

capable of extracting substantially all of the gases from a mud sample, regardless of the drilling mud properties, it is now possible to obtain reproducible, quantitative mud analyses. Such analyses are essential if the full value of mud logging is to be realized.

ROBERT L. MANLY, Standard Oil Company of California
Graphical Analog Dip Computer

An especially calibrated stereographic net is described and displayed which is the foundation for the computer assembly. A transparent overlay disc printed with suitable reference marks and a central fastener pin complete the computer. Input and temporary data storage are accomplished by using a sharpened grease pencil to plot data on the transparent disc.

Two apparent dips relative to the bore axis-normal produce a pole plot of the uncorrected dip. Tool orientation, inclination and drift corrections are made by following a simple three-step technique on the overlay. Readout of true dip and direction of dip corrected for magnetic declination is automatic. The operation from raw data to finished results requires less than one minute.

Dips up to 89°, with or without hole drift angles up to 89°, can be accurately handled. Overtaken bedding relative to the bore is readily indicated.

ROBERT A. HARMAN, University of Southern California,
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Foraminiferal Variation in Sediment Layers of Santa Barbara Basin, California

Quantitative variations in foraminiferal assemblages characterize the three different sediment types found in cores from the Santa Barbara basin. Gray turbidity sediments contain low foraminiferal numbers and usually a high percentage of benthonic Foraminifera. Laminated sediments are typified by very few specimens of *Bolivina argentea* and by variable foraminiferal numbers. Homogeneous sediment layers also have highly variable foraminiferal numbers, but contain a diverse fauna and a large number of *Bolivina argentea*.

No arenaceous and very few porcellaneous foraminifera are present in the basin. The number of benthonic specimens present appears to be directly proportional to the number of planktonic specimens present.

The frequency at which Foraminifera are added to the sediment was determined by using rates of sediment deposition. Solution effects on Foraminifera were especially noted in the upper 100 cm. of the cores studied.

JOHANNA RESIG, Allan Hancock Foundation, University of Southern California

Ontogenetic Variation in Eponides Repandus (Fichtel and Moll)

HELEN TAPPAN, University of California at Los Angeles and U. S. Geological Survey

Foraminifera from Pleistocene Gubik Formation of Northern Alaska

About 70 species of Foraminifera have been obtained from wells and seismic shotholes of Naval Petroleum Reserve 4. The majority of the species are now living off the coast of Alaska, and in the Arctic seas. Approximately one third of the species are Miliolidae, the remainder mostly Polymorphinidae, Nonionidae, and Elphidiidae, with a smaller number of Nodosariidae,

Cassidulinidae, and a few rotaliform genera.

The complete absence of planktonic species, in contrast to Recent Pleistocene faunas of southern Alaska, is probably due to the local shallow water conditions during the Pleistocene.

M. A. FURRER, California Research Corporation
California Cretaceous "Siphogenerinoides"

Recorded occurrences of California Cretaceous *Siphogenerinoides* are restudied on the basis of topotype collections and comparisons are made with those from the Gulf Coast Texas Cretaceous sediments. Based on comparisons with the type species of *Siphogenerinoides*, *S. plummeri* (Cushman), it is suggested that California Cretaceous "*Siphogenerinoides*" be allocated to other categories.

DONALD HOWARD DAILEY, Richfield Oil Corporation
Stratigraphic Paleontology of Jalama Formation, Western Santa Ynez Mountains, Santa Barbara County, California

The Jalama formation of Late Cretaceous age is exposed along both sides of the Pacific fault in Jalama and Santa Anita canyons in the Western Santa Ynez Mountains. It consists of 2275± feet of alternating sandstones and silty shales that have been divided into seven members. The base is nowhere exposed but the geologically older Espada formation in Salsipuedes Canyon is Late Jurassic in age, which suggests an unconformity at the Espada-Jalama contact. The relationship between the Jalama and overlying Anita formations is uncertain at the type locality but an unconformity exists beyond this area.

Approximately 133 species of Foraminifera, of which the majority are calcareous perforate forms, have been identified from nineteen localities. Three separate foraminifer faunules of characteristic composition can be distinguished. Forty-four localities have yielded 58 molluscan species that have been treated systematically; 12 pelecypod species and 5 gastropod species are new. The megafauna can not be broken down into stratigraphic faunules but may be subdivided into 2 ecologic groups.

Both the foraminifer and molluscan assemblages indicate a late Campanian age for the Jalama formation. The Foraminifera correlate with Goudkoff's Tracian and upper Weldonian stages and with the lower Navarro of the Gulf Coast.

The megafauna is most closely related to the molluscan assemblage of the upper Chico formation, but is slightly younger, and is very close in age to the Cretaceous sediments in Bee Canyon, Orange County, California, in the Lucia Islands, Washington, and in the lower horizon in the Simi Hills, Ventura County, California.

DON L. PROTZMAN, East Los Angeles College

Facies Relationships of Sespe and Alegria Formations, Santa Barbara County, California

The stratigraphic relation between the Sespe and Alegria formations consist of a gradual facies change from the terrestrial environment of the Sespe to the marine environment of the Alegria. Detailed columnar sections show the gross lithologic members within the two formations. Individual members lose their identity laterally over the relatively short distance of approximately a mile or less, with changes in lithology, texture and color, or a combination of these, and exhibit much