

Diagnosis

Vertical, cylindrical burrows, 20–50 mm in diameter and up to 200 mm in height, containing a central cylindrical core, about 10 mm in diameter, of coarser grained material.

Dolopichnus gulosus differs from the specimens described by Philipp (1904, Pl. 3:1) as Problematicum in that the central core is

larger and the outer surface of the burrow does not have irregular constrictions. *D. gulosus* is larger and deeper than *D. mongraensis* (Verma, 1970) and is more cylindrical in shape.

Interpretation

Our interpretation of the above structures as dwelling burrows of sea anemones is supported by several lines of circumstantial evidence. The radial symmetry and cylindrical to conical shape are features possessed by other burrows generally attributed to sea anemones: *Conostichus* Lesquereux (Chamberlain 1971); *Bergaueria* Prantl (Alpert 1973); *Kulindrichnus* Hallam (1960); *Cylindrichnus* Toots (Chamberlain & Clark 1973:677, as *Anemonichnus*). In addition, the bottom of one burrow (Fig. 3A) is morphologically similar to *Bergaueria*, and some specimens of *Conostichus* possess a sub-cylindrical core (Chamberlain 1971:220). Finally, the burrows are similar in size and shape to living sea anemones, whose life habits can account for the features observed in the fossil burrows.

The presence of concentrated trilobite skeletal fragments within the burrows leads us to believe that the sea anemones preyed upon trilobites. The central core within the burrow is interpreted to be a cast of the stomach or coelenteron, which in some specimens contains preserved stomach contents.

It is postulated that sea anemones ingested small trilobites, and digestive enzymes dissolved the soft parts of the trilobites; the exoskeletons were thus disarticulated, and possibly broken into smaller fragments by muscular action. The undigestible skeletal fragments were probably agglutinated by mucus, prior to expulsion through the mouth. Ejecting the material as a cohesive mass would have prevented the waste from dispersing and settling back down

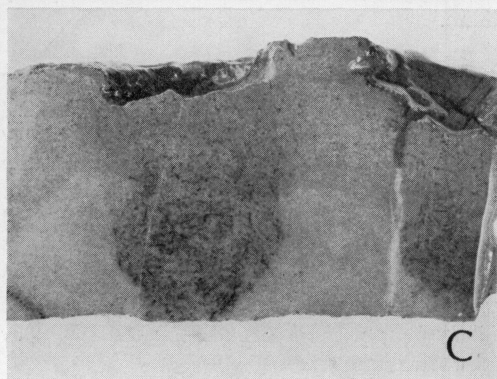
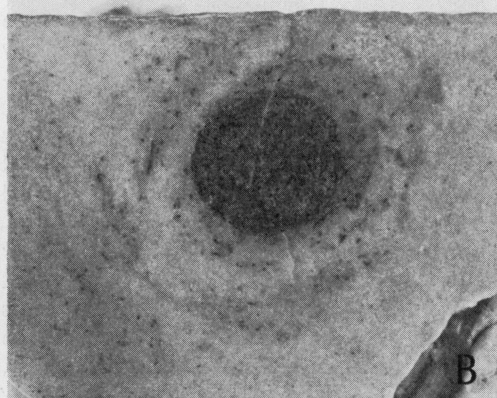
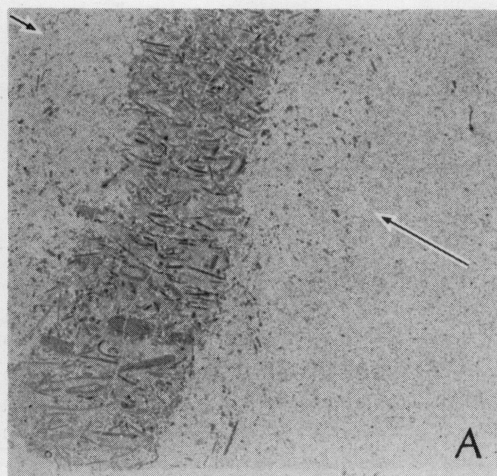


Fig. 4. *Dolopichnus gulosus*. □ A. Photograph of longitudinal thin section through central cylinder of paratype (UCLA 49509), upper bed with burrows. Position of section in burrow shown in Fig. 6. Central cylinder is delineated by abundant bioclastic material. Outer wall of burrow is indicated by absence of dark fragments (arrows). $\times 2.6$. □ B. Transverse section through paratype (UCLA 49509) (position shown in Fig. 6), showing distinct central cylinder of bioclastic fragments. $\times 1.9$. □ C. Vertical sections through short burrows filled with trilobite fragments. These are probably the bottoms of tall burrows. Paratype, UCLA 49511, upper bed with burrows. $\times 1$.