

## LETTERS TO THE EDITOR.

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## Coccospheres and Rhabdospheres.

I RECENTLY learned with much surprise from Sir John Murray that the German *Valdivia* expedition failed to discover anywhere in the ocean either Coccospheres or Rhabdospheres. Since the earlier Plankton expedition under Prof. Hensen had also failed to find any of these organisms, a certain amount of doubt has been privately expressed in Germany and elsewhere as to the validity of the results obtained by Mr. V. H. Blackman and myself.

In addition to our Atlantic work (published in *Phil. Trans.*, 1898) on this subject, I may state that, through the agency of Captains Cowie, Leigh and Wright, of the P. and O. Company, we have obtained these organisms from the Indian Ocean.

I have, however, received most welcome confirmation from Mrs. Weber van Bosse, who is with her distinguished husband on board H.M. *Siboga* engaged in the Dutch expedition in Malayan waters. She writes:—"Will you kindly insert a little note in a paper to state that the *Siboga* expedition found *Coccosphaera pelagica* and *C. leptopora* both in the Ceram and Banda Seas? We get them floating in the water with the horizontal cylinder of Hensen. . . . I found also Rhabdoliths, but as yet no Rhabdospheres. I am looking out for them," &c.

November 10.

GEORGE MURRAY.

## The Stockholm Fisheries Conference.

As the British Government was represented by official delegates at the recent International Fisheries Conference at Stockholm, and took part in its proceedings presumably with the view of undertaking fishery investigations upon a more extended scale in the future than it has previously done, the resolutions of the Conference (see p. 34) are of more than usual interest and importance to marine biologists in this country. For this reason I would ask you to allow me space for some remarks upon them.

The general plan of the investigations proposed by the Conference, both as regards hydrographical and biological work, will, I believe, meet with the approval of all competent judges, though doubtless minor differences of opinion as to details will be found. The researches suggested are a continuation, upon a more extended scale, of those which the various bodies undertaking fishery investigations in this country have been endeavouring to carry out in so far as the limited means at their disposal have permitted, and there can be no doubt that only by the prosecution of such investigations can that accurate knowledge be acquired upon which a rational treatment of fishery questions may be based.

Two points only relating to the schemes of investigation proposed by the Conference call for comment. In the first place, with regard to the value of international co-operation in such investigations it may be pointed out that, in case the scheme should not be carried out in its entirety, such co-operation is of greater importance in the hydrographical than in the biological work, since in the former simultaneous observations made by identical methods over great areas are of primary importance, a condition which does not apply to an equal extent to the latter. This, however, does not affect what is, perhaps, the chief argument in favour of international co-operation, and one which is given a prominent place in the preamble to the resolutions of the Conference, namely, that any attempt to regulate the fisheries of the high seas can only be carried out by international agreement. Whether or not any such international agreement can be regarded as reasonably probable, or whether, if attained, the regulation could be made effective, are certainly questions open to doubt.

In the second place, from the point of view of British fisheries as a whole, the area proposed by the Conference to be covered by the hydrographical investigations should be extended to include the English Channel, the Irish Sea and the western coasts of the British Isles. Even in considering the North Sea fisheries alone such an extension is of importance, since it has been clearly demonstrated that water from the Channel enters the southern part of the North Sea from time to

time, and the fauna of this region is known to contain a considerable number of southern forms, which show it to be in reality an extension of the Channel fauna.

In attempting to give effect to the recommendations of the Stockholm Conference, what appears to be the most satisfactory course for the British Government to pursue is to develop and as far as possible coordinate the work of the various organisations already in existence, namely, the Marine Biological Association (either as at present constituted, or with a more intimate connection with the Fisheries Department of the Board of Trade), the Scientific Department of the Scottish Fishery Board, and the Fishery Department of the Royal Dublin Society, at the same time encouraging the formation of local laboratories established by County Councils and other bodies at various points around the coast, such as those of Liverpool (at Port Erin), Piel, Cullercoats and Millport.

For the actual carrying out of the proposed investigations the two essential requirements are (1) a sufficient number of capable naturalists devoting their whole energies to the work, and (2) sea-going steamships efficiently equipped. The various laboratories around the coast would form valuable ports of call or depôts for the vessels engaged in the investigations. The elaborate and expensive organisation of a central bureau and of a central laboratory proposed by the Stockholm Conference appears to me to be a matter of only secondary importance, against which some objections may be made. To coordinate the investigations of the different countries, and to insure such uniformity of method as will make the results of the different observers comparable, an international Council, composed chiefly of the experts actually responsible for carrying out the investigations, and meeting once a year, seems an adequate arrangement.

With an elaborate organisation such as that suggested by the Conference there is a danger that the work of the biological stations would degenerate into the mere taking and recording of routine observations, whilst original work and the development of new methods of research, which are in reality of far greater importance, would receive a check. Good men would certainly not be attracted to work which consisted merely in recording observations taken according to a stereotyped plan dictated by a central bureau. A large amount of individual freedom to the workers is absolutely essential in order to secure the best results from scientific research. For these reasons a more elastic organisation than that of the international central bureau proposed by the Stockholm Conference would seem to be preferable.

The Laboratory, Plymouth.

E. J. ALLEN.

## Sextant-Telescopes.

I RECENTLY made the attempt to attach one of the prism forms of binocular to a sextant in place of the ordinary telescope, and it seemed that such an adaptation would materially increase the usefulness of the instrument and add to the accuracy of its records. In the sextant which I used there was no provision for rigorous attachment, and only a device of a temporary character could be adopted; but a very slight modification in the construction of the instrument or of the so-called "up and down piece" would overcome this drawback.

I am inclined to believe that very frequently only a plain sight is used in observations at sea, and that in many cases, where some optical power is employed, an ordinary Galilean opera-glass, with a power of about three, is preferred. The telescope usually supplied, which will give a power of from ten to fourteen, has so many drawbacks that its use is not popular, at least in the Mercantile Marine. The field is small, the telescope inverts, and the sextant is obliged to be held at a considerable distance from the body, so that if the framework be not made of aluminium it becomes heavy and burdensome.

The prism opera-glass which I used was made by Messrs. Goertz, of Holborn Circus, and among other advantages over the ordinary form, it gave more light in the field of view, of obvious importance in judging of the position of a dimly illuminated horizon. Also there was a direct view, so that the ordinary methods of observing needed no modification, and the field was sufficiently large to enable the object to be followed with ease. The power was about nine, quite as high probably as could be used on the deck of a ship with advantage; but I imagine it would be preferable in surveying work to use the highest power constructed, which gives a magnification of twelve. Possibly fifteen might be reached with advantage.

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W. E. PLUMMER.