



hinge line, leaving opening here into main part of shell, shelves continuing dorsally and posteriorly with lips incurving to form tubes passing into shell layers before leaving "auricle," tubes continuing posteriorly in shell above main body of shell, lateral to hinge line, becoming closer posteriorly and apparently dropping into external groove above hinge line, with posterior course unknown due to preservation (no apparent natural external opening observed in posterior "auricle" or hinge line); middle "shelves" also large, paralleling dorsal ones, similar in shape and slope, but extending to anterior edge of "auricle," forming key-hole shaped opening in anterior ends as well as heart-shaped opening posteriorly into main body of shell, with anterior lips as in dorsal "shelves," extending into grooves in "auricle" walls under dorsal "shelves" posteriorly, ending at posterior termination of dorsal "shelves," without continuing internal tube; ventral "shelves" small, shaped like middle "shelves."

*Description (microstructure)*: Preservation very imperfect, shell partially silicified, some layers separated by silica, some missing (erosion?) in places; shell calcium carbonate, 1.5 to 3.5 mm thick, with 3 layers throughout plus 3 highly restricted layers; exterior layer 0.33 to 1.0 mm thick, prismatic, distal crystal tips reflected ventrally, elsewhere normal to shell surface; middle layer 0.2 to 0.3 mm thick (generally replaced by silica and difficult to measure), lamellar, showing ventrally convex concentric growth lines crossed by finer radial lines, separated in places from prismatic layer by dark line (concholin?); inner layer 2 to 3 mm thick, much wider than other layers, formed of large calcium carbonate crystals (apparently recrystallized), showing residual (?) growth lines in some areas, etching in dilute hydrochloric acid in main body of shell into trigonal ridges (see above), evidence of which not observed in polished or thin sections; myostracum (?) in 3 bands in each valve, extending from opposed axial edges of "shelves" to umbos, straight to V-shaped in

Figures 10-18. *Conocardium langenheimi* sp. n. UCMP paratype 10591, UCMP locality D-831, specimen ground down from anterior to posterior to show successive cross sections, all figures X 2.2; (10) section near anterior of anterior "auricle," note great shell thickening (left) from thin anterior edge (right); (11) dorsal "shelves" begin to form, note rod like myostracum (?) protruding from "shelves," internal scalloped outline of outer shell layers; (12) three pairs of "shelves" forming, note deepening grooves between dorsal and middle "shelves"; (13) three pairs of "shelves" formed here, each with associated myostracum (?); (14) upper "shelves" move dorsally, curl inwards, middle "shelves" pass into two grooves, lower "shelves" have disappeared, internal dorsal ridge along hinge line begins to lengthen; (15) dorsal "shelves" move dorsally, other "shelves" disappear (groove extending from middle "shelf" on right still present), rods of myostracum (?) move dorsally in shell wall, teeth and sockets appear ventrally marking ventral beginning of main body of valves; (16) dorsal ridge lengthens, pre-burial erosion noticeable on dorsal edge of valve at left; (17) dorsal ridge lengthens; (18) dorsal ridge lengthens, dorsal edge of eroded valve thins, dorsal "shelves" move higher, accompanied by their myostracum (?) rods and those from two lower "shelves."