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OCCURENCE OF THE GENUS MALEA VALENCIENNES, 1832 IN ATLANTIC WATERS, WITH THE DESCRIPTION OF A NEW SPECIES (MOLLUSCA: GASTROPODA)

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A new species of Tonnidae, *Malea noronhensis* is described, based on material obtained from the Brazilian Islands of Fernando de Noronha, Atol das Rocas and Trindade. It constitutes the first Recent record of the genus *Malea* Valenciennes, 1832 for the Atlantic Ocean, where it is referred only from the Tertiary of Jamaica and Florida (Woodring, 1928).

Genus *Malea* Valenciennes, 1832

Type species: *Malea ringens* (Swainson, 1822).

Shell medium to large in size, porcelaneous, rather heavy. Spiral ornamentation of wide, smooth, flat ridges. Aperture moderate in size. Parietal shield slightly to well developed and reflected over a small umbilicus. Inner lip with moderate to very strong lamellae grouped on the parietal area and again on the columella, separated by a columellar excavation. Outer lip strongly crenulated, reflected and usually with a definite sulcus behind.

Malea noronhensis sp. nov.

Figures 1-5

Types: see table I.

Description: Shell medium in size, very solid and heavy. Spire rather short, last whorl occupying 7/8 of total length at the aperture. Body whorl inflated and shouldered, periphery being located at its posterior third.

Protoconch light amber, smooth, translucent, with 4 convolutions. Its apex slightly elevated, white within and the last whorl inflated, separated from the teleoconch by a clear incized line. [Description of protoconch based on paratype number 1, apex of holotype being slightly damaged. This paratype is a very well preserved fragment of a young specimen and shows the entire embryonic shell. The last is big (4 x 4 mm) in relation to the adult size (figure 1), globose, translucent and like its outer part formerly described. Its general shape is very close to that of the larval shell of the genus *Tonna* Brunnich, 1772, illustrated in Turner (1948), page 165, plate 74, figure 1].

Teleoconch with 3 3/4 whorls, suture indented, specially in the last one. It is coincident with the groove following the last spiral ridge, thus deepening toward the body whorl. The whorls of the spire are ornamented with 3 spiral ridges, weak on the first half of the earlier convolution and becoming progressively more pronunced.

Body whorl with 14 nearly equidistant flat spiral ridges, narrower and more numerous toward the anterior end, separated by a small groove. The 3 uppermore, forming a sloping shoulder, are slightly more elevated and spaced. Aperture narrow, elongated. Parietal callus well developed, more pronounced as an axial ridge bordering the inner lip, and gradually disappearing on its distal end without a definite margin. Parietal lip with 11 teeth, the 5 posterior ones weak and directly

TABLE I

Types of *Malea noronhensis* sp. nov., with data on origin and measurements.

Types	Institutions	Collection numbers	Origins	Measurements (mm)		
				height	width	whorls (1)
Holotype	Museu Nacional	3,493	Rocas (IV.1964)	70.0	51.5	3 3/4
Paratype 1	Rio de Janeiro — Brasil	3,494	Noronha (X.1967) *	—	—	—
Paratype 2	Museum National d'Histoire Naturelle Paris — France	—	Rocas (IV.1964)	66.5	49.0	3 3/4
Paratype 3	Laboratório de Ciências do Mar Fortaleza — Brasil	432	Rocas (IV.1964)	61(+)	48.0	3(+)
Paratype 4	Laboratório de Ciências do Mar Recife — Brasil	150	Noronha (I.1964)	47.5	37.0	3 1/4
Paratype 5	Escola de Geologia Recife — Brasil	—	Rocas (IV.1961)	60(+)	46.5	3 1/2
Paratype 6	Museu Oceanográfico	13,289	Rocas (I.1965)	68.5	50.0	3 1/4
Paratype 7	Rio Grande — Brasil	6,070	Trindade (IV.1958)	53(+)	41.0	3 1/2

(1) postnuclear whorls only.
* juvenile fragment, used to allow description of protoconch.
(+) spire broken.

corresponding to the spiral ridges visible on the interior of the aperture, and reinforced near the callus. The 6 anterior ones are more pronounced. A small depression separates 2 more teeth, the posterior one being the strongest of all and the anterior slightly bifid. The former depression crosses the callus in an oblique direction, following the spire of the columella. The anterior part of the parietal callus is reflected over the umbilicus, closing it. Umbilicus apparent only in broken shells. Outer lip strongly thickened and reflected, with 11 pronunced teeth on the inner margin. The 3 posterior ones broader but less elevated, with a slight bifid appearence on the crest, each interspace bearing a small tooth. Younger specimens do not present these 2 secondary teeth (paratype number 4) . The other 8 are crest-like, 3 of them (the 2nd., 3rd., and 4th. of this series) more elevated, and the foremost, close to the siphonal canal, a little stronger than the preceeding ones. Thickening of the outer lip increasing toward the anterior end, specially after the 3 weaker posterior teeth. The reflection of this lip is very pronounced, producing a high, squarish varix. Base of the reflection forming a sulcus which does not interrupt the spiral ridges. Exterior margin of the outer lip extended into a thin projection, more pronounced and crenulated on the anterior half of the shell, by the spiral ridges whose interspaces correspond to the teeth of the inner side.

Siphonal canal short, margined on the outer side by the extremity of the above mentioned projection and on the inner side by a well developed, lamellar, and twisted extension of the columella.

Ground color of the shell whitish, the first postnuclear whorl cream with a white superior suture. Spire and body whorls irregularly maculated with yellow-brownish spots, the darker ones following the same spiral ridges, thus having a somewhat squarish appearence. Parietal wall, callus and outer lip white. Aperture deep orange vanishing toward the outer lip.

Malea noronhensis sp. nov. is close to *M. pomum* (Linnaeus, 1758) of the Indian Ocean, differing however by the general shape of the body (more depressed spire, body whorl more inflated at its superior half, narrower aperture) and by its weaker coloration — see figures 1 and 6 .

Distribution and remarks: The whole material upon which the present paper is based comes from the Brazilian oceanic Islands of Fernando de Noronha (lat. 03°51'S , long. 33°25'W) , Atol das Rocas (lat. 03°52'S , long. 33°49'W) , and Trindade (lat. 20°30'S , long. 29°19'W) . It was obtained as beach-drift, with the exception of a single fragment, remarkable for its perfect embryonic shell, dredged by the Brazilian Navy R/V "Almirante Saldanha" in shallow water.

Unfortunatelly, not a single specimen was fresh. We are unable to describe the soft parts of the species and its living habits, or to state about periostracum. As a member of the subfamily Tonninae, it should not have an operculum when adult. The littoral occurence of

the great majority of the material, in spite of its poor condition, could indicate a shallow water habitat. Several dredgings were conducted around Fernando de Noronha and Atol das Rocas (Kempf & Matthews, 1968) and only the above refered to fragment was obtained (Matthews & Kempf, MS) . The general aspect of the shell, glossy and without any incrustation or damage due to foreign organisms, suggest a sand-dwelling life similar to that of other members of the family. As the majority of the material was obtained from Atol das Rocas, we believe that the species finds there better condition.

The geographical distribution of *Malea noronhensis* sp. nov is remarkable and, allied to its relative rarity, explains the fact that such a conspicuous shell was not noticed before. It is endemic of the Brazilian oceanic Islands, thus showing a certain similarity with the distribution pattern of the very common *Nerita ascencionis* (Gmelin, 1791) present also in Ascención Island, and *Nodilittorina tuberculata helenae* (Melliss *in* Smith, 1890) also found in Santa Helena Island but not yet reported from Atol das Rocas, and the not common *Thais nodosa ascencionis* (Blainville, 1832) also found in Ascención Island but not yet reported from Atol das Rocas and Trindade Islands. It is likely that it could equally be present in Ascención Island.

Note: As the first specimen of the new species was procured by one of us on Fernando de Noronha Island, which is also the best known of the three collecting localities, and as very probably its range is not much more wider than the above mentioned, we chose this Island to name *Malea noronhensis* sp. nov. The majority of other specimens were obtained at Atol das Rocas on a later date or kindly sent for study by several Brazilian research Institutions (see types and acknowledgments).

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SUMÁRIO

O gênero *Malea* Valenciennes, 1832 é registrado pela primeira vez como ocorrência Recente para o Oceano Atlântico, com a descrição de *M. noronhensis* sp. nov. A nova espécie é endêmica das Ilhas oceânicas brasileiras (Fernando de Noronha, Atol das Rocas e Trindade), parecendo bastante rara. Sòmente exemplares mortos foram obtidos, os quais aparentam indicar um habitat arenícola em água rasa.

Trata-se de uma concha de tamanho médio, muito sólida e pesada. Espira curta e volta do corpo ocupando cêrca de 7/8 do comprimento da concha. Abertura estreita e alongada. Calo parietal presente, columela com pliças. Lábio externo fortemente refletido, com pronunciados dentes na sua margem interna. Ornamentação consistindo de elevações espirais achatadas, lisas e aproximadamente equidistantes, tornando-se mais numerosas na extremidade anterior. Coloração básica branca, com maculações amarelas-marrons claras; interior da abertura alaranjado.

A espécie mais próxima de *M. norohensis* sp. nov. é *M. pomum* (Linnaeus, 1758) do Oceano Índico. As duas são fàcilmente diferenciadas pelo formato geral da concha.

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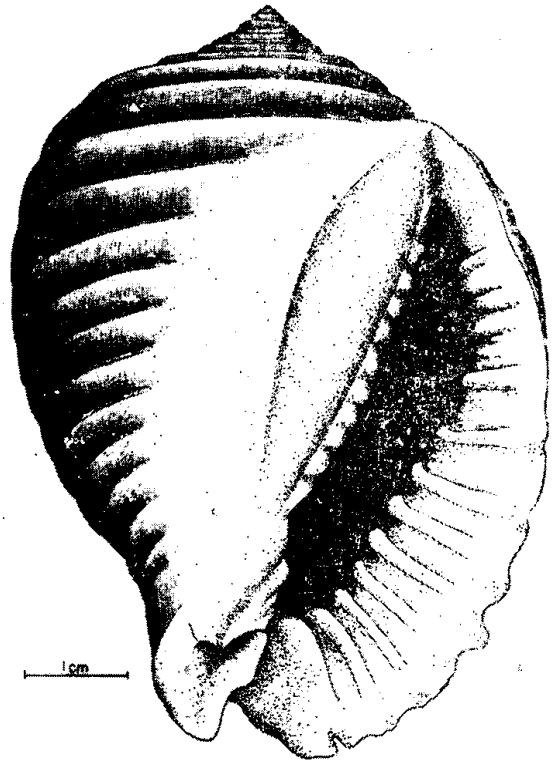

Figure 1 — *Malea noronhensis* Kempf & Matthews, sp. nov. Ventral side.

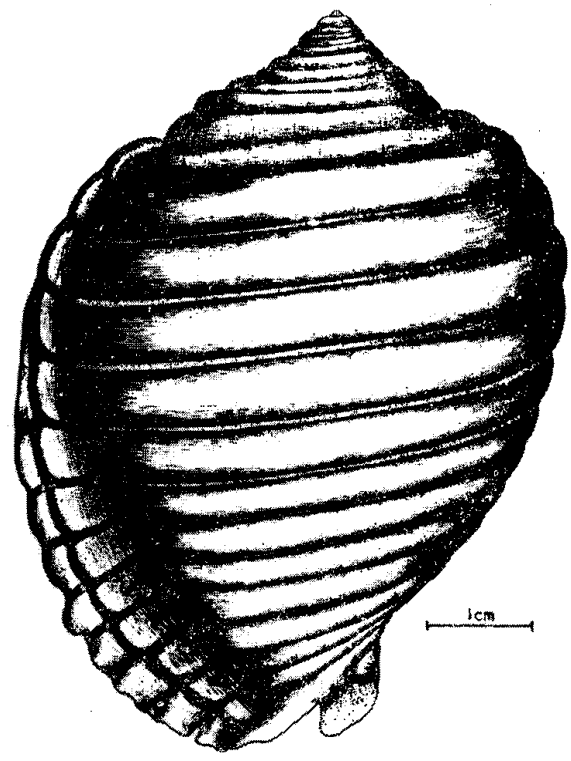

Figure 2 — *Malea noronhensis* Kempf & Matthews, sp. nov. Dorsal side.

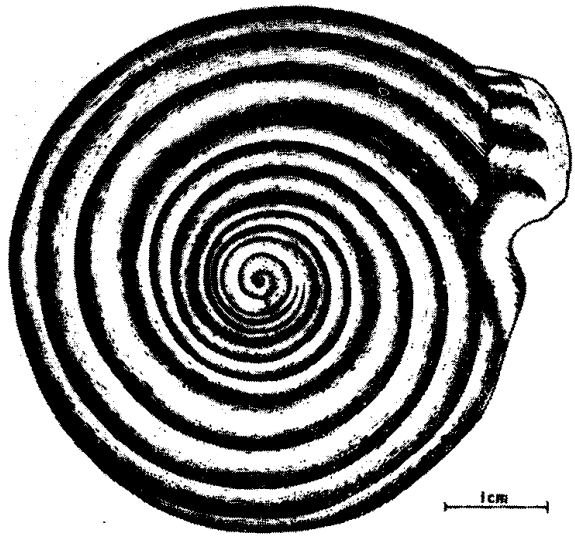

Figure 3 — *Malea noronhensis* Kempf & Matthews, sp. nov. Posterior end.

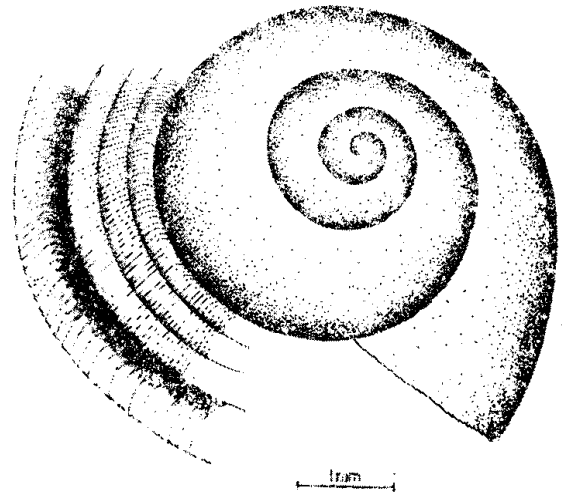

Figure 4 — *Malea noronhensis* Kempf & Matthews, sp. nov. Protoconch.

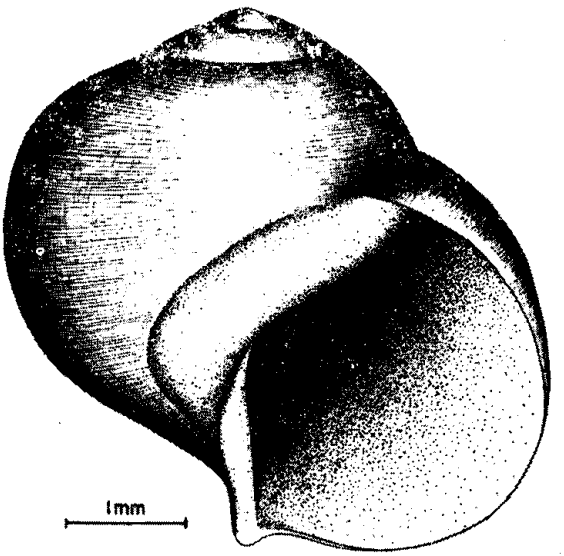

Figure 5 — *Malea noronhensis* Kempf & Matthews, sp. nov. Embryonic shell.

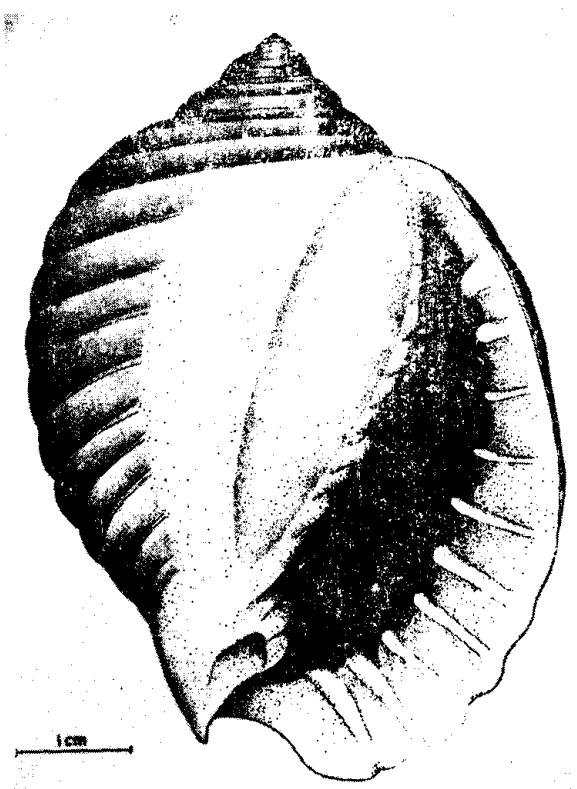

Figure 6 — *Malea pomum* (Linnaeus, 1758).

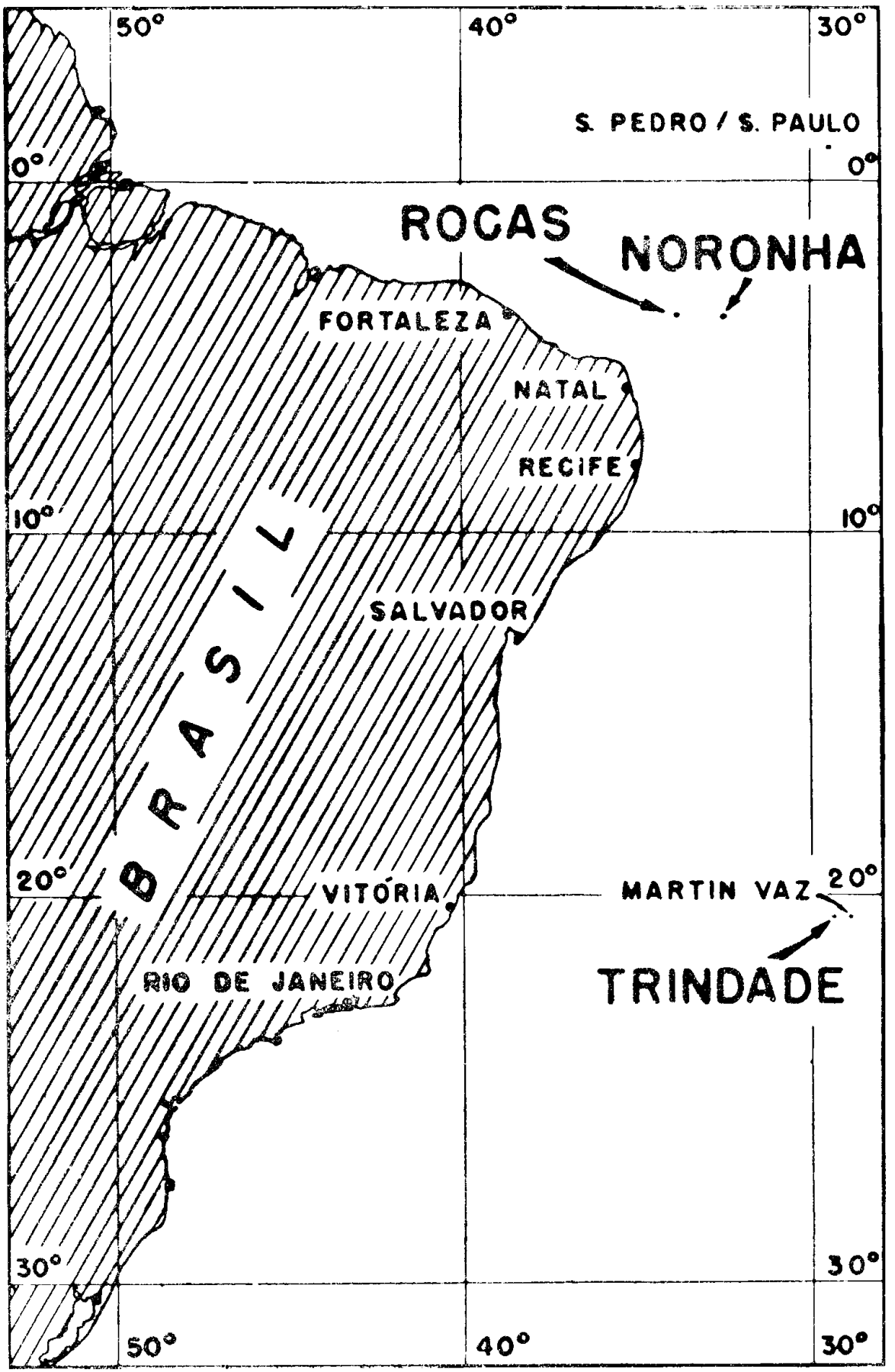

Figure 7 — Geographical distribution of *Malea noronhensis* Kempf & Matthews, sp. nov.