

with the essexites and its intermediate texture, it may be included in the essexite-monchiquites. Lacroix<sup>1</sup> has applied this term to those monchiquites in which felspar predominates over nephelite and which have, in addition, an isotropic (presumably analcitic) groundmass. The Madagascar rocks differ from the one under consideration only in the presence of barkevikite and in a greater scarcity of olivine. The name is appropriate in the case of the Craighead rock, since, by an increase in the grain-size of the minerals, a gradual passage may be traced to a normal essexite.

Another 'spotted' rock represents a more felspathic and finer-grained type than the one described above. The phenocrysts are not so abundant, and the olivine rivals the augite in size. As before, both these minerals are poecilitically enclosed in felspar, which, however, also occurs as laths, of varying dimensions and often arranged in a radial fashion. The phenocrysts, together with a second generation of augite and numerous prisms of apatite, are enclosed in a matrix which is mainly analcite. In both of these rocks, local patches of a more acid nature occur. Olivine and porphyritic augite are absent, and the 'clots' consist of phenocrysts of labradorite in a groundmass of analcite, with subordinate nephelite and granular augite. These seem to be of late formation and to arise through the crystallization of a residual magma rich in water and alkalis.

(To be concluded in our next Number.)

## VII.—ON A NEW GENUS AND SPECIES OF THE THECIDIINÆ (BRACHIOPODA).

By J. ALLAN THOMSON, M.A., D.Sc., F.G.S.

THE subfamilies Thecidiinæ, Dall, and Leptodinæ, Schuchert, constitute the family Thecidiidæ, Gray, which is regarded by Schuchert as a near relation of the Strophomenidæ. The chief external characters of the Thecidiinæ are the smallness of the shells, the absence of the foramen, attachment by the ventral valve, the presence of a nearly straight hinge-line and of a prominent area with a solid deltidium. The shell substance, with the exception of the deltidium, is punctate. Internally the ventral valve bears in its hollow beak a small median septum on which is sometimes superposed a small muscular plate. The dorsal valve bears a so-called cardinal process, formed by the median union of the socket ridges, and this plate is strong, subrectangular, and hollow at its base, and projects beyond the hinge. In most of the genera two lateral spurs unite mesially to form a bridge just in front of the cardinal process, over the visceral cavity. There are no free brachial arms, but the brachial supports are represented by an anterior septum, frequently branched, and lamellæ rising from the floor of the valve in the spaces between the septum and its branches, the margins, and the bridge. The septum runs back from the anterior margin towards the bridge, and like the margins and the bridge, is more or less covered with granulations.

<sup>1</sup> *Nouvelles Archives du Museum* [4], i, p. 142, 1903.

The subfamily appeared in the Devonian,<sup>1</sup> attained its maximum development in the Jurassic and Cretaceous, and is still represented by three living species. The genera are founded mainly on the form of the septum. This is simple in *Davidsonella* and *Thecidella*, bears two lateral branches in *Lacazella*, and four lateral branches in *Thecidea* and *Thecidiopsis*. In *Thecidiopsis*, *Eudesella*, and *Pterophloios* there are in addition a number of lateral septa.

As in the case of the Terebratulidæ and Rhynchonellidæ, the type genus *Thecidea*<sup>2</sup> is often used in a broad sense practically synonymous with the subfamily. All the recent and Tertiary species have been ascribed either to *Thecidea* (*sensu lato*) or to *Lacazella*. There is, however, as Hedley has recognized,<sup>3</sup> a stock quite distinct from *Lacazella* which has not yet been named, and for this I now propose:

THECIDELLINA, gen. nov.

Genotype *Thecidium Barretti*, Davidson.

Shell subtrigonal, attached by the back of the beak; surface smooth or with concentric growth-lines. Hinge-line broad and nearly straight. Ventral valve with a well-marked area, but apparently no deltidium.<sup>4</sup> In the hollow beak there is a small median septum from which two prongs project in front of the hinge-line. Interior of ventral valve granulose. Dorsal valve with the usual type of cardinal process and bridge. Median septum not branched, tapering behind to a sharp point. Brachial lamellæ attached to the end of the septum and curving forwards on each side parallel with the margin of the shell to near the front of the septum, when they are reflected back along the sides of the septum. The margin of the valve, the front of the septum, and the bridge are covered with granules.

*Thecidellina* differs from *Lacazella* in the presence of the prongs on the septum of the ventral valve instead of a muscular plate, and in the unbranched septum and simpler lamellæ of the dorsal valve. The dorsal valve is very similar to that of the Liassic *Thecidella*, in which, however, no bridge has been described and the septum is not acicular but broadly rounded. Moreover, a well-defined deltidium is present in this genus.

*Thecidellina* includes the recent tropical forms *T. Barretti*, Davidson (Jamaica) and *T. maxilla*, Hedley (Funafuti and New Hebrides) and a new species described below from the Tertiary (Oamaruan) of New Zealand. The discovery of the last adds additional weight to the argument that the Oamaruan of New Zealand enjoyed a warmer climate than the present, since the two recent species of the genus have a tropical distribution.

The only other Tertiary member of the Thecidiinæ so far found in the Southern Hemisphere is *Thecidium australe*, Tate,<sup>5</sup> from the Muddy Creek beds, Victoria. The interior of the dorsal valve of this

<sup>1</sup> Cf. Siemiradzki, Bull. Intern. Acad., 1909, p. 768 (*vide* Zool. Record).

<sup>2</sup> *Thecidium*, Sowerby, 1824, is a synonym of *Thecidea*, DeFrance, 1822, and is still often erroneously used for *Thecidea*.

<sup>3</sup> Mem. Austral. Mus., No. 3, pt. viii, p. 510, 1899.

<sup>4</sup> Cf. Hedley, loc. cit.

<sup>5</sup> Trans. Roy. Soc. S. Austral., vol. iii, p. 116, pl. ix, figs. 3a-c, 1880.

species is unknown, but the presence within the umbo of the ventral valve of a “cup-shaped cavity divided longitudinally by a median septum” seems to connect it with *Lacazella*. All the Tertiary forms of Europe to the literature of which I have access belong also to *Lacazella*, viz. *L. Adamsi*, McDonald, from the Miocene of Malta, *L. testudinarium*, Michelotti, from the Miocene of Italy, and *L. latdorfiense*, Davidson, from the Oligocene of Germany, and the genus has also European Cretaceous representatives.

*THECIDELLINA HEDLEYI*, sp. nov.

*Description*.—Shell attached by the beak of the ventral valve, irregular in shape but in dorsal aspect rounded trigonal with a nearly straight front, greatest width near the anterior margin. Dorsal valve nearly flat, irregularly waved, raised near the umbo. Ventral valve strongly convex, oyster-like; commissures practically plane.

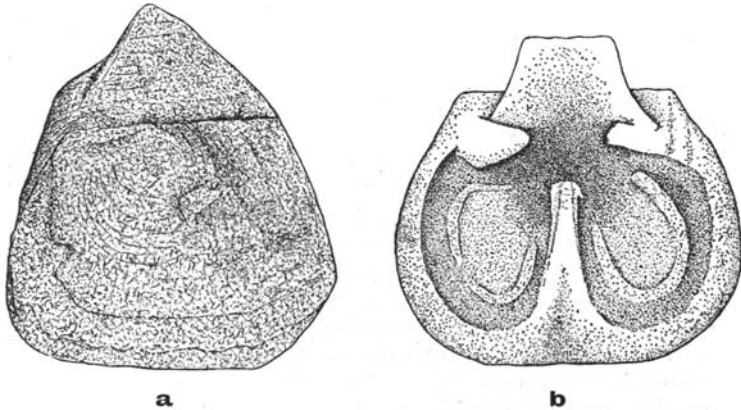


FIG. 1.—*Thecidellina hedleyi*, Thomson, Kakanui, New Zealand (enlarged 10 diameters). (a) Holotype, dorsal view; (b) paratype, interior of dorsal valve, ventral view.

Hinge-line straight, moderately broad, beak sharp, without foramen, area triangular, flat. Interior of dorsal valve: socket ridges converging slightly posteriorly and uniting mesially to form a process which is subrectangular and projects posteriorly considerably beyond the hinge-line, and is concave anteriorly. In front of the socket ridges there are two spurs pointing laterally inwards, probably the remains of a broken bridge. The margin is granulated, and is produced into a median septum, low anteriorly, rising posteriorly, and reaching a little beyond the middle of the shell. From this septum two lamellæ probably curved laterally forwards on each side, but are now disconnected in the specimen available. The granulations do not continue from the margin to the septum. Interior of ventral valve unknown.

## Dimensions in millimetres :

	Length.	Breadth.	Thickness.
Holotype . . .	2.7	2.5	1.2
Paratypes . . .	{ 2.8	2.0	1.5
	{ 2.6	2.1	1.2

*Type Locality.*—Everett's limestone quarry, Kakanui, New Zealand.

*Horizon.*—Oamaruan (probably Miocene).

*Material.*—Holotype and four paratypes; one of the latter consists of a dorsal valve only.

*Remarks.*—The Kakanui limestone consists largely of hollow or partially filled shells of Brachiopods, a peculiarity of fossilization being that the pores of the shells are obscured, so that in many undoubtedly punctate shells, such as *Terebratula oamarutica*, Boehm, the punctation cannot be distinguished even under a microscope. The specimens of *Thecidellina hedleyi* are of a dull white colour and show no sign of punctation, but it does not necessarily follow that it is absent. No trace of deltidium can be seen, and this is in agreement with *T. maxilla*, Hedley. In external form *T. hedleyi* has more resemblance to *T. Barretti* than to *T. maxilla*, but is more nearly trigonal than either of these species.

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NOTICES OF MEMOIRS.

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I.—BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, EIGHTY-FIFTH ANNUAL MEETING, HELD AT MANCHESTER, SEPTEMBER 7–11, 1915. LIST OF AUTHORS AND TITLES OF PAPERS READ IN SECTION C (GEOLOGY).

Presidential Address by *Professor Grenville A. J. Cole, F.G.S.*

*Dr. G. Hickling.*—Address on the Geology of Manchester and District.

*Professor E. J. Garwood, F.R.S.*—On the discovery of *Solenopora* and *Sphaerocodium* in Silurian Rocks of Britain.

*Hon. Professor W. Boyd Dawkins, F.R.S.*—The Classification of the Tertiary Strata by means of the Eutherian Mammals.

*Hon. Professor W. Boyd Dawkins, F.R.S.*—The Geological Evidence of the Antiquity of Man in Britain.

Joint Discussion with Section E on the Classification of Land Forms. Opened by *Dr. J. D. Falconer.*

*Canon T. G. Bonney, F.R.S.*—Notes on the North-West Region of Charnwood Forest.

*Professor W. W. Watts, F.R.S.*—Note on Granite Surfaces of Mount Sorrel.

*Dr. A. H. Cox & Mr. A. K. Wells.*—The Ordovician Sequence in the Cader Idris District (Merioneth).

*Professor W. G. Fearnside.*—A Contour Map of the Barnsley Seam of Coal in Yorkshire.

*Mr. E. S. Cobbold.*—Sixth Report on Excavations among the Cambrian Rocks of Comley, Shropshire.

*Professor W. J. Sollas, F.R.S.*—On the Restoration of certain Fossils by Serial Sections.