# Article IX.—NOTE ON AN INTERESTING SPECIMEN OF CALCITE FROM JOPLIN, MISSOURI.

By L. P. GRATACAP.

PLATE VI.

An interesting specimen of Calcite was recently added to the mineral cabinet of the Museum, which from one apparently novel feature, observed in it, merits description. The specimen is from Joplin, Missouri, and presents an irregular surface covered with pale-colored, quite indiscriminately related crystals, amongst which a few larger and darker-colored individuals are conspicuous. The calcite is associated with Marcasite and has apparently crystallized along the walls of a crevice in pyritous calcareous clay. Its formation is secondary to the iron sulphide which it covers. The carbonate of lime is pure, a scarcely perceptible residue being observed upon solution, so that the angles in the forms are normal. No orientation in the disposition of the crystals occurs, and the augmentation in color, a light straw tint, is proportional to the increase in the size of the crystals.

The crystals are combinations of two rhombohedrons—obtuse



Fig. 1          Fig. 2          Fig. 4
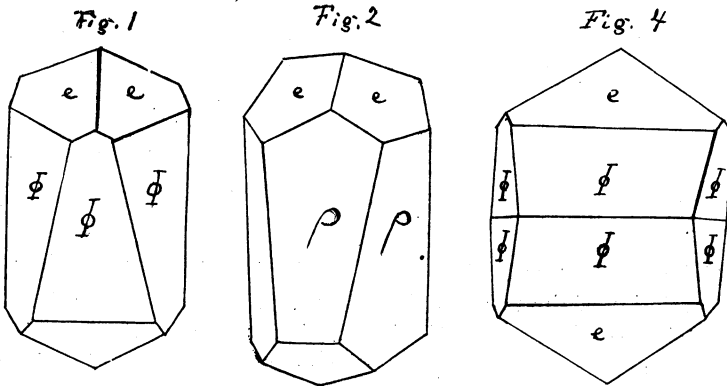
and acute—modified in the larger individuals by the incipient development of scalenohedral faces. Also in the large crystals the alternate faces of the acute rhombohedrons are unequally de-

veloped, and in two instances an interpenetration of two indi-
viduals occurs, producing a twinning, by the revolution, through
60°, of one.   Blistered, roughened, and curved surfaces appear
conspicuously in the large crystals.   The outlines of the smaller
crystals seem deceptively sharper, from the diminution of these
irregularities in actual development.

*Fig. 3*
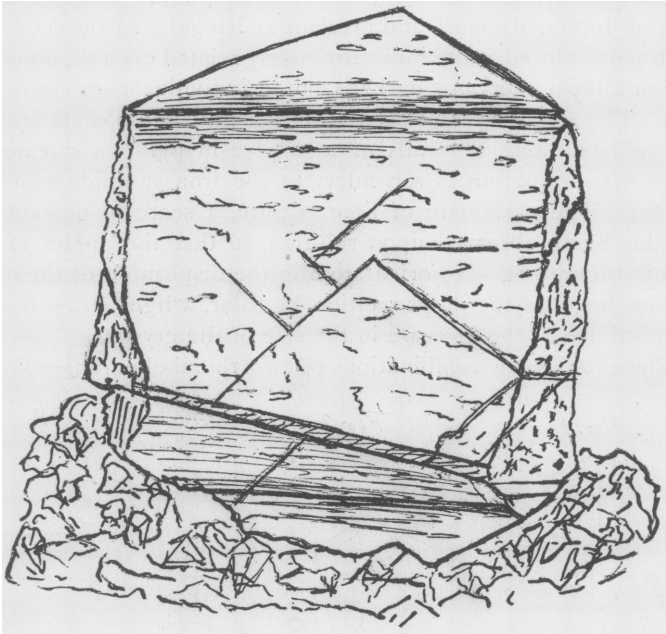


The apparent crystallographic novelty in this specimen lies in
the relation of the two rhombohedrons.   The negative low rhom-
bohedron—e (o1$\bar{1}$2, $-\frac{1}{2}$ R)—is superimposed upon the negative
acute rhombohedron—$\Phi$ (o.14. $\bar{1}\bar{4}$.1, $-14$ R)—whereby the wider
ends of the faces of $\Phi$ intersect e in a straight edge, and the nar-
rower the same low rhombohedron in a V-shaped outline.   The
usual association, and that generally figured, is the negative
rhombohedron e (o1$\bar{1}$2, $-\frac{1}{2}$ R) with the positive rhombohedron

$\rho$ (16.0.16.1, $+$ $\overline{16}$ R) whereby a precisely reversed position of the faces obtains. Fig. 1 represents the relation in the Joplin specimen, and Fig. 2 that commonly recognized. In other words, the ordinal positions of the rhombohedrons are unified, the acute rhombohedron, usually of a different order from the terminal low rhombohedron, itself negative, has become also negative by revolution, and is now coördinate with the apical termination of the crystal.

The identity of the acute rhombohedron is doubtful, as the angles cannot be measured with accuracy either by hand or reflecting goniometers. The negative form of $\Phi$ is figured by Haüy in his Traité de Mineralogie (Atlas, Pl. VII, fig. 34), 1823. The negative form of $\rho$ has not, as far as I know, been observed, and in the necessarily doubtful measurements of these roughened surfaces, an error of observation of $7'$ (being the angular difference between $\rho\rho'$ and $\Phi\Phi'$) is negligible.

The negative order of the low rhombohedron is demonstrated by the cleavage lines parallel to $\frac{1}{2}$ R. A drawing of the natural size and proportions of one of the interpenetration twins is given in fig. 3, and in fig. 4 its ideal form. The blistered, creased, wrinkled, and pustulate surfaces seem to arise from repeated interferences in the growth of the crystal, and in places seem also referable to partial solution. Plate VI shows the entire group, two thirds its natural size.

The recent interest in Joplin forms, awakened by Dr. Farrington's treatise[1] on these attractive crystals, excuses this slight contribution to their discussion.

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[1] Crystal Forms of Calcite from Joplin, Missouri. Field Columbian Museum, Publication 44 ; Geological Series, Vol. I, No. 7.