AN ELEMENTARY INTRODUCTION TO CRYSTAL-LOGRAPHY.

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Do not forget to note that the symbols of the three fundamental forms taken singly represent: 100, a pinacoid;   110, a prism face;   and 111, a pyramid face.

A pinacoid with two 0's cuts one axis and is parallel to two axes; a prism face with one 0 is parallel to one axis and cuts two; and a pyramid without any 0's cuts all three axes.   This rule enables one at once to recall how any face lies, and to give the proper name to the face; or, having a named face, to give it an approximate symbol.

Any face with a dash over its first symbol lies at the back of a crystal; all without are in front.   All without a dash over the second symbol are to the right of the a axis; if without a dash on the third symbol, above the b axis.

The student should know what kind of faces the following are: 100, 410, 310, 210 and 110.   They are all in one zone.   Note that 410 is a face slanting only slightly from the front pinacoid 100.   Write the series 120 to the side pinacoid 010, also $\bar{1}$40 to the back pinacoid $\bar{1}$00.   Continue in the same way to the other side pinacoid $0\bar{1}$0, and to the front pinacoid 100 again.

Such a series as 010, 041, 031, etc., could be represented by drawing the b and c axes as two lines on paper at right angles to each other and 12 inches long from the center.   At 6 inches out from the center mark them 2, at 4 inches out 3, and at 3 inches out 4; the outer ends mark 1.   Join the 1, (or 010) to the 1 (or 001) and also the 1, (010) to each of the other points 2, 002 the 3, 003 and the 4, 004 that would give you the slant of the faces 011, 012, 013 and 014 tho not their position.   To get a clear idea of the series of faces draw a line at the end of the c axis parallel to the b axis this would represent the face 001.   At 2 inches from the c axis on this line draw a second line parallel to the 014.   From 2 inches further along on this second line draw a third parallel to 013.   In the same way draw 012 and 011.   This can be easily done with a pair of parallel rulers.   Complete this quadrant by starting at 010, drawing four lines to where the 021 line meets the 011 line.   See diagram on the following page.

If desired, complete the other three quadrants.   The point to observe here is that the first set of lines drawn as indicated by the symbols give the directions, tho not the positions of the faces.   In the isometric or cubic system, perfect crystals tend to have equal faces and be about equally thick each way, but this is not at all essential.
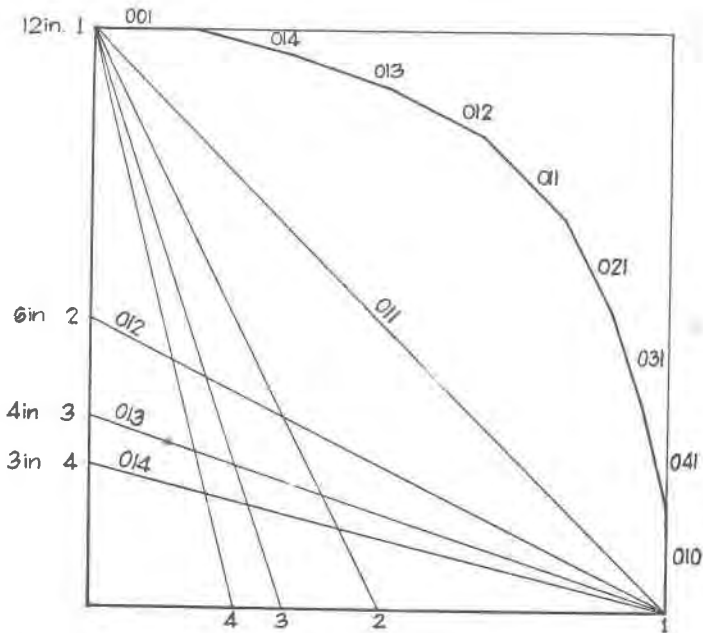
Figure 1. THE METHOD OF DRAWING THE ZONE 010—011—001.(x¼)

PROCEEDINGS OF SOCIETIES

THE PHILADELPHIA MINERALOGICAL SOCIETY

WAGNER FREE INSTITUTE OF SCIENCE, SEPTEMBER 13, 1917.

President Trudell in the chair. Fourteen members present.

Mr. Warford reported a trip to Leiper's quarry and Crum Lynne, finding beryl, garnet, tourmaline, and microcline at the former locality, and heulandite, laumontite, argentine, and stilbite at the latter place. He also reported a trip to the Perkiomen mines which produced very little. The mines have not been worked for perhaps half a century, and little is obtainable on the dumps.

At Overbrook, Messrs. Oldach, Warford, Gushee and Gordon found numerous small crystals of quartz, of a very modified type.

Mr. Oldach reported the results of the Society's trip to Friedensville and Hellertown. At Friedensville good calamine was obtained, and small crystals of limonite pseudomorph after pyrite noted. At Hellertown, cacoxenite, beraunite, and wavellite in good specimens were obtained. A visit was paid to the small limestone cave there.