

A *NERINEA* FROM SOUTHWESTERN ORIENTE PROVINCE, CUBA

W. P. WOODRING

U. S. Geological Survey, Washington, D.C.

ABSTRACT—Loose specimens of a new species of *Nerinea*, *N. epelys*, were found in an outcrop area of limestone of middle Eocene age in southwestern Oriente Province, Cuba. They are presumed to be Upper Cretaceous detrital constituents weathered out of the Eocene limestone. *N. epelys* is closely allied to the Upper Cretaceous European *N. bicincta*; indeed, specimens of the Cuban species from the Upper Cretaceous Habana formation of Camaguey Province were identified by Knipscheer as *N. bicincta*.

THE *Nerinea* herewith described was collected during the course of geologic mapping in southwestern Oriente Province, Cuba, in the foothills of the Sierra Maestra about 20 kilometers south-southeast of Bayamo. More specifically the locality is on the south side of Río Guamá on Finca Entre Ríos, the estate of the soldier and statesman General Carlos García Veles, a son of the Cuban general and patriot Calixto García Iñiguez, immortalized in Elbert Hubbard's "A Message to García." I was guided to the fossils by a son of the estate owner, Sr. Calixto García Martínez Ibor, who had noticed them in a cultivated field. The fossil locality is recorded as locality 11 in a report on the geology of the Guisa-Los Negros area and is shown on the geologic map accompanying that report (Woodring and Daviess, 1944, p. 373, pl. 68).

The locality is in an outcrop area of the Charco Redondo limestone, of Eocene age. Though that formation was assigned to the upper Eocene by Woodring and Daviess, a middle Eocene age is preferred by micropaleontologists (Bermúdez, 1950, p. 246, correlation table)—and, aside from calcareous algae, Foraminifera are by far the most abundant fossils in the Charco Redondo limestone, as well as in the underlying formation and the overlying formation. The

fossils, however, were weathered out of their matrix and were lying loose in the field. A low cliff of limestone of the Charco Redondo rises along the south border of the field less than 100 meters from the scattered spots where the fossils were found. A float piece of *Nerinea*-bearing limestone was observed, but unfortunately not collected, closer to the foot of the cliff, but no mollusks were seen in the cliff-forming limestone. No exhaustive search, however, was made; and other observations that would now be pertinent were not considered, for it was not suspected that both Cretaceous and Eocene fossils were being picked up.

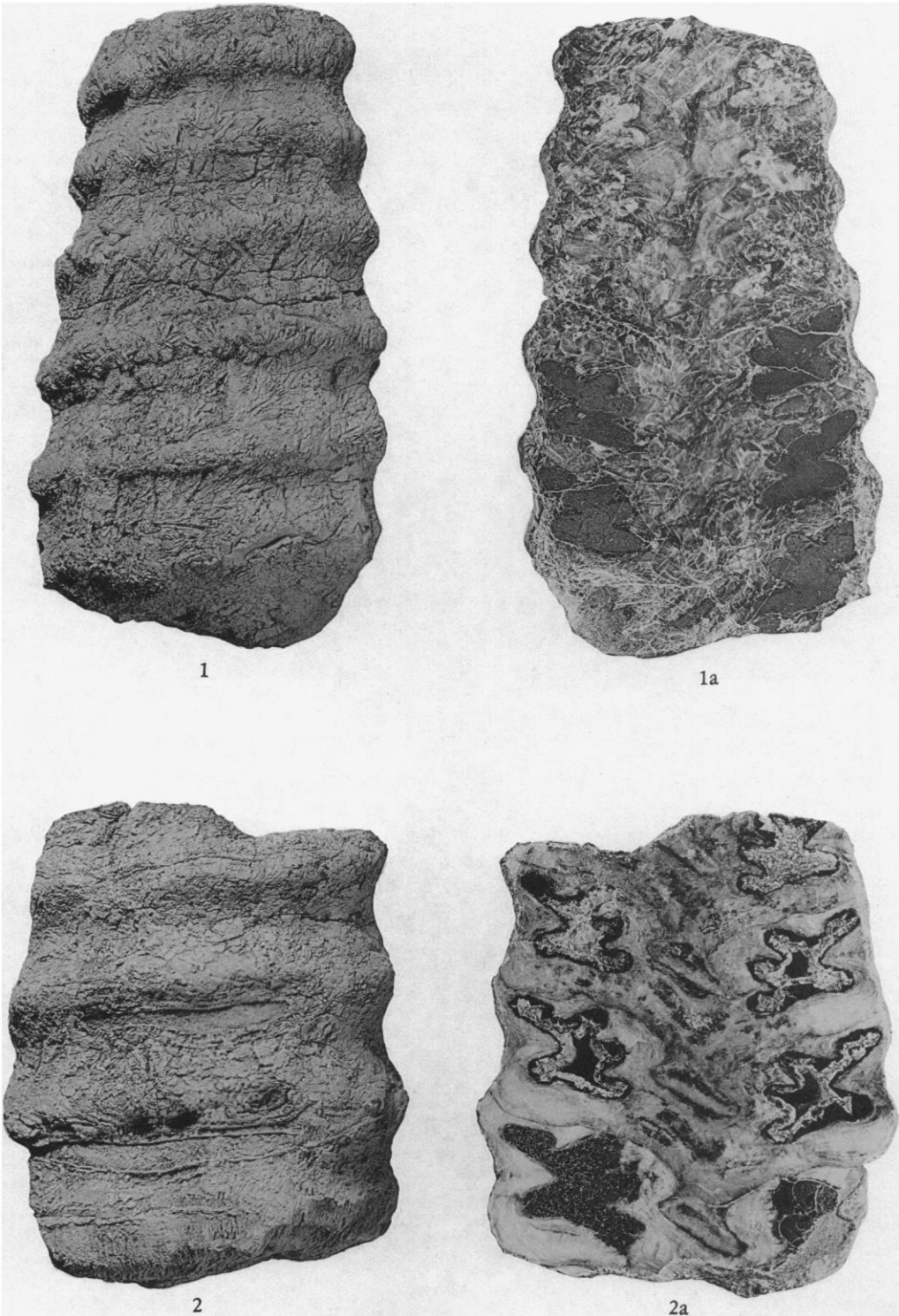
When the *Nerinea* was collected it was thought to represent a *Campanile*-like large cerithid, and its affinities were not realized until specimens were sectioned in Washington. At that time the matter was not pursued further than to list it as an unidentified nerineid genus. It is, of course, as shocking to find an Eocene nerineid as to find an Eocene ammonite. Nerineids reached their acme in the Jurassic and early Cretaceous, rapidly declined in the late Cretaceous, and disappeared before the close of Cretaceous time. To be sure, Chavan (1946) recently suggested that the Eocene cerithid genus *Bezançonina* is to be assigned to the Nerineidae. *Bezançonina*, however, has no labral or

EXPLANATION OF PLATE 11

The specimens illustrated on this plate were found at U. S. Geol. Survey locality 15252, on Finca Entre Ríos, about 20 kilometers south-southeast of Bayamo, Oriente Province, Cuba; in outcrop area of middle Eocene Charco Redondo limestone, but presumably derived from Upper Cretaceous Habana formation or its equivalent.

FIGS. 1, 1a—*Nerinea epelys* Woodring, n. sp. Type, $\times 1$. U. S. Nat. Mus. 560624.

2, 2a—*Nerinea epelys* Woodring, n. sp., $\times 1$. U. S. Nat. Mus. 560625.



Woodring, *Nerinea* from Cuba

parietal folds. It is improbable that the *Nerinea* is a genuine Eocene fossil.

Three other species of mollusks were found in the field. They were recorded, in preliminary identification, as *Terebralia?* sp., *Mitreola?* cf. *labratula* (Lamarck), and *Corbis* cf. *claibornensis* Dall (Woodring and Daviess, 1944, p. 373). The preliminary identification of two of these species is erroneous. H. B. Stenzel has pointed out that the cerithid ("*Terebralia?*") is related to the middle Eocene Texan "*Cerithium*" *vinctum* Whitfield, allied forms of which are found in the Eocene of Jamaica and Panama. J. B. Reeside, Jr., informs me that the two imperfect gastropods listed as *Mitreola?* cf. *labratula* represent an *Actaeonella* of the subgenus *Trochactaeon*, known only from the Cretaceous. The "*Cerithium*" and the *Corbis*, both of which are expectable Eocene fossils, are light-colored and silicified—and the *Corbis* has adhering matrix of partly silicified light gray limestone—whereas the specimens of *Nerinea* and of *Actaeonella* are dark-colored and not silicified. There is therefore an objective basis for classifying the fossils in two groups on preservation and that classification agrees with a classification based on what is known about their range in time.

The *Nerinea* and the *Actaeonella* are presumed to be Upper Cretaceous detrital constituents weathered out of the Charco Redondo limestone. The presumption is afforded some measure of justification by the occurrence of the same *Nerinea* in the Upper Cretaceous Habana formation of Camaguey Province, about 150 kilometers northwest of the Oriente locality, as recorded by Knipscheer (1938, p. 673), a record that was overlooked when the report on the Guisalo Los Negros area was prepared. The nearest known fossiliferous Upper Cretaceous deposits in Oriente are in the east-central part of the province about 100 kilometers east-northeast of Bayamo, in the area covered by Lewis and Straczek in a forthcoming report. *Nerinea*, however, so far has not been found in them. Fossiliferous Upper Cretaceous deposits presumably shed debris into the Charco Redondo sea. The Charco Redondo limestone is underlain by the Paleo-

cene to middle Eocene Cobre formation,¹ which is estimated to have a thickness of several thousand meters. Under the presumption just specified, the Charco Redondo limestone, or an equivalent part of the Cobre formation, overlapped across several thousand meters of Eocene and Paleocene deposits. It would not be profitable at the present time to speculate concerning an alternative possibility: that Río Bayamo, into which Río Guamá empties near the fossil locality, drains a still unknown area of fossiliferous Upper Cretaceous strata in the central part of the western Sierra Maestra, and that the Upper Cretaceous fossils represent lag constituents of a former alluvial deposit of that stream. So far as known the much shorter Río Guamá drains only areas underlain by the Charco Redondo limestone and the Cobre formation.

DESCRIPTION OF SPECIES

Family NERINEIDAE

Genus NERINEA Deshayes

Subgenus NERINEA s. s.

DESHAYES, 1827, Dict. Classique Hist. Nat., vol. 11, p. 534.

Type (monotype): *Nerinea mosae* Deshayes (*Nerina* in species name, presumably typographic error), middle Upper Jurassic (Corallian), France.

NERINEA EPELYS Woodring, n. sp.

Plate 11

Nerinea bicincta Bronn, KNIPSCHER, 1938, p. 673, figs. 1, 2, 3a-c.

Nerineid, genus?, WOODRING & DAVIESS, 1944, p. 378, list.

Large, elongate conic. Apex blunt (worn?), early whorls rapidly enlarging, subsequent whorls slowly enlarging. Body whorl sculptured with a wide sutural band, which

¹ The Cobre formation is considered Paleocene and lower Eocene by Bermúdez (1950, p. 239, correlation table), but, according to de Albear (in Lewis and Straczek, unpublished), the upper part of the formation contains Foraminifera of middle Eocene age. The upper part of the Cobre—the only part exposed in the Guisalo Los Negros area—was referred to the upper Eocene on inadequate grounds by Woodring and Daviess (1944, p. 367).

conceals suture, and a similar basal band. Both bands bearing wide crude nodes, 11 or 12 to a whorl on later whorls. More or less well-defined low crude axials extend from nodes across body and spire whorls, but are subdued on middle of whorls. Sutural band only, with its nodes and corresponding axials, exposed on spire whorls. Interior bearing two short subequal columellar folds, a short oblique parietal fold, and a moderately long wide-based labral fold. Aperture and growth line unknown.

Height (incomplete, 6 whorls) 87 mm., diameter 47 mm. (type). Height (incomplete, 4 whorls) 62 mm., diameter 55 mm. (figured specimen).

Type.—U. S. Nat. Mus. 560624.

Type locality.—U. S. Geol. Survey locality 15252 (Cenozoic invertebrate register), Finca Entre Ríos, slope on south side of Río Guamá, 2 kilometers southeast of Tienda Nueva at El Corojo and about 20 kilometers south-southeast of Bayamo, Oriente Province. Four incomplete specimens. In outcrop area of middle Eocene Charco Redondo limestone, but presumably derived from Upper Cretaceous (Maestrichtian and Campanian (?), according to Imlay, 1944, p. 1015) Habana formation or its equivalent.

Other localities.—About 700 meters south of Aurora, and Cantera Caballero west of Sibanicú, both in Camaguey Province; Habana formation (Knipscheer, 1938, p. 673, as *N. bicincta* Bronn).

Remarks.—The large figured specimen and, to a lesser extent, the type are somewhat corroded. A large, but incomplete, specimen, larger than any found by the U. S. Geological Survey party, was collected at the same locality at an earlier date by Sr. Calixto García Martínez Ibor and presented to Ing. Antonio Calvache, Consulting Engineer of the Dirección de Montes, Minas y Aguas.

Nerinea epelys was identified by Knipscheer as the Upper Cretaceous European *N. bicincta* Bronn (1836, p. 562, pl. 6, fig. 14), from the Gosau beds of Austria, of

Turonian and Senonian age. Bronn's illustration is too generalized to afford a basis for comparison. According to Zekeli's (1852, p. 34, pl. 4, figs. 3, 4, not fig. 5; as *N. buchi* "(Kefenstein) Zekeli") and Goldfuss' (1862–66, pt. 3, 1863, p. 44, pl. 177, figs. 5a, b) illustrations, *N. bicincta* lacks the strong sutural band of *N. epelys* and has narrower nodes and axials. Nevertheless the two species are closely allied: the folds have the same plan and the sculptural pattern is similar. There appear to be no similar American species; in fact, *Nerinea* is very rare in the Upper Cretaceous of America. The fold and sculptural patterns suggest assignment to the subgenus *Nerinea* s. s.

The earliest formal proposal of the generic name *Nerinea* has been discussed recently by Cox (1949).

REFERENCES

- BERMÚDEZ, P. J., 1950, Contribución al estudio del Cenozoico Cubano: Soc. Cubana Hist. Nat. Felipe Poey Mem., vol. 19, pp. 205–375.
- BRONN, H. G., 1836, Übersicht und Abbildungen der bis jetzt bekannten *Nerinea*-Arten: Neues Jahrb., 1836, pp. 545–566, pl. 6.
- CHAVAN, A., 1946, Sur la position systématique du genre *Bezanconia*: Soc. Géol. France, Compte Rendu Som., no. 2, pp. 22–24, 1946.
- COX, L. R., 1949, On the genotype of *Nerinea*, with a new subgeneric name *Eunerinea*: Malacological Soc. London Proc., vol. 27, pp. 248–250.
- GOLDFUSS, AUGUST, 1862–66, Petrefacta Germaniae, 2d ed., 4 pts. (separately paginated), 199 pls.
- IMLAY, R. W., 1944, Correlation of the Cretaceous formations of the Greater Antilles, Central America, and Mexico: Geol. Soc. America Bull., vol. 55, pp. 1005–1045, 2 pls., 1 fig., chart.
- KNIPSCHER, H., 1938, On Cretaceous *Nerineas* from Cuba: K. Akad. Wetensch. Amsterdam Proc., vol. 41, no. 6, pp. 673–676, 15 figs.
- LEWIS, G. E., and STRACZEK, J. A., Geology of south-central Oriente Province, Cuba: U. S. Geol. Survey Bull. (in preparation).
- WOODRING, W. P., and DAVIESS, S. N., 1944, Geology and manganese deposits of Guisalo-Negros area, Oriente Province, Cuba: U. S. Geol. Survey Bull. 935, pp. 357–386, pls. 68–77, figs. 19, 20.
- ZEKELI, FRIEDRICH, 1852, Die Gasteropoden der Gosaugebilde: K. k. Geol. Reichsanstalt Abh., vol. 1, pt. 2, no. 2, 124 pp., 24 pls.

MANUSCRIPT RECEIVED JANUARY 12, 1951.

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