(1908), and Knowlton (1917), includes such genera as *Acacia, Acer, Alnus, Amelanchier, Aster, Betula, Carpinus, Comptonia, Ficus, Fraxinus, Hicoria, Ilex, Juglans, Magnolia, Myrica, Pinus, Populus, Quercus, Rhamnus, Rhus, Rosa, Salix, Sequoia, Smilax,* and *Ulmus.*

The insect fauna is exceptionally large, over a thousand species having been described, and seems to be modern in most respects. Both the insects and the plants suggest that the climate at the time of the deposition of the shales was similar to that of our southern states. Scudder has frequently observed that some of the insects have subtropical and even tropical affinities, and Cockerell has also called attention (1907) to a few genera which are now restricted to the old world (e.g. *Glossina*). The ant fauna shows this same geographical relationship.

III. The Eocene Ant Fauna

1. The Green River formation, belonging to the Middle Eocene, contains the oldest ants known.[1] The only other ant deposits of Eocene age are the Bagshot beds, England, and the Fayette sandstone, Texas, both of which are somewhat younger than the Green River. The shales of this latter formation also have the distinction of being the first American rocks to produce Tertiary insects, one of the first specimens collected being an ant. In 1865, Professor William Denton, of Boston, discovered a series of Tertiary beds at the Junction of the Green and White Rivers, near the Colorado-Utah border (Fossil Cañon and Chagrin Valley). During the course of his examination of the petroleum shales which formed a part of the deposit, he found numbers of "Dipterous insects, especially mosquitos, and their larvae" (Denton, 1866). The insects were examined by Scudder who reported that the collection consisted of ninety specimens, representing sixty-five species, one of which belonged to *Myrmica.* This ant Scudder later concluded to be a dolichoderine, and described it as *Liometopum pingue.* Three years later, Dr. F. V. Hayden, who conducted many geological explorations into the Northwest Territories, found a few insects in a bed of these same petroleum shales which were exposed along a section ("Petrified Fish Cut") of the then recently built Union Pacific Railroad, at Green River City, Wyoming. Scudder studied these insects also, and stated that they belonged to "three species, one being an ant, the others flies. The ant is rather poorly preserved, and must be examined with great care before its precise characters can be determined." This species was

[1] An earlier ant, *Euponera berryi* Carp., has recently been found in the Lower Eocene of Tennessee. See Journ. Wash. Acad. Sci., **19**, p. 300–301, 1929.