

THE GENERIC STATUS OF "TRIPLECIA" POLOI

(With 2 text-figures and 1 plate)

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One of the common fossils from the Ordovician of central China has been repeatedly described as *Triplecia poloi*[§] (Fig. 1)

Fig. 1. *Yangtzeella poloi* (Martelli) (Nat. Size.)

All previous authors have apparently seen only the exterior of the shell, but in our collections* there are several weathered specimens which show the interior characters and these show that the species is not at all related to *Triplecia*, but more nearly to *Clitambonites*, *Hemipronites* and *Polytachia*. I have made a series of sections by grinding down the beak, these including the upper 4.8 mm of the shell. These reveal the following characters:

§ Martelli, Alessandro, 1901—Fossili del Siluriano Inferiore dello Scensi (Cina). *Bulletin della Società Geologica Italiana*, Vol. XX. (Fasc. 1) pp. 295-310 (302-304) Pl. IV. figs. 17-22 and figs. 13-16.

Pellizzari, Giustina, 1913—Fossili Paleozoici antichi dello Scensi (Cina) *Revista Italiana di Paleontologia*, Vol. XIX, pp. 33-48, Pl. I, II, Fossili probabilmente Siluriani, pp. 45-47. (p. 45, pl. I. figs. 8-10)

Weller, Stuart, 1913—A report on the Ordovician Fossils collected in Eastern China in 1903-04. In "Research in China" *Carnegie Institute Publications* Vol. III, p. 281, plate 25, Figs 7-9.

Hayasaka, Ichiro, 1920—Paleozoic Brachiopoda from Japan, Korea and China, p. 59, pl. XXII, figs. 1-5. Tokyo Geographical Society.

Hayasaka, Ichiro, 1912—Paleozoic Brachiopoda from Japan, Korea and China Pt. 1, Middle and Southern China. *Science Reports of the Tohoku Imperial University, sec. ser. (Geol.)* Vol. VI, No. 1 p. 23, pl. I, figs. 1-5.

* An extensive collection of Ordovician fossils from the Yangtze Valley, including several hundreds of this Brachiopod was made by Mr. J. L. Smith formerly British Consul at Ichang and sent to the Geological Survey. Others were collected by the National University Expedition under Prof. S. S. Lee.

The first section (Fig. 2) is 1.9 mm. below the top. On the brachial valve is shown the beginning of the spondylium with 4 large septa and with a short median septum.

In the second (Fig. 3) which is only 0.4 mm. lower, the median septum of the pedicle valve becomes longer, and in addition, two lateral septa begin to appear. In the centre the hinge-area is shown.

The brachial valve has now also an open spondylium with the same number of septa as before, only that they extend more to the beak.

The space around the spondylium has become thickened by secondary lime.

The third section (Fig. 4) is 2.5 mm. below the surface, and shows the thickening between the brachial septa enlarged. Two of the septa are interrupted in the middle. In the pedicle valve 3 septa join the spondylium.

0.4 mm. lower (Fig. 5) the plan of the section is enlarged, and the septa also become larger and the interrupted septa of the brachial valve shorter.

In the pedicle valve the two lateral septa still join the spondylium. The hinge area is much larger than on the earlier sections.

When the shell has been ground down 3.2 mm. (Fig. 6), the plan of the brachial valve shows two new incipient lateral septa.

The wall of the spondylium of the pedicle valve is stronger and the median septum is double. There are also two new embryonic lateral septa, and between all the septa there appear 8 lacunæ, which represent open spaces filled with mud.

In the brachial valve, instead of the secondary lime-filling, there is an open cavity filled with mud.

0.3 mm. lower (Fig. 7) the spondylium of the brachial valve is more open, the septa are shorter and the hinge-line disappears. The pedicle valve has the two original lateral septa interrupted, and the two new septa extend to the spondylium. The lacunæ are larger.

Only 0.1 mm. lower (Fig. 8) the size changes quickly. On the brachial valve the inner bases of the first lateral septa become larger and 3 new pairs have appeared. The spondylium is more pointed.

In the pedicle valve there remain only traces of the lateral septa and only the median septum is still double and very large.

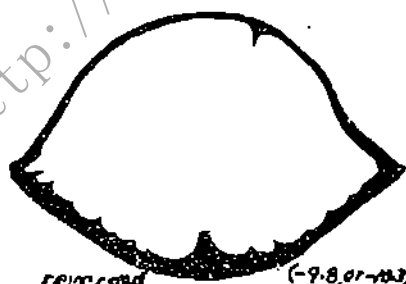
1.2 mm. lower (Fig. 9) the spondylium of the brachial valve disappears, there remains only the basal portion. In the pedicle valve the spondylium is also incomplete.

The most important thing shown is the hinge apparatus which is complete on the right side.

The second specimen was cut into three sections only and they are relatively lower than all those of the other specimen. The first section (Fig. 10) is reversed. It is 4.5 mm. below the beak. The spondylium in the pedicle valve is incomplete and along the inner surface of the shell there are only rudiments of septa. The spondylium in the brachial valve is incomplete and along the inner surface of the shell there are only rudiments of septa. The median double septum is not much different from the last of the preceding sections. In the brachial valve the spondylium is open in the middle and supported by two septa. Along the inner surface of this valve there are numerous rudimentary septa.

The second section (Fig. 11) is not reversed; it is about 7 to 7.5 mm. below the beak.

The radiating ridges of the muscle scars in the pedicle valve are numerous, but absent in the brachial valve. The sides of the spondylium of the pedicle valve are much shorter. On the brachial valve the lateral rudiments of the second pair of lateral septa have disappeared except the rudiments of the second pair of the lateral septa. Two long septa support the remnants of the spondylium.



The third section (Fig. 12) is also reversed and is 9.8 to 10.3 mm. below the beak, or 2.8 mm. below the preceding. On the pedicle valve only the remains of the median septum are shown together with the muscle-scar ridges.

The spondylium and a larger part of the median septum have disappeared. The brachial valve is entirely free from septa or muscle scar ridges except for a small part of the left supporting septum (right in the figure).

The sections of a third individual are shown in Figs. 13 and 14, (13 reversed), at—5.6 mm. and about—6. mm. below the beak. They differ from Figs. 10 and 11 only in having two rudimentary ridges between the supporting septa of the spondylium of the brachial valve. In the section Fig. 14, the median septum of the pedicle valve has become high, and forked at the top where it supports the remnant of the spondylium.

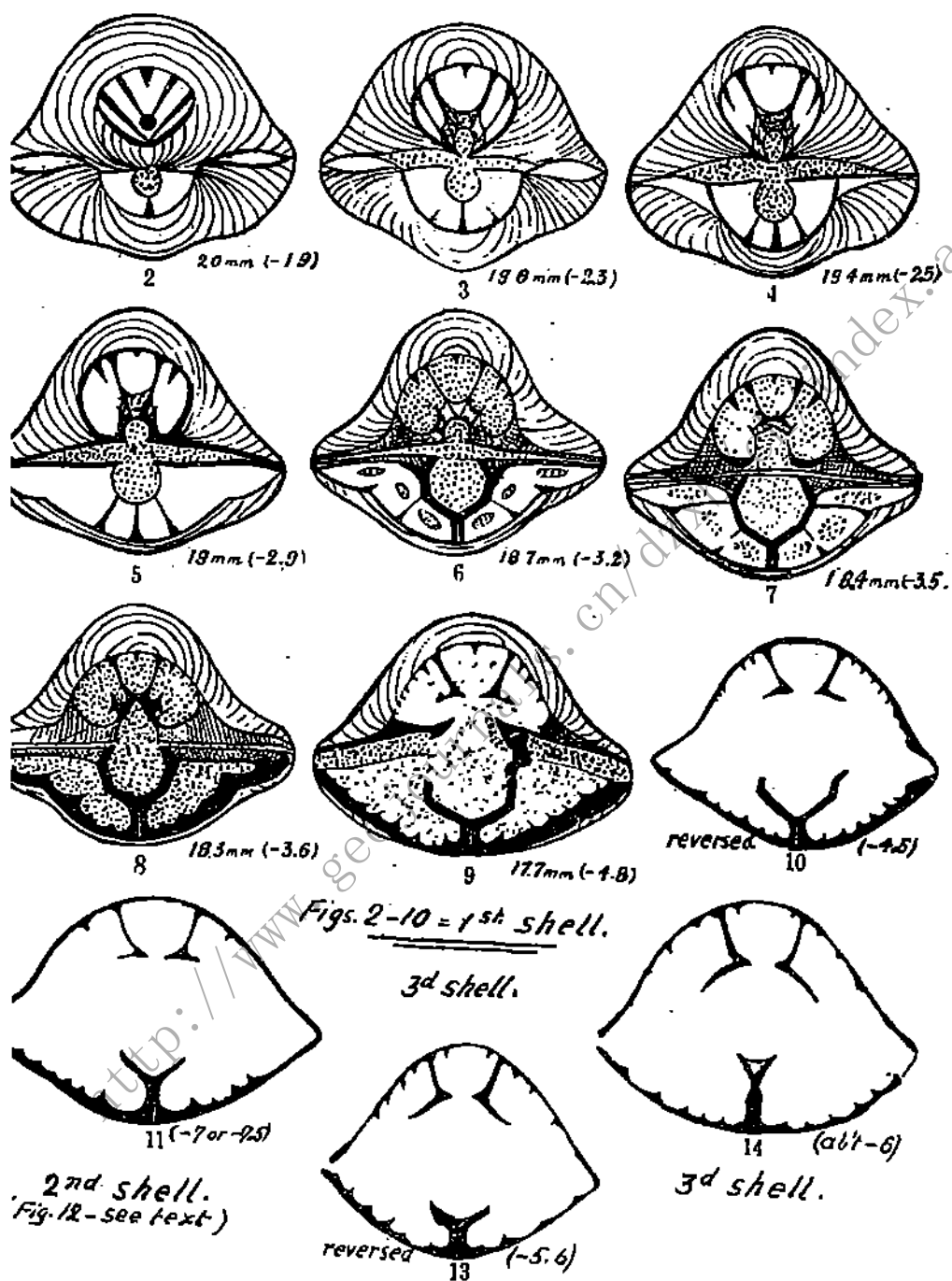
An actual interior of a weathered pedicle valve shows the following characters.

There is a deep spoon-shaped spondylium formed by the union of the dental plates and supported by a median septum, which extends beyond the spondylium to an extent nearly equal to the length of the spondylium itself. This septum in some cases is abruptly lowered to a ridge, and in others gradually dies away on the floor of the valve. On either side are the strong and larger diductor muscular scars, the principal dividing ridges of which become almost septa-like in the umbonal region. Between these main ridges are shorter ones, which do not reach into the umbonal cavity.

Combining the observation from the sections and the weathered interior, we see that the spondylium of the pedicle valve is throughout supported by the median septum, being free from the shell almost from the beginning. Subsequently two new supporting septa arise which join the spondylium, but only for a short time, after which they again become discontinuous, while at the same time a second outer pair of septa arises to support the spondylium. Later still, this second pair of supporting septa becomes interrupted, only the median septum remaining. This clearly shows a double character, being formed of two lamellæ in close contact.

Combining the observation from the sections on the brachial valve, there is a spondylium that at first is supported by two pairs of lateral septa there being also a rudimentary median one. The outer pair of septa later becomes interrupted in the middle but rudiments remain at both ends.

The spondylium is very small at first, but is thickened by secondary lime-deposits; subsequently it becomes large, and later still the center and sides of the spondylium become broken and only the first pair of lateral septa remains strong, carrying the remnant of the spondylium. The two septa of the outer lateral pair are represented by short remnants.



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I propose for this shell the generic name *Yangtzeella* with *Yangtzeella poloi* as the genotype.

The following is the generic diagnosis:

Shell inequivalve, bi-convex and smooth. Pedicle valve the less convex and depressed by a deep median sinus. Brachial valve the more convex with a fold scarcely developed. Hinge area presents in both valves, but very low. Deltidium absent; spondylium in both valves, that of the pedicle valve supported by a septum of two adjoining lamellæ—that of the brachial valve supported by two septa, while accessory septa are present in both valves.

Muscular scars pronounced and characterised by radial ridges.

GENOTYPE AND ONLY KNOWN SPECIES: *Yangtzeella poloi* (Martelli).

HORION AND DISTRIBUTION:—Upper Ordovician of central China.