UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

Porosity, Grain-Density, and Inferred Aragonite-Content Data From the Miami Limestone, Miami Area and Lower Florida Keys

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Open-File Report 85-21

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1985

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POROSITY, GRAIN-DENSITY, AND INFERRED ARAGONITE-CONTENT DATA FROM THE MIAMI LIMESTONE, MIAMI AREA AND LOWER FLORIDA KEYS

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INTRODUCTION

The Miami Limestone is an example of a unit in transition from modern sediment to ancient limestone (Halley and Evans, 1983) and, thus, provides a unique opportunity to observe the effect of early freshwater diagenesis on a carbonate grainstone. Although the Miami Limestone has been thoroughly studied in recent years, published quantitative porosity and mineralogical data are lacking.

The purpose of this report, which is part of an in-depth study to describe and interpret the distribution of porosity in the Miami Limestone, is to introduce a large set (538 samples) of porosity, grain-density, and aragonite-content data from the oolitic facies of the Miami Limestone (tables 1, 3). Sample collection and preparation, and sources of error are described, and two methods of porosity measurement are evaluated. In addition, previously published porosity measurements from oolites of Pleistocene age and younger (249 samples) have been assembled (tables 2, 3).

GEOLOGIC SETTING

The Miami Limestone is an ooid-shoal and platform-interior complex of late Pleistocene age that forms the bedrock over the southeastern tip of Florida (fig. 1) and includes the oolitic rocks exposed in the lower Florida Keys (Hoffmeister and others, 1967). Maximum thickness in the Miami area is about 40 feet (12 m) along the Atlantic Coastal Ridge (Robinson, 1967). The formation is less well known in the lower Florida Keys, but coreholes drilled off Sawyer and Cottrell Keys for the present study (table 1, fig. 1) indicate a roughly similar maximum thickness.

Hoffmeister and others (1967) divided the Miami Limestone into a bryozoan facies representing a sheltered platform interior and an oolitic facies representing an active ooid-shoal system. Evans (1983) further divided the oolitic facies into a mottled peloid-ooid facies and a bedded ooid facies which reflect, respectively, extensive and minor bioturbation. The data of this report represent the oolitic facies only and are not differentiated according to bedded or mottled facies because in many instances the degree of bioturbation is intermediate between these two end members.

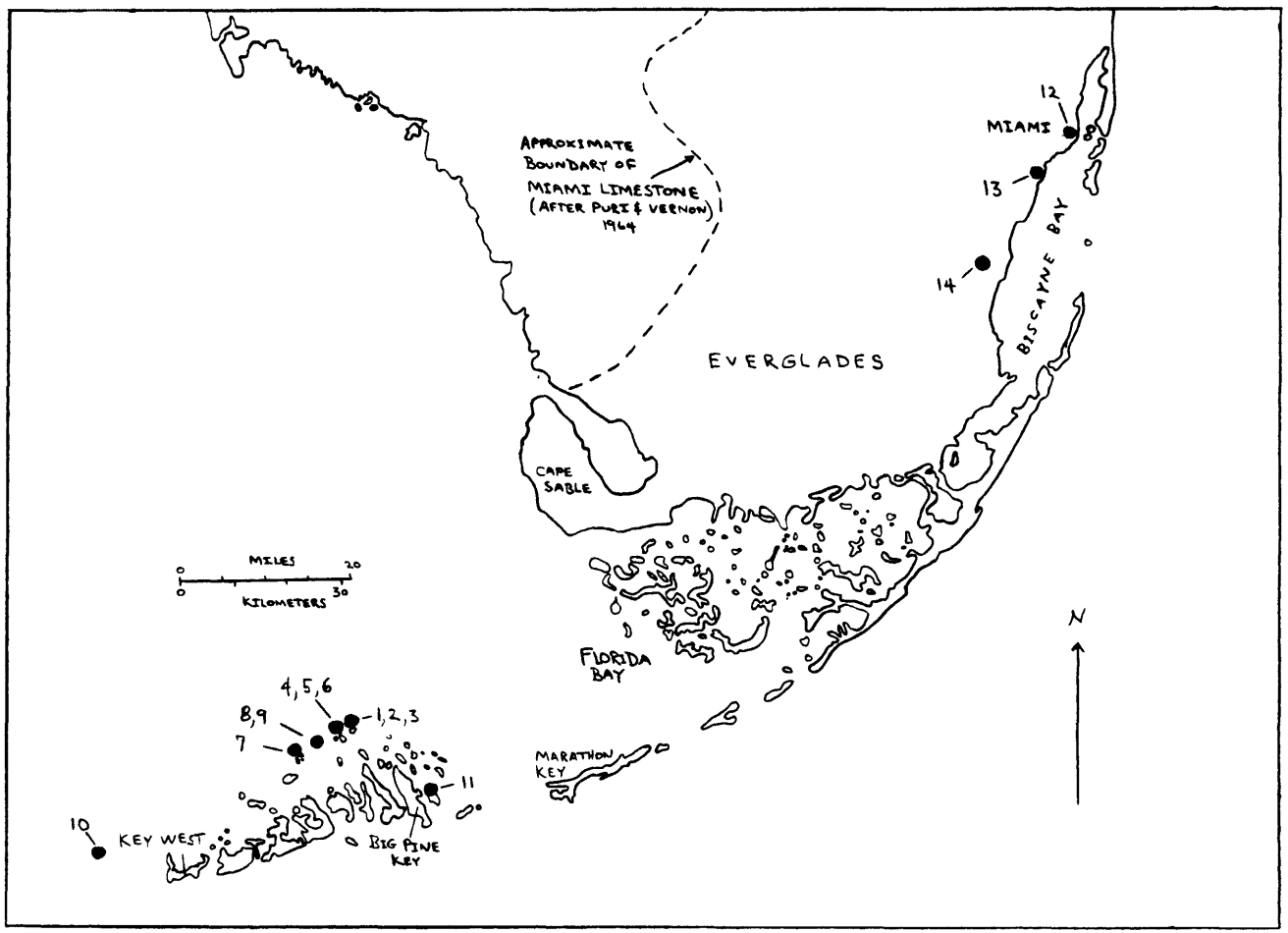

Figure 1.--Map of south Florida showing sample locations (LOC of table 3) and approximate extent of Miami Limestone.

Table 1.--Sample locations, Miami Limestone

[LOC=location, DBSL=depth below sea level, table 3; 1 in.=2.54 cm; 1 ft=.3048 m]

Location No. (LOC, fig. 1)	Location description	Sample description	DBSL (ft)	No. of samples
1	East Content Key (borehole A)	Plugs from 4-in. core	0.7 to 2.7	24
2	East Content Key (borehole B)	Plugs from 4-in. core	1.7 to 4.4	16
3	East Content Key (borehole C)	Plugs from 4-in. core	6.9 to 8.1	6
4	West Content Key (borehole A)	Plugs from 4-in. core	0.5 to 2.1	20
5	West Content Key	Plugs from outcropping block	0.0	17
6	West Content Key (borehole B)	Pieces of 1 1/2-in. core	1.1 to 22.0	14
7	Marvin Key	Plugs from outcropping blocks	1.0	27
8	Sawyer Key	Plugs from outcropping blocks	0.0	33
9	Sawyer Key (borehole A)	Pieces of 1 1/2-in. core	0.0 to 47.0	13
10	Cottrell Key (borehole A)	Plugs from 4-in. core Pieces of 1 1/2-in. core	1.2 to 5.3 7.0 to 46.0	53 18
11	No Name Key	Plugs from quarry blocks	Not known	85
12	Miami area, Metrorail Rapid Transit System (borehole LG4-5)	Plugs from 4-in. core	-4.0 to 13.6	90
	(Misc. core pieces)	Plugs from 4-in. core	9.0 to 30.0	5
13	Miami area, Coral Gables Waterway and LeJeune Avenue	Plugs from outcropping blocks	-4.0 to -1.0	50
14	Miami area, Old Cutler Road and Hamline Mill Road	Plugs from construction-pit block	Not known	34
16	Locations 1, 2, 3, 4, and 10 (fig. 1)	4-in. whole core and core slabs	0.5 to 7.97	33
			TOTAL:	538

Table 2.--Previously published porosity data for oolites of Pleistocene age and younger

[1 in.=2.54 cm; 1 ft=.3048 m]

Location No. (LOC-BLK of table 3)	Location	Sample and data measurements	No. of samples	Reference
17 - 1	Metrorail Rapid Transit System, Miami area	145 bulk-porosity and 39 aragonite measurements of 4-in. core pieces from late Pleistocene Miami Limestone	145	Evans (1983).
17 - 2	Florida and Bahamas	27 matrix-porosity and 20 aragonite measurements of 1-in. plugs from late Pleistocene Miami Limestone and Recent Bahamian oolites	27	Robinson (1967).
17 - 3	Joulters Cay, Bahamas	77 bulk-porosity and 7 aragonite measurements of 4-in. core pieces from 1,000-year-old Bahamian oolite	77	Halley and Harris (1979).
		TOTAL:	249	

SAMPLE COLLECTION AND PREPARATION

Samples of the oolitic facies of the Miami Limestone were collected from the Miami area and the lower Florida Keys (fig. 1) with the objective of obtaining a large and spatially representative data set. A wide range of measurement scales is represented. The sample locations (fig. 1, LOC of table 3) span a horizontal distance of some 130 miles (209 km) and a vertical range of about 50 ft (15 m). At each location, the sample groups (BLK of table 3) span distances on the order of a few feet to a hundred feet, and the sample plugs within each group (SPT of table 3) are typically a few inches apart. In many cases, a single plug is divided into 2 or 3 pieces (PC of table 3).

Samples include 4-in. (10.2 cm) whole core and core slabs, 1 1/2-in. (3.8 cm) whole core, and 1-in. (2.5 cm) core plugs (table 1). The 4-in. (10.2 cm) and 1 1/2-in. (3.8 cm) core were taken directly from outcropping rock, whereas the 1-in. (2.5 cm) core plugs, which constitute about 85 percent of the samples, were taken from the 4-in. (10.2 cm) whole core and core slabs, from outcropping rock, and from quarried boulders.

Sample preparation consisted of the following steps:

1. cutting 1 and 1 1/2-in.-diameter (2.5 and 3.8 cm) core plugs into suitable lengths,
2. soaking plugs in fresh water to remove salt, and
3. drying plugs to remove water from pore space.

Samples were cut into lengths ranging from a minimum of 1/2 in. (1.3 cm) to a maximum of 1 1/4 in. (3.2 cm) in order to fit the equipment used to measure porosity.

Dissolved salts in normal sea water, if precipitated, could reduce pore volume by as much as 1.5 percent (R.C. Selley, 1976, p. 146). Therefore, samples taken from brackish or salt water were soaked for about 8 hours in distilled water and were drained by capillarity on absorbent paper. This process was repeated 3 times. We estimate that about 75 percent of the salt was removed.

Drying temperatures were maintained at approximately 230°F (110°C) for 3 days or more, until periodic weighings indicated that water was no longer being lost. Samples were then allowed to cool to room temperature in a desiccator, where they were stored until porosity measurements were made. Moderate temperatures of approximately 100°F (38°C) were found insufficient to completely dry the samples, even over periods of 4-7 days, presumably because of tightly held water in very small, intragranular pores.

SAMPLE MEASUREMENTS

The physical properties tabulated in table 3 were calculated from measurements of sample weight, grain volume, and bulk volume. Formulas for these calculations are given in the following section as part of the description of column headings.

Sample weight was measured using a Mettler PC 400 electronic top-loading balance with an accuracy of ±0.005 grams.

Grain volume was obtained using Core Laboratories Inc. Helium Gas Expansion-Boyle's Law Porosimeter. Specifically, the grain volume is that portion of the sample not occupied by helium at 100 psi. In a carefully calibrated system, a known volume of helium at 100 psi is allowed to expand into a chamber (also of known volume) containing a core-plug sample. The grain volume of the sample is calculated from the magnitude of the resulting drop in helium pressure. The porosimeter measures grain volumes to within ± 0.2 percent volume.

Bulk volume was measured in two different ways. One measure was obtained with a Ruska Instrument Corporation Universal Porometer; a second measure was calculated from height and diameter determinations of the sample. Bulk volume measured by the Ruska Universal Porometer is that volume of mercury, at atmospheric pressure, displaced by the core-plug sample. Mercury is used because it has high surface tension and is non-wetting. Sample volume can be measured to within ±0.001 cm^3. It is important to note that bulk volumes derived from the Ruska porometer exclude from the core-plug volume (and therefore, from the porosity) all washouts, surface irregularities, and natural vugs that are large enough (>0.04 in., 1.0 mm) for mercury to enter. On the other hand, bulk volumes derived from measurements of sample height and diameter include these voids as part of the plug volume.

DATA TABULATION

Data generated by this study, together with previously published data on oolitic grainstones of Pleistocene age or younger, are given in Table 3. Column headings are explained in the following list:

LOC, BLK, SPT, PC: An identification system that assigns a unique number reflecting sample origin to each line of data. Locations (LOC) 1-14 represent general geographic locations (fig. 1, table 1). Location 16 designates data from 4-in. (10.2 cm) whole core and core slabs (table 1). Location 17 represents previously published data (table 2). Block (BLK), spot (SPT), and piece (PC) represent increasingly smaller subdivisions of a given location.

MATRIX POROSITY: Matrix porosity (%) is calculated from bulk volume determined using the Ruska porometer (V_{BR}) and from grain volume determined using the helium porosimeter (V_G), according to the equation

$$\text{MATRIX POROSITY} = (100)(V_{BR}-V_G)/V_{BR} \quad (1)$$

Because bulk volume determined using the Ruska porometer excludes voids that mercury can enter, matrix porosity is essentially equivalent to intergranular and intragranular porosity.

DEN: Grain density (g/cm^3), calculated from grain volume determined using the helium porosimeter (V_G) and from sample weight (W), according to the equation

$$DEN = W/V_G \quad (2)$$

ARAG: Inferred aragonite content of the matrix material (%), calculated from grain density (DEN) assuming a two-component system of aragonite (2.94 g/cm^3) and calcite (2.71 g/cm^3), according to the equation

$$ARAG = (100)(DEN-2.71)/0.23 \quad (3)$$

Negative percentages of aragonite reflect experimental error of approximately ±8.0 percent aragonite.

DEPTH: Depth below ground level (ft).

DBSL: Depth below sea level (ft).

WASH: Void space (%) that mercury can enter, as a percentage of total sample volume, calculated from bulk volume determined using the Ruska porometer (V_{BR}) and bulk volume determined from measuring sample height and diameter (V_{BM}), according to the equation

$$WASH = (100)(V_{BM}-V_{BR})/V_{BM} \quad (4)$$

Most of the void space that mercury can enter is due to the scouring of poorly cemented fabrics during coring.

BULK POROSITY: Bulk porosity (%) is calculated from bulk volume determined from measuring sample height and diameter (V_{BM}) and grain volume determined using the helium porosimeter (V_G), according to the equation

$$BULK\ POROSITY = (100)(V_{BM}-V_G)/V_{BM} \quad (5)$$

Bulk porosity <u>includes</u> void space that mercury can enter (WASH) as in-situ porosity, and is thus always larger than matrix porosity.

EXPERIMENTAL ERROR

The helium porosimeter, used in conjunction with the Ruska Universal Porometer, can measure porosities with a precision of about ±0.5 percent. Calibration and precision checks were conducted regularly on both machines to insure the consistency of measurements.

To estimate overall experimental error, measurements were repeated on 47 individual samples. The standard deviation of the differences of repeated matrix-porosity measurements equals 1.0 percent porosity. The error associated with a single matrix-porosity measurement is ±0.7 percent, which is found by dividing the standard deviation (1.0 percent) by $\sqrt{2}$. Similarly, the experimental error for grain density (DEN), aragonite content (ARAG), void space (WASH), and bulk porosity found by repeated measurements is ±.02 g/cm^3, ±8.0 percent, ±1.3 percent, and ±1.2 percent, respectively.

Quartz may be present in parts of the Miami Limestone in amounts of 1 to 6 percent by volume (Evans, 1983). Quartz does not affect measurements of porosity or grain density, but can bias aragonite-content (ARAG) calculations because of the relatively low density of quartz (2.65 g/cm^3) compared to that of aragonite (2.94 g/cm^3) or calcite (2.71 g/cm^3). The bias is consistently negative and may be as much as -5.0 percent in our data set. In terms of the overall mineralogical stabilization of the Miami Limestone, however, the bias (-5.0 percent) is small and diagenetic implications of the data are not changed.

COMPARING MATRIX POROSITY AND BULK POROSITY

Two types of porosity measurements are presented in this report (table 3). Matrix porosity is calculated from bulk volume determined using the Ruska porometer; bulk porosity is calculated from bulk volume determined from sample height and diameter. It is significant to note that matrix-porosity measurements exclude voids in the sample that are large enough for mercury to enter, and that bulk-porosity measurements include all voids and surface irregularities. Bulk porosity is, therefore, always larger than matrix porosity, and the difference can be substantial (fig. 2).

Failure to appreciate the difference in determining matrix porosity and bulk porosity can lead to incorrect geologic interpretations. For example, a porosity shift attributed by Halley and Evans (1983) to the presence of in-situ vugs too large for 1-in.-diameter (2.5 cm) plugs to sample (fig. 3A) is shown by the data of this report to be due entirely to the different methods of determining matrix porosity and bulk porosity (figs. 3B and 3C).

Cementation in the Miami Limestone is fabric selective and varies on a scale smaller than our 1-in.-diameter (2.5 cm) plugs (Evans, 1983). These variations in cementation promote washout during sampling—the primary cause of the numerical differences between matrix porosity and bulk porosity. Although solution features do occur in the Miami Limestone (Parker and Cooke, 1944), we believe that a large percentage of the void space and surface irregularities (large enough for mercury to enter) in our samples is due to the scouring of poorly cemented matrix grains during coring and is not present in situ as porosity. Therefore, the porosity measurement designated here as matrix porosity (equation 1) is considered more representative of the in-situ Miami Limestone than is bulk porosity (equation 5).

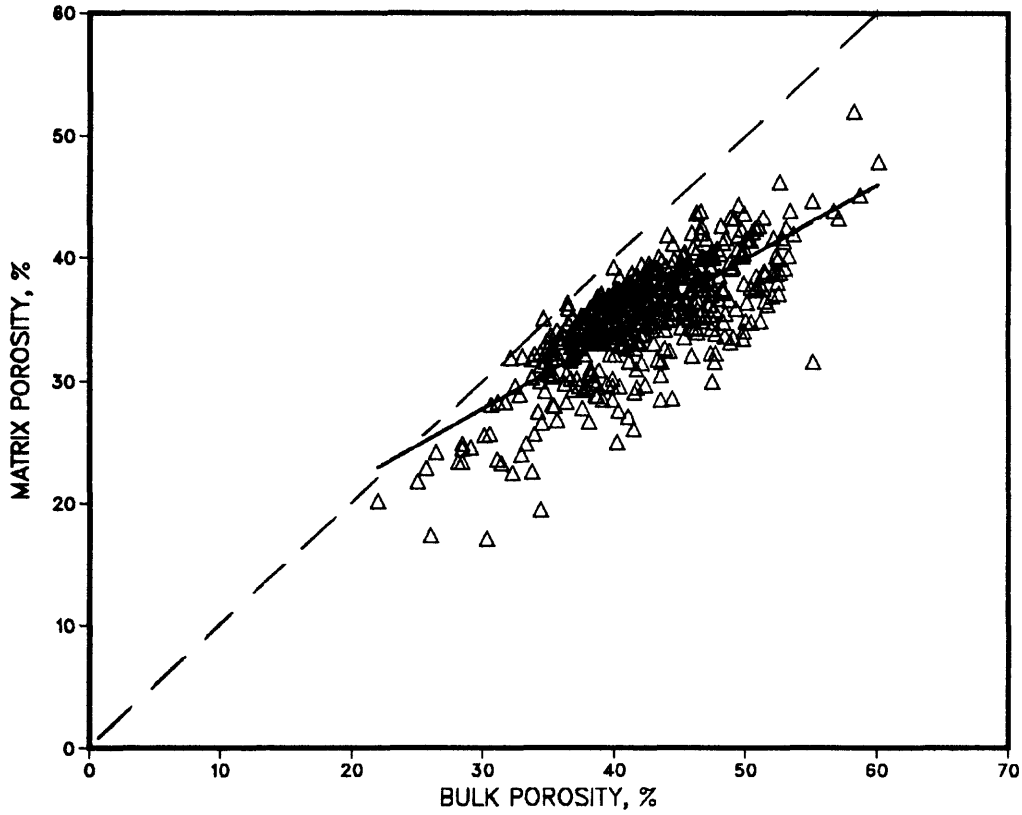

Figure 2.--Matrix porosity versus bulk porosity of 505 plugs (1 and 1½ in., 2.5 and 3.8 cm) of Miami Limestone showing discrepancy between the two methods of porosity measurement. The dotted line is a line of ideal agreement; the solid line is the least-squares fit.

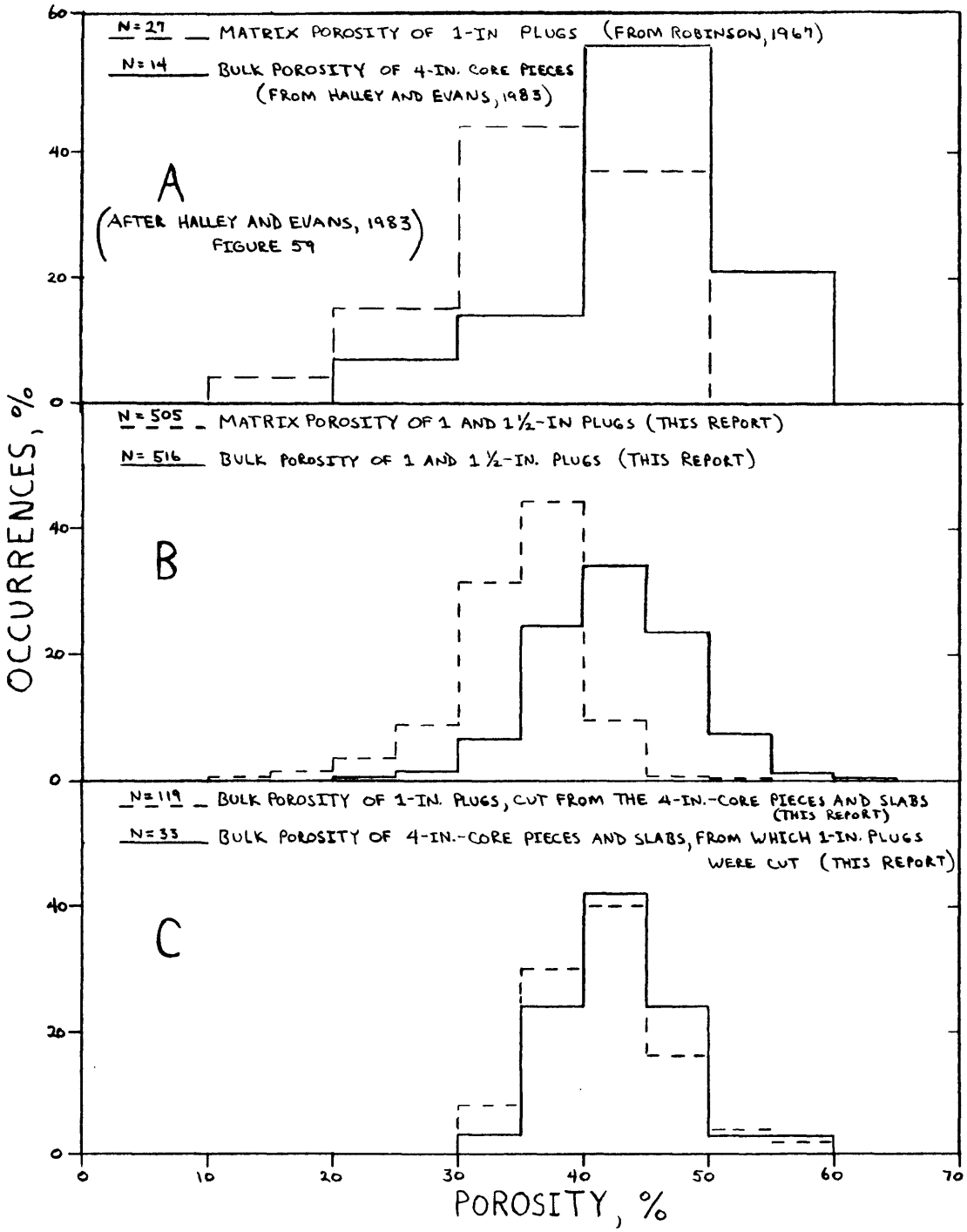

Figure 3.--Comparisons of matrix porosity and bulk porosity of Miami Limestone showing that a porosity difference attributed by Halley and Evans (1983) to the failure of smaller samples to incorporate vuggy porosity (A) is in fact due to the different methods used to measure matrix porosity and bulk porosity (B) and is not related to sample size (C).

Table 3.--Data For Miami Limestone, and Previously Published Data for Oolites of Pleistocene Age and Younger.

LOC	BLK	SPT	PC	MATRIX POROSITY	DEN	ARAG	DEPTH	DBSL	WASH	BULK POROSITY
1	1	1	1	39.50	2.79	34.78	0.00	0.70	5.24	42.64
1	1	2	1	39.90	2.79	34.78	0.24	0.94	11.99	47.10
1	1	3	1	37.90	2.79	34.78	0.48	1.18	9.43	43.69
1	2	1	1	39.40	2.76	21.74	0.66	1.36	4.52	42.09
1	3	1	1	35.70	2.80	39.13	0.83	1.53	6.53	39.84
1	3	2	1	35.20	2.76	21.74	1.02	1.72	3.71	37.64
1	3	3	1	39.00	2.78	30.43	1.22	1.92	9.97	45.11
1	4	1	1	38.90	2.78	30.43	1.38	2.08	12.09	46.21
1	4	2	1	39.40	2.76	21.74	1.54	2.24	9.41	45.10
1	4	3	1	39.30	2.77	26.09	1.70	2.40	8.42	44.39
1	5	1	1	36.60	2.79	34.78	1.86	2.56	19.22	48.76
1	5	2	1	37.90	2.76	21.74	2.01	2.71	6.40	41.89
1	6	1	1	33.60	2.79	34.78	0.00	0.70	10.13	40.33
1	6	2	1	37.30	2.79	34.78	0.00	0.70	5.08	40.47
1	6	3	1	36.90	2.77	26.09	0.00	0.70	10.98	43.78
1	6	4	1	35.20	2.75	17.39	0.00	0.70	10.46	41.96
1	6	5	1	37.90	2.79	34.78	0.00	0.70	6.68	42.00
1	6	6	1	37.90	2.76	21.74	0.00	0.70	6.45	41.87
1	7	1	1	42.30	2.77	26.09	0.50	1.10	12.92	49.71
1	7	2	1	42.50	2.76	21.74	0.50	1.10	7.35	46.69
1	7	3	1	39.10	2.80	39.13	0.50	1.10	13.56	47.36
1	7	4	1	43.80	2.76	21.74	0.50	1.10	17.16	53.43
1	7	5	1	39.60	2.84	56.52	0.50	1.10	9.15	45.13
1	7	6	1	39.80	2.74	13.04	0.50	1.10	7.92	44.55
2	1	1	1	35.00	2.74	13.04	0.00	1.70	5.34	38.46
2	1	2	1	35.30	2.76	21.74	0.21	1.91	5.67	38.98
2	1	3	1	36.20	2.76	21.74	0.43	2.13	6.40	40.30
2	1	4	1	39.10	2.78	30.43	0.64	2.34	6.81	43.22
2	1	5	1	40.00	2.77	26.09	0.85	2.55	5.64	43.38
2	2	1	1	36.30	2.74	13.04	1.01	2.71	7.36	40.96
2	2	2	1	37.30	2.74	13.04	1.18	2.88	6.51	41.37
2	2	3	1	39.70	2.73	8.70	1.37	3.07	6.52	43.62
2	2	4	1	37.80	2.73	8.70	1.56	3.26	7.82	42.68
2	3	1	1	40.30	2.73	8.70	1.73	3.43	13.01	48.08
2	3	2	1	39.30	2.74	13.04	1.91	3.61	7.69	43.92
2	3	3	1	37.40	2.75	17.39	2.08	3.78	4.77	40.37
2	4	1	1	37.00	2.77	26.09	2.24	3.94	3.15	39.02
2	4	2	1	37.00	2.77	26.09	2.39	4.09	4.60	39.89
2	4	3	1	37.90	2.77	26.09	2.55	4.25	7.17	42.36
2	4	4	1	36.60	2.76	21.74	2.70	4.40	6.45	40.69
3	1	2	1	41.60	2.72	4.35	0.35	6.95	19.15	52.77
3	2	2	1	37.70	2.74	13.04	0.74	7.34	21.10	50.85
3	3	1	1	40.00	2.76	21.74	0.94	7.54	12.67	47.56
3	3	2	1	40.80	2.73	8.70	1.13	7.73	8.75	45.99
3	4	1	1	36.50	2.76	21.74	1.29	7.89	12.72	43.79
3	4	2	1	39.60	2.76	21.74	1.45	8.05	15.18	48.81
4	1	1	1	37.20	2.75	17.39	0.14	0.64	5.43	40.57
4	1	2	1	33.70	2.74	13.04	0.29	0.79	4.76	36.89
4	1	3	1	32.30	2.73	8.70	0.43	0.93	4.39	35.23

Table 3.--Continued.

LOC	BLK	SPT	PC	MATRIX POROSITY	DEN	ARAG	DEPTH	DBSL	WASH	BULK POROSITY
4	2	1	1	39.10	2.80	39.13	0.64	1.14	6.25	42.93
4	3	1	1	52.00	2.75	17.39	0.75	1.25	13.04	58.27
4	4	1	1	35.40	2.76	21.74	0.91	1.41	4.00	37.96
4	4	2	1	36.60	2.74	13.04	1.08	1.58	7.56	41.39
4	4	3	1	37.90	2.75	17.39	1.24	1.74	5.43	41.23
4	4	4	1	36.50	2.75	17.39	1.41	1.91	4.89	39.56
4	4	5	1	37.10	2.74	13.04	1.57	2.07	5.36	40.44
4	5	1	1	38.40	2.81	43.48	0.00	0.50	3.32	40.43
4	5	2	1	37.90	2.81	43.48	0.00	0.50	9.61	43.87
4	5	3	1	34.30	2.77	26.09	0.00	0.50	3.99	36.97
4	5	4	1	33.40	2.75	17.39	0.00	0.50	8.41	38.98
4	5	5	1	33.50	2.75	17.39	0.00	0.50	3.66	35.91
4	5	6	1	36.90	2.78	30.43	0.00	0.50	4.25	39.58
4	5	7	1	37.30	2.79	34.78	0.00	0.50	6.60	41.43
4	5	8	1	35.90	2.77	26.09	0.00	0.50	3.55	38.18
4	5	9	1	36.40	2.80	39.13	0.00	0.50	3.77	38.76
4	5	10	1	38.50	2.85	60.87	0.00	0.50	5.38	41.77
5	1	1	1	41.55	2.81	43.48	0.00	0.00	9.30	46.99
5	1	2	1	39.20	2.81	43.48	0.00	0.00	10.73	45.71
5	1	2	2	37.10	2.81	43.48	0.00	0.00	7.74	41.94
5	1	3	1	34.40	2.79	34.78	0.00	0.00	5.18	37.80
5	1	3	2	36.60	2.80	39.13	0.00	0.00	3.93	39.13
5	1	3	3	32.20	2.81	43.48	0.00	0.00	6.96	36.89
5	1	4	1	33.70	2.78	30.43	0.00	0.00	6.18	37.78
5	1	4	2	36.10	2.80	39.13	0.00	0.00	11.36	43.34
5	1	5	1	35.90	2.78	30.43	0.00	0.00	9.39	41.92
5	1	5	2	40.10	2.79	34.78	0.00	0.00	8.62	45.28
5	1	6	1	34.80	2.80	39.13	0.00	0.00	4.82	37.95
5	1	6	2	39.30	2.82	47.83	0.00	0.00	7.66	43.93
5	1	7	1	28.90	2.79	34.78	0.00	0.00	5.47	32.79
5	1	8	1	33.10	2.79	34.78	0.00	0.00	9.09	39.13
5	1	8	2	42.00	2.82	47.83	0.00	0.00	7.95	46.58
5	1	9	1	35.90	2.80	39.13	0.00	0.00	6.97	40.38
5	1	9	2	35.20	2.80	39.13	0.00	0.00	18.05	46.91
6	1	1	1	39.30	2.72	4.35	0.10	1.10	9.57	45.10
6	1	2	1	33.00	2.69	-8.70	1.00	2.00	11.19	40.53
6	1	4	1	33.30	2.71	0.00	3.00	4.00	9.83	39.83
6	1	5	1	35.00	2.70	-4.35	4.00	5.00	8.09	40.26
6	1	6	1	38.20	2.71	0.00	5.00	6.00	12.84	46.57
6	1	7	1	38.20	2.74	13.04	6.00	7.00	9.95	44.35
6	1	8	1	35.80	2.73	8.70	7.00	8.00	9.52	41.89
6	1	9	1	34.40	2.74	13.04	8.00	9.00	9.90	40.91
6	1	11	1	35.40	2.73	8.70	10.00	11.00	11.32	42.73
6	1	12	1	32.70	2.72	4.35	11.00	12.00	13.25	41.64
6	1	13	1	33.20	2.74	13.04	12.00	13.00	7.36	38.09
6	1	14	1	33.50	2.72	4.35	13.00	14.00	11.19	40.94
6	1	17	1	31.20	2.71	0.00	16.00	17.00	-----	-----
6	1	22	1	26.10	2.70	-4.35	21.00	22.00	20.85	41.48
7	1	1	1	34.80	2.75	17.39	0.00	-1.00	9.73	41.15
7	1	1	2	34.90	2.80	39.13	0.00	-1.00	11.17	42.15
7	1	1	3	35.60	2.78	30.43	0.00	-1.00	4.81	38.74

Table 3.--Continued

LOC	BLK	SPT	PC	MATRIX POROSITY	DEN	ARAG	DEPTH	DBSL	WASH	BULK POROSITY
7	1	2	1	36.20	2.76	21.74	0.00	-1.00	5.23	39.50
7	1	2	2	37.40	2.79	34.78	0.00	-1.00	4.35	40.17
7	1	2	3	38.10	2.78	30.43	0.00	-1.00	6.20	41.91
7	1	3	1	35.30	2.75	17.39	0.00	-1.00	3.60	37.66
7	1	3	2	38.40	2.78	30.43	0.00	-1.00	10.89	45.12
7	1	4	2	38.80	2.78	30.43	0.00	-1.00	6.08	42.55
7	2	1	1	38.70	2.77	26.09	0.00	-1.00	4.32	41.33
7	2	1	2	36.30	2.82	47.83	0.00	-1.00	3.50	38.49
7	2	1	3	39.00	2.81	43.48	0.00	-1.00	7.20	43.35
7	2	2	1	30.30	2.77	26.09	0.00	-1.00	4.92	33.75
7	2	2	2	32.70	2.76	21.74	0.00	-1.00	3.74	35.26
7	2	3	1	34.30	2.75	17.39	0.00	-1.00	4.48	37.26
7	2	4	1	31.80	2.76	21.74	0.00	-1.00	2.90	33.75
7	2	4	2	34.50	2.79	34.78	0.00	-1.00	6.80	38.93
7	2	5	2	32.30	2.77	26.09	0.00	-1.00	4.93	35.62
7	2	6	1	33.60	2.71	0.00	0.00	-1.00	4.49	36.59
7	2	6	2	35.80	2.78	30.43	0.00	-1.00	3.90	38.31
7	2	7	1	34.50	2.73	8.70	0.00	-1.00	4.64	37.51
7	2	7	2	33.40	2.76	21.74	0.00	-1.00	5.07	36.76
7	2	7	3	34.90	2.81	43.48	0.00	-1.00	4.45	37.84
7	2	8	1	32.30	2.74	13.04	0.00	-1.00	3.08	34.38
7	2	8	2	35.20	2.79	34.78	0.00	-1.00	4.04	37.80
7	2	9	2	35.10	2.80	39.13	0.00	-1.00	2.67	36.80
7	2	9	3	35.30	2.81	43.48	0.00	-1.00	3.41	37.54
8	1	1	1	41.50	2.76	21.74	0.00	0.00	14.57	50.04
8	1	2	1	30.60	2.76	21.74	0.00	0.00	6.22	34.89
8	1	2	2	39.20	2.77	26.09	0.00	0.00	5.90	42.79
8	2	1	1	24.00	2.71	0.00	0.00	0.00	11.84	32.96
8	3	1	1	34.70	2.78	30.43	0.00	0.00	5.74	38.46
8	3	1	2	35.30	2.78	30.43	0.00	0.00	6.40	39.41
8	3	2	1	36.80	2.80	39.13	0.00	0.00	6.06	40.65
8	3	3	1	34.10	2.77	26.09	0.00	0.00	6.58	38.40
8	3	3	2	37.50	2.80	39.13	0.00	0.00	5.17	40.76
8	3	4	1	36.40	2.78	30.43	0.00	0.00	5.76	40.09
8	3	4	2	36.30	2.79	34.78	0.00	0.00	6.06	40.14
8	3	5	1	37.20	2.79	34.78	0.00	0.00	6.61	41.35
8	3	6	1	32.80	2.77	26.09	0.00	0.00	5.79	36.71
8	3	6	2	35.80	2.79	34.78	0.00	0.00	6.34	39.90
8	4	1	1	31.90	2.79	34.78	0.00	0.00	7.00	36.67
8	4	1	2	35.60	2.81	43.48	0.00	0.00	6.90	40.08
8	4	2	1	37.20	2.80	39.13	0.00	0.00	12.00	44.70
8	4	2	2	30.00	2.81	43.48	0.00	0.00	6.34	34.39
8	4	3	1	28.30	2.78	30.43	0.00	0.00	4.05	31.19
8	4	3	2	36.00	2.81	43.48	0.00	0.00	5.06	39.19
8	4	4	1	33.10	2.78	30.43	0.00	0.00	6.07	37.75
8	4	4	2	33.90	2.78	30.43	0.00	0.00	6.50	38.18
8	4	4	3	38.20	2.79	34.78	0.00	0.00	6.86	42.41
8	4	5	1	30.60	2.78	30.43	0.00	0.00	8.31	36.36
8	4	5	2	32.50	2.79	34.78	0.00	0.00	6.66	37.02
8	4	6	1	39.90	2.77	26.09	0.00	0.00	20.99	52.49

Table 3.--Continued

LOC	BLK	SPT	PC	MATRIX POROSITY	DEN	ARAG	DEPTH	DBSL	WASH	BULK POROSITY
8	4	7	1	32.70	2.78	30.43	0.00	0.00	6.92	37.39
8	4	7	2	36.20	2.81	43.48	0.00	0.00	9.01	41.99
8	4	8	1	37.40	2.79	34.78	0.00	0.00	15.61	47.20
8	4	8	2	43.30	2.84	56.52	0.00	0.00	14.29	51.40
8	4	9	1	35.00	2.77	26.09	0.00	0.00	14.06	44.12
8	4	9	2	40.00	2.80	39.13	0.00	0.00	11.22	46.76
8	4	10	1	36.70	2.78	30.43	0.00	0.00	12.36	44.54
9	1	1	1	38.10	2.75	17.39	0.00	0.00	9.47	43.99
9	1	2	1	34.60	2.74	13.04	1.00	1.00	12.03	42.43
9	1	6	1	35.70	2.69	-8.70	5.00	5.00	-----	-----
9	1	7	1	37.70	2.72	4.35	6.00	6.00	10.76	44.39
9	1	8	1	35.80	2.69	-8.70	7.00	7.00	7.44	40.55
9	1	10	1	37.10	2.71	0.00	9.00	9.00	16.25	47.36
9	1	13	1	37.90	2.69	-8.70	12.00	12.00	14.21	46.69
9	1	30	1	14.60	2.70	-4.35	29.00	29.00	-----	-----
9	1	31	1	32.70	2.69	-8.70	30.00	30.00	-----	-----
9	1	40	1	19.10	2.69	-8.70	39.00	39.00	-----	-----
9	1	41	1	18.00	2.69	-8.70	40.00	40.00	-----	-----
9	1	46	1	17.40	2.69	-8.70	45.00	45.00	-----	-----
9	1	48	1	16.50	2.69	-8.70	47.00	47.00	-----	-----
10	1	1	1	37.40	2.79	34.78	0.16	1.16	17.32	48.22
10	1	1	2	32.70	2.79	34.78	0.16	1.16	6.33	37.00
10	2	1	1	35.80	2.82	47.83	0.29	1.29	8.42	41.17
10	2	1	2	33.20	2.79	34.78	0.29	1.29	4.05	35.91
10	3	1	1	33.60	2.75	17.39	0.39	1.39	7.70	38.66
10	4	1	1	33.70	2.79	34.78	0.57	1.57	9.29	39.82
10	4	1	2	36.80	2.82	47.83	0.57	1.57	5.38	40.20
10	5	1	1	33.30	2.79	34.78	0.72	1.72	8.81	39.18
10	5	1	2	33.70	2.80	39.13	0.72	1.72	7.35	38.61
10	5	2	1	34.20	2.80	39.13	0.87	1.87	6.57	38.52
10	5	3	1	32.70	2.79	34.78	1.02	2.02	3.35	34.94
10	5	3	2	32.00	2.80	39.13	1.02	2.02	1.52	33.05
10	5	4	1	34.10	2.79	34.78	1.17	2.17	2.44	35.67
10	5	4	2	31.90	2.79	34.78	1.17	2.17	5.00	35.25
10	5	5	1	33.70	2.77	26.09	1.33	2.33	2.19	35.19
10	5	5	2	33.90	2.80	39.13	1.33	2.33	4.29	36.74
10	6	1	1	35.80	2.77	26.09	1.47	2.47	6.67	40.04
10	6	1	2	35.40	2.76	21.74	1.47	2.47	5.36	38.83
10	6	2	1	34.70	2.79	34.78	1.61	2.61	2.73	36.50
10	6	2	2	33.90	2.79	34.78	1.61	2.61	3.24	36.01
10	6	3	1	36.20	2.78	30.43	1.75	2.75	4.62	39.12
10	6	3	2	36.80	2.79	34.78	1.75	2.75	3.03	38.75
10	6	4	1	36.50	2.79	34.78	1.89	2.89	15.03	46.03
10	6	4	2	35.50	2.80	39.13	1.89	2.89	5.51	39.09
10	6	5	1	32.20	2.78	30.43	2.01	3.01	2.65	33.98
10	6	5	2	31.30	2.78	30.43	2.01	3.01	4.63	34.45
10	6	6	1	29.60	2.78	30.43	2.14	3.14	4.10	32.47
10	6	6	2	32.20	2.78	30.43	2.14	3.14	11.54	40.02
10	6	7	1	37.50	2.78	30.43	2.27	3.27	6.26	41.39
10	6	7	2	33.60	2.79	34.78	2.27	3.27	11.29	41.10

Table 3.--Continued

LOC	BLK	SPT	PC	MATRIX POROSITY	DEN	ARAG	DEPTH	DBSL	WASH	BULK POROSITY
10	6	8	1	32.20	2.78	30.43	2.40	3.40	3.77	34.77
10	6	8	2	31.90	2.78	30.43	2.40	3.40	0.41	32.13
10	6	9	1	32.80	2.80	39.13	2.53	3.53	6.13	36.95
10	6	9	2	32.00	2.81	43.48	2.53	3.53	7.25	36.90
10	6	10	1	30.90	2.79	34.78	2.66	3.66	5.87	34.95
10	6	10	2	28.30	2.79	34.78	2.66	3.66	4.76	31.75
10	6	11	1	39.60	2.86	65.22	2.79	3.79	10.02	45.60
10	6	11	2	42.40	2.89	78.26	2.79	3.79	14.49	50.76
10	7	1	1	33.30	2.76	21.74	3.04	4.04	12.64	41.70
10	7	1	2	35.30	2.78	30.43	3.04	4.04	7.56	40.14
10	7	2	1	34.50	2.79	34.78	3.13	4.13	12.65	42.77
10	8	1	1	37.90	2.79	34.78	3.30	4.30	13.46	46.27
10	8	2	1	38.40	2.80	39.13	3.47	4.47	12.93	46.33
10	8	2	2	37.20	2.78	30.43	3.47	4.47	7.14	41.72
10	9	1	1	38.40	2.79	34.78	3.64	4.64	10.08	44.63
10	9	1	2	39.00	2.77	26.09	3.64	4.64	6.71	43.10
10	9	2	1	39.10	2.78	30.43	3.81	4.81	22.77	52.99
10	10	1	1	37.00	2.83	52.17	3.94	4.94	9.26	42.79
10	10	1	2	37.50	2.79	34.78	3.94	4.94	19.08	44.34
10	11	1	1	31.60	2.76	21.74	4.17	5.17	13.80	41.09
10	11	1	2	31.60	2.78	30.43	4.17	5.17	18.97	55.18
10	12	1	1	34.90	2.78	30.43	4.28	5.28	18.16	46.75
10	12	1	2	32.90	2.75	17.39	4.28	5.28	6.48	37.25
10	13	1	1	36.30	2.73	8.70	6.00	7.00	9.66	36.44
10	13	2	1	36.90	2.72	4.35	7.00	8.00	14.05	41.76
10	13	4	1	28.10	2.70	-4.35	10.00	11.00	5.82	30.65
10	13	5	1	39.20	2.70	-4.35	11.00	12.00	5.24	39.96
10	13	13	1	36.90	2.70	-4.35	19.00	20.00	23.92	52.04
10	13	14	1	33.50	2.69	-8.70	20.00	21.00	24.63	49.85
10	13	15	1	35.90	2.73	8.70	21.00	22.00	4.41	36.49
10	13	16	1	35.10	2.69	-8.70	22.00	23.00	5.94	34.64
10	13	18	1	41.10	2.71	0.00	24.00	25.00	7.99	44.47
10	13	19	1	32.10	2.69	-8.70	25.00	26.00	20.32	45.91
10	13	23	1	37.80	2.70	-4.35	29.00	30.00	13.88	46.43
10	13	24	1	34.60	2.69	-8.70	30.00	31.00	10.21	40.16
10	13	29	1	34.80	2.70	-4.35	35.00	36.00	15.40	42.84
10	13	35	1	31.60	2.79	34.78	41.00	42.00	23.45	47.66
10	13	36	1	39.50	2.74	13.04	42.00	43.00	-----	-----
10	13	37	1	31.80	2.75	17.39	43.00	44.00	16.84	43.31
10	13	38	1	40.00	2.71	0.00	44.00	45.00	11.69	46.68
10	13	39	1	35.00	2.71	0.00	45.00	46.00	16.48	45.72
11	1	1	1	34.40	2.79	34.78	-----	-----	18.07	46.25
11	1	1	2	37.50	2.80	39.13	-----	-----	15.01	46.87
11	1	2	1	34.70	2.83	52.17	-----	-----	9.72	41.01
11	1	2	2	34.30	2.80	39.13	-----	-----	6.63	38.69
11	1	3	1	35.90	2.76	21.74	-----	-----	15.59	45.88
11	1	3	2	34.80	2.80	39.13	-----	-----	13.74	43.76
11	1	4	1	32.50	2.72	4.35	-----	-----	17.41	44.26
11	1	5	1	37.00	2.81	43.48	-----	-----	16.51	47.42
11	1	5	2	35.80	2.79	34.78	-----	-----	17.15	46.78

Table 3.--Continued

LOC	BLK	SPT	PC	MATRIX POROSITY	DEN	ARAG	DEPTH	DBSL	WASH	BULK POROSITY
11	1	6	1	34.80	2.71	0.00	-----	-----	24.01	50.46
11	1	7	1	28.60	2.69	-8.70	-----	-----	22.25	44.44
11	1	8	1	36.30	2.77	26.09	-----	-----	14.44	45.52
11	1	8	2	37.40	2.78	30.43	-----	-----	6.79	41.61
11	1	8	3	37.30	2.81	43.48	-----	-----	6.73	41.51
11	1	9	1	35.50	2.75	17.39	-----	-----	6.31	39.57
11	1	10	1	34.10	2.74	13.04	-----	-----	9.50	40.33
11	1	11	1	33.80	2.74	13.04	-----	-----	12.53	42.06
11	1	11	2	32.70	2.75	17.39	-----	-----	16.68	43.89
11	1	12	1	35.50	2.77	26.09	-----	-----	14.25	44.71
11	1	12	2	35.20	2.77	26.09	-----	-----	11.57	42.69
11	1	13	1	38.30	2.78	30.43	-----	-----	14.46	47.22
11	1	13	2	34.00	2.77	26.09	-----	-----	11.28	41.41
11	1	14	1	37.10	2.78	30.43	-----	-----	24.51	52.55
11	1	14	2	35.50	2.79	34.78	-----	-----	15.95	45.81
11	1	15	1	36.50	2.85	60.87	-----	-----	15.56	46.34
11	1	15	2	32.70	2.78	30.43	-----	-----	12.34	41.03
11	1	16	1	34.80	2.79	34.78	-----	-----	10.45	41.62
11	1	16	2	31.20	2.78	30.43	-----	-----	4.53	35.07
11	2	1	1	34.30	2.75	17.39	-----	-----	17.73	45.98
11	2	2	1	33.20	2.74	13.04	-----	-----	23.45	48.87
11	2	2	3	36.20	2.83	52.17	-----	-----	24.36	51.73
11	2	4	1	39.30	2.75	17.39	-----	-----	11.92	46.48
11	2	4	2	37.90	2.79	34.78	-----	-----	19.27	49.88
11	2	5	1	40.50	2.76	21.74	-----	-----	15.44	49.74
11	2	5	2	37.50	2.81	43.48	-----	-----	22.07	51.28
11	2	6	1	38.50	2.77	26.09	-----	-----	15.41	48.01
11	2	7	1	33.90	2.75	17.39	-----	-----	12.60	42.23
11	2	7	2	33.90	2.78	30.43	-----	-----	8.26	39.37
11	2	8	1	33.00	2.76	21.74	-----	-----	11.62	40.71
11	2	8	2	36.50	2.78	30.43	-----	-----	23.67	51.49
11	2	9	1	45.10	2.78	30.43	-----	-----	24.89	58.76
11	2	10	1	34.20	2.73	8.70	-----	-----	13.86	43.25
11	2	10	2	44.60	2.79	34.78	-----	-----	19.05	55.12
11	2	11	1	39.20	2.77	26.09	-----	-----	16.04	48.98
11	2	11	2	35.80	2.82	47.83	-----	-----	18.47	47.66
11	3	1	1	33.90	2.70	-4.35	-----	-----	20.94	47.72
11	3	1	2	32.30	2.76	21.74	-----	-----	22.83	47.74
11	4	1	1	36.50	2.89	78.26	-----	-----	17.19	45.56
11	4	1	2	36.40	2.77	26.09	-----	-----	21.62	50.11
11	4	2	1	34.70	2.77	26.09	-----	-----	7.11	39.33
11	4	2	2	37.50	2.77	26.09	-----	-----	7.42	42.14
11	4	3	1	36.70	2.77	26.09	-----	-----	5.63	40.23
11	4	4	1	37.20	2.77	26.09	-----	-----	17.71	48.29
11	4	4	2	36.20	2.77	26.09	-----	-----	11.55	43.60
11	4	5	1	37.30	2.77	26.09	-----	-----	13.39	45.72
11	4	5	2	37.40	2.76	21.74	-----	-----	21.34	50.73
11	4	6	1	40.50	2.78	30.43	-----	-----	11.69	47.48
11	4	6	2	37.50	2.76	21.74	-----	-----	9.33	43.29
11	4	6	3	36.10	2.78	30.43	-----	-----	4.62	39.08

Table 3.--Continued

LOC	BLK	SPT	PC	MATRIX POROSITY	DEN	ARAG	DEPTH	DBSL	WASH	BULK POROSITY
11	4	7	1	37.30	2.77	26.09	-----	-----	7.29	41.83
11	4	7	2	37.20	2.77	26.09	-----	-----	5.58	40.68
11	4	8	1	41.40	2.79	34.78	-----	-----	15.32	50.40
11	4	8	2	38.30	2.78	30.43	-----	-----	7.49	42.88
11	4	8	3	41.80	2.79	34.78	-----	-----	13.18	49.46
11	4	9	2	42.00	2.78	30.43	-----	-----	6.76	45.91
11	4	9	3	47.90	2.78	30.43	-----	-----	23.42	60.14
11	4	10	1	39.00	2.76	21.74	-----	-----	10.04	45.14
11	4	11	2	39.00	2.78	30.43	-----	-----	9.83	45.01
11	4	12	1	38.80	2.76	21.74	-----	-----	11.35	45.76
11	4	12	2	36.60	2.76	21.74	-----	-----	9.08	42.35
11	4	13	1	38.60	2.78	30.43	-----	-----	10.15	44.84
11	4	13	2	38.90	2.78	30.43	-----	-----	5.85	42.49
11	4	13	3	43.60	2.80	39.13	-----	-----	4.84	46.31
11	5	1	1	36.20	2.79	34.78	-----	-----	17.36	47.28
11	5	1	2	32.00	2.78	30.43	-----	-----	-----	-----
11	5	2	1	36.70	2.80	39.13	-----	-----	17.68	47.92
11	5	2	2	26.80	2.75	17.39	-----	-----	-----	-----
11	5	3	1	40.70	2.75	17.39	-----	-----	12.09	47.85
11	5	3	2	30.70	2.74	13.04	-----	-----	-----	-----
11	5	3	3	36.40	2.77	26.09	-----	-----	8.38	41.75
11	5	4	1	30.20	2.75	17.39	-----	-----	9.25	36.70
11	5	5	1	43.20	2.77	26.09	-----	-----	10.53	49.17
11	5	5	2	32.70	2.76	21.74	-----	-----	-----	-----
11	5	5	3	34.90	2.81	43.48	-----	-----	-----	-----
11	5	6	1	23.60	2.73	8.70	-----	-----	9.79	31.12
12	1	1	1	40.10	2.77	26.09	5.00	-4.00	12.28	47.44
12	1	1	2	29.40	2.74	13.04	5.00	-4.00	12.03	37.93
12	1	2	1	40.70	2.77	26.09	5.50	-3.50	14.69	49.40
12	1	2	3	41.50	2.77	26.09	5.50	-3.50	14.80	50.17
12	1	3	1	37.30	2.77	26.09	6.00	-3.00	10.73	43.99
12	1	3	2	35.20	2.79	34.78	6.00	-3.00	11.11	42.39
12	1	4	1	33.10	2.80	39.13	6.50	-2.50	11.00	40.49
12	2	1	1	40.40	2.75	17.39	7.00	-2.00	8.25	45.34
12	2	1	2	37.60	2.77	26.09	7.00	-2.00	10.97	44.40
12	2	2	1	32.20	2.75	17.39	7.33	-1.67	8.15	37.74
12	2	2	2	36.70	2.77	26.09	7.33	-1.67	7.48	41.43
12	2	2	3	40.70	2.78	30.43	7.33	-1.67	15.61	49.95
12	2	3	1	35.40	2.75	17.39	7.67	-1.33	8.40	40.82
12	2	3	2	34.80	2.77	26.09	7.67	-1.33	-----	-----
12	2	4	2	31.70	2.76	21.74	8.00	-1.00	7.30	36.65
12	2	5	1	34.40	2.76	21.74	8.33	-0.67	16.36	45.13
12	2	5	2	37.30	2.79	34.78	8.33	-0.67	-----	-----
12	2	6	1	39.10	2.75	17.39	8.67	-0.33	16.06	48.91
12	2	6	2	37.40	2.77	26.09	8.67	-0.33	13.39	45.80
12	2	6	3	37.60	2.75	17.39	8.67	-0.33	20.51	50.41
12	2	6	4	38.40	2.77	26.09	8.67	-0.33	-----	-----
12	2	7	1	31.90	2.72	4.35	9.00	0.00	5.34	35.54
12	2	7	2	37.40	2.78	30.43	9.00	0.00	8.15	42.49
12	2	8	1	39.90	2.76	21.74	9.33	0.33	11.64	46.91

Table 3.--Continued

LOC	BLK	SPT	PC	MATRIX POROSITY	DEN	ARAG	DEPTH	DBSL	WASH	BULK POROSITY
12	2	8	2	42.10	2.78	30.43	9.33	0.33	14.64	50.53
12	2	9	1	34.10	2.75	17.39	9.67	0.67	23.93	49.89
12	2	9	2	35.20	2.78	30.43	9.67	0.67	15.70	45.34
12	2	10	1	36.20	2.76	21.74	10.00	1.00	11.34	43.39
12	2	11	1	36.00	2.76	21.74	10.33	1.33	9.20	41.89
12	2	12	1	36.80	2.77	26.09	10.67	1.67	12.37	44.61
12	2	12	2	32.20	2.79	34.78	10.67	1.67	8.15	37.72
12	2	13	1	33.90	2.72	4.35	11.00	2.00	4.89	37.09
12	2	13	3	33.10	2.77	26.09	11.00	2.00	7.75	38.32
12	2	14	1	31.60	2.75	17.39	11.33	2.33	4.60	34.75
12	2	14	2	30.50	2.74	13.04	11.33	2.33	11.12	38.24
12	2	14	3	31.50	2.75	17.39	11.33	2.33	15.51	42.11
12	2	15	1	33.00	2.77	26.09	11.67	2.67	11.33	40.63
12	2	15	2	39.10	2.77	26.09	11.67	2.67	9.70	44.97
12	3	2	1	42.60	2.79	34.78	12.27	3.27	9.78	48.17
12	3	2	2	43.60	2.76	21.74	12.27	3.27	11.17	49.93
12	3	2	3	43.30	2.78	30.43	12.27	3.27	9.62	48.92
12	3	3	1	37.30	2.77	26.09	12.53	3.53	5.02	40.46
12	3	3	2	34.10	2.77	26.09	12.53	3.53	8.69	39.85
12	3	4	1	33.30	2.73	8.70	12.80	3.80	2.33	34.89
12	3	4	2	36.50	2.75	17.39	12.80	3.80	9.60	42.57
12	3	4	3	38.70	2.77	26.09	12.80	3.80	22.21	52.34
12	3	5	1	36.80	2.76	21.74	13.07	4.07	10.06	43.17
12	3	5	2	37.60	2.77	26.09	13.07	4.07	9.25	43.41
12	3	5	3	33.90	2.76	21.74	13.07	4.07	12.68	42.28
12	3	6	1	41.60	2.77	26.09	13.33	4.33	18.04	52.11
12	3	7	1	36.40	2.76	21.74	13.60	4.60	10.06	42.75
12	3	7	2	37.80	2.76	21.74	13.60	4.60	14.31	46.69
12	3	8	1	34.80	2.74	13.04	13.87	4.87	20.75	48.33
12	3	9	1	30.50	2.76	21.74	14.13	5.13	7.00	35.38
12	3	10	1	34.10	2.76	21.74	14.40	5.40	7.97	39.34
12	3	11	1	35.80	2.77	26.09	14.67	5.67	16.45	46.36
12	3	12	1	29.80	2.76	21.74	14.93	5.93	13.69	39.43
12	3	13	1	30.10	2.76	21.74	15.20	6.20	11.82	38.38
12	3	13	2	35.20	2.79	34.78	15.20	6.20	16.93	46.19
12	3	14	2	34.80	2.78	30.43	15.47	6.47	19.53	47.53
12	3	14	3	41.60	2.79	34.78	15.47	6.47	11.70	48.47
12	3	15	1	30.20	2.75	17.39	15.73	6.73	9.94	37.16
12	3	15	2	32.30	2.77	26.09	15.73	6.73	22.21	47.35
12	4	1	1	34.90	2.76	21.74	16.00	7.00	18.25	46.75
12	4	2	2	34.90	2.75	17.39	16.33	7.33	23.23	50.04
12	4	2	3	35.90	2.76	21.74	16.33	7.33	20.95	49.30
12	4	3	1	35.40	2.75	17.39	16.67	7.67	18.46	47.33
12	4	3	2	37.90	2.74	13.04	16.67	7.67	15.29	47.35
12	4	4	1	38.00	2.75	17.39	17.00	8.00	23.34	52.45
12	4	5	1	34.90	2.75	17.39	17.33	8.33	24.98	51.17
12	4	5	2	31.00	2.78	30.43	17.33	8.33	-----	-----
12	4	6	1	32.90	2.75	17.39	17.67	8.67	11.32	40.46
12	4	8	1	30.50	2.78	30.43	18.33	9.33	18.77	43.55
12	4	9	1	34.30	2.75	17.39	18.67	9.67	20.00	47.41

Table 3.--Continued

LOC	BLK	SPT	PC	MATRIX POROSITY	DEN	ARAG	DEPTH	DBSL	WASH	BULK POROSITY
12	4	10	1	33.70	2.74	13.04	19.00	10.00	22.26	48.43
12	4	11	1	33.60	2.76	21.74	19.33	10.33	17.74	45.38
12	4	11	2	39.30	2.79	34.78	19.33	10.33	13.40	47.39
12	4	12	1	37.50	2.76	21.74	19.67	10.67	17.24	48.28
12	5	1	1	31.70	2.74	13.04	20.00	11.00	13.78	41.15
12	5	1	2	36.00	2.75	17.39	20.00	11.00	8.72	41.58
12	5	2	1	34.20	2.74	13.04	20.38	11.38	14.68	43.85
12	5	2	2	35.10	2.74	13.04	20.38	11.38	14.18	44.34
12	5	3	1	34.90	2.75	17.39	20.75	11.75	13.37	43.58
12	5	4	1	34.00	2.75	17.39	21.13	12.13	18.73	46.34
12	5	4	2	38.70	2.72	4.35	21.13	12.13	21.82	52.07
12	5	5	1	33.10	2.75	17.39	21.50	12.50	13.30	41.98
12	5	6	1	17.40	2.70	-4.35	21.88	12.88	10.50	26.05
12	5	6	2	24.90	2.75	17.39	21.88	12.88	11.22	33.33
12	5	7	2	17.10	2.70	-4.35	22.25	13.25	15.91	30.32
12	5	8	1	19.50	2.70	-4.35	22.63	13.63	18.50	34.39
12	6	1	1	21.80	2.73	8.70	18.00	9.00	4.14	25.05
12	6	2	1	25.70	2.71	0.00	19.00	10.00	6.59	30.58
12	6	3	1	24.90	2.69	-8.70	39.00	30.00	4.73	28.47
12	6	3	2	25.60	2.72	4.35	39.00	30.00	6.13	30.16
12	6	3	3	24.20	2.71	0.00	39.00	30.00	3.02	26.48
13	1	1	1	25.00	2.69	-8.70	0.00	-1.00	20.36	40.25
13	1	2	1	22.60	2.69	-8.70	0.00	-1.00	14.43	33.80
13	1	3	2	22.50	2.72	4.35	0.00	-1.00	12.56	32.27
13	1	5	1	24.50	2.70	-4.35	0.00	-1.00	5.28	28.48
13	1	5	3	25.20	2.70	-4.35	0.00	-1.00	-----	-----
13	1	8	1	24.60	2.71	0.00	0.00	-1.00	5.99	29.12
13	1	8	3	23.70	2.69	-8.70	0.00	-1.00	-----	-----
13	2	1	1	31.00	2.73	8.70	0.00	-2.50	15.43	41.66
13	2	2	1	32.20	2.72	4.35	0.00	-2.50	11.05	39.65
13	2	2	3	29.50	2.72	4.35	0.00	-2.50	17.38	41.71
13	2	3	1	30.70	2.71	0.00	0.00	-2.50	10.76	38.11
13	2	3	2	35.70	2.74	13.04	0.00	-2.50	15.00	45.31
13	2	4	1	29.30	2.71	0.00	0.00	-2.50	11.79	37.65
13	2	4	2	27.60	2.74	13.04	0.00	-2.50	17.66	40.34
13	2	5	1	28.90	2.72	4.35	0.00	-2.50	13.58	38.56
13	2	5	2	26.70	2.74	13.04	0.00	-2.50	-----	-----
13	2	5	3	38.90	2.74	13.04	0.00	-2.50	20.50	51.43
13	2	6	1	33.10	2.72	4.35	0.00	-2.50	14.85	43.03
13	2	6	2	28.50	2.74	13.04	0.00	-2.50	15.83	39.86
13	2	7	1	28.80	2.73	8.70	0.00	-2.50	13.88	38.70
13	2	7	2	26.80	2.73	8.70	0.00	-2.50	12.09	35.63
13	2	8	1	29.80	2.71	0.00	0.00	-2.50	12.63	38.65
13	2	9	1	28.00	2.72	4.35	0.00	-2.50	10.37	35.42
13	2	9	2	33.60	2.75	17.39	0.00	-2.50	23.34	49.09
13	2	10	1	29.20	2.74	13.04	0.00	-2.50	7.81	34.70
13	2	10	2	30.40	2.75	17.39	0.00	-2.50	6.90	35.19
13	2	10	3	30.00	2.75	17.39	0.00	-2.50	24.97	47.45
13	3	1	1	29.30	2.76	21.74	0.00	-3.20	10.71	36.87
13	3	1	2	29.60	2.76	21.74	0.00	-3.20	11.01	37.34

Table 3.--Continued

LOC	BLK	SPT	PC	MATRIX POROSITY	DEN	ARAG	DEPTH	DBSL	WASH	BULK POROSITY
13	3	2	1	31.00	2.74	13.04	0.00	-3.20	10.38	38.15
13	3	2	2	31.60	2.76	21.74	0.00	-3.20	17.48	43.57
13	3	3	1	33.40	2.74	13.04	0.00	-3.20	7.42	38.30
13	3	4	1	27.50	2.73	8.70	0.00	-3.20	9.24	34.19
13	3	5	1	29.60	2.74	13.04	0.00	-3.20	14.49	39.84
13	3	5	2	30.20	2.75	17.39	0.00	-3.20	13.86	39.86
13	3	6	1	29.10	2.73	8.70	0.00	-3.20	17.53	41.55
13	3	6	2	28.50	2.75	17.39	0.00	-3.20	14.84	39.12
13	3	7	1	27.80	2.74	13.04	0.00	-3.20	13.47	37.55
13	3	7	2	29.70	2.74	13.04	0.00	-3.20	18.09	42.38
13	3	7	3	27.70	2.74	13.04	0.00	-3.20	-----	-----
13	3	8	1	28.10	2.74	13.04	0.00	-3.20	9.98	35.29
13	3	9	1	36.30	2.75	17.39	0.00	-3.20	13.85	45.11
13	3	9	2	29.60	2.74	13.04	0.00	-3.20	15.41	40.43
13	3	10	1	29.80	2.74	13.04	0.00	-3.20	9.17	36.21
13	4	1	1	27.10	2.74	13.04	0.00	-4.00	19.19	41.07
13	4	2	1	26.60	2.73	8.70	0.00	-4.00	10.82	34.50
13	4	3	1	28.50	2.74	13.04	0.00	-4.00	20.99	43.52
13	4	4	1	28.30	2.74	13.04	0.00	-4.00	11.15	36.33
13	4	5	1	30.90	2.73	8.70	0.00	-4.00	11.48	38.84
13	4	6	1	26.70	2.73	8.70	0.00	-4.00	15.52	38.08
14	1	1	1	38.40	2.80	39.13	-----	-----	5.18	41.62
14	1	2	1	40.40	2.75	17.39	-----	-----	9.71	46.23
14	1	3	1	36.90	2.79	34.78	-----	-----	6.37	40.96
14	1	4	1	44.30	2.80	39.13	-----	-----	9.41	49.53
14	1	5	1	46.20	2.81	43.48	-----	-----	11.89	52.63
14	1	6	1	22.90	2.75	17.39	-----	-----	3.60	25.71
14	1	7	1	37.90	2.76	21.74	-----	-----	21.48	51.17
14	1	8	1	43.20	2.77	26.09	-----	-----	24.58	57.14
14	1	9	1	23.40	2.78	30.43	-----	-----	6.25	28.12
14	1	10	1	40.30	2.77	26.09	-----	-----	16.10	49.85
14	1	13	1	42.40	2.79	34.78	-----	-----	18.62	53.12
14	1	15	1	40.10	2.75	17.39	-----	-----	20.43	52.30
14	1	16	1	42.60	2.77	26.09	-----	-----	14.62	51.01
14	1	17	1	23.30	2.78	30.43	-----	-----	10.59	31.46
14	1	18	1	35.60	2.77	26.09	-----	-----	13.79	44.48
14	1	19	1	41.30	2.76	21.74	-----	-----	19.73	52.92
14	1	20	1	38.50	2.77	26.09	-----	-----	19.89	50.80
14	1	21	1	41.80	2.81	43.48	-----	-----	3.98	44.07
14	1	22	1	41.20	2.76	21.74	-----	-----	12.13	48.30
14	1	23	1	35.50	2.74	13.04	-----	-----	20.20	48.49
14	1	24	1	38.20	2.75	17.39	-----	-----	14.66	47.26
14	1	25	1	25.70	2.76	21.74	-----	-----	11.06	33.95
14	1	26	1	35.90	2.78	30.43	-----	-----	12.18	43.69
14	1	27	1	43.80	2.82	47.83	-----	-----	4.92	46.60
14	1	28	1	41.90	2.77	26.09	-----	-----	20.21	53.65
14	1	29	1	43.80	2.78	30.43	-----	-----	22.99	56.74
14	1	30	1	40.20	2.75	17.39	-----	-----	12.03	47.35
14	1	31	1	38.60	2.75	17.39	-----	-----	20.99	51.48
14	1	32	1	20.20	2.74	13.04	-----	-----	2.23	21.97

Table 3.--Continued

LOC	BLK	SPT	PC	MATRIX POROSITY	DEN	ARAG	DEPTH	DBSL	WASH	BULK POROSITY
14	1	33	1	38.80	2.77	26.09	-----	-----	22.67	52.64
14	1	34	1	39.30	2.77	26.09	-----	-----	16.09	49.05
14	1	35	1	23.40	2.73	8.70	-----	-----	6.68	28.49
14	1	36	1	40.10	2.77	26.09	-----	-----	16.25	49.77
14	1	37	1	40.10	2.75	17.39	-----	-----	21.97	53.30
16	1	1	1	-----	2.79	34.78	0.08	1.08	-----	41.60
16	1	2	1	-----	2.81	43.48	0.23	1.23	-----	36.70
16	1	4	1	-----	2.81	43.48	0.48	1.48	-----	37.40
16	1	5	1	-----	2.80	39.13	0.95	1.95	-----	37.90
16	1	6	1	-----	2.78	30.43	1.67	2.67	-----	39.60
16	1	6	2	-----	2.79	34.78	2.40	3.40	-----	34.80
16	1	7	1	-----	2.77	26.09	2.91	3.91	-----	40.40
16	1	7	2	-----	2.79	34.78	3.08	4.08	-----	47.70
16	1	8	1	-----	2.79	34.78	3.30	4.30	-----	44.10
16	1	9	1	-----	2.78	30.43	3.64	4.64	-----	44.20
16	1	10	1	-----	2.83	52.17	3.88	4.88	-----	46.60
16	1	12	1	-----	2.77	26.09	4.22	5.22	-----	39.70
16	2	1	1	-----	2.79	34.78	0.24	0.94	-----	41.60
16	2	2	1	-----	2.76	21.74	0.57	1.27	-----	45.30
16	2	3	2	-----	2.76	21.74	1.03	1.73	-----	41.30
16	2	4	1	-----	2.77	26.09	1.46	2.16	-----	45.10
16	2	5	1	-----	2.76	21.74	1.93	2.63	-----	44.90
16	2	6	1	-----	2.76	21.74	0.00	0.70	-----	40.90
16	2	7	1	-----	2.76	21.74	0.50	1.10	-----	45.30
16	3	1	1	-----	2.76	21.74	0.43	2.13	-----	40.60
16	3	2	1	-----	2.74	13.04	1.01	2.71	-----	40.90
16	3	2	2	-----	2.73	8.70	1.37	3.07	-----	42.50
16	3	3	1	-----	2.75	17.39	1.82	3.52	-----	42.20
16	3	4	1	-----	2.77	26.09	2.40	4.10	-----	39.40
16	4	1	1	-----	2.72	4.35	0.18	6.78	-----	54.00
16	4	2	1	-----	2.73	8.70	0.54	7.14	-----	42.50
16	4	3	1	-----	2.75	17.39	0.94	7.54	-----	49.10
16	4	4	1	-----	2.76	21.74	1.37	7.97	-----	45.70
16	5	1	1	-----	2.74	13.04	0.21	0.71	-----	36.10
16	5	2	1	-----	2.80	39.13	0.54	1.04	-----	45.00
16	5	3	1	-----	2.75	17.39	0.69	1.19	-----	60.00
16	5	4	1	-----	2.75	17.39	1.16	1.66	-----	40.40
16	5	5	1	-----	2.75	17.39	0.50	0.50	-----	37.80
17	1	1	1	-----	2.76	-----	5.00	-----	-----	43.70
17	1	1	2	-----	2.76	37.00	12.00	-----	-----	35.40
17	1	1	3	-----	2.76	-----	21.00	-----	-----	35.40
17	1	1	4	-----	2.76	-----	28.00	-----	-----	32.50
17	1	1	5	-----	2.76	-----	6.00	-----	-----	42.30
17	1	1	6	-----	2.76	-----	8.00	-----	-----	39.30
17	1	1	7	-----	2.76	-----	24.00	-----	-----	16.80
17	1	1	8	-----	2.76	-----	12.00	-----	-----	42.30
17	1	1	9	-----	2.76	-----	5.00	-----	-----	39.30
17	1	1	10	-----	2.76	-----	7.00	-----	-----	43.30
17	1	1	11	-----	2.76	-----	5.00	-----	-----	43.30
17	1	1	12	-----	2.76	-----	11.00	-----	-----	50.60

Table 3.--Continued

LOC	BLK	SPT	PC	MATRIX POROSITY	DEN	ARAG	DEPTH	DBSL	WASH	BULK POROSITY
17	1	1	13	-----	2.76	-----	8.00	-----	-----	50.10
17	1	1	14	-----	2.76	-----	8.00	-----	-----	58.90
17	1	1	15	-----	2.76	-----	7.00	-----	-----	48.20
17	1	1	16	-----	2.76	-----	6.00	-----	-----	42.30
17	1	1	17	-----	2.76	-----	2.00	-----	-----	49.10
17	1	1	18	-----	2.76	13.00	7.00	-----	-----	57.00
17	1	1	19	-----	2.76	-----	19.00	-----	-----	56.00
17	1	1	20	-----	2.76	-----	15.00	-----	-----	43.30
17	1	1	21	-----	2.76	-----	42.00	-----	-----	36.40
17	1	1	22	-----	2.76	-----	35.00	-----	-----	49.10
17	1	1	23	-----	2.76	-----	1.00	-----	-----	47.20
17	1	1	24	-----	2.76	-----	6.00	-----	-----	55.00
17	1	1	25	-----	2.76	-----	2.00	-----	-----	46.20
17	1	1	26	-----	2.76	-----	6.00	-----	-----	49.10
17	1	1	27	-----	2.76	-----	10.00	-----	-----	52.10
17	1	1	28	-----	2.76	-----	7.00	-----	-----	47.20
17	1	1	29	-----	2.76	-----	9.00	-----	-----	57.90
17	1	1	30	-----	2.76	-----	1.00	-----	-----	48.20
17	1	1	31	-----	2.76	-----	6.00	-----	-----	50.10
17	1	1	32	-----	2.76	-----	5.00	-----	-----	23.70
17	1	1	33	-----	2.76	-----	21.00	-----	-----	31.50
17	1	1	34	-----	2.76	-----	2.00	-----	-----	54.00
17	1	1	35	-----	2.76	-----	6.00	-----	-----	51.10
17	1	1	36	-----	2.76	-----	1.00	-----	-----	49.10
17	1	1	37	-----	2.76	12.00	7.00	-----	-----	52.10
17	1	1	38	-----	2.76	23.00	17.00	-----	-----	39.30
17	1	1	39	-----	2.76	-----	22.00	-----	-----	38.40
17	1	1	40	-----	2.76	-----	4.00	-----	-----	49.10
17	1	1	41	-----	2.76	23.00	10.00	-----	-----	47.20
17	1	2	1	-----	2.76	-----	10.00	-----	-----	52.10
17	1	2	2	-----	2.76	-----	2.00	-----	-----	31.50
17	1	2	3	-----	2.76	-----	7.00	-----	-----	52.10
17	1	2	4	-----	2.76	-----	1.00	-----	-----	41.30
17	1	2	5	-----	2.76	-----	5.00	-----	-----	51.10
17	1	2	6	-----	2.76	-----	3.00	-----	-----	49.10
17	1	2	7	-----	2.76	-----	8.00	-----	-----	41.30
17	1	2	8	-----	2.76	-----	10.00	-----	-----	59.90
17	1	2	9	-----	2.76	27.00	8.00	-----	-----	41.30
17	1	2	10	-----	2.76	-----	14.00	-----	-----	31.50
17	1	2	11	-----	2.76	-----	25.00	-----	-----	27.60
17	1	2	12	-----	2.76	-----	2.00	-----	-----	40.30
17	1	2	13	-----	2.76	-----	13.00	-----	-----	40.30
17	1	2	14	-----	2.76	-----	11.00	-----	-----	17.80
17	1	2	15	-----	2.76	-----	35.00	-----	-----	21.70
17	1	2	16	-----	2.76	-----	17.00	-----	-----	43.30
17	1	2	17	-----	2.76	23.00	9.00	-----	-----	53.00
17	1	2	18	-----	2.76	-----	10.00	-----	-----	39.30
17	1	2	19	-----	2.76	-----	9.00	-----	-----	44.20
17	1	2	20	-----	2.76	-----	2.00	-----	-----	51.10
17	1	2	21	-----	2.76	-----	11.00	-----	-----	43.30

Table 3.--Continued

LOC	BLK	SPT	PC	MATRIX POROSITY	DEN	ARAG	DEPTH	DBSL	WASH	BULK POROSITY
17	1	2	22	-----	2.76	-----	10.00	-----	-----	57.90
17	1	2	23	-----	2.76	-----	4.00	-----	-----	54.00
17	1	2	24	-----	2.76	33.00	8.00	-----	-----	35.40
17	1	2	25	-----	2.76	8.00	3.00	-----	-----	49.10
17	1	2	26	-----	2.76	-----	10.00	-----	-----	55.00
17	1	2	27	-----	2.76	-----	8.00	-----	-----	36.40
17	1	2	28	-----	2.76	-----	36.00	-----	-----	25.70
17	1	2	29	-----	2.76	-----	21.00	-----	-----	42.30
17	1	2	30	-----	2.76	-----	43.00	-----	-----	51.10
17	1	2	31	-----	2.76	-----	4.00	-----	-----	57.00
17	1	2	32	-----	2.76	-----	8.00	-----	-----	57.00
17	1	2	33	-----	2.76	-----	4.00	-----	-----	47.20
17	1	2	34	-----	2.76	-----	8.00	-----	-----	52.10
17	1	2	35	-----	2.76	-----	5.00	-----	-----	46.20
17	1	2	36	-----	2.76	-----	8.00	-----	-----	52.10
17	1	2	37	-----	2.76	-----	11.00	-----	-----	61.80
17	1	2	38	-----	2.76	-----	4.00	-----	-----	45.20
17	1	2	39	-----	2.76	-----	10.00	-----	-----	46.20
17	1	2	40	-----	2.76	33.00	19.00	-----	-----	35.40
17	1	2	41	-----	2.76	-----	26.00	-----	-----	45.20
17	1	3	1	-----	2.76	-----	4.00	-----	-----	50.10
17	1	3	2	-----	2.76	-----	7.00	-----	-----	52.10
17	1	3	3	-----	2.76	-----	6.00	-----	-----	45.20
17	1	3	4	-----	2.76	7.00	10.00	-----	-----	54.00
17	1	3	5	-----	2.76	-----	20.00	-----	-----	42.30
17	1	3	6	-----	2.76	33.00	14.00	-----	-----	40.30
17	1	3	7	-----	2.76	10.00	6.00	-----	-----	45.20
17	1	3	8	-----	2.76	-----	6.00	-----	-----	46.20
17	1	3	9	-----	2.76	-----	12.00	-----	-----	45.20
17	1	3	10	-----	2.76	-----	6.00	-----	-----	49.10
17	1	3	11	-----	2.76	-----	9.00	-----	-----	58.90
17	1	3	12	-----	2.76	-----	3.00	-----	-----	45.20
17	1	3	13	-----	2.76	-----	7.00	-----	-----	57.00
17	1	3	14	-----	2.76	-----	4.00	-----	-----	44.20
17	1	3	15	-----	2.76	10.00	9.00	-----	-----	41.30
17	1	3	16	-----	2.76	-----	5.00	-----	-----	45.20
17	1	3	17	-----	2.76	-----	6.00	-----	-----	49.10
17	1	3	18	-----	2.76	-----	11.00	-----	-----	58.90
17	1	3	19	-----	2.76	-----	4.00	-----	-----	37.40
17	1	3	20	-----	2.76	-----	8.00	-----	-----	46.20
17	1	3	21	-----	2.76	-----	13.00	-----	-----	57.00
17	1	3	22	-----	2.76	8.00	12.00	-----	-----	62.80
17	1	3	23	-----	2.76	-----	2.00	-----	-----	48.20
17	1	3	24	-----	2.76	-----	5.00	-----	-----	51.10
17	1	3	25	-----	2.76	-----	8.00	-----	-----	60.90
17	1	3	26	-----	2.76	-----	5.00	-----	-----	48.20
17	1	3	27	-----	2.76	-----	8.00	-----	-----	45.20
17	1	3	28	-----	2.76	-----	14.00	-----	-----	39.30
17	1	3	29	-----	2.76	-----	10.00	-----	-----	56.00
17	1	3	30	-----	2.76	-----	1.00	-----	-----	43.30

Table 3.--Continued

LOC	BLK	SPT	PC	MATRIX POROSITY	DEN	ARAG	DEPTH	DBSL	WASH	BULK POROSITY
17	1	3	31	-----	2.76	-----	6.00	-----	-----	47.20
17	1	3	32	-----	2.76	-----	11.00	-----	-----	52.10
17	1	3	33	-----	2.76	-----	15.00	-----	-----	60.90
17	1	3	34	-----	2.76	-----	14.00	-----	-----	58.90
17	1	3	35	-----	2.76	-----	3.00	-----	-----	49.10
17	1	3	36	-----	2.76	-----	7.00	-----	-----	61.80
17	1	3	37	-----	2.76	-----	10.00	-----	-----	66.70
17	1	3	38	-----	2.76	-----	7.00	-----	-----	45.20
17	1	3	39	-----	2.76	-----	11.00	-----	-----	33.50
17	1	3	40	-----	2.76	27.00	18.00	-----	-----	39.30
17	1	3	41	-----	2.76	47.00	21.00	-----	-----	42.30
17	1	4	1	-----	2.76	52.00	30.00	-----	-----	21.70
17	1	4	2	-----	2.76	10.00	10.00	-----	-----	58.90
17	1	4	3	-----	2.76	12.00	18.00	-----	-----	58.90
17	1	4	4	-----	2.76	0.00	5.00	-----	-----	41.30
17	1	4	5	-----	2.76	23.00	7.00	-----	-----	41.30
17	1	4	6	-----	2.76	37.50	11.00	-----	-----	41.30
17	1	4	7	-----	2.76	20.00	7.00	-----	-----	49.10
17	1	4	8	-----	2.76	19.00	8.00	-----	-----	47.20
17	1	4	9	-----	2.76	1.00	12.00	-----	-----	60.90
17	1	4	10	-----	2.76	1.00	12.00	-----	-----	57.90
17	1	4	11	-----	2.76	43.00	8.00	-----	-----	41.30
17	1	4	12	-----	2.76	7.00	9.00	-----	-----	57.90
17	1	4	13	-----	2.76	7.00	4.00	-----	-----	50.10
17	1	4	14	-----	2.76	32.00	22.00	-----	-----	16.90
17	1	4	15	-----	2.76	7.00	12.00	-----	-----	58.90
17	1	4	16	-----	2.76	43.00	12.00	-----	-----	33.50
17	1	4	17	-----	2.76	38.00	30.00	-----	-----	21.70
17	1	4	18	-----	2.76	3.00	75.00	-----	-----	60.90
17	1	4	19	-----	2.76	4.00	9.00	-----	-----	63.80
17	1	4	20	-----	2.76	16.00	16.00	-----	-----	41.30
17	1	4	21	-----	2.76	23.00	4.00	-----	-----	39.40
17	1	4	22	-----	2.76	12.00	12.00	-----	-----	57.90
17	2	1	1	33.70	-----	-----	-----	-----	-----	-----
17	2	1	2	40.30	-----	-----	-----	-----	-----	-----
17	2	1	3	30.60	-----	40.00	-----	-----	-----	-----
17	2	1	4	45.70	-----	25.00	-----	-----	-----	-----
17	2	1	5	27.00	-----	15.00	-----	-----	-----	-----
17	2	1	9	46.50	-----	5.00	-----	-----	-----	-----
17	2	1	10	34.80	-----	-----	-----	-----	-----	-----
17	2	1	11	43.10	-----	-----	-----	-----	-----	-----
17	2	1	12	42.30	-----	-----	-----	-----	-----	-----
17	2	1	13	41.90	-----	98.99	-----	-----	-----	-----
17	2	1	15	41.50	-----	88.00	-----	-----	-----	-----
17	2	1	17	41.20	-----	80.00	-----	-----	-----	-----
17	2	1	18	41.50	-----	75.00	-----	-----	-----	-----
17	2	1	19	25.00	-----	75.00	-----	-----	-----	-----
17	2	1	21	29.50	-----	-----	-----	-----	-----	-----
17	2	1	22	32.80	-----	28.00	-----	-----	-----	-----
17	2	1	24	38.90	-----	45.00	-----	-----	-----	-----

Table 3.--Continued

LOC	BLK	SPT	PC	MATRIX POROSITY	DEN	ARAG	DEPTH	DBSL	WASH	BULK POROSITY
17	2	1	25	47.40	-----	50.00	-----	-----	-----	-----
17	2	1	26	38.60	-----	35.00	-----	-----	-----	-----
17	2	1	27	19.70	-----	10.00	-----	-----	-----	-----
17	2	1	28	24.00	-----	15.00	-----	-----	-----	-----
17	2	1	29	33.90	-----	20.00	-----	-----	-----	-----
17	2	1	30	40.30	-----	50.00	-----	-----	-----	-----
17	2	1	31	31.30	-----	35.00	-----	-----	-----	-----
17	2	1	32	35.20	-----	40.00	-----	-----	-----	-----
17	2	1	33	34.60	-----	25.00	-----	-----	-----	-----
17	2	1	34	39.30	-----	-----	-----	-----	-----	-----
17	3	1	1	-----	2.90	-----	0.20	-----	-----	40.00
17	3	1	2	-----	2.90	-----	0.80	-----	-----	42.00
17	3	1	3	-----	2.90	-----	1.00	-----	-----	44.00
17	3	1	4	-----	2.90	-----	1.20	-----	-----	44.00
17	3	1	5	-----	2.90	-----	1.50	-----	-----	47.00
17	3	1	6	-----	2.90	-----	1.90	-----	-----	47.00
17	3	1	7	-----	2.90	-----	2.40	-----	-----	52.00
17	3	1	8	-----	2.90	-----	3.00	-----	-----	46.00
17	3	1	9	-----	2.90	-----	3.50	-----	-----	47.00
17	3	1	10	-----	2.90	-----	3.90	-----	-----	48.00
17	3	1	11	-----	2.90	-----	5.60	-----	-----	46.00
17	3	1	12	-----	2.90	-----	8.50	-----	-----	48.00
17	3	1	13	-----	2.90	-----	10.00	-----	-----	46.00
17	3	1	14	-----	2.90	-----	11.00	-----	-----	46.00
17	3	1	15	-----	2.90	-----	12.00	-----	-----	46.00
17	3	1	16	-----	2.90	-----	12.50	-----	-----	46.00
17	3	1	17	-----	2.90	-----	13.00	-----	-----	44.00
17	3	1	18	-----	2.90	-----	13.10	-----	-----	48.00
17	3	1	19	-----	2.90	-----	13.40	-----	-----	45.00
17	3	1	20	-----	2.90	-----	13.90	-----	-----	49.00
17	3	1	21	-----	2.90	-----	14.00	-----	-----	49.00
17	3	1	22	-----	2.90	-----	15.00	-----	-----	42.00
17	3	2	1	-----	2.90	-----	0.20	-----	-----	46.00
17	3	2	2	-----	2.90	-----	0.50	-----	-----	47.00
17	3	2	3	-----	2.90	-----	0.80	-----	-----	43.00
17	3	2	4	-----	2.90	-----	1.00	-----	-----	47.00
17	3	2	5	-----	2.90	-----	1.30	-----	-----	44.00
17	3	2	6	-----	2.90	-----	2.00	-----	-----	42.00
17	3	2	7	-----	2.90	-----	2.20	-----	-----	41.00
17	3	2	8	-----	2.90	-----	2.30	-----	-----	42.00
17	3	2	9	-----	2.90	-----	2.70	-----	-----	49.00
17	3	2	10	-----	2.90	-----	3.00	-----	-----	45.00
17	3	2	11	-----	2.90	-----	3.30	-----	-----	52.00
17	3	2	12	-----	2.90	-----	3.70	-----	-----	48.00
17	3	2	13	-----	2.90	-----	4.50	-----	-----	48.00
17	3	2	14	-----	2.90	-----	6.00	-----	-----	48.00
17	3	2	15	-----	2.90	-----	7.00	-----	-----	46.00
17	3	2	16	-----	2.90	-----	9.00	-----	-----	44.00
17	3	3	1	-----	2.90	-----	0.30	-----	-----	45.00
17	3	3	2	-----	2.90	-----	0.60	-----	-----	46.00

Table 3.--Continued

LOC	BLK	SPT	PC	MATRIX POROSITY	DEN	ARAG	DEPTH	DBSL	WASH	BULK POROSITY
17	3	3	3	-----	2.90	-----	1.00	-----	-----	45.00
17	3	4	1	-----	2.90	-----	0.50	-----	-----	49.00
17	3	4	2	-----	2.90	-----	0.80	-----	-----	48.00
17	3	4	3	-----	2.90	-----	1.20	-----	-----	47.00
17	3	4	4	-----	2.90	-----	1.70	-----	-----	47.00
17	3	4	5	-----	2.90	-----	2.10	-----	-----	43.00
17	3	4	6	-----	2.90	-----	4.00	-----	-----	43.00
17	3	4	7	-----	2.90	-----	4.00	-----	-----	46.00
17	3	4	8	-----	2.90	-----	7.50	-----	-----	47.00
17	3	4	9	-----	2.90	-----	7.50	-----	-----	48.00
17	3	5	1	-----	2.90	93.00	0.50	-----	-----	48.00
17	3	5	2	-----	2.90	94.00	1.00	-----	-----	44.00
17	3	5	3	-----	2.90	-----	1.60	-----	-----	44.00
17	3	5	4	-----	2.90	93.00	1.90	-----	-----	44.00
17	3	5	5	-----	2.90	-----	2.20	-----	-----	44.00
17	3	5	6	-----	2.90	91.00	3.00	-----	-----	46.00
17	3	5	7	-----	2.90	93.00	3.80	-----	-----	43.00
17	3	5	8	-----	2.90	-----	4.50	-----	-----	46.00
17	3	5	9	-----	2.90	93.00	5.00	-----	-----	48.00
17	3	5	10	-----	2.90	-----	5.50	-----	-----	45.00
17	3	5	11	-----	2.90	94.00	5.80	-----	-----	50.00
17	3	5	12	-----	2.90	-----	16.00	-----	-----	50.00
17	3	5	13	-----	2.90	-----	16.00	-----	-----	49.00
17	3	6	1	-----	2.90	-----	0.50	-----	-----	42.00
17	3	6	2	-----	2.90	-----	1.30	-----	-----	45.00
17	3	6	3	-----	2.90	-----	1.80	-----	-----	49.00
17	3	6	4	-----	2.90	-----	2.10	-----	-----	47.00
17	3	6	5	-----	2.90	-----	2.60	-----	-----	45.00
17	3	6	6	-----	2.90	-----	3.00	-----	-----	51.00
17	3	6	7	-----	2.90	-----	3.50	-----	-----	46.00
17	3	6	8	-----	2.90	-----	3.80	-----	-----	47.00
17	3	6	9	-----	2.90	-----	4.20	-----	-----	46.00
17	3	6	10	-----	2.90	-----	5.00	-----	-----	44.00
17	3	6	11	-----	2.90	-----	6.50	-----	-----	51.00
17	3	6	12	-----	2.90	-----	7.30	-----	-----	41.00
17	3	6	13	-----	2.90	-----	7.90	-----	-----	47.00
17	3	6	14	-----	2.90	-----	12.50	-----	-----	49.00

ACKNOWLEDGMENTS

We thank E. A. Shinn and, especially, D. M. Robbin, U.S. Geological Survey, Fisher Island Station, Florida, for arranging our housing, transportation, and for assistance in the field; C. Evans, University of Miami, for providing core to sample; T. C. Michalski, W. Linenberger, R. B. Halley, and K. B. Krystinik, U.S. Geological Survey, Denver, Colorado, respectively, for providing facilities and equipment to measure porosity, for discussions of diagenetic implications, and for helping computerize our data base; L. E. Crabb, University of Miami, for the use of his home; and T. A. Crabb, independent lobsterman, for sharing his piloting skills and for the use of his docking facilities.

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