

# PSYCHE

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## CRETACEOUS INSECTS FROM LABRADOR I. GEOLOGIC OCCURRENCE

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During the summer of 1958 a collection of fossil leaves and insects was made by the writer from a bed of ferruginous, red argillite associated with so-called rubble ore at the Redmond No. 1 deposit in the Knob Lake district of Labrador. This area is close to the Quebec border about 320 miles north of the town of Sept Iles, which lies along the north shore of the St. Lawrence River. The fossil locality is 10 miles south-southeast of Schefferville, roughly half way between Knob Lake and Astray Lake (in section 260, approximately 600 feet southwest of the 1957 Redmond No. 1 base line).

Fossil leaves were first discovered in this bed by Mr. Donald J. McMahon, geologist of the Development Division, Iron Ore Company of Canada, during the course of trenching operations. A small collection of the leaves was sent to the writer for identifications and age determinations by Mr. Roger Blais, then Development Supervisor of the Iron Ore Company of Canada. Subsequently, Mr. Blais arranged for the writer to visit the locality in September 1958. During this visit the insect remains here described were discovered, in addition to the remains of 36 species of plants, including 1 alga, 4 ferns, 1 lycopod, 3 conifers, and 27 angiosperms (Dorf, 1959).

The field work and subsequent investigation have been jointly sponsored by the Iron Ore Company of Canada and Princeton University.

The 5-foot argillite bed in which the leaves and insects were found lies in the uppermost portion of the Redmond formation, a massive 300 foot unit of rubble ore containing lenses of pale reddish to grayish clay. The argillite bed dips 45 degrees toward the east and has

been traced along the strike for about 500 feet below a 10 to 15 foot overburden of glacial deposits. It is believed to be separated from an overlying clay unit by a major fault (Blais, 1959, pp. 282-285, figs. 2, 3).

The argillite is a very distinctive, massive, heavy rock containing about 60 per cent red hematite (Blais, 1959, p. 285). The 5-foot bed is very uniform in composition from top to bottom. It is very finely though inconspicuously laminated, but has a tendency to fracture conchoidally. Fossil plants occur sporadically along occasional poorly developed bedding planes. Even less common are the associated insect remains here described. The depositional setting of the original sediments is believed to have been a shallow lacustrine basin. The flora is interpreted as indicating growth in a humid warm-temperate climate.

An early Late Cretaceous (Cenomanian) age is indicated by the plant remains. Closest correlatives in North America are the Raritan flora of New Jersey, the Dakota flora of the Great Plains, and the Tuscaloosa flora of Alabama. Pollen and spores from underlying clay beds have been interpreted as slightly older Cretaceous (Albian) age (John Grayson, personal communication, 1960).

The rubble ore itself has also yielded plant remains in the form of fragments and a stump of carbonized wood. These occur in the breccias and gravels at the Redmond No. 1 deposit and elsewhere in the Knob Lake district. They have been identified as coniferous wood of Cupressinean affinity and regarded as at least as young as mid-Mesozoic (Usher, 1953, p. 100).

The insects in the argillite bed were sent to Professor F. M. Carpenter for his examination and they were subsequently referred by him in turn to specialists in the four orders of insects represented: Neuroptera, Isoptera, Coleoptera and Blattodea. The neuropteran, a snake-fly, is being described below by Professor Carpenter; the termite, by Professor Alfred Emerson. The beetles, which include several Cupidae, are being studied by Dr. A. G. Ponomarenko (Palaeontological Institute of the Academy of Sciences in Moscow), who has published several papers on Mesozoic Coleoptera. The roaches, which have been given only preliminary study and which present taxonomic problems, will presumably be treated along with the beetles in still another part. Because of the unusual nature of the snake-fly and the termite, descriptions of these are being published at this time without waiting for the completion of the other two parts in this series of papers.

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