meetings have taken place year by year and from city to city throughout the country.

V

With regard to the application of science either to the development of industry and agriculture or the welfare of the people, it is obvious that during the past thirty-odd years China has made marvelous advancement in various aspects by the benefit of science. As individual cases are too many to enumerate, we may say in general terms that many modern industrial enterprises have been undertaken on a scientific basis or under scientific management. While heavy industries are still awaiting development in this country, light industries, such as cotton mills, pharmaceutical works, etc., have already made considerable advancement in large cities and seaports like Shanghai, Hankow, Chungking, Canton, Tsingtao and Tientsin. Meanwhile, most of the mining industry has been operated according to scientific methods and management. Scientific agriculture has also been introduced in many fields, such as the improvement of breeding of various crops like cotton, rice and wheat. Reforestation, horticulture and sericulture have also recorded an appreciable improvement.

In the field of engineering sciences, most of the Chinese railways were constructed within the past thirty years, while highways have been rapidly extended during recent years. Scientific hydraulic engineering has replaced the old methods in water conservation works and canaling. Electricity has been employed in various places for different purposes, not only in the telephone and telegram services, but also in a number of ways in the daily life of the people, such as for electric lights, the cinema and the radio. Moreover, machines have been used in numerous ways. In a word, the whole Chinese nation has gradually been transformed from the handicraft stage to a modern machinery age, in so far as the daily life is concerned.

It should be noted, however, that what we have stated in the above paragraphs was merely the advancement of science in China from the beginning of the Republic up to the time when the so-called "China Incident" occurred. During the past four eventful years scientific activities have been speeded up along various fields in the interior provinces. Great efforts are being exerted in biological expeditions, geological surveys, mineral reconnoitering, engineering reconstructions, agricultural improvements, ammunition manufacturing and what not, not to mention laboratory research, with one noble purpose, namely, to meet the wartime need of the nation. The details of these works need not concern us here.

In conclusion, it is no exaggeration to say that during the past thirty years of the Republic, science alone has seen tremendous progress in many sides. Comparing the shortness of time with what has been accomplished, we have at least this feeling of satisfaction that science has become deeply rooted in Chinese soil and our scientists have proved competent for their task in making valuable contributions to modern science and have done good service to the country which was and is urgently needed. The people as a whole have heartily recognized the advantage of the application of science. Therefore, from a historical and scientific point of view, the past thirty years have been a most important and memorable period in Chinese history. With the help of science, we are confident that we shall be able to rejuvenate our nation and reconstruct our country.

OBITUARY

DR. LEONHARD STEJNEGER

October 30, 1851–February 28, 1943

THE stimulating endeavors of Spencer F. Baird, the second secretary of the Smithsonian Institution, attracted not only the naturalists and embryo-naturalists of our own country to this institution of learning, but similarly gifted individuals from abroad came to seek their fortunes at this seat of scientific endeavors. It was Baird's splendid leadership and discernment of men of ability and lack of self-seeking that eventually surrounded him with a staff of scientific men probably unequalled anywhere at any time before. However, this is not intended to be a eulogy of Baird, but a simple appraisal of a great naturalist attracted to our shores by the rapidly spreading fame of the Smithsonian Institution.

Dr. Stejneger was born in Bergen, Norway, on October 30, 1851, the son of Peter Stamer and Ingeborg Catharina (Hess) Stejneger.

From early youth, Stejneger was bitten by the naturalist bug. I have seen a set of his childhood drawings in color of birds of his region which would do credit to an artist of maturer years.

His mother's delicate health requiring a milder winter climate than that afforded by their northland home caused the family to winter in Meran (South Tirol), where we find Stejneger extending his ornithological observations as evidenced by his first published contribution, "Ornithologische Notizen ans Meran, Süd Tirol, wahrend der Winter 1869, 1870, und 70–71."[1] This contribution was followed by a number

[1] *Jour. Ornith.*, pp. 122–124, 1871.

of well-illustrated popular papers on the birds of Norway, and then reports upon birds collected by the Norwegian Mission to Madagascar, the specimens of which were in the Bergen Museum, which yielded him his first new species. All in all, 22 papers had issued from his pen when he left his native land. His interests were not confined to birds, for he was equally well versed in the lore of the other vertebrates, and even invertebrate denizens of land and sea had received more than a passing attention; in other words, he belonged to that group of naturalists whose broad vision at that stage of our knowledge enabled them to have a comprehensive view of the entire zoological field.

It is interesting to note how his educational endeavors, which were not intended to make him a professional naturalist, nevertheless contributed to make him the helpful and outstanding taxonomist and nomenclatorist into which he developed. 1859–60 were spent at the Smith Theological School in Bergen. In 1860–69 he attended Bergen's Latin School. In 1869–70 he was under private tutorship at Meran. In 1870 he entered the University of Christiania as candidate in art, and in 1872 as candidate in philosophy, and finally, in 1875, as candidate in law. Here may be added a Ph.D. *honoris causa* conferred upon him by the same university in 1930.

These studies gave him a splendid command of the classic Greek and Latin and modern languages, and his legal training the outlook which made him a power in questions of nomenclatorial procedure (he served on the International Commission of Zoological Nomenclature from its beginning to his death), while his artistic endeavors furnished that care to detail which has characterized all his work.

Europe with its meager returns to naturalists caused him to look to America as the land of promise, and we therefore find him at the portals of the Smithsonian Institution in the fall of 1881.

Baird, recognizing ability and appreciating Stejneger's knowledge of the Palearctic fauna, saw his opportunity to have the right man in the field to expand our knowledge of the far northwest Pacific fauna and flora. In his usual persuasive way, he showed the U. S. Signal Service how important and necessary it was for it to have an observer on weather in those regions, pointing out that he had just the right man for that job. I fear, however, that the possibility of securing remains of Steller's sea cow and possibly some specimens of Pallas' cormorant (also found to be extinct), to say nothing of the many other things that a young energetic naturalist might secure, may have weighed strongly in having Stejneger appointed observer in the U. S. Signal Service.

Stejneger as U. S. signal observer left Washington on March 22, 1882, arriving on May 7 at Bering Island, where he established a signal station, trained an observer and on June 16 sailed for Petropaulowski, Kamchatka, to establish another signal station. This done, he returned to Bering Island, where he spent the winter. In the fall he circumnavigated Bering Island, visiting the site of the ill-fated Bering Expedition. An interesting account of this trip, well illustrated with sketches and maps, was published in the *Deutsche Geographische Blätter* (Vol. 8, pt. 3, 1885).

In May, 1883, he revisited Petropaulowski, and in the summer went to Copper Island to study the habits of the fur-seals whose large rookeries were being exploited by the Alaska Commercial Company. He then returned to Bering Island, from where upon the completion of his work he returned to the United States, arriving at the Smithsonian Institution on October 29, 1883.

The Annual Report of the Board of Regents of the Smithsonian Institution for 1883 (1885) gives a fine account of the splendid results of this expedition, which must have given great pleasure to Secretary Baird as well as to the collector.

In 1884 we find him as assistant curator, Department of Birds, U. S. National Museum, busy upon a general account of his northern expedition and sundry other papers, foremost among which were his "Results of Ornithological Explorations in the Commander Islands and in Kamchatka[2] and Volume 4, "Birds" of the Standard Natural History, published by S. E. Casino and Company in 1885.

Overwork carried the usual syndrome of manifestations and resulted in Stejneger being sent to Arizona to join Dr. C. Hart Merriam, who was making his studies of the life zones of the San Francisco Mountains.

His stay there resulted not only in the recovery of his health, but also in the securing of a mass of information in the field that was to embrace his major attention during the rest of his days—herpetology—for Stejneger was appointed curator of reptiles of the U. S. National Museum on March 1, 1889.

In 1895 Dr. Stejneger was detailed to the U. S. Fish Commission as attaché to revisit the Russian Fur-Seal Islands and report on the existing conditions of their herds. He accordingly left Washington on May 28. He reached St. Paul Island (Pribilof group) on June 25, where a special seal drive was arranged for him next day to acquaint him with local killing methods; the next day he left for Bering Island, which he reached on July 3. From this date to September 24 his time was spent in gathering data and photographing the herds of Bering and Copper Islands, the

[2] *Bull. U. S. National Museum*, 29: 1–382, pls. i–viii, 1885.

results of which were embodied in his exhaustive report on "The Russian Fur-Seal Islands.[3]

This masterful treatise made him a marked man in fur-seal matters. It is therefore not surprising that, when Congress ordered "a scientific investigation during the years of 1906 and 1907 of the present conditions of the fur-seal herds on the Pribilofs, Commander and Kuril Islands in the north Pacific and Bering Sea," Stejneger by Presidential order was called to take part in these investigations.

We therefore again find him on the Russian fur-seal islands, as well as on the Japanese Robben Islands in the Okhotsk Sea in 1896 and 1897. His major contribution to the reports of the commission are contained in Part IV, "The Asiatic Fur-Seal Islands and Fur-Seal Industry."[4]

His last visit to the northern isles was made in 1922 when the Department of Commerce requested his detail to assist in obtaining exact information on the status of the fur-seal herds on the Russian and Japanese seal islands, in order to determine the effect of the treaty of 1911 entered into by the United States, Russia, Japan and Great Britain for the protection of the fur-seals of the north Pacific Ocean.

His report is contained in "Fur-Seal Industry of the Commander Islands."[5]

Here, as the culminating effort of his northern explorations, should be mentioned his volume on "Georg Wilhelm Steller, the Pioneer of Alaskan Natural History."[6] The fascinating account of this naturalist was inspired by Stejneger's first visit to Bering Island. From that time on he lost no opportunity to trail this man from birth to death, by the search for information from relatives, church records, official documents, museum specimens and the maze of publications resulting from the collections and notes made by Steller. All this information Stejneger has woven into a reconstruction of the conditions of the times and the environment, both human and otherwise, with its trials, tribulations, hardships and joys under which this energetic and able naturalist accomplished remarkable results.

Stejneger's first love, like that of many other naturalists, was birds. We therefore find his early contributions dealing with avian topics. After his appointment to the curatorship of reptiles there is a rapid transition in his writings to the herpetological field. His first reptile paper, "Description of Two New Species of Snakes from California," was published in the Proceedings of the U. S. National Museum, Vol. 12, pp. 95–99, October, 1889.

1895 saw the issuance of his "Poisonous Snakes of North America."[7]

Our acquisition of Puerto Rico following the Spanish-American War inspired our government to explore its resources, which resulted, among other endeavors, in a visit by Dr. Stejneger to that island to study its herpetologic treasures. February 12 to April 19, 1900, was devoted to collecting in the islands of Puerto Rico and Vieques. The results of this expedition are embodied in "The Herpetology of Puerto Rico."[8]

His next comprehensive efforts are embraced in his "Herpetology of Japan and Adjacent Territory."[9] In 1917, in collaboration with Thomas Barbour, he published "A Checklist of North American Amphibia and Reptiles,"[10] of which the fifth edition is now going through press. A timely and interesting account, "A Chapter in the History of Zoological Nomenclature,"[11] appeared in 1924.

An examination of Dr. Stejneger's bibliography reveals a total of 411 titles, of which 152 pertain to herpetology, while 146 deal with birds, 30 with explorations and 16 are devoted to mammals and the rest scattering.

In 1911 Stejneger was appointed head curator of biology, U. S. National Museum.

Stejneger attended eight International Zoological Congresses, seven of them as delegate of the Smithsonian Institution: 4th Cambridge, 1898; 5th Berlin, 1901; 6th Berne, 1904; 7th Boston, 1907; 9th Monaco, 1913; 10th Budapest, 1927; 11th Padua, 1930, and 12th Lisbon, 1935.

In 1898 he spent four and one-half months in Europe studying museums and specimens and also attended the International Fisheries Exposition at Bergen, Norway. In 1905 he was a delegate of the Smithsonian Institution at the Fourth International Ornithological Congress in London and the Internal Convention of the International Catalogue of Scientific Literature. In 1907 he was a delegate of the U. S. National Museum at the International Fisheries Congress at Washington. In 1911 he represented the Smithsonian Institution at the five hundredth anniversary of the founding of the University of St. Andrews, Scotland. In 1911 he represented the

[3] *Bull. U. S. Fish Comm.*, art. 1, pp. 1–148, pls. 1–66, 1896.

[4] "The Fur-Seals and Fur-Seal Islands of the North Pacific," Pt. 4, pp. 1–384, pls. 1–117 and maps. Government. Washington. 1898.

[5] *Bull. Bur. Fish.*, 41: 287–332, figs. 1–17, 1925.

[6] Harvard University Press, pp. i–xxiv; 1–623, pls. 1–30, 1936.

[7] Report of the U. S. National Museum for 1893, pp. 337–487, pls. 1–19, 70 text figures, 1895.

[8] Annual Report of the U. S. National Museum for 1902, pp. 549–724, pl. 1, figs. 1–197, 1904.

[9] *Bull.* 48, U. S. National Museum, pp. 1–44–1–577, pls. 1–35, 409 text figures, 1907.

[10] Harvard University Press, pp. i–iv, 1–125, 1917; 2d ed., 1923, pp. i–x, 176; 3d ed., 1933, pp. i–xiv; 1–185; 4th ed., 1939, pp. i–xvi; 1–207; 5th ed. In press.

[11] *Smithsonian Misc. Coll.*, Vol. 77, no. 1, pp. 1–21, 1924.

Smithsonian Institution at the one hundredth anniversary of the founding of the Royal Frederic University in Christiania, Norway. In 1912 he represented the U. S. National Museum at the centenary celebration of the founding of the Academy of Natural Sciences, Philadelphia. In 1935 he was a delegate to the sixth International Congress of Entomology at Madrid, Spain. In 1939 he was delegated by the Smithsonian Institution to attend the two hundredth anniversary of the Royal Swedish Academy of Sciences (celebration cancelled) and to attend to official business of the Smithsonian Institution and the U. S. National Museum in Sweden, Norway, Denmark and Finland.

Stejneger was a member of many scientific societies at home and abroad, among which may be mentioned: National Academy of Sciences; American Ornithological Union (fellow); American Society of Ichthyology and Herpetology (vice president, 1915; president, 1919; honorary president, 1937); American Society of Mammalogists; American Association for the Advancement of Science; Washington Academy of Sciences; Biological Society of Washington (president, 1907–08); the Academy of Natural Sciences of Philadelphia; Association of American Geographers; California Academy of Sciences (honorary member); Bergen Museum (life member); Christiania Academy of Sciences; Zoological Society of London (foreign member); Ornithological Society of Bavaria (corresponding member); British Ornithological Union (honorary member); German Ornithological Society; Peiping Natural History, etc. He was a member of the Cosmos Club.

Dr. Stejneger was decorated Knight, 1st class, Royal Norwegian Order of St. Olof in 1906 and Commander in 1939. He was also the recipient of the Walker Grand Prize of the Boston Society of Natural History.

On his eighty-fifth birthday the Smithsonian Institution was presented with a portrait of Dr. Stejneger, painted by Bjorn P. Egeli, purchased by subscriptions made by his associates and friends. On his eighty-sixth birthday Dr. Stejneger was tendered a sumptuous dinner by his associates and friends at the Cosmos Club. Dr. C. G. Abbot, presiding, called upon the following to respond to these toasts: Stejneger, the Youth—His Excellency Wilhelm Munthe Morgenstierne; Stejneger as an Ornithologist—Dr. Alexander Wetmore; Stejneger as a Herpetologist—Professor Albert Hazen Wright; Stejneger as a Zoogeographer—Dr. William Mann; Stejneger as a Nomenclatorist—Dr. Charles Wardell Stiles; Stejneger as a Man—Dr. Albert Kenrick Fisher. These were followed by a response from Dr. Stejneger. On this occasion there was presented to Dr. Stejneger a huge volume of letters expressing felicitations and appreciation written by scientific friends from all corners of the world.

Having been in almost daily contact with Stejneger since 1896, officially and unofficially, I can say that he was an ideal personification of the scientific spirit —a seeker of truth—ever open-minded, without pet theories, whose every study was a problem, the answer the summation of all the counts.

It was interesting to note the change of the man from a rather positive and somewhat aggressive disposition in youth to that of extreme tolerance and patience, particularly with the younger naturalists to whom he was ever willing to lend a helping hand. He was an ideal friend and host and the portals of his house were ever open to his friends from home or abroad. Stejneger was married to Marie Reiners on March 22, 1892, who, with his daughter Inga, survives him.

PAUL BARTSCH

U. S. NATIONAL MUSEUM

DEATHS AND MEMORIALS

DR. FRANK SCHLESINGER, professor emeritus of astronomy of Yale University, from 1920 to 1941 director of the observatory, died on July 10 at the age of seventy-two years.

DR. LESLIE TILLOTSON WEBSTER, member of the Rockefeller Institute for Medical Research, died on July 12 in his forty-ninth year.

DR. WILLIAM JAMES FOSTER, assistant engineer of the alternating current engineering department of the General Electric Company, died on July 2 at the age of seventy-two years. Dr. Foster joined the General Electric Company in 1894 and became an assistant engineer in 1906. He was associated in his work with the late Dr. Charles P. Steinmetz.

BAYARD H. CHRISTY, former president of the Pittsburgh Patent Bar Association, died on June 20 at the age of seventy-one years. He was a life member of the American Ornithologists' Union and the author of numerous papers on birds in ornithological journals.

ARRANGEMENTS have been completed, according to a report in *Chemical and Engineering News*, for the establishment of a foundation in memory of the late Dean Herman Schneider. The Herman Schneider Foundation has been incorporated in Ohio "to encourage the development and advancement of science and education." A building has been purchased and will be ready for occupancy in the fall as headquarters