

appearance of minerals and the optical and other properties, and they correctly assumed that the external shape and the internal structure were closely allied. The application of their observation to the more perfect crystals of substances of more definite composition as produced in the laboratory has extended the scope of crystallography into the field of molecular physics and of stereo-chemistry.

The author deserves credit of treating the subject in the above work from two stand-points, both physical and chemical. As early as 1870 has he done research work on the science and published a book in 1876, "Physikalische Krystallographie." In its fifth edition now before us the work also includes the chemical aspect and presents a complete treatise on crystallography, a masterwork of its kind.

The divisions of the book are: Physical Crystallography, General and Special Part, Chemical Crystallography and Directions for the Determination of Crystals. The physical part gives full descriptions of the different systems, together with examples. How thoroughly this is done can be seen from the fact that this part contains 946 illustrations. The chemical part contains chapters on chemical and crystallographic symmetry, morphotropy, isomorphy and polymorphy. The analytical part fully illustrates the different instruments, as microscope, refractometer, konoscope and goniometer. The 4 plates, two of which are in colors, and the 25 stereoscope projections, are works of art and help to illustrate and clarify the text.

As stated before, the book is a real masterwork on this comparatively new science.

OTTO RAUBENHEIMER, PH.M.

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