a narrow yellow ring near the knee. Spines of posterior tibiae with the top black. Hind tarsi brown, last joint brown olivaceous above.

Measurements in mm:	♀
lenght of antenna	13
,, body	20
,, pronotum	6
,, elytron	14
,, hind femur	12
width of hind femur	3,6
length of hind tibia	10

Male unknown.

Geographical distribution: Borneo. Material studied: 1 ♀ (holotype), East Borneo, Tabang, Bengen river, 125 m, 19.IX.1956 (A. M. R. Wegner) [collection C. Willemse, Maastricht Museum].

This species agrees with the generic characters of the genus *Bettotania* C. Willemse, 1933. In 1955, the genus *Paracelebesia* Miller, 1935, was synonymised by C. Willemse with the genus *Bettotania*. The new species *flavostriata* comes nearest to *cinctifemur* (Miller, 1935).

The species of the genus *Bettotania* may be distinguished with the aid of the following key:

1. disc of pronotum greenish ochreous, not provided with yellow spots or longitudinal stripes; hind femur green without a yellow praegenicular ring
festiva (Miller, 1935).
1.1. disc of pronotum green with yellow spots or longitudinal stripes; hind femur green or reddish brown, with a praegenicular yellow spot or ring.
2. disc of pronotum with four yellow spots: one on each side at the anterior margin, and one on each side a little before the principal sulcus; hind femur olivaceous green with a praegenicular yellow spot from above
maculata C. Willemse, 1933.
2.2. disc of pronotum with two yellow longitudinal stripes; hind femur green or reddish brown, with a complete or incomplete praegenicular yellow ring.
3. two yellow longitudinal stripes on the disc of the pronotum being obsolete in the metazona; metasternal episternum with an ovate yellow spot; hind femur olivaceous green with a complete yellow praegenicular ring
cinctifemur (Miller, 1935).
3.3. two yellow longitudinal stripes on the disc of the pronotum continued on the elytra; metasternal episternum with an ovate bright reddish orange spot; hind femur reddish brown, with an incomplete yellow praegenicular ring
flavostriata n.sp.

References:

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Willemse C. J. M., 1933, Description of new indomalayan Acrididae (Orthoptera). Part 1. — Natuurh. Manadbl. **22** (6): 73—76, figs 1—5.
— 1956, Synopsis of the Acridoidea of the indomalayan and adjacent regions (Insecta, Orthoptera). part II. Fam. Acrididae, subfam. Catantopinae, part one. — Publ. Natuurh. Gen. Limburg 8 (1955): 1—126, figs 1—72 + 52 figs.

FORAMINIFERA OF THE CRETACEOUS OF SOUTH-LIMBURG, NETHERLANDS. LXXI.

The increase of the pore-diameters in *Gavelinopsis involuta* (Reuss, 1862) during the later Cr 4 and the Maestricht Tuff Chalk in the Canal Albert region.

Long series of samples have been taken by L. Calembert in the outcrops along the Canal Albert in North Eastern Belgium. Many of these samples yeilded well-preserved *Gavelinopsis involuta* as it has been described by Reuss under the name of *Rotalina involuta* from the Tuff Chalk in 1862. The pores of these specimens, together with those of some specimens gathered at the top of the quarry at Glons by Calembert and some specimens gathered in the boundary-hardgrounds Mc—Md in the quarry Curfs near

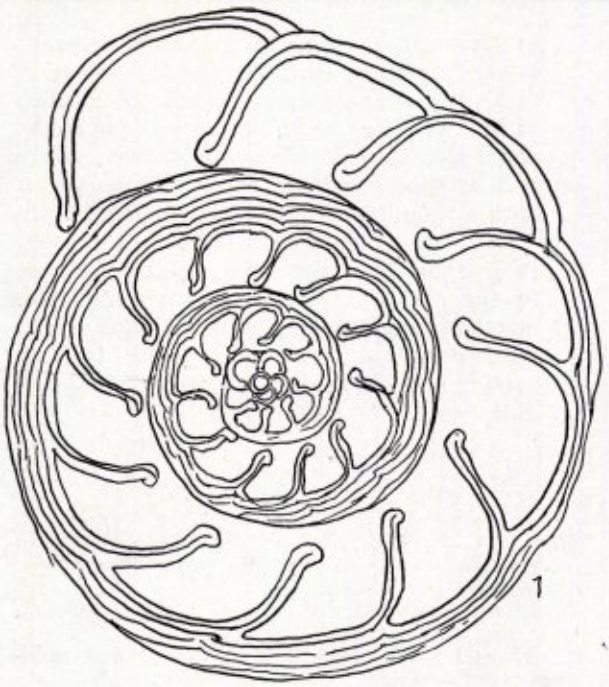


Fig. 1. Horizontal section through microspheric *Gavelinopsis involuta* (Reuss, 1862); quarry Van der Zwaan, Jekerdal, upper Md. × 80.

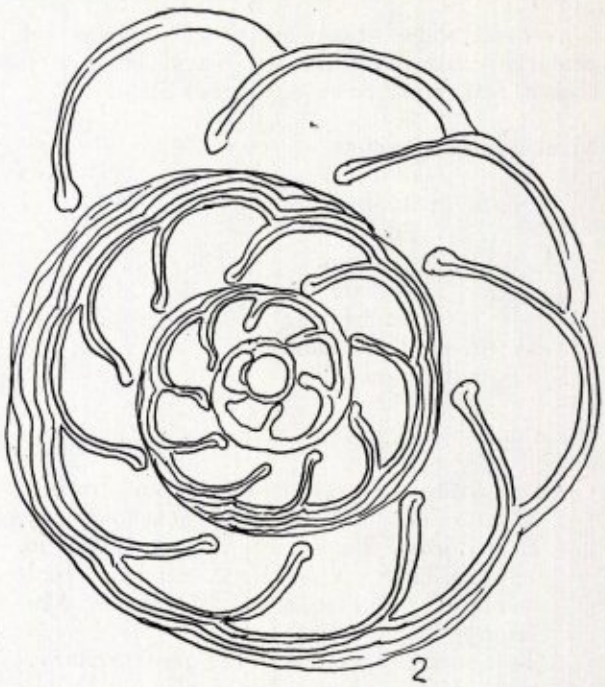


Fig. 2. Horizontal section through megalospheric specimens of the same, same locality. × 80.

Houthem, give a very fine instance of pore-increase during time of a *Gavelinopsis*. The oldest sample, Glons 126, shows a mean pore-diameter of 3,0 μ, the latest sample, taken in the hard ground between Md and Me in the Canal Albert outcrops, shows an average diameter of 6,3 μ. In this range from 3,0 to 6,3 μ, three distinct jumps are found, from 3,2 to 3,9 just where the Ma is found in the ENCI-quarry (in the Canal Albert outcrops real Ma is missing); a second one between Mb and Mc, and a third between the means 5,7 and 6,3, where the hard ground is found between the Md and the Me. In the Me the species is not found any more, in the same way as it disappears at the top of the type-Danian in Denmark.

As I have pointed out in several papers, such jumps in a continuous orthogenesis indicate gaps in the sedimentation. The gaps here are small, as is indicated by the small jumps, not exceeding 1 μ. Yet it is very conspicuous that they are found just at discontinuities in the sedimentation, as they are found between the sample A 9 and A 10, A 22 and B 19, D 12 and the fillings in the upper hard ground. For just at these discontinuities the bigger changes in the faunas also occur. In sample A 10 a large quantity of *Siphogenerinoides eleganta* (Plummer) indicates the boundary between the Cr 4 and the Mb, and the first typical species of the Mb appear, whereas *Stilostomella spinosa* Hofker suddenly disappears, together with many other species which are typical for the Cr 4. Sample B 19 contains *Lepidorbitoides minor for* the first time in the sequence, together with *Linderina visserae* Hofker and *Lituola senoniensis* Hofker, and several species typical for the Mb disappear. A hard bank here forms the top of the Mb and is covered by the conspicuous thick layer of *Dentalium* which characterises the base of the Mc; the grains of the chalk suddenly become coarser also. Between D 12 and the fillings of the well-known hard ground also a distinct jump in the pore-increase of *Gavelinopsis involuta* is visible indicating that obviously this species continued for a very short time after the discontinuity

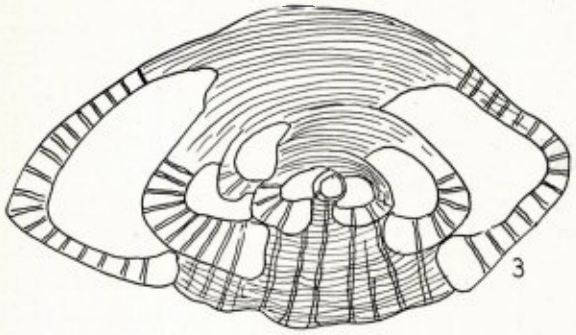
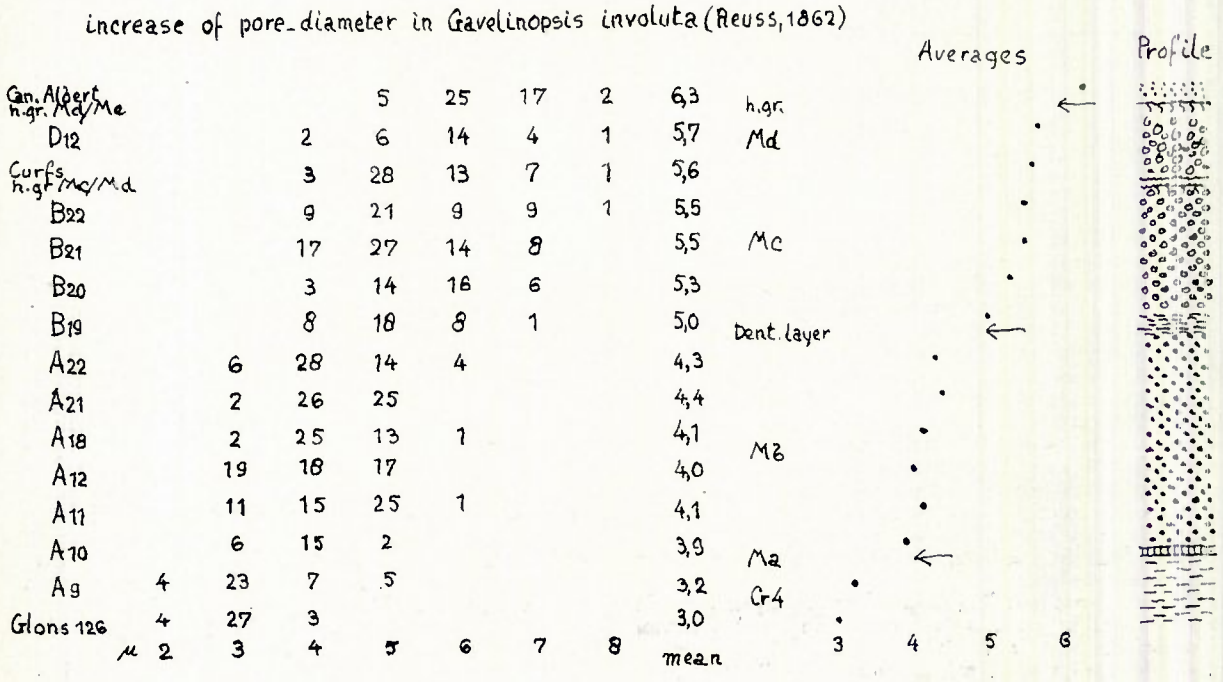


Fig. 3. Transverse section through *Gavelinopsis involuta* (Reuss. 1862); quarry near Faxe, Denmark, middle Danian. × 80.

indicated by the hard ground, and that material sedimentated just after that discontinuity has been preserved in the fillings of the holes in the hard ground. As we know, these fillings consist of typical non-eroded material of uppermost Md and material from the lowest Paleocene. Obviously the Md-material, containing also *Gavelinopsis involuta*, derived from layers somewhat younger than those found just below the hard ground (viz. D 12). Remarkable is the identity of the pore-increase during Cr 4-Ma and that in upper Stevnsian-Danian-lowest Paleocene in Denmark (Hofker, Contr. Cushman Found., Vol. 11, 1960, p. 81, table 1).

Since the inner structure of this important guide-fossil *Gavelinopsis involuta* (Reuss, 1862) has not yet been published, I take this opportunity to give here some sections. Remarkable are the thick layers of secondary chalk at the dorsal side, the double chamber septa and the strongly built umbilical plug. In horizontal sections the inner lamellum of each septum also covers part of the spiral wall backward, thus thickening that wall. In the first formed chambers, especially of the microspheric form, the septa of the chambers seem to be simple. In the megalospheric specimen figured the two last formed whorls show 9 chambers, in the microspheric specimens 11 chambers.

In the transverse section of a megalospheric specimen the first whorls of chambers show pores only in the ventral walls; the last formed whorl also in the dorsal wall shows pores, which is a typical feature for this species; in geologi-



cally older species of *Gavelinopsis* the dorsal walls of the last formed whorl are poreless. That section shows an abnormality as if one of the chambers has been broken and later has been regenerated. It is clearly seen that at the ventral side of that section the ventral walls do not reach the centre and that later the umbilical hollow is filled up with secondary chalk material. In that umbilical plug pores beginning in the wall of the proloculus, are piercing up to the surface.

Conclusions:

1. The increase of pore-diameters in *Gavelinopsis involuta* from Cr 4 to lowest Me shows some small jumps, corresponding with discontinuities in the sedimentation in the sequence.
2. This increase in diameter of the pores is quite identical with that, found in *Gavelinopsis involuta* in upper Stevnsian and Danian up to the lowest Paleocene in Denmark. This implies that the Maestrichtian Tuff Chalk and the Danian are of the same age.
3. The inner structure of *Gavelinopsis involuta* is that of a highly advanced *Gavelinopsis*, as is analysed by the author for this group in 1957 (Geol. Jahrb., Beih. 27).

BOEKBESPREKING

Cactussen en andere succulenten door C. Bommeljé. 167 bladz. met talrijke foto's. Tweede druk. Thieme & Cie, Zutphen, 1963. Geb. ƒ 6,50.

De voornaamste eigenschap van de succulenten is het vermogen om in de vlezige stammen of bladeren sappen op te sparen en zuinig te bewaren. Daardoor zijn ze in staat langdurige droogteperioden te doorstaan. Met de Nederlandse naam vetplanten worden in het spraakgebruik alleen de succulenten aangeduid, die niet tot de cactussen behoren. In Nederland kennen wij bv. Muurpeper (Sedum acre) en Huislook (*Sempervivum tectorum*). De grote gebieden van de succulenten zijn Amerika, en Afrika. De cactussen komen uit Amerika, vooral uit Mexico, Argentinië en Bolivia.

De succulentenliefhebberij, zoals wij die thans kennen, is nog niet zo oud. Ruim honderd jaar geleden bevonden zich in ons land wel reeds uitgebredie verzalingen, doch dit was luxe, in zover ze niet in een hortus gekweekt werden.

Na een korte inleiding bespreekt de schrijver eerst de oorspronkelijke groeiplaatsen, omdat de kennis daarvan van belang is voor de eisen, waaraan bij het kweken zoveel mogelijk moet worden voldaan. Uitvoerig staat de schrijver stil bij de cultuur van de succulenten en verder bij de vermenigvuldigingsmethoden. Ook geeft hij wenken voor de behandeling van maand tot maand.

Een serieuze succulentenkweker moet ook de namen kennen van de planten, die hij kweekt. Al lijken die namen nog zo moeilijk, de kennis er van is toch onmisbaar voor de juiste behandeling. Onder de duizenden soorten succulenten zijn er vele, die voor de liefhebberij niet van belang zijn. Daarom geeft de schrijver in zijn overzicht, dat uit ruim honderd bladzijden bestaat, slechts de korte beschrijving van de voor ons belangrijke geslachten, waarbij dan enkele typische soorten genoemd worden. Een literatuurlijst wijst de weg aan hen, die behoefte hebben aan uitgebreide soortbeschrijvingen en verder studiemateriaal. De schrijver besluit zijn boek met een register.

Ongetwijfeld zullen de succulentenkwekers en andere belangstellenden veel plezier beleven van dit fraai geïllustreerd werk.

K.

Versteinerte Urkunden. Die Paläontologie als Wissenschaft vom Leben in der Vorzeit door E. Thenius. Verständliche Wissenschaft Band 81, 1963. Mit 77 Abbildungen, XII, 174 Seiten. Springer-Verlag, Berlin-Göttingen-Heidelberg. Kartoniert DM 7,80.

Sinn und Zweck dieses Buches ist es, breiteren Leserkreisen in allgemeinverständlicher Form einen Einblick in die Aufgaben und Ziele der Paläontologie zu vermitteln, ihnen aber auch eine Vorstellung von den Grenzen paläontologischer Forschung zu geben. Paläontologie ist heute alles andere als eine reine Museumswissenschaft; sie hat eine eminente praktische Bedeutung für die Geologie und vor allem für die Biologie bei der Beurteilung stammesgeschichtlicher Fragen.

Der Verfasser ist ein bekannter Paläontologe, der sich durch zahlreiche Veröffentlichungen einen Namen gemacht hat. Er hat den Stoff nicht systematisch gegliedert, denn er möchte beim Laien Verständnis für diese interessante Wissenschaft wecken und ihm die praktische und wissenschaftliche Bedeutung der Fossilien nahebringen.

Die Fossilien sind die Urkunden, mit denen sich der Paläontologe beschäftigt und die in sehr verschiedenen Erhaltungszuständen auf uns gekommen sein können. Ziel des Paläontologen ist einmal die Beschreibung und systematische Einordnung der Fossilien, zum andern die Rekonstruktion ausgestorbener Formen samt ihrem einstigen Lebenstraum. Der Verfasser legt in seinem Buch besonderen Wert auf die Darstellung der Arbeitsmethoden, die der Paläontologe bei der Ausgrabung und Bergung und vor allem bei der Rekonstruktion früherer Lebensformen anwendet. Diese gerade für den Laien überaus interessanten Schilderungen werden durch zahlreiche ausgezeichnete Abbildungen besonders anschaulich gemacht. Deshalb wird dieser neue Band der Reihe „Verständliche Wissenschaft" nicht nur den Fachmann interessieren, sondern sich auch unter den Laien viele Freunde erwerben.

K.