

published, by permission, in The New York Sun. The letter, which is of considerable length and detail, will be found in the current issue of the SUPPLEMENT, and we must be content to give in these columns one or two of the leading facts from this most interesting "log."

In the first place, the "Oregon," it seems, though rated as a vessel of a little over 10,000 tons, actually displaces about 12,000 tons with full stores and 1,500 tons of coal on board. The run of 4,076.5 knots from San Francisco to Callao was made on 900 tons of coal at a speed of 11.49 knots, or at the rate of 4.24 knots per ton. The highest speed was 14.55 knots for the 132 miles from Port Tamar to Sandy Point, when the ship burned 1 ton of coal for every 2 knots. This was done under "semi-forced draught," and the speed rose to within 0.45 knot of her contract speed. Although the ship carries four double-ended boilers, only three were in use at one time—the fourth being used whenever leaky tubes demanded repairs in any of the other boilers.

Mr. Offley attributes the success of the motive power to the excellent work put into the engines and boilers by the builders and to the great care which was taken to always "keep everything as nearly up to perfection as possible," every wear or failure, however small, being at once detected and set right.

FREDERIC WARD PUTNAM.

BY MARCUS BENJAMIN, PH.D.

This week the American Association for the Advancement of Science celebrates the fiftieth anniversary of its existence. In 1847 the American Association of Geologists and Naturalists, which had been formed in 1840 as the Association of American Geologists, met for its annual meeting in Boston. It was then determined to enlarge its scope and broaden its work. This it accomplished chiefly by the adoption of a new constitution which provided for the admission of all lovers of science to membership and the acceptance of the larger name. Accordingly, the first meeting of the American Association for the Advancement of Science was held in Boston, although it was not until 1848, a year later, that the first regular meeting of the newly formed organization was held in Philadelphia under the presidency of William C. Redfield, an early leader in American meteorology.

Regular annual gatherings of this, the fifth oldest scientific society in the United States, have since been held, except in the years 1861 to 1866, the period of the civil war. In 1866 the Association met in Buffalo under the presidency of the learned Frederick A. P. Barnard, who, for a quarter of a century, presided with conspicuous ability over Columbia University in New York city.

This year the Association turns to the place of its birth and meets in the hospitable precincts of Boston. The selection of a suitable candidate to preside over the deliberations of this semi-centennial meeting was not a difficult one. An officer—indeed, the executive officer—of the Association, after a faithful service of a quarter of a century, resigned his place at the Detroit meeting last year.

Of New England ancestry, an alumnus and a member of the faculty of Harvard University, Prof. Putnam was at once recognized as the only candidate possible, and he was, without dissenting voice, promoted from the most active office to the most honorable one in the gift of the Association. Equally was American science honored by this selection, for whether as a naturalist or as an anthropologist, Prof. Putnam is recognized as easily one of the foremost of American scientists.

Frederic Ward Putnam was born in Salem, Massachusetts, on April 19, 1839, and is a direct descendant of John Putnam, who was one of the first settlers in Salem. If we cross the ocean, the Putnam line may be traced to Puttenham of Puttenham, who died in 1642. His ancestry likewise includes the Appleton, the Ward, and the Fiske families, all well known New England names.

As a boy, young Putnam showed unusual fondness for the study of natural history, and his parents afforded him every facility in the pursuit of this favorite subject. One of the results of his fondness for the study of nature was the preparation by him of an accurate "Catalogue of the Birds of Essex County, Massachusetts," which was published by the Essex Institute in 1856, when he was only sixteen years of age, and which resulted in his being made Curator in Ornithology in that institution.

It was about this time that the attention of Louis Agassiz was attracted by the young man's devotion to natural history, and he was thus drawn to Cambridge, where, in 1856, he entered the Lawrence Scientific School of Harvard University and became one of that brilliant band of young men among whom were the younger Agassiz, Morse, Packard, Scudder, Shaler, and Verrill, all of whom now hold high rank among living naturalists in this country.

It was Putnam's intention to take a course in the Medical School, but the influence of Agassiz proved irresistible, and he soon became assistant in charge of the collection of fishes in the Museum of Comparative Zoology, which office he retained until 1864.

He then returned to Salem, where he accepted the place of director of the museum of the Essex Institute, and in 1867 he was made superintendent of the East Indian Marine Society's Museum. A few years later, largely as a result of his influence, the Peabody Academy of Science was organized by the combining of these two collections, and he was made director of the new institution.

When a student, his attention had been directed to American archæology, and in 1857, while in Montreal, Putnam discovered a shell heap, which, on investigation, he determined to be refuse material from an ancient habitation-site, and thus he became one of the first to attribute such shell-heaps to ancient man.

Although the first years of his scientific career were occupied with zoological investigations, still, on the death of Jeffries Wyman, in 1874, he was called to the charge of the collections in the Peabody Museum of American Archæology and Ethnology, in Cambridge, of which institution, in 1875, he was made curator.

His life work has since been devoted to the newer field of anthropology, but the change was not an abrupt one, and in 1876 he resumed his charge of the Department of fishes in the Museum of Comparative Zoology. Thereafter, until 1878, he divided his time between the



PROF. F. W. PUTNAM.

two museums, and then he decided to devote his chief attention to the growing demands of anthropology. The wisdom of this course has since been abundantly proved by his rich contributions to American archæology, and received its most conspicuous recognition in 1886, when he was called by Harvard University to fill the new chair of American archæology and ethnology, which he still holds.

In February, 1891, he was made chief of the Department of Ethnology in the World's Columbian Exposition, and in that capacity he directed the researches of seventy-five assistants in archæological, ethnological, and somatological investigations in all parts of America. The results were exhibited in the Anthropological building and afterward formed the nucleus of the anthropological department of the Field Columbian Museum in Chicago. Indeed, Prof. Putnam was the first to call attention to the importance of establishing a scientific museum in Chicago as a result of the World's Fair, and his article in The Chicago Tribune, in May, 1890, was the first public appeal to the wealthy citizens of Chicago, to secure such a museum for that city.

Prof. Putnam was called in April, 1894, to the curatorship of the department of anthropology in the American Museum of Natural History, in New York city, and since then he has had the direction of the various expeditions that have been sent out under the auspices of that institution for the purpose of forming an anthropological collection worthy of that great museum.

Brief mention must be made of other duties with

which he has been active. In 1874 he was a member of the Kentucky Geological Survey, and made a special investigation of the caves of that State, and during the summer of the same year he was an instructor in the Penikese School of Natural History. He was appointed in 1876 to take charge of and report upon the anthropological material collected by the Geological Survey west of the one hundredth meridian, and three years later his results were published as Volume vii. (Archæology) in the quarto series of the reports of that survey. From 1882 till 1889 he was State commissioner, in Massachusetts, of inland fisheries.

In connection with his zoological and anthropological work, he has published over three hundred papers. He was the originator and editor of the Naturalist's Directory, as published by the Essex Institute in 1865. He was one of the founders of The American Naturalist in 1867 and an editor until 1874. He edited the Proceedings of the Essex Institute and the Reports of the Peabody Academy from 1864 till 1874, as well as the annual volume of the Proceedings of the American Association for the Advancement of Science since 1872; he has also prepared the annual reports of the Peabody Museum, in Cambridge, and edited all its publications since 1873. In 1890 he contributed to The Century Magazine several articles on his explorations of the famous Serpent Mound in Adams County, O., together with a summary of the archæology of the Ohio Valley, and the preservation of this prehistoric monument by the State of Ohio is due to his influence in creating a public sentiment in favor of such an action.

The degree of A.M. was conferred on him by Williams College, in 1868, and that of D.Sc. by the University of Pennsylvania, in 1874. The French government gave him the Cross of the Legion of Honor, in 1896. He has been elected to membership in fifty-six learned societies in this country and eleven abroad. In 1859 he was elected Curator of Ichthyology in the Museum of the Boston Society of Natural History, of which society he was made vice president in 1880, holding that office till 1887, when he was chosen president. Since 1890 he has been president of the Boston branch of the American Folk Lore Society, and in 1891 he was elected president of the American Folk Lore Society, the parent body. The American Philosophical Society of Philadelphia, the American Academy of Arts and Sciences, and the National Academy of Sciences, the three scientific societies in the United States to which election is only by invitation, include his name on their rolls of membership.

Prof. Putnam joined the American Association for the Advancement of Science at its tenth meeting, held in Montreal, in 1857, and in 1873 he was chosen permanent secretary, which office, by successive re-elections, he has since held. The membership, when he became secretary, was barely 500, and it is now upward of 2,000. The growth and development of the American Association are chiefly due to his tact, untiring energy, and remarkable executive ability.

His elevation to the presidency is an expression of the appreciation and gratitude of the thousands of scientific men both in this country and abroad, with whom he has formed pleasant acquaintance during his faithful service to the American Association, all of whom sincerely hope that, as a permanent member

of the council, he may for many years continue to honor its deliberations with the wisdom that has come from his long service and experience.

THE NEW SMOKELESS POWDER FOR ARMY AND NAVY.

The general public has learned in a practical way during the war the great superiority of smokeless powder over the now obsolete brown powder. The interference of our own smoke with our guns at San Juan and Santiago, and the way in which the Springfield, with which the volunteers were armed, drew the Spanish fire were object lessons easily understood and laid to heart by a practical people.

The decision of both the Army and Navy Departments to make the new powder the standard type in both branches of the service will be received with unfeigned satisfaction, as will the announcement that large orders are being placed for its manufacture. One of the chief causes of our backwardness in this matter has been the fact that, for lack of encouragement, manufacturers have hesitated to enter extensively into the manufacture and do the necessary but costly experimental work. Now, however, they not only start with large orders for an excellent powder, but the experience they will gain must necessarily result in a steady improvement in the art as carried out in this country.

In the current number of the SCIENTIFIC AMERICAN SUPPLEMENT will be found a lengthy account of the