

NATURE (vol. xxiv. p. 124). It was, I should think, almost unique in a scientific journal. It turned upon a contradiction which he had detected between a statement which I never made and the fact that he surely entertained an impression that he had somewhere or other (he did not say where) seen me quoted as holding an opinion at variance with that statement. I did not think that time would be well employed in answering it. Even now he talks of his "quotation or misquotation"; a convenient but unusual latitude of expression for a serious case of the latter of these alternatives. Really I am not in the examination-room, and will not therefore attempt to compress into a few paragraphs the answers I should give upon intricate philosophical points, even were the questions reasonably framed. Moreover I must remind Mr. McColl that he does not profess to write as an impartial inquirer or critic, but asked for the insertion of his letter upon the ground that he conceived himself to have been attacked. I have fully explained the only point upon which he had any claim to call for an answer, and therefore now close the correspondence. J. VENN

Achensee, Tirol

### Jupiter

THE great red spot on the planet seems unchanged as I saw it on July 8, while the north temperate zone belt (Gledhill's No. 2) shows a development nearly as striking as the equatorial belts.

Millbrook, Tuam, July 20

J. BIRMINGHAM

### New Red Variable

THIS star, which I found on May 22 only 9 magnitude (see NATURE, vol. xxiv. p. 164), progressively increased up to 8 m. on June 6, and is now again no more than 9. Its deep crimson colour is unchanged. It is  $2^{\circ} 51' 7''$  north of  $\alpha$  Cygni, and forms, with three other stars, the southern end of a little inverted and irregular cross. It will probably decrease to complete disappearance, at least from telescopes of moderate power.

Millbrook, Tuam, July 20

J. BIRMINGHAM

### A Fireball

ON Wednesday the 20th ult., about midnight, a house at Mont Dore, in the Auvergne, was destroyed by a fireball during a severe thunderstorm. My brother, who has lately arrived from thence, did not see the ball himself, but his valet, an intelligent Italian, saw it distinctly. He describes it as a globe of fire about half a metre in diameter, which approached the house obliquely, seeming to pass over a distance of 200 metres in about half a minute. It entered the door of the house and there burst. My brother heard the explosion as well as his valet, and describes it as a dull thud like that of a smothered blast. The house, which was a wooden one, was set on fire, a child burnt to death, and another inmate seriously, if not mortally, injured. Several inhabitants of Mont Dore are said by the valet to have seen the ball, one of whom lived in the adjacent house.

It will be interesting to readers of NATURE to compare the accounts given by Prof. Tait in NATURE, vol. xxii. p. 409.

19, The Boltons, S.W.

JOHN TENNANT

### Meteor

ON July 23, at 7.15 p.m. (Irish railway time) a meteor passed, travelling nearly from south to north, being lost in a bank of black cloud. It must have been of considerable brilliancy, as it was quite distinct, although at the time the sun was well above the horizon. July 22 from ten to fourteen brilliant red pencils and thin columns of auroric lights were rising at intervals. There were also auroric lights on July 23 between 11 and 12, but much less brilliant.

Ovoca, July 24

G. H. KINAHAN

### THE COMET

WE have received the following further communications on this subject:—

The following "Preliminary Note on the Photographic Spectrum of Comet  $\delta$  1881," has been communicated to the Royal Society by Dr. Huggins, F.R.S. (For Dr. Huggins's first note on this subject, see NATURE of June 30.)

ON the evening of June 24, I directed the reflector furnished with the spectroscopic and photographic arrangements described in my paper "On the Photographic Spectra of Stars" (*Phil. Trans.*, 1880, p. 669) to the head of the comet, so that the nucleus should be upon one half of the slit. After one hour's exposure the open half of the slit was closed, the shutter withdrawn from the other half, and the instrument then directed to Arcturus for fifteen minutes.

After development, the plate presented a very distinct spectrum of the comet, together with the spectrum of the star, which I have already described in the paper referred to above.

The spectrum of the comet consists of a pair of bright lines in the ultra-violet region, and a continuous spectrum which can be traced from about F to some distance beyond H.

The bright lines, a little distance beyond H, with an approximate wave-length from 3870 to 3890, appear to belong to the spectrum of carbon (in some form, possibly in combination with hydrogen), which I observed in the spectra of the telescopic comets of 1866 and 1868.

In the continuous spectrum shown in the photograph, the dark lines of Fraunhofer can be seen.

This photographic evidence supports the results of my previous observations in the visible spectra of some telescopic comets. Part of the light from comets is reflected solar light, and another part is light of their own. The spectrum of this light shows the presence in the comet of carbon, possibly in combination with hydrogen.

On the next night, June 25, a second photograph was obtained with an exposure of an hour and a half. This photograph, notwithstanding the longer exposure, is fainter, but shows distinctly the two bright lines and the continuous spectrum, which is too faint to allow the Fraunhofer lines to be seen.

*Postscript, July 9, 1881.*—I have since measured the photographs of the comet's spectrum, and I find for the two strong bright lines the wave-lengths 3883 and 3870. The less refrangible line is much stronger, and a faint luminosity can be traced from it to a little beyond the second line 3870. There can be, therefore, no doubt that these lines represent the brightest end of the ultra-violet group which appears under certain circumstances in the spectra of the compounds of carbon. Professors Liveing and Dewar have found for the strong line at the beginning of this group the wave-length 3882.7, and for the second line 3870.5.

I am also able to see upon the continuous solar spectrum, a distinct impression of the group of lines between G and h, which is usually associated with the group described above. My measures for the less refrangible end of this group give a wave-length of 4230, which agrees as well as can be expected with Professors Liveing and Dewar's measure 4220.

In their paper "On the Spectra of the Compounds of Carbon" (*Proc. Roy. Soc.*, vol. xxx. p. 494), Professors Liveing and Dewar show that these two groups indicate the presence of cyanogen, and are not to be seen in the absence of nitrogen. If this be the case, the photograph gives undoubted evidence of the presence of nitrogen in the comet, in addition to the carbon and hydrogen shown to be there by the bright groups in the visible part of the spectrum. On this hypothesis we must further suppose a high temperature in the comet unless the cyanogen is present ready formed.

I should state that Mr. Lockyer regards the two groups in the photograph, and the groups in the visible spectrum, to be due to the vapour of carbon at different heat-levels (*Proc. Roy. Soc.*, vol. xxx. p. 461).

It is of importance to mention the strong intensity in the photograph of the lines 3883 and 3870, as compared with the continuous spectrum, and the faint bright group beginning at 4230. At this part of the spectrum, there-