

The Comet

THANKS to the entire absence of twilight, and to a beautifully clear sky, I obtained a splendid view of the comet on November 14, 15h. 45m. The tail had a length of 30°, and was divided into two portions at the extreme end, the northern extremity curving very sharply upwards, and separated from the southern branch by a semi-circular space. The general form of the tail being very similar to the Greek character γ . The southern side still remained brighter than the northern. The nucleus was much more elongated than when I observed it on November 8. The two concentrations of light which were very noticeable on that date, were not now so conspicuous, being smaller and much closer together, so much so, that had the definition been otherwise than perfect the division between them could not have been seen. As showing the necessity of observing this interesting object in the absence of twilight I may mention that by 17h. 45m. G.M.T., the apparent length of the tail was reduced to 20°.

B. J. HOPKINS

79, Marlborough Road, Dalston, E., November 20

Soda Flames in Coal Fires

If a coal-fire be looked into with some attention after a fresh supply of coals has nearly ceased to give out its gases, there will be seen here and there in the hottest parts, and coming out of them through crannies and round dark corners, a pale translucent yellow flame, which one soon gets to recognise easily. What does it consist of? If looked at through a prism, without any slit screen, this flame is at once seen to be monochromatic. Neither its shape nor brilliancy (in which it is deficient) are at all altered or impaired; and it is especially interesting on this account, as there is something uncanny in the appearance of this pale flame defying the power of the prism, as it flickers and plays about the brilliant spectrum representing the red-hot coals.

Coals vary much in their possession of the source of this flame. In some it seems scarcely present at all, while in others it is abundant, being recognisable even in the large surface-flames. The coal in which I have seen it best, is a close hard coal, with a slaty cleavage and rectangular fracture, known, I am told, as "Anchor Brights" (?) The yellow flame appears frequently even in the largest surface ones, when the gaseous products first disengaged have disappeared. Some of them seem, then, to consist entirely of this, giving little or no continuous spectrum. But it is in the body of the fire that it is most fascinating, imparting a reality to the otherwise confused forms, which is more than pretty. I am strongly reminded by this appearance, when, for instance, a black mass is seen to stand out with a clear outline against the pale yellow background of light, of the picture which was mentally present in the days before the solar eclipse of 1868—the first upon which the prism was brought to bear. I have fortunately found a copy of some "Instructions" issued on the occasion of distributing the "hand-spectroscopes" provided by the Royal Society for the study of that eclipse; in which this prognostication is indicated with quite as much precision as the known facts at that time warranted. That it was not fully understood was the only reason why the moon was *not* seen, as it might have been seen, on that memorable occasion, sharply outlined upon the coronal light, just as I now see the coal. This was long before the time when the same arrangement on a larger scale—a prism in front of the object-glass of a telescope—obtained such success in other hands. However that may be, the coal-fire experiment is a very pretty one, and might be made very instructive too as a drawing-room illustration—the ordinary prismatic pendants of a chandelier being quite equal to the occasion, if a direct-vision combination is not immediately available.

J. HERSCHEL

30, Sackville Street, W.

P.S.—As the monochromatic light—of sodium, of course—is plentiful in the large flames, it will be well seen as a *line*, straight or curved, if the light of the fire on a cylindrical or curved metallic or other reflecting surface be looked at, especially if dark coloured; such as an ebonite ruler, for instance. Of course a direct-vision pocket spectroscope is better than the pendant of a chandelier; but the lenses must be taken off, as well as the slit-screen.

Complementary Colours—A Mock Sunset

INSTANCES of two phenomena recently noticed in NATURE have chanced to come under my observation, and in each case

impressed me much with their beauty and distinctness; the first, an effect of contrast of colour on the surface of clear water. Standing looking up stream on a bridge over the Ary, where it flows through meadows close to Inverary Castle, and admiring the transparent brown hue so often seen in the peat-stained waters of Scotch streams, my attention was attracted by a series of wavelets forming a ridge, somewhat spiral in appearance, across the stream, along the top of a low weir over which the water falls. Every single wave presented on its further surface (that seen foreshortened by the spectator) a nearly level space of pure full-toned amethyst colour, while its advancing front showed with crystalline transparency the deep "cairn-gorm" or burnt sienna tint proper to the water. The regular alternation of these patches of rich and brilliantly-contrasted colours, together with their permanency and apparent independence of anything peculiar in the state of the atmosphere, produced a striking and very beautiful effect.

The phenomenon of a mock sunset in the east I witnessed in great perfection on the Lake of Lucerne, when the whole eastern sky was traversed by broad rose-coloured bands converging from the north, south, and zenith towards a point opposite the sun.

I. H.

A Lunar Halo

LAST evening, about 7.15 p.m., a lunar halo of a peculiar character was seen here. It was at some distance from the moon, and instead of being, as usual, concentric with this body, was of an oval, or, more strictly speaking, a horse-shoe shape, the lower part of the halo not being complete. The moon, too, was not in the approximate centre of the horse-shoe. Supposing its distance from the vertex to be represented by the quantity r , $2\frac{1}{2}r$ would represent its distance to the lower part of the halo. Some heavy mist-clouds lay under the moon, which thinned out and became more transparent upwards, and refraction from the dense parts of these may have been the cause of the curious distortion of the circle in this case.

Guilddown, November 21

J. RAND CAPRON

A Correction

PERMIT me to correct an error which appears in your report of "The Additions to the Zoological Society's Gardens" (NATURE, vol. xxvi. p. 232). Your reporter states that one of the parrots presented by me is a "New Zealand parakeet (*Cyanorhamphus novæ-zealandiæ*)". The bird I sent is *Cyanosaisseti*, Verr., from hence (New Caledonia), and, according to Dr. Sclater's published catalogue, has never been in the Gardens. It differs—as I have already pointed out—from *C. novæ-zealandiæ* in size, extent of markings, but especially in the shape of the tail feathers (Cf. *Ibis*, vol. 1879, pp. 109 110). It is one of a small group of parakeets that is found in New Zealand, Chatham Island, Norfolk Island, and here, closely resembling each other, but at once separable when seen together. Neither this, nor *Nymphicus vauensis*, Layard, which is a new species just described by me, has ever been seen in Europe before, that I can learn.

E. L. LAYARD

British Consulate, Noumea, September 7

[The Secretary of the Zoological Society informs us that Mr. Layard is quite right in his remark, but that the bird has been long since correctly named, and will be shortly figured in the Zoological Society's *Proceedings* under its proper name.—ED.]

Thomson's Mouse-Mill Dynamo

ALLOW me to make a slight but important correction on your description, in last week's NATURE, of Sir William Thomson's mouse-mill dynamo. In your description it is said that "at one end of the hollow drum these copper bars [the mouse-mill bars] are united to each other in pairs, each to the one opposite it." This is not so. At one end of the hollow drum the ends of the copper bars are *all united together*, "metallically connected by soldering or otherwise." The effect is electrically the same as that of the arrangement described in your article; but, in the construction of the machine, the uniting of all the bars together at one end, instead of joining them in pairs, is so much more simple and easy that the correction seems of importance.

J. T. BOTTOMLEY

The University, Glasgow, November 18