becoming replaced by metals in the state in which they are observed in the laboratory, when the most powerful jar spark is employed. At a lower temperature, the gases disappear almost entirely, and the metals occur in the state produced by the electric arc. These changes are simply and sufficiently explained on the hypothesis of dissociation.

The final chapter on the birth and death of worlds is based on Arrhenius's book entitled "Worlds in the Making." Arrhenius takes up the questions of the creation and of the eventual destruction of the stars and of worlds like our own, and gives reasons for believing that both operations are simultaneously occurring in cosmos, or, so to speak, a "winding up" and a "running down" of the machinery of the universe; the two chief forces at work being the mechanical pressure of light, or simply the "radiation pressure," on the one hand, and gravitation on the other.

WILDER D. BANCROFT

PROPOSED INTERNATIONAL MAGNETIC AND ALLIED OBSERVATIONS DURING THE TOTAL SOLAR ECLIPSE OF AUGUST 21, 1914 (CIVIL DATE)

IN response to an appeal for simultaneous magnetic and allied observations during the coming total solar eclipse, cooperative work will be conducted at stations along the belt of totality in various countries and also at some outside stations.

The general scheme of work proposed by the Carnegie Department of Terrestrial Magnetism embraces the following:

1. Simultaneous magnetic observations of any or all of the elements according to the instruments at the observer's disposal, every minute from August 21, 1914, 10^h A.M. to 3^h P.M. Greenwich civil mean time, or from August 20, 22^h to August 21, 3^h Greenwich astronomical mean time.

(To insure the highest degree of accuracy, the observer should begin work early enough to have everything in complete readiness in proper time. See precautions taken in previous eclipse work as described in the journal *Terrestrial Magnetism*, Vol. V., page 146, and Vol. VII., page 16. *Past experience has shown it to be essential that the same observer make the readings throughout the entire interval.*)

2. At magnetic observatories, all necessary precautions should be taken to insure that the self-recording instruments will be in good operation not only during the proposed interval but also for some time before and after, and eye-readings should be taken in addition wherever it is possible and convenient. (*It is recommended that, in general, the magnetograph be run on the usual speed throughout the interval, and that, if a change in recording speed be made, every precaution possible be taken to guard against instrumental changes likely to affect the continuity of the base line.*)

3. Atmospheric-electric observations should be made to the extent possible with the observer's equipment and personnel at his disposal.

4. Meteorological observations in accordance with the observer's equipment should be made at convenient periods (as short as possible) throughout the interval. It is suggested that, at least, temperature be read every fifth minute (directly after the magnetic reading for that minute).

5. Observers in the belt of totality are requested to take the magnetic reading every thirty seconds during the interval, 10 minutes before and 10 minutes after the time of totality, and to read temperature also every thirty seconds, between the magnetic readings.

It is hoped that full reports will be forwarded as soon as possible for publication in the journal of *Terrestrial Magnetism and Atmospheric Electricity*.

L. A. BAUER

WASHINGTON,
June 23, 1914

SPECIAL ARTICLES

AMMONIFYING POWER OF SOIL-INHABITING FUNGI

A COMPARATIVELY large amount of work has been done on the power of soil bacteria to produce ammonia from the nitrogenous materials found in the soil, or from organic materials such as dried blood or cotton seed meal added