	20	23 38.3	39 44.4	19	5098
140	3	57 21.9	46 21.8	12	3363	214	20	23 20.4	39 53.9	19	4408
141	3	56 52.9	47 05.9	12	3607	215	21	21 18.5	39 27.5	20	5002
142	4	56 15.0	47 47.0	12	3446	216	21	20 47.1	39 11.4	20	5207
143	4	55 38.2	48 13.5	12	3626	217	22	19 10.1	38 27.8	20	5626
144	4	55 02.6	48 39.0	12	3960	218	22	18 42.9	38 18.5	20	5346 ± 75h
145	4	54 30.8	49 00.9	12	3589	219	23	16 12.3	37 51.1	21	5200
146	4	53 41.1	49 16.4	12	3704	220	23	16 07.3	37 51.3	21	4996
147	4	53 04.4	49 19.4	12	3507	221	24	15 52.4	37 53.9	21	4977
148	4	52 42.9	49 23.5	12	3133	222	24	15 47.6	37 57.6	21	5238
149	5	52 12.8	49 29.1	12	3199	223	24	15 43.2	38 00.1	21	5553
150	5	51 42.7	49 32.1	12	2689	224	24	15 32.2	38 02.9	21	5443
151	5	51 38.0	49 31.4	12	2592	225	25	15 04.9	38 06.9	21	4996
152	5	51 04.3	49 09.9	12	1874	226	25	14 55.6	38 09.5	21	5783
153	5	50 42.1	48 52.5	12	2170	227	25	14 53.0	38 11.3	21	5597
154	6	48 58.1	48 21.2	12	2174	228	26	13 55.1	38 02.2	22	5141
155	6	48 26.1	48 09.4	12	1969	229	27	13 25.7	38 00.2	22	5980
156	6	47 51.9	48 00.2	13	287	230	28	12 02.8	37 52.9	23	4957
157	6	47 19.5	47 54.6	13	199	231	28	11 43.0	37 50.4	23	5140
158	7	46 06.3	48 01.7	13	137	232	28	11 39.0	37 48.3	23	4836
159	7	45 50.9	47 51.0	14	665	233	29	10 50.9	37 24.8	23	4787
160	7	45 26.8	47 35.1	14	2311	234	29	10 48.1	37 21.1	23	5159
161	7	44 49.7	47 07.9	14	3701	235	30	9 20.8	36 56.6	24	4059
162	8	43 29.7	46 51.4	14	4129	236	30	9 16.9	36 50.2	24	4338
163	8	43 12.5	46 54.4	14	3866	237	31	8 16.0	36 11.7	24	3836 ± 100
164	8	42 57.2	46 55.1	14	3866	238	31	8 06.2	36 07.4	24	4688
165	8	42 41.4	46 59.0	14	3953	239	31	7 57.4	36 01.0	24	3989
166	9	42 09.7	47 16.4	14	4154	240	Sep. 1	9 31.6	36 39.2	24	4071
167	9	42 08.1	47 22.6	14	4056	241	2	9 41.2	36 34.6	25	4392
168	9	41 54.8	47 33.2	14	3876	242	2	10 03.8	36 44.7	25	4107
169	9	41 35.8	47 43.8	14	4069	243	2	10 21.4	36 54.0	25	5064
170	10	39 40.2	48 49.1	15	5420 ± 400	244	3	11 00.3	37 06.7	25	4851
171	10	39 29.8	48 47.5	15	5031 ± 75	245	3	11 06.8	37 07.6	25	5100
172	10	39 12.6	48 48.4	15	5420	246	3	11 18.5	37 09.2	25	4972
173	11	38 39.9	48 50.2	15	5408	247	4	11 19.3	37 38.0	25	5215
174	11	38 32.2	48 44.7	15	5179	248	4	11 23.2	38 03.4	25	5176
175	11	38 18.5	48 43.7	15	4726	249	4	11 26.0	38 32.6	25	5215
176	11	37 56.3	48 39.1	15	4741	250	4	11 26.7	39 03.0	26	4972
177	12	37 33.4	48 35.9	16	4445	251	5	11 32.7	40 38.0	26	4492
178	12	37 15.0	48 33.5	16	5208	252	5	11 32.6	40 49.9	26	4566
179	12	37 09.1	48 31.2	16	5430	253	5	11 34.5	41 13.0	26	3753
180	12	36 57.6	48 16.4	16	5189	254	5	11 36.2	41 29.6	26	4084
181	12	36 51.8	47 52.9	16	5368	255	6	11 38.3	41 50.6	26	4025
182	12	36 47.6	47 19.8	16	5039	256	6	11 39.7	42 05.6	26	4025
183	13	36 46.2	46 35.9	16	5287 ± 40	257	6	11 41.2	42 22.7	26	4379
184	13	36 32.0	46 03.4	16	4780	258	6	11 40.3	42 36.4	27	3913
185	13	36 14.7	45 51.4	16	4967	259	6	11 33.7	42 52.8	27	3441
186	14	35 56.4	45 31.0	16	4830 ± 100	260	6	11 29.0	43 30.7	27	3161
187	14	35 25.8	44 48.8	16	4731	261	7	11 24.6	43 50.6	27	2948
188	14	35 01.5	43 48.2	17	4299	262	7	11 21.2	44 07.5	27	2672
189	14	34 48.0	43 20.0	17	4373	263	7	11 18.5	44 16.2	27	3077
190	15	33 41.2	42 22.4	17	4492	264	7	11 20.4	44 27.8	27	3449
191	15	33 34.0	42 14.0	17	3651 ± 50	265	8	11 29.3	44 53.4	27	3676
192	15	33 12.6	42 06.4	17	3729	266	8	11 34.8	45 14.9	27	4027
193	15	32 50.4	41 55.3	17	3331	267	9	11 41.2	45 49.9	27	4098
194	16	31 37.1	41 19.2	18	2294g	268	9	11 44.6	46 15.7	27	3870
195	16	31 37.1	41 19.2	18	1990g	269	9	11 36.7	46 37.1	27	4836
196	16	31 24.5	41 12.9	18	2339	270	10	11 50.7	47 17.0	28	4356
197	16	31 13.7	41 06.5	18	3143	271	10	12 10.1	47 44.9	28	5013 ± 100
198	16	30 34.7	40 56.6	18	3367	272	10	12 27.5	48 13.3	28	4661
199	16	30 18.8	40 50.4	18	3178	273	10	12 44.3	48 34.7	28	5105
200	17	29 48.4	40 35.8	18	4054	274	11	12 53.5	49 00.4	28	4942
201	17	29 30.7	40 27.8	18	3101	275	11	13 00.4	49 17.6	28	4890
202	17	29 14.3	40 18.4	18	3722	276	11	13 07.6	49 34.9	28	4925
203	18	28 17.4	39 49.8	18	3991	277	11	13 13.3	49 40.8	28	4822
204	18	27 53.7	39 27.7	18	3697	278	11	13 13.0	49 51.8	28	4942
205	18	27 38.6	39 11.2	18	4406	279	11	13 12.4	50 01.2	28	5086
206	18	26 57.2	38 55.4	18	4800	280	12	13 08.9	50 36.4	28	4789
207	19	25 48.0	38 49.3	19	4953	281	12	13 10.7	50 59.1	29	4823
208	19	25 39.3	38 58.4	19	5193	282	13	13 12.7	51 27.7	29	4977
209	19	25 25.0	39 12.1	19	4767	283	13	13 14.7	52 12.5	29	5068
210	19	25 07.6	39 21.5	19	4408	284	13	13 17.0	52 20.6	29	5032
211	20	24 00.2	39 34.9	19	5392						

Table 4. Sonic depths--number and geographic position of sounding--Continued

Sound- ing no.	Date	Latitude N	Longitude W	Station no.	Depth in meters	Sound- ing no.	Date	Latitude N	Longitude W	Station no.	Depth in meters
1928						1928					
Atlantic Ocean						Pacific Ocean					
285	Sep. 13	13 15.4	52 40.3	29	5142	354	Nov. 1	5 58.8	82 55.9	37	3304
286	13	13 12.9	52 57.3	29	5086	355	1	6 03.3	82 58.9	37	3443
287	14	13 10.7	53 19.8	29	4960	356	1	5 40.9	83 04.0	37	3494 ± 45
288	14	13 09.4	53 35.3	29	5032	357	2	4 37.9	82 16.7	38	3886 ± 40
289	14	13 06.7	53 55.6	29	5219	358	2	4 36.7	82 17.3	38	3997
290	14	13 02.4	54 19.8	30	5123	359	3	3 45.1	81 39.9	38	2520
291	14	13 00.9	54 41.7	30	5032	360	3	3 46.7	81 34.3	38	2371 ± 25
292	14	12 58.6	55 05.6	30	4757	S					
293	15	12 56.9	55 30.5	30	4612	361	14	2 01.9	94 43.0	43	3596
294	15	12 55.6	55 50.1	30	4631	362	15	2 30.0	95 42.7	43	3560
295	15	12 54.0	56 12.2	30	4709	363	15	2 43.8	96 35.2	43	3503
296	15	12 54.1	56 13.5	30	4709	364	16	3 00.4	97 56.0	44	3779
297	15	12 54.5	56 18.7	30	4709	365	16	3 06.6	98 51.9	44	3554
298	15	12 55.9	56 40.4	30	4615	366	17	3 15.1	99 45.5	44	4232
299	15	12 56.8	56 59.9	30	4677	367	17	3 26.0	100 52.4	44	3668
300	16	13 01.1	58 08.8	30	2776	368	18	3 51.8	102 10.6	44	3523
301	16	13 00.6	58 29.3	30	2389	369	18	4 14.6	103 35.7	45	3286
302	16	13 01.0	58 47.2	30	2108	370	19	4 36.3	105 00.2	45	3342
303	Oct. 1	13 14.0	59 48.2	30	1139	371	19	5 20.7	105 44.9	45	3233
304	1	13 27.1	60 02.3	30	1670	372	20	6 32.9	106 35.6	45	3270
305	1	13 35.5	60 12.9	30	1865	373	20	7 46.4	107 26.4	46	3161
306	2	14 30.2	61 07.2	31	897	374	21	9 06.0	108 18.3	46	2873
307	2	14 41.3	61 23.6	31	2462	375	22	11 29.4	109 54.9	46	2873
308	2	14 43.4	61 56.0	31	2790	376	22	12 48.1	110 54.4	47	2873
309	2	14 45.0	62 24.8	31	2790	377	23	14 07.2	111 48.5	47	2873
310	3	14 46.0	63 24.5	31	1635	378	23	14 58.2	112 16.4	47	2816
311	3	14 46.3	63 36.4	31	1323	379	24	16 51.4	113 05.6	48	2817
312	3	14 48.5	63 56.6	31	2462	380	24	17 35.1	113 24.8	48	3048
313	3	14 51.1	64 26.3	31	3592	381	25	19 05.9	114 05.6	48	2874
314	4	14 58.8	65 47.1	31	4752	382	25	20 04.7	114 10.2	48	3068
315	4	15 01.3	66 06.9	32	3582	383	26	21 30.0	114 22.3	49	2945
316	4	15 03.9	66 31.0	32	4938	384	26	22 21.9	114 31.6	49	2908
317	5	15 16.7	68 08.4	32	4566 ^h	385	27	23 15.6	114 43.5	49	3053
318	6	15 06.5	71 38.7	32	3849	386	27	23 50.7	114 50.5	49	2981
319	7	14 31.9	73 58.8	33	3949	387	28	24 30.3	115 15.2	49	3126
320	7	14 17.4	74 31.8	33	4112	388	28	25 23.5	115 33.4	50	2908
321	8	13 36.9	76 19.9	33	4040	389	29	26 26.6	115 20.9	50	2837
322	8	13 34.1	76 28.1	33	4040	390	29	27 14.6	115 12.5	50	3198
323	8	13 10.4	76 50.9	33	3960	391	30	27 58.6	115 08.7	51	3233
324	8	12 48.0	77 12.5	33	3926	392	30	28 35.9	114 59.5	51	3161
325	9	11 42.3	78 18.8	34	3716	393	Dec. 1	29 05.4	114 47.2	51	3027
326	9	11 23.5	78 30.8	34	3537	394	1	29 41.5	114 35.6	51	3233
327	9	11 15.2	78 36.5	34	3537	395	2	30 19.2	114 20.6	51	3256
328	10	10 21.6	79 10.2	34	3058	396	2	31 04.7	113 55.2	52	3008
329	10	10 15.2	79 14.1	34	3018 ± 35	397	3	31 27.0	112 51.3	52	2777
330	10	9 58.7	79 24.4	34	2283	398	3	31 33.8	111 55.1	52	2797
331	10	9 45.7	79 35.7	34	608	399	4	31 37.4	110 32.5	53	2871
Pacific Ocean						400	4	30 35.2	109 13.4	53	2835
332	Oct. 25	7 48.5	79 37.9	35	133	401	5	29 07.4	108 46.5	53	2871
333	26	6 35.1	79 56.7	35	3583 ± 50	402	5	28 56.9	108 52.1	53	2908
334	26	6 33.2	80 01.9	35	3583 ± 50	403	12	27 25.3	109 25.1	54	2692
335	26	6 19.1	80 13.5	35	3211 ± 50	404	13	28 00.9	109 09.6	54	2726
336	26	6 15.1	80 12.7	35	3287 ± 40	405	13	28 42.9	109 03.3	54	2870
337	27	5 25.1	79 59.1	35	3408 ± 50	406	14	29 16.0	108 53.8	54	3015
338	27	5 21.6	79 58.4	35	3904	407	15	30 53.0	109 28.1	55	3013
339	28	4 15.9	79 40.4	36	2888	408	15	31 34.0	109 54.9	55	3086
340	28	4 14.9	79 38.8	36	3244	409	16	32 03.3	110 53.4	55	2725
341	28	4 10.9	79 47.3	36	2919	410	16	31 55.5	110 02.1	55	3375
342	28	4 16.2	79 48.1	36	2876	411	17	31 50.9	109 37.1	56	2652
343	29	4 07.9	79 52.6	36	3632 ± 150	412	17	31 39.9	109 07.3	56	3302
344	30	2 54.0	80 03.7	36	4880	413	18	31 47.5	109 05.1	56	3266
345	30	2 57.0	80 30.2	36	3107 ± 35	414	18	32 13.0	108 11.2	56	3079
346	30	3 19.9	80 53.8	36	3073 ± 35	415	19	32 21.3	107 27.0	56	3266
347	31	4 13.6	81 30.6	36	1690	416	19	33 02.9	107 09.4	57	3156
348	31	4 31.8	81 47.3	37	1918	417	20	33 58.4	106 42.1	57	3156
349	31	4 55.6	82 06.7	37	1301	418	20	34 27.2	106 20.7	57	3301
350	31	5 05.8	82 14.3	37	2136	419	21	34 57.0	105 42.8	57	3084
351	31	5 13.6	82 21.3	37	3212 ± 40	420	21	35 54.3	104 49.2	58	2937
352	31	5 18.6	82 30.3	37	3662	421	22	36 48.7	104 03.8	58	3810
353	Nov. 1	5 57.7	82 55.6	37	3494	422	22	37 23.7	103 50.9	58	3808
						423	23	38 22.1	103 13.1	59	3880

Table 4. Sonic depths--number and geographic position of sounding--Continued

Sound- ing no.	Date	Latitude S	Longitude W	Station no.	Depth in meters	Sound- ing no.	Date	Latitude S	Longitude W	Station no.	Depth in meters
1928						1929					
Pacific Ocean						Pacific Ocean					
424	Dec. 23	39 09.8	102 15.7	59	3807	495	Feb. 12	10 58.5	87 13.6	74	4322
425	24	39 48.0	101 05.3	59	4172	496	12	11 00.1	87 23.1	74	4309
426	24	40 02.7	100 19.5	59	3953	497	12	11 12.6	87 46.1	74	4391
427	25	40 16.2	99 21.4	59	4246	498	12	11 28.3	88 10.6	74	4130
428	25	40 18.4	98 10.5	60	4170	499	12	11 41.1	88 26.9	74	4296
429	26	40 22.5	97 34.0	60	3915	500	13	12 15.5	89 10.2	74	4296
430	26	40 21.9	97 02.0	60	3661	501	13	12 30.0	89 34.9	74	4336
431	27	40 05.7	96 32.5	60	3655	502	13	12 45.5	90 02.3	75	4335
432	27	39 18.5	95 18.5	61	3692	503	13	13 03.7	90 31.3	75	4129
433	28	38 30.2	94 15.7	61	3370	504	13	13 28.8	91 03.5	75	4093
434	28	37 45.0	93 40.8	61	2936	505	14	14 09.2	91 55.3	75	4022
435	29	36 58.2	93 13.7	61	3370	506	14	14 15.4	92 04.4	75	3693
436	29	35 51.6	92 38.1	62	3808	507	14	14 20.0	92 12.2	75	3888
437	30	34 34.8	91 52.4	62	3662	508	14	14 41.8	92 41.8	75	3570
438	31	32 35.0	90 06.7	63	3681	509	14	14 52.7	92 59.2	75	3999
439	31	32 30.2	90 01.0	63	3664	510	14	15 15.7	93 30.7	75	4070
440	31	32 26.2	89 50.9	63	3441	511	15	15 53.9	94 23.2	75	3965
441	31	32 23.7	89 43.5	63	3441	512	15	15 50.9	94 46.4	76	4271
1929						Pacific Ocean					
442	Jan. 1	32 09.8	89 04.6	63	3157	513	15	15 45.0	95 12.1	76	3890
443	1	32 09.9	89 04.4	63	3301	514	15	15 38.9	95 42.1	76	3838
444	1	32 05.6	88 58.3	63	3012	515	15	15 32.2	96 13.5	76	3754
445	2	31 57.5	88 49.6	63	3129	516	16	15 19.9	97 15.2	76	3591
446	2	31 48.6	88 25.6	64	3520	517	16	15 17.7	97 26.3	76	3197
447	3	31 53.7	88 17.5	64	3717	518	16	15 16.7	97 33.5	76	3343
448	3	31 53.0	87 57.2	64	3228	519	16	15 09.5	98 08.3	76	5008
449	4	31 50.2	87 30.6	64	3737	520	16	15 07.3	98 19.7	76	4284
450	4	31 33.0	86 58.4	65	3615	521	16	15 07.0	98 21.2	76	3858
451	5	31 08.9	86 40.5	65	3542	522	16	15 04.1	98 32.8	76	3637
452	5	31 07.8	86 39.5	65	3505	523	16	14 58.0	99 03.4	76	3715
453	5	30 24.3	86 11.7	65	3716	524	17	14 38.8	100 09.5	76	3734 ± 50
454	6	29 16.2	85 34.5	65	3266	525	17	14 47.6	100 38.6	77	4169
455	6	28 11.3	84 54.3	66	3812	526	17	14 43.6	101 11.2	77	4323
456	7	27 06.1	83 59.6	66	3812	527	17	14 36.5	101 48.4	77	4001
457	7	26 12.6	83 15.1	66	3958	528	17	14 32.1	102 09.7	77	4243
458	8	25 03.2	82 20.0	67	1473	529	18	14 21.2	103 02.5	77	4036
459	8	24 57.9	82 14.6	67	1224	530	18	14 17.3	103 25.4	77	3934
460	8	24 54.0	82 13.0	67	1275	531	18	14 13.3	103 46.0	77	3571
461	8	24 48.3	82 09.3	67	2725	532	18	14 07.8	104 02.3	77	4256
462	8	24 38.8	82 03.7	67	3557	533	18	14 00.6	104 24.9	77	4194
463	8	24 28.6	81 57.8	67	4011	534	19	13 43.7	105 21.0	77	3878
464	8	24 17.6	81 51.6	67	4026	535	19	13 16.4	107 10.0	78	3621
465	9	23 24.9	81 22.2	67	4214	536	20	13 03.5	107 54.8	78	3471
466	9	22 30.1	80 57.8	68	4216	537	20	13 00.2	108 09.1	78	3480
467	10	21 28.6	80 24.1	68	4128	538	20	12 56.1	108 24.3	78	3488
468	10	20 46.6	80 07.0	68	3812 ^d	539	20	12 51.3	108 44.6	78	3373
469	11	18 17.2	79 03.5	69	3050	540	20	12 46.0	109 02.7	78	3429
470	12	16 50.3	78 37.5	69	3684	541	21	12 39.5	109 24.7	78	3455
471	12	15 56.7	78 25.5	69	3740	542	21	12 34.6	109 41.1	78	3117
472	13	14 29.6	78 00.1	70	4225	543	21	12 31.1	110 05.4	78	3265
473	13	13 54.5	77 52.4	70	4842 ^d	544	21	12 34.0	110 54.7	79	2822 ± 15
474	13	13 38.1	77 51.4	70	5324	545	21	12 34.4	111 16.5	79	2805
475	14	12 37.9	77 24.1	70	642	546	22	12 34.9	111 46.9	79	2967 ± 15
Pacific Ocean						Pacific Ocean					
476	Feb. 6	11 59.0	78 34.4	71	2952 ± 150	547	22	12 35.3	112 09.0	79	3063
477	6	11 39.5	78 51.2	71	3702	548	22	12 35.8	112 20.4	79	3200
478	6	11 19.5	79 05.7	71	3965	549	22	12 36.1	112 38.5	79	3103
479	7	10 26.0	79 44.9	71	4256	550	22	12 34.5	113 02.3	79	3255
480	7	10 08.4	79 58.2	71	4987	551	22	12 33.8	113 32.5	79	3200
481	7	10 05.8	80 21.1	72	5657	552	23	12 33.4	114 09.2	79	3348
482	7	10 04.5	80 41.1	72	5042	553	23	12 33.2	114 36.1	79	3437
483	7	10 03.5	81 03.6	72	4782	554	23	12 30.7	115 01.2	80	3414
484	8	10 00.0	82 02.5	72	4717	555	23	12 32.4	115 33.8	80	3244
485	8	9 56.2	82 13.3	72	4549	556	23	12 31.9	115 57.8	80	3514
486	8	10 00.7	82 58.4	72	4363	557	23	12 32.5	116 25.8	80	3497
487	9	10 17.0	83 59.1	73	4490	558	24	12 35.6	116 57.7	80	3430
488	9	10 25.9	84 14.7	73	4476	559	24	12 38.0	117 17.6	80	3471
489	9	10 31.9	84 28.9	73	4639	560	24	12 40.2	117 28.0	80	3541
490	10	10 42.8	84 53.3	73	4505	561	24	12 43.6	117 50.5	80	3725
491	10	10 45.2	84 57.7	73	4670	562	24	12 43.6	118 10.6	80	3687
492	10	10 38.6	85 19.6	73	4534	563	24	12 44.2	118 29.8	80	2616
493	11	10 34.9	85 44.7	73	4336	564	25	12 45.0	118 51.6	80	3558
494	11	10 41.1	86 11.4	74	4243	565	25	12 45.5	119 06.0	80	3594
Pacific Ocean						Pacific Ocean					
Pacific Ocean						Pacific Ocean					
Pacific Ocean						Pacific Ocean					

Table 4. Sonic depths--number and geographic position of sounding--Continued

Sound- ing no.	Date	Latitude S	Longitude W	Sta- tion no.	Depth in meters	Sound- ing no.	Date	Latitude S	Longitude W	Sta- tion no.	Depth in meters
1929						1929					
Pacific Ocean						Pacific Ocean					
568	Feb.25	13 02.8	119 55.8	81	3668	640	Mar. 7	17 31.4	139 25.6	86	3053
569	25	13 02.8	120 19.7	81	3616	641	7	17 34.2	139 38.1	86	3384
570	26	13 02.8	120 44.4	81	3350	642	7	17 34.4	139 49.6	86	3551
571	26	13 02.9	121 06.1	81	3744	643	7	17 34.9	140 02.5	86	3299
572	26	13 02.8	121 10.6	81	3179	644	8	17 35.0	140 15.0	86	3670 ± 25
573	26	13 02.6	121 14.7	81	3612	645	8	17 35.3	140 29.8	86	3614
574	26	13 04.1	121 37.7	31	3602	646	8	17 35.9	140 36.6	86	2082 ± 15
575	26	13 06.6	122 17.0	81	3422	647	8	17 37.6	140 42.0	86	1686 ± 10
576	26	13 07.4	122 36.5	81	3835	648	8	17 42.2	140 46.7	86	1810 ± 15
577	27	13 06.5	123 06.4	81	3705	649	8	17 46.1	140 49.2	86	1094
578	27	13 05.4	123 37.6	81	3774	650	8	17 47.7	140 49.4	86	290 ± 5
579	27	13 22.9	124 03.2	82	3686 ± 20	651	8	17 49.2	140 54.9	86	2570
580	27	13 43.0	124 31.9	82	4006	652	8	17 51.7	141 02.2	86	3473
581	27	14 01.9	124 57.1	82	3844	653	8	17 49.8	141 11.7	86	3569
582	27	14 14.3	125 13.7	82	3372	654	8	17 47.0	141 19.0	86	3578
583	28	14 31.0	125 36.3	82	4030	655	9	17 40.2	141 36.8	86	1553
584	28	14 48.1	125 59.2	82	3907	656	9	17 36.9	141 45.1	86	2591
585	28	14 53.5	126 11.6	82	3567	657	9	17 35.9	141 51.1	86	2542
586	28	15 06.2	126 25.4	82	3773	658	9	17 35.9	141 54.7	86	2024
587	28	15 41.9	127 05.3	82	3929	659	9	17 36.1	142 02.5	86	2267
588	Mar. 1	15 58.8	127 24.8	82	4207	660	9	17 38.9	142 11.1	86	2073
589	1	16 13.3	127 41.6	82	3994	661	9	17 41.8	142 19.9	86	1874
590	1	16 29.0	128 00.3	83	4008	662	9	17 44.5	142 27.0	86	2192
591	1	16 45.4	128 18.1	83	3931	663	9	17 53.2	142 46.8	86	4363 ± 30
592	1	16 55.8	128 37.3	83	4053	664	10	18 03.5	143 09.7	86	4021 ± 22
593	1	16 56.9	128 55.0	83	3986	665	10	18 05.7	143 23.6	86	4031 ± 50
594	2	16 58.2	129 16.4	83	3986	666	10	18 04.7	143 36.2	86	4055 ± 30
595	2	16 59.5	129 37.4	83	3986	667	10	18 02.8	143 58.4	87	4185
596	2	17 00.2	129 44.5	83	4008	668	10	17 58.2	144 45.5	87	2583
597	2	17 00.9	129 48.8	83	3986	669	10	17 57.3	144 57.7	87	2395
598	2	16 59.7	130 01.5	83	3931	670	11	17 59.1	145 14.8	87	4324 ± 26
599	2	17 01.9	130 23.3	83	4184	671	11	18 03.8	145 27.7	87	4310
600	2	17 03.6	130 43.3	83	4171	672	11	18 04.4	145 32.3	87	4272
601	3	17 06.2	131 03.7	83	3898	673	11	18 05.3	145 39.9	87	4185
602	3	17 08.9	131 22.6	83	4233	674	11	18 10.5	146 03.2	87	4233
603	3	17 07.8	131 38.8	84	4259	675	11	18 13.4	146 27.4	87	4196
604	3	17 07.1	131 57.4	84	4233	676	11	18 07.8	146 47.8	87	4350 ± 25
605	3	17 08.3	132 19.3	84	4377	677	12	17 57.0	147 31.0	87	4196 ± 35
606	3	17 08.9	132 33.4	84	4220	678	12	17 52.3	147 55.3	87	2836 ± 30
607	4	17 09.6	132 51.6	84	4233	679	12	17 47.6	148 18.2	87	3660 ± 20
608	4	17 10.2	133 11.0	84	4335	680	12	17 40.5	148 47.0	87	3305 ± 25
609	4	17 11.1	133 17.1	84	4112	681	12	17 37.9	148 58.0	87	2940 ± 20
610	4	17 12.1	133 20.8	84	4042	682	12	17 34.9	149 09.0	87	2430 ± 20
611	4	17 09.9	133 33.4	84	4259	683	13	17 31.2	149 17.0	87	994 ± 11
612	4	17 09.2	133 52.5	84	4324	684	20	17 26.8	149 41.1	88	1765 ± 10
613	4	17 08.5	134 16.6	84	4377	685	20	17 23.4	149 46.3	88	2423
614	5	17 07.9	134 37.5	84	4335	686	20	17 17.2	149 56.0	88	2809 ± 15
615	5	17 07.2	134 57.2	85	4391	687	20	17 08.7	150 05.5	88	3765 ± 20
616	5	17 04.9	135 17.4	85	4325	688	20	17 01.5	150 12.8	88	3806 ± 20
617	5	17 02.6	135 33.5	85	4172	689	21	16 48.3	150 29.1	88	2929 ± 18
618	5	17 06.2	135 56.4	85	4286	690	21	16 40.8	150 41.9	88	3697
619	5	17 07.8	136 09.2	85	4042	691	21	16 58.2	150 50.4	88	3001 ± 20
620	6	17 09.4	136 22.0	85	3921	692	22	17 10.6	151 18.1	88	3276 ± 20
621	6	17 10.9	136 33.8	85	3756	693	22	17 17.5	151 39.8	88	3765 ± 30
622	6	17 11.6	136 36.4	85	3765	694	22	17 35.6	151 45.5	89	3987
623	6	17 12.9	136 37.4	85	3796	695	22	17 39.5	151 51.4	89	3717
624	6	17 14.0	136 59.2	85	3756 ± 30	696	22	17 32.1	152 02.3	89	4021 ± 25
625	6	17 15.0	137 26.6	85	2934 ± 20	697	23	17 20.6	152 13.6	89	4021 ± 25
626	6	17 14.9	137 31.3	85	3321 ± 25	698	23	17 08.0	152 40.8	89	4286
627	6	17 14.7	137 37.3	85	3376 ± 20	699	23	17 04.6	152 57.7	89	4473
628	6	17 14.6	137 43.3	85	3210 ± 25	700	24	16 56.7	153 20.7	89	4124 ± 60
629	6	17 14.4	137 49.3	85	3093 ± 30	701	24	16 53.0	153 43.4	89	2128
630	7	17 14.5	137 54.9	85	2911 ± 25	702	24	16 51.6	153 50.3	89	2684
631	7	17 14.6	138 00.5	85	2847 ± 20	703	24	16 51.6	153 56.1	89	982
632	7	17 14.9	138 06.3	85	1800 ± 15	704	24	16 48.9	154 29.8	90	4137
633	7	17 15.3	138 11.9	85	1482	705	24	16 46.1	154 44.3	90	3642
634	7	17 15.8	138 14.3	85	1358	706	25	16 38.9	155 22.2	90	4530 ± 30
635	7	17 16.4	138 18.1	85	1629 ± 10	707	25	16 36.1	155 36.3	90	4603
636	7	17 17.7	138 24.1	85	919	708	25	16 32.0	156 01.3	90	4678
637	7	17 20.0	138 28.4	85	1022	709	25	16 27.5	156 19.1	90	4618
638	7	17 22.6	138 45.3	85	2336	710	25	16 21.2	156 56.9	90	4955
639	7	17 28.3	139 12.4	85	2761	711	26	16 18.0	157 17.5	90	4678 ± 25
						712	26	16 12.4	157 52.1	90	5007

Table 4. Sonic depths--number and geographic position of sounding--Continued

Sounding no.	Date	Latitude S	Longitude W	Station no.	Depth in meters	Sounding no.	Date	Latitude S	Longitude W	Station no.	Depth in meters
1929 Pacific Ocean						1929 Pacific Ocean					
713	Mar 26	16 03.2	158 46.3	91	4920	785	Apr. 27	4 54.6	172 24.1	97	5424
714	26	15 58.3	159 06.7	91	5133	786	27	4 40.1	172 27.8	97	5076
715	26	15 53.1	159 33.3	91	5042	787	27	4 29.9	172 31.5	97	5115 ± 75
716	27	15 49.3	159 52.1	91	4954 ± 32	788	28	4 20.4	172 33.0	97	5132 ± 55
717	27	15 44.3	160 19.0	91	4937	789	28	3 46.6	172 36.9	97	5324
718	27	15 40.2	160 45.0	91	4853	790	28	3 33.0	172 43.6	97	5640
719	27	15 39.1	160 55.2	91	5042 ± 30	791	28	3 10.9	172 56.2	97	5385
720	27	15 38.4	161 03.6	91	4772	792	28	2 54.3	173 07.2	97	5343 ± 40
721	27	15 37.3	161 14.1	91	4903	793	29	2 41.8	173 16.1	97	5245 ± 36
722	28	15 35.9	161 25.2	91	4954 ± 30	794	29	2 16.3	173 25.0	97	5226
723	28	15 33.4	161 44.4	91	4221 ± 30	795	29	1 51.4	173 28.4	97	5364
724	28	15 31.6	162 01.1	92	5403 ± 75	796	29	1 25.4	173 33.7	98	5209
725	28	15 28.0	162 20.3	92	5640 ± 30	797	29	1 00.9	173 39.1	98	5511
726	29	15 23.5	162 43.6	92	5424 ± 40	798	29	0 44.6	173 43.2	98	5490 ± 30
727	29	15 17.5	163 13.2	92	5530	799	30	0 27.7	173 47.7	98	5532
728	29	15 12.1	163 37.4	92	5487 ± 30	N					
729	29	15 06.1	163 59.1	92	5618	800	30	0 18.1	173 57.3	98	5599 ± 30
730	29	15 00.6	164 21.7	92	5343 ± 50	801	30	0 42.7	174 09.3	98	5555 ± 35
731	30	14 54.6	164 46.3	92	4988 ± 45	802	30	1 10.2	174 22.5	98	5532
732	30	14 48.9	165 09.4	92	5597 ± 45	803	30	1 29.9	174 33.6	98	5577 ± 30
733	30	14 42.8	165 36.0	93	5686 ± 45	May					
734	30	14 41.6	166 11.4	93	5386	804	1	1 42.1	174 40.6	98	5448 ± 40
735	30	14 41.8	166 36.0	93	5405	805	1	2 04.4	174 53.6	98	5345
736	31	14 41.7	167 08.5	93	5325 ± 40	806	1	2 23.9	175 02.8	99	5349
737	31	14 41.1	167 39.9	93	5208	807	1	2 47.4	175 17.3	99	5363 ± 30
738	31	14 41.4	167 53.3	93	5227	808	1	3 08.8	175 33.7	99	4802 ± 30
739	31	14 41.0	168 15.0	93	4378	809	1	3 31.5	175 49.6	99	4900 ± 35
740	31	14 40.3	168 35.0	93	4954 ± 35	810	2	4 18.8	176 16.4	99	4900
741	31	14 39.1	168 50.1	93	4903 ± 30	811	2	4 23.1	176 19.5	99	4951 ± 30
742	Apr. 1	14 37.3	169 02.9	93	4920 ± 50	812	2	4 42.7	176 37.7	99	5094 ± 60
743	1	14 31.3	169 33.8	93	3807 ± 25	813	3	5 55.9	177 18.7	99	4661 ± 30
744	1	14 26.7	169 57.9	93	2315 ± 35	814	3	6 24.1	177 40.5	100	3973 ± 25
745	1	14 21.0	170 22.8	93	1829 ± 10	815	3	6 51.9	177 58.2	100	4615 ± 30
746	1	14 19.3	170 29.5	93	1811 ± 10	816	3	7 08.6	178 08.7	100	5363 ± 40
747	1	14 18.3	170 34.0	93	76 ± 1	817	3	7 24.3	178 19.8	100	5573
748	5	14 16.0	170 54.9	93	1917 ± 10	818	4	7 33.6	178 26.5	100	5872 ± 46
749	5	14 07.8	171 02.8	93	3689 ± 25	819	4	7 59.5	178 43.3	100	5800 ± 30
750	5	14 03.5	171 07.1	93	3517 ± 20	820	4	8 21.9	179 06.8	100	5800 ± 30
751	5	14 00.3	171 10.1	93	3483 ± 20	821	4	8 49.8	179 30.1	100	5971 ± 50
752	5	13 56.4	171 13.9	93	2293	822	4	9 13.6	179 40.7	100	5946
753	6	13 53.2	171 18.0	93	1159	823	5	9 27.5	179 46.9	100	6022 ± 48
754	20	13 26.9	171 42.2	94	3624	E					
755	21	12 46.2	171 44.4	94	4771	824	5	10 12.9	179 47.4	100	6290 ± 50
756	21	13 41.9	171 44.4	94	859 ± 15	825	5	12 09.3	178 26.3	101	5997 ± 50
757	21	13 25.5	171 43.1	94	3787	826	7	12 32.4	178 09.1	101	5849 ± 75
758	22	13 15.1	171 40.5	94	4573	827	7	13 15.8	177 35.8	101	5663 ± 50
759	22	12 50.3	171 34.1	94	4740 ± 30	828	7	13 23.1	177 24.3	101	5663
760	22	12 43.6	171 36.6	94	4835	829	7	13 47.0	177 01.9	101	5552
761	22	12 24.6	171 35.5	94	4887	830	7	14 19.7	176 21.2	101	4194
762	22	12 17.2	171 52.3	94	4788	831	7	14 29.9	176 08.0	101	3844 ± 20
763	23	12 08.3	171 56.2	94	4788	832	8	14 38.0	175 57.6	101	4040
764	23	11 12.4	171 33.0	94	4740	833	8	15 08.2	175 18.6	101	4527
765	23	10 48.8	171 22.2	94	4902 ± 25	834	8	15 19.4	174 51.3	101	5303
766	23	10 20.2	171 13.4	95	4789	835	8	15 33.0	174 18.6	102	5446
767	23	9 52.4	171 04.6	95	4043	836	8	15 44.0	173 47.6	102	5364
768	24	9 31.8	170 58.9	95	3560	837	8	15 55.7	173 17.2	102	5446
769	24	9 22.8	170 58.0	95	3517	838	9	16 01.1	173 03.5	102	5488
770	24	8 51.0	170 54.0	95	4298 ± 25	839	9	16 22.0	172 10.2	102	3919
771	24	8 27.0	171 12.0	95	4473	840	9	16 24.8	171 58.9	102	5245
772	24	8 12.5	171 20.2	95	4789	841	9	16 43.7	171 28.2	102	4245
773	25	8 01.7	171 30.2	95	5043	842	9	17 20.1	170 42.3	102	5324 ± 50
774	25	7 58.4	171 48.8	95	4574	843	9	17 31.5	170 27.3	102	5059 ± 35
775	25	7 41.6	171 49.5	96	5227 ± 35	844	10	17 48.5	170 05.0	102	5076
776	25	7 23.5	171 54.5	95	5286 ± 35	845	10	18 10.2	169 36.7	102	5245
777	25	6 51.3	172 07.8	96	5286 ± 35	846	10	18 26.0	169 06.5	103	5267
778	26	6 44.2	172 17.6	96	5246 ± 36	847	10	18 34.8	168 36.7	103	5171
779	26	6 45.9	172 22.2	96	5325 ± 36	848	10	18 44.9	168 13.4	103	5116 ± 35
780	26	6 30.8	172 25.3	96	5266 ± 35	849	11	18 57.5	167 40.9	103	4806 ± 35
781	26	6 14.2	172 24.9	96	5531	850	11	19 04.7	167 22.4	103	4137
782	26	5 57.0	172 24.3	96	5598 ± 55	851	11	19 10.4	167 08.1	103	4633
783	27	5 24.5	172 24.5	96	5733	852	11	19 15.3	166 54.9	103	4486
784	27	5 10.5	172 23.6	97	5708 ± 30	853	11	19 18.4	166 44.5	103	3391
						854	11	19 17.4	166 41.8	103	2587

Table 4. Sonic depths--number and geographic position of sounding--Continued

Sound- ing no.	Date	Latitude N	Longitude E	Sta- tion no.	Depth in meters	Sound- ing no.	Date	Latitude N	Longitude E	Sta- tion no.	Depth in meters
1929						1929					
Pacific Ocean						Pacific Ocean					
855	May 11	19 16.5	166 39.0	103	1204	928	May 28	22 07.3	144 14.5	109	3358
856	11	19 15.9	166 37.7	103	233	929	28	22 23.9	144 13.7	109	3753
857	11	19 16.6	166 33.0	103	970	930	29	22 52.2	144 12.3	109	2535 ± 25
858	11	19 17.7	166 30.1	103	2399	931	29	23 16.0	144 11.6	109	4935 ± 50
859	11	19 18.8	166 26.5	103	3708	932	29	23 24.0	144 04.9	109	4988
860	11	19 21.5	166 16.2	103	5247	933	29	23 42.1	144 01.9	109	7446 ± 50
861	11	19 34.6	165 47.6	103	5153	934	29	23 49.9	144 00.3	109	8347
862	11	19 47.4	165 17.0	103	5326	935	29	23 54.1	144 00.1	109	8323 ± 50
863	12	19 58.9	164 49.6	103	4486	936	29	24 08.9	144 00.5	109	5777
864	12	20 11.0	164 21.1	103	5406	937	29	24 16.9	144 00.9	109	5552 ± 30
865	12	20 16.8	163 48.1	104	3432	938	30	24 55.3	144 02.9	110	3497
866	12	20 16.2	163 17.7	104	1559	939	30	25 12.0	144 06.6	110	3319
867	12	20 16.0	163 12.5	104	1426	940	30	25 26.5	144 10.5	110	3044
868	12	20 16.0	163 05.4	104	1341	941	30	25 39.1	144 13.9	110	2605
869	12	20 15.8	162 58.8	104	1295	942	30	25 50.4	144 16.9	110	2829 ± 15
870	12	20 15.6	162 51.1	104	3014	943	31	26 19.7	144 24.4	110	3058
871	12	20 15.6	162 50.0	104	3254	944	31	26 24.0	144 25.4	110	2733
872	12	20 15.2	162 36.5	104	4920	945	31	26 34.8	144 23.8	110	3575
873	12	20 14.6	162 16.4	104	4955	946	31	26 52.3	144 19.8	110	5187
874	13	20 12.3	161 26.1	104	4741	947	31	27 14.1	144 14.6	110	5131
875	13	20 13.3	160 46.3	104	1840	948	June 1	28 05.3	144 02.2	110	6180
876	13	20 13.3	160 39.6	104	2750	949	1	28 23.9	144 02.0	110	6167
877	13	20 13.3	160 32.2	104	3670	950	1	28 46.5	143 54.6	111	5845
878	13	20 13.1	160 13.8	104	5153	951	1	29 11.5	143 50.7	111	5773
879	13	20 13.1	159 48.6	104	5387	952	2	30 07.8	143 55.8	111	5704
880	14	19 59.9	159 21.6	104	5406	953	2	30 23.5	144 10.0	111	5659
881	14	19 49.7	159 00.6	104	5490	954	2	30 32.8	144 23.4	111	5845
882	14	19 34.8	158 35.9	105	5642	955	3	30 58.3	144 14.0	111	5894
883	14	19 18.9	157 58.0	105	4273	956	3	30 59.5	144 15.4	111	5881
884	14	19 09.3	157 34.3	105	5532	957	3	31 20.6	144 06.0	111	5797
885	14	19 02.6	157 14.1	105	5642	958	3	31 45.2	143 30.2	111	5869 ± 30
886	15	18 45.1	156 25.4	105	5665	959	4	33 14.9	141 40.5	112	6739 ± 60
887	15	18 42.6	156 11.8	105	5576	960	5	33 48.7	141 12.6	112	4285 ± 25
888	15	18 30.0	155 40.3	105	5532	961	5	34 14.6	140 51.4	112	4677
889	15	18 15.3	155 07.9	105	5621	962	5	34 34.1	140 17.5	112	3066 ± 20
890	15	18 03.3	154 41.2	105	5532	963	25	34 38.1	140 58.2	113	2911
891	16	17 42.6	153 52.1	105	5676	964	25	34 50.4	141 10.4	113	2935
892	16	17 28.8	153 26.5	106	5024	965	25	35 18.9	141 19.4	113	1532
893	16	17 18.9	153 07.5	106	4445	966	25	35 26.9	141 23.7	113	1428
894	16	17 18.2	153 06.1	106	4589	967	26	35 45.6	141 41.9	114	2730
895	16	17 03.1	152 40.5	106	5511	968	26	35 58.6	142 02.5	114	3167 ± 50
896	16	16 49.3	152 13.4	106	2911	969	26	36 06.5	142 23.0	114	4257
897	17	16 15.7	151 10.0	106	5925	970	26	36 13.9	142 40.3	114	6011
898	17	16 01.5	150 37.9	106	5780	971	26	36 22.1	142 59.5	114	7656 ± 60
899	17	15 43.5	150 02.9	106	5621	972	27	36 30.0	143 17.6	114	6890
900	17	15 30.7	149 34.5	106	3345	973	27	36 36.3	143 31.4	114	6758
901	18	15 08.7	148 45.4	106	5711	974	27	36 39.4	143 34.4	114	6630
902	18	14 57.1	148 19.4	107	5096	975	27	36 41.1	143 48.4	114	6194
903	18	14 40.3	147 49.6	107	2791	976	27	36 40.5	144 03.4	114	5885 ± 75
904	18	14 31.6	147 28.1	107	7776	977	27	36 41.1	144 26.5	114	6168 ± 90
905	18	14 24.0	147 05.2	107	7448	978	28	36 53.2	145 22.3	115	5650
906	19	14 15.2	146 38.7	107	4970	979	28	37 01.8	145 22.5	115	5518
907	19	14 06.9	146 14.4	107	4920	980	29	37 35.9	145 27.2	115	5433
908	19	13 58.6	145 45.4	107	3736	981	29	37 57.5	145 30.3	115	5253
909	19	13 53.2	145 30.8	107	2688	982	29	38 04.2	145 49.6	115	5291 ± 100
910	19	13 50.0	145 16.9	107	2034	983	30	38 04.8	146 16.9	115	4889 ± 50
911	19	13 45.6	144 58.6	107	646	984	30	38 05.5	146 47.6	116	5286 ± 100
912	20	13 39.7	144 46.5	107	746	985	30	38 08.2	147 03.3	116	5449 ± 40
913	25	14 12.7	144 26.9	108	3999	986	30	38 16.4	147 12.4	116	5555
914	26	15 36.0	144 10.3	108	4236	987	30	38 22.6	147 21.5	116	5555
915	26	15 55.8	144 07.6	108	3091	988	30	38 25.5	147 27.2	116	5578
916	26	16 34.9	144 05.6	108	4517	989	July 1	38 38.2	147 38.8	116	5690
917	26	16 58.0	144 05.2	108	4339	990	1	38 53.1	147 50.9	116	5644
918	26	17 24.6	144 04.6	108	4274	991	1	39 08.9	148 07.1	116	5600
919	27	17 50.5	144 04.0	108	4605	992	1	39 21.0	148 27.5	116	5511
920	27	18 19.4	144 03.2	108	4068	993	2	39 37.1	149 12.4	116	5578
921	27	18 28.2	143 59.0	108	4326	994	2	39 53.4	149 33.8	117	5428
922	27	18 54.3	143 58.3	108	3848	995	2	40 01.4	149 52.1	117	5602
923	27	19 40.9	144 01.5	108	3361	996	2	40 07.7	150 21.1	117	5326
924	28	20 25.0	144 05.2	108	3270	997	3	40 18.3	150 57.4	117	5326
925	28	21 00.8	144 08.1	109	3090	998	3	40 26.8	151 19.7	117	5266
926	28	21 23.9	144 11.5	109	2259						
927	28	21 48.6	144 13.2	109	2763						

Table 4. Sonic depths--number and geographic position of sounding--Continued

Sound- ing no.	Date	Latitude N	Longitude E	Sta- tion no.	Depth in meters	Sound- ing no.	Date	Latitude N	Longitude W	Sta- tion no.	Depth in meters
1929						1929					
Pacific Ocean						Pacific Ocean					
999	July 3	40 28.7	151 33.1	117	5738	1071	July 18	52 14.2	152 56.7	125	4407
1000	3	40 41.3	151 50.6	117	5408	1072	19	51 59.0	150 55.1	125	4536 ± 30
1001	4	41 11.5	152 50.6	117	5307 ± 30	1073	19	51 45.0	149 51.8	125	4717
1002	4	41 20.5	153 11.7	118	5384	1074	19	51 27.9	149 04.7	125	4520 ± 30
1003	4	41 30.7	153 42.9	118	5489	1075	19	51 10.3	148 16.3	125	4450
1004	4	41 42.4	154 08.1	118	5364	1076	20	51 00.8	147 51.1	125	4353 ± 25
1005	5	41 55.8	154 28.3	118	5364	1077	20	50 36.8	146 53.5	125	4421 ± 30
1006	5	42 26.3	155 22.7	118	5404 ± 35	1078	20	50 11.6	146 04.2	125	3897 ± 50
1007	5	42 46.6	155 58.2	118	5384 ± 40	1079	20	49 51.6	145 28.3	126	4265 ± 25
1008	5	42 59.1	156 29.0	118	5467 ± 50	1080	20	49 28.4	144 55.8	126	4189 ± 25
1009	5	43 10.3	157 02.2	118	5467	1081	20	49 00.1	144 12.7	126	4277
1010	6	43 24.9	157 53.9	118	5531	1082	21	48 08.9	143 04.2	126	4382 ± 30
1011	6	43 41.5	158 10.3	118	5531	1083	21	47 40.3	142 18.0	126	4424
1012	6	44 05.1	158 25.7	119	5549	1084	21	47 19.9	141 45.0	126	4438
1013	6	44 25.0	158 43.3	119	5360	1085	21	46 53.6	141 04.5	126	4356
1014	6	44 42.8	158 59.6	119	5443	1086	22	46 39.7	140 42.3	126	4356
1015	7	45 19.5	159 33.0	119	5182	1087	22	46 18.4	140 16.3	126	4356
1016	7	45 48.5	159 57.1	119	5421 ± 30	1088	22	46 01.7	139 50.3	127	4318
1017	7	46 18.3	161 08.0	119	5421 ± 65	1089	22	45 40.9	139 22.8	127	4305
1018	8	46 46.6	162 26.6	119	5615 ± 50	1090	22	45 20.8	138 57.5	127	4292
1019	8	46 54.4	162 52.1	119	5637	1091	22	45 00.2	138 31.9	127	4242
1020	8	46 59.0	163 27.3	120	5730	1092	23	44 37.0	138 02.7	127	4178
1021	8	47 00.3	164 10.4	120	5874	1093	23	44 20.4	137 43.5	127	4154
1022	8	47 01.3	164 46.3	120	6051 ± 50	1094	23	44 15.6	137 34.6	127	4141
1023	9	47 02.7	166 10.8	120	5777	1095	23	44 04.4	137 21.0	127	4130
1024	9	47 01.6	166 27.6	120	5874	1096	23	43 46.6	136 56.7	127	4035
1025	9	47 03.4	167 00.4	120	5898	1097	23	43 28.9	136 32.4	127	4024
1026	9	47 09.0	167 36.8	120	6129	1098	24	43 10.1	136 05.9	127	4024
1027	9	47 10.8	167 50.6	120	6438	1099	24	42 53.9	135 43.2	127	4012
1028	10	46 54.7	168 56.4	121	5506 ± 50	1100	24	42 37.3	135 18.5	127	4012
1029	10	46 44.3	169 23.2	121	3961	1101	24	42 17.2	134 47.6	128	4050
1030	10	46 41.7	169 34.4	121	3465 ± 25	1102	24	41 55.0	134 13.2	128	3579 ± 25
1031	10	46 37.7	169 47.4	121	4365	1103	24	41 54.7	134 12.7	128	3457
1032	10	46 30.2	170 08.4	121	6210	1104	24	41 54.0	134 11.7	128	3672 ± 20
1033	10	46 22.3	170 32.5	121	6210	1105	24	41 48.3	134 04.1	128	3893
1034	11	46 07.3	171 27.5	121	5684	1106	24	41 29.9	133 39.2	128	3719
1035	11	45 49.8	171 56.0	121	5777	1107	25	40 59.4	132 56.8	128	3738
1036	11	45 35.0	172 11.6	121	5639	1108	25	40 39.7	132 30.1	128	3970
1037	11	45 13.8	172 36.4	121	5639 ± 50	1109	25	40 31.1	131 59.2	128	3851
1038	12	45 06.9	172 50.4	122	4489	1110	25	40 19.1	131 26.2	128	3482
1039	12	45 14.6	172 55.6	122	5616	1111	25	40 12.4	131 08.7	128	3662
1040	12	45 25.6	173 07.6	122	5684	1112	26	39 58.8	130 31.5	128	4557
1041	12	45 34.5	173 18.1	122	5753	1113	26	39 50.1	130 07.2	128	4484 ± 25
1042	12	45 47.2	173 33.8	122	5875 ± 50	1114	26	39 35.8	129 31.7	128	4513
1043	13	46 10.6	173 57.1	122	6077	1115	26	39 27.6	129 00.1	129	4310 ± 25
1044	13	46 36.6	174 36.5	122	5662 ± 65	1116	26	39 20.5	128 21.7	129	4183
1045	14-1	47 47.0	177 25.8	122	5707 ± 150	1117	26	39 10.6	127 33.2	129	4363 ± 40
1046	14-1	48 06.1	178 02.9	122	5684 ± 50	1118	27	39 00.7	126 44.2	129	4297 ± 30
1047	14-1	48 16.8	178 50.5	122	6012 ± 60	1119	27	38 51.6	126 11.3	129	4171 ± 40
1048	14-1	48 26.4	179 37.6	122	5948 ± 100	1120	27	38 40.8	125 16.2	129	3511 ± 25
W						1121	27	38 32.7	124 46.8	129	3782 ± 20
1049	14-2	49 01.2	177 23.2	123	5330 ± 100	1122	28	38 16.9	123 37.7	129	1016 ± 7
1050	14-2	49 12.9	176 42.6	123	4747 ± 30	1123	28	38 15.3	123 30.0	129	511 ± 5
1051	14-2	49 25.9	175 57.9	123	5183 ± 30	1124	28	38 14.2	123 27.3	129	344 ± 6
1052	14-2	49 37.8	175 20.6	123	5203	1125	28	38 12.7	123 24.7	129	319 ± 5
1053	14-2	49 51.7	174 36.9	123	5072	1126	28	38 11.0	123 22.0	129	246 ± 5
1054	15	50 22.2	173 03.5	123	5464 ± 30	1127	28	38 09.1	123 19.2	129	164 ± 5
1055	15	50 39.6	171 41.4	123	5755 ± 50	1128	28	38 07.3	123 16.3	129	132 ± 5
1056	15	50 45.4	171 00.3	123	5595	1129	Sep. 3	37 37.5	122 51.7	130	88 ± 2
1057	16	50 54.6	169 48.5	123	5802	1130	3	37 26.0	123 05.6	130	559
1058	16	51 06.6	168 15.6	123	5203	1131	4	37 03.7	123 43.1	130	3188
1059	16	51 22.5	167 29.6	123	5146	1132	5	35 20.0	125 08.3	131	4487 ± 30
1060	16	51 34.3	166 27.0	124	5019	1133	5	34 58.6	125 30.3	131	4574
1061	16	51 44.2	165 30.2	124	4862	1134	5	34 45.0	125 40.5	131	4590
1062	16	51 54.4	164 26.6	124	4897 ± 30	1135	5	34 29.4	125 52.4	131	4726
1063	17	52 13.8	162 22.2	124	4780 ± 30	1136	6	33 50.3	126 21.3	131	4432
1064	17	52 28.8	160 58.5	124	4550	1137	6	33 17.9	126 56.0	131	4432
1065	17	52 33.0	159 54.4	124	4550	1138	6	33 01.3	127 15.9	131	4502
1066	17	52 34.2	158 45.1	124	4716 ± 25	1139	7	32 47.1	127 30.6	131	4404 ± 30
1067	18	52 37.1	156 36.7	124	4550	1140	7	32 35.9	127 39.6	132	4077
1068	18	52 34.0	155 40.9	125	4520	1141	7	32 25.6	127 50.5	132	1373 ± 10
1069	18	52 27.7	154 50.8	125	4536	1142	7	32 25.1	127 51.4	132	1766 ± 10
1070	18	52 21.4	153 54.7	125	4565						

Table 4. Sonic depths--number and geographic position of sounding--Continued

Sound- ing no.	Date	Latitude N	Longitude W	Sta- tion no.	Depth in meters	Sound- ing no.	Date	Latitude N	Longitude W	Sta- tion no.	Depth in meters
1929						1929					
Pacific Ocean						Pacific Ocean					
1143	Sep. 7	32 24.8	127 52.0	132	2126	1216	Sep. 22	21 57.7	155 00.7	139	4553
1144	7	32 22.0	127 55.6	132	3735	1217	22	21 50.1	155 24.0	139	4897
1145	7	32 16.7	128 01.3	132	4260	1218	22	21 47.5	155 30.8	139	5073
1146	7	32 10.7	128 09.3	132	4161	1219	22	21 41.7	155 50.0	139	5360
1147	7	32 08.8	128 12.2	132	4392	1220	22	21 38.9	156 04.4	139	5538
1148	8	31 59.2	128 26.7	132	4273	1221	22	21 34.7	156 20.4	139	5483
1149	8	31 48.8	128 36.9	132	4248	1222	22	21 32.1	156 34.7	139	5128
1150	8	31 40.0	128 49.1	132	4312	1223	23	21 27.5	156 57.0	139	2929
1151	8	31 38.3	128 48.4	132	4299	1224	23	21 23.2	157 17.7	139	671
1152	8	31 25.9	129 06.4	132	4392						
1153	8	31 12.8	129 30.4	132	4432	1225	Oct. 2	21 31.9	158 22.5	140	1399
1154	8	31 00.3	129 51.4	132	4620	1226	2	22 16.4	158 46.8	140	4434
1155	9	30 47.7	130 12.6	132	4488	1227	3	23 19.4	159 21.6	140	4785
1156	9	30 37.4	130 29.8	132	4636	1228	3	23 50.7	159 40.6	140	4674
1157	9	30 25.6	130 50.6	133	4731	1229	3	24 23.4	159 50.9	140	4706
1158	9	30 14.6	131 08.9	133	4327	1230	3	24 49.4	159 59.9	140	4661
1159	9	30 00.5	131 29.3	133	4654	1231	4	25 37.9	160 16.7	140	2548
1160	9	29 46.9	131 49.3	133	4151	1232	4	25 46.0	160 19.3	140	4360
1161	10	29 31.3	132 12.3	133	4289	1233	4	25 47.7	160 19.7	140	4557
1162	10	29 23.6	132 23.7	133	4381	1234	4	26 25.9	160 31.8	141	4767
1163	10	28 57.8	133 07.2	133	4176	1235	4	26 51.2	160 38.4	141	5002
1164	10	28 45.9	133 25.5	133	4684	1236	4	27 26.0	160 45.8	141	4439
1165	11	28 33.1	133 44.7	133	4550	1237	4	27 56.9	160 53.1	141	5166
1166	11	28 21.4	134 01.8	134	4508	1238	5	28 17.0	160 58.7	141	4932
1167	11	28 13.6	134 16.6	134	4595	1239	5	28 55.8	161 08.0	141	5637
1168	11	28 07.6	134 29.3	134	4252	1240	5	29 29.0	161 15.2	141	5549
1169	11	28 02.0	134 42.4	134	4225	1241	5	30 04.3	161 21.9	141	5705
1170	11	27 51.8	135 01.2	134	4277	1242	5	30 32.6	161 24.5	141	4242
1171	12	27 48.3	135 11.1	134	4522	1243	6	30 54.5	161 19.3	142	5591
1172	12	27 45.5	135 19.0	134	4508	1244	6	31 15.9	161 10.6	142	5591
1173	12	27 32.7	136 05.2	134	4610	1245	6	31 38.3	161 01.6	142	5658
1174	13	27 17.1	136 54.1	134	4656	1246	6	32 00.6	160 55.8	142	5703
1175	13	27 11.2	137 13.0	134	4701	1247	6	32 17.3	160 49.9	142	5772
1176	13	26 59.8	137 42.3	135	4780	1248	6	32 28.6	160 45.7	142	5845
1177	13	26 51.4	138 09.4	135	4828	1249	7	32 40.5	160 42.3	142	5703
1178	13	26 43.8	138 26.6	135	4731	1250	7	32 59.1	160 37.1	142	6148
1179	14	26 37.9	139 06.0	135	4655	1251	7	33 14.3	160 29.5	142	5726
1180	14	26 34.4	139 51.1	135	4685	1252	7	33 28.0	160 26.3	142	5966
1181	15	26 37.3	140 08.1	135	4763	1253	8	34 05.6	160 17.9	142	5893
1182	15	26 27.3	140 35.7	136	4748	1254	8	34 15.4	159 59.7	142	5893
1183	15	26 24.7	140 49.2	136	4671	1255	8	34 18.1	159 48.7	142	5845
1184	15	26 25.8	141 02.0	136	4685	1256	8	34 18.1	159 23.9	142	5942
1185	16	26 25.1	141 24.8	136	4829	1257	8	34 15.8	158 48.3	143	5889
1186	16	26 21.9	141 32.5	136	4671	1258	9	34 06.0	157 18.2	143	5841
1187	16	26 14.1	141 55.3	136	4625	1259	9	33 59.0	156 26.5	143	5770
1188	16	26 09.9	142 12.3	136	4625	1260	9	33 51.8	155 44.4	143	5700
1189	17	25 18.0	143 17.4	136	4812	1261	9	33 48.5	155 26.0	143	5632
1190	17	25 07.4	143 36.6	136	4845	1262	10	33 45.1	155 09.6	143	5522
1191	17	24 58.5	143 49.1	137	5001	1263	10	33 41.0	154 52.2	143	5544
1192	17	24 46.3	144 08.0	137	5001	1264	10	33 36.1	154 33.9	143	5588
1193	17	24 35.2	144 28.7	137	4881	1265	10	33 35.0	154 09.1	144	5545
1194	18	24 19.9	144 56.4	137	5091	1266	10	33 35.1	153 44.0	144	5567
1195	18	24 01.6	145 29.9	137	5147	1267	10	33 35.4	153 07.3	144	5701
1196	18	23 56.4	145 53.3	137	5147	1268	11	33 35.6	152 38.2	144	5567
1197	18	23 43.2	146 21.7	137	5494	1269	11	33 37.5	151 59.1	144	5523
1198	18	23 35.9	146 59.0	137	5894	1270	11	33 35.9	151 09.5	144	5523
1199	19	23 31.2	147 28.9	137	5203	1271	11	33 32.3	150 28.3	144	5418
1200	19	23 27.7	148 02.4	137	5221	1272	11	33 28.8	149 48.6	144	5567
1201	19	23 22.0	148 36.8	138	5224	1273	12	33 25.3	149 06.9	144	5567
1202	19	23 17.0	149 04.8	138	5263	1274	12	33 22.6	148 23.7	145	5565
1203	19	23 11.8	149 33.3	138	5383	1275	12	33 16.8	147 48.4	145	5610
1204	20	23 05.2	150 10.1	138	5402	1276	12	33 18.7	147 24.8	145	5458
1205	20	23 01.3	150 30.9	138	5485	1277	12	33 20.3	147 03.9	145	5458
1206	20	22 55.0	151 06.4	138	5455	1278	12	33 22.7	146 34.4	145	5565
1207	20	22 47.0	151 41.9	138	5282	1279	13	33 27.3	145 36.0	145	5068
1208	20	22 40.8	152 02.6	138	5362	1280	13	33 27.3	145 30.1	145	5522
1209	20	22 32.3	152 25.9	138	5057	1281	13	33 27.0	145 13.8	145	5458
1210	21	22 26.7	152 52.3	138	5057	1282	13	33 27.5	145 00.9	145	4406
1211	21	22 20.5	153 14.2	138	4917	1283	13	33 28.6	144 40.0	145	5295
1212	21	22 17.0	153 33.3	139	4734	1284	14	33 32.0	143 45.6	145	5355
1213	21	22 14.3	153 53.1	139	4704	1285	14	33 20.0	142 45.9	146	5298
1214	21	22 11.6	154 12.4	139	4582	1286	14	32 57.6	142 19.5	146	5163
1215	21	22 04.6	154 38.1	139	4467	1287	14	32 34.7	141 47.9	146	5358

Table 4. Sonic depths--number and geographic position of sounding--Continued

Sounding no.	Date	Latitude N	Longitude W	Station no.	Depth in meters	Sounding no.	Date	Latitude N	Longitude W	Station no.	Depth in meters
1929						1929					
Pacific Ocean						Pacific Ocean					
1288	Oct. 15	32 08.7	141 12.2	146	5071	1361	Oct. 28	8 20.8	140 54.6	153	5074
1289	15	31 52.2	140 52.7	146	4914	1362	28	8 09.3	141 05.2	153	5301
1290	15	31 27.8	140 35.5	146	4686	1363	29	7 58.7	141 14.7	153	4833
1291	15	31 10.3	140 23.4	146	4537	1364	29	7 56.5	141 16.2	153	4916
1292	15	30 41.7	140 08.3	146	4829	1365	29	7 47.3	141 24.2	153	5038
1293	16	30 07.5	139 50.4	146	4797	1366	29	7 37.4	141 32.8	153	5111
1294	16	29 42.7	139 37.3	146	4748	1367	29	7 31.2	141 44.0	153	5167
1295	16	29 11.0	139 22.5	147	4763	1368	30	7 14.2	142 13.3	153	5021
1296	16	28 40.0	139 07.7	147	4747	1369	30	7 04.7	142 27.6	154	5075
1297	16	28 26.8	139 01.8	147	4780	1370	30	6 54.9	142 48.2	154	5021
1298	16	28 08.8	138 47.7	147	4797	1371	30	6 50.5	143 14.7	154	5094
1299	17	27 46.0	138 29.8	147	4879	1372	30	6 43.7	143 23.5	154	4722
1300	17	27 26.5	138 14.3	147	4717	1373	31	6 43.9	143 20.9	154	4917
1301	17	27 04.1	137 47.7	147	4879	1374	31	6 41.9	143 22.7	154	5149
1302	17	26 54.5	137 37.9	147	4879	1375	31	6 37.0	143 27.3	154	5094
1303	17	26 38.4	137 21.0	147	4913	1376	31	6 22.6	143 41.6	154	5112
1304	18	26 09.4	136 54.0	148	4733	1377	31	6 10.4	143 54.0	154	5112
1305	18	26 00.1	137 06.8	148	4686						
1306	18	25 54.9	137 14.2	148	4718	1378	Nov. 1	5 57.9	144 07.8	154	5112
1307	18	25 35.3	137 23.7	148	4733	1379	1	5 42.3	144 24.4	154	5039
1308	19	25 08.5	137 33.5	148	4764	1380	1	5 45.0	144 39.7	154	4987
1309	19	24 58.5	137 41.4	148	4343	1381	1	5 42.6	144 50.5	154	5004
1310	19	24 56.6	137 43.2	148	4813	1382	1	5 31.1	145 13.6	155	5022
1311	19	24 50.5	137 41.3	148	4671	1383	1	5 14.5	145 38.6	155	4850
1312	19	24 40.5	137 39.4	148	4749	1384	2	4 54.7	146 09.8	155	4968
1313	19	24 19.1	137 39.4	148	4879	1385	2	4 50.0	146 36.9	155	4987
1314	20	23 52.2	137 53.4	148	4595	1386	2	4 53.6	146 57.9	155	5040
1315	20	23 39.5	138 03.3	148	5053	1387	2	4 44.9	147 18.9	155	5186
1316	20	23 05.0	138 18.0	149	4914	1388	2	4 35.3	147 44.6	155	4900
1317	20	22 50.2	138 23.8	149	5054	1389	3	4 30.0	148 06.4	155	4968
1318	20	22 29.0	138 29.7	149	5165	1390	3	4 24.5	148 34.1	156	4919
1319	20	22 07.1	138 36.3	149	4881	1391	3	4 19.8	149 11.4	156	4662
1320	21	21 39.1	138 40.3	149	5165	1392	3	4 14.1	149 22.9	156	4851
1321	21	21 21.2	138 37.0	149	5183	1393	3	4 02.6	149 24.3	156	4885
1322	21	20 53.3	138 33.6	149	5221	1394	3	3 45.7	149 27.5	156	4885
1323	21	20 23.0	138 23.2	149	5109	1395	4	3 25.8	149 34.6	156	5058
1324	21	19 52.0	138 20.8	149	5165	1396	4	2 59.7	149 42.9	156	5058
1325	22	19 18.7	138 20.4	149	5221	1397	4	2 54.0	149 57.9	156	4430
1326	22	18 53.8	138 14.0	149	5165	1398	4	2 36.0	150 14.6	156	4646
1327	22	18 21.0	138 03.1	150	5259	1399	4	2 10.1	150 39.2	156	4616
1328	22	17 58.0	137 49.0	150	5035	1400	5	1 44.3	150 57.2	156	4183
1329	22	17 10.1	137 24.4	150	5239	1401	5	1 40.8	150 59.4	156	4170
1330	23	16 39.7	137 12.6	150	5239	1402	5	1 36.7	151 01.5	156	4146
1331	23	16 24.6	137 07.0	150	5612	1403	5	1 22.5	151 10.5	157	3995
1332	23	16 16.4	137 05.5	150	4130	1404	5	1 15.2	151 14.7	157	4030
1333	23	16 02.6	137 00.2	150	4880	1405	5	1 06.3	151 20.1	157	4296
1334	23	15 50.3	136 54.7	150	4880	1406	5	0 51.4	151 26.4	157	4099
1335	23	15 23.4	136 40.8	150	4983	1407	5	0 34.8	151 33.4	157	4134
1336	23	14 52.8	136 24.8	150	5035	1408	5	0 18.4	151 43.7	157	3012
1337	24	14 20.2	136 16.1	151	4480						
1338	24	14 13.5	136 12.7	151	4702	1409	5	0 03.3	151 54.0	157	4296
1339	24	14 00.1	136 15.5	151	4581	1410	5	0 24.1	152 00.5	157	4442
1340	24	13 23.6	136 44.0	151	4702	1411	5	0 42.8	152 05.1	157	4723
1341	24	13 13.0	136 53.0	151	4813	1412	6	0 56.0	152 08.5	157	4723
1342	24	13 09.6	137 05.8	151	4813	1413	6	1 12.8	152 12.8	157	4851
1343	25	12 57.4	137 19.4	151	5090	1414	6	1 30.4	152 17.3	157	4803
1344	25	12 41.2	137 32.6	151	4880	1415	6	1 44.3	152 20.6	157	3985
1345	25	12 29.2	137 38.5	151	5019	1416	6	2 16.2	152 26.6	157	4616
1346	25	12 17.6	137 48.3	151	4983	1417	6	2 50.0	152 33.8	157	4675
1347	25	12 02.0	138 01.6	151	5019	1418	6	3 26.8	152 43.5	157	4918
1348	26	11 29.7	138 29.1	151	4914	1419	7	3 53.4	152 50.6	157	4969
1349	26	11 20.7	138 38.4	152	4914	1420	7	4 27.1	153 00.3	158	5077
1350	26	11 07.9	138 50.2	152	4846	1421	7	4 47.1	153 19.2	158	4008
1351	26	10 56.5	139 02.9	152	4813	1422	7	5 09.8	153 41.0	158	4819
1352	26	10 40.1	139 15.8	152	4718	1423	7	5 28.3	153 58.1	158	5265
1353	27	10 20.1	139 31.8	152	4982	1424	7	5 49.0	154 17.5	158	5114
1354	27	10 04.5	139 44.3	152	4830	1425	8	6 07.1	154 34.7	158	4919
1355	27	9 53.2	139 53.5	152	5035	1426	8	6 27.8	154 54.3	158	5096
1356	27	9 35.4	140 09.2	152	4965	1427	8	6 33.7	154 58.6	158	4065
1357	27	9 20.1	140 17.8	152	5107	1428	8	6 51.7	155 20.0	158	5114
1358	28	8 47.2	140 35.9	153	5093	1429	8	7 04.0	155 33.7	158	5059
1359	28	8 38.3	140 42.2	153	5148	1430	8	7 22.6	155 58.1	158	5096
1360	28	8 30.8	140 46.0	153	5167	1431	9	7 34.8	156 14.4	158	5041

Table 4. Sonic depths--number and geographic position of sounding--Concluded

Sounding no.	Date	Latitude S	Longitude W	Station no.	Depth in meters	Sounding no.	Date	Latitude S	Longitude W	Station no.	Depth in meters
1929						1929					
Pacific Ocean						Pacific Ocean					
1432	Nov. 9	7 49.0	156 31.0	158	5132	1465	Nov. 12	10 24.9	161 05.2	160	1199
1433	9	8 01.4	156 49.5	158	5305	1466	12	10 28.1	161 10.9	160	2825
1434	9	8 16.1	157 09.0	159	5386	1467	12	10 35.5	161 23.3	160	2984
1435	9	8 22.4	157 18.7	159	5386	1468	13	10 41.2	161 32.4	160	2877
1436	9	8 29.7	157 28.0	159	5325	1469	13	10 50.5	161 47.9	160	2639 ± 15
1437	9	8 34.6	157 35.7	159	5133	1470	13	10 53.3	161 52.8	160	2602 ± 15
1438	9	8 42.2	157 42.7	159	4617	1471	13	11 06.8	162 17.3	160	2583 ± 15
1439	10	8 44.2	157 44.3	159	4336	1472	13	11 18.1	162 40.3	160	2621 ± 15
1440	10	8 45.2	157 45.0	159	4148	1473	13	11 23.0	162 49.7	160	2719 ± 20
1441	10	8 48.3	157 47.3	159	3746	1474	14	11 26.9	162 56.7	160	2719 ± 20
1442	10	8 51.3	157 51.0	159	1865 ± 10	1475	14	11 30.7	163 02.4	160	2825 ± 25
1443	10	8 52.9	157 53.9	159	1999	1476	14	11 33.9	163 13.3	160	3329 ± 40
1444	10	8 55.3	158 01.2	159	984 ± 5	1477	14	11 39.3	163 37.2	161	3603 ± 40
1445	10	8 56.5	158 03.6	159	426 ± 5	1478	14	11 43.7	163 50.6	161	3622 ± 40
1446	10	8 59.7	158 03.8	159	381 ± 5	1479	14	11 50.7	164 13.4	161	3515 ± 30
1447	10	8 59.7	158 03.8	159	96 ± 5	1480	15	11 55.7	164 29.0	161	3736 ± 40
1448	10	9 01.3	158 07.4	159	1833 ± 30	1481	15	12 04.2	164 57.4	161	4458
1449	10	9 04.2	158 13.9	159	3909	1482	15	12 05.4	165 07.7	161	4485 ± 30
1450	10	9 06.4	158 18.9	159	4431	1483	15	12 14.1	165 30.9	161	5455 ± 28
1451	10	9 08.9	158 24.5	159	4954	1484	16	12 38.9	166 35.4	161	5208 ± 50
1452	11	9 15.1	158 38.3	159	5365	1485	16	12 48.3	166 53.8	162	5509
1453	11	9 22.6	158 55.2	159	5405	1486	16	13 01.0	167 19.9	162	5377 ± 30
1454	11	9 28.0	159 15.6	159	5115	1487	16	13 10.2	167 37.3	162	5303 ± 50
1455	11	9 32.9	159 29.6	159	5899	1488	16	13 19.9	167 55.2	162	5208 ± 50
1456	11	9 38.5	159 44.7	159	4937	1489	17	13 25.6	168 05.7	162	5095 ± 55
1457	12	9 47.0	160 06.8	159	4065	1490	17	13 36.0	168 22.8	162	5059
1458	12	9 57.3	160 32.1	160	3146	1491	17	13 41.2	168 37.9	162	5208 ± 30
1459	12	9 58.3	160 34.6	160	2865 ± 30	1492	17	13 46.5	168 56.2	162	5023 ± 50
1460	12	10 09.1	160 46.1	160	4286	1493	17	13 52.2	169 15.1	162	5446 ± 30
1461	12	10 17.5	160 52.9	160	3239	1494	18	14 05.3	169 59.4	162	2462 ± 15
1462	12	10 19.1	160 57.7	160	2520	1495	18	14 08.9	170 13.4	162	2409 ± 25
1463	12	10 19.7	161 00.1	160	1186	1496	18	14 13.7	170 26.8	162	1568 ± 15
1464	12	10 19.6	161 01.6	160	738 ± 5						

^aSounding velocity of 1508 meters per second assumed. ^bBeginning of oceanographic station 3.
^cEnd of oceanographic station 3. ^dDoubtful. ^eProbably shallow. ^fSounding continuously for 5 minutes. Course southwest true at 7 1/2 knots. ^gSounding continuously for 11 minutes. Course S x W 1/2 W true at 5.7 knots. ^hSynchronism poor.

Table 5—Sounding velocity in meters per second for Carnegie deep sea stations, 1928-1929
 [The values appearing below the heavy line are based on extrapolated temperatures or salinities]

Depth in meters	Station number, latitude, and longitude																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
	38°14'N 87°34'W	39°06'N 45 41 W	44°00'N 56 10 W	44°39'N 53 06 W	43°15'N 51 32 W	50°22'N 13 31 W	63°20'N 9 25 W	63°30'N 14 41 W	62°45'N 25 52 W	59°19'N 34 15 W	58°12'N 35 51 W	51°40'N 49 32 W	46°08'N 48 01 W	42°10'N 47 19 W	38°39'N 48 48 W	36°47'N 46 31 W	33°42'N 42 21 W	29°47'N 40 36 W	24°00'N 39 36 W	19°13'N 38 28 W	
0	1530.5	1521.6	1506.6	1503.5	1505.0	1496.0	1482.9	1488.1	1490.7	1490.0	1489.0	1479.3	1488.6	1522.2	1532.6	1535.1	1534.1	1537.4	1537.6	1537.9	1535.8
25	1530.9	1521.9	1506.6	1503.9	1505.1	1496.1	1483.1	1487.3	1490.5	1489.4	1488.0	1475.8	1487.7	1522.2	1530.6	1533.3	1534.1	1537.4	1537.6	1537.9	1535.8
50	1531.1	1522.2	1506.3	1503.9	1505.1	1495.5	1482.5	1486.2	1488.3	1488.9	1488.3	1471.9	1484.8	1517.9	1527.7	1534.7	1534.6	1537.4	1537.6	1537.9	1535.8
75	1530.6	1522.2	1505.7	1503.4	1504.5	1495.2	1482.2	1485.5	1485.7	1487.1	1482.0	1469.0	1449.0	1513.7	1525.0	1532.9	1532.9	1535.8	1537.6	1537.9	1535.8
100	1529.5	1522.2	1504.8	1503.2	1503.9	1495.0	1482.0	1484.9	1484.2	1484.8	1480.2	1467.4	1446.5	1511.3	1523.2	1530.8	1527.4	1529.8	1534.1	1534.0	1534.0
200	1524.7	1521.0	1503.4	1501.5	1503.1	1494.4	1481.9	1484.2	1482.0	1479.7	1477.0	1465.4	1445.9	1507.0	1520.6	1525.1	1523.5	1525.5	1530.2	1529.3	1529.3
300	1521.0	1520.5	1503.1	1500.3	1502.8	1494.2	1480.3	1484.2	1481.8	1477.7	1475.2	1465.2	1504.7	1504.7	1520.0	1522.1	1521.3	1522.9	1527.4	1527.4	1527.4
400	1518.4	1519.9	1502.8	1499.9	1502.8	1494.5	1476.8	1481.9	1476.7	1475.1	1474.8	1465.1	1498.7	1498.7	1520.2	1519.9	1520.0	1523.7	1527.9	1527.9	1527.9
500	1516.3	1519.0	1502.1	1499.3	1502.9	1495.0	1478.8	1485.2	1476.1	1474.8	1466.1	1488.1	1488.1	1510.5	1510.5	1509.9	1510.6	1514.2	1518.2	1518.2	1518.2
1000	1510.0	1515.7	1493.6	1492.6	1498.0	1497.0	1485.4	1485.2	1478.7	1478.3	1473.8	1469.7	1494.1	1494.1	1506.4	1505.4	1505.4	1506.7	1510.6	1510.6	1510.6
1500	1506.4	1506.4	1493.5	1492.6	1497.0	1496.5	1486.8	1485.3	1481.9	1481.6	1477.8	1473.8	1469.7	1489.0	1506.8	1499.7	1502.6	1504.7	1504.7	1504.7	1504.7
2000	1505.5	1506.1	1494.8	1494.2	1497.8	1497.3	1485.5	1485.5	1481.9	1481.6	1477.8	1473.8	1469.7	1489.0	1506.8	1499.7	1502.6	1504.7	1504.7	1504.7	1504.7
3000	1506.1	1506.1	1497.1	1496.5	1499.2	1498.2	1485.5	1485.5	1481.9	1481.6	1477.8	1473.8	1469.7	1489.0	1506.8	1499.7	1502.6	1504.7	1504.7	1504.7	1504.7
3500	1507.7	1507.7	1499.9	1499.4	1502.1	1501.6	1489.4	1489.2	1489.2	1489.2	1489.2	1485.8	1493.1	1493.1	1508.0	1508.0	1508.0	1508.0	1508.0	1508.0	1508.0
4000	1509.9	1509.9	1503.1	1502.8	1505.0	1504.7	1492.6	1492.6	1492.6	1492.6	1492.6	1489.7	1497.1	1497.1	1500.6	1500.6	1500.6	1500.6	1500.6	1500.6	1500.6
4500	1512.5	1512.5	1506.6	1506.1	1508.1	1507.9	1501.3	1501.3	1501.3	1501.3	1501.3	1493.1	1493.1	1500.6	1500.6	1500.6	1500.6	1500.6	1500.6	1500.6	1500.6
5000	1515.3	1515.3	1510.0	1509.7	1511.5	1511.3	1511.3	1511.3	1511.3	1511.3	1511.3	1493.1	1493.1	1500.6	1500.6	1500.6	1500.6	1500.6	1500.6	1500.6	1500.6
5500	1518.4	1518.4	1513.8	1513.5	1515.1	1515.1	1515.1	1515.1	1515.1	1515.1	1515.1	1493.1	1493.1	1500.6	1500.6	1500.6	1500.6	1500.6	1500.6	1500.6	1500.6
6000																					
6500																					
7000																					
7500																					

Table 5.—Sounding velocity in meters per second for Carnegie deep sea stations, 1928-1929—Continued
 [The values appearing below the heavy line are based on extrapolated temperatures or salinities]

Depth in meters	Station number, latitude, and longitude																			
	41 1°37'S 86 58 W	42 1°32'S 93 10 W	43 2°30'S 95 43 W	44 3°15'S 99 48 W	45 4°35'S 105 03 W	46 9°06'S 108 20 W	47 14°07'S 111 50 W	48 19°06'S 114 07 W	49 23°16'S 114 45 W	50 26°27'S 115 21 W	51 29°06'S 114 48 W	52 31°28'S 112 51 W	53 29°05'S 108 44 W	54 29°17'S 108 54 W	55 32°03'S 110 55 W	56 31°49'S 109 04 W	57 33°53'S 106 43 W	58 36°51'S 104 05 W	59 39°51'S 101 04 W	60 40°24'S 97 33 W
0	1519.0	1514.7	1517.3	1520.3	1525.5	1527.9	1529.9	1528.8	1528.9	1528.2	1526.8	1525.7	1526.3	1528.4	1519.6	1520.8	1515.1	1508.9	1506.8	1502.5
25	1516.6	1514.7	1517.6	1520.3	1525.5	1527.9	1529.9	1528.8	1528.9	1528.2	1526.8	1525.7	1526.3	1528.4	1519.6	1520.8	1515.1	1508.9	1506.8	1502.5
50	1512.6	1513.8	1515.8	1520.6	1526.0	1528.0	1530.2	1528.0	1528.0	1526.6	1523.7	1522.5	1523.4	1525.4	1519.0	1519.6	1512.6	1506.3	1504.1	1500.5
75	1509.7	1511.8	1513.1	1517.9	1524.5	1526.8	1528.0	1525.8	1525.8	1523.3	1520.2	1518.9	1519.7	1521.9	1517.6	1517.9	1510.0	1502.5	1498.7	1496.7
100	1508.3	1509.6	1510.5	1514.1	1521.5	1523.0	1524.0	1521.5	1521.5	1518.5	1514.5	1513.6	1514.5	1516.8	1512.5	1512.5	1504.5	1496.5	1492.5	1488.7
200	1505.8	1505.1	1505.1	1507.4	1515.8	1521.6	1524.0	1521.6	1521.6	1518.5	1514.5	1513.6	1514.5	1516.8	1512.5	1512.5	1504.5	1496.5	1492.5	1488.7
300	1504.4	1503.2	1503.1	1504.4	1509.6	1515.4	1522.4	1522.4	1522.4	1519.5	1515.4	1514.5	1515.4	1517.6	1513.2	1513.2	1505.2	1497.2	1493.2	1489.4
400	1502.5	1501.6	1501.3	1501.8	1505.8	1511.6	1518.4	1518.4	1518.4	1515.4	1511.3	1510.4	1511.3	1513.6	1509.2	1509.2	1499.2	1495.2	1491.2	1487.4
500	1500.0	1499.6	1499.2	1499.2	1502.8	1508.8	1514.8	1514.8	1514.8	1511.3	1507.3	1506.6	1507.3	1509.6	1499.0	1499.0	1492.8	1488.8	1484.8	1481.6
1000	1492.9	1492.8	1492.3	1492.0	1493.9	1495.2	1496.7	1497.6	1497.0	1496.1	1495.1	1494.5	1494.5	1494.5	1490.5	1490.5	1487.4	1483.4	1479.4	1475.4
2000	1490.3	1490.2	1489.7	1489.6	1491.6	1492.3	1492.9	1492.9	1492.9	1491.6	1490.9	1489.7	1490.6	1489.6	1488.0	1488.0	1485.8	1481.8	1477.8	1473.8
3000	1491.0	1490.9	1490.7	1490.6	1492.0	1492.7	1493.3	1493.3	1493.3	1492.0	1491.3	1490.9	1491.3	1489.7	1488.4	1488.4	1486.5	1482.5	1478.5	1474.5
4000	1491.0	1490.9	1490.7	1490.6	1492.0	1492.7	1493.3	1493.3	1493.3	1492.0	1491.3	1490.9	1491.3	1489.7	1488.4	1488.4	1486.5	1482.5	1478.5	1474.5
5000	1491.0	1490.9	1490.7	1490.6	1492.0	1492.7	1493.3	1493.3	1493.3	1492.0	1491.3	1490.9	1491.3	1489.7	1488.4	1488.4	1486.5	1482.5	1478.5	1474.5
6000	1491.0	1490.9	1490.7	1490.6	1492.0	1492.7	1493.3	1493.3	1493.3	1492.0	1491.3	1490.9	1491.3	1489.7	1488.4	1488.4	1486.5	1482.5	1478.5	1474.5
7000	1491.0	1490.9	1490.7	1490.6	1492.0	1492.7	1493.3	1493.3	1493.3	1492.0	1491.3	1490.9	1491.3	1489.7	1488.4	1488.4	1486.5	1482.5	1478.5	1474.5
7500	1491.0	1490.9	1490.7	1490.6	1492.0	1492.7	1493.3	1493.3	1493.3	1492.0	1491.3	1490.9	1491.3	1489.7	1488.4	1488.4	1486.5	1482.5	1478.5	1474.5
0	1508.7	1515.8	1519.6	1519.9	1518.7	1516.8	1516.6	1516.6	1516.6	1522.2	1528.2	1531.9	1532.6	1530.3	1527.1	1528.4	1529.5	1531.5	1533.1	1535.3
25	1506.3	1515.2	1518.4	1518.7	1517.6	1516.4	1516.7	1516.7	1516.7	1522.2	1528.2	1531.9	1532.6	1530.3	1527.1	1528.4	1529.5	1531.5	1533.1	1535.3
50	1504.2	1513.2	1516.1	1516.4	1515.1	1515.2	1515.6	1515.6	1515.6	1521.3	1527.3	1531.0	1531.7	1529.4	1526.0	1527.3	1528.4	1530.4	1532.0	1534.2
75	1502.1	1510.5	1513.9	1514.1	1512.6	1512.9	1513.9	1513.9	1513.9	1519.7	1525.7	1529.4	1530.1	1527.8	1524.4	1525.7	1526.8	1528.8	1530.4	1532.6
100	1499.6	1507.9	1512.5	1512.6	1510.8	1511.7	1512.9	1512.9	1512.9	1518.6	1524.6	1528.3	1529.0	1526.7	1523.3	1524.6	1525.7	1527.7	1529.3	1531.5
200	1494.1	1501.3	1508.0	1507.6	1505.4	1506.3	1508.1	1508.1	1508.1	1514.0	1520.0	1523.7	1524.4	1522.1	1518.7	1520.0	1521.1	1523.1	1524.7	1526.9
300	1490.3	1496.3	1503.4	1502.6	1500.8	1501.8	1503.2	1503.2	1503.2	1509.1	1515.1	1518.8	1519.5	1517.2	1513.8	1515.1	1516.2	1518.2	1519.8	1522.0
400	1487.4	1492.3	1498.6	1498.1	1496.4	1503.6	1499.7	1499.7	1499.7	1495.6	1501.3	1505.0	1505.7	1503.4	1500.0	1501.3	1502.4	1504.4	1506.0	1508.2
500	1485.7	1489.9	1495.0	1494.8	1493.2	1499.6	1496.7	1496.7	1496.7	1492.6	1498.3	1502.0	1502.7	1500.4	1497.0	1498.3	1500.3	1501.9	1503.5	1505.7
1000	1482.5	1484.8	1487.4	1487.4	1486.2	1492.6	1489.4	1489.4	1489.4	1485.3	1491.0	1494.7	1495.4	1493.1	1489.7	1491.0	1493.0	1494.6	1496.2	1498.4
1500	1482.6	1483.9	1486.0	1485.7	1484.8	1491.2	1488.0	1488.0	1488.0	1483.9	1489.6	1493.3	1494.0	1491.7	1488.3	1489.6	1491.6	1493.2	1494.8	1497.0
2000	1484.1	1484.9	1486.7	1486.7	1485.7	1492.1	1488.9	1488.9	1488.9	1484.8	1490.5	1494.2	1494.9	1492.6	1489.2	1490.5	1492.5	1494.1	1495.7	1497.9
2500	1486.2	1487.0	1488.4	1488.4	1487.6	1494.0	1490.8	1490.8	1490.8	1486.7	1492.4	1496.1	1496.8	1494.5	1491.1	1492.4	1494.4	1496.0	1497.6	1499.8
3000	1489.2	1489.7	1490.9	1490.6	1489.2	1495.6	1492.4	1492.4	1492.4	1488.3	1494.0	1497.7	1498.4	1496.1	1492.7	1494.0	1496.0	1497.6	1499.2	1501.4
3500	1492.3	1492.8	1493.8	1493.8	1493.5	1499.9	1496.7	1496.7	1496.7	1492.6	1498.3	1502.0	1502.7	1500.4	1497.0	1498.3	1500.3	1501.9	1503.5	1505.7
4000	1495.5	1496.0	1497.1	1497.0	1496.7	1503.1	1500.3	1500.3	1500.3	1496.2	1501.9	1505.6	1506.3	1504.0	1500.6	1501.9	1503.9	1505.5	1507.1	1509.3
4500	1499.0	1499.4	1500.8	1500.6	1500.3	1506.7	1503.9	1503.9	1503.9	1499.8	1505.5	1509.2	1509.9	1507.6	1504.2	1505.5	1507.5	1509.1	1510.7	1512.9
5000																				
6000																				
6500																				
7000																				
7500																				

Table 5—Sounding velocity in meters per second for Carnegie deep sea stations, 1928-1929—Concluded
 [The values appearing below the heavy line are based on extrapolated temperatures or salinities]

Depth meters	Station number, latitude, and longitude																			
	121 46°05'N 171 33 E	122 46°05'N 171 33 E	123 46°16'N 172 03 E	124 50°27'N 172 51 W	125 51°58'N 150 39 W	126 48°05'N 142 56 W	127 44°16'N 137 37 W	128 40°37'N 123 23 W	129 38°50'N 126 02 W	130 37°05'N 125 43 W	131 33°49'N 126 30 W	132 31°28'N 128 48 W	133 29°21'N 132 30 W	134 27°45'N 135 22 W	135 26°39'N 139 07 W	136 26°13'N 142 02 W	137 24°02'N 145 33 W	138 23°03'N 151 15 W	139 21°47'N 155 31 W	140 20°26'N 159 37 W
0	1474.5	1477.4	1477.0	1481.3	1486.0	1488.4	1495.8	1505.7	1506.0	1514.5	1520.3	1525.5	1528.7	1531.1	1532.9	1534.2	1535.6	1536.1	1536.1	1534.1
25	1472.6	1475.8	1477.0	1480.4	1485.4	1488.6	1495.0	1504.1	1505.8	1512.6	1520.5	1525.7	1528.9	1531.1	1532.9	1534.2	1535.6	1536.1	1536.1	1534.1
50	1468.8	1471.5	1473.5	1476.8	1480.7	1485.5	1493.8	1500.5	1505.0	1510.7	1518.2	1524.7	1529.7	1531.1	1532.9	1534.2	1535.6	1536.1	1536.1	1534.1
75	1464.9	1467.0	1469.4	1472.8	1475.8	1481.8	1490.3	1496.8	1504.8	1511.4	1518.8	1524.8	1529.7	1531.1	1532.9	1534.2	1535.6	1536.1	1536.1	1534.1
100	1462.3	1464.2	1466.8	1470.3	1472.9	1479.3	1487.7	1494.4	1502.2	1493.5	1502.6	1511.2	1520.0	1523.8	1524.5	1525.8	1526.6	1527.1	1527.1	1525.1
200	1459.9	1460.9	1463.6	1467.1	1468.3	1473.1	1483.1	1489.2	1497.7	1487.7	1497.3	1506.8	1515.7	1518.4	1518.4	1519.9	1520.3	1520.3	1520.3	1518.9
300	1450.9	1460.9	1463.6	1467.1	1468.3	1474.8	1484.8	1492.2	1498.9	1488.4	1498.9	1508.4	1516.7	1518.4	1518.4	1519.9	1520.3	1520.3	1520.3	1518.9
400	1462.2	1461.6	1464.1	1466.5	1466.8	1473.8	1479.3	1483.9	1487.0	1463.4	1492.9	1503.4	1504.4	1505.7	1506.7	1511.2	1511.2	1511.2	1511.2	1509.3
500	1463.0	1462.8	1465.6	1468.0	1468.3	1475.8	1479.3	1483.9	1487.0	1468.2	1498.9	1509.4	1510.8	1511.2	1511.2	1511.2	1511.2	1511.2	1511.2	1509.3
1000	1467.1	1467.0	1468.0	1469.4	1469.7	1473.2	1477.3	1481.6	1485.7	1488.0	1490.0	1492.9	1497.7	1500.8	1501.8	1505.8	1505.8	1505.8	1505.8	1495.5
1500	1470.7	1470.7	1471.5	1472.3	1472.6	1475.2	1477.3	1480.7	1483.1	1483.1	1484.4	1486.8	1487.7	1490.0	1490.7	1493.1	1493.1	1493.1	1493.1	1490.9
2000	1474.4	1474.4	1474.9	1475.7	1476.0	1478.0	1479.3	1481.2	1483.1	1483.1	1484.4	1486.8	1487.7	1490.0	1490.7	1493.1	1493.1	1493.1	1493.1	1490.9
2500	1478.3	1478.3	1478.7	1479.3	1479.3	1481.2	1483.1	1485.7	1488.0	1488.0	1489.4	1490.0	1492.9	1497.7	1498.3	1498.3	1498.3	1498.3	1498.3	1496.2
3000	1482.3	1482.2	1482.6	1483.1	1483.5	1485.7	1488.0	1489.4	1490.9	1490.9	1491.8	1492.3	1493.8	1497.0	1497.0	1498.3	1498.3	1498.3	1498.3	1496.2
3500	1486.4	1486.4	1486.7	1487.1	1487.5	1489.4	1491.8	1493.1	1495.0	1495.0	1496.4	1497.0	1499.4	1500.8	1500.8	1502.2	1502.2	1502.2	1502.2	1490.9
4000	1490.6	1490.6	1490.9	1491.2	1491.5	1493.1	1495.0	1496.4	1498.9	1498.9	1499.4	1500.8	1502.2	1504.2	1504.2	1505.8	1505.8	1505.8	1505.8	1493.1
4500	1494.8	1494.8	1495.1	1495.4	1495.5	1496.4	1497.1	1497.8	1498.9	1498.9	1499.4	1500.8	1502.2	1504.2	1504.2	1505.8	1505.8	1505.8	1505.8	1493.1
5000	1499.0	1499.0	1499.3	1499.6	1499.7	1500.5	1501.8	1501.8	1501.8	1502.2	1502.8	1503.2	1504.2	1505.8	1505.8	1507.2	1507.2	1507.2	1507.2	1493.1
5500	1503.4	1503.4	1503.4	1503.8	1503.8	1505.8	1507.9	1507.9	1507.9	1508.4	1508.4	1508.4	1508.4	1508.4	1508.4	1508.4	1508.4	1508.4	1508.4	1507.2
6000	1507.7	1507.7	1507.7	1507.9	1507.9	1508.4	1508.4	1508.4	1508.4	1508.4	1508.4	1508.4	1508.4	1508.4	1508.4	1508.4	1508.4	1508.4	1508.4	1507.2
6500	1512.1	1512.1	1512.1	1512.4	1512.4	1512.4	1512.4	1512.4	1512.4	1512.4	1512.4	1512.4	1512.4	1512.4	1512.4	1512.4	1512.4	1512.4	1512.4	1511.6
7000	1517.9	1517.9	1517.9	1517.9	1517.9	1517.9	1517.9	1517.9	1517.9	1517.9	1517.9	1517.9	1517.9	1517.9	1517.9	1517.9	1517.9	1517.9	1517.9	1517.9
7500	1517.9	1517.9	1517.9	1517.9	1517.9	1517.9	1517.9	1517.9	1517.9	1517.9	1517.9	1517.9	1517.9	1517.9	1517.9	1517.9	1517.9	1517.9	1517.9	1517.9

ABSTRACT OF LOG

ABSTRACT OF LOG

Date	Noon position		Day's run	Current		Remarks
	Latitude	Longitude east		Dir.	Am't.	
Washington, D. C. to Plymouth, England						
Total distance, 3669; time of passage, 29.3 days; average day's run, 125.2 miles						
1928	°	'	°	'	miles	°
May	1	Washington, D.C.	.....	.....	.....	Left Colonial Beach Steamboat Co. pier under tow at 09h 00m.
	2	St. Mary's River	.....	.....	.....	Anchored at entrance St. Mary's River, Chesapeake Bay, at 00h 20m off Kitts Point. Swung ship for declination-observations and deviation. Clear. Light variable breeze.
	3	St. Mary's River	.....	.....	.....	Atmospheric-electric observations. Clear. Light NW air.
	4	St. Mary's River	.....	.....	.....	Atmospheric-electric observations. Clear. Calm.
	5	St. Mary's River	.....	.....	.....	Atmospheric-electric observations. Clear. Calm. Under way 20h 30m with pilot.
	6	Newport News	.....	.....	.....	Anchored at 08h 30m. Overcast. Fresh northerly breeze.
	7	Newport News	.....	.....	.....	In drydock of Newport News Shipbuilding and Drydock Co. at 10h 10m. Cloudy to clear. Fresh northerly breeze.
	8	Newport News	.....	.....	.....	In drydock. Overcast. Rain. Strong NE breeze.
	9	Newport News	.....	.....	.....	In drydock. Overcast. Rain. Calm.
	10	Newport News	.....	.....	.....	Under way at 13h 15m with pilot. Took departure from Cape Henry at 18h 20m. Gentle SE breeze. Partly cloudy.
	11	37 15 N 286 09	134	244	7.5	Clear to cloudy. Smooth to moderate sea. Moderate southerly breeze.
	12	38 17 N 291 56	282	61	6.4	Cloudy to overcast. Moderate to choppy sea. Moderate to fresh breeze, S in a.m., NE in p.m.
	13	37 43 N 296 37	221	89	69.0	Partly cloudy. Moderate sea and northerly wind.
	14	37 00 N 299 40	149	220	44.8	Overcast, rain. Gentle to fresh northerly breeze. Moderate sea.
	15	37 04 N 303 24	179	295	30.0	Overcast, rain. Fresh northerly breeze. Choppy sea.
	16	37 48 N 306 50	170	231	18.3	Partly cloudy. Moderate to fresh NW breeze. Moderate and broken and choppy sea.
	17	38 12 N 310 21	168	225	27.6	Partly cloudy. Moderate sea. Rain squalls. Moderate breeze, NW in a.m., SW in p.m.
	18	39 11 N 314 29	202	36	19.8	Cloudy, rain. Strong southerly breeze to moderate gale. Rough sea.
	19	40 38 N 318 11	191	16	19.4	Partly cloudy. Fresh southerly breeze. Rough to choppy sea, squalls.
	20	42 01 N 321 13	161	337	15.3	Cloudy. Fresh southerly breeze. Moderate choppy sea. Squalls.
	21	44 04 N 323 54	170	19	9.2	Cloudy. Moderate southerly breeze. Moderate sea.
	22	45 29 N 326 40	146	310	11.5	Cloudy. Moderate sea. Moderate to gentle SE breeze.
	23	44 35 N 326 53	54	212	27.2	Overcast. Rain. Moderate to strong NE breeze. Moderate to rough sea.
	24	43 51 N 328 18	75	229	10.2	Overcast. Heavy rain. Strong NE breeze to fresh gale. Rough sea.
	25	43 13 N 328 30	40	260	31.5	Cloudy. Fresh NE breeze. Moderate sea, broken, and choppy.
	26	44 00 N 331 35	144	153	15.4	Cloudy. Fresh northerly breeze. Moderate sea.
	27	45 50 N 334 29	164	176	13.3	Cloudy. Fresh NW and SW breezes. Moderate to rough sea.
	28	48 11 N 338 52	230	66	14.7	Overcast. Strong northerly breeze to moderate gale. Choppy sea.
	29	48 50 N 341 10	101	197	12.4	Clear in p.m. Moderate sea. Moderate southerly breeze.
	30	49 37 N 344 24	138	340	4.7	Overcast. Fog. Rain. Moderate southerly breeze and sea.
	31	50 23 N 346 29	92	12	2.9	Overcast. Fog. Rain. Moderate sea. Gentle SE breeze.
June	1	50 06 N 346 54	24	42	3.9	Cloudy to overcast. Misty. Moderate sea. Moderate E to SE breeze.
	2	49 32 N 347 53	51	289	10.2	Cloudy. Fresh to strong easterly breeze. Moderate to rough sea.
	3	50 12 N 347 29	43	159	5.0	Cloudy to overcast. Fog. Rain. Strong to light SE breeze. Choppy sea.
	4	50 16 N 347 55	17	160	16.6	Cloudy to overcast. Fog. Rain. Gentle to strong easterly breeze. Choppy sea.
	5	49 55 N 348 52	42	4	3.8	Cloudy to overcast. Moderate easterly breeze. Moderate sea. Southerly swell.
	6	50 10 N 349 56	44	295	3.1	Cloudy. Squalls. Light to fresh SE breeze. Moderate sea.
	7	50 12 N 352 04	82	6	6.3	Cloudy to overcast. Gentle southerly breeze. Rain. Moderate sea.
	8	49 59 N 354 57	112	100	1.7	Slightly cloudy in a.m., overcast in p.m. W to SW light winds in a.m. Moderate sea. Rain and strong wind in p.m.
	8	Plymouth	.....	.....	.....	Anchored in Plymouth harbor at 20h 30m.
Plymouth, England to Hamburg, Germany						
Total distance, 614 miles; time of passage, 4.1 days; average day's run, 149.8 miles						
1928	°	'	°	'	miles	°
June	18	Plymouth	.....	.....	.....	Took departure from Plymouth Breakwater at 16h 38m. Cloudy. Moderate sea. Gentle W to SW and S breeze.
	19	50 29 N 358 59	126	20	6.3	Overcast. Gentle to moderate SW to W breeze. Smooth to moderate sea.
	20	51 39 N 2 24	146	120	15.8	Partly cloudy. Moderate W to NW breeze. Moderate sea.
	21	53 23 N 4 24	128	40	12.6	Partly cloudy. Moderate northerly breeze in morning. Gentle southerly breeze in afternoon. Moderate sea.

Plymouth, England to Hamburg, Germany--Concluded

Date	Noon position		Day's run	Current		Remarks
	Lati-tude	Longi-tude east		Dir.	Am't.	
1928	° ' / ° ' /		miles	°	miles	
June 22	Mouth of Elbe River, Germany		137	18	6.3	Arrived at Elbe lightship no. 1 at 10h-12m. Overcast. Moderate southerly breeze. Moderate sea.
22	Hamburg		77	....	.....	Picked up pilot at Elbe lightship no. 1. Picked up tug at Altenbruck Towed 54 miles to Hamburg Harbor, Jonas Dock, Vorsetzen. Anchored at 20h 00m.

Hamburg, Germany to Reykjavik, Iceland

Total distance, 1329 miles; time of passage, 13.0 days; average day's run, 102.3 miles

1928	° ' / ° ' /		miles	°	miles	
July 7	Hamburg		96	....	.....	Left Hamburg Harbor at 07h 00m. Under tow from Harbor to Helgoland. Took departure from Helgoland at 08h 35m July 8. Partly cloudy. Gentle westerly breeze. Moderate sea. Tow distance 96 miles.
8	54 09 N	7 38	5	49	3.0	Partly cloudy. Gentle westerly breeze. Moderate sea.
9	55 21 N	5 13	110	42	9.6	Partly cloudy. Fresh to light WSW breeze. Moderate to smooth sea.
10	58 00 N	2 25	185	56	16.0	Cloudy in morning. Overcast and drizzling in afternoon. Fresh W to SSW breeze. Moderate to choppy sea.
11	60 29 N	0 24	162	67	20.2	Overcast and misty. Fresh W to SW breeze. Moderate to choppy sea.
12	62 16 N	354 59	169	43	14.2	Partly cloudy. Strong SW breeze. Moderate to choppy sea.
13	63 16 N	350 40	133	34	23.2	Partly cloudy. Strong SW breeze. Choppy, rough sea.
14	64 05 N	348 22	79	5	7.2	Cloudy to overcast. Squalls. Strong SW breeze in morning. Very light NE air in afternoon. Rough sea to moderate.
15	63 28 N	345 07	93	337	11.2	Partly cloudy. Light easterly air in morning. Gentle to moderate SW breeze in afternoon. Smooth to moderate sea.
16	63 20 N	342 46	64	31	13.6	Partly cloudy. Moderate westerly breeze. Moderate to choppy sea.
17	62 57 N	341 36	39	84	10.6	Overcast in morning. Rain. Cloudy in afternoon. Moderate westerly and fresh NW breeze. Moderate choppy to rough sea.
18	62 33 N	340 09	46	153	14.4	Cloudy in morning. Overcast and misty in afternoon. Moderate W to NW breeze. Moderate, choppy sea.
19	63 38 N	338 00	87	64	12.8	Overcast. Misty to drizzling. Moderate NW breeze. Moderate sea. Squally.
20	Reykjavik		61	150	16.0	Overcast and drizzling. Gentle westerly breeze. Smooth sea. At anchor in Reykjavik harbor at 08h 00m.

Reykjavik, Iceland to Barbados, B.W.I.

Total distance, 5715 miles; time of passage, 51.8; average day's run, 110.3 miles

1928	° ' / ° ' /		miles	°	miles	
July 27	Reykjavik		.....	....	.....	Left at 12h 00m with own power. Partly cloudy. Moderate sea and moderate NE to N breeze.
28	62 31 N	333 42	156	154	7	Cloudy in early morning and evening. Clear during day. Moderate sea. Moderate northwesterly breeze.
29	60 40 N	328 45	180	144	14	Cloudy to overcast. Moderate sea. Moderate north breeze.
30	59 17 N	325 45	122	180	14	Overcast in morning. Cloudy in afternoon. Light to moderate N to W breezes. Smooth to choppy sea.
31	57 54 N	325 50	83	72	6	Cloudy to overcast. Moderate to gentle NW to SW breezes. Moderate sea.
Aug. 1	58 15 N	324 10	57	359	15	Fog, mist, and drizzling rain. Overcast. Gentle SW to NW breezes. Moderate sea.
2	58 16 N	321 18	91	153	2	Overcast and misty. Calm to fresh E and NE breezes. Moderate to choppy sea. Squalls.
3	57 52 N	314 27	219	324	4	Aurora borealis in early hours. Cloudy until evening then overcast and misty. Strong NE to E breezes. Choppy to rough sea.
4	54 30 N	310 59	233	292	15	Aurora borealis in late evening. Overcast in morning. Cloudy in afternoon. Strong E to NE breezes. Rough sea. Squalls.
5	51 38 N	310 28	174	244	14	Clouds on horizons. Moderate NE to NW breezes. Moderate sea. Iceberg abeam at 19h 35m.
6	48 26 N	311 51	199	137	12	Cloudy. Moderate WNW breeze. Moderate sea. Aurora borealis in late evening.
7	45 54 N	312 07	153	172	5	Clear during day. Few clouds on horizons in early evening. Moderate to fresh NW to W breeze. Moderate sea.
8	43 14 N	313 06	165	77	9	Cloudy, but principally on horizons. Moderate NW breeze in morning and moderate sea. Gentle NE breeze in afternoon and smooth sea.
9	42 10 N	312 39	67	139	2	Cloudy. Light NE breeze in morning and smooth sea. Moderate to fresh SE breeze and moderate sea in afternoon.
10	39 48 N	311 11	156	343	25	Cloudy to overcast. Rain and mist in middle of day. Fresh to strong SE breeze and rough sea in morning, gentle breeze in afternoon.
11	38 38 N	311 14	70	91	15	Cloudy. Calm to gentle W breeze. Moderate sea.

Reykjavik, Iceland to Barbados, B.W.I.--Concluded

Date	Noon position		Day's run	Current		Remarks
	Latitude	Longitude east		Dir.	Am't.	
1928	° /	° /	miles	°	miles	
Aug. 12	36 58 N	311 42	103	157	17	Cloudy on horizons. Light to gentle W and SW breezes. Moderate to smooth sea.
13	36 48 N	313 34	91	85	33	Squalls in early morning. Cloudy on horizons during day. Moderate S to W breezes. Moderate sea.
14	35 14 N	315 41	139	90	16	Cloudy. Squalls in early morning. Moderate SW breeze. Moderate sea.
15	33 36 N	317 45	142	64	15	Cloudy on horizons and occasionally overhead with squalls and lightning. Moderate westerly breeze. Choppy sea.
16	31 10 N	318 56	157	117	23	Cloudy. Squalls in afternoon. Fresh to light W to NW breeze. Moderate sea.
17	29 45 N	319 24	88	160	17	Cloudy. Squalls in early morning. Clear overhead during day. Light to gentle N to E breeze. Smooth sea.
18	27 54 N	320 32	126	264	7	Cloudy on horizons with distant squalls. Gentle to fresh E breeze. Smooth to moderate sea.
19	25 39 N	321 01	137	310	6	Cloudy on horizons. Moderate to gentle SE breeze. Moderate to smooth sea.
20	23 59 N	320 23	105	65	5	Cloudy, with squall conditions. Moderate to fresh breeze in morning, gentle in afternoon. Moderate sea.
21	21 46 N	320 22	134	292	11	Cloudy on horizons. Fresh E breeze. Moderate to choppy sea.
22	19 12 N	321 31	167	255	6	Cloudy. Fresh to moderate E breeze. Moderate sea. Squalls; threatening during day.
23	16 35 N	322 10	162	215	12	Cloudy, chiefly on horizons. Moderate E breeze and moderate sea in morning. Light ENE airs and smooth sea in afternoon and evening.
24	15 48 N	322 03	47	206	20	Cloudy, chiefly on horizons. Calm to light E airs. Smooth sea.
25	14 56 N	321 50	54	218	20	Cloudy. Light ESE breeze in morning; calm thereafter. Smooth sea. Started main engine at 19h 20m.
26	13 55 N	321 58	61	161	2	Cloudy. Light E airs in morning. Light W breeze in afternoon. Smooth sea. Rain in morning and evening. Stopped engine at 08h 10m.
27	13 22 N	322 00	33	184	17	Cloudy, chiefly on horizons. Calm to light west airs. Smooth sea. Started main engine at 19h 25m.
28	11 54 N	322 08	89	184	9	Clear in early morning, cloudy thereafter. Squall in evening. Light W to SW airs and breeze. Smooth sea. Stopped main engine at 08h 00m, and started again at 20h 10m.
29	10 49 N	322 36	70	158	12	Cloudy. Light variable airs, to calm. Smooth sea. Squalls morning and evening. Stopped engine at 05h 55m and started again at 20h 15m.
30	9 28 N	322 52	83	122	10	Cloudy. Calm to light and gentle SW breezes. Smooth to moderate sea. Stopped engine at 11h 20m. Rain at midnight.
31	8 11 N	323 52	97	79	17	Squalls throughout day. Gentle to fresh westerly breeze. Moderate to choppy sea.
Sep. 1	9 26 N	323 20	81	57	25	Overcast and raining, morning and evening, otherwise cloudy. Gentle W breeze until evening, then calm. Moderate sea.
2	9 50 N	323 20	24	113	17	Cloudy, chiefly on horizons. Light to moderate westerly breeze. Smooth to moderate sea. Squall at midnight.
3	11 07 N	322 52	82	60	15	Rain morning and evening with lightning in evening. Cloudy during day. Gentle westerly breeze, to calm. Moderate to smooth sea.
4	11 23 N	321 57	57	227	18	Squall in early morning. Cloudy, chiefly on horizons. Light to moderate NE breeze. Smooth to moderate sea.
5	11 33 N	319 10	164	264	18	Cloudy, chiefly on horizons. Moderate to gentle NE breeze. Moderate sea.
6	11 40 N	317 24	105	344	1	Cloudy, chiefly on horizons. Gentle NNE to NxE breeze. Moderate sea. Heavy squall at 19h 00m.
7	11 18 N	315 42	103	202	25	Cloudy, chiefly on horizons. Light NxE breeze to light NNE airs. Moderate to smooth sea. NE swells.
8	11 36 N	314 54	51	296	33	Clear in morning, cloudy in afternoon. Light NE airs to calm. Smooth sea. NE swells.
9	11 45 N	313 53	60	214	12	Cloudy, chiefly on horizons, until evening; then rain squalls. Gentle to light northerly breeze. Moderate sea.
10	12 10 N	312 15	99	257	20	Heavy squalls during morning, cloudy thereafter. Moderate to fresh westerly breeze. Moderate to choppy sea.
11	13 13 N	310 19	130	20	22	Squalls threatening in morning, then cloudy chiefly on horizons. Moderate to light SW breeze. Choppy, moderate sea, calm in evening.
12	13 09 N	309 24	55	257	20	Cloudy, chiefly on horizons. Light ENE airs to light ENE breeze. Moderate sea.
13	13 17 N	307 39	102	305	18	Cloudy, chiefly on horizons. Gentle E breeze. Moderate sea.
14	13 02 N	305 40	117	319	3	Cloudy, chiefly on horizons. Gentle SE breeze. Moderate sea.
15	12 54 N	303 43	115	286	12	Cloudy, chiefly on horizons. Gentle ESE breeze. Moderate sea.
16	13 01 N	301 31	128	329	11	Cloudy, chiefly on horizons. Gentle ExS breeze. Moderate sea. Sighted island at 16h 30m.
17	Carlisle Bay, Barbados	....	....	....	....	Partly cloudy. Gentle ExS breeze. Moderate sea. At anchor in Carlisle Bay at 08h 35m.

Barbados, B.W.I. to Balboa, Canal Zone

Total distance, 1361 miles; time of passage, 9.7 days; average day's run, 140.3 miles

Date	Noon position		Day's run	Current		Remarks
	Latitude	Longitude east		Dir.	Am't.	
1928	° ' /	° ' /	miles	°	miles	
Oct. 1	Barbados		....	....	....	Left anchorage at 11h 30m. Partly cloudy. Moderate sea and gentle NExE breeze.
2	14 41 N	298 37	141	245	17	Near the islands of St. Lucia and Martinique during morning. Cloudy, chiefly on horizons. Moderate sea and moderate to light NE breeze. Lightning in east.
3	14 46 N	296 24	129	277	22	Cloudy in morning, overcast in afternoon, with heavy shower in mid-afternoon. Lightning from NE to NW all day. Moderate to smooth sea. Gentle to moderate NNE to ExS breeze.
4	15 01 N	293 53	147	339	15	Cloudy in morning with lightning in SW in early hours. Overcast and squally during midday, clearing somewhat in afternoon. Moderate sea and moderate to light E breeze.
5	15 19 N	291 47	124	321	18	Partly cloudy. Lightning in NW and N morning and evening. Moderate sea and moderate easterly breeze.
6	15 10 N	288 45	176	303	16	Cloudy during day, clearing in evening. Lightning in NW in early morning. Moderate sea and moderate ESE breeze.
7	14 27 N	285 53	171	277	14	Cloudy, chiefly on horizons. Moderate sea and moderate E breeze.
8	13 34 N	283 31	147	306	37	Partly cloudy in morning. Overcast with rain in mid-afternoon, clearing in evening. Hazy in evening and lightning in S. Moderate sea and moderate to fresh ESE breeze.
9	11 23 N	281 29	171	317	22	Cloudy and hazy in morning. Overcast with rain, thunder and lightning in afternoon. Lightning in evening. Moderate sea and moderate to gentle easterly breeze. Hazy in evening.
10	10 15 N	280 46	81	36	18	Cloudy, with rain squalls, in morning. Cloudy in afternoon and evening. Lightning in SW in evening. Light easterly to SW breezes. Moderate to smooth sea.
11	Colon and Balboa		68	....	....	At anchor in Colon breakwater at 04h 00m. Cloudy all day. Light SxE and S breeze up to 04h 00m. Left Colon anchorage at 11h 00m with tug and docked at Balboa wharf at 19h 30m.

Balboa, Canal Zone to Easter Island

Total distance, 4788 miles; time of passage, 41.9; average day's run, 114.3 miles

1928	° ' /	° ' /	miles	°	miles	
Oct. 25	Balboa		....	....	....	Left dock at 10h 40m under tow. Ran 10 miles to Taboguilla Light abeam, at 12h 27m. Then took departure. Cloudy and hazy. Moderate sea and moderate NW breeze. Lightning in NW in late evening.
26	6 32 N	279 54	152	222	30	Cloudy in early morning. Overcast after 06h 00m, and all day, with rain squalls. Clear in evening. Moderate NW breeze changing to calm and, in evening to light SE and SW airs and breezes. Moderate to smooth sea.
27	5 44 N	280 06	49	115	3	Cloudy to overcast all day, with occasional short rain squalls. Clearing in evening. Lightning and thunder in east during morning. Gentle to moderate westerly breeze. Moderate sea.
28	4 15 N	280 21	90	86	13	Cloudy to overcast all day, with rain squalls and drizzling rain. Lightning and thunder in morning. Moderate to choppy sea. Variable-moderate to light breezes, changing to calm in evening.
29	4 08 N	280 07	15	98	9	Cloudy, chiefly on horizons. Light to moderate southwesterly breezes. Moderate sea. Rain squalls from 16h 45m to 19h 00m.
30	2 53 N	279 52	76	94	16	Cloudy to overcast with occasional rain squalls after 04h 00m, and all day and evening. Moderate SW breeze. Moderate to choppy sea.
31	4 32 N	278 12	140	50	26	Cloudy, with frequent rain squalls throughout 24 hours. Fresh to moderate SW breeze. Choppy to moderate sea. Malpelo Island abeam at 07h 02m.
Nov. 1	6 03 N	277 01	116	76	13	Cloudy, with rain squalls all day. Clearing in evening. Gentle to moderate SW breeze. Moderate sea.
2	4 38 N	277 43	94	128	23	Overcast, with frequent rain squalls throughout 24 hours. Fresh SW breeze changing to light W and SW in evening. Choppy to moderate sea.
3	3 41 N	278 31	75	104	21	Cloudy to overcast. Squally. Rain squalls during morning. Moderate to fresh SW breeze. Moderate to choppy sea. Malpelo Island sighted at daybreak.
4	2 27 N	278 58	77	78	15	Overcast to cloudy. Moderate to gentle SSW to SWxW breezes. Moderate to choppy sea.
5	1 35 N	279 12	54	78	12	Overcast in early morning, clearing somewhat during day. Gentle to light SSW to W breeze. Moderate sea.
6	0 46 N	278 48	55	8	5	Overcast and hazy in early morning. Cloudy, chiefly on horizons, during day. Calm until 10h 00m, then gentle southwesterly breeze. Smooth to moderate sea.
7	0 27 N	277 57	89	192	9	Hazy in early morning. Cloudy until evening, then overcast and

Balboa, Canal Zone to Easter Island--Concluded

Date	Noon position		Day's run	Current		Remarks
	Latitude	Longitude east		Dir.	Am't.	
1928	° ' "	° ' "	miles	°	miles	
Nov. 7						drizzling. Moderate southwesterly breeze. Moderate sea.
8	1 29 S	277 37	66	247	11	Overcast morning and evening; cloudy during day. Moderate SSW to light S breeze. Choppy to moderate sea.
9	1 19 S	275 05	152	262	16	Overcast in morning, otherwise cloudy chiefly on horizons. Gentle S breeze. Moderate to smooth sea.
10	1 39 S	272 55	131	253	55	Cloudy. Light to moderate S to SxE breeze. Smooth sea.
11	1 53 S	270 55	121	237	34	Cloudy, chiefly on horizons. Gentle to moderate S breeze. Moderate sea. Sighted Galapagos Islands in early p.m.
12	1 16 S	268 41	138	257	28	In vicinity of Galapagos Islands all day. Cloudy, chiefly on horizons. Light to moderate S to SE breeze. Smooth to moderate sea.
13	1 31 S	266 46	116	287	34	Overcast all day, hazy in evening. Gentle to light southeasterly breeze. Moderate to smooth sea. SE swells.
14	1 46 S	265 41	67	287	29	Overcast in early morning, clearing during day, cloudless in evening. Calm, to gentle SSE breeze. Smooth to moderate sea. SE swells.
15	2 30 S	264 15	96	269	12	Overcast in early morning, clearing overhead during the day. Gentle SSE to moderate SE breeze. Smooth to moderate sea.
16	3 04 S	261 44	154	276	10	Drizzling rain at 04h 00m. Cloudy to overcast all day and evening. Gentle to light SExS breeze. Moderate sea. SE swells.
17	3 15 S	260 07	98	280	17	Clear between 04h 00m and 08h 00m, otherwise cloudy. Light to moderate southeasterly breeze. Moderate sea. An unusual meteor appeared in ENE at 04h 45m, stopped at 35 altitude, and faded away.
18	4 01 S	257 20	173	293	22	Clear in very early morning, otherwise cloudy. Moderate to gentle SExS breeze. Moderate sea. SE swells.
19	4 35 S	254 51	152	308	30	Cloudy to overcast in very early morning; thereafter cloudy on horizons. Moderate to fresh SE to ESE breeze. Moderate sea. SE swells.
20	6 57 S	253 08	176	248	18	Clear, changing to cloudy on horizons. Moderate ESE to ExS breeze. Moderate sea.
21	9 14 S	251 34	165	250	15	Cloudy, chiefly on horizons. Moderate to fresh ExS to ESE breeze. Moderate sea.
22	11 57 S	249 45	195	261	14	Cloudy, chiefly on horizons. Fresh ESE breeze. Moderate sea.
23	14 12 S	248 04	167	256	16	Cloudy. Squally in afternoon and evening. Moderate ESE breeze. Moderate sea.
24	16 44 S	246 57	165	259	10	Cloudy and squally all day, with drizzling rain at 19h 00m. Fresh to moderate E to ESE breeze. Choppy sea.
25	19 14 S	245 52	162	252	10	Cloudy, chiefly on horizons. Fresh to moderate easterly breeze. Choppy to moderate sea. Easterly swells.
26	21 42 S	245 34	149	247	14	Cloudy, chiefly on horizons. Moderate to gentle easterly breeze. Moderate sea. Easterly swells.
27	23 20 S	245 13	100	258	10	Squally in early morning, with rain at 01h 00m. Clearing to cloudless in afternoon. Gentle easterly breeze. Moderate sea with easterly swells until noon, then SW and southerly swells.
28	24 48 S	244 35	94	282	15	Cloudy. Gentle to moderate easterly breeze. Moderate sea. Southerly swells.
29	26 36 S	244 40	108	261	16	Cloudy and squally in very early morning; rain at 02h 30m. Cloudy on horizons during day, drizzling rain in late evening. Moderate to gentle ENE breeze. Moderate sea, southerly swells.
30	28 04 S	244 51	89	247	18	Cloudy to overcast with rain squalls during morning, then cloudy to clear. Light to gentle northeasterly breeze. Moderate to smooth sea.
Dec. 1	29 12 S	245 13	70	156	6	Cloudy to clear. Light to gentle northeasterly breeze. Smooth sea.
2	30 34 S	245 44	86	162	7	Cloudy, chiefly on horizons. Light to gentle northeasterly breeze. Smooth sea. Southerly swells.
3	31 32 S	247 16	97	215	6	Overcast in mid-afternoon, otherwise cloudy. Gentle to moderate N to NW breeze. Moderate to smooth sea. Southerly swells.
4	31 23 S	249 56	137	139	16	Cloudy, chiefly on horizons. Squally in late evening. Moderate to fresh NW to WxN breeze. Moderate to choppy sea.
5	28 54 S	251 19	165	76	20	Overcast, with rain squalls in very early morning, then cloudy. Fresh to moderate W to SW breeze. Moderate sea.
6	Easter Island		117	....	....	Sighted Easter Island at 03h 40m. Cloudy. Moderate to light southwesterly breeze. Moderate sea. At anchor in Cook's Bay at 08h 55m.

Easter Island to Callao, Peru

Total distance, 3334 miles; time of passage, 32.9; average day's run, 101.3 miles

1928	° ' "	° ' "	miles	°	miles	
Dec. 12	Easter Island		....	....	....	Ran 10 miles from anchorage in Cook's Bay, then took departure off Needle and Flat Rocks at 17h 06m. Cloudy. Gentle E to NExE breeze. Moderate sea.

Easter Island to Callao, Peru--Continued

Date	Noon position		Day's run	Current		Remarks
	Latitude	Longitude east		Dir.	Am't.	
1928	° ' "	° ' "	miles	°	miles	
Dec. 13	28 10 S	250 49	71	....	....	Hazy morning and evening. Cloudy, chiefly on horizons. Light NE to E breezes. Smooth sea. Northeasterly swells, in morning, changing to southwesterly in afternoon and evening. Squally in evening, with rain at 20h 30m.
14	29 22 S	251 07	73	193	21	Clear overhead in early morning, thereafter cloudy to overcast, with occasional rain squalls. Light to gentle E to NE breezes until mid-afternoon, then moderate gale. Smooth to moderate to rough sea. Northeasterly swells.
15	31 08 S	250 29	112	265	17	Cloudy to overcast throughout, with frequent rain squalls. Moderate E gale to strong E breeze, changing in afternoon to fresh southeasterly breeze. Rough to choppy sea.
16	32 02 S	249 06	89	259	8	Cloudy, chiefly on horizons. Moderate to fresh to light southeasterly breezes. Choppy sea. Southeasterly swells.
17	31 45 S	250 35	78	23	12	Cloudy, chiefly on horizons, until evening; then clear. Light to moderate SE to E breezes until early evening, then calm. Moderate to smooth sea. Southeasterly swells.
18	31 53 S	251 02	25	200	10	Cloudless until noon, then cloudy on horizons. Calm to light northerly airs until mid-morning, thereafter moderate northerly breeze. Smooth to moderate sea. Easterly swells in morning.
19	32 27 S	252 37	87	154	8	Cloudy, chiefly on horizons, until evening, then overcast, with drizzling showers. Light to gentle northerly breeze until evening, then moderate northeasterly breeze. Smooth sea until evening, then moderate. Southerly swells.
20	34 03 S	253 18	102	105	13	Cloudy, chiefly on horizons. Hazy in afternoon. Moderate to gentle northeasterly breeze. Moderate sea.
21	35 17 S	254 37	98	218	11	Cloudy, chiefly on horizons, and hazy. Squally in evening. Heavy dew early morning and late evening. Moderate northeasterly breeze. Moderate sea. Southerly and westerly swells.
22	36 51 S	255 55	113	241	9	Overcast and foggy except in early morning and late evening; then cloudy and hazy. Moderate NExN and NE breeze. Moderate sea. Southerly swells.
23	38 40 S	257 06	122	204	22	Overcast to cloudy. Hazy. Moderate northeasterly breeze. Moderate sea.
24	39 54 S	258 59	114	186	17	Cloudy and hazy until noon, thereafter overcast and hazy. Moderate NNE to moderate and gentle N breeze. Moderate sea.
25	40 19 S	261 02	97	166	12	Cloudless in afternoon, otherwise cloudy on horizons. Gentle N to NNW breeze. Moderate sea. Heavy dew in late evening.
26	40 26 S	262 30	68	142	12	A few clouds on horizons, otherwise clear. Calm during morning, otherwise light N to NW airs and breezes. Smooth sea.
27	39 54 S	263 46	66	109	11	Cloudy, chiefly on horizons. Gentle to moderate northwesterly breeze. Smooth to moderate sea. Heavy dew in very early morning.
28	38 26 S	265 52	131	140	12	Cloudy and hazy in morning; overcast and hazy in afternoon and evening, with occasional showers. Moderate westerly breeze until late evening; then light SW breeze changing to calm. Smooth sea.
29	36 38 S	266 55	119	359	10	Overcast and rain in very early morning; calm. Thereafter cloudy, chiefly on horizons, with moderate SE to ESE breeze. Moderate sea.
30	34 32 S	268 10	140	283	13	Cloudy, chiefly on horizons. Moderate ESE to E breezes. Moderate sea. Rain 13h-14h.
31	32 30 S	269 59	152	265	4	Cloudy in morning; cloudy to overcast thereafter. Moderate southeasterly breeze in morning; calm to light variable airs thereafter. Moderate to smooth sea. SE to SW swells.
1929						
Jan. 1	32 10 S	270 56	52	288	11	Cloudy, chiefly on horizons. Gentle to light SE breeze in early morning, otherwise calm. Smooth sea. Small easterly swells in morning.
2	31 54 S	271 10	21	....	....*	Cloudy, chiefly on horizons. Light southerly airs in morning, changing to northerly in afternoon. Smooth sea.
3	31 55 S	271 45	30	....	....*	Calm until midday. Light northerly airs thereafter. Cloudy, chiefly on horizons. Smooth sea.
4	31 45 S	272 45	53	....	....*	Overcast to cloudy until midday, thereafter clear or only cloudy on horizons. Light northwesterly to southwesterly airs and breezes. Smooth sea.
5	31 02 S	273 25	54	....	....*	Cloudy, chiefly on horizons, until late evening, then rain squalls. Light southwesterly airs in morning, changing to moderate southeasterly in afternoon. Smooth to moderate sea.
6	28 51 S	274 37	146	319	6	Clouds, chiefly on horizons. Moderate to fresh southeasterly breeze. Moderate sea. Overcast and rain squalls in late evening.
7	26 57 S	276 04	137	264	14	Overcast, with squall conditions. Drizzling rain and rain squalls in afternoon and evening. Fresh ESE to SE breeze. Moderate and choppy sea.
8	24 58 S	277 45	150	324	8	Overcast in morning, clear to cloudy in afternoon; overcast in evening. Moderate SE breeze. Moderate sea.

Easter Island to Callao, Peru--Concluded

Date	Noon position		Day's run	Current		Remarks
	Latitude	Longitude east		Dir.	Am't.	
1929	° /	° /	miles	°	miles	
Jan. 9	23 06 S	278 45	125	308	12	Overcast. Moderate to gentle SE breeze. Moderate sea.
10	21 27 S	279 33	108	248	13	Overcast, with occasional small breaks in clouds. Moderate to fresh SE breeze. Moderate sea.
11	19 07 S	280 41	152	273	16	Overcast, with occasional small breaks. Moderate to fresh SE to ESE breeze. Moderate sea.
12	16 42 S	281 22	150	298	13	Overcast in morning, cloudy in afternoon. Moderate ESE to SE breeze. Moderate sea.
13	14 06 S	282 08	162	315	12	Overcast in early morning, then clearing to clouds on horizons in afternoon. Moderate southeasterly breeze and moderate sea.
14	12 16 S	282 40	114	274	12	Heavy dew in early morning. Cloudy to clear to overcast during day. Moderate to smooth sea. Gentle southeasterly breeze, changing through light E airs, to calm.
14	Callao		23	....	....	At anchor in Callao harbor at 15h 22m.

*Current data unreliable, as ship's speed insufficient to register on log.

Callao, Peru to Papeete, Tahiti

Total distance, 4470 miles; time of passage, 35.8; average day's run, 124.9 miles

1929	° /	° /	miles	°	miles	
Feb. 5	Callao		....	....	....	Left anchorage in Callao harbor at 15h 20m. Ran 7 miles to San Lorenzo Island abeam at 16h 32m; then took departure. Cloudiness 7 to 8. Light southwesterly breeze. Smooth sea. Hazy.
6	11 54 S	281 20	89	....	....	Cloudiness 3 to 7, and hazy. Gentle S to SE breeze. Moderate sea. Light dew in early morning and late evening.
7	10 09 S	280 02	129	329	20	Cloudiness 1 to 5, chiefly on horizons. Gentle southeasterly breeze. Moderate sea. Hazy in afternoon.
8	9 57 S	277 45	136	336	15	Cloudiness 3 to 7, chiefly on horizons. Moderate S to SSE breeze. Moderate sea. Hazy in early morning.
9	10 26 S	275 45	122	310	8	Clouds 7 in morning. Clouds 1, on horizons, in afternoon. Moderate southeasterly breeze in morning to light southerly airs in afternoon. Moderate to smooth sea.
10	10 45 S	275 02	46	257	9	Cloudiness 1 to 8, chiefly on horizons. Light southerly airs in morning and evening; calm during day. Smooth sea.
11	10 39 S	274 06	56	279	8	Nearly overcast before 08h 00m, otherwise cloudiness 1 to 2 only on horizons. Gentle to light S to SE breezes. Smooth sea. Southerly swell.
12	11 00 S	272 32	94	330	9	Cloudiness 2 to 4, chiefly on horizons. Moderate S to SE breeze. Moderate sea.
13	12 33 S	270 18	161	302	9	Cloudy to overcast after early morning hours; a few clouds on horizons before 04h 00m. Moderate to fresh SE breeze. Moderate sea.
14	14 23 S	267 45	185	255	16	Partly cloudy, amount 2 to 5, except just before noon; then nearly overcast. Fresh to moderate SE breeze. Moderate sea.
15	15 49 S	265 06	175	287	12	Cloudy to overcast, amount 9 to 10, up to noon. Squally. Drizzling rain at 07h 00m. Clearing overhead after midday, clouds 2 to 5. Hazy. Moderate SE to E breeze. Moderate sea.
16	15 16 S	262 23	161	305	5	Cloudiness 3 to 8 in morning; 8 to 10 in afternoon and evening. Moderate ESE to ExS breezes. Moderate sea. Hazy.
17	14 46 S	259 14	186	273	7	Cloudiness 6 to 9 in morning; clearing somewhat in afternoon with cloudiness 2 to 5. Moderate to fresh easterly breeze. Moderate sea. Short drizzling rain at 05h 00m.
18	14 19 S	256 41	150	273	3	Cloudiness 1 to 7; hazy. Moderate E and ExS breeze. Moderate sea.
19	13 34 S	254 07	156	291	5	Cloudiness 2 to 3, on horizons. Moderate ExS and ESE breezes. Moderate sea.
20	13 00 S	251 51	137	283	6	Cloudiness 2 to 5, on horizons, until late evening, then clouding over to amount 9. Moderate ESE to gentle ExS breeze. Moderate sea.
21	12 31 S	249 53	119	124	3	Cloudiness 2 to 7, chiefly on horizons. Gentle to moderate easterly breeze. Moderate sea.
22	12 36 S	247 40	130	196	3	Cloudiness 3 to 6, chiefly on horizons. Moderate easterly breeze. Moderate sea.
23	12 31 S	244 50	166	357	4	Cloudiness 5 to 6, chiefly on horizons. Moderate easterly breeze. Moderate sea.
24	12 41 S	242 27	140	261	6	Cloudy and partly cloudy; amounts 1 to 8. Moderate to gentle E to NE breezes. Moderate sea.
25	12 46 S	240 36	109	122	4	Cloudiness 2 to 5, chiefly on horizons; until evening, then almost overcast. Gentle to moderate ENE to E breezes. Moderate sea.
26	13 03 S	238 42	114	319	3	Cloudiness 9 to 4. Gentle to moderate easterly breeze. Moderate sea. Easterly swell.
27	13 28 S	235 50	169	236	8	Drizzling rain and a rain squall between 01h 00m and 03h 00m. Cloudiness thereafter 1 to 5, chiefly on horizons. Moderate sea. Fresh to moderate ENE to E breezes.

Callao, Peru to Papeete, Tahiti--Concluded

Date	Noon position		Day's run	Current		Remarks
	Latitude	Longitude east		Dir.	Am't.	
1929	° /	° /	miles	°	miles	
Feb. 28	14 52 S	233 50	143	282	10	Cloudiness 3 to 9. Moderate easterly breeze. Moderate sea.
Mar. 1	16 33 S	231 56	149	303	5	Cloudiness 1 to 4, chiefly on horizons. Moderate to gentle easterly breeze. Moderate sea.
2	17 01 S	230 13	102	108	3	Clear to cloudiness 1 to 4. Gentle easterly breeze. Moderate sea.
3	17 07 S	228 18	111	141	5	Cloudiness 1 to 2, on horizons. Gentle easterly breeze. Moderate sea. Easterly swells.
4	17 12 S	226 39	94	122	8	Cloudiness 1 to 5, chiefly on horizons. Gentle E to SE breezes. Moderate sea.
5	17 05 S	224 37	117	335	4	Cloudiness 2 to 4, chiefly on horizons. Gentle ESE to ENE breezes. Moderate sea. Northeasterly swells.
6	17 13 S	223 22	72	199	2	Cloudiness 1 to 4, chiefly on horizons, except in early evening, then cloudiness 9. Light northeasterly breezes to airs in morning; calm in afternoon. Started engine at noon. Smooth sea. Rain squall at 01h 30m.
7	17 24 S	221 07	129	195	5	Sighted Tatakoto Island at 05h 30m. Cloudiness 2 to 6, chiefly on horizons. Calm until late afternoon, then light SSE airs. Smooth sea. Hazy. Engine running.
8	17 48 S	219 11	113	....	....	Sighted Amanu Island at 05h 15m. Cloudiness 1 to 6, chiefly on horizons. Light SE airs in morning. Light ESE breeze in afternoon. Smooth sea. Ship hove to from 08h 30m until 16h 00m while scientific staff ashore. Running with engine, until 17h 10m.
9	17 36 S	217 58	71	....	....	Cloudiness 2 to 5 until noon, 8 to 9 after noon. Gentle to light easterly breezes. Smooth sea. Started engine at 20h 00m. Hazy in evening.
10	18 02 S	215 55	119	167	4	Cloudiness 1 to 10; overcast and squally in afternoon. Rain from 18h 00m to 20h 00m. Variable NE to SE breezes. Smooth to moderate sea. Stopped engine at 07h 10m.
11	18 05 S	214 20	90	189	1	Cloudiness 8 to 10; squally. Rain squalls in mid-afternoon. Gentle northwesterly breezes until 20h 00m, then calm. Running engine after 15h 47m. Smooth to moderate sea.
12	17 51 S	211 59	135	270	1	Cloudiness 6 to 10; squally. Lightning in SE in early morning. Light showers before 05h 00m. Mehetia Island abeam and distant 2 miles at noon. Gentle northwesterly breezes. Smooth to moderate sea. Heavy rain squalls during evening. Engine running.
13	Papeete		95	....	....	Cloudiness 10; squally. Light NW airs to calm to light E airs. Smooth sea. At anchor in Papeete harbor at 09h 55m.

Note: cloud amounts expressed in scale from 0 for cloudless to 10 for overcast.

Papeete, Tahiti to Pago Pago, Samoa

Total distance, 1274 miles; time of passage, 12.2; average day's run, 104.4 miles

1929	° /	° /	miles	°	miles	
Mar. 20	Papeete		....	....	....	Left anchorage in Papeete harbor under own power at 03h 35m. Ran 3 miles, then took departure at 04h 33m. Cloudiness 8 and 9. Rain squalls in evening. Moderate to gentle easterly breeze. Moderate sea. Southeasterly swells.
21	16 46 S	209 16	78	....	....	Cloudiness 2 in very early morning; thereafter 6 to 9, with rain squalls in late afternoon. Gentle to light northerly and westerly breezes. Southeasterly swells. Started engine at 05h 55m, stopped at 08h 00m.
22	17 36 S	208 15	77	136	6	Cloudiness 7 to 9 with rain squalls during morning, otherwise cloudiness 2 to 4, chiefly on horizons. Moderate northwesterly breezes in morning; light westerly airs in afternoon. Moderate, choppy sea. Started engine at 20h 00m.
23	17 10 S	207 19	60	26	2	Cloudiness 1 to 3, on horizons. Light westerly to easterly airs, to calm. Stopped engine at 08h 00m, started at 12h 37m, stopped at 15h 45m. Smooth sea.
24	16 54 S	206 20	59	329	7	Cloudiness 2 to 5 before noon, 5 to 8 after noon. Rain squalls in late evening. Light, to gentle, to moderate easterly breeze. Smooth sea until evening, then moderate.
25	16 32 S	203 59	137	252	7	Cloudiness 7 to 10 with lightning in NE and NW in early morning and in evening. Moderate to gentle easterly breeze. Rain squalls in evening. Moderate sea.
26	16 08 S	201 38	138	157	9	Cloudiness 5 to 9, with rain squalls at intervals throughout 24 hours. Moderate E and ExN breeze. Moderate sea. Thunder in morning.
27	15 42 S	199 26	129	240	2	Cloudiness 5 to 10, with rain squalls in very early hours and threatening all day. Variable light to moderate E to N breezes. Moderate to broken sea.
28	15 32 S	198 00	84	180	7	Overcast in morning, with rain squalls very early. Cloudiness 5 to 7 in afternoon, 4 to 2 in evening. Gentle to light E breezes until evening, then calm. Moderate to smooth sea. Started engine at 21h 12m.

Papeete, Tahiti to Pago Pago, Samoa--Concluded

Date	Noon position		Day's run	Current		Remarks
	Latitude	Longitude east		Dir.	Am't.	
1929	° ' /	° ' /	miles	°	miles	
Mar. 29	15 16 S	196 40	79	270	4	Cloudiness 2 to 4, chiefly on horizons. Calm to light variable airs. Smooth sea. Engine running.
	30 14 42 S	194 20	139	341	6	Cloudiness 3 to 6, with rain squalls in afternoon. Calm, or light variable airs. Smooth sea. Engine running.
	31 14 41 S	192 07	129	294	2	Cloudiness 5 to 8 until late evening, then cloudiness 2. Rain squalls in early evening. Calm in early morning, changing to light and gentle northerly breezes in forenoon and, in afternoon, to light westerly breezes. Smooth sea. Engine running.
Apr. 1	14 26 S	189 58	125	233	8	Sighted Manua Islands at 03h 00m. Cloudiness 3 to 6. Light to gentle northwesterly breezes. Smooth sea. Engine running.
	1 Pago Pago		40	....	....	At anchor in Pago Pago harbor at 19h 33m.

Pago Pago, Samoa to Apia, Western Samoa

1929	° ' /	° ' /	miles	°	miles	
Apr. 5	Pago Pago		....	....	....	Left Pago Pago harbor under own power at 14h 10m. Light SW to W breezes until evening, then calm. Moderate to smooth sea. Cloudiness 3 to 4, chiefly on horizons. Engine running.
	6 Apia		80	....	....	Cloudiness 3. Hazy. Light W airs, to calm. Smooth sea. Engine running. At anchor in Apia harbor at 08h 15m.

Apia, Western Samoa to Guam, Marianas Islands

Total distance, 3914 miles; time of passage, 28.8; average day's run, 135.9 miles

1929	° ' /	° ' /	miles	°	miles	
Apr. 20	Apia		....	....	....	Let go moorings in Apia harbor at 11h 25m. Took departure at 11h 35m. Shut down engine at 13h 13m. Cloudiness 6 to 4. Light northwesterly breeze in early afternoon, changing through calm to light northeasterly airs and breezes in late afternoon and evening. Smooth sea.
	21 13 07 S	188 12	42	312	8	Cloudiness 4 to 6. Gentle easterly breeze. Smooth to moderate sea. Found two stowaways on board at 08h 00m. Returned to Apia and transferred stowaways to harbor tug at 18h 45m.
	22 12 44 S	188 23	25	260	9	Cloudiness 3 in very early morning on horizons, increasing to 8 by noon. Overcast in afternoon and until late evening. Gentle to moderate easterly breeze until mid-afternoon, then varying between moderate breeze and calm. Rain squalls in afternoon and evening Hazy in late evening.
	23 11 20 S	188 24	83	254	10	Cloudiness 5 to 7 in morning, 4 in afternoon, chiefly on horizons. Moderate to fresh E to SE breezes. Moderate sea.
	24 8 40 S	188 57	164	321	21	Cloudiness 4 to 7 in morning, 2 to 5 in afternoon. Easterly breeze, moderate in morning, gentle to light in afternoon. Moderate sea until late evening, then smooth with easterly swells. Rain squalls at 11h 30m and 14h 00m.
	25 7 39 S	188 11	76	272	16	Cloudiness 8 to 9 in morning, with occasional rain squalls before 06h 30m. Cloudiness 6 to 4 in afternoon and 10 in late evening, with rain squall at 21h 45m. Light northerly airs to calm in morning; light NE breeze in afternoon. Smooth sea. Easterly swells. Hazy and misty during day. Engine running.
	26 6 44 S	187 35	65	244	17	Cloudiness 8 and 9 in morning and evening, 4 to 6 during day. Light northerly airs to calm. Smooth sea. Easterly swells. Squally in evening. Engine running.
	27 5 08 S	187 37	96	194	11	Cloudiness 3 in early morning, 5 and 6 during day, 8 in evening. Calm in morning, light NW airs and breezes in afternoon, calm in evening. Smooth sea. Squally and hazy in mid-afternoon. Engine running.
	28 3 47 S	187 19	83	260	14	Cloudless and calm until 05h 00m, thereafter cloudiness 4 and 3 and northeasterly breeze, increasing through day from light, in early morning, to moderate in evening. Smooth to moderate sea. Engine running.
	29 1 46 S	186 31	130	272	16	Cloudiness 3 and 4, only on horizons, until noon, increasing after noon to 9 in late evening. Gentle to moderate E to NE breezes. Moderate sea. Rain squalls at 22h 50m and 23h 40m.
	30 0 22 N	185 58	135	283	12	Cloudiness 4 in early morning, decreasing to cloudless in mid-afternoon, then increasing to overcast in late evening. Fresh to moderate E to NE breezes. Moderate sea.
May 1	2 30 N	184 54	144	336	10	Cloudiness 5 to 8 in morning, 4 thereafter. Gentle to moderate to fresh northeasterly breezes. Moderate to choppy sea. Rain squalls at intervals from early morning to late evening.
	2 4 22 N	183 37	136	166	6	Cloudiness 4 in early morning, thereafter 8 to 10, with rain squalls during morning and heavy showers between 16h 00m and 18h 30m. Hazy all day. Fresh to moderate northeasterly breezes. Choppy sea.

Apia, Western Samoa to Guam, Marianas Islands--Concluded

Date	Noon position		Day's run	Current		Remarks
	Lati-tude	Longi-tude east		Dir.	Am't.	
1929	° ' /	° ' /	miles	°	miles	
May 3	6 29 N	182 16	149	231	4	Cloudiness 8 to 10 until late evening, then 6. Squally in morning. Rain squalls at 13h 30m, 15h 32m, 20h 45m. Fresh to moderate NE breeze. Moderate and choppy sea.
4	8 10 N	181 07	122	258	10	Cloudiness very variable, ranging in amount from 4 to 9. Rain squalls at 14h 15m, 15h 00m, and 18h 15m. Moderate to fresh northeasterly breeze. Moderate sea. Hazy.
5	10 47 N	179 26	185	259	20	Cloudiness 6 in early morning, thereafter 4. Squall conditions all day, with rain squall at 16h 50m. Fresh to strong northeasterly breeze. Choppy sea.
6	.....	.....	.....	.....	.....	Omitted, because the 180th meridian was crossed.
7	13 31 N	177 20	205	269	26	Cloudiness 3 to 6. Light rain at 04h 00m. Strong ENE breeze in early morning, changing during day through fresh to moderate in evening. Squally in afternoon. Hazy in evening. Choppy sea.
8	15 23 N	174 43	194	253	12	Cloudiness 3 to 4, chiefly on horizons, until noon, 9 in early afternoon, and 4 to 5 thereafter. Rainsquall at 22h 10m. Moderate to fresh NE to ENE breezes. Moderate sea.
9	16 28 N	171 49	179	232	10	Cloudiness 5 to 3, chiefly on horizons. Fresh NExE and ENE breezes. Choppy, moderate sea. Squally in evening, with drizzling rain at 22h 10m. Hazy. NE swells.
10	18 29 N	169 00	202	215	13	Cloudiness 10 in early morning, clearing to 3 by mid-morning, clouding over to 8 before noon and clearing to 3 in late afternoon. Squally in early morning. Fresh to moderate NExE and ENE breeze. Choppy to moderate sea. Hazy in afternoon.
11	19 19 N	166 24	156	218	7	Cloudiness 2 to 4 in morning, 7 to 2 after noon, chiefly on horizons. Moderate ENE breeze. Moderate sea. Sighted Wake Island at 08h 00m. Hazy in early morning.
12	20 17 N	163 40	165	348	3	Cloudiness 3 to 10 up to noon and 6 to 3 thereafter. Moderate to gentle ENE and NExE breezes. Moderate sea. Light rain at 03h 05m and squally during morning.
13	20 13 N	161 08	142	244	12	Cloudiness 2 to 7 in morning and 4 to 2 in afternoon, chiefly on horizons. Moderate northeasterly breeze. Moderate sea.
14	19 30 N	158 27	158	292	12	Cloudiness 3 to 5, chiefly on horizons. Gentle to fresh ExS breeze. Moderate sea.
15	18 39 N	156 02	145	313	12	Cloudiness 4 to 9 during morning, 3 to 5 after noon, chiefly on horizons. Gentle to moderate ExS and SEExS breezes. Moderate sea. Horizons hazy in early morning. Lightning in S in early morning. Rain squall at 10h 30m.
16	17 28 N	153 25	165	316	20	Cloudiness 1 in early morning, thereafter 5 to 6. Moderate ExS to SEExS breezes. Moderate sea. Heavy rain at 23h 20m.
17	16 08 N	150 52	166	297	14	Cloudiness 5 to 9 except for few hours in mid-afternoon, when practically cloudless. Squally in very early morning. Moderate to fresh ExS to SE breezes. Moderate sea.
18	14 54 N	148 12	171	328	23	Cloudiness 2 in early morning; increasing amount of thin clouds to 9 by noon; thereafter cloudiness 8 to 10. Moderate ExS and E breezes. Moderate sea.
19	14 02 N	145 56	142	276	8	Cloudiness, chiefly on horizons, 3 to 8 in morning, 3 to 5 after noon. Moderate to gentle E breezes. Moderate sea. Sighted Rota Island at 09h 00m and Guam at 17h 00m. Hazy in morning and evening.
20	Port Apra, Guam		89	....	....	Cloudiness 3 in early morning. Light southeasterly breeze. Smooth sea. Started engine at 05h 50m outside Port Apra. Pilot aboard at 06h 00m. Moored in Port Apra at 08h 00m.

Port Apra, Guam to Yokohama, Japan

Total distance, 1447 miles; time of passage, 13.2; average day's run, 109.6 miles

1929	° ' /	° ' /	miles	°	miles	
May 25	Port Apra		....	....	....	Let go moorings at 13h 45m, ran one mile under own power, and took departure at 14h 08m. Cloudiness 4 and 5, chiefly on horizons. Moderate ENE breeze. Moderate sea.
26	16 05 N	144 07	161	289	9	Cloudiness 2 to 5, chiefly on horizons, except in mid-afternoon, when cloudless. Moderate ENE to E breezes. Moderate sea. Rain at 01h 45m.
27	18 33 N	143 59	148	262	8	Cloudiness 6 to 1, chiefly on horizons. Moderate E breeze. Moderate sea. Drizzling rain at 04h 25m.
28	21 31 N	144 13	179	334	7	Cloudiness 1 to 5, chiefly on horizons. Moderate to gentle easterly breeze. Moderate to smooth sea.
29	23 26 N	144 05	115	323	10	Cloudiness 7 in very early morning, decreasing through day to 1 in late evening. Gentle to moderate E to SE breezes, until mid-afternoon, then southeasterly light breezes to light airs. Squally in early morning with rain at 00h 05m. Light dew in evening. Running with engine after 19h 23m.

Port Apra, Guam to Yokohama, Japan--Concluded

Date	Neon position		Day's run	Current		Remarks
	Lati-tude	Longi-tude east		Dir.	Am't.	
1929	° ' /	° ' /	miles	°	miles	
May 30	25 15 N	144 09	109	228	15	Cloudiness, chiefly on horizons, 4 to 6 before noon, 3 to 4 after noon. Calm in very early morning, then light to gentle southeasterly breezes. Squally in early morning. Hazy in morning and evening. Smooth sea. Stopped engine at 07h 05m.
	31 26 24 N	144 25	71	152	14	Cloudiness 4 to 8 until mid-afternoon, thereafter 2 on horizons. Gentle S breeze decreasing in force to light airs in afternoon and evening. Smooth sea. Heavy dew in morning, light in evening. Engine started 18h 00m.
June 1	28 29 N	144 00	127	298	3	Cloudiness 6 to 10. Light southerly breezes in early morning, increasing in force to strong in late evening. Smooth sea in morning, changing through day to rough in late evening. Heavy dew in morning. Rain at 23h 45m. Engine stopped 06h 00m.
	2 30 10 N	143 56	101	132	14	Overcast before noon, thereafter cloudiness 7 to 9. Hazy all day. Fresh SWxW breeze until mid-morning, changing to moderate westerly breeze and decreasing in force through afternoon to calm in late evening. Choppy, moderate sea. Started engine midnight.
	3 31 03 N	144 18	57	63	18	Cloudiness 8 to 10 until late evening, then 6. Very hazy all day. Light westerly airs in early morning, increasing in force to moderate in evening. Choppy, moderate sea. Northwesterly swells in early morning. Started engine at 12h 10m. Stopped engine 08h 00m.
	4 32 42 N	142 13	145	307	21	Cloudiness 8 to 10 until late evening, then 5. Moderate to fresh southwesterly breezes. Choppy, moderate sea. Hazy all day. Southwesterly and westerly swells. Stopped engine at 05h 38m. Started engine at 15h 00m.
	5 33 57 N	141 12	91	30	15	Cloudiness 4 in very early morning, thereafter 8 to 10. Gentle to moderate W to SW breezes. Moderate sea. Hazy all day. Westerly and northerly swells. Sighted Miyake Island at 18h 30m. Saw reflected ray from Nojima Zaki Lighthouse (SE Japan) during evening. Stopped engine at 15h 55m. Drizzling rain after 23h 06m, with rapidly falling barometer. Started engine at 17h 20m.
	6 34 52 N	140 39	61	44	38	Overcast in morning, with drizzling rain in early morning; cloudiness decreasing after noon to 3 in evening. Moderate southerly breezes in early morning increasing in force to fresh gale by midday and decreasing to moderate breeze in evening. Rough sea. Stopped engine at 02h 00m, started at 04h 45m, stopped at 09h 45m and hove to on southern edge of typhoon.
	7 Yokohama		82	....	....	Overcast all day, and hazy. Gentle to fresh NE breeze after 01h 30m. Moderate sea. Got under way with sails at 01h 35m. Started engine at 10h 55m and ran in to Yokohama harbor. Anchored outside breakwater at 19h 45m.

Yokohama, Japan to San Francisco, U.S.A.

Total distance, 4839 miles; time of passage, 34.9; average day's run, 138.7 miles

1929	° ' /	° ' /	miles	°	miles	
June 24	Yokohama		....	....	....	Took departure from Honmoku Buoy, Yokohama harbor, under own power, at noon and ran 33 miles to entrance to outer bay at 17h 50m. Overcast, hazy, rainsqualls. Gentle to moderate northeasterly breezes. Smooth to moderate sea. Easterly swells in late evening.
	25 34 44 N	141 04	98	66	44	Overcast and drizzling in early hours, clearing to amount 7 by noon and to amount 4 by late evening. Hazy all day. Calm in early morning, changing to gentle easterly breezes before 06h 00m. Moderate sea.
	26 36 00 N	142 05	91	47	42	Cloudiness 4 in early morning, increasing steadily to overcast by noon; thereafter overcast. Hazy throughout. Light ESE airs and breezes up to noon, thereafter light SSE breezes. Smooth sea. Heavy dew in morning, light dew in evening. Southeasterly swells.
	27 36 41 N	143 38	85	33	9	Cloudiness 4 on horizons in early morning and late evening, otherwise overcast. Hazy throughout. Gentle to light SSE breezes during morning, changing through S to SSW by mid-afternoon. Light airs to calm after 15h 00m. Smooth sea. Swung ship for declination in afternoon.
	28 36 46 N	145 23	85	237	4	Hazy throughout. Cloudiness 7 to 9 throughout. Heavy dew in early morning. Calm until 08h 00m, thereafter light easterly airs and breezes. Swung ship for horizontal intensity and inclination from 09h 00m to 19h 00m. Smooth sea.
	29 37 45 N	145 27	59	294	18	Cloudiness 9 to 10 (overcast) throughout. Hazy after midday. Gentle easterly breezes until late afternoon; light airs to calm thereafter. Smooth sea. Started engine at 18h 57m.

Yokohama, Japan to San Francisco, U.S.A.--Continued

Date	Noon position		Day's run	Current		Remarks
	Lati-tude	Longi-tude east		Dir.	Am't.	
1929	° /	° /	miles	°	miles	
June 30	38 06 N	147 00	76	98	9	Cloudiness 7 to 4 in morning; 7 to 10 thereafter. Hazy. Light southeasterly airs throughout, except for few hours gentle breeze in afternoon. Smooth to moderate sea. Southeasterly swells. Stopped engine at 12h 50m.
July 1	38 43 N	147 42	49	336	8	Cloudiness 2 to 6, chiefly on horizons. Slight haze in early morning. Light to gentle SE breezes. Moderate sea. Southeasterly swells in morning.
	2 39 50 N	149 29	106	35	9	Cloudiness 9 in early morning, decreasing gradually to 3 in early evening, then increasing to 7 in late evening. Gentle to light southeasterly breezes. Moderate to smooth sea. Southeasterly swells in morning.
	3 40 22 N	151 03	79	32	15	Cloudiness 7 to 9 during afternoon, otherwise overcast. Gentle southeasterly breezes. Smooth sea.
	4 41 22 N	153 16	116	57	11	Overcast throughout. Misty and drizzling in evening. Gentle to moderate southeasterly breeze. Moderate sea.
	5 42 35 N	155 33	126	309	9	Overcast throughout, with mist, fog, and drizzling rain. Moderate SExS breeze. Moderate sea.
	6 43 45 N	158 12	135	355	7	Overcast throughout, with mist, fog, or drizzling rain. Gentle to moderate SSE breeze. Moderate sea.
	7 45 30 N	159 40	122	14	9	Overcast throughout, with fog or drizzling rain. Gentle to moderate southerly breeze. Moderate sea.
	8 46 56 N	162 58	161	35	9	Overcast throughout, with mist, fog, or drizzling rain. Moderate to gentle S and W breezes. Moderate sea.
	9 47 02 N	166 34	148	153	8	Overcast throughout, with mist or fog. Moderate W breeze until evening, then light northwesterly breeze. Moderate sea.
	10 46 43 N	169 27	120	185	8	Overcast throughout, with mist or haze. Moderate to gentle NNE breeze. Moderate sea. Northwesterly swells in evening.
	11 46 00 N	171 41	103	235	10	Overcast throughout, with mist or fog. Moderate to gentle NNE to NE breezes. Moderate sea. Northwesterly swells in morning.
	12 45 16 N	172 58	69	266	6	Overcast throughout, with thick fog. Gentle to light southeasterly breezes. Smooth sea. W and NW swells in morning, E to SE swells in afternoon.
	13 46 22 N	174 08	82	5	9	Overcast throughout, with mist or thick fog. Light to gentle southeasterly breezes in morning, moderate to fresh southerly breeze after midday. Smooth to moderate and choppy sea. Rain during morning. Southeasterly swells in morning.
	14 48 07 N	178 06	192	15	9	Overcast throughout, with mist, fog or rain. Fresh southerly breeze. Choppy sea.
	14 49 14 N	183 20	218	18	13	Overcast throughout, with mist, thick fog, or rain. Strong to moderate SxW breezes. Choppy, rough sea.
	15 50 32 N	187 18	172	63	7	Overcast throughout, with thick fog in morning; hazy thereafter. Fresh to strong SxE breeze. Moderate, choppy sea.
	16 51 25 N	192 41	210	14	10	Overcast throughout; heavy mist in evening. Fresh to strong southerly breeze. Choppy sea.
	17 52 22 N	198 14	214	26	8	Overcast throughout, with mist, fog, or haze. Strong SxE and S breeze. Choppy sea.
	18 52 33 N	204 23	225	47	16	Overcast throughout, with thick fog or mist. Fresh S to SW breezes. Choppy sea. Southwesterly swells.
	19 51 57 N	209 35	195	116	7	Overcast throughout; drizzling rain in early morning, mist thereafter. Fresh SWxW breeze. Choppy sea. Southwesterly swells.
	20 50 13 N	213 54	192	126	5	Overcast throughout; misty until evening, then drizzling rain. Fresh to strong SWxW and SW breeze. Choppy sea. Southwesterly swells.
	21 47 59 N	217 17	189	299	13	Cloudiness 9 to 10 (overcast), misty and hazy. Strong SW to W breeze. Choppy sea. Westerly swell in afternoon.
	22 45 58 N	220 15	171	311	14	Cloudiness 7 in morning, increasing to 10 (overcast) in evening. Rain in early morning and late evening. Moderate to fresh W to WSW breezes. Moderate sea.
	23 44 16 N	222 25	137	295	10	Cloudiness 9 in early morning, decreasing to 4 by noon, remaining so until late evening, then increasing to 9. Drizzling rain at intervals up to 08h 00m, then hazy until noon. Clear after midday. Moderate WxS to WSW breezes. Moderate sea.
	24 42 34 N	224 46	144	339	8	Overcast throughout, with rain at intervals throughout. Moderate to fresh SW to S breezes. Moderate sea.
	25 40 39 N	227 39	173	283	11	Cloudiness 8 to 10 (overcast) in morning, overcast thereafter. Hazy during day. Drizzling rain and mist in evening. Fresh southerly winds to mid-day, moderate to gentle westerly thereafter. Moderate sea.
	26 39 36 N	230 28	144	240	12	Cloudiness 7 just before midday, otherwise 9 to 10 (overcast). Drizzling rain and mist in early morning. Moderate to strong N breeze. Moderate to choppy sea. W swells in early morning.

Yokohama, Japan to San Francisco, U. S. A.--Concluded

Date	Noon position		Day's run	Current		Remarks
	Lati-tude	Longi-tude east		Dir.	Am't.	
1929	° /	° /	miles	°	miles	
July 27	38 49 N	234 14	182	254	20	Cloudiness 6 to 9 until midday; overcast thereafter. Hazy in late evening. Strong NNW breeze in morning, decreasing in force through afternoon to light in evening. Choppy to moderate sea. Started engine at 21h 30m.
28	37 56 N	237 04	143	207	17	Overcast; haze and fog until noon. Light NNW airs to calm. Moderate to smooth sea. Heard Point Reyes fog signal at 08h 45m.
28	San Francisco		28	....	...	Entered San Francisco harbor at 16h 00m and dropped anchor at 16h 30m.

San Francisco, U. S. A. to Honolulu, T. H.

Total distance, 2186 miles; time of passage, 20.1 days; average day's run, 108.8 miles

1929	° /	° /	miles	°	miles	
Sep. 3	San Francisco		....	....	...	Took departure under own power from pier 16, San Francisco harbor at 10h 00m and streamed the log at 13h 45m, through the Golden Gate. Ran 12 miles to Bell No. 5 at 15h 18m, thence 64 miles to the noon position on Sep. 4. Smooth sea, easterly swells in the evening. Overcast and hazy all day. Calm to gentle breeze.
4	37 07 N	236 21	(76)	(330)	5	Smooth to moderate sea. NW swells. Light airs and light S breezes in forenoon and gentle W breezes in the afternoon and evening. Main engine stopped at 08h 00m, started at 13h 50m, and stopped again at 18h 10m.
5	35 30 N	235 02	116	294	23	Moderate sea all day with moderate NW breezes. Cloudiness 10 most of the day with a minimum of 5 at 16h 00m.
6	33 47 N	233 40	123	92	15	Moderate sea; gentle NW breezes. Light drizzle in morning and in late afternoon with the sky overcast much of the day.
7	32 25 N	232 08	112	155	12	Sea moderate in a.m. with NW swells, smooth thereafter. Light and gentle NW breezes. Sky overcast nearly all day.
8	31 36 N	231 13	68	121	8	Smooth sea; gentle NW breezes. Cloudiness 7 to 10. Started main engine at 12h 55m, stopped main engine at 20h 05m.
9	30 23 N	229 06	131	240	10	Sea smooth in morning with gentle NW breezes. Sea moderate with gentle to moderate NNE breezes in the afternoon. Sky partly cloudy.
10	29 19 N	227 27	107	70	11	Sea moderate with gentle to moderate NNE breezes. Sky partly cloudy.
11	28 12 N	225 40	114	198	1	Sea smooth with light to gentle N and NE breezes. Morning sky overcast, partly cloudy in afternoon.
12	27 44 N	224 33	66	234	4	Sea smooth. Light airs to light ExS breezes in morning; calm in afternoon. Sky overcast in morning, clear in afternoon. Main engine started at 11h 20m.
13	26 58 N	222 13	124	47	11	Sea smooth. Light SE airs. Sky clear in morning, partly clear in afternoon. Engine stopped 18h 45m.
14	26 40 N	220 52	75	280	13	Sea smooth. Light S breezes. Sky partly clear a little rain at 06h 30m. Main engine started 00h 45m. Main engine stopped at 04h 45m, started at 19h 15m, then stopped at 23h 08m.
15	26 27 N	219 24	80	351	12	Sea smooth. Light S airs to gentle S breezes. Sky partly cloudy. Main engine started 04h 40m and stopped 10h 00m.
16	26 13 N	217 56	80	49	15	Smooth sea. Gentle SE breezes. Sky partly clear in morning, and partly overcast in the afternoon. Main engine started at 18h 50m.
17	25 07 N	216 22	108	34	10	Smooth sea in morning with light SE breeze. Moderate sea in the afternoon and evening with moderate NE breezes. Sky clear all day with horizon partly cloudy. Sky overcast in evening, rain at midnight. Stopped engine at 06h 45m.
18	24 02 N	214 26	124	24	15	Moderate sea, moderate NExN breezes. Rain at 01h 20m. Mostly clear near midday with horizon cloudy and partly clear in afternoon. Sky clear, horizon cloudy in evening.
19	23 21 N	211 18	177	76	10	Moderate sea, moderate NExE breezes in forenoon. Sky mostly overcast during afternoon, squally near midnight.
20	22 51 N	208 37	151	98	8	Moderate sea, moderate ExNE breezes in forenoon, moderate ExN breezes in afternoon. Partly cloudy with overhead clear most of the day.
21	22 16 N	206 23	129	54	15	Moderate sea, moderate ENE breezes during first part of morning with gentle breezes ExNE and NExE during the rest of the day. Horizon partly cloudy in the early morning and late evening with sky about half overcast during the day.
22	21 44 N	204 20	119	23	14	Sea moderate. Gentle ESE breezes in morning and gentle ExS breezes in the evening. Few drops of rain in early morning with squalls. Sky partly cloudy during the day.
23	Honolulu		106	....	...	Started engine at 07h 50m. In harbor at 10h 00m.

Honolulu, T. H. to Pago Pago, Samoa

Total distance, 5,777 miles; time of passage, 47.2; average day's run, 122.2 miles

Date	Noon position		Day's run	Current		Remarks
	Latitude	Longitude east		Dir.	Am't.	
1929	° ' / ° ' /	miles	°	miles		
Oct. 2	Honolulu harbor					Left the dock at 10h 00m assisted by tug. Left tug at 10h 25m and ran 14 miles to bearings at noon. Moderate sea with fresh ENE breeze. Cloudiness 6 to 10 with rain squalls in the evening.
2	21 16 N 201 54	(14)	....	...
3	23 32 N 200 28	157	174	12		Moderate sea, moderate to fresh ENE breezes in morning, fresh E breezes first part of the afternoon and moderate NExE breezes in the evening. Horizons cloudy, overhead clear during the morning and rain squalls at 16h 00m.
4	26 26 N 199 28	182	198	16		Moderate sea and fresh ENE breezes. Few drops of rain at 15h 24m. Cloudiness 4 to 5, overhead clear during the morning; cloudiness diminished to 3 by evening and to 2 by 24h 00m.
5	29 08 N 198 46	165	220	12		Moderate sea. Moderate to fresh ENE breezes. Cloudiness 3 to 5 during the morning, with the sky about half overcast in the afternoon and a few drops of rain at 13h 30m and at 16h 18m. The sky was partly cloudy in the evening.
6	31 42 N 199 00	154	214	13		Moderate sea during the day; smooth sea in the evening. Moderate to gentle E breezes in a.m. and gentle to light E breezes in p.m. The sky was more than half overcast all day.
7	32 46 N 199 16	64	324	8		Smooth sea with swells. Light E breezes and light E airs in a.m. and light NExE airs and light NE breezes in the afternoon and evening. Sky clear in early morning, cloudiness 3 to 4 during the day and squally near midnight. Started the engine at 11h 18m.
8	34 16 N 200 02	98	230	10		Smooth sea during the day with moderate sea in the evening. Light NE breezes and NE airs and gentle ExS breezes in the forenoon, with light to gentle SE breezes in the afternoon and moderate to fresh SW breezes in the evening. Sky cloudy most of the day with a short drizzle at 18h 42m. Stopped engine at 11h 48m.
9	34 05 N 203 07	153	290	10		Sea moderate and choppy. Fresh to strong SW breezes during the day, with fresh to gentle NW breezes in the evening. The sky was overcast and squally all morning with a short rain squall at 06h 12m. Sky overcast during the afternoon with a little rain at about 17h 00m.
10	33 35 N 205 31	123	233	10		Sea smooth during the early morning, swells during the day, and moderate sea in the late evening. Gentle NW breezes to NW airs during the day with light S airs to gentle S breezes in the first part of the evening and gentle to moderate SxW breezes during the latter part of the evening. Engine started at 09h 00m, stopped at 20h 12m.
11	33 39 N 208 20	141	236	8		Sea moderate in a.m. and choppy in p.m. Moderate to fresh SW breezes all day. The sky was partly cloudy in the forenoon and mostly overcast in the afternoon with a little rain at about 18h 00m.
12	33 17 N 212 18	200	258	10		Sea choppy in a.m. and moderate in p.m. Strong to fresh SxW and SW breezes in a.m. with a moderate NW breeze in the first part of the afternoon; calm at 15h 00m. Gentle to moderate SW breezes during the rest of the day. The sky was overcast all day and there were occasional rains.
13	33 26 N 214 36	116	255	7		Moderate sea in a.m. and swells in p.m. Gentle to fresh NW breezes in a.m. with light NW, W, and WSW breezes in the afternoon and evening. The sky was overcast and squally in the morning, and partly cloudy for the rest of the day.
14	33 34 N 216 52	114	237	9		Moderate sea. Gentle and moderate SW breezes in a.m. with fresh SSW and SxW breezes in p.m. The sky was partly cloudy all day with a few drops of rain at 23h 30m.
15	31 48 N 219 15	161	330	18		Choppy sea. Fresh SW breezes in a.m. with breezes NW, NNW, NxE, and NExN, moderate to fresh during the rest of the day. The sky was partly cloudy in the a.m. and completely overcast in the afternoon and evening with rain from 12h 30m to 13h 00m and from 15h 30m to 16h 36m.
16	29 03 N 220 41	181	279	21		Sea moderate to choppy. Fresh NE breezes all day and light SW breezes in the evening. The sky was overcast and cloudy most of the day with a few drops of rain at 03h 30m and rain from 16h 30m to 17h 30m and a drizzle from 20h 30m to 21h 48m. Engine started at 18h 48m, stopped at 19h 42m, and started again at 20h 06m.
17	27 22 N 221 52	119	302	13		Moderate sea in the early morning and smooth sea the rest of the day. Light SSW and SxW breezes in a.m. with light S airs the first part of the afternoon and calms the rest of the day. The sky was mostly clear all day. Engine: stopped at 08h 00m and started again at 10h 42m.
18	26 01 N 222 54	98	313	7		Smooth sea all day. Calm in the early morning, variable light airs to light breezes from the SE quarter the rest of the morning and light ExS breezes in the afternoon with gentle ExS and ExN breezes in the evening. Engine stopped at 06h 36m.

Honolulu, T. H. to Pago Pago, Samoa--Continued

Date	Noon Position		Day's run	Current		Remarks
	Lati-tude	Longi-tude east		Dir.	Am't.	
1929	° /	° /	miles	°	miles	
Oct. 19	24 57 N	222 15	373	334	16	Moderate sea. Gentle ESE breezes in a.m. and gentle to moderate ENE breezes in the afternoon. The sky was almost wholly overcast during the early morning hours, with rain squalls and rain from 02h 06m to 02h 18m, from 03h 06m to 03h 12m, and from 06h 18m to 06h 42m. The sky partly cleared near midday but later became overcast. There was a drizzle from 15h 42m to 15h 48m and from 22h 42m to 22h 48m.
20	23 10 N	221 40	112	329	16	Moderate sea. Moderate ExS breezes most of the day. The sky was more than half overcast all day but the cloudiness decreased to 3 in the evening. There were frequent drizzles and rains in the early morning.
21	21 15 N	221 25	116	337	16	Moderate sea and gentle to moderate E breezes in a.m. and moderate breezes from the E, ExN, and ENE in the p.m. The cloudiness was about 8 all day.
22	18 18 N	221 59	180	306	21	Moderate sea in forenoon, choppy thereafter. Breezes: moderate to fresh from the E, ExN, ENE, and NExE. The sky was about half overcast most of the day.
23	16 11 N	222 55	138	306	29	Choppy and moderate sea. Moderate to fresh NExE breezes. The cloudiness was 10 in the early morning and the late evening with an average of 5 during the day.
24	13 34 N	223 19	159	296	24	Seas: choppy, moderate and broken. Breezes: moderate to fresh, ExN, ENE, and NE until 13h 00m with light N airs in the afternoon and light SxW breezes in the evening. The sky was almost wholly overcast all day with a drizzle from 00h 12m to 01h 54m, a few drops of rain at 02h 00m and more rain from 18h 18m to 18h 30m. Engine: started at 17h 06m, stopped at 21h 48m, and started again at 23h 12m.
25	12 39 N	222 28	74	188	1	Sea smooth to moderate. In the forenoon there were light breezes variable from the SW quarter and light E airs and calms during the rest of the day. The sky was overcast nearly all day with frequent rains and squalls all day. Engine: stopped at 08h 00m and started at 13h 42m.
26	11 19 N	221 21	104	109	8	Smooth sea. Light NW airs to light NW breezes during the day and calms all evening. Engine: stopped at 08h 00m and started again at 13h 00m.
27	10 05 N	220 17	97	70	16	Smooth sea with light E airs and calms all day. The sky was mostly clear all day but there were rains between 16h 00m and 18h 00m and squalls near 24h 00m. Engine: stopped at 08h 00m and started again at 12h 00m.
28	8 36 N	219 16	107	95	34	Smooth sea. Variable light airs and light breezes from the SE quarter in the a.m. with variable light to gentle breezes from the NE quarter the rest of the day. The sky was about half overcast all day. Engine stopped at 08h 12m.
29	7 44 N	218 38	64	92	30	Smooth sea the first part of the day and moderate thereafter. Variable light to gentle E breezes all day. The sky was about 0.5 overcast all day with a little rain at 02h 42m and at 06h 54m.
30	7 03 N	217 29	80	75	32	Sea smooth to moderate. Variable light to gentle breezes from the SE quarter all morning increasing to moderate and fresh breezes from the same quarter and changeable light breezes from nearly all quarters during the evening. The sky was partly cloudy in the morning and mostly overcast in the afternoon with rains in the evening and a heavy rain from 22h 00m to 23h 00m.
31	6 43 N	216 39	54	72	19	Smooth sea with light SW and SE airs and calms during the forenoon and variable light airs to gentle breezes from the SE quarter in the afternoon. The sky was more than half overcast all day with rain from 00h 00m to 01h 12m and rain from 12h 24m to 12h 48m. Engine: started at 01h 12m, stopped at 02h 12m, and started at 03h 12m, and stopped again at 19h 30m.
Nov. 1	5 46 N	215 20	97	28	15	Sea smooth in a.m. and moderate in p.m. Breezes light to moderate from SE, SExE, and SxE in the morning and the first part of the afternoon and moderate SSE and SExE breezes all evening. The sky was mostly overcast nearly all day; there was a drizzle from 04h 48m to 04h 54m and rain from 09h 12m to 09h 30m and from 12h 48m to 14h 30m. The sky was partly clear in the evening.
2	4 52 N	213 13	137	53	12	Moderate sea with moderate SExS breezes. The sky was completely overcast most of the day.
3	4 18 N	210 44	152	16	32	Moderate sea all day and smooth sea all evening. Moderate SSE and SxE breezes all morning, calm all afternoon and most of the evening with light SExS airs near midnight. The sky was nearly all overcast all day but was partly clear in the evening. Engine started at 16h 00m.

Honolulu, T. H. to Pago Pago, Samoa--Concluded

Date	Noon position		Day's run	Current		Remarks
	Latitude	Longitude east		Dir.	Am't.	
1929	° /	° /	miles	°	miles	
Nov. 4	3 02 N	210 12	82	13	13	Smooth sea in morning and moderate sea all evening. Light to gentle SExS breezes in a.m., and gentle to moderate SE breezes all afternoon and evening. The sky was partly overcast all day. Engine stopped at 08h 00m.
5	0 48 N	208 32	168	349	12	Moderate sea with moderate and fresh SExE and ESE breezes all day. The sky was mostly clear all day. Crossed the equator at about 18h 30m.
6	1 49 S	207 36	167	356	21	Moderate sea in early morning and choppy the rest of the day. Fresh ExS breezes in a.m. and fresh ExN and ENE breezes the rest of the day. The sky was partly overcast all day.
7	4 52 S	206 36	193	315	19	Moderate sea with moderate NE breezes. The sky was mostly clear in the morning and evening; but was partly cloudy near midday.
8	6 38 S	204 55	145	31	5	Moderate sea and moderate NE, NExE, E, and ENE breezes in the afternoon. The sky was mostly clear all day.
9	8 05 S	203 05	140	20	16	Moderate and gentle ENE, NNE, and NE breezes. The sky was partly cloudy all day.
10	9 00 S	201 56	87	116	8	Moderate sea in forenoon and smooth sea in the afternoon with gentle NE breezes most of the day. The sky was partly clear. Sighted Penrhyn Island at 05h 12m. At Penrhyn Island from 09h 48m to 18h 00m. Engine for short intervals 07h 30m to 18h 00m. Engine: started at 18h 12m and stopped at 19h 54m.
11	9 24 S	200 58	62	58	15	Smooth sea with gentle NE, N, ENE, and ExN breezes. The sky was partly clear most of the day.
12	10 24 S	198 56	135	22	15	Moderate sea in the morning and in the evening with smooth sea near midday, with moderate to gentle ExN, NE, and NNE breezes. The sky was mostly clear all day. Arrived at Tauhunu village Manahiki Island at 12h 24m and left the island at 17h 42m. Engine at intervals 12h 00m to 18h 00m.
13	10 58 S	198 02	63	126	13	Moderate sea most all day with smooth sea in early morning and late evening. Light to gentle NExE breezes in the forenoon and moderate to light NNE breezes in the afternoon. The sky was about 0.5 overcast except near 08h 00m when it was completely overcast, with rain from 06h 12m to 07h 42m and from 09h 00m to 09h 12m.
14	11 35 S	196 36	92	95	13	Smooth sea with light NNE airs in the forenoon and calms in the afternoon. The sky was mostly clear. Started the engine at 08h 42m.
15	12 03 S	195 03	95	65	17	Smooth sea. Light S airs and light E breezes in the forenoon and light NE, SE, and S airs in the afternoon. The sky was mostly clear all day. Engine: stopped at 08h 00m and started again at 13h 48m.
16	12 50 S	193 01	128	30	10	Smooth sea with light SSE breezes and light S airs in the forenoon and calms most of the afternoon. The sky was almost wholly clear all day.
17	13 37 S	191 37	95	109	14	Smooth sea with calms and light SW, W, and WxN airs. The sky was mostly clear all day. Engine: stopped at 08h 00m and started again at 11h 48m.
18	14 13 S	189 34	124 (17)	56	13	Smooth sea with calms and light WNW airs to gentle WNW and NW breezes. The sky was mostly clear. Ran 17 miles from noon position to moorings in Pago Pago harbor at 15h 00m.

Note: Left Pago Pago for Apia about 15h 00m, Nov. 27, arriving at Apia about 08h 00m, Nov. 28. Under engine power all the way with head winds on first leaving Pago Pago, 80 miles.

