

Problems of River Pollution.

THE need for research on the problems of river pollution in relation to fisheries, referred to by Dr. Orton and Prof. Lewis in *NATURE* of February 16, p. 236, has long been realised by those who are concerned with the welfare of the fisheries.

The Royal Commission on the Salmon Fisheries (1902) and the Departmental Committee upon Fresh-water Fisheries of England and Wales (1920) both emphasised in their reports the need for experiment and research as a necessary preliminary to improvement. The Committee also pointed out that this country, in comparison with others, was singularly ill-equipped for the study of fresh-water life.

In relation to pollution, the Royal Commission on Sewage Disposal, 1915 (Ninth Report, Sect. 132), pointed out that it had repeatedly directed attention to the need for continuous and systematic research. Although its labours had extended over a period far exceeding the customary span of a temporary Commission, yet it had been unable to explore many fields known to require investigation.

Some progress has been made. The appointment of the Joint Sub-Committee on Road Tarring and Fisheries, the taking over by the Ministry of Agriculture and Fisheries of the Experimental Station at Alesford installed by the Committee, and the appointment of the Standing Committee upon Rivers Pollution and Fisheries, are instances of recognition by the Government of the need which exists.

There appears, however, to be little prospect that the Government will be able to do more in the immediate future than it is doing at present, considerations of economy being paramount. Considerations of this nature cut short the work of the Road Tarring Committee; have curtailed and stopped extension of the valuable work of the Scottish Fishery Board on salmon; and, combined with political changes, have interrupted an extensive scheme for biological research in Ireland. Owing to pressure upon the limited staff of the Ministry, arising from similar considerations, the final report of the Road Tarring Committee still remains unpublished.

The deputation on pollution received by the Minister of Agriculture and Fisheries in 1921 was informed by the Minister that if funds were required the fisheries must provide them, the Ministry could not do so. The work of the Standing Committee, the appointment of which followed that deputation, is accordingly unpaid.

Within the range of private effort, work of value has been done by private individuals, and early in 1921 the Salmon and Trout Association engaged Dr. W. Rushton as biologist to investigate fishery problems. Dr. Rushton's work since then has thrown light both on general principles and on specific problems; has demonstrated the demand which existed for work of the kind and the extent of the field to be covered, the variety of the subjects dealt with and the points made by your correspondents as to the need for co-operation of experts in different fields—hydrographers, biologists, and chemists, as your correspondents point out, to which may be added engineers on whom falls the work of giving practical effect to scientific conclusions.

It may be inferred that if the need which exists is to be more adequately met, this can only be done by private effort on the part of those interested. May it be suggested that the first step is to ascertain whether organisation of any kind is practicable, and that, as a first step to this end, a conference on the subject might produce useful results, and would, at any rate, enable the position to be defined. Such a conference could consider how far the practical needs

of collection and tabulation of data from all sources, co-ordination of existing effort, organisation and extension in the future, and the provision of funds could be undertaken.

The appointment of the Standing Committee on Rivers Pollution resulted from a conference held in 1921 by the courtesy of the Fishmongers' Company at Fishmongers' Hall. Might not similar results of value accrue from such a conference as is suggested?

F. G. RICHMOND,

Secretary, Salmon and Trout Association.
Fishmongers' Hall, London, E.C.4.

April 17.

The Possible Existence of a Growth-regulating Substance in Termites.

A LARGE number of insects of various orders which inhabit the nests of termites, and feed either on them or their secretions, exhibit physogastry, *i.e.* enormous over-development of the abdomen, similar to that found in the queen termites. So far as I can gather, this condition is rare or absent in myrmecophilous insects, although most of the environmental conditions are very similar in ant and termite nests. It seems possible that the guests of the termites have been affected by a growth-regulating substance produced by their hosts, analogous to those formed in the gonads and certain ductless glands of vertebrates.

Physogastry does not develop (in some at any rate of these insects) until they are nearing maturity which may explain its slight development in the neotenic termite workers and soldiers. It would be of great interest to see whether a similar change could be produced in other insects by feeding them on termites. So far, there is no evidence for the existence of growth-regulating substances (hormones) in insects, and it is clear that their gonads do not in general produce them. Their presence in termites would therefore be of all the greater interest.

J. B. S. HALDANE.

Biochemical Laboratory, Tennis Court Road,
Cambridge.

Direction Finding by Wireless.

I SEE that in *NATURE* of March 22, page 441, there is a paragraph on the subject of a paper which I read before the Institution of Electrical Engineers on March 5, 1924. In the last four lines the précis of my remarks attributes to me a statement which is inaccurate. It is quite contrary to the facts to suggest that direction finding is of little value in the Gulf of St. Lawrence or the English Channel. In the Gulf of St. Lawrence, in particular, direction finding is of the utmost value.

I shall be very much obliged if space can be afforded me to point this out, as I have already been taken to task several times for the sentence referred to, which is at variance with the remarks that I made and with the facts of the case.

JOHN A. SLEE.

The Marconi International Marine
Communication Co., Ltd.,

Marconi House, Strand, W.C.2,

April 24.

I AM sorry to have been misled by Commander Slee's appendix to his table of the actual working of ships' direction-finders. He states definitely that the charts of "bad bearing-arcs" in the St. Lawrence and English Channel Districts were available. The bearings, however, taken in these "bad arcs" were not included in his tabulated results. I am glad to hear that these bad arcs do not seriously affect the working of the method.

THE WRITER OF THE NOTE.