# SYSTEM

OF

# MINERALOGY,

COMPREHENDING

ORYCTOGNOSY,
GEOGNOSY,
MINERALOGICAL CHEMISTRY,
MINERALOGICAL GEOGRAPHY, AND
ECONOMICAL MINERALOGY.


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1805.

*Conſtituent Parts.*

| | |
|---|---|
| Lead, | 35 |
| Arſenic acid, | 25 |
| Silver, | 1.5 |
| Iron, | 14 |
| Silica, | 7 |
| Alumina, | 3 |
| Water, | 10 |

*Bindheim.*

*Geographic Situation.*

It has been hitherto found only at Nertſchinkſk in Siberia.

*Obſervations.*

Mr *Champeaux* diſcovered in France an Arſeniat of Lead, which has a yellowiſh-green colour, and occurs in ſilky fibres not unlike amianth; and Mr *Prouſt* informs us, that he found in Andaluſia a green-coloured Arſeniat of Lead: but both of theſe minerals require to be more correctly deſcribed.

## Bournonite.

Sulphuret of Lead, Antimony, and Copper, of *Count de Bournon* and *Hatchett*, Phil. Tranſ. for 1804.

*External Characters.*

Colour dark grey, inclining to black.

Occurs cryſtallized in the following figures:

1. Low rectangular four-ſided priſm, the lateral planes of which are pretty deeply ſtreaked.

2. Same

2. Same figure, in which the lateral edges are truncated, and thus form an eight-ſided priſm.
3. Same figure with truncated angles.
4. Same figure, in which the terminal edges only are truncated, or in which all the edges are truncated at the ſame time.
5. Same figure, in which all the angles and edges are truncated at the ſame time.
6. Twin cryſtal, formed by the interſection of two cryſtals, of which only two oppoſite terminal edges are truncated.

The original planes of the cryſtals are longitudinally ſtreaked *, but the truncating planes are ſmooth.

The cryſtals are large and middle-ſized, and their ſurface is ſplendent.

Internally it is ſplendent, and its luſtre is metallic.

Fracture coarſe-grained uneven.

Semihard; eaſily cuts calc-ſpar, but does not ſcratch fluor-ſpar.

Brittle.

Eaſily frangible.

Leaves a black trace on paper, but not ſo readily as lead and grey antimony-ore.

Specific gravity, 5.5765; it is conſequently ſuperior to that of copper-glance or grey antimony-ore, but very inferior to that of lead-glance.

*Chemical*

* *Count De Bournon* conſiders the ſtreaked planes to be thoſe of the ſecondary cryſtals.

*Chemical Characters.*

If ſuddenly heated on charcoal by the blow-pipe, it crackles and ſplits; but, when gradually expoſed to the flame, it liquefies, and, upon cooling, aſſumes a dull grey colour. When the globule is longer expoſed to heat, white fumes, (which at firſt have a ſulphureous odour) are evolved, and partly ſettle on the charcoal. Ebullition prevails during the diſcharge of theſe white fumes; and the globule gradually ſuffers a conſiderable diminution, remaining at length tranquil, and of a very dark grey colour. This globule is compoſed of malleable copper, ſurrounded by a cruſt of ſulphuret of lead. *Hatchett.*

*Conſtituent Parts.*

| | |
|---|---|
| Sulphur, | 17. |
| Antimony, | 24.23 |
| Lead, | 42.62 |
| Iron, | 1.20 |
| Copper, | 12.80 |
| | 97.85 |
| Loſs, | 2.15 |
| *Hatchett.* | 100.00 |

*Geographic Situation.*

Has been hitherto found only in the mine called Huel Boys in Cornwall.

*Obſervations.*

*Obſervations.*

1. It may probably be placed in the Syſtem after Lead-Glance.

2. As it has received no name, it may, in honour of the diſtinguiſhed mineralogiſt who firſt deſcribed it, be denominated *Bournonite.*

## Columbite.

Columbium, *Hatchett*, Phil. Tranſ. for 1802. — Columbium, *Broch.* t. 2. p. 550.—Columbeiſen, *Reuſs*, 4. b. f. 632.

*External Characters.*

Colour dark ſteel-grey, which inclines to iron-black.

Occurs maſſive.

Internally it is ſhining, and its luſtre inclines to ſemimetallic.

Longitudinal fracture imperfect foliated; croſs fracture fine-grained uneven.

Is ſemihard.

Yields a dark yellowiſh-brown ſtreak.

Is brittle.

Eaſily frangible; and

Heavy.

Specific gravity, 5.918, *Hatchett.*

*Chemical Characters.*

Mineral acids act but feebly on it, and extract a portion of its iron. Melted with five times its weight