HAÜY, THE "FATHER OF CRYSTALLOGRAPHY"

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IT is very fitting that the student in any branch of knowledge, and particularly in Natural Science, should pause, on occasion, to glance back at the history of the development of his subject. Nothing can be more instructive than to trace anew the progress that has been made thruout the centuries, from the very crudest beginnings, a progress as sure and irresistible as the oncoming tide, now gradual, and now, like the onrush of a seventh wave, going forward more rapidly, borne on by the stimulus of some exceptionally brilliant mind. To re-study the problems which have from time to time presented themselves, and to observe with what ingenuity they have been attacked and overcome must needs afford the greatest possible incentive and encouragement to the present-day student in dealing with the problems which still await solution.

Crystallography forms no exception to this generality, and altho comparatively few years have elapsed since its firm establishment as an exact science, the page of its history is emblazoned with the names of scores of eminent men, from the times of Nicolaus Steno and of Romé de l'Isle, who laid the first foundation, up to the present-day. Unquestionably, however, the first solid pillar in the structure of the science was set up by the Abbé Haüy, professor of the humanities at the University of Paris, during the last decades of the eighteenth century. He it was who, by careful observation and research, followed by clear deductive reasoning, first brought order out of chaos and raised the study of crystals to the dignity of a science. In his own words, "*un coup d'oeil peu attentif, jété sur les cristaux, les fit appeler d'abord de purs* JEUX DE LA NATURE, *ce qui n'étoit qu'une manière plus élégante de faire l'aveu de son ignorance. Un examen réfléchi nous y découvre des lois d'arrangement, à l'aide desquelles le calcul représente et enchâine l'un à l'autre les résultats observés; lois si variables et en même temps si précises et si régulières; ordinairement très simples, sans rien perdre de leur fécondité!*" The fact that the theory of crystal structure elaborated by Haüy, and based on his discourses of these laws of symmetry, of rational inter-

cepts, and of constancy of crystalline form, does not differ very materially, in its essential points, from the views now prevailing, is a remarkable tribute to his genius, and will forever render the name of Haüy famous as the "Father of Crystallography." This proud title is most appropriate and has been bestowed upon Haüy with reason. If any support were needed, it is only necessary to recall the testimony of Henry James Brooke, in his "Familiar Introduction to Crystallography," published in 1823 a few years after Haüy's death, to the effect that "The Abbey Haüy's works on crystallography are the only ones in which a truly scientific exposition of the theory of crystals is to be found." His work has afforded the key wherewith it has been possible for his successors to unlock many of the secrets of crystal structure, and the great strides which the science has made during the past century have all had, as their starting point, the discoveries and theories of Haüy. It is especially fitting that now, on the one hundred and seventy-fifth anniversary of his birth, crystallographers thruout the world should unite in paying homage to the memory of this distinguished scientist, and should be reminded afresh of the extent to which the science of crystallography is indebted to his brilliant pioneer work.

HAÜY'S LAW OF RATIONAL INTERCEPTS

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ALTHO crystals had been observed for thousands of years they had been regarded as little more than freaks of nature without regularity in shape or constancy in angles until in 1669 Steno showed that in quartz or rock crystal the angles between corresponding faces were constant, no matter how much the crystals varied in shape; and Guglielmini in 1704 extended this by stating that every substance had its peculiar crystals, the angles of which were constant.

But crystals of the same substance are not always bounded by corresponding faces and both the numbers of faces and the values of the angles are often different on different crystals. That any intimate relation between such crystals existed was first shown by Romé de l'Isle, who with the newly invented goniometer