OCCURRENCE OF THE PELECYPOD GENUS *DIPLOSCHIZA* CONRAD IN THE CRETACEOUS ROCKS OF TRICHINOPOLY, INDIA

In a recent field investigation of the Cretaceous rocks of Trichinopoly (now Tiruchirapalli), Madras, the author collected a large number of specimens belonging to the pelecypod genus *Diploschiza* Conrad. These fossils occur in an arenaceous shaly bed about 2·5 km. north-west of Kunnam Village (Long. E 79° 1′ 30″ and Lat. N 11° 13′ 45″). They were collected from three localities along the strike of the bed : (*i*) a well excavation about 150 meters N 30° E of Asur Bridge on the Ariyalur-Perambalur highway ; (*ii*) a place about 300 meters south of the 9th milestone on the same highway ; and (*iii*) a place about 1 km. N 25° E of Odiyam village. The thickness of the bed varies from 30′ to 40′, striking approximately in NE–SW direction and dipping at very low angles towards SE. The shale at places contains intercalations of concretionary sandstone.

The genus *Diploschiza* is characterised by broadly ovate, lamellar shells with convex right valve and concave left valve. The shell is attached by the umbo of the right valve to a substratum, generally other shells such as those of *Tubulostium* or *Ostrea*. Attached left valves are not uncommon. The length and breadth of the shells vary between 8 and 15 mm. and thickness 4 to 7 mm. In one case the length is as much as 20 mm. The umbones are thin, truncated, frequently broken off becoming perforated. Hinge is straight, but generally broken in the middle and edentulous. Inner surface of the valves are characterised by sharp, irregularly spaced, often branching striæ, which in some adult shells become obsolete, especially in those which have an elaborate external ornamentation.

There are no indications of any muscular scars on the inner surface even in well-preserved shells, which agrees with the observation of Stephenson.[1] The outer surface is variously ornamented, but commonly with a smooth surface crossed by concentric, often slightly raised growth lines. In some cases, ornamentation consists of radial lines, crenulations or spines.

Further examination of these fossils revealed that, based on the nature of the external ornamentation of the shells, four species could be distinguished (Fig. 1), which for the purposes

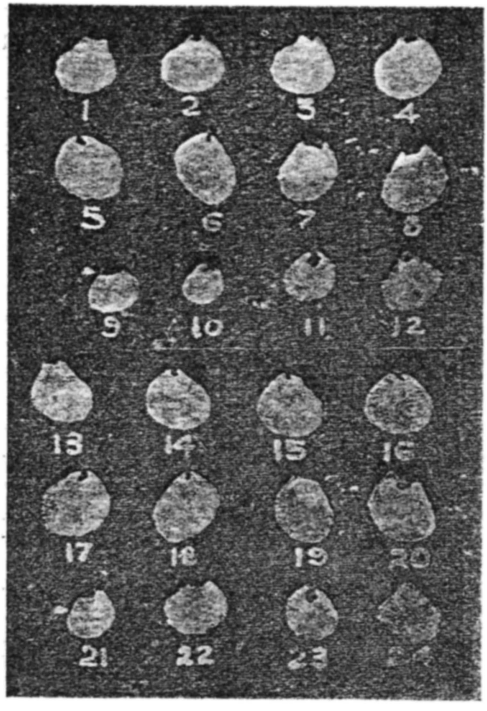

FIG. 1. I Row : 1–4. Exterior of right valves of *Diploschiza* sp. *A*; II Row: 5–6. Exterior of left valves of *Diploschiza* sp. *A*; 7–8. Exterior of right valves of *Diploschiza* sp. *C*. III Row : 9–10. Exterior of right valves of *Diploschiza* sp. *B*; 11–12. Exterior of right valves of *Diploschiza* sp. *C*. IV Row : 13–16. Interior of the right valves of *Diploschiza* sp. *A*. V Row : 17–18. Interior of the left valves of *Diploschiza* sp. *A*; 19–20. Exterior of the left valves of *Diploschiza* sp. *D*. VI Row: 21–22. Interior of left valves of *Diploschiza* sp. *B*; 23. Interior of right valve of *Diploschiza* sp. *C*; 24. Exterior of left valve of *Diploschiza* sp. *C*.

of the present paper are designated as *Diploschiza* sp. *A*, sp. *B*, sp. *C* and sp. *D*. The author had the opportunity to compare the present specimens with some specimens of *Diploschiza cretacea* Conrad (U.S.N.M. 16995) from its type locality in Alabama, and found that the species *A* closely resembled *D. cretacea*,[2] which is the type species of the genus and widely distributed in the Gulf Coast region of U.S.[3] No significant differences in characters were observed between the two species except in the nature and strength of the internal striæ. The other three species appear to be new ones.

Though *Diploschiza* is known to be widely distributed in the Campanian-Maestrichtian horizons of Gulf Coast of U.S., this is the very first report on the occurrence of this genus in India. In fact, except for Stephenson's identification[1-2] of Wood's *Dimyodon sigillina* (Woodward[4]) from the Senonian of England as belonging to the genus *Diploschiza*, the genus is being reported for the first time outside the Gulf Coast region of U.S.

All the earlier described species of *Diploschiza* are confined to Campanian-Maestrichtian horizons—*Diploschiza cretacea* and its varieties are from the middle of *Exogyra ponderosa* zone of U.S.,[2] *D. melleni* occurs in the uppermost beds of Selma Chalk of Gulf Coast[1] while the type specimens of *D. sigillina* came from the *Belemnitella mucronate* zone of England.[2] But the Indian representatives of the genus occur in the Middle Utatur stage, in that the beds that occur above and below the *Diploschiza*-bearing bed contain the characteristic fossil *Calycoceras newboldi* (Kossmat) of the family Acanthoceratidæ. On the basis of this fossil and other ammonoids the Middle Utatur stage has been considered to be Cenomanian in age.[5-8] Hence the Indian occurrence, besides being the only undoubted one outside the Gulf Coast of U.S., is also the first one in a stratigraphical horizon much older than Campanian, that is, in the beds of Cenomanian age.

Further, the occurrence in the Cretaceous of South India, in the Cenomanian period, of a species of *Diploschiza* closely resembling a species (*D. cretacea*) occurring in the Campanian of U.S. is interesting in that it might throw light on the migration of the genus.

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