On Mineralogical Systems.

author, according to his individual ideas, ascribes a certain value, which, however, is not always adhered to in the different portions of the system; and yet throughout the whole there reigns an evident attempt to group together those bodies which are externally similar. This proceeding has proved very disadvantageous to the study of mineralogy.

A dozen ephemeral systems, and the consequent alterations of names, must be studied, and the evil increases with every new systematic writer. If we compare the way in which mineralogy was studied at the time when only Werner's and Hauy's arrangements existed, with its present condition, the influence of these numerous systems will become at once apparent.

The object of the above remarks has been to draw the attention of mineralogists to the necessity of agreeing upon certain general principles in the erection of a system, and to the benefit which would result from the formation of one that might be universally adopted. Such a system might have its faults ; there can be nothing perfect; but such errors are not removed by a total rejection of the system ; faults are much easier seen than mended; and if they he not improved, it is better to leave them alone.

I am far from intending to propose such a system, but I wish to discuss certain questions which would be of importance, should such a classification be attempted.

The first point to be attended to is, " That the composition shall be exclusively employed as the basis of the arrangement." This axiom is the one which will meet with the greatest opposition. The inclination to arrange inorganic bedies according to the same principles as organic ones, has taken such firm root in mineralogy, that it will be with difficulty removed. A consequence of this inclination is the great weight that is laid upon the idea of what is called "a mineralogical species." If I affirm that in mineralogy there is nothing that corresponds to the abstract idea of a "species," I know I shall probably have almost all the mineralogists of the present time against me, because it is generally considered as a great merit in a writer, if he clearly determines what a species is, without unnecessarily dividing it into several, and without including in it what does not properly belong there.

But let us ask, what have we got to arrange in mineralogy ? Partly the simple elements, and partly their chemical combinations. What, then, determines their identity or non-identity? Their components, and the various chemical proportions in which they are united, a variation in the nature of the ingredients, or in the manner in which they are combined, at once destroys the identity. This proposition is heyond dispute. But if we examine any mineralogical work we please, and look under the heads of Augite, Hornblende, Garnet, Mica, &c., &c., we shall find many species that have been well determined, that have a similar kind of composition (type ?) but in which the components are entirely different : so that under one species The arrangement must therefore be considered as we find a number of bodies united which are not "conventional," until the time shall come when it will chemically identical.

The farther we carry our researches in Chemistry, the more are we convinced that similarity of "type" produces similarity of geometrical form and of external properties; but it is a very great error to unite into one species a number of bodies having analogous typical composition, but containing the most various Would it be correct in mineralogy to components. make one species out of phosphate and arseniate of soda (supposing such salts to exist as minerals) merely because their crystalline forms and external properties are similar, or even identical. Such errors will occur as long as the idea of a mineralogical species is retained ; inorganic nature is so entirely different from organic, that the classification adopted in the one, must be absolutely expunged from the other. I believe that I have brought the subject forward too soon to make much impression; but the attempt must one day be made, as Chemistry will sooner or later make good her exclusive right to the classification of inorganic compounds.

If we consider mineralogy so intimately connected with, and dependant on, chemistry, it necessarily follows that a great many plans or systems might be adopted in the former, according to that which is followed in the latter. But the system which is certainly the best in treating of the laws of chemistry, is not by any means necessarily the proper one for a treatise on Mineralogy.

The objects that we have to consider are either purely inorganic, or such as were once organic. For the former, the chemical principle must be exclusively employed; while for the latter, the historical system may for the time be preferable. The members of this latter class are, however, so few in number, compared with those of the first, that they form merely an appendix.

The inorganic minerals are either elements or their compounds; the elements that have been found in an isolated state in the mineral kingdom, are but few in number ; but a perfect system must of course embrace them all.

In treating of the elements chemically, we arrange them in several groups ; but this would be of no ad. Their division into metals vantage in mineralogy. and metalloids, and of the latter into amphogens and halogens, is supposed to be known, but farther than that the groups are of no use; we have only to determine the order in which they shall stand, and this will give us at once the plan of the system.

The best arrangement appears to be one that commences with the most electro-positive elements, and ends with the most electro-negative, placing them in the order in which their oxides become less and less electro-positive. The position of many substances will naturally be rather doubtful, owing to the present deficiency in our knowledge of their electrical relations. be perfectly "rational."