

dition. But by a cooling process the time comes when protyle is so reduced in temperature that the first step in granulation occurs. Now, if all the known elements were not simultaneously formed at this period, the simplest form of matter, that nearest protyle itself in its nature, must have been the first-born. Hydrogen, then, or perhaps something still simpler, would be first, and remain for a long period the only form of matter as we now know it in existence.

For reasons of a purely physical nature, the consolidation of protyle at this early period must have proceeded regularly and very slowly, therefore, as we would expect, the early formed elements are well defined, fully developed, and wholly independent of each other. After Hydrogen, with atomic weight =1, came the next simplest element, Lithium (7), then Glucium (9.5), Boron (11), Carbon (12), Nitrogen (14), Oxygen (16), Fluorine (19), Sodium (23), and so on in order of their simplicity to Thorium and Uranium, the heaviest and most complex.

After matter became more abundant, the cooling process became more irregular, hence we have the very conditions that would produce those families of elements like Fe (56), Mu (55), Cr (52), Cobalt and Nickel with identical atomic weights, the platinum groups, and later, the metals of those rare earths, samarskite, gadolinite, etc., which Crookes so aptly described as "the cosmical lumber-room where elements in a state of arrested development are finally aggregated."

With a patience rarely met with outside the walls of a German laboratory, Crookes has been toiling for years in this "cosmical lumber-room," until, by an original process of chemical fractionation, he has seemingly proved beyond doubt that *all the atoms of the recognized element Yttrium are not alike*. The importance of this discovery can scarcely be exaggerated. Is it possible that when we say the atomic weight of copper is 63 we only express the average weight of copper atoms? Do some atoms weigh but 62, and others 64, while only a majority of them conform to the number 63? Are we to expect that some one in the future will prove that in the spectra of calcium the different bands of red, yellow, blue and green come from different atoms? Professor Crookes has at least turned the thoughts of