

35. THE PERIODICITY OF FOUR WITH RESPECT TO THE ISOTOPIC NUMBER.

Fig. 13 exhibits the interesting relation that superimposed upon the periodicity of 2 with respect to the isotopic number as shown in Fig. 12, there is a periodicity of 4. This is shown plainly by Table XXIV.

TABLE XXIV.

Periodicity of 4 in the Variation of the Abundance of Atomic Species in the Meteorites with the Isotopic Number.

Isotopic Number.	Atomic Percentage.
0	79.39
1	5.18
2	2.15
3	0.005
4	12.16
5	0.10
6	0.000

While this periodicity may become obscured as the isotopic number increases, by the periodicity of 2 upon which it is superimposed, the table makes it evident that the former periodicity in abundance is very marked so long as the isotopic number is low. Fig. 12 shows that the number of isotopes also rises at isotopic number 4. The rise in abundance is very great between isotopic numbers 3 and 4; thus the abundance for isotopic number 4 is 2400 times what it is for the next lower number. Table XXIII shows that a similar table for the earth's crust would indicate a like periodicity, though the variation is not so marked, being represented by the factor 30 instead of 2400 between isotopic numbers 3 and 4. This illustrates what has been pointed out in other cases, that the chemical and physical segregation of the materials in the earth's crust makes all of the periodic relations less sharply defined than they are in the meteorites.

(To be continued.)

Rôle of Manganese in Plants.—J. S. MCHARGUE, of the Kentucky Agricultural Experiment Station (*Jour. Am. Chem. Soc.*, 1922, xliv, 1592-1598), finds that manganese in conjunction with iron functions in the synthesis of chlorophyll. Manganese is therefore required by plants in order that they may assimilate carbon. Manganese possibly also plays a rôle in the synthesis of the proteins. Lack of manganese produces a chlorotic condition of the plant and cessation of growth.

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