inorganic salts and finely divided milk-wool threads. These organisms invariably act by an exo-enzyme, and so a fairly large zone is developed around the places of their growth, where every thread of milk-wool is dissolved and the milky white agar has become completely transparent. Pieces of agar from this zone, when applied to a piece of textile material of 50 per cent milk-wool, were able to destroy all the milk-wool beneath them, leaving the 50 per cent of genuine wool unattacked. The 100 per cent milk-wool textile was completely dissolved, resulting in a hole after two days, as the accompanying illustration shows. The enzyme was inactivated by boiling.

The direct action of the micro-organisms, when applied to pieces of textile material, lying on agar-plates, which contained only inorganic salts, was equally deleterious.

The experiments are being continued in several directions.

JAN SMIT.
B. VAN DER HEIDE.

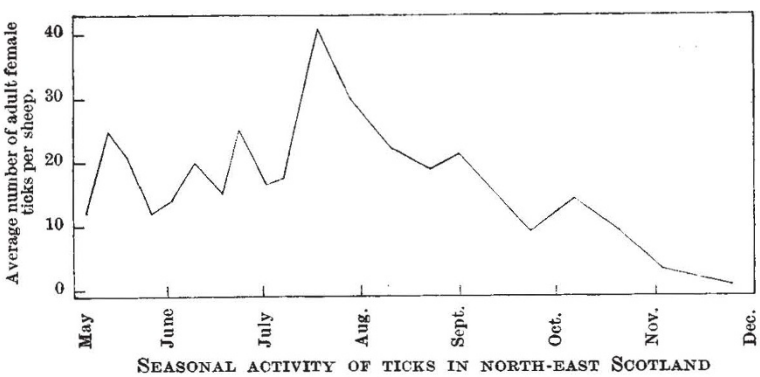
Microbiological Laboratory,
Agricultural Highschool,
Wageningen.
March 3.

Activity of the Sheep Tick

THE activity of the sheep or grass tick, *Ixodes ricinus* L., in Great Britain has been reported by various workers[1,2,3] to be confined to two periods of the year: (*a*) spring activity, extending from March until early June, (*b*) autumn activity, from late August until the end of September. Outside these periods, ticks are said to be scarce during the summer months and completely inactive in winter.

In the spring of 1937, an investigation was commenced by us upon the incidence of *Ixodes ricinus* in the Deeside area, and it has been found that its activity differs very widely from that reported in other parts of the country.

The accompanying graph, showing the seasonal activity upon one hill-grazing, is representative of data obtained from several holdings. In making the tick counts upon the sheep, only the adult females upon the head and neck and on the bare skin beneath the forelegs were counted. This method, which is also in use by other observers, enables one worker to examine large numbers of sheep and allows some comparison to be made with the results obtained by other workers.



SEASONAL ACTIVITY OF TICKS IN NORTH-EAST SCOTLAND

From observations made upon hares previous to the sheep being placed upon the hill, the ticks had already begun their activity in this district during the first week in April. The sheep were attacked as soon as they grazed upon the hill and the infestation progressively increased to a peak in the month of July, after which there was a gradual decrease. When the sheep were removed from the hill on November 25 there was still an average infestation of 0·5 ticks per sheep.

During the month of December the worst snowstorm for many years swept the country, and we assumed the ticks would become inactive for the remainder of the winter.

On January 12, 1938, two stags were shot which had ticks attached, one a fully engorged female, which, from its appearance, had become attached about ten days previously, when the hills were still covered with snow. This female commenced egg-laying on February 5.

On January 27, a flock of sheep upon a tick-infested pasture on another hill were found to have an average of 1·5 adult female ticks attached to the head and neck and the bare skin beneath the legs, in addition to large numbers of males, nymphs and larvæ. Five deer, which were shot on this date, were found to be carrying a total of 42 adult female and 25 male ticks. The flock of sheep was again examined on February 9 and had an average of 1·2 female ticks attached.

From these observations it appears that tick activity is continuous throughout the year in north-east Scotland, the seasonal incidence being greatest during the summer and lowest in winter.

Further work upon this problem, aided by a grant from the Agricultural Research Council, is proceeding, and detailed results will be published elsewhere.

JAMES HENDRICK.
WALTER MOORE.
GUY D. MORISON.

Marischal College,
Aberdeen.
March 1.

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[2] Stewart, W. L., *Proc. Roy. Agric. Soc., Eng.*, **97**, 81 (1936); MacLeod, J., *Parasitology*, **24**, 396 (1932).
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Tube Formation in *Pomatoceros triqueter* (L.)

AMONG the scientific effects of the late Frank A. Potts was found the following account of tube formation in the serpulid worm *Pomatoceros triqueter*, a subject on which he had been working intermittently for some time.

The apparently homogeneous keeled tube is seen in longitudinal section to be composed of successive rings of calcium carbonate. The substance of the tube is of a mucoid nature in which small crystals of aragonite are deposited. Each successive ring is formed by the peristomial collar which arises from the ventral wall. As the animal lies on its back, the ventral surface with the collar is uppermost.

When the animal is removed from its tube it will live for an indefinite period, and in normal sea water will form one or two calcareous rings. If instead of normal sea water artificial sea water (Dittmar's formula) is used, the worms live almost as well as in