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On Telescopium telescopium (Linné) and the description of a new species from P. Panaitan (Prinsen Island), Straits of Sunda

by

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The last day of my stay in Pulo Panaitan (Prinsen Island), Str. of Sunda, I embarked on the M.V. „Alkaï" with Mr. A. HOOGERWERF, the leader, and some other members of our expedition to make a last trip along the coast looking for a suitable place to set up a new bivouac. We tried in vain to come ashore at Legon Lentah and then went further South. Late in the afternoon we tried again to come ashore in Legon Lentah and this time we succeeded. Behind the sandy beach of hardly one meter in width I entered a *Lumnitzera* forest. In the dry season, when we saw this place, the sea does not cover this forest, a low ridge of sand and coral debris forming a wall bordering the forest on the seaward side. I venture to say, that in the rainy season, except at spring tides and storms, the seawater will not cover this forest either, although the salty groundwater will rise. A large swamp will then be formed by considerable quantities of fresh water coming down the hills. This brackishwater basin will for a fairly long period contain stagnant water. I noted that the vegetation at this point consisted of *Lumnitzera racemosa* and here and there a *Sonneratia alba* of which the pointed roots peaked upward through the surface. Further inland the vegetation changed and trees with bent stilt roots *(Rhizophora mucronata)* dominated. At the sea-side the ground was very muddy, further inland somewhat drier, higher and stony. In this area I collected *Planorbis convexiusculus, Thiara tornatella, Thiara tuberculata* and *Neritina variegata,* all dead. The living molluscs in this area were *Polymesoda expansa,* and *Telescopium telescopium.* The bivalves alive, with their shells closed, were found in the mud for about half their length or more,

the gastropods close together in groups of four to six, the apertures pressed into the mud as were the ventral sides of their shells, the apices pointing outward, the apertures to the centre.

The party returned, none of the members having found fresh water. Finding the *Planorbis* and *Thiara* shells, I thought that fresh water might be present in the bottom, but when Mr HOOGERWERF tasted the water after having dug for it, he found it salt. The salt water was about 50 cm below the surface. Then, at the moment that the launch was about to return to the Alkai, I found *Telescopium* shells differing very much from *Telescopium telescopium.* These specimens behaved in the same way as *T. telescopium,* grouping together, apertures in the centre, pressed into the mud, the apices pointing outwards. I had time to collect only five of the aberrant *Telescopium* shells and walking back to the launch I noted that *T. telescopium* was living in the seaward part of the area, while the other *Telescopium* were living more inland on slightly higher and somewhat stony ground, where *Lumnitzera* and *Sonneratia* gave way to the bent stilt roots of *Rhizophora mucronata.* We arrived in our bivouac after sunset. My luggage had been packed already. On reaching home (October 1st) I was able to look after my shells. The animals were already decomposing.

Four specimens of *Telescopium telescopium* (L.) had been collected. All of them are large and typical shells. Dimensions:

Length: 104.6 mm	Diameter: 48.- mm	Apical angle: 36° (plate 1 fig. 1)
92.- mm	42.5 mm	37°
98.6 mm	42.- mm	32°
99.6 mm	42.- mm	31°

Besides I found a heavy shell of this species on the beach of Tandjung Parat, N. Coast of P. Panaitan, broken and rolled. It measures approximately:

Length: 104.- mm Diameter: 47.- mm Apical angle: 38° (plate 1 fig. 2)

The measurements of the aberrant *Telescopium* collected in Legon Lentah on the 28th of September 1951 are:

Length: 86.2 mm	Diameter: 49.2 mm	Apical angle: 40°
97.1 mm	57.- mm	43° (type of new sp., plate 1 figs. 3, 4)
76.- mm	46.- mm	41°
90.- mm	48.7 mm	40°
91.- mm	49.5 mm	39°

Telescopium telescopium (Linné) is very nearly related to *Telescopium titan* Martin, and as my aberrant *Telescopium* shells show some *titan* pecularities, Mr DE NEVE of the Djawatan Geologi in

Bandung, was kind enough to send me specimens of *T. titan* for study. In Holland I was able to study more *T. titan* specimens, amongst which was the type of MARTIN, through the kindness of Dr A. BROUWER of the Geological Museum in Leiden. Also I was able to study the *T. telescopium* specimens in the Amsterdam and Leiden Museums through the kindness of Mrs VAN DER FEEN-VAN BENTHEM JUTTING and Dr C. O. VAN REGTEREN ALTENA.

In the literature dealing with Indonesian *Telescopium,* mention is made of aberrant forms of *T. telescopium* by MARTENS (1897, p. 182). He distinguished:

a. „Eine schlankere, mehr genau konische... die Kante der letzten Windung ist meist deutlich ausgeprägt"... (94 × 40 mm).

b. „Eine breitere, kürzere, mit mehr bauchig vortretender letzter Windung, deren Kante sehr abgerundet ist"... (86 × 48 mm).

SCHEPMAN (1915, p. 191) identified a few shells from Merauke with the var. b of VON MARTENS. For a better understanding of their identity both VON MARTENS and SCHEPMAN referred to TAPPARONE CANEFERI, (1883, p. 57); QUOY & GAIMARD, (1832, pl. 55 figs. 4-6); LINNÉ, (1758, p. 760) and GUALTIERI, (1742, pl. 60 fig. E).

By means of these references I should refer the shells of SCHEPMAN and VON MARTENS to *Telescopium telescopium* (L.). SCHEPMAN's three Merauke shells (leg. KOCH, 1904) are in the Amsterdam Museum. Their measurements are:

Length:	Diameter:	Apical angle:
126.- mm	63.- mm	30°
112.- mm	58.- mm	30°
100.- mm	51.- mm	35°

These three shells show a broadened last whorl, giving them a concave profile. The spire is regularly formed, all whorls are spirally ribbed and the apical angle is the same as in *T. titan.* These shells, laid upon the figure of *T. titan* (MARTIN, 1889, pl. 26 fig. 1) cover it completely. SCHEPMAN mentioned that his shells may be distinguished firstly by their smaller size, secondly by the comparatively much narrower shape, thirdly by the rather convex instead of concave outline of the spire. As the original shells cover MARTIN's figure, the differences are very slight. It is incomprehensible why SCHEPMAN wrote: „the comparatively much narrower shell." Summarizing we can say that the shell of recent *Telescopium telescopium* has a strictly conical outline. That of *T. titan,* however, has, according to MARTIN's description and figure, a slightly concave outline. Considering the outline of the spire alone, i.e. without the last whorl, the figure of *T. titan* shows almost no concavity. After having studied SCHEPMAN's shells myself I found them identical both with *T. titan* and *T. telescopium,* the words describing the differences between

these two species differ far more than the shells do. I found a recent *Telescopium telescopium* (plate 1 fig. 2) washed ashore on P. Panaitan in which the first ten whorls were strictly conical. Whorls 11 and 12 form a slightly convex part of the outline. Whorl nr 13 falls into the line of the first 10 whorls. The last whorl in its turn is a trifle larger again. As other shells from various localities also show the widening of the last whorl this feature is not particular to *T. titan* which, in Mrs VAN DER FEEN's opinion, is a giant *T. telescopium.* Unfortunately VON MARTENS' shells are not accessible to me. His var. b might be similar to my aberrant shells from P. Panaitan which I consider to belong to a new species. Interesting is a set of three shells in the Amsterdam Museum from Rantau Pandjang, Deli, Sumatra (leg. Jhr F. C. VAN HEURN, 21 IV 1919). It contains one real *T. telescopium* measuring:

Length: 118.- mm Diameter: 52.- mm Apical angle: 32°

The two other shells belong to the new species. Their measurements are:

Length: 100.- mm	Diameter: 55.- mm	Apical angle: 38°
116.- mm	57.- mm	36°

They differ from the type of the new species by lacking the callus on the projecting part of the columella, so that the columellar ridge remains visible. These specimens had been collected alive. The operculum agrees with that of the type. In the Leiden Museum I found three *Telescopium* shells which come near to the new species. Two of them belong to a set of five shells from Ambon (leg. HOEDT). The last whorl, however, does not bulge out. The worn spire shows a wide suture but this is less deep than in my new species; moreover the shells have a spirally ridged base, two or three ridges being prominent. There is no operculum present. I refer these shells to *T. telescopium.* The third *Telescopium* is from „Java" (leg. W. C. VAN HEURN, coll. KOUMANS, Reg. 598). This shell has the body whorl bulging outward. Though spirally ridged all over the base none of the ridges are more prominent than the other. There is no operculum present. I refer this shell also to my new species.

The shells of *Telescopium titan* which I have been able to study through the kindness of Mr DE NEVE of the Bandung Geological Museum, in my opinion are not specifically different from recent *Telescopium telescopium.* Young fossil specimens are not separable from recent shells. Large adult shells, which are very scarce in the collections (as are the giant recent shells), indeed show differences as compared with normal *Telescopium telescopium* shells in the somewhat rounded last whorl which produces a slightly concave profile inthis part of the shell. The study of all *T. titan* specimens,

inclusive of MARTIN's type in the Geological Museum in Leiden convinced me that *T. titan* is identical with *T. telescopium*. Large shells in this collection of fossils are exceptions, as is the case in collections of recent shells. The differences between the species concerned are here put in tabular form.

	mauritsi n. sp.	*telescopium*	*titan*
outline of spire	convex	straight	somewhat concave
number of whorls	about 12	about 17	about 16
convexity of whorls	convex	flat	flat
sculpture	?rounded spiral ribs	flat spiral ribs and grooves	flat spiral ribs and grooves
apical angle	40°, last whorl excl.	19-35°	larger than 35°
columellar part of aperture	long and oblique, thickened, with weak spiral rib	short and twisted with strong spiral rib, not thickened	long and twisted, with strong spiral rib, not thickened
base	possibly with equal spiral ribs	3 flat concentric ribs, the rib around columella the strongest	at least the spiral rib around the columella is present.
last whorl	very broad, bulging out of the profile of the spire, rounded	does not interrupt the profile of the spire, not rounded	broad, slightly projecting beyond the profile of the spire, slightly rounded
varices	always present	may be present	none
canal	very wide	narrower	wide
interior: columella	heavy and thick	not heavy, having a smaller diameter	heavy and thick
spiral plica	grooved	grooved	grooved
basal lamella	very heavy, sometimes irregular, extending from the 3rd last whorl	not so heavy, extending from the 2nd last whorl, sometimes heavy	very heavy, sometimes irregular, „Abzweigung einer Nebenfalte" (MARTIN 1889)
operculum	whorls 5-6	whorls 17	unknown
length of the shell	100 mm	100 mm	150 mm

Now, what value can be assigned to the differences mentioned between *T. telescopium* and *T. titan?* As stated above, the more or less pronounced concavity of the outline of the shell is of minor importance, the SCHEPMAN shells covering MARTIN's figure completely. The number of whorls might be of more importance generally, but in these many whorled shells, a difference of two or three whorls may not play an important role. The convexity of the whorls and the sculpture are similar, both in *Telescopium telescopium* and *T. titan.* The apical angle in *T. telescopium* is subject to variation. WISSEMA mentioned shells with an apical angle of 19° and 22° (WISSEMA, 1947). I saw recent *T. telescopium* with apical angles up to 38°, thus coming into the range of *T. titan.* The length and thickness of the interior columella, as well as the projecting part of it, could play a more important role, but the thickness of the callus will influence that character, and the callus is variable. Independently of the callus, the columellar rib or plica is as conspicuous in *T. telescopium* as in *T. titan.* As regards the length of the siphonal canal, i.e. the length of the projecting part of the columella, VAN REGTEREN ALTENA (1941, p. 12) stated that it is longer in *T. titan,* but having seen many fossil *Telescopium* shells I am unable to ascribe specific value to this character. Some fossils, present in the collection of the Leiden Geological Museum are labelled *„Telescopium* spec." showing that the student could not decide between the names of *telescopium* or *titan.* None of the previous authors pointed out differences in the basal sculpture. This character is similar in *T. telescopium* and in the *T. titan* shells I studied. The projecting edge of the body whorl is generally considered typical for *T. titan.* We have already seen above that *T. telescopium* shells can have a projecting body whorl also. Varices may develop in *T. telescopium* as I have seen in shells in the Bogor Buseum. In specimens I have studied I could not see any sufficient differences in the width of the siphonal canal. It is true that in the interior, columella and plicae are heavily developed in *T. titan.* This is generally not so in *T. telescopium* (plate 2 fig. 1). Yet there is a heavy basal interior lamella in my *telescopium* shell, washed ashore on P. Panaitan (plate 1 fig. 2). The figure of *telescopium* in TESCH (1920, p. 58, pl. 132 fig. 191) shows a heavy basal interior ridge. Besides I found this basal ridge heavily developed and irregular, in old shells. About the operculum of *T. titan* nothing is known. My conclusion is, that *Telescopium titan* cannot stand as a species, not even as a geographical or stratigraphical subspecies as SCHEPMAN's shells agree with *T. titan* but for the length. It is advisible, however, to retain MARTIN's

name for the scarce modification of *T. telescopium* of extraordinary dimensions.

Comparing the shells of the new species with both *T. telescopium* and *T. titan* I found it different from both in:

1 Lacking the flat and broad spiral ridges on the whorls,
2 The rounded whorls and the deeper and broader suture,
3 The larger apical angle averaging 40°,
4 The small number of whorls,
5 The different operculum.

The following is the diagnosis of the aberrant Panaitan shells which I introduce as **Telescopium mauritsi** nov. spec. (plate 1 figs. 3, 4; plate 2 figs. 2, 3 upper row).

Shell large and solid, having about ten whorls. The apical whorls are broken in all specimens. The spire, the last whorl excluded, is not exactly conical but slightly convex. The whorls of the spire are slightly rounded. Consequently the suture is deeper than in *T. telescopium*. Besides the suture is very broad. The whorls of the spire and part of the last whorl are smooth. They show a pattern of flames and lines as do some kinds of wood. This pattern is also visible through some parts of the thin, chocolate brown, shining callus, which covers the parietal side of the aperture. The last whorl is relatively wider than the previous one and bulges out of the general profile of the shell causing a concave outline. The last whorl bears two to eight varices at unequal distances indicating irregular periods of growth. The varices are like sharp laminae. In the interstices are rounded spiral ridges (about 23) of equal form and strength, in my opinion this is the original sculpture of the shell. This sculpture is only present in three of my shells. The labrum is sharp and somewhat expanded so as to form a varix on further growth. The aperture has the same general form as in *T. telescopium* but it is relatively higher. Inside, the colour is deep brown with a violet lustre. The canal is wide, the columellar side of the aperture long and much thickened. The columellar plica, though present, is only visible as a pale zone on the violet columella, because it is covered by the callous layer. On the parietal wall the callus is very thin, showing the colour pattern described above. Towards the columella and interior of the shell, it becomes thicker and has a violet tinge. The base of the shell is without spiral sculpture. Inside (plate 2 fig. 2) it has a very thick columella with a strongly developed columellar ridge which, at its projecting end, is grooved in a spiral direction. On the floor of the older part of the last whorl, is a heavy spiral ridge extending to about the base of the ante-penultimate whorl. On the ceiling of each whorl of the entire shell, are three ridges. Number one, closest

to the columella, is the strongest. Numbers two and three are present only in the middle whorls. Number three, the outermost, disappears first towards aperture and apex. In the last whorl all ridges have disappeared.

The operculum (plate 2 fig. 3 upper row) is almost circular, multispiral, 5-6 whorls, with the edges of the successive coils forming a fibrous or foliaceous fringe. This fringe can be loose of each successive whorl.

The operculum of *T. telescopium* (plate 2 fig. 3 lower row), shows 17 whorls, the edges of the successive coils only little fringed and never foliaceous.

Holotype: Straits of Sunda, Pulo Panaitan (Prinseneiland), Legon Lentah, 28 IX 1951 (pl. 1 figs. 3, 4), L. J. M. BUTOT leg. in Zoologisch Museum, Amsterdam.

Paratypes: Pulo Panaitan, Legon Lentah, 28 IX 1951, 4 specimens in Museum Zoologicum Bogoriense, Bogor, Java; Sumatra, Deli, Rantau Pandjang, 21 IV 1919, 2 specimens, F. C. VAN HEURN leg. in Zoologisch Museum, Amsterdam; Java, 1 specimen W. C. VAN HEURN leg. in collection F. P. KOUMANS, now in Rijksmuseum van Natuurlijke Historie, Leiden.

When finding *T. mauritsi* in the field I thought it to be a new species. Afterwards, studying the shells in the Museum I rejected this supposition, the more so, as I had to make *T. titan* a form of *T. telescopium*. *T. mauritsi,* however, differs more from *T. telescopium* than does *T. titan*. I could identify SCHEPMAN's Merauke shells as forma *titan,* but I am still in doubt about VON MARTENS' var. b. Perhaps they are identical with *T. mauritsi,* but if this be true, I wonder why VON MARTENS did not mention more differences. The figures he quoted, all refer to shells duly recognizable as *T. telescopium.*

In the type locality Legon Lentah in P. Panaitan *T. mauritsi* and *T. telescopium* are living separately. The former in the *Rhizophora mucronata* vegetation inland, the latter in the *Lumnitzera - Sonneratia* vegetation at the sea-side. It is curious that in this place, *Rhizophora* did not choose the seaward side as it does in any other site

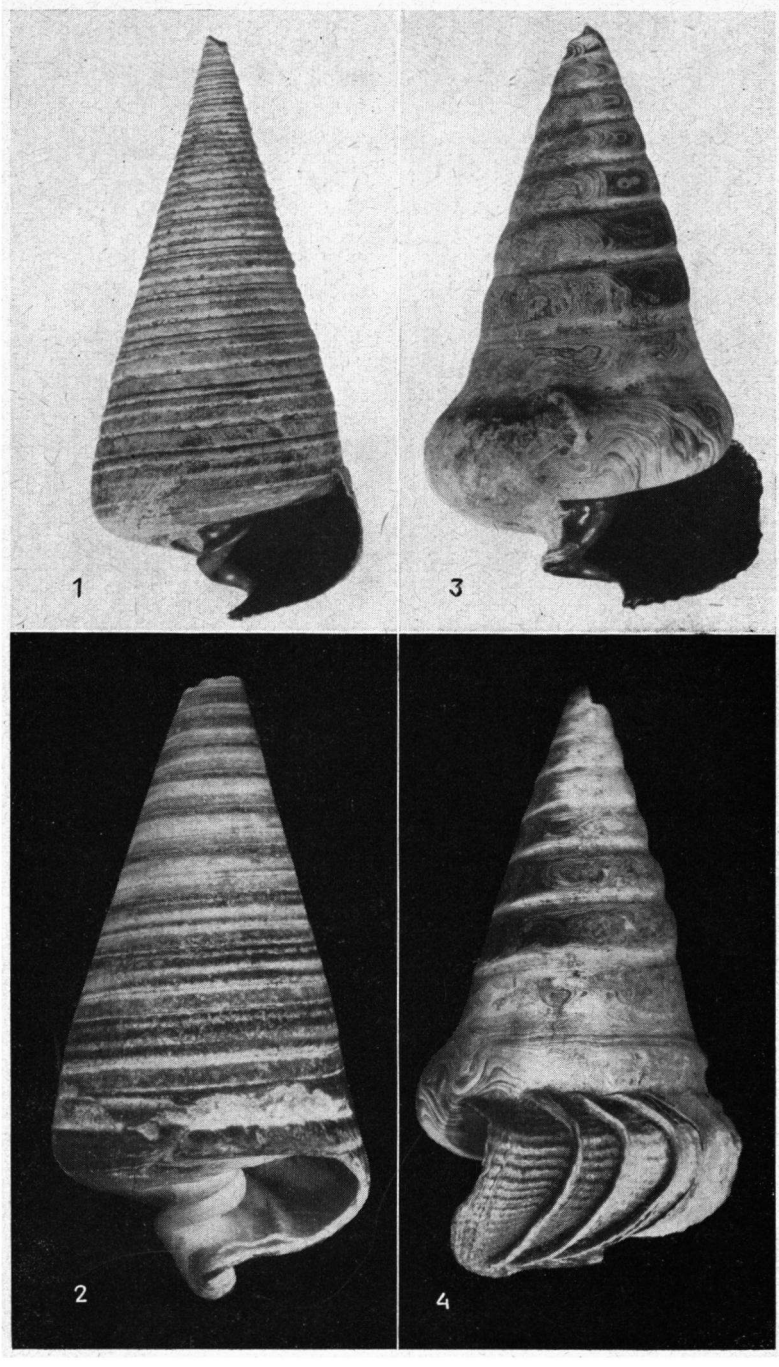
EXPLANATION OF PLATE 1

Fig. 1. *Telescopium telescopium* (L.) from Legon Lentah, P. Panaitan, 28 IX 1951, leg. Butot, Huysmans photogr.

Fig. 2. *Telescopium telescopium* (L.) from the beach of P. Panaitan, 22 IX 1951, leg. Butot. Huysmans photogr.

Fig. 3, 4. *Telescopium mauritsi* n. sp., holotype, from Legon Lentah, P. Panaitan, 28 IX 1951, leg. Butot. Huysmans photogr.

All figures × 4/5.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3
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4

on P. Panaitan. The original sculpture in my *T. mauritsi* shells was rubbed off, the flamed pattern appearing secondarily. I found the same pattern in a shell of *T. titan* and also in a rolled and bleached shell of *T. telescopium* from the Tjilintjin beach near Djakarta. When the spiral sculpture is present in the *mauritsi* shells, it is similar to that found in full grown normal *telescopium* shells on the last part of the last whorl.

There are perhaps reasons which may induce somebody to give only subspecific rank to *T. mauritsi,* or to include it in *T. telescopium.* However, it lives separately from *T. telescopium* and I looked in vain for intermediate shells. MARTENS also thought it curious „dass die von einem Fundort mir vorliegenden 2-4 Stück stets derselben Form angehören". He rejects his own opinion „dass es Geschlechtsunterschiede seien, die zweite Form etwa Weibchen". Males and females, in this case, would live separately then, and this can hardly be accepted. MARTENS has still another suggestion: „Wahrscheinlicher sind es Habitusformen, durch die Art des näheren Aufenthaltes bedingt, die breitere, kürzere und stumpfe auf sehr steinigem Grund, stärkeren mechanischen Insulten ausgesetzt, die schlankere, schärfere auf weichem Schlammgrund, mit geringer Wellenbewegung". This may be the case, but why, if this be true, did I not find intermediate forms? The two forms do not cross the border between their respective areas. I should then have found them mixed. Therefore I think it better to regard *T. mauritsi* as a valid species, particularly because of the different operculum, in order to draw the attention of other students.

I studied a radula of a *telescopium* and of a *mauritsi* specimen (fig. 1), formula: 2.1.1.1.2. Both have a length of about 5 mm and are 1 mm in width. I found my observations to be different from those of N. ANNANDALE (1924, p. 865 fig. 8). The rhachis of *T. mauritsi* has a produced triangular base. The top is arched and bears seven denticles. The central cusp is long and there are three smaller denticles at both sides. In *T. telescopium* the rhachis bears nine denticles, four at both sides of the central cusp. The laterals have a somewhat trapezoidal base connected by a long stalk. The laterals

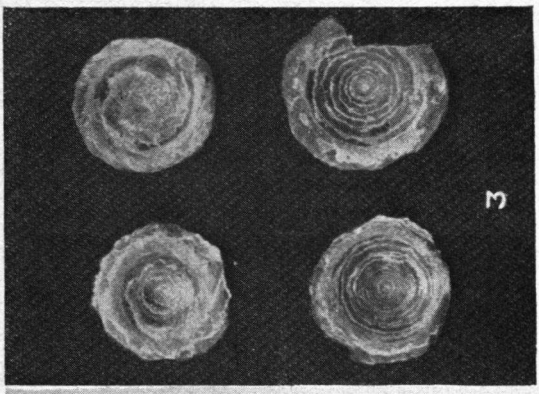
EXPLANATION OF PLATE 2

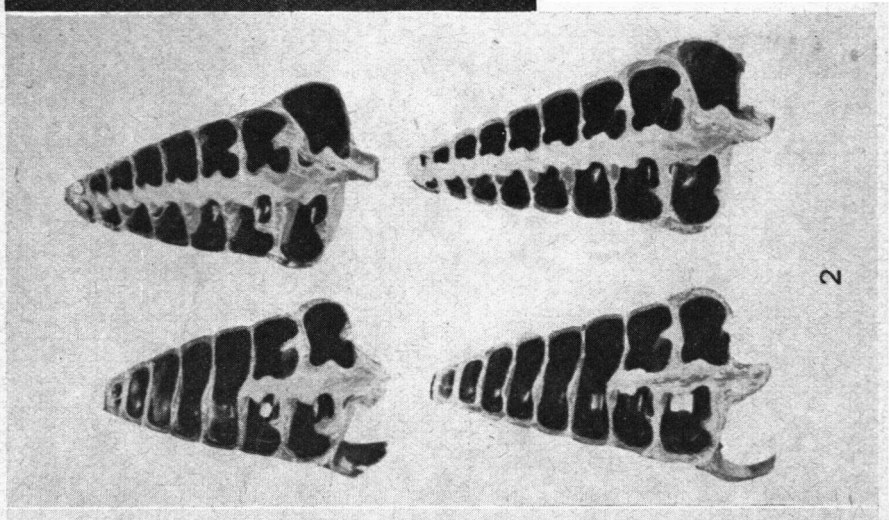
Fig. 1. Four specimens of *Telescopium telescopium* (L.) from Legon Lentah, P. Panaitan, showing the interior.

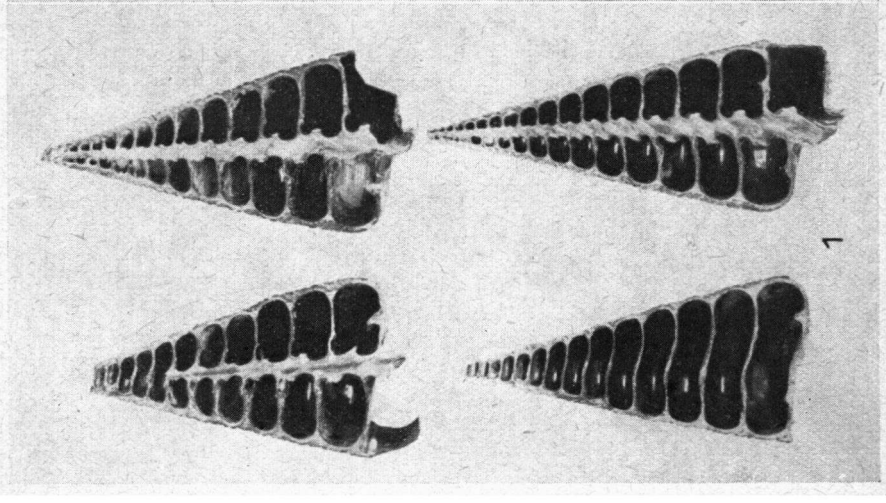
Fig. 2. Four paratypes of *Telescopium mauritsi* n. sp. from Legon Lentah, P. Panaitan, showing the interior.

Fig. 3. Opercula of *Telescopium mauritsi* n. sp. (the two upper figures), and *Telescopium telescopium* (L.) (the two lower figures).

PLATE 2







bear seven to eight denticles. These cusps become larger towards the rhachis. The innermost is long and arched, bearing one long projection, which is triangular, and a more rounded one, below which the base is split. The two marginals have seven to eight very small cusps. I could not find differences in the laterals and marginals of *T. telescopium* and *T. mauritsi.*

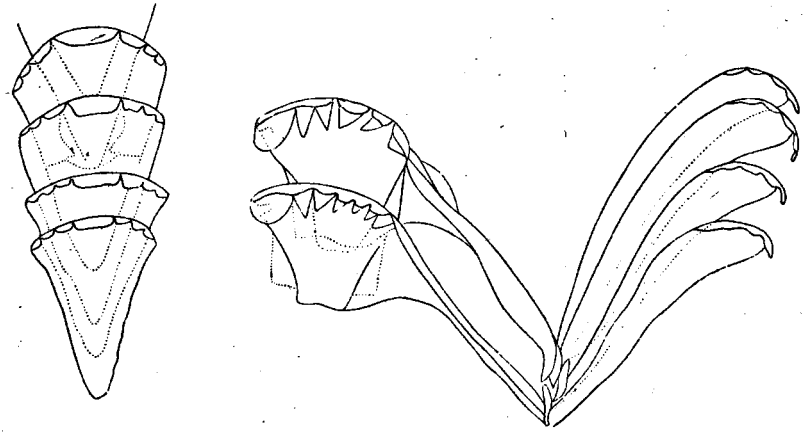


Fig. 1. *Telescopium mauritsi* n. sp., radular teeth.

My thanks are due to the authorities of the above-mentioned Institutes for permission to study the shells in the museum collections.

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