

Foraminifera of the North Pacific Ocean

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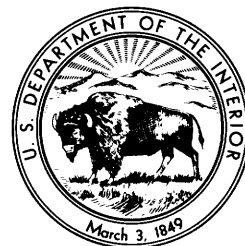


Foraminifera of the North Pacific Ocean

By PATSY B. SMITH

GEOLOGICAL SURVEY PROFESSIONAL PAPER 766

*A systematic study of Foraminifera
from lat 25° to 55° N.*



UNITED STATES DEPARTMENT OF THE INTERIOR

ROGERS C. B. MORTON, *Secretary*

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FORAMINIFERA OF THE NORTH PACIFIC OCEAN

By PATSY B. SMITH

ABSTRACT

In 1961, 33 cores were collected by the U.S. Coast and Geodetic Survey ship *Pioneer*. The Foraminifera of these cores, Holocene and older, indicate a wide faunal diversity. Most are arenaceous. In the deep parts of the central North Pacific, faunas are poor, both in number of specimens and species, but in the Aleutian Trench and on the adjacent island shelf, they are rich. A systematic catalog of the 85 species found accompanies the descriptions and information on distribution.

INTRODUCTION

During 1961, core samples were obtained by the U.S. Coast and Geodetic Survey ship *Pioneer*. Samples were taken between lat 25° and 55° N. and long 160° to 180° W. Water depth ranges from 76 to 7,230 meters (table 1). Samples were taken primarily along two north-south traverses through the mid-Pacific that cross the Aleutian Trench at the north. Distribution of samples is shown in figure 1.

TABLE 1.—*Position, depth, and content of core samples and the abundance of constituents, estimated in percent*
[C, core-catcher sample; other coarse organic fragments, estimated abundance in percent, given in parentheses]

Core	Location		Ocean depth (m)	Depth in core (cm)	<0.07 mm	Foram-inifera	Diatoms	Radio-laria	Other coarse organic fragments	Coarse residue
	Lat N.	Long. W.								
P-1-61	57°19'	155°20'	230	0-2	95	<1	<1	---	-----	Fine sand.
				2-3	95	<1	<1	---	-----	Do.
				11-12	95	---	---	---	-----	Ash.
				21-22	96	<1	---	---	-----	Do.
				31-32	96	---	<1	---	-----	Fine sand, ash.
				41-42	98	---	<1	<1	-----	Ash.
				C	98	<1	<1	---	-----	Sand, ash.
				0-6	90	1	<1	<1	-----	Fine sand.
				0-2	80	1	---	---	-----	Poorly sorted sand.
				2-14	60	<1	---	---	-----	Granule to medium sand.
3-61	54°33'	157°24'	2,090	14-26	50	<1	---	---	-----	Do.
				26-29	50	3	---	---	-----	Same and shell, wood.
				29-32	40	3	---	---	-----	Granule to fine sand, shell.
				41-42	50	2	---	---	-----	Do.
				51-52	60	1	---	---	-----	Do.
				61-62	50	1	---	---	-----	Coarse to fine sand, shell.
				71-72	60	<1	<1	---	-----	Do.
				81-82	50	3	---	---	-----	Do.
				91-92	60	2	---	---	-----	Do.
				101-102	60	2	---	---	-----	Do.
				C	50	5	---	---	-----	Pebbles to fine sand.
				0-2	98	<1	<1	---	-----	Fine sand.
				11-12	95	<1	4	---	-----	Do.
				21-22	95	---	3	<1	Sponge (1) -----	Do.
C	95	<1	3	---	do -----	Do.				
6-61	55°23'	154°27'	819	0-2	75	<1	<1	---	Sponge (<1) -----	Fine sand, ash.
				53-54	75	3	---	---	Sponge (2) -----	Ash.
7-61	56°25'	155°36'	76	0-1	95	<1	<1	---	Sponge (<1) -----	Fine sand.
				6-7	25	2	<1	<1	---	Do.
8-61	55°36'	158°23'	150	0-1	95	<1	1	---	Sponge (<1) -----	Fine sand.
				10-11	50	<1	<1	---	Sponge (3) -----	Ash, some fine sand.
				20-21	60	<1	<1	---	Sponge (1) -----	Do.
				30-31	60	<1	<1	---	Sponge (3) -----	Do.
				40-41	50	<1	<1	---	Sponge (1) -----	Do.
				50-51	50	<1	<1	---	Sponge (<1) -----	Do.
				60-61	75	<1	<1	---	Sponge (1) -----	Do.
				70-71	75	<1	<1	---	Sponge (<1) -----	Do.
				80-81	75	1	<1	---	Sponge (1) -----	Do.
				90-91	25	2	---	---	Sponge (<1) -----	Ash.
				100-101	25	2	---	---	do -----	Do.

See footnotes at end of table.

FORAMINIFERA OF THE NORTH PACIFIC OCEAN

TABLE 1.—Position, depth, and content of core samples and the abundance of constituents, estimated in percent—Continued

Core	Location		Ocean depth (m)	Depth in core (cm)	<0.07 mm	Foram-inifera	Diatoms	Radio-laria	Other coarse organic fragments	Coarse residue				
	Lat N.	Long. W.												
P-9-61	54°55'	157°59'	121	0-1	85	2	---	---	---	Sand, poorly sorted.				
				10-11	30	20	<1	---	Sponge (<1)	Do.				
				20-21	10	10	---	---	Shell (40)	Do.				
				30-31	10	10	---	---	do	Do.				
				40-41	10	10	<1	---	do	Do.				
				50-51	10	15	<1	---	Shell (35)	Do.				
				60-61	10	10	<1	---	Shell (30)	Do.				
				70-71	20	10	---	---	Shell (35)	Do.				
10-61	54°51'	155°24'	4,170	0-1	95	<1	2	2	---	Ash, fine sand.				
11-61	54°27'	155°23'	5,560	9-13	95	---	2	1	---	Do.				
				0-1	75	3	15	2	---	Fine sand.				
				10-11	90	<1	2	2	---	Do.				
				21-22	80	<1	7	8	---	Do.				
				31-32	90	<1	2	2	---	Ash, fine sand.				
12-61	53°16'	161°33'	6,560	35-36	95	---	<1	<1	---	Do.				
				C	95	---	1	1	---	Do.				
				0-1	80	5	10	---	Fine, sand.					
				10-11	90	<1	5	<1	---	Ash.				
13-61	51°28'	168°38'	7,000	20-21	80	<1	15	1	---	Do.				
				0-1	75	<1	20	2	---	Ash.				
				10-11	85	---	5	3	Sponge (2)	Do.				
16-61	53°53'	161°40'	2,410	20-21	80	---	10	3	---	Do.				
				30-31	75	---	5	1	Sponge (<1)	Do.				
				0-1	80	<1	5	1	---	Fine sand.				
				10-11	85	---	3	---	Sponge (2)	Do.				
				20-21	85	---	3	---	do	Do.				
19-61	52°41'	155°36'	4,430	30-31	85	<1	4	---	Sponge (4)	Do.				
				40-41	85	---	4	---	do	Do.				
				50-51	85	<1	6	---	do	Do.				
				60-61	90	<1	3	---	Sponge (1)	Do.				
				0-1	80	<1	18	1	---	---				
				10-11	70	<1	10	1	Sponge (1)	Ash.				
22-61	24°42'	166°24'	4,810	20-21	70	<1	10	1	---	Do.				
				30-31	80	---	8	1	---	Do.				
				0-1	80	1	<1	---	---	Silt and fine sand.				
23-61	23°56'	167°21'	4,760	10-11	95	---	---	---	Sponge (2)	Do.				
				20-21	90	1	---	---	Sponge (1), broken mollusks (1).	Do.				
				0-1	60	20	---	---	Shells, bryozoans, and so forth.	---				
25-61	23°22'	177°54'	5,120	0-1	95	<1	---	<1	---	Very fine sand.				
				10-11	99	<1	---	---	---	Fine to medium sand.				
				20-21	99	<1	---	---	---	Do.				
				30-31	99	<1	---	---	---	Do.				
				40-41	99	<1	---	---	---	Do.				
				50-51	99	<1	---	---	---	Do.				
				60-61	99	<1	---	---	---	Do.				
				70-71	99	<1	---	---	---	Do.				
				80-81	99	<1	---	---	---	Do.				
				0-1	99	<1	---	<1	Sponge (<1)	---				
				27-61	30°06'	177°30'	5,290	0-1	98	<1	<1	1	---	Do.
				29-61	32°22'	177°20'	4,810	0-1	95	<1	<1	4	---	Do.
				32-61	36°50'	177°30'	5,400	0-1	80	<1	2	18	---	---
10-11	80	---	<1					20	---	---				
20-21	80	---	<1					20	---	---				
30-31	80	<1	<1					20	---	---				
40-41	80	<1	<1					20	---	---				
50-51	80	<1	<1					20	---	---				
60-61	80	<1	<1					20	---	---				
70-71	99	<1	1					18	---	---				
33-61	39°15'	176°56'	5,230	0-1	80	<1	1	18	---	---				
				10-11	90	---	<1	8	Sponge (1)	---				
				20-21	90	<1	<1	8	do	---				
				30-31	90	---	<1	8	do	---				
				40-41	90	---	<1	8	do	---				
35-61	41°19'	177°02'	5,530	50-51	90	---	<1	8	do	---				
				0-1	95	<1	<1	4	Sponge (<1)	---				
				0-1	90	<1	4	do	---					
38-61	45°50'	176°47'	5,610	10-11	90	<1	<1	1	---	Medium to fine sand.				
				20-21	95	---	<1	1	---	Do.				
				30-31	95	---	<1	1	---	Do.				
				40-41	95	---	<1	1	---	Same, half ash.				
				50-51	95	---	<1	1	---	Do.				
				60-61	95	---	<1	1	---	Do.				
				70-71	95	---	<1	1	---	Do.				

See footnotes at end of table.

TABLE 1.—Position, depth, and content of core samples and the abundance of constituents, estimated in percent—Continued

Core	Location		Ocean depth (m)	Depth in core (cm)	<0.07 mm	Foram-inifera	Diatoms	Radiol-aria	Other coarse organic fragments	Coarse residue
	Lat N.	Long. W.								
P-40-61	48°06'	176°32'	5,500	0-1	75	1	10	4	Sponge (1) -----	Coarse to fine sand.
				10-11	70	<1	3	2	-----	Medium to fine sand.
				20-21	70	<1	3	2	-----	Very coarse to fine sand.
41-61	50°24'	176°30'	7,230	30-31	70	1	5	5	Sponge (<1) -----	Medium to fine sand.
				0-1	75	2	20	---	Sponge (>1) -----	Ash.
				10-11	95	---	2	2	-----	-----
				20-21	98	1	1	1	-----	Ash.
				30-31	98	<1	1	<1	-----	Do.
48-61	51°41'	161°07'	4,650	40-41	80	---	10	5	-----	Fine sand.
				0-1	85	1	10	---	-----	Fine sand.
				10-11	90	<1	3	<1	-----	Ash.
49-61	49°50'	160°57'	5,000	17-18	75	<1	8	2	-----	Do.
				0-1	50	1	3	4	Sponge (2) -----	Ash, fine to granule.
				10-11	80	<1	1	8	-----	Ash, fine to very coarse.
52-61	43°47'	160°36'	5,160	20-21	80	<1	1	1	-----	Do.
				30-31	80	<1	1	1	-----	Do.
				40-41	80	<1	1	1	-----	Do.
				50-51	80	<1	1	1	-----	Do.
				60-61	80	<1	1	1	-----	Do.
				0-1	90	<1	<1	8	-----	-----
				56-61	39°30'	160°24'	5,400	0-1	95	<1
63-61	32°42'	160°12'	5,830	10-11	95	<1	1	1	-----	Do.
				20-21	98	---	<1	<1	-----	Do.
				30-31	98	---	<1	>1	-----	Do.
				40-41	99	---	<1	1	-----	Do.
				50-51	99	---	<1	1	-----	Do.
				60-61	99	---	<1	1	-----	Do.
				70-71	99	---	<1	1	-----	Do.
				80-81	99	---	<1	1	-----	Do.
				0-1	85	<1	---	<1	-----	Fine sand.
				10-11	98	---	---	1	Sponge (1) -----	-----
				20-21	98	---	---	1	-----	-----
				30-31	98	---	---	1	-----	-----
				40-41	98	---	---	1	-----	-----
				50-51	98	<1	---	1	-----	-----
60-61	98	---	---	1	Sponge, fish bones (1). -----	-----				
70-71	98	---	---	---	-----	-----				
80-81	98	---	---	---	Sponge (2) -----	-----				
90-91	99	---	---	---	-----	Manganese (?) pellets.				
64-61	30°16'	160°07'	5,830	100-101	99	---	---	---	-----	Do.
				110-111	99	---	---	---	-----	Coarse sand.
				120-121	99	---	---	---	-----	Do.
				0-1	---	(¹)	---	---	-----	-----
69-61	23°30'	159°58'	4,820	10-11	---	(²)	---	---	-----	-----
				0-1	98	<1	<1	1	-----	-----
				10-11	98	---	---	<1	Sponge (<1) -----	Fine sand.
				20-21	98	---	---	<1	-----	Do.
				30-31	98	---	---	<1	-----	Do.
40-41	98	---	---	<1	-----	Do.				

¹ Incompletely washed, few Foraminifera.² Incompletely washed, no Foraminifera.

Examination of faunas from the cores showed that, in general, species are sparsely represented but are diverse and mostly arenaceous. No new species are described. Sixty of the 85 species found were illustrated in the *Challenger* reports (Brady, 1884; Barker, 1960). The few calcareous specimens present in the deep cores were probably alive at the time of collection, even though not all were stained by rose bengal. The likelihood is not great that such specimens could survive for long after death in their calcite-undersaturated environment.

Table 1 lists the position, depth of water, and percentage estimates of the constituents of the cores. Most of the material was finer than 0.07 millimeter and contained small percentages of Foraminifera, diatoms, Radiolaria, other organic fragments, and some inorganic residue.

This paper is mainly a catalog of species present and their relative abundance. The systematic catalog includes as complete synonymies as possible, for many of the species have been described from rare occurrences and their systematic descriptions had to

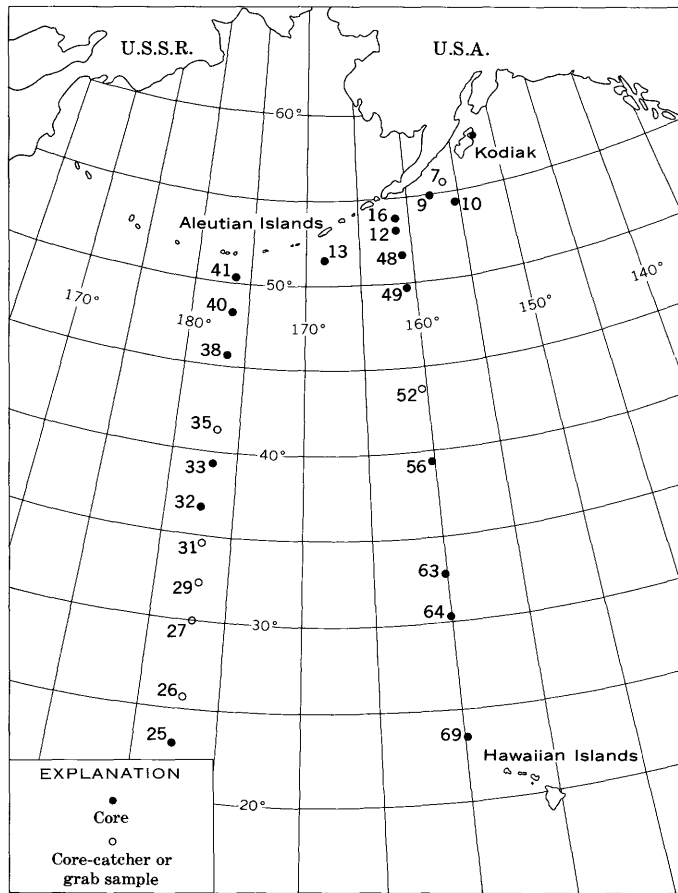


FIGURE 1.—Location of 1961 *Pioneer* stations.

be assembled. Discussion of each species, its morphology, and distribution is included. The species are illustrated on plates 1–4.

ACKNOWLEDGMENTS

Credit is here given to Capts. William Dean, Horace Conerly, and Harley Nygren of the National Ocean Survey (formerly Coast and Geodetic Survey) for supervising the coring. George W. Moore of the U.S. Geological Survey logged and sampled the cores and collected the grab samples.

PREVIOUS WORK

Published records of bottom sediments and Foraminifera from the Pacific Ocean north of lat 20° N. are sparse. The *Challenger* reports include several samples from this area. The report of the seventh cruise of the *Carnegie* (Revelle, 1944) includes many more samples and also a comprehensive study of sediment type, the distribution of which is shown in figure 2. Figure 3, showing distribution of CaCO₃, is taken from Lisitzen (1971).

Riedel and Funnell (1965) described several Tertiary cores from the area, and several reports of Tertiary faunas from the North Pacific (Bukry and others, 1971; Krashininnikov, 1971; Olson and Goll, 1970) have been published as results of the deep-sea drilling project of the *Glomar Challenger*.

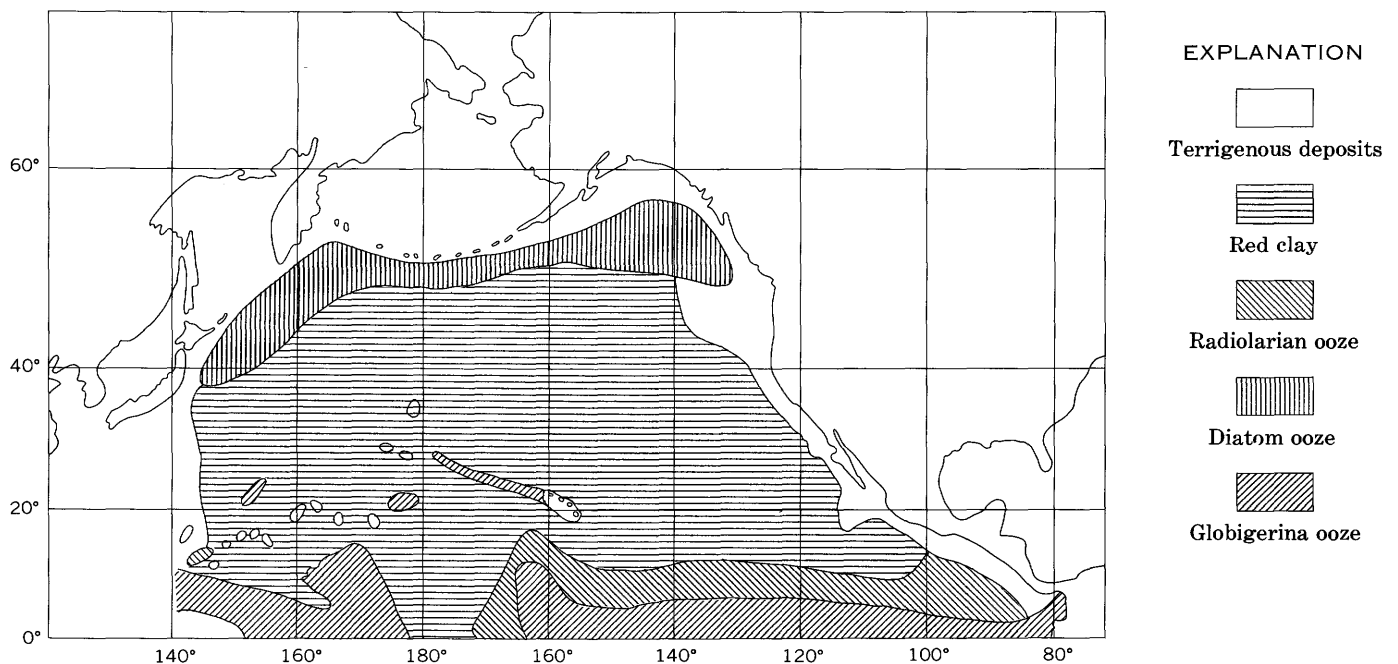


FIGURE 2.—Distribution of marine deposits in the North Pacific Ocean (from Revelle, 1944).

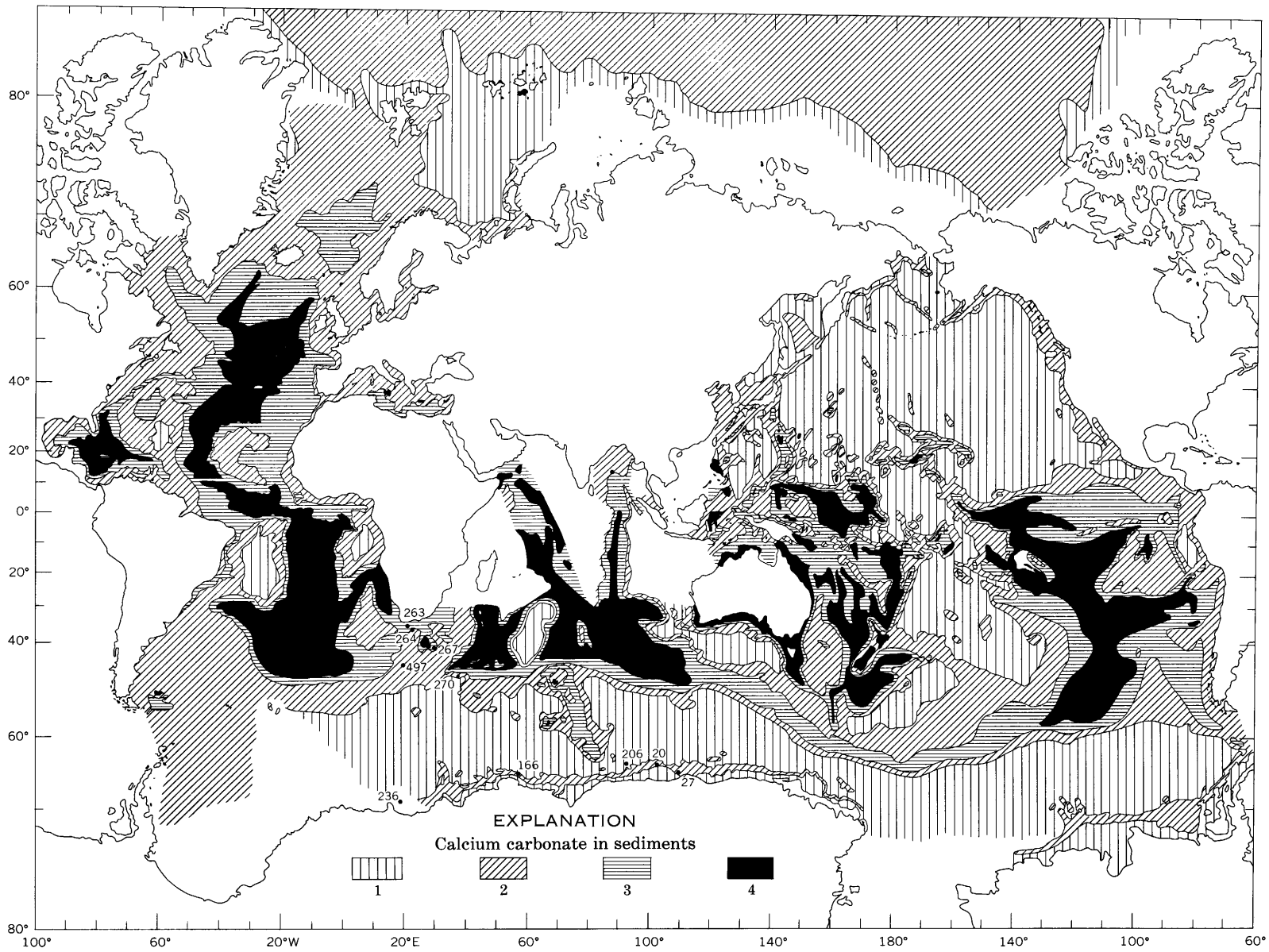


FIGURE 3.—Distribution of calcium carbonate in the ocean deposits (from Lisitzen, 1971). 1, <1 percent; 2, 1-30 percent; 3, 30-70 percent; 4, >70 percent.

PROCEDURE

The top 2 centimeters of each core was preserved in alcohol and stained with rose bengal; the remainder of each core was examined at 10-cm intervals.

Samples were washed on a 200-mesh screen, and all Foraminifera were picked. The number of specimens indicated on pages 7-12 represents the actual number of specimens counted.

ENVIRONMENT OF THE NORTH PACIFIC

Bottom-water temperature in most parts of the area covered by this report ranges from 1° to 2° C. The sediment types are shown in figure 2, taken from Revelle (1944). Samples directly south of the Aleutian Islands are composed of terrigenous material; those farther south, to latitude 50° N., are markedly rich in diatoms (see table 1); and those still farther south are characterized by red clay. None of the samples are far enough south to reach areas high in CaCO₃. (See fig. 3.)

Samples taken in fairly shallow water, north of the Aleutian Trench, have a high percentage of calcareous forms. Table 2 is a compilation of species

TABLE 2.—Distribution of Foraminifera in the North Pacific

	Aleutian Terrace	Aleutian Trench	Deep-sea plain
<i>Bolivina pseudoplicata</i> -----	X	-----	-----
<i>Buliminella basicostata</i> -----	X	-----	-----
<i>Elphidium magellanicum</i> -----	X	-----	-----
<i>Epistominella exigua</i> -----	X	-----	-----
<i>Fissurina</i> sp -----	X	-----	-----
<i>Nonionella auricula</i> -----	X	-----	-----
<i>bradyi</i> -----	X	-----	-----
<i>Rosalina</i> sp -----	X	-----	-----
<i>Virgulina</i> cf. <i>V. complanata</i> -----	X	-----	-----
<i>Globigerina bulloides</i> -----	X	-----	-----
<i>Pseudogaudryina atlantica</i> -----	X	-----	-----
<i>Angulogerina angulosa</i> -----	X	-----	-----
<i>Bolivina decussata</i> -----	X	-----	-----
<i>Cassidulina crassa</i> -----	X	-----	-----
<i>teretis</i> -----	X	-----	-----
<i>tortuosa</i> -----	X	-----	-----
<i>Cibicides lobatulus</i> -----	X	-----	-----
<i>refulgens</i> -----	X	-----	-----
<i>Nonion scaphum</i> -----	X	-----	-----
<i>Uvigerina cushmani</i> -----	X	-----	-----
<i>Tritaxis conica</i> -----	-----	-----	X
<i>Globotextularia anceps</i> -----	-----	-----	X
<i>Dorothia exilis</i> -----	-----	-----	X
<i>Eggerella bradyi</i> -----	X	X	X
<i>scabra</i> -----	X	X	X
<i>Ophthalmidium acutumargo</i> -----	-----	-----	X
<i>pusillum</i> -----	-----	-----	X
<i>Quinqueloculina</i> sp -----	-----	-----	X
<i>Pyrgo</i> sp -----	X	-----	-----
<i>Miliolinella subrotunda</i> -----	-----	X	-----
<i>Ammomassilina</i> <i>alveolinaformis</i> -----	-----	-----	X
<i>Bolivina robusta</i> -----	X	-----	-----

TABLE 2.—Distribution of Foraminifera in the North Pacific—Continued

	Aleutian Terrace	Aleutian Trench	Deep-sea plain
<i>Bulimina aculeata</i> -----	X	-----	-----
<i>Globobulimina auriculata</i> -----	-----	-----	X
<i>pacifica</i> -----	X	-----	X
<i>Uvigerina peregrina</i> -----	X	-----	-----
<i>Epistominella exigua</i> -----	X	-----	-----
<i>umbonifera</i> -----	-----	-----	X
<i>Elphidium incertum</i> -----	X	-----	-----
<i>Elphidiella groenlandica</i> -----	X	-----	-----
<i>Globorotalia inflata</i> -----	-----	-----	X
<i>Globigerina bulloides</i> -----	X	-----	X
<i>Candeina nitida</i> -----	-----	-----	X
<i>Cibicides bradyi</i> -----	-----	X	X
<i>Cassidulina subglobosa</i> -----	-----	X	-----
<i>crassa</i> -----	-----	-----	X
<i>Ehrenbergina hystrix</i> -----	-----	X	-----
<i>Involutina tenuis</i> -----	X	-----	-----
<i>Nonion labradoricum</i> -----	X	-----	-----
<i>Nonionella turgida</i> -----	-----	X	-----
<i>Pullenia subcarinata</i> -----	-----	-----	X
<i>Gyroidina lamareckiana</i> -----	-----	-----	X
<i>Anomalina globulosa</i> -----	-----	-----	X
<i>Cibicoides</i> cf. <i>C. mundulus</i> -----	-----	-----	X
<i>Melonis affine</i> -----	-----	-----	X
<i>pompilioides</i> -----	-----	-----	X
<i>Hoeglundina elegans</i> -----	-----	-----	X
<i>Rhabdamina abyssorum</i> -----	-----	-----	X
<i>Rhizammina?</i> sp -----	-----	X	-----
<i>Marsipella cylindrica</i> -----	-----	-----	X
<i>Bathysiphon discreta</i> -----	-----	-----	X
<i>Jaculella acuta</i> -----	-----	X	X
<i>Hyperammina</i> spp -----	-----	X	X
<i>Psammosphaera rustica</i> -----	-----	-----	X
<i>Saccammina sphaerica</i> -----	-----	X	-----
<i>Thurammina papillata</i> -----	-----	-----	X
<i>Glomospira gordialis</i> -----	-----	X	X
<i>Hormosina globulifera</i> -----	-----	-----	X
<i>Reophax dentatinaformis</i> -----	-----	X	X
<i>diffugiformis</i> -----	-----	X	X
<i>distans</i> -----	-----	-----	X
<i>nodulosus</i> -----	-----	-----	X
<i>pilulifer</i> -----	-----	X	X
<i>scorpiurus</i> -----	-----	X	-----
<i>scotti</i> -----	-----	X	X
<i>excentricus</i> -----	-----	X	-----
<i>Adercotryma glomerata</i> -----	-----	-----	X
<i>Cyclammina cancellata</i> -----	-----	-----	X
<i>trullissata</i> -----	-----	X	X
<i>Alveolophragmium nitidum</i> -----	-----	X	-----
cf. <i>A. nitidum</i> -----	-----	X	X
<i>ringens</i> -----	-----	X	-----
<i>scitulum</i> -----	-----	X	-----
<i>subglobosum</i> -----	X	X	X
<i>weisneri</i> -----	-----	X	X
<i>Alveolophragmium?</i> sp -----	-----	-----	X
<i>Ammobaculites agglutinans</i> -----	-----	X	X
<i>agglutinans filiformis</i> (smooth) -----	-----	X	X
<i>agglutinans filiformis</i> (rough) -----	-----	X	X
<i>americanus</i> -----	-----	X	-----
<i>Ammomarginulina foliacea</i> -----	-----	X	X
<i>Placopsilina confusa</i> -----	-----	X	-----
<i>Spiroplectammina bififormis</i> -----	-----	X	X
<i>Bigenerina minutissima</i> -----	-----	X	X

TABLE 2.—Distribution of Foraminifera in the North Pacific—Continued

	Aleutian Terrace	Aleutian Trench	Deep-sea plain
<i>Trochammina grisea</i> -----	×	-----	×
<i>inflata</i> -----	-----	-----	×
<i>kellettae</i> -----	-----	×	-----
<i>malovens</i> -----	-----	×	-----
cf. <i>T. malovens</i> -----	-----	×	-----
<i>nana</i> -----	-----	-----	×
sp. (chitinous) -----	-----	×	-----
<i>nitida</i> -----	-----	-----	×
<i>globigeriniformis</i> -----	×	×	×
<i>Cystammina galeata</i> -----	-----	×	×
<i>Nodellum membranaceum</i> -----	-----	×	-----
<i>Haplophragmoides</i>			
<i>canariensis</i> -----	-----	×	×
<i>nitida</i> -----	-----	×	-----
<i>Oculosiphon</i> cf. <i>O. linearis</i> -----	-----	×	-----
<i>Psammosiphonella</i> sp -----	-----	×	-----

that are present in three areas: the Aleutian Terrace, the Aleutian Trench, and the deep-sea plain. No indication of relative abundance is given. Samples from the trench itself have surprisingly large numbers of species and specimens, almost entirely arenaceous. One interesting aspect of the trench faunas is that the cement of several species is all or in part composed of pseudochitin, as though there simply was not enough calcitic cementing material available.

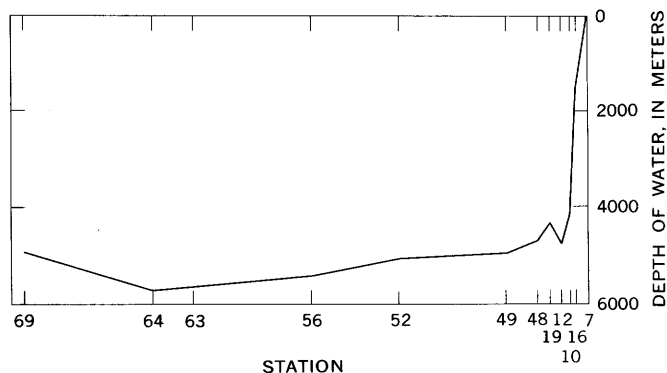


FIGURE 4.—Depth of water for stations along long. 160° W.

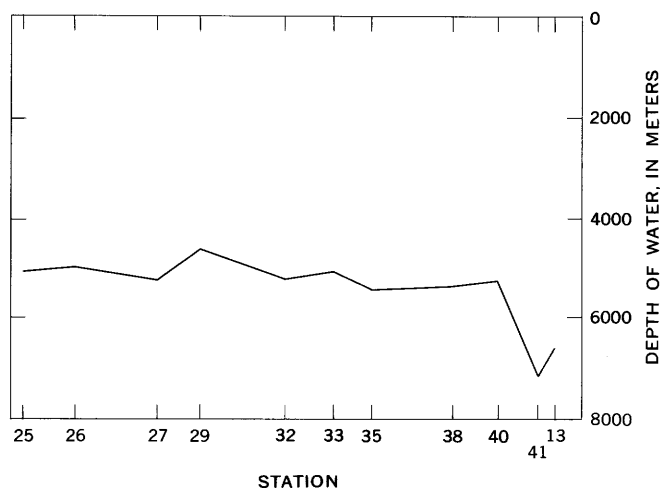


FIGURE 5.—Depth of water for stations along long. 180° W.

Depths of the samples are plotted in figures 4 and 5 and show graphically the great depth from which most of these samples came. It is unusual to find Foraminifera at such great depths because of the low CaCO₃ concentration.

Faunal lists of the top 2 cm of the cores are arranged from north to south. A separate list of faunas found below the surface are arranged serially by sample number. These fossil faunas show an extreme paucity of specimens.

FORAMINIFERA IN GRAB SAMPLES AND IN TOP 2 CENTIMETERS OF CORES

[Approximate washed volume 10 cm³; depth given in meters below sea level]

Kodiak Harbor, Kodiak Island, depth 10 meters

[No diatoms, Radiolaria, or sponge spicules seen]

	Specimens	
	Total	Stained
Arenaceous benthonic:		
<i>Alveolophragmium subglobosum</i> -----	1	-----
<i>Eggerella scabra</i> -----	12	-----
<i>Haplophragmoides canariensis</i> -----	7	-----
Calcareous benthonic:		
<i>Buccella frigida</i> -----	69	6
cf. <i>B. inusitata</i> -----	3	-----
<i>Buliminella elegantissima</i> -----	1	-----
<i>Elphidium bartletti</i> -----	14	-----
<i>clavatum</i> -----	37	4
<i>orbiculare</i> -----	13	4
sp. (smooth) -----	4	-----
<i>Nonion labradoricum</i> -----	1	-----
<i>Virgulina</i> cf. <i>V. complanata</i> -----	4	4

Core P-7-61, depth 76 meters. Lat 56°24' N., long 155°36' W.

[One large (1-cm-long) shrimp and about equal volumes of diatoms and Foraminifera]

	Specimens	
	Total	Stained
Arenaceous benthonic:		
<i>Eggerella scabra</i> -----	1	-----
Calcareous benthonic:		
<i>Bolivina pseudoplicata</i> -----	7	-----
<i>Buliminella basicostata</i> -----	1	-----
<i>Elphidium magellanicum</i> -----	7	-----
<i>Epistominella exigua</i> -----	25	-----
<i>Fissurina</i> sp -----	1	-----
<i>Nonionella auricula</i> -----	1	-----
<i>bradyi</i> -----	5	-----
<i>Rosalina</i> sp -----	1	-----
<i>Virgulina</i> cf. <i>V. complanata</i> -----	1	-----
Calcareous planktonic:		
<i>Globigerina bulloides</i> -----	1	-----

Core P-9-61, depth 121 meters. Lat 54°55' N., long 157°59' W.

	Specimens	
	Total	Stained
Arenaceous benthonic:		
<i>Pseudogaudryina atlantica</i> -----	2	-----
sp -----	1	-----
Calcareous benthonic:		
<i>Angulogerina angulosa</i> -----	2	1
<i>Bolivina decussata</i> -----	5	-----
<i>Cassidulina crassa</i> -----	42	8
<i>teretis</i> -----	113	-----
<i>tortuosa</i> -----	76	-----
<i>Cibicides lobatulus</i> -----	17	-----
<i>refulgens</i> -----	13	-----
<i>Elphidium bartletti</i> -----	4	-----
cf. <i>E. crispum</i> -----	3	-----
<i>Epistominella exigua</i> -----	1	-----
<i>Lagena</i> spp -----	6	-----
<i>Loxostomum amygdaliformis</i> -----	1	-----
<i>Nonion scaphum</i> -----	6	-----
<i>Pseudopolymorphina lingua</i> -----	1	-----
<i>Uvigerina cushmani</i> -----	11	-----

Core P-9-61, depth 121 meters. Lat 54°55' N.,
long 157°59' W.—Continued

	Specimens	
	Total	Stained
Calcareous planktonic:		
<i>Globigerina bulloides</i> -----	21	-----
<i>pachyderma</i> -----	15	-----
<i>Orbulina universa</i> -----	1	-----

Core P-16-61, depth 2,410 meters. Lat 53°53' N., long 161°40' W.

[Diatoms 98 percent; Radiolaria, sponge spicules, Foraminifera compose the remainder, but none very abundant]

	Specimens	
	Total	Stained
Arenaceous benthonic:		
<i>Alveolophragmium subglobosum</i> -----	2	-----
<i>Eggerella bradyi</i> -----	1	-----
<i>Trochammina globigeriniformis</i> -----	1	-----
<i>grisea</i> -----	1	-----
Calcareous benthonic:		
<i>Bulimina</i> cf. <i>B. auriculata</i> -----	3	2
<i>mexicana</i> -----	1	-----
<i>Elphidium incertum</i> -----	2	-----
<i>Elphidiella groenlandica</i> -----	24	3
<i>Globobulimina pacifica</i> -----	1	1
<i>Hoeglundina elegans</i> -----	2	corroded
<i>Nonion labradoricum</i> -----	4	4
<i>Nonionella turgida</i> -----	6	6
<i>Pyrgo</i> sp -----	1	-----
<i>Uvigerina peregrina</i> -----	3	-----
<i>Virgulina pauciloculata</i> -----	3	-----
Calcareous planktonic:		
<i>Globigerina bulloides</i> -----	7	-----
<i>pachyderma</i> -----	5	-----

Core P-19-61, depth 4,430 meters. Lat 52°41' N., long 155°36' W.

[Diatoms extremely abundant, a few Radiolaria and Foraminifera]

	Specimens	
	Total	Stained
Arenaceous benthonic:		
<i>Adercotryma glomeratum</i> -----	2	2
<i>Alveolophragmium nitidum</i> -----	10	-----
cf. <i>A. nitidum</i> -----	5	-----
<i>ringens</i> -----	2	-----
<i>subglobosum</i> -----	18	2
<i>weisneri</i> -----	13	2
<i>Ammobaculites filiformis</i> (smooth) -----	1	-----
<i>Ammomarginulina foliacea</i> -----	3	-----
<i>Cystammina galeata</i> -----	7	-----
<i>Eggerella bradyi</i> -----	8	-----
<i>Glomospira gordialis</i> -----	2	-----
<i>Haplophragmoides canariensis</i> -----	2	-----
<i>nitida</i> -----	5	2
<i>Hyperammina</i> cf. <i>H. friabilis</i> -----	37	-----
<i>Jaculella acuta</i> (all chitinous) -----	13	2
<i>Nodellum membranaceum</i> -----	5	-----
<i>Oculosiphon</i> cf. <i>O. linearis</i> -----	2	-----
<i>Psammosiphonella</i> sp -----	8	-----
<i>Reophax difflugiformis</i> -----	4	4
<i>eccentricus</i> -----	9	2
<i>pilulifer</i> -----	1	-----
<i>Trochammina globigeriniformis</i> -----	22	4
<i>grisea</i> -----	7	-----
sp. (like chitinous) -----	2	-----
Calcareous benthonic:		
<i>Cassidulina crassa</i> -----	1	1
<i>Cibicides bradyi</i> -----	19	3
<i>Miliolinella subrotunda</i> -----	3	-----
<i>Pullenia subcarinata</i> -----	3	-----
Calcareous planktonic:		
<i>Globigerina bulloides</i> -----	2	corroded

Core P-10-61, depth 4,170 meters. Lat 54°51' N., long 155°24' W.

[Diatoms and Radiolaria abundant]

	Specimens	
	Total	Stained
Arenaceous benthonic:		
<i>Alveolophragmium subglobosum</i> -----	2	-----
<i>nitidum</i> -----	3	-----
<i>Ammomarginulina foliacea</i> -----	1	-----
<i>Cyclammina trullissata</i> -----	1	-----

Core P-10-61, depth 4,170 meters. Lat 54°51' N.,
long 155°24' W.—Continued

	Specimens	
	Total	Stained
Arenaceous benthonic—Continued		
<i>Cystammina galeata</i> -----	1	-----
<i>Eggerella bradyi</i> -----	6	-----
<i>Reophax difflugiformis</i> -----	2	-----
<i>Spiroplectammina bififormis</i> -----	2	-----
<i>Trochammina globigeriniformis</i> -----	2	-----
Calcareous benthonic:		
<i>Cassidulina</i> cf. <i>C. subglobosa</i> -----	1	1

Core P-12-61, depth 6,560 meters. Lat 53°16' N., long 161°33' W.

	Specimens	
	Total	Stained
Arenaceous benthonic:		
<i>Adercotryma glomeratum</i> -----	18	-----
<i>Alveolophragmium nitidum</i> -----	64	-----
cf. <i>A. nitidum</i> -----	141	-----
<i>subglobosum</i> -----	98	-----
<i>Ammobaculites americanus</i> -----	1	-----
<i>agglutinans filiformis</i> (smooth) -----	70	-----
<i>agglutinans filiformis</i> (rough) -----	29	-----
<i>Astrorhiza</i> -----	Fragments sp. A	-----
<i>Jaculella acuta</i> -----	5	-----
<i>Psammosiphonella</i> sp -----	6	-----
<i>Reophax dentalinaformis</i> -----	2	-----
<i>difflugiformis</i> -----	39	-----
<i>nodulosus</i> -----	22	-----
<i>scotti</i> (chitinous) -----	1	-----
<i>Rhizammina</i> sp -----	Fragments sp. A	-----
<i>Trochammina globigeriniformis</i> -----	55	-----
<i>Trochammina</i> sp. (like chitinous) -----	37	-----
<i>Trochammina</i> sp. (chitinous) -----	44	-----
Calcareous benthonic:		
<i>Eponides?</i> sp -----	3	3
<i>Involutina tenuis</i> -----	35	-----
<i>Miliolinella subrotunda</i> -----	3	-----
<i>Pullenia subcarinata</i> -----	31	31

Core P-48-61, depth 4,650 meters. Lat 51°41' N., long 161°07' W.

[Diatoms extremely abundant (<99 percent), Radiolaria and Foraminifera about equal]

	Total specimens
Arenaceous benthonic:	
<i>Adercotryma glomeratum</i> -----	83
<i>Alveolophragmium nitidum</i> -----	21
cf. <i>A. nitidum</i> -----	47
<i>scitulum</i> -----	3
<i>subglobosum</i> -----	52
<i>weisneri</i> -----	1
<i>Ammobaculites americanus</i> -----	32
<i>agglutinans filiformis</i> (smooth) -----	4
<i>agglutinans filiformis</i> (rough) -----	19
<i>Ammomarginulina foliacea</i> -----	8
<i>Astrorhiza</i> -----	Fragments
<i>Baculogypsina</i> or <i>Thurammina</i> -----	2
<i>Cornuspira incerta</i> -----	14
<i>Cyclammina trullissata</i> -----	3
<i>Cystammina galeata</i> -----	3
<i>Eggerella bradyi</i> -----	3
<i>scabra</i> -----	7
<i>Glomospira gordialis</i> -----	2
<i>Hormosina</i> -----	Fragments
<i>Hyperammina cylindrica</i> -----	2
<i>Jaculella acuta</i> -----	17
<i>Reophax difflugiformis</i> -----	43
<i>dentalinaformis</i> -----	2
<i>distans</i> -----	3
<i>scorpiurus</i> -----	65
<i>Rhabdammina</i> -----	Fragments
<i>Saccammina sphaerica</i> -----	19
<i>Spiroplectammina bififormis</i> -----	1
<i>Trochammina globigeriniformis</i> -----	28
<i>grisea</i> -----	1
<i>inflata</i> -----	25
<i>nitida</i> -----	10
Calcareous benthonic:	
<i>Nonion?</i> sp. chitinous -----	2

Core P-49-61, depth 5,000 meters. Lat 59°50' N., long 160°57' W.

[Diatoms <95 percent, Radiolaria 4 percent, Foraminifera and sponge skeletons compose the rest]

	Specimens	
	Total	Stained
Arenaceous benthonic:		
<i>Adercotryma glomeratum</i> -----	29	-----
<i>Alveolophragmium</i> cf. <i>A. nitidum</i> -----	14	-----
<i>ringens</i> -----	10	-----
<i>subglobosum</i> -----	168	-----
<i>Ammobaculites agglutinans</i> -----	88	-----
<i>filiformis</i> (rough) -----	6	-----
<i>Baculogypsina</i> or <i>Thurammina</i> -----	2	-----
<i>Cyclammina cancellata</i> -----	4	-----
<i>trullissata</i> -----	9	-----
<i>Dorothia exilis</i> -----	1	-----
<i>Eggerella bradyi</i> -----	52	-----
<i>Globotextularia anceps</i> -----	10	-----
<i>Glomospira gordialis</i> -----	24	-----
<i>Hormosina globulifera</i> -----	Fragments	-----
<i>Hyperammina cylindrica</i> -----	99	-----
<i>friabilis</i> -----	62	-----
<i>Involutina tenuis</i> -----	2	-----
<i>Jaculella acuta</i> -----	11	-----
<i>Placopsilina bradyi</i> -----	51	-----
<i>Psammosiphonella</i> sp -----	3	-----
<i>Reophax difflugiformis</i> -----	87	4
<i>excentricus</i> -----	103	30
<i>Spiroplectammina biformis</i> -----	18	-----
<i>Trochammina globigeriniformis</i> -----	35	-----
<i>nana</i> -----	107	-----
<i>nitida</i> -----	39	-----
chitinous -----	1	-----
Calcareous benthonic:		
<i>Cibicides bradyi</i> -----	2	2
<i>Cibicides mundulus</i> -----	1	1
<i>Ehrenbergina hystrix</i> -----	1	-----
<i>Epistominella exigua</i> -----	3	3
<i>umbonifera</i> -----	2	2
<i>Gyroidina lamarckiana</i> -----	1	1
<i>Hoeglundina elegans</i> -----	1	1
<i>Miliolinella subrotunda</i> -----	28	-----
<i>Melonis affine</i> -----	1	-----
<i>Nonion</i> sp. chitinous -----	1	-----
Calcareous planktonic:		
<i>Globigerina bulloides</i> -----	3	corroded

Core P-52-61, depth 5,160 meters. Lat 43°47' N., long 160°36' W.

[Diatoms 50± percent, Radiolaria 50± percent, a few Foraminifera and sponge skeletons]

	Specimens	
	Total	Stained
Arenaceous benthonic:		
<i>Adercotryma glomeratum</i> -----	1	-----
<i>Alveolophragmium</i> cf. <i>A. nitidum</i> -----	5	-----
<i>Ammobaculites agglutinans</i> -----	1	-----
<i>Dorothia exilis</i> -----	1	-----
<i>Eggerella scabra</i> -----	1	-----
<i>Glomospira gordialis</i> -----	12	-----
<i>Placopsilina bradyi</i> -----	1	-----
<i>Psammosiphonella</i> sp -----	5	-----
<i>Spiroplectammina biformis</i> -----	4	-----
<i>Reophax difflugiformis</i> -----	2	-----
<i>Trochammina globigeriniformis</i> -----	25	-----
<i>grisea</i> -----	1	-----
<i>nitida</i> -----	1	-----
Calcareous benthonic:		
<i>Cibicides bradyi</i> -----	1	-----
<i>Epistominella exigua</i> -----	3	-----
<i>Miliolinella subrotunda</i> -----	5	-----
<i>Ophthalmidium acutumargo</i> -----	2	-----
<i>Pullenia subcarinata</i> -----	1	1

Core P-56-61, depth 5,400 meters, Lat 39°20' N., long 160°24' W.

[Radiolaria 95 percent, diatoms 4 percent, Foraminifera and sponge skeletons 1 percent]

	Specimens	
	Total	Stained
Arenaceous benthonic:		
<i>Adercotryma glomeratum</i> -----	1	-----
<i>Alveolophragmium nitidum</i> -----	6	-----
<i>Ammobaculites americanus</i> -----	1	-----

Core P-56-61, depth 5,400 meters. Lat 39°20' N., long 160°24' W.—Continued

	Specimens	
	Total	Stained
Arenaceous benthonic—Continued		
<i>Cornuspira involvens</i> -----	2	-----
<i>Glomospira gordialis</i> -----	1	-----
<i>Hyperammina cylindrica</i> -----	2	-----
<i>Marsipella cylindrica</i> -----	14	-----
<i>Psammosiphonella</i> -----	1	-----
<i>Reophax dentalinaformis</i> -----	2	-----
<i>Trochammina globigeriniformis</i> -----	7	4
Calcareous benthonic:		
<i>Cibicides bradyi</i> -----	2	2
<i>Discorbis</i> cf. <i>D. rosea</i> -----	2	-----
Planktonic benthonic:		
<i>Candeina nitida</i> -----	1	-----

Core P-64-61, depth 5,830 meters. Lat 30°16' N., long 160°07' W.

[A few Radiolaria, sponge skeletons, Foraminifera]

	Total specimens	
	Total	Stained
Arenaceous benthonic:		
<i>Aschemonella</i> sp -----	3	-----
<i>Bigenerina minutissima</i> -----	1	-----
<i>Reophax difflugiformis</i> -----	2	-----
<i>Rhabdammina</i> sp -----	Fragments	-----
<i>Saccammina sphaerica</i> -----	3	-----
<i>Trochammina globigeriniformis</i> -----	1	-----

Core P-69-61, depth 4,820 meters. Lat 23°30' N., long 159°58' W.

[A few Radiolaria, sponge skeletons, Foraminifera]

	Specimens	
	Total	Stained
Arenaceous benthonic:		
<i>Alveolophragmium subglobosum</i> -----	3	-----
<i>Ammobaculites agglutinans</i> -----	2	-----
<i>Cyclammina</i> sp -----	1	-----
<i>Glomospira gordialis</i> -----	2	-----
<i>Reophax difflugiformis</i> -----	4	-----
<i>scorpiurus</i> -----	3	-----
<i>Rhabdammina</i> sp -----	9	-----
<i>Trochammina globigeriniformis</i> -----	3	-----
<i>nitida</i> -----	1	-----
<i>Eponides bradyi</i> -----	2	2

Core P-13-61, depth 7,000 meters. Lat 51°28' N., long 168°38' W.

[Diatoms 98 percent, Radiolaria <2 percent, Foraminifera <1 percent]

	Specimens	
	Total	Stained
Arenaceous benthonic:		
<i>Adercotryma glomeratum</i> -----	1	-----
<i>Alveolophragmium nitidum</i> -----	57	-----
<i>scitulum</i> -----	22	-----
<i>weisneri</i> -----	1	-----
<i>Cornuspira incerta</i> -----	9	-----
<i>Eggerella scabra</i> -----	1	-----
<i>Hyperammina cylindrica</i> -----	14	-----
<i>Marsipella cylindrica</i> -----	5	-----
<i>Reophax dentalinaformis</i> -----	1	-----
<i>difflugiformis</i> -----	3	-----
<i>excentricus</i> -----	12	-----
<i>nodulosus</i> -----	4	-----
<i>scorpiurus</i> -----	7	-----
<i>Rhabdammina</i> sp -----	7	-----
<i>Spiroplectammina biformis</i> -----	1	-----
<i>Trochammina globigeriniformis</i> -----	55	-----
<i>Trochammina</i> (chitinous) -----	1	-----
Calcareous benthonic:		
<i>Pullenia subcarinata</i> -----	5	5

Core P-41-61, depth 7,230 meters.

Lat 50°24' N., long 176°30' W., Aleutian Trench.

[Diatoms about 90 percent; Foraminifera 5 percent; sponge spicules and skeletons and Radiolaria make up 5 percent]

	Specimens	
	Total	Stained
Arenaceous benthonic:		
<i>Adercotryma glomeratum</i> -----	5	-----
<i>Alveolophragmium</i> c.f. <i>A. nitidum</i> -----	250+	-----
<i>scitulum</i> -----	12	-----
<i>subglobosum</i> -----	58	-----

Core P-41-61, depth 7,230 meters. Lat 50°24' N.,
long 176°30' W., Aleutian Trench—Continued

	Specimens	
	Total	Stained
Arenaceous benthonic—Continued		
<i>Ammobaculites agglutinans filaformis</i> (smooth) -----	26	-----
<i>Ammobaculites agglutinans filaformis</i> (rough) -----	1	-----
<i>Ammoscalaria tenuimargo</i> -----	9	-----
<i>Astrorhiza</i> sp -----	Abundant	-----
<i>Baculogypsina?</i> sp -----	2	-----
<i>Globotextularia?</i> sp -----	8	-----
<i>Hyperammina friabilis</i> -----	150+	-----
<i>Involutina tenuis</i> -----	90	-----
<i>Jaculella acuta</i> -----	19	-----
<i>Placopsilina bradyi</i> -----	36	-----
<i>Reophax difflugiformis</i> -----	79	4
<i>eccentricus</i> -----	103	-----
<i>nodulosus</i> -----	1	-----
<i>Rhabdammina</i> sp -----	55	-----
<i>Saccammina sphaerica</i> -----	106	-----
<i>Spiroplectammina bififormis</i> -----	1	-----
<i>Trochammina charlottensis</i> -----	4	-----
<i>globigeriniformis</i> -----	125+	-----
<i>Trochammina</i> (chitinous) -----	504	-----
Calcareous benthonic:		
<i>Pullenia subcarinata</i> -----	8	8

Core P-40-61, depth 5,500 meters. Lat 48°06' N., long 176°32' W.

[Diatoms about 85 percent; Foraminifera 5 percent; Radiolaria, sponge skeletons, and fish remains make up 10 percent]

	Specimens	
	Total	Stained
Arenaceous benthonic:		
<i>Adercotryma glomeratum</i> -----	2	-----
<i>Alveolophragmium nitidum</i> -----	9	-----
<i>subglobosum</i> -----	25	-----
<i>Ammobaculites agglutinans filaformis</i> (smooth) -----	15	-----
<i>Bigenerina minutissima</i> -----	5	-----
<i>Cyclammina cancellata</i> -----	5	-----
<i>trullissata</i> -----	5	-----
<i>Cystammina galeata</i> -----	2	-----
<i>eggerella bradyi</i> -----	5	-----
<i>Glomospira gordialis</i> -----	25	-----
<i>Hormosina globulifera</i> -----	1 + fragments	-----
<i>Jaculella acuta</i> -----	2	-----
<i>Miliolinella subrotunda</i> -----	4	-----
<i>Reophax difflugiformis</i> -----	2	-----
<i>nodulosus</i> -----	6	-----
<i>scorpiurus</i> -----	27	-----
<i>Trochammina globigeriniformis</i> <i>nitida</i> -----	35	-----
<i>nitida</i> -----	6	-----
Calcareous benthonic:		
<i>Bolivina robusta</i> -----	1	1

Core P-38-61, depth 5,610 meters. Lat 45°50' N., long 176°47' W.

[Foraminifera about 5 percent; diatoms 75 percent; Radiolaria 15 percent; sponge skeletons and spicules and fish teeth make up 5 percent]

	Specimens	
	Total	Stained
Arenaceous benthonic:		
<i>Adercotryma glomeratum</i> -----	8	-----
<i>Alveolophragmium nitidum</i> -----	21	-----
cf. <i>A. nitidum</i> -----	9	-----
<i>subglobosum</i> -----	19	-----
<i>Ammobaculites filaformis</i> (smooth) -----	23	-----
<i>americanus?</i> -----	11	-----
<i>Ammoscalaria tenuimargo</i> -----	9	-----
<i>Astrorhiza</i> sp -----	Abundant fragments	-----
<i>Bigenerina minutissima</i> -----	4	-----
<i>Cyclammina cancellata</i> -----	1	-----
<i>trullissata</i> -----	2	-----
<i>eggerella fusca</i> -----	3	-----
<i>Glomospira gordialis</i> -----	153	-----
<i>Jaculella acuta</i> -----	3	-----
<i>Placopsilina bradyi</i> -----	5	-----
<i>Psammisiphonella</i> sp -----	3	-----

Core P-38-61, depth 5,610 meters. Lat 45°50' N.,
long 176°47' W.—Continued

	Specimens	
	Total	Stained
Arenaceous benthonic—Continued		
<i>Reophax difflugiformis</i> -----	14	-----
<i>distans</i> -----	1	-----
<i>eccentricus</i> -----	12	6
<i>nodulosus</i> -----	11	-----
<i>Rhabdammina</i> sp -----	13	-----
<i>Spiroplectammina bififormis</i> -----	8	-----
<i>Tritaxis</i> cf. <i>T. conica</i> -----	29	-----
<i>Trochammina globigeriniformis</i> -----	33	-----
<i>inflata</i> -----	6	-----
<i>nitida</i> -----	6	-----
Calcareous benthonic:		
<i>Miliolinella subrotunda</i> -----	12	-----
<i>Nonion</i> sp -----	1	1
<i>Quinqueloculina</i> sp -----	1	1

Core P-35-61, depth 5,530 meters. Lat 41°19' N., long 177°02' W.

[Radiolaria about 90 percent, diatoms 7 percent, sponge and fish remains 3 percent, Foraminifera <1 percent]

	Specimens	
	Total	Stained
Calcareous benthonic:		
<i>Miliolinella subrotunda</i> -----	2	-----
<i>Ophthalmidium pusillum</i> -----	2	-----

Core P-33-61, depth 5,230 meters. Lat 39°15' N., long 176°56' W.

[Radiolaria about 90 percent, diatoms 5 percent, Foraminifera 3 percent, sponge and fish remains 2 percent]

	Specimens	
	Total	Stained
Arenaceous benthonic:		
<i>Alveolophragmium nitidum</i> -----	2	-----
<i>subglobosum</i> -----	9	-----
<i>wiesneri</i> -----	1	-----
<i>Ammobaculites americanus</i> <i>filaformis</i> (rough) -----	1	-----
<i>filaformis</i> (rough) -----	5	-----
<i>Ammomarginulina foliacea</i> -----	5	-----
<i>Astrorhiza</i> sp -----	Fragments	-----
<i>eggerella advena</i> -----	10	-----
<i>Glomospira gordialis</i> -----	15	-----
<i>Hormosina normani</i> -----	4	-----
<i>Psammisiphonella</i> sp -----	2	-----
<i>Psammisiphonella fusca</i> -----	1	-----
<i>Reophax scorpiurus</i> -----	4	2
<i>distans</i> -----	3	-----
<i>Rhabdammina</i> sp -----	Fragments	-----
<i>Trochammina grisea</i> -----	1	-----
<i>nitida</i> -----	7	-----
Calcareous benthonic:		
<i>Miliolinella subrotunda</i> -----	7	-----
<i>Ophthalmidium pusillum</i> -----	2	-----

Core P-32-61, depth 5,400 meters. Lat 36°50' N., long 177°30' W.

[Radiolaria 90 percent, diatoms 6 percent, Foraminifera 1 percent, sponge and fish remains 3 percent]

	Specimens	
	Total	Stained
Arenaceous benthonic:		
<i>Alveolophragmium nitidum</i> -----	3	-----
cf. <i>A. nitidum</i> -----	4	-----
<i>ringens</i> -----	1	-----
<i>subglobosum</i> -----	2	-----
<i>Ammobaculites filaformis</i> (smooth) -----	5	-----
<i>Ammoscalaria tenuimargo</i> -----	1	-----
<i>Bigenerina minutissima</i> -----	1	-----
<i>Cyclammina trullissata</i> -----	1	-----
<i>eggerella advena</i> -----	2	-----
<i>Glomospira gordialis</i> -----	7	-----
<i>Hormosina globulifera</i> -----	5	-----
<i>Hyperammina cylindrica</i> -----	7	-----
<i>Psammisiphonella</i> sp -----	1	-----
<i>Reophax difflugiformis</i> -----	22	-----
<i>scorpiurus</i> -----	6	2
<i>Trochammina globigeriniformis</i> <i>grisea</i> -----	6	-----
<i>nitida</i> -----	3	-----

Core P-32-61, depth 5,400 meters. Lat 36°50' N.,
long 177°30' W.—Continued

	Specimens	
	Total	Stained
Calcareous benthonic:		
<i>Miliolinella circularis</i> -----	9	-----
<i>Ophthalmidium acutumargo</i> -----	10	-----
<i>Pullenia subcarinata</i> -----	2	2

Core P-29-61, depth 4,810 meters. Lat 32°22' N., long 177°20' W.

[Radiolaria about 70 percent, diatoms 25 percent, Foraminifera 1 percent,
sponges and fish remains 4 percent]

	Specimens	
	Total	Stained
Arenaceous benthonic:		
<i>Ammobaculites filiformis</i> -----	5	-----
<i>Ammoscalaria tenuimargo</i> -----	1	-----
<i>Cystammina galeata</i> -----	1	-----
<i>Glomospira gordialis</i> -----	35	-----
<i>Hormosina globulifera</i> -----	Fragments	-----
<i>Hyperammina cylindrica</i> -----	5	-----
<i>Psammosiphonella</i> sp -----	2	-----
<i>Trochammina globigeriniformis</i> -----	6	-----
<i>Trochammina</i> cf. <i>T. nitida</i> -----	1	-----
Calcareous benthonic:		
<i>Cassidulina subglobosa</i> -----	2	-----
<i>Cibicides bradyi</i> -----	11	2
<i>Hoeglundina elegans</i> -----	8	-----
<i>Melonis pompilioides</i> -----	1	-----
<i>Miliolinella subrotunda</i> -----	1	-----
<i>Spiroloculina</i> sp -----	1	corroded

Core P-27-61, depth 5,290 meters. Lat 30°06' N., long 177°30' W.

[Radiolaria about 85 percent, diatoms 10 percent, sponge or fish remains
5 percent, Foraminifera <1 percent]

	Specimens	
	Total	Stained
Arenaceous benthonic:		
<i>Alveolophragmium nitidum</i> -----	1	-----
<i>subglobosum</i> -----	7	-----
<i>Ammobaculites americanus</i> -----	1	-----
<i>Cyclammina trullissata</i> -----	1	-----
<i>Cystammina galeata</i> -----	1	-----
<i>Glomospira gordialis</i> -----	2	-----
<i>Psammosiphonella</i> sp -----	4	-----
Calcareous benthonic:		
<i>Miliolinella subrotunda</i> -----	2	-----

Core P-26-61, depth 5,210 meters. Lat 25°55' N., long 177°34' W.

[Only a few specimens of Radiolaria, sponge skeletons, fish teeth,
Foraminifera; all present in nearly equal amounts]

	Total specimens	
	Total	Stained
Arenaceous benthonic:		
<i>Rhabdammina</i> sp -----	Abundant	fragments
<i>Astrorhiza</i> sp -----	1	-----
<i>Glomospira gordialis</i> -----	4	-----
<i>Reophax difflugiformis</i> -----	3	-----

Core P-25-61, depth 5,120 meters. Lat 23°22' N., long 177°54' W.

[No Radiolaria, diatoms, or sponges. few fish teeth, Foraminifera.
Northernmost sample with planktonic Foraminifera]

	Specimens	
	Total	Stained
Arenaceous benthonic:		
<i>Reophax difflugiformis</i> -----	2	-----
<i>Rhabdammina</i> sp -----	1	-----
Calcareous planktonic:		
<i>Globigerina bulloides</i> -----	1	-----
<i>inflata</i> -----	1	-----

FORAMINIFERA BELOW TOP 2
CENTIMETERS OF CORES[Core depths given in meters below sea level. Column headings are depths
below sea floor in centimeters. Data indicate number of
specimens. X indicates presence of fragments]

Core P-10-61, depth 4,170 meters

	Specimens	
	Total	Stained
Barren -----		

Core P-12-61, depth 6,560 meters

	10-11	20-21
<i>Alveolophragmium subglobosum</i> -----	3	2
<i>Ammobaculites filiformis</i> -----	-----	1
<i>Reophax dentalinaformis</i> -----	-----	3

Core P-13-61, depth 7,000 meters

	10-11	20-21	30-31
<i>Alveolophragmium subglobosum</i> -----	1	-----	-----

Core P-16-61, depth 2,410 meters

	10-11	20-21	30-31	40-41	50-51	60-61
<i>Bulimina affinis</i> -----	1	-----	2	-----	3	1
<i>Elphidium clavatum</i> -----	1	7	-----	1	-----	1
<i>Uvigerina peregrina</i> -----	1	2	5	-----	2	3
? <i>Eponides</i> sp -----	-----	1	-----	-----	-----	-----
<i>Nonion</i>						
<i>labradoricum</i> -----	-----	-----	1	-----	2	-----
Lagenid spp -----	-----	-----	2	-----	-----	-----

Core P-19-61, depth 4,430 meters

	10-11	20-21	30-31
<i>Cystammina galeata</i> -----	6	-----	-----
<i>Jaculella acuta</i> -----	4	-----	-----
<i>Placopsilina confusa</i> -----	1	-----	-----
<i>Alveolophragmium subglobosum</i> -----	14	15	-----
<i>Adercotryma glomeratum</i> -----	1	-----	-----
<i>Eggerella bradyi</i> -----	1	7	-----
<i>Trochammina nitida</i> -----	1	-----	-----
<i>Hyperammina</i> fragments -----	X	X	X
<i>Cyclammina cancellata</i> -----	-----	1	-----
<i>Ammobaculites</i> cf. <i>A. americanus</i> -----	-----	1	-----
<i>Miliolinella</i> fragments -----	-----	X	-----
<i>Trochammina</i> sp -----	-----	-----	1

Core P-25-61, depth 5,120 meters

	10-11	20-21	30-31	40-41	50-51	60-61	70-71	80-81
<i>Globigerinita</i>								
<i>voluta</i> -----	3	3	4	4	1	2	2	6
<i>Globotruncana</i>								
sp -----	1	-----	1	-----	-----	-----	-----	-----
<i>Guembelina</i>								
<i>globulosa</i> -----	1	-----	-----	2	2	-----	3	-----
<i>Colomia</i> sp -----	1	-----	-----	-----	2	1	2	-----
<i>Guembelina</i>								
<i>costulata</i> -----	-----	3	-----	2	-----	2	-----	-----
sp -----	-----	-----	1	2	-----	-----	-----	-----
<i>Globotruncana</i>								
<i>marginata</i> -----	-----	-----	-----	3	1	2	1	-----

Core P-32-61, depth 5,400 meters

	10-11	20-21	30-31	40-41	50-51	60-61
<i>Eggerella bradyi</i> -----	-----	-----	-----	2	-----	-----
<i>Miliolinella</i>						
<i>subrotunda</i> -----	-----	-----	-----	-----	-----	1

Core P-33-61, depth 5,230 meters

	10-11	20-21	30-31	40-41	50-51
<i>Reophax</i> fragments -----	-----	X	-----	-----	-----

Core P-38-61, depth 5,610 meters

	10-11	20-21	30-31	40-41	50-51	60-61	70-71
<i>Reophax</i> fragments -----	X	X	X	-----	X	-----	-----
<i>Alveolophragmium</i>							
<i>subglobosum</i> -----	-----	-----	-----	-----	1	-----	-----
<i>Miliolinella</i>							
<i>subrotundum</i> -----	-----	-----	-----	-----	1	-----	-----

Core P-40-61, depth 5,500 meters

	10-11	20-21	30-31
<i>Alveolophragmium subglobosum</i> -----	1	1	-----
<i>Reophax dentalinaformis</i> -----	2	-----	-----
<i>Hyperammina</i> spp -----	-----	8	4

Core P-41-61, depth 7,230 meters

	0-11	20-21	30-31	40-41
<i>Alveolophragmium subglobosum</i> -----	-----	-----	1	-----

Core P-48-61, depth 4,650 meters

	10-11	17-18
<i>Psammosiphonella</i> sp -----	2	----
<i>Hormosina globulifera</i> -----	2	----
<i>Saccammina</i> sp -----	2	----
<i>Ammobaculites</i> cf. <i>A. americanus</i> -----	----	1
<i>Adercotryma glomeratum</i> -----	----	1
<i>Reophax difflugiformis</i> -----	2	----
sp -----	1	----
<i>Alveolophragmium subglobosum</i> -----	13	2
<i>scitulum</i> -----	2	----
<i>nitidum</i> -----	1	3
<i>Trochammina nitida</i> -----	----	1
<i>Cyclammina cancellata</i> -----	----	Frag-
		ments

Core P-49-61, depth 5,000 meters

	10-11	20-21	30-31	40-41	50-51	60-61
<i>Alveolophragmium subglobosum</i> -----	13	2	2	9	4	3
<i>Cyclammina cancellata</i> -----	2	----	1	1	----	2
<i>Eggerella bradyi</i> -----	3	----	----	----	----	----
<i>Placopsilina confusa</i> -----	1	----	----	----	----	----
<i>Glomospira gordialis</i> -----	1	----	----	----	----	----
<i>Reophax</i> fragments -----	×	----	----	----	----	----
<i>dentalinaformis</i> -----	----	2	----	----	----	1

Core P-56-61, depth 5,400 meters

	10-11	20-21	30-31	40-41	50-51	60-61	70-71	80-81
Arenaceous fragments -----	×	----	----	----	----	----	----	----

Core P-63-61, depth 5,830 meters

	10-11	20-21, 30-31, 40-41, 50-51, 60-61, 70-71, 80-81, 90-91, 100-101, 120-121
<i>Hyperammina?</i> sp -----	1	----

Core P-64-61, depth 5,830 meters

	10-11
Barren -----	----

Core P-69-61, depth 4,820 meters

	10-11	20-21	30-31	40-41
Barren -----	----	----	----	----

SYSTEMATIC CATALOG

Family ASTORRHIZIDAE Brady, 1881

Genus RHABDAMMINA M. Sars in Carpenter, 1869

Rhabdammina abyssorum M. Sars

Rhabdammina abyssorum M. Sars, 1869, *Fordhandl Vidensk.-Selsk. Christiania, Aar 1868*, p. 248.

Barker, 1960, *Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9*, p. 42, pl. 21, figs. 1-13.

The species occurs generally as fragments of extremely coarse-grained tubes, sometimes branching. The tubes are coarser grained in the northern samples but are moderately coarse in the southern ones.

Distribution.—Lat 23° to 51° N.

Genus RHIZAMMINA, 1879

Rhizammina? sp .

Plate 1, figure 2

The species occurs as tubular fragments. The walls of the tubes are composed of fine sand held together with abundant cement.

Distribution.—Lat 32° to 53° N.

Genus MARSIPELLA Norman, 1878

Marsipella cylindrica Brady

Plate 1, figure 3

Marsipella cylindrica Brady, 1882, *Royal Soc. Edinburgh Proc.*, v. 11, p. 714.

Brady, 1884, *Challenger Repts.*, Zoology, v. 9, p. 265, 266, pl. 24, figs. 20-22.

Cushman, 1910, *U.S. Natl. Mus. Bull.* 71, pt. 1, p. 30, figs. 15, 16.

Barker, 1960, *Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9*, p. 48, pl. 24, figs. 20-22.

Distribution.—Found at two stations (56 and 13) lat 39° to 52° N. Cushman reported it in four North Pacific stations off Hawaii and Japan.

Genus BATHYSIPHON M. Sars in G. Sars, 1872

Bathysiphon discreta (Brady)

Plate 1, figure 4

Rhabdammina discreta Brady, 1881, *Micros. Sci. Quart. Jour.*, new ser., v. 21, p. 48.

Brady, 1884, *Challenger Repts.*, Zoology, v. 9, p. 268, pl. 22, figs. 7-10.

Cushman, 1910, *U.S. Natl. Mus. Bull.* 71, pt. 1, p. 27, 28, fig. 13.

Psammosiphonella discreta (Brady). Barker, 1960, *Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9*, pl. 22, figs. 7-10.

This species is characterized by its smooth wall texture and light color.

Distribution.—Lat 30° to 53° N. A few specimens are found at many stations.

Genus JACULELLA Brady, 1879

Jaculella acuta Brady

Plate 1, figure 5

Jaculella acuta Brady, 1879, *Micros. Sci. Quart. Jour.*, new ser., v. 19, p. 35, pl. 3, figs. 12, 13.

Brady, 1884, *Challenger Repts.*, Zoology, v. 9, p. 255, pl. 22, figs. 14-18.

Cushman, 1910, *U.S. Natl. Mus. Bull.* 71, pt. 1, p. 70, figs. 90, 91.

Barker, 1960, *Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9*, p. 44, pl. 22, figs. 14-18.

?*Jaculella acuta* Brady. Heron-Allen and Earland, 1934, *Discovery Repts.*, v. 10, *Foraminifera*, pt. 3, p. 72, 73, pl. 2, figs. 19, 20.

These specimens are identical with Heron-Allen and Earland's illustrations, and the early part of the test is composed of pseudochitin.

Distribution.—Lat. 46° to 53° N. Common in the Aleutian Trench area.

Genus HYPERAMMINA Brady, 1878

Hyperammina spp.

Plate 1, figure 6

Probably several species are present. One group seems to be larger and have a coarser wall (cf. *H.*

friabilis Brady, 1884, *Challenger* Repts., Zoology, v. 9, p. 46, pl. 23, figs. 1, 2, 5, 6). Another group is smaller and more finely arenaceous (cf. *H. cylindrica* Parr, 1950, Foraminifera, BANZ Antarctic Research Exped., 1929–1931, Repts., ser. B, v. 5, pt. 6, p. 254, pl. 3, fig. 5). However, where they occur together, it is so difficult to draw a line between the two groups that they are considered together.

Distribution.—Lat 32° to 50° N.

Family SACCAMMINIDAE Brady, 1884

Genus PSAMMOSPHAERA Schulze, 1875

Psammosphaera rustica Heron-Allen and Earland

Psammosphaera rustica Heron-Allen and Earland, 1912, Royal Micros. Soc. London Jour., p. 383, pl. 5, figs. 3, 4; pl. 6, figs. 2–4.

Distribution.—Found in only one core sample, P-33–61 (lat 39° N., depth 5,230 m).

Genus SACCAMMINA M. Sars in Carpenter, 1869

Saccamina sphaerica M. Sars

Saccamina sphaerica M. Sars, 1869, Forhandl. Vidensk.-Selsk. Christiania, Aar 1868, p. 248.

Brady, 1884, *Challenger* Repts., Zoology, v. 9, p. 253, pl. 18, figs. 11–15, 17.

Cushman, 1910, U.S. Natl. Mus. Bull. 71, pt. 1, p. 39, 40, figs. 33–36.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 36, pl. 18, figs. 11–15, 17.

Distribution.—Lat 30° to 52° N. Abundant in the Aleutian Trench.

Genus THURAMMINA Brady, 1879

Thuramina papillata Brady

Plate 1, figure 7

Thuramina papillata Brady, 1879, Micros. Sci. Quart. Jour., new ser., v. 19, p. 45, pl. 5, figs. 4–8.

Brady, 1884, *Challenger* Repts., Zoology, v. 9, p. 321, pl. 36, figs. 7–18.

Cushman, 1910, U.S. Natl. Mus. Bull. 71, pt. 1, p. 58, fig. 66.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 74, pl. 36, figs. 7–18.

Distribution.—Lat 48° to 52° N. Reported previously from the North Pacific in *Challenger* stations from depths of 3,400 to 4,700 meters.

Family AMMODISCIDAE Reuss, 1862

Genus GLOMOSPIRA Rzehak, 1885

Glomospira gordialis (Jones and Parker)

Plate 1, figure 8

Trochammina squamata var. *gordialis* Jones and Parker, 1860, Geol. Soc. London Quart. Jour., v. 16, p. 304.

Parker and Jones, 1865, Royal Soc. London Philos. Trans., v. 155, p. 408, pl. 15, fig. 32.

Ammodiscus gordialis (Jones and Parker). Brady, 1884, *Challenger* Repts., Zoology, v. 9, p. 333, pl. 38, figs. 7–9.

Gordiammina gordialis (Jones and Parker). Cushman, 1910, U.S. Natl. Mus. Bull. 71, pt. 1, p. 76, 77, figs. 98–100.

Glomospira gordialis (Jones and Parker). Cushman, 1918, U.S. Natl. Mus. Bull. 104, pt. 1, p. 99, pl. 36, figs. 7–9.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 78, pl. 38, figs. 7–9.

Distribution.—Lat 23° to 53° N. Present, often abundantly, at stations just south of the Aleutian Trench.

Family HORMOSINIDAE Haeckel, 1894

Genus HORMOSINA Brady, 1879

Hormosina globulifera Brady

Hormosina globulifera Brady, 1879, Micros. Sci. Quart. Jour., new ser., v. 19, p. 60, pl. 4, figs. 4, 5.

Brady, 1884, *Challenger* Repts., Zoology, v. 9, p. 326, pl. 39, figs. 1–6.

Cushman, 1910, U.S. Natl. Mus. Bull. 71, pt. 1, p. 93–95, figs. 136, 137.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 80, pl. 39, figs. 1–6.

Distribution.—Lat 32° to 52° N. Generally present as fragments recognizable by the texture of the wall. Brady described these as fragments of a peculiarly deep-water organism. It was found at 21 *Challenger* stations, only five of which had a depth of less than 1,800 meters.

Genus REOPHAX Montfort, 1808

Reophax dentalinaformis Brady

Plate 1, figure 9

Reophax dentalinaformis Brady, 1881, Micros. Sci. Quart. Jour., new ser., v. 21, p. 49.

Brady, 1884, *Challenger* Repts., Zoology, v. 9, p. 293, pl. 30, figs. 21, 22.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 62, pl. 30, figs. 21, 22.

Distribution.—Occurs from lat 39° to 51° N. Brady listed it from 21 stations, only four of which were shallower than 1,800 meters.

Reophax difflugiformis Brady

Plate 1, figure 10

Reophax difflugiformis Brady, 1879, Micros. Sci. Quart. Jour., new ser., v. 19, p. 51, pl. 4, fig. 3.

Brady, 1884, *Challenger* Repts., Zoology, v. 9, p. 289, pl. 30, figs. 1–4.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 62, pl. 30, figs. 1–4.

Proteonina difflugiformis (Brady). Cushman, 1910, U.S. Natl. Mus. Bull. 71, pt. 1, p. 41, 42, figs. 40, 41.

Distribution.—This variable species occurs commonly at nearly all stations, most abundantly in deep water of the Aleutian Trench.

Reophax distans Brady

Plate 1, figure 11

Reophax distans Brady, 1881, Micros. Sci. Quart. Jour., new ser., v. 21, p. 50.

Brady, 1884, *Challenger Repts.*, Zoology, v. 9, p. 296, pl. 31, figs. 18-22.

Cushman, 1910, U.S. Natl. Mus. Bull. 71, pt. 1, p. 85, 86, fig. 119.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 64, pl. 31, figs. 18-22.

Distribution.—Lat 39° to 52° N., rare and fragile. No specimens with more than three chambers found.

***Reophax nodulosus* Brady**

Plate 1, figure 12

Reophax nodulosa Brady, 1879, *Micros. Sci. Quart. Jour.*, new ser., v. 19, p. 52, pl. 4, figs. 7, 8.

Brady, 1884, *Challenger Repts.*, Zoology, v. 9, p. 294, pl. 31, figs. 1-9.

Reophax nodulosus Brady. Cushman, 1910, U.S. Natl. Mus. Bull. 71, pt. 1, p. 87, 88, fig. 122.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 64, pl. 31, figs. 1-9.

This species is generally large and robust. It shows a great deal of variation in chamber shape, as shown in Brady's (1884) illustrations.

Distribution.—Lat 46° to 53° N.

***Reophax pilulifer* Brady**

Reophax pilulifera Brady, 1884, *Challenger Repts.*, Zoology, v. 9, p. 292, pl. 30, figs. 18-20.

Reoplax pilulifer Brady. Cushman, 1910, U.S. Natl. Mus. Bull. 71, pt. 1, p. 85, figs. 117, 118.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 62, pl. 30, figs. 18-20.

This species is very distinctive and somewhat similar to *Hormosina globulifera* Brady (1884, p. 53), but it has a coarsely arenaceous wall.

Distribution.—Found in core sample P-19-61 (lat 53° N., depth 4,430 m).

***Reophax scoriurus* de Montfort**

Plate 1, figure 13

Reophax scoriurus de Montfort, 1808, *Conch. Syst.*, v. 1, p. 331, 83d genre.

Brady, 1884, *Challenger Repts.*, Zoology, v. 9, p. 291, pl. 30, figs. 12, 14-17.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 62, pl. 30, figs. 12, 14-17.

This is one of the few arenaceous species that shows strong variation in wall texture. In the shoreward samples (P-13-61, P-19-61, P-38-61, P-41-61, P-48-61, P-49-61) the wall texture is very coarse; the specimens are large, and the test generally has only three chambers. In the seaward samples (P-32-61, P-33-61, P-63-61, P-69-61), the wall is fine grained, and sponge spicules are often incorporated in the test, which generally has five chambers.

Distribution.—Lat 23° to 51° N.

***Reophax scotti* Chaster**

Reophax scotti Chaster, 1892, 1st Rept. Southport Soc. Nat. Sci., 1890-91, p. 57, pl. 1, fig. 1.

Höglund, 1947, *Zool. Bidrag Fran Uppsala*, v. 26, p. 94-96, fig. 72.

Cushman and McCulloch, 1939, Allan Hancock Pacific Exped. Repts., v. 6, no. 1, p. 61, 62, pl. 3, fig. 11.

Distribution.—A single specimen was found in only one core sample (P-12-61, lat 53° N., depth 6,560 m). The extreme fragility of the test may account for its scarcity in prepared samples.

Family LITUOLIDAE de Blainville, 1825

Genus ADERCOTRYMA Loeblich and Tappan, 1952

***Adercotryma glomerata* (Brady)**

Plate 1, figure 14

Lituola glomerata Brady, 1878, *Ann. Mag. Nat. History*, ser. 5, v. 1, p. 433, pl. 20, figs. 1a-c.

Adercotryma glomeratum (Brady). Loeblich and Tappan, 1952, *Washington Acad. Sci. Jour.*, v. 42, no. 5, p. 141, 142, figs. 1-4.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, pl. 70, pl. 34, figs. 15-18.

These specimens are somewhat broader and have more deeply depressed sutures than those figured by Brady and by Loeblich and Tappan.

Distribution.—Lat 30° N. to Aleutian Trench. According to Brady (1884, p. 309, 310), this species was found in relatively shallow water in Arctic seas and in deep water (greater than 3,600 m) of tropical and subtropical latitudes.

Genus CYCLAMMINA Brady, 1879

***Cyclammina cancellata* Brady**

Plate 1, figure 18

Cyclammina cancellata Brady, 1879, *Micros. Sci. Quart. Jour.*, new ser., v. 19, p. 62.

Brady, 1884, *Challenger Repts.*, Zoology, v. 9, p. 351, pl. 37, figs. 8-16.

Cushman, 1910, U.S. Natl. Mus. Bull. 71, pt. 1, p. 110-111, figs. 168-171.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 76, pl. 37, figs. 8-16.

Distribution.—Lat 46° to 50° N. Brady listed this species from two samples from the North Pacific, east from Japan, at depths of 3,400 and 5,300 meters.

***Cyclammina trullissata* (Brady)**

Plate 1, figure 15

Trochammina trullissata Brady, 1879, *Micros. Sci. Quart. Jour.*, new ser., v. 19, no. 73, p. 56, pl. 5, figs. 10a, b.

Brady, 1884, *Challenger Repts.*, Zoology, v. 9, p. 342, pl. 40, fig. 13 (not fig. 14, 15).

Cyclammina bradyi Cushman, 1910, U.S. Natl. Mus. Bull. 71, pt. 1, p. 113, fig. 174.

Cyclammina trullissata (Brady). Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 82, pl. 40, fig. 13.

Distribution.—Widely distributed (lat 30° to 55° N.), rare.

Genus ALVEOLOPHRAGMIUM Shchedrina, 1936

Alveolophragmium nitidum (Göes)

Plate 1, figure 16

- Haplophragmium nitidum* Göes, 1896, Harvard Coll. Mus. Comp. Zoology Bull., v. 29, p. 30, pl. 3, figs. 8, 9.
Haplophragmoides nitidum Göes. Cushman, 1920, U.S. Natl. Mus. Bull. 104, pt. 2, p. 44.
Haplophragmoides nitidus (Göes). Cushman, 1920, U.S. Natl. Mus. Bull. 104, pt. 2, p. 44.
Haplophragmoides nitidus (Göes). Heron-Allen and Earland, 1934, *Discovery* Repts., v. 10, Foraminifera, pt. 3, p. 88, 89, pl. 3, figs. 3-6.

This species is extremely smooth walled, brown in color, completely involute, with 4 or 4½ chambers visible.

Distribution.—Most common north of lat 50° N. in the Aleutian Trench area.

Alveolophragmium cf. *A. nitidum* (Göes)

Plate 1, figure 17

- Haplophragmoides nitidus* (Göes). Heron-Allen and Earland, 1934, *Discovery* Repts., v. 10, Foraminifera, pt. 3, p. 88, 89, last paragraph.

This form differs from the typical one in having a slightly coarser wall and more inflated chambers. It occurs with the typical form.

Distribution.—Most common north of lat 50° N. Extremely abundant in the deep waters of the Aleutian Trench (7,000 m or more).

Alveolophragmium ringens (Brady)

- Trochammina ringens* Brady, 1879, *Micros. Sci. Quart. Jour.*, new ser., v. 19, p. 57, pl. 5, fig. 12.
 Brady, 1884, *Challenger* Repts., Zoology, v. 9, p. 343, pl. 40, figs. 17, 18.
Haplophragmoides ringens (Brady). Cushman, 1910, U.S. Natl. Mus. Bull. 71, pt. 1, p. 109, fig. 166.
Alveolophragmium ringens (Brady). Parker, 1954, Harvard Coll. Mus. Comp. Zoology Bull., v. 111, no. 10, p. 487, pl. 1, fig. 19.
 Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 82, pl. 40, figs. 17, 18.

Specimens are identical with those figured by Brady.

Distribution.—Widely distributed, but rare. Brady (1884, p. 344) did not record it from any Pacific stations.

Alveolophragmium scitulum (Brady)

Plate 1, figure 19

- Haplophragmium scitulum* Brady, 1881, *Micros. Sci. Quart. Jour.*, new ser., v. 21, p. 50.
 Brady, 1884, *Challenger* Repts., Zoology, v. 9, p. 308, p. 34, figs. 11-13.
Alveolophragmium scitulum (Brady). Parker, 1954, Har-

vard Coll. Mus. Comp. Zoology Bull., v. 111, no. 10, p. 487.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 70, pl. 34, figs. 11-13.

Distribution.—Present only in the Aleutian Trench area.

Alveolophragmium subglobosum (G. O. Sars)

Plate 1, figure 20

- Haplophragmium latidorsatum* (Bornemann). Brady, 1884, *Challenger* Repts., Zoology, v. 9, p. 307, pl. 34, figs. 7, 8, 10.
Haplophragmoides subglobosum (G. O. Sars). Cushman, 1910, U.S. Natl. Mus. Bull. 71, pt. 1, p. 105, 106, figs. 162-164.
Labrospira subglobosa (G. O. Sars). Höglund, 1947, *Zool. Bidrag. Fran Uppsala*, v. 26, p. 144, 145, pl. 11, fig. 2, text fig. 126.
Alveolophragmium subglobosum (G. O. Sars). Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 70, pl. 34, figs. 7, 8, 10.

Specimens have less deeply depressed sutures than those of Brady. Coarseness of wall is variable.

Distribution.—Widely distributed, from lat 23° to 54° N. Brady (1884, p. 308) found it at nine stations in the North Pacific at depths from 3,600 to 7,300 meters.

Alveolophragmium weisneri (Parr)

Plate 2, figure 1

- Trochammina trullissata* Brady, 1884, *Challenger* Repts., Zoology, v. 9, p. 342, pl. 40, figs. 14, 15 (not fig. 13).
Labrospira weisneri Parr, 1950, Foraminifera, *BANZ* Antarctic Research Exped., 1929-1931, Repts., ser. B, v. 5, pt. 6, p. 272, pl. 4, figs. 25, 26.
Labrospira arctica Parker, 1952, Harvard Coll. Mus. Comp. Zoology Bull., v. 106, no. 9, p. 399, pl. 2, figs. 7, 12.
Alveolophragmium weisneri (Parr). Parker, 1954, Harvard Coll. Mus. Comp. Zoology Bull., v. 111, no. 10, p. 488, pl. 1, fig. 23.
 Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 82, pl. 40, figs. 14, 15.

Specimens are identical with those illustrated by Brady.

Distribution.—Lat 39° to 52° N., rare.

Alveolophragmium? sp.

Plate 2, figure 2

The form is tiny, slightly evolute; sutures are curving, only slightly depressed; periphery is rounded, only slightly lobed; wall is smooth, red-brown, pseudochitinous; aperture is interio-areal.

This is apparently an arenaceous form that has not developed an agglutinating stage (see also *Trochammina* cf. *T. mallovensis*, p.). It is very rare.

Distribution.—Core samples P-48-61 (lat 52° N., depth 4,650 m) and P-49-61 (lat 50° N., depth 5,000 m).

Genus AMMOBACULITES Cushman, 1910

Ammobaculites agglutinans (d'Orbigny)

Plate 2, figure 3

Spirolina agglutinans d'Orbigny, 1846, *Foram. Fossiles Wien*, p. 137, pl. 7, figs. 10-12.

Haplophragmium agglutinans (d'Orbigny). Brady, 1884, *Challenger Repts.*, Zoology, v. 9, p. 301, pl. 32, figs. 19-21, 24-26.

Ammobaculites agglutinans (d'Orbigny). Cushman, 1910, U.S. Natl. Mus. Bull. 71, pt. 1, p. 115, fig. 176.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 66, pl. 32, figs. 19-21, 24-26.

Walls of these specimens are coarser grained than those illustrated by Brady.

Distribution.—Lat 23° to 50° N. Brady (1884, p. 301, 775) listed it from deep water in the North Pacific.

Ammobaculites agglutinans filiformis Heron-Allen and Earland
(smooth form)

Plate 2, figure 4

Haplophragmium agglutinans (d'Orbigny). Brady, 1884, *Challenger Repts.*, Zoology, v. 9, p. 301, pl. 32, fig. 22 (not fig. 22).

Ammobaculites agglutinans filiformis Heron-Allen and Earland, 1934, *Discovery Repts.*, v. 10, Foraminifera, pt. 3, p. 92, 93, pl. 3, fig. 12 (not fig. 11).

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 66, pl. 32, fig. 23 (not fig. 22).

This smooth-walled form has low regular chambers, and the wall is brown.

Distribution.—Lat 32° to 53° N., most abundant in the Aleutian Trench. Heron-Allen and Earland listed this form from deep water in the Antarctic Ocean.

Ammobaculites agglutinans filiformis Heron-Allen and Earland
(rough form)

Plate 2, figure 5

Haplophragmium agglutinans (d'Orbigny). Brady, 1884, *Challenger Repts.*, Zoology, v. 9, p. 301, pl. 32, fig. 22 (not fig. 23).

Ammobaculites agglutinans filiformis Heron-Allen and Earland, 1934, *Discovery Repts.*, v. 10, Foraminifera, pt. 3, p. 92, 93, pl. 3, fig. 11 (not fig. 12).

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 66, pl. 32, fig. 22 (not fig. 23).

The wall is so coarsely arenaceous that chamber arrangement is difficult to see.

Distribution.—Lat 39° to 53° N. This form commonly occurs in the same samples as the smooth-walled form.

Ammobaculites americanus Cushman

Haplophragmium fontinense Terquem. Brady, 1884, *Challenger Repts.*, Zoology, v. 9, p. 305, pl. 34, figs. 1-4.

Ammobaculites americanus Cushman, 1910, U.S. Natl. Mus. Bull. 71, pt. 1, p. 117, 118, figs. 184, 185.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 70, pl. 34, figs. 1-4.

These specimens are similar to those illustrated by Brady and by Cushman but are thicker.

Distribution.—Lat 30° to 56° N., most abundant north of lat 50° N.

Genus AMMOMARGINULINA Weisner, 1931

Ammomarginulina foliacea (Brady)

Plate 2, figure 6

Haplophragmium foliaceum Brady, 1881, *Micros. Sci. Quart. Jour.*, new ser., v. 21, p. 50.

Brady, 1884, *Challenger Repts.*, Zoology, v. 9, p. 304, 305, pl. 33, figs. 20-25.

Ammomarginulina foliacea (Brady). Cushman, 1933, Cushman Lab. Foram. Research Spec. Pub. 4, pl. 10, fig. 6.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 68, pl. 33, figs. 20-25.

Specimens are identical with Brady's illustrations.

Distribution.—Widely distributed (lat 39° to 55° N.) but rare. Brady (1884, p. 305) found only a few specimens in the North Pacific.

Genus PLACOPSILINA d'Orbigny, 1850

Placopsilina confusa Cushman

Placopsilina confusa Cushman, 1920, U.S. Natl. Mus. Bull. 104, pt. 2, p. 71, pl. 14, fig. 16.

Heron-Allen and Earland, 1934, *Discovery Repts.*, v. 10, Foraminifera, pt. 3, p. 94, 95.

This tiny form occurs abundantly at several localities. It is commonly attached to diatom frustules. Its small size and distinctive reddish-brown color distinguish it from *P. bradyi* Cushman and McCulloch (1939, p. 112).

Distribution.—Lat 44° to 50° N.

Family TEXTULARIIDAE Ehrenberg, 1838

Genus SPIROPLECTAMMINA Cushman, 1927

Spiroplectamina biformis (Parker and Jones)

Plate 2, figure 7

Textularia agglutinans var. *biformis* Parker and Jones, 1865, Royal Soc. London Philos. Trans., v. 155, p. 370, pl. 15, figs. 23, 24.

Spiroplecta biformis (Parker and Jones). Brady, 1884, *Challenger Repts.*, Zoology, v. 9, p. 376, pl. 45, figs. 25-27.

Spiroplectamina biformis (Parker and Jones). Cushman, 1927, Cushman Lab. Foram. Research Contr., v. 3, pt. 1, p. 23.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 92, pl. 45, figs. 25-27.

The test is extremely small, fine grained, and brown.

Distribution.—Lat 46° to 54° N.

Genus BIGENERINA d'Orbigny, 1826

Bigenerina minutissima Earland

Plate 2, figure 8

Bigenerina minutissima Earland, 1933, *Discovery Repts.*, v. 7, Foraminifera, pt. 2, p. 98, pl. 3, figs. 36-38.

Heron-Allen and Earland, 1934, *Discovery Repts.*, v. 10, Foraminifera, pt. 3, p. 117, pl. 4, fig. 48.

Distribution.—Lat. 30° to 48° N., rare. Heron-Allen and Earland rarely found the species in deep waters of the Scotia Sea (lat 55° to 60° S.).

Family TROCHAMMINIDAE Schwager, 1877
Genus TROCHAMMINA Parker and Jones, 1859

Trochammina grisea Heron-Allen and Earland

Plate 2, figure 9

Trochammina grisea Heron-Allen and Earland, 1934, *Discovery Repts.*, v. 10, Foraminifera, pt. 3, p. 100, 101, pl. 3, figs. 35–37.

Distribution.—Rare in several stations north of lat 47° N.

Trochammina inflata (Montagu)

Plate 2, figure 10

Trochammina inflata (Montagu). Brady, 1884, *Challenger Repts.*, Zoology, v. 9, p. 338, pl. 41, fig. 4.

Cushman, 1910, U.S. Natl. Mus. Bull. 71, pt. 1, p. 121, 122, fig. 188.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 84, pl. 41, fig. 4.

Distribution.—Specimens identical with those figured by Brady occur in two core samples, P-38-61 and P-48-61 (lat 46° and 52° N.).

Trochammina kellestae Thalmann

Plate 2, figure 12

Trochammina peruviana Cushman and Kellett, 1929, U.S. Natl. Mus. Proc., v. 75, art. 25, p. 4, pl. 1, fig. 8.

Trochammina kellestae Thalmann, 1932, *Eclogae Geol. Helvetiae*, v. 25, p. 313.

Distribution.—A few specimens found at one locality in the Aleutian Trench (core sample P-41-61, lat 50° N., depth 7,230 m).

Trochammina malovensensis Heron-Allen and Earland

Plate 2, figure 13

Trochammina malovensensis Heron-Allen and Earland, 1932, *Discovery Repts.*, v. 4, Foraminifera, pt. 1, p. 345, pl. 17, figs. 14–19.

?*Haplophragmium turbinatum* var. *helicoideum* Göes, 1896, Harvard Coll. Mus. Comp. Zoology Bull., v. 29, no. 1, p. 30, 31, pl. 3, figs. 10–13.

This species is identical with that in Heron-Allen and Earland's illustrations. The specimen from core sample P-12-61 appears to grade into the pseudochitinous *T. cf. T. malovensensis* (below).

Distribution.—Present at two stations in the Aleutian Trench.

Trochammina cf. T. malovensensis Heron-Allen and Earland

Plate 2, figure 11

This species appears identical with *T. malovensensis* except in wall character and in its slightly more

irregular shape. The wall is composed of reddish-brown pseudochitin. However, the last few chambers appear finely arenaceous in specimens from core sample P-12-61.

Distribution.—Found abundantly in the Aleutian Trench, rarely as far south as lat 33° N.

Trochammina nana (Brady)

Plate 2, figure 15

Haplophragmium nanum Brady, 1881, *Micros. Sci. Quart. Jour.*, new ser., v. 21, p. 50.

Brady, 1884, *Challenger Repts.*, Zoology, v. 9, p. 311, pl. 35, figs. 6–8.

Cushman, 1910, U.S. Natl. Mus. Bull. 71, pt. 1, p. 123, figs. 190–192.

Trochammina nana (Brady). Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 72, pl. 35, figs. 6–8.

This small species is variable in number of chambers. It is characteristically dark reddish-brown.

Distribution.—Abundant in core sample P-49-61 (lat 50° N., depth 5,000 m).

Trochammina nitida Brady

Plate 2, figure 14

Trochammina nitida Brady, 1881, *Micros. Sci. Quart. Jour.*, new ser., v. 21, p. 52.

Brady, 1884, *Challenger Repts.*, Zoology, v. 9, p. 339, pl. 41, figs. 5, 6.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 84, pl. 41, figs. 5, 6.

Distribution.—Lat 24° to 52° N. This little species is widely distributed but rare. All but one of the occurrences described by Brady are shallower than 390 meters.

Trochammina globigeriniformis (Parker and Jones)

Plate 3, figure 1

Lituola nautiloidea globigeriniformis Parker and Jones, 1865, Royal Soc. London Philos. Trans., v. 155, p. 407, pl. 15, figs. 46, 47.

Haplophragmium globigeriniforme (Parker and Jones). Brady, 1884, *Challenger Repts.*, Zoology, v. 9, p. 312, pl. 35, figs. 10, 11.

Ammoglobigerina bulloides Eimer and Fickert, 1899, *Zeitschr. Wiss. Zoologie*, Leipzig, v. 65, pt. 4, p. 107.

Trochammina globigeriniformis (Parker and Jones). Cushman, 1910, U.S. Natl. Mus. Bull. 71, pt. 1, p. 124, 125, figs. 193–195.

Ammoglobigerina globigeriniformis (Parker and Jones). Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 72, pl. 35, figs. 10, 11.

Distribution.—Lat 23° to 54° N. One of the most widely distributed forms. Brady (1884, p. 313) listed it from six stations in the North Pacific, all but one at depths greater than 3,300 meters. Cushman recorded it as one of the most common deep-water species.

Genus *CYSTAMMINA* Neumayr, 1889*Cystammina galeata* (Brady)

Plate 3, figure 2

Trochammina galeata Brady, 1881, *Micros. Sci. Quart. Jour.*, new ser., v. 21, p. 52.

Brady, 1884, *Challenger Repts.*, Zoology, v. 9, p. 344, pl. 40, figs. 19–23.

Ammochilostoma galeata (Brady). Cushman, 1910, U.S. Natl. Mus. Bull. 71, pt. 1, p. 127, 128, figs. 198–201.

Cystammina galeata (Brady). Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 82, pl. 40, figs. 19–23.

Distribution.—Lat 30° to 55° N., rare. Brady noted it as rare and found only at great depth in mid-ocean.

Genus *TRITAXIS* Schubert, 1921*Tritaxis conica* (Parker and Jones)

Valvulina triangularis var. *conica* Parker and Jones, 1865, Royal Soc. London Philos. Trans., v. 155, p. 406, pl. 15, fig. 27.

Valvulina conica Parker and Jones. Brady, 1884, *Challenger Repts.*, Zoology, v. 9, p. 392, pl. 49, figs. 15, 16.

Tritaxis conica (Parker and Jones). Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 100, pl. 49, figs. 15, 16.

Distribution.—Lat 35° N.

Family ATAXOPHRAGMIIDAE Schwager, 1877

Genus *GLOBOTEXTULARIA* Eimer and Fickert, 1899*Globotextularia anceps* (Brady)

Haplophragmium anceps Brady, 1884, *Challenger Repts.*, Zoology, v. 9, p. 313, pl. 35, figs. 12–15.

Globotextularia anceps (Brady). Eimer and Fickert, 1899, *Zeitschr. Wiss. Zool.*, v. 65, p. 679.

Cushman, 1910, U.S. Natl. Mus. Bull. 71, pt. 1, p. 125, 126, fig. 196.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 72, pl. 35, figs. 12–15.

Distribution.—A few specimens found in core samples P-41–61 and P-49–61 (lat 50° N.). Brady noted it in samples from deep water of the Atlantic but not of the Pacific.

Genus *DOROTHIA* Plummer, 1931*Dorothia exilis* Cushman

Plate 3, figure 3

Gaudryina fliformis Berthelin. Brady, 1884, *Challenger Repts.*, Zoology, v. 9, p. 380, pl. 46, fig. 12.

Dorothia exilis Cushman, 1936, Cushman Lab. Forum. Research Spec. Pub. 6, p. 30.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 94, pl. 46, fig. 12.

These extremely minute forms are probably assignable to the species illustrated by Brady and by Cushman.

Distribution.—Single individuals found in only two core samples, P-49–61 and P-52–61.

Genus *EGGERELLA* Cushman, 1933*Eggerella bradyi* (Cushman)

Plate 3, figure 4

Verneuilina pygmaea (Egger). Brady, 1884, *Challenger Repts.*, Zoology, v. 9, p. 385, pl. 47, figs. 4–7.

Verneuilina bradyi Cushman, 1911, U.S. Natl. Mus. Bull. 71, pt. 2, p. 54, 55, fig. 87.

Eggerella bradyi (Cushman). Cushman, 1933, Cushman Lab. Forum. Research Contr., v. 9, p. 33.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 96, pl. 47, figs. 4–7.

Distribution.—Lat 37° to 50° N. Brady reported it as a common deep-water species, occurring in the North Pacific between depths of 3,400 and 5,700 meters.

Eggerella scabra (Williamson)

Plate 3, figure 5

Bulimina scabra Williamson, 1858, *Recent British foraminifera*, p. 65, pl. 5, figs. 136, 137.

Verneuilina polystropha (Reuss). Brady, 1884, *Challenger Repts.*, Zoology, v. 9, p. 386, pl. 47, figs. 15–17.

Verneuilina scabra (Williamson). Cushman, 1937, Cushman Lab. Forum. Research Spec. Pub. 8, p. 50, pl. 5, figs. 10, 11.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 96, pl. 47, figs. 15–17.

Distribution.—Rare, found north of lat 43° N. Common in shallow water south of the Aleutian Islands. Deep-water forms are smaller and slightly less regular in shape.

Family NUBECULARIIDAE Jones, 1875

Genus *OPHTHALMIDIUM* Kübler and Zwingli, 1870*Ophthalmidium acutimargo* (Brady)

Spiroloculina acutimargo Brady, 1884, *Challenger Repts.*, Zoology, v. 9, p. 154, pl. 10, fig. 13 (not figs. 14, 15).

Cushman, 1917, U.S. Natl. Mus. Bull. 71, pt. 6, p. 31, 32, pl. 1, fig. 1.

Spirophthalmidium acutimargo (Brady). Cushman, 1927, Cushman Lab. Forum. Research Contr., v. 3, pt. 1, p. 37.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 20, pl. 10, fig. 13.

Distribution.—Rare in one core sample, P-52–61 (lat 44° N., depth 5,160 m).

Ophthalmidium pusillum (Earland)

Plate 3, figure 7

Spiroloculina tenuis (Czjzek). Brady, 1884, *Challenger Repts.*, Zoology, v. 9, p. 152, pl. 10, figs. 9, 10 (not figs. 7, 8, 11).

Spiroloculina pusillum Earland, 1934, *Discovery Repts.*, v. 10, Foraminifera, pt. 3, p. 47, 48, pl. 1, figs. 3, 4.

Spirophthalmidium pusillum (Earland). Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 20, pl. 10, figs. 9, 10.

Distribution.—Lat 37° to 41° N.

Family MILIOLIDAE Ehrenberg, 1839
Genus QUINQUELOCULINA Cushman, 1917

Quinqueloculina sp.

This species is very tiny and compressed; the sutures are only very slightly depressed. Only a single specimen was found.

Distribution.—Core sample P-38-61 (lat 46° N., depth 5,610 m).

Genus PYRGO Defrance, 1824

Pyrgo sp.

This specimen is possibly referable to *Pyrgo murrhyna* (Schwager) (1866, Novara Exped., 1857-1859, Wien, Geol. Theil, Bd. 2, Abt. 2, p. 203, pl. 4, fig. 15), but the aperture is broken on the single specimen found.

Distribution.—Core sample P-16-61 (lat 54° N., depth 2,410 m).

Genus MILIOLINELLA Weisner, 1931

Miliolinella subrotunda (Montagu)

Plate 3, figure 8

Miliolina circularis (Bornemann). Brady, 1884, *Challenger* Repts., Zoology, v. 9, p. 169, pl. 4, fig. 3; pl. 5, figs. 13, 14.

Miliolinella subrotunda (Montagu) Weisner, 1931, *Deutsche Sudpolar Exped.*, 1901-1903, v. 20 (Zoology, v. 12), p. 107.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 8, 10, pl. 4, fig. 3; pl. 5, figs. 13, 14.

Distribution.—Lat 30° to 53° N. Brady's reports are from shallow water. However, under *Miliolina labiosa* (d'Orbigny) (Brady, 1884, p. 170) he discusses deep-water specimens very similar to *M. subrotunda*, which may be the same species discussed here.

Genus AMMOMASSILINA Cushman, 1933

Ammomassilina alveolinaformis (Millett)

Spiroloculina asperula Karrer. Brady, 1884, *Challenger* Repts., Zoology, v. 9, p. 152, pl. 8, figs. 13, 14.

Massilina asperula (Karrer). Cushman, 1921, U.S. Natl. Mus. Bull. 100, v. 4, p. 447, 448.

Massilina alveolinaformis Millett. Cushman, 1928, U.S. Natl. Mus. Bull. 104, pt. 6, p. 39.

Ammomassilina alveolinaformis (Millett). Cushman, 1933, Cushman Lab. Foram. Research Contr., v. 9, pt. 2, p. 32.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 16, pl. 8, figs. 13, 14.

Distribution.—One specimen (corroded) found in core sample P-29-61 (lat 32° N., depth 4,810 m).

Family TURRILINIDAE Cushman, 1927
Genus BULIMINELLA Cushman, 1911

Buliminella basicostata Parr

Buliminella elegantissima d'Orbigny var. *seminuda* Terquem. Brady, 1884, *Challenger* Repts., Zoology, v. 9, p. 403, pl. 1, figs. 23, 24.

Buliminella basicostata Parr, 1950, *Foraminifera, BANZ Antarctic Research Exped.*, 1929-1931, Repts., ser. B, v. 5, pt. 6, p. 336, pl. 12, figs. 11, 12.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 104, pl. 50, figs. 23, 24.

Distribution.—Aleutian Terrace.

Family BOLIVINITIDAE Cushman, 1923

Genus BOLIVINA d'Orbigny

Bolivina robusta Brady

Bolivina robusta Brady, 1881, *Micros. Sci. Quart. Jour.*, new ser., v. 21, p. 57.

Brady, 1884, *Challenger* Repts., Zoology, v. 9, p. 421, pl. 53, figs. 7-9.

Cushman, 1911, U.S. Natl. Mus. Bull. 71, pt. 2, p. 36, 37, figs. 59, 60.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 108, pl. 53, figs. 7-9.

Distribution.—One specimen (stained) from core sample P-40-61 (lat 50° N., depth 5,500 m). Brady described it from generally less than 1,500 meters.

Bolivina decussata Brady

Bolivina decussata Brady, 1881, *Micros. Sci. Quart. Jour.*, v. 21, no. 5, p. 58.

Brady, 1884, *Challenger* Repts., Zoology, v. 9, p. 406, p. 423, pl. 53, figs. 12, 13.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 110, pl. 53, figs. 12, 13.

Distribution.—Aleutian Terrace.

Bolivina pseudoplicata Heron-Allen and Earland

Bolivina plicata Brady, 1870, *Ann. Mag. Nat. History*, ser. 4, v. 6, p. 302, pl. 12, fig. 7.

Bolivina plicata Halkyard, 1889, *Manchester Micros. Soc. Trans. and Ann. Rept.*, v. 6, p. 61, pl. 1, fig. 13.

Bolivina pseudoplicata Heron-Allen and Earland, 1930, *Royal Micros. Soc. London*, ser. 3, v. 50, p. 81, pl. 3, figs. 36-49.

Distribution.—Lat 55° to 60° N., occurs only on Aleutian Terrace.

Genus BULIMINA d'Orbigny, 1826

Bulimina aculeata d'Orbigny

Plate 3, figure 9

Bulimina aculeata d'Orbigny, 1826, *Annales des Sci. Naturelles*, v. 7, no. 7, p. 269.

Brady, 1884, *Challenger* Repts., Zoology, v. 9, p. 406, pl. 51, figs. 7-9.

Cushman, 1911, U.S. Natl. Mus. Bull. 71, pt. 2, p. 86, 87, fig. 139.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 104, pl. 51, figs. 7-9.

Distribution.—Rare in one core sample (P-16-61, lat 54° N., depth 2,410 m).

Genus *GLOBOBULIMINA* Cushman, 1927*Globobulimina auriculata* Bailey

Plate 3, figure 10

Bulimina auriculata Bailey, 1851, Smithsonian Inst., Contr. Knowledge, v. 2, p. 12, pl., figs. 25-27.

Distribution.—Occurs rarely in core sample P-16-61 (lat 54° N., depth 2,410 m). Two of the three specimens are stained.

Globobulimina pacifica Cushman

Bulimina pyrula d'Orbigny. Brady, 1884, *Challenger* Repts., Zoology, v. 9, p. 339, pl. 50, figs. 7-10.

Globobulimina pacifica Cushman, 1927, Cushman Lab. For. am. Research Contr., v. 3, p. 67, pl. 14, fig. 12.

Globobulimina pacifica Cushman?. Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 102, pl. 50, figs. 7-10.

Distribution.—One stained specimen in core sample P-16-61 (lat 54° N., depth 2,410 m).

Family UVIGERINIDAE Haeckel, 1894

Genus *UVIGERINA* d'Orbigny, 1826*Uvigerina peregrina* Cushman

Plate 3, figure 11

Uvigerina pygmaea d'Orbigny. Brady, 1884, *Challenger* Repts., Zoology, v. 9, p. 575, pl. 74, figs. 11, 12.

Uvigerina peregrina Cushman, 1923, U.S. Natl. Mus. Bull. 104, pt. 4, p. 166, pl. 42, figs. 7-11.

Euuvigerina peregrina (Cushman). Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 154, pl. 74, figs. 11, 12.

Distribution.—Several specimens found in core sample P-16-61 (lat 54° N., depth 2,410 m).

Uvigerina cushmani Todd

Uvigerina cushmani Todd, 1948, in Cushman and McCulloch, 1948, Allan Hancock Pacific Exped. Repts., v. 6, no. 5, p. 257, pl. 33, fig. 1.

Distribution.—Aleutian Terrace.

Genus *ANGULOGERINA* Cushman, 1927*Angulogerina fluens* Todd

Angulogerina angulosa (Williamson). Cushman, 1948 [not *Uvigerina angulosa* Williamson], Cushman Lab. For. am. Research Spec. Pub. 23, p. 66, pl. 7, fig. 8.

Brady, 1884, *Challenger* Repts., Zoology, v. 9, p. 576, pl. 74, figs. 15, 16.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 154, pl. 75, figs. 15, 16.

Angulogerina fluens Todd, 1947, in Cushman and Todd, 1947, Cushman Lab. For. am. Research Contr., v. 23, pt. 3, p. 67, pl. 16, figs. 6, 7.

Distribution.—Aleutian Terrace.

Family DISCORBIDAE Ehrenberg, 1838

Genus *EPISTOMINELLA* Husezima and Maruhasi, 1944*Epistominella exigua* (Brady)

Plate 3, figure 12

Pulvinulina exigua Brady, 1884, *Challenger* Repts., Zoology, v. 9, p. 696, pl. 103, figs. 13, 14.

Epistominella exigua (Brady). Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 212, pl. 103, figs. 13, 14.

Distribution.—Lat 44° to 55° N. This rare form is generally stained. According to Brady, it is generally found deeper than 1,800 meters.

Epistominella umbonifera (Cushman)

Plate 3, figure 13

Pulvinulina umbonifera Cushman, 1933, Cushman Lab. For. am. Research Contr., v. 9, pt. 4, p. 90, pl. 9, fig. 9. not *Epistominella? umbonifera* (Cushman). Phleger, Parker, and Pierson, 1953, Repts. Swedish Deep-sea Exped., v. 7, no. 1, p. 43, 44, pl. 9, figs. 33, 34.

Distribution.—Core sample P-49-61 (lat 50° N., depth 5,000 m). Two stained specimens, identical with Cushman's figures, occur at this station. Phleger, Parker, and Pierson's specimens have more numerous chambers. Cushman described the form from the South Pacific at a depth of 2,243 meters.

Family ELPHIDIIDAE Galloway, 1933

Genus *ELPHIDIUM* de Montfort, 1808*Elphidium incertum* (Williamson)

Polystomella umbilicatula var. *incerta* Williamson, 1858, Recent British Foraminifera, p. 44, pl. 3, fig. 82a.

Elphidium incertum (Williamson). Loeblich and Tappan, 1953, Smithsonian Inst. Misc. Colln., v. 121, no. 7, p. 100-102.

Distribution.—This species occurs only in core sample P-16-61 (lat 54° N., depth 2,410 m) north of the Aleutian Trench. It appears identical with Williamson's figures. (See discussion in Loeblich and Tappan, 1953.)

Elphidium magellanicum Heron-Allen and Earland

Elphidium (Polystomella) magellanicum Heron-Allen and Earland, 1932, *Discovery* Repts., v. 4, p. 440, pl. 16, figs. 26-28.

Distribution.—Aleutian Terrace.

Genus *ELPHIDIELLA* Cushman, 1936*Elphidiella groenlandica* (Cushman)

Plate 4, figure 1

Elphidium groenlandicum Cushman, 1933, Smithsonian Inst. Misc. Colln., v. 89, no. 9, p. 4, pl. 1, fig. 10.

Elphidiella groenlandica (Cushman). Loeblich and Tappan, 1953, Smithsonian Inst. Misc. Colln., v. 121, no. 7, p. 106, 107, pl. 19, figs. 13, 14.

Distribution.—This species is abundant in core sample P-16-61 (lat 54° N., depth 2,410 m). Several specimens are stained.

Family GLOBOROTALIIDAE Cushman, 1927

Genus *GLOBOROTALIA* Cushman, 1927*Globorotalia inflata* (d'Orbigny)

Globigerina inflata d'Orbigny, 1839, in Barker-Webb and

Berthelot, Histoire Naturelle des l'iles Canaries, v. 2, pt. 2, Foraminifères, p. 134, pl. 2, figs. 7-9.

Brady, 1884, *Challenger* Repts., Zoology, v. 9, p. 601, pl. 79, figs. 8-10.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 164, pl. 79, figs. 8-10.

Globorotalia inflata (d'Orbigny). Parker, 1962, Micropaleontology, v. 8, no. 2, p. 236, pl. 5, figs. 6-9.

Distribution.—One specimen from core sample P-26-61 (lat 26° N., depth 5,210 m).

Family GLOBIGERINIDAE Carpenter, Parker, and Jones, 1862

Genus GLOBIGERINA d'Orbigny, 1826

Globigerina bulloides d'Orbigny

Globigerina bulloides d'Orbigny, 1826, Annals des Sci. Naturelles, ser. 1, v. 7, no. 1.

Brady, 1884, *Challenger* Repts., Zoology, v. 9, p. 593, pl. 77; pl. 79, figs. 3-7.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 164, pl. 77; pl. 79, figs. 3-7.

Parker, 1962, Micropaleontology, v. 8, no. 2, p. 221, pl. 1, figs. 1-8.

Distribution.—Lat 23° to 55° N. Rare, often corroded.

Genus CANDEINA d'Orbigny in de La Sagra, 1839

Candeina nitida d'Orbigny

Candeina nitida d'Orbigny, 1839, in de la Sagra, Histoire physique, politique et naturelle de l'île de Cuba, Foraminifères, p. 108, pl. 2, figs. 27, 28.

Brady, 1884, *Challenger* Repts., Zoology, v. 9, p. 622, pl. 82, figs. 13-20.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 170, pl. 82, figs. 13-20.

Parker, 1962, Micropaleontology, v. 8, no. 2, p. 253, pl. 8, figs. 27-30.

Distribution.—One specimen found in core sample P-56-61 (lat 39° N., depth 5,400 m).

Family CIBICIDIDAE Cushman, 1927

Genus CIBICIDES de Montfort, 1808

Cibicides bradyi (Trauth)

Plate 4, figure 2

Truncatulina dutemplei (d'Orbigny). Brady, 1884, *Challenger* Repts., Zoology, v. 9, p. 665, pl. 95, fig. 5.

Truncatulina bradyi Trauth, 1918, K. Acad. Wiss. Wien, Math.-Naturw. Cl., Denkschr., Wien, v. 95, p. 235.

Cibicides bradyi (Trauth). Thalmann, 1942, Am. Midland Naturalist, v. 28, no. 2, p. 464.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 196, pl. 95, fig. 5.

Distribution.—Lat 32° to 52° N. Rare but widely distributed. Except for a few specimens in core sample P-19-61 (lat 32° N.), all are stained.

Cibicides lobatulus (Walker and Jacob)

Cibicides lobatulus (Walker and Jacob). Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 192, pl. 93, figs., 1, 4, 5.

Distribution.—Aleutian Terrace.

Family CASSIDULINIDAE d'Orbigny, 1839

Genus CASSIDULINA d'Orbigny, 1826

Cassidulina subglobosa Brady

Plate 4, figure 3

Cassidulina subglobosa Brady, 1881, Micros. Sci. Quart. Jour., new ser., v. 21, p. 60.

Brady, 1884, *Challenger* Repts., Zoology, v. 9, p. 430, pl. 54, fig. 17.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 111, pl. 54, fig. 17.

This rare form is smaller than that described by Brady. The specimens may represent immature forms of Brady's species.

Distribution.—Lat 55° N., depth 4,430 meters. One specimen, stained.

Cassidulina crassa d'Orbigny

Cassidulina crassa d'Orbigny, 1839, Voyage dans l'Amérique Meridionale, v. 5, pt. 5, p. 56, pl. 7, figs. 18-20.

Brady, 1884, *Challenger* Repts., Zoology, v. 9, p. 429-430, pl. 54, figs. 4, 5.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 110, pl. 53, figs. 4, 5.

Distribution.—Aleutian Terrace.

Cassidulina teretis Tappan

Cassidulina laevigata d'Orbigny. Brady, 1884, *Challenger* Repts., Zoology, v. 9, p. 428, pl. 54, figs. 1-3.

Cassidulina teretis Tappan, 1951, Cushman Found. Forum. Research Contr., v. 2, pt. 1, p. 7, pl. 1, figs. 3a-c.

Loeblich and Tappan, 1953, Smithsonian Misc. Colln., v. 121, no. 7, p. 121, pl. 24, figs. 3, 4.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 110, pl. 53, fig. 1.

Distribution.—Aleutian Terrace.

Cassidulina tortuosa Cushman and Hughes

Cassidulina tortuosa Cushman and Hughes, 1925, Cushman Lab. Forum. Research Contr., v. 1, p. 14, pl. 2, fig. 4.

Distribution.—Aleutian Terrace.

Genus EHRENBURGIA Reuss, 1850

Ehrenbergina hystrix Brady

Plate 4, figure 5

Ehrenbergina hystrix Brady, 1881, Micros. Sci. Quart. Jour., new ser., v. 21, p. 60.

Brady, 1884, *Challenger* Repts., Zoology, v. 9, p. 434, pl. 55, figs. 8-11.

Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 112, pl. 55, figs. 8-11.

Distribution.—One specimen in core sample P-49-61 (lat 50° N., depth 5,000 m). Brady described it as occurring rarely only in the deep water of the South Pacific.

Family INVOLUTINIDAE Bütschli, 1880

Genus INVOLUTINA Terquem, 1862

Involutina tenuis (Brady)

Plate 4, figure 6

Ammodiscus tenuis Brady, 1881, *Micros. Sci. Quart. Jour.*, new ser., v. 21, p. 51.

Brady, 1884, *Challenger Repts.*, Zoology, v. 9, p. 332, pl. 38, figs. 4-6.

Involutina tenuis (Brady). Barker, 1960, *Soc. Econ. Paleontologists and Mineralogists Spec. Pub.* 9, p. 78, pl. 38, figs. 5, 6.

Distribution.—Lat 39° to 53° N. The test is thin walled and variable in amount of contortion.

Family NONIONIDAE Schultze, 1854

Genus NONION de Montfort, 1808

Nonion labradoricum (Dawson)

Plate 4, figure 4

Nonionina labradorica Dawson, 1860, *Canadian Naturalist*, v. 5, p. 191, fig. 4.

Nonion labradoricum (Dawson). Loeblich and Tappan, 1953, *Smithsonian Inst. Misc. Colln.*, v. 121, no. 7, p. 86, 87, pl. 17, figs. 1, 2.

Distribution.—Only present in core sample P-16-61 (lat 54° N., depth 2,410 m), where all specimens are stained. It is also present in shallower water samples south of the Aleutian Islands.

Nonion scaphum (Fichtel and Moll)

Nonionina scaphum (Fichtel and Moll). Brady, 1884, *Challenger Repts.*, Zoology, v. 9, p. 730, pl. 109, figs. 14, 15.

Nonion scaphum (Fichtel and Moll). Barker, 1960, *Soc. Econ. Paleontologists and Mineralogists Spec. Pub.* 9, p. 224, pl. 109, figs. 14, 15.

Distribution.—Aleutian Terrace.

Genus NONIONELLA Cushman, 1926

Nonionella turgida (Williamson)

Plate 4, figure 8

Rotalina turgida Williamson, 1858, *Recent British Foraminifera*, p. 50, pl. 4, figs. 95-97.

Nonionina turgida (Williamson). Brady, 1884, *Challenger Repts.*, Zoology, v. 9, p. 731, pl. 109, figs. 17-19.

Nonionella turgida (Williamson). Barker, 1960, *Soc. Econ. Paleontologists and Mineralogists Spec. Pub.* 9, p. 224, pl. 109, figs. 17-19.

Distribution.—Found only in core sample P-16-61 (lat 54° N., depth 2,410 m). All specimens are stained.

Nonionella bradyi (Chapman)

Nonion scapha (Fichtel and Moll). Brady, 1884, *Challenger Repts.*, Zoology, v. 9, p. 224, pl. 109, fig. 16.

Nonionella bradyi (Chapman). Barker, 1960, *Soc. Econ. Paleontologists and Mineralogists Spec. Pub.* 9, p. 224, pl. 109, fig. 16.

Distribution.—Aleutian Terrace.

Nonionella auricula Heron-Allen and Earland

Nonionella auricula Heron-Allen and Earland, 1930, *Royal Micros. Soc. London Jour.*, ser. 3, v. 50, p. 192, pl. 5, figs. 68-70.

Loeblich and Tappan, 1953, *Smithsonian Misc. Colln.*, v. 121, no. 7, p. 92, 93, pl. 16, figs. 6-10.

Distribution.—Aleutian Terrace.

Genus PULLENIA Parker and Jones, in Carpenter, Parker, and Jones, 1862

Pullenia subcarinata (d'Orbigny)

Plate 4, figure 9

Nonionina subcarinata d'Orbigny, 1839, *Voyage dans l'Amérique Meridionale*, v. 5, pt. 5, *Foraminifères*, p. 28, pl. 5, figs. 23, 24.

Pullenia quinqueloba Reuss. Brady, 1884, *Challenger Repts.*, Zoology, v. 9, p. 617, pl. 84, figs. 14, 15.

Pullenia subcarinata (d'Orbigny). Heron-Allen and Earland, 1932, *Discovery Repts.*, v. 4, *Foraminifera*, pt. 1, p. 403, pl. 13, figs. 14-18.

Barker, 1960, *Soc. Econ. Paleontologists and Mineralogists Spec. Pub.* 9, p. 174, pl. 84, figs. 14, 15.

Distribution.—Lat 37° to 53° N. Widely distributed in deep water, generally represented by only a few specimens, nearly always stained.

Family ALABAMINIDAE Hofker, 1951

Genus GYROIDINA d'Orbigny, 1826

Gyroidina lamarckiana (d'Orbigny)

Plate 4, figure 7

Rotalina lamarckiana d'Orbigny, 1839, in Barker-Webb and Berthelot, *Histoire Naturelle des Îles Canaries*, v. 2, pt. 2, *Foraminifères*, p. 131, pl. 2, figs. 13-15.

Gyroidina lamarckiana (d'Orbigny). Phleger, Parker, and Pierson, 1953, *Repts. Swedish Deep-sea Exped.*, v. 7, pt. 1, p. 40, pl. 8, figs. 33, 34.

Distribution.—One stained specimen found in core sample P-49-61 (lat 50° N., depth 5,000 m). Phleger, Parker, and Pierson list this species from six stations in the North Atlantic, all deeper than 4,000 meters.

Family ANOMALINIDAE Cushman, 1927

Genus ANOMALINA d'Orbigny, 1826

Anomalina globulosa Chapman and Parr

Plate 4, figure 10

Anomalina grosserugosa (Gumbel). Brady, 1884, *Challenger Repts.*, Zoology, v. 9, p. 673, pl. 94, figs. 4, 5.

Anomalina globosa Chapman and Parr, 1937, *Australasian Antarctic Exped.*, 1911-1914, *Sci. Repts.*, Ser. C, v. 1, pt. 2, p. 117, pl. 9, fig. 27.

Anomalina globulosa Chapman and Parr. Barker, 1960, *Soc. Econ. Paleontologists and Mineralogists Spec. Pub.* 9, p. 194, pl. 94, figs. 4, 5.

A few stained specimens that are apparently referable to this species occur in core sample P-12-61, although the sutures are less distinct and the outline is smooth.

Distribution.—Lat 53° N., depth 6,560 meters.

Genus *CIBICIDOIDES* Thalmann, 1939*Cibicoides* cf. *C. mundulus* (Brady, Parker, and Jones)

Plate 4, figure 13

Truncatulina sp. Brady, 1884, *Challenger* Repts., Zoology, v. 9, pl. 95, fig. 6.*Cibicides mundulus* (Brady, Parker, and Jones). Chapman and Parr, 1937, Australasian Antarctic Exped., Sci. Repts., Ser. C, v. 1, pt. 2, p. 120.*Cibicoides mundulus* (Brady, Parker, and Jones). Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 196, pl. 95, fig. 6.

This form appears identical to that illustrated by Brady, except for its small size. The single specimen found was stained.

Distribution.—Lat 50° N., depth 5,000 meters.Genus *MELONIS* de Montfort, 1808*Melonis* affine (Reuss)

Plate 4, figure 12

Nonionina affinis Reuss, 1851, Deutsche Geol. Gesell. Zeitschr., v. 3, p. 72, pl. 5, fig. 32.*Nonionina umbilacatula* (Montagu). Brady, 1884, *Challenger* Repts., Zoology, v. 9, p. 726, pl. 109, figs. 8, 9.*Nonion affine* (Reuss). Boltovskoy, 1958, Micropaleontology, v. 4, p. 193–200.*Gavelinonion barleanum* (Williamson). Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 224, pl. 109, figs. 8, 9.*Distribution*.—One small stained specimen found (core sample P-49-61, lat 50° N., depth 5,000 m).*Melonis pompilioides* (Fichtel and Moll)

Plate 4, figure 11

Nautilus pompilioides Fichtel and Moll, 1798, Testacea Microscopica, p. 31, pl. 2, figs. a-c.*Nonionina pompilioides* (Fichtel and Moll). Brady, 1884, *Challenger* Repts., Zoology, v. 9, p. 727, pl. 109, figs. 10, 11.*Nonion? pompilioides* (Fichtel and Moll). Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 224, pl. 109, figs. 10, 11.*Distribution*.—One specimen found in core sample P-29-61 (lat 32° N., depth 4,810 m). It is very smallbut is referred to *N. pompilioides* because of its thickness and coarsely perforate wall.Family *CERATOBULIMINIDAE* Cushman, 1927Genus *HOEGLUNDINA* Brotzen, 1948*Hoeglundina elegans* (d'Orbigny)*Rotalia elegans* d'Orbigny, 1826, Annals Sci. Naturelles, ser. 1, v. 7, no. 6, p. 272.*Pulvinulina elegans* (d'Orbigny). Brady, 1884, *Challenger* Repts., Zoology, v. 9, p. 699, pl. 105, figs. 3-6.*Höglundina elegans* (d'Orbigny). Barker, 1960, Soc. Econ. Paleontologists and Mineralogists Spec. Pub. 9, p. 216, pl. 106, figs. 3-6.*Distribution*.—Lat 32° to 54° N. All specimens are small and, when not stained, appear corroded.

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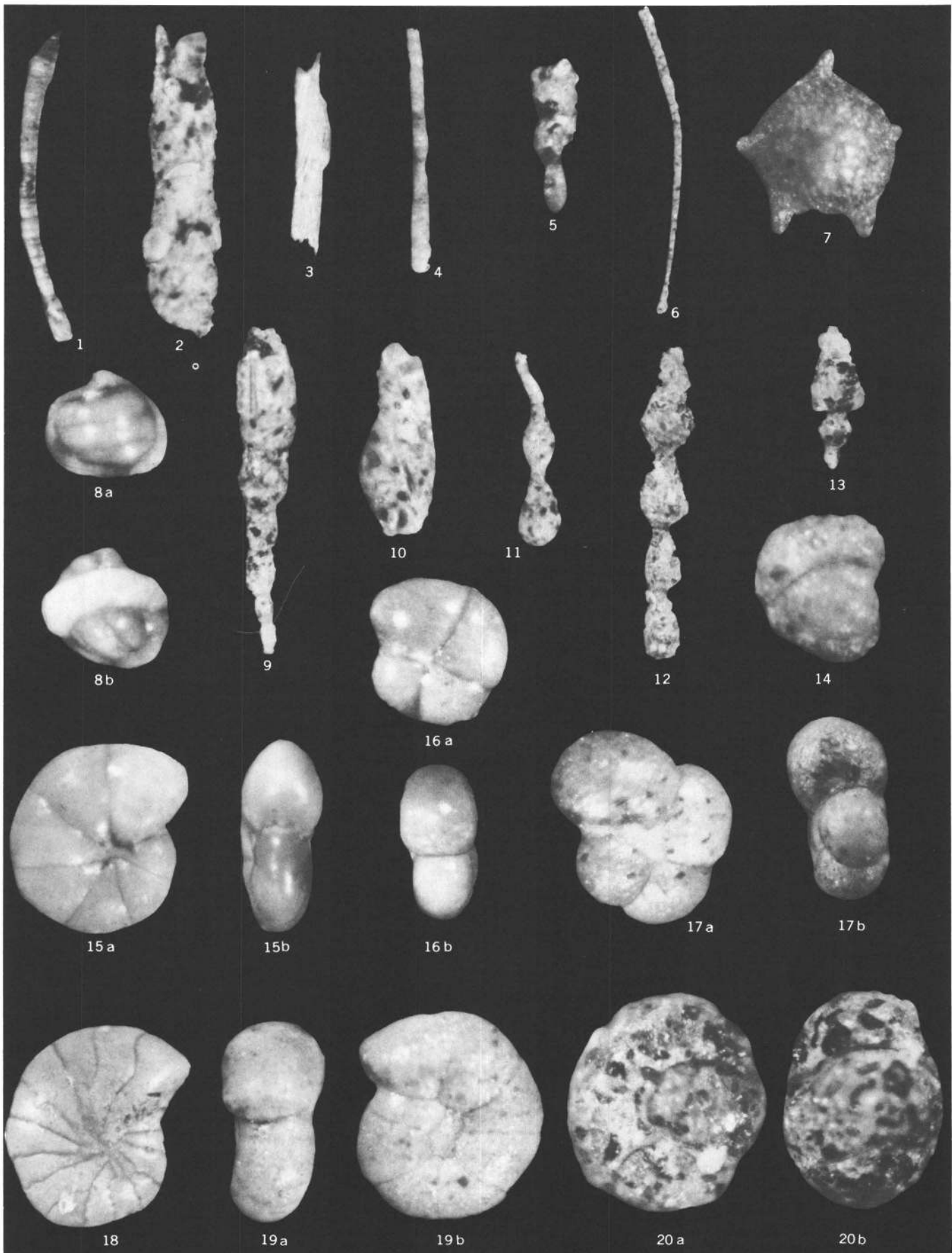
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PLATES 1-4

Contact photographs of the plates in this report are available, at cost, from
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PLATE 1

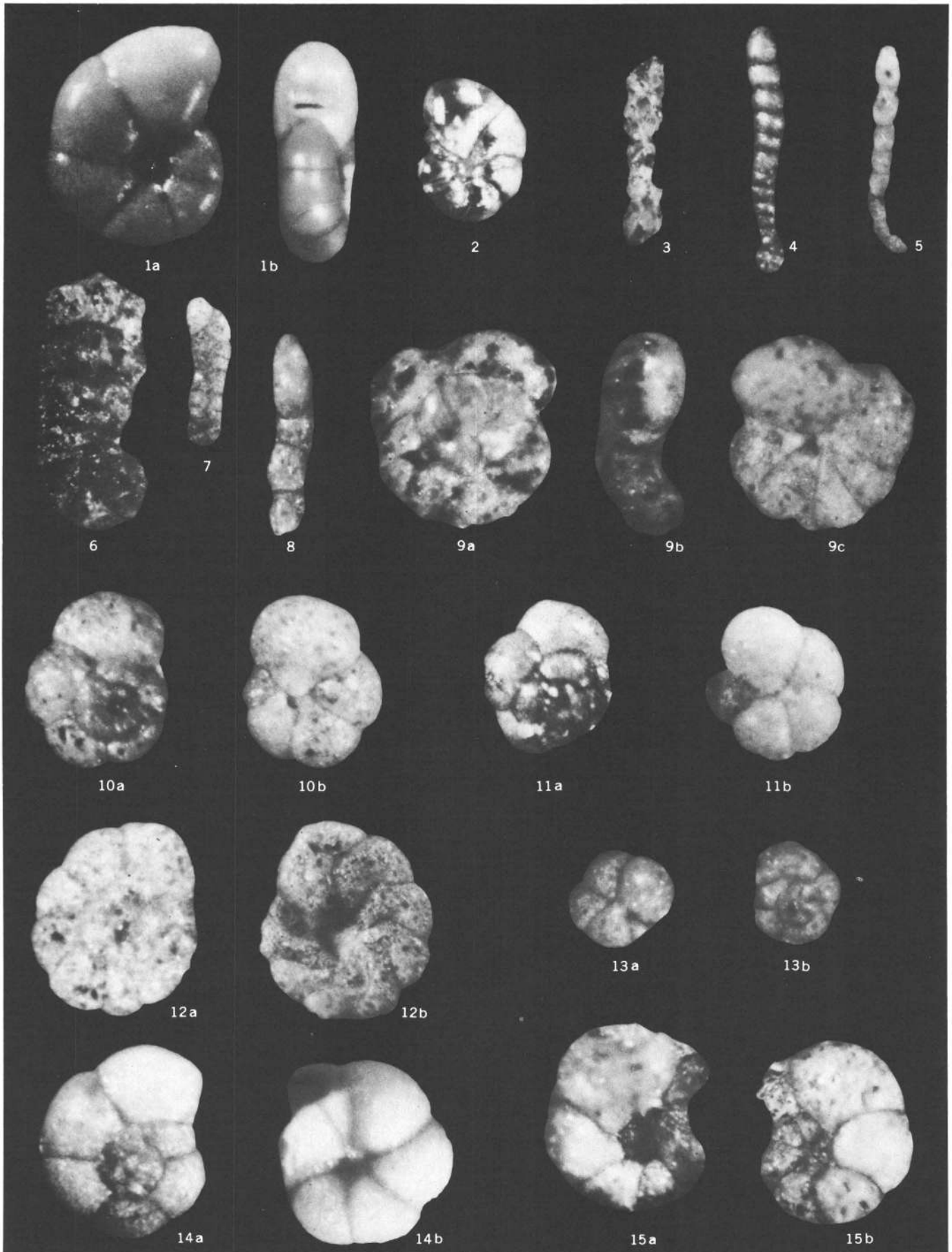
- FIGURE 1. *Nodellum membranaceum* (Brady).
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2. *Rhizammina?* sp. (p. 12)
× 68, sample P-12-61, USNM 175143.
3. *Marsipella cylindrica* Brady (p. 12).
× 70, sample P-13-61, USNM 175144.
4. *Bathysiphon discreta* (Brady) (p. 12).
× 73, sample P-19-61, USNM 175145.
5. *Jaculella acuta* Brady (p. 12).
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× 23, sample P-41-61, USNM 175147.
7. *Thurammina papillata* Brady (p. 13).
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a, Apertural view; b, side view; × 102, sample P-19-61, USNM 175160.
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4. *Ammobaculites agglutinans filaformis* Heron-Allen and Earland (smooth form) (p. 16).
 \times 64 sample P-41-61, USNM 175165.
5. *Ammobaculites agglutinans filaformis* Heron-Allen and Earland (rough form) (p. 16).
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PLATE 3

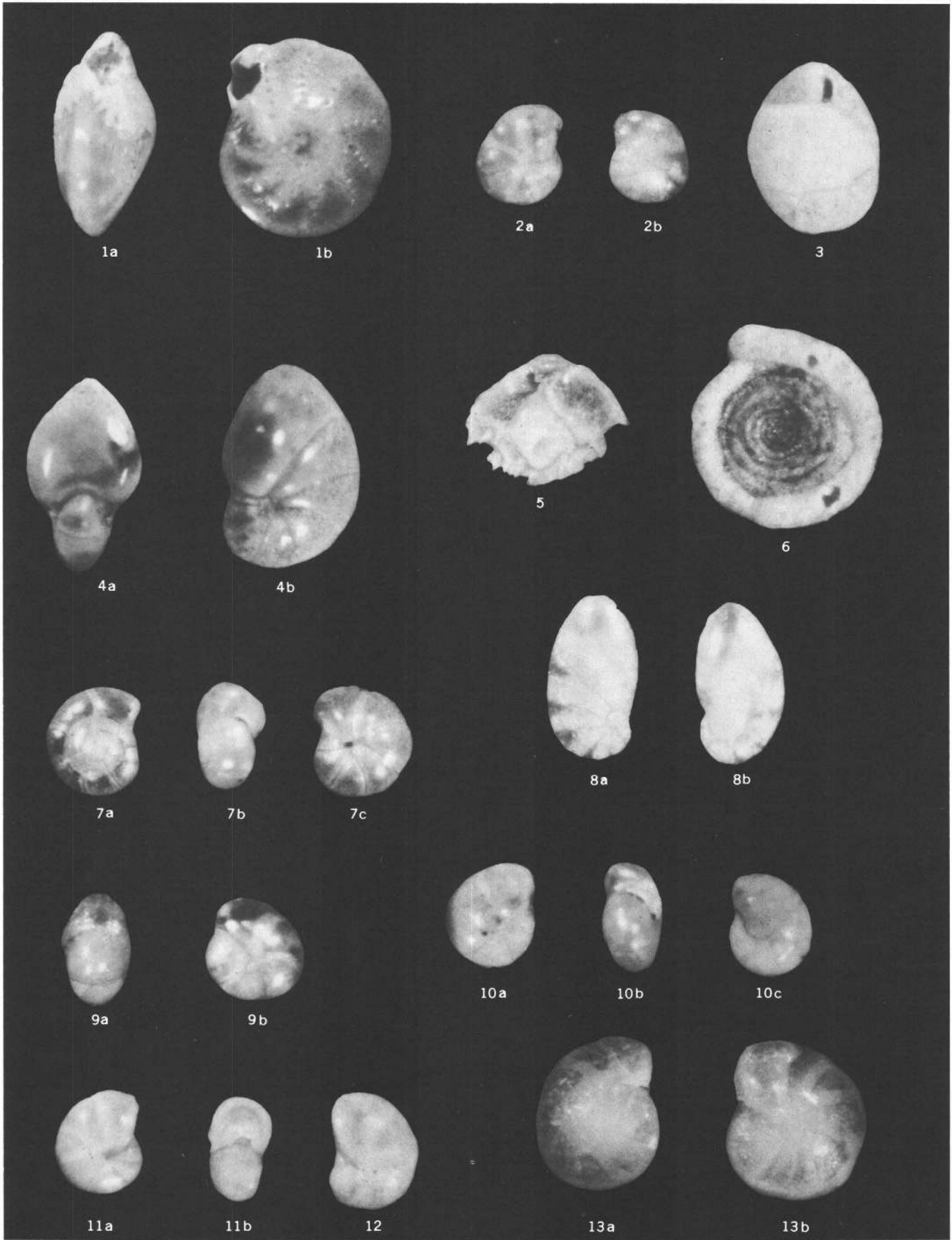
- FIGURE 1. *Trochammina globigeriniformis* (Parker and Jones) (p. 17).
a, Evolute side; b, involute (apertural) side; \times 174, sample P-41-61, USNM 175177.
2. *Cystammina galeata* (Brady) (p. 18).
a, b, Side views; \times 83, sample P-19-61, USNM 175178.
3. *Dorothia exilis* Cushman (p. 18).
 \times 190, sample P-49-61, USNM 175179.
4. *Eggerella bradyi* (Cushman) (p. 18).
a, Apertural view; b, side view; \times 138, sample P-19-61, USNM 175180.
5. *Eggerella scabra* (Williamson) (p. 18).
a, Apertural view; b, side view; \times 380, sample P-48-61, USNM 175181.
6. *Eggerella propinqua* (Brady).
a, Apertural view; b, side view; \times 204, sample P-6-61, USNM 175182.
7. *Ophthalmidium pusillum* (Earland) (p. 18).
 \times 113, sample P-32-61, USNM 175183.
8. *Miliolinella subrotunda* (Montagu) (p. 19).
 \times 166, sample P-49-61, USNM 175184.
9. *Bulimina aculeata* d'Orbigny (p. 19).
 \times 56, sample P-16-61, USNM 175185.
10. *Globobulimina* cf. *Bulimina auriculata* Bailey (p. 20).
 \times 47, sample P-16-61, USNM 175186.
11. *Uvigerina peregrina* Cushman (p. 20).
 \times 106, sample P-16-61, USNM 175187.
12. *Epistominella exigua* (Brady) (p. 20).
a, Evolute side; b, involute side; \times 360, sample P-49-61, USNM 175188.
13. *Epistominella umbonifera* (Cushman) (p. 20).
a, Evolute side; b, apertural view; c, involute side; \times 97, sample P-49-61, USNM 175189.



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PLATE 4

- FIGURE 1. *Elphidiella groenlandica* (Cushman) (p. 20).
a, Apertural view; b, side view; \times 79, sample P-16-61, USNM 175190.
2. *Cibicides bradyi* (Trauth) (p. 21).
a, Involute side; b, evolute side; \times 227, sample P-19-61; USNM 175191.
3. *Cassidulina subglobosa* Brady (p. 21).
 \times 210, sample P-29-61, USNM 175192.
4. *Nonion labradoricum* Dawson (p. 22).
a, Apertural view; b, side view; \times 100, sample P-16-61, USNM 175193.
5. *Ehrenbergina hystrix* Brady (p. 21).
 \times 78, sample P-49-61, USNM 175194.
6. *Involutina tenuis* (Brady) (p. 22).
 \times 134, sample P-41-61, USNM 175195.
7. *Gyroidina lamareckiana* (d'Orbigny) (p. 22)
a, Evolute side; b, peripheral (apertural) view; c, involute side; \times 122,
sample P-49-61, USNM 175196.
8. *Nonionella turgida* (Williamson) (p. 22).
a, Evolute side; b, involute side; \times 190, sample P-16-61, USNM 175197.
9. *Pullenia subcarinata* (d'Orbigny) (p. 22)
a, Peripheral view; b, side view; \times 142, sample P-12-61, USNM 175198.
10. *Anomalina globulosa* Chapman and Parr (p. 22).
a, Evolute side; b, peripheral view; c, involute side; \times 109, sample
P-12-61, USNM 175199.
11. *Melonis pompilioides* (Fichtel and Moll) (p. 23).
a, Side view; b, peripheral view; \times 160, sample P-29-61, USNM 179200.
12. *Melonis affine* (Reuss) (p. 23).
 \times 200, sample P-49-61, USNM 179201.
13. *Cibicidoides* cf. *C. mundulus* (Brady, Parker, and Jones) (p. 23).
a, Evolute side; b, involute side; \times 280, sample P-49-61, USNM 179202.



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