

SCIENTIFIC PAPERS IN THE SMITHSONIAN REPORT FOR 1912.

THE annual report of the Board of Regents of the Smithsonian Institution for the year 1912 has now been issued by the Government Printing Office in Washington. It provides full particulars of the varied activities, the expenditure, and the general condition of the Institution for the year ending June 30, 1912. But, as usual, the most attractive part of the volume, which runs to 780 pages, is the general appendix of 650 pages of contributions by scientific workers of many nationalities. These papers are sometimes translations of important contributions to scientific periodicals in different parts of the world, sometimes lectures or addresses of note, and in other cases original articles.

Among the numerous translations may be mentioned those of Prof. P. Puiseux's article in the *Revue générale des Sciences* of June 30, 1912, on the year's progress in astronomy, and that in the *Revue Scientifique* for April 6, 1912, on spiral nebulae. Another translation is of an article by Mr. C. V. Boys on experiments with soap bubbles. The original was published in the *Journal de Physique*, August, 1912, and was a lecture delivered before the French Physical Society in April of that year. From the *Revue générale des Sciences*, November 30, 1912, is taken also Prof. Emile Borel's address on molecular theories and mathematics, which was delivered on the occasion of the inauguration of the Rice Institute at Houston, Texas. This is followed by an essay by the late Henri Poincaré on the connection between æther and matter, an address delivered before the French Physical Society on April 11, 1912, and printed in the *Journal de Physique*, May, 1912. It may be remarked here that at the end of the volume there is an interesting biography of Henri Poincaré, his scientific work, and his philosophy, written by Dr. Charles Nordmann. From the *Journal de Physique*, June, 1911, is taken also Sir William Ramsay's address to the French Physical Society on the measurement of infinitesimal quantities of substances, in which he details some of the recent efforts of men of science "to see the invisible, to touch the intangible, and to weigh the imponderable." Prof. L. Lecornu's "Review of Applied Mechanics" is taken from the *Revue générale des Sciences* of July 30, 1912; M. A. Lacroix's essay on "A Trip to Madagascar, the Country of Beryls," is from *La Géographie*, November 15, 1912; and that by M. R. Legendre on the survival of organs and the "culture" of living tissues is from *La Nature*, November 2, 1912, where he cites remarkable experiments the results of which have proved that organs and living tissues may be preserved for some time "in cold storage," and then transplanted or grafted to the living bodies of other individuals of the same species. An essay on adaptation and inheritance in the light of modern experimental investigation, by Herr Paul Kammerer, is from *Himmel und Erde*, June, 1911. Dr. L. Gain's account of the penguins of the Antarctic regions is from *La Nature*, July 6, 1912.

Prof. Zaborowski's paper on ancient Greece and its slave population is translated from the *Revue Anthropologique*. From it one is enabled to obtain a good idea of the social and economic conditions which prevailed in ancient Greece during the height of the slave traffic, which was instrumental in effecting a decline in the efficiency and productiveness of her citizens. Slaves were employed at such low rates and were secured in so many ways, that everyone owned at least one or two, who were made to perform all the household and industrial work, leaving the citizen

owners to spend their time in idleness and luxury. The prevailing economic conditions and customs tended to lower the moral of families, and reduce their numbers. Enriched by slave labour, and entertained by the doings of men and women purchased from abroad, the Greeks became spectators of life and practically renounced the raising of children.

Among notable addresses included in the appendix Prof. Schäfer's presidential address to the Dundee meeting of the British Association takes a prominent place. Prof. G. Elliot Smith's presidential address to the Anthropological Section at Dundee on the evolution of man appropriately follows Dr. Schäfer's. Dr. Edward Sapir's lecture at the University of Pennsylvania on the history and varieties of human speech is reprinted from the *Popular Science Monthly*, July, 1911. Prof. H. T. Barnes's Royal Institution lecture on icebergs and their location in navigation is given in full.

Many original contributions are also included. Prof. W. J. Humphreys, professor of meteorological physics in the United States Weather Bureau, contributes an article which will be of interest and of practical value to aviators and students of mechanical flight. It is entitled "Holes in the Air," which means the various places in the atmosphere where the conditions, so far as flying is concerned, very much resemble actual vacuities. The author explains the nature of the nine known types of atmospheric conditions, which he groups under two heads: the vertical group and the horizontal group. After carefully covering the dangers resulting from such atmospheric conditions, Prof. Humphreys concludes his article with the following note:—

"All the above sources of danger, whether near the surface, like the breakers, the torrents, and the eddies, or well up, like the billows and the wind sheets, are less and less effective as the speed of the aeroplane is increased. But this does not mean that the swiftest machine necessarily is the safest; there are numerous other factors to be considered, and the problem of minimum danger or maximum safety, if the aeronaut insists, can only be solved by a proper combination of theory and practice, of sound reasoning and intelligent experimentation."

Mr. F. B. Taylor, of the U.S. Geological Survey, contributes an essay on the glacial and post-glacial lakes of the Great Lake Region, and Mr. A. H. Brooks, of the same service, one on applied geology.

Mention must be made of the articles reprinted from English periodicals, among which we notice Prof. Armstrong's "Origin of Life: A Chemist's Fantasy," which appeared in *Science Progress*, October, 1912.

As usual, the illustrations are numerous and excellent.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

LORD RAYLEIGH will unveil a tablet to the memory of Lord Lister at King's College, London, on Wednesday, January 14, at 4.30. The ceremony will be followed by the inaugural lecture of the newly appointed professor of physics, Prof. O. W. Richardson, F.R.S., who will take as his subject, "The Discharge of Electricity from Hot Bodies."

DR. GEORGE SENTER, reader in chemistry in the University of London, and lecturer in chemistry at St. Mary's Medical School, has been appointed to the position of head of the department of chemistry at Birkbeck College, in succession to Dr. Alexander McKenzie, who was appointed recently to the chair of chemistry at University College, Dundee (University of St. Andrews).