Moenave Formation in Tanahakaad Wash, in association with other skeletons of *Protosuchus* (J. M. Clark pers. comm.).]

The footprints from both localities are preserved in slabs of coarse orange-red sandstone, badly weathered and friable, up to 2 cm thick, interbedded between layers of finer orange-red mudstone that have been easily washed from the footprint-bearing layers. In the first locality surveyed (V85012), about 0.4 m^2 of track-bearing sandstone was collected; from the second locality (V84239), about 1.8 m^2 were collected. We took measurements and made composite drawings of the manus and pes from latex molds of the footprints. When we compared our molds, drawings, and composites to specimens, photographs, and drawings of similar ichnites, we were able to assign the new tracks to the ichnogenus *Batrachopus* E. Hitchcock 1845, which was first recognized in the Early Mesozoic Newark Supergroup of the Connecticut Valley.

As noted above, the purpose of this chapter is to describe the Moenave footprints and to justify their assignment to *Batrachopus*. We also discuss their biostratigraphic significance, especially with respect to the age of the Moenave Formation. In the course of our study, however, it became clear that the ichnogenus *Batrachopus* required substantial revision and comment before any tracks could be referred to it.

The standard reference for Connecticut Valley footprints is Lull (1915, revised 1953). Unfortunately, several pervasive problems with Professor Lull's work must be frankly discussed, specifically those dealing with diagnosis and reconstruction of the trackways that constitute most of the paleovertebrate evidence of the Connecticut Valley. In many cases, including the ichnogenus *Batrachopus*, Lull incorrectly identified the type specimens designated by Edward Hitchcock in the mid 1800s, and often incorrectly recognized nominal priority. Lull's inferences about the possible trackmakers of most tracks, including many badly preserved ones, have generally stood up very well. On the other hand, his drawings of the trackways are often not reliable. They are less drawings of specimens than idealizations of footprint forms. In contemporary ichnological work, composites of manus and pes are normally made by comparing prints in a series, reversing and superimposing tracings of successive tracks to ascertain their consistent features. It is clear that Lull did not do this, and often (e.g., Lull 1953, fig. 54) merely repeated reversed drawings of single impressions to simulate trackways. His reconstructions of trackways suffer because he did not faithfully reproduce three important components: the distances between manus and pes, the distances between successive left and right prints, and the orientation of manus and pes prints with respect to each other and to the direction of movement. Finally, although he did recognize the importance of ontogenetic growth to the relative proportions of footprints (e.g., Lull 1953, pp. 295–307), it did not seem to affect his acceptance of many of Hitchcock's form genera as valid, regardless of their similarities to slightly larger tracks or of their unique features resulting from substrate differences or poor preservation. To begin with, therefore, we will revise the ichnogenus *Batrachopus*.

Figure 20.1. Trackways of *Batrachopus deweyi*. Scale is 3 cm. **A**, Neotype trackway of *Batrachopus deweyi* (A.C. 26/5 and 26/6; locality unknown) showing the impression of digit V in the first two pedal impressions. **B**, Type trackway of *B. "gracilis"* (A.C. 42/3; Turners Falls Sandstone of Massachusetts).