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Urría Beds

A new lithologic unit of the Habana area is a recrystallized in part dolomitized limestone of post-Toledo and pre-Husillo age, here called Urría beds. It is of minor significance in the stratigraphic sequence and therefore not given formation rank. The type locality, BR station 791, is from exposures at the Avenida Monumental, at the south flank of Loma de Urría, about 1.4 km south-southwest of the coastal town of Cojímar, coordinates 369.94 N and 366.22 E. It is indicated on the detail geological map of the rim rock area between Morro and Cojímar, plate III. There the Urría beds consist of thin and regularly bedded layers of yellowish gray to grayish orange dolomitized limestone filling the 2 to 3 m deep narrow channels scoured into the Toledo member of the Universidad formation, probably by post-Toledo submarine erosion (photographs, figs. 62, 63). The disposition of the beds is paralic suggesting deposition confined to the channels. The overlying transgressive Cojímar chinks, BR stations 963 and 964, cut both the Toledo and the post-Toledo Urría beds.

BR station 791 (Urría beds)

Lithology: Limestone, hard, somewhat granular, yellowish gray.

Texture: Microcrystalline calcite, vacuolar. Barren.

BR stations 963 and 964 (Cojímar formation)

The samples from these stations are lithologically and faunally very similar and here described together.

Lithologies: Limestone, fragmental, hard, white (963), and chalky, white to very pale orange (964).

Textures: Cryptocrystalline to microcrystalline groundmass with fragments of algae, encrusting Foraminifera, echinoderms, bryozoas and mollusks. Common amphisteginas. Some planktonic Foraminifera.

Assemblages: *Amphistegina* spp.
Acervulina inhaerens SCHULTZE
Acervulina sp.
Sporadotrema sp.
Orbulina cf. *suturalis* BRÖNNIMANN
Globigerina spp.
Globorotalia fohsi barisanensis LEROY.

Other outcrops of the Urría beds

Outside of the Habana area as defined in this study, on the road from Barreras to the Vía Blanca, about 1.7 km northeast of Barreras, a small town southwest of Santa María del Mar, coordinates 370.28 N and 376.99 E, another dolomitic channel filling was observed. There, the channels are in brownish, largely igneous derived shales and silts, either of the Lower Eocene Apolo or Alkázar formation. Both the Lower Eocene beds and the dolomitized limestones are transgressively overlain by *Miogypsina*-bearing fragmental reefal limestones of the Husillo formation. The dolomitized limestones are here regarded as the equivalent of the Urría beds of the Vía Monumental. The stations from this outcrop are listed below in stratigraphical order from bottom to top:

BR station 887 (Apolo or Alkázar formation)

This sample is stratigraphically about 4 m below the Urría-Apolo or Alkázar contact.

Lithology: Graywacke siltstone, calcareous, friable, grayish orange.

Washed residue with abundant nassellarias and spumellarias and a fragment of *Globorotalia* sp. (truncate form).

BR station 888 (Urría beds)

Lithology: Limestone, hard, pale yellowish orange to grayish orange.

Texture: Microcrystalline calcite, dolomitized, vacuolar.

Assemblage: Radiolaria of Tertiary aspect.

BR station 889 (Husillo formation)

Lithology: Limestone, fragmental, hard, in part vacuolar, white to grayish orange.

Texture: Cryptocrystalline to microcrystalline groundmass, in part vacuolar, with fragments of corals, algae, encrusting Foraminifera, bryozoas, echinoderms and mollusks. Common miogypsinas and heterosteginas. Some globigerinas.

Assemblage: *Miogypsina bracuensis* VAUGHAN
Heterostegina antillea CUSHMAN
Operculinoides cf. *dius* (COLE and PONTON)
Amphistegina spp.
Carpenteria sp.
Sporadotrema sp.
Planorbulinella larvata (PARKER and JONES)
Planorbulina mediterraneensis D'ORBIGNY
Acervulina inhaerens SCHULTZE
Gypsina globulus REUSS
Archaias cf. *operculiniformis* HENSON
Meandropsina sp.
Lepidocyclina (*Lepidocyclina*) sp.
Orbitocyclina sp. (fragment, reworked).

Urría beds of similar lithology were also seen about 1.6 km east-southeast of the Cojímar type locality, south of Loma San Pedro, in channels of the Alkázar formation. Some of the post-Toledo strata in the large quarry east of the Río Almendares at the intersection of Avenida Antonio Soto and Calle 38, Reparto Nuevo Vedado, may possibly represent Urría beds.

Environment and age

The dolomite rhomboeders of the Urría beds are of secondary nature, and the abundant Tertiary Radiolaria in the outcrop at the Barreras-Vía Blanca road suggest an open-marine origin for the Urría beds. It is evident that their age is not only pre-Cojímar, as concluded from the type locality, but even pre-Husillo. They were deposited after the deep-water Lower Eocene Toledo beds and prior to the reefal Husillo limestones with *Miogypsina* and *Heterostegina antillea* CUSHMAN. In the Habana area this age range is represented by the following sedimentary sequence from bottom to top:



Fig. 62. View of the Urría type locality at the road cut of the Avenida Monumental, south of Loma Urría, showing the channeled Toledo beds, the Urría channel filling and the unconformably overlying Cojimar formation.

Príncipe member of the Universidad formation—Lower to Middle Eocene, but not late Middle Eocene, except BR station 455.

Punta Brava formation—Early Upper Eocene.

Consuelo formation—Oligocene.

Lepidocyclina-bearing conglomerates at Punta Brava—Oligocene—pre-type Husillo with *Miogypsina*s and *Heterostegina antillea*—Miocene.

None of these units is lithologically reminiscent of the Urría beds which therefore are tentatively regarded as relics of a formation laid down during one of the gaps in above succession. Radiolaria are common in the Lower to Middle



Fig. 63. Detail of the Toledo channel and the Urría filling as shown in fig. 62.

Eocene, and their occurrence in the outcrop of the Barreras-Vía Blanca road may indicate a Middle Eocene post-Universidad age for the Urría beds.

Punta Brava Formation

For Upper Eocene yellowish to orange hard limestones, chalky limestones, and fine-grained calcarenites we introduce a new lithologic unit, the Punta Brava formation. It is known only from outcrops near Punta Brava, a small village on the Carretera Central toward Pinar del Río in the south-western corner of the Habana area as defined in this paper. The Punta Brava formation differs from both the Upper Eocene Jabaco formation and Jicotea member defined by BERMÚDEZ from outcrops outside the Habana area. Before describing the new formation, the status of these units will be briefly discussed.

The type locality of the Upper Eocene Jabaco formation is at a cut of the road from Guanajay to El Mariel, 4.5 km west-northwest of Guanajay, Pinar del Río Province (BERMÚDEZ, 1950, p. 247). The lithology is a series of yellowish irregularly bedded, marly limestones. Layers of intraformational reworked rock fragments and fossils are a conspicuous element of this formation. In certain beds larger benthonic Foraminifera are abundant. Many perfectly preserved discocyclinas, astero-cyclinas and lepidocyclinas were noticed as well as *Dictyoconus cookei* MOBERG and *Fabiania cassis* SILVESTRI of which *F. cubensis* (COLE and BERMÚDEZ) is a junior synonym. As will be seen from the planktonic species cited below, the type samples of the Jabaco beds are from the late Upper Eocene *Globorotalia cerroazulensis* zone, not early Upper Eocene as stated by BERMÚDEZ (1950, p. 247). The following samples listed from bottom to top are from the type locality of the Jabaco formation:

BR station 497 (Base of outcrop)

Lithology: Marl, chalky, grayish yellow.

Washed residue with

- Cribohantkenina bermudezi* THALMANN
- Hantkenina alabamensis* CUSHMAN
- Hantkenina suprasuturalis* BRÖNNIMANN
- Globorotalia cerroazulensis* (COLE)
- Catapsydrax dissimilis* (CUSHMAN and BERMÚDEZ)
- Globigerina ampliapertura* BOLLI
- Globigerina rohri* BOLLI group
- Globoquadrina venezuelana* (HEDBERG) group
- Globorotaloides suteri* BOLLI
- Globigerinatheka barri* BRÖNNIMANN
- Chiloguembelina cubensis* (PALMER) and reworked Universidad forms

BR station 498 (1 m stratigraphically above 497)

Lithology: Marl, chalky, grayish yellow.

Washed residue with

- Hantkenina alabamensis* CUSHMAN
- Hantkenina suprasuturalis* BRÖNNIMANN
- Globorotaloides suteri* BOLLI