

quarters of the globe, with a supplementary chapter on Nature and Man as agents of change. The second part is descriptive of the commercial products of the Vegetable Kingdom, in which Meyen's plan appears again to have been followed in the main; it is subdivided into Food Plants, and Industrial and Medicinal Plants. In the third part we have, in like manner, the commercial products of the Animal Kingdom; and, in the fourth, raw mineral products. The comments which we have to make are almost confined to errors of omission which can be readily rectified in future editions. We regret to see still retained the antiquated classification of the Animal Kingdom into Vertebrata, Mollusca, Annulosa, Radiata, and Protozoa. The sentence by which (p. 260) the porcupine and the ant-eater are made members of the order Monotremata, is no doubt merely an oversight. Among food plants, it is strange to find no mention made of the potato, nor, indeed, of any of our culinary vegetables, the cabbage, turnip, or carrot, with the single exception of the onion! We demur to the assertion that the morel is "one of the few fungi found in this country which may be eaten with safety;" among these few we do not understand why the truffle and the morel only are given, the mushroom not being even alluded to. Indeed, the whole subject of Vegetable Products requires revision, many being entirely omitted of much greater importance than others to which considerable space is allotted. Among Industrial Plants, for instance, we should expect to find some description of the numerous fibres now used in the manufacture of paper, the esparto-grass, different kinds of wood, &c., which are daily becoming more important articles of commerce. An exceedingly useful vocabulary is appended, containing the names of natural productions in the principal European and Oriental languages; and the volume may be safely recommended as containing an immense mass of useful information on a very important subject.

Record of American Entomology for the year 1869.
 Edited by A. S. Packard, Jun., M.D., 8vo. (Salem, 1870.
 London: Williams & Norgate.)

THIS is the second annual analysis of the literature of American Entomology which has been published under the care of Dr. Packard. It must be gratifying to entomologists to find that their science is so popular in the United States as to render the production of such a work at all feasible, and we can only hope that the Editor may receive sufficient support to enable him not only to continue it in its present form, but even to enlarge it and make it still more useful. Of course, with the general entomologist, this Record can never take the place of the entomological portion of the *Zoological Record* which has been brought out in this country since 1865, but it is of the greatest value in giving the European naturalist intimations of papers and descriptions published in those out-of-the-way American periodicals which rarely fall into his hands. W. S. D.

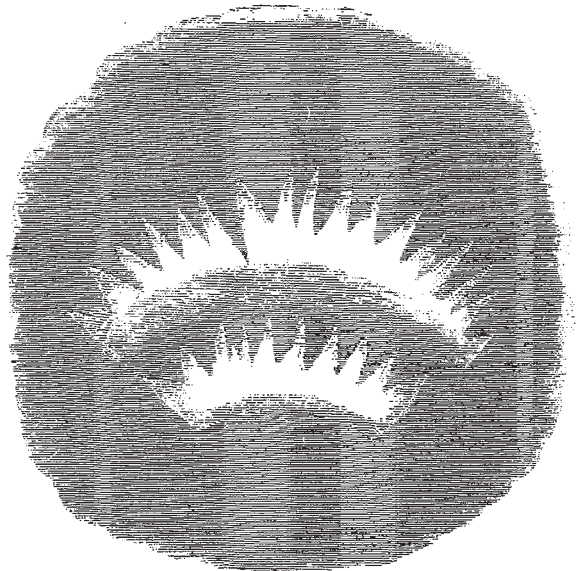
LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his Correspondents. No notice is taken of anonymous communications.]

The Aurora Borealis by Daylight

I HAVE been expecting ever since the great display of Tuesday, Oct. 25, to see some statement that the Aurora was visible on the afternoon of that day. I was in Huntingdonshire, about four miles from Kimbolton, at the time, and being out of doors at half-past four P.M., saw a remarkable pale luminous appearance some 25° above the horizon and almost due east. At this point there were two arcs of faint white lines, one above the other, both radiating outwards with a number of short points. The breadth of the upper arc (which was rather the widest) might be from twelve to twenty times the apparent diameter of the moon. It

was of course broad daylight at the time, and the sky was perfectly clear and cloudless for a long distance round these patches of light. They were visible for at least ten minutes, brighter and fainter alternately, and were seen by a friend as well as myself. I was unfortunately called away, and prevented from watching them while the sky became darker. After dark (at 5.30)



they had disappeared, but the dark irregular circle mentioned by Mr. Grove, from which the streamers radiated, was extremely conspicuous. It did not strike me at the time that the appearance at 4.30 was likely to have any special interest. But as it seems that the greatest disturbance of the telegraphs happened before the evening display of the aurora, it may perhaps be of use to record that it was also visible in the latter part of the afternoon.

26, Finsbury Place, E.C.

JAMES CUBITT

The Spectrum of the Aurora

THE following observations on the Spectrum of the Aurora were made by Mr. Alvan Clark, jun., in the neighbourhood of Boston, on the evening of October 24. He used a chemical spectro-scope of the ordinary form, with one prism, and photographed scale illuminated with a lamp. Four lines were seen at the points marked 61, 68, 80, and 98. To reduce these to wave-lengths, the next day I measured the lines C, D, E, b, F, and G with the same instrument, and deduced the annexed table:—

Line.	Reading	Wave-length	Assumed Line.	Comments.	Error.
C	49.1	656			
D	57.8	589			
(1)	61	569	557	Common Aurora Line	- 2'
(2)	68	532	531.6	Corona Line?	+ 1'
E	63	527			
b	71.2	517			
F	79.7	486			
(3)	80	485	486	F Hydrogen.	- 3'
(4)	98	435	434	G "	+ 6'
G	100.5	431.2			

The first column gives the name of the line; the second the readings on the scale; the third its wave-length, obtained from Angström's chart, and by interpolation; the fourth the wave-length of the line with which these lines are supposed to be identical. The fifth column gives the name of this line, and the sixth the error in parts of the scale. The first measure is evidently wrong, and should probably have been 63. For the other three, however, the agreement is remarkable, two coming close to F and G of hydrogen, the other to the line observed