It is well known that the arrangement of the leaves in plants[1] may be expressed by very simple series of fractions, all of which are gradual approximations to, or the natural means between $\frac{1}{2}$ or $\frac{1}{3}$, which two fractions are themselves the maximum and the minimum divergence between two single successive leaves. The normal series of fractions which expresses the various combinations most frequently observed among the leaves of plants, is as follows: $\frac{1}{2}$, $\frac{1}{3}$, $\frac{2}{5}$, $\frac{3}{8}$, $\frac{5}{13}$, $\frac{8}{21}$, $\frac{13}{34}$, $\frac{21}{55}$, etc. Now, upon comparing this arrangement of the leaves in plants with the revolutions of the members of our solar system, Peirce has discovered the most perfect identity between the fundamental laws which regulate both, as may be at once seen by the following diagram, in which the first column gives the names of the planets, the second column indicates the actual time of revolution of the successive planets, expressed in days, the third column the successive times of revolution of the planets, which are derived from the hypothesis that each time of revolution should have a ratio to those upon each side of it, which shall be one of the ratios of the law of phyllotaxis; and the fourth column, finally, gives the normal series of fractions expressing the law of the phyllotaxis.

Neptune,	60,129	62,000	
Uranus,	30,687	31,000	$\frac{1}{2}$
Saturn,	10,759	10,333	$\frac{1}{3}$
Jupiter,	4,333	4,133	$\frac{2}{5}$
Asteroids,	1,200 to 2,000	1,550	$\frac{3}{8}$
Mars,	687	596	$\frac{5}{13}$
Earth,	365	366	$\frac{8}{13}$
Venus,	225	227	$\frac{13}{21}$ $\frac{8}{21}$
Mercury,	88	87	$\frac{13}{34}$

In this series the Earth forms a break; but this apparent irregularity admits of an easy explanation. The fractions $\frac{1}{2}$, $\frac{1}{3}$, $\frac{2}{5}$, $\frac{3}{8}$, $\frac{5}{13}$, $\frac{8}{21}$, $\frac{13}{34}$, etc., as expressing the position of successive leaves upon an axis, by the short way of ascent along the spiral, are identical, as far as their meaning is concerned, with the fractions expressing these same positions, by the long way, namely, $\frac{1}{2}$, $\frac{2}{3}$, $\frac{3}{5}$, $\frac{5}{8}$, $\frac{8}{13}$, $\frac{13}{21}$, $\frac{21}{34}$, etc.

Let us, therefore, repeat our diagram in another form, the third column giving the theoretical time of revolution.

Neptune,	$\frac{1}{2}$	62,000	60,129
"	$\frac{1}{2}$	62,000	——
Uranus,	$\frac{1}{2}$	31,000	30,687
"	$\frac{1}{2}$	15.500	——

[1] See the works quoted above, p. 18, note 3.