Mr. Brooke on Mesotype, Needlestone, and Thomsonite. 193

ARTICLE V.

On Mesotype, Needlestone, and Thomsonite,

By H. J. Brooke, Esq. F.R.S.

(To Dr. Thomson.)


SIR,

In the several published works on mineralogy, the substance denominated mesotype is said to be found in Auvergne, in Iceland, Ferro, near Dumbarton, &c. and a square prism is given by the Abbé Hauy as its primary form. This form, however, does not belong to any specimens I have seen from those localities, nor do the substances themselves belong to the same species.

In the following notice I shall call the Auvergne variety, Mesotype; that from Iceland and Ferro, Needlestone; and that from Dumbarton, Thomsonite, after the editor of this journal, who has contributed so largely to the improvement of chemical analysis.

The specific gravity of the mesotype is .... 2'24
needlesone .... 2'27
thomsonite .... 2'37

Mesotype, from Auvergne.

Among the first specimens I examined of this substance, I observed the summits of some of the crystals to consist of eight planes, as in (Pl. CVII) fig. 8, four of which, \( d' \), \( f' \), were incompatible with the supposition of a square prism being the primary form. And on submitting to the reflective goniometer the planes obtained by cleaving the crystals parallel to the natural planes, \( M, M' \), of the prism, I found the inclination of those planes which afforded the best reflections to be 91° 10'. The inclinations of the terminal planes \( c, c', e, e' \), on the sides of the prism were also all equal, the primary form is, therefore, a right rhombic prism; and if the planes \( c, c', e, e' \), result from a decrement by one row on the terminal edges of the primary crystal, the height of the prism will be to its terminal edge very nearly as one to two. The planes \( d, d' \), are the result of an intermediary decrement on the acute angles of the prism.

The measurement of \( M \) on \( c \) is 116° 37'

\[
\begin{align*}
\theta & = \frac{n(n-1)}{1.5} u, \\
\theta, & + n, \frac{n(n-1)}{1.5} u, \ldots, \pm u, \\
\theta, & + n, \frac{n(n-1)}{1.5} u, \ldots, \pm u.
\end{align*}
\]

George Harvey.

1820.]
The prisms are much longer in proportion than those of the mesotype, and the natural planes smoother and more brilliant, those of the mesotype being striated longitudinally, and affording comparatively imperfect reflections.

The primary form of the needlestone, fig. 9, is also a right rhombic prism, but measuring 91° 10' and 88° 40', M on M' being the acute angle.

It differs also in its chemical composition from mesotype, which, according to Berzelius, contains no lime, while the needlestone does contain it.

If the planes c, c', e, e', be the result of a decrement by one row on the terminal edges of the prism, the height of the prism will be to one of those edges as 1 to 2.

Measurement of M on M' ...... 88° 40'
  M on C ............ 116° 30'

I believe it was ascertained some time since by Dr. Wollaston that this substance differed from the mesotype both chemically and crystallographically.

*Thomsonite, from Dumbarton.*

This substance is found in the neighbourhood of Kilpatrick, near Dumbarton, and has for its primary form a right rectangular prism.

The crystals I have examined are of the form fig. 10, but they are not sufficiently perfect to afford the necessary measurements for determining the dimensions of the prism with accuracy. It is, however, nearly square, and the height equal to nearly four times the lesser terminal edge if the plane c, be produced by a decrement by one row on the greater edge of the terminal plane.

The measurement of M on P is 90° 00'
  M  T  90  00
  M  a  about 135  20
  a  a' about 90  40

The cleavages parallel to M and T are effected with great facility, and the planes afford very distinct reflections.

H. J. BROOKES.