

our supposition give a ready explanation of the difference in the angles of rotation of different sporangiophores or of the same sporangiophore at subsequent times.

3. In the formation, finally, of the tertiary wall the velocity of the streaming, much diminished by age, would result again in a decrease of the directive force of the streaming upon the molecules. Ageing also may cause, as observed above, a "honeycomb-pattern" in the protoplasm, which would be in agreement with the description of OORT—ROELOFSEN, of this tertiary layer; "Die Schicht zeigt eine ziemlich grobe netzförmige oder schachbrettartige Zeichnung."

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**Palaeontology.** — On cretaceous *Nerinea's* from Cuba. By H. KNIPSCHER. (Communicated by Prof. L. RUTTEN.)

(Communicated at the meeting of May 28, 1938.)

In the collections, made by the Utrecht Cuba Expedition 1933 there were still some well-preserved *Nerinea's* from Southern Santa Clara and Camaguey, which hitherto not had been studied. Equally undetermined were some *Nerinea's* from Camaguey, collected in 1933 by Dr. TSCHOPP (of the Bataafsche Petroleum Maatschappij) in Camaguey, and presented by him to the Utrecht Geological Institute. In the following a short description will be given of four species.

*Nerinea bicincta* Bronn. fig. 1, 2, 3a, b, c.

H. G. BRONN, Neues Jahrb. 1836, p. 562, pl. VI, fig. 14; GOLDFUSS, Petref. Germ. 1844, 3, p. 46, pl. CLXXXVII, fig. 5a, b.

Conical, with rather low convolutions; one row of knots with twelve knots on each winding; the knots of the different convolutions connected with each other in vertical sense. Four infoldings: two from the columella, one from the inner lip and one from the outer lip. Our specimens agree externally and internally with the species described by BRONN.

Localities: a. 700 m. S. from Aurora, Camaguey; b. Cantera Caballero, W. from Sibanicu, Camaguey.

Habana formation (Maestrichtian). The species, described by BRONN is from the Gosau-Cretaceous and from the "Upper Quader-Sandstein" (Senonian).

*Nerinea (Plesioptygmatis) burckhardti* Böse. fig. 4, 5.

E. BÖSE, Bol. Inst. Geol. Mexico, **24**, 1906, p. 66—67, pl. XV, fig. 3—13.

Our specimens only rarely show any detail of the ornamentation, there only being visible an indistinct suture at the distal end of some of the convolutions. I did not detect a second spiral line, which BÖSE mentions from the proximal part of each winding. The deepest part of each convolution lies near the distal end. The height of the convolutions is rather variable: one specimen having 5 windings on 3.5 cm., another one of almost the same width 5 windings on 2.9 cm. There are no complete specimens. Four infoldings: two from the columella, of which the distal one is the deepest, one from the innerlip and a small one from the outer lip.

Localities: a. Ingenio Grande, Camaguey, SW. from Camaguey City; b. San José de los Jibaros, Camaguey.

Habana formation (Maestrichtian). BÖSE's specimens are from the

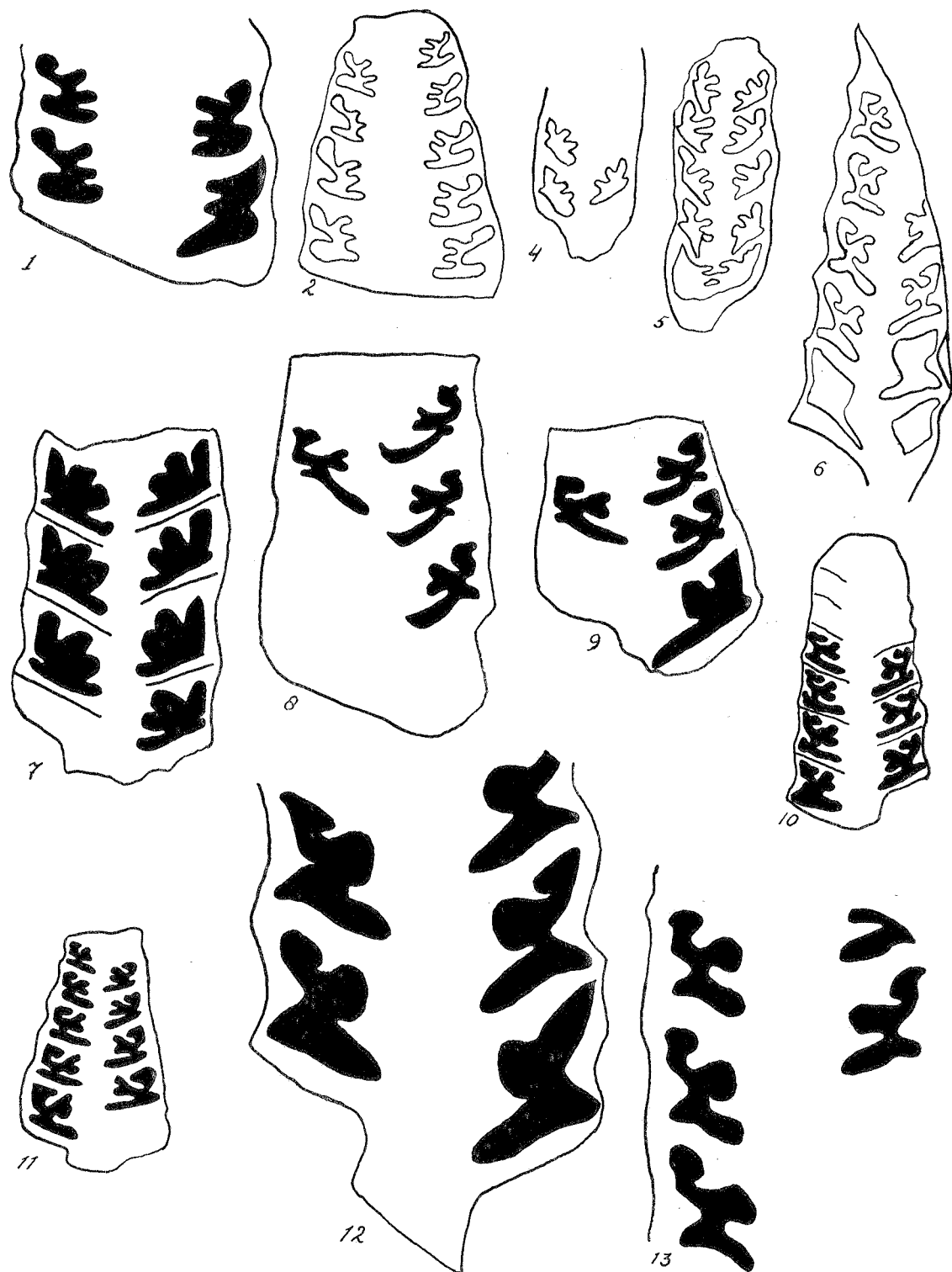


Fig. 1, 2 and 4—13.

Cardenas beds; from a niveau, lower than marls with *Orbitoides*. According to MUIR and MAC GILLAVRY<sup>1)</sup> the Cardenas beds are Maestrichtian.

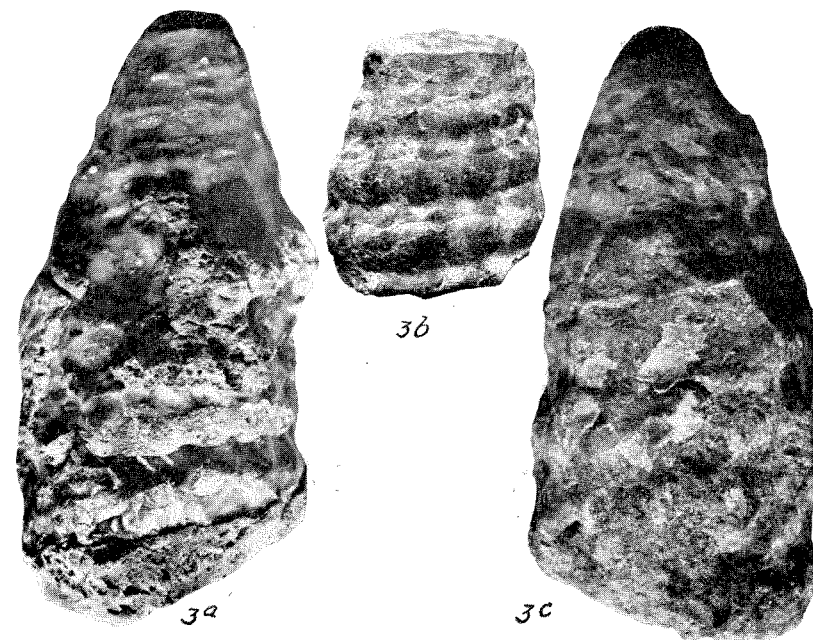


Fig. 3a—3c.

*Ptygmatis forojulensis* Pir. fig. 6—11.

M. PIRONA. Mem. R. Inst. Veneto Sc. etc. 22, 1883, p. 162, pl. IIa, fig. 1—5; C. F. PARONA. Mem. Carta. Geol. Ital. 5, 1, 1909, p. 214, pl. XXV, fig. 7—20; K. FUTTERER, Pal. Abh. 6, 1, 1892, p. 112, pl. XI, fig. 8, 9; G. BÖHM, Palaeontogr. 41, 1895, p. 134, pl. XIII, fig. 5, 6.

Different *Nerinea*'s, rather divergent inter-se have been described under this name. Especially the internal structures are very different. PIRONA (our fig. 7) describes four infoldings: two from the columella, a deep one from the inner lip and a small one from the outer lip. In PARONA's figure (our fig. 11) the infoldings are more pronounced, especially the proximal columella fold and the one from the outer lip. In some of PARONA's figures (our fig. 10) there are even more than four folds, whereby the fossils approach the genus *Ptygmatis*. In FUTTERER's and BÖHM's specimens the four infoldings are deeper and moreover oblique (our fig. 8 and 9), while at the same time a feeble fifth infolding at the roof occurs. Our fossil agrees best with the specimens of PARONA (our fig. 6 and 11).

Locality: South from Provincial, Southern Santa Clara, Cuba.

<sup>1)</sup> J. M. MUIR, Geol. of the Tampico Region, Mexico (1936).

H. J. MAC GILLAVRY, Geology of the province of Camaguey, Cuba etc. Utrecht, Acad. Thesis (1937).

Provincial Limestone of Cenomanian-Turonian or Albian age <sup>1)</sup>. According to PARONA the age of *Nerinea forojulensis* is Cenomanian.

*Nerinea* cf. *gigantea* d'Hombr. Firmas. fig. 12, 13.

A. D'ORBIGNY, Pal. française. Terr. Crét. 2, 1842, p. 77—78, pl. CLVIII, fig. 2.

As to form and dimensions our specimens agree well with *N. gigantea*. The folds of our specimens agree also well with the infoldings at the mouth of D'ORBIGNY's type specimen, but much less with sections of the older convolutions of this type specimen. Our specimens have three infoldings: one from the columella, one from the inner lip and one from the outer lip. There is moreover a trace of an infolding at the proximal side of the convolutions. Transversal sections through the last winding in one individual 5½ cm., in the smallest one still 4½ cm.

Locality: San Cristobal, S. of Seibabo, Southern Santa Clara, Cuba.

Provincial limestone (Cenomanian-Albien<sup>1)</sup>). The age of *N. gigantea* in Europe is Urgonian (Barrémian-Aptian).

<sup>1)</sup> A. THIADENS, Geology of Southern Santa Clara Province, Cuba. Utrecht, Acad. Thesis (1937).

H. J. MAC GILLAVRY l.c.

**Medicine.** — *Das Exochorion der Stegomyia-Eier.* Von A. DE BUCK. (Zoological Laboratory, Department of Tropical Hygiene, Royal Colonial Institute, Amsterdam). (Communicated by Prof. W. A. P. SCHÜFFNER.

(Communicated at the meeting of May 28, 1938.)

Die für die Vergleichung der *Anopheles maculipennis*-Rassen wichtige Zeichnung der Eier rührt bekanntlich vom Exochorion her, sie lässt sich nur vom feineren Bau des Exochorions aus verstehen (DE BUCK und SWELLENGREBEL, 1932). Schon damals, als ich mit dem Studium dieses Exochorions von *A. maculipennis* beschäftigt war, konnte ich gelegentlich feststellen, wie wesentlich anders die Verhältnisse beim *Stegomyia*-Ei liegen. Es war mir aber nicht möglich genügend Zeit darauf zu verwenden um die Sache zur Klarheit zu bringen. Erst kürzlich habe ich wieder Gelegenheit gefunden die Eier von *Stegomyia fasciata* und *albopicta* (*Aedes aegypti* und *albopictus*) genauer zu untersuchen; die Resultate will ich hier mitteilen.

Dasz es nicht so ganz leicht ist, den Bau des Exochorions dieser Eier zu verstehen, mag daraus hervorgehen, dasz die Beschreibungen in der Literatur meist sehr oberflächlich, zum Teil sogar völlig unrichtig sind.

So sagen OTTO und NEUMANN (1905, S. 376): Die Eier zeigen punktförmige Sprengelung, die sich bei starker Vergrößerung in bläschenartige Gebilde auflöst. Die Bläschen enthalten Luft....

JAMES und LISTON (1911, S. 5): The eggs of the genus *Stegomyia* are peculiar in that, besides being more or less oval in shape, they possess a rim of cells somewhat resembling the rim or frill present in anopheline eggs.

NEUMANN und MAYER (1914, S. 207): Bei stärkerer Vergrößerung beobachtet man eine Unzahl kleiner bläschenartiger Gebilde auf der Oberfläche, welche Luft enthalten und das Schwimmen auf der Wasseroberfläche ermöglichen.

HOWARD, DYAR und KNAB (1917, S. 836): Egg. — Fusiform, black, very slightly flattened on one side, slightly more tapered towards the micropylar end; sculpture of rough, somewhat irregular rhomboidal callosities forming spiral rows.

PATTON und EVANS (1929, S. 255): The egg of *Stegomyia fasciata* is spindle-shaped, slightly asymmetrical and somewhat curved in outline, it is of a light grey colour when first laid, but soon turns black. The surface of the chorion has characteristic sculptured markings, consisting of reticulated, polygonal areas, the spaces between which are raised. The raised areas appear to consist of some substance, which has the effect