



cross section (varies), about 0.2 mm thick, apparently exposed at "shelf" edges (indicates muscles joining opposing "shelves"?), showing concentric and radial lines as in middle layer.

*Name:* This species is named for R. L. Langenheim, Jr. in recognition of his contributions to our knowledge of the paleontology and stratigraphy of North America and for his inspiration and training of many students in this work.

*Type specimens:* Holotype UCMP 10589, paratypes UCMP 10590-10591, paratype LACM 2443, all UCMP locality D-831 (=LACM locality 1133); paratype UCMP 10592, UCMP locality D-819.

*Localities:* UCMP locality D-819. 1140 feet stratigraphically above the lowest exposure of the McCloud Limestone on the first spur south of the eastern end of the McCloud River bridge as shown in the northwest  $\frac{1}{4}$  of the southwest  $\frac{1}{4}$  of section 32, township 35 north, range 3 west of the United States Geological Survey topographic quadrangle (15 minutes, 1957) of Bollobokka Mountain, Shasta County, California. Series of one foot high ledges of limestone, fine to medium grained, black to medium gray, weathering medium to light gray; little chert; many silicified fossils, including large caninoid corals, *Conocardium*, *Omphalotrochus*, fusulinids.

UCMP locality D-831 (= LACM locality 1133). Estimated 200 yards south of locality D-819 along strike and about 15 feet higher in the section. Narrow bench of thin-bedded, black, silty limestone below a sheer massive cliff. Abundant syringoporid corals, very large solitary rugose corals, fusulinids, bryozoans, *Conocardium*.

*Age:* The fusulinids have the most refined stratigraphic ranges of the fossils found with *Conocardium langenheimi*. Two species were identified: *Pseudofusulina soluta* Skinner and Wilde, 1965 and *Triticites mulleri* Skinner and Wilde, 1965, both having type localities in the McCloud Limestone nearby the *Conocardium* localities. Skinner and Wilde (1965, pl. 4) considered the former fusulinid to indicate definite Permian age (the genus is a Wolfcampian index fossil) and the latter to be of either Pennsylvanian (Virgilian) or Per-

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Figures 19-24. *Conocardium langenheimi* sp. n. Continuation of sections of same specimen as figures 10-18, same magnification; (19) dorsal "shelves" have incurved and passed into tubes in shell wall, marking dorsal beginning of main body of valves, myostracum (?) rods now wholly within shell wall, dorsal ridge greatly lengthened and now having horizontal distal end (not clear in this photograph but see fig. 34), possibly developing into separate plate along hinge line, with lateral grooves internally, midline groove externally, tube at left opened by erosion; (20) dorsal tubes narrow, note ventral teeth showing how ventral commissure can be exteriorly straight yet interior zig-zag, also shows shell not ankylosed; (21) dorsal tubes narrow, dorsal ridge shortens; (22) dorsal tubes narrow and move toward midline, dorsal ridge shortens; (23) dorsal tubes narrow, valve at left badly eroded; (24) dorsal tubes smaller, dorsal ridge shorter, dorsal part of valves move ventrally, deepening external groove.