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THE AGE OF THE EARTH[1]

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BEFORE inaugurating my lectures on this generous foundation established by Mr. George Fisher Baker, I would first of all express my pleasure at having this opportunity to spend a term with my colleagues and the students of this department, which has reached such a high degree of perfection under the able, far-seeing guidance and efficient administration of your genial director, Professor L. M. Dennis. The actuality far exceeds what I had come to expect from the glowing accounts given by my predecessors.

For my introductory lecture I have chosen the problem of the age of the earth. Our earth was born from our sun. The sun, while in the giant-star stage, is supposed to have been broken up by tidal actions induced by a passing star several times more massive than itself. Originally formed in the gaseous state, the earth passed to the liquid state through loss of heat by radiation from its surface, and later into the solid state. The earth's crust and some of its individuals were formed simultaneously, followed at a much later era by the formation of biological individuals. When did the earth's crust solidify? How many years then elapsed before "life" began to develop? These questions are of interest for both the physical and the biological sciences, and an answer will be sought in the following discussion.

Astronomy teaches that the various members of the solar system have originated from the same material. This conclusion is supported by the chemical analysis of meteorites, which not only contain the same elements in approximately the same proportions as in the material of the earth, but also show them in the same isotropic combination. The two nickels of atomic weights 58 and 60 are present in exactly the same ratio in iron meteorites as in terrestrial nickel. The silicon of the stone meteorites contains the three isotopes of atomic weights 28, 29 and 30 in exactly the

[1] Introductory public lecture.