

(262.) Very shortly after this, and without knowledge of what had been done by Gahn and Bergmann, the Abbé Haüy, instructed by the accidental fracture of a fine group of crystals, made the remark noticed already in (67.), and reasoning on it with more caution and success, and pursuing it into all its detail, developed the general laws which regulate the superposition of the layers of particles of which he supposes all crystals to be built up, and which enable us, from knowing their primitive forms, to discover, previous to trial, what other forms they are capable of assuming; and which, according to this idea, are called derivative or secondary forms. Mohs and others have since imagined processes and systems by which the derivation of forms from each other is facilitated, and have corrected some errors of over-hasty generalization into which their predecessors had fallen, as well as advanced, by an extraordinary diligence of research, our knowledge of the forms which the various substances which occur in nature and art actually do assume.

(263.) In what manner a variety in point of external form may originate in a variety of figures in the ultimate particles of which a solid is composed, may very readily be imagined by considering what would happen if the bricks of which an edifice is constructed had all a certain *leaning* or bias in one direction out of the perpendicular. Suppose every brick, for instance, when laid flat on its face, with its longer edges north and south, had its eastern and western faces upright, but its northern and southern ones leaning southwards at a certain inclination the same for each brick; a house built of such bricks would lean the same way, though the bricks fitted well together. If, *besides this*, the eastern and western faces of the bricks, instead of being truly upright, had an inclination eastward, the house would have a similar one, and all its four corners, instead of being upright, would lean to the south-east. Suppose, instead of a house, a pyramid were built of such oblique bricks, with the sides of its base directed to the four points of the compass; then its point, instead of being situated