XXXV. On the sulphuret of carbon and on flame, &c.

J. Murray Esq.

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does reflect,—what is the use of the *pigmentum nigrum*? and how is the image formed by “caustic reflection” to be impressed upon the “base of the nerve?” It is not a tangible body: and Mr. Horn will not, I presume, have the boldness to assert that rays passing through a medium shall be reflected at a certain point, without any alteration in the density of that medium. Yet were all his positions correct, the vitreous humour must diminish the image, which will be considerably larger than the base of the nerve, and reflect it afterwards—a power which no one in his senses will allow it. What then would be the consequence of such reflection? Why, the rays would decussate each other in every possible angle; and instead of one we should have a hundred images, not one of which would approach the base of the nerve.

If these statements are true,—and I don’t see how they can be disproved, as they are little more than a collection of facts,—What foundation has Mr. Horn for his theory?

Yours respectfully,

London, Feb. 16, 1817.

J. Q. R.

XXXV. *On the Sulphuret of Carbon and on Flame, &c.* By
J. MURRAY, Esq.

To Mr. Tilloch.

SIR,—IN an early number of the “Annals of Philosophy,” I pointed out some phænomena attendant on the great reduction of temperature by the evaporation of *sulphuret of carbon*. I find that if a few drops of this fluid be passed into a vessel of oxygen, it will *explode violently* on application of an ignited taper to the orifice. Sulphuret of carbon burns, when previously ignited in a medium of chlorine, but does not inflame spontaneously therein; when burning in contact with the atmosphere it exhibits an exaltation of temperature exceeding in intensity that of any other unexplosive flame, I have yet examined. *Steel wire* of 1-30th inch diameter burnt almost as vividly in this flame as in oxygen. Even a *watch-spring* fused with scintillation, and fine fibres of amianthus and platinum wire readily melted. Of the flames exhibited by combined hydrogen, those of hydrozincic gas and of boretted hydrogen appear to be the most intense; for in these, steel wire fuses vividly, and fine fibres of amianthus melt.

The blueish flames of alcohol, ether, &c. exhibit a *rose-colour* by the introduction of metals, charcoal, &c. and in the green flame of boretted hydrogen, &c. evolve a *yellow* colour. Scarlet, rose, and carmine, are the colours most generally produced with
this

this treatment of blue flame, and various shades of yellow, &c. with green flame. I shall only observe in the meantime, I think it very probable that the *colour* of flame, and particularly of the *lamina* or border (which in that of sulphuret of carbon is a fine blue) with its (the edge) *width*, will determine the *grade of ignition*; and it is my opinion that all flames have a decided *electrical* character, which will express their relation to the intensities of ignition.

Oxygen compressed in Newman's blowpipe and passed through the *flame of sulphuret of carbon* produces a much more *violent* heat, than when alcohol is substituted as in Dr. Marcet's experiment.

I have lately made but few experiments with the compressed gases in the blowpipe. I however repeated successfully Dr. Clarke's experiment with the *rubies*; I also fused TWO SAPPHIRES into ONE. In one instance I completely *perforated* the *stem of a tobacco-pipe*, which the jet of inflamed gases *vitriified* in its passage,—a steel *file* before it, literally, as Dr. Clarke expresses it, presents “a shower of fire.” In this experiment it is advisable to detach the bladder containing the mixed gases, lest the sparks should ignite the explosive volume.

I am respectfully, sir,

Your humble servant,

Surry Institution, Feb. 20, 1817.

J. MURRAY.

P.S. It should be stated, that when the red-hot platinum wire is introduced into a wine-glass containing sulphuret of carbon, it always kindles the fluid; but it will be seen to continue red hot between the surface of the fluid and the base of the flame.

When oil is used in the cell of the blowpipe it has this disadvantage: the ebullition is distinguished with much difficulty by the ear; but when *water* is employed, the bubbling is *very audible*,—and the latter is therefore a less equivocal index of safety. J. M.

XXXVI. *Observations on the Combination of Metals with Sulphur.* By M. A. J. FRERE DE MONTIZON*.

A PARTICULAR examination which I have made of cinnabar, leads me to suppose that this sulphuret results from the combination of a volume of mercury and another of sulphur: but in order to confirm my opinion in the most positive manner, I have endeavoured to ascertain whether this mode of composition be also that of other sulphurets.

On this subject I have had recourse to the analyses generally

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adopted,