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2. The oxidum manganoso-manganicum of Arfwedson is a compound of 1 atom protoxide and 2 atoms deutoxide.

1 atom protoxide	4·5
2 atoms deutoxide	10·0
3)	14·5
	4·833

so that its atomic weight (reduced to the lowest terms) is 4·833.

3. According to Berzelius the atomic weight of manganese is 7·1157, and the names and constituents of the different oxides are, according to him, as follows:

	Atomic weight.	Composition. Metal.	Oxygen.
2. Oxydule	9·1157	7·1157	+ 2
3. Oxide	10·1157	7·1157	+ 3
4. Saperoxide	10·1157	7·1157	+ 4

4. Berzelius represents these three oxides by the following symbols:

1. Protoxide $\dot{M}n$.

2. Deutoxide $\ddot{M}n$.

3. Tritoxide $\dot{\dot{M}}n$.

denoting the number of atoms of oxygen by the dots above the letters Mn.

Article VI.

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

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

DEAR SIR, *March* 12, 1824.

Upon a specimen from Arendal, belonging to Mr. Turner's collection, I have lately observed with cleavelandite,* flesh-coloured felspar, and green amphibole, some small brilliant black crystals, the description of which I now send you, because I believe they belong to a new mineral species. Their form is

* The substance I call here cleavelandite forms the greatest part of the specimen; it has much the appearance of cleavelandite; but however I have not been able under the small particles I have detached to obtain cleavage sufficiently brilliant for measurement.

Fig. 1.

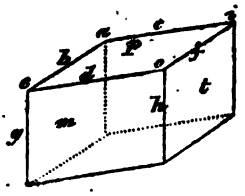
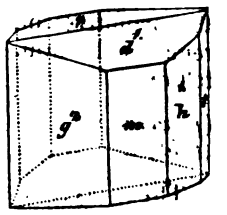


Fig. 2.



represented by fig. 2; in some of them, however, the plane *m* and its opposite are wanting, so that the prism is then six-sided instead of being eight-sided. These crystals cleave easily with brilliant surfaces parallel to the planes *p* and *t*, fig. 2. There is also an indication of cleavage parallel to the plane *m*. All the natural planes, as well as those obtained by cleavage, are sufficiently brilliant to allow the use of the reflective goniometer for the measurement of their incidences. From the measurements I have taken, and the cleavages already mentioned, I am induced to take for the primitive form of this substance a doubly oblique prism, fig. 1, in which the incidences of *p* on *m* and *t* are respectively 92° 34′ and 88°, that of *m* on *t* 112° 30′, and in which the three edges *d*, *f*, *h*, which meet at the solid angle *o*, are to each other nearly as the numbers 13, 20, 11. The incidences of *p* on *m* and *t* are nearly supplement of each other, the only difference being 34′, hence the primitive form differs but little from an oblique rhombic prism; for if these two angles were exactly supplement of each other, then the incidences of *p* on *m*, and on the face behind parallel to *t*, would be equal, and consequently the primitive would, at least so far, have the character of an oblique rhombic prism. There is another incidence which might, without a proper attention, lead to the same conclusion respecting the nature of the primitive. It is the incidence of the planes h^1 and g^2, fig. 2, which is equal to 89° 20′; that is to say, very near a right angle. Now if the planes g^2 and h^1 were considered as the diagonal planes of a rhombic prism, they should be perpendicular to each other. These indications of an oblique rhombic prism, as the primitive form of this substance, are, however, carried no further, and are entirely destroyed by the want of the symmetry which should accompany them. The faces h^1, g^2, if the diagonal planes of a rhombic prism, should be equally inclined upon the two lateral planes which they meet; and here we find that the incidences of h^1, with the planes *m* and *t*, as well as those of g^2 with *m*, and the plane parallel to *t*, differ widely from each other. The occurrence of the plane d^1 without being accompanied by a plane replacing the edge of intersection of plane *p* with the plane parallel to *t*, is also incompatible with an oblique rhombic prism. No doubt can remain, therefore, as to

the primitive form being a doubly oblique prism. I have thought it would not be useless to place here the discussion of the observations which might lead to assume another form as the primitive, on account of the ambiguous characters of this remarkable form. The incidences of the planes of fig. 2 are as follow:

$(p, m) = 92° 34'$ $(p, t) = 88°$ $(m, t) = 112° 30'$ $(m, h^1) = 137° 5'$
$(t, h^1) = 155° 25'$ $(p, d^1) = 150° 25'$ $(g^2, m) = 132° 15'$.

These crystals scratch glass easily. This substance I propose to call *Babingtonite*, in honour of the late President, and one of the founders of the Geological Society of London. His claims to have his name thus recorded in mineralogy, are too many, and too well known to every well-wisher of this science, to require any comment by me.

In Mr. Turner's catalogue, I had given the same name to a substance from Freyberg; but I find that Mr. W. Phillips, in his last work on Mineralogy, has noticed the same substance, and designated it under the name of sulphuret of silver and antimony, which name there is not the least ground to change.

Mr. Children has kindly undertaken to examine with the blowpipe a small quantity of babingtonite.

Article VII.

Examination of Babingtonite by the Blowpipe.

By J. G. Children, Esq. FRS. &c.

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

DEAR SIR, *March* 14, 1824.

In *glass matrass*, the Babingtonite decrepitates *very slightly*, and gives off a dense vapour, which soon disappears. A thin film of pure water condensed on the sides of the tube. Appearance of the assay not altered.

Alone, in forceps, fuses on the surface, pretty readily, into a black enamel.

With soda, on platina wire, in the *oxidating flame*, the assay gives a dark-green opaque globule; the addition of nitre heightens the colour.

In the *reducing flame*, the colour changes to dark-brown, or nearly black; globule opaque.

With borax. P. W. In O. F. deep amethyst-coloured globule; in R. F. colour changes to bluish-green; globule perfectly transparent in both flames.

With salt of phosphorus. P. W. In O. F. scarcely any action

on a minute fragment of the assay; globule transparent, orange-yellow, while hot; when cold, colourless. In R. F. the same, but colour greenish while hot.

With the *same flux*, and the assay in fine powder; in O. F. solution more easy; but a considerable silica skeleton remains undissolved: colour as before, but deeper. In R. F. nearly colourless, hot; when cold, slightly inclining to an amethystine colour. By the addition of a morsel of tin foil, the amethyst colour a very little deeper.

With *nitrate of cobalt*, black mass, without any indication of alumina.

In addition to the silica, iron, and manganese, clearly indicated by the preceding experiments, I obtained, *via humida*, a considerable proportion of lime. By the action of the salt of phosphorus, in the reducing flame, there appears to be a minute portion of titanium present, but want of time, and a larger quantity of the assay, prevented my obtaining any very decisive results in that respect by operating in the most way: though they tended to strengthen the probability of its being contained in the mineral: its quantity however must be very minute.

Article VIII.

Astronomical Observations, 1824.
By Col. Beaufoy, FRS.

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

DEAR SIR,

I shall be much obliged to any of your astronomical correspondents, if they will favour me with their observations on the eclipse of Jupiter's third satellite, which occurred on the 26th of last January, as I think it is probable I committed an error by mistaking one satellite for another, in the observations published in the *Annals* for March.

I remain, dear Sir, yours very truly,

Mark Beaufoy.

Bushey Heath, near Stanmore.

Latitude 51° 37′ 44·3″ North. Longitude West in time 1′ 20·93″.

Feb. 21.	Emersion of Jupiter's first satellite	9h	39′	02″	Mean Time at Bushey.
		9	40	23	Mean Time at Greenwich.
March 3.	Emersion of Jupiter's second satellite	11	08	36	Mean Time at Bushey.
		11	09	57	Mean Time at Greenwich.
March 8.	Emersion of Jupiter's first satellite	7	58	22	Mean Time at Bushey.
		7	9	43	Mean Time at Greenwich.
March 12.	Occultation of ϵ Leonis by the moon. Immersion	7	23	34·7	Mean Time at Bushey.