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THE DISTRIBUTION OF MYTILICOLA INTESTINALIS (STEUER) IN SCOTLAND

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C O N T E N T S

1. INTRODUCTION

Following upon the epedemic spread of Mytilicola intestinalis in the edible mussel stocks of north-west Europe, a widespread intensive investigation was initiated into the distribution and biology of this copepod and its effect upon the host. Mytilus edulis is abundant upon the coast of Scotland, but the stocks are at present almost completely unexploited commercially. In England, on the other hand, there is a thriving mussel industry, and the infections already observed on the beds at Whitstable and in the Medway have resulted in serious mortalities. In consequence, active research has been carried out at Ministry of Agriculture and Fisheries' Experimental Station, Conway, North Wales. The present work, which was carried out by the Marine Laboratory, Aberdeen, is intended as a supplement to the work of the English Department (Cole, 1951) in order to complete the records for the distribution of Mytilicola in Britain.

Grateful thanks are due to Dr. H. A. Cole for many helpful suggestions, and to District Fishery Officers of the Scottish Home Department for their co-operation in obtaining samples of mussels.

2. MATERIALS AND METHODS

Five samples, each of about one hundred adult mussels, were collected from a number of stations at not less than one mile apart in areas which, from the known movements of shipping, appeared most likely focal points of infection. These were obtained during July to September 1951, and were dispatched by rail for examination at the Marine Laboratory in the fresh state. The areas sampled are shown in Fig.1. As a result of this preliminary survey, a detailed examination was carried out, during November 1951 and again during May 1953, in the infected areas of the Firth of Forth and the Firth of Clyde. In this detailed survey, samples of about twenty-five adult mussels from near low water were examined, immediately on collection at successive stations along the coast, in order to determine the extreme limits of the infected area.

3. RESULTS

(a)General Distribution.

Fig. 1 (see page 4) shows the stations around the coast of Scotland at which sampling has been carried out. The presence of Mytilicola intestinalis was established only in the Firth of Forth and in Firth of Clyde.

(b)The Firth of Forth.

Fig. 2 (see page 4) indicates the distribution of Mytilicola in the mussel beds of the Firth of Forth, as found during November 1951 and May 1953.

The infecetion, which is moderately heavy, extends on both banks throughout the upper reaches of the Firth but does not appear to have extended seaward between November 1951 and May 1953. It has not been possible to establish the initial vehicle of this infection, but it would appear likely to have been brought in by some of the ships broken up at Inverkeithing and Rosyth.

(c) The Firth of Clyde.

Fig. 3 (see page 5) indicates the distribution of Mytilicola in the mussel beds of the Gareloch in the Firth of Clyde, as found during November 1951 and May 1953.

In 1951 the infection was very local at the head of the Gareloch. It is reasonably certain that the origin of the infection was the ex-German floating dock, the history of which is as follows:

built 1942 and sited at Lubech, Germany; left Lubech about 2nd October 1947, arrived Kiel about 6th October 1947; left Kiel 7th October 1947, arrived Brunsbuttel; left Brunsbuttel 1oth October 1947, for Barrow, U.K.; towage via North Sea, English Channel and St. Georges Channel; arrived Morecambe Bay 2oth October 1947, and ultimately berthed in the Barrow Docks system at Messrs. Vickers Ltd.; left Barrow about 28th April 195o, for Gareloch, arriving on May 4th 195o.

The degree of infection of mussels in the Gareloch is not high. On the other hand, there has been a significant extension of the infected area in the Gareloch over the period November 1951 to May 1953. The remainder of the Firth of Clyde appears to be free from the parasite.

4. CONCLUSIONS

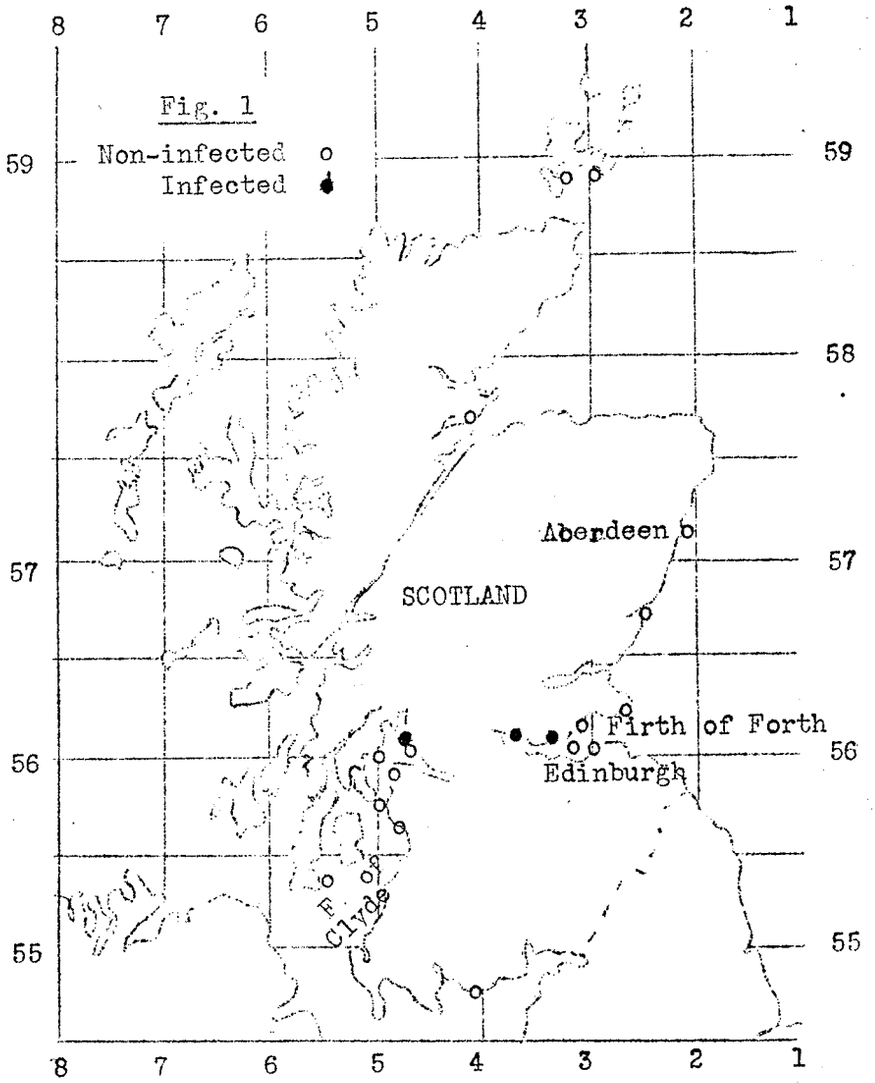
The occurence of Mytilicola intestinalis in Scottish waters is extremely local and is restricted to two mussel areas in the Firth of Forth and the Firth of Clyde, respectively. The density of infection, particularly in the latter, is small in comparison with densities commonly occuring in other areas. Whilst there has been some extension of the infected area in the Gareloch, the infestation in the Firth of Forth does not appear at present to be markedly extending. The seaward limit of the distribution of Mytilicola is relatively close to the probable area of first infection. On the other hand, the parasite has extended to all mussel beds further up to the estuary.

REFERENCES

COLE, H. A. (1951) "Le Mytilicola en Angleterre" Rev. Trav. Off. Pêches marit., Tome 17, Heft 2.

FIG. 1.

Stations in Scotland at which samples of mussels have been examined for Mytilicola intestinalis.



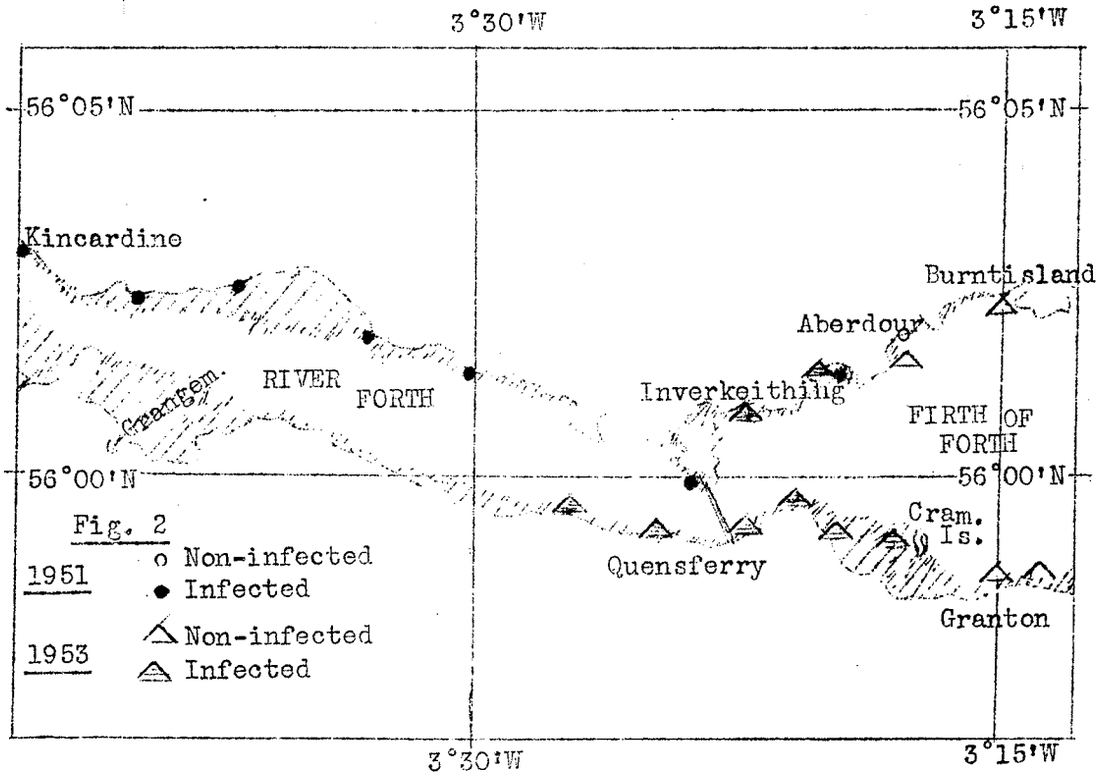
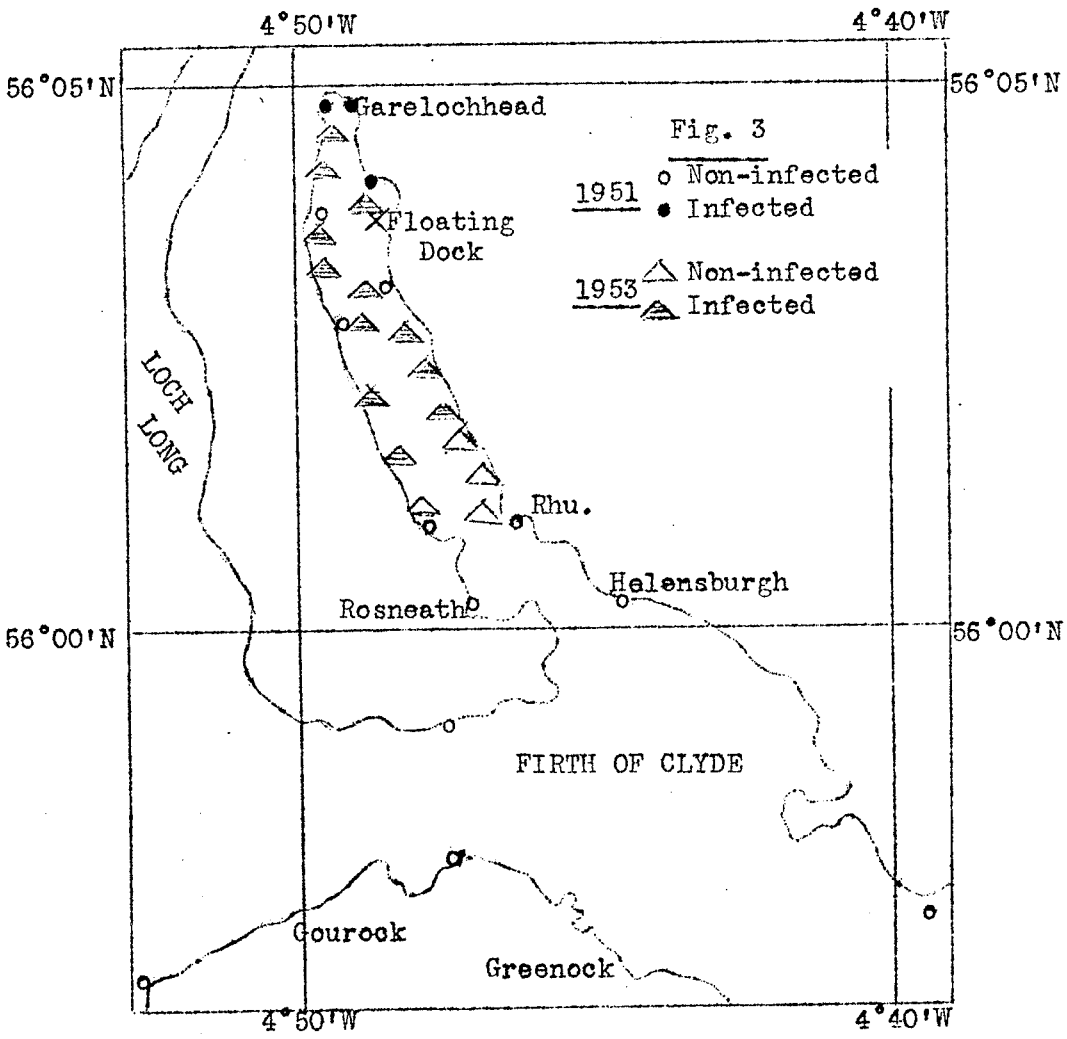


FIG. 2.

The distribution of Mytilicola intestinalis in the upper reaches of the Firth of Forth, 1951 and 1953.

FIG. 3.



The distribution of Mytilicola intestinalis in the Gareloch, Firth of Clyde, 1951 and 1953.