

LATE PENNSYLVANIAN AND PERMIAN TURRILEPADIDA (MACHAERIDIA)
FROM THE WESTERN AND SOUTH-CENTRAL UNITED STATES

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The Machaeridia is an enigmatic marine fossil group which has been variously allied with the cirripedians, molluscs, annelids, and echinoderms. Although machaeridians have previously been unreported from rocks younger than earliest Pennsylvanian (late Namurian), members of the machaeridian order Turrilepadida are now found to be locally abundant well into the Permian. New occurrences of turrilepadidan sclerites are reported from the Late Pennsylvanian of Texas and the Early Permian of Texas and Nevada.

Turrilepadidan sclerites are common in marine shales of Missourian and Virgilian age in north-central Texas. Well preserved turrilepadidan sclerites have been found in the Wolf Mountain Shale (Missourian) and in the Colony Creek, Finis, and Necessity Shales (Virgilian) of north-central Texas. A few sclerites have a high number of closely spaced rugae and are similar to those of *Turrilepas*, but the most common types of sclerites have relatively few, widely spaced rugae, and many of these show radial ornament like that found on sclerites assigned to the genus *Clarkeolepis*. Although most forms would be placed in the family Turrilepadidae, a partial specimen from the Finis Shale appears to be a lepidocoleiid sclerite.

Silicified sclerites of Permian age have been found in two marine carbonate units: the upper part of the Bird Spring Formation (late Wolfcampian or early Leonardian) of southern Nevada and in the Cathedral Mountain Formation (Leonardian) of West Texas. Although their details are generally poorly preserved, these sclerites appear to be representative of members of the family Turrilepadidae with a different taxon found at each of the two localities.

The paleoecology of turrilepadidans is not well known, but each of these occurrences is from a locality that represented an area with a muddy bottom, a slow rate of deposition, and an unusually diverse fauna. The fauna at each horizon is dominated by a large number of brachiopod and mollusc species, many of which were conspicuously encrusted or bored during life or afterwards. Although a few of the sclerites show postmortem encrustations on their inner or outer surfaces, the overall lack of borings or encrustations suggests that the turrilepadidans were mobile, possibly infaunal organisms.