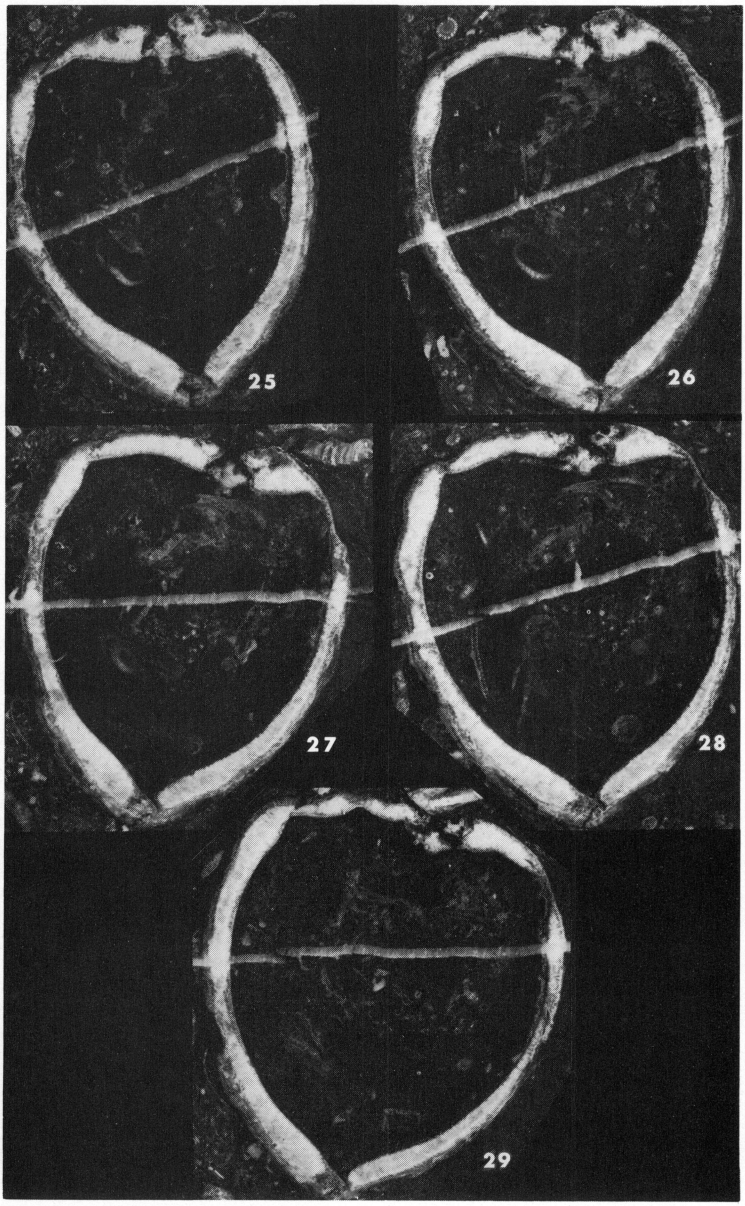
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are abundant at the *C. langenheimi* localities. The shell itself is sturdy, especially the thick walled anterior "auricle," which suggests exposure to some strong current or wave action. Seemingly eroded parts of some of the specimens indicates that they may have been moved by currents from their original habitats. However, some fine silty layers in the limestone indicate that sedimentation was generally not rapid. None of the specimens shows evidence of having been buried in a burrow, which seems to me the most likely habitat by analogy with Recent bivalves of the most similar external form, size, and sturdiness (Pholadidae). Branson (1969, p. 860, figs. 3a, 3b, *in* Branson, LaRoque, and Newell) figured, but did not discuss, a restoration of a *Conocardium* apparently occupying a burrow, but having the anterior "auricle" innermost, which is unlike the Pholadidae. Nicol (1970, p. 70) also compared *Conocardium* with Recent bivalves, but reached the different conclusion that it "was attached by a short, stout byssus . . ." All the specimens of *C. langenheimi* appeared to be lying randomly on surfaces parallel to the bedding planes. They are all tightly closed pairs, which is unlike other Bivalvia, if one assumes because of the eroded areas that they were buried after death.

Reconstruction of the soft part morphology of *C. langenheimi* will not be simple. I have been unable to create a satisfactory model for incurrent and excurrent siphons. The complex form of the "shelves" indicates that some extremely specialized soft part morphology was present. The apparent absence of muscle scars in the anterior end may be explained by the existence of muscles between the edges of opposing "shelves," as suggested by the myostracum (?) exposed there. One would expect posterior muscles also, which seemingly are not represented by muscle scars or a posterior myostracum. Perhaps the function of the unique hinge line structures and the ventral and posterior "teeth" rendered posterior muscles unnecessary. The internal ridge along the hinge line looks greatly like a support, but one wonders for what, since the other bivalves seem to function well without such a rigid support for the ctenidia, alimentary canal, or other systems. It is tempting to postulate a

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Figures 30-34. *Conocardium langenheimi* sp. n. (30) continuation of sections of same specimen as figures 10-29, same magnification, dorsal tubes drop into exterior grooves bordering hinge line, dorsal ridge disappears; (31) same specimen, same magnification, dorsal tubes not present (preservation?), external grooves coalesce, with narrowed opening above, hole in shell at left caused by erosion, shell not preserved posterior to this section and nature of structures there unknown; (32) thin section made from polished section shown in fig. 11, note especially exposed end of myostracum (?) at edge of "shelf" at left and indeterminate nature of hinge articulation, X 3.2; (33) thin section made from polished section shown in fig. 31, showing nature of hinge and apparent absence of dorsal tubes seen in figs. 19-30, X 3.2; (34) thin section made from polished section shown in fig. 21, showing dorsal tubes, myostracum (?) layers, elongate internal hinge line ridge with horizontal distal bar, exterior ligament (?) groove, and apparent separate nature of plate along hinge line, X 3.2.