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. No notice is taken of anonymous communications.*

[*The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to ensure the appearance even of communications containing interesting and novel facts.*]

A Glimpse through the Corridors of Time

IN a letter which appeared in last week's NATURE (p. 217), Dr. Dupré refers to a "too much forgotten paper by Immanuel Kant," and speaks of Kant's contributions to natural science as being, at present, "almost universally overlooked."

Whatever may be the case elsewhere, I do not think that, in England, we are open to this reproach, inasmuch as in the year 1869, when I had the honour to be President of the Geological Society, a very considerable portion of my anniversary address "On Geological Reform" was devoted to an attempt to do justice to Kant's work, and to indicate the high place which it occupies in the history of scientific geology. The address is reprinted in my "Lay Sermons," and therefore I have reason to know that a considerable proportion of the reading, or at any rate book-buying, public has no excuse for "overlooking Kant's work."

I may remark, in passing, that, so far as my knowledge extends, the extreme "Uniformitarianism" which Prof. Ball attacks, has long been as much "a creed outworn" as "Plutonism" or "Neptunism." Indeed, I said as much in 1869.

T. H. HUXLEY

Normal School of Science and Royal School of Mines, South Kensington, January 8

Outburst of Sun-Spots, July 25, 1881

MY letter of August 5, 1881, which appeared in NATURE, vol. xxiv. p. 508, stated that a considerable group of sun-spots burst into appearance between 4 and 5 p.m. (about) on July 25, 1881; or more exactly that the new group was absent at 3h. 58m. (*i.e.* in negative No. 1175), but was present at 4h. 47m. (*i.e.* in negative 1176), local apparent time; further, that no additional negatives could be taken here until July 30, when the spots had disappeared.

This communication has elicited obliging notices by other observers, including Prof. Piazzi Smyth and Prof. Perry, F.R.S., in NATURE, besides others posted to me direct. The observers were not able to observe the sun when the outburst occurred, nor for some twenty-two hours afterwards; none of the observers saw the new group.

One of the observers remarks: "I fancy your sudden group of spots is after all a curious system of blemishes in the negative!" Certainly the appearance of the negative (No. 1176) did not (to me) admit of conjectures suggesting the *unreality* of the spots. However, in presence of the remark now offered, I made inquiries of the photographer, Mr. L. H. Clarke, as to the circumstances connected with his detection of the outburst. I inclose his narrative (see below). It establishes the fact that he *first* saw the new spot-group *on the ground-glass slide* used for focussing the photoheliograph, and indeed that it was *this view* of the unexpected event which urged him to persevere (notwithstanding the clouded state of the sky) in securing a negative, *i.e.* No. 1176, on which the new spot-group he had seen on the ground glass slide stands photographed. His narrative further establishes narrower limits of time in which the outburst occurred, *i.e.* between 3h. 58m. to about 4h. 35m., instead of to 4h. 47m. p.m.

I communicate the foregoing facts, as they are essential circumstances of the event, and should be placed on record.

J. B. N. HENNESSEY

Dehra Doon, N. W. Provinces, India, December 16, 1881

On July 25, 1881, the sun was quite invisible owing to clouds, until towards 4 p.m., when a temporary break occurred, and I took negative No. 1175 at 3h. 58m. p.m. After this the sun again became invisible, while the rising clouds were so dense as to present little hope of getting another negative; so, as evening was approaching I was thinking of closing work for the day, when, while I was still watching at the instrument, an unexpected opening occurred in the rising clouds below the sun, and, soon after, the sun's image appeared on the ground glass used for focussing. To my surprise I now saw, at about 4h. 35m. p.m., a large group of spots about the sun's centre, which were quite absent in the previous negative, No. 1175; little expecting anything of the kind, or indeed to see the sun at all that evening, I was not ready to expose a plate, but now seeing what had happened, I determined to persevere, though the clouds were very unpromising of another break. So I at once took points on my blue setting glass, as is usual to set the instrument by (so as to avoid needless hiding of spots behind the wires), and having done this, I prepared a plate as quickly as possible, and set the exposing slide all ready, though the sun now was invisible; fortunately another opening occurred at 4h. 47m. p.m., when I took negative number 1176, in which appears the group of new spots about the sun's centre, which new group I saw without doubt at about 4h. 35m. on the ground glass for focussing. I then continued to watch for another negative until 5h. 30m. p.m., when the sky having become quite dark, I gave up work for the day.

L. H. CLARKE.

December 2

Polymorphism of the Flower-heads of Centaurea Jacea

IN *Centaurea Jacea*, the flower-heads of the same stem, as far as I have seen, are always of the same form, but different stems of the same locality often present astonishing difference in their flower-heads.

In the most common and apparently original form the flower-heads consist of florets which are all of the same tubular shape and all contain both fully developed anthers and stigma, the divergence of the outer florets giving to the whole head a diameter of 20–30 mm. (see H. Müller, "Bie Befruchtung der Blumen," p. 382–384). From this original form variation has gone on in two opposite directions, the final effects of this variation being on the one side most conspicuous male flower-heads of 50–55 mm. diameter, and on the other side less conspicuous female flower-heads of 30–35 mm. diameter. In both these extreme forms the outer row of florets possesses greatly enlarged radiating corollas which are sexually functionless, but useful in making the flower-mass more conspicuous. In the male flower-heads anthers and pistils of the disk-flowers are well-developed, but the style-branches never open so as to expose their stigmatic surfaces, and in their basal portion are grown together. In the female flower-heads, on the contrary, only the pistil of the disk-flowers is fully developed, the anthers being pollenless, shrivelled, and brownish-coloured.

These two extreme forms are linked with the original one by a continuous series of gradations. When in the original form variation begins in the one direction, the outer row of florets gradually becomes longer and more radiating, and in the same degree their sexual organs diminish in size and become functionless, the anthers first aborting, and then the pistil. Finally, the barren ray-florets continuing to increase, the pistils of the disk-florets, too, become functionless, and the conspicuous male flower-head is accomplished.

In the contrary variation some of the outer florets of the original form begin to diminish in size, while their anthers become brownish and pollenless, and this change step by step proceeds inwards and seizes a greater and greater number of disk-florets, until the whole flower-head is female, and reduced to a diameter of 15–18 mm. This state being reached, the corollas of the marginal flowers recommence to increase and become radiating, while in the same time their anthers disappear without leaving any trace, and their style-branches remain closing together.

These are, shortly sketched, the main varieties of *Centaurea Jacea*, near Lippstadt. Further details are about to be published in one of the next numbers of *Kosmos*.

Lippstadt HERMANN MÜLLER

The Weather

THIS morning I noticed the first blossoms of the Colt's-foot (*Tussilago farfara*), ordinarily considered an indication of the near approach of spring. For many years a generous rivalry has existed between myself and a friend (both travellers on the