

Acknowledgments

Objekttyp: **Chapter**

Zeitschrift: **Eclogae Geologicae Helvetiae**

Band (Jahr): **56 (1963)**

Heft 1

PDF erstellt am: **23.09.2024**

Nutzungsbedingungen

Die ETH-Bibliothek ist Anbieterin der digitalisierten Zeitschriften. Sie besitzt keine Urheberrechte an den Inhalten der Zeitschriften. Die Rechte liegen in der Regel bei den Herausgebern.

Die auf der Plattform e-periodica veröffentlichten Dokumente stehen für nicht-kommerzielle Zwecke in Lehre und Forschung sowie für die private Nutzung frei zur Verfügung. Einzelne Dateien oder Ausdrucke aus diesem Angebot können zusammen mit diesen Nutzungsbedingungen und den korrekten Herkunftsbezeichnungen weitergegeben werden.

Das Veröffentlichen von Bildern in Print- und Online-Publikationen ist nur mit vorheriger Genehmigung der Rechteinhaber erlaubt. Die systematische Speicherung von Teilen des elektronischen Angebots auf anderen Servern bedarf ebenfalls des schriftlichen Einverständnisses der Rechteinhaber.

Haftungsausschluss

Alle Angaben erfolgen ohne Gewähr für Vollständigkeit oder Richtigkeit. Es wird keine Haftung übernommen für Schäden durch die Verwendung von Informationen aus diesem Online-Angebot oder durch das Fehlen von Informationen. Dies gilt auch für Inhalte Dritter, die über dieses Angebot zugänglich sind.

The samples are consistently described by a brief megascopic lithologic characterization followed either by the enumeration of textural features and organic elements or by the listing of diagnostic fossils obtained from the washed residues. As this paper is essentially a geologic-stratigraphic study, no attempt was made to furnish complete lists of fossils, elements of which are arranged not alphabetically but rather in order of abundance and/or stratigraphic significance. However, particular attention is given to biostratigraphically significant microfossils on which the zonal subdivisions are based, such as planktonic Foraminifera and discoasterids. Reference is made to the description of some of the discoasterids of the Habana area by BRÖNNIMANN and STRADNER (1960). Zones established on planktonic forms are correlated with assemblages of characteristic and in the field easily recognizable benthonic Foraminifera. With the exception of the echinoderms little is known of megafossils in our area. In future, considerable attention should be given to the collecting of megafossils which are absolutely necessary for the relative dating of the post-Cojímar formations.

For a brief review of the geological literature of the Habana area, the reader's attention is directed to the introductory chapters of the papers by R. H. PALMER (1934), and J. BRODERMANN (1940) and P. J. BERMÚDEZ (1952).

DEPOSITORY OF MATERIAL

The microfaunal material from the BR (BRÖNNIMANN) and the here described DUCLOZ stations is deposited in the Museum of Natural History, Basle; that referring to BAUGHMAN and SISSON stations is in the collections of Esso Standard Oil, S. A. Megafossil collections and the illustrated planktonic Foraminifera are deposited in the United States National Museum, in Washington, D.C. A complete set of the lithologic samples is in the collections of Esso Standard Oil, S.A., and another one in the Museum of Natural History, Basle. H. STRADNER, Klosterneuburg, Austria, has in his collection a set of Tertiary *Discoaster* samples.

ACKNOWLEDGMENTS

We are indebted to the Standard Oil Company (New Jersey) for the permission to publish this paper, and to the management of the exploration department of Esso Standard Oil, S.A., for the use of laboratory and drafting facilities. Much is owed to our colleagues J. P. BAUGHMAN, CH. DUCLOZ, M. KOZARY, A. SISSON, G. STOBER and M. VUAGNAT, who contributed field observations, material, ideas, and criticisms and were our companions on field trips. For the identification of fossils and petrographic descriptions of igneous rocks we are pleased to acknowledge the cooperation of G. C. AMSTUTZ, La Rolla, U.S.A.; W. A. VAN DEN BOLD, Baton Rouge, U.S.A.; J. P. BECKMANN, Teheran, Iran; W. S. COLE, Ithaca, U.S.A.; C. W. DROOGER, Utrecht, Holland; S. HANZAWA, Sendai, Japan; H. H. HESS, Princeton, U.S.A.; H. PURI, Tallahassee, U.S.A.; H. STRADNER, Klosterneuburg bei Wien, Austria; and W. P. WOODRING, Washington, D.C., U.S.A. Mrs. MARIA LUISA ROBLES RAMOS, Mexico City, Mexico, very kindly furnished material from Mexican type localities. We also included faunal assemblages from Cuban localities donated by the late W. H. GRAVELL. Special thanks are due to W. H. BUCHER, New York,

and H. YARBOROUGH, Houston, for comments on the structural aspects of the Habana area, and to G. A. COOPER, U.S. National Museum, Washington, D.C., for the drawing of diagnostic planktonic Foraminifera by the Museum's artist. Finally, we wish to thank J. F. DE ALBEAR, P. BORRO, J. BRODERMANN, M. L. JAUME, and M. SÁNCHEZ ROIG, all Habana, for having given us access to their libraries and collections and helped us in locating maps, publications and fossil material.

The publication of the paper was made possible through funds granted by the Schweizerischen Nationalfonds zur Förderung der wissenschaftlichen Forschung.

STRATIGRAPHY

Definition of Habana group and Marianao group

Several attempts have been made to establish a reliable stratigraphic sequence of the sediments of the Habana area. But because of the complicated tectonics and of the inadequate outcrop pattern in the core of the Habana-Matanzas uplift, the results were generally unsatisfactory. Even the stratigraphy of the better exposed and tectonically relatively simple rim-rock was not clearly understood, mainly because of the difficulty to recognize certain lithologic units in isolated outcrops, and also because of the rather poor correlation between field-stratigraphic and paleontological work.

Most of the geologists who studied this area, proposed on structural grounds a stratigraphic subdivision into a rim-rock of gently folded strata of Tertiary age and a core of highly disturbed Upper Cretaceous to Lower Eocene sediments and of igneous rocks. We also distinguished two structurally different stratigraphic series, the one forming the core of the uplift and the other restricted to the rim-rock extending in our area along the north coast from Jaimanitas to Cojímar and along the north flank of the Vento syncline. But moreover we were impressed by the lithologic differences between the two series. The older series of lithologies, here termed *Habana group*, overlies the ultramafics and consists mainly of clastics which range from bentonitic clays and shales and very fine graywacke silts and calcilutites to graywacke conglomerates and calcirudites. The maximum thickness does not exceed 1200 m.

The Neocomian limestones encountered at an isolated exposure west of Santa María del Rosario and for which no formation name is proposed, are lithologically not part of the Habana group.

The younger series of lithologies is here termed *Marianao group*. It overlies the Habana group and consists mostly of carbonates. Its total thickness does not exceed 250 m, or about one fifth of the estimated thickness of the Habana group.

The correlation chart, plate I, illustrates our concept of the stratigraphy of the Habana area. It is based on detailed and coordinated field and laboratory studies and in its essential elements believed to be well founded. In this chart, the base of the Eocene epoch is defined by the advent of the first globorotalias with true carina formed by clear imperforate shell substance. This moment in geological time can clearly be recognized. It represents as far as planktonic Foraminifera and discoasterids are concerned a major incision in the faunal evolution of the Paleogene and should be recognized as such.