

LETTERS TO THE EDITOR.

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Stockholm International Conference on the Exploration of the Sea.

THE publication of a portion of the report of the Stockholm Conference in NATURE of November 9 (p. 34) shows, I suppose, that the matter is now open for discussion by scientific men; and it is certainly desirable in that case that marine biologists and others interested in Fisheries investigation should express their opinions on the resolutions, and especially the recommendation, of the delegates. I feel sure that those gentlemen who attended the Conference and took part in drawing up the report will not consider such discussion ungracious, or that we who criticise are in any way wanting in appreciation of their labours. It is because we recognise the great importance which this report, with its series of resolutions, ought to have that we think it worth while to urge that some parts of it should receive careful re-consideration.

Although one may cordially approve of many of the resolutions passed by the delegates, still the report is certainly in some respects a disappointing document; and there is internal evidence to show that this is the result of compromises which were perhaps inevitable, but which have probably led to the omission of what might have been a valuable programme of work.

Last summer, when the arrangements for the Conference were announced, hopes ran high, and it was very naturally and confidently anticipated that the report, when issued, would contain strong recommendations to the Governments concerned involving the use of sufficient boats and men to carry out a definite scheme of biological investigation during a definite period. For surely what we need most at the present time in the interests of more exact fisheries knowledge is the nearest possible approximation to a census of our seas—beginning with the territorial waters. Most fisheries disputes and differences of opinion are due to the absence of such exact knowledge.

If anything approaching a census or a record of trustworthy fisheries statistics had been taken fifty years ago, it would now be invaluable to fisheries inspectors, superintendents and local authorities, as well as to biologists. Our successors will justly reproach us if with our increased knowledge and opportunity we let the twentieth century commence without inaugurating a scheme of practical work which will give us the desired statistics.

The Stockholm report unfortunately says nothing to the point in regard to all this. In place of asking for boats and men, it urges—in the only recommendation of the Conference ("Résolutions textuelles," p. 12, C)—the establishment of a "central bureau," in which the work will apparently in large part be that of a physico-chemical laboratory.

I hope I shall not be misunderstood in this. I do not undervalue the importance of hydrographic work in its connection with the fisheries (and I am only considering it in that connection at present) as carried on of late years, chiefly by the Scandinavians; but it is curious how in this report the obvious, primary, biological investigations are passed lightly over and the secondary physico-chemical work in the central bureau is strongly recommended. Part of the report is called a programme of work, but it contains no definite programme of biological work. I suppose it may be said, all that will be arranged in time at the central bureau, but in the meantime an opportunity is lost. If nothing but an International Committee and a central bureau is asked for, probably that (at most) is all that will be obtained, and it is not all that is necessary. In my opinion, what we want at the present time is not conferences, or committees, or a central bureau, so much as boats and men, and work at sea.

W. A. HERDMAN.

Croxteth Lodge, Liverpool, November 16.

P.S.—I see Mr. Allen's letter in to-day's NATURE. On the whole he seems to regard the report with more favour than I do; but on most points we are in agreement. It is certainly curious to omit the English Channel and the Irish Sea from an investigation in the interests of the British fisheries.

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The Meteors of Biela's Comet.

WITH your permission I should like to call attention to the possibility of a return of the Andromedes meteors on or about November 23. A consideration of the period of the shower, as deduced from all its known returns, had some time back led me to the conclusion that this year was more likely to be favoured with it than last. The fact that it was not seen last year is, as far as it goes, in support of my contention. But, of course, the stream may take less than a year to pass the point of the intersection of the orbits, in which case the earth may very possibly not pass through it at this return of the meteors.

E. C. WILLIS.

South Radwello, Norwich Lodge, Ipswich.

MR. WILLIS'S inference that some Biela meteors may be visible this year seems quite in accordance with the historical facts of the stream. The parent comet was observed between 1772 and 1852, and its mean period from twelve revolutions was 6.71 years. If this also represents its mean orbital time since 1852, perihelion would occur in September 1899. But the last four observed returns from 1826 to 1852 averaged 6.62 years, which would indicate perihelion at the end of January 1899. On the whole it seems highly probable that when the earth crossed the comet's orbit in November 1898 it was too far in advance of the cometary nucleus for any meteoric shower to result. It also appears likely that at the meeting, now imminent, of the earth and cometary orbit, the former will encounter a section of the stream too far in the wake of the comet for it to be very thickly strewn with its material. However, this remains to be seen. The apparition of a fine shower of these meteors on November 23, 1892, sufficiently proves that the period of thirteen years intervening between the rich displays of 1872 and 1885 did not exactly represent two returns of the same part of the meteoric group. In 1872 the earth passed through a section of the stream following the comet, while in 1885 it encountered a part preceding the comet. Intervals of twenty years (equivalent to about three periodical revolutions of the comet) seem favourable to recurrences of the meteoric shower as it was observed in 1798 and 1838 (including two periods of twenty years) and in 1872 and 1892. I think the next brilliant return of the meteors will certainly occur in 1905, and that a minor display is very likely to be visible in 1899. If so, the meteors will appear in the early evening of November 24 next, the longitude of the node being $242^{\circ}2$.

According to the investigations of Schulhof and Abelmann, the planet Jupiter will greatly disturb this meteoric stream in about March 1901 and cause a minus displacement of the node to the extent of $6^{\circ}2$. This means that in 1905 the shower will make its apparition on about November 18.

November 15.

W. F. DENNING.

RECENT DEVELOPMENTS OF WIRELESS TELEGRAPHY.

THE efficiency of the system of wireless telegraphy developed by Mr. Marconi has recently been put to some striking tests, with results which are in every respect satisfactory. During the yacht races for the America Cup, descriptive reports of progress were sent by wireless telegraphy from the *Grande Duchesse*, on which Mr. Marconi had his apparatus installed; and as many as four thousand words were transmitted by this means over distances up to thirty miles in the course of a single afternoon.

The method of sending the reports of the yacht races is described by the *Scientific American* to have been as follows:—"The foremast of the *Grande Duchesse* carried an auxiliary mast of sufficient length to give the desired vertical height of 120 feet to a wire, which reached from a short yard on the mast to the table of the operating room below, on which the sending and receiving apparatus was placed. A similar wire was suspended from the foremast of the Bennett-Mackay cable steamer, which was anchored near the Sandy Hook lightship, the starting and finishing point of the races, and also from a mast at the Navesink Highlands. The cable ship and the Highlands had temporary cable connections with New York.