SCIENCE

FRIDAY, NOVEMBER 21, 1913

CONTENTS

The Structure of the Universe: DR. J. C. KAPTEYN 717

Blood Parasites: DR. HENRY GEORGE PLUMMER 724

Some Educational Problems in Kansas: CHANCELLOR FRANK STRONG 730

The American Society of Naturalists: DR. BRADLEY M. DAVIS 734

The American Psychological Association: PROFESSOR W. V. BINGHAM 735

The Dana Centenary 736

Scientific Notes and News 736

University and Educational News 740

Discussion and Correspondence:—

Atomic Ionization and Atomic Charges: PROFESSOR FERNANDO SANFORD. 741

Scientific Books:—

The Maryland Devonian Books: DR. JOHN M. CLARKE. *White's Technical Gas and Fuel Analysis:* PROFESSOR R. P. ANDERSON. 742

Professor Noguchi's Researches on Infective Diseases: SIR STEPHEN PAGET 746

Diatom Collection of the United States National Museum: DR. FREDERICK V. COVILLE. 748

Special Articles:—

Reversibility in Artificial Parthenogenesis: PROFESSOR JACQUES LOEB 749

Societies and Academies:—

The Biological Society of Washington: D. E. LANTZ. *The Anthropological Society of Washington:* DANIEL FOLKMAR 751

MSS. intended for publication and books, etc., intended for review should be sent to Professor J. McKeen Cattell, Garrison-on-Hudson, N. Y.

THE STRUCTURE OF THE UNIVERSE[1]

I HAVE been asked to address you on the structure of the universe. The title is ambitious, and I fear that what I have to say on the subject will be sadly in disproportion with what some of you will be led to expect by this title.

It will, however, I hope, give you a glimpse of what astronomers now-a-days are attempting to do, in order to penetrate somewhat into the mystery of the starry sky.

The problem, as I take it, is a double one. We have, first, the structure of the universe as it is at the present moment; and this problem is, in the main, no other than finding the star distances, because the star directions we can readily ascertain.

We have, second, the problem of the history and evolution of the system.

The time at my disposal being so short, I must confine myself to one of the two. At the present moment, undoubtedly, the first is the more promising one, owing to the recent discovery of star-streaming. Furthermore the history of the system during the past ages, ages to be counted by millions, probably hundreds of millions of years, is and perhaps forever will remain enshrouded in much mystery. Still I have thought that the second problem, that of the evolution of the system, may, perhaps, be the more suitable subject for the present lecture.

You will all, of course, understand, without my saying anything to the purpose, that what we have to expect can not well be anything else than a few more or less

[1] Address delivered before the National Academy of Sciences, April, 1913.