

diversified configuration of the earth's surface, formed, as it is, of seas and continents of lands, &c., all which physical conditions having different powers of radiating and absorbing heat, also have the power of causing great local disturbances in this aerial ocean."

It is probably due to a mistake on the part of the printer that the pressure of the air in the latitude of Paris at the level of the sea has risen to 147,304 lbs. per square inch, but we cannot quite account for the statement on p. 39, that the earth revolves daily on its axis "from east to west," or again on p. 12, where common salt is made to consist of sodium and chlorine in "equal proportions."

The lines of force in a magnet have often been likened in shape to a double egg-cup, but we doubt if any of our readers have ever seen anything so charmingly *à propos* as the following similitude. "They (the lines of force) also unite and cross over the equator of a magnet in the same manner that the peripheral nerves of animals decussate over the pons Varolii, and again separate to the opposite hemispheres of the brain." The whole book is written in an absurdly inflated style, such as, for instance, p. 88—"The intensified electricity in these regions will rather pour its fitful beams over the serrated edge of the circular icy continent." &c.; or p. 59—"The blood and the nerves and the muscles that composed his (man's) fabrication (!) moulder into dust, which, in the crucible of time, yields up protoplasm for vegetation." On the last page electricity "carries faithfully the thoughts of men far along the profoundly silent abysses of the deep blue sea." Space, however, compels us to take leave of Dr. Berwick's "bright plateau of cultivated intellectual existence."

LETTERS TO THE EDITOR

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

Botanical Museums

In your excellent article on Botanical Museums, one point appears to have been overlooked, and to which, with your permission, I should like to call attention. I allude specially to the want of an extensive series of carefully prepared specimens and dissections illustrative of the principal modifications of form and structure to be met with in plants. To the ordinary student of botany, especially to the beginner, a series of herbarium specimens conveys about as much information as a similar collection of postage stamps would do. It is not until the pupil has made some considerable progress that he is in a position to make use of herbarium specimens with advantage to himself for anything more than superficial examination. The supply of fresh specimens in a large town like London is necessarily limited, if not in point of numbers, at least in variety. Would it not therefore be advisable in any future re-organisation of our botanical museums, to meet this want so far as it is possible to do so? A collection, such as I am alluding to, should comprise specimens selected and displayed in such a manner as to show the principal variations in the structure and form of the several organs of plants from the lowest to the highest. It should illustrate, so far as circumstances will allow, the comparative anatomy and physiology of plants much in the same way as the Hunterian Museum of the Royal College of Surgeons illustrates the peculiarities of animal life. In such a museum the system should be subordinated to the plants, not the plants to the system. I am quite aware that in all three establishments to which you call attention some specimens of the kind I refer to are to be found. In the Edinburgh Botanical Museum also are to be seen models and preparations made under the superintendence of Professor Balfour by several of his pupils. It is such specimens as these that for educational purposes it is so desirable to multiply and collect together in a separate department. Where, from the nature of things, such as the delicacy or minute size of the organ or what not, it is not possible to prepare a satisfactory specimen for reference, large models in wax or papier maché might be substituted with advantage. What teacher who has had to initiate the tyro into the complexities of the sphenoid

bone or the disposition of the ovules, the structure of the anther, the development of the flower, the arrangements of the flowers in grasses, &c., but has longed for Broddignagian models whereon to demonstrate the peculiarities of their formation. The organs themselves are often so small, and require so much practice with the use of the dissecting needle before they can be seen by the student, that it is very desirable to aid his preliminary labours as much as possible; to give him, at least, a general idea of what he is to look for in the living specimen. For want of this preliminary help specimens are often wasted by the inexperienced pupil, who becomes disgusted because he is unable to see for himself what his books or his teachers tell him he ought to see. A good collection of microscopical preparations should also be provided to illustrate such points as require the use of the compound microscope. Probably the British Museum would be the most fitting place wherein to exhibit such specimens side by side or in conjunction with those illustrative of fossil plants. If some such plan as that hinted at in your article were adopted, we should have the general collections at Kew in conjunction with the gardens and Economic museum, the historical and structural collections at the British Museum, and the Trade Museum at South Kensington. I cannot conclude this letter without adverting to the facilities which exist at Kew for the determination of unknown plants, and particularly of plants cultivated in gardens. Thanks to the admirable arrangements made by former and by the present curator of the herbarium and their assistants, the determination of an unknown plant becomes, comparatively, an easy matter.

MAXWELL T. MASTERS
Gardener's Chronicle Office, March 27

Occurrence of Glutton near St. Asaph

A CAVE has long been known to exist close to Plas Heaton, the property of Mr. J. R. Heaton, but as it was filled with brown earth nearly to the roof, and the entrance obstructed by large blocks of limestone, it could not be explored without some labour. Mr. Heaton has recently commenced opening it, and, among a large number of bones, has been rewarded by finding part of a jaw, which has been determined by Mr. Boyd Dawkins to be that of a glutton. This is a discovery of very great interest, as occurring in the district where we have already found the remains of reindeer, elk, &c., upon which the glutton principally feeds. The cave is situated on very much higher ground than any of the other bone-bearing caves of the district, and runs down into the hill with the bedding of the rock. Where the other end may be there is as yet no evidence to show, but it promises to be a cave of great extent, and, judging by the festoons of stalactite already arrived at, of great beauty also. Its chief interest, however, lies in the strong probability, from its size and position, that it will contain a very full record of the early natural history of the district, and the first results certainly encourage further exploration.

T. MCK. HUGHEZ

Splendid Meteors

ON Saturday evening last, March 25, at about half-past nine local time, I happened to be observing some stars in the eastern quarter of the heavens, when I was astonished by the sudden appearance of a brilliant meteor with a long tail, or streamer, of a reddish hue. The colour of the ball itself was a vivid bluish white. It seemed to start from near *ε Virginis*, or a little to the right of that position, and to take a leisurely course in a straight line towards the north under *Arcturus*, a *Coronæ Borealis*, and *ε Herculis*, till I lost it behind some houses not far from the northern point of the horizon, if anything, a little to the east of that point. I was most struck with the leisurely pace at which it moved, so different from an ordinary falling star, the velocity appearing to slacken as it proceeded, like that of a railway train after it has passed a spectator. Just when passing under *Arcturus*, the globular head broke up, not unlike one of the fire-balls of a rocket, into a string of five or six luminous beads, getting smaller and smaller towards the tail. The entire length of the meteor seemed to be fore-shortened as it receded towards the horizon. Judging without a watch, I estimated the interval between its appearance and disappearance to be about nine seconds. At the same time a second meteor of inferior dimensions and briefer duration took a somewhat parallel course between *Boötes* and *Ursa Major*.

EDWIN SMITH
Forest Road, Nottingham, March 26