

I would propose the following as a conventional arrangement :

Potassium	Nickel	Titanium
Sodium	Cobalt	Tantalum
Lithium	Zinc	Niobium
Ammonium	Cadmium	Tellurium
Barium	Tin	Tungsten
Strontium	Lead	Molybdenum
Magnesium	Bismuth	Vanadium
Yttrium	Copper	Chromium
Erbium } H.C.	Mercury	Tellurium
Terbium }	Silver	Antimony
Beryllium	Palladium	Arsenic
Aluminium	Rhodium	Phosphorus
Zirconium	Ruthenium	Nitrogen
Norium H.C.	Iridium	Selenium
Thorium	Platinum	Sulphur
Cerium	Osmium	Oxygen
Lanthanum	Gold	Iodine
Didymium	Hydrogen	Bromine
Uranium	Silicon	Chlorine
Manganese	Carbon	Fluorine
Iron	Boron	

If this or any other better arrangement be adopted, our mineralogical system will be easily made, and may contain the following orders :

1. *Elements* in the above order.
2. *Compounds of metals with one another*, in such a manner that the compound shall be placed under the metal that comes later in the list ; first the binary compounds, and then the combinations of these, if any exist, containing of course only those metals which precede it in the list.
3. *Compounds of Elements with Selenium, (Tellurium?) Sulphur and Oxygen*—in a similar order.
4. *Compounds of Elements with Halogens* Haloid salts ; after each salt the natural compound with water, with the oxide of the radical and with other haloid salts.
5. *Compounds of Electropositive oxides (bases) with Electro-negative oxides (acids.)* Hydrates, silicates, carbonates, (and perhaps after these the oxalates and mellitates) borates, titanates, tantalates, niobates, tungstates, molybdates, vanadates, chromates, antimonates, arseniates, phosphates, nitrates, and sulphates, with their combinations with water, their basic compounds both hydrated and anhydrous, and then their double salts formed by their union with the haloid or oxy-salts of the preceding metals.

This plan appears to be simple, and at first sight easy of execution, but the attempt will be found to be attended with many difficulties, at first unexpected. No mineralogist would consent to make one species to consist of diamond, graphite, and wood coal, or of rutile, brookite, and anatase, or of calcspar and arragonite ! But I must remark again that such a thing as a *species* does not exist in mineralogy, and ought to be left entirely out of the question ; we have only to deal with the elements and their inorganic compounds, and these must be systematically arranged.

Elements have often their allotropic forms, and compounds their isomeric modifications, and these must be mentioned with the original element or compound, under their empirical names, and described according to their physical and chemical differences.

But a difficulty may appear to arise with the isomor-

phous compounds, for it would be as great a mistake to rank as the same species under angite, $CS^2 + MS^2$ (old mineralogical formula) a mineral such as $CS^2 + FS^2$ as it would be to affirm that magnesia-sulphate of potassa is the same salt as ferroso-sulphate of potassa, simply because it has the same form.

But it may be said that the magnesia in the augite is not always entirely replaced by oxide of iron, and where then is the compound to be placed ? It is still a salt of magnesia in which more or less oxide of iron is substituted for oxide of magnesium, and consequently it must remain under $CS^2 + MS^2$! But if we examine the subject more closely, and do not allow ourselves to be led astray by the word *substitution*, we shall find that our comprehension of the matter depends, not upon the idea of substitution, but upon the fact that isomorphous bodies will crystallize together in various proportions, without there being any chemical compound of a determinate number of atoms produced.

$CS^2 + \frac{M}{F} S^2$ is therefore a mechanical mixture of $CS^2 + MS^2$ and $CS^2 + FS^2$ and must therefore be placed on this list under the latter metals, viz : iron. There are, of course, some minerals containing very minute quantities of certain metallic oxides or other bodies, which must of course be considered merely as extraneous substances.

There are several black augites, which contain alumina and sesquioxide of iron, both acting the part of silicic acid, but these must be considered as mixtures of silicates with aluminates, and cannot be placed with the other augites. Many mineralogists will doubtless consider it as very ridiculous to place the augites in different parts of the system ; but we do not classify forms without compounds, and as similar combinations of the most various elements frequently possess the same crystalline form, so it is evident that the same form must appear in many places, and this applies not only to the augite but to numerous other minerals. If these principles be carefully kept in view, I feel convinced that but little difficulty will be experienced in carrying the plan into execution.

To be continued.

ART. XV.—QUALITATIVE ANALYSIS OF A SPRING IN THE NEIGHBORHOOD OF CHIPPAWA, C. W., CONTAINING FREE SULPHURIC AND HYDRO-SULPHURIC ACIDS.

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A few months ago, a medical friend stated in conversation that there existed near Chippawa a spring having a sour taste, and containing, as he thought, a large proportion of free sulphuric acid, and that it enjoyed some celebrity for its therapeutic effects. Although upon this latter point the testimony was very conflicting, these circumstances invested this spring with some interest for me, and I determined to make a visit to the spot and secure a specimen of the water for analysis ; but the multifarious duties of a country practice prevented me from carrying this into effect, and I was under the necessity of enlisting the services of a gentleman in Chippawa,