

LETTERS TO THE EDITORS

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Marine Biological Research in Great Britain

THE coast-line of Great Britain offers an unrivalled diversity of habitats for the study of marine benthic communities. There is a considerable proportion of rocky shore, including the peculiar facies provided by the chalk of southern England; there are many stretches of sand and shingle and numerous inlets affording specialized habitats of diverse kinds. Can it be said that we are playing our part in the biological exploration of the numerous communities thus available to us? Speaking as a botanist, I would answer this question in the negative.

Apart from the valuable work of Lloyd Williams, Margery Knight and Kathleen Drew, the great advances in our knowledge of the structure and reproduction of seaweeds during the last thirty years are almost entirely due to the activities of Danish, French, German and Swedish workers. On the taxonomic side, also, Great Britain has made no serious contribution, comparable to the monumental work of Sauvageau on Sphacelariales or to Kolderup Rosenvinge's important memoir on the Rhodophyceae of Denmark. I am not qualified to say how far these criticisms apply also to the benthic fauna.

It is true that a considerable number of papers dealing with the general floristic composition of the benthic communities of seaweeds on various parts of the coast of Britain has been published. One may recognize the value of the preliminary data thus obtained; but it may be doubted whether this work has materially added to our understanding of the nature and composition of these communities, since the publication of Cotton's outstanding memoir on the marine Algae of Clare Island in 1912. Certain of the papers published during the last twenty years have been concerned with the effects of diverse environmental factors, in particular those affecting the littoral communities. More important advances in these directions have, however, been made by Continental workers.

Much of the floristic work is rendered less valuable by the complete or almost complete absence of data regarding diatoms, which play an important part in many littoral and sublittoral communities. Little information is available as to their time of occurrence and distribution, or the part that they almost certainly sometimes play as colonizers. Moreover, the communities occurring near and above high-water mark have usually been but imperfectly studied, despite the biological interest attached to the specialized conditions of their habitat. The only detailed investigation of such communities, so far as I am aware, is that of Anand on those inhabiting the chalk cliffs of southern England. Greater progress has been made with studies on the floristic composition and conditions of existence of the algal flora of salt-marshes, thanks to the excellent work of Sarah Baker and Nellie Carter.

The interrelations of fauna and flora in the benthic zone are subjects of great biological interest. An approach to this aspect of marine ecology has been made by a number of workers in Great Britain, more particularly by zoologists. In the absence of evidence of assistance from a competent algal taxonomist one may feel some degree of diffidence in accepting as

complete or altogether reliable the data offered on the floristic side; moreover, as with the purely floristic studies, diatoms are in general left out of the picture. In any event these investigations have scarcely got beyond the fringe of the problems involved. Attention may also be directed to the need for a more comprehensive study of British marine fungal parasites than has hitherto been undertaken.

For the most part the diverse researches referred to above have been carried out by biologists working in universities remote from the site of their investigations. The latter have been effected by means of periodical visits, and all credit must be given for the more or less successful surmounting of the difficulties that are inherent in discontinuous work of this nature. No real progress is, however, to be expected until far better facilities than those at present existing become available. In particular, it is essential that a lead to the investigation of the benthic flora and fauna of the sea be given by an established group of workers, permanently in touch with the problems and expert in special aspects of marine biology. The investigation of the ecological problems that await solution demands a team of workers which should include one or more zoologists, as well as at least two botanists specializing respectively in seaweeds and marine diatoms. Afterwards, one or more physiologists will have to join the team to aid in the solution of the diverse problems relating to growth, nutrition, etc., that will arise. Once such a centre had been firmly established, its activities would rapidly expand by the attraction of research workers from the universities.

It is natural to look to the Laboratory of the Marine Biological Association at Plymouth as the best centre for the development of such work. The very high reputation of this Laboratory and of the members of its staff would encourage the performance of work at a high level of achievement. So far, however, the fundamental research carried on there has been directed in the main to investigations dealing with the pelagic life of the sea, research which has led to results of outstanding scientific importance. If the Plymouth Laboratory is to undertake also the investigation of the marine benthos, a courageous policy will be necessary. To restrict unduly the number of workers detailed for this aspect of marine biological investigation or to limit the necessary facilities would cramp the work at the outset and as likely as not result in failure. In view of its bearings on the elucidation of general biological principles and its possible economic importance, it may not be looked upon as a mere appendage of the work hitherto carried on at Plymouth.

Should other considerations not render feasible such an extension of the scope of the work of the Plymouth Laboratory, it would be better to concentrate research on marine benthic plants and animals at an altogether separate centre. For such a purpose one of the other marine stations already in existence or one of the maritime universities can be envisaged. Alternatively, since it is to be hoped that similar centres may be established in one or more parts of the Empire, especially in the tropical zone, the University of London might appropriately consider the foundation of such a station.

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