

years the United States have provided the same proportion of the world's total exports as they have during the past twenty-five years, and this in spite of the fact that new wheat producing countries, such as Argentina, Australia, and Roumania, now contribute their share to the total export trade. This is shown by the fact that while the average annual exportation of wheat and flour from all countries for the past twenty-five years has been 253,000,000 bushels, and from the United States 111,000,000 bushels, the annual exportation for the past five years from all countries has been 345,000,000 bushels and from the United States 164,000,000 bushels.

Dr. Wilson is of the opinion that the future market for the surplus flour of this country will lie in the countries to the south of us, South Africa and the Asiatic countries, while European countries will probably import our wheat and make their own flour. We are evidently taking a strong hold on the South African market, which, against an importation of only \$111,750 worth of flour in 1895, showed an importation of nearly \$1,000,000 worth in 1896, the figures for March, 1897, showing, in turn, an increase of 300 per cent over those for the same month in 1896.

Without entering more fully into the figures of this very timely address, we may mention that Dr. Wilson gives some account of the capabilities of Argentina, our greatest competitor in wheat raising. It seems that there are 240,000,000 acres suitable for the cultivation of wheat, and that while the northern districts are tropical, the whole of the middle part is temperate, and the southern districts are not as cold as the wheat districts in the United States—frost and a little snow being only occasional. Of the 240,000,000 acres suitable for wheat growing, only a little over 7,000,000 acres are devoted to wheat. Twenty years ago Argentina imported wheat and flour, yet in 1894 she exported 59,000,000 bushels of wheat and 459,527 barrels of flour. The cost of production is estimated at 33 cents a bushel, and the average freight to Europe is only 15 cents a bushel. The average distance to the seaboard by rail is one hundred miles, as against one thousand miles in this country. The producer is also favored by the low cost of living, the small farmers (chiefly Italians) living on a scale of frugality impossible to Americans, and the whole family, even to the small children, assisting on the farms. They have no barns, and the stations rarely have warehouses; hence the crop deteriorates before reaching the seaboard. When they have better facilities for handling, they will produce the wheat at even less cost.

If we are to build up a trade with countries other than European, as we probably shall be driven to do in the near future, we must go to work systematically and study the conditions, the supply and demand, the freight and duties, and the standing of the various import houses. There is a danger lurking in this sudden rush of good fortune—a danger which threatens not merely our agricultural, but the whole of our industrial interests. We are liable just now to lose sight of the permanent necessity for extending our markets, not merely for wheat, but for all of our manufactured products as well. The past few years of depression have not been an unmitigated evil if they have taught us the necessity for establishing new markets in which to dispose of our ever growing surplus. It would be a most unfortunate outcome of this year of plenty if it should relax our efforts by suggesting that the need for aggressive action had passed by.

OUR LIBRARY OF ELECTRICAL BOOKS.

The thousands of books on electricity that have been brought out during the last twenty years make it difficult for one who has not given the matter much attention to choose judiciously, in taking up the subject, as to the best works to commence with. In our library of electrical works, by Prof. Sloane, fully described in our advertising columns, we think the reader, whether young or of mature years, whether a professional and practical electrician or one just taking up the subject, will find more and better arranged information and intelligent comment than can be found anywhere else in so compact and serviceable a form and afforded at so low a price. Prof. Sloane has primarily labored to present every side of the subject in as simple a form as possible, devoid of every unnecessary technicality. In "Electricity Simplified" (158 pages, illustrated) this is especially apparent, for all the leading phenomena of electrical work and development are here fundamentally treated of, answering the questions that perpetually arise, so far as the best scientists of the day can do so, and yet in such a way that it is no labor to follow the writer from beginning to end of the book. "The Arithmetic of Electricity" (138 pages, illustrated) is not the dry, hard matter one usually looks for in such books, but electrical calculations are here reduced to a series of rules, all of the simplest forms, each illustrated by one or more practical problems, and all so plainly set forth that the subject may be readily mastered by one who has had only the most ordinary educational advantages. In "Electric Toy Making" (140 pages, fully illustrated) one is instructed how to make at home a great variety of simple electrical apparatus,

motors, dynamos, batteries, magnets and instruments in general for practical use as well as for amusement, while at the same time gaining a practical knowledge of the subject that could in no other way be so effectively attained. "How to Become a Successful Electrician" (189 pages, illustrated) is a book designed to answer just the questions which daily come into the minds of thousands of young people while at school or perhaps just starting out in life, pointing out the elementary requirements and smoothing the way for the attainment of success without the great outlay which so many have found an insurmountable obstacle. "The Standard Electrical Dictionary" (682 pages, 393 illustrations) has just been thoroughly revised and brought up to date, and is absolutely indispensable to all who have anything to do with electrical work, from the most competent expert to the ordinary workman. It is a hand-book of reference almost as much as it is a dictionary, containing a vast amount of well arranged information. The whole series of books is beautifully printed and bound in handsome style. See the "special offer" in relation thereto in our advertising columns.

LELAND O. HOWARD, PH.D., PERMANENT SECRETARY AMERICAN ASSOCIATION OF SCIENCE.

BY MARCUS BENJAMIN, PH.D.

It has come to be almost axiomatic that the permanent secretary of the American Association for the Advancement of Science is better known to the scientific men of this country than any other single man. It was therefore not without considerable anxiety that the rumor of the proposed resignation of Prof. Frederic W. Putnam was heard at the recent Detroit meeting. But when that rumor culminated in reality there was found a man who, in the minds of many of the members of the association, would come as near filling the



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office soon to be vacated as could be expected. It will not be amiss, perhaps, in this connection to say that at the meeting of the council of the American Association, when the resignation of Prof. Putnam was received and after he was advanced to the higher office of president, in considering the question of his successor, he named the duties to be performed, pointed out the difficulties to be overcome, and indicated the qualifications necessary for his successor to possess. It was then that Prof. Gill promptly rose to his feet and exclaimed that Prof. Putnam must have had in mind Doctor L. O. Howard, of Washington, as he spoke. This suggestion so aptly put was promptly acted on and the nomination ratified by the association on the morning following.

Dr. Leland O. Howard is the son of Ossian G. Howard and Lucy Dunham Thurber, of Ithaca, N. Y. His father, as a young lawyer, had settled in Rockford, Ill., and there, on June 11, 1857, the future entomologist was born. A year later his parents returned to Ithaca, and there young Howard was educated, first in a private school and then in Cornell University, where he was graduated in 1877 with the degree of B.S.

As a boy he had shown much interest in natural history, making a specialty of insects, of which he gathered a large collection, and while an undergraduate in Cornell he was allowed to do special work in the department of entomology under the direction of Prof. John H. Comstock. Although devoted to his specialty, he was advised to study medicine, and accordingly for a year after graduation he took special courses in comparative anatomy and chemistry, intending to enter the College of Physicians and Surgeons in New York City in the autumn of 1878. During the summer the fact was developed that Prof. Charles V. Riley, entomologist of the Department of Agriculture, in Washington, D. C., was in need of an assistant, and friends promptly recommended the young and enthusiastic Howard for the place. He accepted the office and has since remained there, succeeding Prof. Riley as en-

tomologist of the United States Department of Agriculture on June 1, 1894, and still later, on October 31, 1895, succeeded his distinguished chief as honorary curator of the department of insects in the United States National Museum.

During the nineteen years that he has been in Washington he has been exceedingly active in entomological work, an account of which is quite impossible in this place; but, if he has any specialty, it is that of the parasitic hymenoptera, in which branch he has devoted special attention to habits and host relations. In recent years, as chief of the department, his investigations have been mainly connected with economic entomology, as his very many papers contributed to the publications of the Department of Agriculture abundantly testify.

In 1883 his alma mater conferred the degree of M.S. on him after a rigid examination, and for which he submitted an elaborate thesis. The degree of Ph.D. was conferred on him by Georgetown University in 1896, in recognition of his contributions to his favorite science.

In this very brief sketch of Dr. Howard's scientific work there is no apparent reason why he should have been chosen to succeed Prof. Putnam. It is, therefore, to other incidents in his career that we must look for its explanation. For some years he has been secretary of the Cosmos Club, in Washington, and in that capacity, by his unflinching courtesy, he has made for himself numerous friends, not only in the club itself, for that goes without saying, but among the many distinguished visitors who come to the capital yearly from every part of the world. Nor is this all, for he has been secretary of the Entomological Society of Washington, and was its president in the years 1886 and 1887. In other scientific organizations he has also been active, and since last December has been president of the Biological Society of Washington. In 1894 he was president of the Association of Economic Entomologists, and in 1892-93 he was secretary and treasurer of the Society for the Promotion of Agricultural Science. Of his connection with the American Association for the Advancement of Science a little more must be said. He joined the association at its second Cleveland meeting in 1888, and a year later was advanced to the grade of fellow. The section on zoology is the one with which he naturally allied himself, and in 1893 he served as its secretary. At the Springfield meeting, three years ago, he was called to the presidency of the section in place of Prof. David S. Jordan, who was unable to attend, and he was named by the council at the meeting in Detroit this year to succeed the late Dr. G. Brown Goode as president of the section.

His bibliography is very extensive, although for the most part it consists of contributions in his specialty to government reports; still he has been a frequent contributor to scientific journals and was the editor of *Insect Life*, a journal published for some years by the Department of Agriculture. He prepared the definitions in entomology for the *Century Dictionary*, and was similarly connected with the *Standard Dictionary*, and has also contributed to the *Standard Natural History*.

That Dr. Howard has knowledge, experience and tact has been sufficiently demonstrated by the foregoing brief sketch of his career, and his colleagues in Washington believe that the same skill and good judgment that he has always shown in the past will serve him in his newer and more trying office; so, when the time comes to look for his successor—and may it be far distant—the name of Howard will be a worthy addition to those of Baird, Lovering and Putnam, his three illustrious predecessors.

ORIGIN OF THE AMERICAN INDIAN.

Reports from Victoria, B. C., state that Dr. F. Boaz, who for ten years has been making a study of British Columbia Indians for the British Association, and also heads the expedition which the American Museum of Natural History sent out last spring, has returned to Victoria. Dr. Farrand, who is also engaged in the work of collecting information about the Indians, also returned. The two scientists have covered an immense territory, first going into the interior of the province and then coming out through to the northern coast. The work done in the interior was a continuation of the work which the British Association has been carrying on since 1877, while that on the coast was prosecuted in the interests of the American Museum of Natural History. The idea is to ascertain the origin of the coast Indians and whether any relationship exists between them and the natives of the Asiatic coast. A study will be made of the Indians from the Columbia River to Behring Strait; and of what is known of the traditions and customs of the natives of the two coasts, Dr. Boaz is convinced that they are related and the first Indians on this side of the Pacific came from Siberia.

THE total amount expended for pensions during the year ended July 30 last was \$141,200,551, which is an increase of \$1,747,761 over the previous year. Since 1865 the payments for pensions have aggregated \$2,148,156,095.