

and a system of nomenclature founded both on origin and composition. Thanks to the labours of microscopists, and partly in consequence of our increasing knowledge regarding the phænomena attending the origin of rock-masses, we are gradually attaining truer views than once prevailed regarding the basis of classification. The use of the microscope has now come to be regarded as absolutely essential to the determination of the composition of igneous and metamorphic rocks, and in such questions exceeds in value even chemical analysis. As an example of the necessity of microscopic examination, I may mention a case which recently came under my own observation. Amongst certain Silurian strata in Clare Island, off the western coast of Ireland, is a dyke of trap-rock, of a dark and dense appearance, strongly resembling basalt. On submitting a slice to microscopic examination, however, it turned out to be a silicated felstone, which owed its basalt-like appearance to innumerable black crystalline grains of magnetite invisible to the naked eye.

The arrangement which has been adopted in this essay follows to a great degree that of the English edition of B. von Cotta's valuable work, 'Rocks