

of a butterfly which the Mantis patiently waits for, perched on the top of some conspicuous head of flowers.

Simla, January 17

E. R. JOHNSON

Fabry's Comet

ON the 6th inst., with a power of 38 on a $\frac{1}{4}$ -inch refractor, I observed that this comet had a distinct, though very faint, tail, at a position-angle of about 85° ; length $13\frac{1}{2}'$. The radius of the coma was about $3'$. I thought I could see the tail on the 1st inst., but was not quite sure of it then. The comet's spectrum strikes me as less distinct than is the case with most comets. On the 1st inst. I could only see two bright lines (or bands) certainly; and the less refrangible of these was very faint. I suspected a third band towards the more refrangible end of the spectrum.

T. W. BACKHOUSE

Sunderland, February 13

Mist-Bow

ON the Wiltshire Downs, near Marlborough, at about 4 o'clock on February 10, I observed a white mist-bow, in position and shape resembling the rainbow, but pure white, and the arc was of considerable width throughout, estimated at 5° – 10° , altitude of the sun 15° – 20° , altitude of the summit of the bow 35° – 45° . The wind was slight, and there was a frost at the time, and a thick deposit of rime on the trees, &c. Has this been observed elsewhere or explained? Is the phenomenon due to the superposition of coloured bows, or to the polarisation of the semi-crystallised vapour composing the fog?

A. E. E.

Movement of Telegraph-Wires

THERE can be no doubt that Mr. Mountford Deeley correctly attributes the rotatory oscillation of the wires during frost to the air-current acting upon a "wing" of ice-spicules. I described this phenomenon in *Science Gossip*, 1874, p. 254, and explained the cause of it in *NATURE*, vol. xxiii. p. 338.

Birstal Hill, Leicester

F. T. MOTT

HENRY BRADSHAW

UNFORTUNATELY it far too often happens that there seems to be an impassable gulf fixed between the man of letters and the man of science, which hinders the one not only from partaking in, but even from appreciating, the ideas, the objects, and the methods of the other. There is no need, especially here, to impute blame to either; but when a man of letters is found who, modestly making not the least pretension to scientific knowledge, yet sympathises deeply with the man of science, some acknowledgment of the fact seems to be due. Such an instance there was in Mr. Henry Bradshaw, Senior Fellow of King's College, and Librarian of the University, whose sudden removal Cambridge is now mourning. Of his literary ability, his bibliographical accuracy, his mastery of one important period of English poetry, and his knowledge of early printed books, this is not the place to speak. Justice to those qualities doubtless is being, or will in due time be, rendered by other writers, better fitted to pronounce an opinion upon them. But here may be appropriately recorded the enthusiasm—for no other word will suit—with which he at all times entered into and aided inquiries, investigations, and researches that most men in his position would have considered to lie entirely outside of their own, and as such to be without any dereliction of duty disregarded. His time, his energy, and his varied attainments were always at the disposal of any member of the University, whose servant, in the highest sense of the word, he rejoiced to be. But there was no need for any one to be a member of the University to obtain his help. Accessible at all times to all who sought him, the asking of a simple question was a sufficient introduction, and whether that introduction was only the prelude

to an acquaintanceship which might speedily ripen into a friendship depended far more on the person who asked it than on himself. By the younger members of the University to whom he was known, and the number of them was vast, he was regarded with feelings of affection, that it would seem almost exaggeration to describe, and his influence over them, always tending towards the highest ends, was proportionately great. But here it is more fitting to dwell upon the active sympathy he showed with students of biology. His great intimacy with the late Mr. G. R. Crotch had led him to take an extreme interest in the literature of systematic zoology, and particularly in the precision which is required of those who pursue the branch of it relating to the Coleoptera, not that Mr. Bradshaw must be supposed to have had any knowledge of the subject. It was simply the method of accurate work which excited his admiration, and that method, he has more than once told the present writer, had largely influenced his own bibliographical investigations, the high value set upon which must be told by those whom they concern. Never taking offence, wholly free from pride, always ready to put the best construction on every man's conduct, catholic in all his feelings, Mr. Bradshaw passed away in his College rooms, apparently without any suffering, on the night of the 10th or morning of the 11th of this month—an end to be envied by most men.

A. N.

THE COAL-DUST QUESTION

IN the last paragraph of my letter to *NATURE* (Dec. 31, p. 197), I stated that those who, having investigated the question of the influence of coal-dust in colliery explosions, had come to the conclusion that coal-dust is not, as a rule, the principal agent in an explosion occurring in a dry and dusty mine, appear to have omitted to take one important element of the case into consideration; and in saying so I implied that, if they had not made this omission, their conclusions in this respect would probably have been more in accordance with my own.

All the important experiments with coal-dust on a large scale have been made in wooden boxes or galleries of greater or less length, open at one end and closed at the other. The ignition or explosion has usually been begun at or near the closed end, and been propagated towards the open end, driving part of the contents of the gallery out into the air in front of it.

Certain conclusions in regard to colliery explosions have been drawn from the results obtained on this small scale which appear to ignore the fact that the conditions here prevailing are far less favourable to the propagation of the coal-dust flame than those which obtain in a mine at the instant an explosion is sweeping through it. For, it is obvious that in the former case the air is practically at *constant pressure* while the explosion lasts, whereas in the latter case it is practically at *constant volume* during the same period. But as the amount of heat required to raise the mixture of air and coal-dust to the temperature of ignition in the first case is greater than that required to effect the same result in the second case in the ratio of 1.41 to 1, it follows that an explosion having been once begun in either case will be propagated much more rapidly and surely in the mine than in the apparatus. Thus it is that a kind of coal-dust which produces comparatively feeble results in the apparatus may give rise to very disastrous consequences in the mine.

An illustration of this difference of behaviour under the two sets of conditions has been furnished by the dust of Camphausen Colliery in Germany. When subjected to the experimental test in the large apparatus at Neunkirchen, already described in these pages, it was found to be far down the list in point of relative danger, and was pronounced to be, like most of the other dusts in the same list above and below it, of a comparatively harmless.