definite chemical constitution. Our ignorance may surprise us; but it may diminish our surprise to recollect, that the knowledge which we seek is that of the laws of the physical constitution of all bodies whatever; for to us, as mineralogists, all chemical compounds are minerals.

The defect of the principle of the natural-history classifiers may be thus stated:—in studying the external characters of bodies, they take for granted that they can, without any other light, discover the relative value and importance of those characters. The grouping of Species into a Genus, of Genera into an Order, according to the method of this school, proceeds by no definite rules, but by a latent talent of appreciation,—a sort of classifying instinct. But this course cannot reasonably be expected to lead to scientific truth; for it can hardly be hoped, by any one who looks at the general course of science, that we shall discover the relation between external characters and chemical composition, otherwise than by tracing their association in cases where both are known. It is urged that in other classificatory sciences, in botany, for example, we obtain a natural classification from external characters without having recourse to any other source of knowledge. But this is not true in the sense here meant. In framing a natural system of botany, we have constantly before our eyes the principles of physiology; and we estimate the value of the characters of a plant by their bearing on its functions,—by their place in its organization. In an unorganic body, the chemical constitution is the law of its being; and we shall never succeed in framing a science of such bodies but by studiously directing our efforts to the interpretation of that law.

On these grounds, then, I conceive, that the bold attempts of Mohs and of Berzelius to give new forms to mineralogy, cannot be deemed successful in the manner in which their authors aspired to succeed. Neither of them can be marked as a permanent reformation of the science. I shall not inquire how far they have been accepted by men of science, for I conceive that their greatest effect has been to point out improvements which might be made in mineralogy without going the whole length either of the *pure* chemical, or of the *pure* natural-history system.

### *Sect.* 4.—*Return to Mixed Systems with Improvements.*

In spite of the efforts of the purists, mineralogists returned to mixed systems of classification; but these systems are much better than they were before such efforts were made.