

*A curious crystal from the Binn Valley, Switzerland.*<sup>1</sup>

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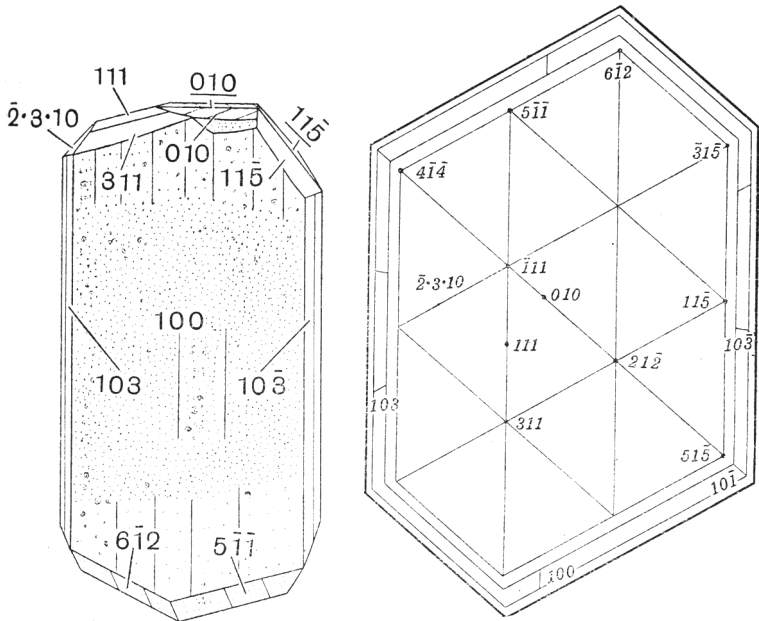
AMONG the specimens that were presented to the British Museum by Dr. C. T. Trechmann in 1917 from the collection of his father, the late C. O. Trechmann, was a loose crystal, which at first sight appeared to belong to one of the lead-grey species so long associated with the Binn Valley, but measurements made on the three-circle goniometer in the British Museum did not accord with the angles recorded for any of the species hitherto described. The crystal was recently submitted to a careful examination, but still the bi-angular co-ordinates of the faces differ from those given for any other species, and the only conclusion that can be drawn is that the crystal represents a new mineral species, and one peculiar to the Binn Valley.

The crystal, which measures about 12 by 5 by 0.3 mm., is steel-grey in colour, and tabular in habit (fig. 1), the large faces being grooved parallel to their longest edge. It was found with five other crystals,<sup>2</sup> which had been labelled by C. O. Trechmann as loose crystals of scleroclase (?) from the Binnenthal, purchased from Mr. Jentsch, August 29, 1904. The companion crystals are ordinary sartorite. The present crystal is steel-grey rather than lead-grey in colour, and gives a black streak. Like so many crystals from the Binn Valley, it was in a state of considerable strain, and, while on the wax after the completion of the first set of measurements, broke with an audible report into three pieces. The surface of the crystals is deeply etched; nevertheless, the faces gave mostly distinct reflections of the goniometer-signal. The crystal is obviously twinned about the pair of large faces, the plane of combination being parallel to them. These faces were taken as the origins of the

<sup>1</sup> Communicated by permission of the Trustees of the British Museum.

<sup>2</sup> The six crystals were entered under number 1917, 895 in the Register of Accessions in the Mineral Department.

bi-angular measurements, which are recorded in the following table. Individual I is the nearer one in fig. 1. The positions of the poles of the faces on this individual are shown in the gnomonic projection (fig. 2), the plane of the projection being at right angles to the prism-edge, that is, the longest pair of edges of the large faces. The poles of the faces on the under side of the individual are shown in their parallel positions in the diagram. To avoid confusion in the diagram the corresponding poles for



Crystal from the Binn Valley, Switzerland.  
 FIG. 1.—Clinographic drawing.      FIG. 2.—Gnomonic projection.

individual II are not inserted. It will be noticed that a face is present coinciding with the pole of the prism-zone, and it would be anticipated that this is a face of at least monoclinic symmetry. Yet a study of the projection shows that no symmetry exists with respect to this face: it is neither a pole nor a face of symmetry. The face is present on both individuals, and gives a single distinct reflection.

The face ( $\bar{2}.3.10$ ) has unusual indices, and it may be questioned whether it is really a face of growth; it belongs apparently to the first individual.

*Observed and calculated values of the co-ordinate angles from (100).*

Face.	Refl.	Observed.		Calculated.	
		$\phi$	$\rho$	$\phi$	$\rho$
<b>Individual I.—</b>					
(801)	s	0° 0'	6° 50'	0° 0'	6° 24'
(108)	b	„ „	59 28	„ „	60 2
(10 $\bar{1}$ )	f	„ „	48 51	„ „	48 58
(103)	f	„ „	81 34	„ „	81 36
(100)	s	„ „	95 0	„ „	95 22
(3 $\bar{1}$ 5)	f	35 20	54 39	35 24	54 44
(5 $\bar{1}$ 5)	s	35 33	55 48	„ „	54 34
(115)	f	„ „	89 50	„ „	89 52½
(2.3.10)	b	47 15	88 56	46 50	89 51
(6 $\bar{1}$ 2)	f	60 50	30 21	60 38	30 23
(212)	s	61 51	65 50	„ „	66 50
(5 $\bar{1}$ 1)	s	74 0	35 10	74 17	35 15
( $\bar{1}$ 11)	b	74 16	103 5	„ „	103 18
(311)	g	74 17	46 42	„ „	46 43
(111)	f	„ „	70 34	„ „	70 34
(010)	g	89 54	89 56	90 0	90 0
<b>Individual II.—</b>					
(801)	s	0 0	6 29	0 0	6 24
(108)	b	„ „	59 11	„ „	60 2
(10 $\bar{1}$ )	g	„ „	48 53	„ „	48 58
(500)	f	„ „	68 43	„ „	68 42
(515)	s	35 33	56 0	35 24	54 34
(115)	f	„ „	89 50	„ „	89 52½
(4 $\bar{1}$ 1)	b	41 40	56 50	41 37	56 53
(612)	b	60 10	33 47	60 38	33 47
(6 $\bar{1}$ 2)	b	60 25	30 15	„ „	30 23
(212)	b	61 0	64 37	„ „	66 50
(5 $\bar{1}$ 1)	b	74 0	36 5	74 17	35 15
(311)	b	74 16	46 31	„ „	46 43
(111)	f	„ „	70 33	„ „	70 34
( $\bar{1}$ 11)	b	„ „	103 18	„ „	103 18
(010)	g	89 54	89 56	90 0	90 0

The symbols in the column headed Refl. indicate the quality of the corresponding reflection, viz. g good, f fair, b bad, s striated. The calculated values were based upon the best values for the azimuths and distances of the faces (111) and ( $\bar{1}$ 11), viz. 74° 17', and 70° 34', 76° 42' (the supplement of 103° 18').

The symmetry is apparently triclinic, and the crystallographical constants are:

$$a : b : c = 3.3425 : 1 : 3.5536, \alpha = 90^\circ 0', \beta = 102^\circ 8', \gamma = 90^\circ 0'.$$

The specific gravity of the largest fragment, which weighed 0.0526 gram, was determined as 4.2.