Correspondence and Abstracts.

ENYSITE.

To the Editor of the Mineralogical Magazine.

This letter was sent to the Editor as a private note, with, at first, no idea of publication.

Sir,—I have this morning (22nd September, 1876) examined *Enysite*, and find it contains (besides what is mentioned in the August number of the Magazine) a slight trace of *lead*, with something giving a brown flame and sublimate, probably a trace of Cadmium. Dr. Foster mentions a white sublimate in his analysis, it is easily seen on Al. plate, with the yellow of PbO, but it was not examined afterwards (as it ought to be) in boric acid. I examined Enysite *quantitatively* for silica by my method as modified by Prof. Stokes, and first got 1·9 %, then 2·0 %. I only tried it twice.

There certainly does not appear to to be any *soda* in this mineral, as may be easily proved by dissolving some of its powder in boric acid, the green flame of which (made blue-green by Cu from the mineral) is unaltered. If *now* you add 1$^{mgr.}$ of sodium carbonate, the flame becomes distinctly *yellow*.* There appears, however (by vesiculation and breathing) to be a trace of potash.

There seems *very* little lime, I get less even than your analysis gives; but I have not completed my quantitative method for lime yet. There certainly is *some*. W. A. ROSS.

Blowpipe Analysis of Henwoodite, by W. A. Ross.
(*Chem. News*, Oct. 13th, 1876).

1. *Appearance.*—Rounded aggregation of lenticular crystals; pale green-blue.
2. *Al. plate, OP.*—Color changed to chocolate-brown.
   a.—Adhered to Magnet, (due to particles of oxide of iron, adhering to crystals).
   b.—Green pyrochrome; might be due to copper, molybdenum, barium, phosphoric acid, &c., no sublimate; no sulphur re-action.
3. *Crushed* (2) *treated in OP on bead of boric acid*—Blue green pyrochrome: = copper.
   a.—Streaks of curdy matter heating into opalescence = phosphoric acid or water, see (5).

* There certainly is soda present in the mineral, as I found by the spectroscope but not in anything like the proportion that would be present in testing by the mode suggested by Major Ross. I found *no* potash by the spectroscopic test.—J.H.C.

b.—White amorphous fragments, black do., with rusty matter all round. White balls=calcium phosphate, one grey ball, one black ball, all opaque. The whole bead interspersed with shining crystalline spots = insol. silica?

4. *Added a fragment of pure lime under OP.*—A large clear ball; pale yellow green, hot; nearly colorless, cold; = Fe O. (A particle of cupric oxide *without iron*, colors a similar ball brilliant chrome green, hot or cold).
5. *Clarified opalescent bead with potassium carbonate and magnesium sulphate.*

   a.—Added fresh boric acid OP. Clear bead became opalescent on cooling = phosphoric acid.
6. *Heated another piece of* (1) *with pure oxide of lead on charcoal mortar on Al. plate.*—Fused with great effervescence to a crystalline mass of plumbic phosphate with minute balls of copper interspersed.*
7. *Heated fresh piece of* (1) *with sodium carbonate on Al. plate in OP.*—Fused to brick red mass = Cu_2O.
8. *Crushed* (7), *boiled in water, acidulated with boric acid.*—Two precipitates, *a* brown, flocculent above; *b* brick red below=Cu_2O
9. *Treated* (8) *in boric acid bead in OP.*—Great opalescence = phosphoric acid (as seen by 5*a*); some opaque white balls, and fragments, two black balls; several clear small crystals = silica.

Remarks.—Presence of alumina or phosphoric acid seen from (3*b*) and (8*a*); of silica from (3*b*) and (9) of lime from the white *balls* which might, however, have been MgO.

Presence of copper so evident that it was unnecessary to use phosphoric acid as a detective.

The minuteness of these details (necessary where a process is described for the first time) makes the analysis appear much longer than it is, but the essential character of the mineral appears in operation (3); what follows is chiefly confirmative.

---

* *Note by the author.* Berzelius says (p. 84 Am. Ed.) "The unexpected discovery of phosphoric acid in *Wavellite*, &c., has shown the necessity of a re-agent for this acid. Its known behaviour, in combination with the oxide of lead, induced me to attempt to discover some method of detecting its presence by the help of lead, or the oxide of lead, which, however, did not succeed, except in the case of phosphate of copper."

He is quite right: the crystallization of plumbic phosphate is a very poor test for phosphoric acid, which cannot be detected half so delicately or correctly by any pyrogical method as that above given. I used lead oxide with the view of a metallurgical separation of *copper*, which is beautifully effected this way.—W.A.R.