

expressed in simpler terms, but in my opinion not so satisfactorily. It reads: "Life is the continuous adjustment of internal relations to external relations." Matter is alive when it feeds and excretes. Crystals grow and in a sense they multiply, but their growth is not intramolecular, it is by accretion. The living molecule not only absorbs, it assimilates. It chemically alters what it absorbs. The atomic groups taken into the living molecule enter into new combinations. The living molecule is not stable, but is highly labile. Its composition is never constant and it is never in a condition of equilibrium. There is a constant reaction between the living molecule and other molecules. Apart from other matter it could not exist. There is a constant interchange of atoms between it and other molecules. A condition best designated as latent life may exist without interchange of atoms between molecules. This is seen in spores, seeds and ova. Matter existing in this form may be awakened into activity by proper stimuli; active life begins with the interchange of atoms.

Why is there this constant atomic group interchange between the living molecule and outside matter? It is for the purpose of supplying the living molecule with energy. Allen has so ably expressed this fact that I make the following quotation: "The most prominent and perhaps most fundamental phenomenon of life is what may be described as the *energy traffic* or the function of *trading in energy*. The chief physical function of living matter seems to consist in absorbing energy, storing it in a higher potential state, and afterwards partially expending it in the kinetic or active form. We find in living matter a peculiar proneness to change its composition under the stimulus of slight changes in the energy-equilibrium between itself and its surroundings, energy being readily absorbed and readily dispersed. The absorption of energy coincides with deoxidation and the building of large molecules; conversely the dispersion of energy coincides with oxidation and the disruption of the large molecules. The building of these large molecules is always accomplished by slow steps; but when formed, the said molecules are very unstable, irritable, or in modern phrase, *labile*. They may break down by degrees in some instances; in others their structure may be so precarious as to collapse on the slightest disturbance."

"The lability of such a molecule may be compared to that of a house of cards, which can be taken to pieces card by card, or may collapse at once. But the word *lability* is applied, not only to *de-structive*, but also to *con-structive* instability. The molecules of living substance are prone to constructive as well as destructive changes; but, as in the house of cards, the constructive changes are the most gradual; and as the structure grows more complex, construction becomes more difficult, and collapse is more