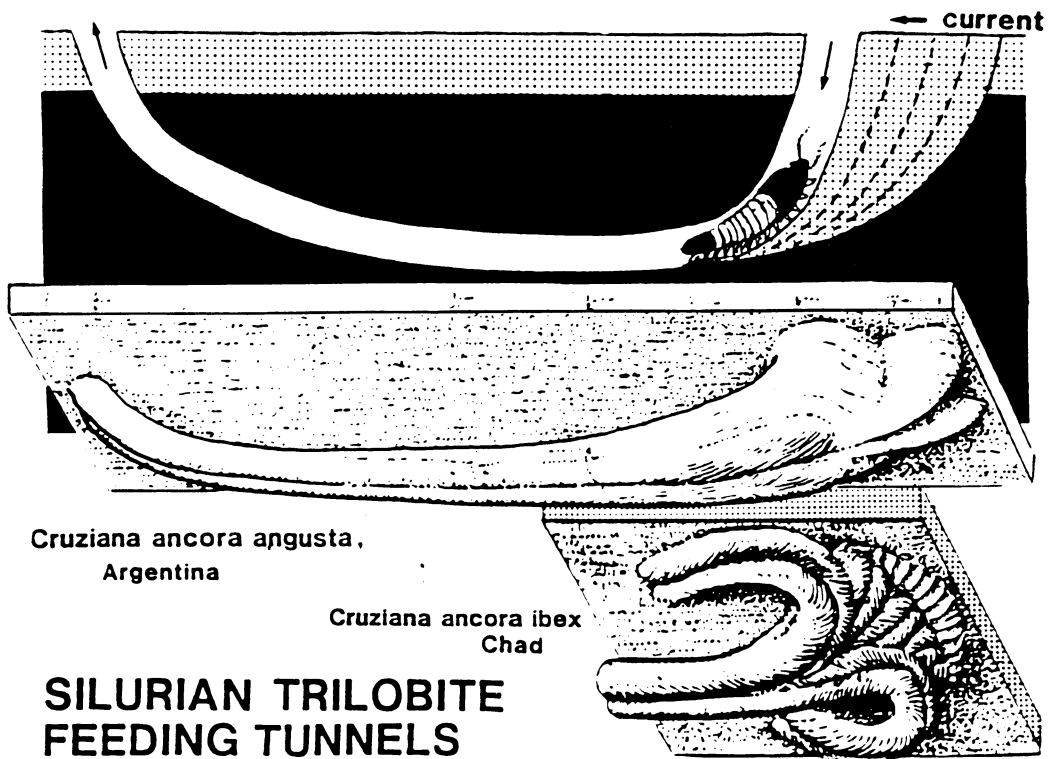


## SILURIAN ICHNOSTRATIGRAPHY BASED ON BURROWING BEHAVIOR

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If we want to study the evolution of behavior and use it for biostratigraphic correlation, we must first be sure that the makers of the trace fossils we compare were closely related -- even if their taxonomic affiliation remains unknown. Two kinds of marine Silurian trace fossils do show group-specific fingerprints: the multiple, but blunt endopodial scratches of certain trilobite burrows (*Cruziana*) and



### SILURIAN TRILOBITE FEEDING TUNNELS

the transverse segmentation of arthropycoid worm burrows. Both lineages improved food extraction from the sediment by developing specific programs to expand their mining activities. In *Cruziana acacensis*, various inclinations of the headshield led to strikingly different burrow geometries, while *Cruziana ancora* was a permanent U-tunnel with variously curved side probes at the upcurrent end. In *Arthropycus* and the related ichnogenus *Daedalus*, J-shaped burrows with teichichnoid backfill structures where either linear, deeply vertical, palmate or spiral. Since the ichnogeneric level is already swamped by often meaningless names, we prefer to label these behavioral variants as species and subspecies. The stratigraphic succession of such forms is being studied in continuous sections.