XI. On the formulæ representing Chabasie, in a letter to Professor Johnston

R. Phillips F.R.SS. L. & E.

To cite this article: R. Phillips F.R.SS. L. & E. (1839) XI. On the formulæ representing Chabasie, in a letter to Professor Johnston, Philosophical Magazine Series 3, 14:85, 46-47, DOI: [10.1080/14786443908649659](https://doi.org/10.1080/14786443908649659)

To link to this article: <http://dx.doi.org/10.1080/14786443908649659>

Published online: 01 Jun 2009.

Submit your article to this journal [↗](#)

Article views: 2

View related articles [↗](#)

XI. *On the Formulæ representing Chabasie, in a Letter to Professor Johnston.* By R. PHILLIPS, F.R.SS., L. & E.

MY DEAR JOHNSTON,

TO your paper, contained in the last Number of this Journal, "On some apparent exceptions to the law, that like crystalline forms indicate like chemical formulæ," you have appended this note: "If Mr. Phillips will look at the formula for chabasie given in the table, his difficulty about the mutual replacement of potash and soda *will* or *ought* to disappear."

Before however doubts can cease to exist, clear grounds must be stated for their removal; allow me therefore to direct your attention to the very different statements which you have made at various and not very distant periods, respecting the composition of chabasie.

In the London and Edinburgh Philosophical Magazine, vol. ix. p. 168, you observe that "chemists have recognised two varieties of chabasie; one from Aussig in Bohemia, and from Fassa, analysed by Hoffman, and from Faroe analysed by Arfvredson; represented by the formula,

and another from Nova Scotia, analysed by Hoffman, from Gustafsberg, by Berzelius, and from Kilmacolm, by Mr. Connell, represented by the formula,

As *chemical* formulæ the above have no meaning; the latter, I presume, was intended to include the *mineralogical* formula of lime chabasie, as given by Berzelius, *Nouveau Système de Mineralogie* (p. 219), $\text{CS}^3 + 3 \text{AS}^2 + 6 \text{Aq}$. But you have omitted to adopt a necessary precaution in employing mineralogical formulæ; for Berzelius says, "pour éviter toute espèce de confusion, qui pourrait provenir des deux sortes de formules, je marquerai les minéralogiques en caractères italiques."

In the Report of the British Association, vol. vi. p. 176, you have thus represented

In the above formula, owing, as I suppose, to the slipping of one of the marks representing an equivalent of oxygen,

aluminium looks like a binoxide and silicium a quadroxide. I believe that three of the dots were intended for the Al, and three for the Si; if I am wrong you will be good enough to settle this *point**.

Lastly, in the London and Edinb. Phil. Mag. for December, you have given as the formula for

Now mark the differences of these formulæ: in the two first we find 6 atoms of water, in the third 18, and the fourth 10 atoms. *Al* intended in the third formula means teroxide of aluminium, but I imagine it ought to have been *Al*, a sesquioxide, as in the fourth formula*.

You will greatly diminish the difficulties which you have thus created by favouring me with the following statements:

The weight of the atom of lime, potash, soda, aluminium, alumina, silicium, silica, and water, the symbol of each, the number of atoms of each contained in chabasie, and the mode in which you consider that the various silicates which chabasie contains are constituted, with their atomic weights and symbols.

When you have complied with the above request, I will endeavour to *see what I ought*; but at present, with data to be collected from four discordant formulæ, I see nothing but confusion.

I remain,

My dear Johnston, yours faithfully,

London, Dec. 12, 1838.

R. PHILLIPS.

XII. Note by Professor J. J. Sylvester on his former Paper inserted in the London and Edinburgh Philosophical Magazine for December, 1838.

University College, London, Dec. 13, 1838.

I HAVE to apologize for calling "original" (in the last Number of the Magazine) the theorem of numbers which I termed "a pendent to Horner's theorem." This Mr. Ivory has done me the honour to inform me may be found in Gauss's *Disquisitiones Arithmeticæ*, page 76. As Horner's extension

* As evincing the extent to which an accident (against which no care of the printer can always sufficiently guard) may occur in this mode of symbolizing oxygen, I may mention that in the *proof* of this communication, the three dots intended for this Al, had retrograded to the previous word.