SCIENCE

FRIDAY, JANUARY 28, 1916

CONTENTS
The American Association for the Advancement of Science:—
The Isthmus of Panama in its Relation to the Animal Life of North and South America: PROFESSOR W. B. SCOTT 113

The Needs of Applied Optics: DR. P. G. NUTTING 124

Scientific Notes and News 128

University and Educational News 133

Discussion and Correspondence:—
Insects in their Relation to the Chestnut-bark Disease: F. C. CRAIGHEAD. Cancer and Heredity: MAUD SLYE. A Mollusk Injurious to Garden Vegetables: FRANK COLLINS BAKER 133

Scientific Books:—
La Science Francaise: PROFESSOR WM. H. HOBBS 136

Scientific Journals and Articles 138

Special Articles:—
The Poisonous Effects of the Rose Chafer upon Chickens: GEORGE H. LAMSON, JR. ... 138

The American Society of Zoologists: PROFESSOR CASWELL GRAVE 139

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

THE ISTHMUS OF PANAMA IN ITS RELATION TO THE ANIMAL LIFE OF NORTH AND SOUTH AMERICA

It is a commonplace of geological teaching that the past can be understood only through a knowledge of the present and it is equally true that the present can be fully comprehended only through a knowledge of the past. Each must be employed to elucidate the other and we must pass from one to the other, as new discoveries are made in either realm.

The problems which deal with the existing geographical distribution of animals have received much light from the progress of paleontological discovery and the present arrangement is clearly seen to be the necessary outcome of an illimitable series of past changes, climatic, geographical and biological. Even in pre-Darwinian days the geographical distribution of animals had been given much attention, as a collection of interesting facts, though, under the belief in special creation then prevailing, no explanation of those facts was possible. The general adoption of Darwin's views immediately placed the subject in a new light, for it was at once seen that, unless the theory of evolution could offer a rational and satisfactory solution of these problems of distribution, the foundations of the theory would be greatly weakened.

No result of paleontological studies has, of late years, been more striking than the clear recognition of the fact that migra-

1 Lecture before the American Association for the Advancement of Science at its San Francisco meeting, August, 1915.