A TRACT ON CRYSTALLOGRAPHY

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Trieste

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ON

CRYSTALLOGRAPHY

DESIGNED FOR THE USE OF STUDENTS
IN THE UNIVERSITY.

BY

W. H. MILLER, M.A. For. Sec. R.S., F.G.S.,
FOREIGN MEMBER OF THE ROYAL SOCIETY OF GÖTTINGEN, CORRESPONDING MEMBER OF THE ROYAL ACADEMIES OF TURIN, BERLIN AND MUNICH, MEMBER OF THE IMPERIAL MINERALOGICAL SOCIETY OF ST PETERSBURG, HONORARY MEMBER OF THE SOCIETY FOR PROMOTING NATURAL KNOWLEDGE IN FREIBURG,
AND PROFESSOR OF MINERALOGY IN THE UNIVERSITY OF CAMBRIDGE

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INTRODUCTION.

THE following Tract contains an investigation of the general geometrical properties of the systems of planes by which crystals are bounded, and of the formulæ for calculating their dihedral angles, indices and elements, given without demonstration in the last edition of Phillips' *Mineralogy*, or of equivalent expressions in a more convenient shape. To these have been added some theorems which appeared in the *Philosophical Magazine* for 1857, 1858, and 1859. The last two chapters contain concise investigations of the general properties of crystalline forms by the methods of ordinary and of analytical Geometry. These were suggested by a remarkable paper entitled *Sulla legge di connessione delle forme cristalline di una stessa sostanza*, by the Commendatore Quintino Sella (*Nuovo Cimento*, Vol. IV.). The Tract, therefore, besides containing all the theorems of Mathematical Crystallography usually required in calculating the angles of crystals, their elements, and the symbols of their faces, will form, it is hoped, a useful supplement to the Mineralogy, and also to the Crystallography published by the author in 1839. The reader is referred to either of these works

for examples, and for an account of the method of using Wollaston's Goniometer.

The angle made by two faces of a crystal will be measured by the angle between normals to the two faces, drawn towards them, from a point within the crystal. The reasons for adhering to this measure of a dihedral angle were given in the *Philosophical Magazine* for May, 1860. It is needless to offer any reasons for retaining the notation, in addition to the remarks made by the late Professor Grailich in his *Krystallographisch-optische Untersuchungen*, p. 6.

The names used in the Mineralogy to designate two of the hemihedral forms of the Prismatic System, and the hemihedral form of the Oblique System, appeared to be inappropriate, and have, consequently, been changed.

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