

AUSTRALASIAN ANTARCTIC EXPEDITION

1911-14.

UNDER THE LEADERSHIP OF SIR DOUGLAS MAWSON, Kt., D.Sc., B.E.

SCIENTIFIC REPORTS,

SERIES A.

VOL. II.

OCEANOGRAPHY.

PART I:

SEA-FLOOR DEPOSITS FROM SOUNDINGS.

BY

FREDERICK CHAPMAN, Assoc. Linn. Soc., Lond., F.R.M.S. &c.

Palaeontologist to the National Museum, Melbourne,
Hon. Palaeontologist to the Geol. Survey, Victoria.

WITH TWO PLATES AND A MAP

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BY

FREDERICK CHAPMAN, ASSOC. LINN. SOC., LOND., F.R.M.S., &C.

(*Palaeontologist to the National Museum, Melbourne, &c.*).

WITH TWO PLATES AND ONE MAP.

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I.—THE REGION COVERED BY THE SOUNDINGS.

THE descriptions herein detailed refer to samples of the bottom muds as recovered from the driver tubes in the taking of soundings on board the *S.Y. Aurora*, under the direction of Captain J. K. Davis, during the progress of the Australasian Antarctic Expedition between the years 1911 and 1914. The geographical area of operations was defined by Sir Douglas Mawson* as the Australian Quadrant, and later by Mr. E. R. Waite† as the Australian Zonal Quadrant.

The report is based on a general and microscopical examination of the samples, but special reports relating to the Foraminifera and Ostracoda have been prepared for separate publication.

The general bathymetrical and physical data of the soundings are noted, together with the organic contents in each case.

In briefest possible outline‡ the area covered by the *S.Y. Aurora* in the taking of these soundings was as follows :—

The FIRST ANTARCTIC CRUISE, which occupied the summer of 1911–12, proceeded from Hobart *via* Macquarie Island, to the Durville Sea. There, close to the ice-barrier wall of the Antarctic continent at the eastern limit of Adelie Land, the first

* "The Home of the Blizzard," Vol. I, p. 3.

† See this publication, Series C., Vol. III, Pt. 1, 1916, p. 7.

‡ Dr. J. G. Hunter, the Chief Biologist to the Expedition, has kindly supplied a summarised account of the cruises of the *S.Y. Aurora*, from which these notes have been compiled.

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3/9/53

bottom sample of this series was taken, which proved to be a dark-grey, sandy ooze with *Globigerina dutertrei*, *Cassidulina*, and several other genera, together with Echinoid fragments, Sponge-spicules and Radiolaria.

Thereafter samples were taken at frequent intervals in the extended voyage through the pack-ice zone as far as Queen Mary Land. These are confined to deposits of the Blue Mud Zone. This occupied from 3rd January to 5th February. The average depth of these soundings in the Antarctic pack-ice zone is 349 fathoms, the maximum being 1,150 and the minimum 110 fathoms.

The FIRST SUB-ANTARCTIC CRUISE extended between May and September, 1912. The route was south-west from Tasmania, over the supposed site of the Royal Company Islands, whose non-existence was proved by finding Globigerina Ooze from 2,150 to 2,590 fathoms. From this point the vessel headed to Macquarie Island, and thence to New Zealand.

The SECOND SUB-ANTARCTIC CRUISE was conducted during November and early December of 1912, from Hobart to a point to the south of Tasmania, where comparatively shallow water was located, then on to Macquarie Island, and back to Tasmania. The soundings on "The Mill Rise," as it was called, south of Tasmania, ranged from 658 to 943 fathoms, with a rocky bottom. Shells, Barnacles, and Echinoid remains, with a few Foraminifera were obtained on this hard bottom, whilst in one case, at 710 fathoms, a sample of Globigerina Ooze was recovered.

The SECOND ANTARCTIC CRUISE continued from the latter part of December, 1912, to March, 1913. The soundings were conducted mainly along the Meridian of 146° E. Long. from Lat. 47° 21½' to 66° 16½' S. This series shows remarkably well the gradual sequence of the Antarctic deposits from Globigerina Ooze in the northern area through Diatomaceous and Spicular Ooze to Terrigenous Mud off the Ice-barrier. At 65° 51' S. 144° 19' E., east of Adelie Land, and just off the Expedition's Main Antarctic Base, an interesting deposit of Polyzoa and Sponges was found (Sample LXI).

The THIRD ANTARCTIC CRUISE occupied the summer of 1913-14. The samples commence with a sounding north of Macquarie Island, where a quartz pebble was found at 2,180 fathoms. Going westward and afterwards shaping for Adelie Land, Globigerina Ooze was met with at 2,400 and 2,470 fathoms. Whilst nearing Adelie Land (about 480 miles to the north), at 2,000 fathoms, a pebble with an attached Foraminifer was collected. This species, *Ammolagena clavata*, has been previously recorded from Kerguelen Island, and its maximum depth "nearly 2,000 fathoms." After leaving Commonwealth Bay, the S.Y. *Aurora* steamed westward amongst the pack-ice, reaching Kaiser Wilhelm Land as an extreme limit. The soundings were chiefly in Green Muds and Diatomaceous Ooze. The last of the soundings were made on the way from the pack-ice to Adelaide. The samples from this section pass from Green Sandy Spicular and Diatom Muds through pure Diatom Ooze to Globigerina Ooze, the very last of the series being taken in that deposit in Lat. 35° 56' S., Long. 134° 14' E., off South Australia, in 1,800 fathoms.

II.—LIST OF BOTTOM SAMPLES.

The first column in the Table refers to the serial number of the samples as described in detail hereafter. The Roman figures of the Table are transposed to Arabic characters in the Map Sheet accompanying this Report.

The second column gives the distinguishing marks in each case, which appeared on the respective samples as they reached me for examination.

As representing the several voyages of the S.Y. *Aurora*, they are grouped as follows:—

- I to XXIV—First Antarctic Voyage.
 XXV to XXVIII—First Sub-Antarctic Voyage.
 XXX to XLVIII—Second Sub-Antarctic Voyage.
 XLIX to LXIII—Second Antarctic Voyage.
 LXIV to CXV—Third Antarctic Voyage.

Samples LXXXV, CXVI and CXVII are catches in the Tow-net, and have accidentally been included in this collection of Bottom Deposits. In these cases the terrigenous particles may have originated from contamination of dusty matter on the ship or represent silt liberated from the melting of icebergs of land origin. It is probable that the slaggy particles in CXVI and CXVII have their origin as cinders from the ship's stokehole.

Number XXIX of the table of samples bears no serial distinguishing marks, but is labelled "142 miles S.W. of St. Frances Id."*

Samples.		Date.	Location.		Depth.	Description.
Number.	Dist. Mark.		S. Latitude.	E. Longitude.		
I	Sample A.	3/1/12	65 52	143 39	210	Dark-grey sandy ooze with some Globigerina.
II	Sample B.	6/1/12	66 50	146 16	398	Pale-grey sandy ooze.
III	No. 1	20/1/12	66 32	140 25½	308	Light-coloured Diatomaceous and spicular ooze
IV	No. 3	22/1/12	65 2	135 20	239	Rock (igneous) bottom, encrusted with organisms.
V	No. 4	23/1/12	65 2	132 26	160	Greenish-grey pebbly sand with some mud.
VI	No. 5	23/1/12	65 28	132 30	156	Spicular mud and sand.
VII	No. 6	23/1/12	65 45	132 36	230	Sand and stones.
VIII	No. 7	24/1/12	65 26	132 31	170	Green mud.
IX	No. 8	25/1/12	65 17	129 10	230	Mud and small stones.
X	No. 10	31/1/12	66 0	119 30	330	Green mud and small rock fragments.
XI	No. 11	1/2/12	64 49	115 57	930	Mud, sand, and small pebbles
XII	No. 13	3/2/12	65 39	108 35	300	Brown mud and pebbles.
XIII	No. 16	6/2/12	64 31	106 28	1,500	Pale-grey mud.
XIV	No. 20	9/2/12	64 34	96 58½	110	Grey, sandy, and spicular mud with pebbles.
XV	No. 21	10/2/12	64 26	97 11	120	Sand and pebbles with Foraminifera.
XVI	No. 22A	10/2/12	64 13	97 35	870	Sand with pebbles and Foraminifera.
XVII	No. 23	11/2/12	64 46	96 14	120	Pale-green mud.
XVIII	No. 24	13/2/12	65 38	94 28	375	Grey mud.
XIX	No. 25	13/2/12	65 5½	94 25	500	Grey mud.
XX	No. 27	14/2/12	66 22	94 16	220	Mud and pebbles.

* Captain J. K. Davis advises that this was a sample collected by the Commonwealth Fisheries Steamer "Endeavour," and handed to him by Mr. Dannevig, the Director. It has been accidentally included with the Expedition material. The locality is approximately 34° 8' S. Lat., 131° 36' E. Long.—Footnote by the Editor.

AUSTRALASIAN ANTARCTIC EXPEDITION.

Samples.		Date.	Location.		Depth.	Description.
Number.	Dist. Mark.		S. Latitude.	E. Longitude.		
XXI	No. 28	14/2/12	66 18	94 15	160	Mud and stones.
XXII	No. 29	14/2/12	66 13	94 15	125	Shelly mud and stones.
XXIII	No. 30	15/2/12	66 21	94 50	182	Grey sandy mud with stones and polyzoa.
XXIV	No. 31	15/2/12	66 19	94 57	220	Pale-greenish mud and polyzoa.
XXV	No. 1	26/5/12	44 12	140 19	2,590	Globigerina ooze.
XXVI	No. 2	28/5/12	47 38	139 30	2,452	Globigerina ooze.
XXVII	No. 4	6/6/12	53 45	158 12	800	Diatom ooze.
XXVIII	No. 5	7/7/12	49 17	167 36	398	Rock.
XXIX	...	3/9/12	*	*	706	Globigerina ooze.
XXX	No. 11	13/11/12	44 20 $\frac{1}{2}$	147 33	1,475	Globigerina ooze (grey with blue tint).
XXXI	No. 12	14/11/12	45 26	147 26	2,083	Globigerina ooze (cream-coloured).
XXXII	No. 13	14/11/12	46 2	147 30	1,940	Globigerina ooze (grey).
XXXIII	No. 22	20/11/12	51 40	155 3 $\frac{1}{2}$	2,570	Globigerina ooze (pale ochre-yellow).
XXXIV	No. 23	21/11/12	53 8	157 0 $\frac{1}{2}$	2,460	Globigerina ooze (pale ochre-yellow).
XXXV	No. 33	27/11/12	51 51 $\frac{1}{2}$	164 40	2,430	Terrigenous mud with spicules (greenish-grey).
XXXVI	No. 37	28/11/12	50 33	166 58	60	Polyzoa.
XXXVII	No. 38	28/11/12	50 1	167 12	81	Shells and polyzoa.
XXXVIII	No. 40	1/12/12	49 23 $\frac{1}{2}$	159 47	2,610	Glob. ooze with some shells and sand (greenish-yellow)
XXXIX	No. 41	4/12/12	48 17	151 42	2,700	Glob. ooze with some terrigenous sand (ochre-yellow).
XL	No. 42	5/12/12	48 19 $\frac{1}{2}$	149 19	1,076	Globigerina ooze (cream-coloured).
XLI	No. 46	6/12/12	47 30	147 29	710	Globigerina ooze (almost white).
XLII	No. 47	7/12/12	47 28 $\frac{1}{2}$	148 21	543	Shelly fragments.
XLIII	No. 54	8/12/12	46 38 $\frac{1}{2}$	147 5 $\frac{1}{2}$	840	Shelly fragments.
XLIV	No. 55	11/12/12	43 4 $\frac{1}{2}$	148 24	1,100	Brown terrigenous sand.
XLV	No. 56	11/12/12	42 53	148 25 $\frac{1}{2}$	675	Brown terrigenous sand.
XLVI	No. 58	11/12/12	42 38 $\frac{1}{2}$	148 37	1,180	Pale-green mud with spicules.
XLVII	No. 59	12/12/12	42 38 $\frac{1}{2}$	148 41 $\frac{1}{2}$	1,320	Green terrigenous mud with spicules.
XLVIII	No. 60	12/12/12	42 44	148 41	1,300	Green terrigenous mud with spicules.
XLIX	No. 67	29/12/12	47 21 $\frac{1}{2}$	145 32	1,670	Globigerina ooze (pale-cream coloured).
L	No. 68	31/12/12	49 58 $\frac{1}{2}$	144 40	2,020	Globigerina ooze.
LI	No. 72	4/1/13	56 13	146 35	1,670	Diatom and spicular ooze.
LII	No. 73	5/1/13	57 25 $\frac{1}{2}$	146 33	1,900	Diatom and spicular ooze.
LIII	No. 74	5/1/13	58 12	146 47	1,900	Diatom and spicular ooze.
LIV	No. 75	7/1/13	59 59	146 54	2,230	Diatom and spicular ooze.
LV	No. 76	8/1/13	61 53 $\frac{1}{2}$	146 39	2,250	Diatom and spicular ooze.
LVI	No. 77	9/1/13	63 6	146 41	2,260	Diatom and spicular ooze.
LVII	No. 78	9/1/13	63 39	146 49	2,150	Diatom and spicular ooze.
LVIII	No. 79	10/1/13	64 8	146 40	2,100	Mud with spicules and rock fragments.
LIX	No. 80	11/1/13	64 52	146 40	1,950	Terrigenous mud with sponge spicules and Diatoms.
LX	No. 81	11/1/13	65 20	146 48 $\frac{1}{2}$	1,650	Terrigenous mud (grey-green).
LXI	No. 83	12/1/13	65 51	144 19	350	Polyzoa, pebbles, &c.
LXII	No. 84	12/1/13	66 1	144 19	184	Green sandy mud with few pebbles, igneous rock.
LXIII	No. 87	12/1/13	66 16 $\frac{1}{2}$	143 28	320	Green mud with sponge spicules.
LXIV	No. 89	28/11/13	54 22	157 20	2,180	Quartz pebble encrusted with iron.
LXV	No. 92	22/11/13	49 9	148 1	2,400	Globigerina ooze (pale-cream coloured).
LXVI	No. 93	23/11/13	50 30	148 2	2,470	Globigerina ooze (pale-cream coloured).
LXVII	No. 101	7/12/13	58 19 $\frac{1}{2}$	155 39	2,000	Pebble with Foraminifer attached.
LXVIII	No. 104	12/12/13	66 25	144 50	250	Green mud with sponge spicules and zircon.
LXIX	No. 105	12/12/13	66 37	144 8 $\frac{1}{2}$	450	Green terrigenous mud with sponge spicules and Diatoms.
LXX	No number	22/12/13	66 55	142 37	354	Green Diatomaceous and spicular ooze.
LXXI	No. 106	27/12/13	66 51	145 35	288	Yellow sandy mud with sponge spicules.
LXXII	No. 107	28/12/13	66 55 $\frac{1}{2}$	145 24	318	Grey sandy mud with sponge spicules.
LXXIII	No. 108	29/12/13	66 49	145 42	240	Whitish terrigenous mud with sponge spicules.
LXXIV	No. 110	31/12/13	66 32	141 39	157	Green terrigenous mud.
LXXV	No. 111	1/1/14	65 43	140 19	205	Sandy mud.
LXXVI	No. 114	2/1/14	65 53	137 30	230	Sandy mud.
LXXVII	No. 115	2/1/14	65 48	137 32	330	Pale-greenish terrigenous mud with Diatoms.
LXXVIII	No. 116	31/1/14	64 53	135 35	940	Greenish-grey terrigenous mud with sponge spicules.
LXXIX	No. 117	3/1/14	64 39	134 46	945	Green terrigenous mud.
LXXX	No. 118	4/1/14	64 25	132 26	950	Green terrigenous mud with spicules.
LXXXI	No. 119	4/1/14	64 0	132 22	1,810	Green terrigenous mud with spicules.
LXXXII	No. 120	5/1/14	64 14	130 1	1,550	Green terrigenous mud with spicules.
LXXXIII	No. 121	6/1/14	64 34 $\frac{1}{2}$	127 17	1,700	Yellow terrigenous mud with spicules.
LXXXIV	No. 122	9/1/14	65 28 $\frac{1}{2}$	120 59	1,400	Green terrigenous mud.
LXXXV	Pack edge	10/1/14	64 34	117 1	...	Globigerina, &c. (Tow-netting at 25 fathoms).
LXXXVI	No. 123	10/1/14	64 35	117 1	1,350	Green mud, sponge spicules, Diatoms.
LXXXVII	No. 124	11/1/14	64 44	113 46	990	Green mud, sponge spicules, and Diatoms
LXXXVIII	No. 125	12/1/14	64 37	109 6	1,530	Greenish Diatom ooze.
LXXXIX	No. 126	14/1/14	63 21	101 42	710	Green sandy mud with Diatoms.

* 142 miles S.W. of St. Frances Island.

Samples.		Date.	Location.		Depth.	Description.
Number.	Dist. Mark.		S. Latitude.	E. Longitude.		
			° ' "	° ' "	fath' ms.	
XC	No. 127	14/1/14	63 13½	101 42	870	Green mud and Diatoms.
XCI	No. 128	15/1/14	62 47	99 20	2,250	Green mud and Diatoms.
XCII	No. 129	16/1/14	62 58	96 2	1,660	Green mud and Diatoms.
XCIII	No. 130	17/1/14	62 33½	94 34	1,990	Green mud and Diatoms.
XCIV	No. 131	20/1/14	65 47	90 16	290	Sandy terrigenous mud.
XCV	No. 133	20/1/14	65 48	91 21	280	Pale-green terrigenous mud and spicules.
XCVI	No number	21/1/14	65 47	92 15	56	Pebbles and sand.
XCVII	No. 138	26/1/14	66 17	94 20	204	Gritty terrigenous sand and spicules.
XCVIII	No. 139	27/1/14	65 53	95 18	328	Green mud and spicules.
XCIX	No. 140A	28/1/14	65 19½	95 27	204	Pale-green terrigenous sandy mud.
C	No. 140B	28/1/14	65 8	95 43	252	Polyzoa, &c.
CI	No. 141	28/1/14	65 7	96 3	302	Green mud.
CII	No. 141A	29/1/14	65 6	96 13	325	Green mud.
CIII	No. 141B	29/1/14	65 2½	96 13	250	Green mud.
CIV	No. 142	30/1/14	64 53	95 59	370	Green sandy mud.
CV	No. 142A	30/1/14	64 42	96 10	110	Pale, grey-green gritty mud.
CVI	No. 142B	30/1/14	64 36	96 35	114	Pale-green terrigenous mud and spicules.
CVII	No. 142C	30/1/14	64 44	97 29	358	Grey terrigenous mud and spicules.
CVIII	No. 144A	2/2/14	63 47	96 58	1,170	Grey mud with Diatoms and spicules.
CIX	No. 145	5/2/14	65 45	91 43	265	Green sandy mud, spicules, and Diatoms.
CX	No. 145A	5/2/14	65 46½	91 47	265	Green sandy mud, spicules, and Diatoms.
CXI	No. 146	7/2/14	62 55½	90 28	2,120	Diatom ooze ((pale cream).
CXII	No. 147	12/2/14	54 42½	96 11	2,190	Diatom ooze (rich in Diatoms).
CXIII	No. 148	15/2/14	49 28	107 39	1,780	Globigerina and Diatom ooze (pale cream).
CXIV	No. 149	18/2/14	44 10	117 20	2,600	Globigerina ooze.
CXV	No. 150	24/2/14	35 56	134 14	1,800	Globigerina ooze.
CXVI	Tow-net.	9/1/14	65 30	120 40	...	Diatoms. Tow-net operating at surface.
CXVII	Tow-net	9/1/14	65 30	120 40	...	Diatoms. Tow-net operating at surface.
CXVIII	...	25/11/12	...	...	...	Stones and sand. Sample taken off Macquarie Island between Isle Rocks and North Head. Mt. Elder 85° 2', distant 7.5 sea-miles.

III.—DETAILS OF SOUNDINGS.

I.

Date.—3rd January, 1912.

Position.—Lat. 65° 52' S. Long. 143° 39' E. Just off a Barrier Ice Wall, 80 feet high. North of Eastern Adelle Land.

Depth.—210 fathoms.

Description.—Dark Grey Sandy Ooze, with some *Globigerina*.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
8.8	Chiefly <i>Globigerina dutertrei</i> and <i>Cassidulina</i> (several spp.). Other genera— <i>Ehrenbergina</i> , <i>Nodosaria (Glandulina)</i> , <i>Uvigerina</i> , <i>Pullenia</i> and <i>Truncatulina</i> .	A few minute Echinoid fragments.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
91.2	Sponge-spicules and a few Radiolaria	Chiefly sand (terrigenous).

II.

Date.—6th January, 1912.

Position.—Lat. 66° 50' S. Long. 146° 16' E.* Close to edge of Ice Barrier, 120 feet high.

Depth.—398 fathoms.

Description.—Pale Grey Sandy Ooze.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
2.536	<i>Globigerina</i> and <i>Uvigerina</i> , very rare	<i>Antedon</i> (ossicle).

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
97.464	Arenaceous Foraminifera fairly abundant.— <i>Miliolina</i> , <i>Rhabdammina</i> , <i>Rhizammina</i> , <i>Reophax</i> , <i>Haplophragmium</i> and <i>Verneuilina</i> , Sponge-spicules, Radiolaria and Diatoms (chiefly <i>Coscinodiscus</i>).	Sand (terrigenous), with minute crystals of ?Tourmaline.

* On revisiting this locality two years later, this longitude which was calculated by dead-reckoning at the time was found to be in error, and should be about 145° 37'.—*Editor*.

III.

Date.—20th January, 1912.

Position.—Lat. 66° 32' S. Long. 140° 25½' E. Off Adelie Land.

Depth.—308 fathoms.

Description.—Diatomaceous and Spicular ooze. Pale grey to chalk-white when dry.

Composition.—

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
100 (This ooze contains no carbonate of lime.)	Diatoms and Sponge-spicules abundant. A few Radiolaria. Occasional arenaceous isomorphs of porcellaneous Foraminifera (<i>Miliolina</i>), upon which strong HCl has no effect. Also <i>Rhabdammina</i> , <i>Pelosina</i> , <i>Reophax</i> and <i>Haplophragmium</i> .	Diatoms, Sponge-spicules and minute sand-grains.

IV.

Date.—22nd January, 1912.

Position.—Lat. 65° 2' S. Long. 135° 20' E.

Depth.—239 fathoms. Bottom rock.

Description.—A fragment of igneous rock with encrusting organisms, *Lepralia* sp. and attached Worm-tubes (obscure).

V.

Date.—23rd January, 1912.*Position.*—Lat, 65° 2' S. Long. 132° 26' E.*Depth.*—160 fathoms.*Description.*—Greenish-grey Pebbly Sand, with some Mud.*Composition.*—*Carbonate of Lime.*

Percentage.	Foraminifera.	Other Organisms.
3.1	<i>Cassidulina</i> , <i>Uvigerina angulosa</i> (not rare), <i>Globigerina dutertrei</i> (frequent and small), and <i>Virgulina</i> .	Coccoliths and Rhabdoliths in fine washings.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
96.9	Arenaceous Miliolines, <i>Psammosphæra</i> , <i>Haplophragmium</i> , <i>Reophax</i> and <i>Gaudryina</i> . Radiolaria, Diatoms and Sponge-spicules.	Sand, Diatoms, Radiolaria and Sponge-spicules.

VI.

Date.—23rd January, 1912.*Position.*—Lat. 65° 28' S. Long. 132° 30' E.*Depth.*—156 fathoms.*Description.*—Spicular Mud and Sand.*Composition.*—*Carbonate of Lime.*

Percentage.	Foraminifera.	Other Organisms.
11	Nil	Fragments of Molluscan Shells, indet.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
89	Sponge-spicules	Terrigenous sand and broken Sponge-spicules.

VII.

Date.—23rd January, 1912.

Position.—Lat. 65° 45' S. Long. 131° 36' E. Land distant apparently 20 miles.

Depth.—230 fathoms.

Description.—Sand and Stones.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
4.6	<i>Uvigerina</i> , <i>Globigerina</i> , <i>Pullenia</i> and <i>Truncatulina</i> .	Nil.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
95.4	Arenaceous Miliolines, <i>Rhabdammina</i> , <i>Reophax</i> , <i>Haplophragmium</i> and <i>Trochammina</i> . Also Sponge-spicules, Diatoms and occasional Radiolaria.	Terrigenous sand, broken Spicules and Diatoms.

VIII.

Date.—24th January, 1912.

Position.—Lat. 65° 26' S. Long. 132° 31' E. Many very large bergs around.

Depth.—170 fathoms.

Description.—Green Mud.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
2.6	<i>Uvigerina</i> , <i>Cassidulina</i> and <i>Pulvinulina</i> ...	Shell-fragments.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
97.4	Radiolaria. Arenaceous Foraminifera (<i>Reophax</i>).	Terrigenous sand and broken Sponge-spicules.

IX.

Date.—25th January, 1912.

Position.—Lat. 65° 17' S. Long. 129° 10' E.

Depth.—230 fathoms.

Description.—Mud and small Stones.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
14.3	<i>Cassidulina</i> , <i>Bulimina</i> , <i>Ehrenbergina</i> , <i>Globigerina</i> , <i>Uvigerina</i> , and <i>Truncatulina</i> .	Polyzoa (rather worn) and Echinoid (Spatangoid) spines.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
85.7	<i>Rhabdammina</i> , <i>Rhizammina</i> , <i>Reophax scopiurus</i> and <i>Haplophragmium</i> .	Terrigenous sand.

X.

Date.—31st January, 1912.

Position.—Lat. 66° 0' S. Long. 119° 30' E.

Depth.—330 fathoms.

Description.—Grey mud with fragments and pebbles of Granitic and other rocks,

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
6.5	<i>Bulimina</i> , <i>Ehrenbergina</i> , <i>Globigerina</i> and <i>Truncatulina</i> .	Nil.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
93.5	Radiolaria and Arenaceous Foraminifera (Arenaceous Miliolines, <i>Rhabdammina</i> , <i>Reophax</i> , <i>Haplophragmium</i> and <i>Cyclammina</i>).	Fine angular quartz-sand and broken Sponge-spicules.

XI.

Date.—1st February, 1912.

Position.—Lat. 64° 49' S. Long. 115° 57' E.

Depth.—930 fathoms.

Description.—Mud, Sand and small Pebbles.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
11.66	<i>Biloculina</i> , <i>Bulimina</i> , <i>Cassidulina</i> , <i>Virgulina</i> , <i>Pleurostomella</i> , <i>Lagera</i> , <i>Nodosaria</i> , <i>Cristellaria</i> , <i>Uvigerina</i> , <i>Pullenia</i> , <i>Spirillina</i> , <i>Anomalina</i> , <i>Truncatulina</i> , <i>Pulvinulina</i> , <i>Nonionina</i> and <i>Rotalia</i> .	Echinoid spines and Ostracoda (<i>Krithe</i>).

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
88.34	<i>Rhabdammina</i> , <i>Psammosphæra</i> , <i>Reophax</i> , <i>Haplophragmium</i> , <i>Cyclammina</i> , <i>Textularia</i> , <i>Gaudryina</i> and <i>Verneuilina</i> . Also Radiolaria and Sponge-spicules.	Fine sand-grains and Radiolaria.

XII.

Date.—3rd February, 1912.

Position.—Lat. 65° 39' S. Long. 108° 35' E.

Depth.—300 fathoms.

Description.—Brown Mud with Granitic Pebbles.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
9.3	<i>Bulimina</i> and <i>Globigerina</i>	None recognisable.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
90.7	<i>Rhabdammina</i> and arenaceous Miliolines ...	Terrigenous detritus.

XIII.

Date.—6th February, 1912.

Position.—Lat. 64° 31' S. Long. 106° 28' E.

Depth.—1,500 fathoms.

Description.—Pale Grey Mud.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
3.47	<i>Globigerina dutertrei</i> and <i>Truncatulina refulgens</i> .	(?) Ostracoda.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
1.53	<i>Rhabdammina discreta</i> , <i>Hyperammina friabilis</i> , <i>Reophax</i> , <i>Cyclammina</i> , <i>Haplophragmium</i> , <i>Trochammina</i> , <i>Gaudryina</i> , <i>Clavulina</i> , <i>Valvulina</i> and <i>Ammodiscus</i> . Diatoms, Sponge-spicules and Radiolaria (very rare).	Terrigenous particles. Diatoms.

XIV.

Date.—9th February, 1912.

Position.—Lat. 64° 34' S. Long. 96° 58½' E.

Depth.—110 fathoms.

Description.—Grey Sandy and Spicular Mud, with small Stones.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
7.27	<i>Biloculina</i> , <i>Miliolina</i> , <i>Bulimina</i> , <i>Cassidulina</i> , <i>Ehrenbergina</i> , <i>Nodosaria</i> , <i>Uvigerina</i> , <i>Globigerina</i> and <i>Truncatulina</i> .	Echinoid Spines; Ossicles of Starfish; Ostracoda (<i>Cytheropteron</i> and <i>Cythere</i>).

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
92.73	<i>Miliolina</i> (arenaceous), <i>Rhizammina</i> , <i>Pelosina</i> , and <i>Haplophragmium</i> . Sponge-spicules; Radiolaria (very rare).	Fine angular sand and broken Sponge-spicules.

XV.

Date.—10th February, 1912.

Position.—Lat. 64° 26' S. Long. 97° 11' E.

Depth.—120 fathoms.

Description.—Sand and small Stones, with Foraminifera (*Haplophragmium*, *Placopsilina*, *Ehrenbergina*, *Cassidulina*, *Nodosaria*, *Uvigerina*, *Globigerina*, and *Anomalina*); Polyzoa and Worm-tubes.

Sample too small for analysis.

XVI.

Date.—10th February, 1912.

Position.—Lat. 64° 13' S. Long. 97° 35' E.

Depth.—870 fathoms.

Description.—Sand and small Stones, with numerous Foraminifera, as *Rhabdamina*, *Psammosphæra*, *Webbina*, *Cyclamina*, *Gaudryina*, *Bulimina*, *Cassidulina*, *Uvigerina*, *Globigerina*, *Truncatulina*, and *Pulvinulina*.

XVII.

Date.—11th February, 1912.

Position.—Lat. 64° 46' S. Long. 96° 14' E.

Depth.—120 fathoms.

Description.—Pale Green Mud.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
6	<i>Miliolina</i> and <i>Uvigerina</i>	(?) Antedon joints.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
94	Foraminifera (arenaceous <i>Miliolinæ</i> , <i>Pelosina</i> , <i>Thuramina</i> , <i>Psammosphæra</i> , <i>Reophax</i> and <i>Haplophragmium</i> . Sponge-spicules and Radiolaria.	Quartz sand.

XVIII.

Date.—13th February, 1912.

Position.—Lat. 65° 38' S. Long. 94° 28' E.

Depth.—375 fathoms.

Description.—Grey mud.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
Trace ...	None ...	None recognisable.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
95.5	Arenaceous Foraminifera.— <i>Rhabdammina</i> , <i>Reophax</i> , <i>Haplophragmium</i> , <i>Placopsilina</i> , <i>Trochammina</i> , and arenaceous <i>Miliolinæ</i> . Radiolaria.	Fine angular sand.

XIX.

Date.—13th February, 1912.

Position.—Lat. 65° 5¼' S. Long. 94° 25' E.

Depth.—500 fathoms.

Description.—Grey Mud.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
13	<i>Bulimina</i> , <i>Ehrenbergina</i> , <i>Lagena</i> , <i>Nodosaria</i> , <i>Cristellaria</i> , <i>Globigerina</i> , <i>Truncatulina</i> and <i>Nonionina</i> .	Echinoid remains. Ostracoda.— <i>Cythere ville-thomsoni</i> , frequent.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
87	Arenaceous <i>Miliolinæ</i> , <i>Rhabdammina</i> , <i>Psamphæra</i> , <i>Reophax</i> , <i>Haplophragmium</i> , <i>Trochammina</i> , <i>Pelosina</i> and <i>Technitella</i> . Also Radiolaria and Sponge-spicules.	Fine angular sand.

XX.

Date.—14th February, 1912.

Position.—Lat. 66° 22' S. Long. 94° 16' E.

Depth.—220 fathoms.

Description.—Mud and stones.

Composition.—(Estimated without stones).

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
5.5	<i>Cassidulina</i> , <i>Uvigerina</i> , <i>Globigerina</i> and <i>Truncatulina</i> .	(?) Worm-tubes.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
94.5	Arenaceous <i>Miliolinæ</i> and <i>Haplophragmium</i> . Diatoms and Sponge-spicules.	Sand and broken Sponge-spicules. Also a few Diatoms.

XXI.

Date.—14th February, 1912.

Position.—Lat. 66° 18' S. Long. 94° 15' E.

Depth.—160 fathoms.

Description.—Mud and stones.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
20.7	<i>Biloculina</i> , <i>Planispirina</i> , <i>Bulimina</i> , <i>Cassidulina</i> , <i>Ehrenbergina</i> , <i>Nodosaria (Glandulina)</i> , <i>Cristellaria</i> , <i>Uvigerina</i> , <i>Globigerina</i> , <i>Discorbina</i> , <i>Anomalina</i> and <i>Truncatulina</i> .	Echinoid Spines (common). Ostracoda of the following genera:— <i>Argilloëcia</i> , <i>Aglaia</i> , <i>Cythere</i> , <i>Cytherura</i> and <i>Xestoleberis</i> .

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
79.3	Arenaceous Foraminifera (<i>Reophax</i> and <i>Hippocrepina</i>). Sponge-spicules.	Sand and broken Sponge-spicules.

XXII.

Date.—14th February, 1912.

Position.—Lat. 66° 13' S. Long. 94° 15' E.

Depth.—125 fathoms.

Description.—Shelly mud and stones.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
39.4	Foraminifera numerous; the commonest genera are:— <i>Biloculina</i> , <i>Miliolina</i> , <i>Planispirina</i> , <i>Cornuspira</i> , <i>Bulimina</i> , <i>Ehrenbergina</i> , <i>Cassidulina</i> , <i>Lagena</i> , <i>Nodosaria</i> , <i>Cristellaria</i> , <i>Polymorphina</i> , <i>Uvigerina</i> , <i>Globigerina</i> , <i>Spirillina</i> , <i>Patellina</i> and <i>Truncatulina</i> .	Polyzoa, Worms, Crinoid remains and Ostracoda (<i>Macrocypris</i> , <i>Aglaia</i> , <i>Bairdia</i> , <i>Cythere</i> , <i>Pseudocythere</i> , <i>Xiphichilus</i> , <i>Sclerochilus</i> , <i>Cytheropteron</i> and <i>Bythocythere</i>).

Residue.

Percentage.	Siliceous Organisms.	Fine Washings
60.6	Sponge-spicules. Arenaceous Foraminifera numerous, including the following genera:— <i>Rhabdammina</i> , <i>Technitella</i> , <i>Psammosphæra</i> , <i>Saccamina</i> , <i>Reophax</i> , <i>Haplophragmium</i> and <i>Trochammina</i> .	Spicules and terrigenous particles.

XXIII.

Date.—15th February, 1912.

Position.—Lat. 66° 21' S. Long. 94° 50' E.

Depth.—182 fathoms.

Description.—Grey sandy mud with some stones and polyzoa.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
9.75	<i>Biloculina</i> , <i>Miliolina</i> , <i>Planispirina</i> , <i>Cornuspira</i> , <i>Cassidulina</i> , <i>Ehrenbergina</i> , <i>Cristellaria</i> , <i>Uvigerina</i> , <i>Globigerina</i> , <i>Spirillina</i> , <i>Patellina</i> and <i>Truncatulina</i> .	Echinoid remains, Polyzoa, Mollusca and the following Ostracoda:— <i>Argillæcia</i> , <i>Cythere</i> , <i>Bythocythere</i> , <i>Pseudocythere</i> , <i>Paradoxostoma</i> , <i>Cytheropteron</i> and <i>Polycope</i> .

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
90.25	Foraminifera (<i>Psammosphæra</i>)	Diatoms and Sponge-spicules.

XXIV.

Date.—15th February, 1912.

Position.—Lat. 66° 19' S. Long. 94° 57' E.

Depth.—220 fathoms.

Description.—Pale greenish mud with polyzoa.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
38.8	<i>Biloculina</i> , <i>Miliolina</i> , <i>Planispirina</i> , <i>Cornuspira</i> , <i>Articulina</i> , <i>Bulimina</i> , <i>Cassidulina</i> , <i>Ehrenbergina</i> , <i>Lagena</i> , <i>Nodosaria</i> , <i>Cristellaria</i> , <i>Poly-morphina</i> , <i>Uvigerina</i> , <i>Globigerina</i> , <i>Spirillina</i> , <i>Patellina</i> , <i>Discorbina</i> , <i>Truncatulina</i> and <i>Nonionina</i> .	Mollusca; Worm-tubes; Echinoid spines; Polyzoa (abundant); and Alcyonids. Ostracoda of the following genera:— <i>Argillacia</i> , <i>Bairdia</i> , <i>Bythocypris</i> , <i>Cythere</i> , <i>Loxococoncha</i> , <i>Cytherura</i> , <i>Pseudocythere</i> , <i>Xestoleberis</i> , <i>Sclerochichilus</i> , and <i>Cytheropteron</i> .

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
61.2	Arenaceous Foraminifera (<i>Rhabdammina</i> , <i>Psammosphæra</i> , <i>Reophae</i> , and <i>Haplophragmium</i>). Also Sponge-spicules.	Broken Sponge-spicules, Shell-fragments and terrigenous grains.

XXV.

Date.—26th May, 1912.

Position.—Lat. 44° 12' S. Long. 140° 19' E.

Depth.—2,590 fathoms.

Description.—Globigerina Ooze.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
83.8	<i>Biloculina</i> , <i>Miliolina</i> , <i>Verneuilina</i> , <i>Virgulina</i> , <i>Cassidulina</i> , <i>Pleurostomella</i> , <i>Ehrenbergina</i> , <i>Uvigerina</i> , <i>Globigerina</i> , <i>Anomalina</i> , <i>Truncatulina</i> , and <i>Pulvinulina</i> .	A few Ostracoda (<i>Krithe</i>). Numerous Coccoliths in fine washings.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
16.2	Arenaceous Foraminifera (<i>Spiroplecta</i>). Sponge-spicules.	Sponge-spicules and terrigenous particles.

XXVI.

Date.—28th May, 1912.

Position.—Lat. 47° 38' S. Long. 139° 30' E.

Depth.—2,452 fathoms.

Description.—Globigerina Ooze.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
82.15	<i>Cassidulina</i> , <i>Globigerina</i> , <i>Sphaeroidina</i> , <i>Truncatulina</i> and <i>Pulvinulina</i> .	Coccoliths abundant.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
17.85	Arenaceous Foraminifera (<i>Gaudryina</i>). A few Radiolaria.	Fine terrigenous particles.

XXVII.

Date.—6th June, 1912.

Position.—Lat. 53° 45' S. Long. 158° 12' E.

Depth.—Circ. 800 fathoms.

Description.—Diatomaceous Ooze.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
18.33	<i>Ehrenbergina</i> , <i>Globigerina</i> , <i>Sphaeroidina</i> , <i>Discorbina</i> and <i>Pulvinulina</i> .	Nil.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
81.67	Arenaceous Foraminifera (<i>Cyclammina</i>). Diatomaceæ abundant; chiefly <i>Coscinodiscus</i> . Also Sponge-spicules and a few Radiolaria.	Sponge-spicules and Diatoms.

XXVIII.

Date.—7th July, 1912.

Position.—Lat. 49° 17' S. Long. 167° 36' E.

Depth.—398 fathoms.

An angular chip of pale yellow rock, of hardness 4. Original weight of fragment, 23.5 grains. One surface of the chip is rough and slightly covered with a black earthy substance, which gives an iron reaction. The rock itself is stained, near the crust, of a pale brick red. The fractured surface shows numerous rounded holes or vesicles. In thin sections this rock is seen to be of the nature of a pumiceous slag.

XXIX.

Date.—3rd September, 1912.

Position.—142 miles S.W. of St. Frances Island, South Australia.

Depth.—706 fathoms.

Description.—Globigerina Ooze.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
96	<i>Biloculina</i> , <i>Miliolina</i> , <i>Cassidulina</i> , <i>Bulimina</i> , <i>Bolivina</i> , <i>Lagena</i> , <i>Uvigerina</i> , <i>Globigerina</i> , <i>Orbulina</i> , <i>Sphæroidina</i> , <i>Pullenia</i> , <i>Discorbina</i> , <i>Anomalina</i> , <i>Truncatulina</i> , <i>Pulvinulina</i> and <i>Rotalia</i> .	Coccoliths and Rhabdoliths abundant. Spines of Echinoids, common. Ostracoda, frequent (<i>Cythere</i> , <i>Krithe</i> , <i>Bairdia</i> , <i>Cytheropteron</i> and <i>Xestoleberis</i>).

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
4	Arenaceous Foraminifera (<i>Hyperammina</i> and <i>Gaudryina</i>). Sponge-spicules.	Sponge-spicules and terrigenous particules.

XXX.

Date.—13th November, 1912.*Position.*—Lat. 44° 20½' S. Long. 147° 33' E.*Depth.*—1,475 fathoms.*Description.*—Globigerina Ooze; grey with a blue tinge.*Composition.*—*Carbonate of Lime.*

Percentage.	Foraminifera.	Other Organisms.
96	<i>Biloculina</i> , <i>Miliolina</i> , <i>Sigmoëlina</i> , <i>Gaudryina</i> , <i>Bulimina</i> , <i>Bolivina</i> , <i>Lagena</i> , <i>Uvigerina</i> , <i>Globigerina</i> , <i>Orbulina</i> , <i>Anomalina</i> , <i>Truncatulina</i> , <i>Pulvinulina</i> and <i>Nonionina</i> .	A few Coccoliths in the fine washings. Echinoid spines rare. Ostracods rare (<i>Bairdia</i> , <i>Cythere</i> and <i>Krithe</i>).

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
4	Arenaceous foraminifera (<i>Reophax spiculifera</i>).	Broken Spicules and sand.

XXXI.

Date.—14th November, 1912.*Position.*—Lat. 45° 26' S. Long. 147° 26' E.*Depth.*—2,083 fathoms.*Description.*—Globigerina Ooze, cream coloured.*Composition.*—*Carbonate of Lime.*

Percentage.	Foraminifera.	Other Organisms.
91.7	<i>Miliolina</i> , <i>Cornuspira</i> , <i>Uvigerina</i> , <i>Orbulina</i> , <i>Globigerina</i> , <i>Anomalina</i> , <i>Truncatulina</i> , <i>Pulvinulina</i> and <i>Nonionina</i> .	Coccoliths comparatively large and numerous. Ostracods rare (<i>Krithe</i> and <i>Cythere</i>). A few Echinoderm Spines.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
8.3	Arenaceous Foraminifera rare (<i>Hyperammia</i> , <i>Clavulina</i> and <i>Haplophragmium</i>). Radiolarians very rare. Sponge-spicules rather common.	A few Spicules and flocculent mud.

XXXII.

Date.—14th November, 1912, 6 p.m.

Position.—Lat. 46° 2' S. Long. 147° 30' E.

Depth.—1,940 fathoms.

Description.—Globigerina Ooze, grey.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
96.3	<i>Biloculina</i> , <i>Miliolina</i> , <i>Lagena</i> , <i>Cristellaria</i> , <i>Polymorphina</i> , <i>Uvigerina</i> , <i>Globigerina</i> , <i>Orbulina</i> , <i>Truncatulina</i> , <i>Pulvinulina</i> and <i>Nonionina</i> .	Coccoliths abundant. A few Echinoid Spines (spatangoid).

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
3.7	Arenaceous Foraminifera (<i>Reophax</i> , <i>Haplophragmium</i> and <i>Gaudryina</i>). Radiolaria and Diatoms.	Sponge spicules and Diatoms.

XXXIII.

Date.—20th November, 1912.

Position.—Lat. 51° 40' S. Long. 155° 3½' E.

Depth.—2,570 fathoms.

Description.—Globigerina Ooze; pale ochre-yellow.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
95.24	<i>Ehrenbergina</i> , <i>Lagena</i> , <i>Orbulina</i> , <i>Globigerina</i> , <i>Truncatulina</i> , <i>Pulvinulina</i> and <i>Rotalia</i> .	Coccoliths very rare and comparatively small. A few Echinoid Spines.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
4.76	Arenaceous Foraminifera (<i>Spiroplecta</i>). Diatoms and Radiolaria.	Small Sponge spicules and Diatoms.

XXXIV.

Date.—21st November, 1912.

Position.—Lat. 53° 8' S. Long. 157° ½' E.

Depth.—2,460 fathoms.

Description.—Globigerina Ooze; pale ochreous yellow.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
81.25	<i>Globigerina, Truncatulina, Pulvinulina, Rotalia</i> and <i>Nonionina</i> .	Coccoliths very rare and comparatively small. Also a minute fish-tooth.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
18.75	Radiolaria, Diatoms and Sponge-spicules ...	Diatoms and Radiolaria abundant. Spicules fairly common. A few sand-grains.

XXXV.

Date.—27th November, 1912.

Position.—Lat. 51° 51½' S. Long. 164° 40' E.

Depth.—2,430 fathoms.

Description.—Greenish-grey Terrigenous Mud, with Sponge-spicules.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
45.37	<i>Lagena, Globigerina, Truncatulina</i> and <i>Pulvinulina</i> .	Nil.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
54.63	Arenaceous Foraminifera (<i>Haplophragmium</i> and <i>Clavulina</i>). A few Radiolaria and Sponge-spicules.	Fine terrigenous mud and broken Spicules.

XXXVI.

Date.—28th November, 1912.

Position.—Lat. 50° 33' S. Long. 166° 58' E.

Depth.—60 fathoms.

Description.—Polyzoa.

XXXVII.

Date.—28th November, 1912.

Position.—Lat. 50° 1' S. Long. 167° 1' E.

Depth.—81 fathoms.

Description.—Shells and Polyzoa.

XXXVIII.

Date.—1st December, 1912.

Position.—Lat. 49° 23½' S. Long. 159° 47' E.

Depth.—2,610 fathoms.

Description.—Globigerina Ooze, with some Terrigenous Sand; greenish yellow.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
64·24	<i>Biloculina, Miliolina, Cassidulina, Bulimina, Ehrenbergina, Uvigerina, Globigerina, Spirulina, Truncatulina, Pulvinulina</i> and <i>Nonionina</i> .	A few Coccoliths. Echinoid Spines. Small Fish-teeth. An Ostracod (<i>Krithe</i>).

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
35·76	Diatoms, rare. Radiolaria not uncommon, and in good variety.	Silty mud with few Diatoms.

XXXIX.

Date.—4th December, 1912.

Position.—Lat. 48° 17' S. Long. 151° 42' E.

Depth.—2,700 fathoms.

Description.—Globigerina Ooze and some Terrigenous Sand; ochreous yellow.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
82.48	<i>Biloculina, Miliolina, Bulimina, Cassidulina, Lagena, Cristellaria, Polymorphina, Uvigerina, Orbulina, Globigerina, Sphaeroidina, Pullenia, Truncatulina</i> and <i>Pulvinulina</i> .	Coccoliths numerous and large. Echinoid Spines frequent.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
17.52	Arenaceous Foraminifera (<i>Haplophragmium</i>) ... Diatoms (<i>Coscinodiscus</i>) and Sponge-spicules. Radiolaria frequent.	Terrigenous sand, Diatoms and Sponge-spicules.

XL.

Date.—5th December, 1912.

Position.—Lat. 48° 19½' S. Long. 149° 19' E.

Depth.—1,076 fathoms.

Description.—Globigerina Ooze; cream-coloured.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
94.74	<i>Miliolina, Bulimina, Lagena, Uvigerina, Orbulina, Globigerina, Truncatulina</i> and <i>Pulvinulina</i> .	Coccoliths abundant. Ostracods rare (<i>Krihe</i> and <i>Cytheropteron</i>).

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
5.26	Radiolaria and Sponge-spicules	Sponge-spicules and fine sand.

XLI.

Date.—6th December, 1912.

Position.—Lat. 47° 30' S. Long. 147° 29' E.

Depth.—710 fathoms.

Description.—Globigerina Ooze; almost white.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
99.5	<i>Biloculina, Bulimina, Lagena, Uvigerina, Orbulina, Globigerina, Sphaeroidina, Pullenia.</i>	Echinoid Spines.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
.5	Arenaceous Foraminifera (<i>Haplophragmium</i> and <i>Spiroplecta</i>). A few Radiolaria. Yellow (?) glauconite casts of <i>Globigerina</i> .	A few Sponge-spicules and Radiolaria.

XLII.

Date.—7th December, 1912.

Position.—Lat. 47° 28½' S. Long. 148° 21' E.

Depth.—543 fathoms.

Description.—Shelly and other Calcareous fragments:—Valve of Chiton; Polyzoa (worn); Barnacles (valves of *Balanus, Verruca* and *Scalpellum*) and Spines of Echinoids. Also the following Foraminifera:—

Technitella legumen; Textularia gramen; Uvigerina angulosa; Orbulina universa; Globigerina dubia; G. bulloides; G. dutertrei; G. pachyderma; Truncatulina ungeriana; T. wuellerstorfi; Rupertia stabilis; and Pullvinulina truncatulinoidea.

XLIII.

Date.—8th December, 1912.

Position.—Lat. 46° 38½' S. Long. 147° 54' E.

Depth.—840 fathoms.

Description.—Shelly Fragments and Valves of Barnacles (? *Scalpellum*).

XLIV.

Date.—11th December, 1912.

Position.—Lat. 43° 4½' S. Long. 148° 24' E.

Depth.—1,100 fathoms.

Description.—Brown terrigenous Sand. Quartz-grains coated with thin ferruginous stain. No Foraminifera.

XLV.

Date.—11th December, 1912.

Position.—Lat. 42° 53' S. Long. 148° 25¼' E.

Depth.—675 fathoms.

Description.—Brown terrigenous Sand, with a few Sponge-spicules.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
29	<i>Biloculina, Miliolina, Bulimina, Bolivina, Cassidulina, Lagena, Uvigerina, Sagraina, Ramulina, Orbulina, Globigerina, Sphaeroidina, Discorbina, Anomalina, Truncatulina, Pulvinulina</i> and <i>Rotalia</i> .	Echinoid Spines and Polyzoa (fragments). Ostracoda rather rare (<i>Krithe, Argillacea</i>).

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
71	Arenaceous Foraminifera.— <i>Marsipella, Haplophragmium, Spiroplecta</i> and <i>Valvulina</i> . Sponge spicules.	Terrigenous sand.

XLVI.

Date.—11th December, 1912.

Position.—Lat. 42° 38½' S. Long. 148° 37' E.

Depth.—1,180 fathoms.

Description.—Pale Green Mud, with Sponge-spicules; a few Foraminifera and much Terrigenous Mud.

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
76	<i>Biloculina, Miliolina, Sigmöilina, Verneuilina, Bulimina, Bolivina, Cassidulina, Lagena, Nodosaria, Cristellaria, Uvigerina, Orbulina, Globigerina, Spirillina, Discorbina, Truncatulina, Anomalina, Pulvinulina</i> and <i>Nonionina</i> .	Coccoliths fairly numerous and comparatively large. Echinoid spines. Ostracoda frequent (<i>Bairdia, Pontocypris, Cythere, Krithe, Loxoconcha, Xestoleberis, Xiphichilus, Cytherura, Bythocythere, Cytheropteron, Cytherella</i>). Fish Otoliths.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
24	Arenaceous Foraminifera.— <i>Reophax</i> Sponge-spicules rather abundant. Diatoms rare.	Sponge-spicules mostly broken. Much fine terrigenous sand.

XLVII.

Date.—12th December, 1912.

Position.—Lat. 42° 38½' S. Long. 148° 41½' E.

Depth.—1,320 fathoms.

Description.—Green Terrigenous Mud, with Sponge-spicules and Foraminifera; much decomposing matter.

Composition:—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
72.85	<i>Biloculina</i> , <i>Miliolina</i> , <i>Sigmoilina</i> , <i>Planispirina</i> , <i>Bulimina</i> , <i>Virgulina</i> , <i>Bolivina</i> , <i>Cassidulina</i> , <i>Ehrenbergina</i> , <i>Lagena</i> , <i>Nodosaria</i> , <i>Triplasia</i> , <i>Cristellaria</i> , <i>Polymorphina</i> , <i>Uvigerina</i> , <i>Sagrainia</i> , <i>Globigerina</i> , <i>Orbulina</i> , <i>Pullenia</i> , <i>Spirillina</i> , <i>Discorbina</i> , <i>Anomalina</i> , <i>Truncatulina</i> , <i>Pulvinulina</i> , <i>Rotalia</i> , <i>Nonionina</i> , <i>Polystomella</i> , and <i>Heterostegina</i> .	A few large Coccoliths. Numerous Echinoid Spines. Ostracoda abundant (<i>Aglaiia</i> , <i>Pontocypris</i> , <i>Argillæcia</i> , <i>Macrocypris</i> , <i>Bythocypris</i> , <i>Bairdia</i> , <i>Cythere</i> , <i>Kriihe</i> , <i>Loxoncha</i> , <i>Xestoleberis</i> , <i>Cytherura</i> , <i>Cytherop-teron</i> , <i>Bythocythere</i> , <i>Pseudocythere</i> , <i>Cytherideis</i> , <i>Xiphichilus</i> and <i>Cytherella</i> .

Residue.

Percentage.	Siliceous Organisms.	Fine Washings
27.15	Arenaceous Foraminifera.— <i>Pelosina</i> , <i>Rhizamina</i> , <i>Nouria</i> , <i>Reophax</i> , <i>Haplophragmium</i> , <i>Textularia</i> , <i>Gaudryina</i> , <i>Trochammina</i> and <i>Clavulina</i> . Sponge-spicules and a few Radiolaria.	Sponge-spicules and terrigenous sand.

XLVIII.

Date.—12th December, 1912.

Position.—Lat. 42° 44' S. Long. 148° 41' E.

Depth.—1,300 fathoms.

Description.—Green Terrigenous Mud, with Sponge-spicules and Foraminifera; much decomposing matter.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
78.57	<i>Biloculina</i> , <i>Miliolina</i> , <i>Sigmoilina</i> , <i>Cornuspira</i> , <i>Bulimina</i> , <i>Bolivina</i> , <i>Virgulina</i> , <i>Cassidulina</i> , <i>Lagena</i> , <i>Nodosaria</i> , <i>Amphicoryne</i> , <i>Frondicularia</i> , <i>Cristellaria</i> , <i>Polymorphina</i> , <i>Sagrana</i> , <i>Orbulina</i> , <i>Globigerina</i> , <i>Spirillina</i> , <i>Discorbina</i> , <i>Truncatulina</i> , <i>Pulvinulina</i> , <i>Anomalina</i> , <i>Nonionina</i> and <i>Polystomella</i> .	Numerous large Coccoliths. Echinoid spines. Fish Otoliths. Also the following Ostracoda: <i>Bairdia</i> , <i>Pontocypris</i> , <i>Macrocypris</i> , <i>Aglaia</i> , <i>Argillæcia</i> , <i>Cythere</i> , <i>Krithe</i> , <i>Xestoleberis</i> , <i>Cytherura</i> , <i>Bythocythere</i> , <i>Sclerochilus</i> , <i>Xiphichilus</i> , <i>Cytheropteron</i> , <i>Cytherella</i> and <i>Polycope</i> .

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
21.43	<i>Reophax</i> , <i>Haplophragmium</i> , <i>Gaudryina</i> and <i>Verneuilina</i> . Sponge-spicules.	Sponge-spicules and terrigenous sand.

XLIX.

Date.—29th December, 1912.

Position.—Lat. 47° 21½' S Long. 145° 32' E.

Depth.—1,670 fathoms.

Description.—A pale cream Globigerina Ooze.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
96.15	<i>Biloculina</i> , <i>Miliolina</i> , <i>Lagena</i> , <i>Uvigerina</i> , <i>Orbulina</i> , <i>Globigerina</i> , <i>Truncatulina</i> , <i>Pulvinulina</i> , <i>Rotalia</i> and <i>Nonionina</i> .	Coccoliths and Rhabdoliths fairly abundant in fine washings. Ostracoda (<i>Cythere</i>).

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
3.85	<i>Sigmoilina</i> (arenaceous form). A few Radiolaria	A few sand-grains.

L.

Date.—31st December, 1912.

Position.—Lat. $49^{\circ} 58\frac{1}{2}'$ S. Long. $144^{\circ} 40'$ E.

Depth.—2,020 fathoms.

Description.—Globigerina Ooze.

Composition.—A pure calcareous deposit. Sample too small to analyse. Contains the following genera of Foraminifera :—*Cassidulina*, *Globigerina*, *Truncatulina* and *Pulvinulina*.

LI.

Date.—4th January, 1913.

Position.—Lat. $56^{\circ} 13'$ S. Long. $146^{\circ} 35'$ E.

Depth.—1,670 fathoms.

Description.—Diatomaceous and Spicular Ooze. Sample too small to analyse, Contains the following genera of Foraminifera :—*Orbulina* and *Globigerina*

LII.

Date.—5th January, 1913.

Position.—Lat. $57^{\circ} 25\frac{1}{2}'$ S. Long. $146^{\circ} 33'$ E.

Depth.—1,900 fathoms.

Description.—Diatomaceous and Spicular Ooze.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
51.28	<i>Globigerina dutertrei</i> common. Also <i>Verneuilina</i> , <i>Lagena</i> , <i>Pullenia</i> , <i>Anomalina</i> , <i>Truncatulina</i> and <i>Pulvinulina</i> .	Echinoid Spines (rare).

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
48.72	Diatomaceæ abundant. Some radiolaria ...	Diatoms and Spongespicules.

LIII.

Date.—5th January, 1913.

Position.—Lat. 58° 12' S. Long. 146° 47' E.

Depth.—1,900 fathoms.

Description.—Diatomaceous and Spicular Ooze.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
53.3	<i>Sigmoilina</i> , <i>Lagena</i> , <i>Globigerina</i> (common), <i>Truncatulina</i> , <i>Anomalina</i> , <i>Pulvinulina</i> and <i>Rotalia</i> .	Ostracoda, very rare. (<i>Cythere</i>).

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
46.7	Diatomaceæ abundant. Radiolaria frequent and in good variety. Also Sponge-spicules.	Diatoms and Sponge-spicules.

LIV.

Date.—7th January, 1913.

Position.—Lat. 59° 59' S. Long. 146° 54' E.

Depth.—2,230 fathoms.

Description.—Diatomaceous and Spicular Ooze. Sample too small to analyse. Contains the following Foraminifer:—*Globigerina pachyderma*, Ehr.; also some Radiolaria.

LV.

Date.—8th January, 1913.

Position.—Lat. 61° 53½' S. Long. 146° 39' E.

Depth.—2,250 fathoms.

Description.—Diatomaceous and Spicular Ooze.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
21	<i>Globigerina</i> and <i>Pulvinulina</i>	A few Echinoid Spines.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
79	Diatomaceæ abundant. Radiolaria frequent. A few Sponge-spicules.	Diatoms and Sponge-spicules.

LVI.

Date.—9th January, 1913.

Position.—Lat. 63° 6' S. Long. 146° 41' E.

Depth.—2,260 fathoms.

Description.—Diatomaceous and Spicular Ooze.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
Trace

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
100	Arenaceous Foraminifera (<i>Hyperammina</i> and <i>Haplophragmium</i>). Diatomaceæ abundant.	Diatoms and Spicules.

LVII.

Date.—9th January, 1913.

Position.—Lat. 63° 39' S. Long. 146° 49' E.

Depth.—2,150 fathoms.

Description.—Diatomaceous and Spicular Ooze.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
Trace

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
100	Arenaceous Foraminifera (<i>Thurammina</i>) ...	Diatoms and Spongespicules.

LVIII.

Date.—10th January, 1913.

Position.—Lat. 64° 8' S. Long. 146° 40' E.

Depth.—2,100 fathoms.

Description.—Spicular Mud, with few Diatomaceæ and small Rock-fragments,
Sample too small for analysis. No Foraminifera.

LIX.

Date.—11th January, 1913.

Position.—Lat. 64° 52' S. Long. 146° 48' E.

Depth.—1,950 fathoms.

Description.—Yellowish-green Terrigenous Mud. with few Sponge-spicules and Diatoms.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
Trace

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
100	Diatomaceæ and a few Sponge-spicules. Radiolaria numerous. Arenaceous Foraminifera (<i>Rhabdammina</i> , <i>Reophax</i> , <i>Haplophragmium</i> and <i>Trochammina</i>).	Terrigenous particles.

LX.

Date.—11th January, 1913.

Position.—Lat. 65° 20' S. Long. 146° 48½' E.

Depth.—1,625 fathoms.

Description.—Grey green Terrigenous Mud.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
17	<i>Globigerina</i> and <i>Pulvinulina</i> ... ..	.....

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
83	Diatoms and Radiolaria numerous. Arenaceous Foraminifera common (<i>Rhabdammina</i> , <i>Marsipella</i> , <i>Technitella</i> , <i>Pelosina</i> , <i>Saccamina</i> , <i>Psammosphæra</i> , <i>Haplophragmium</i> , <i>Trochammina</i> , <i>Valvulina</i> and <i>Reophax</i>).	Large proportion of terrigenous sand.

LXI.

Date.—12th January, 1913.

Position.—Lat. 65° 51' S. Long. 144° 19' E.

Depth.—350 fathoms.

Description.—Polyzoa (worn), Sponge-spicules and small Pebbles. The following genera of Foraminifera present:—? *Reophax*, ? *Technitella*, *Uvigerina* and *Globigerina*.

LXII.

Date.—12th January, 1913.

Position.—Lat. 66° 1' S. Long. 144° 19' E.

Depth.—184 fathoms.

Description.—Green Sandy Mud with a few small Pebbles of igneous rock.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
7	<i>Uvigerina</i>	(?) Echinoid Spines.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
93	Diatomaceæ. Radiolaria very rare. Arenaceous Foraminifera (<i>Miliolina</i>).	Terrigenous sand.

LXIII.

Date.—12th January, 1913.

Position.—Lat. 66° 16½' S. Long. 143° 28' E.

Depth.—320 fathoms.

Description.—Green Mud with Sponge-spicules.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
Trace

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
100	Broken Spicules and Diatomaceæ. Arenaceous Foraminifera (<i>Miliolina</i> and <i>Reophax</i>).	Much terrigenous sand.

LXIV.

Date.—28th November, 1913.

Position.—Lat. 54° 22' S. Long. 157° 20' E.

Depth.—2,180 fathoms.

Description.—Quartz Pebble encrusted with iron. No organisms with sample.

LXV.

Date.—22nd November (noon), 1913.

Position.—Lat. 49° 9' S. Long. 148° 1' E.

Depth.—2,400 fathoms.

Description.—Globigerina Ooze, pale cream.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
89.5	<i>Miliolina</i> , <i>Pleurostomella</i> , <i>Ehrenbergina</i> , <i>Lagena</i> , <i>Nodosaria</i> , <i>Marginulina</i> , <i>Uvigerina</i> , <i>Globigerina</i> , <i>Orbulina</i> , <i>Pullenia</i> , <i>Patellina</i> , <i>Truncatulina</i> , <i>Anomalina</i> , <i>Pulvinulina</i> , <i>Rotalia</i> and <i>Nonionina</i> .	Numerous Coccoliths. Ostracoda rare (<i>Cythere</i>). A few Echinoid Spines (Spatangoids).

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
10.5	Arenaceous Foraminifera (<i>Miliolina</i> , <i>Rhabdammina</i> , <i>Rhizammina</i> , <i>Haplophragmium</i> and <i>Verneuilina</i>). Radiolaria frequent.	A few Diatoms, Spongespicules, and Sandgrains. Also flocculent earthly material.

LXVI.

Date.—23rd November, 1913.

Position.—Lat. 50° 30' S. Long. 148° 2' E.

Depth.—2,470 fathoms.

Description.—Globigerina Ooze, pale cream.

Sample too small for analysis. Radiolaria not uncommon. The following Foraminifera present :—*Lagena*, *Globigerina*, *Pulvinulina*, and *Rotalia*.

LXVII.

Date.—7th December, 1913.

Position.—Lat. 58° 19½' S. Long. 155° 39' E.

Depth.—2,000 fathoms.

Description.—Pebble with attached Foraminifer (*Ammolagena clavata*, *Arabia* and Jones sp.)

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LXVIII.

Date.—12th December, 1913.

Position.—Lat. 66° 25' S. Long. 144° 50' E.

Depth.—250 fathoms.

Description.—Green Mud with Zircon, Sponge-spicules, and Diatoms;

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
Trace

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
100	Arenaceous <i>Miliolina</i> (rare). moderately common.	Radiolaria Sand-grains, broken Sponge-spicules, and Diatoms.

LXIX.

Date.—12th December, 1913.

Position.—Lat. 66° 37' S. Long. 144° 8½' E.

Depth.—450 fathoms.

Description.—Green Terrigenous Mud, with Sponge-spicules and Diatoms.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
Trace

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
100	Arenaceous Foraminifera (<i>Miliolina</i> , <i>Rhabdammina</i> , <i>Psammosphæra</i> , <i>Pelosina</i> , <i>Haplophragmium</i> and <i>Reophax</i>). Diatoms common (<i>Arachnoidiscus</i> and <i>Triceratium</i>).	Diatoms and terrigenous particles.

LXX.

Date.—22nd December, 1913.*Position.*—Commonwealth Bay.*Depth.*—354 fathoms.*Description.*—Green Diatomaceous and Spicular Ooze.*Composition.*—*Carbonate of Lime.*

Percentage.	Foraminifera.	Other Organisms.
42.8	Coccoliths fairly numerous. Shell-fragments and broken Echinoid Spines.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
57.2	Arenaceous Foraminifera (<i>Miliolina</i>). Diatoms (<i>Arachnoidiscus</i> , <i>Coscinodiscus</i> and <i>Triceratium</i> . Radiolaria.	Diatoms and Sponge spicules.

LXXI.

Date.—27th December, 1913*Position.*—Lat. 66° 51' S. Long. 145° 35' E.*Depth.*—288 fathoms.*Description.*—Yellow Sandy Mud with Sponge-spicules.*Composition.*—*Carbonate of Lime.*

Percentage.	Foraminifera.	Other Organisms.
3.6

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
96.4	Arenaceous Foraminifera (<i>Miliolina</i> , <i>Rhabdammina</i> , <i>Rhizammina</i> , <i>Pelosina</i> , <i>Reophax</i> and <i>Haplophragmium</i>). Radiolaria. Diatoms (<i>Arachnoidiscus</i> and <i>Triceratium</i>).	Diatoms and terrigenous particles.

LXXII.

Date.—28th December, 1913.

Position.—Lat. $66^{\circ} 55\frac{1}{2}'$ S. Long. $145^{\circ} 24'$ E.

Depth.—318 fathoms.

Description.—Grey Sandy Mud, with Sponge-spicules.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
6.9	Numerous Rhabdoliths and a few Coccoliths.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
93.1	Arenaceous Foraminifera (<i>Miliolina</i> , <i>Reophax</i> and <i>Textularia</i>).	Diatoms and terrigenous particles.

LXXIII.

Date.—29th December, 1913.

Position.—Lat. $66^{\circ} 49'$ S. Long. $145^{\circ} 42'$ E.

Depth.—240 fathoms

Description.—Whitish Terrigenous Mud, with Sponge-spicules.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
Trace

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
100	Arenaceous Foraminifera (<i>Miliolina</i> and <i>Pelosina</i>). Diatoms and Sponge-spicules. Radiolaria very rare.	Much terrigenous sand. A few Diatoms and broken Sponge-spicules.

LXXIV.

Date.—31st December, 1913.

Position.—Lat. $66^{\circ} 32'$ S. Long. $141^{\circ} 39'$ E.

Depth.—157 fathoms.

Description.—Green Terrigenous Mud, with Sponge-spicules and Foraminifera.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
14	<i>Cassidulina</i> , <i>Virgulina</i> , <i>Lagena</i> , <i>Uvigerina</i> , <i>Globigerina</i> , <i>Planorbulina</i> and <i>Truncatulina</i> .	Echinoid Spines. Ostracoda (<i>Bairdia</i> and <i>Cythere</i>).

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
86	Arenaceous Foraminifera (<i>Miliolina</i> , <i>Pelosina</i> , <i>Psammosphaera</i> , (?) <i>Rhizammina</i> and <i>Reophax</i>). Diatoms (<i>Triceratium</i> and <i>Arachnoidiscus</i>). Sponge-spicules and numerous Radiolaria.	Diatoms and Sponge- spicules abundant. A few terrigenous par- ticles.

LXXV.

Date.—1st January, 1914.

Position.—Lat. 65° 43' S. Long. 140° 19' E.

Depth.—205 fathoms.

Description.—Sandy Mud, with Sponge-spicules and Diatoms. Sample too small to analyse.

The Foraminifera belong to the following genera:—*Cassidulina*, *Ehrenbergina*, *Lagena*, *Uvigerina*, *Globigerina*, and *Truncatulina*. Ostracoda rare (*Cythere*.) Radiolaria rare.

LXXVI.

Date.—2nd January, 1914.

Position.—Lat. 65° 53' S. Long. 137° 30' E.

Depth.—230 fathoms.

Description.—Sandy Mud, with Sponge-spicules.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
Trace ...	No calcareous Foraminifera	A few Coccoliths.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
100	Arenaceous Foraminifera (<i>Rhabdammina</i> , <i>Reophax</i> , <i>Haplophragmium</i> and <i>Miliolina</i>). Radiolaria common. Sponge-spicules.	Diatoms, Sponge-spicules and a few terrigenous sand-grains.

LXXVII.

Date.—2nd January, 1914.

Position.—Lat. 65° 48' S. Long. 137° 32' E.

Depth.—330 fathoms.

Description.—Pale greenish Terrigenous Mud, with Diatoms.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
12	A few Echinoid Spines.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
88	Arenaceous Foraminifera (<i>Miliolina</i> , <i>Rhabdammina</i> , <i>Thurammina</i> , <i>Reophax</i> and <i>Haplophragmium</i>). Diatoms (<i>Triceratium</i>). Radiolaria abundant. Sponge-spicules.	Diatoms and fine terrigenous sand in about equal proportion.

LXXVIII.

Date.—3rd January, 1914.

Position.—Lat. 64° 53' S. Long. 135° 35' E.

Depth.—940 fathoms.

Description.—Greenish-grey Terrigenous Mud, with Sponge-spicules.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
6

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
94	Arenaceous Foraminifera (<i>Rhabdammina</i> , <i>Psamosphaera</i> , <i>Reophax</i> , <i>Haplophragmium</i> , <i>Cyclammina</i> , <i>Trochammina</i> , and <i>Spiroplecta</i>). Radiolaria, Diatoms and Sponge-spicules.	Diatoms and Sponge-spicules (fragmentary). Much terrigenous sand.

LXXIX.

Date.—3rd January, 1914.

Position.—Lat. 64° 39' S. Long. 134° 46' E.

Depth.—945 fathoms.

Description.—Green Terrigenous Ooze.

Composition.—

<i>Carbonate of Lime.</i>		
Percentage.	Foraminifera.	Other Organisms.
3	.....	.....
<i>Residue.</i>		
Percentage.	Siliceous Organisms.	Fine Washings.
97	Radiolaria	Diatoms (rare). Much terrigenous sand.

LXXX.

Date.—4th January, 1914.

Position.—Lat. 64° 25' S. Long. 132° 26' E.

Depth.—950 fathoms.

Description.—Green Terrigenous and Spicular Mud.

Composition.—

<i>Carbonate of Lime.</i>		
Percentage.	Foraminifera.	Other Organisms.
9	.....	.....
<i>Residue.</i>		
Percentage.	Siliceous Organisms.	Fine Washings.
91	Arenaceous Foraminifera (<i>Rhabdammina</i> , <i>Psammosphæra</i> , <i>Saccamina</i> , <i>Technitella</i> , <i>Reophax</i> , <i>Haplophragmium</i> and <i>Cyclammina</i> . Radiolaria.	Diatoms and terrigenous sand.

LXXXI.

Date.—4th January, 1914.

Position.—Lat. 64° 0' S. Long. 132° 22' E.

Depth.—1,810 fathoms.

Description.—Green Terrigenous Mud, with Sponge-spicules.

Composition.—

<i>Carbonate of Lime.</i>		
Percentage.	Foraminifera.	Other Organisms.
8.9	<i>Lagena</i> , <i>Polymorphina</i> , <i>Globigerina</i> , <i>Pullenia</i> and <i>Truncatulina</i> .	Coccoliths in the fine washings. Echinoid spines.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
91.1	Arenaceous Foraminifera (<i>Rhizammina</i> , <i>Rhabdammina</i> , <i>Hyperammina</i> , <i>Saccammina</i> , <i>Psammosphæra</i> , <i>Reophax</i> , <i>Haplophragmium</i> and <i>Verneuilina</i>). Diatoms, Radiolaria and Sponge-spicules.	Sponge-spicules, Diatoms and terrigenous mud.

LXXXII.

Date.—5th January, 1914.

Position.—Lat. 64° 14' S Long. 130° 1' E.

Depth.—1,550 fathoms.

Description.—Green Terrigenous Mud, with Sponge-spicules.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
14.2	<i>Lagena</i> , <i>Orbulina</i> , <i>Globigerina</i> , <i>Truncatulina</i> , <i>Pulvinulina</i> and <i>Nonionina</i> .	Echinoid Spines.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
85.8	Arenaceous Foraminifera (<i>Astrorhiza</i> , <i>Rhabdammina</i> , <i>Hyperammina</i> , <i>Psammosphæra</i> , <i>Reophax</i> , <i>Haplophragmium</i> and <i>Cyclammina</i>). Sponge-spicules. Radiolaria common.	Sponge-spicules and Diatoms. Much gritty terrigenous mud.

LXXXIII.

Date.—6th January, 1914.

Position.—Lat. 64° 34½' S. Long. 127° 17' E.

Depth.—1,700 fathoms.

Description.—Yellow Terrigenous Mud, with Sponge-spicules.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
Trace ...	<i>Cassidulina</i> ... ..	.....

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
100	Arenaceous Foraminifera (<i>Hyperammina</i> , <i>Rhabdammina</i> , <i>Psammosphæra</i> , <i>Haplophragmium</i> , <i>Cyclammina</i> and <i>Trochammina</i>). Diatoms, Radiolaria and Sponge-spicules.	Diatoms and Sponge-spicules. Terrigenous mud.

LXXXIV.

Date.—9th January, 1914.

Position.—Lat. $65^{\circ} 28\frac{1}{2}'$ S. Long. $120^{\circ} 59'$ E.

Depth.—1,400 fathoms.

Description.—Green Terrigenous Mud.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
Trace

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
100	Arenaceous Foraminifera (<i>Rhabdammina</i> , <i>Psammosphæra</i> , <i>Reophax</i> , <i>Haplophragmium</i> , <i>Cyclammina</i> , <i>Trochammina</i> , <i>Clavulina</i> and <i>Bolivina</i>). Diatoms, Radiolaria and Sponge-spicules.	Diatoms abundant. Terrigenous material not preponderating.

LXXXV.

Date.—10th January, 1914. During morning.

Position.—Lat. $64^{\circ} 34'$ S. Long. $117^{\circ} 1'$ E.

Depth.—This is not a bottom sample, but contents of the tow-net collected at the 25 fathom zone.

Description.—A few grains weight; consisting of angular Terrigenous particles, Sponge-spicules, Diatoms (*Triceratium*), and a fair number of Foraminifera, chiefly *Globigerina bulloides*; also *G. dutertrei*, *Discorbina globularis*, and *Pelosina variabilis*.

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LXXXVI.

Date.—10th January, 1914.*Position.*—Lat. 64° 35' S. Long. 117° 1' E.*Depth.*—1,350 fathoms.*Description.*—Green Mud, with Sponge-spicules and Diatoms.*Composition.*—*Carbonate of Lime.*

Percentage.	Foraminifera.	Other Organisms.
8.5	<i>Globigerina</i> ... ..	.....

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
91.5	Arenaceous Foraminifera (<i>Haplophragmium</i> , <i>Cyclammina</i> , <i>Trochammina</i> and <i>Clavulina</i>). Radiolaria, Diatoms (<i>Coscinodiscus</i>) and Sponge-spicules.	Diatoms abundant. Sponge - spicules and terrigenous mud.

LXXXVII.

Date.—11th January, 1914.*Position.*—Lat. 64° 44' S. Long. 113° 46' E.*Depth.*—990 fathoms.*Description.*—Green Terrigenous Mud, with Sponge-spicules and Diatoms.*Composition.*—*Carbonate of Lime.*

Percentage.	Foraminifera.	Other Organisms.
8	<i>Bulimina</i> , <i>Marginulina</i> , <i>Globigerina</i> , <i>Pulvinulina</i> and <i>Rotalia</i> .	Echinoid Spines.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
92	Arenaceous Foraminifera (<i>Hyperammina</i> , <i>Rhabdammina</i> , <i>Jaculella</i> , <i>Reophax</i> , <i>Haplophragmium</i> , <i>Cyclammina</i> , <i>Gaudryina</i> and <i>Clavulina</i>). Radiolaria, Diatoms (<i>Coscinodiscus</i>) and Sponge-spicules.	Rich in Diatoms. Terrigenous particles in moderate quantity.

LXXXVIII.

Date.—12th January, 1914.*Position.*—Lat. 64° 37' S. Long. 109° 6' E.*Depth.*—1,530 fathoms.*Description.*—Greenish Diatomaceous Ooze.*Composition.*—*Carbonate of Lime.*

Percentage.	Foraminifera.	Other Organisms.
1.05	<i>Bulimina, Globigerina, Pullenia and Pulvinulina</i>	Echinoid Spines.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
98.95	Arenaceous Foraminifera (<i>Psammosphæra, Jaculella, Hyperammina, Reophax, Haplophragmium, Cyclammina, Trochammina</i> and <i>Clavulina</i>)	Much terrigenous sand with Diatoms.

LXXXIX.

Date.—14th January, 1914.*Position.*—Lat. 63° 21' S. Long. 101° 42' E.*Depth.*—710 fathoms.*Description.*—Green Sandy Mud, with few Diatoms and Sponge-spicules. This sample also contains large Granite Pebbles. (In this analysis the pebbles were excluded).*Composition.*—*Carbonate of Lime.*

Percentage.	Foraminifera.	Other Organisms.
6.5	<i>Bulimina, Globigerina</i> and <i>Pulvinulina</i> ... ..	.....

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
93.5	Arenaceous Foraminifera (<i>Miliolina, Haplophragmium</i> and <i>Cyclammina</i>). Diatoms (<i>Coscinodiscus</i>). Radiolaria and Sponge-spicules.	Diatoms, broken Spicules and fine terrigenous sand.

XC.

Date.—14th January, 1914.

Position.—Lat. $63^{\circ} 13\frac{1}{2}'$ S. Long. $101^{\circ} 42'$ E.

Depth.—870 fathoms.

Description.—Green Mud, with Diatomaceæ.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
9.8	<i>Bulimina, Lagena, Globigerina, Truncatulina</i> and <i>Pulvinulina</i> .	Ostracoda (<i>Krithe</i>).

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
90.2	Arenaceous Foraminifera (<i>Miliolina, Rhabdammina, Psammosphæra, Haplophragmium, Cyclammina</i> and <i>Placopsilina</i>). Diatoms (<i>Coscinodiscus</i>). Sponge-spicules rare.	Diatoms and terrigenous sand.

XCI.

Date.—15th January, 1914.

Position.—Lat. $62^{\circ} 47'$ S. Long. $99^{\circ} 20'$ E.

Depth.—2,250 fathoms.

Description.—Green Mud, with Diatoms and Foraminifera.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
20.4	<i>Virgulina, Lagena, Nodosaria, Cristellaria, Orbulina, Globigerina, Pullenia, Truncatulina</i> and <i>Pulvinulina</i> .	Echinoid Spines.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
79.6	Arenaceous Foraminifera (<i>Rhabdammina, Psammosphæra, Marsipella, Reophax, Haplophragmium, Cyclammina</i> and <i>Gaudryina</i>). Diatomaceæ abundant. Spicular mesh of Siliceous Sponges, common.	Diatoms and terrigenous sand.

XCII.

Date.—16th January, 1914.

Position.—Lat. 62° 58' S. Long. 96° 2' E.

Depth.—1,660 fathoms.

Description.—Green Mud, with Diatoms and Sponge-spicules.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
16.6	<i>Lagena</i> , <i>Uvigerina</i> , <i>Globigerina</i> , <i>Pullenia</i> , <i>Truncatulina</i> , <i>Pulvinulina</i> , and <i>Rotalia</i> .	Echinoid Spines.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
83.4	Arenaceous Foraminifera (<i>Psammosphæra</i> , <i>Rhizammina</i> , <i>Rhabdammina</i> , <i>Hyperammina</i> , <i>Reophax</i> , <i>Haplophragmium</i> , <i>Verneuilina</i> and <i>Clavulina</i>). Diatoms (<i>Coccinodiscus</i>) abundant. Sponge-spicules. Radiolaria.	Diatoms and terrigenous sand.

XCIII.

Date.—17th January, 1914.

Position.—Lat. 62° 33½' S. Long. 94° 34' E.

Depth.—1,990 fathoms.

Description.—Green Mud, with Diatoms.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
11.4	<i>Lagena</i> , <i>Cristellaria</i> , <i>Globigerina</i> and <i>Truncatulina</i>.	.....

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
88.6	Arenaceous Foraminifera (<i>Haplophragmium</i> , <i>Cyclammina</i> and <i>Clavulina</i>). Diatoms. Sponge-spicules rare. Radiolaria numerous.	Diatoms and terrigenous sand.

XCIV.

Date.—20th January, 1914.

Position.—Lat. 65° 47' S. Long. 90° 16' E.

Depth.—290 fathoms.

Description.—Sandy Terrigenous Mud, with Diatoms and Sponge-spicules.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
4.2

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
95.8	Arenaceous Foraminifera (<i>Miliolina</i> , <i>Rhizammina</i> , <i>Reophax</i> , <i>Haplophragmium</i> and <i>Bolivina</i>). Sponge-spicules abundant, mostly broken. A few Diatoms. Radiolaria numerous.	Sponge-spicules and sharp terrigenous sand.

XCV.

Date.—20th January, 1914.

Position.—Lat. 65° 48' S. Long. 91° 21' E.

Depth.—280 fathoms.

Description.—Pale-green Gritty Terrigenous Mud, with Sponge-spicules.

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
Trace ...	<i>Globigerina</i> ... ..	.....

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
100	Arenaceous Foraminifera (<i>Hyperammia</i> , <i>Rhaddammia</i> and <i>Haplophragmium</i>). Broken Spicules abundant. Diatoms practically absent. A few Radiolaria.	Sponge-spicules and terrigenous sand.

XCVI.

Date.—21st January, 1914.

Position.—(Approx.) Lat. 65° 47' S. Long. 92° 15' E. Off Drygalski Island.

Depth.—56 fathoms.

Description.—Pebbles and Sand, with an Isopod.

XCVII.

Date.—26th January, 1914.

Position.—Lat. 66° 17' S. Long. 94° 20' E.

Depth.—204 fathoms.

Description.—Gritty Terrigenous Sand, with Sponge-spicules.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
Trace

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
100	Arenaceous Foraminifera (<i>Miliolina</i>). Sponge-spicules and Diatoms. A few Radiolaria.	Broken Spicules, Diatoms, and terrigenous particles.

XCVIII.

Date.—27th January, 1914.

Position.—Lat. 65° 53' S. Long. 95° 18' E.

Depth.—328 fathoms.

Description.—Green Mud, with Sponge-spicules and decomposing animal matter.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
16	<i>Biloculina</i> , <i>Miliolina</i> , <i>Planispirina</i> , <i>Cornuspira</i> , <i>Bulimina</i> , <i>Virgulina</i> , <i>Cassidulina</i> , <i>Ehrenbergina</i> , <i>Lagena</i> , <i>Nodosaria</i> , <i>Cristelaria</i> , <i>Uvigerina</i> , <i>Globigerina</i> , <i>Spirillina</i> , <i>Discorbina</i> , <i>Truncatulina</i> , <i>Anomalina</i> and <i>Nonionina</i> .	Echinoid Spines and Pedicellariæ, Mollusca, Polyzoa and Ostracoda (<i>Aglaia</i> , <i>Macrocypris</i> , ? <i>Bythocypris</i> , <i>Cythere</i> , <i>Krihe</i> , <i>Loxoconcha</i> , <i>Xestoleberis</i> , <i>Cytherura</i> , <i>Cytheropteron</i> , <i>Sclerochilus</i> , <i>Xiphichilus</i> , ? <i>Polycope</i>).

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
84	Arenaceous Foraminifera (<i>Rhabdammina</i> , <i>Psammosphæra</i> , <i>Reophax</i> , <i>Haplophragmium</i> and <i>Trochammina</i> . Sponge-spicules. Radiolaria rare.	Broken Sponge-spicules and terrigenous sand.

XCIX.

Date.—28th January, 1914.

Position.—Lat. 65° 19½' S. Long. 95° 27' E.

Depth.—240 fathoms.

Description.—Pale green Terrigenous Sandy Mud.

Sample too small to analyse. Sponge-spicules and a few Diatoms (*Coscindiscus*) present. Also the following Foraminifera:—*Rhabdammina*, *Psammosphæra*, *Haplophragmium*, and *Globigerina*.

C

Date.—28th January, 1914.

Position.—Lat. 65° 8' S. Long. 95° 43' E.

Depth.—252 fathoms.

Description.—Polyzoa (*Entalophora*, *Porina* and *Cellaria*), and some small Worm-tubes. Also particles of brown mud, resembling decomposed volcanic material. No Foraminifera.

CI.

Date.—28th January, 1914.

Position.—Lat. 65° 7' S. Long. 96° 3' E.

Depth.—320 fathoms.

Description.—Green Mud.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
7.5

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
92.5	Arenaceous Foraminifera (<i>Miliolina</i> , <i>Psammosphæra</i> , <i>Rhabdammina</i> , <i>Haplophragmium</i> , <i>Reophax</i> and <i>Trochammina</i>). Sponge-spicules and Diatoms very rare. Radiolaria fairly common.	Broken Spicules, Diatoms, and much terrigenous sand (probably pyroxenic).

CII.

Date.—29th January, 1914.

Position.—Lat. 65° 6' S. Long. 96° 13' E.

Depth.—325 fathoms.

Description.—Green Mud.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
6.3

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
93.7	Arenaceous Foraminifera (<i>Miliolina</i> , <i>Rhabdammina</i> , <i>Hyperammina</i> , <i>Haplophragmium</i> , <i>Reophax</i> , <i>Trochammina</i> and <i>Bolivina</i>). Sponge-spicules and Diatoms (<i>Coscinodiscus</i>). Radiolaria numerous.	Broken Spicules and much terrigenous sand.

CIII.

Date.—29th January, 1914.

Position.—Lat. 65° 2½' S. Long. 96° 13' E.

Depth.—250 fathoms.

Description.—Green Mud.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
14	<i>Ehrenbergina</i> , <i>Cristellaria</i> , <i>Globigerina</i> and <i>Truncatulina</i> .	Polyzoa. Echinoid Spines.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
86	Arenaceous Foraminifera (<i>Miliolina</i> , <i>Pelosina</i> , <i>Psammosphæra</i> , <i>Rhabdammina</i> , <i>Reophax</i> , <i>Haplophragmium</i> and <i>Trochammina</i>). Sponge-spicules. Radiolaria frequent.	Broken Spicules and terrigenous particles.

CIV.

Date.—30th January, 1914.

Position.—Lat. 64° 53' S. Long. 95° 59' E.

Depth.—370 fathoms.

Description.—Green Sandy Mud.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
10.1	<i>Cassidulina</i> and <i>Truncatulina</i> ... ..	.....

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
89.9	Arenaceous Foraminifera (<i>Miliolina</i> , <i>Rhabdammina</i> , <i>Hyperammia</i> , <i>Haplophragmium</i> , <i>Reophax</i> , <i>Placopsilina</i> , <i>Ammodiscus</i> , and <i>Trochammina</i>). Sponge-spicules. Radiolaria frequent.	Small Sponge-spicules and terrigenous sand.

CV.

Date.—30th January, 1914.

Position.—Lat. 64° 42' S. Long. 96° 10' E.

Depth.—110 fathoms.

Description.—Pale grey-green Gritty Mud.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
Nil

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
100	Arenaceous Foraminifera (<i>Miliolina</i>). Sponge-spicules.	Angular terrigenous particles and (?) micaceous flakes.

CVI.

Date.—30th January, 1914.

Position.—Lat. 64° 36' S. Long. 96° 35' E.

Depth.—114 fathoms.

Description.—Pale-green Terrigenous Sand, with Sponge-spicules.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
1.8	<i>Cassidulina</i> and <i>Uvigerina</i>... ..	.....

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
98.2	Arenaceous Foraminifera (<i>Miliolina</i> , <i>Hyperamina</i> , <i>Reophax</i> and <i>Haplophragmium</i>). Sponge-spicules and Radiolaria rare.	Fine terrigenous sand with some Pyroxene. Also small and broken Sponge-spicules.

CVII.

Date.—30th January, 1914.

Position.—Lat. 64° 44' S. Long. 97° 29' E.

Depth.—358 fathoms.

Description.—Grey Terrigenous Mud, with Sponge-spicules.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
14.2	<i>Globigerina</i>	Coccoliths rare.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
85.8	Arenaceous Foraminifera (<i>Miliolina</i> , <i>Psammosphæra</i> , <i>Thurammina</i> , <i>Hyperammina</i> , <i>Rhabdammina</i> , <i>Reophax</i> and <i>Haplophragmium</i>). Radiolaria numerous.	Fine terrigenous particles and flocculent material (?) pumiceous. Diatoms and Sponge-spicules.

CVIII.

Date.—2nd February, 1914.

Position.—Lat. 63° 47' S. Long. 96° 58' E.

Depth.—1,170 fathoms.

Description.—Grey Mud, with Diatoms and Sponge-spicules.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
15	<i>Biloculina</i> , <i>Verneuilina</i> , <i>Lagena</i> , <i>Marginulina</i> , <i>Globigerina</i> and <i>Orbulina</i> .	Coccoliths numerous.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
85	Radiolaria (<i>Dictyocha</i> , &c.). Diatoms abundant. Sponge-spicules.	Diatomaceæ. A few terrigenous particles.

CIX.

Date.—5th February, 1914.

Position.—Lat. 65° 45' S. Long. 91° 43' E.

Depth.—265 fathoms.

Description.—Green Sandy Mud, with Sponge-spicules and Diatoms.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
3.6

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
96.4	Arenaceous Foraminifera (<i>Miliolina</i> , <i>Rhizammina</i> , <i>Rhabdammina</i> , <i>Reophax</i> and <i>Haplophragmium</i>). Radiolaria and Diatoms (<i>Triceratium</i>).	Diatoms, Sponge-spicules, and a few terrigenous particles.

CX.

Date.—5th February, 1914.

Position.—Lat. 65° 46½' S. Long. 91° 47' E.

Depth.—265 fathoms.

Description.—Green Sandy Mud, with Sponge-spicules.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
4.7	<i>Globigerina</i> ... ..	.....

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
95.3	Arenaceous Foraminifera (<i>Miliolina</i> and <i>Reophax</i>). Radiolaria rare.	Diatoms, Sponge-spicules, and a few terrigenous particles.

CXI.

Date.—7th February, 1914.

Position.—Lat. 62° 55½' S. Long. 90° 28' E.

Depth.—2,120 fathoms.

Description.—Pale-cream Diatomaceous Ooze.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
Trace

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
100	Arenaceous Foraminifera (<i>Pelosina</i> , <i>Rhabdammina</i> , <i>Reophax</i> and <i>Haplophragmium</i>). Radiolaria numerous.	Diatomaceæ abundant.

CXII.

Date.—12th February, 1914.

Position.—Lat. $54^{\circ} 42\frac{1}{2}'$ S. Long. $96^{\circ} 11'$ E.

Depth.—2,190 fathoms.

Description.—Rich Diatomaceous Ooze.

Sample too small to analyse. Washings contain a fair number of Radiolaria. abundant Diatomaceæ, and many minute tests of *Globigerina dutertrei*.

CXIII.

Date.—15th February, 1914.

Position.—Lat. $49^{\circ} 28'$ S. Long. $107^{\circ} 39'$ E.

Depth.—1,780 fathoms.

Description.—Pale cream-coloured Globigerina and Diatomaceous Ooze.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
65.6	<i>Bulimina</i> , <i>Globigerina</i> , <i>Anomalina</i> and <i>Pulvinulina</i> .	A few Coccoliths.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
34.4	Arenaceous Foraminifera (<i>Miliolina</i> and <i>Thurammina</i>). Diatoms abundant (<i>Coscinodiscus</i>). Radiolaria abundant.	Numerous Diatoms.

CXIV.

Date.—18th February, 1914.

Position.—Lat. $44^{\circ} 10'$ S. Long. $117^{\circ} 20'$ E.

Depth.—2,600 fathoms.

Description.—Globigerina Ooze.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
80	<i>Biloculina</i> , <i>Miliolina</i> , <i>Verneulina</i> , <i>Bolivina</i> , <i>Virgulina</i> , <i>Cassidulina</i> , <i>Ehrenbergina</i> , <i>Lagena</i> , <i>Nodosaria</i> , <i>Cristellaria</i> , <i>Polymorphina</i> , <i>Uvigerina</i> , <i>Globigerina</i> , <i>Orbulina</i> , <i>Truncatulina</i> , <i>Anomalina</i> , <i>Pulvinulina</i> , <i>Rotalia</i> and <i>Nonionina</i> .	Echinoid Spines and Fish teeth. Abundant Coccoliths (small form). Ostracoda (<i>Cythere</i>).

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
20	Diatoms and Radiolaria fairly common	Minute terrigenous and argillaceous particles.

CXV.

Date.—24th February, 1914.

Position.—Lat. 35° 56' S. Long. 134° 14' E.

Depth.—1,800 fathoms.

Description.—Globigerina Ooze.

Composition.—

Carbonate of Lime.

Percentage.	Foraminifera.	Other Organisms.
92.8	<i>Biloculina, Miliolina, Verneuilina, Lagena, Nodosaria, Cristellaria, Polymorphina, Uvigerina, Orbulina, Globigerina, Truncatulina, Pulvinulina</i> and <i>Rotalia</i> .	Echnoid Spines, Ostracoda (<i>Cythere</i> and <i>Krihe</i>). Coccoliths and Rhabdoliths. Coccoliths (small), averaging .0052 mm. in diameter most abundant. Coccoliths (large) averaging .017 mm. in diameter fairly common.

Residue.

Percentage.	Siliceous Organisms.	Fine Washings.
7.2	Arenaceous Foraminifera (<i>Sigmoilina, Reophax</i> and <i>Haplophragmium</i>). Sponge-spicules.	Broken Sponge-spicules, sand grains and brown argillaceous particles.

CXVI.

Date.—9th January, 1914 (Morning).

Position.—Lat. 65°30' S. Long. 120° 40' E.

Depth.—Sample from Tow-net operating at surface.

Description.—Angular Terrigenous particles; broken sponge-spicules; fused slaggy particles; and some Diatoms (*Coscinodiscus* and *Triceratium*). No Foraminifera.

CXVII.

Date.—9th January, 1914 (All night).

Position.—Lat. 65° 30' S. Long. 120° 40' E.

Depth.—Sample from Tow-net operating at surface. At edge of pack-ice. Temperature 31° F.

Description.—This is a small sample of a few grains weight. It consists of angular Terrigenous grains (with mica and ferruginous flakes), ochreous or earthy particles, some adventitious slaggy material of fused brown globules, some broken particles, a few Diatoms (*Triceratium*) and a single areanaceous Foraminiferal test belonging to the genus *Trochammina*.

CXVIII.

Date—25th November, 1912. S.Y. "Aurora."

Position.—Macquarie Island :—Between Isle Rocks and North Head. Mt. Elder, 85° 2' 01". 7.5 sea-miles.

Details.—Stones and sand. Fragments of "greenstone" with organic encrustations by a Tubicolar Worm resembling *Rotularia*, and a foliaceous Calcareous Alga, probably *Lithothamnion* or *Lithophyllum*. Also a fragment of an Echinoid Spine and an encrusting Polyzoan.

The following Foraminifera were found in the debris of this sample :—

Discorbina (?) *obtusa*, d'Orb. sp. One specimen.

Truncatulina lobatula, Walker and Jacob sp. Two specimens.

IV.—RELATIVE FREQUENCY OF ORGANISMS.

The total number of samples here reported upon is 118. From these samples the following groups of organisms occur in the number of times here specified :—

Coccoliths and Rhabdoliths, (26 times).—These are found chiefly in the Globigerina Ooze.

Diatoms (68).—Most characteristic of Blue Muds, though many smaller and naviculoid forms occur in the Globigerina Ooze.

Calcareous Alga. (1).—Found encrusting pebbles.

Foraminifera (105).—The most widely distributed organisms. Arenaceous forms are most abundant in the Terrigenous Deposits.

Radiolaria (70).—Most abundant in the fine Siliceous and Terrigenous Deposits though not uncommon in Calcareous Oozes.

Sponges (88).—Spicules abundant in all Terrigenous Muds and more rarely in Calcareous Oozes.

Alcyonaria (1).—The minute sclerodermic spicules are found in sample No .xxiv, 220 fathoms, in a pale-greenish Mud.

Echinoids, chiefly detached spines (39).—Found at moderate depths in Semi-Calcareous Muds.

Crinoids-Antedon (3).—In similar depths and conditions as the Echinoids.

Star-fish, ossicles (1).—A single occurrence in Grey Mud, at 110 fathoms.

Worms (7).—Encrusting tubes found attached to stones and pebbles.

Polyzoa. (15).—Samples along the Ice-barrier at moderate depths of a few hundred fathoms, yielded fair quantities of these organisms.

Mollusca (9).—Mainly as fragments in shallow water Terrigenous Muds.

Ostracoda (27).—Well distributed amongst the Calcareous Muds and Oozes from all depths.

Fishes—Teeth and Otoliths (5).—Both in Globigerina Ooze and Terrigenous Deposits.

Cirripedes (2)—Found at fair depths on rock surfaces apparently subjected to currents, on "The Mill Rise," Nos. XLII and XLIII.

Isopod (1).—Found amongst pebbles and sand off Drygalski Island, probably at no great depth.

V.—GENERAL CHARACTERS OF THE DEPOSITS.

The soundings show a great variation in the nature of the sea-floor deposits, ranging from the Deep-Sea deposits of Blue Muds with Spicules and Diatomaceous, Radiolarian, and Globigerina Oozes. The Blue Muds* form a deep-water extension of the Terrigenous Sands and Pebbly Deposits met with near rock-bound shores or over submerged continental ridges.

Some of these coarser Terrigenous Deposits are occasionally met with at greater depths than usual; such for example, are No. LXIV (2,180 fathoms) and No. LXVII (2,000 fathoms), where pebbles may have been dropped by passing icebergs.

The Blue Muds are derived more or less directly from a continental land-mass by weathering and degradation by glaciation. The terrigenous constituents of these muds are usually quite angular in grain and consist largely of quartz, together with tourmaline, augite, and other minerals found in the granitic and gneissic rocks of the Antarctic continent. Mingled with the terrigenous particles are usually found Sponge-spicules, more or less broken; some Diatomaceæ; arenaceous Foraminifera (as *Rhabdammina*, *Psammosphæra*, *Reophax*, and *Haplophragmium*); together with a few calcareous tests of Foraminifera, including *Cassidulina oblonga*, *Globigerina dutertrei* and *Pulvinulina truncatulinoides*. Ostracoda are not uncommon in some samples, chiefly of the genera *Cythere*, *Krithe*, and *Cytheropteron*.

According to the data included in the present synopsis of Antarctic soundings, the Blue Muds as an Antarctic Zone, extend as a generally horizontal belt as far north as 64° S., and this agrees with the data collected by the "Challenger," in February, 1874.

The Diatomaceous Muds for the most part contain a varying admixture of excessively fine terrigenous material, but some samples were found to be very pure, as that of Nos. CXI and CXII from 62° 55½' S. and 54° 42½' S. respectively. They contain Sponge-spicules, more abundantly in the shallower depths, whilst Radiolaria are not uncommon in the deeper samples. The Foraminifera are nearly all arenaceous types, the spicular-test-building forms as *Reophax spiculifera* and *Technitella* being more in evidence. A striking component of the finer arenaceous mud deposits is the tiny Milioline form resembling *Miliolina oblonga* but having a purely arenaceous test, and these often occur in myriads. The pelagic element is represented by *Globigerina dutertrei*, which is occasionally found in some quantity, and the more delicate calcareous forms of Foraminifera as *Lagena*, *Uvigerina*, and *Anomalina* are occasionally abundant. Ostracoda are often seen, as *Cythere* (*C. dasyderma*, &c.). The larger Diatoms met with are *Coscinodiscus*, *Arachnoidiscus*, and *Triceratium*.

* Sometimes referred to as grey or green muds in the Schedule, on account of the colour when dry.

The band of Diatomaceous deposits is, generally speaking, confined within the latitudes 63° and 54° S. and this also confirms the "Challenger's" findings.

Globigerina Ooze is found wherever the distance from the land is fairly considerable and the water is of moderate to great depths. Coccoliths are abundant and form the greater part of the fine washings. These deposits furnish the largest number of species of the Foraminifera and Ostracoda, whilst Radiolaria are very abundant and in great variety in the deeper samples. Even at great depths, as in sample No. LXV at 2,400 fathoms, spines of spatangoid sea-urchins are found. Diatoms and Sponge-spicules also occur in these deposits, but the percentage is very small.

In the Australian quadrant the highest latitude for Globigerina Ooze was found to be $53^{\circ} 8'$ S. and the lowest, $35^{\circ} 56'$ S. at depths of 2,460 fathoms and 1,800 fathoms respectively.

VI.—EXPLANATION OF PLATES.

PLATE I.

- Fig. 1.—Sample II.—Pale Grey Sandy Ooze, with Diatoms (*Coscinodiscus*). $66^{\circ} 50'$ S. $146^{\circ} 16'$ E. Close to edge of Ice Barrier. 398 fathoms. 6th January, 1912. $\times 144$.
- „ 2. Sample III.—Diatomaceous and Spicular Ooze. $66^{\circ} 32'$ S. $140^{\circ} 25\frac{1}{2}'$ E. Off Adelie Land. 308 fathoms. 20th January, 1912. $\times 28$.
- „ 3. Sample XIII.—Pale Grey Mud (Siliceous residue with Radiolarians). $64^{\circ} 31'$ S. $106^{\circ} 28'$ E. 1,500 fathoms. 6th February, 1912. $\times 28$.
- „ 4. Sample XXXIII.—Globigerina Ooze with Sponge-spicules and Radiolaria (siliceous residue). $51^{\circ} 40'$ S. $155^{\circ} 3\frac{1}{2}'$ E. 2,570 fathoms. 20th November, 1912. $\times 28$.
- „ 5. Sample XLIX.—Pale Globigerina Ooze. $47^{\circ} 21\frac{1}{2}'$ S. $145^{\circ} 32'$ E. 1,670 fathoms. 29th December, 1912. $\times 28$.
- „ 6. Sample LII.—Diatomaceous and Spicular Ooze. $57^{\circ} 25\frac{1}{2}'$ S. $146^{\circ} 33'$ E. 1,900 fathoms. 5th January, 1913. $\times 144$.

PLATE II.

- Fig. 7. Sample LIII.—Diatomaceous, Spicular, and Radiolarian Ooze. $58^{\circ} 12' S$. $148^{\circ} 47' E$. 1,900 fathoms. 5th January, 1913. $\times 144$.
- „ 8. Sample LXXIV.—Green Terrigenous Mud, with Diatoms and Spicules. $66^{\circ} 32' S$. $141^{\circ} 39' E$. 157 fathoms. 31st December, 1913. $\times 144$.
- „ 9. Sample C.—Fine Volcanic Mud. $65^{\circ} 8' S$. $95^{\circ} 43' E$. 252 fathoms. 28th January, 1914. $\times 144$.
- „ 10. Sample CVIII.—Grey Mud with Diatoms and Radiolarians. $63^{\circ} 47' S$. $96^{\circ} 58' E$. 1,170 fathoms. 2nd February, 1914. $\times 144$.
- „ 11. Sample CXII.—Diatomaceous and Radiolarian Ooze. $54^{\circ} 42\frac{1}{2}' S$. $96^{\circ} 11' E$. 2,190 fathoms. 12th February, 1914. $\times 144$.
- „ 12. Sample CXV.—Coccoliths washed from Globigerina Ooze. $35^{\circ} 56' S$. $134^{\circ} 14' E$. 1,800 fathoms. 24th February, 1914. $\times 144$.

PLATE III.

Maps to illustrate the localities where the Bottom samples were obtained.

[2 Plates, 1 Map.]



Fig. 1.

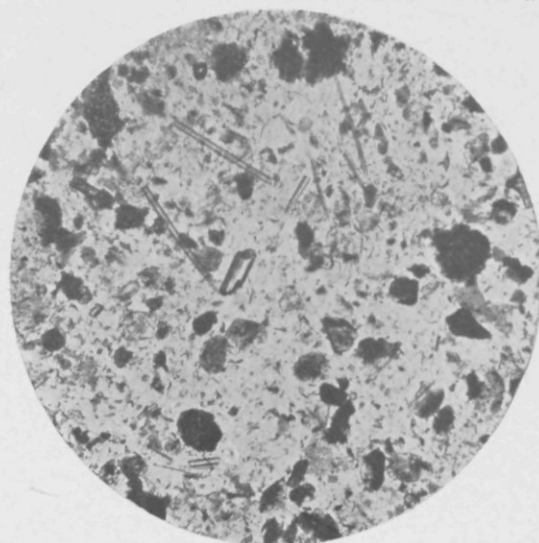


Fig. 2.

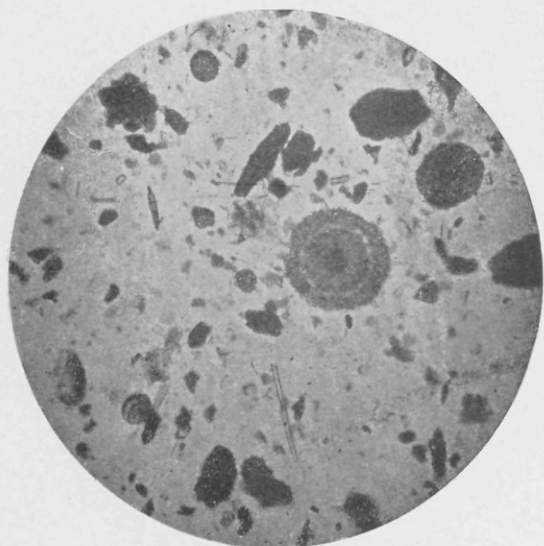


Fig. 3.

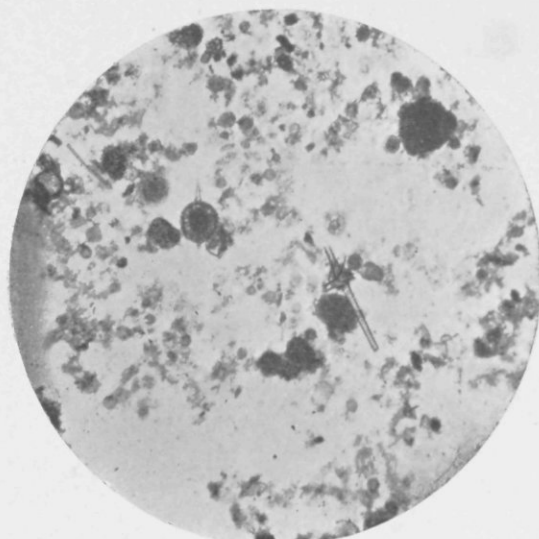


Fig. 4.

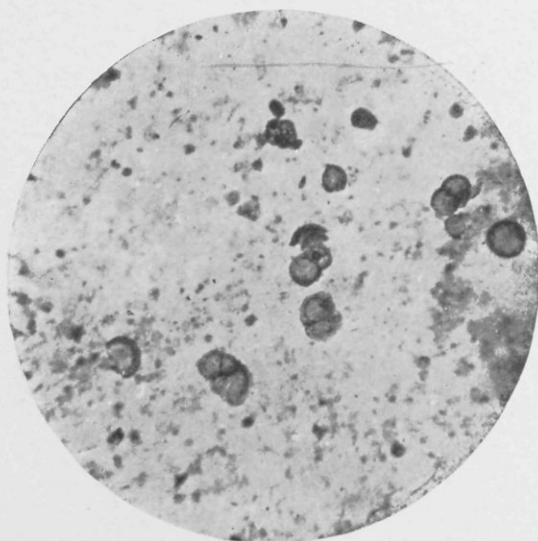


Fig. 5.

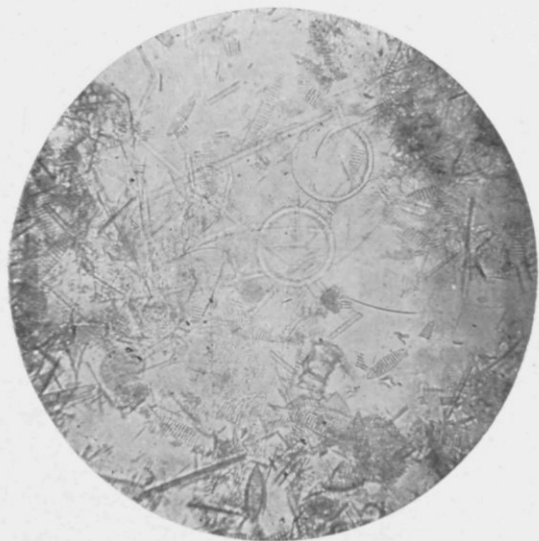
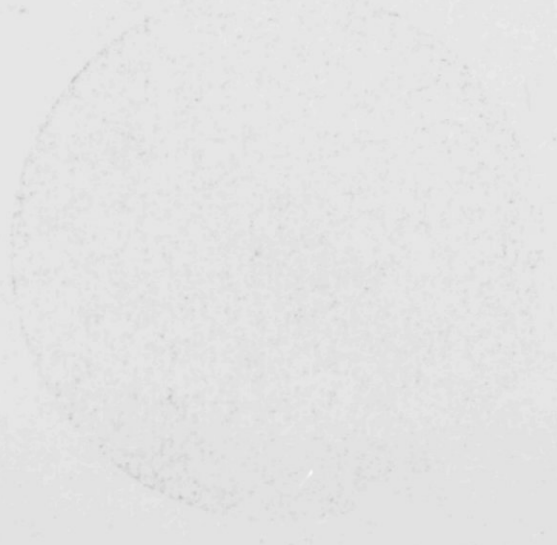


Fig. 6.

PLATE I

PLATE I





MAPS
TO ILLUSTRATE LOCALITIES OF
BOTTOM SAMPLES

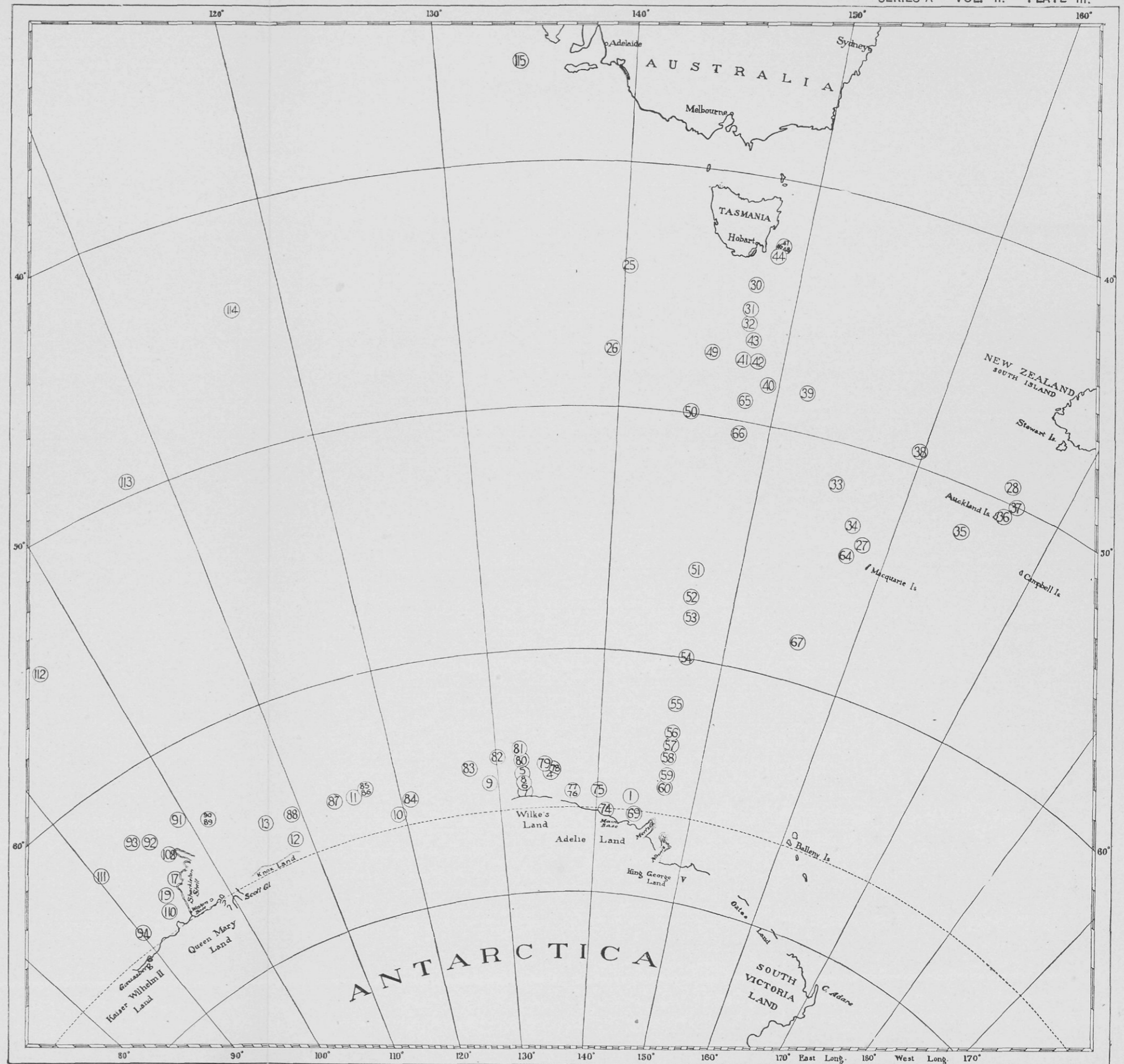
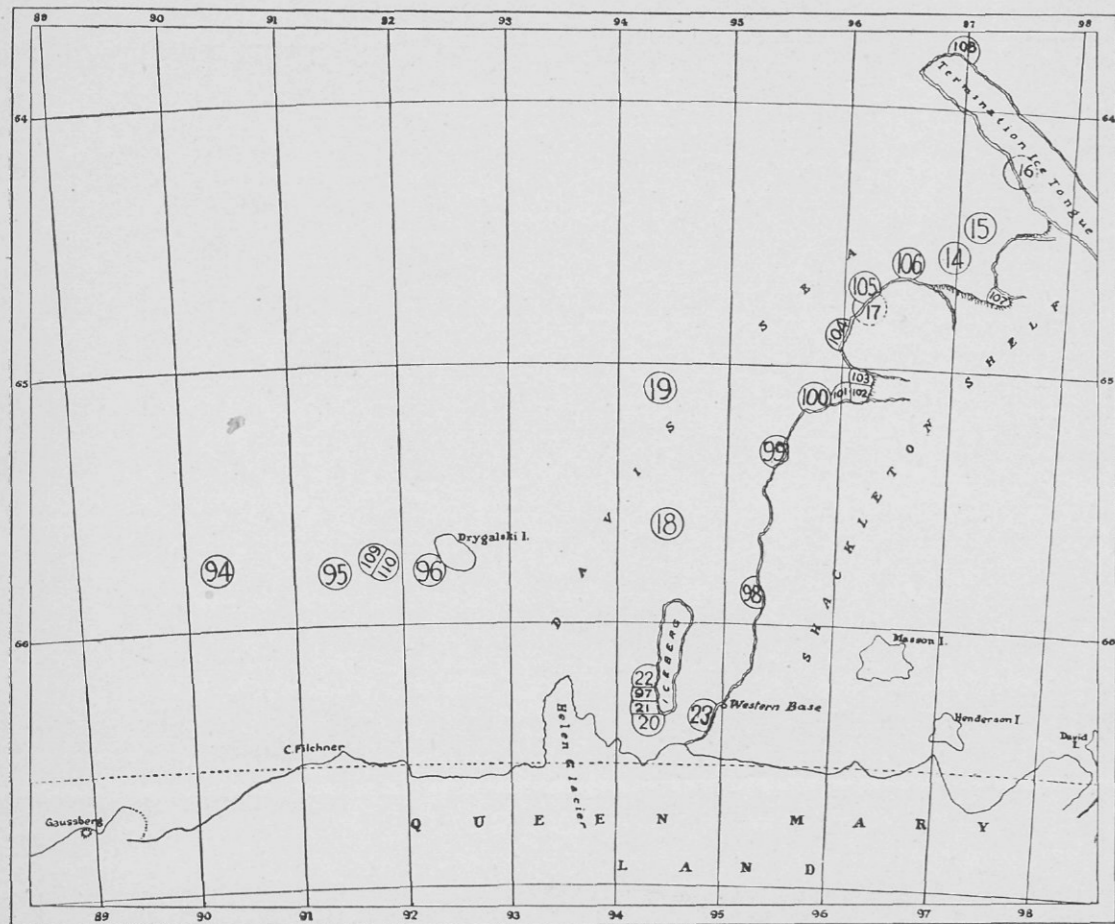
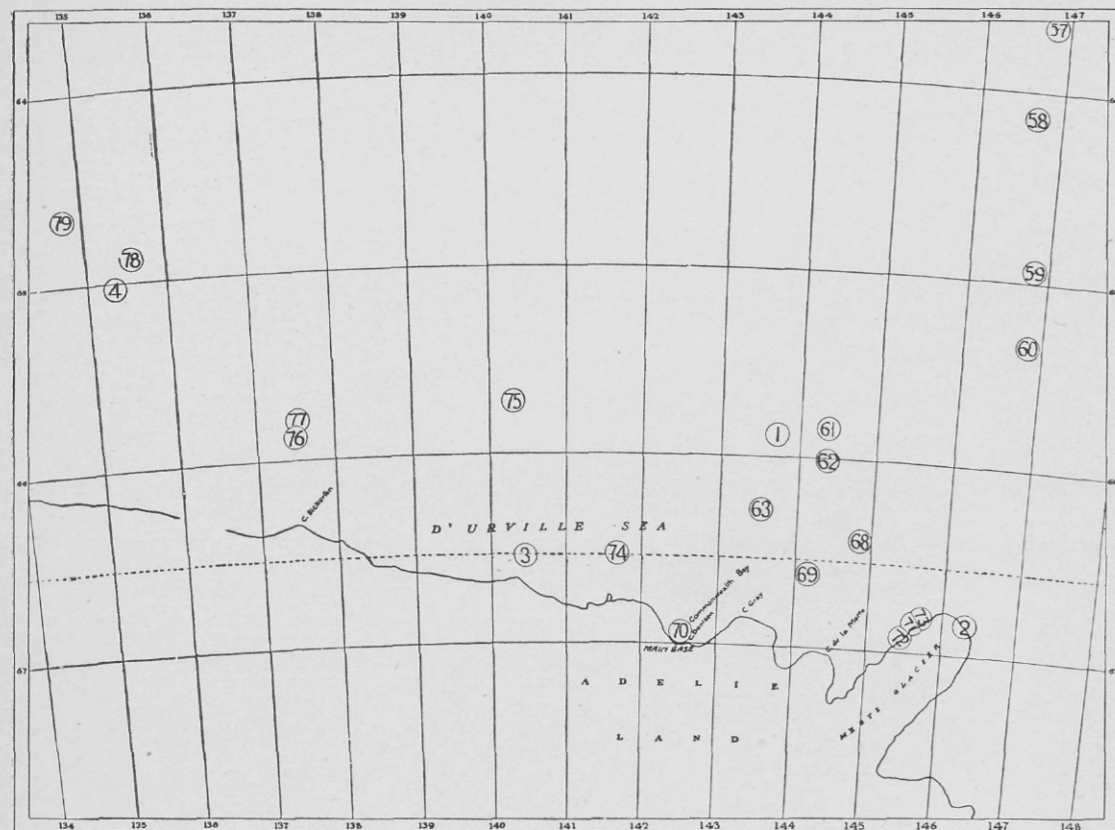




Fig. 7



Fig. 8.

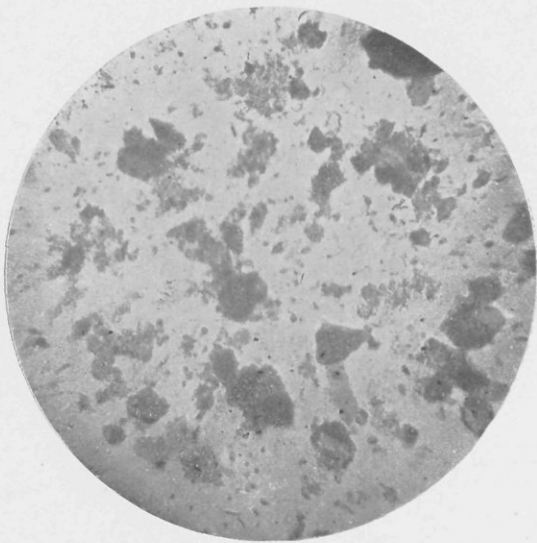


Fig. 9.

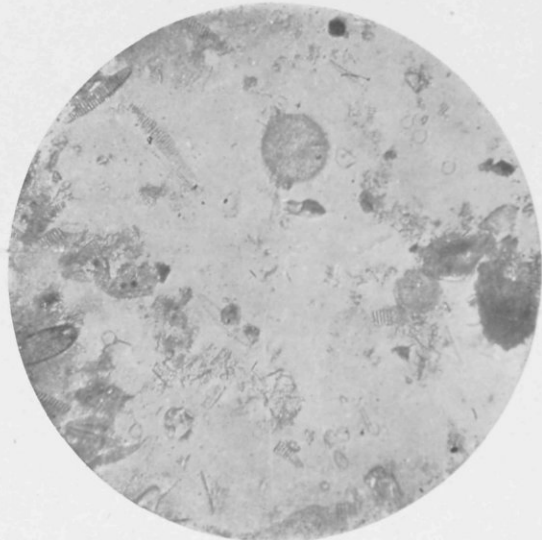


Fig. 10.

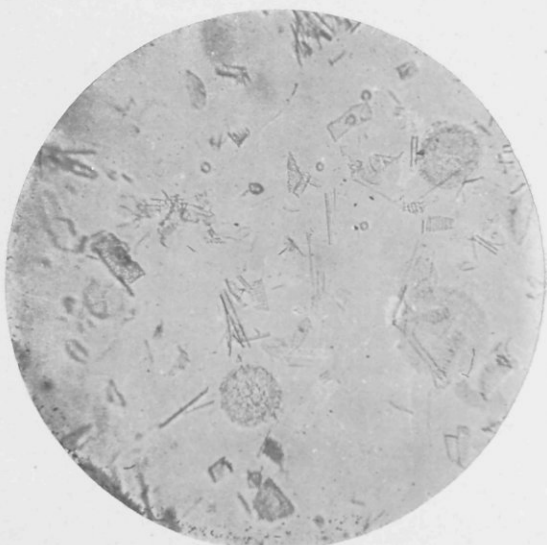


Fig. 11.

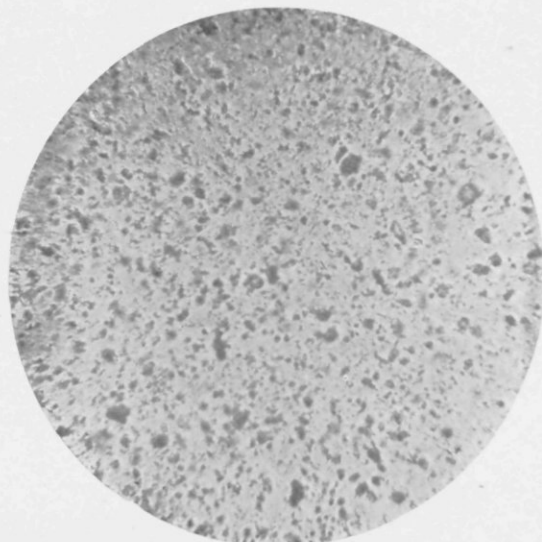
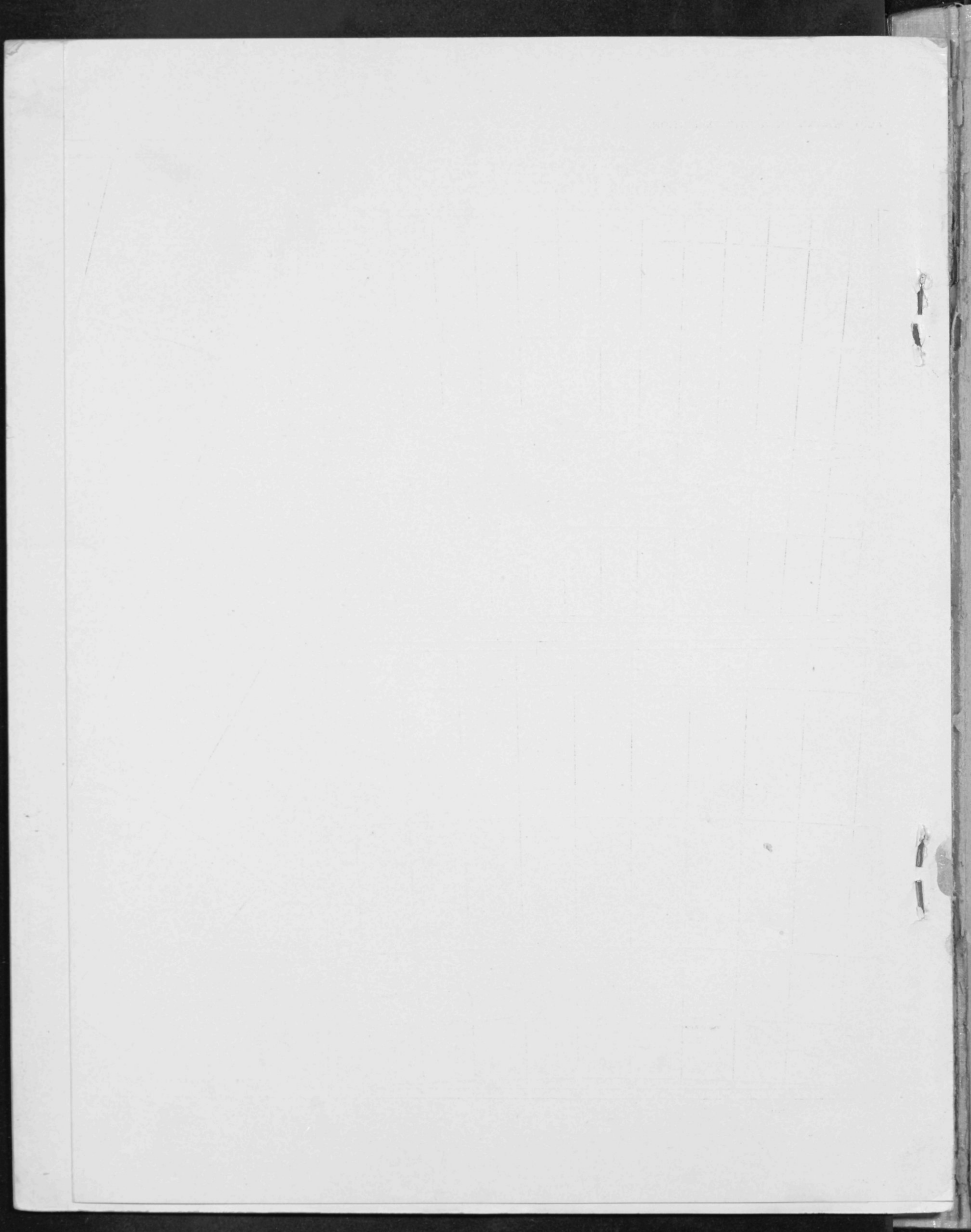
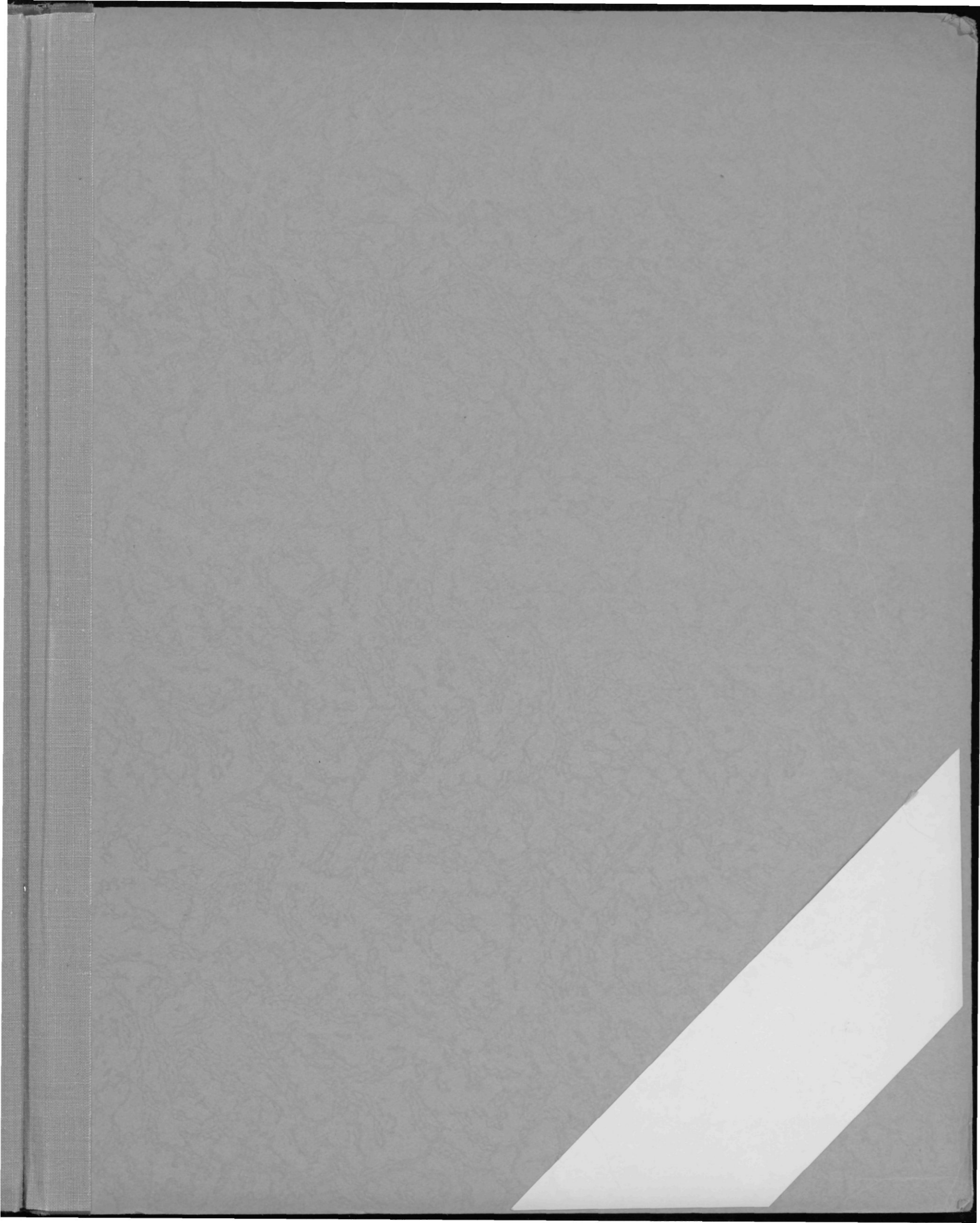


Fig 12.





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180a
M44a

Mawson, Sir Douglas

Australasian Antarctic expedition, 1911-1914.
Scientific reports. Series A. V. 2, pt. 1:
Sea-floor deposits from soundings. 1922

EXP

180a
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1922

Australasian Antarctic expedition V 2 pt 1 Sea-floor deposits from soundings 1922