

for the various subjects of the mineral kingdom, the work, however, supplies a want which has been long felt, and it will prove convenient for purpose of reference. The amount of detail will be better appreciated if we mention that in the description of the uses of carbonate of lime even the hammers used by stonemasons are specially figured.

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 insure the appearance even of communications containing interesting and novel facts.]

Photographing the Aurora Borealis

I SHOULD be obliged if I might be permitted to state, with reference to the negative of the aurora borealis obtained by Mr. Tromholt in Christiania on March 15 (NATURE, vol. xxxi. p. 479)—the first ever obtained—that he now informs me that, although the plate was exposed for eight and a half minutes, the said impression is so faint and imperfect that it cannot be reproduced as a positive. My object in asking to be allowed to mention this important fact is to show that the opinion expressed by Mr. Tromholt in his work just published, "Under the Rays of the Aurora Borealis," that it is almost impossible to photograph the aurora borealis on account of the small strength of light and its limited chemical action, may be said still to hold good in the main.

CARL SIEWERS

Speed and Velocity

YOUR reviewer of Williamson and Tarleton's "Dynamics" (NATURE, February 26, p. 385) speaks of the confusion therein of *speed* and *velocity*. Does he mean that these words should now be used in distinct senses? If so, would he kindly specify the distinction, which is unknown to me and my friends.

B.

[Certainly. Velocity is a directed quantity, or Vector. Speed is its Tensor.—YOUR REVIEWER.]

Time.—Thunderbolts.—Vision.—Sunglows

ON my return from a magnetic tour along the Red Sea, I ask leave to refer to some back numbers of NATURE. In vol. xxxi. p. 125, Latimer Clark is quite right when he says that mean and sidereal time ought to be distinguished by names. I should prefer a step farther, and use for the latter the decimal angle, thus abolishing our frequent and tiresome conversion of time into space, and *vice versa*. The resulting advantages would be obvious.

Answering Herr Von Danckelman's remarks in vol. xxxi. p. 127, I beg leave to quote my memoir, "Sur le Tonnerre en Éthiopie," published in 1858 by the French Institute, among its *Mémoires des Savants Étrangers*. Facts mentioned there do not support the opinion that fatal thunderbolts are all but unheard of in Tropical Africa.

In your published remarks on vision, is it not Lord Rayleigh who says that the supposed superiority of eyesight among savages may be explained otherwise? Years ago, when reading Bergmann's travels among the Kalmouks, I noticed his remark that when examining camels returning to the fold, those natives distinguished sexes with their naked eyes just as well as he could through his excellent field-glass. In conclusion, Bergmann says that savage eyes are superior to civilised ones, or something to that effect. I must confess that I then accepted his opinion as being admirably warranted by the quoted facts. However, some time afterwards I was travelling on foot in the Pyrenees with a Basque illiterate peasant, and a splendid refractor by Cauchoix, which I proudly carried myself. My companion having tauntingly asked me why I had not left that lumber at home, I gave him, foolishly, a lecture on optics, and wound up by saying that the glass enabled me to distinguish a cow from an ox, even from that distant hill. He said he could do as much without my lumber. I then selected a cow grazing, and asked him what that was. "Wait till the brute walks," said the

peasant; and at its first step he exclaimed: "it is a cow." I tried him, then, several times, and never found him in fault. He affirmed that cows and oxen do not lift their legs in the same way. May I request your rural readers to tell us whether that remark applies to English cattle? When on the Atlantic a sail was announced for the first time. I could perceive nothing, because I had not yet learnt what kind of a hazy thing I should distinguish. Having then sharp eyesight, I succeeded after a short practice, in discerning distant sails before any of my companions, and could turn tables on them by repeating their own saying, "*Ça crève les yeux*."

To your lore on far-sightedness in vol. xxxi. p. 506, allow me to add two instances. Zach saw from Marseilles, Mount Canigou (2700 m.), at a distance of 158 English miles; he had calculated the true azimuth beforehand, and says that the peak bursts into view at sunset. Sir W. Jones informs us that the Himalayas have been seen at the great distance of 244 miles. I quote this from Carr's "Synopsis," a useful volume, which I regret to see behindhand in many cases since the death of its clever author.

May I intrude here a comment on our mysterious sunglows? My companion having a nice eye for discriminating colours, has confirmed my notion that on rising from the horizon the successive *nuances* of fiery red, faint red, rose, mallow, prussian blue, and green, are *not* the same on consecutive days, although thermometer, barometer, and wind have not changed. This suggests the hypothesis either that the lower strata of our atmosphere undergoes changes otherwise unperceived, or that there are maxima, minima, and perhaps regular epochs in the phenomenon. To those who, unlike myself, remain stationary under a rainless sky like that of Egypt, I would recommend a careful record of these changes, at least during a few months.

Cairo, April 22

ANTOINE D'ABBADIE

Plutarch on Petroleum

THERE is in "Plutarch's Lives," in the life of Alexander, an interesting notice of the petroleum of Media; I have not found any mention of this passage in "Plutarch" either in encyclopædia or chemical dictionary; I trust, therefore, that you will give me the opportunity of reproducing it in NATURE. I transcribe the passage from the translation of John and William Langhorne (9th edition, London, 1805):—

"... and in the district of Ecbatana he (Alexander) was particularly struck with a gulph of fire, which streamed continually as from an inexhaustible source. He admired also a flood of naphtha, not far from the gulph, which flowed in such abundance that it formed a lake. The naphtha in many respects resembles the bitumen, but it is much more inflammable. Before any fire touches it, it catches light from a flame at some distance, and often kindles all the intermediate air. The barbarians, to show the king its force and the subtlety of its nature, scattered some drops of it in the street which led to his lodgings; and, standing at one end, they applied their torches to some of the first drops, for it was night. The flame communicated itself swifter than thought, and the street was instantaneously all on fire."

W. H. DEERING

Chemical Department, Royal Arsenal, Woolwich, May 6

Hut Circles

THE remains of the ancient British habitations on the downs on both sides of Dunstable are fairly well known to archæologists. I have often wished to expose the floor of one or more of these circles, as the task could be accomplished with a spade in an hour or two. It is, however, far better that the remains should be left alone, as it is not likely that anything would be found beyond a few flakes and the other simple forms, such as are abundant in the cultivated fields close to the huts.

On passing some of the circles on the east side of Dunstable, in the railway, about ten days ago, I noticed that the remains were covered with whitish soil instead of the normal green of the short pasture belonging to the downs. Thinking that some persons had been digging at these antiquities, I took an early opportunity of going to the spot. On reaching the circles I found they had been undermined in every direction by a large number of moles. A great deal of the material from the actual floors had been brought to the surface, and on examining this chalk rubble—for such it was—I had no difficulty in securing two or three handfuls of flint flakes. Mingled with them were