SITE 821 HOLE A CORE 1H CORED INTERVAL 0.0-4.4 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
PLEISTOCENE	A/G N22 - N23	A/G CN15			N	● 61.2% 1.77	● 74.2%	1	0.5				
					N	● 60.5% 1.76	● 67.7%	2	1.0				
					N	● 57.8% 1.77	● 64.7%	3					*
								CC					

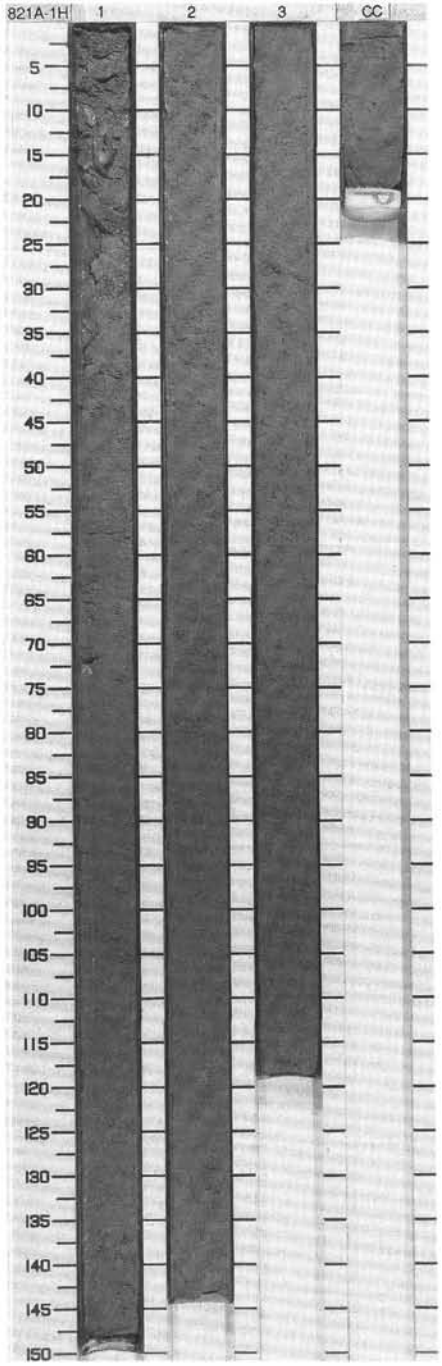
LITHOLOGIC DESCRIPTION

CALCAREOUS OOZE with CLAY, NANNOFOSSILS, and BIOCLASTS

Major Lithology: Light greenish gray (10Y 6/2) CALCAREOUS OOZE with CLAY, NANNOFOSSILS, and BIOCLASTS including scattered PTEROPODS.

SMEAR SLIDE SUMMARY (%):

	2, 100 D
COMPOSITION:	
Accessory minerals	2
Bioclast	25
Calcite	5
Clay	25
Foraminifers	1
Micrite	6
Nannofossils	25
Quartz	7
Spicules	2
Tunicate	2



SITE 821 HOLE A CORE 2H CORED INTERVAL 4.4-13.9 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
PLEISTOCENE	A/G	A/G			N	N		1	0.5			Ø	
	N22 - N23	CN15				● 59.5% 1.72	● 55.5%		1.0			Ø	
					N	N		2				Ø	
						● 62.5% 1.70						Ø	
												Ø	
												Ø	
						● 61.8% 1.74	● 52.5%	3				Ø	
												Ø	
					N	N		4				Ø	
						● 48.8% 1.95						Ø	
					R							Ø	
												Ø	
					N	N		5				Ø	
						● 61.6% 1.76	● 45.0%					Ø	
							● 47.1%					Ø	
												Ø	
					N			6				Ø	
						● 63.3% 1.85						Ø	
								7				Ø	
								CC				Ø	

LITHOLOGIC DESCRIPTION

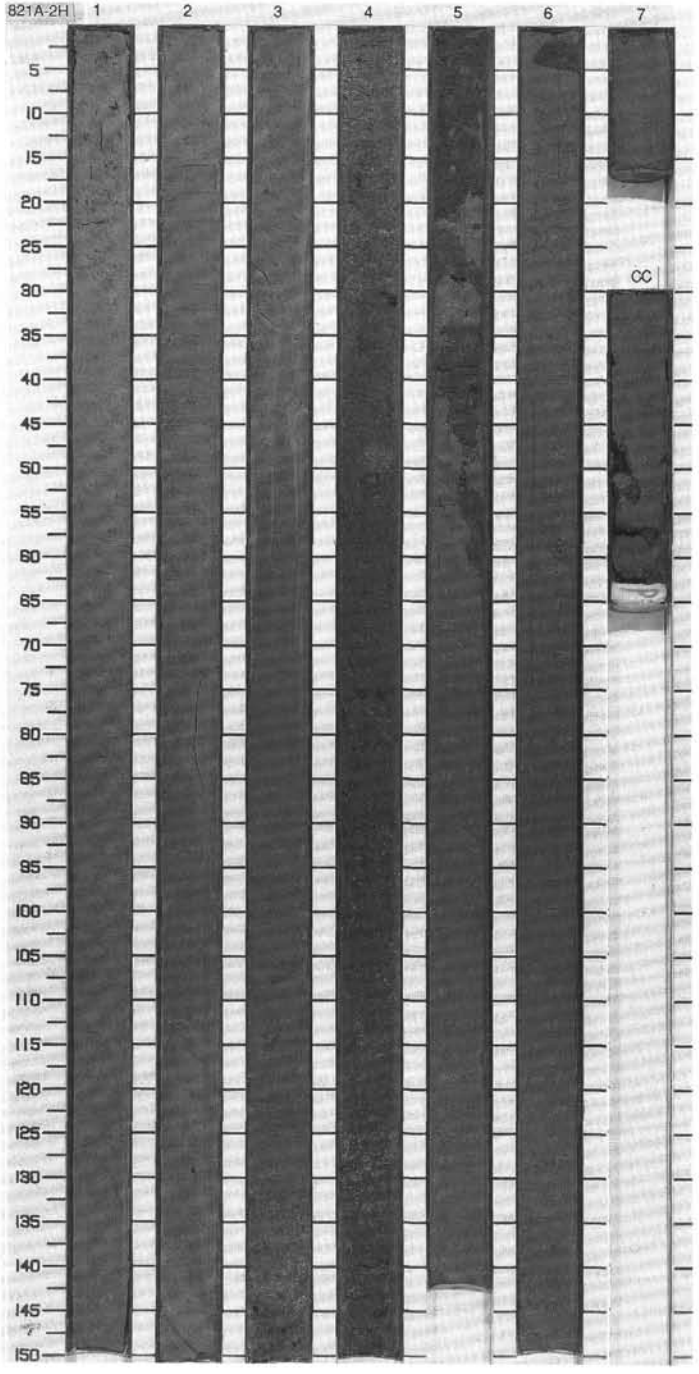
CALCAREOUS MIXED SEDIMENT with NANNOFOSSILS and BIOCLASTS

Major Lithology: Greenish gray (10Y 5/2) to dark greenish gray (10Y 4/1) burrowed, clayey to silty CALCAREOUS MIXED SEDIMENT with NANNOFOSSILS and BIOCLASTS.

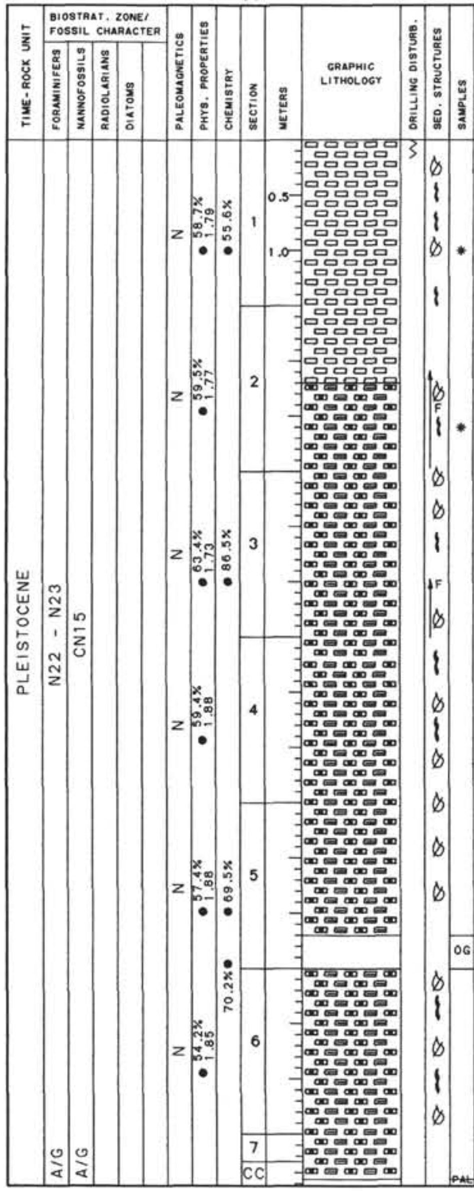
Minor Lithology: Greenish gray (10Y 5/1) clayey to sandy BIOCLASTIC MIXED SEDIMENT with sand-size quartz and foraminifers. The sediment shows graded bedding and forms a fining-upward cycle. In Sections 3, from 100-150 cm, 4 and 5, from 0-55 cm, the coarse faction consists of BIOCLASTS (BIVALVES, GASTROPODS, SCAPHOPODS and PTEROPODS), QUARTZ as the dominant components with BENTHIC FORAMINIFERS (*Amphistegina*, miliolids) and PLANKTONIC FORAMINIFERS, CORALLINE ALGAE, ALCYONARIAN and TUNICATE SPICULES.

SMEAR SLIDE SUMMARY (%):

	3, 100 D
COMPOSITION:	
Bioclast	25
Calcite	5
Clay	20
Feldspar	1
Micrite	10
Nannofossils	25
Quartz	9
Spicules	2
Tunicate	3



SITE 821 HOLE A CORE 3H CORED INTERVAL 13.9-23.4 mbsf



LITHOLOGIC DESCRIPTION

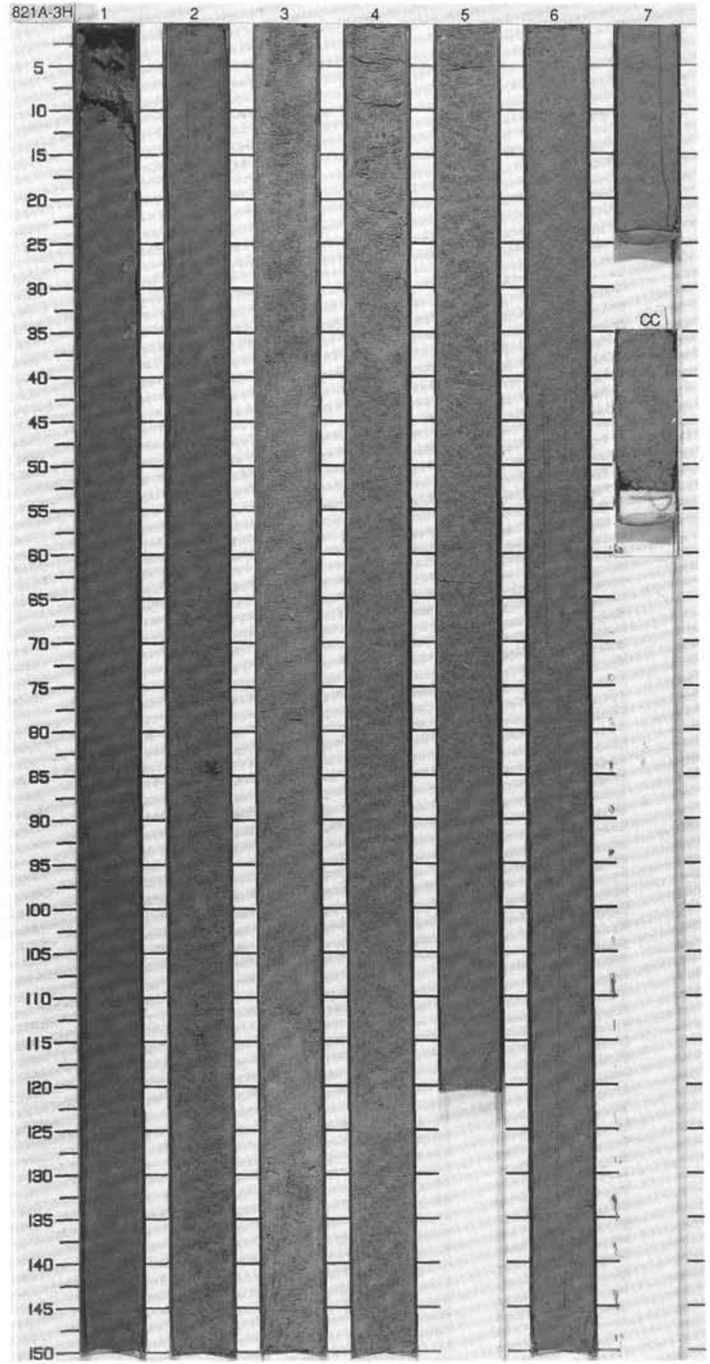
CALCAREOUS MUD with CLAY, NANNOFOSSILS, and BIOCLASTS

Major Lithology: Light greenish gray (10Y 6/2) to greenish gray (10Y 5/1) CALCAREOUS MUD with CLAY, NANNOFOSSILS and BIOCLASTS.

Minor Lithology: Greenish gray (10Y 6/2) clayey to sandy BIOCLASTIC CALCAREOUS PACKSTONE with NANNOFOSSILS exhibiting graded bedding. The coarse fraction consists of BENTHIC FORAMINIFERS, ALCYONARIAN and SPONGE SPICULES, CORALLINE ALGAE, CORAL, ECHINOID, CRUSTACEAN, and MOLLUSC fragments and minor SILICICLASTIC detritus. This lithology occurs in Sections 2 (65-150 cm) and 3, and has a gradational contact in Section 4 where the sediments become progressively finer and pass back into the major lithology.

SMEAR SLIDE SUMMARY (%):

	1, 100 D	2, 110 D
COMPOSITION:		
Bioclast	20	50
Calcite	5	---
Clay	25	10
Foraminifers	2	5
Micrite	25	15
Nannofossils	14	5
Quartz	8	10
Spicules	1	1
Tunicate	---	4



SITE 821 HOLE A CORE 4H CORED INTERVAL 23.4-32.9 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
PLEISTOCENE	A/G	A/G			N			1	0.5				
	N22 - N23	CN15			N	• 56.3% 1.88	• 73.6%		1.0				
					N	• 57.1% 1.87		2					
					N	• 54.7% 1.85	• 63.5%	3					
					N	• 55.8% 1.86		4					*
					N	• 57.1% 1.83	• 44.3%	5					
					N	• 60.6% 1.81	42.9% •	6					
					N			7					□
								CC					PAL

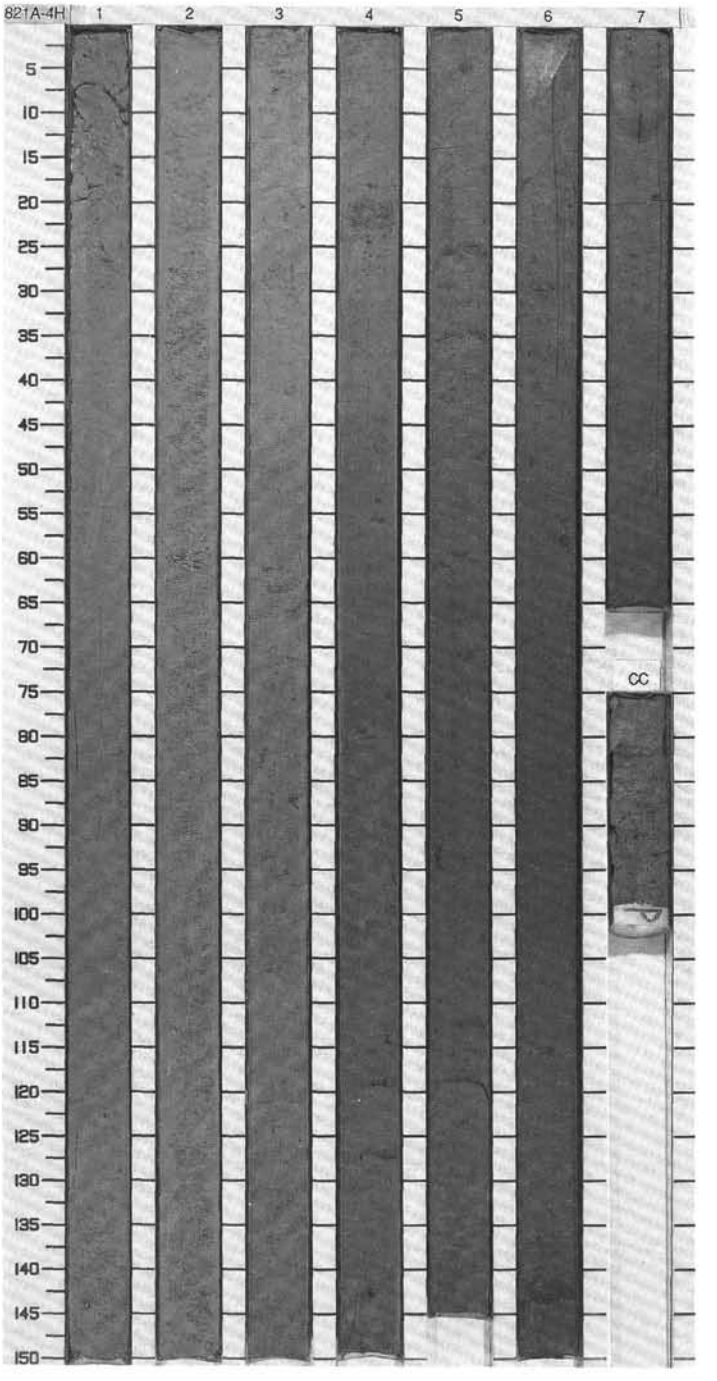
LITHOLOGIC DESCRIPTION

BIOCLASTIC CALCAREOUS MUD with CLAY and NANNOFOSSILS; CLAYEY BIOCLASTIC MICRITIC MIXED SEDIMENT with QUARTZ and NANNOFOSSILS

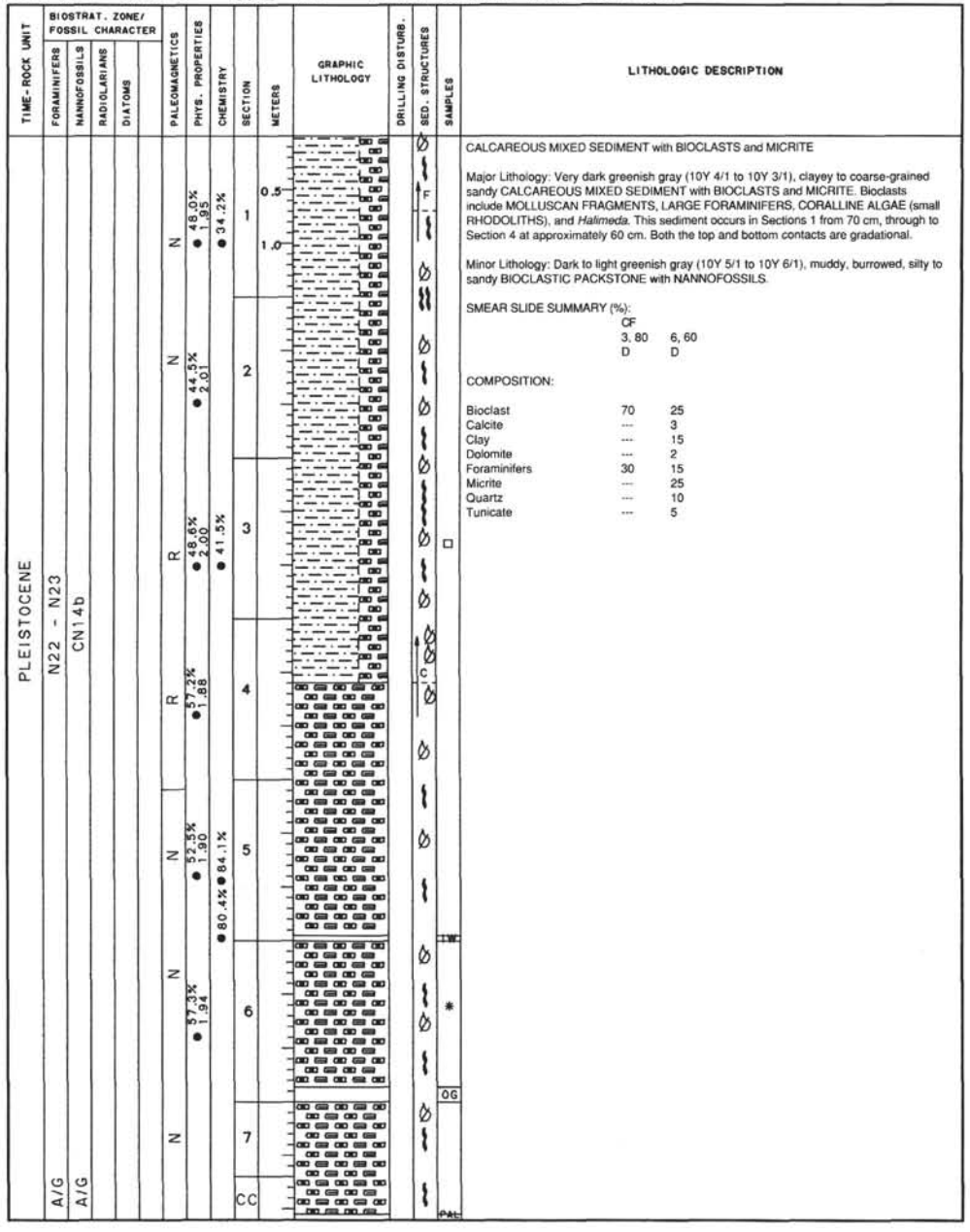
Major Lithology: Light greenish gray (10Y 6/2) to dark greenish gray (10Y 4/1), slightly bioturbated, clayey and silty BIOCLASTIC CALCAREOUS MUD with CLAY and NANNOFOSSILS; and CLAYEY BIOCLASTIC MICRITIC MIXED SEDIMENT with QUARTZ and NANNOFOSSILS.

SMEAR SLIDE SUMMARY (%):

	4, 68 D	CF 6, 140 D
COMPOSITION:		
Bioclast	10	60
Clay	30	---
Foraminifers	---	40
Micrite	30	---
Nannofossils	5	---
Quartz	15	Tr
Tunicate	10	---



SITE 821 HOLE A CORE 5H CORED INTERVAL 32.9-42.4 mbsf



LITHOLOGIC DESCRIPTION

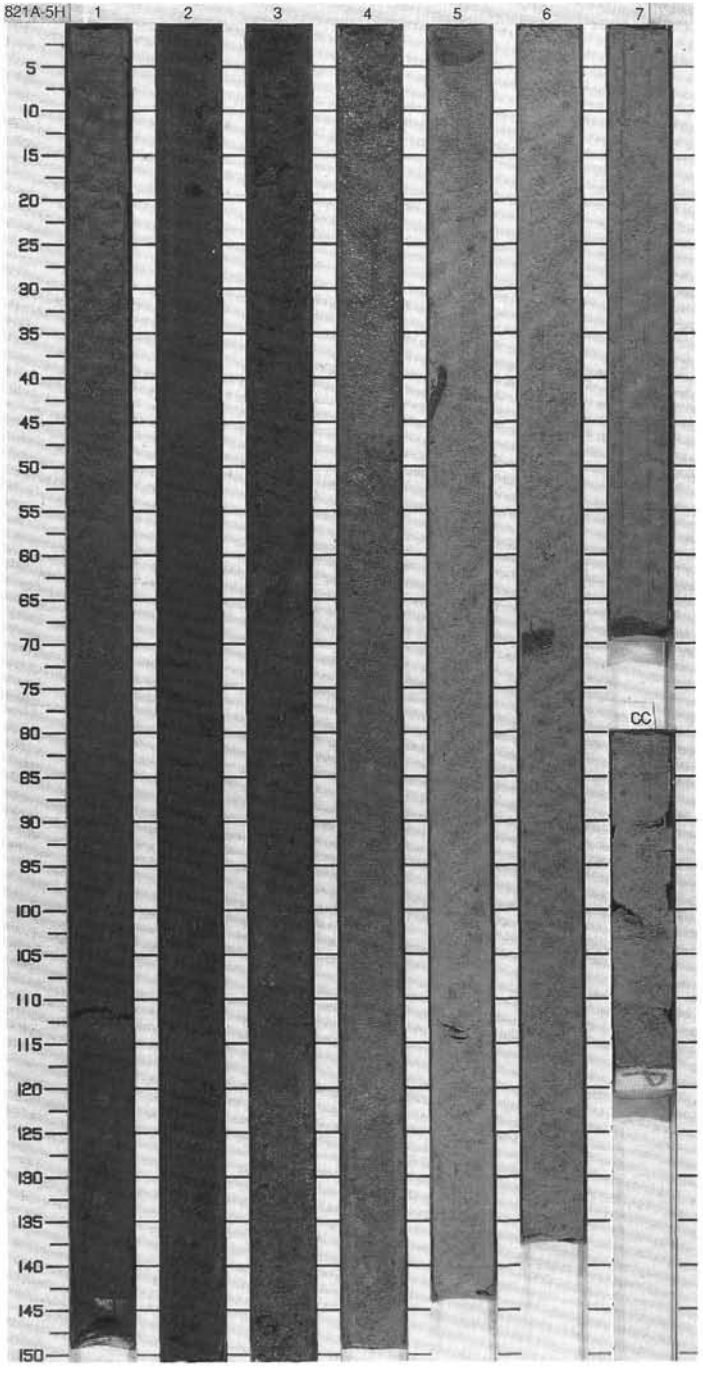
CALCAREOUS MIXED SEDIMENT with BIOCLASTS and MICRITE

Major Lithology: Very dark greenish gray (10Y 4/1 to 10Y 3/1), clayey to coarse-grained sandy CALCAREOUS MIXED SEDIMENT with BIOCLASTS and MICRITE. Bioclasts include MOLLUSCAN FRAGMENTS, LARGE FORAMINIFERS, CORALLINE ALGAE (small RHODOLITHS), and *Halimeda*. This sediment occurs in Sections 1 from 70 cm, through to Section 4 at approximately 60 cm. Both the top and bottom contacts are gradational.

Minor Lithology: Dark to light greenish gray (10Y 5/1 to 10Y 6/1), muddy, burrowed, silty to sandy BIOCLASTIC PACKSTONE with NANNOFOSSILS.

SMEAR SLIDE SUMMARY (%):

	CF 3, 80 D	6, 60 D
COMPOSITION:		
Bioclast	70	25
Calcite	---	3
Clay	---	15
Dolomite	---	2
Foraminifers	30	15
Micrite	---	25
Quartz	---	10
Tunicate	---	5



SITE 821 HOLE A CORE 6H CORED INTERVAL 42.4-51.9 mbsf

TIME-ROCK UNIT	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
PLEISTOCENE	A/G	A/G			? N ? N N N	● 52.2% 1.96 ● 52.2% 1.93 ● 52.1% 1.90 ● 51.1% 1.90 ● 52.7% 1.82 ● 55.6% 1.87	● 78.6% ● 75.4% ● 57.4%	1 2 3 4 5 6 7 CC	0.5 1.0			C	* * IW OG PAL

LITHOLOGIC DESCRIPTION

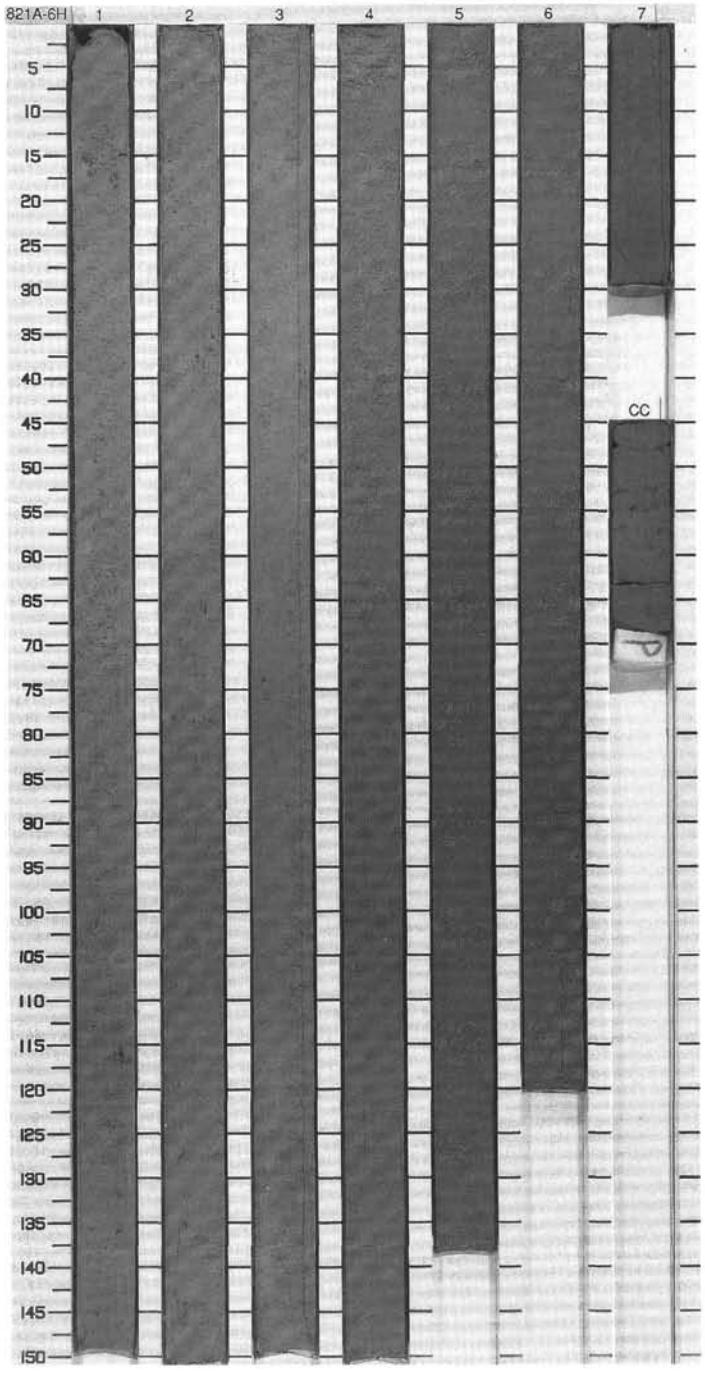
BIOCLASTIC CALCAREOUS MUD with CLAY and NANNOFOSSILS

Major Lithology: In Sections 1 to 4 (70 cm) the core consists of light greenish gray (10Y 6/1), muddy, BIOCLASTIC CALCAREOUS MUD with CLAY and NANNOFOSSILS.

Minor Lithology: In Section 4 there is gradational change to greenish gray (10Y 5/2), muddy, burrowed, clayey to silty, BIOCLASTIC MIXED SEDIMENT with NANNOFOSSILS.

SMEAR SLIDE SUMMARY (%):

	1, 60 D	5, 65 D
COMPOSITION:		
Bioclast	35	15
Calcite	5	3
Clay	10	30
Feldspar	---	Tr
Foraminifers	---	5
Micrite	25	25
Nannofossils	10	15
Quartz	5	5
Tunicate	10	2



SITE 821 HOLE A CORE 7H CORED INTERVAL 51.9-61.4 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
PLEISTOCENE	C/G	A/G			N	51.65 1.93	66.1%	1	0.5 1.0				
	N22 - N23	CN14b			N	51.25 1.91		2				F	*
					N	57.6% 1.92	82.4%	3					
					N	47.3% 1.83		4					
					N	47.5% 1.94	68.1%	5					
					N	52.2% 1.96		6					TW
					N			7					PP
								CC					PAL

LITHOLOGIC DESCRIPTION

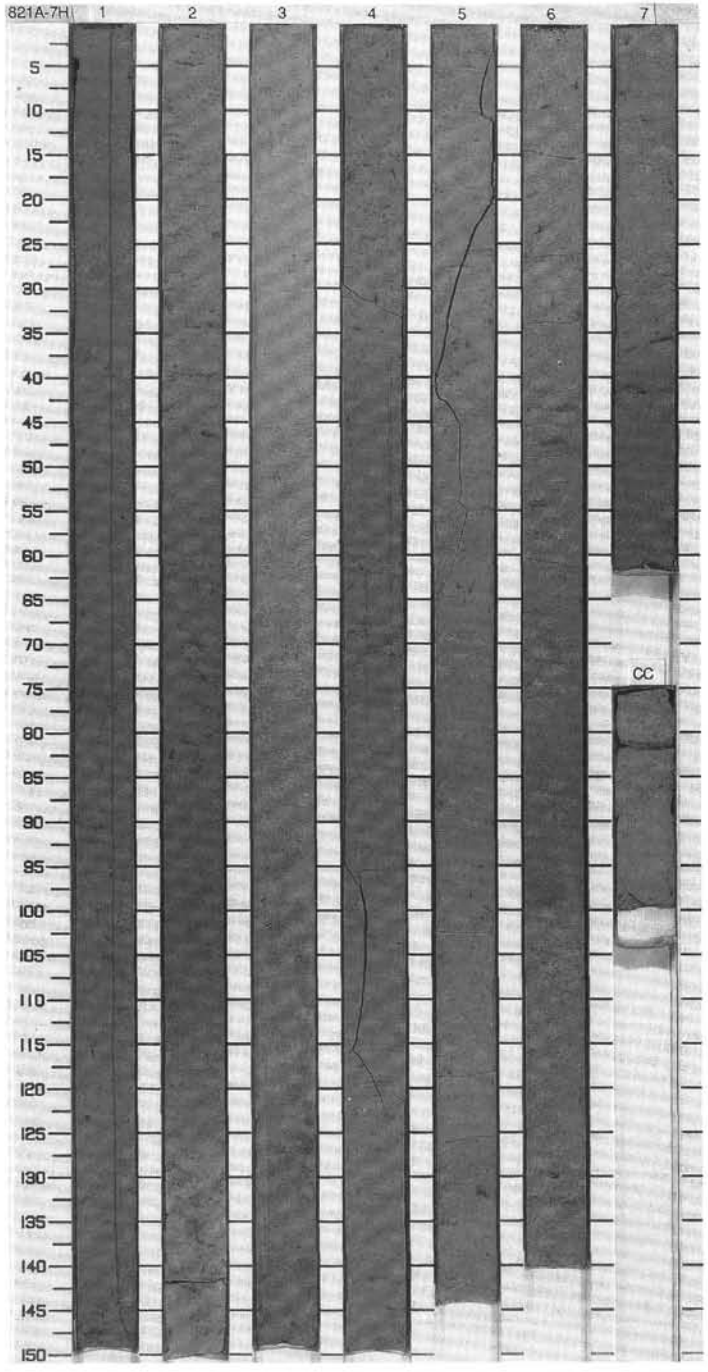
CALCAREOUS MUD with CLAY, BIOCLASTS, and NANNOFOSSILS

Major Lithology: Light greenish gray (10Y 6/1), slightly bioturbated, muddy, CALCAREOUS MUD with CLAY, BIOCLASTS, and NANNOFOSSILS. Burrow fill sediment consists of pyritic FORAMINIFERS and BIOCLASTIC PACKSTONES with GLAUCONITE.

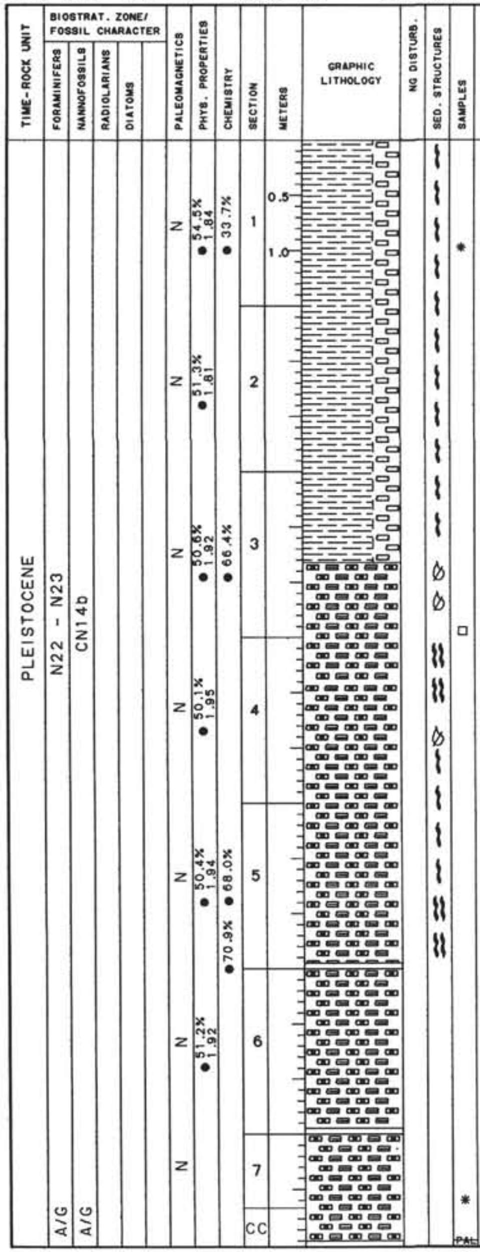
Minor Lithology: Greenish gray (10Y 5/1), fining-upward, fine to medium grained, clayey to silty, CALCAREOUS MIXED SEDIMENT with BIOCLASTS and FORAMINIFERS. This unit has a sharp contact at the base (Section 3, 125 cm) and a gradational contact at the top (Section 2, 105 cm).

SMEAR SLIDE SUMMARY (%):

	2, 70 D
COMPOSITION:	
Bioclast	20
Calcite	5
Clay	25
Foraminifers	Tr
Micrite	25
Nannofossils	15
Quartz	5
Tunicate	3



SITE 821 HOLE A CORE 8H CORED INTERVAL 61.4-70.9 mbsf



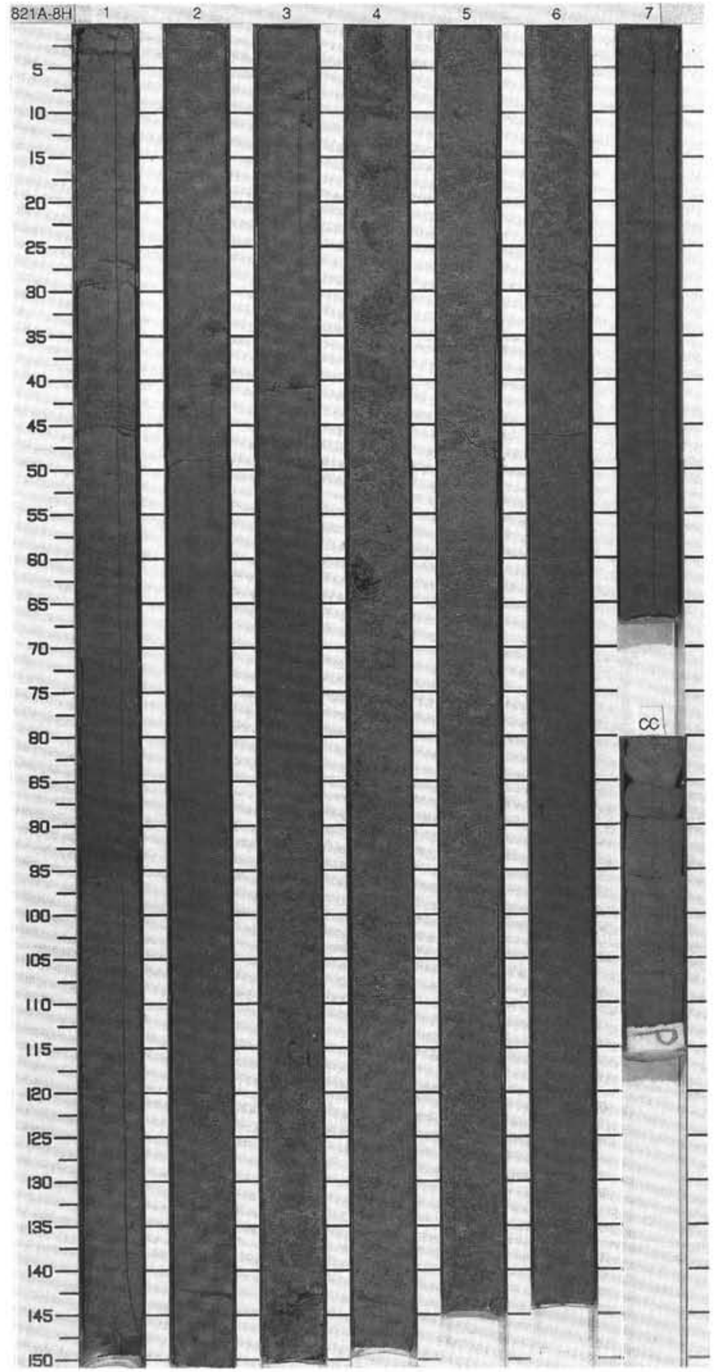
LITHOLOGIC DESCRIPTION

CALCAREOUS MUD with CLAY and BIOCLASTS; CLAYEY CALCAREOUS MIXED SEDIMENT with BIOCLASTS

Major Lithology: Dark to very dark greenish gray, firm, bioturbated, unlithified CALCAREOUS PACKSTONE with CLAY and BIOCLASTS; clayey and silty CALCAREOUS MIXED SEDIMENT with BIOCLASTS. A single solitary CORAL occurs in Section 4 at 63 cm. Burrows filled with fine to medium bioclastic sand.

SMEAR SLIDE SUMMARY (%):

	1, 98 M	CF 3, 145 D	7, 60 D
COMPOSITION:			
Bioclast	10	47	12
Clay	---	---	30
Feldspar	1	---	---
Foraminifers	4	20	---
Micrite	---	---	10
Nannofossils	Tr	---	---
Opaques	---	1	---
Quartz	75	28	40
Rock fragment	9	1	---
Spicules	---	3	5
Tunicate	1	---	3



TIME-ROCK UNIT: PLEISTOCENE

BIOSTRAT. ZONE/FOSSIL CHARACTER:
- FORAMINIFERS: A/G — N22 - N23
- NANNOFOSSILS: A/G — CN14b
- RADIOLARIANS:
- DIATOMS:

PALEOMAGNETICS: N N N N R? N N
PHYS. PROPERTIES: ● 49.1% 2.01 ● 49.0% 1.93 ● 47.2% 1.91 ● 51.9% 1.93 ● 51.2% 1.92 ● 49.0% 1.91
CHEMISTRY: ● 78.1% ● 82.7% ● 86.1% ● 63.1%

SECTION: 1 2 3 4 5 6 7 CC
METERS: 0.5 1.0

GRAPHIC LITHOLOGY: VOID

DRILLING DISTURB.

SED. STRUCTURES

SAMPLES: PAL

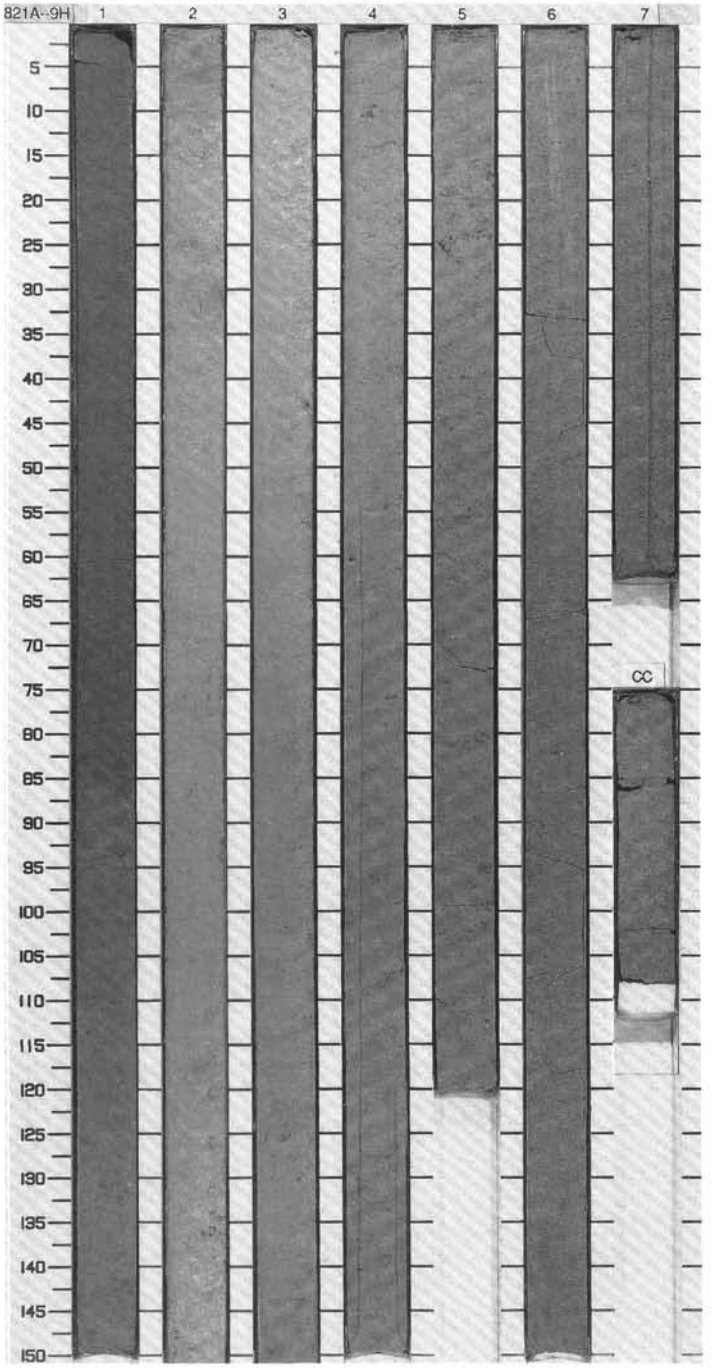
LITHOLOGIC DESCRIPTION

CALCAREOUS MUD with BIOCLASTS, NANNOFOSSILS, and QUARTZ

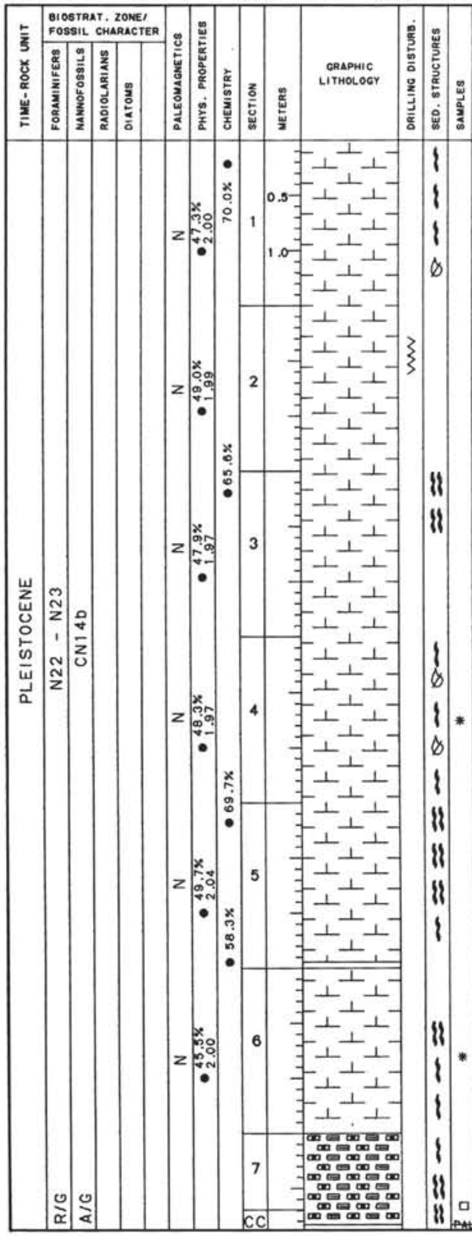
Major Lithology: Dark greenish gray (10Y 5/2), bioturbated, CALCAREOUS MUD with BIOCLASTS, NANNOFOSSILS, and QUARTZ. Minor DOLOMITE occurs throughout.

SMEAR SLIDE SUMMARY (%):

	2, 84 D	CF 2, 85 D	4, 83 D
COMPOSITION:			
Bioclast	18	73	32
Clay	---	3	---
Dolomite	2	---	7
Feldspar	---	---	Tr
Foraminifers	---	20	Tr
Intraclasts	40	---	---
Mica	2	---	---
Micrite	25	---	10
Nannofossils	---	---	30
Opaques	---	1	---
Quartz	11	Tr	15
Rock fragment	---	---	5
Spicules	---	3	---
Tunicate	Tr	---	1



SITE 821 HOLE A CORE 10H CORED INTERVAL 80.4-89.9 mbsf



LITHOLOGIC DESCRIPTION

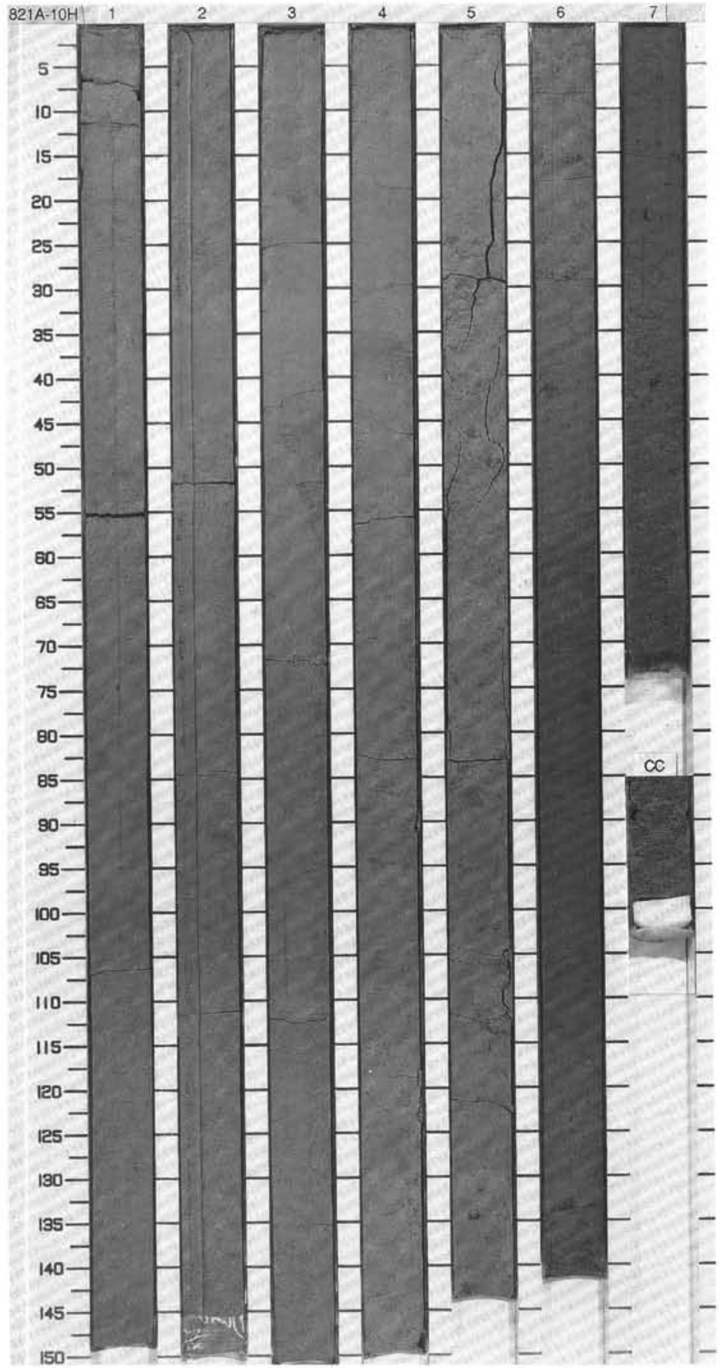
NANNOFOSSIL OOZE with CLAY and BIOCLASTS

Major Lithology: Dark greenish gray (10Y 5/2), bioturbated, muddy, NANNOFOSSIL OOZE with CLAY and BIOCLASTS.

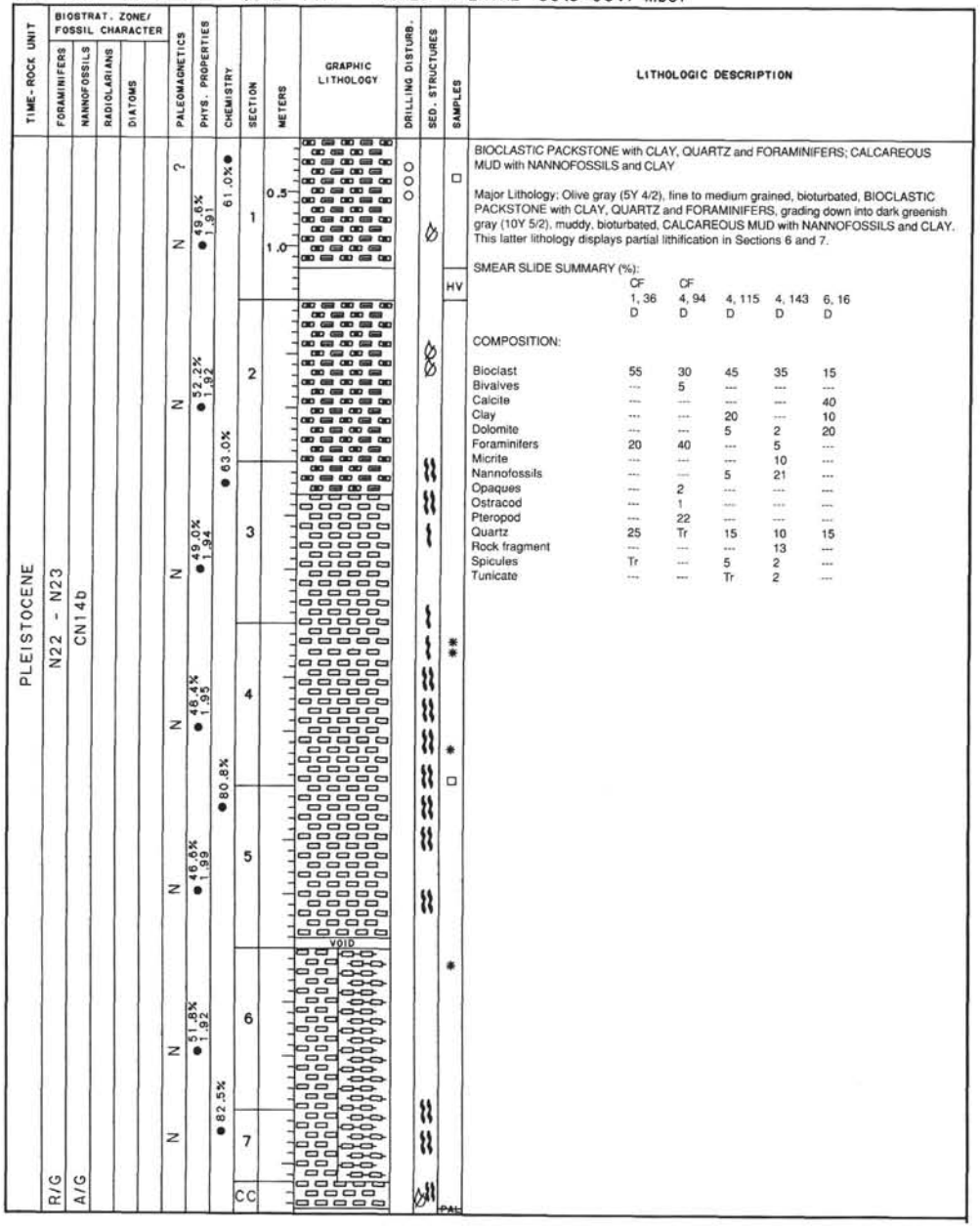
Minor Lithology: In Section 7 and in the core catcher the sediment becomes a sandy BIOCLASTIC PACKSTONE.

SMEAR SLIDE SUMMARY (%):

	4, 75 D	6, 80 D	CF 7, 67 D
COMPOSITION:			
Bioclast	15	10	80
Clay	13	25	---
Dolomite	---	Tr	---
Foraminifers	---	---	18
Nannofossils	60	50	---
Pyrite	---	---	1
Quartz	5	10	1
Spicules	2	2	---
Tunicate	---	3	---



SITE 821 HOLE A CORE 11H CORED INTERVAL 89.9-99.4 mbsf

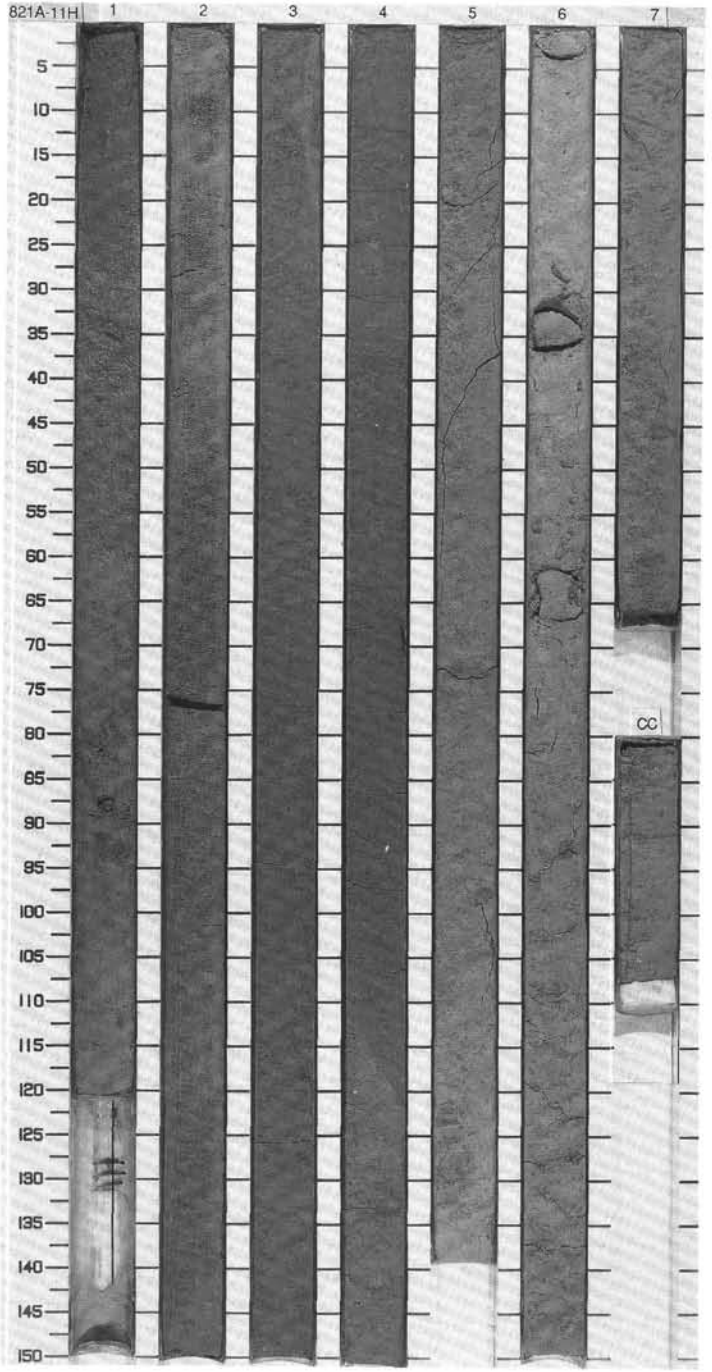


BIOCLASTIC PACKSTONE with CLAY, QUARTZ and FORAMINIFERS; CALCAREOUS MUD with NANNOFOSSILS and CLAY

Major Lithology: Olive gray (5Y 4/2), fine to medium grained, bioturbated, BIOCLASTIC PACKSTONE with CLAY, QUARTZ and FORAMINIFERS, grading down into dark greenish gray (10Y 5/2), muddy, bioturbated, CALCAREOUS MUD with NANNOFOSSILS and CLAY. This latter lithology displays partial lithification in Sections 6 and 7.

SMEAR SLIDE SUMMARY (%):

	CF 1, 36 D	CF 4, 94 D	4, 115 D	4, 143 D	6, 16 D
COMPOSITION:					
Bioclast	55	30	45	35	15
Bivalves	---	5	---	---	---
Calcite	---	---	---	---	40
Clay	---	---	20	---	10
Dolomite	---	---	5	2	20
Foraminifers	20	40	---	5	---
Micrite	---	---	---	10	---
Nannofossils	---	---	5	21	---
Opaques	---	2	---	---	---
Ostracod	---	1	---	---	---
Pteropod	---	22	---	---	---
Quartz	25	Tr	15	10	15
Rock fragment	---	---	---	13	---
Spicules	Tr	---	5	2	---
Tunicate	---	---	Tr	2	---



SITE 821 HOLE A CORE 12H CORED INTERVAL 99.4-108.9 mbsf

TIME-ROCK UNIT: PLEISTOCENE

BIOSTRAT. ZONE/FOSSIL CHARACTER
- FORAMINIFERS: N22 - N23 (R/P)
- NANNOFOSSILS: CN14b (A/G)
- RADIOLARIANS
- DIATOMS

PALEOMAGNETICS: N

PHYS. PROPERTIES: ● 49.6% 1.96; ● 48.5% 1.93; ● 46.4% 1.89; ● 47.6% 2.02; ● 48.6% 1.89; ● 50.9% 1.94

CHEMISTRY: ● 51.3%; ● 65.1%; ● 75.2%

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

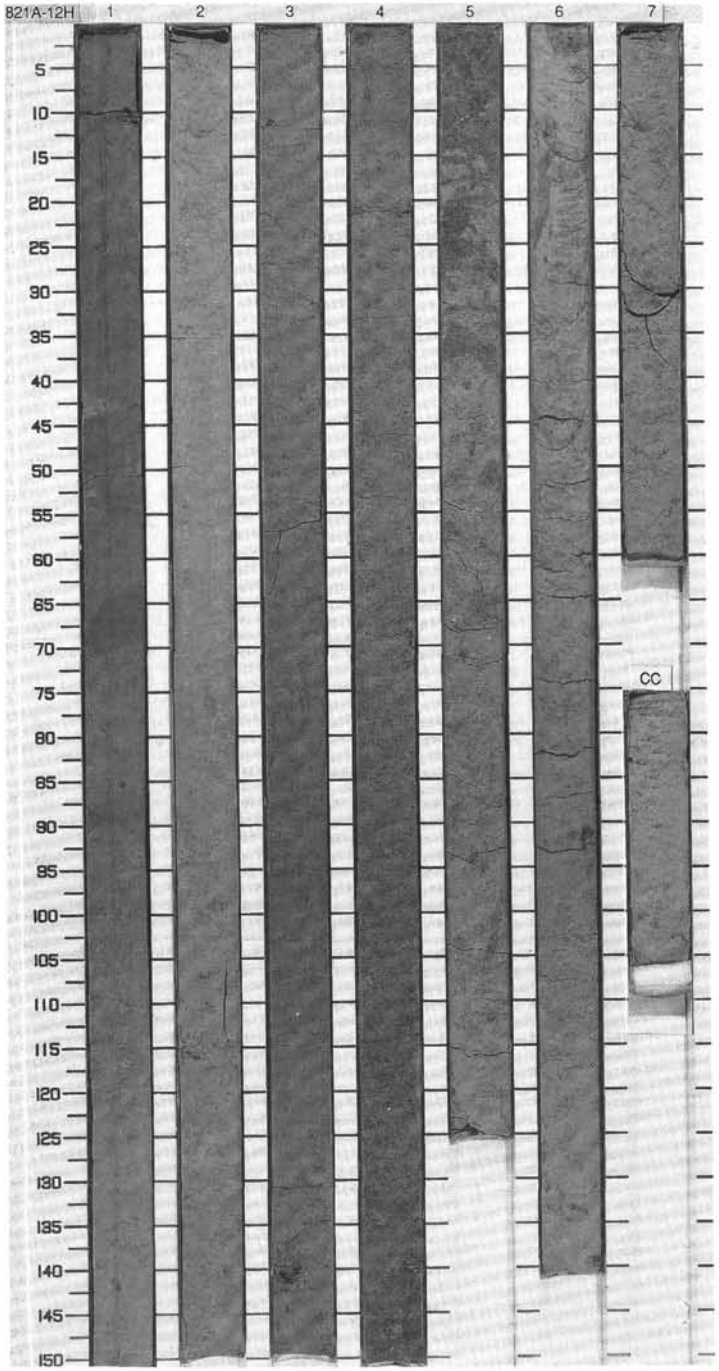
CALCAREOUS MUD with BIOCLASTS, CLAY, QUARTZ and MICRITE; BIOCLASTIC PACKSTONE

Major Lithology: Partially lithified, greenish gray (10Y 5/1), bioturbated, CALCAREOUS MUD with BIOCLASTS, CLAY, QUARTZ and MICRITE. Burrows are occasionally filled with pyritised FORAMINIFERS and fine grained pyrite; and unlithified, greenish gray (10Y 5/1), BIOCLASTIC PACKSTONE.

Minor Lithologies: Greenish gray (5Y 5/2), unlithified, clayey. CALCAREOUS MIXED SEDIMENT (Section 1); and greenish gray (5Y 5/2), clayey to sandy BIOCLASTIC MIXED SEDIMENT. Both the upper contact (Section 4) and lower contact (Section 5) are gradational.

SMEAR SLIDE SUMMARY (%):

	1, 67 D	2, 100 D	CF 5, 10 D
TEXTURE:			
COMPOSITION:			
Bioclast	30	40	60
Dolomite	2	Tr	---
Feldspar	---	2	---
Foraminifers	3	3	15
Intraclasts	---	---	10
Micrite	10	10	---
Nannofossils	31	37	---
Opaques	1	---	---
Quartz	10	8	15
Rock fragment	5	---	---
Spicules	2	---	---
Tunicate	5	---	---



SITE 821 HOLE A CORE 13H CORED INTERVAL 108.9-118.4 mbsf

TIME-ROCK UNIT: PLEISTOCENE

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

PALEOMAGNETICS: R R N R? N N N

PHYS. PROPERTIES: ● 47.9% 2.01; ● 87.1%; ● 48.9% 1.97; ● 46.1% 2.01; ● 81.4%; ● 46.1% 2.03; ● 76.9%; ● 46.4% 2.01; ● 46.1% 2.01; ● 78.6%

CHEMISTRY

SECTION: 1 2 3 4 5 6 7 CC

METERS: 0.5, 1.0

GRAPHIC LITHOLOGY

DRILLING DISTURB.

SED. STRUCTURES

SAMPLES: TW; Pal

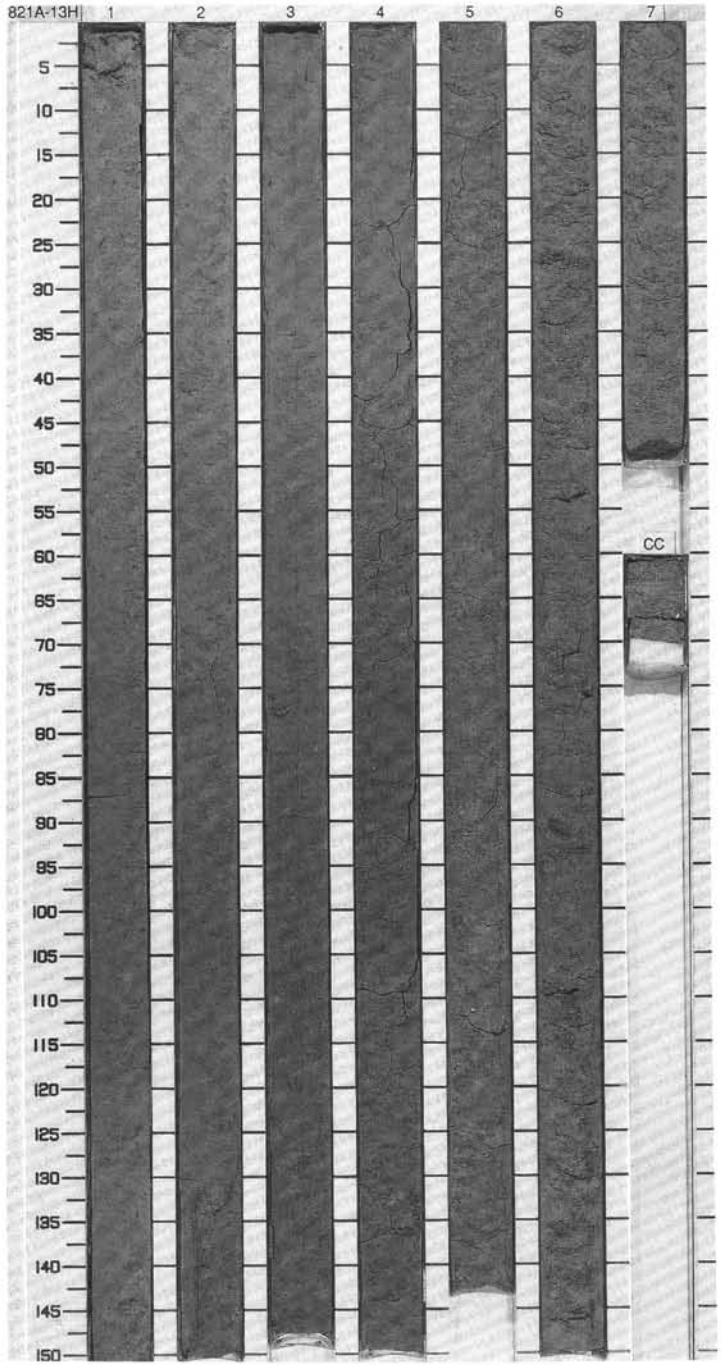
LITHOLOGIC DESCRIPTION

BIOCLASTIC CALCAREOUS MUD to MUDSTONE with CLAY and NANNOFOSSILS; BIOCLASTIC PACKSTONE

Major Lithology: Greenish gray (10Y 6/1), burrowed, firm, BIOCLASTIC CALCAREOUS MUD to MUDSTONE with CLAY and NANNOFOSSILS. Burrows have a fine grained pyritic filling; and greenish gray (10Y 6/1), poorly sorted, unlithified, BIOCLASTIC PACKSTONE.

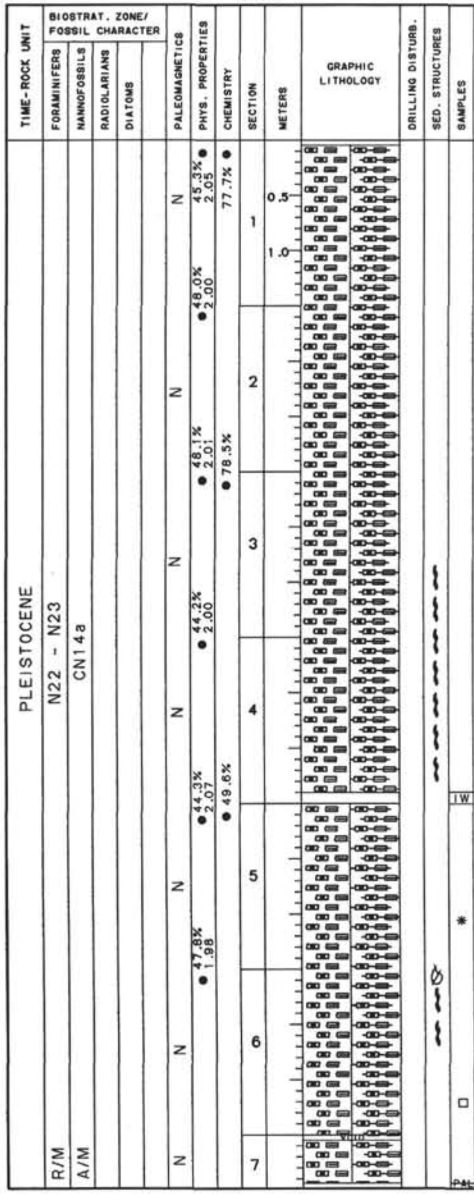
SMEAR SLIDE SUMMARY (%):

	2, 67 D	CF 6, 70 D
COMPOSITION:		
Bioclast	49	85
Clay	10	---
Dolomite	5	---
Foraminifers	---	10
Mica	---	1
Micrite	15	---
Nannofossils	15	---
Opaques	---	3
Quartz	3	1
Tunicate	3	---



SITE 821 HOLE A CORE 14H CORED INTERVAL 118.4-127.9 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
PLEISTOCENE	R/P	A/M			N	55.5% 2.14	87.6%	5						CALCAREOUS MUDSTONE with BIOCLASTS
	N22 - N23	CN14a			N	52.2% 1.97		6						Major Lithology: Greenish gray (10Y 6/1), CALCAREOUS MUDSTONE with BIOCLASTS; becoming mottled in Section 7.
					N	52.4% 1.93	87.6%	4						
					N	52.0% 1.92		3						
					?	42.0% 2.10		2						
					N	47.2% 2.02	79.9%	1	0.5					
								CC	1.0				PAL	



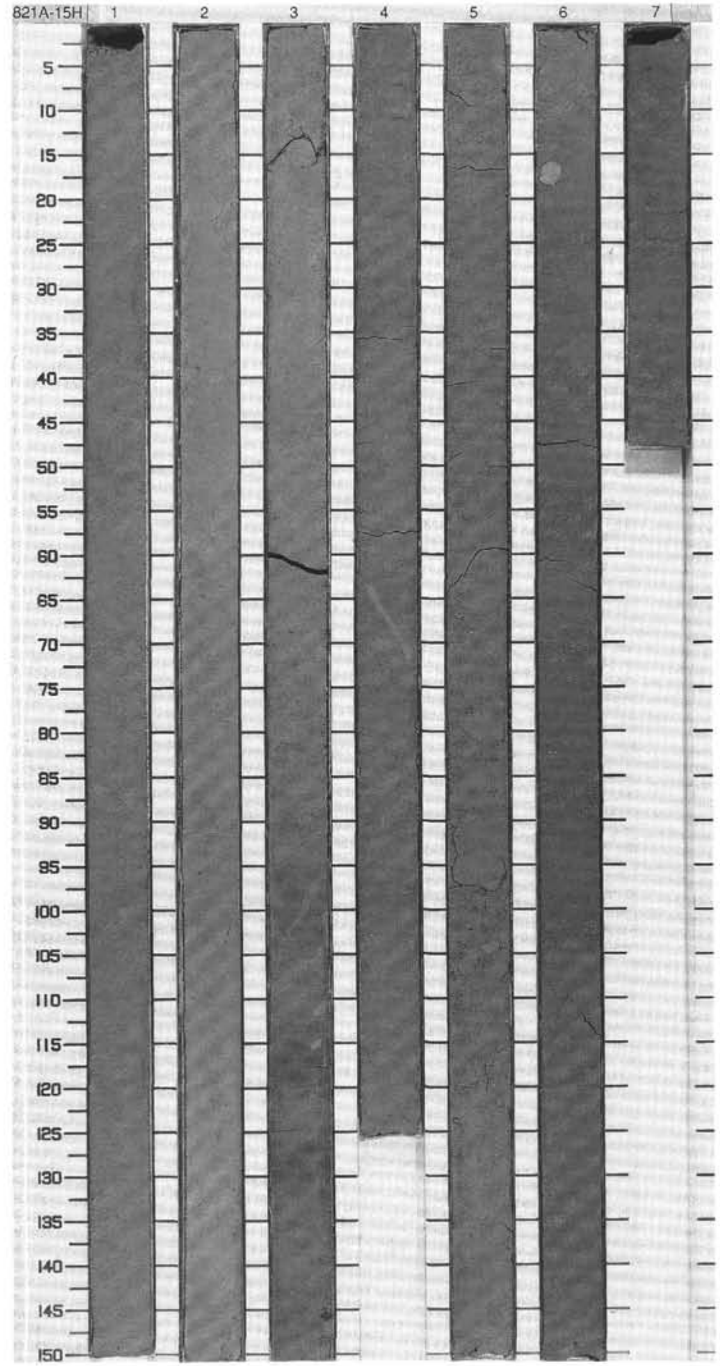
LITHOLOGIC DESCRIPTION

BIOCLASTIC PACKSTONE with CLAY and QUARTZ

Major Lithology: Gray (5Y 5/1), fine to medium grained, partially lithified, BIOCLASTIC PACKSTONE with CLAY and QUARTZ.

SMEAR SLIDE SUMMARY (%):

	5, 106	CF 6, 120
	D	D
COMPOSITION:		
Bioclast	45	72
Calcite	40	---
Dolomite	---	Tr
Feldspar	2	---
Foraminifers	---	10
Quartz	10	---
Rock fragment	3	10
Tunicate	---	3



SITE 821 HOLE A CORE 16H CORED INTERVAL 137.4-145.9 mbsf

TIME-ROCK UNIT: PLEISTOCENE

BIOSTRAT. ZONE/FOSSIL CHARACTER: FORAMINIFERS C/M N22 - N23; NANNOFOSSILS A/M CN14; RADIOLARIANS; DIATOMS

PALEOMAGNETICS: R? R N ? N

PHYS. PROPERTIES: 47.4% 1.99; 45.7% 2.00; 45.5% 2.01; 40.3% 2.14; 36.4% 2.58

CHEMISTRY: 78.1%; 67.3%; 81.6%

SECTION: 1 2 3 4 5 CC

METERS: 0.5 1.0

GRAPHIC LITHOLOGY

DRILLING DISTURB.

SED. STRUCTURES

SAMPLES

LITHOLOGIC DESCRIPTION

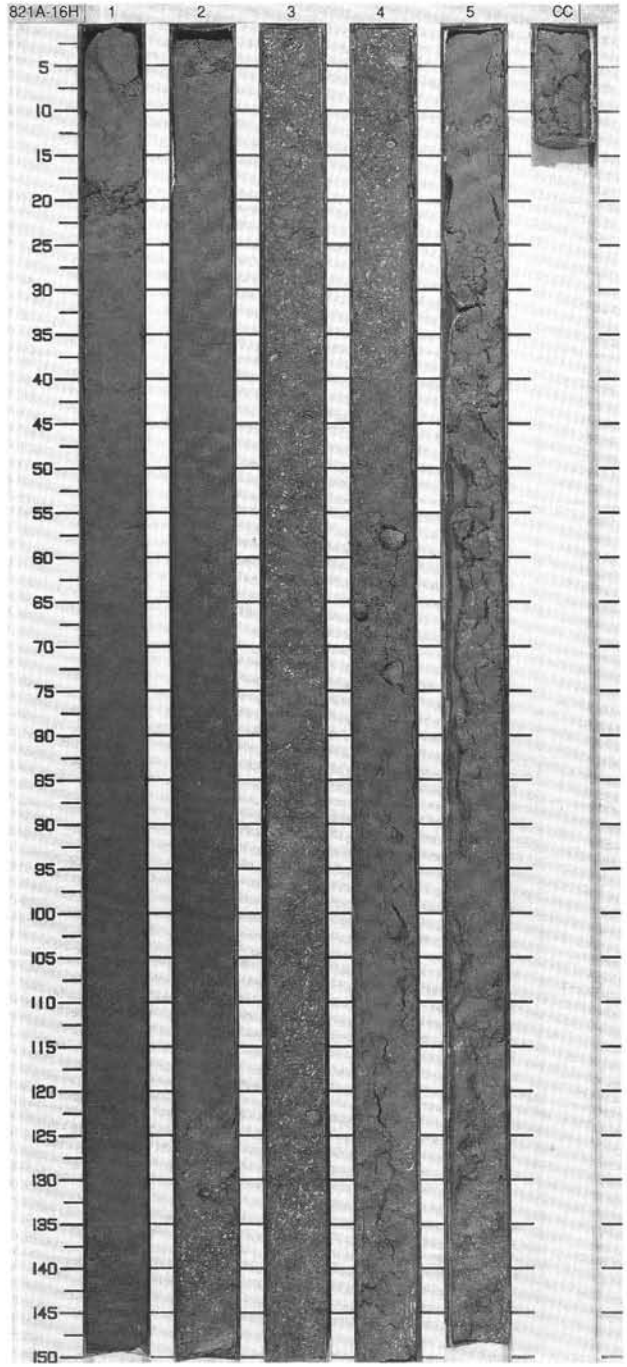
BIOCLASTIC NANNOFOSSIL MUD to MUDSTONE; BIOCLASTIC PACKSTONE with CLAY, *Halimeda*-MOLLUSC RUDSTONE

Major Lithology: Greenish gray (10Y 5/1), BIOCLASTIC NANNOFOSSIL MUD to MUDSTONE (Section 1; below Section 4, 75 cm); and greenish gray (10Y 5/1), BIOCLASTIC PACKSTONE with CLAY (Section 2), relatively abruptly overlying partially lithified, *Halimeda*-MOLLUSC RUDSTONE with a matrix of CALCAREOUS MUD. Additional allochems include BRYOZOANS, FORAMINIFERS, CARBONATE ROCK FRAGMENTS, and RHODOLITHS. Rock fragment lithology is similar to the BIOCLASTIC MUDSTONE which underlies the rudstone. GLAUCONITE occurs both as detrital grains and in PLANKTONIC FORAMINIFER tests.

Minor Lithology: In Section 4, 40-70 cm, the lithology is a LITHOCLASTIC-SKELETAL RUDSTONE to PACKSTONE.

SMEAR SLIDE SUMMARY (%):

	1, 40 D	2, 122 D	3, 20 D	4, 62 D	5, 60 D
COMPOSITION:					
Bioclast	40	32	22	40	50
Calcite	---	50	---	---	---
Clay	10	---	20	---	10
Dolomite	10	6	10	---	5
Foraminifers	---	---	---	10	---
Lithoclast	---	---	---	35	---
Micrite	20	---	40	---	20
Nannofossils	15	12	Tr	---	10
Quartz	3	---	3	15	---
Tunicate	2	---	5	---	5



SITE 821 HOLE A CORE 17X CORED INTERVAL 145.9-155.6 mbsf

TIME-ROCK UNIT	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
PLEISTOCENE	N22 - N23	CN14a			N	● 47.2% 1.99	63.3% ●	1	0.5, 1.0				
						● 44.6% 2.04	● 75.2%						* *
					N	● 39.6% 2.12	● 69.7%	2					
					N	● 44.8% 1.87		3					*
					N?	● 41.6% 1.87	● 71.5%	4					*
					N?	● 48.9% 2.17		5					IW
					N?			6					
	A/G	A/M						7					
								CC					PAL

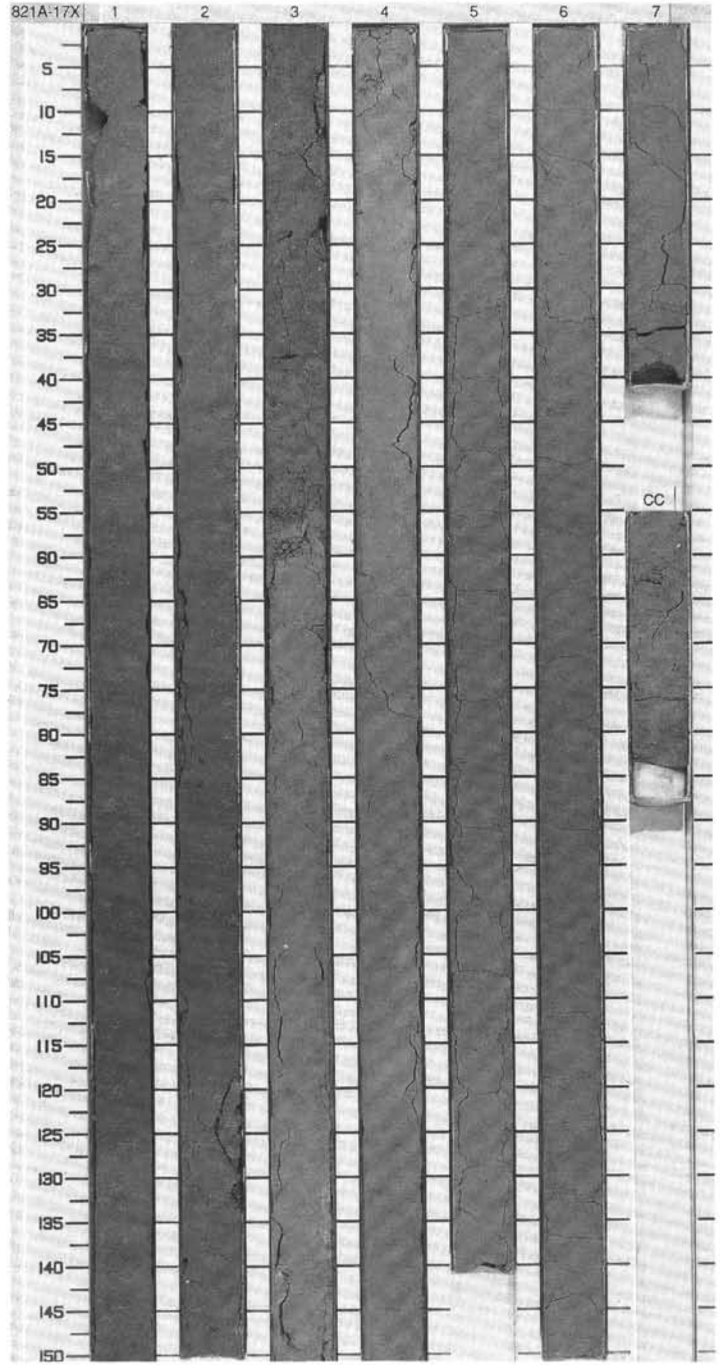
LITHOLOGIC DESCRIPTION

BIOCLASTIC PACKSTONE with CLAY and QUARTZ

Major Lithology: Gray to dark gray (5Y 5/2 to 5Y 4/1), medium to fine grained, partially lithified, BIOCLASTIC PACKSTONE with CLAY and QUARTZ.

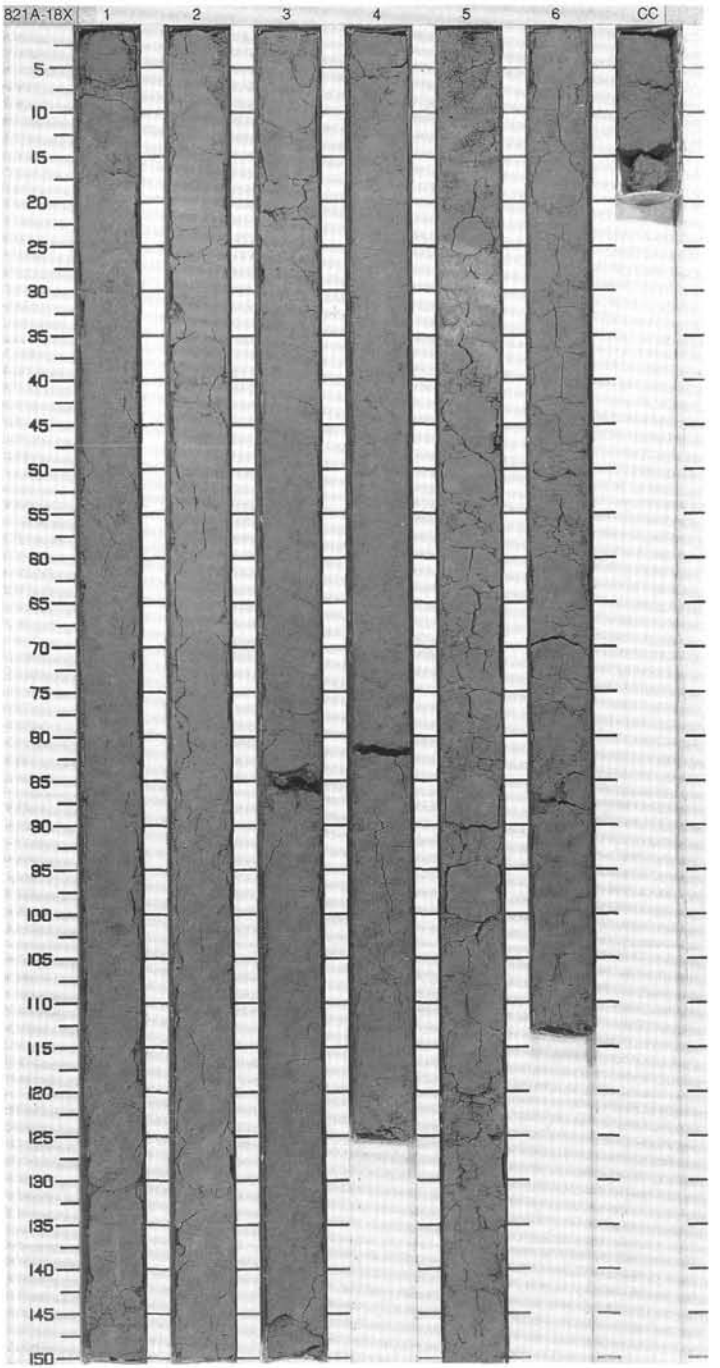
SMEAR SLIDE SUMMARY (%):

	2, 39	2, 142	3, 35	4, 60
	D	D	D	D
COMPOSITION:				
Accessory minerals	---	---	3	---
Bioclast	45	53	42	30
Calcite	35	20	---	40
Dolomite	---	---	---	15
Feldspar	2	1	2	---
Nannofossils	---	5	18	10
Quartz	15	15	25	5
Rock fragment	3	4	8	---
Tunicate	---	2	2	---



SITE 821 HOLE A CORE 18X CORED INTERVAL 155.6-165.2 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
PLEISTOCENE	N22 N23	CN14a			UNCERTAIN POLARITY	43.0% 1.99	83.0%	1	0.5					CALCAREOUS MUDSTONE with CLAY, QUARTZ, NANNOFOSSILS, and BIOCLASTS Major Lithology: Greenish gray (10Y 6/2), partially lithified, CALCAREOUS MUDSTONE with CLAY, sand-sized QUARTZ, NANNOFOSSILS, and BIOCLASTS. Minor Lithology: Greenish gray (10Y 5/2), BIOCLASTIC PACKSTONE.
						47.6% 2.00	80.3%		1.0					
						43.8% 2.04	24.9%	2						
						45.3% 1.97		3						
					N	43.6% 2.07	75.8%	4					OG	
					N	47.1% 1.93		5						
					N			6						
								CC					PAL	



SITE 821 HOLE A CORE 19X CORED INTERVAL 165.2-174.9 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
PLEISTOCENE	N22 - N23	CN14a				44.7% 2.01	69.5%	1	0.5				
C/M		C/M				43.4% 2.05			1.0				
						45.4% 2.05	58.9%	2					
								3					*
					47.4% 1.97	45.0% 2.04	53.6%	4					
								5				TI	*
								6					*
								CC					

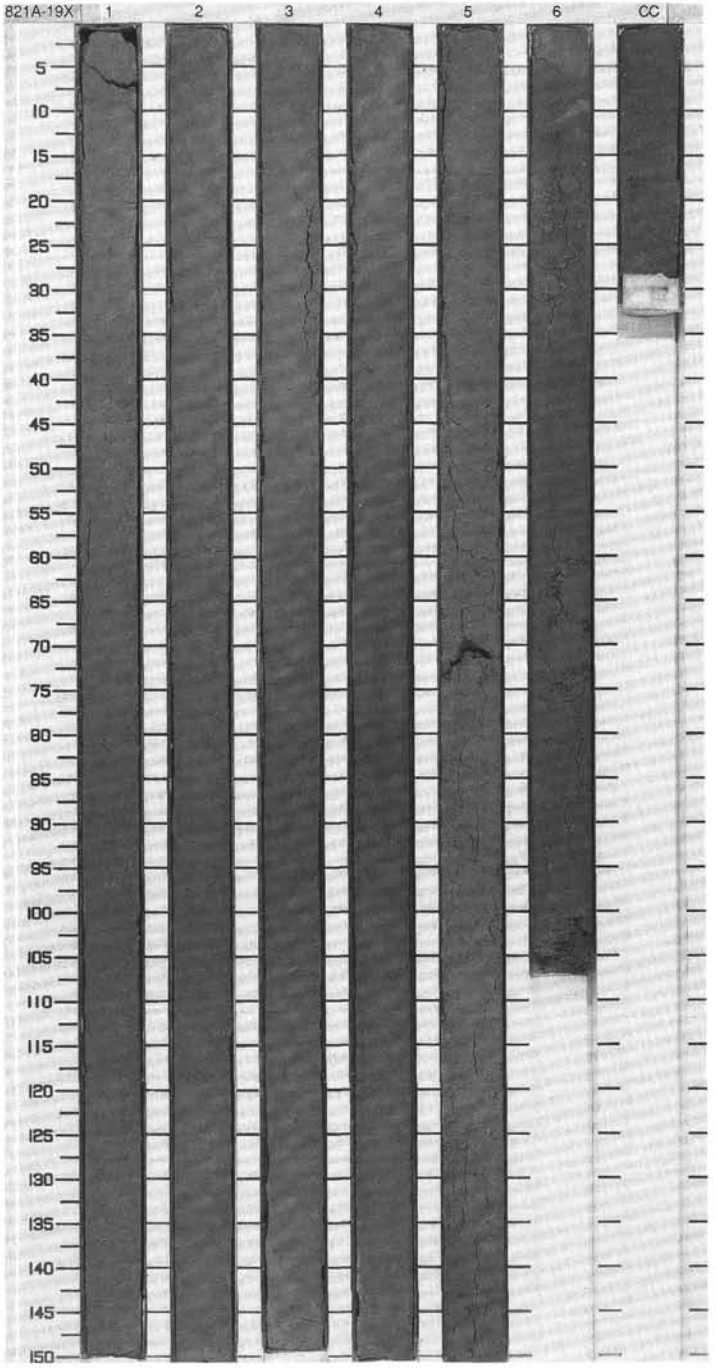
LITHOLOGIC DESCRIPTION

MIXED SEDIMENT with BIOCLASTS and NANNOFOSSILS

Major Lithology: Gray (5Y 5/1), clayey to sandy MIXED SEDIMENT with BIOCLASTS and NANNOFOSSILS.

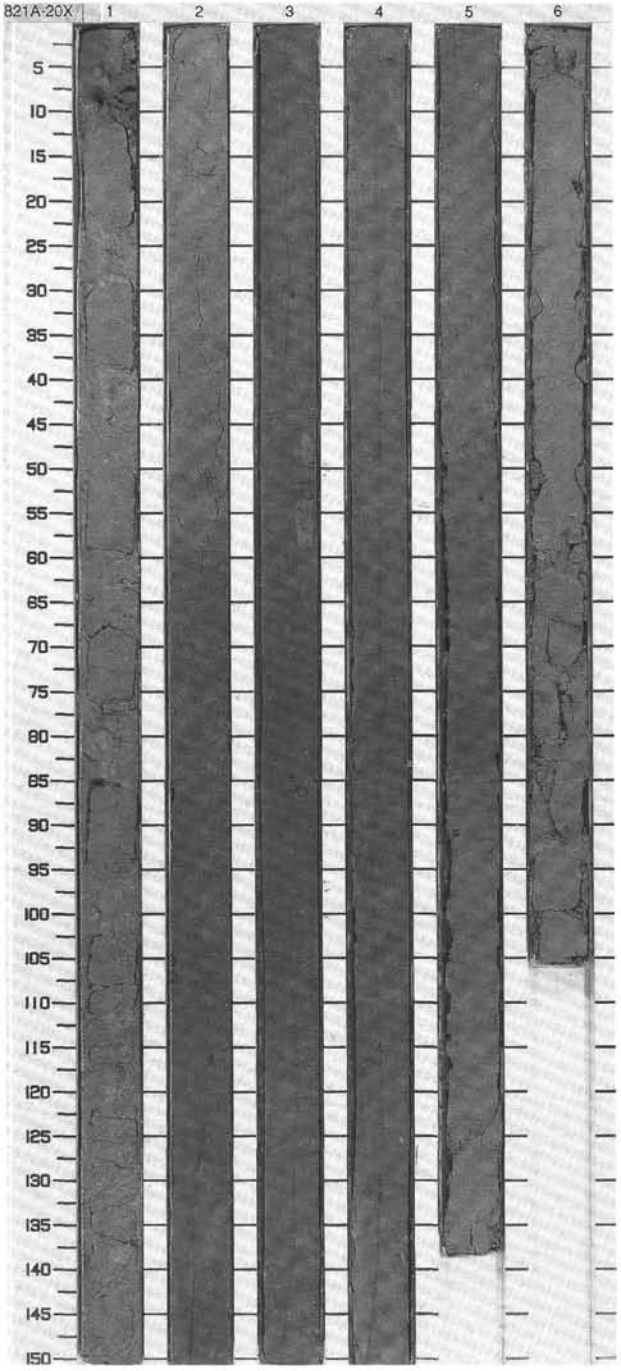
SMEAR SLIDE SUMMARY (%):

	3, 40 D	5, 125 D	6, 82 D
COMPOSITION:			
Bioclast	30	35	25
Calcite	27	19	18
Dolomite	5	---	---
Feldspar	5	3	1
Mica	1	2	1
Nannofossils	15	21	40
Quartz	15	15	10
Rock fragment	2	5	4
Spicules	---	---	1



SITE 821 HOLE A CORE 20X CORED INTERVAL 174.9-184.6 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
PLEISTOCENE	N22 -N23	CN13b			UNCERTAIN POLARITY	46.9% 2.00 / 48.1% 1.94 / 47.5% 1.97 / 42.3% 2.07 / 48.7% 1.95 / 40.4% 2.12	72.1% / 37.7% / 43.2% / 43.2%	1 2 3 4 5 6	0.5 1.0					BIOCLASTIC PACKSTONE with NANNOFOSSILS and FORAMINIFERS Major Lithology: Light greenish gray (10Y 6/1), BIOCLASTIC PACKSTONE with NANNOFOSSILS and FORAMINIFERS. Section 3 may be entirely disturbed by drilling. Minor Lithology: In Section 4 and below, the lithology is a greenish gray (10Y 5/1), bioturbated, CLAYEY BIOCLASTIC MIXED SEDIMENT with NANNOFOSSILS.



SITE 821 HOLE A CORE 21X CORED INTERVAL 184.6-193.9 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
PLEISTOCENE	N22 - N23	CN13b			UNCERTAIN POLARITY	● 47.4% 1.99 ● 50.0% 1.94 ● 39.5% 2.05 ● 43.3% 2.07 ● 41.6% 2.07 ● 42.5% 2.14	● 69.5% ● 85.4% ● 76.5% ● 94.5%	1 2 3 4 5 6 7 CC	0.5 1.0				OG *

LITHOLOGIC DESCRIPTION

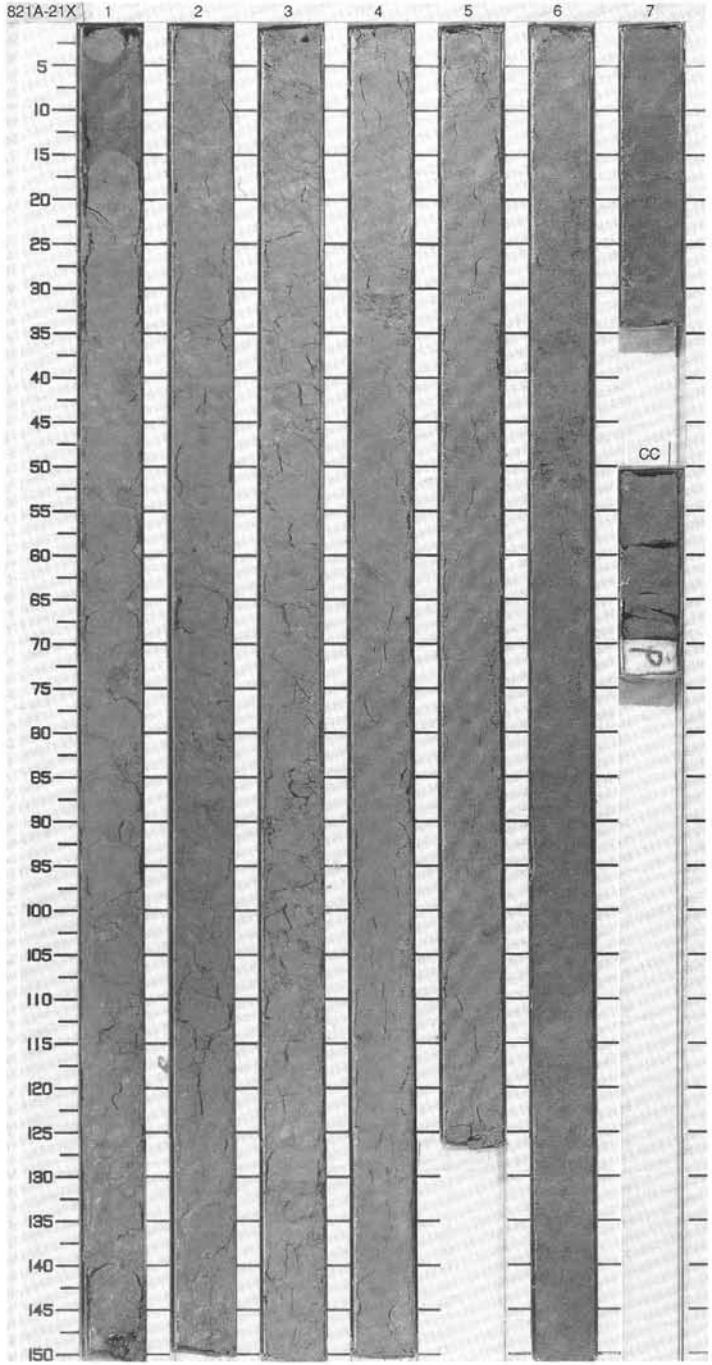
BIOCLASTIC WACKESTONE with NANNOFOSSILS, FORAMINIFERS, and CLAY

Major Lithology: Greenish gray (5GY 6/1), BIOCLASTIC WACKESTONE with NANNOFOSSILS, FORAMINIFERS, CLAY, and minor DOLOMITE.

Minor Lithology: Greenish gray (5GY 6/1), silty to clayey, BIOCLASTIC PACKSTONE with NANNOFOSSILS and FORAMINIFERS.

SMEAR SLIDE SUMMARY (%):

	7, 24 D
COMPOSITION:	
Bioclast	25
Calcite	Tr
Clay	20
Dolomite	3
Foraminifers	8
Micrite	5
Nannofossils	30
Quartz	8
Tunicate	1



SITE 821 HOLE A CORE 22X CORED INTERVAL 193.9-203.5 mbsf

TIME-ROCK UNIT: PLEISTOCENE

BIOSTRAT. ZONE/FOSSIL CHARACTER
- FORAMINIFERS: R/M N22 - N23
- NANNOFOSSILS: A/M CN13b
- RADIOLARIANS
- DIATOMS

PALEOMAGNETICS: N? UNCERTAIN POLARITY N?

PHYS. PROPERTIES: ● 44.2% 2.03; ● 33.9% 2.20; ● 47.5% 2.01; ● 45.3% 2.03; ● 45.7% 1.99; ● 44.5% 2.02

CHEMISTRY: ● 72.0; ● 46.7%

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

METERS: 0.5, 1.0

GRAPHIC LITHOLOGY

DRILLING DISTURB.

SED. STRUCTURES

SAMPLES: PAL

LITHOLOGIC DESCRIPTION

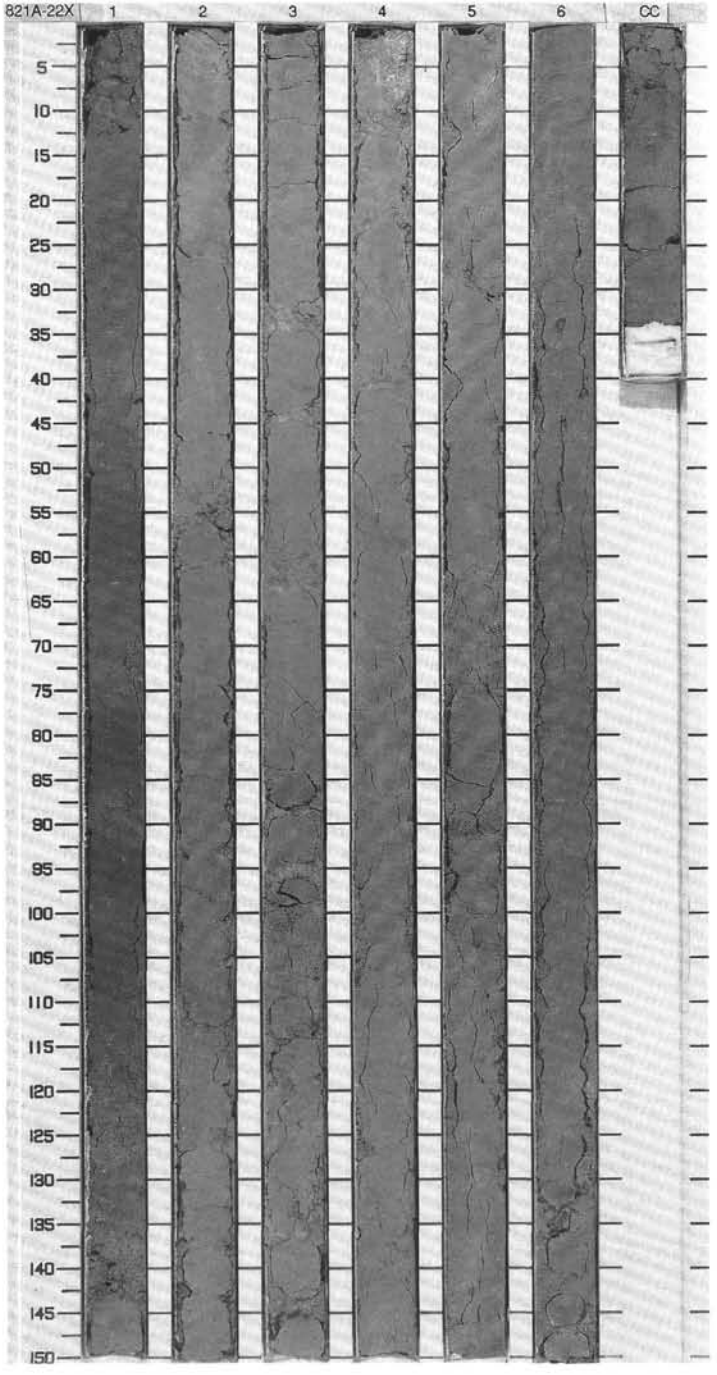
PACKSTONE with NANNOFOSSILS, FORAMINIFERS, BIOCLASTS, and CLAY

Major Lithology: Greenish gray (10Y 5/1), partially lithified PACKSTONE with NANNOFOSSILS, FORAMINIFERS, BIOCLASTS, and CLAY.

Minor Lithology: Greenish gray (10Y 5/1), clayey to sandy, CALCAREOUS MIXED SEDIMENT.

SMEAR SLIDE SUMMARY (%):

	1, 69 D	3, 67 D	5, 55 D
COMPOSITION:			
Apatite	1	---	---
Bioclast	14	9	---
Calcite	50	25	34
Clay	---	10	15
Dolomite	---	26	4
Foraminifers	15	5	5
Micrite	---	---	15
Nannofossils	17	25	25
Quartz	---	---	2
Tunicate	3	---	---



SITE 821 HOLE A CORE 23X CORED INTERVAL 203.5-212.8 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
PLEISTOCENE	N22 - N23	CN13b			N	● 42.0% 2.07	● 61.0%	1	0.5 1.0				*
					UNCERTAIN POLARITY ?	● 42.7% 2.08		2					
						● 42.1% 2.07	● 57.2%	3					
						● 42.6% 2.05		4					
						● 48.5% 1.96	● 67.9%	5					*
	R/M	A/M					● 51.7%	6					TW
								CC					PAL

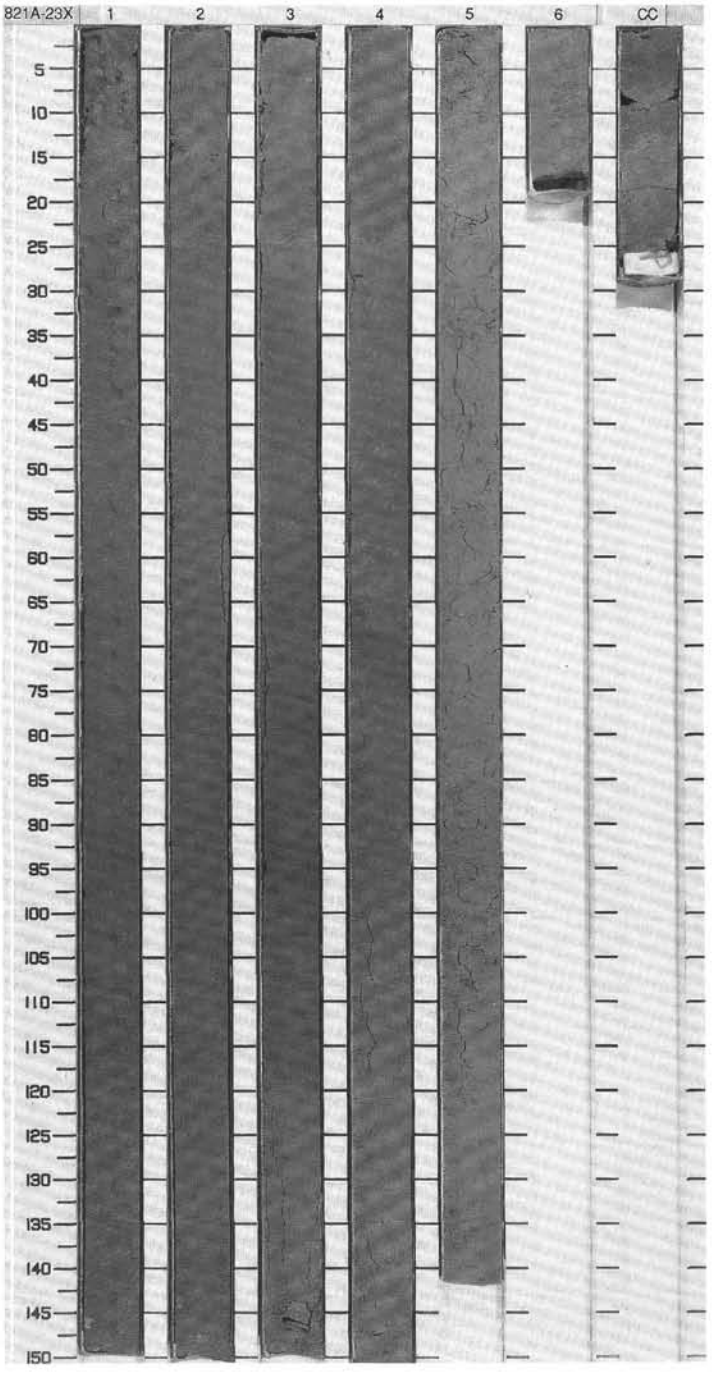
LITHOLOGIC DESCRIPTION

PACKSTONE with CLAY and BIOCLASTS

Major Lithology: Greenish gray (5GY 5/1), clayey, PACKSTONE with CLAY and BIOCLASTS.

SMEAR SLIDE SUMMARY (%):

	1, 89 D	5, 27 D
COMPOSITION:		
Apatite	3	4
Bioclast	18	10
Calcite	15	10
Clay	20	---
Dolomite	---	18
Foraminifers	5	12
Glauconite	1	1
Micrite	5	10
Nannofossils	25	25
Quartz	3	10
Tunicate	5	---



SITE 821 HOLE A CORE 24X CORED INTERVAL 212.8 - 222.5 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	R/P N22 - N23	C/P CN13b			UNCERTAIN POLARITY	● 47.6% 2.03 ● 49.8% 1.97 ● 42.6% 2.07 ● 42.3% 2.11 ● 45.1% 2.07 ● 47.3% 2.00	● 83.5% ● 63.0% ● 33.5%	1 2 3 4 5 6 7 CC	0.5 1.0				OG

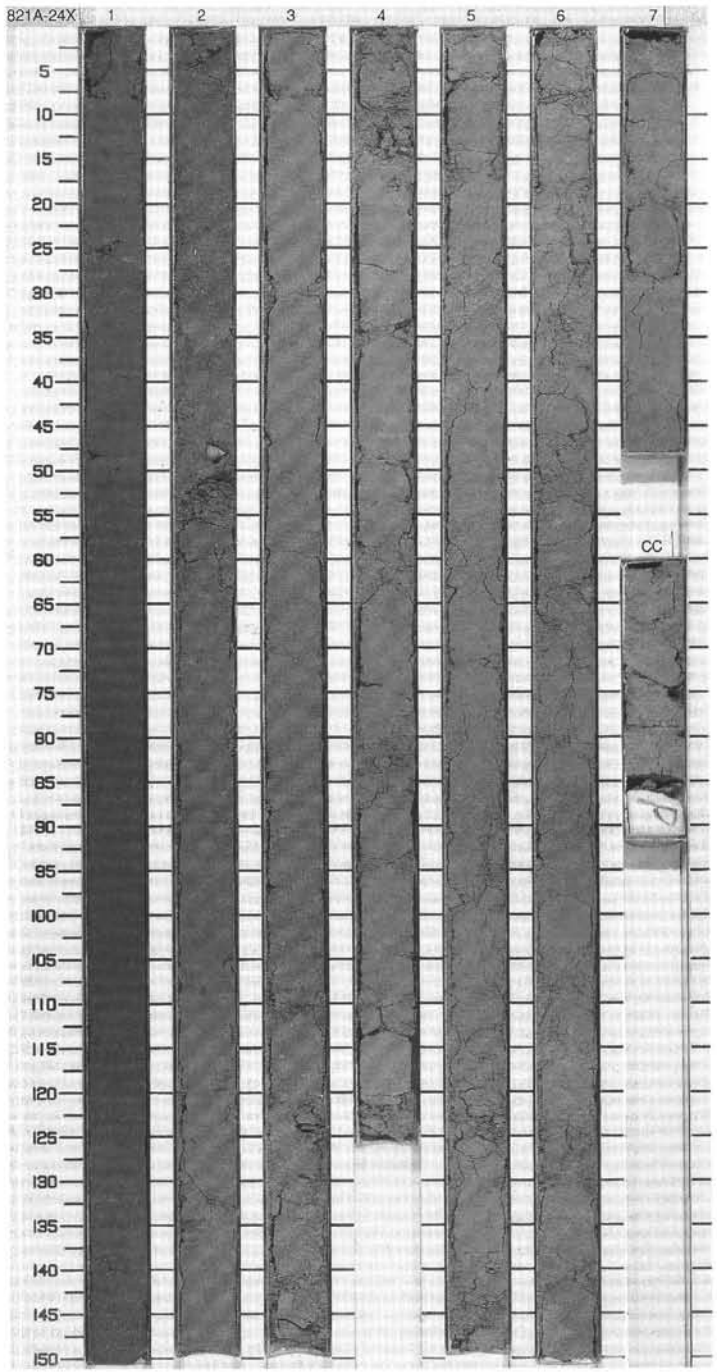
LITHOLOGIC DESCRIPTION

CALCAREOUS MUDSTONE with CLAY and FORAMINIFERS

Major Lithology: Moderately lithified, greenish gray (5GY 6/1), bioturbated, CALCAREOUS MUDSTONE with CLAY and FORAMINIFERS.
Minor Lithologies: Clayey CALCAREOUS MIXED SEDIMENT with FORAMINIFERS and BIOCLASTS (Section 1, 0-110 cm); dark greenish gray (5GY 4/1) FORAMINIFER CHALK with clay, bioclasts, and micrite (Section 1, 110 to Section 2, at 15 cm).

SMEAR SLIDE SUMMARY (%):

	4, 45 D
COMPOSITION:	
Bioclast	3
Calcite	30
Clay	12
Dolomite	10
Micrite	30
Nannofossils	15
Quartz	Tr



SITE 821 HOLE A CORE 25X CORED INTERVAL 222.5-232.2 mbsf

TIME-ROCK UNIT: PLEISTOCENE

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

PALEOMAGNETICS: UNCERTAIN POLARITY

PHYS. PROPERTIES: ● 41.2% 2.09; ● 49.4% 2.08; ● 42.4% 2.09; ● 43.2% 2.08; ● 41.8% 2.07; ● 42.0% 2.07

CHEMISTRY: ● 67.8%; ● 78.1%; ● 76.1%

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

METERS: 0.5, 1.0

GRAPHIC LITHOLOGY

DRILLING DISTURB.

SED. STRUCTURES

SAMPLES: PAL

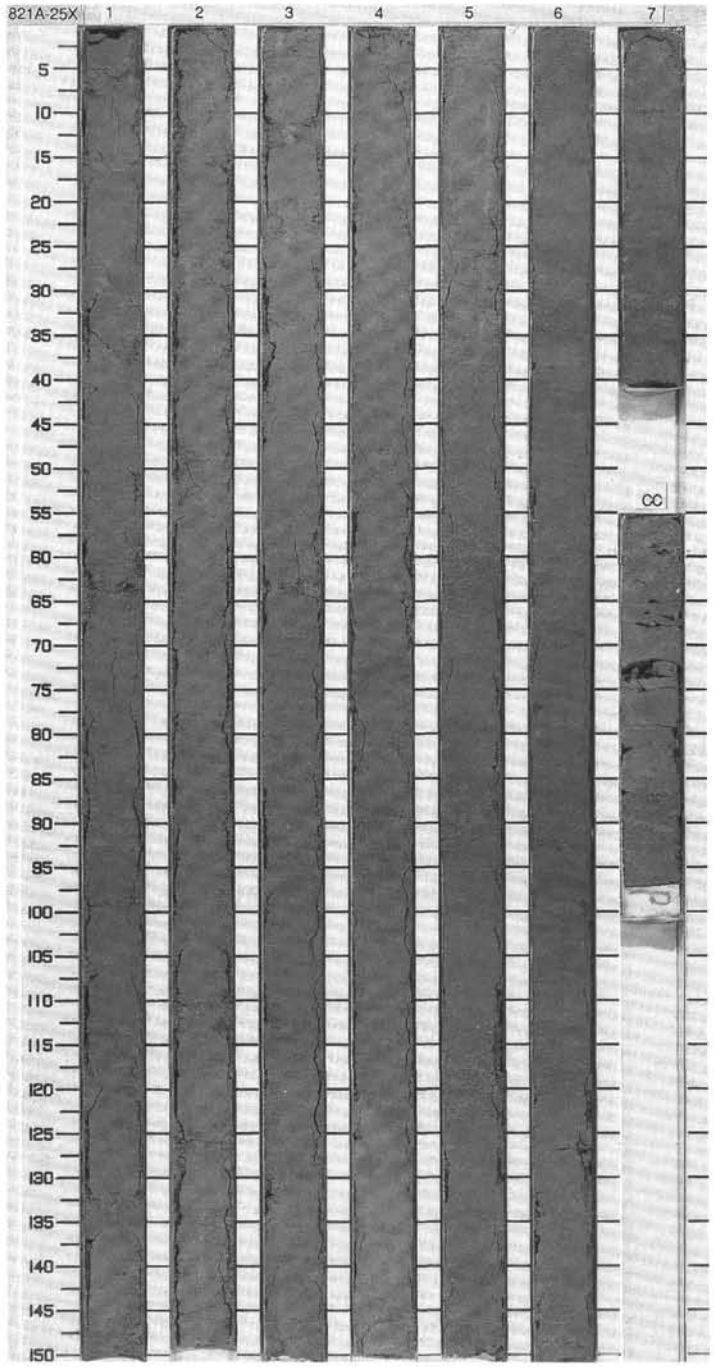
LITHOLOGIC DESCRIPTION

CALCAREOUS CHALK with NANNOFOSSILS, FORAMINIFERS, and CLAY

Major Lithology: Light greenish gray (5GY 6/1), bioturbated, slightly dolomitic, CALCAREOUS CHALK with NANNOFOSSILS, FORAMINIFERS, and CLAY.

SMEAR SLIDE SUMMARY (%):

	2, 75 D	4, 49 D	CC, 22 D
COMPOSITION:			
Bioclast	10	12	10
Calcite	60	13	10
Clay	---	7	9
Dolomite	10	10	10
Foraminifers	10	15	15
Micrite	---	---	10
Nannofossils	10	35	25
Quartz	Tr	3	1
Tunicate	---	---	10



SITE 821 HOLE A CORE 26X CORED INTERVAL 232.2-241.8 mbsf

TIME-ROCK UNIT: PLEISTOCENE

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

PALEOMAGNETICS: UNCERTAIN POLARITY

PHYS. PROPERTIES: ● 41.9% 2.14; ● 44.7% 2.05; ● 42.0% 2.12; ● 46.3% 2.02; ● 38.0% 2.10; ● 43.8% 2.07

CHEMISTRY: ● 58.1% ● 53.5% ● 71.9% ● 59.8%

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

METERS: 0.5, 1.0

GRAPHIC LITHOLOGY

DRILLING DISTURB.

SED. STRUCTURES

SAMPLES: * ; LW

LITHOLOGIC DESCRIPTION

CALCAREOUS MIXED SEDIMENT with NANNOFOSSILS, BIOCLASTS and DOLOMITE

Major Lithology: Light greenish gray (5GY 6/1), bioturbated, moderately lithified, clayey, CALCAREOUS MIXED SEDIMENT with NANNOFOSSILS, BIOCLASTS and DOLOMITE.

Minor Lithology: Light greenish gray (5GY 6/1), bioturbated, moderately lithified, CALCAREOUS CHALK with CLAY.

SMEAR SLIDE SUMMARY (%):

	3, 58 D
COMPOSITION:	
Bioclast	15
Clay	10
Dolomite	25
Foraminifers	8
Micrite	15
Nannofossils	25
Quartz	2

SITE 821 HOLE A CORE 27X CORED INTERVAL 241.8-251.4 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
PLEISTOCENE	R/P N22 - N23	C/P CN13b			UNCERTAIN POLARITY	● 41.7% 2.07 ● 41.1% 2.09 ● 42.7% 2.12 ● 37.0% 2.24 ● 45.8% 2.01 ● 36.4% 2.18	● 70.0% ● 68.1% ● 63.1%	1 2 3 4 5 6 7 CC	0.5 1.0				OG AT

LITHOLOGIC DESCRIPTION

CALCAREOUS CHALK with DOLOMITE and NANNOFOSSILS

Major Lithology: Light greenish gray (5GY 6/1), bioturbated, CALCAREOUS CHALK with DOLOMITE and NANNOFOSSILS.

Minor Lithology: Greenish gray (5GY 5/1), medium to coarse grained, partially lithified, BIOCLASTIC PACKSTONE with NANNOFOSSILS and FORAMINIFERS. Forms several fining-upward cycles in Sections 3 and 4.

SMEAR SLIDE SUMMARY (%):

	3, 128 D	5, 80 D
COMPOSITION:		
Bioclast	25	---
Calcite	1	30
Clay	12	8
Dolomite	---	11
Foraminifers	10	---
Glauconite	3	---
Micrite	---	40
Nannofossils	26	10
Pyrite	---	1
Quartz	15	---
Tunicate	8	---

SITE 821 HOLE A CORE 28X CORED INTERVAL 251.4 - 261.1 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
PLEISTOCENE	A/M	A/M			N? UNCERTAIN POLARITY N?	● 43.8% 2.07 ● 38.4% 2.15 ● 41.3% 2.12 ● 41.8% 2.08 ● 40.9% 2.12 ● 39.7% 2.17	● 68.9% ● 76.6% ● 75.9%	1 2 3 4 5 6 7 CC	0.5 1.0				PAL

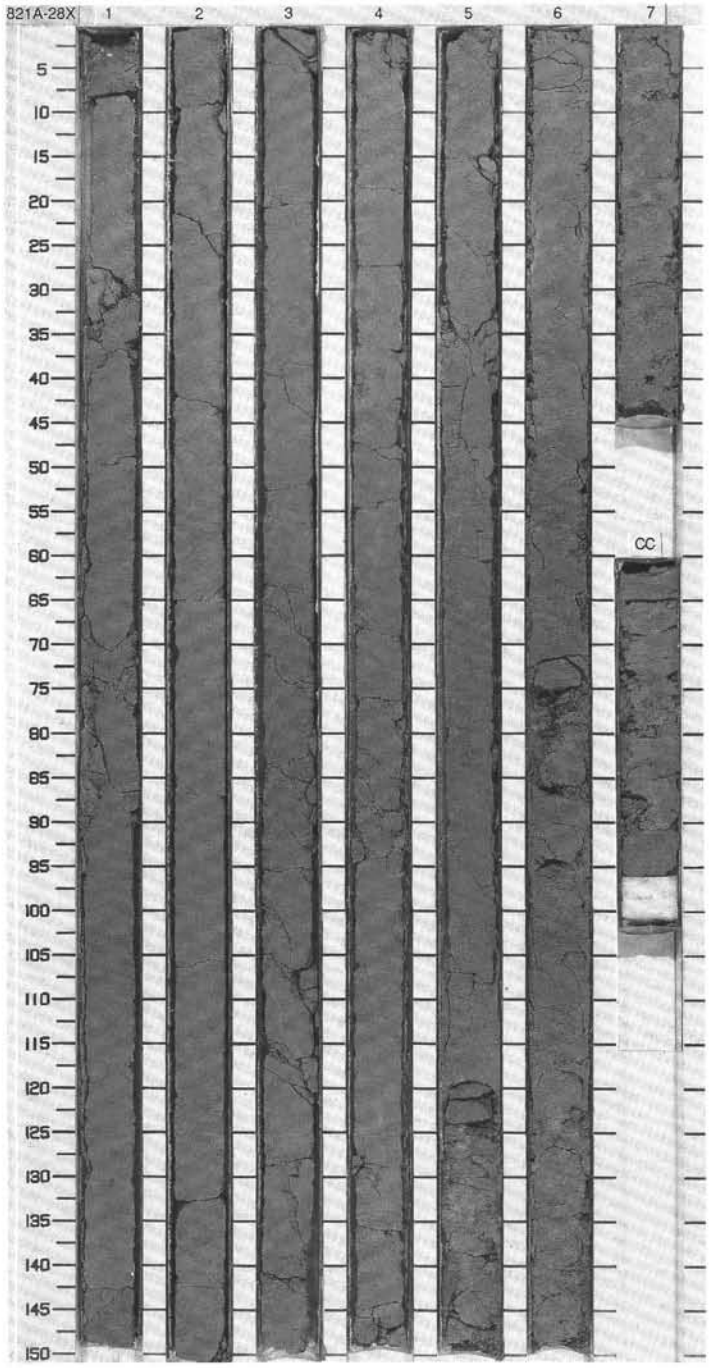
LITHOLOGIC DESCRIPTION

CALCAREOUS CHALK with DOLOMITE, CLAY, BIOCLASTS, and QUARTZ

Major Lithology: Greenish gray (5GY 5/1), bioturbated, CALCAREOUS CHALK with DOLOMITE, CLAY, BIOCLASTS, and QUARTZ.

SMEAR SLIDE SUMMARY (%):

	2, 60 D
COMPOSITION:	
Bioclast	12
Calcite	24
Clay	5
Dolomite	12
Feldspar	2
Micrite	30
Nannofossils	5
Quartz	10
Spicules	Tr



SITE 821 HOLE A CORE 29X CORED INTERVAL 261.1-270.8 mbsf

TIME-ROCK UNIT: PLEISTOCENE

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

PALEOMAGNETICS: UNCERTIAN POLARITY

PHYS. PROPERTIES: ● 36.8% 2.11; ● 38.7% 2.11; ● 3.0% 2.0; ● 2.0% 2.0

CHEMISTRY: ● 65.0%; ● 74.9%; ● 77.3%; ● 46.9%

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

METERS: 0.5, 1.0

GRAPHIC LITHOLOGY

DRILLING DISTURB.

SED. STRUCTURES

SAMPLES: *, *, TW, PAL

LITHOLOGIC DESCRIPTION

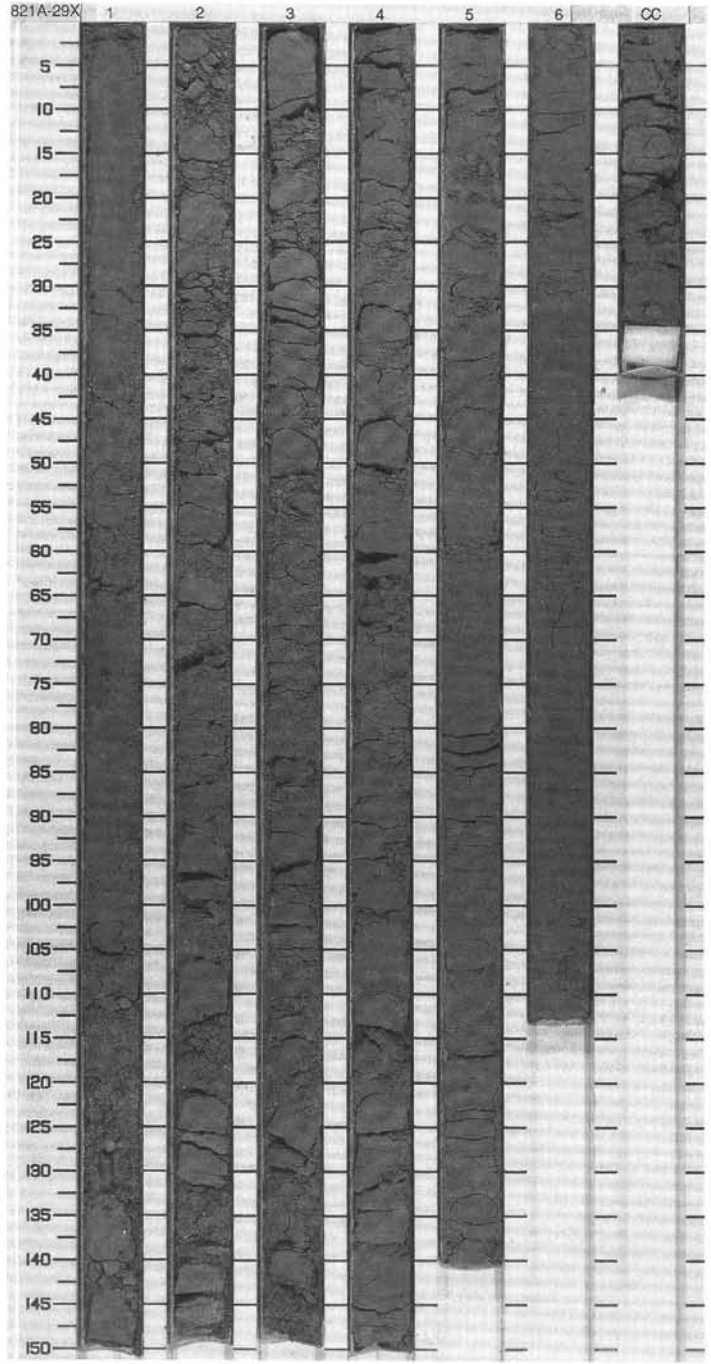
CALCAREOUS CHALK with DOLOMITE and QUARTZ

Major Lithology: Greenish gray (5GY 5/1), bioturbated, CALCAREOUS CHALK with DOLOMITE and QUARTZ.

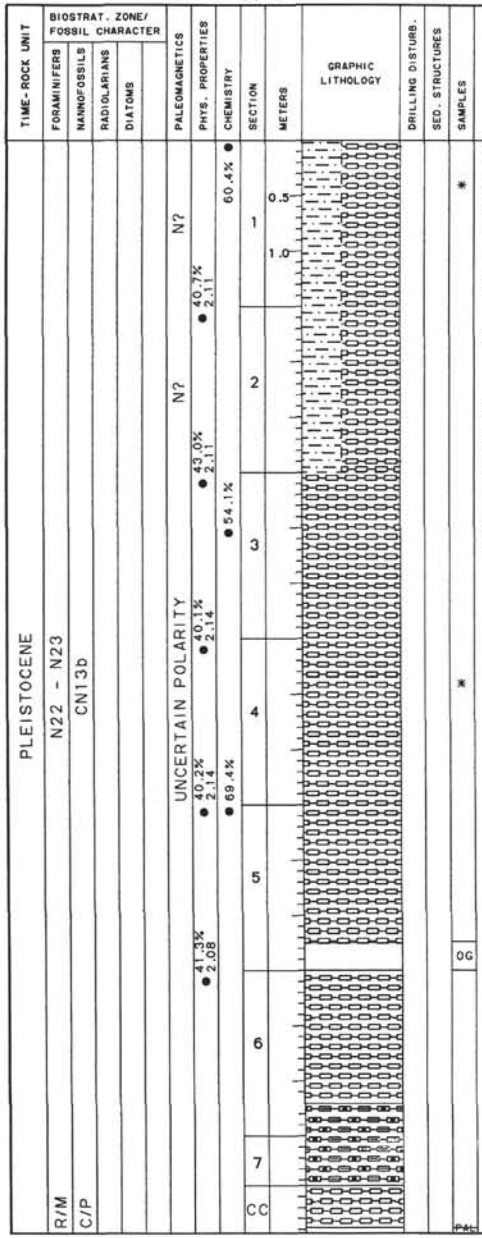
Minor Lithology: Clayey, BIOCLASTIC MIXED SEDIMENT with NANNOFOSSILS, and FORAMINIFERS.

SMEAR SLIDE SUMMARY (%):

	1, 74 D	5, 80 D
COMPOSITION:		
Apatite	Tr	---
Bioclast	15	5
Calcite	---	22
Clay	---	5
Dolomite	10	15
Echinoid	---	Tr
Feldspar	---	3
Foraminifers	20	---
Glauconite	5	---
Mica	2	---
Micrite	20	30
Nannofossils	11	11
Quartz	12	9



SITE 821 HOLE A CORE 30X CORED INTERVAL 270.8-280.4 mbsf



LITHOLOGIC DESCRIPTION

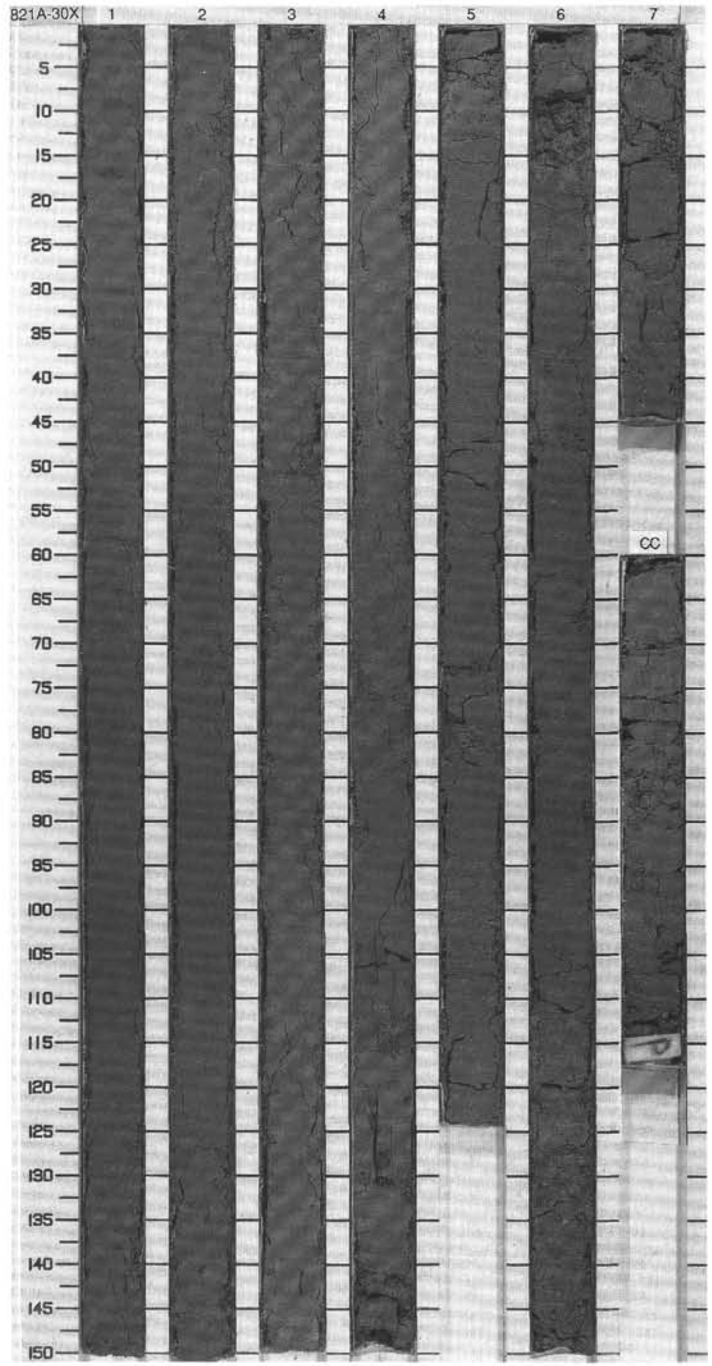
CALCAREOUS MUDSTONE with FORAMINIFERS, QUARTZ, and SILICICLASTIC GRAINS

Major Lithology: Greenish gray (5GY 5/1), moderately to well lithified, CALCAREOUS MUDSTONE with FORAMINIFERS, sand-sized QUARTZ, and mud-sized SILICICLASTIC GRAINS. GLAUCONITE is common as detrital grains as well as foraminifer void-fill cement in tests.

Minor Lithology: Greenish gray (5GY 4/1), BIOCLASTIC PACKSTONE; and greenish gray (5GY 4/1), bioturbated, moderately lithified, clayey to sandy CALCAREOUS MIXED SEDIMENT with BIOCLASTS and NANNOFOSSILS.

SMEAR SLIDE SUMMARY (%):

	1, 40	4, 40
	D	D
COMPOSITION:		
Calcite	30	23
Clay	---	5
Dolomite	5	15
Foraminifers	20	10
Micrite	15	25
Nannofossils	15	11
Pyrite	---	Tr
Quartz	15	11

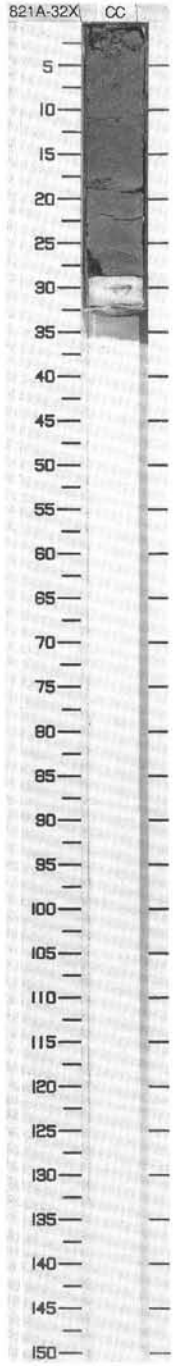


SITE 821 HOLE A CORE 31X CORED INTERVAL 280.4-290.1 mbsf

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
PLEISTOCENE	N22-N23	CN13b			UNCERTAIN POLARITY	● 46.6% 2.21 ● 33.8% 1.69 ● 33.7% 2.22 ● 43.07% 2.04	● 72.1% ● 62.2%	1 2 3 4 5 CC	0.5 1.0				PAL	CALCAREOUS MUDSTONE with CLAY and BIOCLASTS Major Lithology: Greenish gray (5GY 5/1), bioturbated and locally planar laminated, moderately lithified, CALCAREOUS MUDSTONE with CLAY and BIOCLASTS, and minor DOLOMITE. Minor Lithology: Clayey to silty MIXED SEDIMENT with BIOCLASTS. Coarse sand-size BENTHIC FORAMINIFERS are sparsely distributed throughout both major and minor lithologies.

SITE 821 HOLE A CORE 32X CORED INTERVAL 290.1-299.7 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
R/M C/P	N22-N23	CN13b						CC					PAL	CALCAREOUS CHALK with BIOCLASTS Major Lithology: Greenish gray (5GY 5/1), CALCAREOUS CHALK with BIOCLASTS.



SITE 821 HOLE A CORE 33X CORED INTERVAL 299.7-309.4 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
R/P	N22-N23	CN13b			N?	33.3% 2.27	75.3%	1	0.5				
C/P						31.6% 2.24			1.0	VOID			
					N?		65.0%	2					
					N?	40.3% 2.15							
					N?	39.6% 2.18		3				*	
					N?	39.2% 2.16	59.7%	4					OG
					N?	44.6% 2.07	72.5%	5					
					N?			6					LW
								7					
								CC				*	PAL

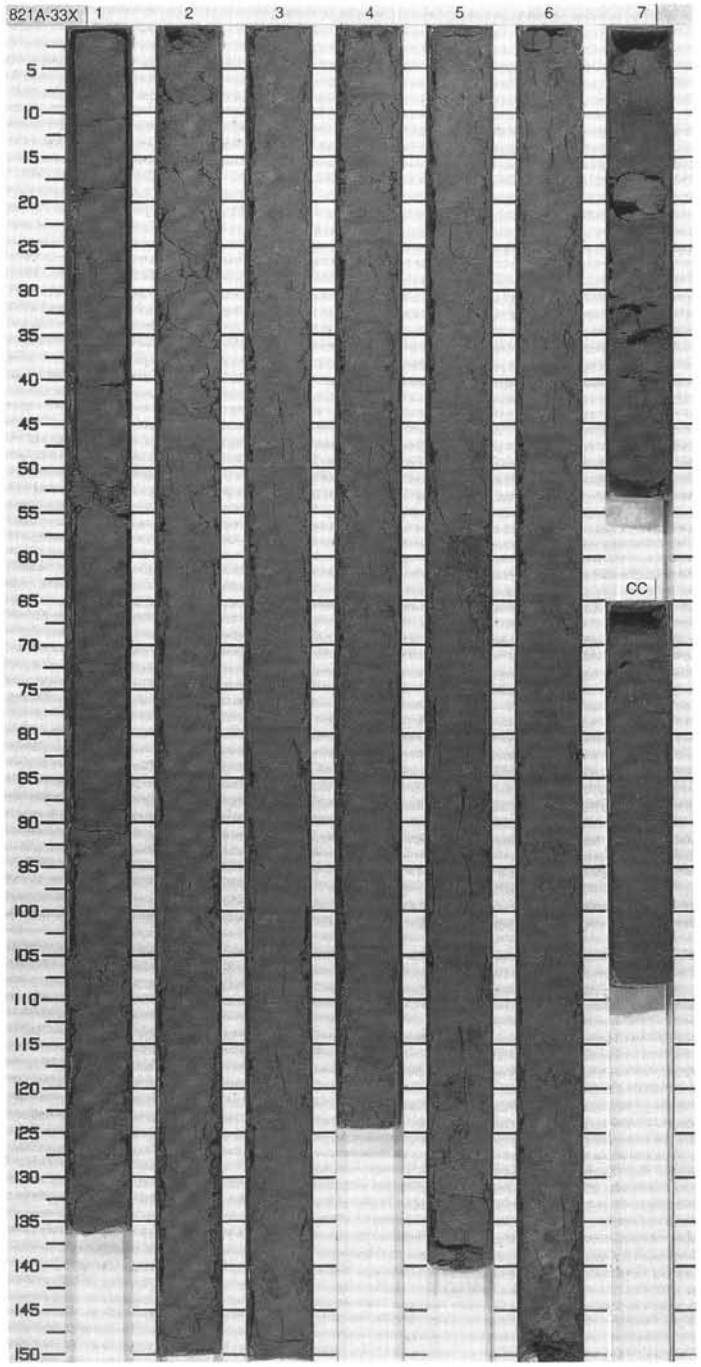
LITHOLOGIC DESCRIPTION

CALCAREOUS MUDSTONE with CLAY, BIOCLASTS, NANNOFOSSILS, and QUARTZ; BIOCLASTIC MIXED SEDIMENT with FORAMINIFERS, NANNOFOSSILS, and QUARTZ

Major Lithology: Greenish gray (5GY 5/1), moderately lithified, CALCAREOUS MUDSTONE with CLAY, BIOCLASTS, NANNOFOSSILS, and QUARTZ; and greenish gray (5GY 5/1), clayey to sandy, BIOCLASTIC MIXED SEDIMENT with FORAMINIFERS, NANNOFOSSILS, and sand-sized QUARTZ. Color darkens to 5GY 4/1 at Section 7. Organic-rich (black in color) bed, possibly inertinite, 1 cm thick occurs at 10 cm in Section 7.

SMEAR SLIDE SUMMARY (%):

	3, 82 D	CC, 28 D
COMPOSITION:		
Bioclast	20	30
Calcite	15	---
Dolomite	5	---
Foraminifers	5	5
Micrite	10	10
Nannofossils	20	20
Opaques	---	2
Quartz	15	20
Rock fragment	2	8
Spicules	1	---
Tunicate	2	5



SITE 821 HOLE A CORE 34X CORED INTERVAL 309.4-319.0 mbsf

TIME-ROCK UNIT: PLEISTOCENE

BIOSTRAT. ZONE/FOSSIL CHARACTER:
- FORAMINIFERS: A/G N22 - N23
- NANNOFOSSILS: A/G CN13b
- RADIOLARIANS
- DIATOMS

PALEOMAGNETICS: N? R? R? N? N?

PHYS. PROPERTIES: 48.1% 2.00 | 47.2% 1.94 | 44.3% 2.05 | 43.3% 2.04 | 42.2% 1.99 | 49.4% 1.94

CHEMISTRY: 37.1% | 27.2% | 37.3%

SECTION: 1 2 3 4 5 6 CC

METERS: 0.5 1.0

GRAPHIC LITHOLOGY

DRILLING DISTURB.

SED. STRUCTURES

SAMPLES: PAL

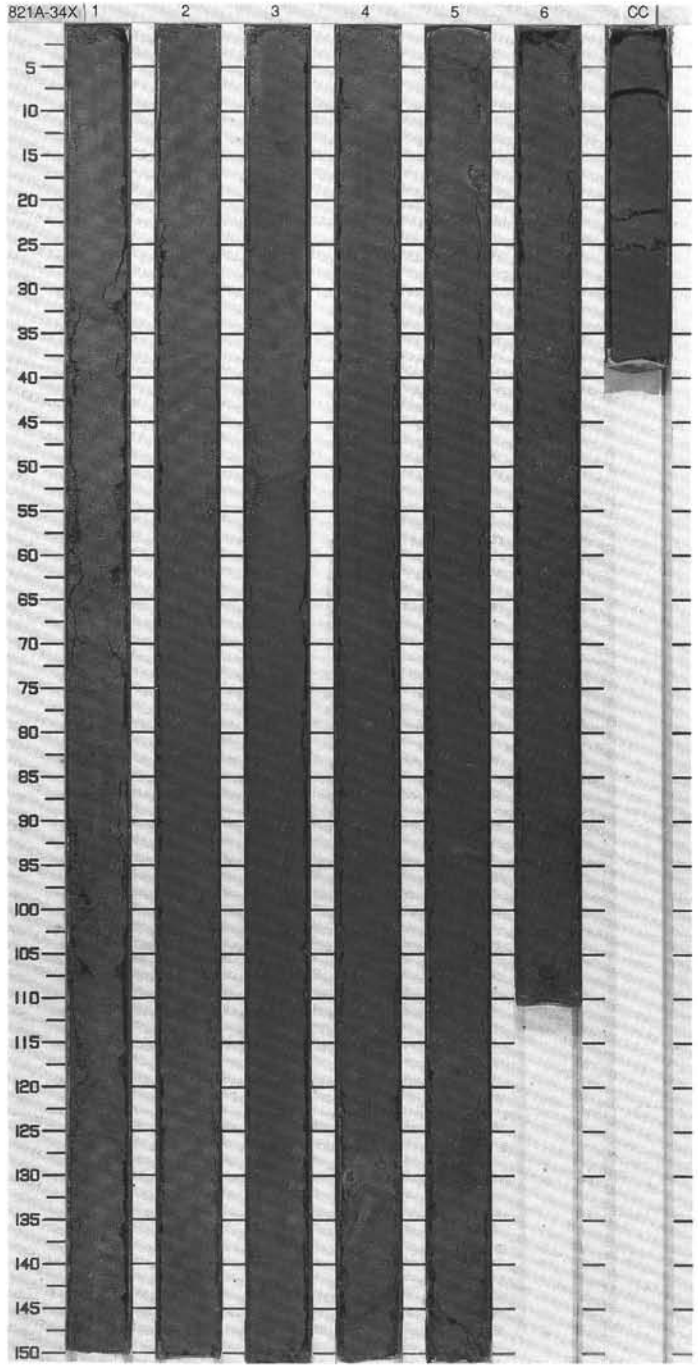
LITHOLOGIC DESCRIPTION

BIOCLASTIC MIXED SEDIMENT with NANNOFOSSILS, FORAMINIFERS, and QUARTZ

Major Lithology: Dark gray (5Y 4/1), bioturbated, moderately lithified, clayey to silty, BIOCLASTIC MIXED SEDIMENT with NANNOFOSSILS, FORAMINIFERS, and sand-sized QUARTZ. The percentage of bioclasts may decrease downsection (CALCAREOUS MIXED SEDIMENT). Small lenses, pods, and discontinuous laminae and beds of sand-sized BIOCLASTS (and FORAMINIFERS) within a muddy mixed sediment matrix are sparsely distributed. Mud fraction contains siliciclastic and carbonate detritus.

SMEAR SLIDE SUMMARY (%):

	1, 58 D	4, 131 D	TS 4, 133 D	6, 109 D
COMPOSITION:				
Bioclast	50	12	10	15
Bivalves	Tr	---	---	---
Clay	---	25	15	15
Echinoid	Tr	---	---	---
Feldspar	---	2	2	2
Foraminifers	20	5	5	15
Glauconite	1	---	---	Tr
Intraclasts	---	---	---	10
Mica	2	---	---	---
Micrite	---	35	30	15
Nannofossils	---	5	25	10
Opaques	3	---	---	---
Ostracod	Tr	---	---	---
Quartz	24	16	8	15
Rock fragment	---	---	5	3
Spicules	---	---	---	Tr
Tunicate	Tr	---	---	Tr



SITE 821 HOLE A CORE 35X CORED INTERVAL 319.0 - 328.7 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
PLEISTOCENE	C/M N22 - N23	C/P CN13b			? N? N? N?	● 48.9% 1.97 ● 44.1% 2.07 ● 42.3% 2.10 ● 33.3% 2.31	48.6% ● 59.5% ● 59.9% ● 59.1%	1 2 3 4 5 CC	0.5 1.0			* OG □ IW	PBI

LITHOLOGIC DESCRIPTION

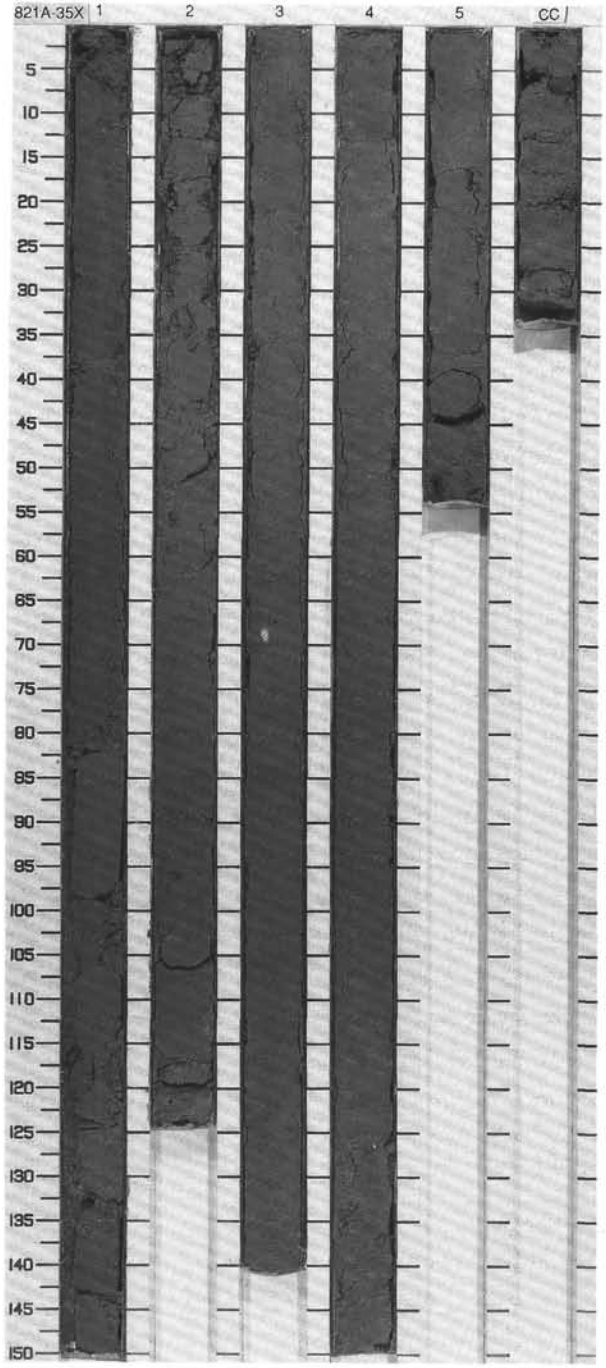
CALCAREOUS MIXED SEDIMENT with BIOCLASTS, SILICICLASTIC GRAINS, NANNOFOSSILS, and FORAMINIFERS

Major Lithology: Greenish gray (5GY 5/1), moderately lithified, clayey to sandy, CALCAREOUS MIXED SEDIMENT with BIOCLASTS, mud-sized SILICICLASTIC GRAINS, NANNOFOSSILS, and FORAMINIFERS.

Minor Lithology: From 0-85 cm in Section 1; dark gray (5Y 3/1), moderately lithified, clayey CALCAREOUS MIXED SEDIMENT with BIOCLASTS, NANNOFOSSILS, mud-sized SILICICLASTIC GRAINS, and FORAMINIFERS.

SMEAR SLIDE SUMMARY (%):

	1, 53 D	CF 3, 67 D
COMPOSITION:		
Accessory minerals	---	Tr
Bioclast	20	67
Feldspar	3	---
Foraminifers	5	20
Mica	2	Tr
Nannofossils	13	---
Opaques	---	Tr
Quartz	30	10
Rock fragment	25	---
Siliceous sponge spicules	---	3
Tunicate	2	---



SITE 821 HOLE A CORE 36X CORED INTERVAL 328.7 - 338.3 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
PLEISTOCENE	C/M	N22 - N23	CN13b	A/P	R? UNCERTAIN POLARITY R?	29.6% 2.12; 33.4% 2.26; 34.6% 2.19; 38.4% 2.16; 44.2% 2.08; 34.1% 2.22; 35.7% 2.23	68.0%; 63.6%; 49.6%; 61.0%	1 2 3 4 5 6 7 CC	0.5 1.0	VOID VOID			PAL	CALCAREOUS MIXED SEDIMENT with BIOCLASTS, QUARTZ and SILICICLASTIC GRAINS; CALCAREOUS MUD with CLAY and BIOCLASTS Major Lithology: Greenish gray (5GY 5/1), moderately lithified and bioturbated, clayey to sandy CALCAREOUS MIXED SEDIMENT with BIOCLASTS, sand-sized QUARTZ and mud-sized SILICICLASTIC GRAINS; and CALCAREOUS MUD with CLAY and BIOCLASTS.

SITE 821 HOLE A CORE 37X CORED INTERVAL 338.3 - 347.9 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
PLEISTOCENE	C/M	A/P			N?	46.8% 2.05	44.4%	1	0.5				
	N22 - N23	CN13b							1.0				
					N?	38.8% 2.13		2					
						41.7% 2.08	53.6%						
					N?	45.0% 2.23		3					
					N?	34.3% 2.23	68.2%	4					OG
					R?			5					
						42.8% 2.22							
					R?			6					
								CC					PAL

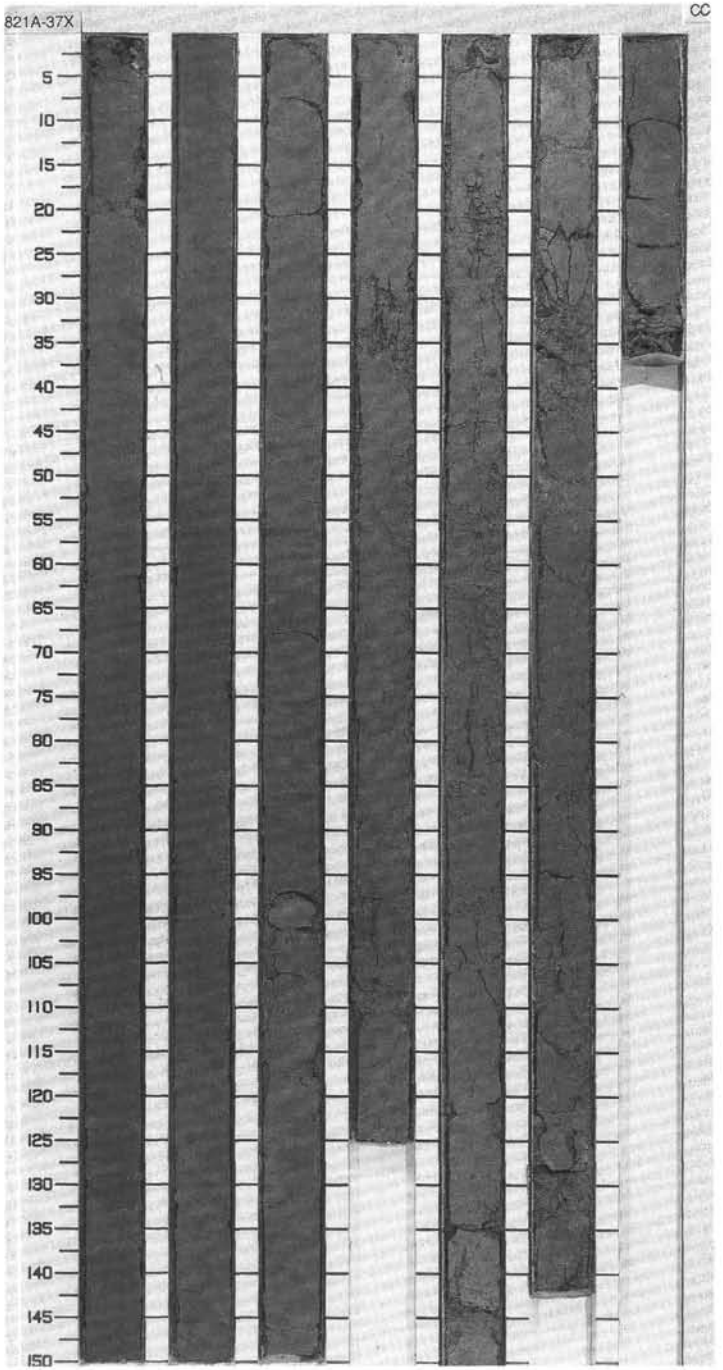
LITHOLOGIC DESCRIPTION

CALCAREOUS MUD with BIOCLASTS, NANNOFOSSILS and CLAY; CALCAREOUS MIXED SEDIMENT with BIOCLASTS, QUARTZ, NANNOFOSSILS, and SILICICLASTIC and CARBONATE DETRITUS

Major Lithology: Greenish gray (5Y 4/1 to 5GY 4/1), slightly bioturbated and moderately lithified, CALCAREOUS MUD with BIOCLASTS, NANNOFOSSILS and CLAY; and clayey to sandy, CALCAREOUS MIXED SEDIMENT with BIOCLASTS, sand-sized QUARTZ, NANNOFOSSILS, and mud-sized SILICICLASTIC and CARBONATE DETRITUS. Burrows are commonly filled with medium to coarse sand-sized BIOCLASTIC PACKSTONE.

SMEAR SLIDE SUMMARY (%):

	1, 123 D	5, 116 D
COMPOSITION:		
Bioclast	25	15
Dolomite	---	10
Feldspar	2	---
Foraminifers	---	3
Glauconite	Tr	---
Inorganic calcite	20	34
Mica	3	---
Nannofossils	25	33
Quartz	15	5
Rock fragment	5	---



SITE 821 HOLE A CORE 38X CORED INTERVAL 337.5-347.9 mbsf

TIME-ROCK UNIT: PLEISTOCENE

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

PALEOMAGNETICS: UNCERTAIN POLARITY ?

PHYS. PROPERTIES: 54.2% 1.90; 47.4% 2.05; 36.9%; 35.2% 2.31; 29.7% 2.25; 44.3% 2.05; 30.5% 2.14

CHEMISTRY: 39.0%; 65.0%; 60.0%

SECTION: 1 2 3 4 5 6 CC

METERS: 0.5 1.0

GRAPHIC LITHOLOGY

DRILLING DISTURB.

SED. STRUCTURES

SAMPLES: IW; PAL

LITHOLOGIC DESCRIPTION

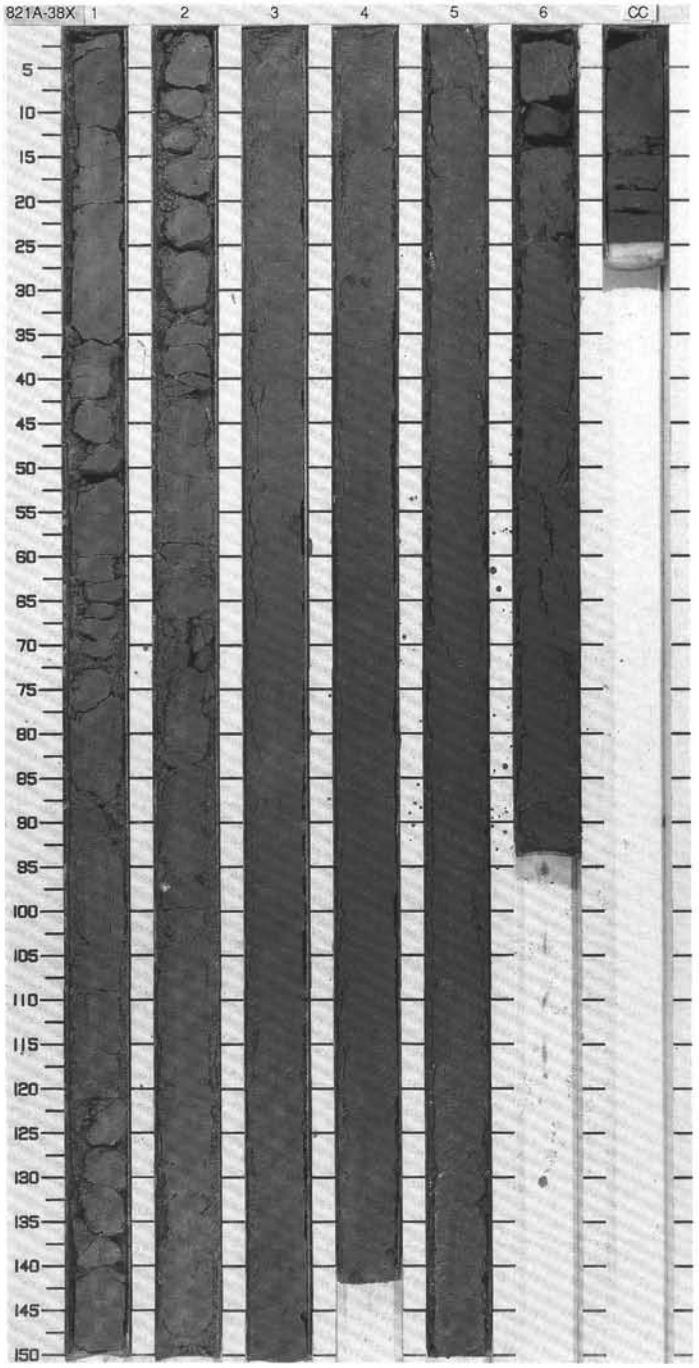
BIOCLASTIC MIXED SEDIMENT with NANNOFOSSILS, QUARTZ, SILICICLASTIC GRAINS, and FORAMINIFERS

Major Lithology: Sections 1-4; greenish gray (5GY 5/1), moderately lithified and bioturbated, clayey to sandy, BIOCLASTIC MIXED SEDIMENT with NANNOFOSSILS, sand-sized QUARTZ, mud-sized SILICICLASTIC GRAINS, and FORAMINIFERS. GLAUCONITE occurs as detrital grains and void fill cements within foraminifer tests. A general transition from sandy to muddy sediment occurs down the core. Below Section 4, some BIOCLASTIC CALCAREOUS MUDSTONES are present.

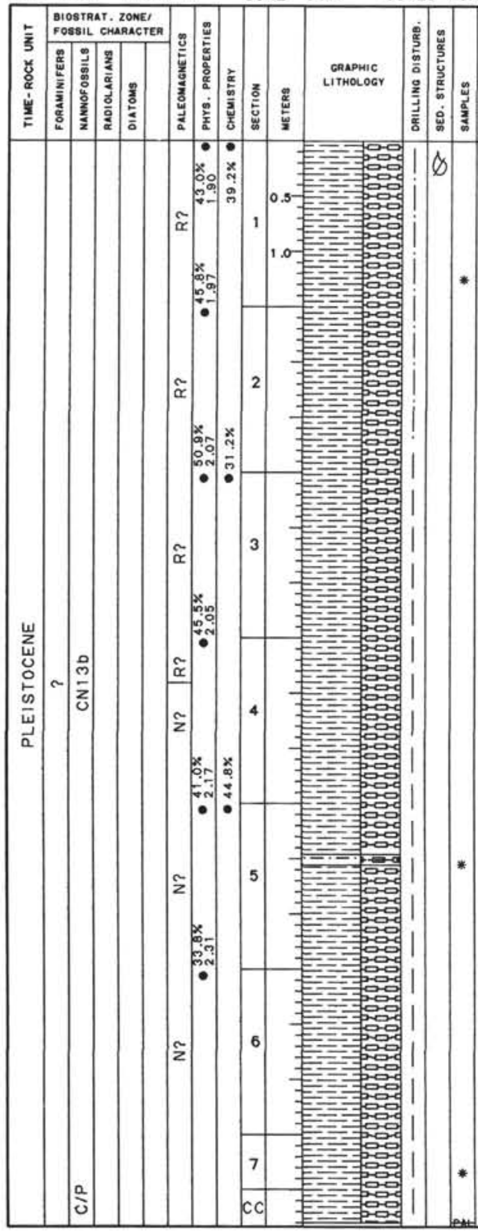
Minor Lithology: Interbedded greenish gray (5GY 5/1) CALCAREOUS MUDSTONE and PACKSTONE (*Sections 1 and 2*).

SMEAR SLIDE SUMMARY (%):

	1, 33 D	CF 4, 83 D	CC, 10 D
COMPOSITION:			
Bioclast	20	40	40
Clay	10	---	20
Dolomite	15	---	---
Feldspar	---	5	---
Foraminifers	2	20	Tr
Glauconite	Tr	---	Tr
Inorganic calcite	23	---	---
Lithoclast	---	5	---
Nannofossils	26	---	10
Quartz	3	30	10
Siliceous sponge spicules	---	---	Tr
Silt	---	---	20
Tunicate	---	Tr	---



SITE 821 HOLE A CORE 39X CORED INTERVAL 357.5 - 367.2 mbsf



LITHOLOGIC DESCRIPTION

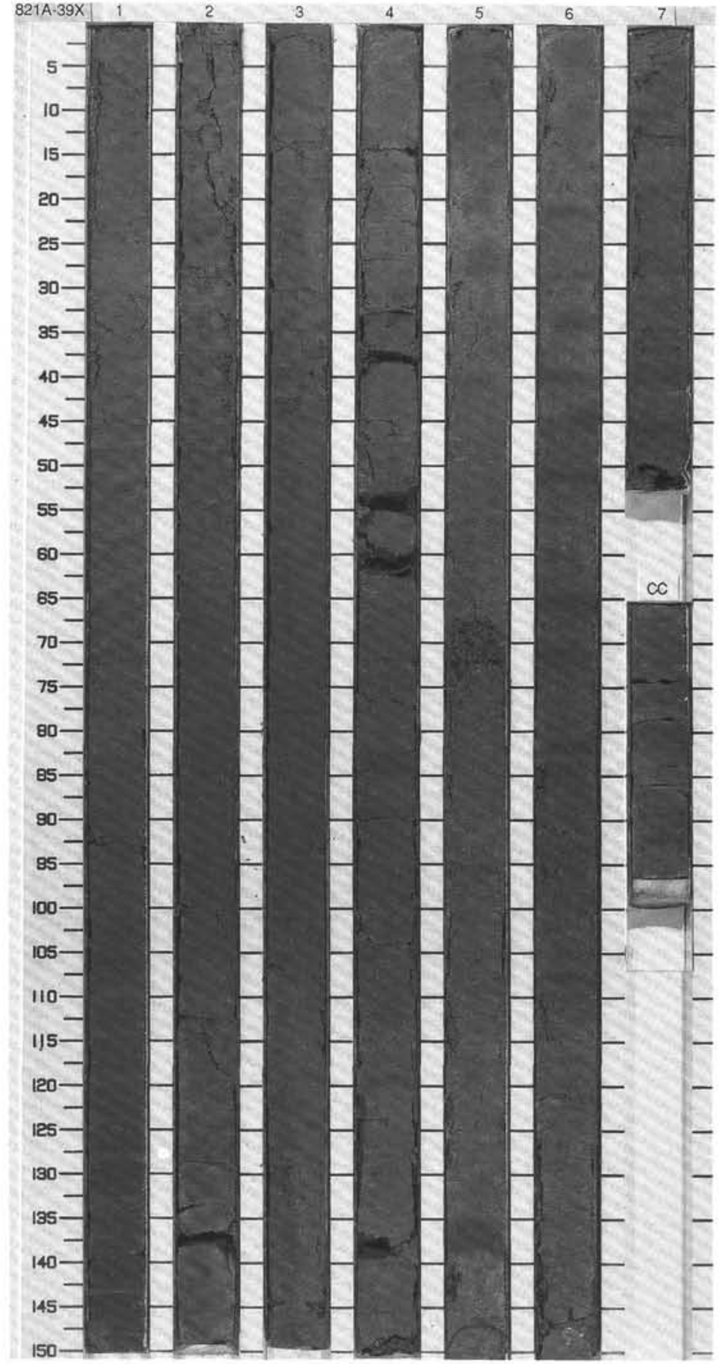
CALCAREOUS MIXED SEDIMENT with BIOCLASTS, QUARTZ, and SILICICLASTIC and CARBONATE DETRITUS

Major Lithology: Greenish gray (5GY 5/1), moderately lithified, clayey to locally sandy, CALCAREOUS MIXED SEDIMENT with BIOCLASTS, sand-sized QUARTZ, and mud-sized SILICICLASTIC and CARBONATE DETRITUS. Thin interbeds (few centimeters in thickness) of medium sand-sized BIOCLASTIC PACKSTONE are sparsely intercalated.

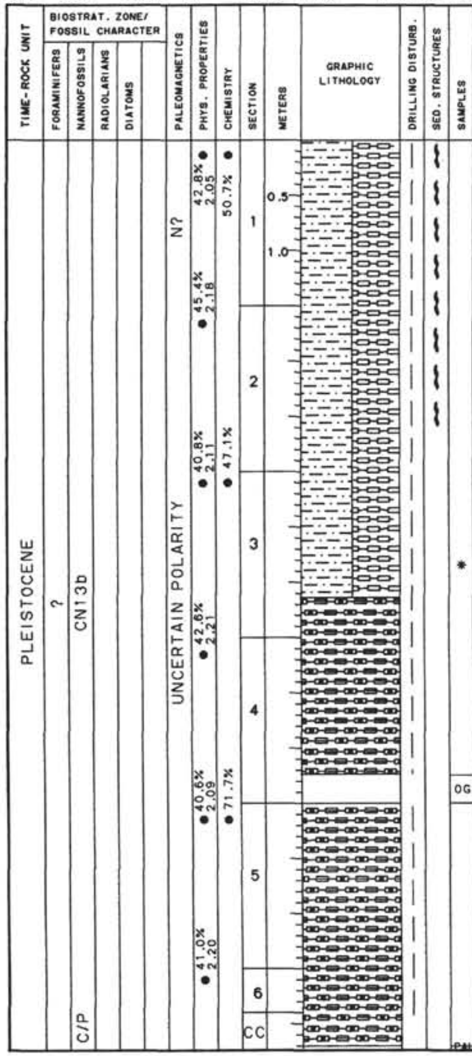
Minor Lithology: At 57 cm in Section 5, a dark gray (5Y 4/1) with purple hue, planar interbed of clayey to sandy CALCAREOUS PACKSTONE with BIOCLASTS occurs. Possible manganese staining and minor impregnation.

SMEAR SLIDE SUMMARY (%):

	1, 125 D	5, 55 D	7, 36 D
COMPOSITION:			
Bioclast	20	25	25
Calcite	---	---	30
Dolomite	---	---	5
Feldspar	1	2	---
Foraminifers	2	5	3
Inorganic calcite	25	20	---
Mica	1	3	---
Micrite	---	25	---
Nannofossils	36	---	30
Quartz	10	15	5
Rock fragment	5	5	2
Siliceous sponge spicules	Tr	---	---
Tunicate	Tr	---	---



SITE 821 HOLE A CORE 40X CORED INTERVAL 367.2 - 376.8 mbsf



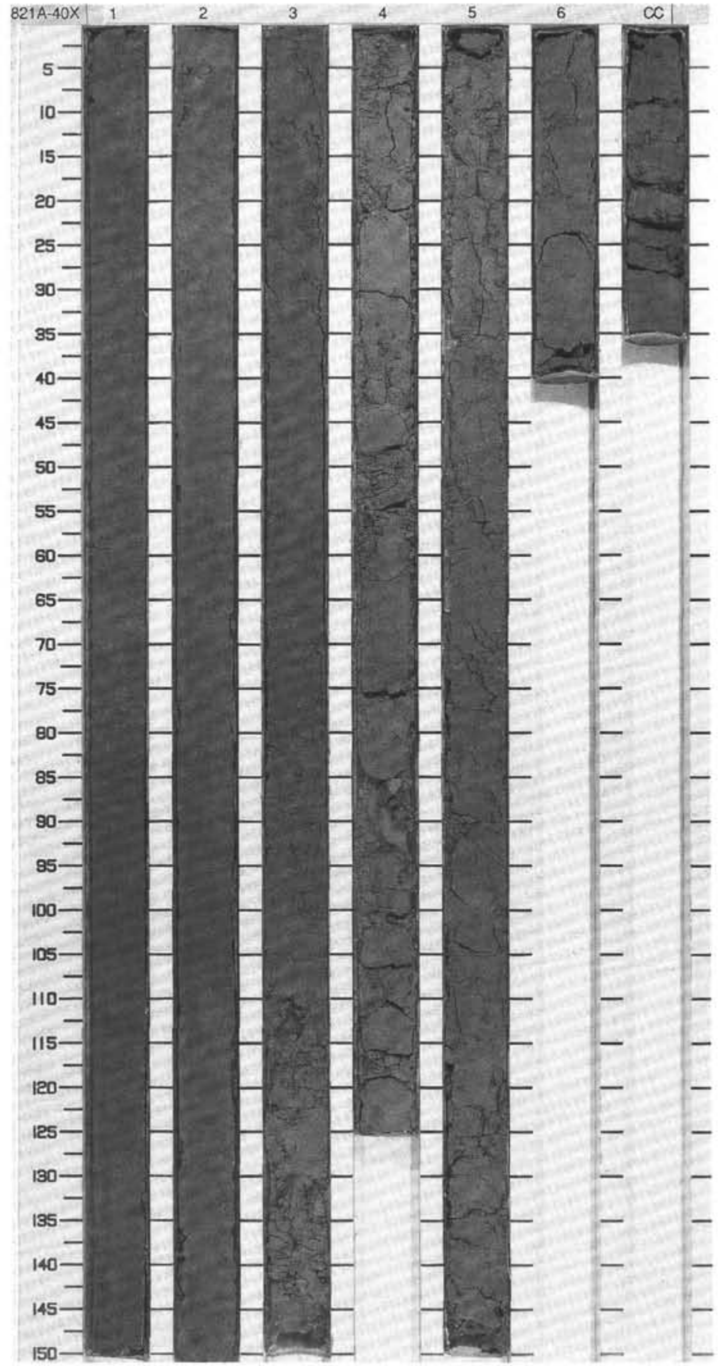
LITHOLOGIC DESCRIPTION

CALCAREOUS MIXED SEDIMENT with BIOCLASTS, QUARTZ, and DOLOMITE; CALCAREOUS PACKSTONE with QUARTZ and NANNOFOSSILS

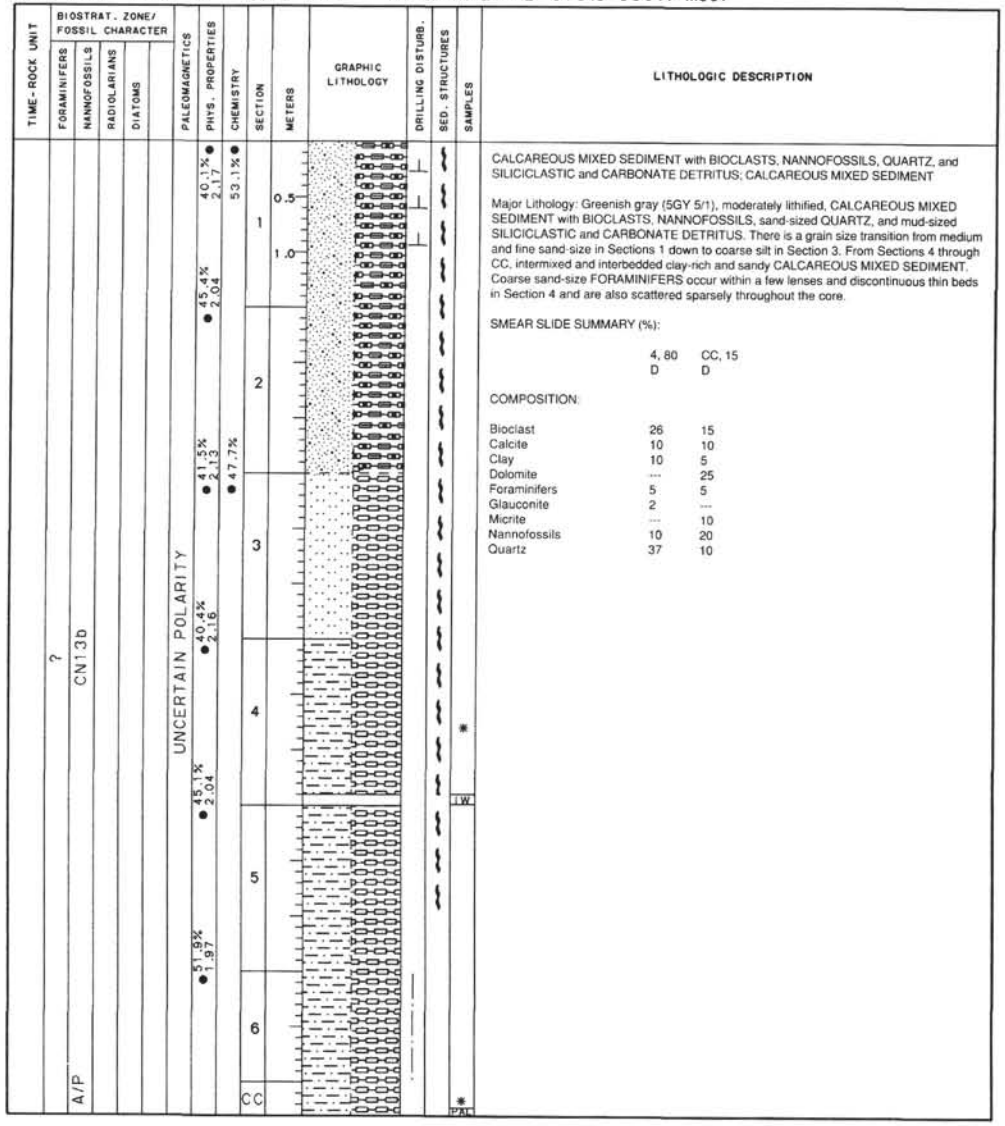
Major Lithology: From Section 1 through part of 3; greenish gray (5GY 4/1), moderately lithified and bioturbated, clayey to sandy, CALCAREOUS MIXED SEDIMENT with BIOCLASTS, sand-sized QUARTZ, and DOLOMITE. NANNOFOSSILS are relatively minor. Interbeds of more clay rich lithologic equivalents of the above are present. From Section 3 at 110 cm; greenish gray (5GY 5/1), well lithified, CALCAREOUS PACKSTONE with sand-sized QUARTZ and NANNOFOSSILS. Contact with overlying lithology is relatively abrupt; drilling disturbance is strong, however.

SMEAR SLIDE SUMMARY (%):

	3, 83
	D
COMPOSITION:	
Accessory minerals	Tr
Bioclast	20
Calcite	35
Clay	10
Micrite	7
Nannofossils	25
Quartz	3



SITE 821 HOLE A CORE 41X CORED INTERVAL 376.8-386.4 mbsf



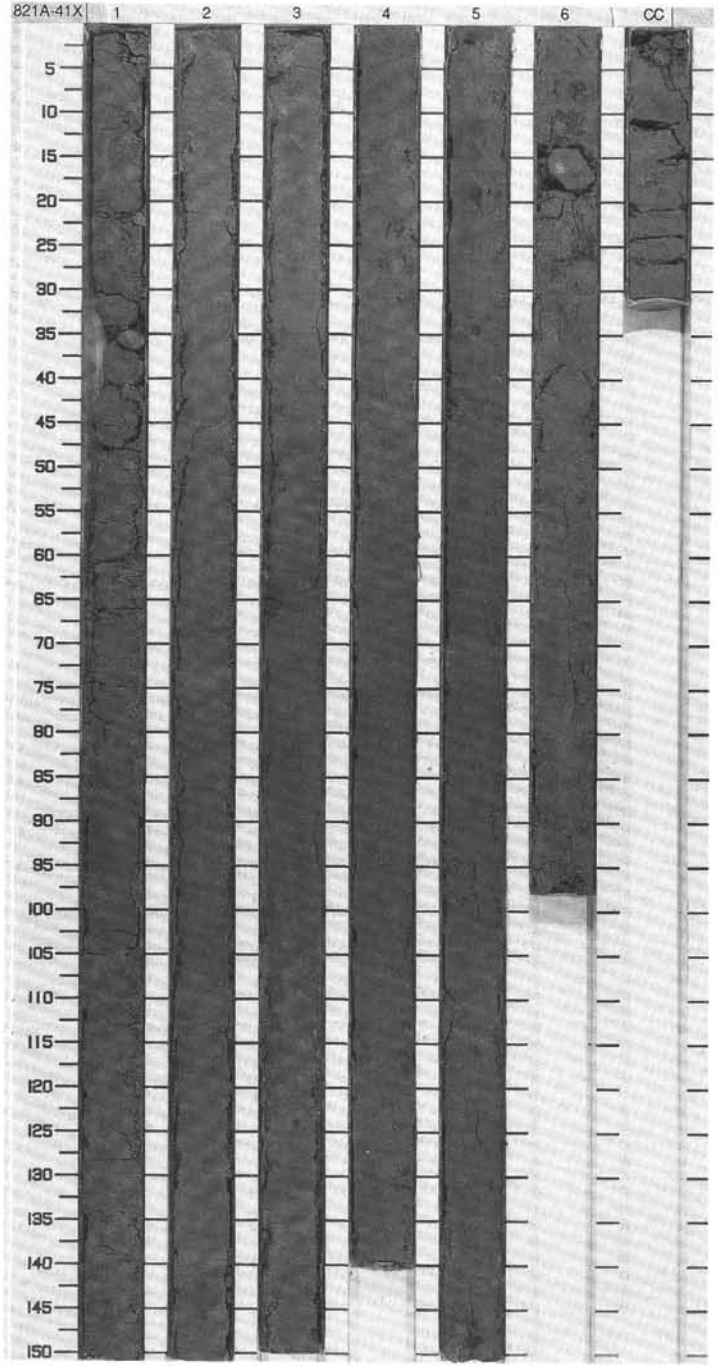
LITHOLOGIC DESCRIPTION

CALCAREOUS MIXED SEDIMENT with BIOCLASTS, NANNOFOSSILS, QUARTZ, and SILICICLASTIC and CARBONATE DETRITUS; CALCAREOUS MIXED SEDIMENT

Major Lithology: Greenish gray (5GY 5/1), moderately lithified, CALCAREOUS MIXED SEDIMENT with BIOCLASTS, NANNOFOSSILS, sand-sized QUARTZ, and mud-sized SILICICLASTIC and CARBONATE DETRITUS. There is a grain size transition from medium and fine sand-size in Sections 1 down to coarse silt in Section 3. From Sections 4 through CC, intermixed and interbedded clay-rich and sandy CALCAREOUS MIXED SEDIMENT. Coarse sand-size FORAMINIFERS occur within a few lenses and discontinuous thin beds in Section 4 and are also scattered sparsely throughout the core.

SMEAR SLIDE SUMMARY (%):

	4, 80 D	CC, 15 D
COMPOSITION:		
Bioclast	26	15
Calcite	10	10
Clay	10	5
Dolomite	---	25
Foraminifers	5	5
Glauconite	2	---
Micrite	---	10
Nannofossils	10	20
Quartz	37	10

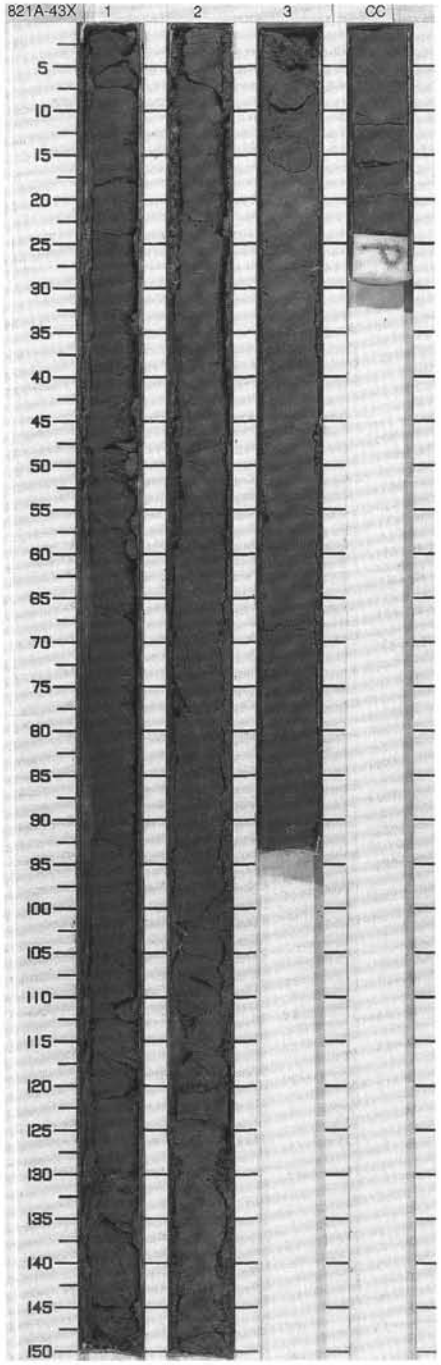


SITE 821 HOLE A CORE 42X CORED INTERVAL 386.4 - 396.1 mbsf

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
PLEISTOCENE	?	CN13b			R? N?	42.1% 2.05	29.9%	1	0.5					CALCAREOUS MUDSTONE with BIOCLASTS, QUARTZ, and NANNOFOSSILS Major Lithology: Greenish gray (5GY 5/1), moderately lithified, CALCAREOUS MUDSTONE with BIOCLASTS, sand-sized QUARTZ, and NANNOFOSSILS.
					R? R?	40.9% 2.09		2	1.0					
					R? R?	34.9% 2.24	57.0%	3						
					R? R?	39.8% 2.16		4						
					R? R?	53.0% 2.21	71.3%	5						
					R?	32.5% 2.23		6						
	C/P							7						
								CC					PAL	

SITE 821 HOLE A CORE 43X CORED INTERVAL 396.1 - 400.0 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	?	CN1 3b			N?	• 32.4% 2.21	• 72.7%	1	0.5 1.0					CALCAREOUS PACKSTONE with CLAY, BIOCLASTS, NANNOFOSSILS, and QUARTZ Major Lithology: Greenish gray (5GY 5/1), moderately lithified and bioturbated, CALCAREOUS PACKSTONE with CLAY, BIOCLASTS, NANNOFOSSILS, and QUARTZ.
	C/G	C/P			N?	• 47.6% 1.99	• 47.6%	2						
					N?			3						
								CC					PAL	



SITE 821 HOLE B CORE 1H CORED INTERVAL 0.0-9.5 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
NOT MEASURED								1	0.5					BIOCLASTIC NANNOFOSSIL OOZE with CLAY and SILICICLASTIC GRAINS Major Lithology: Greenish gray (10Y 6/2 and 10Y 5/1), bioturbated, homogenous mud-sized, BIOCLASTIC NANNOFOSSIL OOZE with CLAY and SILICICLASTIC GRAINS. PTEROPOD fragments and tests are scattered throughout. Minor Lithology: Greenish gray, bioturbated, sand-sized QUARTZ and BIOCLASTIC MIXED SEDIMENT with SILICICLASTIC GRAINS and FORAMINIFERS (below 120 cm in Section 6).
									1.0					
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								5						
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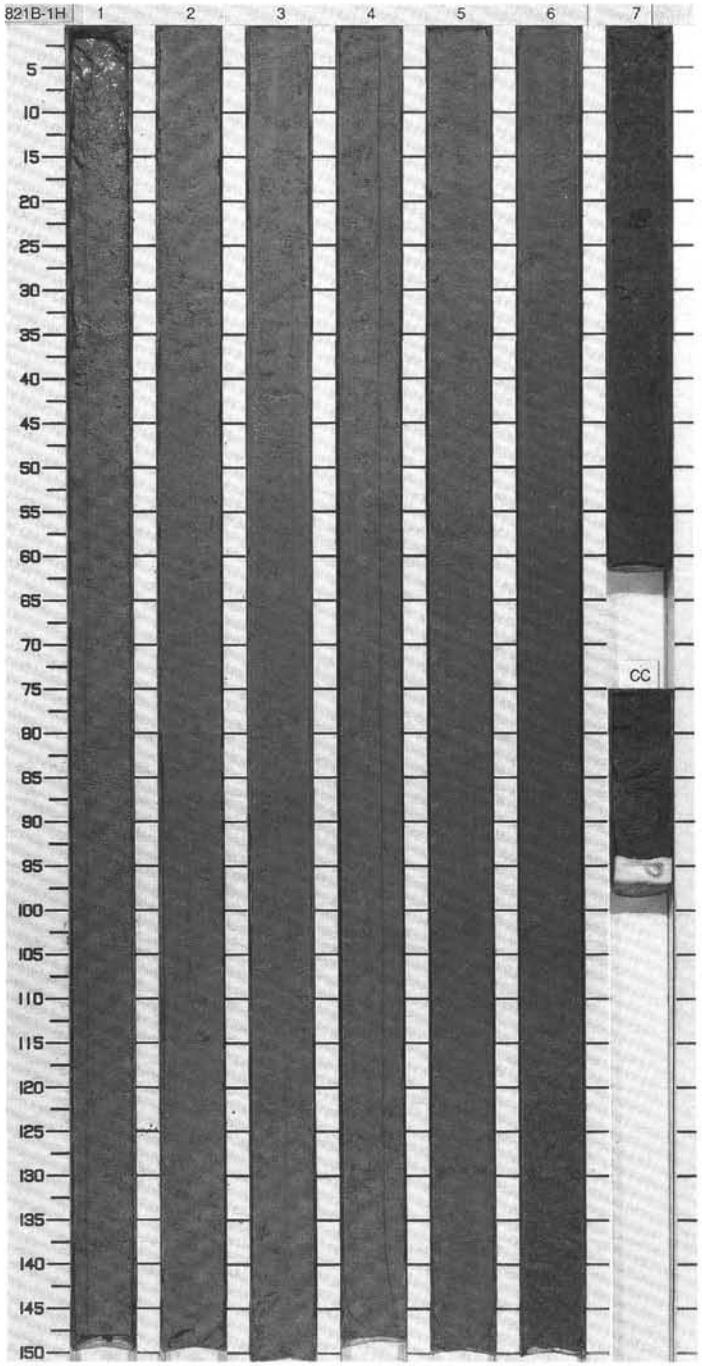
								CC					PAL	



SITE 821 HOLE B CORE 2H CORED INTERVAL 9.5-19.0 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
					NOT MEASURED			1	0.5 1.0	VOID				QUARTZ BIOCLASTIC MIXED SEDIMENT with SILICICLASTIC GRAINS, FORAMINIFERS, and MOLLUSCS; NANNOFOSSIL MIXED SEDIMENT with BIOCLASTS Major Lithology: Greenish gray (10Y 5/1), bioturbated, sand-sized (fine to coarse grained) QUARTZ BIOCLASTIC MIXED SEDIMENT with SILICICLASTIC GRAINS, FORAMINIFERS, and MOLLUSCS; and dark greenish gray (10Y 4/1), mud-sized (clay to silt), bioturbated, homogenous NANNOFOSSIL MIXED SEDIMENT with BIOCLASTS occurs in Section 2 to 5. Sand-sized BIOCLASTIC PACKSTONES fill burrows. Minor Lithology: A change into a CALCAREOUS MUD with CLAY and FORAMINIFERS occurs in Section 5. The color changes to light greenish gray (10Y 6/1).
								2						
								3						
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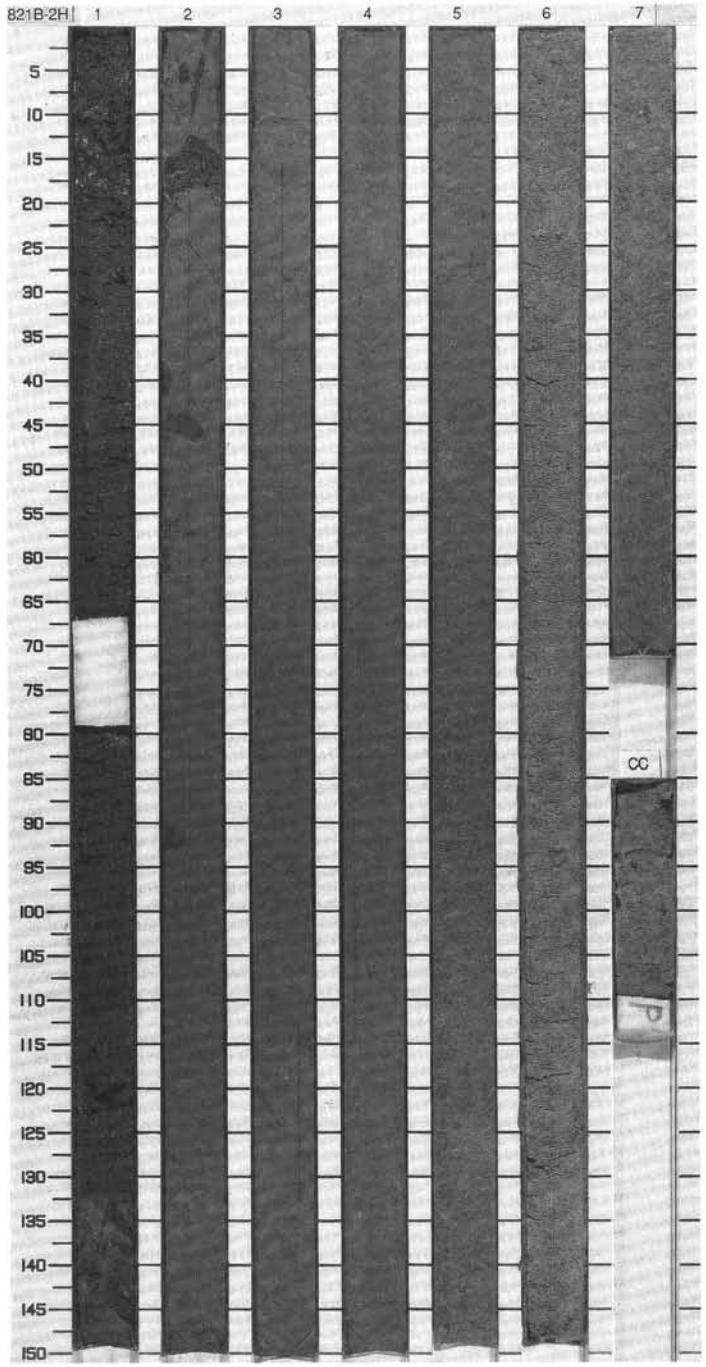
								5				F		
								6				F		
								7				C		
								CC					PAL	



SITE 821 HOLE B CORE 3H CORED INTERVAL 19.0-28.5 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
NOT MEASURED								1	0.5, 1.0					BIOCLASTIC MICRITE OOZE with CLAY and SILICICLASTIC GRAINS Major Lithology: This core contains BIOCLASTIC MICRITE OOZE, with CLAY and SILICICLASTIC GRAINS in Section 1. The color changes from dark greenish gray (10Y 4/2) in Section 1 to light greenish gray (10Y 6/2) in Sections 3 to 6. Minor Lithology: Fine sand- to silt-sized BIOCLASTIC MIXED SEDIMENT occurs in Section 7 and in the core catcher.
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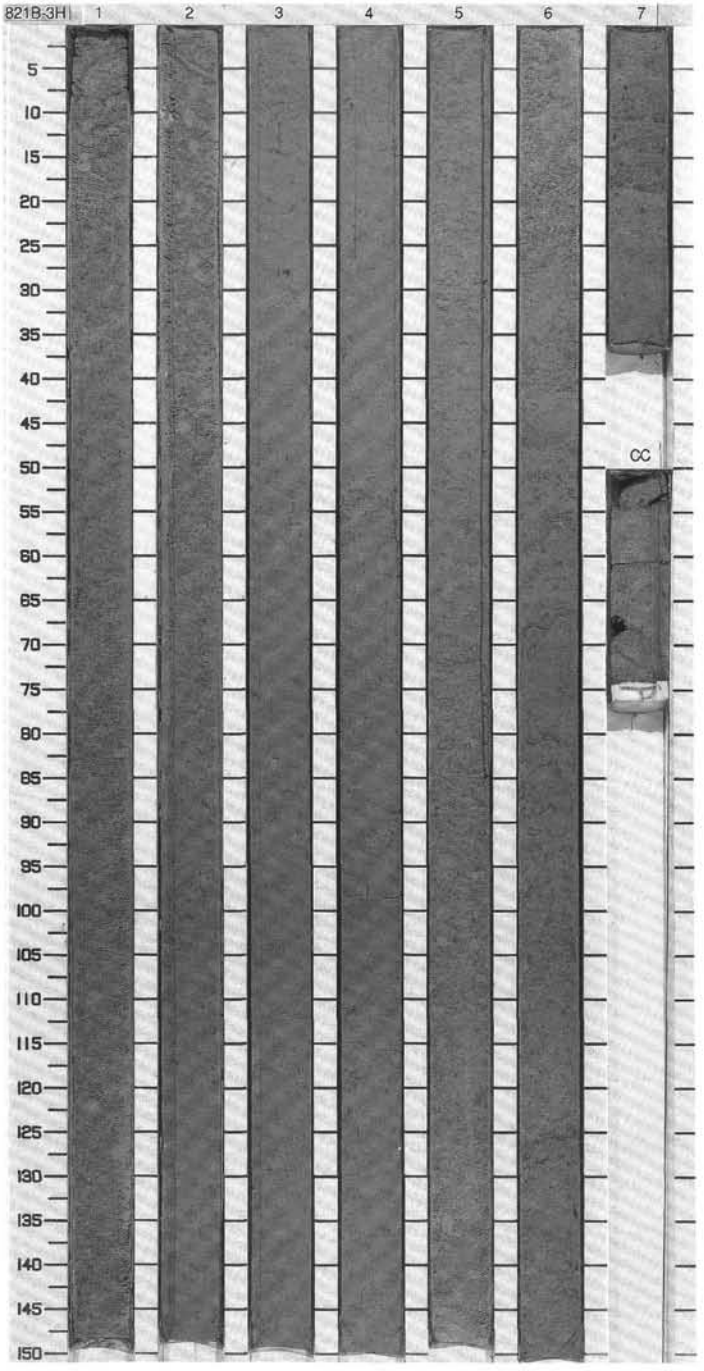
								5						
								6						
								7						
								CC					PAL	



SITE 821 HOLE B CORE 4H CORED INTERVAL 28.5-38.0 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
					NOT MEASURED			1	0.5 1.0					BIOCLASTIC NANNOFOSSIL MICRITIC MIXED SEDIMENT; BIOCLASTIC MIXED SEDIMENT with MOLLUSCS, BENTHIC FORAMINIFERS, and SILICICLASTIC GRAINS Major Lithology: Dark greenish gray (10Y 5/1), bioturbated, mud- to dine sand-sized, BIOCLASTIC NANNOFOSSIL MICRITIC MIXED SEDIMENT; and dark greenish gray (10Y 4/1), to very dark greenish gray (10Y 3/1), clay- to sand-sized BIOCLASTIC MIXED SEDIMENT with MOLLUSCS, BENTHIC FORAMINIFERS, and SILICICLASTIC GRAINS. At the base of Section 6, a small RHODOLITH, BRYOZOAN FRAGMENTS, and *Halimeda* plates are present.
								2						
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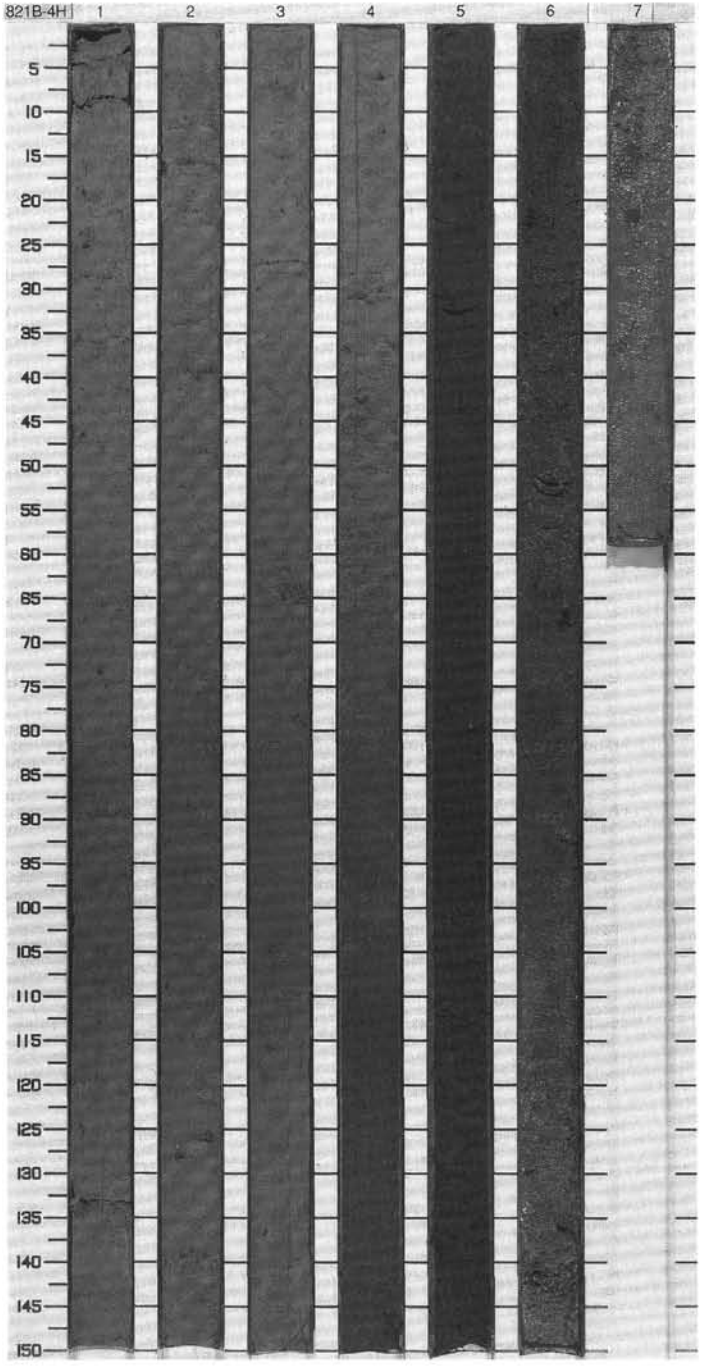
								7					PAL	



SITE 821 HOLE B CORE 5H CORED INTERVAL 38.0-47.5 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
					NOT MEASURED			1	0.5 1.0					BIOCLASTIC MUD with CLAY; BIOCLASTIC and MICRITIC MUD with NANNOFOSSILS and SILICICLASTIC GRAINS Major Lithology: Light greenish gray (10Y 6/1 to 7/1), bioturbated, silt- to fine sand-sized. BIOCLASTIC MUD with CLAY in the first three sections. BIOCLASTIC and MICRITIC MUD with NANNOFOSSILS and SILICICLASTIC GRAINS occurs in the remaining sections. The color is light greenish gray (10Y 6/1).
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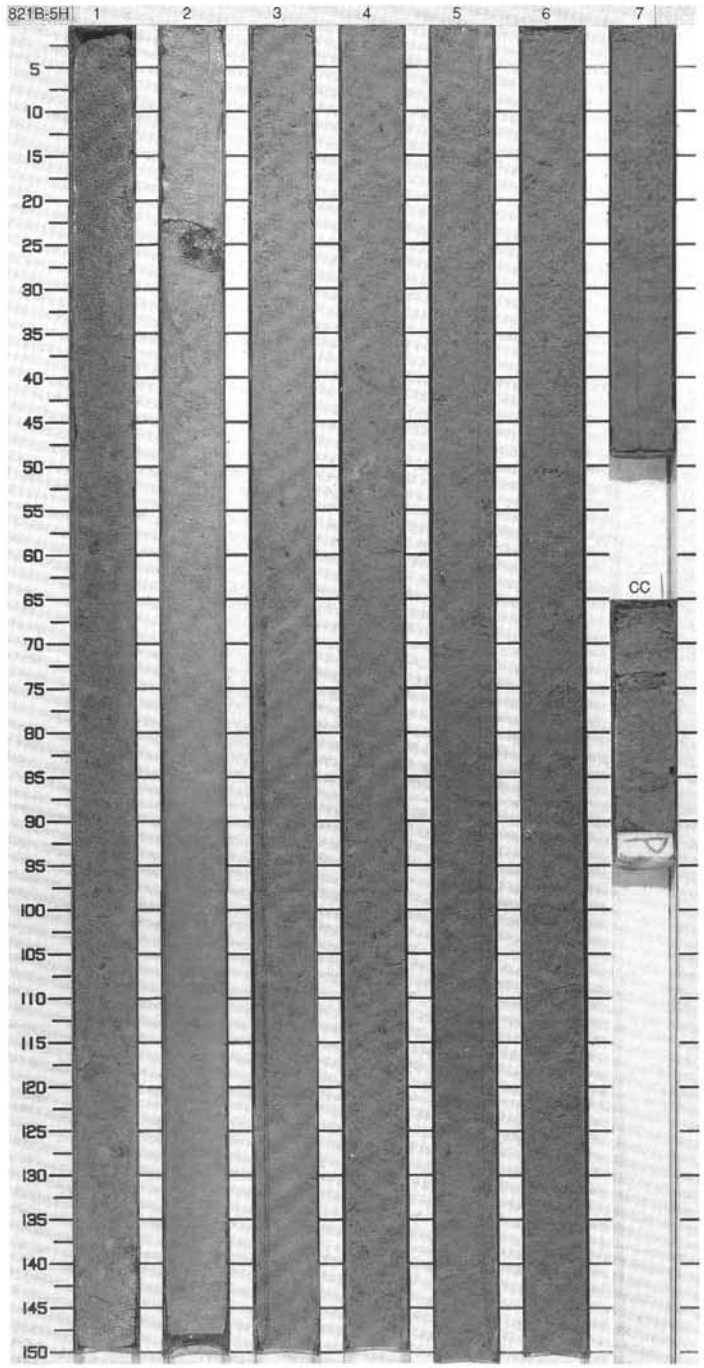
								CC					PAL	



SITE 821 HOLE B CORE 6H CORED INTERVAL 47.5-57.0 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
					NOT MEASURED			1	0.5					BIOCLASTIC MIXED SEDIMENT with BIOCLASTS, NANNOFOSSILS, and SILICICLASTIC GRAINS to FORAMINIFER BIOCLASTIC MUD Major Lithology: Greenish gray (10Y 5/2 to 5/1), bioturbated, clay- to fine sand-sized, BIOCLASTIC MIXED SEDIMENT with BIOCLASTS, NANNOFOSSILS, and SILICICLASTIC GRAINS. In Section 5 there occurs a transition into a FORAMINIFER BIOCLASTIC MUD. Minor Lithology: Below 80 cm in Section 6; greenish gray (10Y 5/1), bioturbated coarse silt- to fine sand-sized, FORAMINIFER BIOCLASTIC PACKSTONE.
									1.0					
								2						
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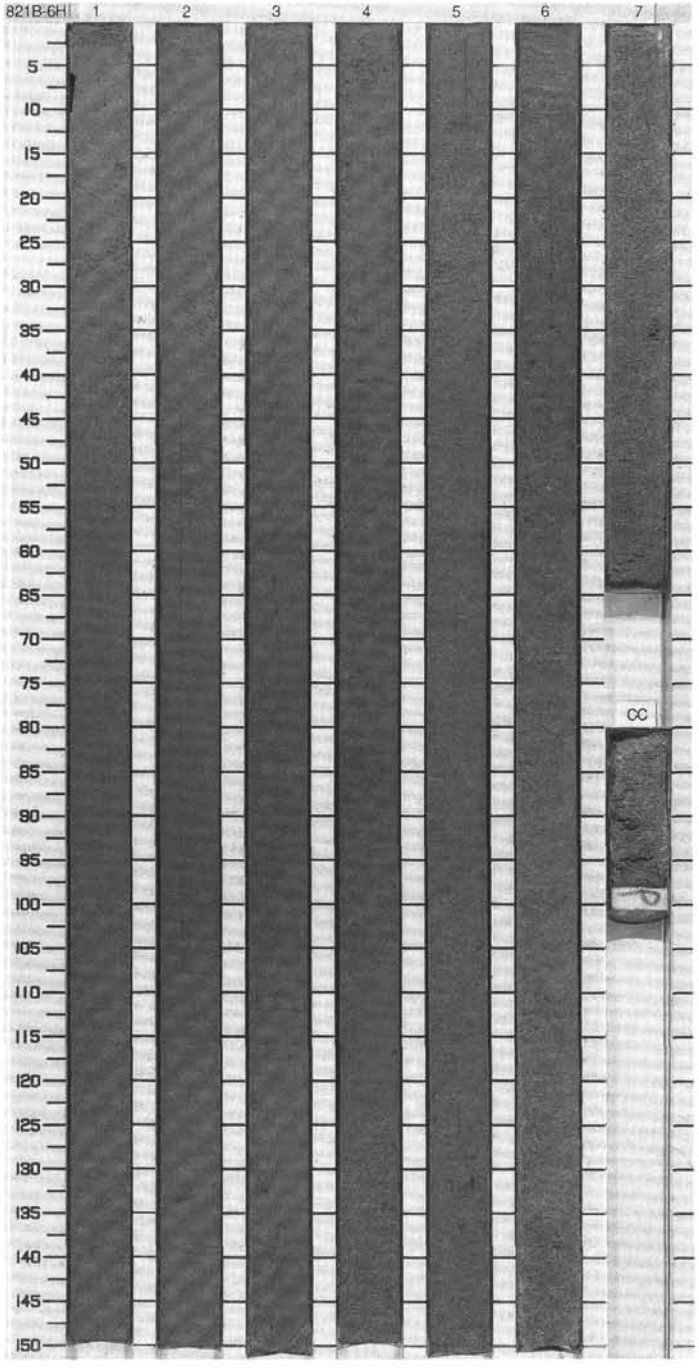
								5						
								6						
								7						
								CC					PAL	



SITE 821 HOLE B CORE 7H CORED INTERVAL 57.0-66.5 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
					NOT MEASURED			1	0.5					MICRITIC MIXED SEDIMENT with BIOCLASTS and NANNOFOSSILS Major Lithology: Greenish gray (10Y 6/1 to 5/1), bioturbated, clay- to fine sand-sized, MICRITIC MIXED SEDIMENT with BIOCLASTS and NANNOFOSSILS. Minor Lithology: Greenish gray (10Y 5/1), BIOCLASTIC MICRITIC PACKSTONE with NANNOFOSSILS, FORAMINIFERS, and SILICICLASTIC GRAINS. This has a transitional contact at 17 cm in Section 7 with the major lithology.
									1.0					
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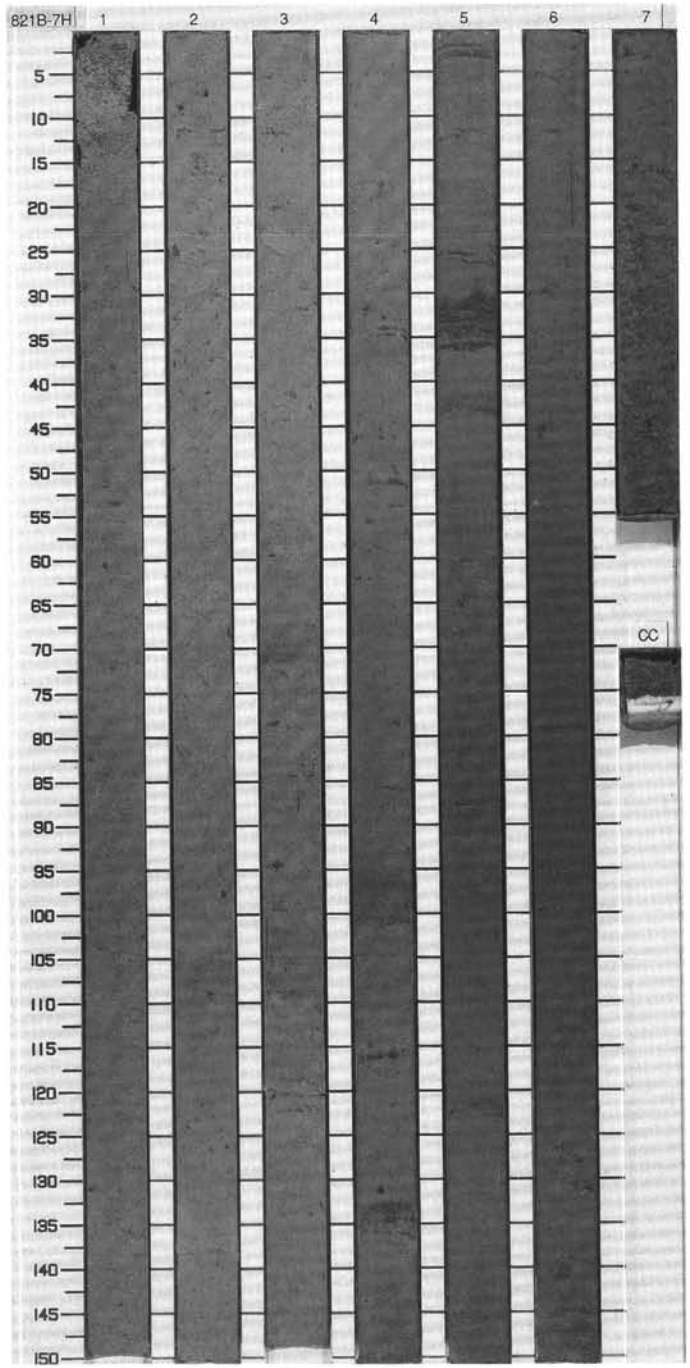
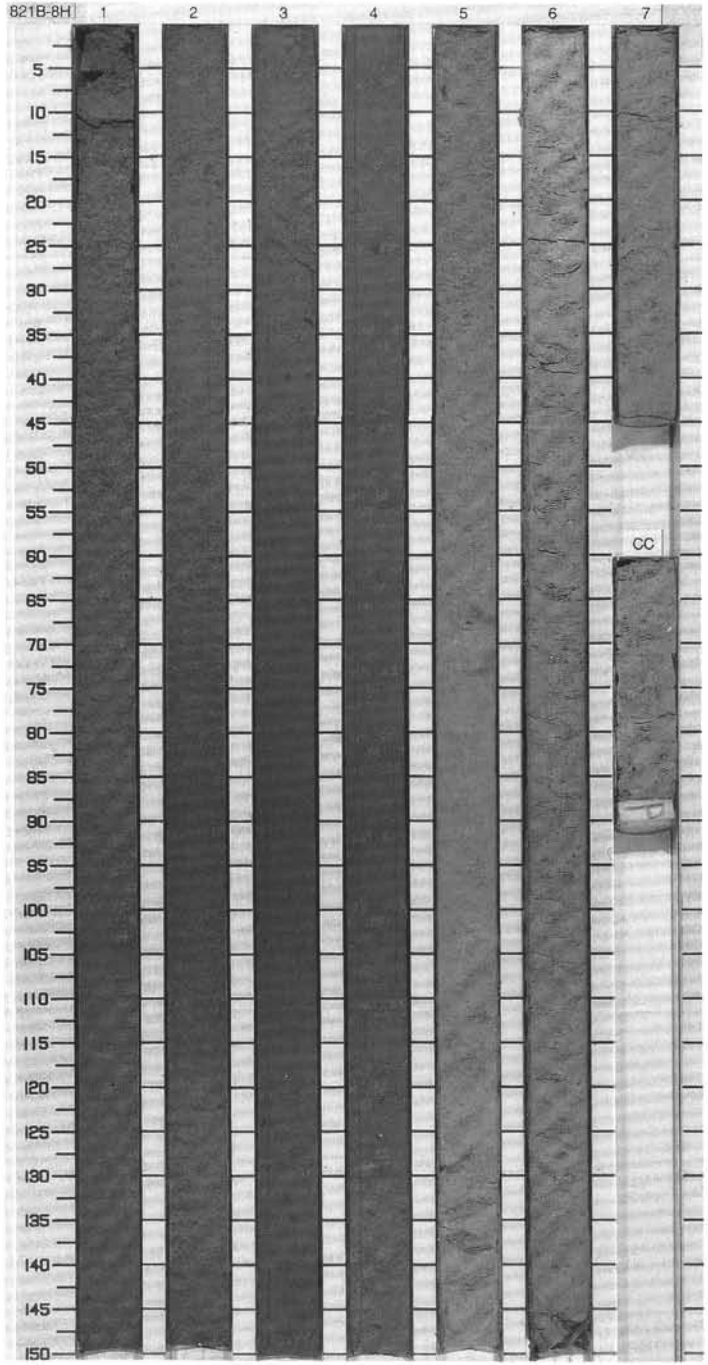
								7				F		
								CC					PAL	



SITE 821 HOLE B CORE 8H CORED INTERVAL 66.5-76.0 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
NOT MEASURED								1	0.5 1.0					BIOCLASTIC MIXED SEDIMENT to CALCAREOUS SAND with BIOCLASTS and SILICICLASTIC GRAINS Major Lithology: Greenish gray (10Y 5/1), bioturbated, silt- to medium sand-sized, BIOCLASTIC MIXED SEDIMENT occurs in the upper part of this core. Light greenish gray (10Y 6/1 to 7/2) CALCAREOUS SAND with BIOCLASTS and SILICICLASTIC GRAINS occurs in Sections 5 to 7, and in the CC.
								2						
								3				C		
								4				T		
								5				C		
								6						
								7						
								CC					PAL	



SITE 821 HOLE B CORE 9H CORED INTERVAL 76.0-85.5 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
					NOT MEASURED			1	0.5					CALCAREOUS MUD with BIOCLASTS and DOLOMITE Major Lithology: Greenish gray (10Y 6/2), slightly bioturbated, CALCAREOUS MUD with BIOCLASTS and DOLOMITE.
									1.0					
								2						
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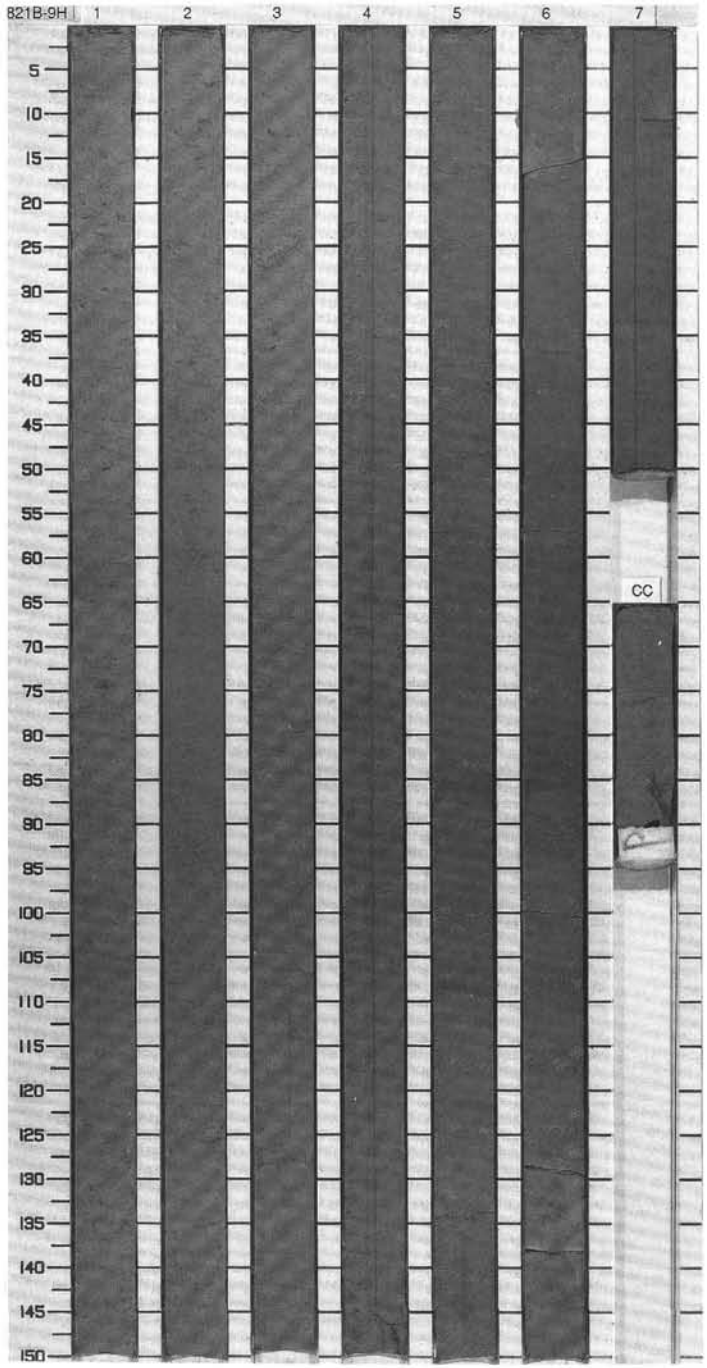
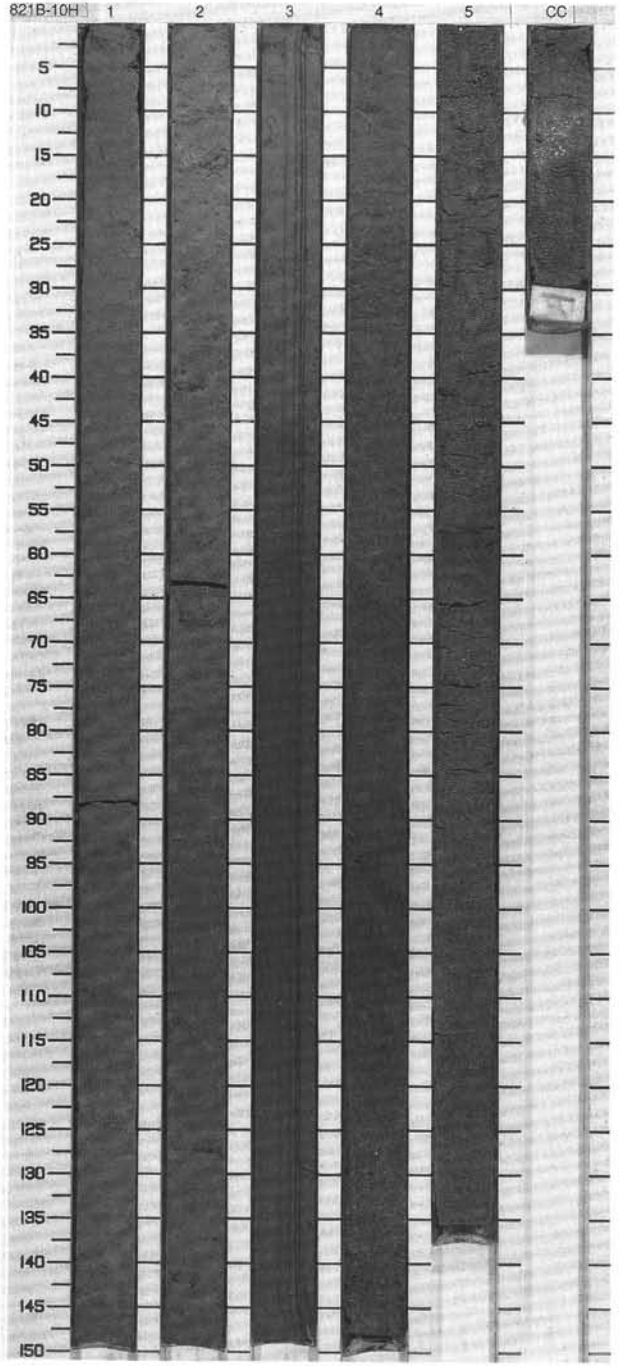
								4						
								5						
								6						
								7						
								CC					PAL	



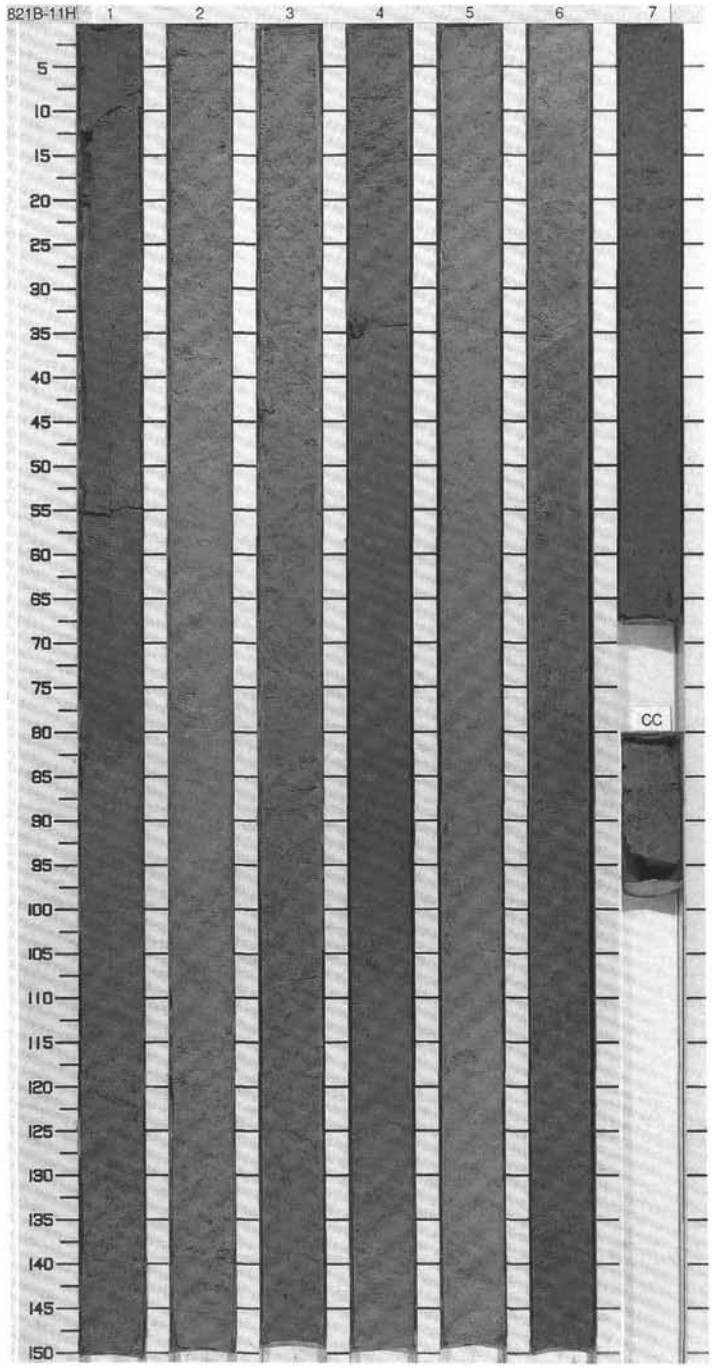
SITE 821 HOLE B CORE 10H CORED INTERVAL 85.5-95.0 mbsf

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
NOT MEASURED								1	0.5					NANNOFOSSIL MIXED SEDIMENT with QUARTZ and BIOCLASTS to BIOCLASTIC MICRITIC MIXED SEDIMENT with CLAY and SILICICLASTIC GRAINS Major Lithology: Greenish gray (10Y 5/2), bioturbated, clay- to silt-sized NANNOFOSSIL MIXED SEDIMENT with QUARTZ and BIOCLASTS; to greenish gray (10Y 5/1), bioturbated, silt- to medium sand-sized, BIOCLASTIC MICRITIC MIXED SEDIMENT with CLAY and SILICICLASTIC GRAINS.
									1.0					
								2						
								3						
								4						
								5						
								CC					PAL	



SITE 821 HOLE B CORE 11H CORED INTERVAL 95.0-104.5 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
NOT MEASURED								1	0.5					CALCAREOUS BIOCLASTIC OOZE with CLAY and QUARTZ Major Lithology: Greenish gray (10Y 5/2) to light greenish gray (10Y 6/2), bioturbated. CALCAREOUS BIOCLASTIC OOZE with CLAY and QUARTZ is the dominating lithology. Pyritized burrows are common. Minor Lithology: Dark greenish gray (10Y 5/1), bioturbated, clay-sized CALCAREOUS MIXED SEDIMENT occurs in the remainder of the core.
									1.0					
								2						
								3						
								4						
								5						
								6						
								7						
								CC					PAL	



SITE 821 HOLE B CORE 12H CORED INTERVAL 104.5-114.0 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
NOT MEASURED								1	0.5					BIOCLASTIC NANNOFOSSIL OOZE with SILICICLASTIC GRAINS Major Lithology: Greenish gray (10Y 6/1), partially lithified and bioturbated, coarse silt- to sand-sized BIOCLASTIC NANNOFOSSIL OOZE with SILICICLASTIC GRAINS. Burrows are infilled with pyritized grains. Chalky lumps occur scattered throughout the core.
									1.0					
								2						
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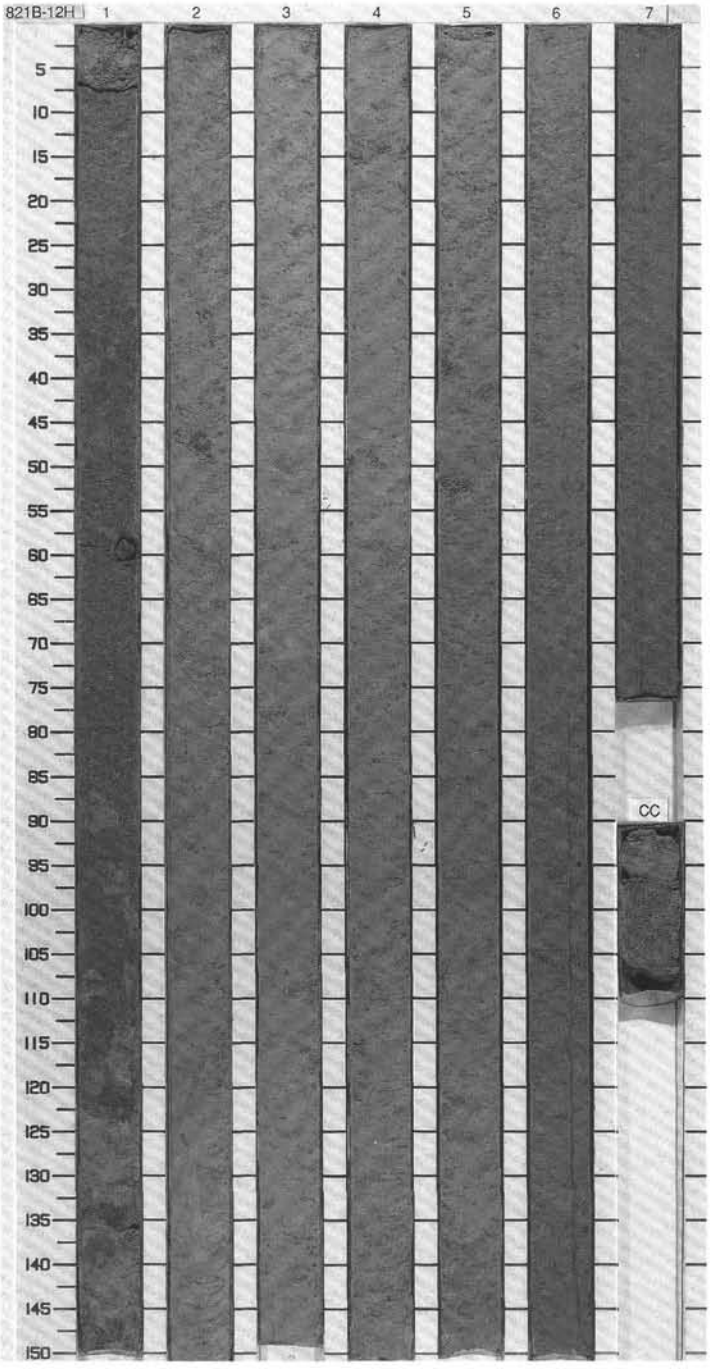
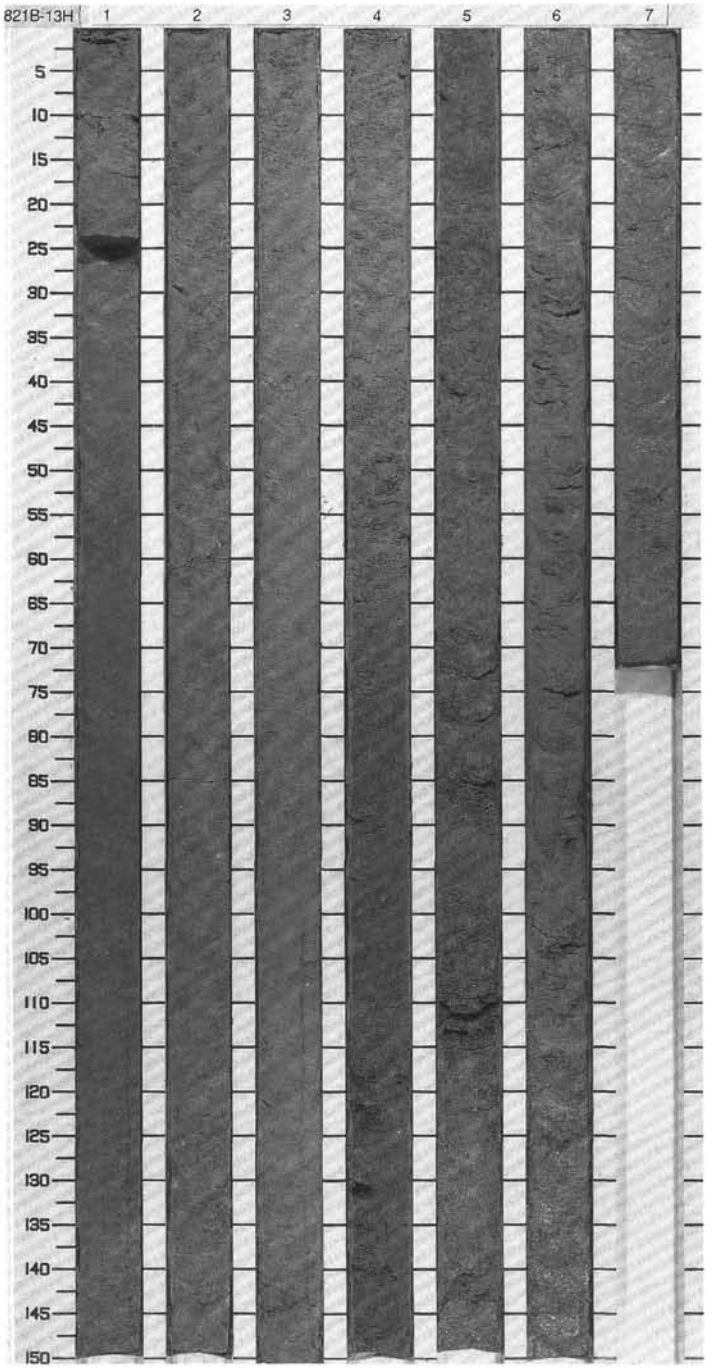
								5						
								6						
								7						
								CC					PAL	



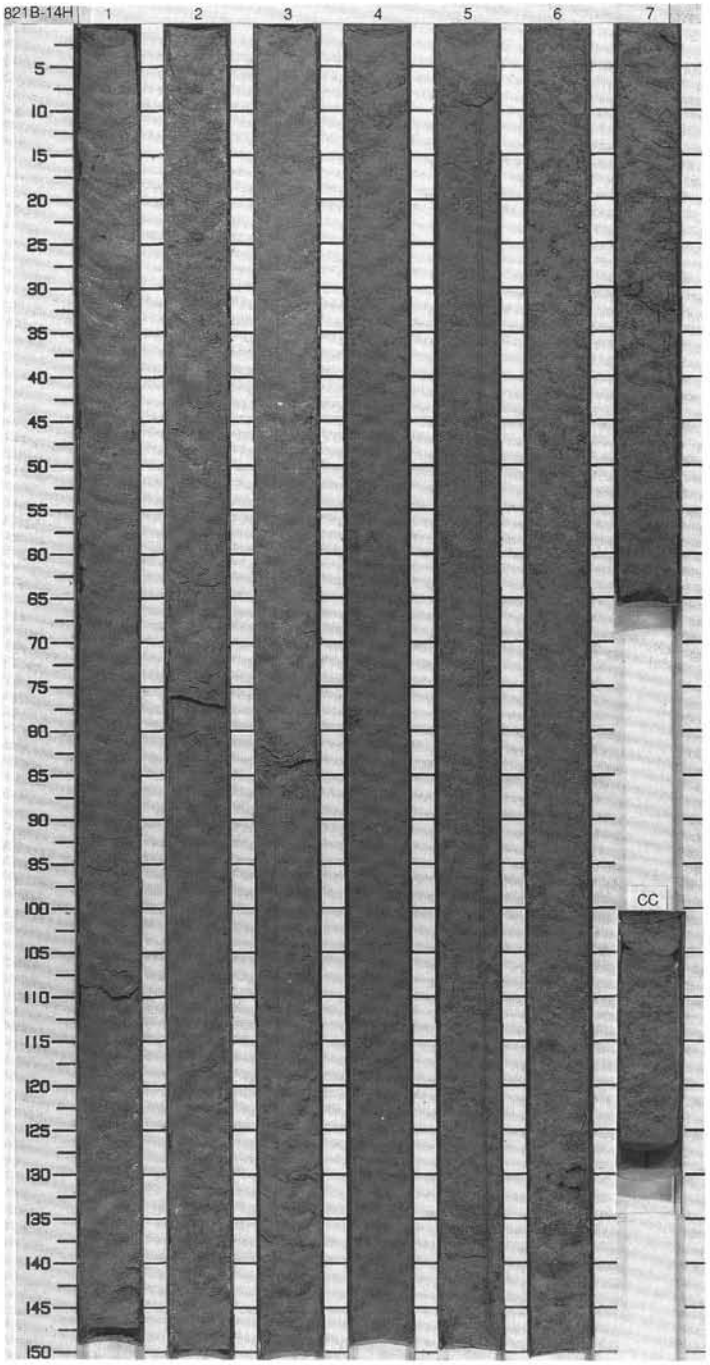
SITE 821 HOLE B CORE 13H CORED INTERVAL 114.0-123.5 mbsf

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
					NOT MEASURED			1	0.5 1.0					BIOCLASTIC OOZE with NANNOFOSSILS and SILICICLASTIC GRAINS Major Lithology: Greenish gray (10Y 6/1), partially lithified, silt- to sand-sized BIOCLASTIC OOZE with NANNOFOSSILS and SILICICLASTIC GRAINS. The color becomes darker (10Y 5/1) within Section 4 but returns to a lighter color in the following section; the change is transitional.
								2						
								3						
								4						
								5						
								6						
								7					PAL	



SITE 821 HOLE B CORE 14H CORED INTERVAL 123.5-133.0 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
					NOT MEASURED			1	0.5					BIOCLASTIC PACKSTONE with NANNOFOSSILS Major Lithology: This core contains weakly to moderately lithified BIOCLASTIC PACKSTONE with NANNOFOSSILS. The color changes from light greenish gray (10Y 6/2) to greenish gray (10Y 5/2) in Sections 3 (below 90 cm), 4 and 5. CLAY as minor modifier occurs in Section 6.
									1.0					
								2						
								3						
								4						
								5						
								6						
								7						
								CC					PAL	



SITE 821 HOLE B CORE 15H CORED INTERVAL 133.0-140.0 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
					NOT MEASURED			1	0.5					BIOCLASTIC OOZE with NANNOFOSSILS and SILICICLASTIC GRAINS to BIOCLASTIC PACKSTONE with MICRITE, NANNOFOSSILS and CLAY Major Lithology: Most of the core is soupy and highly disturbed by drilling. Predominantly a greenish gray (10Y 6/1), partially lithified, silt- to sand-sized, BIOCLASTIC OOZE with NANNOFOSSILS and SILICICLASTIC GRAINS. Below Section 3, scattered lithified drilling biscuits occur within a soupy matrix. These biscuits are BIOCLASTIC PACKSTONE with MICRITE, NANNOFOSSILS and CLAY, greenish gray (10Y 6/2).
									1.0					
								2						
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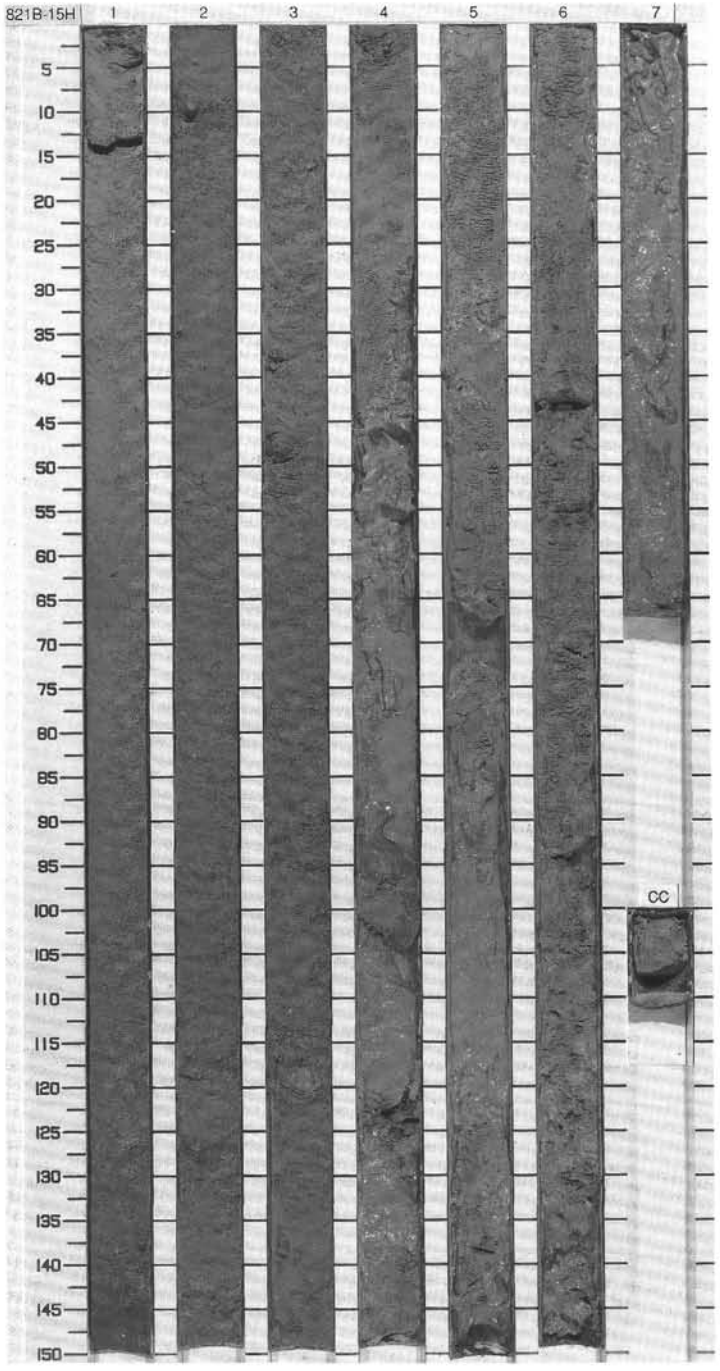

821B 16H NO RECOVERY

SITE 821 HOLE B CORE 17V CORED INTERVAL 140.0-146.6 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
					NOT MEASURED			1	0.5		○			BIOCLASTIC MUDSTONE/PACKSTONE with CLAY Major Lithology: Dark gray green (10Y 5/2 to 10Y 4/2). BIOCLASTIC MUDSTONE/ PACKSTONE with CLAY. Very soupy due to drilling disturbance. Minor Lithology: From 100 cm in Section 2 to 70 cm in Section 3: greenish gray (10Y 4/2 to 5/2). *Halimeda* FLOATSTONE to RUDSTONE within a mud-sized BIOCLASTIC MIXED SEDIMENT matrix. Local lithification within the rudstone is apparent. Bioclasts include BENTHIC FORAMINIFERS, encrusted grains, and foraminifer tests with GLAUCONITE. The base of this unit consists of LITHOCLASTIC and BIOCLASTIC RUDSTONE.
									1.0		○			
								2			○			
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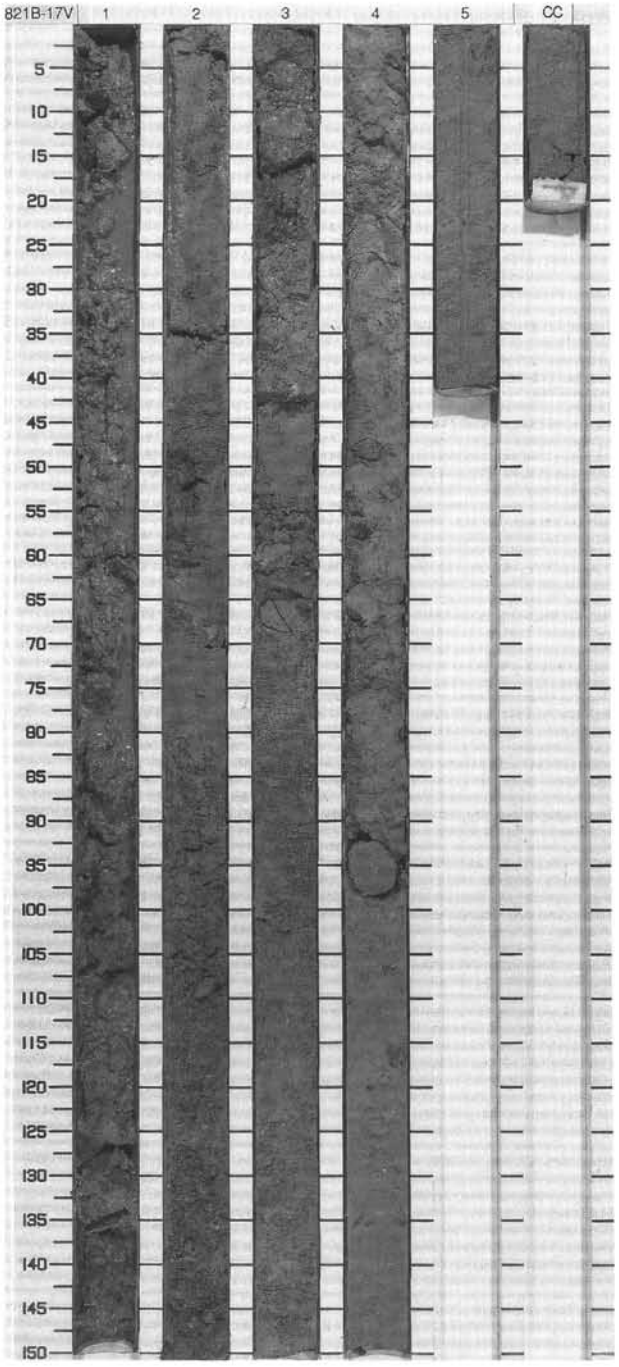
821B 18X NO RECOVERY



SITE 821 HOLE B CORE 19X CORED INTERVAL 146.6-156.2 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
					NOT MEASURED			1	0.5					BIOCLASTIC PACKSTONE with NANNOFOSSILS and SILICICLASTIC GRAINS Major Lithology: Greenish gray (10Y 5/2), bioturbated, partially lithified, silt- to coarse sand-sized, BIOCLASTIC PACKSTONE with NANNOFOSSILS and SILICICLASTIC GRAINS. Minor Lithology: In Section 1, to 120 cm; greenish gray (10Y 5/1), bioturbated, silt- to coarse sand-sized, BIOCLASTIC MIXED SEDIMENT with SILICICLASTIC GRAINS. Coarse grained bioclasts are predominantly *Halimeda* fragments, GASTROPODS, and BENTHIC FORAMINIFERS which increase in abundance downsection.
									1.0					
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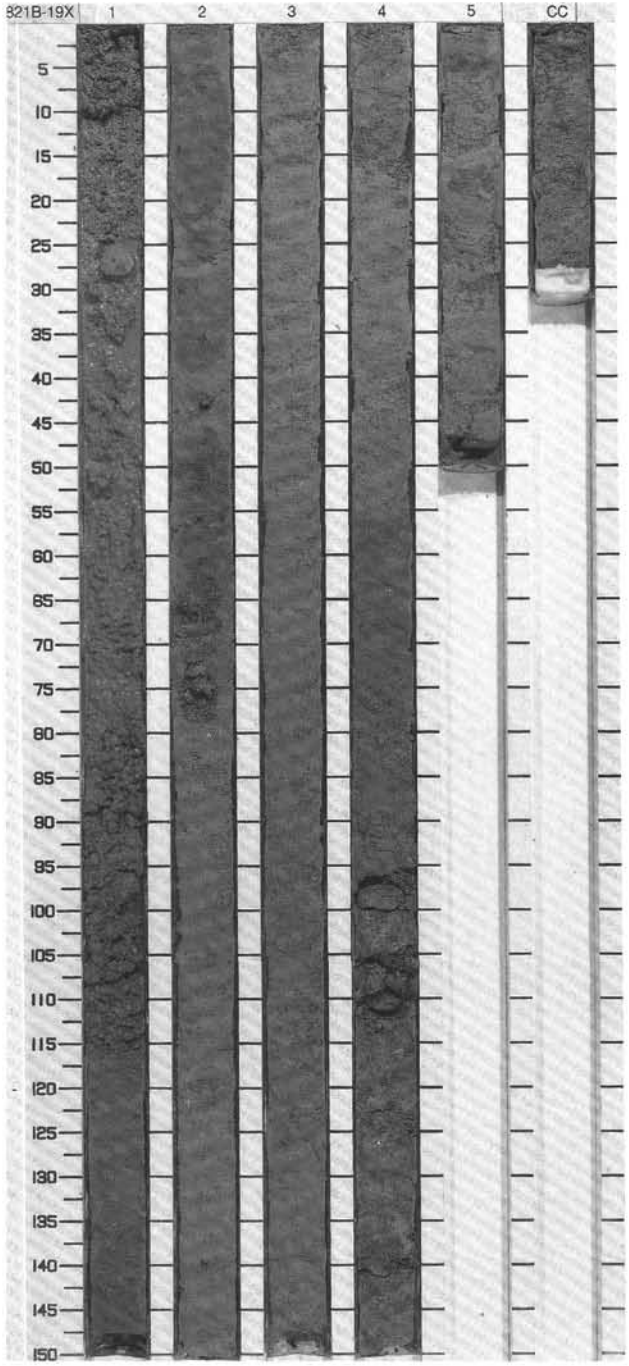

SITE 821 HOLE B CORE 20X CORED INTERVAL 156.2-165.9 mbsf

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
						NOT MEASURED			1	0.5 1.0	VOID				BIOCLASTIC MUDSTONE with FORAMINIFERS, NANNOFOSSILS, and SILICICLASTIC GRAINS to BIOCLASTIC PACKSTONE Major Lithology: Greenish gray (10Y 6/2), weakly to well-lithified BIOCLASTIC MUDSTONE with FORAMINIFERS, NANNOFOSSILS, and SILICICLASTIC GRAINS. GLAUCONITE occurs within some PLANKTONIC FORAMINIFER tests. Partially lithified BIOCLASTIC PACKSTONE occurs in Sections 1 and 4.
									2						
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