14. GRAIN SIZE ANALYSIS, LEG 3

A. C. Pimm, Deep Sea Drilling Project, East Coast Repository,
Lamont-Doherty Geological Observatory, Palisades, New York

INTRODUCTION

The grain size results from Leg 3 were almost entirely a reflection of the microfossil content of the sediments. Wherever the sand fraction makes up more than about 1 per cent of the sediment, then it is comprised of planktonic foraminifera with a few benthonics, or in a few places Radiolaria. Similarly, the silt fraction usually reflects the nannoplankton content of the sediment. Where the sediment is comprised almost entirely of clay it is usually zeolitic red clay with practically no fossils.

The complete grain size results are given as Table 1, and a summary of the nature of the coarse fraction is given as Table 2. Comments on the grain size results from each drill hole are given below.

RESULTS

Hole 13 and 13A

Hole 13 mainly contains clay in its upper part, but further down there are increasing amounts of sand

and silt. In the lower part the sediment falls in the sand-silt-clay or silty clay grade. The clays in Cores 1 and 2 are zeolitic with only small amounts of sand (foraminifera and Radiolaria) and some silt (nannoplankton). The increase in the sand fraction in Core 3 is due to an abundance of Radiolaria.

Sediments in Hole 13A are either silty clay or clay. Core 1 is a silty clay with 17 per cent sand (Radiolaria). Cores 2 and 3 are clay; however, they were described in the hole summaries as nannoplankton chalk oozes. On grain size and carbonate content results these sediments are more probably zeolitic clays (check X-ray results). Core 4 is a nannofossil chalk ooze with nannofossils making up 22 per cent silt and foraminifera 15 per cent sand. Cores 5 and 7 contain over 80 per cent clay.

Hole 14

The sediments from Hole 14 are mainly clayey silt with some silty clay. The sediments are partly zeolitic

TABLE 1
Leg 3 Grain Size Results

Hole	Core	Section	Sampled at (cm)	Sand (%)	Silt (%)	Clay (%)	Classification
13	1	1	7-9	8.1	16.7	75.2	Clay
13	1	2	4-6	10.2	15.6	74.2	Silty clay
13	1	3	4-6	6.4	17.4	76.2	Clay
13	1	4	7-9	4.5	19.6	75.9	Clay
13	1	5	8-10	3.4	20.1	76.5	Clay
13	2	1	32-34	4.3	20.5	75.2	Clay
13	2	2	8-10	1.6	19.4	79.0	Clay
13	2	3	4-6	2.2	23.2	74.6	Silty clay
13	2	4	2-4	0.1	8.9	91.0	Clay
13	2	5	2-4	0.2	8.5	91.3	Clay
13	2	5	74-76	25.9	27.2	46.9	Sand silt clay
13	2	6	2-4	0.2	8.3	91.5	Clay
13	3	1	80-82	26.7	28.0	45.3	Sand silt clay

TABLE 1 – Continued

Hole	Core	Section	Sampled at (cm)	Sand (%)	Silt (%)	Clay (%)	Classification
13	3	2	5-7	24.9	23.9	51.2	Sand silt clay
13	3	3	4-6	19.6	26.6	53.8	Silty clay
13	3	4	1-3	24.5	28.0	47.5	Sand silt clay
13	3	5	2-4	17.9	21.7	60.4	Silty clay
13	3	6	3-5	14.9	23.6	61.5	Silty clay
13A	1	1	66-68	17.0	25.3	57.7	Silty clay
13A	2	1	103-105	0.3	13.1	86.6	Clay
13A	3	1	81-83	0.2	7.6	92.2	Clay
13A	3	2	2-4	0.0	6.4	93.6	Clay
13A	3	3	2-4	0.0	6.9	93.1	Clay
13A	3	4	3-5	0.5	9.5	90.0	Clay
13A	4	1	35-37	15.2	21.7	63.1	Silty clay
13A	5	1	17-19	3.8	14.8	81.4	Clay
13A	7	1	10-12	1.1	15.8	83.1	Clay
14	1A	1	52-54	0.3	47.8	51.9	Silty clay
14	1A	2	10-12	0.5	55.6	43.9	Clayey silt
14	1A	3	2-4	0.2	46.5	53.3	Silty clay
14	1A	4	22-24	0.1	47.2	52.7	Silty clay
14	1A	5	2-4	0.7	43.2	56.1	Silty clay
14	1A	6	4-6	0.5	53.3	46.2	Clayey silt
14	2	1	3-5	7.0	48.9	44.1	Clayey silt
14	2	2	2-4	6.4	47.5	46.1	Clayey silt
14	2	3	2-4	3.1	47.2	49.7	Silty clay
14	2	4	2-4	4.9	48.0	47.1	Clayey silt
14	2	5	3-5	4.7	50.7	44.6	Clayey silt
14	3	1	2-4	1.2	54.6	44.2	Clayey silt
14	3	2	2-4	1.1	55.8	43.1	Clayey silt
14	3	3	2-4	0.6	58.2	41.2	Clayey silt
14	3	4	2-4	1.1	57.4	41.5	Clayey silt
14	3	5	2-4	1.1	60.5	38.4	Clayey silt
14	3	6	6-8	0.9	58.0	41.1	Clayey silt
14	4	1	35-37	0.0	54.1	45.9	Clayey silt
14	5	1	4-6	0.6	46.0	53.4	Silty clay
14	5	2	2-4	0.7	48.3	51.0	Silty clay
14	5	3	6-8	0.7	48.4	50.9	Silty clay
14	5	4	5-7	0.2	42.1	57.7	Silty clay
14	5	6	2-4	0.7	49.3	50.0	Silty clay

TABLE 1 – *Continued*

Hole	Core	Section	Sampled at (cm)	Sand (%)	Silt (%)	Clay (%)	Classification
14	6	1	2-4	1.6	58.8	39.6	Clayey silt
14	6	2	3-5	2.6	53.5	43.9	Clayey silt
14	6	3	2-4	2.5	53.3	44.2	Clayey silt
14	6	4	2-4	2.4	54.3	43.3	Clayey silt
14	6	5	2-4	1.6	60.2	38.2	Clayey silt
14	6	6	2-4	1.7	54.1	44.2	Clayey silt
14	7	1	2-4	2.7	59.0	38.3	Clayey silt
14	7	2	3-5	2.1	56.5	41.4	Clayey silt
14	7	3	2-4	1.8	54.1	44.1	Clayey silt
14	7	4	2-4	2.1	52.7	45.2	Clayey silt
14	7	5	2-4	3.3	51.9	44.8	Clayey silt
14	7	6	2-4	0.9	54.7	44.4	Clayey silt
14	8	1	2-4	2.6	48.0	49.4	Silty clay
14	8	2	3-5	2.4	48.5	49.1	Silty clay
14	8	3	2-4	2.5	46.7	50.8	Silty clay
14	8	4	148-150	2.7	52.9	44.4	Clayey silt
14	8	5	2-4	2.4	50.1	47.5	Clayey silt
14	8	6	148-150	1.6	55.6	42.8	Clayey silt
14	9	2	3-5	1.3	47.0	51.7	Silty clay
14	9	3	148-150	0.9	54.7	44.4	Clayey silt
14	9	4	20-22	1.4	51.6	47.0	Clayey silt
14	9	5	8-10	0.5	57.3	42.2	Clayey silt
14	9	6	8-10	1.2	57.1	41.7	Clayey silt
15	1	2	2-4	6.6	11.5	81.9	Clay
15	1	3	2-4	12.3	16.2	71.5	Silty clay
15	1	4	2-4	22.7	20.6	56.7	Sand silt clay
15	1	5	2-4	13.1	22.0	64.9	Silty clay
15	1	6	2-4	12.5	20.8	66.7	Silty clay
15	2	1	2-4	14.9	19.9	65.2	Silty clay
15	2	2	2-4	12.5	20.0	67.5	Silty clay
15	2	3	2-4	12.1	14.4	73.5	Silty clay
15	2	4	2-4	14.4	19.4	66.2	Silty clay
15	2	5	2-4	13.4	19.0	67.6	Silty clay
15	2	6	2-4	9.8	18.7	71.5	Silty clay
15	3	1	2-4	6.5	35.5	58.0	Silty clay
15	3	2	2-4	4.0	36.1	59.9	Silty clay
15	3	4	2-4	4.2	36.7	59.1	Silty clay

TABLE 1 – Continued

Hole	Core	Section	Sampled at (cm)	Sand (%)	Silt (%)	Clay (%)	Classification
15	3	5	2-4	4.4	36.5	59.1	Silty clay
15	3	6	2-4	3.6	38.0	58.4	Silty clay
15	4	1	2-4	2.9	37.9	59.2	Silty clay
15	4	3	2-4	2.6	40.1	57.3	Silty clay
15	4	4	2-4	3.6	40.4	56.0	Silty clay
15	4	5	2-4	3.2	43.9	52.9	Silty clay
15	4	6	2-4	2.4	38.7	58.9	Silty clay
15	5	1	2-4	2.0	40.5	57.5	Silty clay
15	5	2	2-4	2.3	29.0	68.7	Silty clay
15	5	3	2-4	3.7	30.7	65.6	Silty clay
15	5	4	2-4	4.4	46.6	49.0	Silty clay
15	5	5	2-4	4.6	35.4	60.0	Silty clay
15	5	6	2-4	2.9	45.9	51.2	Silty clay
15	6	1	13-15	0.4	30.8	68.8	Silty clay
15	6	2	17-19	0.5	32.1	67.4	Silty clay
15	6	3	2-4	0.5	28.1	71.4	Silty clay
15	6	4	2-4	2.2	31.3	66.5	Silty clay
15	6	5	2-4	0.8	51.4	47.8	Clayey silt
15	6	6	2-4	1.5	46.0	52.5	Silty clay
15	7	1	2-4	2.3	48.1	49.6	Silty clay
15	7	2	4-6	1.5	48.1	50.4	Silty clay
15	7	3	2-4	2.5	47.7	49.8	Silty clay
15	7	4	2-4	1.7	62.6	35.7	Clayey silt
15	7	5	2-4	2.4	54.0	43.6	Clayey silt
15	7	6	2-4	1.7	40.2	58.1	Silty clay
15	8	1	148-150	7.0	63.2	29.8	Clayey silt
15	8	2	2-4	9.3	68.3	22.4	Clayey silt
15	8	3	2-4	9.9	45.8	44.3	Clayey silt
15	8	4	2-4	7.9	43.5	48.6	Silty clay
15	8	5	2-4	10.4	44.2	45.4	Silty clay
15	8	6	2-4	13.4	60.0	26.6	Clayey silt
15	9	1	48-50	6.5	47.5	46.0	Clayey silt
15	9	2	6-8	12.1	58.5	29.4	Clayey silt
15	9	3	2-4	7.7	52.0	40.3	Clayey silt
15	9	4	2-4	7.8	62.5	29.7	Clayey silt
15	9	5	2-4	3.8	51.5	44.7	Clayey silt
15	9	6	2-4	7.6	60.1	32.3	Clayey silt

TABLE 1 – Continued

Hole	Core	Section	Sampled at (cm)	Sand (%)	Silt (%)	Clay (%)	Classification
16	1	1	2-4	42.0	29.1	28.9	Sand silt clay
16	1	2	2-4	48.4	29.3	22.3	Sand silt clay
16	1	4	0-3	24.1	19.5	56.4	Sandy clay
16	1	6	2-4	9.6	15.0	75.4	Clay
16	2	1	148-150	31.2	24.5	44.3	Sand silt clay
16	2	2	148-150	31.0	22.6	46.4	Sand silt clay
16	2	3	148-150	27.0	21.7	51.3	Sand silt clay
16	2	4	148-150	18.8	20.4	60.8	Silty clay
16	2	5	148-150	19.6	17.6	62.8	Sandy clay
16	2	6	2-4	14.7	15.1	70.2	Silty clay
16	3	1	148-150	9.4	31.1	59.5	Silty clay
16	3	2	148-150	13.5	30.5	56.0	Silty clay
16	3	3	148-150	15.0	25.0	60.0	Silty clay
16	3	4	148-150	10.9	24.2	64.9	Silty clay
16	3	5	148-150	13.4	26.0	60.6	Silty clay
16	3	6	148-150	13.1	22.2	64.7	Silty clay
16	4	1	2-4	6.0	33.4	60.6	Silty clay
16	4	2	2-4	7.0	32.7	60.3	Silty clay
16	4	3	2-4	4.6	31.1	64.3	Silty clay
16	4	4	2-4	8.0	35.4	56.6	Silty clay
16	4	5	2-4	8.9	43.9	47.2	Silty clay
16	4	6	148-150	6.9	32.3	60.8	Silty clay
16	5	1	148-150	2.6	35.5	61.9	Silty clay
16	5	2	148-150	2.7	36.6	60.7	Silty clay
16	5	3	148-150	2.7	36.0	61.3	Silty clay
16	5	4	148-150	3.5	31.5	65.0	Silty clay
16	5	5	148-150	4.5	32.3	63.2	Silty clay
16	5	6	148-150	3.9	32.2	63.9	Silty clay
16	6	1	148-150	1.7	32.7	65.6	Silty clay
16	6	2	148-150	4.5	33.0	62.5	Silty clay
16	6	3	148-150	4.7	36.8	58.5	Silty clay
16	6	4	148-150	4.9	43.3	51.8	Silty clay
16	6	5	148-150	4.4	44.2	51.4	Silty clay
16	6	6	148-150	4.8	40.6	54.6	Silty clay
16	7	1	148-150	1.6	33.6	64.8	Silty clay
16	7	2	148-150	2.4	35.0	62.6	Silty clay
16	7	3	148-150	0.8	33.8	65.4	Silty clay

TABLE 1 – *Continued*

Hole	Core	Section	Sampled at (cm)	Sand (%)	Silt (%)	Clay (%)	Classification
16	7	4	148-150	0.8	38.4	60.8	Silty clay
16	7	5	148-150	0.9	39.2	59.9	Silty clay
16	7	6	148-150	2.3	37.7	60.0	Silty clay
16	8	1	148-150	1.5	30.9	67.6	Silty clay
16	8	2	148-150	0.8	32.6	66.6	Silty clay
16	8	3	148-150	0.4	33.4	66.2	Silty clay
16	8	4	148-150	0.9	31.5	67.6	Silty clay
16	8	5	148-150	1.4	32.8	65.8	Silty clay
16	8	6	148-150	0.8	32.1	67.1	Silty clay
16	9	1	148-150	3.2	48.6	48.2	Clayey silt
16	9	2	148-150	5.1	46.7	48.2	Silty clay
16	9	3	148-150	4.8	42.3	52.9	Silty clay
16	9	4	148-150	3.6	46.0	50.4	Silty clay
16	9	5	2-4	2.4	41.4	56.2	Silty clay
16	9	6	148-150	2.9	42.4	54.7	Silty clay
16	10	1	148-150	3.8	44.4	51.8	Silty clay
16	10	2	148-150	5.5	49.7	44.8	Clayey silt
16	10	4	148-150	7.1	40.5	52.4	Silty clay
16	10	5	148-150	6.6	45.7	47.7	Silty clay
16	10	6	148-150	15.1	42.8	42.1	Clayey silt
16	11	1	148-150	12.4	43.2	44.4	Silty clay
16	11	2	148-150	13.1	36.9	50.0	Silty clay
16	11	3	148-150	15.1	33.5	51.4	Silty clay
16	11	4	148-150	6.8	46.2	47.0	Silty clay
16	11	5	148-150	11.4	43.5	45.1	Silty clay
16	11	6	148-150	5.9	51.2	42.9	Clayey silt
17	1	1	5-7	32.1	16.2	51.7	Sandy clay
17	1	2	6-8	19.7	20.7	59.6	Silty clay
17	1	3	6-8	33.0	19.8	47.2	Sandy clay
17	1	4	8-10	13.7	25.9	60.4	Silty clay
17	1	5	8-10	25.6	21.8	52.6	Sand silt clay
17	2	1	25-27	6.4	38.2	55.4	Silty clay
17	2	2	8-10	4.0	41.5	54.5	Silty clay
17	2	3	8-10	6.3	39.3	54.4	Silty clay
17	2	4	11-13	4.2	45.7	50.1	Silty clay
17	2	5	13-15	3.7	41.3	55.0	Silty clay
17	2	6	8-10	1.8	37.8	60.4	Silty clay

TABLE 1 – Continued

Hole	Core	Section	Sampled at (cm)	Sand (%)	Silt (%)	Clay (%)	Classification
17A	1	1	6-8	0.9	50.6	48.5	Clayey silt
17A	1	2	8-10	4.0	50.0	46.0	Clayey silt
17A	1	3	20-22	3.4	52.9	43.7	Clayey silt
17A	1	4	10-12	1.1	49.5	49.4	Clayey silt
17A	1	5	10-12	0.4	40.7	58.9	Silty clay
17A	1	6	12-14	0.6	50.2	49.2	Clayey silt
17A	2	1	11-13	0.2	47.5	52.3	Silty clay
17A	2	2	18-20	0.8	48.4	50.8	Silty clay
17A	2	3	18-20	0.3	53.9	45.8	Clayey silt
17A	2	4	18-20	0.1	54.8	45.1	Clayey silt
17A	2	5	11-13	4.4	42.3	53.3	Silty clay
17A	2	6	15-17	6.1	45.5	48.4	Silty clay
17A	3	1	80-82	1.3	72.9	25.8	Clayey silt
17A	3	6	148-150	3.8	38.6	57.6	Silty clay
17A	4	5	0-2	1.7	53.5	44.8	Clayey silt
17A	4	6	75-77	5.4	47.5	47.1	Clayey silt
17B	1	1	10-12	2.6	47.6	49.8	Silty clay
17B	1	2	11-13	0.9	49.4	49.7	Silty clay
17B	1	3	11-13	0.8	47.2	52.0	Silty clay
17B	1	4	11-13	3.6	48.2	48.2	Silt and clay
17B	1	5	78-80	2.3	53.9	43.8	Clayey silt
17B	1	6	78-80	2.9	52.5	44.6	Clayey silt
17B	2	1	24-26	3.0	57.2	39.8	Clayey silt
17B	2	2	10-12	3.9	57.7	38.4	Clayey silt
17B	2	3	15-17	3.5	65.4	31.1	Clayey silt
17B	2	4	11-13	3.2	57.4	39.4	Clayey silt
17B	2	5	10-12	4.1	55.8	40.1	Clayey silt
17B	2	6	12-14	4.7	55.7	39.6	Clayey silt
17B	3	1	10-12	3.9	51.0	45.1	Clayey silt
17B	3	2	10-12	4.8	48.1	47.1	Clayey silt
17B	3	3	10-12	4.6	48.1	47.3	Clayey silt
17B	3	4	10-12	4.9	49.2	45.9	Clayey silt
17B	3	5	10-12	4.1	50.4	45.5	Clayey silt
17B	3	6	78-80	4.1	52.0	43.9	Clayey silt
17B	4	1	80-82	1.9	56.1	42.0	Clayey silt
17B	4	3	13-15	2.5	51.9	45.6	Clayey silt

TABLE 1 – *Continued*

Hole	Core	Section	Sampled at (cm)	Sand (%)	Silt (%)	Clay (%)	Classification
17B	4	4	13-15	1.9	55.6	42.5	Clayey silt
17B	4	5	13-15	2.4	53.9	43.7	Clayey silt
17B	4	6	18-20	0.7	44.2	55.1	Silty clay
18	1	5	25-27	7.9	12.5	79.6	Clay
18	2	1	0-2	2.0	59.2	38.8	Clayey silt
18	2	2	13-15	0.5	65.0	34.5	Clayey silt
18	2	3	148-150	3.6	56.2	40.2	Clayey silt
18	2	4	148-150	1.4	60.8	37.8	Clayey silt
18	2	5	148-150	3.6	53.9	42.5	Clayey silt
18	2	6	148-150	3.4	52.0	44.6	Clayey silt
18	3	1	148-150	2.8	51.7	45.5	Clayey silt
18	3	2	13-15	3.9	54.0	42.1	Clayey silt
18	3	3	148-150	5.4	54.1	40.5	Clayey silt
18	3	4	148-150	3.6	58.0	38.4	Clayey silt
18	3	5	148-150	4.6	58.1	37.3	Clayey silt
18	3	6	148-150	3.9	56.7	39.4	Clayey silt
18	4	2	0-2	5.1	53.4	41.5	Clayey silt
18	4	3	0-2	5.3	52.7	42.0	Clayey silt
18	4	4	13-15	12.2	38.5	49.3	Silty clay
18	4	5	148-150	7.0	47.2	45.8	Clayey silt
18	5	1	148-150	12.3	42.0	45.7	Silty clay
18	5	3	148-150	12.8	35.3	51.9	Silty clay
18	5	5	0-2	12.4	44.3	43.3	Clayey silt
18	5	6	0-2	11.0	44.7	44.3	Clayey silt
18	6	1	13-15	14.9	44.4	40.7	Clayey silt
18	6	2	148-150	10.8	47.5	41.7	Clayey silt
18	6	3	148-150	9.1	49.6	41.3	Clayey silt
18	6	4	148-150	11.9	46.3	41.8	Clayey silt
18	6	6	75-77	13.9	52.6	33.5	Clayey silt
19	1	1	78-80	3.8	19.0	77.2	Clay
19	1	2	2-4	0.5	16.9	82.6	Clay
19	1	3	1-3	0.3	20.0	79.7	Clay
19	1	4	1-3	0.2	18.1	81.7	Clay
19	1	5	1-3	0.5	19.7	79.8	Clay
19	1	6	1-3	0.5	20.9	78.6	Clay
19	2	1	15-17	0.2	24.1	75.7	Clay

TABLE 1 – *Continued*

Hole	Core	Section	Sampled at (cm)	Sand (%)	Silt (%)	Clay (%)	Classification
19	2	2	1-3	0.1	24.4	75.5	Clay
19	2	3	148-150	0.2	24.2	75.6	Clay
19	2	4	148-150	0.1	26.9	73.0	Silty clay
19	2	5	148-150	0.1	24.6	75.3	Clay
19	2	6	148-150	0.2	23.5	76.3	Clay
19	3	1	33-35	0.2	43.8	56.0	Silty clay
19	3	2	1-3	0.2	39.4	60.4	Silty clay
19	3	3	1-3	0.2	41.1	58.7	Silty clay
19	3	4	1-3	0.1	36.4	63.5	Silty clay
19	3	5	1-3	0.2	46.4	53.4	Silty clay
19	3	6	1-3	0.1	27.7	72.2	Silty clay
19	4	1	148-150	5.8	39.3	54.9	Silty clay
19	4	2	1-3	0.2	44.7	55.1	Silty clay
19	4	3	148-150	0.2	49.2	50.6	Silty clay
19	4	4	148-150	1.2	47.9	50.9	Silty clay
19	4	5	148-150	0.4	51.3	48.3	Clayey silt
19	4	6	148-150	0.7	45.2	54.1	Silty clay
19	5	1	148-150	0.2	54.1	45.7	Clayey silt
19	5	2	1-3	0.2	53.6	46.2	Clayey silt
19	5	3	3-5	0.2	46.7	53.1	Silty clay
19	5	4	25-27	0.2	53.7	46.1	Clayey silt
19	5	5	3-5	0.2	57.1	42.7	Clayey silt
19	5	6	3-5	0.1	52.4	47.5	Clayey silt
19	6	1	148-150	0.6	40.3	59.1	Silty clay
19	6	2	148-150	0.8	42.3	56.9	Silty clay
19	6	3	148-150	0.1	46.0	53.9	Silty clay
19	6	4	148-150	0.9	42.3	56.8	Silty clay
19	6	5	148-150	0.2	54.7	45.1	Clayey silt
19	6	6	148-150	0.9	54.5	44.6	Clayey silt
19	7	1	2-4	0.6	46.5	52.9	Silty clay
19	7	3	2-4	0.3	53.4	46.3	Clayey silt
19	7	4	2-4	0.4	36.8	62.8	Silty clay
19	7	5	3-5	0.7	48.3	51.0	Silty clay
19	7	6	3-5	0.9	49.9	49.2	Clayey silt
19	8	1	148-150	0.5	55.6	43.9	Clayey silt
19	8	3	148-150	0.5	50.7	48.8	Clayey silt

TABLE 1 – Continued

Hole	Core	Section	Sampled at (cm)	Sand (%)	Silt (%)	Clay (%)	Classification
19	8	4	148-150	0.8	48.6	50.6	Silty clay
19	8	5	148-150	0.3	47.5	52.2	Silty clay
19	8	6	148-150	1.3	49.5	49.2	Clayey silt
19	9	1	148-150	0.5	46.3	53.2	Silty clay
19	9	2	148-150	1.8	46.0	52.2	Silty clay
19	9	3	148-150	1.7	47.9	50.4	Silty clay
19	9	4	148-150	2.4	52.3	45.3	Clayey silt
19	9	5	148-150	2.0	46.2	51.8	Silty clay
19	9	6	6-8	1.8	44.8	53.4	Silty clay
19	10	1	148-150	2.5	43.6	53.9	Silty clay
19	10	2	148-150	2.3	41.3	56.4	Silty clay
19	10	3	148-150	1.7	43.7	54.6	Silty clay
19	10	5	148-150	2.5	40.2	57.3	Silty clay
19	10	6	148-150	1.2	44.2	54.6	Silty clay
19	11	1	148-150	1.9	42.5	55.6	Silty clay
19	11	2	148-150	1.1	40.3	58.6	Silty clay
19	11	3	148-150	5.2	41.6	53.2	Silty clay
19	11	4	148-150	1.1	39.2	59.7	Silty clay
20A	2	1	60-62	0.3	35.6	64.1	Silty clay
20A	2	2	1-3	0.8	43.5	55.7	Silty clay
20A	2	3	5-7	0.4	33.1	66.5	Silty clay
20A	2	4	148-150	0.4	45.2	54.4	Silty clay
20A	2	5	148-150	0.3	38.9	60.8	Silty clay
20A	2	6	148-150	0.3	41.4	58.3	Silty clay
20B	1	1	3-5	0.2	34.5	65.3	Silty clay
20B	1	2	7-9	0.6	33.4	66.0	Silty clay
20B	1	3	4-6	0.3	33.6	66.1	Silty clay
20B	1	4	3-5	0.3	36.5	63.2	Silty clay
20B	1	5	0-2	0.3	31.4	68.3	Silty clay
20B	1	6	1-3	0.2	25.2	74.6	Silty clay
20C	1	1	1-3	13.5	16.9	69.6	Silty clay
20C	1	2	1-3	7.1	30.2	62.7	Silty clay
20C	1	3	1-3	0.5	41.5	58.0	Silty clay
20C	1	4	1-3	1.7	38.1	60.2	Silty clay
20C	1	5	1-3	0.4	39.4	60.2	Silty clay
20C	1	6	1-3	0.7	37.8	61.5	Silty clay

TABLE 1 – Continued

Hole	Core	Section	Sampled at (cm)	Sand (%)	Silt (%)	Clay (%)	Classification
20C	2	1	148-150	0.9	46.7	52.4	Silty clay
20C	2	2	148-150	0.4	44.9	54.7	Silty clay
20C	2	3	20-22	0.2	47.9	51.9	Silty clay
20C	2	4	6-8	0.3	47.5	52.2	Silty clay
20C	2	5	148-150	0.3	52.5	47.2	Clayey silt
20C	2	6	148-150	0.5	46.8	52.7	Silty clay
20C	3	1	1-3	0.4	37.3	62.3	Silty clay
20C	3	2	1-3	0.4	16.0	83.6	Clay
20C	3	3	1-3	0.5	25.1	74.4	Silty clay
20C	3	4	14-16	0.5	22.4	77.1	Clay
20C	3	5	1-3	0.5	21.3	78.2	Clay
20C	3	6	1-3	0.5	23.0	76.5	Clay
20C	4	1	3-5	0.5	27.0	72.5	Silty clay
20C	4	2	1-3	0.2	26.3	73.5	Silty clay
20C	4	3	1-3	0.2	28.0	71.8	Silty clay
20C	4	4	148-150	0.4	26.2	73.4	Silty clay
20C	5	1	148-150	0.6	43.3	56.1	Silty clay
20C	5	2	1-3	0.1	91.6	8.3	Silt
20C	5	3	1-3	0.3	43.1	56.6	Silty clay
20C	5	4	1-3	0.8	45.7	53.5	Silty clay
20C	5	5	1-3	5.3	47.6	47.1	Clayey silt
20C	5	6	1-3	5.0	49.9	45.1	Clayey silt
20C	6	1	148-150	0.8	40.3	58.0	Silty clay
20C	6	2	1-3	1.0	43.3	55.7	Silty clay
20C	6	3	1-3	1.4	46.9	51.7	Silty clay
20C	6	4	2-4	3.0	44.8	52.2	Silty clay
20C	6	5	78-80	4.8	31.3	63.0	Silty clay
21	1	1	148-150	40.9	25.0	34.1	Sand silt clay
21	1	2	148-150	49.9	20.9	29.2	Sand silt clay
21	1	3	148-150	39.2	16.6	44.2	Sandy clay
21	1	4	11-13	59.9	20.4	19.7	Silty sand
21	1	5	148-150	48.3	14.4	37.3	Clayey sand
21	1	6	148-150	56.3	17.7	26.0	Clayey sand
21	2	1	148-150	14.3	36.5	49.2	Silty clay
21	2	2	0-2	15.0	43.3	41.7	Clayey silt
21	2	3	148-150	14.0	37.5	48.5	Silty clay

TABLE 1 – Continued

Hole	Core	Section	Sampled at (cm)	Sand (%)	Silt (%)	Clay (%)	Classification
21	2	4	39-41	12.7	47.2	40.1	Clayey silt
21	2	5	51-53	12.0	46.2	41.8	Clayey silt
21	2	6	16-18	11.2	40.2	48.6	Silty clay
21	3	1	148-150	8.4	29.1	62.5	Silty clay
21	3	2	148-150	15.0	26.0	59.0	Silty clay
21	3	3	148-150	12.0	25.4	62.6	Silty clay
21	3	4	148-150	16.3	25.5	58.2	Silty clay
21	3	5	14-16	19.8	24.8	55.4	Silty clay
21	3	6	148-150	4.6	31.1	64.3	Silty clay
21	4	1	148-150	25.3	33.7	41.0	Sand silt clay
21	4	2	0-2	17.4	33.1	49.5	Silty clay
21	4	3	148-150	17.8	32.5	49.7	Silty clay
21	4	5	148-150	17.2	33.7	49.1	Silty clay
21	4	6	148-150	14.7	31.2	54.1	Silty clay
21	5	1	31-33	9.1	32.6	58.3	Silty clay
21	5	2	148-150	10.0	31.2	58.8	Silty clay
21	5	3	148-150	18.1	28.9	53.0	Silty clay
21	5	4	148-150	12.7	30.8	56.5	Silty clay
21	5	5	96-98	14.2	32.2	53.6	Silty clay
21	5	6	148-150	12.4	31.3	56.3	Silty clay
21	6	3	7-9	10.7	32.4	56.9	Silty clay
21	6	4	2-4	15.4	37.7	46.9	Silty clay
21	6	5	3-5	9.5	35.8	54.7	Silty clay
21	6	6	3-5	36.7	33.6	29.7	Sand silt clay
21	7	1	148-150	15.9	30.5	53.6	Silty clay
21	7	2	148-150	19.5	35.8	44.7	Silty clay
21	7	3	148-150	19.0	33.1	47.9	Silty clay
21	7	4	148-150	22.7	32.3	45.0	Sand silt clay
21	7	5	148-150	14.2	34.5	51.3	Silty clay
21	7	6	148-150	11.3	33.7	55.0	Silty clay
21	8	1	0-2	22.9	32.4	44.7	Sand silt clay
21	8	2	148-150	26.9	31.5	41.6	Sand silt clay
21	8	3	148-150	30.0	30.4	39.6	Sand silt clay
21	8	4	148-150	33.4	29.9	36.7	Sand silt clay
21	8	5	148-150	34.8	33.7	31.5	Sand silt clay
21	8	6	34-36	25.7	34.0	40.3	Sand silt clay
21A	1	1	148-150	15.4	45.4	39.2	Clayey silt

TABLE 1. (Continued)

Hole	Core	Section	Sampled at (cm)	Sand (%)	Silt (%)	Clay (%)	Classification
21A	1	2	148-150	19.8	45.3	34.9	Clayey silt
21A	1	3	148-150	16.8	45.0	38.2	Clayey silt
21A	1	4	148-150	26.1	41.1	32.8	Sand silt clay
21A	1	5	148-150	20.8	45.5	33.7	Sand silt clay
21A	1	6	148-150	9.0	54.6	36.4	Clayey silt
21A	2	1	148-150	9.3	58.1	32.6	Clayey silt
21A	2	2	148-150	8.6	60.1	31.3	Clayey silt
21A	2	3	148-150	10.2	57.7	32.1	Clayey silt
21A	2	5	148-150	17.3	51.8	30.9	Clayey silt
21A	2	6	148-150	15.6	53.4	31.0	Clayey silt
21A	3	1	148-150	21.9	39.1	39.0	Sand silt clay
21A	3	2	148-150	22.1	39.2	38.7	Sand silt clay
21A	3	3	148-150	23.8	39.0	37.2	Sand silt clay
21A	3	4	148-150	21.0	37.9	41.1	Sand silt clay
21A	3	5	11-13	16.3	40.0	43.7	Silty clay
21A	3	6	40-42	18.7	38.0	43.3	Silty clay
22	1	1	148-150	40.2	20.6	39.2	Sand silt clay
22	1	2	148-150	39.5	20.9	39.6	Sand silt clay
22	1	3	148-150	34.0	19.0	47.0	Sandy clay
22	1	4	148-150	42.1	16.5	41.4	Clayey sand
22	1	6	33-35	42.8	15.5	41.7	Clayey sand
22	2	1	13-15	15.0	34.7	50.3	Silty clay
22	2	2	15-17	16.8	39.0	44.2	Silty clay
22	2	3	18-22	23.2	37.0	39.8	Sand silt clay
22	2	6	13-15	25.6	32.4	42.0	Sand silt clay
22	3	1	148-150	12.0	42.0	46.0	Silty clay
22	3	3	148-150	9.7	44.2	46.1	Silty clay
22	3	4	148-150	10.2	45.1	44.7	Clayey silt
22	3	5	148-150	10.4	44.8	44.8	Silt and clay
22	3	6	43-45	7.6	44.0	48.4	Silty clay
22	4	1	121-123	0.2	75.2	24.6	Silt
22	4	2	45-47	0.1	71.0	28.0	Clayey silt
22	4	2	10-12	0.2	78.6	21.2	Silt
22	4	2	77-79	11.0	43.3	45.7	Silty clay
22	4	2	25-27	0.1	76.6	23.3	Silt
22	4	3	148-150	3.6	46.8	49.6	Silty clay
22	4	4	11-13	4.2	46.6	49.2	Silty clay
22	4	5	14-16	1.9	73.6	24.5	Clayey silt
22	4	6	20-22	0.5	73.0	26.5	Clayey silt
22	5	1	8-10	7.1	46.6	46.3	Clayey silt
22	5	2	147-148	2.4	55.0	42.6	Clayey silt

TABLE 2
Leg 3 Summary of the Composition of the Coarse Fraction^a

Hole	Core	Section	Foraminifera	Radiolaria	Spicules	Fish Debris (Collophane)	Echinoid Spines	Volcanic Glass			Carbonate Grains	Manganese	Iron Oxide	Clinoptilolite	Dolomite	Others
								Clear	Yellow	Palagonite						
13	1	1-6	A													
13	2	1	A													
13	2	2	A			R						R				
13	2	3	A			R		R	R							
13	2	4	R	R		A		A	C			C				Silica grains coated with iron oxide R
13	2	5	R	R		C		R	R			A				
13	2	5		A												
13	2	6				C		R	R			A				
13	3	1-6		A	R											Diatom C
13A	1	1		A	C											Diatom R
13A	2	1	C	C		R										
13A	3	1	C	C		C						C				
13A	3	2	A			C						R				
13A	3	3	A	R		C		R				R				
13A	4,5	1									C	R				Chert A
13A	7	1				R										Pyrite R
14	1A	1-6	A			C	R									
14	2	1-5	A			R						R				
14	3	1-6	A			R										Ostracod R
14	4	1	C	C												
14	5	1-6	A			R	R					R				
14	6	1-6	A			R	R									
14	7	1-6	A			R	R									
14	8	1	A			R	R									
14	8	2-6	A			R	R					R				
14	9	2-6	A			R	R					R				
15	1-2	1-6	A													
15	3	1-5	A													
15	3	6	A									R				Ostracod R
15	4	1-6	A			R	R						R			
15	5	1-6	A			R										
15	6	3,4,6	A			C				C		C				

TABLE 2 - Continued

Hole	Core	Section	Foraminifera	Radiolaria	Spicules	Fish Debris (Collophane)	Echinoid Spines	Volcanic Glass			Carbonate Grains	Manganese	Iron Oxide	Clinoptilolite	Dolomite	Others
								Clear	Yellow	Palagonite						
15	7	1-6	A													
15	8	1-6	A				R					R				
15	9	1-6	A				R									
16	1	1,2,4,6	A													
16	2	1-6	A													
16	3	1-6	A													
16	4	1-6	A													
16	5	1	A				R									Ostracod R
16	5	2-6	A													
16	6	1-6	A				R									Ostracod R
16	7	1,2,4	A				R									
16	7	3	A			R										
16	7	5,6	A													
16	8	1-6	A			R	R					R				
16	9	1-6	A				R					R				
16	10	1-6	A				R					R				Ostracod R
16	11	1-6	A				R					R				
17	1	1-5	A													Ostracod R
17	2	1-4	A									R				Ostracod R
17	2	5,6	C	R	R		R					R				Diatoms A
17A	1	1-6	A			R										
17A	2	1-3	A			C	R									
17A	2	4	A			C								R		
17A	2	5,6														
17A	3,4	A11	A				R									
17B	1	1-6	A			R	R									Ostracod R
17B	2	1-6	A			R	R									
17B	3	1-6	A			R	R					R				
17B	4		A			R	R					R				
18	1	5	A				R									
18	2	1-6	A			R	R									Ostracod R

TABLE 2 - Continued

Hole	Core	Section	Foraminifera	Radiolaria	Spicules	Fish Debris (Collophane)	Echinoid Spines	Volcanic Glass			Carbonate Grains	Manganese	Iron Oxides	Clinoptilolite	Dolomite	Others
								Clear	Yellow	Palagonite						
18	3	1-6	A			R	R					R				Ostracod R
18	4	1-5	A				R									
18	5,6	A11	A				R									
19	1	1	A									R				
19	1	2-6	C			C				A		C		R		
19	2	1-6				C				C		C				
19	3	1-6	C			C	R					C		R		Ostracod R
19	4	1-6	A			C	R					R	R			Ostracod R
19	5	1-6	A			C						R	R			
19	6	1-6	A			C				R		C				
19	7	1-6	A			C		R		C		C				
19	8,9	A11	A			R	R			C		R				
19	10,11	A11	A			R						R				
20A	2	1-6	A			C	R					R				
20B	1	1-6	C			C		R				C				Zeolite R
20C	1	1	A				R					R				
20C	1	2-6	C			C						C				*Silic. grs. C
20C	2	1-6	A			R	R					R				
20C	3	1-6	C			C		R				C				Siliceous grains C
20C	4	1-4	C					R				A	C			
20C	5	1-4	C			R		R	R			C	C			
20C	5	5-6	A													
21	1-2	A11	A													
21	3	1	A													
21	4	1-6	A									R				Ostracod R Pteropod R Inoceramus C
21	5	1-6	A				R					R				Ostracod R Inoceramus C
21	6,7	All	A				R									Inoceramus C Ostracod R

TABLE 2 - Continued

Hole	Core	Section	Foraminifera	Radiolaria	Spicules	Fish Debris (Collophane)	Echinoid Spines	Volcanic Glass			Carbonate Grains	Manganese	Iron Oxides	Clinoptilolite	Dolomite	Others
								Clear	Yellow	Palagonite						
21	8	1-6	A				R									Inoceramus C Ostracod R
21A	1	1-6	A													Inoceramus R
21A	2	1-6	A			R										
21A	3	1-6	A													Pteropod C
22	1,2	A11	A													
22	3	1-5	A		R		R									
22	3	6	A	C	C											
22	4	1-6	A		R	R	R									Ostracod R
22	5	1,2	A													

^a A = ABUNDANT; C = COMMON; R = RARE.

nannoplankton chalk ooze; the high silt content is due to the abundance of nannoplankton. The sand content is low, generally being about 1 to 2 per cent.

Hole 15

Sediments in the upper part of Hole 15 are silty clay; which show a decrease in sand from 13 to 1 per cent in Cores 1 through 6 and an increase in silt from 18 to 36 per cent in the same cores. In Cores 7 to 9, the silt content increases so that the sediment becomes a clayey silt. All of the sediments here are a nannoplankton chalk ooze.

Hole 16

The sediments penetrated in Hole 16 range from sand-silt-clay through clayey silt, silty clay to clay. All of the sediments cored in this hole are chalk oozes, and the variation in grain size is due entirely to the fossil content—*foraminifera* falling in the sand fraction and nannoplankton in the silt fraction.

Core 1 varies from sand-silt-clay with the sand making up 48 per cent of the sediment at the top of the core, to clay at the bottom (with only 9 per cent sand). Core 2 is a sand-silt-clay with 56 per cent clay and

approximately equal amounts of sand and silt. Cores 3 through 9 contain silty clays with 12.5 per cent sand in Core 3 and less than 5 per cent in the others. Cores 10 and 11 are either silty clays or clayey silts with sand varying from 3 to 15 per cent.

Hole 17, 17A and 17B

Hole 17 contains a *foraminiferal*-nannoplankton chalk ooze in the sandy clay and silty clay size in Core 1 and silty clay size in Core 2.

Hole 17A contains nannoplankton chalk ooze with rare zeolite, and it ranges from silty clay to clayey silt size. In places the silt content is very high, for example, Core 3 with 72.9 per cent silt.

Hole 17B contains nannoplankton chalk ooze in the clayey silt size with a sand content of less than 5 per cent.

It is thought that all variations in the silt percentages are due to the nannoplankton content.

Hole 18

This hole mainly penetrated nannoplankton chalk ooze in the clayey silt to silty clay size. Core 1, however,

TABLE 3
Summary of Leg 3 Grain Size Results Related to Nature of Sediments^a

Hole	Core	Size Classification	Sediment Description	Composition of Coarse Fraction
13	1 & 2	Clay	Zeolitic brown clay	Foraminifera (A), collophane (R), volcanic glass (R), manganese (R), quartz (R)
13	3	Sand-silt-clay or silty clay	Radiolarian ooze	Radiolaria (A), diatom (C), spicules (R)
13A	1	Silty clay	Radiolarian silty clay and chert	Radiolaria (A), spicules (C), diatom (R)
13A	2 & 3	Clay	Calcareous clay	Foraminifera (C), Radiolaria (C), collophane (C), manganese (R)
13A	4	Silty clay	Nannofossil chalk ooze	Carbonate (A), chert (A), manganese (R)
13A	5	Clay	Calcareous dolomitic clay	Carbonate (A), chert (A)
13A	7	Clay	Red shale	None recovered
14	1-9	Clayey silt or silty clay	Nannofossil chalk ooze	Foraminifera (A), collophane (R), echinoid (R), manganese (R)
15	1-6	Silty clay	Nannofossil chalk ooze	Foraminifera (A)
15	7-9	Clayey silt or silty clay	Nannofossil chalk ooze	Foraminifera (A)
16	1	Sand-silt-clay, sandy clay, clay	Foraminiferal-nannofossil chalk ooze	Foraminifera (A)
16	2	Sand-silt-clay, sandy clay, silty clay	Foraminiferal-nannofossil chalk ooze	Foraminifera (A)
16	3-9	Silty clay	Nannofossil chalk ooze	Foraminifera (A), echinoid (R)
16	10 & 11	Silty clay, clayey silt	Nannofossil chalk ooze	Foraminifera (A), echinoid (R), manganese (R)
17	1	Silty clay, sandy clay, sand-silt-clay	Foraminiferal-nannofossil chalk ooze	Foraminifera (A)
17	2	Silty clay	Foraminiferal-nannofossil chalk ooze	Foraminifera (A), diatoms (A), echinoid (R), manganese (R), Radiolaria (R), spicules (R)
17A	1-4	Silty clay, clayey silt	Nannofossil chalk ooze	Foraminifera (A), collophane (C), echinoid (R)
17B	1	Silty clay, clayey silt	Nannofossil chalk ooze	Foraminifera (A), collophane (R), echinoid (R)
17B	2-4	Clayey silt	Nannofossil chalk ooze	Foraminifera (A), collophane (R), echinoid (R), manganese (R)
18	1	Clay	Chalk ooze	Foraminifera (A), echinoid (R)
18	2 & 3	Clayey silt	Nannofossil chalk ooze	Foraminifera (A), collophane (R), echinoid (R)
18	4-6	Clayey silt or silty clay	Foraminiferal-nannofossil chalk ooze	Foraminifera (A), echinoid (R)
19	1 & 2	Clay	Zeolitic red clay	Foraminifera (C or lacking), collophane (C), manganese (C), clinoptilolite (R)
19	3&4	Silty clay	Nannofossil chalk ooze, some zeolite	Foraminifera (A), collophane (C), manganese (C), echinoid (R)
19	5-9	Silty clay, clayey silt	Nannofossil chalk ooze,	Foraminifera (A), collophane (C), manganese (C)
19	10-11	Silty clay	Nannofossil chalk ooze,	Foraminifera (A), collophane (R), manganese (R)
20A	2	Silty clay	Nannofossil chalk ooze,	Foraminifera (A), collophane (C), manganese (R), echinoid (R)
20B	1	Silty clay	Nannofossil chalk ooze, and marl	Foraminifera (C), volcanic glass (R), collophane (C), manganese (C)
20C	1	Silty clay	Nannofossil marl ooze, some zeolite	Foraminifera (A), manganese (R), echinoid (R)
20C	2	Silty clay, clayey silt	Nannofossil marl-chalk ooze	Foraminifera (A), collophane (R), manganese (R), echinoid (R)
20C	3	Clay, silty clay	Nannofossil marl and zeolitic clay	Foraminifera (A), collophane (C), manganese (C), volcanic glass (R)

TABLE 3. (Continued)

20C	4	Silty clay	Nannofossil marl and zeolitic clay	Foraminifera (C), iron oxide (C), manganese (A), volcanic glass (R)
20C	5	Silt, silty clay, clayey silt	Foraminiferal-nannofossil chalk ooze	Foraminifera (C), collophane (R), volcanic glass (R), manganese (C), iron oxide (C)
20C	6	Silty clay	Foraminiferal-nannofossil chalk ooze	Foraminifera (A), collophane (R), volcanic glass (R), manganese (R), echinoid (R)
21	1	Silty and clayey sand, sandy clay	Foraminiferal-nannofossil chalk ooze	Foraminifera (A)
21	2	Silty clay, clayey silt	Foraminiferal-nannofossil chalk ooze	Foraminifera (A)
21	3-7	Silty clay, sand-silt-clay	Foraminiferal-nannofossil chalk ooze	Foraminifera (A), Inoceramus (C-Core 4 down), manganese (R-3-5), echinoid (R), pteropod (R)
21	8	Sand-silt-clay	Foraminiferal-nannofossil chalk ooze	Foraminifera (A), Inoceramus (C)
21A	1	Clayey silt, sand-silt-clay	Foraminiferal-nannofossil chalk ooze	Foraminifera (A), Inoceramus (R)
21A	2	Clayey silt	Foraminiferal-nannofossil chalk ooze	Foraminifera (A)
21A	3	Sand-silt-clay, silty clay	Foraminiferal-nannofossil chalk ooze	Foraminifera (A), pteropod (C)
22	1	Sand-silt-clay, sandy clay, clayey sand	Foraminiferal-nannofossil chalk ooze	Foraminifera (A)
22	2	Sand-silt-clay-silty clay	Foraminiferal-nannofossil chalk ooze	Foraminifera (A)
22	3	Clayey silt, silty clay	Foraminiferal-nannofossil chalk ooze	Foraminifera (A), spicules (R), echinoid (R)
22	4	Clayey silt, silty clay, silt	Nannofossil chalk ooze	Foraminifera (A), spicules (R), collophane (R), echinoid (C)
22	5	Clayey silt	Nannofossil chalk ooze	Foraminifera (A)

^a(A) - Abundant, (C) - Common, (R) - Rare.

comprised clay with 7.9 per cent sand and 12.5 per cent silt. Cores 2 through 6 are either clayey silt or silty clay with sand showing a progressive increase with depth from 2 per cent in Core 2 to 12 per cent in Core 6.

Hole 19

Hole 19 penetrated zeolitic clay in Cores 1 and 2. The sand content here is less than 1 per cent, and the silt content is usually 20 to 24 per cent. From Core 3 down there is an increase in the silt content. The sediment is a nannoplankton chalk ooze of silty clay size with some zeolitic nannoplankton material still in Core 3. Cores 4 through 11 are chalk oozes of either silty clay or clayey silt size with the sand content averaging about 1 to 3 per cent.

Hole 20A, 20B and 20C

These holes mainly penetrated nannoplankton marl and chalk ooze of silty clay or clayey silt size; in places, zeolitic clay also occurs.

Holes 20A and 20B were in silty clay with less than 1 per cent sand. Hole 20C consists mainly of silty clay in Cores 1 and 2, with 13 per cent sand near the top of Core 1 but decreasing lower down to less than 1 per cent. In Core 3 clay predominates with about 20 per cent silt and less than 1 per cent sand. Cores 4 and 5 are mainly silty clay with silt reaching as high as 91.6 per cent in one place (Core 5, Section 2). The sand in Core 4 is less than 1 per cent, but increases to 5 per cent in the lower part of Core 5. Core 6 is all silty clay with less than 5 per cent sand.

Hole 21 and 21A

Sediments from Hole 21 are coarser than those from any of the other Leg 3 holes. Silty sand and clayey sand occur in places, though silty clay is still the predominant size grade throughout the hole. The presence of sand grade material is due to the abundance of foraminifera in these nannoplankton chalk oozes.

Core 1 contains as much as 59 per cent sand—with an average of 49.1 per cent sand. The sediment grades from silty sand to sand-silt-clay. Cores 2 through 5 are silty clays with sand less than 20 per cent. Cores 6 through 8 are either silty clay or sand-silt-clay.

Hole 21A also penetrates foraminiferal-nannoplankton chalk ooze of clayey silt and sand-silt-clay size in Cores 1 and 2; in Core 3, the sediment becomes finer and changes from sand-silt-clay to silty clay at the base.

Hole 22

Sediments from Hole 22 are nannoplankton chalk ooze with varying amounts of foraminifera. There is a marked decrease in grain size with depth in this hole because of the decrease in foraminiferal content. Cores 1 and 2 range from clayey sand through sand-silt-clay to silty clay. The sand varies from 15 to nearly 43 per cent. In Core 3 the sand content is about 7 to 10 per cent and the sediment is either silty clay or clayey silt. In Core 4 the sand decreases further and the silt increases to as much as 78.6 per cent. The sediment in Core 5 is of clayey silt size.