

Naumann's definition of a crystal is a very concise and satisfactory one. It is this :—" Any rigid inorganic body possessing an essential and original (primitive) more or less regular polyhedric (many-sided) form *which is directly connected with its physical properties.*"

This latter clause of the definition is very important as explaining why cleavage fragments, pseudomorphs &c. are not to be termed crystals.

To the question *why* calcite, for instance, should assume one form of crystal, and garnet another, science can return no answer, but must content itself with determining and describing these curious and multifarious forms.

The word "crystal" is derived from the Greek word "*κρυσταλλος*" meaning "ice". The ancients first gave this name to the variety of quartz which we call "Rock-crystal," because, from its transparency, its usual freedom from color, and the way in which it was found to enclose other bodies, they imagined it had been formed by the action of intense cold on water, which thus became extraordinarily hardened.

The name was later transferred to pure transparent stones, such as were after used for seals and engraved gems.

Some of the old writings on this subject are very amusing. Albertus Magnus, in the middle of the 13th century, gravely relates how the intense cold on the summits of some lofty mountains *dries* the ice so thoroughly that it becomes crystal. Even as late as 1672 the learned Robert Boyle goes into a long dissertation to prove that crystal could not be ice, adducing as two of the strongest proofs of this, first, the fact that ice floats on water and crystal does not, and, secondly, that Madagascar, India, and other countries in the torrid zone, abound in crystal, and he could not believe that any ice, however hard, could withstand the heat of those countries. Later the term "crystal" was applied to any mineral naturally limited by plane faces.

It was not until 1669 that any important discovery regarding the properties of crystals was made, and then it was that Nicolaus Steno, a Danish physician, discovered for the first time the constancy of angles in Rock-crystal. But it is generally admitted that Steno himself did not fully grasp the importance of his dis-