SCIENCE

FRIDAY, MARCH 16, 1934 No. 2046 Vol. 79 The Physical Sciences: Professor W. L. Bragg 237 Special Articles: St. Louis Encephalitis: Dr. Leslie T. Webster The Supreme Intellectual Obligation: Professor and Dr. George L. Fite. An Attempt to Isolate JOHN DEWEY Vitamin A: PROFESSOR HARRY N. HOLMES, HAR-Scientific Events: OLD CASSIDY, EVA HARTZLER and RICHARD MANLY. Research in the British Post Office; The Lever-The Effect of X-Rays on Growth Substance and hulme Research Fellowships in Great Britain; Hunan-Yale Public Health Project in Changsha Plant Growth: Folke Skoog Schools; Report on the Electrical Hazards of Aircraft; Stream Surveys in the National Parks by Science News the U. S. Bureau of Fisheries; The New York State Planning Board ... Scientific Notes and News SCIENCE: A Weekly Journal devoted to the Advancement of Science, edited by J. McKeen Cattell and pub-Discussion: Movement of Pigment Granules in Chromatolished every Friday by phores: Professor S. O. Mast. Advancing Gla-THE SCIENCE PRESS ciers in Alaska: H. B. WASHBURN, JR. German Periodicals and American Libraries: Charles H. New York City: Grand Central Terminal Brown. The United States Botanic Garden: Lancaster, Pa. Garrison, N. Y. W. J. Young. Decrease in Government Appropriations for Entomological Work: Professor C. Annual Subscription, \$6.00 Single Copies, 15 Cts. L. METCALF and Professor E. F. PHILLIPS 249 SCIENCE is the official organ of the American Association for the Advancement of Science. Information regarding membership in the Association may be secured from the office of the permanent secretary, in the Smithsonian Institution Building, Washington, D. C. Scientific Apparatus and Laboratory Methods: An Extractor for Fluid Systems: Dr. WILLIAM F.

THE PHYSICAL SCIENCES1

By Professor W. L. BRAGG, F.R.S.

LANGWORTHY PROFESSOR OF PHYSICS IN THE UNIVERSITY OF MANCHESTER, ENGLAND; NON-RESIDENT LECTURER IN CHEMISTRY AT CORNELL UNIVERSITY ON THE GEORGE FISHER BAKER FOUNDATION

MAY I first express my warm appreciation of the invitation you have extended to me to spend this semester at Cornell as your non-resident lecturer. It is an invitation of long standing, for on two occasions circumstances have made it necessary to postpone my visit, and I am warmly grateful to Professor Dennis and Professor Papish for their kindness in keeping the invitation open for so long. This is my third visit to your country, and my experience of your hospitality tells me what a very delightful stay this will be. I am glad of the occasion which this introductory lecture affords to express my gratitude.

When a scientist comes out into the open, away from the safe retreat of his own special line of work, he puts himself in a very dangerous position. In his own line he has some claim to expert knowledge. He can

¹ Introductory public lecture.

at all events save himself from falling into pitfalls of crudeness and naïveté, which will be ready for him if he wanders off the tract he knows. If I venture to talk about very general aspects of the physical sciences, I must try to disarm your criticism beforehand. I wish to show my appreciation of the invitation which you extend to your non-resident lecturers to talk to an audience with wide and varied interests. It would not be fair to ask you to take an interest in my own particular department of physics.

I want to talk about the development of the physical sciences, and review the general trend of the bewilderingly rapid advances of recent times. I must feel very diffident in proposing this as a subject, in view of the extent to which it has been treated by far more able exponents. On the other hand, it is of such interest and importance for us all that perhaps no ex-

READY APRIL 1 =

the new fourth edition

of

Principles of ANIMAL BIOLOGY

By A. Franklin Shull Professor of Zoölogy in the University of Michigan

with the collaboration of George R. LaRue, Professor of Zoölogy in the University of Michigan and Alexander G. Ruthven, President of the University of Michigan and Director of the University Museums.

McGraw-Hill Publications in the Zoölogical Sciences

384 pages, 6 x 9, fully illustrated. \$3.50

FOR fourteen years this text has been a standard in the field. Three editions, totaling over 55,000 copies, have been distributed, and the third edition alone was used by more than 100 colleges and universities throughout the country.

The basic aim of the book is to present a body of principles which may be brought under such topics as morphology, physiology, ecology, taxonomy, geographical distribution, paleontology, and evolution. It is thus representative of the so-called "principles" course, rather than the "types" course, and discusses classification and morphology only as these subjects fit themselves into the principles of zoölogy as a whole.

The present revision is by far the most extensive that the book has yet received. The changing direction of investigation in one field, increasing agreement among biologists as to the proper content of another, revaluation of the significance of the older work in several branches of the subject, all have contributed to the necessity of revision.

LABORATORY DIRECTIONS IN PRINCIPLES OF ANIMAL BIOLOGY

By A. Franklin Shull. With the collaboration of George R. LaRue and Alexander G. Ruthven. New fourth edition. 92 pages, 6×9 . \$1.00.

As before, this carefully organized series of laboratory directions stresses the important generalizations of biology. Changing emphases dictated by laboratory experience, modification of terminology in accord with prevailing practice, the need for more specific indication of principles illustrated, and discovery of addi-

tional or better material for study in some of the exercises have again made desirable a rewriting of this successful manual. The alterations are everywhere made in harmony with the general idea at the foundation of the "principles" course.

Send for copies on approval

McGRAW-HILL BOOK COMPANY, Inc.

330 West 42nd Street, New York

Aldwych House, London, W.C.2.