made by Levy, Naumann, Grassmann, Kupffer, Hessel, and by Professor Miller among ourselves. I may notice that one great improvement was, the method introduced by Monteiro and Levy, of determining the laws of derivation of forces by means of the *parallelisms of edges;* which was afterwards extended so that faces were considered as belonging to *zones*. Nor need I attempt to enumerate (what indeed it would be difficult to describe in words) the various methods of *notation* by which it has been proposed to represent the faces of crystals, and to facilitate the calculations which have reference to them.

[2nd Ed.] [My Memoir of 1825 depended on the views of Haüy in so far as that I started from his "primitive forms;" but being a general method of expressing all forms by co-ordinates, it was very little governed by these views. The mode of representing crystalline forms which I proposed seemed to contain its own evidence of being more true to nature than Haüy's theory of decrements, inasmuch as my method expressed the faces at much lower numbers. I determine a face by means of the dimensions of the primary form *divided* by certain numbers; Haüy had expressed the face virtually by the same dimensions *multiplied* by numbers. In cases where my notation gives such numbers as (3, 4, 1), (1, 3, 7), (5, 1, 19), his method involves the higher numbers (4, 3, 12), (21, 7, 3), (19, 95, 5). My method however has, I believe, little value as a method of "*calculating* the angles of crystals."

M. Neumann, of Königsberg, introduced a very convenient and elegant mode of representing the position of faces of crystals by corresponding points on the surface of a circumscribing sphere. He gave (in 1823) the laws of the derivation of crystalline faces, expressed geometrically by the intersection of zones, (*Beiträge zur Krystallonomie.*) The same method of indicating the position of faces of crystals was afterwards, together with the notation, re-invented by M. Grassmann, (*Zur Krystallonomie und Geometrischen Combinationslehre*, 1829.) Aiding himself by the suggestions of these writers, and partly adopting my method, Prof. Miller has produced a work on Crystallography remarkable for mathematical elegance and symmetry; and has given expressions really useful for calculating the angles of crystalline faces, (*A Treatise on Crystallography.* Cambridge, 1839.)]

Confirmation of the Distinction of Systems by the Optical Properties of Minerals.—Brewster.—I must not omit to notice the striking confirmation which the distinction of systems of crystallization received from optical discoveries, especially those of Sir D. Brewster. Of the