SITE 824 HOLE A CORE 1H CORED INTERVAL 50.0-59.5 mbsf

TIME-ROCK UNIT: PLEISTOCENE

BIOSTRAT. ZONE/FOSSIL CHARACTER: FORAMINIFERS R/P; N22 - N23; NANNOFOSSILS CN13b - CN14a; RADIOLARIANS; DIATOMS

PALEOMAGNETICS: UNCERTAIN POLARITY

PHYS. PROPERTIES: ● 62.8% 1.77; ● 61.1% 1.74; ● 55.5% 1.81; ● 63.9% 1.70; ● 59.2% 1.77; ● 65.0% 1.80

CHEMISTRY: ● 97.5%; ● 97.35; ● 98.2%; ● 96.2%; ● 96.9%; ● 96.5%

SECTION: 1, 2, 3, 4, 5, 6, 7, CC

METERS: 0.5, 1.0

GRAPHIC LITHOLOGY

DRILLING DISTURB.

SED. STRUCTURES

SAMPLES: IW; PAL

LITHOLOGIC DESCRIPTION

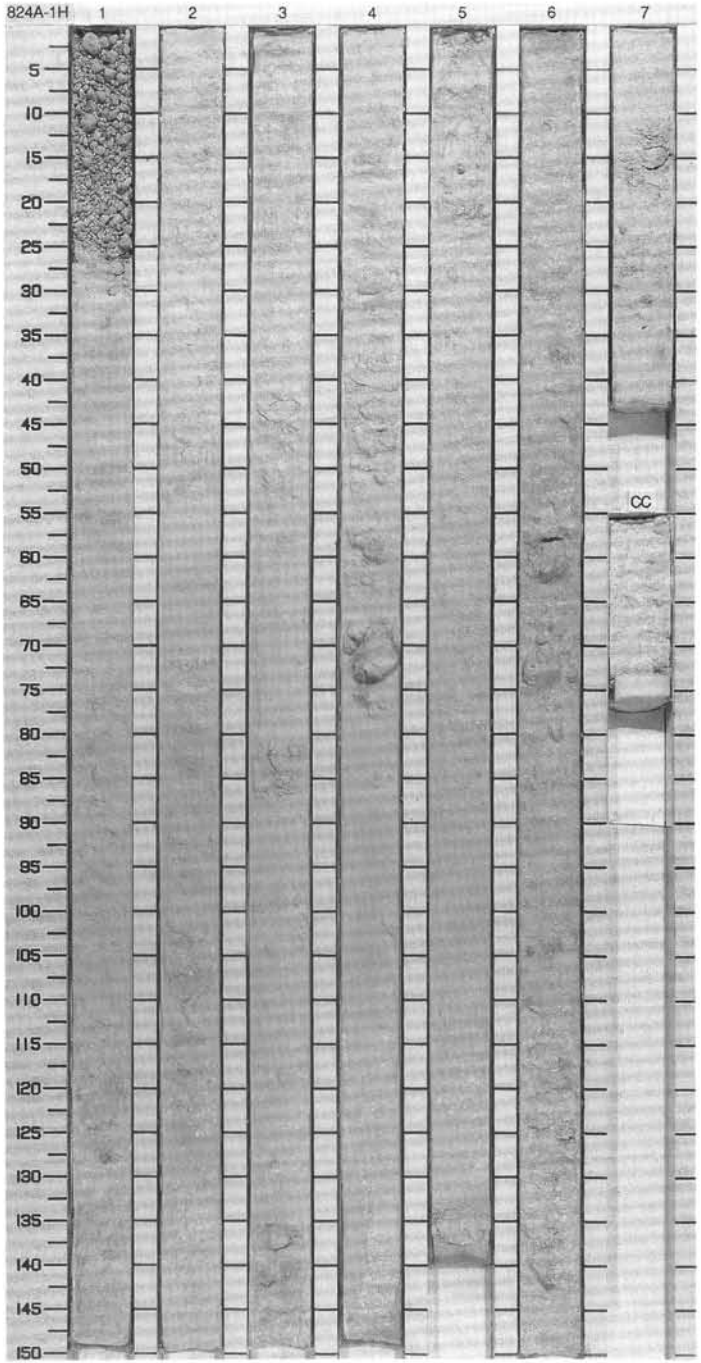
MICRITIC OOZE to CHALK with BIOCLASTS, FORAMINIFERS and INTRACLASTS

Major lithology: White (10Y 8/1) MICRITIC OOZE to CHALK with BIOCLASTS, FORAMINIFERS and INTRACLASTS.

Minor lithology: BIOCLASTIC PACKSTONE with FORAMINIFERS and LITHOCLASTS. Lithoclasts have various origins (cemented or recrystallized bioclasts).

SMEAR SLIDE SUMMARY (%):

	1, 100 D	CF 2, 35 D	CF 3, 129 D	7, 33 D	CF 7, 33 M
COMPOSITION:					
Aragonite	10	---	---	---	---
Bioclast	15	10	75	35	60
Discoaster	---	---	---	10	---
Foraminifers	15	10	20	10	30
Inorganic calcite	2	---	5	10	7
Intraclasts	---	---	---	8	---
Lithoclast	---	30	---	---	---
Micrite	30	---	---	20	---
Nannofossils	8	---	---	5	---
Pellets	20	---	---	---	---
Peloids	---	50	---	---	---
Spicules	---	---	---	1	---
Tunicate	---	---	---	1	3



SITE 824 HOLE A CORE 2H CORED INTERVAL 59.5-69.0 mbsf

TIME-ROCK UNIT: PLEISTOCENE

BIOSTRAT. ZONE/FOSSIL CHARACTER: FORAMINIFERS R/P; N22 - N23; CN13b; CN14a; NANNOFOSSILS; RADIOLARIANS; DIATOMS

PALEOMAGNETICS: UNCERTAIN POLARITY

PHYS. PROPERTIES: ● 64.4% 1.68; ● 62.2% 1.75; ● 62.5% 1.77; ● 59.3% 1.78; ● 58.7% 1.76; ● 60.5% 1.77

CHEMISTRY: ● 97.9%; ● 97.6%; ● 98.4%; ● 98.1%; ● 97.7%; ● 97.4%

SECTION: 1, 2, 3, 4, 5, 6, 7, CC

METERS: 0.5, 1.0

GRAPHIC LITHOLOGY

RILLING DISTURB.

SED. STRUCTURES: F; F; F; F

SAMPLES: PAL

LITHOLOGIC DESCRIPTION

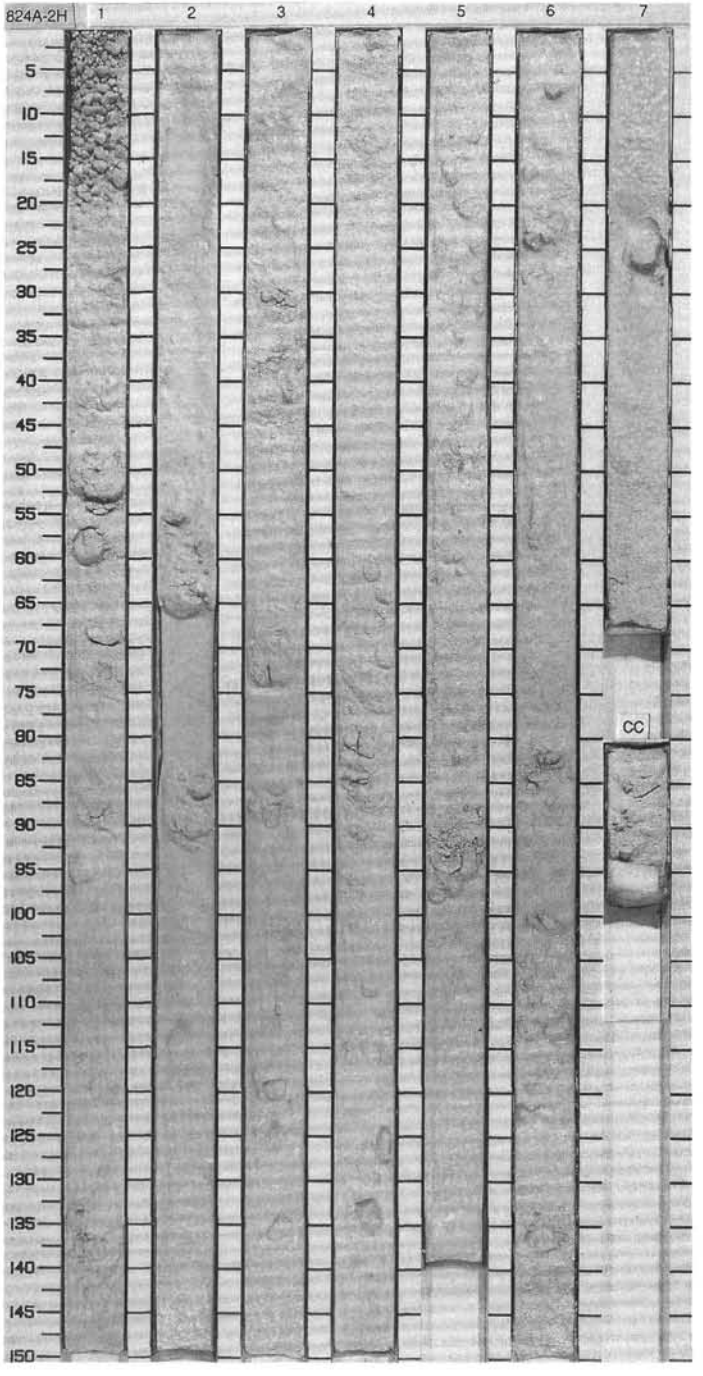
BIOCLASTIC PACKSTONE with FORAMINIFERS

Major lithology: White (10Y 8/1), homogeneous BIOCLASTIC PACKSTONE with FORAMINIFERS. The bioclasts are mainly derived from shallow water. Fining upward of packstone layers occurs.

Minor lithology: White (10Y 8/1) MICRITE OOZE to CHALK with BIOCLASTS, NANNOFOSSILS and FORAMINIFERS.

SMEAR SLIDE SUMMARY (%):

	1, 77 D	4, 47 D	CF 4, 130 D
COMPOSITION:			
Bioclast	20	35	65
Foraminifers	10	10	10
Inorganic calcite	15	20	---
Intraclasts	---	---	5
Lithoclast	---	---	15
Micrite	40	25	---
Nannofossils	15	5	---
Spicules	---	5	5



SITE 824 HOLE A CORE 3H CORED INTERVAL 69.0-78.5 mbsf

TIME-ROCK UNIT: PLEISTOCENE

BIOSTRAT. ZONE/FOSSIL CHARACTER: FORAMINIFERS: R/P; N22 - N23; NANNOFOSSILS: CN13b; CN14a; RADIOLARIANS; DIATOMS

PALEOMAGNETICS: UNCERTIAN POLARITY

PHYS. PROPERTIES: ● 61.2% 1.78 ● 97.0%; ● 60.6% 1.85 ● 99.5%; ● 56.5% 1.83 ● 99.3%; ● 49.4% 1.92 ● 98.3%; ● 59.0% 1.76 ● 95.0%; ● 62.4% 1.74 ● 97.0%

CHEMISTRY

SECTION: 1, 2, 3, 4, 5, 6, 7, CC

METERS: 0.5, 1.0

GRAPHIC LITHOLOGY

DRILLING DISTURB.

SED. STRUCTURES: F, F

SAMPLES: IW, OG, PAL

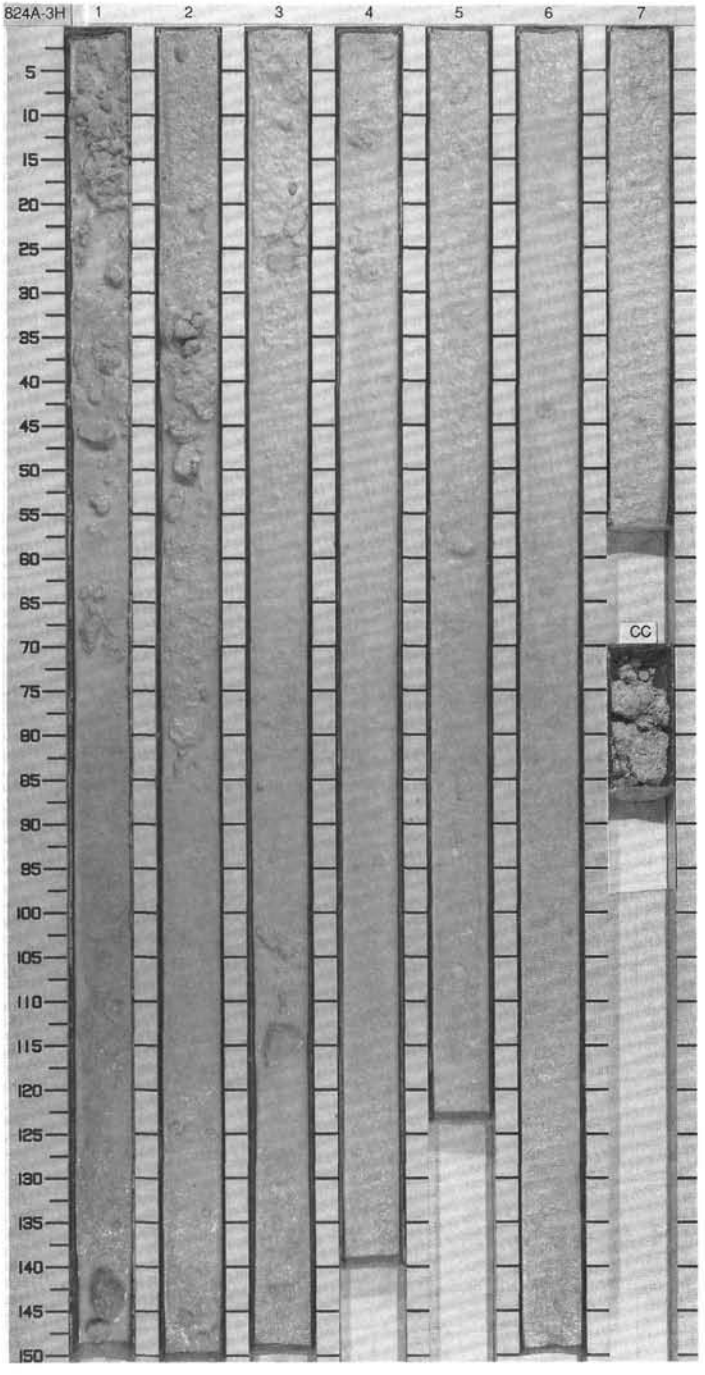
LITHOLOGIC DESCRIPTION

BIOCLASTIC PACKSTONE with FORAMINIFERS

Major lithology: Homogeneous, white (10Y 8/1), fine sand to coarse gravel-size BIOCLASTIC PACKSTONE with FORAMINIFERS. The upper part of the core is not lithified but contains a few chalk horizons. Lithification increases downward.

COARSE FRACTION SUMMARY (%):

	2, 24 D	5, 74 D
COMPOSITION:		
Bioclast	40	55
Bryozoa	5	---
Foraminifers	15	15
Halimeda	35	---
Intraclasts	5	30



SITE 824 HOLE A CORE 4H CORED INTERVAL 78.5-88.0 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	BIOSTRAT. ZONE/ FOSSIL CHARACTER: NANNOFOSSILS	BIOSTRAT. ZONE/ FOSSIL CHARACTER: RADIOLARIANS	BIOSTRAT. ZONE/ FOSSIL CHARACTER: DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
PLEISTOCENE	N22 - N23	CN13b - CN14a			UNCERTAIN POLARITY			1	0.5				□	Highly disturbed soupy sediment. Coarse fraction consists mainly of bioclasts and lithoclasts. COARSE FRACTION SUMMARY (%): 1, 48 D COMPOSITION: Bioclast 75 Foraminifers 5 Lithoclast 20
									1.0					
								2						
								3						
								4						
	R/P							5						

PHOTO DOES NOT EXIST

SITE 824 HOLE A CORE 5H CORED INTERVAL 88.0-97.5 mbsf

TIME-ROCK UNIT: PLEITSTOCENE

BIOSTRAT. ZONE/FOSSIL CHARACTER: FORAMINIFERS: N22 - N23; NANNOFOSSILS: CN13b - CN14a; RADIOLARIANS; DIATOMS; C/P

PALEOMAGNETICS: UNCERTAIN POLARITY

PHYS. PROPERTIES: ● 56.1% 1.81; ● 56.4% 1.85; ● 54.2% 1.88; ● 51.1% 1.94; ● 55.9% 1.79; ● 56.3% 1.81

CHEMISTRY: ● 99.0%; ● 97.3%; ● 98.4%; ● 98.4%; ● 98.0%; ● 95.0%

SECTION: 1, 2, 3, 4, 5, 6, CC

METERS: 0.5, 1.0

GRAPHIC LITHOLOGY

DRILLING DISTURB.

SED. STRUCTURES: F

SAMPLES: *, IW, *, PAL

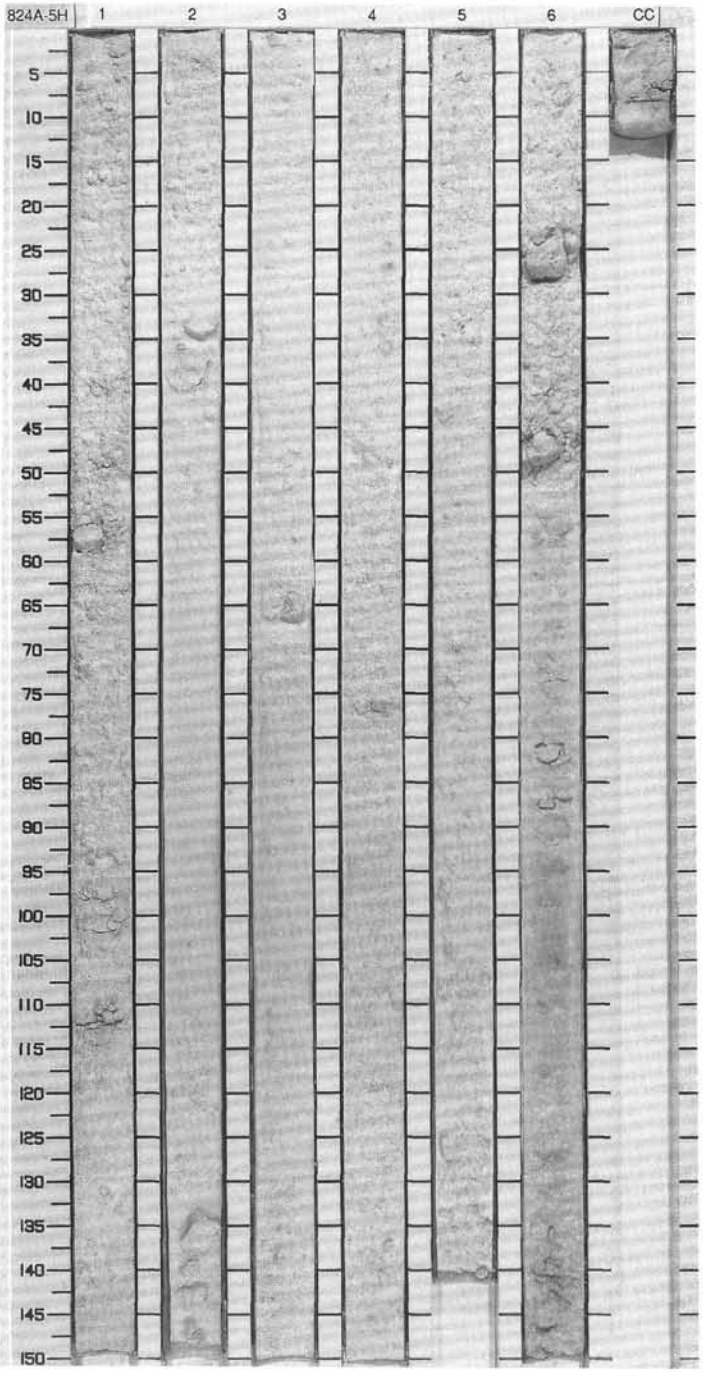
LITHOLOGIC DESCRIPTION

BIOCLASTIC PACKSTONE and RUDSTONE

Major lithology: White (10YR 8/2) BIOCLASTIC PACKSTONE and RUDSTONE with micritic matrix. Bioclasts derive from shallow water (corals). Layers with normal grading occur.

SMEAR SLIDE SUMMARY (%):

	3, 50 D	6, 130 D	7, 15 D
COMPOSITION:			
Aragonite	10	15	---
Calcite	60	20	30
Clay	---	20	20
Micrite	30	15	30
Nannofossils	---	30	20



SITE 824 HOLE A CORE 6H CORED INTERVAL 97.5-107.0 mbsf

TIME-ROCK UNIT: PLEISTOCENE

BIOSTRAT. ZONE/FOSSIL CHARACTER: FORAMINIFERS A/M N22 - N23; NANNOFOSSILS CN13a - CN12d; RADIOLARIANS; DIATOMS

PALEOMAGNETICS: UNCERTAIN POLARITY

PHYS. PROPERTIES: ● 61.0% 1.79; ● 55.4% 1.74; ● 51.5% 1.82; ● 59.0% 1.77

CHEMISTRY: ● 56.1% 1.81; ● 56.7% 1.79; ● 96.6%; ● 97.5%; ● 97.4%; ● 97.1%; ● 97.6%; ● 97.5%

SECTION: 1 2 3 4 5 6 7

METERS: 0.5, 1.0

GRAPHIC LITHOLOGY

DRILLING DISTURB.

SED. STRUCTURES

SAMPLES: OG

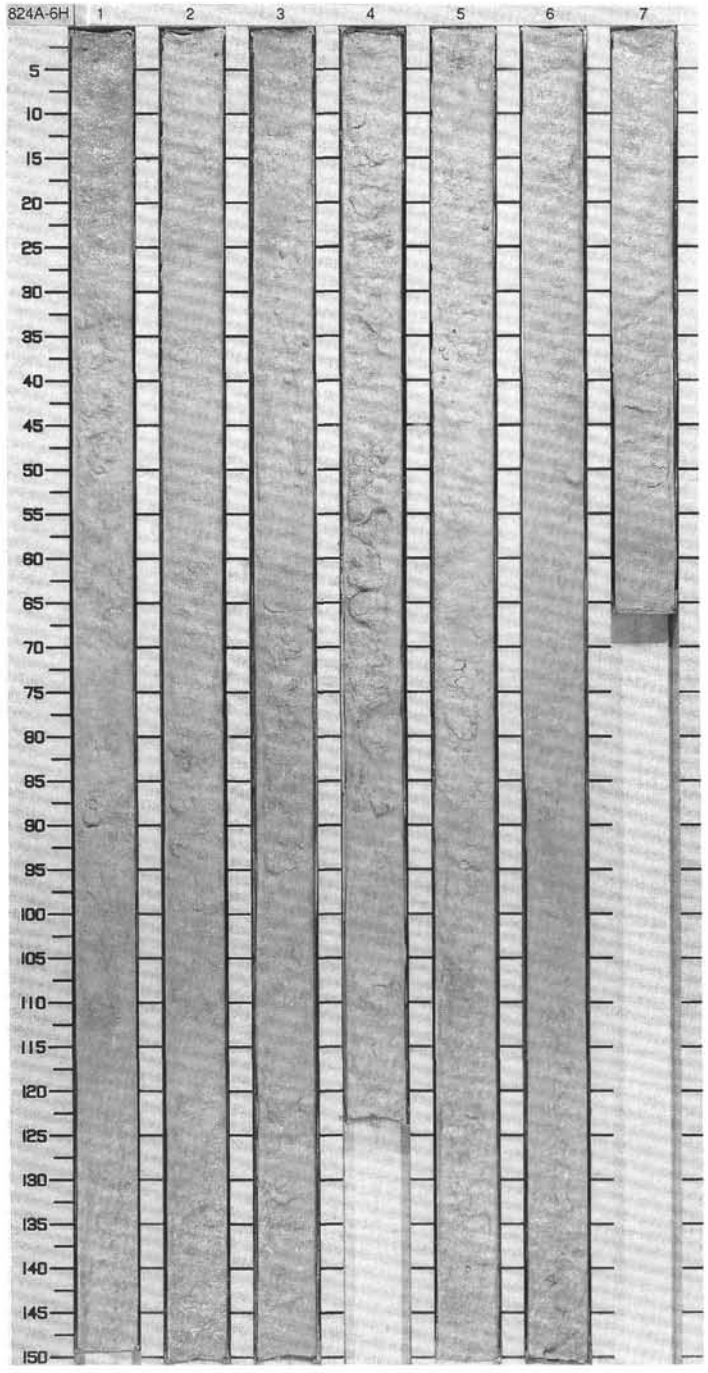
LITHOLOGIC DESCRIPTION

BIOCLASTIC FORAMINIFER PACKSTONE

Major lithology: White (10YR 8/1), partly to well-lithified, BIOCLASTIC FORAMINIFER PACKSTONE.

SMEAR SLIDE SUMMARY (%):

	1, 15 D	2, 108 D	3, 118 D	7, 60 D
COMPOSITION:				
Bioclast	20	35	30	35
Calcite	10	15	20	10
Foraminifers	25	5	2	10
Lithoclast	---	---	---	7
Micrite	39	30	40	25
Nannofossils	6	15	3	10
Quartz	---	---	2	---
Rock fragment	---	---	3	---
Spicules	---	---	---	2
Tunicate	---	---	---	1



SITE 824 HOLE A CORE 7H CORED INTERVAL 107.0-116.5 mbsf

TIME-ROCK UNIT: PLIOCENE

BIOSTRAT. ZONE/FOSSIL CHARACTER: FORAMINIFERS: N22 - N23; NANNOFOSSILS: CN10a - CN12c; RADIOLARIANS: A/M; DIATOMS:

PALEOMAGNETICS: UNCERTAIN POLARITY

PHYS. PROPERTIES: ● 57.5% 1.81; ● 59.3% 1.76; ● 57.3% 1.79; ● 56.9% 1.97

CHEMISTRY: ● 97.2%; ● 98.0%; ● 97.0%; ● 96.0%

SECTION: 1, 2, 3, 4, 5, 6, 7, CC

METERS: 0.5, 1.0

GRAPHIC LITHOLOGY

DRILLING DISTURB.

SED. STRUCTURES

SAMPLES: PAL

LITHOLOGIC DESCRIPTION

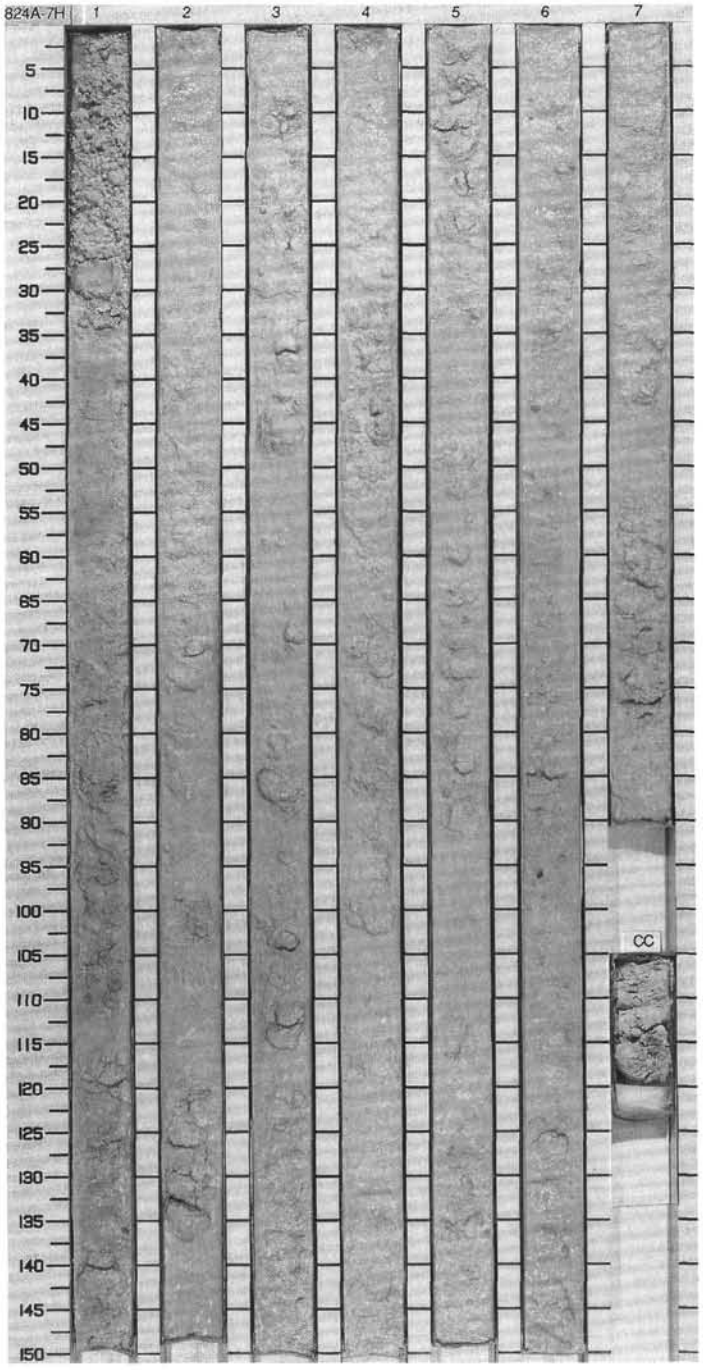
NANNOFOSSIL MUDSTONE with BIOCLASTS

Major lithology: White (10YR 8/1) NANNOFOSSIL MUDSTONE with BIOCLASTS to BIOCLASTIC NANNOFOSSIL MUDSTONE.

Minor lithology: White (10YR 8/2) beds of unlithified BIOCLASTIC FORAMINIFER PACKSTONE. Fining upward sequences occur in Section 5.

SMEAR SLIDE SUMMARY (%):

	1, 57 M	2, 68 D	4, 52 D	CF 4, 52 D
COMPOSITION:				
Bioclast	20	20	10	5
Foraminifers	10	10	5	10
Glauconite	---	Tr	---	---
Inorganic calcite	5	10	---	---
Lithoclast	---	---	30	85
Micrite	32	30	30	---
Nannofossils	30	30	25	---
Spicules	3	---	---	---



SITE 824 HOLE A CORE 8H CORED INTERVAL 116.5-126.0 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
PLIOCENE	R/P	N22 - N23 / CN10a - CN12c			UNCERTAIN POLARITY	• 56.2% 1.89 • 57.1% 1.72 • 57.1% 1.80 • 55.5% 1.80 • 56.9% 1.81 • 56.4% 1.81	• 98.5% • 97.3% • 97.4% • 97.5% • 97.7% • 98.0%	1 2 3 4 5 6 7	0.5 1.0				* TW □ □ PAL

LITHOLOGIC DESCRIPTION

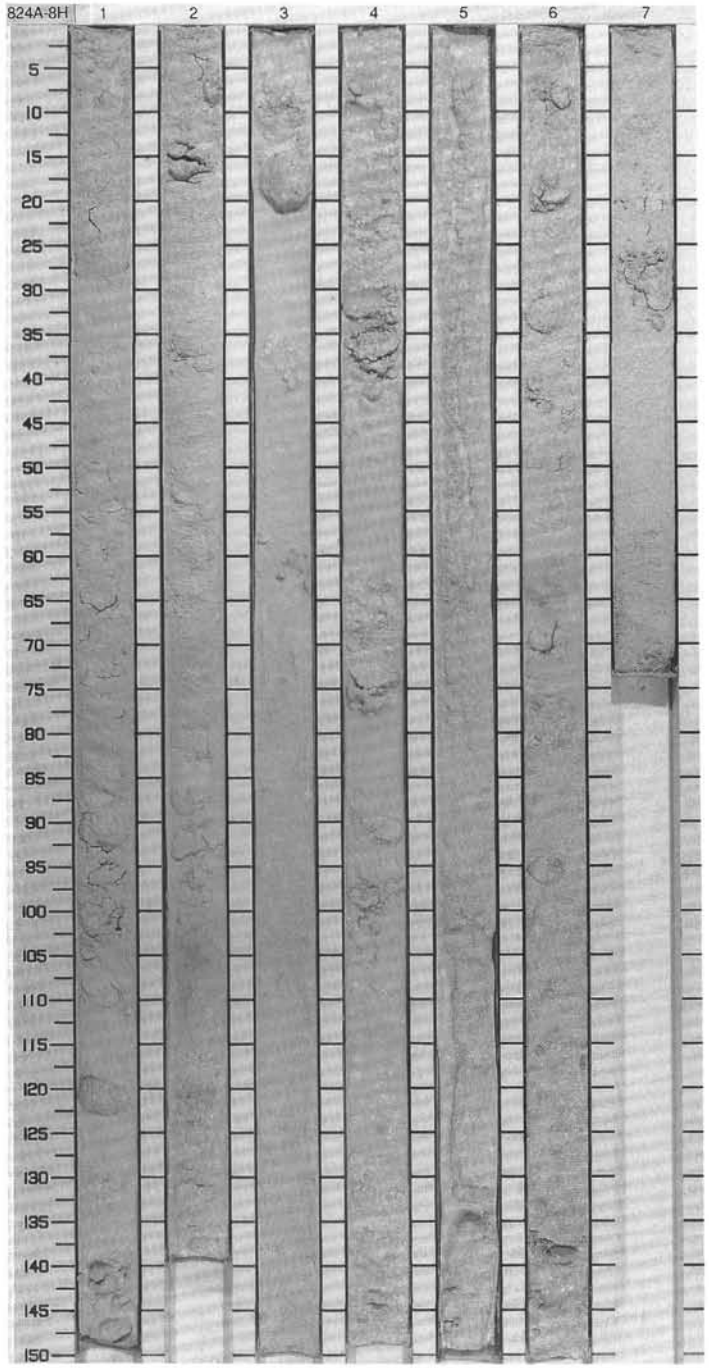
CALCAREOUS MUDSTONE with BIOCLASTS

Major lithology: White (10YR 8/1), partly to well-lithified, CALCAREOUS MUDSTONE with BIOCLASTS.

Minor lithology: Very pale brown (10YR 8/3), unlithified to partly lithified, fine to medium sand-sized, BIOCLASTIC PACKSTONE. Bioclastic detritus derives from shallow water.

SMEAR SLIDE SUMMARY (%):

	1, 76 D	CF 3, 110 D	CF 5, 57 D
COMPOSITION:			
Bioclast	10	25	12
Bryozoa	---	10	10
Calcite	25	---	---
Coral	---	---	5
Echinoid spine	---	5	3
Foraminifers	3	15	15
Intraclasts	---	---	10
Lithoclast	---	30	20
Micrite	55	---	---
Mollusk	---	15	15
Quartz	1	---	---
Rock fragment	1	---	---
Spicules	---	---	10



SITE 824 HOLE A CORE 9H CORED INTERVAL 126.0-135.5 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
PLIOCENE	?	CN10a - CN12c			UNCERTAIN POLARITY	● 57.2% 1.80	● 96.5%	1	0.5 / 1.0				*
						● 57.7% 1.97	● 97.1%	2					
						● 53.3% 1.84	● 97.3%	3					
						● 57.0% 1.73	● 96.5%	4					
					● 54.2% 1.85		● 96.0%	5					
					● 58.9% 1.87		● 97.3%	6					CC
	R/P							7					PAL

LITHOLOGIC DESCRIPTION

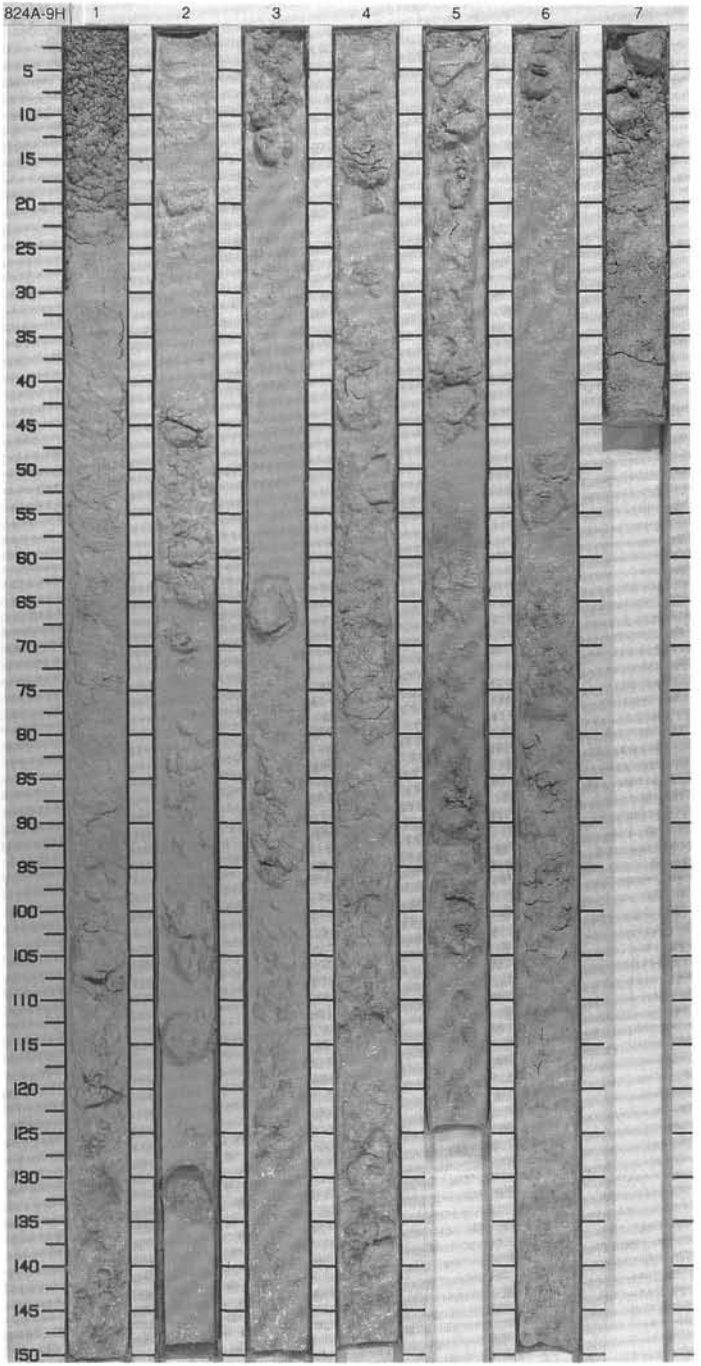
CALCAREOUS MUDSTONE with MICRITE or NANNOFOSSILS

Major lithology: White (10YR 8/1), moderately lithified CALCAREOUS MUDSTONE with MICRITE or NANNOFOSSILS. BIOCLASTS occur only subordinately.

Minor lithology: White (10 YR 8/2), well sorted BIOCLASTIC FORAMINIFER PACKSTONE. No grading. Unlithified and cemented layers occur.

SMEAR SLIDE SUMMARY (%):

	1, 44 D	CF 7, 32 D
COMPOSITION:		
Aragonite	10	---
Bioclast	10	70
Foraminifers	---	5
Inorganic calcite	25	5
Intraclasts	---	5
Lithoclast	---	15
Micrite	30	---
Nannofossils	20	---
Tunicate	5	---



SITE 824 HOLE A CORE 10X CORED INTERVAL 135.5-137.9 mbsf

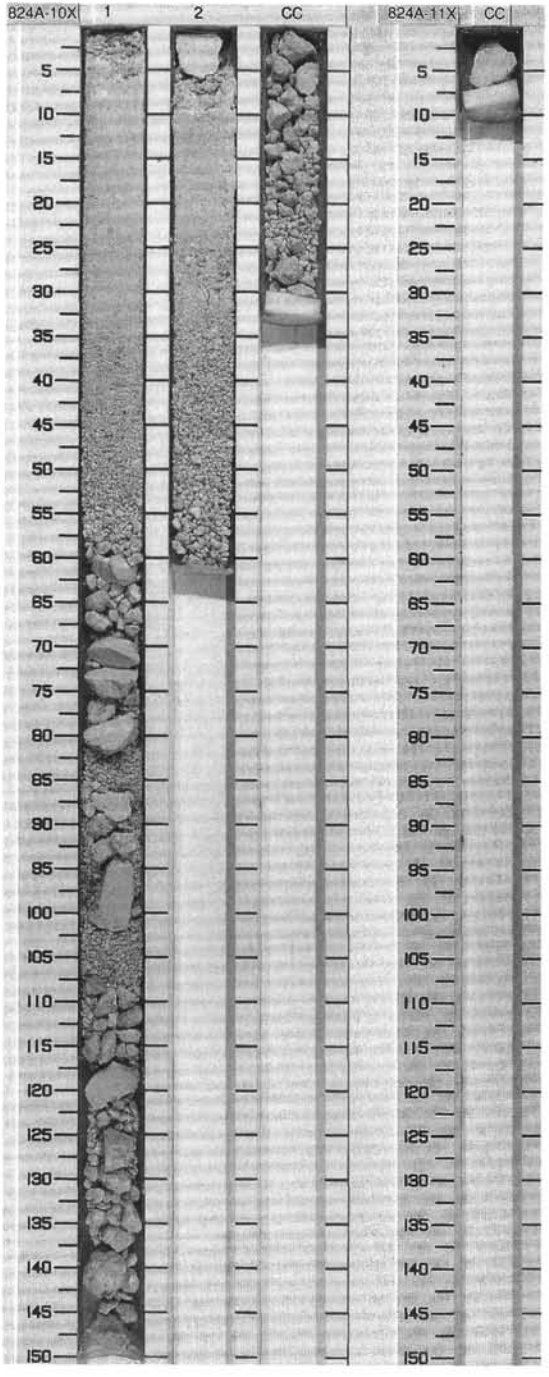
TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	BIOSTRAT. ZONE/ FOSSIL CHARACTER: NANNOFOSSILS	BIOSTRAT. ZONE/ FOSSIL CHARACTER: RADIOLARIANS	BIOSTRAT. ZONE/ FOSSIL CHARACTER: DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
PLIOCENE	R/P N21	CN10a - CN12c			UNCERTAIN POLARITY			1 2 CC	0.5 1.0		X		PAL	BIOCLASTIC RUDSTONE Major lithology: White (10YR 8/2) to very pale brown (10YR 8/3), well-lithified and partly dolomitic BIOCLASTIC RUDSTONE. Small rhodoliths (size: 3 cm) occur. The matrix consists of BIOCLASTIC PACKSTONE. Moldic porosity after mollusc shells occurs. Minor lithology: BIOCLASTIC PACKSTONE.

SITE 824 HOLE A CORE 11X CORED INTERVAL 137.9-146.4 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	BIOSTRAT. ZONE/ FOSSIL CHARACTER: NANNOFOSSILS	BIOSTRAT. ZONE/ FOSSIL CHARACTER: RADIOLARIANS	BIOSTRAT. ZONE/ FOSSIL CHARACTER: DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
PLIOCENE								CC					PAL	BIOCLASTIC RUDSTONE Major lithology: White (10YR 8/2) BIOCLASTIC RUDSTONE. Rhodoliths occur as well as fragments of branched coralline algae.

824A 12X NO RECOVERY

824A 13X NO RECOVERY



SITE 824 HOLE A CORE 14H CORED INTERVAL 165.7-175.2 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
PLIOCENE	?	CN10a - CN12c			UNCERTAIN POLARITY	• 42.9% 2.03 • 55.9% 1.81 • 55.6% 1.78 • 56.8% 1.80 • 53.8% 1.84 • 56.7% 1.80 • 97.0%	• 99.6% • 98.1% • 97.1% • 97.3% • 97.9%	1 2 3 4 5 6 7 CC	0.5 1.0				□ * TW PAL
	R/P												

LITHOLOGIC DESCRIPTION

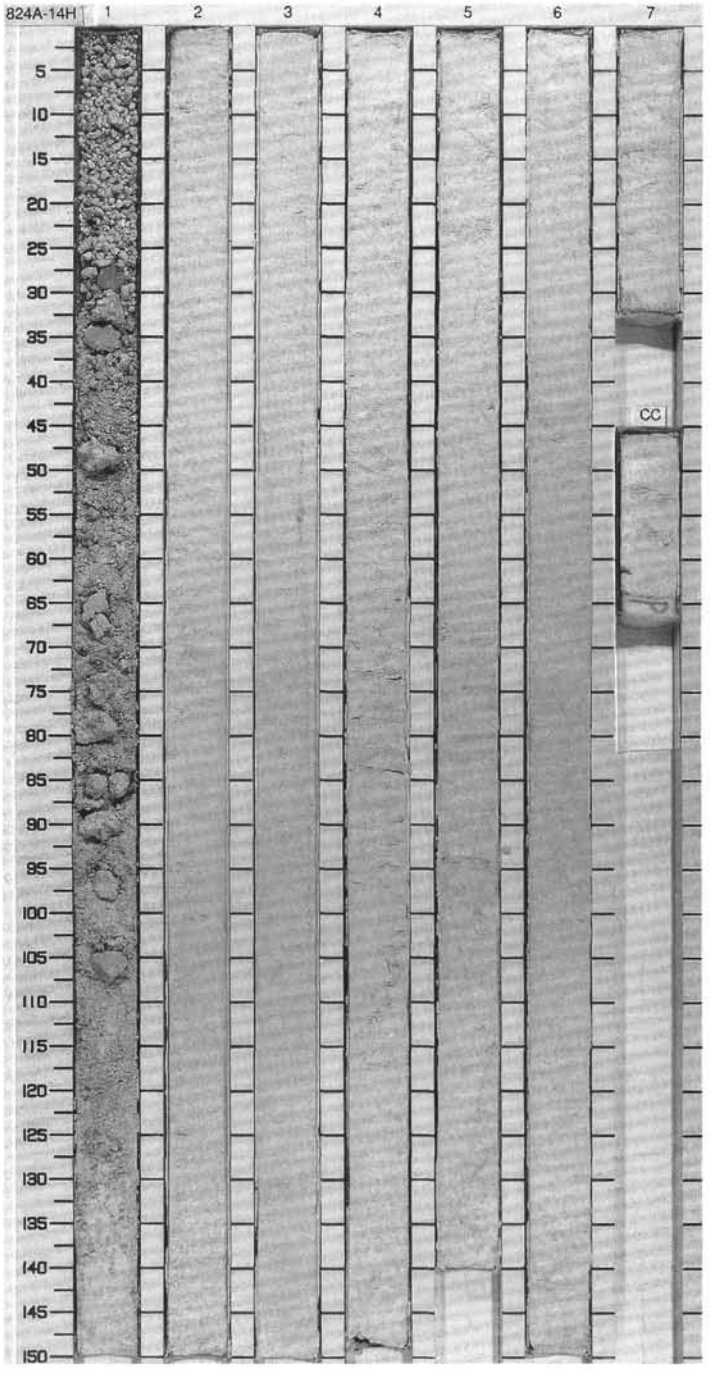
CALCITIC BIOCLASTIC NANNOFOSSIL OOZE with FORAMINIFERS

Major lithology: Very white (10YR 8/0), CALCITIC BIOCLASTIC NANNOFOSSIL OOZE with FORAMINIFERS. Up to 40% of medium sand-size grains occur scattered throughout. Silty to sandy carbonate layers of 1 cm thickness occur scattered throughout core.

Minor lithology (Section 1, 35-140 cm): White (10YR 8/1), CORAL and BIOCLASTIC RUDSTONE. Pebbles with dark gray (N6 to N2) stain and moldic porosity are ubiquitous. Bioclasts consist of corals (massive and branched), coralline algae, echinoids and molluscs.

SMEAR SLIDE SUMMARY (%):

	CF 1, 120 D	2, 100 D
COMPOSITION:		
Algae	9	---
Bioclast	---	25
Coral	90	---
Echinoid	1	---
Foraminifers	---	12
Inorganic calcite	---	25
Micrite	---	5
Nannofossils	---	32
Spicules	---	1



SITE 824 HOLE A CORE 15H CORED INTERVAL 175.2-184.7 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
MIDDLE MIOCENE - UPPER MIOCENE	? R/P	CN5a - CN9b			UNCERTAIN POLARITY	● 53.8% 1.88 ● 54.5% 1.82 ● 53.8% 1.85 ● 52.5% 1.89 ● 56.3% 1.77 ● 47.9% 1.97	● 98.5% ● 98.1% ● 99.2% ● 99.4% ● 99.0% ● 99.3%	1 2 3 4 5 6 CC	0.5 1.0				* □ * OG * PAL

LITHOLOGIC DESCRIPTION

CALCITIC NANNOFOSSIL OOZE or CHALK with MICRITE

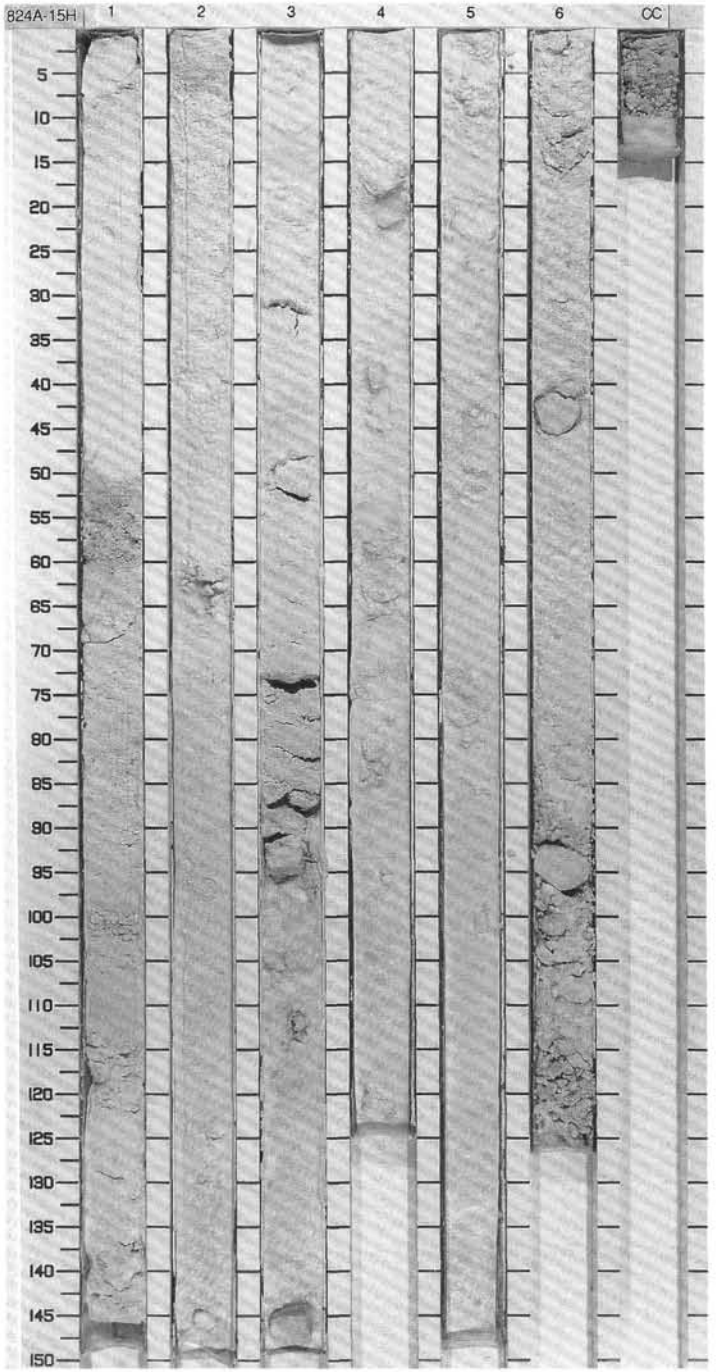
Major lithology: White to very white (10YR 8/0.5), CALCITIC NANNOFOSSIL OOZE or CHALK with MICRITE.

Minor lithology: Light gray (5Y 7/1), BIOCLASTIC CALCITIC PACKSTONE (medium sand-size) with NANNOFOSSILS and MICRITE. The bases of the packstone layers are more abrupt than their tops; no graded bedding. In Section 1 (50-60 cm) a rudstone layer contains both SHALLOW WATER DEBRIS and planktonic FORAMINIFERS.

SMEAR SLIDE SUMMARY (%):

	1, 20 D	CF 1, 55 D	4, 100 D	6, 124 D
COMPOSITION:				
Algae	---	10	---	---
Benthic forams	---	10	---	---
Bioclast	6	9	25	15
Coral	---	35	---	---
Echinoid	---	2	---	---
Foraminifers	3	30	7	5
Inorganic calcite	30	---	42	56
Micrite	10	---	10	15
Mollusk	---	4	---	---
Nannofossils	50	---	15	8
Spicules	1	---	1	1

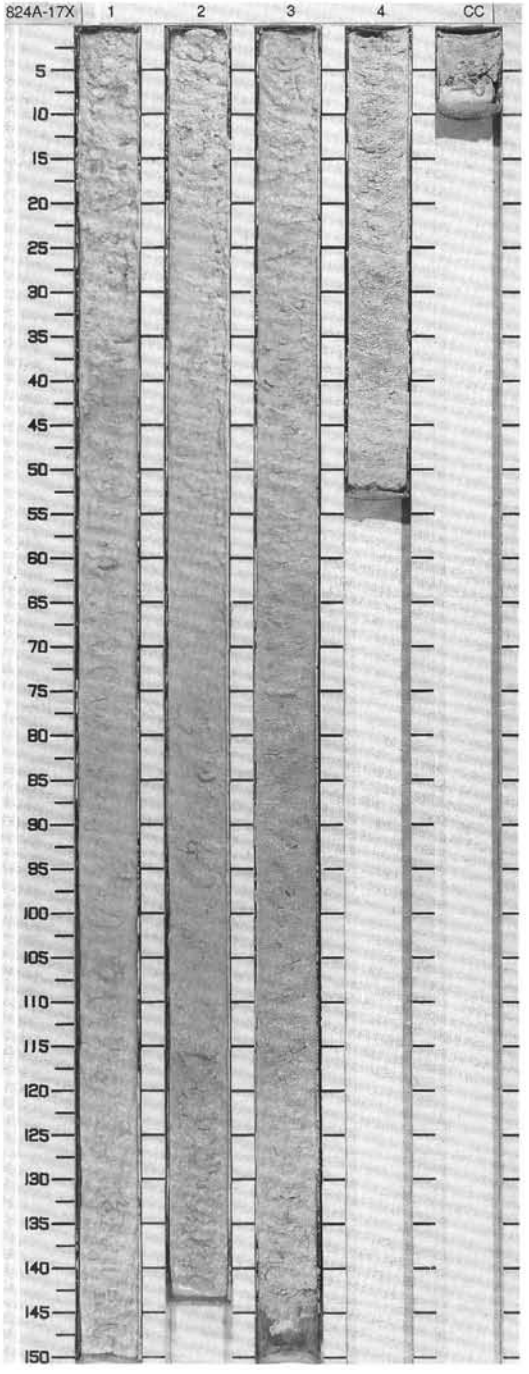
824A 16X NO RECOVERY



SITE 824 HOLE A CORE 17X CORED INTERVAL 194.0-203.6 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
MIDDLE MIOCENE - UPPER MIOCENE	? R/P	CN5a - CN9b			UNCERTAIN POLARITY	• 57.7% 1.81 • 55.5% 1.82 • 57.1% 1.76 • 57.6% 1.77	• 98.5% • 99.0% • 97.9% • 98.4%	1 2 3 4 CC	0.5 1.0				* * PAL	BIOCLASTIC CHALK with NANNOFOSSILS to CALCITIC NANNOFOSSIL CHALK with BIOCLASTS and MICRITE Major lithology: Light gray (10YR 7/1), homogeneous BIOCLASTIC CHALK with NANNOFOSSILS to CALCITIC NANNOFOSSIL CHALK with BIOCLASTS and MICRITE. SMEAR SLIDE SUMMARY (%): 1, 58 D — 4, 28 D COMPOSITION: Bioclast 27 20 *Foraminifers* 5 4 Inorganic calcite --- 28 Micrite 52 10 Nannofossils 15 33 Spicules 1 5

824A 18X NO RECOVERY



SITE 824 HOLE A CORE 19X CORED INTERVAL 213.3-223.0 mbsf

TIME-ROCK UNIT: MIDDLE MIOCENE - UPPER MIOCENE

BIOSTRAT. ZONE/FOSSIL CHARACTER: FORAMINIFERS: R/P; NANNOFOSSILS: ? CN5a - CN9b; RADIOLARIANS; DIATOMS

PALEOMAGNETICS: UNCERTAIN POLARITY

PHYS. PROPERTIES: ● 56.8% 1.81; ● 57.2% 1.80; ● 56.4% 1.80; ● 58.1% 1.74; ● 54.2% 1.84; ● 56.9% 1.80

CHEMISTRY: ● 97.0%; ● 96.9%; ● 97.0%; ● 98.4%; ● 99.0%; ● 97.1%

SECTION: 1, 2, 3, 4, 5, 6, 7, CC

METERS: 0.5, 1.0

GRAPHIC LITHOLOGY

DRILLING DISTURB.

SED. STRUCTURES: *

SAMPLES: *, OG, PAL

LITHOLOGIC DESCRIPTION

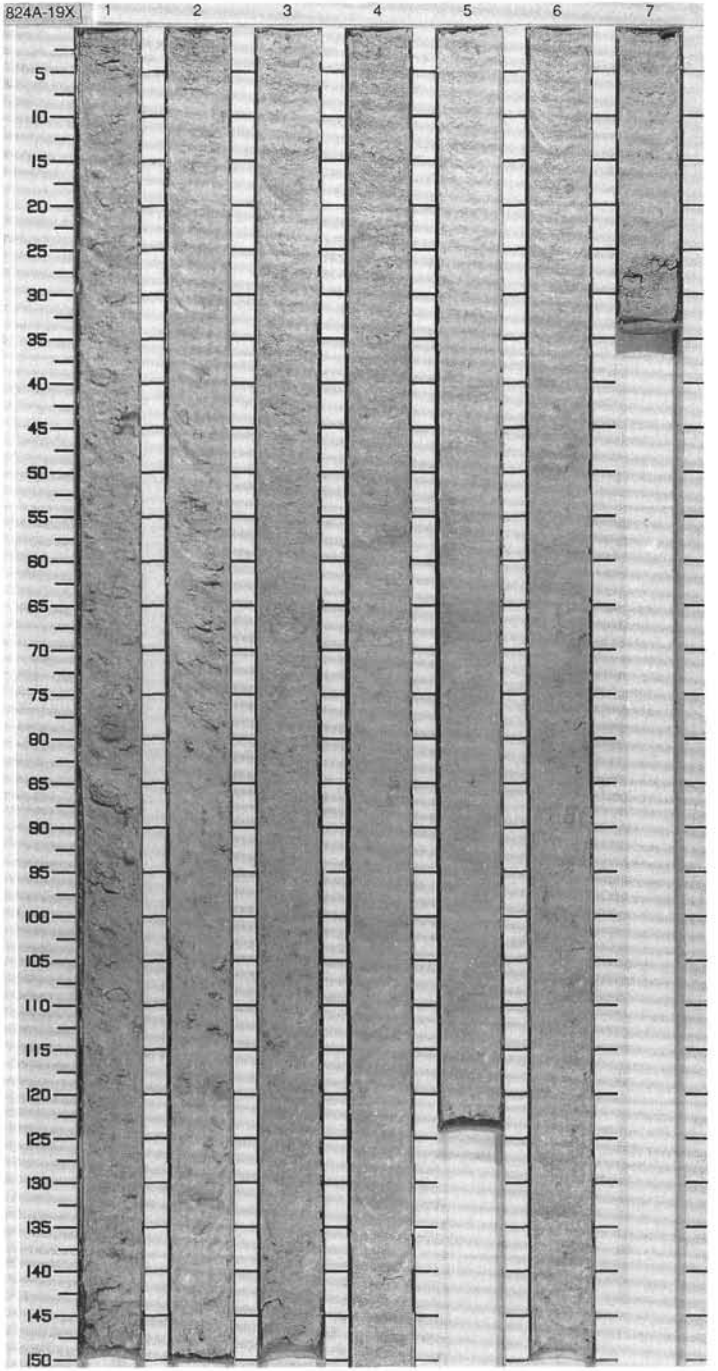
CALCITIC BIOCLASTIC NANNOFOSSIL CHALK

Major lithology: Light gray (10YR 7/1) to white (10YR 8/1), homogeneous CALCITIC BIOCLASTIC CHALK. In the lower half of the core the amount of MICRITE and BIOCLASTS increase: CALCITIC NANNOFOSSIL CHALK with MICRITE and NANNOFOSSILS.

SMEAR SLIDE SUMMARY (%):

	1, 78 D	5, 82 D
COMPOSITION:		
Bioclast	25	20
Foraminifers	8	11
Inorganic calcite	25	17
Micrite	12	20
Nannofossils	26	29
Spicules	4	3

824A 20X NO RECOVERY



SITE 824 HOLE A CORE 21X CORED INTERVAL 232.7-242.3 mbsf

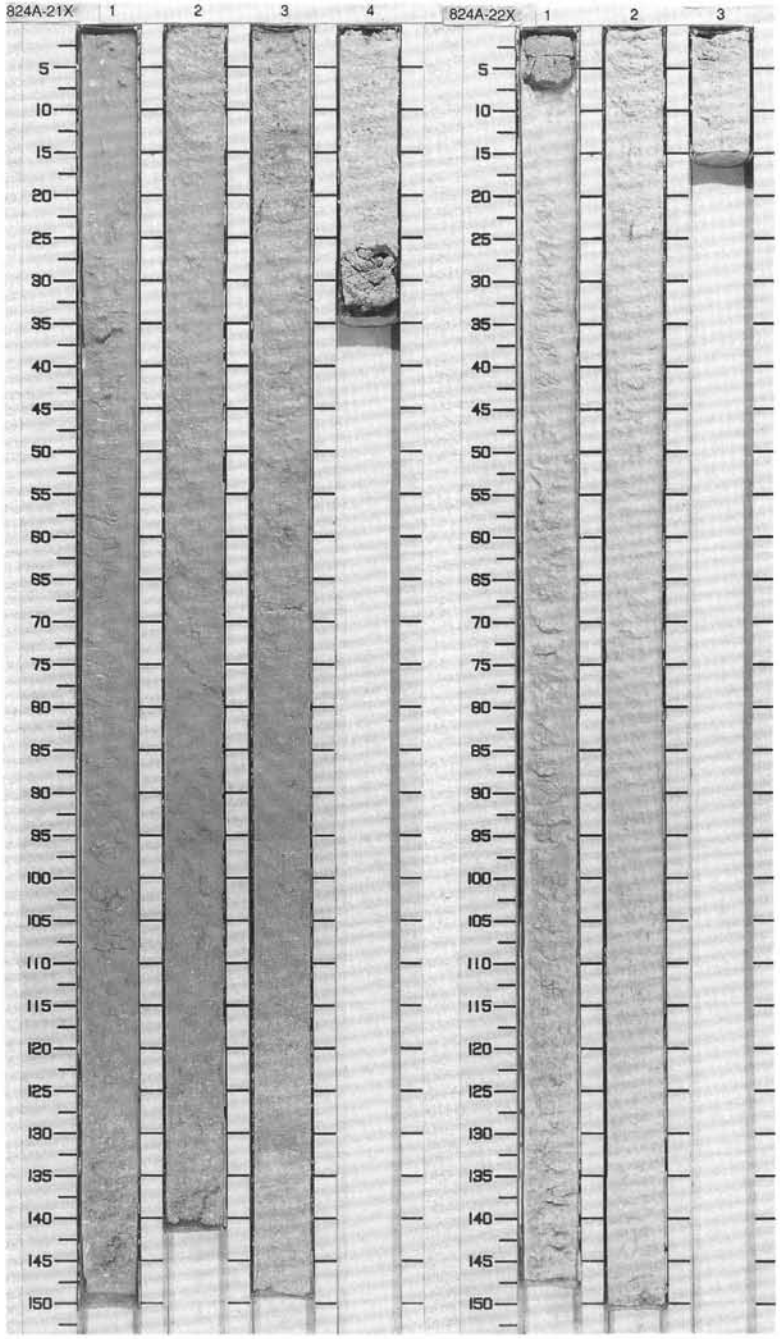
TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
MIDDLE MIOCENE - UPPER MIOCENE	?	CN5a - CN9b			UNCERTAIN POLARITY	● 55.7% 1.77 ● 53.1% 1.84 ● 55.7% 1.82	● 98.0% ● 98.4% ● 97.6%	1 2 3 4	0.5 1.0				* * * PAL	CALCITIC CHALK with BIOCLASTS, NANNOFOSSILS and MICRITE Major lithology: Alternating white (10YR 8/1) and light gray (10YR 7/1), homogeneous CALCITIC CHALK with BIOCLASTS, NANNOFOSSILS and MICRITE. SMEAR SLIDE SUMMARY (%):

	CF 1, 4 D	1, 66 D	1, 80 D	4, 12 D
COMPOSITION:				
Benthic forams	28	---	---	---
Bioclast	32	20	20	20
Bryozoa	2	---	---	---
Calcite	---	---	40	---
Coral	15	---	---	---
Foraminifers	19	8	12	10
Inorganic calcite	---	35	---	34
Micrite	---	15	15	16
Nannofossils	---	19	10	17
Spicules	2	3	3	3

SITE 824 HOLE A CORE 22X CORED INTERVAL 242.3-252.0 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
MIDDLE MIOCENE - UPPER MIOCENE	?	CN5a - CN9b			UNCERTAIN POLARITY	● 51.8% 1.79 ● 53.8% 1.84	● 99.0% ● 98.5%	1 2 3	0.5 1.0				PAL	BIOCLASTIC CALCITIC CHALK with MICRITE, FORAMINIFERS and NANNOFOSSILS Major lithology: White (10YR 8/1), homogeneous BIOCLASTIC CHALK with MICRITE, FORAMINIFERS and NANNOFOSSILS. Minor lithology: Very pale brown (10YR 8/3), partly lithified, BIOCLASTIC FORAMINIFER GRAINSTONE with CORALS.

824A 23X NO RECOVERY



SITE 824 HOLE A CORE 24X CORED INTERVAL 261.6-271.3 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
								CC					PAL	Isolated fragments of molluscs and foraminifers, BIOCLASTIC FORAMINIFER PACKSTONE as well as BIOCLASTIC CALCITIC CHALK.

824A 25X NO RECOVERY

824A 26X NO RECOVERY

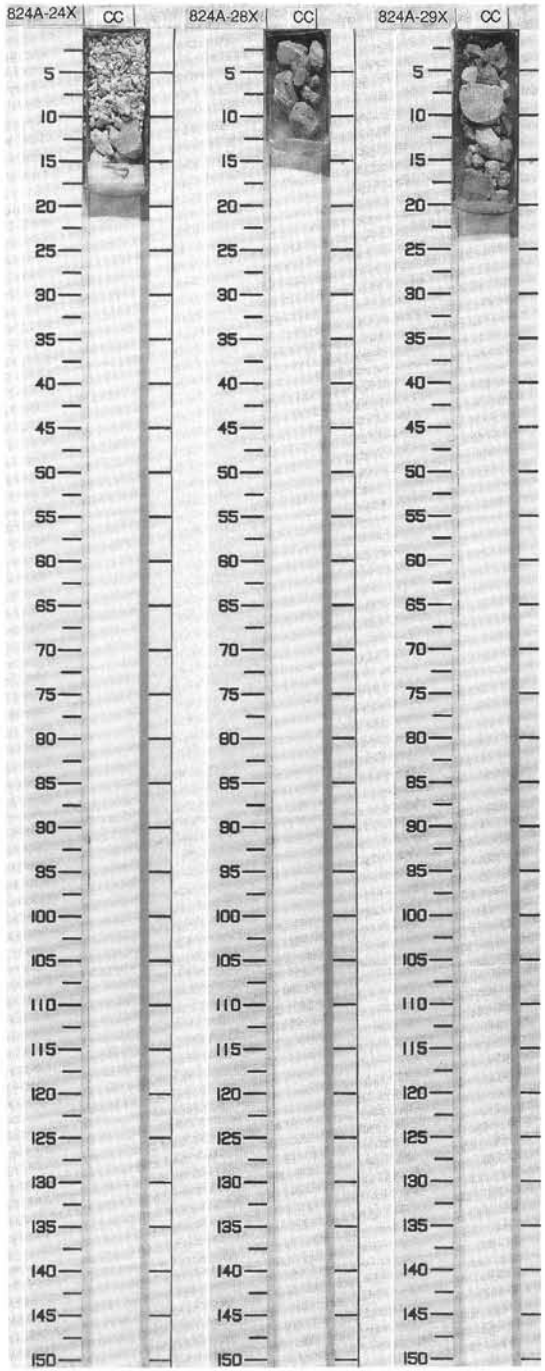
824A 27X NO RECOVERY

SITE 824 HOLE A CORE 28X CORED INTERVAL 300.2-309.9 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
								CC					PAL	SKELETAL PACKSTONE or FLOATSTONE Major Lithology: White (10YR 8/2) to pale yellow (10YR 8/3), well lithified SKELETAL PACKSTONE or FLOATSTONE. Bioclasts include bivalves, gastropods, benthic foraminifers (miliolids, larger foraminifers), encrusting corallinaceans and branching corals. Moldic porosity after aragonitic bioclasts is prominent.

SITE 824 HOLE A CORE 29X CORED INTERVAL 309.9-319.5 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
								CC					PAL	SKELETAL PACKSTONE or FLOATSTONE Major lithology: White (10YR 8/1) to pale yellow (10YR 8/3), well-lithified, SKELETAL PACKSTONE or FLOATSTONE, composed of reef-derived material as corals, corallinaceans (encrusting and branching forms, rhodoliths), molluscs and large foraminifers. Moldic porosity is common.



SITE 824 HOLE A CORE 30X CORED INTERVAL 319.5-329.2 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
								CC					PAL	SKELETAL PACKSTONE or FLOATSTONE Major lithology: White (10YR 8/1), well-lithified, SKELETAL PACKSTONE or FLOATSTONE. Components are: branching corals, molluscs, large foraminifers and corallinaceans. Moldic porosity is common.

824A 31X NO RECOVERY

SITE 824 HOLE A CORE 32X CORED INTERVAL 338.7-348.4 mbsf

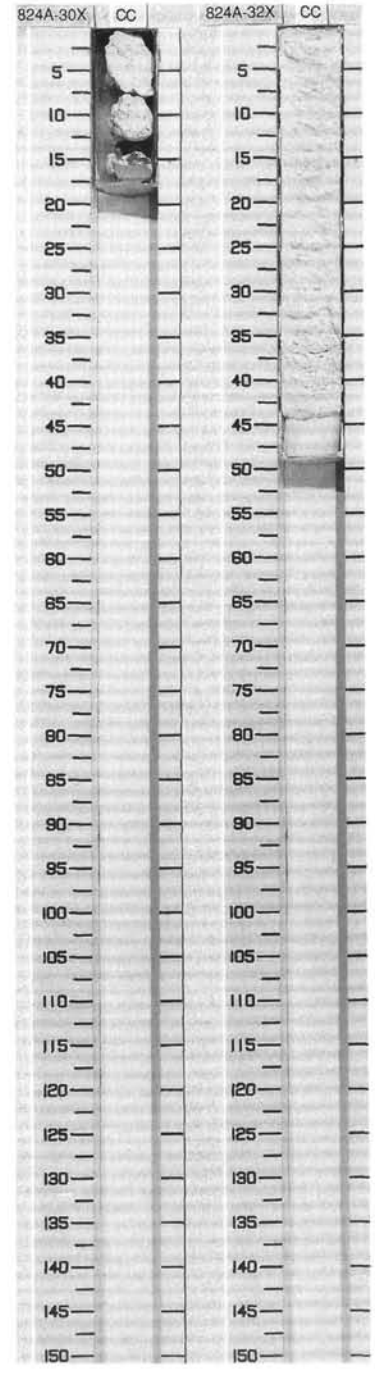
TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
MIDDLE MIOCENE - UPPER MIOCENE			CNa - CN9b					CC					* PAL	CALCITIC CHALK with MICRITE, NANNOFOSSILS and BIOCLASTS Major lithology: White (10YR 8/1), homogeneous CALCITIC CHALK with MICRITE, NANNOFOSSILS and BIOCLASTS. The sand fraction is mainly made up of calcitic lumps. The detrital coarse fraction is made up by coral (branching) and bryozoan fragments, larger foraminifers and corallinaceans. SMEAR SLIDE SUMMARY (%): CC, 26 D COMPOSITION: Bioclast 12 Calcite 52 Foraminifers 5 Micrite 18 Nannofossils 12

824A 33X NO RECOVERY

824A 34X NO RECOVERY

SITE 824 HOLE A CORE 35X CORED INTERVAL 367.7-370.2 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
								CC					PAL	BIOCLASTIC PACKSTONE Major lithology: Medium sand- to silt-size, moderately lithified BIOCLASTIC PACKSTONE. Minor lithology: Moderately to well-lithified CALCAREOUS CHALK with BIOCLASTS.

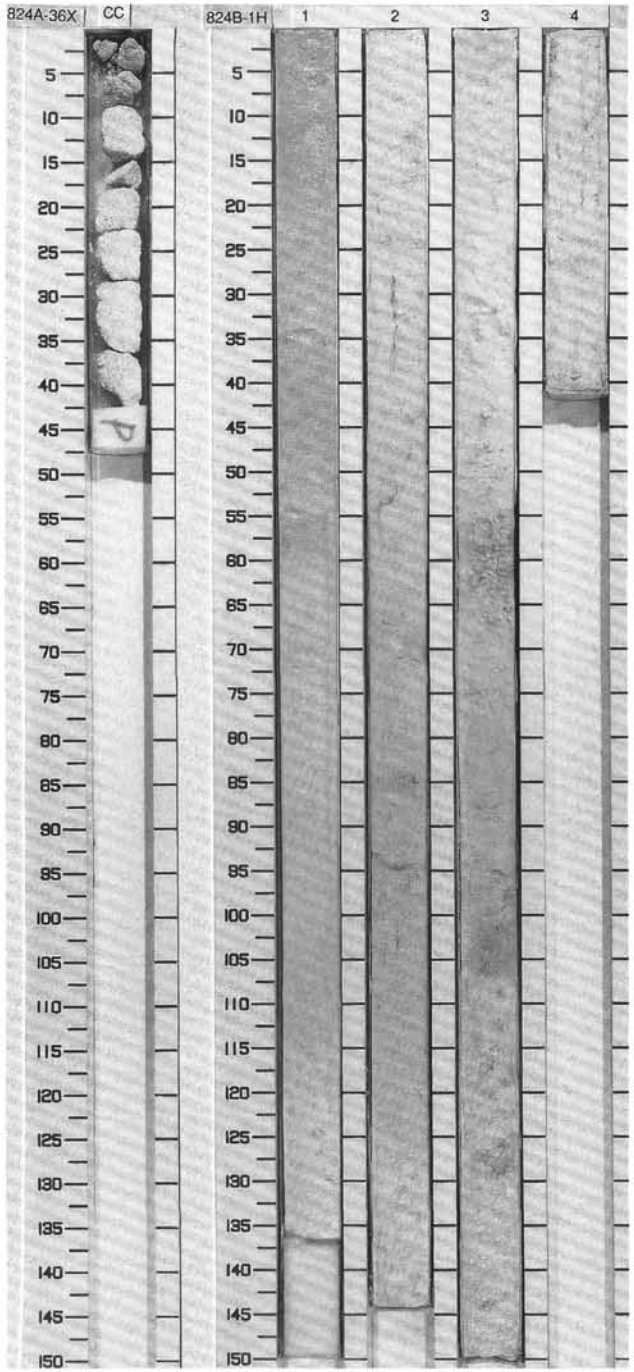


SITE 824 HOLE A CORE 36X CORED INTERVAL 370.2-377.3 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
								CC					PAL	BIOCLASTIC RUDSTONE Major lithology: White (10YR 8/1 to 10YR 8/2) BIOCLASTIC RUDSTONE composed of reef-derived material (fragments of corals, coralline algae, *Halimeda*, large foraminifers, molluscs).

SITE 824 HOLE B CORE 1H CORED INTERVAL 0.0-5.0 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
PLEISTOCENE	N22 - N23	CN14b			N?	● 66.0% 1.73	● 96.2%	1	0.5				*	BIOCLASTIC MICRITIC OOZE with FORAMINIFERS and NANNOFOSSILS Major lithology: Very white (10YR 8/0) to white (10YR 8/1), homogeneous BIOCLASTIC MICRITIC OOZE with FORAMINIFERS and NANNOFOSSILS. The first 50 cm below the mudline is light gray (10YR 7/2) to white (10YR 7/1) FORAMINIFER BIOCLASTIC OOZE with PTEROPODS, NANNOFOSSILS and BIOCLASTS. Minor lithology: White (10YR 8/2) fine to medium sand-sized (unlithified) BIOCLASTIC PACKSTONE with a matrix containing NANNOFOSSILS. One bed (Section 3: 55-71 cm) is *Halimeda* BIOCLASTIC GRAINSTONE to PACKSTONE. SMEAR SLIDE SUMMARY (%): 1, 50 D / 2, 50 D / 3, 50 D COMPOSITION: Bioclast 10 25 25 Foraminifers 25 15 15 Micrite 27 38 — Nannofossils 20 10 48 Pteropod 10 7 — Spicules 5 5 5 Tunicate 3 — 3
									1.0	VOID				
					N?	● 63.7% 1.68		2					*	
													LW	
					N?	● 67.0% 1.60	● 95.4%	3					*	
A/G					N?			4					PAL	



SITE 824 HOLE B CORE 2H CORED INTERVAL 5.0-14.5 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
PLEISTOCENE	A/G	N22 - N23	CN14b		N?	N? 62.3% 1.73	97.0%	1	0.5 1.0				*
					N?	N? 63.6% 1.69	96.9%	2					
					N?	N? 63.5% 1.70	97.5%	3			○ ○		
					N?	N? 58.8% 1.78	97.0%	4			○		
					N?	N? 66.8% 1.63	96.5%	5					*
					N?	N? 60.1% 1.76	97.3%	6					* *
					N?			7					□ PAL

LITHOLOGIC DESCRIPTION

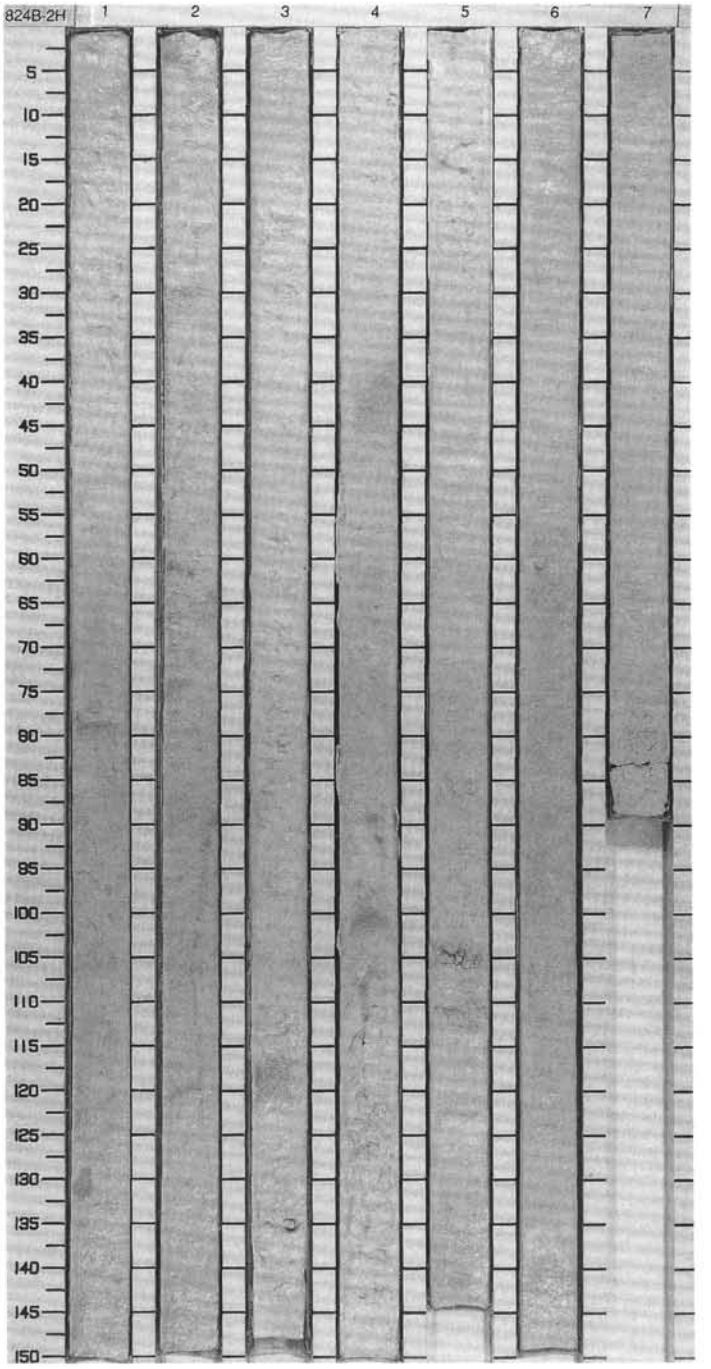
BIOCLASTIC NANNOFOSSIL OOZE with MICRITE and FORAMINIFERS

Major lithology: White (10YR 8/1), slightly bioturbated, BIOCLASTIC NANNOFOSSIL OOZE with MICRITE and FORAMINIFERS.

Minor lithology: White (10YR 8/1) to very pale brown (10YR 8/3), unlithified BIOCLASTIC PACKSTONE with MICRITE and NANNOFOSSILS. Bioclasts are fine to coarse sand-sized. Grain size is locally coarser (RUDSTONE) with beds displaying sharp basal contacts and normal grading. Some have a thin reverse graded base.

SMEAR SLIDE SUMMARY (%):

	1, 100 D	5, 16 D	6, 16 D	6, 42 D	CF 6, 85 D
COMPOSITION:					
Aragonite	---	2	---	---	---
Bioclast	25	30	61	35	---
Bryozoa	---	---	---	---	15
Echinoid	---	---	---	---	5
Foraminifers	15	5	9	10	25
Halimeda	---	---	---	---	15
Inorganic calcite	5	---	---	5	---
Lithoclast	---	---	---	2	15
Micrite	15	18	20	15	---
Mollusk	---	---	---	---	15
Nannofossils	35	30	10	30	---
Pellets	---	15	---	---	---
Spicules	5	Tr	---	3	10



SITE 824 HOLE B CORE 3H CORED INTERVAL 14.5-24.0 mbsf

TIME-ROCK UNIT: PLEISTOCENE

BIOSTRAT. ZONE/FOSSIL CHARACTER: C/M; FORAMINIFERS: N22 - N23; NANNOFOSSILS: CN14b; RADIOLARIANS; DIATOMS

PALEOMAGNETICS: UNCERTAIN POLARITY

PHYS. PROPERTIES: ● 57.9% 1.80; ● 56.5% 1.83; ● 65.1% 1.68; ● 63.7% 1.69; ● 58.0% 1.80; ● 66.5% 1.65

CHEMISTRY: ● 96.5%; ● 95.7%; ● 94.6%; ● 95.1%; ● 97.4%; ● 95.7%

SECTION: 1, 2, 3, 4, 5, 6, 7

METERS: 0.5, 1.0

GRAPHIC LITHOLOGY

DRILLING DISTURB.

SED. STRUCTURES

SAMPLES: OG, IW, PAL

LITHOLOGIC DESCRIPTION

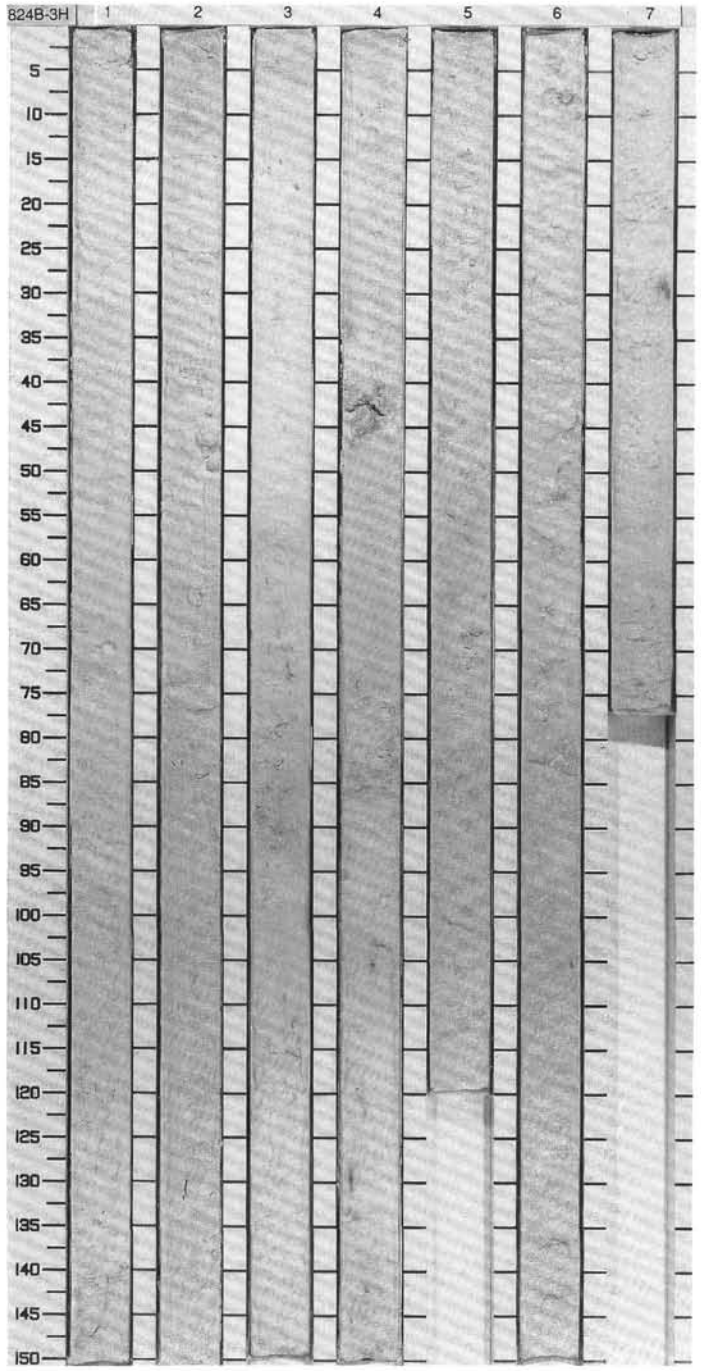
BIOCLASTIC MICRITIC MUDSTONE with NANNOFOSSILS

Major lithology: Homogeneous, unlithified and weak to moderately lithified, BIOCLASTIC MICRITIC MUDSTONE with NANNOFOSSILS and locally NANNOFOSSIL MICRITIC MUDSTONE. Repetitive (10-20 cm) units displaying variations in lithification (lithified versus weak to unlithified MUDSTONE) typify this sequence.

Minor lithology: Thin (10-40 cm) beds of white (10YR 8/2), weakly lithified FORAMINIFER BIOCLASTIC PACKSTONE. Normal graded bedding occurs.

SMEAR SLIDE SUMMARY (%):

	1, 40 D	1, 80 D	3, 120 D	4, 120 D	CF 7, 23 D
COMPOSITION:					
Aragonite	10	15	---	15	---
Bioclast	30	17	25	20	---
Bryozoa	---	---	---	---	10
Carbonate particles	---	---	---	---	5
Foraminifers	---	3	---	---	25
Halimeda	---	---	---	---	22
Inorganic calcite	---	---	5	---	---
Lithoclast	5	---	8	---	7
Micrite	35	35	20	40	---
Mollusk	---	---	---	---	18
Nannofossils	20	30	35	25	---
Spicules	---	---	2	---	10



SITE 824 HOLE B CORE 4H CORED INTERVAL 24.0-33.5 mbsf

TIME-ROCK UNIT: PLEISTOCENE

BIOSTRAT. ZONE/FOSSIL CHARACTER: FORAMINIFERS: R/M; N22 - N23; NANNOFOSSILS: CN14b; RADIOLARIANS; DIATOMS

PALEOMAGNETICS: UNCERTAIN POLARITY

PHYS. PROPERTIES: ● 63.2% 1.74 ● 68.3% 1.81 ● 61.5% 1.62 ● 56.8% 1.85 ● 60.4% 1.78 ● 61.9% 1.78

CHEMISTRY: ● 95.6% ● 95.0% ● 96.9% ● 97.0% ● 97.0% ● 96.8%

SECTION: 1 2 3 4 5 6 7 CC

METERS: 0.5 1.0

GRAPHIC LITHOLOGY

DRILLING DISTURB.

SED. STRUCTURES

SAMPLES

LITHOLOGIC DESCRIPTION

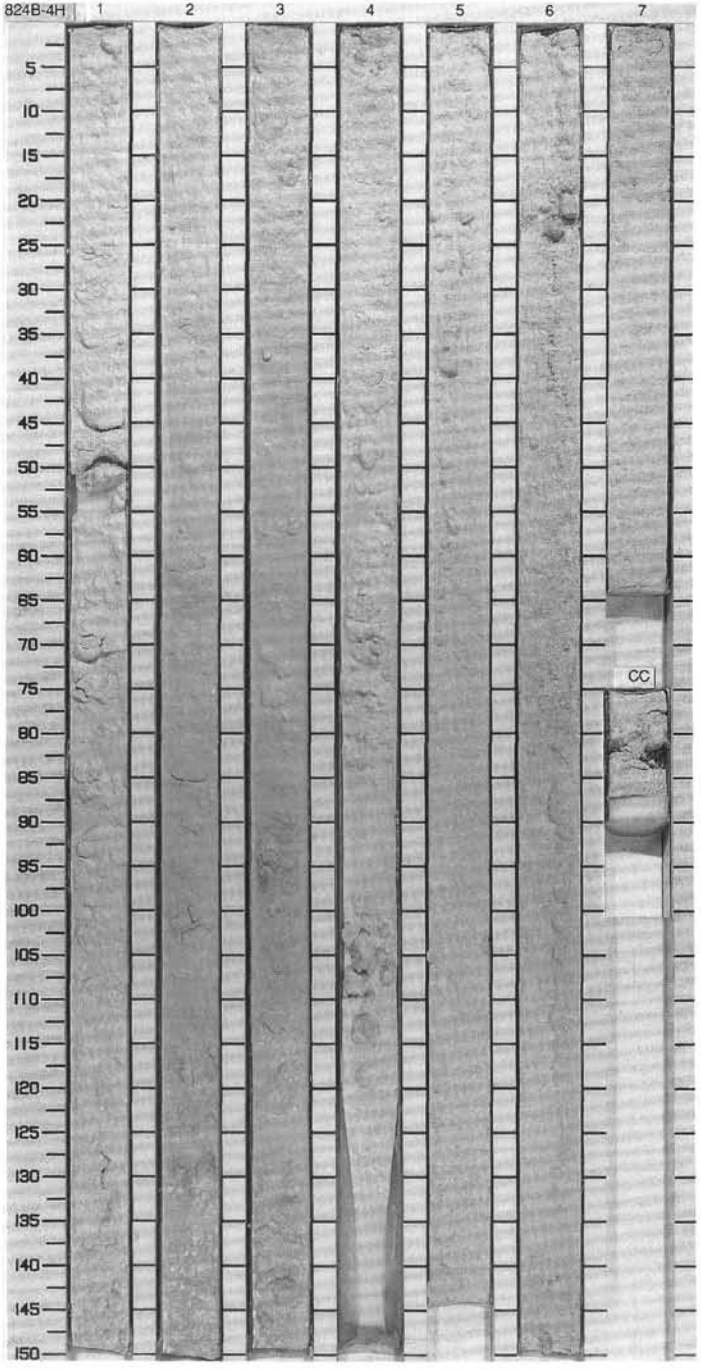
BIOCLASTIC PACKSTONE with MICRITE and NANNOFOSSILS

Major lithology: Unlithified, very pale brown (10YR 8/3) BIOCLASTIC PACKSTONE with MICRITE and NANNOFOSSILS ranging in grain size from silt- to gravel-size (RUDSTONE). The beds are commonly homogeneous but also show both normal and reverse grading. The thickness of one packstone unit reaches 3 m.

Minor lithology: Very white (10YR 8/0), well-lithified MICRITIC CHALK, interbedded with moderately lithified and unlithified BIOCLASTIC MICRITIC MUDSTONE.

SMEAR SLIDE SUMMARY (%):

	1, 118 D	3, 91 D	CF 6, 75 D
COMPOSITION:			
Aragonite	35	---	---
Bioclast	25	20	---
Bryozoa	---	---	10
Carbonate particles	---	---	10
Coral	---	---	20
Foraminifers	---	---	10
Halimeda	---	---	25
Lithoclast	---	---	5
Micrite	30	70	---
Mollusk	---	---	18
Nannofossils	10	10	---
Spicules	---	---	5



SITE 824 HOLE B CORE 5H CORED INTERVAL 33.5-43.0 mbsf

TIME-ROCK UNIT: PLEISTOCENE

BIOSTRAT. ZONE/FOSSIL CHARACTER: FORAMINIFERS: B; NANNOFOSSILS: CN14b; RADIOLARIANS; DIATOMS

PALEOMAGNETICS: UNCERTAIN POLARITY

PHYS. PROPERTIES: ● 62.8% 1.77; ● 65.1% 1.70; ● 64.3% 1.69; ● 64.0% 1.69; ● 53.4% 1.74; ● 57.2% 1.82

CHEMISTRY: ● 96.0%; ● 97.0%; ● 97.2%; ● 96.8%; ● 97.7%; ● 97.0%

SECTION: 1, 2, 3, 4, 5, 6, 7, CC

METERS: 0.5, 1.0

GRAPHIC LITHOLOGY

DRILLING DISTURB.

SED. STRUCTURES

SAMPLES: SW; PAL

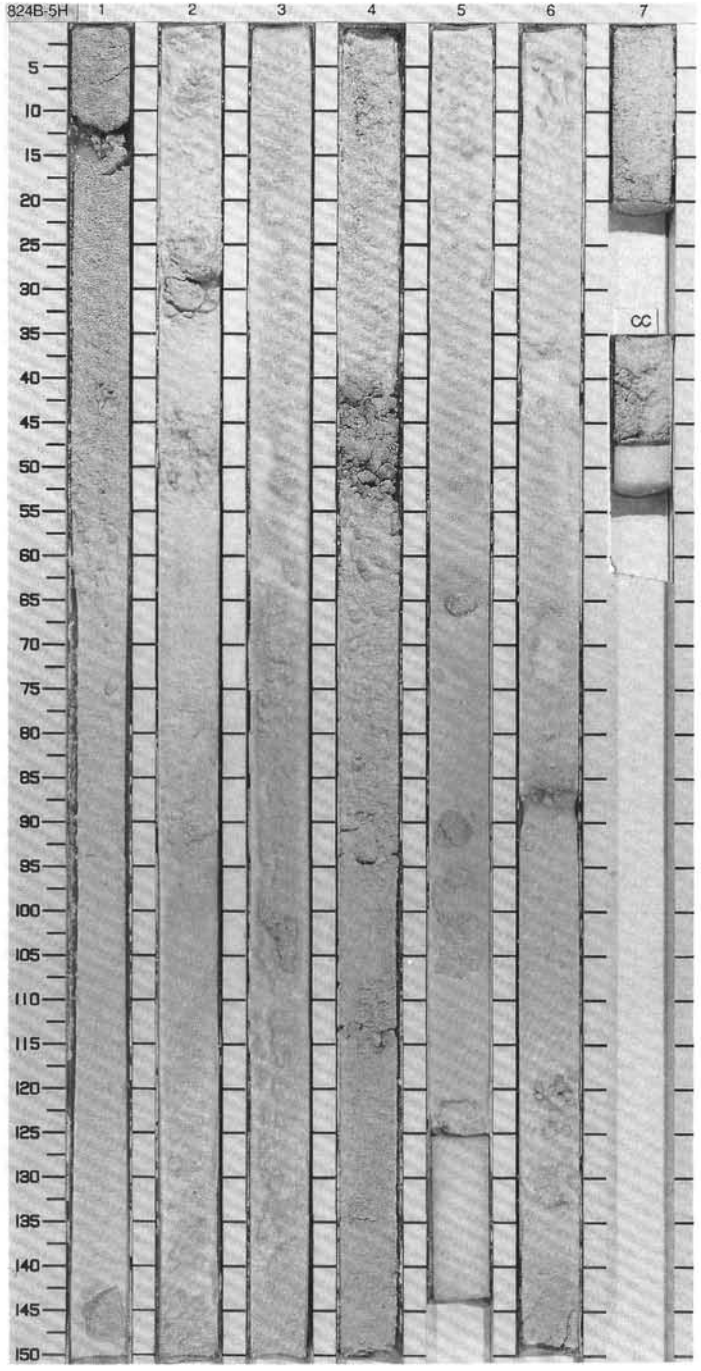
LITHOLOGIC DESCRIPTION

BIOCLASTIC PACKSTONE with FORAMINIFERS

Major lithology: Very white (10YR 8/0) to very pale brown (10YR 8/3), unlithified BIOCLASTIC PACKSTONE or GRAINSTONE with FORAMINIFERS with graded bedding in Sections 1-2. Thickness of the graded beds is 50-80 cm. In Section 3-CC, the sand is homogeneous. Bioclasts are derived from shallow water (corals, echinoids, bryozoans) and open water (pteropods). Sorting is poor, grain size ranges from fine to very coarse sand.

SMEAR SLIDE SUMMARY (%):

	CF 1, 41 D	6, 86 D	CF 6, 105 D
COMPOSITION:			
Bioclast	---	40	70
Bryozoa	15	---	---
Carbonate particles	10	---	---
Coral	4	---	---
Echinoid	5	---	---
Foraminifers	10	---	25
Halimeda	20	---	---
Inorganic calcite	---	50	---
Lithoclast	5	---	5
Micrite	---	10	---
Mollusk	20	---	---
Nannofossils	---	Tr	---
Spicules	6	---	---



SITE 824 HOLE B CORE 6H CORED INTERVAL 43.0-52.5 mbsf

TIME-ROCK UNIT: PLEISTOCENE

BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS: N22 - N23; NANNOFOSSILS: CN14b; RADIOLARIANS; DIATOMS: R/P

PALEOMAGNETICS: UNCERTAIN POLARITY

PHYS. PROPERTIES: ● 59.2% 1.80; ● 61.6% 1.70; ● 63.7% 1.78; ● 60.1% 1.78; ● 58.0% 1.81; ● 65.8% 1.67

CHEMISTRY: ● 97.3%; ● 97.2%; ● 97.2%; ● 97.2%; ● 96.7%; ● 97.2%

SECTION: 1, 2, 3, 4, 5, 6, 7, CC

METERS: 0.5, 1.0

GRAPHIC LITHOLOGY

DRILLING DISTURB.

SED. STRUCTURES

SAMPLES: OG, IW, PAL

LITHOLOGIC DESCRIPTION

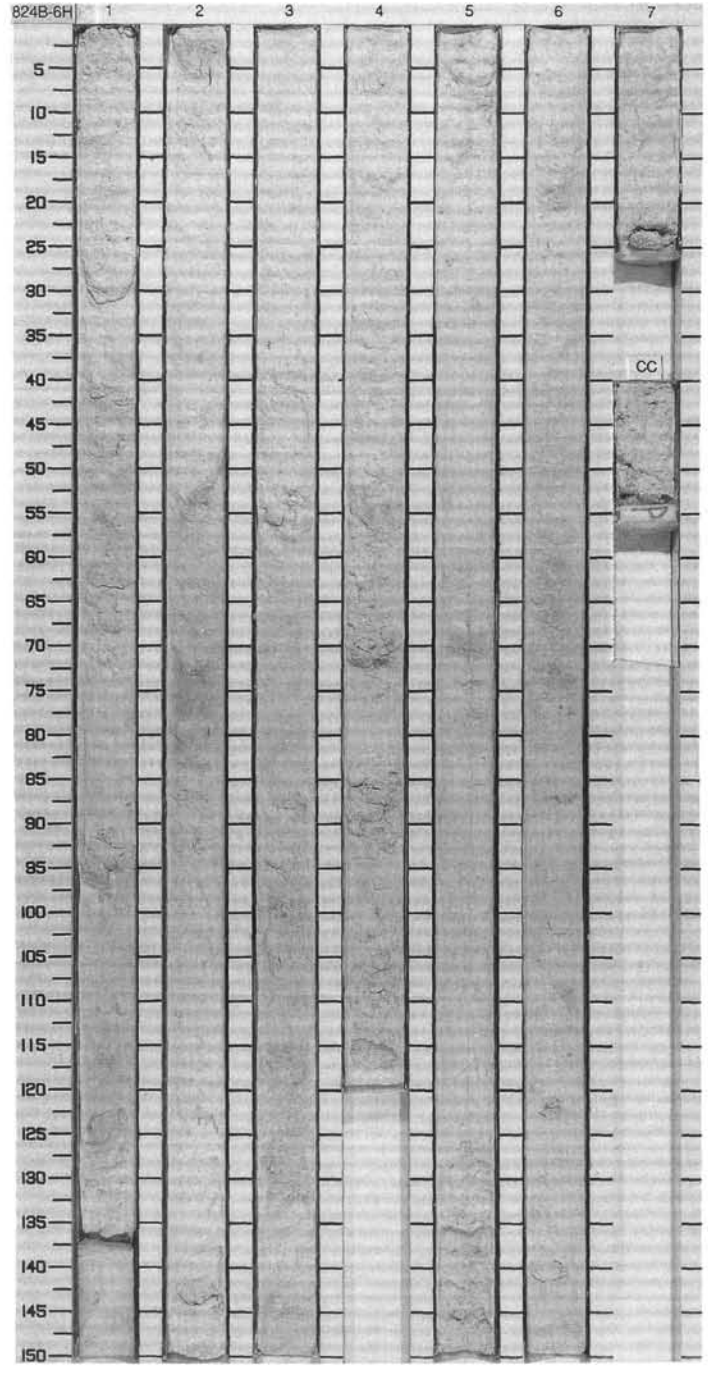
BIOCLASTIC PACKSTONE

Major lithology: Alternating, white (10YR 8/1), moderately lithified BIOCLASTIC PACKSTONE and white (10YR 8/2) weakly to unlithified BIOCLASTIC PACKSTONE, which is better sorted than the first. Very fine sand grain size. The matrix of both is mainly MICRITE with minor NANNOFOSSILS.

Minor lithology: White (10YR 8/1), moderately lithified BIOCLASTIC MICRITIC MUDSTONE.

SMEAR SLIDE SUMMARY (%):

	1, 20 D	3, 50 D	4, 100 D	6, 120 D
COMPOSITION:				
Aragonite	15	---	---	---
Bioclast	35	40	30	30
Dolomite	---	---	Tr	---
Foraminifers	---	10	10	10
Inorganic calcite	---	20	---	---
Micrite	35	30	40	50
Nannofossils	15	---	20	10
Quartz	---	Tr	Tr	---



SITE 824 HOLE C CORE 1R CORED INTERVAL 247.6-257.2 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
MIOCENE								CC					PAL	BIOCLASTIC FLOATSTONE Major lithology: White to pale yellowish (10YR 8/2), well-lithified, BIOCLASTIC FLOATSTONE. Skeletal elements consist of CORALS, LARGER FORAMINIFERS, MOLLUSCS, and possible CORALLINE ALGAE. Porosity is in part intercrystalline and moldic.

SITE 824 HOLE C CORE 2R CORED INTERVAL 257.2-266.8 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
MIOCENE								CC					PAL	BIOCLASTIC FLOATSTONE, PACKSTONE; FORAMINIFER CHALK; ALGAL RHODOLITH Major lithology: Pale yellow to white (generally 10YR 8/2), well lithified, BIOCLASTIC FLOATSTONE and PACKSTONE, with CORALS, LARGER FORAMINIFER and *HALIMEDA* plates (the latter forming molds). Also, well sorted, sandy FORAMINIFER CHALK with BIOCLASTS; foraminifers are planktonic. Minor lithology: Pale yellow to white (10YR 8/2), laminar ALGAL RHODOLITH, approximately 3 cm in size, partially dissolved?

824C 3R NO RECOVERY

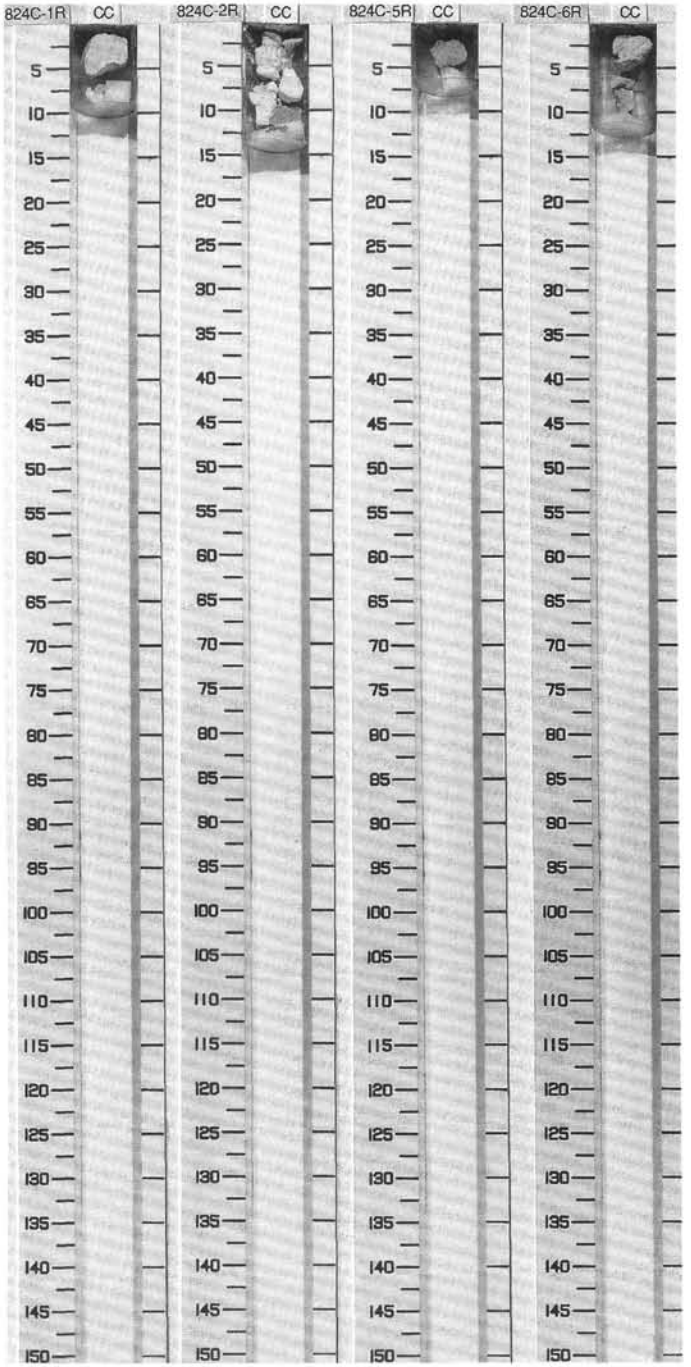
824C 4R NO RECOVERY

SITE 824 HOLE C CORE 5R CORED INTERVAL 286.2-295.8 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
MIOCENE								CC					PAL	BIOCLASTIC FLOATSTONE Major lithology: Pale yellow to white (10YR 8/2), well-lithified, BIOCLASTIC FLOATSTONE with FORAMINIFERS (includes both larger foraminifers-Alveolinidae, and smaller forms-miliolids, textularids), CORALS, and MOLLUSCS. Pebbles of this lithology contain an outer rim of FORAMINIFER CHALK (with planktonic foraminifers).

SITE 824 HOLE C CORE 6R CORED INTERVAL 295.8-305.4 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
MIOCENE								CC					PAL	BIOCLASTIC FLOATSTONE Major lithology: Pale yellow to white (10YR 8/2), well lithified, BIOCLASTIC FLOATSTONE with MILIOLIDS, CORALLINE ALGAE, CORALS, MOLLUSCS, and ECHINOIDS.



SITE 824 HOLE C CORE 7R CORED INTERVAL 305.4-315.1 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
MIOCENE								CC					PAL	BIOCLASTIC FLOATSTONE Major lithology: Pale yellow to white (10YR 8/2), well-lithified, BIOCLASTIC FLOATSTONE with LARGER FORAMINIFERS, MOLLUSC MOLDS, ECHINOIDS and CORALLINE ALGAE. Calcite vein (scalenohedral crystals form void-fill cement). FORAMINIFER CHALK with planktonic species forms a thin sediment rim to some pebbles.

SITE 824 HOLE C CORE 8R CORED INTERVAL 315.1-324.8 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
MIOCENE								1	0.5 1.0					BIOCLASTIC FLOATSTONE and PACKSTONE Major lithology: Pale yellow to white (10YR 8/2), well-lithified, BIOCLASTIC FLOATSTONE with branching CORALS, LARGER FORAMINIFERS, branching CORALLINE ALGAE, MOLLUSCS, and ECHINOIDS within a BIOCLASTIC PACKSTONE matrix. In addition, greenish siliciclastic? mineral grains are present.

824C 9R NO RECOVERY

824C 10R NO RECOVERY

SITE 824 HOLE C CORE 11R CORED INTERVAL 344.0-353.6 mbsf

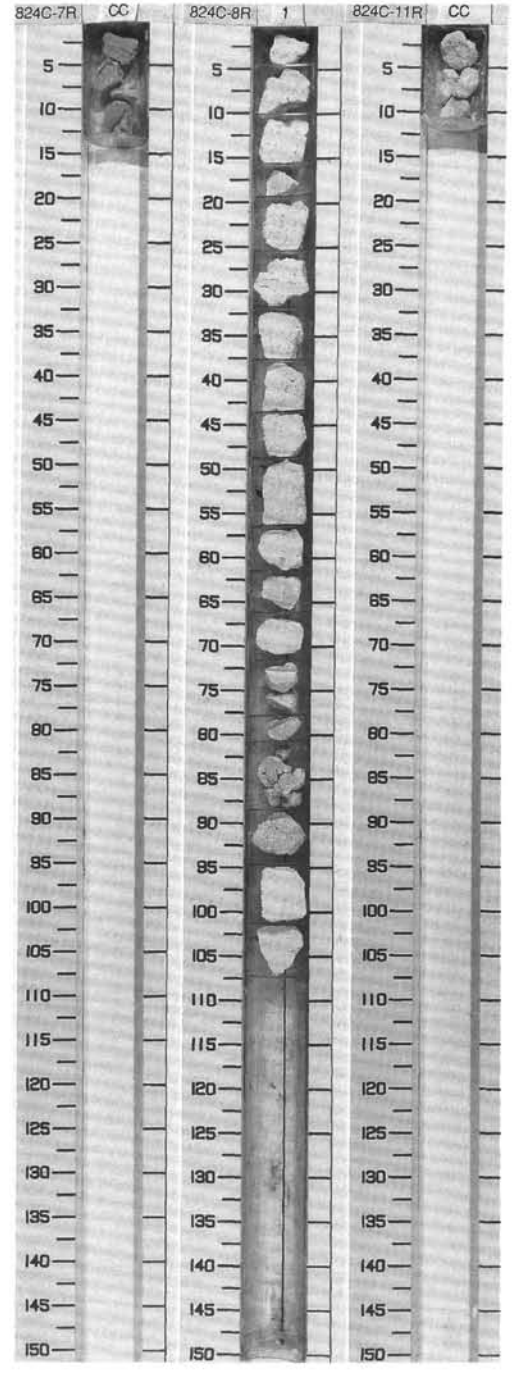
TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
MIOCENE								CC					PAL	BIOCLASTIC RUDSTONE Major lithology: Pale yellow to white (10YR 8/2), well-lithified, BIOCLASTIC RUDSTONE with BIOCLASTIC PACKSTONE matrix. Reef-derived constituents are present (LARGER FORAMINIFERS, CORALS, CORALLINE ALGAE, and MOLLUSCS). Moldic porosity (after *Halimeda*?, molluscs?) is present.

824C 12R NO RECOVERY

824C 13R NO RECOVERY

824C 14R NO RECOVERY

824C 15R NO RECOVERY



SITE 824 HOLE C CORE 16R CORED INTERVAL 392.2-401.9 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
								CC					PAL	BRYOZOAN RUDSTONE Major lithology: Pale yellow to white (10YR 8/2), well lithified, BRYOZOAN RUDSTONE with a coarse sand-sized PACKSTONE matrix. *Halimeda*, large and small benthic foraminifers, and mollusc fragments are also present. Porosity is interskeletal.

SITE 824 HOLE C CORE 17R CORED INTERVAL 401.9-411.5 mbsf

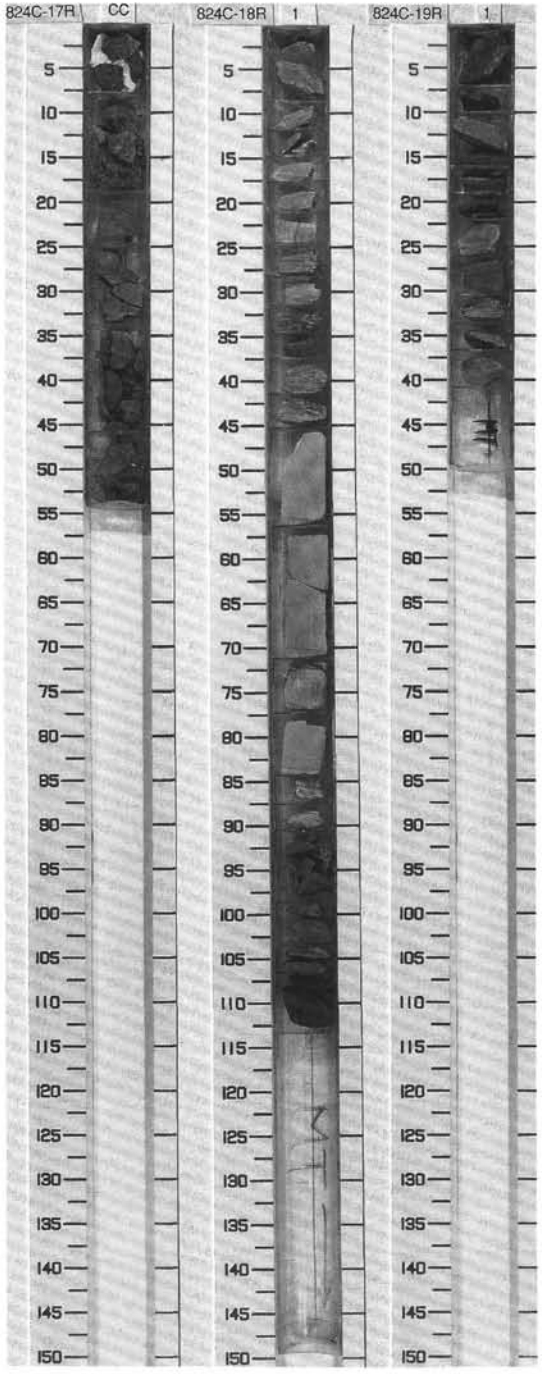
TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
								CC					PAL	FERRUGINOUS SAPROLITE; BIOCLASTIC SANDSTONE Major lithology: Mottled orange brown (7.5YR 4/6 to 7.5YR 6/6), highly weathered and soft FERRUGINOUS SAPROLITE. Parent lithology is uncertain due to weathering. Manganese coatings occur within fractures and form dendrites. May be "C" horizon of a paleosol. Minor lithology: Dark yellowish brown (10YR 4/4), poorly sorted, BIOCLASTIC SANDSTONE with mud matrix. Quartz grains (coarse sand-sized) vary from angular to rounded. Bioclasts include well abraded LARGER FORAMINIFERS, BRYOZOANS, and indeterminate CARBONATE DEBRIS. Also, indeterminate black grains are present. This unit occurs overlying the saprolite; the contact is not observed.

SITE 824 HOLE C CORE 18R CORED INTERVAL 411.5-421.2 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
								1	0.5 1.0					PHYLLITE Major lithology: Black to dark gray (5Y 2.5/1) PHYLLITE with thin quartzose interbeds containing quartz porphroblasts. Schistosity is locally well developed, with two superimposed crenulation cleavages in places. Minor lithology: Light gray (7.5YR 7/1), massive, non-foliated CALCAREOUS METASANDSTONE (non-tectonite?)

SITE 824 HOLE C CORE 19R CORED INTERVAL 421.2-430.8 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
								1						PHYLLITE and QUARTZITE Major lithology: Black to dark gray (5Y 2.5/1) QUARTZOSE PHYLLITE with interbeds of calcareous QUARTZITE. Carbonate appears to be a later alteration product related to high angle microfaults and space fractures. Pyrite is common along the contact between quartzite and phyllite.



824D 1R NO RECOVERY

824D 2R NO RECOVERY

824D 3R NO RECOVERY

824D 4R NO RECOVERY

824D 5R NO RECOVERY

824D 6R NO RECOVERY

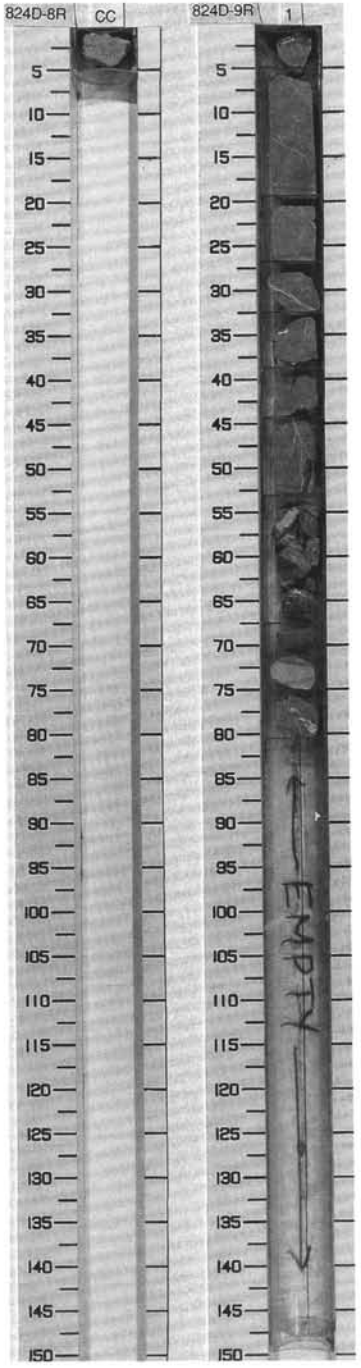
824D 7R NO RECOVERY

SITE 824 HOLE D CORE 8R CORED INTERVAL 401.8-411.5 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
								CC						QUARTZITE METACONGLOMERATE Major lithology: Light gray (7.5YR 7/1) QUARTZITE METACONGLOMERATE, with elongate, well rounded pebble of quartzite within a finer grained matrix of QUARTZITE. Other, more angular clasts of quartzite appear to be present. This suggests the rock is a poorly sorted metaconglomerate.

SITE 824 HOLE D CORE 9R CORED INTERVAL 411.5-421.2 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
								1	0.5					QUARTZ-FELDSPAR-EPIDOTE-PHYLLITE Major lithology: Greenish gray (5GY 6/1), quartz-feldspar-epidote?-chloritoid NON-TECTONITE. In some core pieces, a slight foliation is apparent producing a phyllitic texture in places. Laths of feldspar are common throughout. A beige, possible Mg-Fe carbonate forms a highly altered secondary mineral phase. Minor lithology: Dark gray (5Y 2.5/1) PHYLLITE with quartz-calcite veining overlies the above lithology; contact is well preserved, abrupt, and displays microfaults. An alteration zone within the NON-TECTONITE is apparent.



SITE 824 HOLE D CORE 10R CORED INTERVAL 421.2-431.0 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
								1						QUARTZ-FELDSPAR-EPIDOTE-PHYLLITE Major lithology: Finely and equant crystalline (granoblastic) quartz-feldspar-epidote?-chloritoid? NON-TECTONITE. Lacks even the subtle foliation apparent in previous core. Calcite-filled, high-angle and sub-horizontal fractures and microfaults are numerous. Beige mineral (possibly an Fe-Mg carbonate) appears to form a secondary alteration mineral phase.