

## Note on the Occurrence in New Zealand of the Myriapod Polyxenus.

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THIS organism, although perhaps observed, appears not to have been recorded hitherto in New Zealand. It was brought to my notice in May, 1932, by Mr C. G. G. Berry, who found it in a rock cutting at Northlands, Wellington. I have since found it in similar situations at Lowry Bay and Belmont, i.e., in cracks on rock faces: always on an aspect away from the sun. I understand that it has also been seen under the bark of trees in several parts of New Zealand. It is an organism of very wide distribution both in space and time. It is widely distributed in Europe, and allied forms have been found in the West Indies, North and South America, Ceylon, and elsewhere. Fossil forms are found as far back at the Carboniferous (Pocock, 1901). In the Cambridge Natural History (Sinclair, 1901) a fossil form is illustrated which is not very different from the present-day forms. Here, again, as with the Tuatara and other organisms, New Zealand possesses a link with the remote past. As found in rock cuttings the organism occurs in little clusters of 10 to 15 individuals. The clusters comprise individuals in several stages of development, i.e., adults and immature forms together with nests containing eggs or empty egg cases. (Figs. 1 and 2.) The mature individuals are minute, being 2 to 3 mm. long. They are difficult to see, on account of their colouring so closely resembling the rock surface on which they lie. They are best recognised by their pearly-white, brush-like tails. (Fig. 3.) When undisturbed, they are quiescent for considerable periods; but if disturbed, move about very actively. They are fascinating objects to watch under a low power binocular microscope. The body consists of a number of segments which varies with the age of the individual, as also does the number of legs. Thus in a newly-hatched individual the number of segments is five and the number of legs three pairs. One individual 2.75 mm. long exhibited 10 segments and 20 pairs of legs, while another individual 1.75 mm. long exhibited 7 segments and 10 pairs of legs. (Fig. 4.) Each segment of the body is provided dorsally with a double row of bristles, and there are tufts of bristles on lateral projections on each segment. These bristles are plume-like. They are shown in the accompanying photomicrographs. (Figs. 5 and 6.) The tail is composed of two kinds of bristles, viz. :—

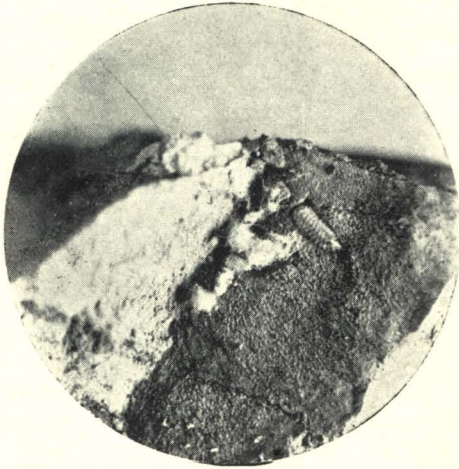
- (a) Plume-like (Fig. 5).
- (b) Crook-like (Fig. 7).

They are arranged in two lateral bunches or pencils (whence the specific name *Lagurus* given to the European species). Between the lateral pencils is a medial bunch comprising a small number of bristles which, however, lack the pearly lustre of those in the lateral pencils.

The crook-like bristles are very characteristic. They have long been known and used as a test object for microscope objectives. An excellent photomicrograph of one of these bristles appears in the frontispiece to Carpenter and Dallinger's work on the Microscope (Carpenter and Dallinger, 1901). It was the characteristic appearance of this well-known bristle which led to the local recognition of the organism. The nests, of which 4 to 6 may occur in a cluster, tend to adhere to one another. On closer examination they are found to consist entirely of the crook-like bristles from the tail of the Myriapod. Fig. 9 shows the edge of a nest with the crook-like bristles. Clustered in these nests are a number of oval eggs with apparently chitinous cases. The number of eggs in a nest is from four to eight or more. The size of the eggs is about 0.4 by 0.3 mm. (Fig. 8). No doubt the nest-like wrapping of bristles round the eggs is for protection of the eggs both against mechanical injury and against marauders. Why are only the crook-like bristles used for this purpose? Probably because they will cohere better. The question now arises as to the procedure in obtaining the bristles. Are they purposely shed or discarded bristles, or are they pulled out of the brush of a living Myriapod? They are probably derived from the living organisms, for it is to be noted that many of the individuals captured at this time of the year (spring) show varying degrees up to complete denudation of their tails. Mr Gilbert Archey has kindly undertaken to identify the species for me, but has not yet had time to complete his report. In passing, it may be noted that the form found in New Zealand resembles very closely *Polyxenus lagurus*, as figured and described in the literature available. The crook-like bristles, however, appear to have more barbs than are shown in the illustration in Carpenter and Dallinger's book, above referred to. One authority in Germany (Sorauer, 1925, p. 83) ascribes to *Polyxenus* the conveying of the spores of potato disease.

## REFERENCES.

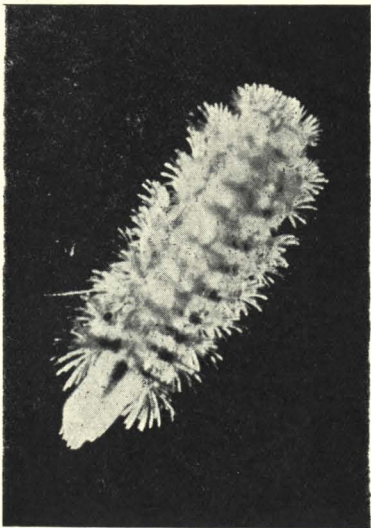
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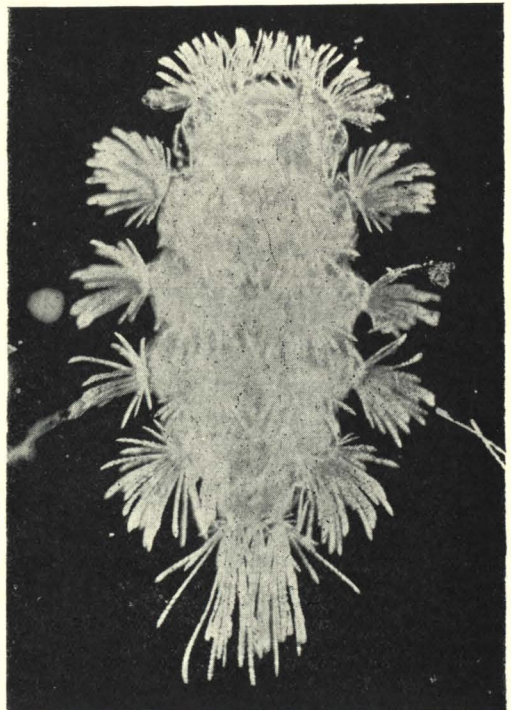
1 General view of rock surface showing *Polyxenus* and nests.  $\times 3$ .



2 A "nest" showing eggs and bristles.  $\times 13$ .



3 Adult *Polyxenus* showing bristles on body and pencil tail.  $\times 16$ .



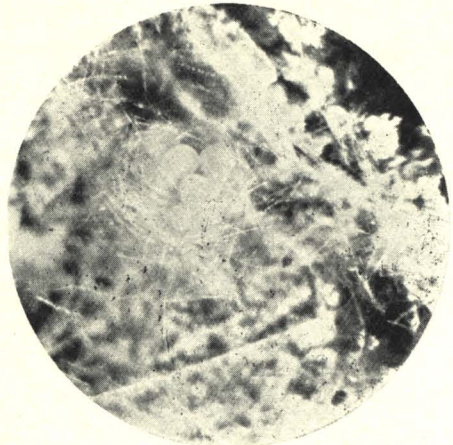
4 Immature *Polyxenus* showing bristles on back and lateral tufts.  $\times 35$ .

Photos by C. M. Hector.

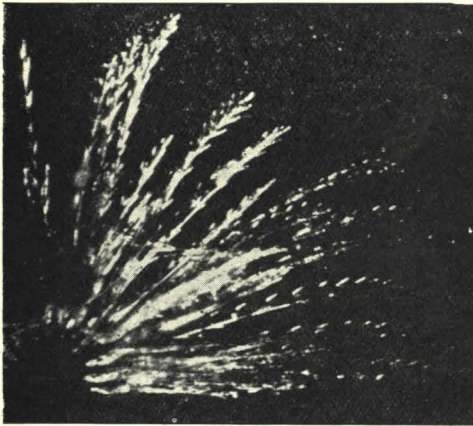




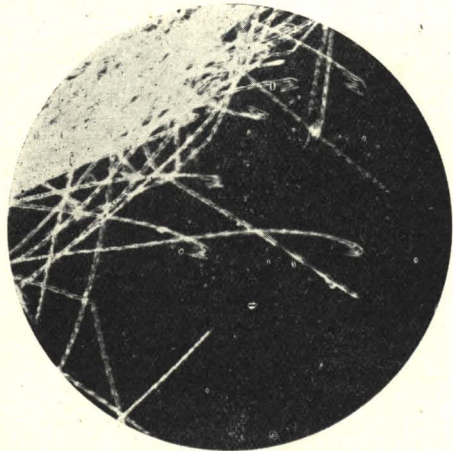
5 Plume-like bristle.  $\times 250$ .



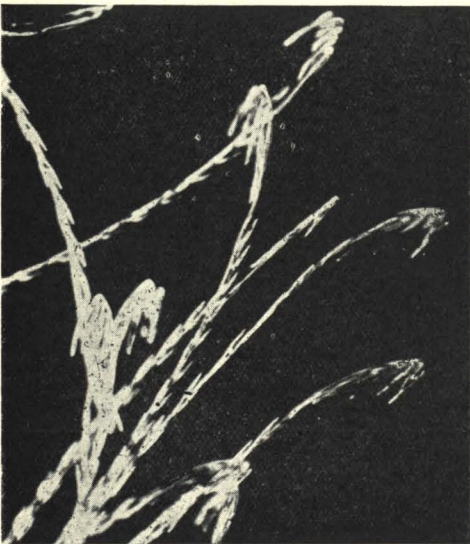
8 Nest with six eggs.  $\times 16$ .



6 Lateral tufts of plume-like bristles.  $\times 250$ .



9 Edge of nest showing crook-like bristles.  $\times 116$ .



7 Crook-like bristles from tail.  $\times 250$ .

Photos by C. M. Hector.