NOTES AND NEWS

CALCITE CRYSTALS WITH RHOMBOID TUBES FROM GUANAJUATO, MEXICO

CHARLES R. TOOTHAKER,
Commercial Museum, Philadelphia, Pennsylvania.

In 1892 or 1893 a small lot of calcite crystals of unusual form was collected by Dr. A. E. Foote at Guanajuato, Mexico. There were less than fifty of these crystals and because they were so few and so peculiar in development it may be safely assumed that they all came from one cavity or pocket. In outward appearance these crystals are seemingly oblong prisms, terminating in curved faces which come to a rather sharp point. If it were not evident at once that the mineral is calcite, it could easily be mistaken for a monoclinic substance, elongated parallel to the *a* axis, with a vertical plane and a twofold axis of symmetry. This oblong prism is bounded by two faces which are not smooth planes but are composed of many slightly curved, bright surfaces which give these faces a somewhat mottled appearance, and by two other faces which are invariably narrower and consist entirely of striations which run in the long direction of the crystal.

The cleavage at the base of the crystal and the incipient cleavages which show on it, furnish an easy clue to the direction of the crystal axes. The two wide faces of the oblong prism seem to be an attempt to form the negative rhombohedron *r*. Mr. Gordon's measurements, however, show it to be an oscillatory combination of $e\{01\bar{1}2\}$ and $\epsilon\{01\bar{1}1\}$. Some crystals show very definitely three bright faces of the negative rhombohedron $(01\bar{1}2)$. These faces are truncated by a basal plane *c* which, as is usual on calcite, is rather rough. A negative rhombohedron $f\{02\bar{2}1\}$ is well developed on two rhombs on one specimen.

The striations, which form the narrower sides of the oblong prism are composed of oscillations of $v\{21\bar{3}1\}$ and $\bar{v}\{21\bar{3}\bar{1}\}$. Nearly all the crystals show small, smooth faces of $M\{40\bar{4}1\}$.

The curved, four-sided point of the prism, fairly smooth and reasonably brilliant, seems to be a combination of the negative rhombohedron *f* influenced by what Mr. Gordon calls a doubtful form $\{2.10.\bar{1}\bar{2}.1\}$.

In outward shape these crystals are very unusual. However, they were figured by O. Mügge (*Neues Jahrb. Min.*, 76–78, 1897). Unfortunately, he did not show the terminations. Mr. Gordon thinks Mügge may have been in error in his drawing since he attributes the striations to oscillation of $\{\bar{1}102\}$ with $\{21\bar{3}1\}$ and $\{21\bar{3}\bar{1}\}$, whereas all the available crystals (eight or more) show the oscillation to be between $\{21\bar{3}1\}$ and $\{21\bar{3}\bar{1}\}$.

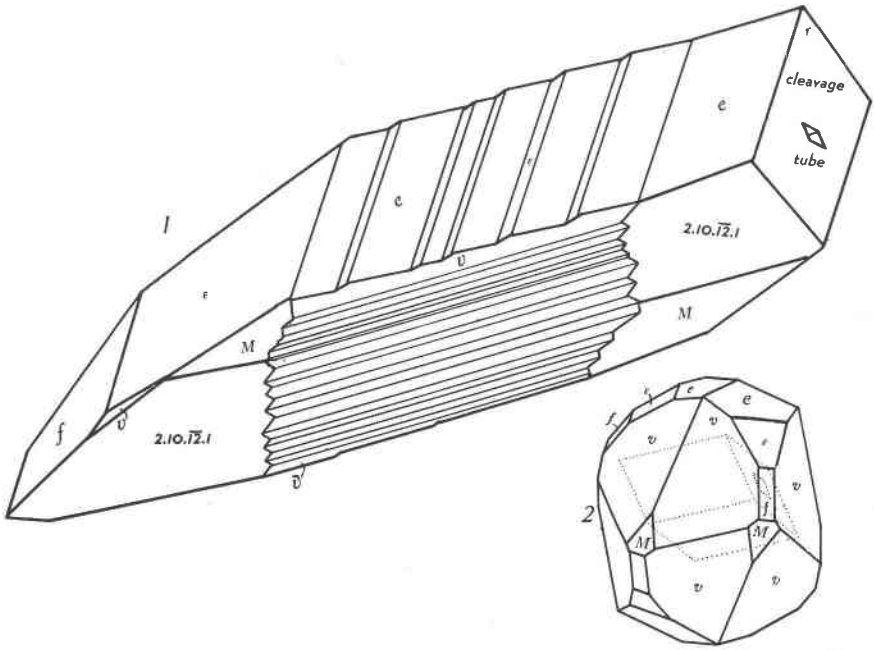

FIG. 1. Drawing of crystal by Samuel G. Gordon, showing forms which he measured.

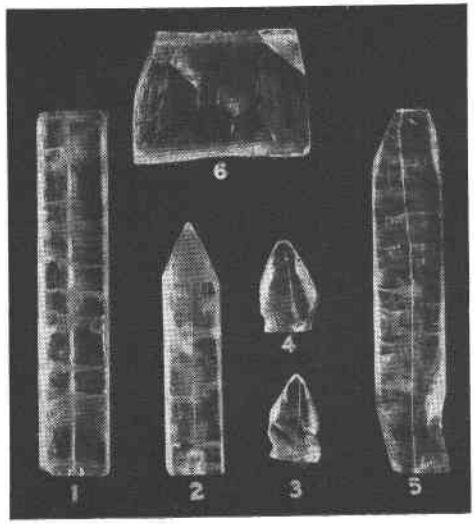

FIG. 2. Calcite from Guanajuato, Mexico, showing rhomboid hole as a white line. Nos. 2, 3 and 4 show terminations.

The most remarkable feature about these crystals is that each shows a white line running lengthwise through its center (Fig. 2). This white line follows a direction which would be the intersection of two cleavage planes. It is parallel to the four sides of the oblong prism. In reality the white line is an open hole, or tube, through which a hair or fine wire can be passed. This hole is rhomboidal in shape and its four surfaces are two planes of the unit rhombohedron *r*.

When a hole approaches the end of a terminated crystal, it gradually becomes smaller and finally apparently closes. The rhomboid hole described can be considered a negative crystal. The peculiar feature is that it is found in every crystal of this small lot collected at Guanajuato more than forty-five years ago, and that it invariably follows the same crystallographic direction.

Certain flattened quartz crystals from Hot Springs, Arkansas, also collected by Dr. A. E. Foote about the same year, show a distinct white line running through them. This white line, however, is not an opening and follows in a general way the direction of the vertical axis of the crystal. There seems to be at least an outward similarity in the distortion and in the formation of a white, seemingly axial line.

Specimens were sold by Dr. Foote to Clarence S. Bement (six of which are in the American Museum of Natural History, New York); to George Vaux, Jr.; to the Vaux collection of The Academy of Natural Sciences, Philadelphia, and probably to a few other collectors.

The writer is deeply indebted to Mr. Samuel G. Gordon of The Academy of Natural Sciences of Philadelphia for accurate crystallographic measurements, the determination of the crystal forms and for the drawing which accompanies this article (Fig. 1).

Professor Norman L. Bowen of the University of Chicago was the recipient of the honorary degree of Doctor of Laws at the Centenary celebration of Queens University, Canada, October 17, 1941.

Dr. Bowen has also been awarded the Penrose Medal by the Council of the Geological Society of America "in recognition of his achievements in the application of the principles of physical chemistry to the study of the origin of igneous rocks." The presentation will be made at the annual meeting of the Geological Society at Boston.

Professor Esper S. Larsen, Jr., of Harvard University has been awarded the Roebling Medal for meritorious achievement by the Council of the Mineralogical Society of America. The presentation will be made at the annual meeting of the Mineralogical Society at Boston.