THE AMERICAN MINERALOGIST

JOURNAL OF THE MINERALOGICAL SOCIETY OF AMERICA

VOL. 6 DECEMBER, 1921 No. 12

WULFENITE FROM LAVIC, CALIFORNIA

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Although wulfenite is of frequent occurrence in the western portion of the United States, it has not been found to exhibit a great variety of habit. It is almost always thin tabular, showing the base in simple combination with one or two pyramids of the second order. Pyramids of the first order are frequently entirely lacking, and if present are of insignificant size, and prism faces are of especially rare occurrence. The two crystals we have investigated show such interesting features as to make worth while a brief description. The first crystal (Fig. 1), which was about 3/4 mm. in width, is unusually symmetrical in its habit and has two first order pyramids prominently developed. The crystal was supported by a minute projection of quartz attached to the (001) face in such a manner as to permit both ends to be well terminated. The form Φ is an extremely flat third order pyramid and has been described at considerable length in a previous paper.[1] At the time that paper was written, the face was found to be a very characteristic one for this portion of the United States, but the values on the Goldschmidt goniometer were found to be very variable and no crystals were then observed showing good development of more than two or three members of this form on one individual. The symbol as then calculated from the values obtained from 13 faces gave a result near (1.7.81). The crystal now described seemed to be of such superior symmetry that it was thought the values obtained would be more representative than the earlier results. This was found, however, not to be the case and we are driven to the conclusion that the form is a variable, altho very characteristic one, and that a definite symbol cannot be assigned to it. The present average, obtained by measuring 8 faces on one individual (Fig. 1), gave

[1] Guild, "Mineralogische Notizen," *Z. Kryst. Min.*, 49, 321, 1911.

the symbol (1.7.96). The extreme values obtained as a result of all of our investigations are near (1.7.75) and (1.7.98). Dana[1] mentions 1.7.75 as a doubtful form and Goldschmidt[2] further emphasizes its uncertainty, recommending its omission from angle tables. We have little doubt that this is the same face as that now under discussion.

The other forms represented on this crystal (Fig. 1) are all well known and require no special description. They are *c* (001), *o* (012), *e* (011), *b* (113), *p* (111) and π (133); *o* is a curved face and shows an almost continuous reflection starting at (012) and fading out near (013).

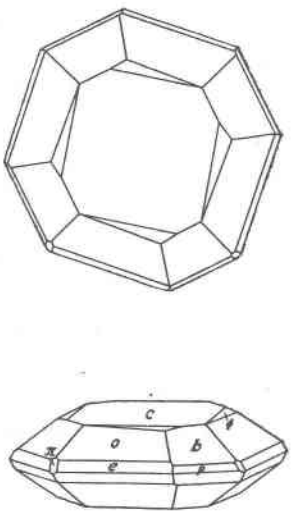

FIG. 1.

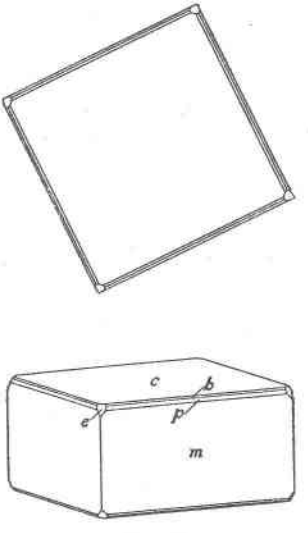

FIG. 2.

The other crystal (Fig. 2), which was taken from a group of similar individuals, is shown mainly on account of its great simplicity and the good development of the prism *m* (110). The crystals, which were all about 1 mm. across, appeared like slightly flattened cubes. The faces gave satisfactory goniometer signals, with the exception of the prism which was badly etched. As shown in the drawing, the following forms are represented: *c* (001), *b* (113), *p* (111), *e* (011), and *m* (110).

Acknowledgement is due to Mr. R. M. Wilke, of Palo Alto, California, from whom the two specimens were obtained.

[1] Dana, System, 6th Ed., p. 990. [2] Goldschmidt, Winkeltabellen, p. 425.