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V 14-149

Megascopic Description of a Split Core

Latitude:	**35°57'N**	**Longitude:**	**07°30'W**
Corr. depth:	**1205 M**	**P.D.R. depth:**	**638 fm.**
Date taken:	**8 August 1958**	**Date opened:**	**9 February 1961**
Described by:	**T. Willis**	**Flow-in:**	
Core length:	**465 cm.**		

0-465 cm. **Gray silty calcilutite containing about 2% foraminifera and occasional small pteropods. The core is irregularly marked with small streaks of manganese, especially in the 190-200 cm. and the 415-435 cm. zones where it appears to be contained in foraminifera. These are areas with a slight increase in foraminifera. Manganese is an important part of the silt fraction. The layer is partially oxidised to a light brown color. Burrow mottling is visible in the 120-340 cm. zone. This area is mottled with what appear to be large burrows and disturbed layers of light brown material.**

The zone from 125-215 cm. is particularly disturbed and may be a mixture of slumped material. However, a roughly horizontal irregular band (2 cm.) of brown material occurs at 153 cm.

A diagonal layer of fine sand composed of quartz and manganese occurs at 172-174 cm. This layer branches out into "fingers" of sand that stretch across the core. Two layers of similar sand, less than 1 cm. in size occur at 185 and 187 cm.

A lamina of silt occurs at 219 cm.

Irregular horizontal layers of brown lutite (less than 1 cm. thick) occur at 223, 248 and 296 cm. Prominent burrows are present at 120, 242, 264 and 337 cm.

Contact with flow-in unclear and arbitrary.

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Megascopic Description of Split Core

Latitude:	36°13'N	Longitude:	04°47'W
Corr. Depth:	878 M	P.D.R. depth:	465 fm.
Date Taken:	3 August 1958	Date Opened:	9 February 1961
Described by:	R. S. Grinnell		
Core Length:	561 cm	Flow-in:	

General: Light and medium gray calci-lutite. Oxidized along the sides to a light brown. Interbedded with layers of dark gray granular fine sand. Forams are scarce.

0-22 cm. Brownish gray calci-lutite. Oxidized along the sides to a light brown. Small gray burrow markings increase in abundance toward the bottom. No shell material. Lower contact gradational.

22-406 cm. Light and medium gray calci-lutite. Upper 318 cm. are light gray. Lower 66 cm. are colored a medium gray. Layer is oxidized along the sides to a light brown. In the upper light gray part the burrow markings are grayish brown and tend to be restricted into certain subzones, 56-64 cm., 139-159 cm., 174-179 cm., 217-223 cm., 293-303 cm. In the lower darker gray part of the layer, the burrow markings are a light gray. Bands of grayish brown calci-lutite cut the layer at various places, 45-46 cm., 164-165 cm., 219-220 cm. A tan colored calci-lutite band occurs at 323-324 cm. Black manganese oxide stains occur throughout the layer. Lithologically the layer is homogeneous throughout, with a very small silt fraction. A few pteropod fragments are scattered through the layer. Forams are absent. Some carbonized wood fragments present in lower 11 cm. Lower contact sharp.

406-415 cm. Dark gray and yellowish brown fine granular sand. Partially interbedded with medium gray calci-lutite. Contains mica flakes, small shell fragments, a few triloculina forams. Lower contact contact sharp but irregular.

415-473 cm. Medium gray calci-lutite. Oxidized along the sides to a light brown. Vertically elongated silty calci-lutite streak indicates that some flowage has taken place within the layer. How much can not be ascertained. Dark gray discontinuous lenses of silt and very fine sand containing a few forams are found at several places in the layer. Lenses in the upper 19 cm. are elongated diagonally upward, showing that they were affected by the flowage in the layer. Black manganese stains are common throughout the layer. Faint dark gray burrows are scattered about. Lower contact sharp.

473-495 cm. Dark gray fine subangular sand. Oxidized along the sides to a yellowish brown. Sand includes quartz, mica and some dark colored grains (hornblende?) Also present are small forams, echinoid spines, pteropod tests, other shell fragments. Small patches of gray calci-lutite are included in the layer. Lower contact sharp.

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495-520 cm. Medium gray calci-lutite. Oxidized along the sides to a light brown. Layer contains some irregular light brown calci-lutite lenses. Some of these are elongated vertically, indicating that some flowage has taken place in this layer, No good evidence of burrowing. Lower contact sharp.

520-549 cm. Dark gray fine subangular sand. Oxidized along the sides to a reddish brown. Similar in lithology to the 473-495 cm. layer. This layer contains many globs of medium gray calci-lutite, some of which are oriented vertically, possibly indicating flowage. Forams, pteropod tests, echinoid spines and other shell fragments are all found. Percentages of quartz and dark colored grains are roughly the same.

549-560 cm. Medium gray calci-lutite. Oxidized along the sides to a light brown. Contains dark manganese oxide stains and a concentration of sand at 557 cm. Layer shows signs of flowage. Lower contact irregular.

560-561 cm. Dark gray fine subangular sand at base of core.

Observations: Deposition took place under slightly reducing conditions. At certain times deposition of coarse sediment, frequently associated with globs of cohesive calci-lutite, interrupted the process.

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Megascopic Description of a Split Core

Latitude:	36°17'N	Longitude:	02°09'W
Corr. depth:	1329 M	P.D.R depth:	702 fm
Date taken:	2 August 1958	Date opened:	8 February 1961
Described by:	Thayer Willis	Flow-in:	
Core length:	533 cm.		

0-92 cm.- Silty calcilutite, gray, containing less than 2% foraminifera. The layer is almost entirely oxidized to a light brown. Some signs of burrowing occur, but not distinctly. Manganese is a large component of the silt fraction and minute dark streaks of manganese occur in the layer below 30 cm, increasing slightly in frequency towards bottom. A large (3.5 cm) scaphopod occurs at 16 cm. A large benthic foraminifera at 69 cm. Lower contact blurred due to burrow mottling.

92-140 cm.- Silty calcilutite, light greenish-gray, containing less than 2% foraminifera. The layer is heavily burrow mottled and reworked, with the burrows filled by a lighter gray material. A zone of grayer material occurs at 128-131 cm. The layer is generally greener at the top, becoming grayer with depth. Dark green areas which may be partially replaced layers are present at 106 cm. and 124 cm. Manganese is an important component of the silt fraction with dark streaks of manganese throughout. A partially replaced fine lamina of manganese occurs at 120 cm. and again at 132 cm. Lenses of foraminiferal lutite occur at 124 cm. and 130 cm. A 2 cm. fragment of pelecypod (?) shell occurs at 135 cm. Lower contact blurred due to burrowing.

140-145 cm.- Silty calcilutite similar to the 0-92 cm. layer. Lower contact irregular and blurred due to burrowing.

145-149 cm.- Silty calcilutite, dark green, extensively burrowed and reworked and partially replaced by material from the surrounding layers. Foraminifera and manganese are present in the same frequency as the layer at 92-140 cm. Lower contact blurred due to burrowing.

149-533 cm.- Silty calcilutite, gray, containing less than 2% foraminifera, occasionally broken by indistinct bands and zones of slightly darker material. Manganese is present in the silt fraction and dark streaks of manganese are present throughout. The layer is burrow mottled (usually indistinctly but clearly) near zones which show a slight color variation. Darker zones include the 230-255 cm. area.

Several zones of greater foraminifera concentration occur between 285-355 cm. Zones containing about 5% foraminifera occur at 371-372 cm. and 386-388 cm. A lamina of foraminifera is present at 295 cm. and a large lens of foraminifera is present at 291 cm. Smaller lenses are present at 289, 302, 307, 323, 412 and 439 cm.

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Megascopic Description of split Core

Latitude:	36°01'N	Longitude:	02°14'W
Corr. depth:	1867 M iq	P.D.R. depth:	984 fm.
Date taken:	31 July 1958	Date opened:	8 February 1961
Described by:	Thayer Willis		
Core length:	457cm	Flow-in:	120cm

0-186cm A layer of gray silty calcilutite containing about 2% forams. Dark streaks of manganese occur intermittently throughout the layer and form an appreciable part of the silt fraction. The layer has been oxidized to a brown color almost through the core. Burrowing activity is not distinct except for large obvious burrows at 37cm and 147cm. A lens of forams at 112cm may indicate a burrow. The lower contact of the layer is unclear and gradational and is marked by a change in the oxidation rate of the material. Some obvious burrowing and exchange of material takes place in the last 10cm of the layer.

186-296cm A layer of brownish green silty calcilutite containing forams. The layer contains occasional streaks (dark) of manganese especially in the 186-205cm and 255-280cm zones. The silt fraction includes manganese. Fragments of a pelecypod shell occur at 206cm. The layer is thoroughly burrow mottled and reworked. The burrows mainly marked by the lighter colored material. A large diagonal burrow occurs at 205cm, and large horizontal burrows at 238,285 and 292cm. The overall appearance of the layer is one of coarse irregular indistinct laminations due to minor color changes and burrowing. The lower contact of the layer is sharp and horizontal, but blurred somewhat by burrowing.

296-457cm A layer of grayish brown to gray silty calcilutite. The layer shows a series of darker laminations against the lighter gray matrix. The layer is extensively burrowed and reworked with many of the laminae fragmented and incomplete. No material or textural change seems to accompany the color changes in the laminae. Minute dark streaks of manganese occur throughout the layer. Manganese particles along with muscovite form an important part of the silt fraction. The calcareous organic content of the layer is generally higher than that in the rest of the core. A lens of decayed organic material occurs at 373cm and smaller lenses at 386 and 400cm. The area from 2 8-302cm shows scattered flecks up to 1mm of calcareous material

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Megascopic Description of Split Core

Latitude:	40°58'N	Longitude:	01°49'E
Corr. Depth:	1311 M	P.D.R. depth:	693 fm.
Date Taken:	28 July 1958	Date Opened:	8 February 1961
Described by:	R. S. Grinnell	Date photo?	8 February 1961
Core Length:	540 cm.	Flow-in:	30 cm.

General: Gray and pinkish gray calci-lutite interbedded at intervals with yellowish brown micaceous silt and fine sand. Burrowing is generally scarce. Forams are absent, but shell fragments of other animals are found.

0-1 cm. Black "muddy" calci-lutite at the top of the core.

1-26 cm. Light gray calci-lutite. Oxidized along the sides to a light brown color. Contains black manganese oxide stains in the top 13 cm. Burrow markings are a faint light gray and occur associated with the manganese concentrations. Patches of fine light brownish gray silt occur in the lower 2 cm. of the layer. Large scaphopod shell found near top of layer. Lower contact gradational.

26-29 cm. Irregular lense of micaceous gray silt and fine sand. Interlaminated with brownish gray calci-lutite.

29-78 cm. Light gray calci-lutite. Oxidized along the sides to a light brown. A band of reddish gray calci-lutite extends horizontally across the core at 41-43 cm. Some of the faint medium gray markings found throughout the layer are probably burrows. No evidence of forams. Lower contact sharp.

78-84 cm. Medium gray and light brown micaceous silt and fine sand. Interlaminated with light gray calci-lutite. Lower contact abrupt.

84-228 cm. Light to medium gray calci-lutite. Oxidized along the sides to a grayish brown. Uniform in color and lithology throughout except for a band of silty dark grayish brown calci-lutite at 206-209 cm. Burrow markings (medium gray in color) are scarce, though within the 206-209 cm. calci-lutite band several can be found. Mica flakes are abundant everywhere through the layer. A few scaphopod and other shell fragments are present. Lower contact gradational.

228-233 cm. Irregular discontinuous lenses of light brown silt. Intermixed with medium gray calci-lutite.

233-339 cm. Medium gray calci-lutite. Lower 30 cm. have a pinkish gray tint. Layer is oxidized along the sides to a grayish brown. Burrow markings are scarce and are a faint gray in color. Dark manganese stains are scattered throughout the layer. A few large pteropod shells are found at 244 cm. Smaller shell concentrations occur lower in the layer Forams do not seem to be present. The layer is generally lithologically homogeneous. Patches and laminae of yellowish brown silt occur at the base of the layer.

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339-346 cm. Interlaminated yellowish brown and dark brown micaceous very fine sand. Cross bedding is visible at 342-343 cm. Grain size appears to increase slightly toward the bottom of the layer. This plus the fact that the lower contact is sharp and the upper one gradational indicate a turbidity current deposit. Besides mica flakes, echinoid spines and shell fragments are also visible.

346-356 cm. Pinkish gray calci-lutite. Oxidized on the sides to a light pinkish brown. The lower 2 cm. have a slightly reddish tint. A few burrow markings are present. Dark manganese oxide stains are common. Patches of yellowish brown silt occur at the base of the layer. Lower contact gradational.

356-359 cm. Discontinuous yellowish brown micaceous silt interlaminated with reddish gray silty calci-lutite. Probably a turbidity current deposit.

359-419 cm. Medium gray calci-lutite. Colored a pinkish gray in the upper 19 cm. Layer is oxidized on the sides to a light pinkish brown. Lower 41 cm. are irregularly interlaminated with light pinkish gray calci-lutite. A reddish band of calci-lutite cuts the layer at 382-383 cm. and reddish burrowlike markings occur lower down in the layer. Faint gray markings found throughout the layer and some grayish white markings concentrated at the base of the layer may represent burrows. Manganese stains are common. Shell material is scarce. Lower contact marked by slight color change.

419-485 cm. Variegated pinkish gray calci-lutite. Mottled by several different shades of this color. Layer is oxidized to a light pinkish brown on the sides. A band of dark reddish gray silty calci-lutite occurs at 433-434 cm. Gray calci-lutite markings are fairly common and are probably burrows with material from the overlying layer. Thin irregular yellowish brown silt laminae are found at 459 cm. and 466 cm. Manganese oxide stains are common throughout the layer. Pelecypod shell found at 433 cm. A few other small concentrations of shell material. Lower contact gradational.

485-489 cm. Very fine yellowish brown sand. Contains mica flakes and small shell fragments, Probably a turbidity current deposit.

489-531 cm. Pinkish gray calci-lutite. Oxidized along the sides to a pinkish brown. Uniform in lithology throughout. Color assumes a slightly pinker cast toward the bottom. Small patches of reddish brown silt occur at 519 cm. and 529 cm. Burrow markings do not seem to be present. Very small concentrations of shell material are found throughout the layer, and there are some large broken pteropod shells at 521 cm. Manganese oxide stains are common. Lower contact sharp.

531-540 cm. Yellowish brown silt laminae interlaminated with pinkish gray calci-lutite. Laminae average 2-3 mm. in thickness and are grouped into three different subzones, 531-532 cm., 535-538 cm., and 539-540 cm. Lower contact sharp.

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540-560 cm. Medium to dark gray calci-lutite. Oxidized along the sides to a light to medium brown. This layer has unmistakably flowed in.

560-570 cm. Very fine reddish brown sand. Interlaminated with a few lenses of gray calci-lutite and black manganese-rich sand. The sediment is disturbed because it flowed into the core pipe.

Observations: Calci-lutite was deposited under slightly reducing conditions. Turbidity currents carrying silt and fine sand periodically swept the area.

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Megascopic Description of Split Core

Latitude:	41°39'N	Longitude:	05°00'E
Corr. Depth:	2439 M	P.D.R. depth:	1282 fm.
Date Taken:	27 July 1958	Date Opened:	6 February 1961
Described by:	R. S. Grinnell		
Core length:	607 cm.	Flow-in:	441 cm.

General: Fine grained calci-lutite. Upper 53 cm. are brown in color. Color from 53-111 cm. is grayish brown. From 111-607 cm. color is predominantly medium gray. Lenses of silt occur irregularly throughout core. Forams and other shells are generally scarce and are missing in some of the layers.

0-22 cm. Medium brown calci-lutite. Bottom 4 cm. are slightly darker due to thin bands of manganese oxide and other dark colored grains. Burrow markings are a brown color at the top and bottom of the layer. In the center they are a faint gray and orange brown. Forams are often concentrated in patches throughout layer. At 14-16 cm. is a subzone of accumulated shell material. Lower contact is marked by a reddish brown color band.

22-53 cm. Tan calci-lutite. Lower 9 cm. of the layer are a dirty brown color. The layer is mottled by many thin orange brown color bands extending horizontally across the core. Drag at the ends of the bands suggests they were present when core was taken and were not formed by contamination after storage in gutter pipe. Orange brown color evidently due to oxidation of many minute particles of iron sulfide. Manganese oxide stains are common and in places are concentrated horizontally. Upper 22 cm. contain gray burrow markings. Lower 9 cm. have gray and tan colored burrow markings. Forams and other shells do not seem to be present. Lowest orange brown color band marks base of layer.

53-82 cm. Light grayish brown calci-lutite. Lower 7 cm. are slightly grayer in color. Small gray burrow markings are plentiful in the upper part of the layer, while light brown burrows are found in the lower 7 cm. A band of dark gray mottled lutite occurs at the center of the layer from 70-73 cm. Directly below the band is a thin lamina of fine gray silt. Forams and other shells are absent except in the bottom 4 cm. where two small patches of forams occur. Lower contact marked by a slight color change.

82-98 cm. Medium gray calci-lutite. Extensively mottled by light brown burrow markings. A few dark gray markings occur also, expecially near the top. Foram tests and other shells are absent. Lower contact marked by silt lamina .

98-111 cm. Light gray calci-lutite. Extensively mottled by light brown burrow markings and by several thin laminae of fine light gray and yellowish brown silt. The thickest lamina is a band 1 cm. thick at 108-109 cm. near the bottom of the layer. 2 mm. above it is a thinner silt lamina and above this are two additional laminae, one of which occurs at the very top of the layer. Very little shell material is present. Lower contact is gradational.

111-145 cm. Dark gray calci-lutite interlaminated with brown lutite. The laminations occur regularly throughout layer. They represent regular fluctuations in type of source material. Layer has the varved appearance one would look for in glacial lacustrine deposits. 3 cm. from the top of the layer is a 4 cm. subzone containing three laminae of gray and yellowish brown silt. These laminae are evenly spaced and are probably turbidity current deposits. Burrowing is scarce in the layer except in the top 3 cm. Several very small accumulations of shell material occur sporadically within the layer. Patches and paper-thin discontinuous lenses of light gray silt are also found. Lower contact indistinct.

145-178 cm. Medium gray calci-lutite. Burrow markings are colored gray in the upper and central parts of the layer. In the bottom part they are more numerous and are a dark reddish brown in color. The layer becomes slightly darker toward the base. Occasional dark gray calci-lutite bands cut the layer horizontally. The bottom 19 cm. are marked by thin grayish white laminae of very fine silt. This layer lacks the regular lamination that characterizes the overlying one. Manganese oxide stains are conspicuous in the top 7 cm. Some small scattered concentrations of shell material. Lower contact sharp.

178-179 cm. Band of very fine grayish white silt. Interlaminated with gray calci-lutite.

179-249 cm. Gray and grayish white "lutite breccia". The top part of the layer (179-193 cm). is a dark gray fragmental calci-lutite that contains a few fine grayish white silt laminae. In places the silt is reddish brown in color, evidently due to the presence of oxidized iron sulfide. Burrow markings are plentiful. From 193-232 cm. The layer is a sequence of alternating paper-thin laminae of dark gray and light gray calci-lutite and laminae of very fine grayish white silt. This is lithologically the most heterogeneous part of the layer. This part is also broken into large fragments which give it a brecciated appearance. The waviness of some of the laminae indicate alternating mud and silt flow. The laminae are dragged down along the sides, probably because of friction between the core pipe and the sediment. Some slumping, however appears to have taken place. There is no good evidence of burrowing in this part. The last part (232-249 cm,) is similar to the first except that burrow markings are not so plentiful. Some broken pteropod and foram tests are scattered within the layer. Lower contact drawn at bottom of brecciation.

249-342 cm. Medium gray calci-lutite. Oxidized along the sides to a light gray. From 249-283 cm. the gray calci-lutite is interlaminated irregularly with a light gray silty calci-lutite. Below 283 cm. the laminations become more regular but less frequent, indicating a less turbulent depositional environment. A lense of brown calci-lutite at 267-268 cm. contains concentrations of shell material. Black manganese stains occur throughout the layer and are frequently aligned in horizontal bands. A lense of manganese-rich dark gray silt occurs at 312-313 cm. Burrow markings are scarce. Lower contact marked by color change.

342-364 cm. Light to medium gray calci-lutite. Oxidized along the sides to a light grayish brown. Contains a few light brown burrow markings. Lower contact marked by color change.

364 434 cm. Medium gray calci-lutite. Oxidized along the sides to a light grayish brown. Faint bands of brown lutite occur irregularly. A lense of fine grayish white silt occurs at 387 cm. Other silt laminae occur at various places in the layer. Black accumulations of manganese oxide are common. Very small concentrations of shell fragments occur also. Burrows are a faint grayish white or dark gray color. Lower contact marked by color change.

434-445 cm. Light grayish brown lutite. Oxidized on the edges to a light brown. Contains many small gray burrow markings. Band of manganese stains mark lower contact.

445-574 cm. Medium gray calci-lutite. Oxidized on the sides to a light gray or grayish brown. Layer shows faint laminations throughout much of its length. Comspicuous lenses of fine gray silt occur at 535 cm., 560 cm., and 564 cm. Burrow markings are a grayish white in color and are not numerous. Manganese oxide particles are either concentrated in small patches and horizontal aggregates or are disseminated in thin calci-lutite laminae. Very little shell material. Lower contact sharp.

574-588 cm. Light grayish brown calci-lutite. Oxidized slightly on the edges to a light brown. A band of calci-lutite stained reddish brown by oxidation of iron sulfide occurs at 577-578 cm. Directly below this band is another colored medium gray. Scattered accumulations of shell material are found throughout layer. Some are concentrated at 584 cm. A few faint gray burrow markings. Lower contact sharp.

588-607 cm. Medium gray calci-lutite. Oxidized along the sides to a light gray. Contains small scattered gray burrow markings and concentrations of manganese oxide. Some shell material.

Note: Lower 441 cm. of the core are flow and are not described here.

Observations: The environment during the deposition of sediment in the lower part of the core was a reducing one. It changed in time until the top 53 cm. of the core were deposited under oxidizing conditions. Influxes of coarse sediment were not affected by this change. Some layers definitely indicate periods of general turbulence and current agitation.

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Megascopic Description of Split Core

Latitude:	39°38.5'N	Longitude:	11°49'E
Corr. depth:	3451 M	P.D.R. depth:	1800 fm.
Date opened:	3 February 1961	Date taken:	24 July 1958
Described by:	Thayer Willis		
Core length:	384 cm	Flow-in:	30 cm

0-10cm	Light brown silty calcilutite stained with darker brown streaks of manganese. Silt fraction contains manganese and biotite. Lower contact sharp and elliptical due to impact of corer.
10-11cm	Fine quartzose sand containing biotite surrounding a fine 1mm lamina of silty lutite.
11-15cm	Light brown slightly silty lutite showing occasional fine brown streaks of manganese.
15-17 cm	Gray brown silty calcilutite containing forams. Contacts above and below gradational and elliptical.
17-28 cm	Light reddish (oxidized) brown silty calcilutite containing slightly darker streaks of manganese. Streaks increase slightly with depth. Lower contact clear and elliptical.
28-29cm	Layer of brown silty calcilutite containing forams. Very similar to 15-17cm but darker in color. Lower contact not clear.
29-42cm	Brown silty calcilutite becoming lighter toward end. Darker manganese streaks become less frequent toward end and silt fraction increases. Lower contact sharp and elliptical.
42-43cm	Light brown silty calcilutite containing forams. A 5mm pteropod is present as well, indicating that pteropod fragments may occur. A lens of fine quartzose sand extends halfway across the core immediately above the layer. This probably represents a layer disturbed by the core pipe. Lower contact not sharp.
43-83cm	Light brown to buff silty calcilutite very similar to the sequence above. Manganese present but inconspicuous until the last 10cm of the layer where it is more evident. Fine darker brown siltier lamina occur in the 80-82cm section of the layer, they are elliptical and contain within the hollow thus formed a pocket of fine quartzose sand, separated by matrix from the next layer. A 3mm lamina of lutite containing forams occurs at 53cm and an irregular lamina at 64cm. The zone from 64-69cm also contains forams decreasing in numbers with depth. Lower contact of this layer sharp and elliptical.
83-100cm	Layer of fine micaceous quartzose sand containing biotite and manganese. Sand shows grading from very fine at the top of the layer to fine at the base. Whole forams, mainly Orbulina become common with depth. Clearly represents a turbidity flow. Lower contact sharp and irregular, probably due to flow-in the core pipe.

Megascopic Description of Split Core continued

100-123cm Layer of grayish brown silty calcilutite, becoming browner with depth. Light manganese streaks are visible in the upper portion of the layer generally ending at 114 cm. Silt fraction contains manganese especially in top of layer. An irregular lens of material from the previous layer occurs at 106cm. A partially disturbed layer of increased silt and forams is present at 107cm. Fragments of a large pteropod occur at 109cm. Lower contact sharp and elliptical.

123-129cm Layer of very slightly disturbed, downwarped at the edges, fine quartzose sand containing biotite and manganese. Sand becomes coarser with depth. Forams are found in the lower 2 cm of the layer. Well defined laminae are visible in the layer. This is almost certainly a turbidity flow.

129-190 cm Layer of light brown slightly silty calcilutite containing forams. Burrow mottled by smaller organisms except in the 147-155 cm zone which is lighter in color and with a decreased silt content. A lamina (4mm) of darker material occurs at 184cm, and 2 lamina (2mm) of dark manganese at 186 and 188cm. Lower contact is sharp.

190-204cm Layer of fine quartzose sand, becoming coarser with depth. Biotite and manganese are present. Well defined laminae possibly denoting a succession of smaller flows, occurs in the layer. Lower contact sharp and elliptical.

204-207cm Layer of very silty light brown calcilutite. This layer may represent the poorly defined upper part of a turbidity flow. Lower contact transitional and poorly defined.

207-224cm Layer of fine to medium quartzose sand becoming coarser with depth. Layer becomes lighter and less silty with depth. Well defined laminae are present. Lower contact sharp and elliptical.

224-241cm Layer of light gray, becoming greenish gray silty calcilutite. Fine burrow mottling present. A vertical streak of manganese occurs at 225cm and a 1mm horizontal lamina at 231 cm. Lower contact sharp and elliptical.

241-243cm Layer of fine quartzose sand containing biotite and manganese. Evidently a turbidity flow. Lower contact sharp and elliptical.

243-258cm Layer of light brown finely burrow mottled silty calcilutite containing forams. Lower contact shapr and elliptical.

258-275cm Layer of greenish brown finely burrow mottled silty calcilutite containing forams. A 1mm lamina of lighter material occurs at 259cm. Lower contact sharp and elliptical.

275-281cm Layer consisting of two separate contiguous turbidity flows of fine quartzose sand containing biotite and manganese. The first extends from 275-276cm, the second from 276-281cm and contains coarser material with depth. Lower contact slightly disturbed and diagonal.

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Megascopic Description of Split Core continued

281-298cm Layer of light brown silty finely burrow mottled calcilutite containing forams. Lower contact sharp and roughly horizontal.

298-342cm Layer of finely burrow mottled brown silty calcilutite containing forams. Zone from 298-315cm contains manganese streaks and is slightly attenuated. One mm lamina of fine sand occurs at 322, 340,341,and 342cm. Laminae of increased forams or silt are present at 319, 321,328,332, and 334 cm. Lower contact sharp and horizontal.

342-384cm Layer of dark brown finely mottled silty lutite containing occasional forams. Laminae of fine sand occur at 357,358,359,372, 370, and 379cm. A lens of fine sand probably representing a layer occurs at 367cm. Areas of increased silt and forams are present at 347 cm and 381 cm. About 20cm of the flow-in preserved.

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Latitude:	36°19'N	Longitude:	14°48'~~W~~ E
Corr. depth:	123 M	P.D.R. depth:	66 fm.
Date taken:	July 14, 1948	Date opened:	February 2, 1961
Described by:	Thayer Willis		
Core length:	245cm	Flow-in:	34cm

0-17cm — A layer of gray brown silty calcilutite. Dark streaks of manganese occur in the 0-10cm zone. Contained in this matrix of about 30% silt and 70% clay is calcareous organic material up to about 3mm in size, which occupies about 5% of the core total. Identifiable material consists mainly of pelecypod fragments and calcareous worm tubes. A pteropod is present at 14 cm and a large crushed fragment of an echinoid at 17cm. A 2cm fragment of a pecten-type pelecypod is present at 13cm. The silt fraction consists mainly of quartz. Other minerals may include marcasite.

17-44cm — Layer of gray-brown calcilutite marked by a great increase in the organic material to about 60% of the total core material. The contact between the layers is not sharp. Large gastropods (Turitella) up to 4cm in size occur frequently. (nine occur in the 17-24cm zone). Larger Venus and Pecten type pelecypod shells are plentiful. A scaphopod (about 2cm) occurs at 37cm. The finer organic material is made up of pelecypods, gastropods, and pteropods fragments. Large benthic forams are also in evidence. The silt fraction increases slightly in this layer with no change in silt material.

44-58cm — A color change occurs in this layer from a gray to a brown matrix. Organic material increased slightly to about 80% of the total core. No faunal change is observed in the layer. Irregular calcareous material up to 3cm in length, not present in the previous layer, may be abraded and partially dissolved coral fragments. Contact with the layer above is as sharp as can be expected in a chunky material.

58-64cm — An indefinate layer of green silty calcilutite. Intermixed with this matrix is material from the layer above, each material maintaining its own integrity. Contact with the layer above is reasonably sharp and horizontal with the layer below sharp and diagonal.

64-69cm — A layer of gray silty calcilutite containing little organic material. Pteropod fragments occupy less than 1% of the core material. A lense of material from the 44-58cm layer is present at 67cm.

69-74cm — A layer of material similar to that in 44-58cm. Contact sharp.

Megascopic Description of Split Core continued

74-83cm A layer of gray brown silty calcilutite, visible organic material is less than 1% of the total core. A glassy element in the core is probably crushed undissolved tests of forams or pteropods. Contained within the matrix are small lenses of organic material from the 44-58cm layer. Contact above is sharp.

83-85cm A poorly defined triangular lense of gray silty calcilutite and coarse organic material. Base of the triangle is on the wall of the core. Contact below diagonal and gradational in a 2cm zone.

85-129cm A gray silty lutite containing occasional flecks of white calcareous material. The layer is flecked and streaked with manganese. Manganese makes up about 50% of the silt fraction of the core. A pocket of organic material above, partially intermixed with the matrix occurs at 91-100cm. A small lens, separated on the surface of the core from the larger pocket occurs at 92cm. A diagonal lens of the same material about 1cm thick occurs at 108-111cm. An increase in the silt fraction occurs from 123cm to the end of the layer. Contact with the lower layer is not sharp and some intermixing of material has taken place.

129-245cm A Layer of gray slightly silty lutite. Manganese streaks occur throughout the layer. A pocket of organic material, about 1cm in diameter occurs in the center of the core at 142cm. An abraded lump of gray calcareous material possibly coral, occurs at 203cm. A thin lens (about.5mm) of white calcareous material occurs at the core edge at 203cm also.

Observations:

This was a baffling core to describe. While the core showed obvious signs of disturbance after about 70cm., it could not definitelybe proved that it was flow-in. However any material below the 70cm point should be viewed with mistrust. About one meter of the last layer was prematurely discarded before it was realised that it might be of use. The discarded material in no way different from that, part of the layer described and retained.

V - 14 - 136

Megascopic Description of a Split Core

Latitude:	35°44'N	Longitude:	16°31.5'E
Corr. depth:	3864 M	P.D.R. depth:	2010 fms.
Date taken:	13 July 1958	Date opened:	16 April 1963
Described by:	R. Hekinian	Flow-in:	0
Core length:	569 cm.		

General:- The abundance of flaky materials, mostly near the top of this core, seems to signify an environment of calm water, not agitated by waves or currents. No trace of cross-laminations were found.

This core was described in a very dry state.

0-130 cm.- Light greenish lutite. No forams. Low percentage of carbonate. Absence of burrows. At 10-15 cm. and 38-41 cm. intercalated micro-laminae of light and and darker poorly sorted angular grained terrigenous silt mixed with 3% lutite. Angular quartz 20% with glassy and rusted grains, about 10% light and green micaceous flakes (white mica and chlorite) and angular rock fragments. Pink and white coarser forams (5%) scattered throughout.

At 38-41 cm. the intercalations of micro-laminae are prominent. Slight gradations of grain size; near the top micro-laminae contain fine angular silt; at the bottom micro-laminae are composed of friable coarser silt sediment. Two darker laminae of silty lutite mixed probably with manganese are intercalated with the remaining micro-laminae.

At approximately 60 cm. presence of micro-laminae of friable silty lutite.

At approximately 62 cm. laminae (1 cm. thick) of light green burrowed lutite.

At 96-100 cm. intercalations of green and lighter micro-laminae of lutite.

Gradational contact due to a slight change of texture.

130-290 cm.- Tan-gray (rusted by iron oxide) graded lutite becoming terrigenous silt mixed with lutite 5% near bottom. No burrows. Coarser foram tests (10%) in silty matrix were observed from approximately 230 cm. to 390 cm. Mineralogically the tan-gray terrigenous silt appears similar to the 10-15 cm. and 38-41 cm. zones with lesser chloritic flakes.

Microlaminae of darker silty lutite probably mixed with manganese occur at 241 cm. and 281 cm.

Micro-laminae of tan-gray terrigenous silt is intercalated with light gray lutaceous micro-laminae and darker slightly silty micro-laminae of lutite, at 150 cm. zone, 202 cm. zone, 240 cm. zone and 280 cm. zone.

Sharp domed contact.

290-310 cm.- Intercalated laminae (2 mm.-4 mm. thick) of light tan and green friable silty to fine sand mixed with lutite (5%). Sediment of these laminae appears graded; from 309 cm. to 310 cm. increase of grain size with abundance of foram tests at bottom. Less than 1% bioclastics; glauconitic materials less than 1%, chloritic flakes in the greener laminae.

Sharp contact due to change of color and texture.

310-367 cm.- Intercalated layers (3 cm. to 7 cm.) of tan-gray lutite similar to top of 130-290 cm layer, and light greenish lutite similar to 0-130 cm. layer.

367-569 cm.- Light greenish lutite similar to 0-130 layer. Intercalations at 367-380 cm., 435-460 cm., 501-524 cm. and 560-569 cm. zones, of light and green friable silty to fine sand laminae and micro-laminae similar to 290-310 cm. layer.

The 560-569 cm. zone appears composed of lighter silty to very-fine moderately sorted angular sand with 30% angular glassy quartz, 15% coarser foram tests, rare glauconite and about 10% colored minerals (biotite, garnet, rusted rock fragments, manganese).

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V 14-135

Megascopic Description of a Split Core

Latitude:	35 42'N	Longitude:	18 40'E
Corr. depth:	4021 M	P.D.R depth:	2092 fm
Date taken:	12 July 1958	Date opened:	21 February 1963
Described by:	R. Hekinian	Flow-in:	0
Core length:	490 cm.		

0-29 cm.- Lutaceous silt, green, soft. No organic material detected. Quartz and white mica had been identified.

At the top are disturbed microlaminae of lighter lutaceous silt. At 28 cm. carbonaceous lignite (1½ cm. in diameter) present. Disturbed bottom contact due to change in color.

29-36 cm.- Lutite, brownish-green, soft, mixed with about 10% very fine silt similar to above layer. Small lighter burrowed lutite at top.

36-47 cm.- Lutaceous silt, green, soft, mixed with 5% lutite and about 10% organic material. Disturbed and discontinuous lighter microlaminae of lutite present. Coarse pteropod shells present that become coarser with depth. Contact is marked by 1½ cm. thick laminae of lutaceous silt with 15% coarser (3-5 mm in diameter) pteropods and foraminifera tests.

47-60 cm.- Lutite, brown, soft, mixed with lutaceous silt. Similar to 29-36 cm. layer. Smears plus darker and lighter lutite burrows of lutite occur at top. Domed bottom contact due to disturbance by corer. Also, color change at contact.

60-70 cm.- Lutite, brownish-green, peppered with lutaceous silt and manganese minerals. Darker and lighter microlaminated area occurs at top with small lighter lutaceous burrow mottlings. Gradational change of color at bottom contact.

70-72 cm.- Lutite similar to 47-60 cm. layer.

72-89 cm.- Lutite, brownish-green, similar to 60-70 cm. layer except for lamina (1 cm. thick) of pteropods and foraminifera mixed with lutaceous silt at 72 cm. Bottom contact due to change of color.

89-99 cm.- Lutite, brown. No foraminifera observed. White micaceous flakes and rare very fine quartz grains present.

Laminae (2 mm thick) of dark manganese lutite and burrowed with lighter lutite present in layer. Poorly defined bottom contact.

99-302 cm.- Lutite, milky, homogeneous, with 50% carbonate. No organic material. Very few manganese micronodules occur. Bottom contact is marked by presence of laminations.

V 14-135 (cont'd)

302-490 cm.- Laminated silt, milky brown. Microlaminae of light silt mixed with pteropods and foraminifera alternate with microlaminae of lighter lutaceous silt.

From 315 cm. to bottom, darker microlaminae of manganese lutite are often intercalated with the lighter microlaminae.

Inclined microlaminae occur at 360-400 cm.

Horizontal microlaminae occur between 400-415 cm.

At bottom, these microlaminae are disturbed by coring.

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V - 14 - 134

Megascopic Description of Split Core

Latitude:	36°03'N	Longitude:	23°42.5'E
Corr. Depth:	841 M	P.D.R. depth:	445 fm.
Date Taken:	10 July 1958	Date Opened:	2 February 1961
Described by:	R. S. Grinnell	Date photo:	2 February 1961
Core Length:	282 cm.	Flow-in:	149 cm

General: Fine grained calci-lutite that is colored light brown, tan and pink in the upper 115 cm. Lower 160 cm. are grayish blue to light brown in color. Grain size composition is roughly 98% clay, 2% silt. Forams and other organisms are found throughout core. Bottom 7 cm. contain hard, indurated calci-lutite fragments.

0-9 cm. Tan colored calci-lutite. Contains small brownish white burrows. Forams and pteropods are common. Contact is gradational.

9-37 cm Brown calci-lutite. Mottled extensively from 11-16 cm. by small brownish white burrow markings. Thin horizontal bands of small manganese concentrations also occur. Light colored forams are easily seen against the brown of the calci-lutite groundmass. Lower contact of this layer is marked by a slight color change.

37-67 cm. Pinkish-tan calci-lutite. Mottled by horizontal bands of dark gray calci-lutite. Bands vary in thickness from 2 cm. (at 52-54 cm.) on down. Contact between the dark gray of the bands and the pinkish tan of the calci-lutite is marked, especially on the upper side, by a color zone of bright pinkish brown lutite. Some very thin light gray calci-lutite laminae occur also. Forams are frequently found in aggregate groups. Lower contact marked by slight color change.

67-83 cm. Brownish white calci-lutite. Interlaminated with discontinuous bands pinkish tan calci-lutite. Some small pinkish tan and gray burrow markings are present. Forams are numerous, and many are concentrated together. Small concentrations of manganese are scattered through the layer. Bright reddish stains probably represent oxidized concentrations of iron sulfide. Lower contact is marked by a color change.

83-115 cm. Salmon pink calci-lutite. The brightest colored layer of the core. upper 3 cm. are a medium brown color. Directly below this subzone is a band of shell material that includes brachiopod valves, small pteropod, coral fragments and forams. Black manganese oxide stains are common. In the top brown tinted part of the layer the manganese stains tend to be concentrated in horizontal bands. Faint grayish markings found in the layer probably are due to burrowing. Forams are common and are frequently concentrated in patches. Lower contact gradational.

115-123 cm. Gray calci-lutite. Extensively mottled in all but the bottom 2 cm. by pink burrows filled with material from the overlying layer. Contains also a few brownish white burrows. Black manganese oxide stains are commoh. Forams are also common. Lower contact gradational.

123-132 cm. Gray calci-lutite. Mottled an orange color by many small inclusions of oxidized iron sulfide. A thin 1 cm. band of the orange colored iron particles occurs at 127-128 cm. The iron particles are here heavily concentrated and are intimately mixed with forams and small shell fragments. For 1.5 cm. immediately below the band the orange color is virtually absent. The color begins again at 128.5 cm. The iron particles are not concentrated as in the 1 cm. band and consequently the orange color is not as bright. Forams are numerous. A few black manganese stains occur in the top 2 cm. Some small brownish white burrow markings are scattered throughout the layer.

132-147 cm. Bluish gray calci-lutite. Oxidized along the sides to a light brown. Mottled by patches of brownish gray and dark gray lutite that are restricted to a 134-138 cm. zone. The dark gray colorations are rounded and probably are burrows. Manganese stains also mottle the layer. These are usually concentrated in thin irregular bands (141-144 cm.). Forams and some pteropod shell fragments are common.

147-154 cm. Bluish gray calci-lutite. Almost completely colored tan owing to extensive oxidation. The oxidation must have begun shortly after deposition because burrow markings filled with tan material from this layer occur in the underlying layer. Forams are numerous. Faint dark gray markings may indicate burrowing. Lower contact irregular but sharp.

154-170 cm. Light gray calci-lutite extensively permeated by a grayfsh brown oxidation color. Upper 10 cm. are mottled by tan burrows and wavy laminae containing sediment derived mostly from the overlying layer. Lower 6 cm. are not mottled, but are highly fossiliferous. Pteropods, forams and small shell fragments are all common. Lower contact gradational.

170-184 cm. Bluish gray calci-lutite. Oxidized along the sides to a light brown. Contains a large glob of dark gray lutite as well as a large concentration of forams within a 178-182 cm. subzone. No good evidence of burrowing. Manganese stains are scattered through the layer. Forams are numerous. Lower contact marked by a slight color change.

184-195 cm. Medium gray calci-lutite. Slightly darker than the overlying layer. Oxidized along the sides to a light brown. Contains a few grayish white burrow markings. Manganese stains are not as abundant as in the overlying layer. Forams are more abundant at the base of the layer.

V - 14 - 134 (Continued)

195-225 cm. Light gray calci-lutite. Extensively permeated by a light brown oxidation color. A prominent dark gray lense of calci-lutite extending diagonally across the layer is probably due to a burrowing organism. Several other burrow markings occur in the layer. Forams appear white against the light brown of the oxidized calci-lutite.

225-231 cm. Light gray calci-lutite. Permeated by a brown oxidation color. Color is darker than that permeating the overlying layer. No good evidence of burrowing.

231-275 cm. Variegated brownish white and light green calci-lutite. Top 4 cm. are mostly grayish white in color. Underlying light green zone contains numerous burrows with grayish white material from the top part of the layer. Intimate mixture of the colors is somewhat increased by burrow markings. Light green color in 267-273 subzone shows some indications of slumping. A richly fossiliferous layer is located from 262-268 cm. within a brownish white subzone. Layer includes brachiopods, gastropods, pteropods and forams. Lower contact is sharp.

275-282 cm. Mottled reddish brown and light green indurated calci-lutite. Hard, rocklike fragments resemble limestone. Contain small dark limey pebbles. Fossils are scarce.

282-295 cm. Light green calci-lutite. Colored greenish white in the top 4 cm. This layer seems slightly siltier than those overlying it. It is probably flow-in.

Note: Lower 136 cm. are flow-in and are not described.

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V 14-133

Megascopic Description of a Split Core

Latitude:	36°03'N	Longitude:	23°42.5'E
Corr. depth:	779 M	P.D.R depth:	412 fm
Date taken:	10 July 1958	Date opened:	20 February 1963
Described by:	R. Hekinian	Flow-in:	240 cm.
Core length:	275 cm.		

0-11 cm.- Calcilutite, light brown, firm, mixed with about 15% calcareous well rounded silty grains and 5% foraminifera tests. Brachiopod content about 2%. Sponge spicules, diatoms and manganese micronodules throughout. At 10 cm. occurs a stain of manganese mixed with lutite (1 cm. in diameter). Microfragments of shells present. Inclined bottom contact due to color change.

11-24 cm.- Lutite, dark green, firm, mixed with approximately 40% manganese materials acicular and oval white burrow mottling present (about 10%). At 12 cm., 17 cm., and 24 cm. are laminae (6 cm. thick) of lighter burrowed lutite with manganese. One pteropod mold (4 mm in diameter) occurs at 19 cm. Sharp bottom contact due mostly to color change.

24-50 cm.- Calcilutite, brown. Probably rare foraminifera. Increase of silty to medium grained calcareous fragments, mostly well rounded and friable. Very fine to coarse fragmented shells scattered throughout. Brachiopods, diatoms and rare individual corals occur. Top is transition zone between layers because of the presence of darker green burrowed laminae that decrease in thickness with depth. Poorly defined bottom contact due to slight change in color and texture.

50-160 cm.- Calcilutite, milky, firm. Rare foraminifera. At top are darker green laminae of burrowed lutite containing manganese.

From 117-126 cm. occurs darker lutite mixed with manganese and light acicular burrow mottlings. At 120 cm. and 124 cm. are dark green laminae (8 mm in diameter) of burrowed lutite with manganese. Contact due to change of texture.

160-275 cm.- Sandy lutite, milky gray, firm, mixed with about 50% organic materials. Foraminifera and gastropods present; also fragmented shells. Darker and large burrows of lutite mixed with manganese occur between 160-170 cm. Large stains of manganese present. Coarser rounded calcareous grains mixed with organic materials increase toward bottom.

Zone from 265-275 cm. disturbed.

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V 14-132

Megascopic Description of A Split Core

Latitude:	35°46.5'N	Longitude:	23°24.5'E
Corr. depth:	2750 M	P.D.R depth:	1440 fm
Date taken:	9 July 1958	Date opened:	10 May 1963 (?)
Described by:	L. Burckle	Flow-in:	29 cm. (?)
Core length:	545 cm.		

General: Core was opened more than a year ago and has completely dried out.

0-62 cm.- Light brown to light gray silty calcilutite. Burrowing but much of the structure has been destroyed due to oxidation. Finely disseminated manganese micronodules. Medium to dark brown mottled zone of manganese-rich lutite at 28-30 cm. Foraminifera but usually fragmented. Carbonate content more than 50%. Lutite fraction about 60%; silt fraction about 40%. Very small fine sand fraction less than 3%. Slight increase in the coarse fraction toward the bottom. Moderately sharp bottom contact, marked by a lithic change.

62-190 cm.- Light brown to light tan silty calcilutite. Slight burrowing. Manganese micronodules negligible. Light gray zone of predominantly ash occurs between 101-106 cm. Foraminifera present are Globigerina and Orbulina. Foraminifera content ranges from 10-20% throughout. Carbonate content more than 40%. Lutite fraction about 10%; silt fraction more than 35%; ash content less than 5%. Moderately sharp bottom contact is marked by a color change.

190-209 cm.- Light to medium and pale orange silty calcilutite. No burrowing. Laminations below 196 cm. Some manganese micronodules in the darker colored bands. Manganese micronodules very abundant above 196 cm. Foraminifera more abundant and less fragmental above 196 cm. (about 10%); less abundant and more fragmental below 196 cm. (less than 10%). Carbonate content about 40% dropping to less than 15% between 198-200 cm. Lutite fraction about 65%; silt fraction about 35%. Moderately sharp bottom contact is marked by a color change and the disappearance of laminations.

209-284 cm.- Similar to 62-190 cm. layer. Sharp bottom contact is marked by a color change and the appearance of laminations.

284-294 cm.- Medium to dark gray foraminiferal lutite. No burrowing. The dark color appears related to the presence of abundant but very fine manganese particles. Abundant foraminifera (more than 30%). Globigerina, Orbulina (most common) and Globigerinoides. Layer is represented by thick bands (1-2 cm.) of alternating colors. The carbonate content more than 30%; lutite fraction about 80%; silt fraction about 20%. Sharp bottom contact is marked by a color change.

V 14-132 (cont'd)

294-404 cm.- Light gray to very light tan calcilutite. No burrowing. Some very minute manganese particles disseminated throughout. Pyritized micronodules (less than 6%). Foraminifera, but not very abundant. Layer is less dense toward the top. Carbonate content about 30%; lutite fraction more than 75%; silt fraction less than 25%. Sharp bottom contact is marked by a color change.

404-416 cm.- Similar to 284-294 cm. Sharp bottom contact is marked by a color change.

416-495 cm.- Similar to 294-404 cm. layer. Sharp bottom contact is marked by a color change and the appearance of laminations.

495-516 cm.- Light gray brown to light gray laminated foraminiferal siltite and lutite. No burrowing. Laminations thinner and more distinct above 505 cm. Light and dark colors alternate. Less color contrast below 505 cm. Very small particles of manganese more thickly concentrated in the dark laminae above 505 cm. Foraminifera Globigerina (more than 30%). Carbonate fraction about 40%; lutite fraction about 40%; silt fraction about 50%; fine sand fraction about 10%. Coarse fractions increase toward the bottom.

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V 14-114

Megascopic Description of a Split Core

Latitude:	15° 17'N	Longitude:	42° 02'E
Corr. depth:	768 M	P.D.R depth:	400 fms.
Date taken:	13 June 1958	Date opened:	September 1959
Date redescribed:	18 April 1964	Date photographed:	?
Redescribed by:	R. Hekinian	Flow-in:	29 cm.
Core length:	611 cm.		

0-160 cm.- Pale brownish-green, unsorted, foraminifera pteropod lutite. Very coarse grained pteropods occur that increase both in size and percentage with depth. The foraminifera pteropod content is about 20-25%. Micronodules of manganese occur. Sharp bottom contact.

160-175 cm.- Dark brown, unsorted, volcanic, medium-coarse sand. Brown volcanic glass has index of refraction greater than balsam. Plagioclase with characteristic albite twinning present. Pteropods, foraminifera and sponge spicules occur. Bottom contact not well defined and probably disturbed by corer.

175-215 cm.- Brownish-green, unsorted, foraminifera pteropod lutite with very coarse-grained dark glass (5%). Apparently similar to 0-160 cm. layer. Sharp domed (due to corer) bottom contact.

215-235 cm.- Pale olive, poorly sorted, silty lutite. Small quantities of foraminifera and sponge spicules were seen. Manganese micronodules occur. Burrow mottlings are common. Bottom contact due to change of texture.

235-352 cm.- Brownish-green, unsorted, silty lutite mixed with dark tuffaceous fragments. The fragments of tuff vary in size from coarse grained to 1 cm. in diameter and comprise about 15-20% of sediment. Pteropods and foraminifera occur. The dark tuffaceous material and more glassy fragments (3 mm. to 20 mm. in diameter) become distinct as separate layers at 290-300 cm., 310-320 cm., 325-330 cm., 340-341 cm. and 350-352 cm. These layers are sparse in lutite content but contain numerous coarse foraminifera, pteropods and small pelecypod valves.

352-379 cm.- Pale green, poorly sorted, foraminifera pteropod lutite. Foraminifera pteropod percentage seems to be less than the overlying layers. Whitish, disturbed laminae of lutite occur right at the contact with the underlying layer.

379-401 cm.- Pale olive, vermiculated (probably due to burrowing) silty lutite. Very fine foraminifera and pteropods present. Manganese micronodules also occur. Bottom contact due to color change.

401-418 cm.- Pale green, poorly sorted, foraminifera pteropod lutite similar to 352-379 cm. zone.

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418-420 cm.- Unsorted, sandy lutite. Volcanic material and coarse pteropods occur.

420-456 cm.- Gray, poorly sorted lutite. Coarse pteropods and small test of foraminifera are sporadically scattered throughout layer. Sharp inclined bottom contact.

456-611 cm.- Pale olive, poorly sorted, silty lutite similar to 175-230 cm. layer. Contorted laminae-like burrow mottlings and very coarse-grained pteropods abundant between 483-approximately 510 cm. Volcanic materials seem to decrease with depth. Angular dark fragment of tuffaceous glass occurs at about 600 cm.

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Megascopic Description of Split Core

Latitude:	12°37' N	Longitude:	45°38' E
Corr. Depth:	1176 M	P.D.R. depth:	624 fm.
Date taken:	6 June 1958	Date opened:	27 January 1961
Described by:	R.S. Grinnell		
Core length:	460 cm	Flow-in:	28 cm

General: A dark green and dark brownish green lutite that is interlayered with thin bands of silt in the lower part of the core. Grain size composition of the lutite is roughly 75% clay-sized particles, 25% silt and very fine sand. Forams and other shells are numerous.

0-102 cm — Dark green lutite. Bottom 7 cm are slightly lighter in color. Dark brown burrow markings are scarce in the 60 cm but increase toward the bottom in the lower 42 cm. Layer is homogeneous in lithology throughout. Small patches of yellowish brown silt are found at several places. Planktonic forams are abundant. Scattered mica flakes occur on the surface of the layer. Lower contact is gradational.

102-124 cm — Light green lutite. Mottled brownish white, especially in the lower 10 cm, by small discontinuous bands of fine silt. Small dark brown burrow markings are found throughout. Forams, pteropods and shell fragments occur in the layer. Lower contact gradational.

124-153 cm — Dark brownish green lutite, cut by thin bands of light brownish green lutite at 126 cm and 134 cm. Both dark brown and light brownish green burrow markings occur in the layer. Tiny patches of fine silt, frequently intermixed with shell fragments, are found throughout. Forams and pteropods are numerous. A well preserved scaphopod (Dentalium?) was found at 139 cm. Lower contact marked by slight color change.

153-171 cm — Brown lutite. Lower 10cm are slightly lighter in color than the top part. Mottled by small brownish white concentrations of silt and shell fragments. Mottled also by dark brown burrows and minute black stains of manganese oxide. Forams are quite numerous. At the base of the layer is a concentration of pteropod and scaphopod shell fragments. Lower contact is the base of a thin band of gold colored silty lutite.

171-186 cm — Light brown silty lutite. Contains thin irregular laminae of silt. Mottled extensively by small dark brown burrow markings. A concentration of pteropod shell fragments occurs at 174 cm. The base of the layer is marked by patches of light and dark brown very fine sand.

186-460 cm — Dark brownish green lutite. Mottled throughout by dark brown burrow markings and by small concentrations of yellowish brown silt. The latter is especially

dense in the 235-253 cm. subzone. A prominent burrow-like patch of silt occurs at 296 cm. A horizontal band of grey, well-sorted coarse silt is at 228-230 cm. Other distinct bands of silt are found at 289-290 cm., 339-340 cm., 352-353 cm., and 398-399 cm. These four bands are 1 cm. thick and, except for the last one, are more yellowish brown than grey in color. Some of the bands (289-290 cm. and 339-340 cm.) are slightly gradational with the overlying lutite and may be turbidity current deposits. The distance between all the silt bands averages 50 cm. The spacing seems to indicate periodic inflow of coarse sediment at regular intervals. The lutite itself is relatively uniform in color and lithology throughout. Forams are fairly numerous. A large gastropod shell is at 301 cm.

Note: Bottom 28 cm. of the core are flow in.

Observations: Sedimentation was continuous but was interrupted periodically by influxes of silt, perhaps due to turbidity currents. Benthic fauna flourished in an environment that was probably slightly oxidizing. Amount of silt present indicates relative proximity to land.

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V - 14 - 107

Megascopic Description of Split Core

Latitude:	11°51'N	Longitude:	46°45'E
Corr.Depth:	1608 M	P.D.R. depth:	855 fm.
Date Taken:	5 June 1958	Date Opened:	27 January 1961
Described by:	R. S. Grinnell	Date photo:	27 January 1961
Core Length:	387 cm	Flow-in	

General: Alternating light and dark layers of greenish brown lutite. Grain size composition lutite 95%, silt 5%. Forams and other shells make up from 5% to 25% of the total sediment. Black manganese concentrations occur throughout the lower 287 cm.

0-53 cm Green lutite that is oxidized along the sides to a light brown. Lower part of the layer is a shade more brown in color. A band of pale greenish brown lutite is present at 39-46 cm. Burrows are found throughout the layer. Forams and small shell fragments are numerous and in certain places form concentrations of shell material. Lower contact distinct.

53-70 cm Pale greenish brown lutite. Oxidized along the sides to a light brown. Mottled by green colored burrow markings. Forams are less numerous than in the overlying layer.

70-99 cm Dark brownish green lutite. Oxidized along the sides to a dark brown. Light colored burrow markings in the upper 12 cm. contain sediment from the overlying layer. A lenselike burrow of light brownish green foram-bearing lutite occurs at 76 cm. At 83 cm is a layer of very concentrated forams, pteropods, and shell fragments. At 86 cm. is a smaller concentration of forams. The lower 10 cm. of the layer are slightly lighter in color. Lower contact gradational.

99-106 cm Pale greenish brown lutite. Oxidized to a light brown color along the sides. A few Brownish green burrow markings are present. Two concentrations of shell fragments occur at the base of the layer.

106-151 cm Brownish green lutite. Oxidized to a brown color along the sides. The layer is mottled throughout by pale green burrow markings which are very numerous in the bottom 6 cm. A short discontinuous lense of brownish white lutite occurs at 127 cm. Concentrations of forams and shell fragments occur scattered through the layer. Concentrations of black manganese particles are numerous. Lower contact irregular.

151-158 cm Pale greenish brown lutite. Oxidized along the edges to a light brown. Slightly mottled by green burrow markings. Lower contact irregular.

V - 14 - 107 (Continued)

158-212 cm Dark brownish green lutite. Darkest layer of the entire core. Mottled by irregular bands of light brown lutite. The dark lutite is oxidized on the edges to a dark brown, while the light brown lutite is oxidized to a tan color on the edges. The light bands are restricted mainly to two subzones, 176-182 cm and 198-208 cm. Two concentrations of forams are found at 165 cm and 194 cm. Lower contact distinct.

212-231 cm Pale greenish brown lutite. Oxidized on the sides to a light brown. A few green burrow markings are found in the layer. The layer contains several irregular horizontal bands of concentrated forams (including small planispirally coiled forams), pteropods, and fragments of shells. The lower contact is marked by a slight color change.

231-260 cm Light green lutite that is oxidized to a tan color on the sides. Mottled by brownish green burrows. The layer is slightly darker in the lower 6 cm. A layer of large Pyrgo forams occurs at 257 cm. Lower contact is gradational.

260-276 cm Brownish green lutite that is extensively mottled by irregular burrowlike bands of brownish white lutite. Layer is oxidized to a brown color along the sides.

276-290 cm Brownish green lutite. Oxidized on the edges to a medium brown. The layer is slightly mottled by small dark green burrows. Forams are numerous and make up roughly 15% of the layer. The lower contact is distinct.

290-303 cm Pale greenish brown lutite. Mottled by brownish green burrows. A faint brown burrow extends diagonally across the layer at 295 cm A dark green lutite lense cuts the layer horizontally at 302 cm. Layer is stained by black concentrations of manganese particles.

303-333 cm Brownish green lutite. Oxidized along the sides to a medium brown color. Mottled by brownish white burrow markings and horizontal brownish white bands of lutite. Forams comprise roughly 18% of the total sediment in the layer. Lower contact is indistinct.

333-350 cm Light green lutite. Oxidized along the sides to a light brown. Mottled by greenish brown burrow markings. The layer is similar to the overlying one except that it is lighter in color. Lower contact marked by horizontal brownish white lutite band.

350-379 cm Dark brownish green lutite. Becomes slightly darker brown toward the bottom. Mottled by brownish white burrows and prominent horizontal bands of brownish white lutite. Forams are numerous and increase in abundance toward the bottom. They are especially concentrated in a 374-375 cm. subzone. Lower contact distinct.

V - 14 - 107 (Continued)

379-387 cm Medium brown lutite. Mottled by thin dark brown discontinuous lutite laminae. Forams are abundant. Also pteropods.

Observations: The sediments in this core were deposited under much the same conditions as those in cores 106 and 108. A reducing environment generally prevailed during the time of deposition. The depth was not as great as to cause the planktonic shells to dissolve while sinking to the bottom.

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V 14-106

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Megascopic Description of a Split Core

Latitude:	12° 52.2'N	Longitude:	48° 24.5'E
Corr. depth:	2144 M	P.D.R. depth:	1141 fms.
Date taken:	4 June 1958	Date opened:	25 August 1964
Date described:	1 September 1964	Date photographed:	28 August 1964
Described by:	L. Burckle & R. Grinnell	Flow-in:	0
Core length:	390 cm.		

Note: The bottom 100 cm. (from 290-390 cm.) of this core was opened and described by R. Grinnell on 26 January 1961. Top gutter pipe could not be located at that time. The top of core was found and opened on 25 August 1964 and described by L. Burckle.

0-10 cm. Light brown silty lutite with a light green undertone. No burrowing evident. Few manganese micronodules. Few mica flakes present. Foraminifera present. Carbonate content more than 25%. Lutite fraction about 80%; silt fraction about 20%.

10-290 cm. Light and medium green silty lutite. These light and medium colored zones tend to alternate with each other. Generally, the light colored zones tend to have indistinct laminae and a greater abundance of manganese accumulations. The medium colored zone tend to have burrow tracks, generally of Zoophycus. However, these burrow tracks are not numerous. Foraminifera present. Carbonate content more than 3%. Lutite fraction 80%; silt content about 20%. Weak bottom contact marked by a color change.

290-299 cm. Light green lutite. Oxidized along the sides to a light brown color. Small greenish brown burrow markings occur in lower parts of layer. Layer contains black manganese stains, some of which are arranged horizontally. Lower contact irregular.

299-333 cm. Greenish brown lutite. Oxidized along the edges to a medium brown color. Lower 22 cm. slightly lighter in color than the top part. Dark green burrow markings occur throughout layer. One conspicuous burrow is located 2 cm. from base of layer. A concentration of foraminifera occur at 319 cm. Lower contact gradational.

333-348 cm. Light green lutite mottled by greenish brown lutite. Latter is primarily restricted to 342-346 cm. The layer is oxidized along the edges to a light brown. Burrow markings occur throughout layer. Layer is gradational in color between the underlying and over lying layers. Black manganese stains are present. Foraminifera do not seem to be as abundant in this layer as in the overlying one.

348-359 cm.	Greenish brown lutite. Oxidized along edges to a medium brown. Not as dark in color as the 9-44 cm. layer. Contains some small dark green burrows and scattered manganese grains. A few foraminifera.
359-390 cm.	Pale green lutite. Upper 10 cm. are a light green while lower 21 cm. are a bluish green color. Mottled by greenish brown burrows, especially in upper 10 cm.. Layer is oxidized to a light brown along edges. Scattered manganese concetrations. Concentration of iron sulfide have turned a reddish brown color in the oxidized portion of the core. Occasional foraminifera.

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V - 14 - 105

Megascopic Description of Split Core

Latitude:	14°18'N	Longitude:	51°00'E
Corr. Depth:	~~1159~~ M 2120m*	P.D.R. depth:	1129 fm.
Date Taken:	3 June 1958	Date Opened:	24 January 1961
Described by:	R. S. Grinnell	Date photo:	26 January 1961
Core Length:	404 cm	Flow-in:	57 cm

General: A lutite colored varying shades of green. The silt fraction averages about 10%. Forams are found throughout the core.

0-51 cm A light green slightly silty lutite. Oxidized along the sides to a greenish brown. Burrow markings are a dark green and are scattered throughout layer. Fragmented and nonfragmented foram tests are common. Layer is lithologically uniform throughout. Lower contact is gradational.

51-61 cm Dark green, slightly silty lutite. Oxidized along the edges to a dark brown. Layer can be distinguished by brownish white accumulations of forams. Some silt seems to be mixed with the forams, and there are black manganese oxide stains. Lower contact gradational.

61-91 cm Variegated light green lutite can be divided into three definite color zones. An upper light green zone (61-75 cm) is oxidized to a greenish brown along the edges. This grades downward to a greenish white zone (75-87 cm). The lowest zone (87-91) is similar to the first. Dark green burrow markings are scattered throughout the layer but are especially prominent in the top half of the first zone and in the middle zone. Planktonic forams are found throughout layer. Small silt fraction. Lower contact distinct. Spirally coiled gastropod found in the middle zone.

91-101 cm Medium to dark green lutite. Oxidized along edges to a greenish brown. Scattered dark green and brownish white burrows occur throughout the layer. There are small brownish white concentrations of forams and pteropod shells. In the lower 4 cm. is a glob of dark brown lutite. Lower contact sharp.

101-117 cm Light green slightly silty lutite. Upper 4 cm. are lighter in color. Layer is oxidized to a light brown along the edges. Small dark green and dark gray burrow markings. Small brownish white concentrations of forams are also present. A large mottled greenish brown burrow trends horizontally and then vertically. The irregular pattern suggests that the marking is a burrow rather than some kind of structural feature. This layer contains arenaceous benthonic as well as calcareous planktonic forams. Lower contact is marked by color change.

* 1159 m is not the conversion of 1129 fm.
SEE Summary Sheet for corrected Depth

V - 14 - 105 (Continued)

117-125 cm Light green slightly silty lutite. Colored a greenish brown in the oxidized zone. Mottled by small dark green burrow markings and by brownish white patches of foram-bearing lutite. Also contains brownish white concentrations of forams and other shell fragments. Lower contact gradational.

125-263 cm Dark brownish green lutite. Almost an olive drab color. Oxidized along the sides to a dark greenish brown color. One of the darkest layers in the core. Uniform in color and lithology throughout. Light green burrows from the overlying layer extend down into this layer. The top 22 cm are extensively mottled by gray and brownish white burrow markings. The lower part of the layer except for the bottom 4 cm is not so mottled. Small black manganese stains are scattered throughout the layer. Forams are numerous and are especially concentrated in certain areas (131 cm, 145 cm). Lower contact is distinct.

163-178 cm Light green slightly silty lutite. Oxidized along the sides to a light brown. The layer is cut by thin bands of greenish brown lutite. Some greenish brown burrow markings and sinuous brownish white laminae of silty lutite are present. Some concentrations of forams. Lower contact sharp.

178-191 cm Dark greenish brown lutite. Oxidized along the sides to a dark brown. Layer is similar in color to 125-163 cm. layer. Mottled by light green, brownish white and dark brown burrow markings. Small Globigerina forams present. Lower contact sharp.

191-260 cm Interlaminated light green and brownish green lutite. The light green is oxidized to a light brown on the sides, while the brownish green is oxidized to a dark greenish brown. The distinctness of the lutite bands is marred by extensive mottling and by wavy discontinuous laminae. Darker bands average 7 cm. in thickness. Contain brownish white burrow markings and thin brownish white laminae of silty lutite. Lighter bands are not as thick and are mottled by brownish green and brownish white burrows. Entire layer has a cyclical appearance. Forams are numerous. Fish autolith found in lowest dark lutite band. Some small accumulations of manganese oxide. Lower contact sharp.

260-272 cm Dark brownish green lutite. Oxidized along edges to a dark brown. Contains burrows filled with material from overlying layer that are colored light green. Also brownish white concentrations of forams. Lower contact gradational.

272-279 cm Light green and brown slightly silty lutite. Oxidized along the edges to a medium brown color. Top 3 cm are cut by thin wavy dark brown lutite laminae. Bottom 4 cm are a pale brown color and are cut by thin lutite laminae slightly darker brown in color. Forams are numerous. Lower contact marked by color change.

279-304 cm — Mottled greenish brown lutite. Oxidized along the sides to a medium brown color. Bottom 10 cm are slightly lighter than the rest of the layer. Mottled by dark brown, gray and brownish white wavy laminae. Also contains irregular patches of brownish white silt. 4 cm from the top is a patch of concentrated foram tests that is elongated in a vertical direction. One layer burrow marking occurs at 301 cm. Lower contact arbitrarily drawn.

304-331 cm — Interlaminated light green and brownish green lutite. Light green bands average 2 cm. in thickness and oxidize along the sides to a light brown. Brownish green bands are usually thicker and oxidize on the edges to a dark brown color. The latter are more mottled by dark gray, dark brown, and brownish white (concentrations of silt or forams) laminae. Presence of laminae in this and overlying layer suggests current action of some kind. Oval burrow markings are in evidence. Lower contact marked by color change.

331-347 cm — Greenish white slightly silty lutite. Oxidized along the sides to a light brown. Reddish brown rust stains are present. Mottled by dark brown and brownish white laminae and burrows. Conspicuous dark brown burrow occurs at 833 cm. Some scattered black concentrations of manganese oxide. This layer is the lightest in color of the entire core. Lower contact sharp.

347-374 cm — Interlaminated light green and medium green lutite. Light green lutite oxidizes along edges to a light brown, while medium green lutite oxidizes to a darker brown. Brownish white butrow markings and brownish white laminae occur throughout layer. Some greenish brown burrows. Scattered forams and manganese stains. Lower contact sharp.

374-395 cm — Brownish green lutite. Oxidized along the sides to a medium-dark brown. Interlaminated with wavy brownish white silty lutite, pale green lutite and thin gray lutite. Layer is extensively mottled by these laminae. Some oval burrow markings. Forams are scattered about. Wavy lamination in this layer suggests the action of currents. Lower contact sharp.

395-404 cm — Greenish brown lutite. Oxidized to a dark brown along edges. Burrows filled with material from overlying layer. Some small brownish white silty lutite laminae. Black manganese stains. Forams are fairly abundant.

Note: Last 57 cm of core is flow-in.

Observations: Conditions were generally reducing during deposition but not so reducing as to prohibit the presence of benthic fauna. Slow bottom currents winnowed and concentrated planktonic foram tests and silty lutite. Sedimentation was continuous and not interrupted by inflow of coarser grained sediments.

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V - 14 - 104

Megascopic Description of Split Core

Latitude:	13°25.5'N	Longitude:	53°27' E
Corr. depth:	2670 M	P.D.R. depth:	1423 fm.
Date taken:	2 June 1958	Date opened:	25 January 1961
Described by:	T. Willis		
Core length:	353 cm	Flow-in:	12 cm

0-353 cm This core is comprised of one fairly homogeneous layer of light olive green calcilutite containing a slight silt fraction. The silt fraction consists of manganese and shiny, glassy particles which may be ash. The manganese occurs throughout the core, mostly in streaks and silt size particles and more rarely in fine size particles. It is most obvious in the 130-260 cm zone, but nowhere is it a dominant characteristic. Forams occur throughout the core and make-up about 3% of the total. They are evenly distributed through the core except at 298-306 cm, 320-328 cm where they increase slightly to about 5-8% of the core. Poorly defined lenses of increased forams occur at 44 cm, 88 cm, 207 cm, 237 cm, 289 cm, and 330 cm. These are closely related to burrows. A large (2mm) benthic foram is present at 212 cm. The core is extensively burrow mottled and reworked causing color variation. A smooth sided open hole 5mm in diameter, occurs at 2 cm. Closely associated with the hole are brown streaks of probable hydrotroilite The hole may be caused by gas. Another hole about 4 mm in diameter occurs at 346 cm. This hole is not smooth sided and is not associated with hydrotroilite streaks.

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Megascopic Description of Split Core

Latitude:	11°26.5'N	Longitude:	56°14'E
Corr. depth:	4232 M	P.D.R. depth:	2250 fm.
Date taken:	31 May 1958	Date opened:	18 January 1961
Described by:	T. Willis		
Core length:	72 cm	Flow-in:	0

0-16 cm — A layer of light buff silty calcilutite containing forams. An irregular lens of forams about 2 cm thick occurs at 4 cm, and a smaller lens at 1 cm. A smear of foram sand leads along one side of the core into the lenses. The lenses therefore probably do not represent true layers distorted during the coring operation, but flow-in from the next layer, during pullout. The layer shows black streaks of manganese and occasional silt-sized flecks of manganese filled forams. Brown streaks in the layer are probably the result of contamination by the tar in the wrapping paper. The contact with the layer below is sharp, and irregular.

16-22 cm — A layer of light brown foram sand containing occasional bryozoans, and sponge spicules. Contact with lower layer is sharp and slightly diagonal.

22-34 cm — A layer of light gray buff silty calcilutite showing some burrow mottling from layer below. Lower contact unclear due to extensive burrowing. Some undissolved forams may be present.

34-44 cm — A layer of light greenish-brown silty calcilutite showing extensive burrow mottling with material from layer above, none from layer below. Contact with layer below is sharp and horizontal. Occasional undissolved forams may be present as in the layer above.

44-48 cm — A layer of light brown foram sand similar in appearance to 16-22 cm. Contains bryozoans and sponge spicules. May represent along with 16-22 cm, a turbidity flow. Bottom contact sharp and slightly diagonal.

48-51 cm — A layer oflight brown calcareous silt. Some burrow mottling with material from lower layer present. Lower contact sharp and slightly diagonal.

51-62 cm — A layer of light gray buff silty calcilutite containing forams. Slight burrow mottling with material from lower layer present. Lower contact definite but blurred due to extensive burrowing . Transition zone at 62-64 cm may represent either layer.

62-68 cm — Layer of light greenish brown silty calcilutite very similar to 34-44 cm showing extensive burrowing activity with material from layer above. Contact with lower layer sharp and horizontal.

V - 14 - 103

Megascopic Description of Split Core continued

68-72 cm A layer of brown calcareous silt similar to 48-51 cm, showing some burrow mottling with a light calcilutite material. This layer seems to be in a somewhat disturbed state.

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V 14-102

Megascopic Description of a Split Core

Latitude:	10°15'N	Longitude:	57°11'E
Corr. depth:	3915 M	P.D.R depth:	2084 fm
Date taken:	30 May 1958	Date opened:	25 February 1963
Described by:	R. Hekinian	Flow-in:	8 cm.
Core length:	467 cm.		

0-231 cm.- Pale greenish-yellow lutite with about 4% burrows filled with dark and lighter lutite. The lighter burrows are oval shaped, some with darker halos. The darker burrows are usually smaller; few acicular burrows occur in top area. Darker laminae of lutite burrowed with lighter lutite occur at 32 cm. and 85 cm. Slightly rusted laminae due to iron oxide are present from top to bottom. Specks and streaks of manganese occur.

Foraminifera (approximately 10%) are mixed with sediment. At 136 cm. and 175 cm. are concentrations (1 cm. in diameter) of silty lutite mixed with coarser foraminifera; here, the percentage of well preserved foraminifera tests increase (approximately 20%). Rare diatom frustules occur throughout. Carbonate content around 55%. Burrowed bottom contact due apparently to change of color and texture.

231-251 cm.- Very light gray silty lutite. About 20% foraminifera scattered throughout. Light bluish-gray stains and streaks throughout. Light bluish-gray stains and streaks (probably burrows) abundant near top, decreasing with depth. Well defined bottom contact due to color change.

251-280 cm.- Light bluish-gray silty lutite laminated with very light gray silty lutite. Sediment is mixed with about 20% foraminifera. Coarser foraminifera more abundant than overlying layer. Dusky yellow green stains, due probably to burrows, occur near and at bottom.

Three of the very light gray silty laminae (255 cm., 265 cm., 275 cm.) contain convex acicular burrows. Gradational bottom contact due to color change.

280-467 cm.- Very pale greenish-gray burrowed lutite. Lighter, oval burrows with greenish halos occur throughout. One triangle of whitish lutite (probably due to burrows) present at 391 cm.

Laminae of silty lutite (1 cm. thick, not well defined) mixed with medium grained foraminifera tests alternate with the light greenish -gray lutite from 401-420 cm., become preponderent with depth. Lighter silty lutite mixed with medium foraminifera tests occur from 420-435 cm.

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V - 14 - 101B

Megascopic Description of Split Core

Latitude:	08°39'N	Longitude:	58°34'E
Corr. Depth:	2849 M MAY	P.D.R. depth:	1520 fm.
Date Taken:	29 ~~March~~ 1958	Date Opened:	23 January 1961
Described by:	R. S. Grinnell	Date photo:	23 January 1961
Core length:	500 cm	Flow-in:	7 cm

General: Entire core consists of gray colored calci-lutite with an abundance of foraminifera.

0-23 cm Light gray foraminiferal calci-lutite. Forams make up the sand-sized fraction and comprise roughly 55% of the sediment They include Globigerina as well as some coiled genera (Robulus?) Small inclusions of greenish lutite are found in the layer. Practically no sand or silt-sized minerals. No good evidence of burrowing. Layer is lithologically uniform. Lower contact is gradational.

23-65 cm Variegated foraminiferal calci-lutite. Mottled dull green, pink, and gray by irregular calci-lutite layers. Some of the intermixing of the layers is undoubtedly due to burrowing. Has a coarse, granularlike texture due to the abundance of forams. Can be distinguished from the rest of the core by its mottling and pinkish tint. A reddish brown stain, probably oxidized iron sulfide, occurs at 52 cm. and there are linear rust stains due to gutter pipe contamination along the edges. Lower contact is marked by change from light to medium gray.

65-179 cm Medium gray foraminiferal calci-lutite. Uniform in its color and lithology throughout. Mottled by dark gray burrow markings. Not as coarse textured as the overlying layer. Forams are generally smaller. They comprise roughly 45% of the sediment. Linear reddish brown rust stains range vertically throughout the layer. Lower contact is distinct.

179-228 cm Light to medium gray foraminiferal calci-lutite. Presents a cyclical appearance of alternating light and dark layers of calci-lutite. Light gray layers occur at 179 cm - 187 cm. and 201 cm - 210 cm. Darker layers alternate. The layer is mottled throughout by gray burrow markings. Forams are numerous. Elliptical shaped reddish brown rust stains contaminate the gray color. Practically no sand or silt-sized minerals. Lower contact gradational.

228-244 cm Light gray foraminiferal calci-lutite. Burrow markings are very distinct in this layer. The layer is lighter than the underlying or overlying layers and is finer textured as well. This may be due to a proportionately greater - clay-sized fraction and a smaller percentage of forams. Small black stains of manganese oxide occur at 233 dm. Lower contact gradational.

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V - 14 - 101B (Continued)

244-272 cm Medium gray foraminiferal calci-lutite. Has a granularlike texture. Forams comprise roughly 50% of the total sediment. Burrowing is indicated by some faint gray and brownish gray markings. Layer is lithologically unknown throughout. A few black stains of manganese oxide occur at 266-268 cm. Lower contact gradational.

272-312 cm Gray to grayish white foraminiferal calci-lutite. The upper 22 cm. are slightly darker than the rest of the layer. Distinctly mottled by gray burrow markings and by two gray bands of calci-lutite located 7 cm and 11 cm from the top of the layer. The layer is generally fine textured. Forams are numerous. Lower contact marked by color change.

312-338 cm Medium gray foraminiferal calci-lutite . Has a coarse, granularlike texture. Forams seem to be slightly more abundant in this layer than in the overlying one. They comprise about 50% of the sediment. There are some irregular green lenses of calci-lutite present as well as some gray colored calci-lutite patches, some of which are probably burrow markings. Also some faint black accumulations of manganese oxide.

338-355 cm Grayish white foraminiferal calci-lutite. Distinctly mottled by dark gray burrow markings. Fine textured. Forams are small. Manganese oxide stains occur near the bottom. Rust stains contaminate grayish white color. Lower contact marked by change from grayish white to light greenish brown.

355-391 cm Light greenish brown calci-lutite. Mottled by faint gray burrows that increase in number slightly in the lower 7 cm Layer is uniform in lithology and color throughout. Forams are not as abundant as in other layers and comprise about 35% of the sediment. Manganese oxide stains are located in a 361-366 cm subzone. Rust stains are found in the central and lower parts of the layer. Lower contact gradational.

391-442 cm Mottled light and medium gray foraminiferal calci-lutite. The layer is heavily mottled by gray calci-lutite bands as well as burrow markings. Certain of the horizontal gray bands are coarse textured (414 cm), while others are not. A few Black manganese oxide stains are found in the layer. Forams are numerous. Lower contact sharp.

442-475 cm Mottled grayish white to white foraminiferal calci-lutite. Top 12 cm. are grayish white, while rest of core is almost a pure white. Layer is whiter in color than any overlying layer. It is mottled by thin wavy gray laminae of calci-lutite trending horizontally across the core. Some of these laminae are probably caused by burrowing. A black manganese stain occurs at 463 cm. In a 451-455 cm. subzone near the top is a distinct angular sloping contact between grayish white and white calci-lutite. This angular contact may indicate slumping. Lower contact of this layer is gradational.

V - 14- 101B (Continued)

475-481 cm Medium gray granularlike foraminiferal calci-lutite layer. Coarser in texture than the overlying and underlying layers. No burrowing. Forams are abundant and make up roughly 50% of the sediment.

481-500 cm Grayish white to white foraminiferal calci-lutite. Similar to 442-475 cm layer. Thin wavy gray laminae are found in the top 7 cm. and gray burrow markings are mainly located in the central and lower parts of the layer. Elliptical shaped reddish brown stains contaminate the white and grayish white color.

Note: Bottom 7 cm. of the core are flow-in.

Observations: This core generally represents alternating layers of coarse, medium gray foraminiferal calci-lutite and finer textured light gray foraminiferal calci-lutite. The kind of deposit depended on the quantity as well as the source of the sediment present. Deposition was pretty much continuous.

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V 14-98

Megascopic Description of a Split Core

Latitude:	00°38'S	Longitude:	69°27'E
Corr. depth:	3893 M	P.D.R. depth:	2075 fm.
Date taken:	22 May 1958	Date opened:	10 May 1963
Described by:	L. Burckle	Flow-in:	0
Core length:	650 cm.		

GENERAL: Core was opened more than a year ago and has completely dried out.

0-650 cm. Pale orange to dirty and light gray calcilutite. Some burrowing but generally structureless, this may be due to discoloration from oxidation. Burrow tracks tend parallel to the normal. Manganese micronodules negligible.

Zones of foraminifera (Globorotalia, Globigerina and Globigerinoides), more than 70% occur at 130-135 cm., 315-320 cm., 410-420 cm., 500-503 cm. and 578-581 cm. Most deposits are graded. As a whole, lutite fraction in these zones is less than 30%.

Foraminifera content above 100 cm. may exceed 30%; below 100 cm. (except the zones mentioned above) it may drop to less than 20% and in some zones is largely fragmental. Carbonate content is more than 60% and shows no appreciable change throughout.

Lutite fraction amounts to about 65% toward the top to about 75% toward the bottom. Sand-silt fraction about 35-25%.

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V 14-93

Megascopic Description of a Split Core

Latitude:	10°31'S	Longitude:	68°32.5'E
Corr. depth:	3462 M	P.D.R. depth:	1850 fm.
Date taken:	17 May 1958	Date opened:	16 June 1960
Described by:	C. Turk	Date photographed:	17 June 1960
Core length:	380 cm.	Flow-in:	250 cm.

0-18 cm.	Gray foraminiferal sand grading into a highly foraminiferal lutite. Burrowing. Burrows are white and predominantly horizontal. Few angular particles of manganese. Few large burrows up to 2 cm. maximum diameter. Some rust staining from pipe. Gradational bottom contact.
18-45 cm.	Gray foraminiferal lutite with white burrows that are horizontal. Contact with next section not sharp.
45-98 cm.	Gray foraminiferal lutite with white burrows. Rust staining from pipe. From 45-53 cm. fairly high concentration of manganese. Below 53 cm. just scattered particles of manganese. Contact with next layer due to increase in amount of foraminifera,
98-181 cm.	Gray foraminiferal sand with some white halo burrows that are gray in the center. Rust staining from pipe. 119-120 cm. is a horizontal white burrow. Few angular rock fragments at 135 cm. and at bottom of layer. Contact at base of section is fairly sharp due to abrupt decrease in amount of foraminifera.
181-185 cm.	Pale gray nearly white foraminiferal sand containing numerous manganese and rock fragments that are angular and about ½ cm. maximum diameter. Fairly sharp bottom contact.
185-193 cm.	Gray foraminiferal lutite with a few white burrows.
193-216 cm.	Foraminiferal lutite with high foraminiferal content. Large manganese nodule (2½ cm. maximum diameter) occurs at 208 cm. Few small angular fragments of manganese and rock present. Small white burrows. Rust staining from pipe. Gradational base.
216-238 cm.	Gray foraminiferal lutite with much burrowing. Burrows are white and most are horizontal. Manganese specks scattered throughout. Some rust stains from pipe. Contact sharp due to decrease in burrows.

V 14-93 (cont'd)

238-278 cm. Gray foraminiferal lutite. Few horizontal white burrows. High foraminifera concentration at bottom of layer. Some manganese particles occur that are angular and vary in size (less than ½ cm. maximum diameter). Few darker gray burrows.

278-380 cm. Disturbed and stretched (due to coring) gray foraminiferal lutite. Angular manganese and rock fragments occur. Angular and very brittle rock fragment (about 2½ cm. maximum diameter) present at 290 cm. Few scattered white burrows. Rust staining abundant throughout.

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V 14-92

Megascopic Description of a Split Core

Latitude:	11°56'S	Longitude:	66°48'E
Corr. depth:	2986 M	P.D.R. depth:	1598 fm.
Date taken:	16 May 1958	Date opened:	19 February 1963
Described by:	R. Hekinian	Flow-in:	22 cm.
Core length:	469 cm.		

0-469 cm. Whitish-tan, friable and sandy foraminiferal lutite. Foraminifera, a main component of the sediment (approximately 65-70%), are mostly well preserved tests which are filled with manganese. The size of foraminifera tests ranges from silty to medium coarse. About 70% carbonate is present throughout.

Rust due to iron oxide occurs near top, from 60 to 89 cm., 110-140 cm., 190 cm., 180-200 cm., 360 cm., 375-383 cm., 400 cm., 410 cm. and 435 cm.

White burrow mottled lutite surrounded by darker foraminiferal lutite mixed with manganese present from 87-110 cm. Lighter burrowed lutite appears also at 175-185 cm. and 220-230 cm.

Foraminifera content decreases with depth; near bottom, foraminifera tests comprise about 20% of the sediment.

From about 460 cm. down to bottom, there is a noticeable change in the texture of the sediment. Sediment becomes firmer with depth and color changes slightly toward white. No change in percentage of carbonate at the bottom.

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V 14-91

Megascopic Description of a Split Core

Latitude:	13°36'S	Longitude:	64°39'E
Corr. depth:	3424 M	P.D.R depth:	1830 fm
Date taken:	15 May 1958	Date opened:	20 February 1963
Described by:	R, Hekinian	Flow-in:	18 cm.
Core length:	600 cm.		

0-285 cm.- Whitish brown, slightly firm, sandy foraminiferal lutite. Foraminifera (approximately 60%) are composed of broken and whole tests, their size ranging from silty to medium coarse. Small specks and micronodules of manganese occur; a few foraminifera tests are also filled with manganese. White micaceous flakes (muscovite) present. Burrows filled with lighter silty foraminiferal lutite occur at 30 cm. and 205 cm.

The 45-285 cm. zone has slight change in color (slightly grayish) but it is too poorly defined to be considered a different layer, because decomposition and texture of sediment seem similar to that at the top. Sponge spicules (1%), and about 3-4% manganese present.

Large secondary oxidation stains permeate almost entire layer from top to bottom. At 25 cm. and 200 cm., large lighter area along periphery (with similar material as rest of the zone) seems to be due to slumping. Bottom contact is defined by texture change.

285-298 cm.- Whitish brown, firmer, silty foraminiferal lutite. Foraminifera content similar to above layer only smaller in size. Bottom contact is marked by small burrows of lighter lutite and by a change in texture.

298-390 cm.- Whitish-brown, firm and sandy foraminiferal lutite. Slumped sediment of similar texture as overlying layer occurs at 342-365 cm. Ovoidal burrow mottling occurs at 366 cm. Also present are large rusted halos caused by iron oxide. Well defined bottom contact due to change of texture.

390-430 cm.- Whitish-brown, friable and graded foraminiferal sand. From 400-430 cm. the percentage of medium coarse foraminifera tests increase. The 390-430 cm. layer is formed by about 95% foraminifera tests, and the sediment appears highly calcareous. Sharp bottom contact due to change of texture.

430-575 cm.- Foraminiferal lutite similar to 298-390 cm. zone, but with fewer oxidized areas. Poorly defined contact, due to change of texture and color.

575-600 cm.- Lutite, milky, firm and silty. Decrease in percentage of foraminifera (approximately 30%). Very few medium coarse foraminifera tests were seen. Secondary oxidation occurs but less than overlying zone.

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V 14-86

Megascopic Description of a Split Core

Latitude:	23°40'S	Longitude:	53°09'E
Corr. depth:	4687 M	P.D.R depth:	2492 fm
Date taken:	3 May 1958	Date opened:	19 February 1963
Described by:	R. Hekinian	Flow-in:	13 cm.
Core length:	200 cm.		

Note: Core described in dry state.

0-~150 cm.- Lutite, grayish-brown, slightly burrow mottled near top. Broken foraminifera tests comprise about 10% of sediment at the top, decreasing in quantity with depth. Carbonate content about 20% near top, becoming decreasingly less and apparently absent at bottom.

Manganese micronodules content about 4% of all sediment. At about cm. occurs a slightly darker lutaceous layer due to an abundance of manganese.

Iron oxide is present throughout, becoming abundant at 80-100 cm. with a high alteration of sediment.

Lower contact is not well defined and is due mostly to a slight change of color and texture.

~150-190 cm.- Lutite, gray brown becoming dark gray with depth. Friable volcanic ash occurs near top with about 15% lutite and 2% foraminifera tests. Few sponge spicules were seen.

Low percentage of carbonate (less than 1%). Abundant manganese micronodules (approximately 15%) present.

Rust staining due to iron oxide less prevalent than in the overlying layer. Gradational bottom contact due to lithology.

190-200 cm.- Volcanic ash, dark gray. Carbonate fraction is about 10%, mainly planktonic juvenile foraminifera. The mixed fraction is composed of volcanic glass, weathered pyroclastics, feldspars, amphiboles and pyroxenes. All of the minerals range from fine to very fine grained.

The bottom 5 cm. is a darker hue and consists of a higher percentage of weathered pyroclastics.

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V 14-85

Megascopic Description of a Split Core

Latitude:	24°56'S	Longitude:	51°20'E
Corr. depth:	5512 M *	P.D.R. depth:	2916 fm. *
Date taken:	2 May 1958	Date opened:	18 February 1963
Described by:	R. Hekinian	Flow-in:	264 cm.
Core length:	120 cm.		

* Depth determined from amount of wire out.

0-30 cm. Lutite, tannish-brown, firm. Few foraminifera (about 5-10%) present. Burrow mottling at the top formed by darker and lighter lutite. Sponge spicules (approximately 5% of all sediment) scattered throughout. Specks of manganese present. Micaceous flakes (white mica) mixed with sediment. Large, lighter stains of lutite due to burrows occur at the bottom near contact zone. Sharp contact due to change of color and texture of sediment.

30-120 cm. Foraminiferal silt, tannish-white, soft. Secondary iron oxide staining occurs throughout. Foraminifera tests are apparently slightly sorted and graded from top to bottom.

The size of foraminifera tests ranges from silty to very fine grained with a slight increase of the latter with depth.

Sponge spicules occur throughout, in higher percentage than the overlying layer. Glauconite grains and micronodules of manganese scattered throughout. About 5% volcanic glass disseminated throughout.

At 60 cm. are stains (8 mm. in diameter) of darker, very fine grained foraminiferal sand mixed with about 6-7% volcanic glass and 3-4% manganese.

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V 14-84 A

Megascopic Description of a Split Core

Latitude:	26°27.5'S	Longitude:	49°08'E
Corr. depth:	4770 M	P.D.R. depth:	2535 fm.
Date taken:	1 May 1958	Date opened:	18 February 1963
Described by:	R. Hekinian	Flow-in:	255 cm.
Core length:	335 cm.		

NOTE: Core described in very dry state.

0-approx.10 cm. Lutite, tan, poorly sorted mixed with about 15% very fine silt. Carbonate content about 30%, decreasing with depth. Very few organic materials were seen (rare pteropods and fragmented foraminifera tests).

Minerals consist of subangular quartz grains (approximately 30%) with glassy surface texture. No trace of alteration on quartz. Quartz grains range from silty to very fine, with abundance of the latter. Volcanic glass, white mica (muscovite ?), micronodules of manganese and rare magnetic minerals (with metallic luster) are present. Small lighter lutaceous stains (probably due to burrows) occur throughout. Poorly defined contact due to severe fragmentation.

approx.10-335 cm. Lutite, dark brown, with about 10-15% glauconite and very fine silt, which increases in percentage with depth. Burrow mottling is present at the top, decreasing with depth.

The very fine silt is similar to the 0-approximately 10 cm. layer except for higher manganese content. Stains and specks of manganese scattered throughout. Manganese micronodules are more abundant.

The characteristic darker color is due mostly to the abundance of glauconite. Coarse glauconite grains occur at 170 cm. and at about 320 cm. Glauconite mixed with rounded, coarse to very coarse quartzitic pebble grains.

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V-14-81

Megascopic Description of a Split Core

Latitude:	28° 25.5'S	Longitude:	43° 47'E
Corr. depth:	3634 M	P.D.R. depth:	1935 fm
Date taken:	29 April 1958	Date opened:	2 June 1960
Described by:	C. Turk	Flow-in:	47 cm.
Core length:	468 cm.		

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515

0-12 cm — Buff foraminiferal lutite mottled with light brown and brown burrows. Burrows increase in size with depth. Contact marked by sharp decrease in number of burrows.

12-25 cm — Buff foraminiferal lutite faintly mottled by brown burrows. Increases in foraminifera, beginning at 23 cm, marks contact.

25-27 cm — Buff foraminiferal sand with some lutite. Increase in lutite marks contact.

27-37 cm — Buff foraminiferal lutite. Faint burrowing. Sharp increase in foraminifera marks contact.

37-38 cm — Tan foraminiferal sand mixed with some tan lutite.

38-67 cm — Foraminiferal lutite. Buff color gradually changes to tan at 41 cm. Faint burrowing. Increase in foraminifera between 54-58 and 61-67 cm.

67-90 cm — Tan foraminiferal sand. Lutite content increases between 70-73 cm.

90-276 cm — Buff to tan foraminiferal lutite mottled with burrows of darker shades of brown. Below 142 cm black specks scattered throughout. Between 153-157 cm foram content decreases. At 163 cm is a hard fragment $2\frac{3}{4}$ x $\frac{1}{2}$ x $\frac{1}{4}$ cm. Black interior coated with yellowish white substance, which indicates partial chemical weathering. Below 200 cm limited distinct burrowing.

276-279 cm — Tan foraminiferal sand.

279-468 cm — Grey, pale brown and tan lutite with forams. Burrow mottled. From 283-288 cm layer of grey, from 319-326 cm layer of pale grey. At 338 cm manganese oxide less than 1 cm maximum diameter. At 300 and 316 cm scattered MnOx specks. At 395 cm a fragment about 3/4 cm in diameter. At 436-438 cm purple hydrotroilite.

Note: Rust from gutter pipe stained portions throughout core.

V-14-79

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Megascopic Description of a Split Core

Latitude:	29° 22'S	Longitude:	40° 06.5'E
Corr. depth:	4872 M	P.D.R. depth:	2584 fm.
Date taken:	27 April 1958	Date opened:	25 May 1960
Described by:	C. Turk	Flow-in:	22 cm
Core length:	203 cm		

0-7.5 cm	Dark brown silty lutite. Burrow mottled. Contact vague due to crack in core.
7.5-43 cm	Dark tan silty lutite. Mottled with burrows of lighter tan and dark brown material. Gold colored patch obscures contact.
43-53 cm	Gold colored patch. Burrowed.
53-72 cm	Dark cocoa brown sandy foraminiferal lutite. Limited burrowing.
72-100 cm	Dark coffee brown fine sand. Some darker splotches. Some burrowing. Crack at 100 cm. Contact rusted.
100-117 cm	Dark cocoa brown sand, coarser than that above. Some burrowing. Bottom contact sharp and horizontal due to change in texture.
117-144 cm	Dark cocoa brown very coarse sand. Some burrowing. Finer sand at bottom. Sharp contact due to change in color. (Sides dragged down by corer.)
144-155 cm	Dark green thin sand layer over greyish green fine sand. Rust patch of sand (about 3 cm long) on side. Contact due to rusted crack.
155-203 cm.	Brown coarse sand. Burrows of dark brown and light tan. Spots of lutite. At 193-194 cm green sand layer 1 cm thick. Large amount of rust from pipe.

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V 14-78

Megascopic Description of a Split Core

Latitude:	**29°49.5'S**	**Longitude:**	**37°13.5'E**
Corr. depth:	**4884 M**	**P.D.R. depth:**	**2642 fm.**
Date taken:	**26 April 1958**	**Date opened:**	**25 May 1960**
Described by:	**C. Turk**	**Date photographed:**	**31 May 1960**
Core length:	**290 cm.**	**Flow-in:**	**260 cm.**

NOTE: **Rust fron pipe throughout core.**

0-16 cm. **Dark brown fine micaceous manganiferous sand. Numerous burrows. Contact disturbed and burrow mottled.**

16-33 cm. **Slightly calcareous disturbed silty lutite. Manganese micronodules and micaceous flakes common. Silt is sub-angular quartz.**

33-290 cm. **Light reddish-brown silty lutite. Manganese common. Elongated patch of hydrotroilite on one side at 155-170 cm. From 207-290 cm. hydrotroilite with a few patches of reddish-brown lutite. Mottled with burrows which are at top composed of material from above layer; others of gray hydrotroilite.**

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V 14-69 C

Megascopic Description of a Split Core

Latitude:	35°53'S	Longitude:	15°55'E
Corr. depth:	4870 M (wire out)	P.D.R. depth:	2593 fm. (wire out)
Date taken:	5 April 1958	Date opened:	28 June 1960
Date described:	29 June 1960	Date photographed:	30 June 1960
Described by:	C. Turk	Flow-in:	389 cm.
Core length:	147 cm.		

NOTE: Core described in a dry state. Rust staining from gutter pipe, often on the edges.

0-6 cm. Silt, pale apple green, with brown mottled burrows, thoroughly reworked. A few very tiny foraminifera. Numerous glassy quartz particles. Minerals predominantly light in color. Tar from pipe coated top of core. Manganese nodule (.4 cm. diameter) at contact, which is sharp and horizontal.

6-7 cm. Silt same as brown material above. Few pale green burrows. Bottom contact burrow mottled but sharp due to color change.

7-10 cm. Silt, pale apple green, mottled with burrows filled with brown silt. Bottom contact disturbed by burrowing.

10-11 cm. Silt, apple green, mottled with burrows filled with lighter green material. Thoroughly burrowed bottom contact.

11-19 cm. Fine sand, pale apple green. Some rust staining. Burrows filled with quartz and manganese micronodules. Section unsorted. Burrow mottled contact is due to change in texture.

19-28 cm. Silty lutite, apple green. Mottled burrows filled with silt. Tiny black particles in a few of the burrows. Sharp horizontal contact.

28-53 cm. Very pale apple green, silt. Some foraminifera. Most burrows light in color. From 40-42 cm. tiny black particles in darker burrows. Bottom contact burrowed.

53-68 cm. Silty lutite, pale olive-green. Burrows, containing lighter material, have high silt concentration. Contact horizontal and sharp due to color change.

68-76 cm. Silt, pale apple green. Dark gray burrows filled with quartz and black mineral particles (as in 11-19 cm. layer). Some scattered foraminifera. Burrow mottled. Bottom contact distinct due to color change.

V 14-69 C (cont'd)

76-96 cm.	Silt, pale olive-green, thoroughly reworked by burrowers. Grayish burrows containing high quartz concentration and some dark minerals. Burrows at 76-77 cm., 83-90 cm., 95-96 cm. are orange due to rust of iron minerals. Some scattered foraminifera. Change in rust concentration determine bottom contact.
96-100 cm.	Sand, grayish-green fine gravel. Burrows stained yellow from rust, contain high quartz content and some dark minerals. Some scattered foraminifera. Sharp bottom contact due to textural change and decrease in rust.
100-122 cm.	Silt, grayish-brown, mottled with almost black burrows filled with about 80% quartz and light minerals and 20% dark minerals. Some white burrows contain 100% quartz. Burrow mottled bottom contact.
122-135 cm.	Silt, pale brown, burrow mottled. Some darker brown areas. Few tiny white burrows filled with quartz. Sharp contact due to decrease in burrowing.
135-147 cm.	Silty lutite. Light burrowing is indistinct. Rust stain on one side of core from 139-147 cm. separates green from pale brown material.

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V 14-65

Megascopic Description of a Split Core

Latitude:	**41°03.5'S**	**Longitude:**	**07°47'E**
Corr. depth:	**4824 M**	**P.D.R. depth:**	**2570 fm.**
Date taken:	**30 March 1958**	**Date opened:**	**28 September 1958**
Described by:	**R. Hekinian**	**Date described:**	**2 July 1963**
Core length:	**632 cm.**	**Flow-in:**	**28 cm.**

NOTE: **Core was very dry when described.**

0-632 cm. **Foraminiferal lutite, grayish-orange to very pale orange, homogeneous. Carbonate content approximately 90%. Intercalations (3 mm. to 10 mm.) of burrowed laminae of darker lutite mixed with manganese occur at 40-68 cm. This zone appears highly rusted by iron oxide.**

Foraminifera content about 40%; test size ranges from silty to fine with increase of the latter with depth. Manganese content 10%; consisting of small stains, specks, and manganese micronodules. No minerals observed except very rare flakes of mica.

Burrow mottlings abundant and burrows range from 2 mm. to 20 mm. in diameter. One filled with pale greenish-yellow foraminiferal lutite; one with lighter lutite; one with coarser foraminifera mixed with light lutite.

Lighter burrowed laminae occur at 150 cm.

Pale green burrowed foraminiferal lutite occurs at 148-154 cm.

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V 14-46

Megascopic Description of a Split Core

Latitude:	56°45'S	Longitude:	55°05'W
Corr. depth:	3429 M	P.D.R depth:	1850 fm
Date taken:	25 February 1958	Date opened:	4 July 1958
Date redescribed:	30 November 1965	Date photographed:	4 July 1958
Redescribed by:	M. Morgenstein	Flow-in:	0
Core length:	490 cm.		

Note: Description of a dry core.

0-37 cm.- Lutite, gray, sandy and pebbly with faint mottling. Less than 1% carbonate present, mainly composed planktonic foraminifera and fragments.

About 5-10% medium to coarse grained rounded quartz present. Rock fragments range from coarse grained to pebble size and are mostly basic. Few angular and more acedic fragments also present. Bottom contact sharp due to color change.

37-100 cm.- Lutite, brownish gray and sandy, with a few pebbles. Distinct burrow mottling. Similar minerals and carbonate fraction as above layer. Less than 1% radiolaria present. Gradational bottom contact.

100-145 cm.- Lutite, gray, sandy and pebbly. Carbonate fraction less than 1%. Mineral fraction less than 1%. Mineral fraction contains fine to medium grained sub-angular to sub-rounded quartz, feldspar, garnets, amphiboles, magnetite, hematite and basic rock fragments. Less than 5% sponge spicules and radiolaria present.

Reddish tinge present in the lutite at 75-85 cm. and 140-150 cm. Large pebbles are found at 110 cm., 128 cm., and 140 cm.

145-170 cm.- Lighter lutite with strange mottling, probably disturbed.

A flat, solid, striated pebble (60 mm) of dense (biotite) basic rock fragment present at 158 cm. The pebble is partially disintegrated and is coated with iron oxide and manganese dioxide. Some smaller basic igneous pebbles are cemented to the larger pebble. Gradational bottom contact.

170-490 cm.- Lutite, gray and sandy, with very few pebbles. Mottling throughout, but not very distinct. Pebbles found at 260, 273, 310, 350, and 480 cm. Carbonate fraction less than 1%.

Mineral fraction similar to 100-145 cm. layer.

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V14-45

Megascopic Description of Split Core

Latitude:	56°29'S	Longitude:	56°58'W
Corr. depth.	3400 M	P.D.R. depth:	1835 fm.
Date Taken:	Feb. 24, 1958	Date Opened:	July 25, 1958
Described by:	D.B. Ericson		
Core length:	365 cm	Flow-in:	545 cm

0-200 cm — Greenish gray (15E3) sandy lutite with pebbles. All pebbles seen are MnOx coated. At 19 cm concentration of forams (cf V-14-47 at 23 cm), this layer is distinctly less strongly defined than in V14-47. Pebbles; all shapes to 5 cm$^{+}_{-}$, "floating" in lutite, 12$^{+}_{-}$ /10 cm. 80-105 zone of distinctly fewer pebbles. Base gradational.

200-230 cm — Very marked decrease in pebbles in fact hard objects appear to be MnOx alone. Base gradational.

230-365 cm — Fairly smooth lutite, no pebbles, no MnOx. Only very faint mottling, same color but becomes a little lighter downward. Probably flow below 325 cm.

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V - 14 - 28

Megascopic Description of a Split Core

Latitude:	41°30'S	Longitude:	61°40'W
Corr. depth:	44 M *	P.D.R. depth:	24 fms. *
Date taken:	1 February 1958	Date opened:	9 September 1960
Described by:	D. Bauchelle	Flow-in:	0
Core length:	470 cm.		

* at time lowered.

0-150 cm.- Medium gray sand made up of angular and sub-angular grains of medium sand size. Prominent rust stain is undoubtedly caused by the rusting container. The mineral content is about 75% clear quartz grains and about 25% dark minerals. Approximately 25% of the dark fraction seem to be magnetite while the rest includes some rock grains. A very small part of this area is made up of shell fragments up to a maximum of about 5 cm., most much smaller.

150-250 cm.- Color, texture, sphericity, type and proportions of the sand size grains remain the same through this length. The significant new feature is the appearance of larger (1-20 cm.) shell fragments and valves (pelecypod). These shells and fragments amount to about 5% of the core.

250-470 cm.- This section of core shows a gradual increase in the shell fraction from about 10% to 35% of the core. The sand grain fraction remains as above (see 0-150 cm.). These calcareous shells are predominently pelecypods, but include gastropods, echinoderms, and some bryozoans. The fragments in this length range up to 35 cm. with many in the 15-25 cm. group. Most of these shells show abrasion but there are a few shiny, well-preserved pelecypods.

Run-out does not seem to have affected this core. This is a flushed out sample.

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V - 14 - 23

Megascopic description of a Split Core

Latitude: 36°16'S
Corr. depth: 3133M
Date taken: 19 Jan. 1958
Described by: C. Turk
Core length: 951cm.

Longitude: 51°52.5'W
P.D.R. depth: 1680 fms.
Date opened: 8 Feb. 1960
Flow-in: 29 cm.

Note: Entire core is olive green lutite with an increasing and decreasing amount of burrowing which is revealed by hydrotroilite, most of which disappeared by the next day.

0-43cm.- Olive green lutite - dark green lutite. Foraminiferous. Disturbed.

43-122cm.- Olive green lutite - light burrowing. 2 large burrows between 50 and 58 cm. 109-122cm. - coarser grained.

122-311cm.- Olive green lutite - light burrowing.

311-318cm.- Piston couple.

318-372cm.- Clive green lutite - increased burrows.

372-385cm.- Olive green lutite - light burrowing.

385-951cm.- Olive green lutite - light burrowing. at 480cm. - larger particles - black and coarse - (manganese oxide). 640 and 660cm. ash filled burrows. 840cm. large black platey mineral - slight resemblance to mica - not transparent and dull luster. 625-750cm. - tears from coarser particles(manganese oxide).

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V - 14 - 19

Megascopic Description of Split Core

Latitude:	32° 50' S	Longitude:	46° 12' W
Corr. Depth:	3977 M	P.D.R. depth:	2120 cm.
Date Taken:	6 January 1958	Date Opened:	16 January 1961
Described by:	R. S. Grinnell	Date photo:	16 January 1961
Core Length:	1132 cm.	Flow-in:	

0-293 cm — Grayish blue lutite. Oxidized along the sides to a grayish brown. Homogeneous in lithology throughout. Mottled by dark gray burrow markings. Bottom 53 cm. are mottled also by faint green bands of lutite and by irregular light gray markings (240-256 cm.) that are probably burrows. Reddish brown hydrotroilite stains occur in the central and lower oxidized part of the layer. Concentrations of iron sulfide (marcasite?) are found also, especially in the lower part of the layer. Few forams. Some fine comminuted shell material. 95% lutite, 1% shell material, 4% manganese oxide and iron sulfide. Lower contact drawn at end of first section of core.

293-479 cm. — Grayish blue lutite. Lighter in color than the lutite in the overlying layer. Oxidized along the sides to a light brown color. A greenish mottling color that is restricted to horizontal bands is present throughout the layer. Three of the more easily discernable bands are found at 330 cm., 370 cm., and 427 cm. Dark gray stains (iron sulfide, marcasite?) eminating from small holes in the lutite are found in abundance. Light brown markings found mainly in 353-378 cm. subzone probably represent burrowing, as do also some of the larger dark gray sulfide-bearing stains. Small Globigerina forams. Tiny disseminated manganese grains. Lower contact is drawn at a core coupling. 94% lutite, 2% shell material, 4% manganese oxide and iron sulfide.

479-1120 cm. — Grayish blue lutite. Mottled a faint green color by many irregular bands of green lutite that tend approximately horizontally across the core. The layer is oxidized to a light brown color along the sides. Layer is homogeneous in lithology throughout. Small reddish brown stains in oxidized portion of core are probably hydrotroilite. The layer is permeated by medium brown markings that are elongated horizontally. These markings probably represent extensive burrowing. They extend into the oxidized portion of the core, showing that the brown is not just a color phase of the grayish blue of the rest of the core. The burrowing can be divided into definite zones (610-670 cm., 680-843 cm., 896-970 cm., 1020-1060 cm.). Dark stains found throughout layer represent concentrations of iron sulfide (marcasite?). Some of the larger stains resemble burrows. Small Globigerina forams. Tiny disseminated manganese grains.

V - 14 - 19 (Continued)

Observations: The lithology is uniform throughout. Very little silt or sand appear to be present in the core. Deposition of sediment of clay size was slow but continuous and was not interrupted by coarser grained material brought in by turbidity or other currents. The presence of an oxidized outer surface to the core as well as the presence of iron sulfide in various forms suggests that reducing conditions prevailed during deposition.

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V 14-18

Megascopic Description of a Split Core

Latitude:	25 19'S	Longitude:	42 33'W
Corr. depth:	2105 M	P.D.R depth:	1130 fm
Date taken:	3 January 1958	Date opened:	13 January 1961
Date described:	16 January 1961	Date photographed:	14 January 1961
Described by:	D. Bauchelle	Flow-in:	56 cm.
Core length:	1112 cm.		

0-22 cm.- Lutite, light to medium grayish-brown. Well burrowed and rich in foraminifera and pteropods. Some manganese specks present. Bottom contact gradual, hazy and well burrowed, determined only by color change.

22-36 cm.- Lutite, light to medium brown, with an orange cast. Well burrowed. Foraminifera and pteropod rich and having some manganese streaks. Bottom contact very hazy, irregular and burrowed.

36-47 cm.- Lutite, light to medium buff, not as burrowed or manganese mottled as the two above layers. Rich in foraminifera and pteropods which also appear in concentrations as well as scattered. Bottom contact blends into next section.

47-67 cm.- Lutite, light to medium dull buff, well burrowed. Abundant foraminifera and pteropods occur. Bands of manganese concentrations occur at 49-51 cm. and 61-64 cm. Scattered grains and specks of manganese form vague band at 57-60 cm. Three bands of orange stain (possibly hydrotroilite) lie between 64-67 cm. and become less distinct in descending order. Bottom contact horizontal, vague and arbitrary.

67-265 cm.- Lutite, blue gray marked by manganese grains, burrows and orange stains (possibly hydrotroilite, may be manganese). Section fairly uniform in color and texture. Fossil content diminishes downward. Three orange brown lamina of hydrotroilite (?) stains present at 100-102 cm.

103-128 cm.	zone of irregular curved shrinkage cracks typical of disturbed area, although it looks normal otherwise. Orange oxidation stains present.
139-141 cm.	layer of manganese concentration and some large burrows.
155-159 cm.	manganese grains scattered.
222-235 cm.	manganese smears and band at 228-229 cm.
252-265 cm.	several large dark burrow markings

Bottom contact based on slow color change and arbitrary.

V 14-18 (cont'd)

265-550 cm.- Lutite, darker blue gray than above layer. Very little clear layering or other features. Burrowing quite abundant. Some manganese specks. Foraminifera and pteropods moderate, increasing to abundant around 380 cm. Some distinct features:

290-297 cm.	Heavy mold concentration
270-278 cm.	Attenuated section, unusual curved drying cracks, heavy rust stains, possibly contaminated
373-402 cm.	Mold covers core
411-418 cm.	Manganese spot concentration
431-440 cm.	Burrow concentration, some manganese
465-485 cm.	Worm burrows, large and abundant
482-486 cm.	Moderate manganese spots
490-512 cm.	Slightly lighter lutite with many scattered manganese stains.
512-518 cm.	Piston effect
518-550 cm.	Slightly darker than above; also redder.

Bottom contact well burrowed with slight color change.

550-588 cm.- Lutite, darker medium dark blue gray, grading to a very compact hard lutite at 560-588 cm. Abundant foraminifera and pteropods present.

588-775 cm.- Lutite, medium blue gray, becoming slightly lighter with depth. Little to moderate burrowing between 588-725 cm., moderate to abundant burrowing at 725-775 cm. Moderate amount of foraminifera present. Bottom contact due to gradual color change, well burrowed.

775-798 cm.- Lutite, light blue gray, well burrowed, foraminifera. Contact gradual due to color change and burrowed.

789-1110 cm.- Lutite, grading from medium to medium dark blue gray. Most gradation occurs in top 70 cm. Length is quite regular as to color, frequency of features, texture and layering. Abundant large dark burrows occur between 955-970 cm.

1110-1111 cm.- Lutite, light blue gray. Contacts sharp and fairly horizontal. Not burrowed.

1111-1112 cm.- Lutite darker than above. Foraminifera rich.

Note: Color of this core was originally a blue gray, except perhaps the top approximately 70 cm. Most coloring has been oxidized to brown over 3 years since core was taken

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V 14 - 16

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Megascopic Description of Split Core

Latitude:	24° 20S	Longitude:	41°43'W
Corr.: depth:	1928 M.	P.D.R. depth:	1035 fm.
Date Taken:	28 December 1957	Date Opened:	13 January 1961
Described by:	R. S. Grinnell		
Core Length:	668 cm	Flow-In:	223 cm

0-38 cm Medium brown lutite. Contains many foram tests, pelecypod and pteropod shell fragments. Blue color of underlying lutite does not seem to extend to this layer. Mottled by small, dark gray burrows. Uniform in color throughout. Lutite 90%, calcareous shell material 7%, silt 3%. Lower contact marked by color change.

38-41 cm Medium brown lutite, similar in composition to above, but mottled dark brown by an abundance of manganese particles. Manganese inclusions are arranged in horizontal bands, giving layer a laminated appearance. Gray burrow markings. Lower contact is fairly sharp.

41-73 cm. Grayish blue lutite. Colored almost entirely an orange brown by oxidation. Original color can be seen faintly in center of core. Hydrotroilite stains. Thin discontinuous lenses of gray silt occur in upper part. Abundant gray burrow markings are found throughout layer. Large dark gray circular globs of lutite in upper part of layer resemble burrows except for their size. Foram tests abundant. Lutite 90%, calcareous shell material 7%, silt 3%. Lower contact gradational, placed at the base of the abundant burrow markings.

73-146 cm Grayish blue lutite that is colored a light brown along sides by oxidation. Dark bluish gray burrow markings occur throughout layer. Uniform in lithology throughout a thin bluish gray lamina of lutite is found 9 cm. from the top of the layer. A dull reddish brown richly foraminiferal band is found at 115 cm. Minute manganese grains are scattered throughout layer 87% lutite, 10% calcareous shell material, 3% silt. Lower contact sharp.

146-153 cm Wavy 1-2 cm thick medium grained gray silt lenses separated by oxidized grayish blue lutite. Dark bluish gray burrow markings in lutute, silt lenses are probably turbidity current deposits.

153-261 cm Grayish blue lutite. Oxidation along the sides of the core has changed all but the center to a light brown. Hydrotroillite stainings. Many small dark blue burrow markings. Forams, pelecypod shell fragments. Few patches of fine gray silt. Many disseminated manganese grains. Layer is uniform in color and lithology throughout. 90% lutite, 5% calcareous shell material, 5% silt. Lower contact sharp.

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V 14-16 (Continued)

261-262 cm	Wavy, grayish brown, medium grained granular silt. Some mica. Probably turbidity current deposit.
262-371 cm	Grayish blue lutite. Oxidized along sides to a light to medium brown. Similar in color and lithology to overlying lutite. Forams. Small dark bluish gray burrows are found throughout layer. Thin silt lens at 265 cm. Fairly large gray lutite markings at 294-296 cm do not seem to be burrows. Discoloration of these markings may have occurred shortly after deposition. Disseminated manganese particles. Composition: 90% lutite, 5% calcareous shell material, 5% silt. Lower contact sharp.
371-372 cm	Wavy medium grained granular silt lens. More yellowish in color than overlying lenses. Turbidity current deposit.
372-668 cm	Grayish blue lutite. Oxidized along sides to a light to medium brown. Lutite is uniform in color and lithology throughout small dark bluish gray burrows occur throughout layer. Forams. Disseminated manganese particles. 92% lutite 5% calcareous shell material, 3% silt.
Note:	Total length of core is 891 cm. However, lower 223 cm. of core is judged to be flowage and is not included in the description.
Observations:	Sedimentation was more or less uniform during the period represented by this core. Clay-sized particles accumulated slowly on the ocean bottom while pelagic foraminiferal tests and other calcareous material were being added also intermittently. Turbidity currents brought in deposits of silt. The presence of an oxidized portion to the core suggests that reducing conditions generally prevailed during deposition.

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V 14 - 14

Megascopic Description of Split Core

Latitude:	23°12.5'S	Longitude:	37°38'W
Corrected Depth:	3810 M	P.D.R. depth:	2032 fm.
Date Taken:	26 December 1957	Date Opened:	10 & 11 January 1961
Described by:	R. S. Grinnell		
Core Length:	1042 cm	Flow-In:	39 cm

0-11 cm	Light brown, slightly silty lutite. Foram tests. No evidence of burrowing. Interbedded with faint discontinuous laminae of fine green silt. Lower contact of layer is sharp but irregular.
11-14 cm	Irregular lense of fine granular green silt. Contains numerous flakes of mica. Silt is interbedded with small globs of lutite.
14-58 cm	Slightly silty, medium brown lutite. Abundant foram tests. No evidence of burrowing. Lower contact gradational, drawn on the basis of color change and decrease in abundance of forams. Light brown lutite subzone at 35-38 cm.
58-135 cm	Medium brown lutite. Not as silty as the overlying layer. Foram tests are less abundant. Layer is mottled dark, medium and light brown by burrows. 11 cm from top is a faint grayish brown lutite layer that blends in well with the surrounding lutite. The grayish subzone also contains foram tests. Minute holes pit the surface of this and other layers. Holes may represent tiny pockets of gas. Bottom two cm have a dark grayish tint.
135-136 cm	Discontinuous dark brown lutite lense. Dark color due to minute particles of what may be manganese.
136-157 cm	Medium brown lutite. Lighter in color than 58-135 cm. layer. Bottom 7 cm stained orange-brown by oxidation. Mottled by minute dark gray manganese inclusions. Bottom contains scattered silt particles. Lower contact is sharp.
157-158 cm	Lens of fine micaceous silt. Laminated light brown and grayish brown. Lens decreases in thickness across the core.
158-173 cm	Medium brown lutite. Foram tests. Accumulations of silt and manganese particles give layer a mottled appearance. Orange-brown oxidation stains along edges. Lower contact drawn at change in color from medium brown to gray.

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V 14-14 (Continued)

173-183 cm — Medium brown lutite that is mottled as dark brown by layer burrows, bands of gray lutite, and manganese particles. Abundance of dark material gives layer a predominantly dark color, distinguishing it from surrounding lutite. Top cm has a horizontal layer of fine gray lutite. Lower contact drawn at color change from dark brown to light brown.

183-226 cm — Light brown, rather silty lutite. Foram tests. Mottled a dark gray by burrows and by scattered minute manganese deposits. Lower contact irregular but sharp. Concretionary structure in lower part.

226-231 cm — Fine, light green silt. Irregular contacts. Contains inclusions of light brown lutite, which contains forams.

231-279 cm — Light brown, rather silty lutite. Abundant foram tests. Mottled a medium and a dark brown by burrow markings. Reddish orange oxidation stain in bottom 5 cm. Lower contact is gradational.

279-292 cm — Slightly silty lutite. Darker brown than overlying layer. Numerous foram tests. Mottled light brown by burrow markings. Lower contact is distinguishable by beginning of green color.

292-294 cm — Dark green lutite. Interbedded with a 1 cm thick layer of brown lutite. Green color probably due to finely disseminated glauconite. Layer is mottled light brown by burrow markings. Foram tests. Lower contact sharp, irregular.

294-326 cm — Brown lutite, becoming lighter brown toward bottom. Mottled a brownish white by burrow markings. Foram tests. Contains scattered manganese particles. 9 cm from the bottom is an irregular band of greenish gray lutite.

326-328 cm — Lens of fine yellowish brown silt. Convex upward orientation caused by drag at sides when core was taken. Upper and lower contacts sharp.

328-339 cm — Light brown lutite. Mottled a brownish white color by burrows. Small foram tests. A small mottled brown silt lens occurs at base of layer, evidently dragged from underlying layer when core was taken. Contact drawn at first continuous underlying silt lamina.

339-344 cm — Fine, yellowish brown laminated silt. Yellowish brown silt is interbedded with thin laminae of dark brown silt. Layer shows drag effect. Lower contact is sharp.

344-374 cm — Light brown mottled lutite. Mottled a dark grayish brown by burrows, by scattered manganese particles, and by bands of dark lutite. Burrows are mainly located in lower top half of layer, while dark bands are clustered predominantly in lower half. Under microscope the lutite in the bands includes small dark grains that may be manganese. A few light brown burrows are present.

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Foram tests are small. Base of lowest dark band is the lower contact.

374-391 cm — Light brown lutite. Becomes progressively grayer toward bottom. 5 cm from top is a 1 cm zone of aggregated manganese particles. Forams are numerous. Lower contact drawn on basis of color change.

391-403 cm — Light brown and gray laminated lutite. Darker than overlying and underlying layers of lutite. Abundant foraminifera. Mottled by light brown burrow markings. Gray laminae are 2-3 cm thick, while the brown laminae are slightly thicker. Lamination contacts are not sharp. Layer also contains thin yellowish brown silt lenses. Lower contact is at base of lowest gray laminae.

403-413 cm — Light brown slightly silty lutite. Contains foram tests and small patches of brownish white silt. Lower contact gradational.

413-420 cm — Laminated light gray and brown lutite. Mottled a dark gray by numerous burrow markings averaging about 5 mm in diameter. Foram tests. Lower contact drawn at base of gray color.

420-442 cm — Brown lutite. Small forams. Mottled a light brown by burrows. Disturbed sediment in 425-428 cm zone caused by piston when core was being extruded. Base marked by color change and by thin discontinuous lenses of grayish white fine silt.

442-463 cm — Light brown lutite. Slightly lighter in color, than the overlying layer. Forams. Some evidence of burrowing 3 cm from bottom is a 2 cm thick gray lense of fine silt. Faint dark lines may represent concentrations of manganese particles. Lower contact gradational.

463-478 cm — Light brown lutite. Lighter in color than the overlying layer. Dark brown burrow markings. Foram tests. Dark lines similar to those in overlying layer. A faint band of lighter brown lutite is discernible 2 cm above base. Lower contact is irregular, drawn at change in color.

478-505 cm — Light brown lutite. Lighter than overlying area. Quite foraminiferal, especially in 491-498 cm subzones. Burrows are a medium brown color. Lower contact is not sharp, based on color change.

505-530 cm — Light to medium brown lutite. Foram tests. Light brown burrows also contain forams. Lower contact is drawn at change in color. Thin fine silt lamina occurs roughly halfway down the layer.

V 14-14 (Continued)

530-546 cm	Light brown lutite. Abundant foram tests. Upper 8 cm contains lenses of brown lutite similar to that in overlying layer. Few brown colored burrow markings. Lower contact is gradational.
546-564 cm	Medium to dark brown lutite. Light brown burrow markings occur throughout layer. Abundant forams, also thin discontinous silt laminae. A 2 cm band of dark brown lutite is present 8 cm from top of layer. Lower contact irregular but sharp.
564-566 cm	Yellowish brown fine granular silt. Shows drag effect.
566-584 cm	Light brown, slightly silty lutite. Abundant forams. Dark greenish brown burrow markings. Lower contact is gradational.
584-602 cm	Medium brown lutite. Abundant forams. Mottled by light brown burrow markings and by irregular bands of dark brown lutite. Silty. Lower contact is sharp.
602-638 cm	Medium brown mottled lutite. Mottled a dark gray and dark brown by bands of concentrated manganese grains and laminated lense of fine silts. Dark colors restricted to lower 21 cm. Lense of laminated greenish brown and dark brown silt (617-619 cm) overlies four distinct dark manganese bands. Give predominant dark aspect to lower layer. Forams are sparse. Burrowing in and above silt lense. Lower contact sharp.
638-655 cm	Brownish white lutite. Forams are sparse. Concentrations of manganese and brown colored burrows give lutite a dark mottled appearance. Lower contact irregular, fairly distinct due to change in color.
655-671 cm	Light brown lutite. Mottled by brownish white burrow markings. Forams are sparse. Irregularity of lower contact is due partly to burrowing.
671-711 cm	Light brown, slightly silty lutite. Many burrows, colored light and medium brown. Small forams. Lutite is intermixed with darker colored lutite at top, where contact with overlying layer is indistinct and in 691-693 cm subzone. Lower contact is sharp due to change in grain size.
711-712 cm	Thin lense of fine, yellowish brown granular silt.
712-736 cm	Brownish white, slightly silty lutite. Forams tests. Brown colored burrows appear in upper part of layer and brownish white burrows appear in lower part, where the layer gets slightly darker. Lower contact is irregular.

V 14-14 (Continued)

736-739 cm	Greenish brown lutite. Mottled brownish white by burrows. May contain glauconite.
739-754 cm	Light brown, slightly silty lutite. Foram tests. Mottled brownish white by burrows. Lower contact sharp but irregular.
754-762 cm	Varrigated dark and light brown lutite. Dark brown band of lutite 3 cm thick located at top of layer. Contains patches of silt and is mottled light brown by burrows. Dark color may be due to tiny manganese inclusions. Underlying medium brown band is thinly laminated with darker bands of lutite. Lower contact is sharp, roughly horizontal.
762-784 cm	Light brown lutite. Foram tests. Light and greenish brown burrows. Faint, irregular greenish brown subzone at 770 cm Dark gray laminae near bottom of layer suggest concentrations of manganese grains. Dark brown burrows near the laminae give this subzone a speckled appearance. Bottom of layer becomes slightly silty.
784-786 cm	Lens of fine yellowish brown silt. Curved due to drag at sides.
786-805 cm	Medium brown lutite. A gray silty lutite band occurs 6 cm from top. Layer also has bands of manganese concentrations. Lower contact is gradational.
805-834 cm	Medium brown, slightly silty, blocky lutite. Foram tests. An irregular dark lutite area occurs from 815 cm to 818 cm. Area contains accumulations of manganese particles. Slightly lower, at 820 cm, is a greenish brown silty band of lutite. No evidence of burrowing except in silty lutite subzone. Lower contact irregular, indistinct.
834-857 cm	Light brown, slightly silty lutite. Mottled by brown colored burrow markings. Some accumulations of manganese particles.
857-864 cm	Medium brown, slightly silty lutite. Abundant forams. Lower contact sharp but irregular.
864-887 cm	Brownish white lutite that becomes darker brown toward the bottom. Large and small forams. Upper layer is mottled brown by burrows near the top. Bottom 6 cm of layer are mottled brownish white. Lower contact is gradational, arbitrarily drawn.

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V 14-14 (Continued)

887-914 cm	Varigated green and brown lutite. In upper blocky part of layer the lutite is mottled by brownish white burrows Lutite is segregated into subzones according to color. Green bands, found at 890 cm, 900 cm and 908 cm, probably contain glauconite. Thin lense of yellowish brown silt above lowest green subzone. Layer also contains dark gray laminae, probably manganese concentrations (904 cm and 910 cm) Lower contact fairly sharp.
914-926 cm	Yellowish brown laminated fine granular silt. Thin darker silt laminae occur in center of layer. Thin lense of light brown lutite present at 923 cm. A portion of the silt is curved downward due to drag. Lower contact sharp.
926-956 cm	Varigated light to dark brown lutite. Mottled light and dark brown by burrow markings. Thin discontinuous lenses of fine yellowish brown silt occur at 935 cm and 940 cm Some large forams. Lower contact drawn at change in color.
956-996 cm	Brownish white lutite. Abundant forams. Irregular greenish brown bands of lutite, mottled by brownish white burrows, occur at 962 cm, 977 cm, 985 cm and 995 cm. Rest of layer also has burrowing. Lenses of fine yellowish brown silt occur at 980 cm and also at base of layer. Lower contact sharp.
996-1024 cm	Varigated light to dark brown lutite. Forams appear to be confined to central light brown lutite area. Colors are divided into definite subzones. Bands of dark lutite average 3 or 4 cm in thickness and are interbedded with thin discontinuous laminae of fine yellowish brown silt. Lowest dark band includss a concentration of manganese particles. Lower contact drawn at base of lowest dark band of lutite.
1024-1039 cm	Light brown lutite. Mottled medium brown by burrow markings. Lense of fine yellowish brown silt located 3 cm from top. Foram tests. Bottom of layer contains small patches of silt.
1039-1040 cm	Lense of fine granular yellowish brown silt. Contains forams.
1040-1042.cm.	Light brown lutite.
Note:	Sediment has a total thickness of 1081 cm, but bottom 39 cm is judged to be flow.
Observations:	Conditions during deposition remained essentially uniform throughout the period represented by this core. Deposition of brown and brownish green lutite alternated with deposition of fine yellowish brown silt.

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V 14-9

Megascopic Description of a Split Core

Latitude:	12 37.5'S	Longitude:	35 04'W
Corr. depth:	4349 M	P.D.R depth:	2315 fm
Date taken:	17 December 1957	Date opened:	9 May 1963
Described by:	L. Burckle	Flow-in:	360 (?)
Core length:	890 cm.		

General: Core was opened more than a year ago and has completely dried out.

0-189 cm.- Calcilutite, moderate yellowish-brown to light brown, silty calcilutite and lutaceous siltite. Burrowing largely distorted by drying and caking of cut face. Finely disseminated manganese micronodules throughout. Carbonate content amounts to more than 30%; usually is higher where there is coarser material. Foraminifera. Silt-lutite zones about 10% of the sample and about 20% in the fine sand-silt zone. Lutite fraction about 40%; silt fraction about 40% and fine sand fraction about 20%. Moderately sharp bottom contact is marked by color and lithic change.

189-223 cm.- Silty lutite, light yellowish-gray grading into a light gray sandy silt below 198 cm. Some burrowing near the top. Finely disseminated manganese micronodules throughout. Laminations above 203 cm. alternate with darker and lighter colors (5 mm to 1 cm. thick). Foraminifera as well as much fragmental biogenic material present. Fragmental material increases, in size and percentage, toward the bottom. Mica flakes near top (about 5%) but rare elsewhere. Majority of the noncalcareous minerals appear to be quartz--angular to sub-angular with little frosting or inclusions. Lutite fraction about 20%; silt fraction about 40%; fine sand fraction about 40%. Sharp bottom contact is marked by a change in color and lithology.

223-650 cm.- Silty calcilutite, moderate yellowish-brown to light and dark brown. Similar to the 0-189 cm. layer.

650-691 cm.- Lutaceous silt, light yellow gray, grading into a sandy siltite below 670 cm.; similar to the 189-223 cm. layer.

691-890 cm.- Silty calcilutite similar to 223-650 cm. layer. Lutite-silt zone begins below 880 cm.

Note: At 695 cm. is a note to the effect that 350 cm. of flow-in has been removed from this point. Why flow-in from middle of core and not at end?

Megascopic Description of a Split Core

Latitude:	10°06'S	Longitude:	33°54'W
Corr. depth:	4625 M	P.D.R. depth:	2460 fm.
Date taken:	16 December 1957	Date opened:	9 May 1963
Described by:	L. Burckle	Flow-in:	6 cm.
Core length:	1152 cm.		

General:- Core was opened several years ago and has completely dried out.

0-23 cm.- Moderate yellowish brown silty calcilutite. Some burrowing. Structure is no longer visible. Finely disseminated manganese micronodules throughout. Carbonate content amounts to more than 50%. Few forams, mostly fragmental. Some sponge spicules and micro-flakes (less than 5%). Lutite fraction about 70%; silt fraction about 30%. Gradational bottom contact is marked by the disappearance of the carbonate fraction.

23-1152 cm.- Moderate yellowish brown to moderate brown silty lutite. Parts of the layer have a pale orange to light gray dusting over the cut face. Burrowing in some parts is not always visible. Finely disseminated manganese micronodules throughout. Megascopically visible manganese accumulations occur in filaments or laminations at 95-115 cm., 135 cm., 460-480 cm., 866-868, 1036-1045 cm., 1057-1063 cm., and 1089-1130 cm. Other such accumulations may be obscured by oxidation discoloration and dusting. Some suggestion of laminations with the lutite matrix in some parts, particularly below 750 cm., Carbonate content is usually nil, but in some places may rise to 10%. This may be an apparent effect due to surface contamination. Mica flakes (less than 5%) throughout. Lutite fraction about 60%; silt fraction about 40%. Silt fraction increases slightly toward the bottom.

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V 14-4

Megascopic Description of a Split Core

Latitude:	15°29'N	Longitude:	40°31'W
Corr. depth:	4473 M	P.D.R. depth:	2375 fm.
Date taken:	26 November 1957	Date opened:	13 February 1963
Described by:	R. Hekinian	Flow-in:	28 cm. (piston effect ?)
Core length:	690 cm.		

NOTE: Core described in dried state.

0-150 cm. Foraminiferal lutite, light brown, slightly silty. Carbonate content about 90%. Foraminifera content about 75%; test sizes range from fine to silty (prominent size). High percentage of broken tests occur but whole tests increase both in size and percentage with depth. Burrow mottling occurs throughout. Secondary alteration of iron oxide present, mostly at the bottom. Bottom contact poorly defined due to an increase of burrows.

150-157 cm. Foraminiferal lutite, burrow mottled. Burrows containing approximately 3% of the sediment are characterized by spherical and elongated lighter lutite surrounded by darker lutite. Bottom contact is due to a decrease in burrows.

157-176 cm. Foraminiferal lutite, similar to 0-150 cm. layer.

176-240 cm. Foraminiferal lutite, burrow mottled. Secondary oxidation occurs in top area. Burrows similar to those at 150-157 cm. Burrows are formed by milky white lutite. Bottom contact is due to color change (becomes darker).

240-570 cm. Foraminiferal lutite, tannish-brown (becoming lighter with depth) and slightly silty. Small and large (about 1 cm. in diameter) mostly spherical burrows of light lutite occur throughout. Specks of manganese (1%) occur throughout.

Between 325-345 cm. occurs a light tannish-brown zone of coarser foraminiferal lutite. Here, the lutite becomes foraminiferal sand mixed with about 15% lutite. A darker zone due concentration of manganese occurs at 340-342 cm.

Slumped sediment occurs at 355 cm.

At 369-371 cm., the foraminiferal lutite is medium coarse and light tannish-brown. Lutite content about 40%. The top of this layer is characterized by alternating microlaminae of lighter and darker lutite. Sediment is domed (convex downward) at 371 cm. Bottom contact (570 cm.) contaminated with secondary iron oxide.

V 14-4 (cont'd)

570-690 cm. Foraminiferal lutite, milky tan. Darker burrow mottling with a few lighter burrows occur at the top, becoming rare with depth. High percentage of silt size foraminifera tests, smaller than tests in 240-570 cm. layer. Manganese (about 2%) occurs throughout. White foraminiferal layers with less manganese than the remainder of layer are present at 650-660 cm. and 685-690 cm.

690-718 cm. Piston effect and flow (?).

Megascopic Description of a Split Core

Latitude:	20°43' N	Longitude:	49°26' W
Corr. depth:	4171 M *	P.D.R. depth:	2215 fm. *
Date taken:	22 November 1957	Date opened:	13 February 1963
Described by:	R. Hekinian	Flow-in:	7 cm.
Core length:	203 cm.		

* Water depth at time core was lowered.

0-35 cm.- Dark-brown fragmented coarse to very-coarse foraminiferal sand mixed with about 25% manganese. Manganese is formed by micronodules well mixed with the foram tests; some tests are filled and others are completely replaced by manganese. Manganese macronodules with variable size from 2 mm. to 5 mm. in diameter; largest fragments are "brecciated". Abundance also of manganese coated macronodules, varying in size from 1/2 cm. to 3 cm. in diameter.

At the 20-26 cm. zone light-tan fine medium homogeneous foraminiferal sand mixed with approximately 5% manganese micronodules. Decrease in both size and percentage of forams.

The bottom of this layer is formed by nodules of manganese (3 cm. in diameter) cemented with foraminiferal sand similar to the 20-26 cm. zone.

Iron oxide occurs throughout. Contact with the underlying layer is well defined due to change in texture and color of sediment.

35-203 cm.- Tan-brown firm foraminiferal lutite. The percentage of carbonate is about 55%. Foram tests are mostly broken but whole tests also occur throughout. Forams are about 20% increasing slightly with depth. Specks of manganese (2%) occur. Larger stains of manganese mixed with coarser forams at 51 cm. and 65 cm. Large iron oxide stains throughout, mostly on the sides.

From 98 cm. to 165 cm. disturbed lighter micro-laminae of lutite alternating with darker micro-laminae some of these pinch out. Small burrows possibly in this latter zone.