

THE FIRST MESOZOIC ANTS,  
WITH THE DESCRIPTION OF A NEW SUBFAMILY

By

EDWARD O. WILSON,<sup>1</sup> FRANK M. CARPENTER,<sup>1</sup>  
and WILLIAM L. BROWN, JR.<sup>2</sup>

INTRODUCTION

Our knowledge of the fossil record of the ants, and with it the fossil record of the social insects generally, has previously extended back only to the Eocene Epoch (Carpenter, 1929, 1930). In the Baltic amber and Florissant shales of Oligocene age, and in the Sicilian amber of Miocene age, there exists a diverse array of ant tribes and genera, many of which still survive today (Emery, 1891; Wheeler, 1914; Carpenter, 1930). The diversity of this early Cenozoic ant fauna has long prompted entomologists to look to the Cretaceous for fossils that might link the ants to the non-social aculeate wasps and thereby provide a concrete clue concerning the time and circumstances of the origin of social life in ants; but until now no fossils of ants or any other social insects of Cretaceous age have come to light (Bequaert and Carpenter, 1941; Emerson, 1965) and we have not even had any solid evidence for the existence of Hymenoptera Aculeata before the Tertiary.

There does exist one Upper Cretaceous fossil of possible significance to aculeate and thus to ant evolution. This is the hymenopterous forewing from Siberia described by Sharov (1957) as *Cretavus sibiricus*, and placed by him in a new family Cretavidae under the suborder Aculeata. As Sharov notes, the wing venation of *Cretavus* does resemble that of the bethyloid (or scolioid) wasp family Plumariidae, a group that has been mentioned in connection with formicid origins. The *Cretavus* wing is also similar to that of such primitive Tiphidae as *Anthobosca* (see figures, discussion and references in Brown and Nutting, 1950). But the difficulty with this fossil is that we have only the wing, and there is no guarantee that

<sup>1</sup>Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts.

<sup>2</sup>Department of Entomology, Cornell University, Ithaca, New York, and Museum of Comparative Zoology, Harvard University.