

# Sub-Fossil Mites from the Hutt Valley

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## Abstract

FIVE specimens of sub-fossil mites obtained from industrial bore holes in the Hutt Valley, Wellington, are described and discussed.

THE microfauna of three bore-hole samples from the Petone Marine Beds in the Lower Hutt Valley, Wellington, has been described by Stevens (1956, pp. 228-231). The fauna comprises 18 species of Foraminifera, 7 species of Ostracoda, the plates of one species of Cirripedia, and the radioles and test fragments of three species of Echinoidea. The maxillipeds of a species of decapod crustacean are also present in one of the samples. It is stated (p. 229) that each of "beetle carapaces, mites", . . . and . . . "large numbers of fern sporangia" are present in either one or both samples from Bores I and II. Also present in the material are several small seeds and a structure which may be the proximal segment and waist of the abdomen of an ant. The "beetle carapaces" are probably the oribatid mites identified below. These terrestrial sub-fossils have probably been derived from the forest which still clothed the hills and floor of the Hutt Valley when the first European settlers arrived over a century ago (see Croker, 1953, p. 12) and which was probably close by when the Petone Marine Beds were being laid down. It is suggested (Stevens, 1956, p. 232), that the beds were probably laid down "at the commencement of the Thermal Maximum Period"—i.e., 7-8,000 years ago.

The mite specimens occurred in Bores I and II of Iron Reconditioners Ltd., Bore I, grid reference N 160/435303 in Lower Hutt, consisting of blue-grey sandy silt between 16 and 30 feet down, with coarse sandy silt containing shells coming in at 24 feet, and Bore II, situated 44 feet at 045 degrees from Bore I, consisting of sandy silt and clay with fine and coarse layers and compacted shell layers at 42 to 56 feet down. Four mites were collected at 25 feet in Bore I and one at 56 feet in Bore II.

The sparse microfauna present in the samples was concentrated by a carbon tetrachloride flotation technique, and the mite specimens thus obtained subsequently soaked in lactic acid to clean and clear them. After dissection, during which the upper surface was separated from the lower in order to facilitate identification, the mites were mounted in Hoyer's Gum Arabic Medium on microscope slides. All the specimens were incomplete, but in a sufficiently good state of preservation to enable most to be placed in a genus or family. They contained sand and grit before preparation and fungal hyphae are still present in one of them.

The identification of the specimens is as follows:—

Sub-order MESOSTIGMATA. Super-family PARASITOIDEA (Gamasides).

Family MACROCHELIDAE

The first specimen, Dominion Museum Slide No. 4/331, from Bore I at 25 feet, is a species of the genus *Macrocheles* Latreille.

Family UROPODIDAE

The second and third specimens, Dominion Museum Slide Nos. 4/332 and 4/333, probably belong to a species of the genus *Oodinychus* Berlese, but it is not

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possible, using the key of Evans (1957), to relate the specimens to a genus with certainty as the character on which a primary division is based, the presence or absence of claws on the first tarsi, cannot be ascertained. They are both from Bore I at 25 feet.

Sub-order SARCOPTIFORMES. Super-family ORIBATEI

Family SCHELORIBATIDAE

The fourth specimen, Dominion Museum Slide No. 4/334, from Bore I at 25 feet is probably a species of a new genus, *Grandjeanobates*, to be described in a forthcoming work, in which the notogaster is almost as long as broad and contains small air saccules, each with a porous plate, and hysterosomal shoulders with narrow immovable lobes or pteromorphae are present.

The fifth specimen, Dominion Museum slide No. 4/335, from Bore 1 at 56 feet, is probably an "Eremaeid" mite in the broad sense, but its state of preservation is not sufficiently good to enable a definite identification to be made.

Fossil or sub-fossil mites have not been previously recorded from New Zealand although they are well known overseas, especially in Baltic amber (Petrunkevitch, 1955). Smith (1896) and Michael (1908) record oribatid mites from New Zealand and Maskell (1892) (see Lamb, 1952) records a uropodid mite. The fact that macrochelid mites have not been previously recorded from New Zealand is not surprising as the fauna has only been slightly studied. Living mites of this family are certain to occur here, and eventually some of these sub-fossil specimens may even be shown to be identical with specimens of living species.

Species of the families Macrochelidae, Uropodidae, and the super family Oribatei, to which these sub-fossil mites belong are well known forest floor and leaf litter dwellers.

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