

Figure 12.7. Stereophotographs of Late Triassic ornithischian teeth from North America. Scale bars are 1 mm (A–D) and 2 mm (E–F). (A) Holotype of *Tecovasaurus murreyi* (NMMNH P-18192) in buccal view. (B) Referred dentary/maxillary tooth of *T. murreyi* (MNA Pl. 1704) in buccal view. (C) Holotype of *Lucianosaurus wildi* (NMMNH P-18194) in lingual view. (D) Referred dentary/maxillary tooth of *L. wildi* (NMMNH P-18195) in lingual view. (E) Dentary/maxillary tooth of *Revueltosaurus callenderi* (NMMNH P-4958). (F) Premaxillary tooth of *R. callenderi* (NMMNH P-4959) in lingual view.

Etymology. For Dr. Rupert Wild, in recognition of his diverse contributions to Triassic vertebrate paleontology.

Type locality. NMMNH locality 110, Guadalupe County, New Mexico.

Type horizon. Upper portion of Bull Canyon Formation (Upper Triassic: ?middle Norian).

Diagnosis. As for genus.

Description. *Lucianosaurus wildi* has dentary/maxillary teeth that are constricted below the crown, but the level of the base of the crown varies for the mesial and distal margins of the tooth (Figures 12.6F–I, 12.8G). In the holotype, the side of the crown that is most elevated (?distal) bears a small accessory cusp (Figures 12.6F,G, 12.8G). The referred specimen also has an asymmetrical base to the crown, but no accessory cusp (Figure 12.6H,I). On the lingual side, the denticulated margin is set slightly back from the face of the tooth. On both labial and lingual sides there are fine longitudinal striations. In mesial and distal views the teeth are asymmetrical, with more rounded labial margins.

Discussion. We refer NMMNH 18195 to *Lucianosaurus wildi*, even though it lacks an accessory cusp, because it shares the asymmetrical basal crown with

the holotype of the taxon. We have not observed this feature in any other ornithischian teeth. Given the presence of this distinct feature in two teeth from the same locality, we consider it most parsimonious to refer both teeth to the same taxon and to consider the presence or absence of the accessory denticle as being a feature related to placement within the dentition. *Lucianosaurus* is the only Triassic ornithischian that has accessory cusps, except for *Technosaurus smalli*, which has both mesial and distal accessory cusps (Figure 12.8I).

Revueltosaurus callenderi Hunt, 1989

Revised diagnosis. Large ornithischian distinguished by the possession of tall premaxillary teeth (length/height = 0.72), with denticulated margins that are slightly recurved and are twice the height of dentary/maxillary teeth, as well as having relatively high dentary/maxillary teeth (length/height = 0.88) that lack accessory cusps.

Discussion. Sereno (1991) suggested that the holotype, paratypes, and referred specimens of this taxon lack (1) clear association, (2) clear positional information, and (3) distinctive characters. The teeth in question were all collected from one quarry in the lower Bull Canyon Formation of east-central New Mexico (Hunt, 1989). These teeth are much larger

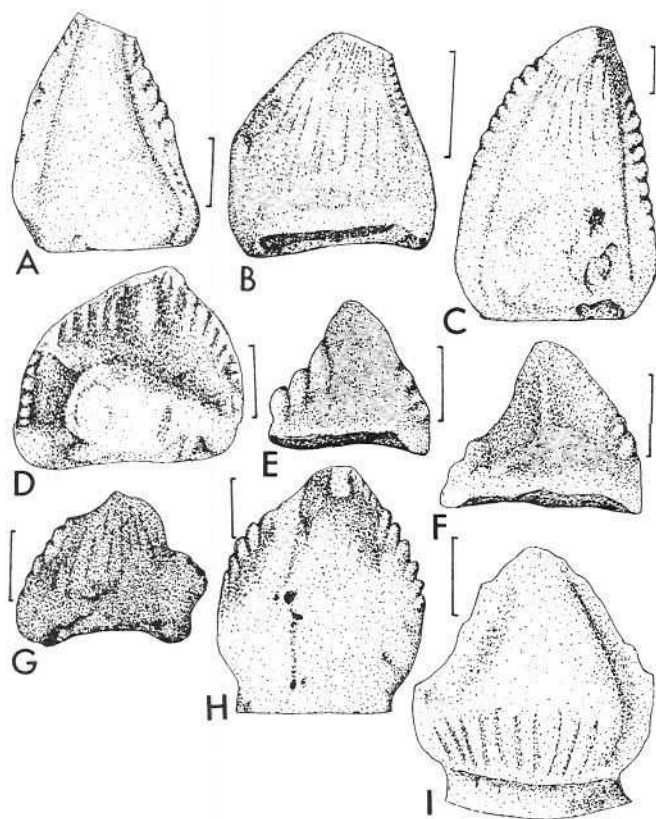


Figure 12.8. Late Triassic ornithischian teeth from North America. Scale bars are 1 mm (E–G) and 2 mm (A–D, H, I). (A) Holotype of *Galtonia gibbidens* (AMNH 2339) in lingual view. (B) Referred premaxillary tooth of *Pekinosaurus olseni* (YPM 8545) in lingual view. (C) Premaxillary tooth of *Revueltosaurus callenderi* (NMMNH P-4959) in lingual view. (D) Holotype of *P. olseni* (YPM 8545) in lingual view. (E) Referred dentary/maxillary tooth of *Tecovasaurus murryi* (NMMNH P-18193) in buccal view. (F) Holotype of *T. murryi* (NMMNH P-18192) in lingual view. (G) Holotype of *Lucianosaurus wildi* (NMMNH P-18194) in buccal view. (H) Dentary/maxillary tooth of *R. callenderi* (NMMNH P-4958) in lingual view. (I) Dentary/maxillary tooth in holotypic jaw of *Technosaurus smalli* (TTUP 9021) in buccal view.

than those of other Triassic ornithischians. In a collection of over 2,000 specimens of fossil vertebrates in NMMNH from this formation, all teeth of ornithischians are similar in size and structure to the specimens described by Hunt (1989). Given the large size of these specimens, the lack of evidence for the presence of another ornithischian in this formation, and the fact that all the specimens described by Hunt (1989) came from the same quarry, it appears to be most parsimonious to assume that these specimens represent one taxon.

It is evident that the holotype, paratype, and referred specimens of *Revueltosaurus callenderi* represent dentary/maxillary teeth (Figures 12.7E, 12.8H; compare Hunt, 1989, pl. 9A–D, and Sereno, 1991, figs. 4A,B, 5A,C) and premaxillary teeth (Figures 12.7F, 12.8C; compare Hunt, 1989, pl. 8E–H, and Sereno, 1991, fig. 6C). Thus, there is no lack of clarity regarding the positions of the teeth. Given the clear association of the specimens referred to *Revueltosaurus callenderi* by Hunt (1989), and given that positional information can be inferred, the taxon can be diagnosed by the characters listed earlier. Thus, *Revueltosaurus callenderi* is not a nomen dubium.

Revueltosaurus callenderi occurs in the lower part of

the Bull Canyon Formation of eastern New Mexico (Hunt, 1989) and the lower part of the Painted Desert Member of the Petrified Forest Formation (sensu Lucas, 1992) in Arizona (Padian, 1990). Both of these units contain *Pseudopalatus* and *Paratypothorax*, which indicate an early Norian age (Hunt and Lucas, 1990; Lucas, 1992), and this is supported by palynological evidence (Litwin et al., 1991).

Technosaurus smalli Chatterjee, 1984

Lectotype. TTUP 9021, right dentary (Chatterjee, 1984, fig. 1d,e,j) (Figure 12.8i).

Revised diagnosis. Ornithischian distinguished by the possession of dentary/maxillary teeth that have anterior and posterior accessory cusps and longitudinal striations in the lower constricted area of the crown.

Discussion. Chatterjee (1984) named *Technosaurus smalli* on the basis of cranial and postcranial material from the Cooper Member of the Dockum Formation of Texas. Sereno (1991) has demonstrated that the holotype of this taxon includes the right dentary of an ornithischian and part of the lower jaw