spread of the "thermophytes" in Central Europe since the "fourth ice-period"; and a third with the division of Central Europe into floral districts; followed by some seventy pages of explanatory remarks on the points raised in the preceding chapters. Unfortunately for those who would wish to consult this book, it has neither index nor headings of any kind. There is no attempt whatever to classify the facts and data; no map, no summary, no digest, no general conclusions; indeed, no help at all for the reader desirous of knowing what the writer has arrived at, or is leading up to. He begins with the assumption, that only very few of the plants which now inhabit Europe were already here in Miocene times, and that a large majority of the present vegetable inhabitants consist of immigrants and such as have originated within the territory since the beginning of the Pliocene period. The homes of the migrated species he would seek in Arctic America, but chiefly in Asia; and a very small number he considers have migrated from North Africa. In illustration of migrations the author gives full details of the present distribution of a small selection of plants; but only in words, so that it is a study to trace the areas. Having thus called attention to this work, we must leave it to the reader with leisure to follow the writer through his four ice-periods, and the present distribution of the leading elements of the flora of Central Europe; and we may add, that he will find much interesting matter.

Elementary Metal Work. By G. C. Leland. (Whittaker and Co., 1894.)

THIS book is devoid of scientific or general interest, merely treating of certain kinds of decorative metal work which can be executed by amateurs and children, and which, as a general rule, we would far rather be without. There have been instances, however, in which metal working at home, directed by energetic people of taste and leisure, has been found to greatly benefit working men and their families who are forced to be comparatively idle in winter. In a certain charming spot in the Lake District, where such objects are readily disposed of to tourists, the results have been most satisfactory, and we wish some such home industries could be introduced into parts of Ireland and Scotland frequented by visitors in summer, where the enforced winter idleness produces an amount of poverty painful to think of.

J. S. G.

LETTERS TO THE EDITOR.

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of* NATURE. *No notice is taken of anonymous communications.*]

Earth Currents.

THE Astronomer Royal was kind enough to show me the permanent photographic records of earth currents during the great magnetic storm on February 20–21, and they indicated so unmistakably such rapid and violent alternations, that I supplied our principal relay stations with telephones and with instructions to insert them in circuit whenever they observed indications of disturbances. This happened on March 30–31, during the display of the Aurora Borealis. Mr. Donnithorne, in Llanfair P.G., Anglesea, reports:—"At 2.0 a.m. (Saturday) the telephone receiver was again tried, and then 'twangs' were heard as if a stretched wire had been struck, and a kind of whistling sound. The strength of the earth current was 17·7 milliampères." Mr. Miles, in Lowestoft, reports:—"Noise on 408 (Liverpool-Hamburg) wire seemed like that heard when a fly-wheel is rapidly revolving," and "sounds in telephone appear like heavy carts rumbling in the distance." Mr. Scaife, in Haverfordwest, reports:—"March 31, 2.5 a.m. Earth currents on all wires; wires completely stopped. . . . Peculiar and weird sounds distinctly perceived, some highly-pitched musical notes, others resembling murmur of waves on a distant beach. . . . The musical sounds would very much resemble those emitted by a number of sirens driven at first slowly, then increased until a 'screech' is produced, then again dying away. Duration of each averaged about twenty seconds." These experienced observers, situated at three distant points, and perfectly acquainted with the ordinary inductive disturbances on telephone circuits, simultaneously observed and independently recorded their own impressions of peculiar sounds exerted in telephones by very rapid alternations or pulsations of currents which accompanied or were consequent on sun-spots, earth currents, and the Aurora Borealis.

W. H. PREECE.

G.P.O., April 9.

The Aurora of March 30.

I VENTURE to supplement the reference in NATURE to the Aurora of March 30, by a brief account of an observation made by me at Bristol.

At about 10.30 p.m. I noticed against a dark blue sky a single narrow rose-coloured ray stretching from between α and β Ursa Majoris to the neighbourhood of δ Aurigæ, and slightly beyond it. It was speedily joined by a second and then by a third ray, apparently diverging from a common centre about 5 degrees beyond α and β Ursa Majoris. The three rays gradually became less divergent, and merged into one broad beam, which ultimately faded away: the whole phenomena lasting about 5 or 6 minutes only. At the same time there was a greenish-white luminosity on the N.N.W. horizon, suggestive of a belated and misplaced sunset. I understand that this had endured for a long time, perhaps an hour or more.

J. RYAN.

University College, Bristol, April 9.

Crystalline Schists of Devonian Age.

IN a recent number of NATURE (vol. xlix. p. 435) Prof. Bonney writes:—"Speaking for ourselves we think he (Prof. van Hise) is disposed to . . . . admit on too slight evidence that in 'Silurian, Devonian, and even later times, completely crystalline schists have been produced over large areas'; for in the past this assertion has been so often made, and so often proved erroneous, that on the principle, 'once bit, twice shy,' we are disposed to be a little sceptical."

Mere assertions in geology, as in general science, are scarcely worth the trouble of contradicting; but in one case, at least, the evidence of the existence of completely crystalline "Devonian" schists does not rest on mere assertion.

I published certain microscopic evidence in favour of the Devonian age of the schists of the Start and Bolt district in the *Geological Magazine* in 1892, and as Prof. Bonney would not condescend to weigh the said evidence, but contented himself by attempting to defend his own position by "abusing plaintiff's attorney," I proceeded to dissect his own argument for the Archæan age of the rocks in question in a separate publication.

Until the facts and arguments advanced in support of the "Devonian" age of these crystalline rocks, and the arguments against Prof. Bonney's rival hypothesis, (the latter based on a brief week's investigation of a district which has puzzled geologists for over half a century) are all fairly met, I must deprecate any attempt being made to lead the readers of your journal to believe that the doctrine of the "Devonian" age of the Devonshire schists has been "proved erroneous."

Torquay, March 23. ARTHUR R. HUNT.

P.S.—When the above was written I had not seen the remarks of the Director General of the Geological Survey on the metamorphic area of South Devon, published in your issue of March 22 (NATURE, vol. xlix. p. 497).

William Pengelly.

PROF. BOYD DAWKINS, in his otherwise excellent obituary of Pengelly, refers to the Bovey Tracey beds as a Miocene Lake deposit. They are, however, not lacustrine but fluviatile, consisting of current-bedded coarse grits alternating with lignitic muds, such as are deposited in stretches of still water when the main current cuts itself a new channel. Lithologically these beds are identical with those of Corfe and Bournemouth, and there is no reason to doubt their being the