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ANTS FROM THE CRETACEOUS AND EOCENE AMBER  
OF NORTH AMERICA\*

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The discovery of *Sphecomyrma freyi* in amber from New Jersey disclosed the existence of an extinct subfamily of ants (Sphecomyrminae) intermediate in some traits between modern ants and nonsocial wasps and dating as far back as the lower part of the Upper Cretaceous (Wilson *et al.*, 1967a, b). Subsequently Dlussky (1975, 1983) described a series of new genera from the Upper Cretaceous of the Taymyr Peninsula (extreme north-central Siberia), southern Kazakh S.S.R., and the Magadan region of extreme eastern Siberia. Among the various specimens assigned to these taxa (the genera are *Archaeopone*, *Armania*, *Armaniella*, *Cretomyrma*, *Cretopone*, *Dolichomyrma*, *Paleomyrmex*, *Petropone*, *Poneropterus*, and *Pseudarmania*), the ones well enough preserved to disclose subfamily-level diagnostic characters appear to fall within the Sphecomyrminae. Indeed it is difficult to find sound reasons for separating most of them from *Sphecomyrma*, providing we limit ourselves to the same criteria applied to contemporary genera and tribes. There seems to be little justification for placing them in a separate family, the Armaniidae, as suggested by Dlussky.

If this interpretation of the Russian material is correct, we have established that the most primitive known group of ants, the Sphecomyrminae, lived over much of the northern hemisphere during middle and late Cretaceous times. Other discoveries have revealed that by Eocene times, some 50 million years later, higher forms of ants had come into existence, but the evidence remains very scanty and ambiguous. *Eomyrmex guchengziensis*, described from amber in the Eocene coal beds of Fushun, Manchuria, appears from the description and illustrations to be a relatively primitive ponerine with traits reminiscent of the Sphecomyrminae (Hong *et al.*, 1974). Because of its possibly intermediate status, a further study of the single worker would be a valuable exercise. The giant *Eoponera*

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