Article V.

Reply to X. By J. F. Daniell, Esq. FRS. &c.

(To the Editors of the *Annals of Philosophy.*)

Nov. 6, 1824.

GENTLEMEN,

The illustration of your correspondent X. is so extremely apposite, that I at once agree with him in thinking it conclusive. I suppose, with him, "three barometer tubes standing in a reservoir, and filled alike with mercury, but that one of the tubes *expands* by heating, that another *contracts*, and that the third neither expands nor contracts." But then, I pretend to say (in defiance of the *odium philosophorum*), that if this apparatus be exposed to various temperatures, the columns in all will not rise to precisely the same height *as measured upon their respective tubes*.

X. does me too much honour in supposing that I am the first who ever used the fraction of the apparent dilatation of mercury for correcting the observed height of the barometer: it has long been known to all those moderately acquainted with the subject, that the expansion of the scale must be taken into account for all nice purposes.

I trust that X. will not wait for my visit to the Grampian Hills to disclose his method of detecting "the most minute impurity existing in mercury by inspection of a single drop of that metal," but that he will be induced, for the good of science, to communicate so important a discovery to the *Annals of Philosophy.** I remain, Gentlemen, faithfully yours,

J. F. Daniell.

Article VI.

Account of a new Mineral Substance. By M. Lévy, MA. of the University of Paris.

(To the Editors of the *Annals of Philosophy.*)

Nov. 10, 1824.

GENTLEMEN,

You will, perhaps, be able to spare room in the next number of the *Annals of Philosophy* for a short description of a new mineral substance, which I propose to name Rosélite, in honour of Mr. Gustavus Rose, of Berlin.

The only specimen where I have observed it belongs to Mr. Turner's collection. It occurs in small well-defined translucent crystals of a deep rose colour, on amorphous greyish quartz.

* We concur heartily in the wish expressed by our friend Mr. Daniell.—C. and P.

Fig. 1.

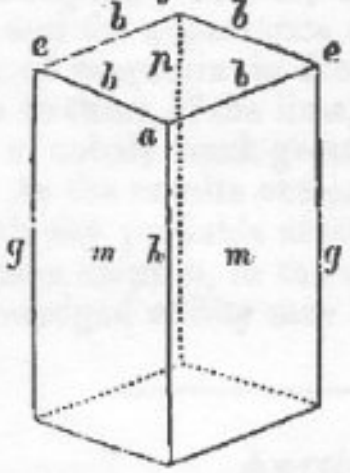
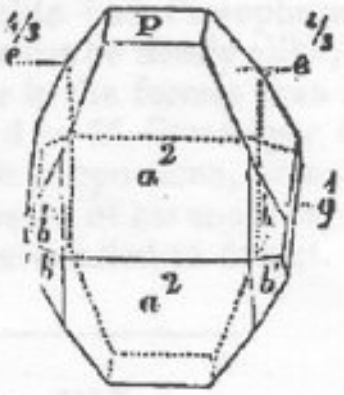


Fig. 2.



The form of the crystals is represented by fig. 2, but the plane marked g^1 is wanting in most of them. There is a distinct and brilliant cleavage parallel to p, but I could not find any other. The hardness of the substance is about the same as that of carbonate of lime. The faces a^2 are dull, and, as it were, hollowed towards the middle: their determination has been deduced from the parallelism of their intersections with the faces b^1. All the other faces are sufficiently brilliant to obtain their incidences by means of the reflecting goniometer. From these incidences, as well as from the different characters of the faces a^2, $e^{\frac{4}{3}}$, and the occurrence of the face g^1, without the edge of intersection of the faces a^2 being replaced, I was enabled to infer that the primitive form was not, as I had thought at first, an octohedron with a square base, but might be supposed to be an octohedron with a rectangular base, or more simply a right rhombic prism. This last hypothesis I have adopted, and determined the dimensions of the prism by assuming that the faces b^1 are the result of a decrement by one row on the edges of the base of the primitive.

In this supposition the primitive form, fig. 1, is a right rhombic prism of 125° 7′, in which one side of the base is to the height nearly in the ratio of 13 to 29. The face a^2 is on account of the parallelism already mentioned, the result of a decrement by two rows on the angle a of the primitive, and the face $e^{\frac{4}{3}}$ on account of its incidence on p, the result of a decrement by four rows in breadth and three in height on the angle e.

The incidences I have taken as data are,

$$p, b^1 = 109° 40′ \qquad p, e^{\frac{4}{3}} = 112° 30′ \qquad b^1, e^{\frac{4}{3}} = 129°$$

and I calculated the following, which very nearly agreed with my observations.

$$b^1, b^1 = 114° 24′ \qquad h^1, h^1 = 79° 15′ \qquad p, a^2 = 113° 36′.$$

$$m, m = 125° 7′.$$

The specimen comes from Schneeberg, in Saxony, but must of extreme scarcity, being the only one ever seen by Mr.

Heuland. Its great resemblance with the arseniate cobalt from the same locality had hitherto caused its being placed with it.

Chemical Examination of Rosélite. By J. G. Children, FRS.

In glass matrass, decrepitates and gives off water; the fine deep rose colour changes to black.

With borax, on the platina wire, and in the oxidating flame, the assay dissolves readily, and gives an intensely deep blue glass. In the reducing flame, the colour becomes lighter; no appearance of reduced copper.

With salt of phosphorus on the platina wire, the assay dissolves readily and completely, and gives results similar in both flames to those with borax.

The assay dissolves with facility in muriatic acid, and, after evaporation to dryness, the residuum is wholly soluble in water.

A minute fragment digested in a solution of caustic potash, on a slip of glass, evaporated to dryness, redissolved, and the alkali neutralized with nitric acid, gave with nitrate of silver and ammonia, a brown red precipitate of arseniate of silver.

Another minute fragment gave with a drop of muriatic acid a fine blue solution; by dilution with water, the colour disappeared. A drop of the diluted solution gave an abundant precipitate with oxalate of ammonia.

Another drop, evaporated to dryness on a polished steel blade, left no trace of copper.

Another drop gave with prussiate of potash a yellowish green tint, without any indication of copper.

Another drop, treated with bicarbonate of ammonia and phosphate of soda, gave decided evidence of the presence of magnesia.

These experiments are sufficient to show, that the composition of Rosélite consists of arsenic acid, united to oxide of cobalt, lime and magnesia, elements which, according to Phillips (Mineralogy, p. 178), constitute the *Picropharmacolite* of Stromeyer, who found their proportions to be:

Lime	24·64
Magnesia	3·21
Arsenic acid	46·97
Oxide of cobalt	0·99
Water	23·97
	99·78

The whole quantity of Rosélite that M. Lévy could afford me for my experiments, consisted of three or four minute crystals, about the size of a small pin's head, so that any attempt to ascertain the relative quantities of the ingredients would have been