AN ELEMENTARY INTRODUCTION TO CRYSTALLO-GRAPHY

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There is another form that is more difficult to picture to one's self but is well worthy of study. It cuts one axis near the center and the other two further out, or at their ends, so its symbol would be 211. On the face of an octahedron (222 which is the same as 111) its plane rises from one corner towards the other corners equally far out or at the ends. A little thought will show that three such planes will cut each other in a point in the center of a triangle drawn to represent the face of an octahedron and in a line to the middle of each side. This pyramid 211, it might appear, could not cut the edges of the octahedron; but that is taken care of by the pyramid on the next octahedron face. If we represent one of these pyramids by a triangle, with a point in its center joined to the middle of each side we should break each side at those points and push them a little further out. The important relation is that each of our pyramid faces is bounded by four edges, two from the apex of the pyramid and two from the corners of the octahedron. So this form is called a tetragonal tris-octahedron.

There is only one more fundamental form, which need not be described so elaborately. It has forty-eight sides and may be called an eight-faced cube or a six-faced octahedron. The eight-faced pyramid on each face of the cube may be shown by drawing a square connecting the opposite corners and the centers of the opposite edges.

The six-faced pyramid on each face of an octahedron may be shown by drawing a triangle as previously and drawing a line from each corner to the center and continuing them to the middle of each edge. Accordingly this form is called the hexoctahedron; its symbol would be three different numbers, as (321). Our four last symbols (210), (221), (211) and (321) would represent the same kinds of forms if they had been respectively (310), (441), (522) and (732), etc. There would then be slightly different slants or angles or relative heights to the pyramids. There are three forms (100), the cube, (111), the octahedron, and (110), the dodecahedron, which are invariable; and the remaining four are subject to variation in the above described manner.

NOTES AND NEWS