

LETTERS TO THE EDITOR.

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Wireless Telegraphy and Solar Eclipses.

JUST before the beginning of the war in 1914 the Radiotelegraphic Committee of the British Association, which was appointed at the Dundee meeting in consequence of a suggestion by me, had completed arrangements for certain observations to be made on the strength of radiotelegraphic signals on the line of totality of the 1914 solar eclipse which passed through Russia. These arrangements were rendered useless by the outbreak of the war. On May 29 of this year a total solar eclipse will be visible in North Brazil, and it seems very desirable that any eclipse expeditions sent out to observe it should be provided with wireless telegraph apparatus, and should arrange to receive, and also to send, signals to other stations before, during, and after the passage of the moon's shadow.

It is very important to ascertain, if possible, whether there are any effects on signal strength due to the passage of the moon's shadow over a station such as accompany the diurnal passage of the earth's shadow at sunrise and sunset. Evidence obtained from long-distance wireless transmission points conclusively to the close connection between it and the ionisation of the upper regions of the atmosphere. There is time now to make arrangements for the erection of temporary wireless stations on the line of totality of the eclipse, and to arrange a programme of operations. May I suggest to those organising eclipse expeditions the desirability of doing this? J. A. FLEMING.

University College, London, January 14.

The Neglect of Biological Subjects in Education.

THE resolution of the Headmasters' Conference and Headmasters' Association, referred to in NATURE of January 9 (p. 379), that school instruction in natural science should include biology as well as chemistry and physics, reminds me of an impression which has been with me for some time that a similar reform is needed in our higher education. Arising, I suppose, from the curious notion that chemistry and physics are more exact and educative and of more general moment in the lives of animals than are botany and zoology, it is laid down at Oxford, for example, that a student who proposes to take a biological subject for his final school must pass an elementary examination in chemistry and physics, while if he specialises in chemistry or physics he is exempt from any preliminary course in biology. Something similar is, I believe, a pretty general regulation in all the universities in this country—and if not a regulation, at any rate a habit. The result is that a number of chemists are produced who are fearfully ignorant of the simplest truths of biology; they do not even know what biology is about or the general methods whereby a biologist will seek to solve his problems.

It is probably too much to ask that the education of those who devote themselves to the pursuit of natural knowledge should be such as would generate in them that sympathy with arts studies which we need so much, but we can at least try to secure that the various departments of natural science should be more sympathetic with one another's aims. Sympathy comes from understanding, and I think a considerable step in the right direction would be made by having

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compulsory instruction in botany and zoology as well as in chemistry and physics for all students in our schools of natural science. The reform is quite simple and would present no practical difficulties, which is more than can be said for some projects of reconstruction. A. E. BOYCOTT.

17 Loom Lane, Radlett, January 13.

The Aurora Borealis of December 25, 1918.

THE aurora borealis of December 25, 1918, was manifested here from 5h. 45m. to 11h., and among the more interesting features presented may be mentioned the great arch of light, with its apex at roughly N.N.W., having a dark transparent interior with the



FIG. 1.—The aurora borealis as seen at Bramley, Yorkshire, on the night of December 25, 1918.

stars shining therein. The light nebulous clouds outside the arch, alternating rapidly in intensity, as well as the radial pulsating streamers, were especially noteworthy.

The accompanying illustration gives an approximate idea of the phenomenon as seen here. Vega is shown within the arch. SCRIVEN BOLTON.

Waterloo Lodge, Bramley, Leeds,
January 10.

PATENT LAW AMENDMENT.

A BILL to amend the Patents and Designs Act, 1907, was presented to the House of Commons by Sir Albert Stanley, President of the Board of Trade, as a Government measure in the latter part of 1917. This Bill was ordered to be printed on November 19, 1917. Considerable modifications in the 1907 Act are proposed in clauses 1, 2, 11, 14, and 17 of the Bill. These clauses provide new sections to replace sections 24, 27, 58, and 84 of the Act, the marginal notes whereof are respectively "Compulsory licences and revocation," "Revocation of patents worked outside the United Kingdom," "Cancellation of registration of designs used wholly or mainly abroad," and "Register of patent agents," and for the addition of a new section (38A) under Part I. of the Act.