

ual accumulation of fragments which, when placed together, make the whole. Just as the extinct reptile, at first known only by a single bone, is finally completely recognized by the addition of further material, so the fossil insect, originally represented by a wing or parts of the body, eventually becomes known to us in all details. And although the accumulation of the necessary specimens may be delayed for many years and the important details missing for an equivalent time, the results, on the whole, are dependable.

II. NORTH AMERICAN ANT DEPOSITS

Fossil ants have been found in five American localities:¹ the Green River formation of Colorado, Wyoming, and Utah; the Florissant shales of Colorado; the Elko oil shales of Nevada; the Quesnel clays of British Columbia; and the Fayette sandstone of Texas. The oldest of these, and in fact the oldest known ant deposit, is the Green River formation. This deposit has been known to be fossiliferous since the middle of the last century when John Evans collected a small fish in the beds near Green River, Wyoming. It was not until 1867, however, when the Hayden Geological Survey began a series of explorations of the Northwest Territories, that the fauna and flora of the shales were systematically studied. At that time Dr. F. V. Hayden, the director of the survey, named and described the deposit as follows (1873): "A little east of Rock Spring station [Wyoming] a new group commences composed of thinly laminated chalky shales, which I have called the Green River shales because they are best displayed along the Green River. They are evidently of purely fresh water origin and of middle Tertiary age. The layers are nearly horizontal and, as shown in the valley of Green River, present a peculiarly banded appearance. . . . The flora is already extensive, and the fauna consists of *Melania*s, *Corbula*s, and vast quantities of fresh water fishes. There are also numerous insects and other small undetermined fossils in the asphalt slates."

As these geological explorations continued, it became apparent that the same shales extended into Colorado, Utah, and other parts of Wyoming (Emmons, 1877; Endlich, 1878; Peale, 1876; White, 1878). In recent times more detailed studies on the geology of the formation have been made by Winchester (1923) and Bradley (1926). The shales were

¹ Since this paper was written (1928) a few ants have also been found in the Miocene (Latah) of Washington, and a single specimen has been collected in the Eocene (Wilcox) of Tennessee.