cent), but the resistance to dieldrin was identical with that of the laboratory colonies in London.

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So-called 'Glacier-Worms' in New Zealand

Some years ago, during an expedition to the St. Elias Mountains on the Alaska–Yukon boundary, I found some oligochaetous annelids, which are known to occur throughout the western coastal ranges of North America, and are usually referred to as 'glacier-worms' or 'ice-worms'[1]. In my report of this find I asked for any information that might be available upon the occurrence and distribution in general of species of the particular genus, *Mesenchytraeus*, to which these worms belong. However, not a single reply has since been received in answer to that inquiry.

Soon after coming to New Zealand in 1950, I heard that on the Franz Josef Glacier, Westland, small insects, which simulated worms, had been seen in the ice. Indeed, these creatures, and also spiders, had been reported by the pioneer surveyors, C. Douglas and A. P. Harper, in the early 1890's[2,3]. Having failed to find any of these insects myself during one or two visits to this glacier, I was very gratified recently to receive from Mr. R. J. Warburton of Waiho, Westland, several specimens which he had collected and preserved in spirit. Through the kindness of Dr. G. H. Satchell, of the Department of Zoology, University of Otago, these have now been identified, not as worms, but as larvæ, pupæ and one adult, of some species of chironomid fly. Moreover, as Dr. Satchell has remarked, it was only the presence together of larvæ and adult that made identification possible. The family Chironomidae has scarcely been studied at all in New Zealand, only a fraction of the species having as yet been described. Known colloquially as the 'Harlequin fly', they are, it seems, almost ubiquitous, chironomid larvæ being taken from such varied environments as hot springs, from the bottoms of deep lakes, from soil, from dung and from many other moist habitats. Yet here is one which selects glacier ice and melt-water for its temporary home. Douglas[2] had described the "small, worm-like things" as from a sixteenth to an eighth of an inch in length, very active, and when chased tending to dive into the almost invisible holes in the honeycombed ice. In considering them probably to be larvæ he anticipated modern determination.

The specimens kindly sent me by Mr. Warburton were found in small streams of melt-water in the centre of the glacier, either in the water itself or in the actual ice forming the bed and banks of the streams; but the majority of the larvæ were dug out of the ice, while the adult stage, the fly, was found crawling on the ice in the vicinity of the 'worms'. Most specimens seem to be more prevalent in streams which flow through comparatively clean ice. The largest 'colony' which Mr. Warburton came across was at the foot of the main ice fall of the Franz Josef Glacier at about 3,400 ft. Here there were literally hundreds of them in the ice in the bed of melt-water streams, although at the time (9 a.m.) the latter were scarcely flowing owing to the frost. Later, when the volume of water had increased, the 'colony' was found to be greatly reduced in numbers. In fact, it would seem that these creatures must have quite a precarious existence, for increase in volume of water, either from melting or rain (in a district of very high precipitation), must wash away the majority of them. They have not so far been discovered on the neighbouring Fox Glacier, nor on other glaciers of the Southern Alps; and their altitudinal range, on the Franz Josef Glacier, seems to be between about 1,400 ft. and 3,400 ft. The larvæ have been found active in dull weather and in sunshine, and at various hours between 9 a.m. and 3 p.m., from summer through autumn to winter, namely, January to June.

There would certainly seem to be ample scope for further study of this interesting species, and stage of development, of this chironomid fly; not even a name is as yet available for it.

Since I am about to return to England, any correspondence arising out of the above subject should be addressed to me, c/o Clare College, Cambridge.

N. E. Odell

Department of Geology, University of Otago, Dunedin, New Zealand, Jan. 11.

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[2] Douglas, C., Appendix 6, *J. House of Representatives* (*N.Z.*), C.1, 72 (1894).
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Maintenance of Adult Mosquito Tissue in a Tissue-Culture Medium

A series of experiments to be reported elsewhere has been performed to discover the nature of egg development in adult female mosquitoes. In the course of the work, a tissue-culture medium was used for suspending extirpated ovaries in various stages of development. This was done to see if development of the isolated ovaries could be induced or continued.

The anautogenous species used were *Aedes hexodontus* Dyar and *Aedes aegypti* (Linnaeus). *Aedes communis* (De Geer), a species of mosquito autogenous in the Churchill, Manitoba, region[1], was also used.

The ovaries were removed from the insects using a sterile technique in the following manner. The adult female mosquito was surface-sterilized by immersion for 2 min. in a 0·5 per cent solution of mercuric chloride in 50 per cent ethyl alcohol. The surface-sterilized insect was transferred to insect Ringer solution[2] and the last abdominal segment grasped with a pair of fine jeweller's forceps, while the thorax and upper abdomen were held with another pair of forceps. The genitalia, spermathecæ, ovaries and gut of the mosquito were stretched from the rest of the abdomen by steadily pulling on the last segment. The ovaries were then broken away from the vagina and separated from the insect. They were placed in a drop of tissue-culture medium on a polished, sterile, cover glass, and this cover glass was inverted over a deep depression slide. Finally, the cover glass was fastened to the slide with hot melted paraffin.