

APPENDIX I.—SOME NEW EOCENE FORAMINIFERA OF THE  
GENUS DICTYOCONUS.

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The only Foraminifera described in this appendix are the new middle and upper Eocene species of *Dictyoconus* which are figured on Plates IX and XIII as characteristic fossils.

Genus DICTYOCONUS Blanckenhorn.

Blanckenhorn, 1900, Deutsche geol. Gesell. Zeitschr., Band 52, pp. 419, 434.  
Type (by monotypy): *Patellina egyptiensis* Chapman. Middle Eocene, Egypt.

DICTYOCONUS CODON Woodring, n. sp.

Plate IX, Figures 1, 2, 5, 6 (p. 104).

Test large, conical, height less than half the diameter at base, sides and base undulated, sides slightly concave, apex broadly rounded, basal angle subacute; on worn specimens a fine network of concentric annuli divided into narrow rectangles is visible at the surface, except on the base; base punctate; in thin section the test is seen to be composed of an outer layer of small tubular chambers open toward the interior, divided by one or two short thin partitions, the interior composed of irregular labyrinthic chambers, imperfectly arranged in concentric annuli convex toward the base.

Dimensions: Diameter at base 8 millimeters, height 2.5 millimeters (type); diameter at base 7.5 millimeters, height 3 millimeters; diameter at base 4.7 millimeters, height 2 millimeters.

Type: U. S. Nat. Mus. Cat. No. 350586.

Type locality: Road from Plaisance to Ennery, at north foot of Mont Puilboreau, about 5 kilometers from Plaisance; altitude 515 meters above sea level (U. S. Geol. Survey station 9857). Other localities: Stations 9888, 9441, 9859, 9860, 9442, and 9734. (For detailed descriptions see pp. 105-106.)

The low conical outline and undulate base are characteristic features of this species. None of the sections show the initial spiral stage. *D. codon* closely resembles *D. egyptiensis* (Chapman),<sup>1</sup> a middle Eocene Egyptian

<sup>1</sup> Chapman, F., On a *Patellina* limestone and another foraminiferal limestone from Egypt: Geol. Mag., new ser., dec. 4, vol. 7, pp. 3-17, pl. 2, 1900. More fully described by C. Schlumberger and Henri Douvillé, Sur deux Foraminifères Eocènes: Soc. géol. France Bull., 4th sér., vol. 5, pp. 291-304, pl. 9, 7 text figs., 1905.

species, but is larger and lower, and has an undulate base. It is confined to the Plaisance limestone. Dr. C. A. Matley, Government geologist of Jamaica, has recently collected the same or a very similar species from the "Yellow limestone" of Jamaica.

*DICTYOCONUS PUILBOREAUENSIS* Woodring, n. sp.

Plate IX, Figures 3-5, 7, 8 (p. 104).

Test medium sized, conical, height between half and two-thirds of diameter at base, sides slightly convex, apex broadly rounded, basal angle obtuse; surface covered with thin vitreous coat, generally worn, revealing narrow concentric annuli divided into narrow rectangles; base punctate; in thin section outer layers of chambers are seen to be small, tubular, open toward the interior, divided by one or two partitions; the interior is composed of irregular labyrinthic chambers arranged in concentric annuli parallel to the base.

Dimensions: Diameter at base 3.8 millimeters, height 2 millimeters, (type); diameter at base 3 millimeters, height 2 millimeters; diameter at base 2.7 millimeters, height 2.5 millimeters.

Type: U. S. Nat. Mus. Cat. No. 350587.

Type locality: Road from Plaisance to Ennery, at north foot of Mount Puilboreau, about 5 kilometers from Plaisance; altitude 515 meters above sea level (U. S. Geol. Survey station 9857). Other localities: Stations 9771, 9888, 9889, 9858, 9441, 9859, 9860, 9442, 9861, 9991, 9871, 9734, 9873 (identification doubtful), 9792, 9753, and 9754. (For detailed description see pp. 105-106.)

One section shows the initial spiral stage (Pl. IX, Fig. 8).

This species was collected in the same beds of the Plaisance limestone as *D. codon*, but it is more abundant and was obtained at more localities. There is a possibility that the two "species" are megalospheric and microspheric forms of the same species. *D. puilboreauensis* is smaller than *D. condon* and higher and has a convex base, but the chambers are very similar. It is smaller and more evenly conical than *D. egyptiensis* (Chapman) and has shorter outer chambers. Dr. Matley's collections show a very similar *Dictyoconus* in the "Yellow limestone" of Jamaica.

*DICTYOCONUS PUILBOREAUENSIS NANNOIDES* Woodring, n. subsp.

Plate XIII, Figures B, C (p. 140).

Test small, conical, height two-thirds or more of diameter at base, sides slightly convex, base decidedly convex, apex broadly rounded, basal angle obtuse; the chambers resemble those of *D. puilboreauensis puilboreauensis*, but the partitions between the outer chambers are slightly longer.

Dimensions: Diameter at base 2 millimeters, height 1.5 millimeters, (type); diameter at base 2.5 millimeters, height 1.8 millimeters; diameter at base 1.5 millimeters; height 1.7 millimeters.

Type: U. S. Nat. Mus. Cat. No. 350588.

Type locality: Cliff about a kilometer south of Dolan, near trail from Terre-Neuve to Gonaïves (U. S. Geol. Survey station 9821). Other localities: Stations 9864, 9925, 9989, 9804, 9869, 9868, 9827, 9735, 9848, 9851, 9865, 9814, 9824, 9816, 9826, 9842, 9796, 9843, 9795, 9964, 9742, 9890, 9883, 9886, 9887, 9789, 9919, 9456, 9914, 9790, and 9517. (For detailed descriptions see pp. 140-145.)

This subspecies, which seems to be characteristic of the upper Eocene (Priabonian) limestones, is smaller than *D. puilboreauensis puilboreauensis*, and the diameter at the base and the height are more nearly equal; it also has slightly longer outer chambers. It resembles *D. americana* (Cushman),<sup>1</sup> an upper Eocene species from the island of St. Bartholomew, but its base is more convex and does not flare out at the peripheral angle; it also has wider and shorter outer chambers.

<sup>1</sup> Cushman, J. A., Fossil Foraminifera from the West Indies: Carnegie Inst. Washington Pub. 291, p. 43, text fig. 3, 1919.