Glibertia prosperi n. gen., n. sp. (Fam. Condylocardiidae), from Pliocene Deposits

by
J. VAN DER MEULEN

General characteristics

Shell very small and very tumid, ovate. Outside as well as inside glossy. Prodissoconch smooth, cap-like and very large in comparison with the adult valves. The hinge consists of several large, projecting callosities. Ligament internal, in a groove between the teeth. Two scars of adductor muscles are generally visible and are situated rather low. The sculpture is concentric, but almost obsolete. The shell is integripalliate, the pallial line is almost invisible.

Description

The shell is egg-shaped. The line, which connects the front-point with the back-point is situated a little below the middle. The umbo is placed behind the middle of the shell. Hence the anterior part is the longer one; the posterior extremity is the blunt end of the "egg". In the anterior part of the shell the greatest curve is near the tip; the curvature diminishes gradually to the lower margin. The lower posterior part is regularly curved (almost circular), the curvature diminishes gradually in the connection formed by the lower margin with the anterior part. From the two extremities to the umbo the margins are weakly curved; in front of the umbo the anterior margin is even almost plane. The curvatures are such as to give a beautiful appearance to the shell, which I found difficult to do full justice to in my figures (plate 1).

The proportion of the lengths of the front- and the back-upper part is almost 2 : 1, the proportion of the lengths of the lower parts almost 1 : 1. The proportion of the heights of the upper- and the lower-front part is almost 2 : 3 and of the backparts almost 1 : 1 (See plate 1 fig. 2).

The prodissoconch is seen as a smooth, flat cap on the umbo. The hinge has resorbed some small parts of its margin. The umbo projects over the hinge, but not so that it can be called inflated.

The growth took place in several stages, this appears from the thicker lines of growth at regular intervals. In transmittent light we can see concentric girdles at some distance from each other. Traces of regularly interrupted growth are distinctly seen in the neighbourhood of the umbo in plate 1 fig. 1 and 2. The surface of

the shell is not only provided with obsolete concentric lines of growth, but is also finely punctated. The interior as well as the exterior of the shell has a high gloss. The shell is not translucent but slightly transparent. The structure of the inner layer of the shell is porcellaneous, not nacreous. When boiled in cobaltonitrate, the shell gets a pink colour just as the majority of shells. (Exceptions are a few genera as *Ostrea* and *Pecten*). The porcellaneous inside of the shell easily crumbles away at the margin.

Close to the lower margin of the shell-inside is a groove, which is more distinct in small than in larger specimens.

The shell is integripalliate, when the pallial line is visible, it is rather broad and parallel with the lines of growth. It is situated at a fair distance from the margin. Probably it passes without an interruption into the dropshaped adductor scars, which are as a rule much better visible than the pallial line and lie almost in the middle part of the shell. Pallial line and adductor scars have a rugged appearance. Pedal retractor-scars I did not observe.

The hinge consists of some callosities, which are placed behind each other, giving it a *Spondylus*-like appearance. On both sides the exterior nodosities are placed on lamellae; so that they may be considered as predecessors of lateral teeth. The hinge-plate is longer in the right valve than in the left one, as the two exterior teeth exist only in the right valve.

When carefully comparing the teeth and cavities of the hinge in the right and left valves we find a cavity in the left valve corresponding with a cavity in the right valve. The place, where two cavities correspond is apparently the place for the resilium. The short side is considered to be the posterior on analogy of the general opinion concerning *Erycinella* and other genera of this family. The situation of the resilium in respect of the prodissoconch corroborates this view.

When counting the teeth of the hinge of the left valve from the front towards the back we find: a groove (8); a distinct, far projecting, nodose tooth placed on a lamella (7); a cavity (6), separated from the resilium-bearer by a vertical ridge (5); merging without any separation into the prodissoconch; the resilium-bearer (4); a small notch (3), scarcely visible, in the margin of the hinge; a big callosity (2) built as tooth 7. Tooth 1 of the right valve fits against the inside of the left valve without an indication of a cavity.

In the right valve we find from the front towards the back: a very nodose tooth (8), which projects very much, placed on a lamella-like, tooth 7 of the left valve; behind it a cavity (7) which

has taken away a part of the prodissoconch; a cone-like projecting callosity (6); a notch (5) in the shell margin for the vertical ridge of the left valve, and immediately in connection with it the resilium-groove (4). Above this resilium-groove projects a small tubercle (3) of the hinge-margin, the resilium-groove is distinctly separated from the cavity (2) for tooth number 2. Its innermost part is provided with a small tubercle. Tooth 1 is built as tooth 8. In front of this tooth the groove parallel to the margin of the valve is a little deepened. The teeth and cavities of the hinge give the impression as though they had corroded the shell margin near the hinge and so it has an undulating appearance.

Systematics

The groove all around the margin, the nodose character of the hinge-teeth, the internal ligament, the shell being integripalliate and the dimensions make it clear, that this little shell belongs to the family Condylocardiidae.

In Western Europe the following genera of this family are known:

1) *Condylocardia* Bernard, 1896:

Condylocardia dalli Bernard, Lutétien (Ferme de l'Orme, France)
Condylocardia atomus (Desh.), Lutétien (Fontenai, etc., France).

Hinge formula of the genus: $\frac{\text{L } 110 \text{ r } 1010}{\text{R } 001 \text{ r } 0101}$

2) *Carditopsis* Smith, 1881:

Carditopsis deleta (v. Koenen), Lower oligocene (Lattorf, Germany).
— *clara* (v. Koenen), Lower oligocene (Lattorf, Germany).
Carditopsis koeneni Cossmann et Peyrot, Aquitanien (Aquitaine, France).
— *inornata* Cossmann et Peyrot, Burdigalien (Aquitaine, France).
— *chavani* Glibert, Helvetien, Bolderien (Belgium).

Hinge formula of the genus: $\frac{\text{L } 01101 \text{ r } 01010}{\text{R } 10010 \text{ r } 10101}$

3) *Erycinella* Conrad, 1845:

Erycinella pygmaea (S. V. Wood), Upper miocene (Gourbesville, France), pliocene (Netherlands, England), pleistocene (England).

Hinge formula of the genus: $\frac{\text{L } 010 \text{ r } 011}{\text{R } 101 \text{ r } 100}$

Dall remarked, that *Erycinella pygmaea* is almost exactly intermediate between *Carditella* E. A. Smith, 1881 (hinge formula

$$\frac{\text{L } 010 \text{ r } 10101}{\text{R } 101 \text{ r } 01010}$$) and *Carditopsis.*

The shell described here has a hinge that may be represented thus: (*1* = far projecting tooth)

$$\frac{\text{L } 0\mathit{1}0 \text{ r } 1\mathit{0}1\mathit{0}}{\text{R } \mathit{1}01 \text{ r } 0\mathit{1}0\mathit{1}}$$

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This hinge formula closely resembles that of *Carditella.* The shell represented here, however, is certainly not a *Carditella,* for I did not observe a trace of a possible nymph; it is concentrically and not radially sculptured and the anterior tooth of *Carditella* is missing (in a microphotograph, however, a very little point is visible, which I did not observe when looking through the microscope). The shell represented here does not belong to any other genus of the family: *Benthocardiella* Powell, 1930, *Condylocuna* Iredale, 1936, *Radiocondyla* Iredale, 1936, *Carditellona* Iredale, 1936, *Carditellopsis* Iredale, 1936. The hinge formula is not identical with that of *Condylocardia australis:* $\frac{\text{L } 0101 \text{ r } 0101}{\text{R } 1010 \text{ r } 1010}$.

Therefore I have placed this species in a new genus *Glibertia.* Description as follows here:

Shell with a flat prodissoconch, indistinctly separated from it, very small. Sculpture concentric. Shell margin with a concentric interior groove. Hinge-teeth nodose, corroding the margin of the other valve. Hinge formula: $\frac{\text{L } 010 \text{ r } 1010}{\text{R } 101 \text{ r } 0101}$. Ligament internal in a small resilium-groove. Two low-lying adductor-scars connected by a pallial-line without a sinus.

This genus is named after Mr. GLIBERT, curator of the Institut Royal des Sciences Naturelles de Belgique at Brussels. By the trivial name *prosperi* this species is dedicated to the distinguished collector Mr. J. VOORWINDE in recognition of his marvellous work in microscopic shells from derivative pliocene deposits.

Localities

This species was found for the first time in glauconitic sand in a *Nassarius reticosus* from the lime kilns at Den Briel, Netherlands. Afterwards it was found rather frequently near Ritthem in fine shore deposits containing derivative pliocene fossils (type locality).

Dimensions

Holotype Left (fig. 1) Long 1.06, Height 0.94, Diameter 0.55 mm.
Paratype O Right (fig. 2) Long 1.45, Height 1.22, Diameter 0.42 mm.

Paratype	I	Left	L. 1.25 mm	H. 1.03 mm.
		Right	L. 1.18 mm	H. 1.05 mm.
„	II	Left	L. 1.21 mm	H. 1.02 mm.
		Right	L. 1.14 mm	H. 1.02 mm.
„	III	Left	L. 1.39 mm	H. 1.22 mm.
		Right	L. 1.33 mm	H. 1.12 mm.
„	IV	Left	L. 1.34 mm	H. 1.18 mm.
		Right	L. 1.54 mm	H. 1.34 mm.

Holotype, Paratype O R, Paratype I L & R: Leiden, Rijksmuseum van Natuurlijke Historie.
Paratype IV L & R: Brussels, Koninklijk Belgisch Instituut voor Natuurwetenschappen, no. 17.750 & I.S.T. 3.769.

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SAMENVATTING

Uit het fijne materiaal van het strand bij Ritthem wordt een nieuwe soort beschreven, die behoort tot de familie Condylocardiidae. Deze soort is het type van het nieuwe genus *Glibertia*. Er wordt een overzicht gegeven van haar verwanten in het Westeuropese tertiair.