history of this very rich and beautiful department of science, we have already given some account, in speaking of Optics. The first facts which were noticed, those relating to double refraction, belonged exclusively to crystals of the rhombohedral system. The splendid phenomena of the rings and lemniscates produced by dipolarizing crystals, were afterwards discovered; and these were, in 1817, classified by Sir David Brewster, according to the crystalline forms to which they belong. This classification, on comparison with the distinction of Systems of Crystallization, resolved itself into a necessary relation of mathematical symmetry: all crystals of the pyramidal and rhombohedral systems, which from their geometrical character have a single axis of symmetry, are also optically uniaxal, and produce by dipolarization circular rings; while the prismatic system, which has no such single axis, but three unequal axes of symmetry, is optically biaxal, gives lemniscates by dipolarized light, and according to Fresnel's theory, has three rectangular axes of unequal elasticity.

[2nd Ed.] [I have placed Sir David Brewster's arrangement of crystalline forms in this chapter, as an event belonging to the *confirmation* of the distinctions of forms introduced by Weiss and Mohs; because that arrangement was established, not on crystallographical, but on optical grounds. But Sir David Brewster's optical discovery was a much greater step in science than the systems of the two German crystallographers; and even in respect to the crystallographical principle, Sir D. Brewster had an independent share in the discovery. He divided crystalline forms into three classes, enumerating the Hauïan "primitive forms" which belonged to each; and as he found some exceptions to this classification, (such as idocrase, &c.,) he ventured to pronounce that in those substances the received primitive forms were probably erroneous; a judgment which was soon confirmed by a closer crystallographical scrutiny. He also showed his perception of the mineralogical importance of his discovery by publishing it, not only in the *Phil. Trans.* (1818), but also in the *Transactions of the Wernerian Society of Natural History.* In a second paper inserted in this later series, read in 1820, he further notices Mohs's System of Crystallography, which had then recently appeared, and points out its agreement with his own.

Another reason why I do not make his great optical discovery a cardinal point in the history of crystallography is, that as a crystallographical system it is incomplete. Although we are thus led to distinguish the *tessular* and the *prismatic* systems (using Mohs's terms)