uously of the "*brise-cristaux*" or "crystalloclastes." But Bergman did not proceed far enough, and it remained for another to fully develop the theory of the structure of crystals as indicated by their cleavage.

In 1784 the Abbé Haüy made his remarkable discovery, which, like Newton's immortal one, was the result of a mere accident.

A six-sided prism of calcite (carbonate of lime) had been broken from a large group in the cabinet of M. Defrance, and he noticed that the fractures were smooth and polished, not irregular as in the case of ken glass. He then commenced splitting-up the crystal with his knife and finally reduced the six-sided prism to a rhombohedron Extending his experiment to other minerals Haüy arrived at the con clusion that the kernel obtained from a mineral by cleavage was to be regarded as its true primitive form.

E. S. Dana defines *cleavage* as the tendency to break or cleave along certain planes due to regularity of internal structure and fracture, produced, in addition to external symmetry of form, by crystallization: and he states two principles :—

(1) In any species, the direction in which cleavage takes place is always parallel to some plane which either actually occurs in the crystals or *may* exist there in accordance with certain general laws.

(2) Cleavage is uniform as to ease parallel to all like planes. That is to say that if it may be obtained parallel to *one* of the faces of a regular octahedron, for instance, it may be obtained with the same facility parallel to each of the remaining octahedral faces.

Haüy's primitive forms were ten in number, four more than those of Romé de l'Isle. They were :—

The cube.

2. The regular octahedron.

3. The regular tetrahedron.

4. The rhombic dodecahedron.

5. The rhombohedron, obtuse or acute.

6. The octahedron, with square, rectangular, or rhombic base.

7. The four-sided prism, with edges at right angles to the base, the base being either a square, a rectangle, a rhomb, or merely a parallelogram.