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**MDCCCXXXI.**

Manganite occurs in very few places. It is found in great abundance, often beautifully crystallized, in the manganese mines of Ihlefeld in the Hartz, occurring in veins traversing porphyry. Thin crystals and masses consisting of columnar individuals, when rubbed down on a plate of porcelain biscuit, in order to ascertain the colour of their streak, frequently yield a black powder at first, the characteristic brown tint appearing only when a considerable portion of the whole has been rubbed off. At Ihlefeld Manganite is associated with calcareous spar, and heavy-spar, particularly with the latter. The specimens analyzed, which likewise have yielded Figs. 5, to 10, described above, were found at Ihlefeld, and were brought by Dr TURNER from Germany. The same species occurs in gneiss, occasionally traversing it in small irregular veins and mixed with quartz, at Granam in Aberdeenshire. It is found likewise at Christiansand in Norway, and Undenaes in Westrogothia in Sweden. A massive variety of manganite, consisting of small spicular crystals with many drusy interstices, is found in Nova Scotia.

## II. PYRAMIDAL MANGANESE-ORE.

### *Hausmannite.*

Blaettricher Schwarz-Braunstein, *Hausmann*, p. 293.

Foliated Black Manganese-ore, *Jameson*, vol. iii. p. 263.

Black Manganese, *Phillips*, p. 381.

Pyramidales Mangan-erz, *Mohs*, vol. ii. p. 484.

Pyramidal Manganese-ore, *Mohs*, Trans. vol. ii. p. 416. Id. *Haidinger*, Edin. Journ. of Science, vol. iv. p. 46.

Schwarz-Manganerz, *Leonhard*, p. 760.

Fundamental form. Isosceles four-sided pyramid.

$P = 105^{\circ} 25'$ ,  $117^{\circ} 54'$ . Fig. 14.

$$a = \sqrt{2.76}.$$

Simple forms.  $\frac{4}{3} P - 4$  ( $\alpha$ ) =  $139^\circ 56'$ ,  $57^\circ 57'$ ;  $P - 1 = 114^\circ 51'$ ,  $99^\circ 11'$ ;  $P$  ( $P$ ).

Char. of comb. pyramidal.

Combinations. 1.  $\frac{4}{3} P - 4. P$ . Fig. 15.

2.  $\frac{4}{3} P - 4. P - 1. P$ .

Cleavage,  $P - \infty$  rather perfect;  $P - 1$  and  $P$  less distinct, and interrupted. Fracture uneven. Surface,  $\frac{4}{3} P - 4$ , very smooth and shining,  $P$  horizontally streaked, and often dull.

Lustre, imperfect metallic. Colour, brownish-black. Streak, dark-reddish, or chesnut-brown. Opaque.

Hardness = 5.0, 5.5, a little higher than apatite. Sp. gr. = 4.722, of a crystallized variety.

*Compound Varieties.*—Twin crystals: axis of revolution perpendicular, face of composition parallel to a face of  $P - 1$ , Fig. 16. The composition is often repeated parallel to all the faces of the pyramid, Fig. 17. Generally small particles only of the surrounding individuals are joined to the central one. Massive: composition granular, firmly connected.

#### *Observations.*

Professor HAUSMANN, in compliment to whom Dr TURNER and myself propose to call the present species "*Hausmannite*," ranks so high among the professors of his science, that it must appear much more extraordinary, no species should as yet commemorate his name, than that we should pay this tribute of friendship and respect to that distinguished individual. He has been accustomed in his lectures, subsequent to the publication of his work, to point out the present species as a peculiarly remarkable substance, of a nature not yet exactly ascertained.

It would be superfluous to enlarge here on the propriety of considering it as a species of its own, since, besides Mr MOHS, it

has likewise been established as such by Messrs BROOKE and PHILLIPS, and by the Abbé HAÜY. Even in the works of the Wernerian school, the pyramidal forms had been long ago described, in reference to the identical specimen from which the above description was derived. Count BOURNON\* mentions an ore of manganese crystallized in regular octahedrons, having their solid angles replaced by low four-sided pyramids; a form which might be explained upon the supposition, that the variety, Fig. 12., appears in the regular composition represented Fig. 14.; at least it would be necessary to have these varieties compared again with each other, for the purpose of fixing the species to which they belong.

Hausmannite is hitherto confined to the porphyry formation near Ihlefeld in the Hartz. It is found in a vein by itself, as was observed by Professor GUSTAVUS ROSE.

### III. UNCLEAVABLE MANGANESE-ORE.

#### *Psilomelane.*

Dichter Schwarz-Braunstein, *Hausmann*, p. 295.

Compact and Fibrous Black Manganesc-ore, or Black Hematite, *Jameson*, vol. iii. p. 261, 262.

Black Iron-ore, *Phillips*, p. 232.

Untheilbares Mangan-erz, *Mohs*, vol. ii. p. 486.

Uncleavable Manganesc-ore, *Mohs*, Trans. vol. ii. p. 418. Id. *Haidinger*, Edin. Journ. of Science, vol. iv. p. 47.

Schwarz-Eisenstein, *Leonhard*, p. 734.

Regular forms and cleavage unknown. Fracture not observable.

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\* Catalogue, p. 395.