tributions to our knowledge of the potato family. Asiatic botany, particularly that of China, has been the special interest of Egbert H. Walker, who accepted an appointment as aid on 2 July 1928 and was advanced to assistant curator on 1 February 1942.

In conclusion, it should be emphasized that this article directs attention to only the most outstanding pieces of research that the Smithsonian has sponsored. It should be borne in mind also that the staff has always given a considerable portion of its time to helping others less advantageously situated by identifying materials, collating data, and furnishing literature. Such has always been the pervasive and far-reaching influence of Smithsonian activities. Its great collections representing the natural history of the earth belong to the American people, and it is right that they should use them to the utmost.

A Century of Smithsonian Publications

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From the very beginning, publications have constituted a major item in the Smithsonian Institution's program dedicated to the increase and diffusion of knowledge among men. It has used, and still uses, other methods of diffusing knowledge—among them, museum and art gallery exhibits, a world-wide correspondence on scientific matters, the International Exchange Service which it was instrumental in initiating, lectures, radio programs, and science news releases—but the foremost method has always been the printed word. Joseph Henry, first secretary of the Institution, saw clearly the great need at that time of more media for publication of scientific discoveries, and among his first acts as secretary was the establishment of a series of Smithsonian publications, *Contributions to Knowledge.* From this single initial series, the publications of the Institution have expanded with the growth of its research work until today 14 distinct series appear under the Smithsonian imprint, each series serving a particular function.

Prof. Henry felt so strongly the importance of diffusing knowledge more widely in the early days of the Institution that he wrote in 1852:

> The worth and importance of the Institution are not to be estimated by what it accumulates within the walls of its building, but by what it sends forth to the world. Its great mission is to facilitate the use of all the implements of research, and to diffuse the knowledge which this use may develop.

Probably the best-known publications of the Institution proper are its *Annual Reports.* Each year the General Appendix contains a carefully selected group of 20–25 articles presenting as far as possible in nontechnical language the progress and important developments in nearly all branches of science. The Smithsonian Reports find a wide field of usefulness among teachers, students, and the general public, and they have doubtless had a not inconsiderable part in building up the present widespread appreciation of the value of science. All members of the Institution's scientific staff aid in selecting articles for the Annual Report, and a large number of journals dealing with scientific subjects are examined each year in order that no major development may be overlooked. A complete set of Smithsonian Reports constitutes in effect a history of 100 years of progress in science.

The other two series published by the Institution proper—*Smithsonian Contributions to Knowledge* and *Smithsonian Miscellaneous Collections*—are technical in character and contain the results of research in many fields of science by members of the Institution's staff and by collaborators and outside scientists. The Contributions series was established soon after the founding of the Institution, the first monograph to appear being Squier and Davis' "Ancient monuments of the Mississippi Valley," published in 1848. The Contributions soon became widely known among scholars, and numerous important monographs appeared in the series in ensuing years. The only requirement was that each paper should constitute a positive addition to knowledge based on original research. A few of the well-known papers in this series are: "Memoir on mechanical flight," by Langley and Manly; Coffin's "The winds of the globe"; Shaler's "Comparison of earth and moon"; and Morely's "On the densities of oxygen and hydrogen, and the ratio of their atomic weights." The Contributions appeared in quarto form, and because of the greater cost of printing in that form, the series was discontinued in 1916.

The Miscellaneous Collections, started a few years after the Contributions, contained, as long as the latter series existed, shorter papers in all branches of science, although mainly anthropology, biology, geology, and astrophysics. Since 1916, however, the Miscellaneous Collections has included practically all the scientific material published by the Institution, except the semipopular papers appearing in the Annual Report. Some of the better-known works in this series are the Smithsonian Physical Tables and the Smithsonian Meteorological Tables, the World Weather Records, Secretary Wetmore's "A systematic classification for the birds of the world," Hrdlička's "The skeletal remains of early man," Walcott's several volumes on Cambrian Geology and Paleontology, and Abbot's papers on solar radiation studies. The Miscellaneous Collections is now in its 106th volume.

Out of the early activities of the Institution there developed a number of bureaus which were later recognized as public necessities and received governmental support. To provide outlets for the work of these bureaus other series of publications were established, the earliest

among them being the *Proceedings* and *Bulletins of the U. S. National Museum*, and the *Reports* and *Bulletins of the Bureau of American Ethnology*.

A chief function of the scientific staff of the National Museum is to conduct original researches on the great national collections in anthropolgy, biology, geology, and engineering, and the results of these studies appear in the Bulletins and Proceedings. The Bulletins are reserved for the larger monographic works in these fields, whereas the Proceedings series provides for the publication of shorter papers, a considerable proportion of them devoted to the description of new species of mammals, birds, fishes, insects, mollusks, and other life forms discovered in the course of investigations by the staff. Up to 10 August 1946, 192 Bulletins have been issued, and 96 volumes of Proceedings, comprising 3,199 individual papers. Issued as a part of the Bulletin series are the *Contributions from the National Herbarium*, in which are published botanical papers by members of the Museum staff and other scientists working on the plant collections of the National Herbarium. The Bulletin series contains such works as Bent's Life Histories of North American Birds, Clark's Monograph of the Existing Crinoids, Rathbun's volumes on American Crabs, the volumes on scientific results of the *Albatross* Philippine Expedition, Perry's "Metallography of meteoric iron," and Standley's "Trees and shrubs of Mexico."

The Reports and Bulletins of the Bureau of American Ethnology deal with all phases of the study of the American Indians. Up to and including 1933 the Reports were issued in quarto form and contained scientific monographs in addition to the administrative reports. Thereafter only administrative reports in pamphlet form were issued, all the scientific material appearing as Bureau Bulletins in octavo size. Forty-eight of the quarto Reports were published, and 143 Bulletins have appeared. Among the more comprehensive of the Bureau publications may be mentioned the *Handbook of American Indians*, edited by Hodge; Kroeber's *Handbook of the Indians of California;* Swanton's *The Indians of the southeastern United States;* and the five-volume *Handbook of South American Indians*, edited by Steward, of which the first two volumes have just appeared.

Other series bearing the Smithsonian imprint, the titles of which indicate the content, are the *Annals of the Astrophysical Observatory*, *Oriental Studies* and *Occasional Papers of the Freer Gallery of Art*, *Catalogs of the National Collection of Fine Arts*, *Publications of the Institute of Social Anthropology*, and *Smithsonian Special Publications*.

In the hundred years of its existence, the Institution has put out some 7,500 individual publications, varying in size from 1-page leaflets to 1,000-page monographs. Some 12,000,000 copies of these have gone out—for the most part free—to libraries, scientific and educational institutions, and interested individuals—mainly scientific workers and students. Only as scientific investigations are recorded in print and put in the hands of those who can use them are they of potential benefit to mankind. Nearly all Smithsonian publications have recorded the results of fundamental researches, which, pooled with like material published by other scientific organizations, form a reservoir of basic new knowledge available to workers in economic fields. It has been said that few encyclopedias and textbooks exist that have not drawn to some extent on Smithsonian publications. However that may be, the "diffusion of knowledge" desired by James Smithson has been increasingly fostered throughout the past 100 years by the publications of the Institution.

The International Exchange Service

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The Smithsonian International Exchange Service was started in 1849, and its operations have grown in scale from the few hundred packages of publications then handled annually to the 714,877 packages that passed through the Service in 1939, the last year before the beginning of World War II.

Two years after its establishment in 1846, the Smithsonian Institution issued the first of its long series of scientific publications. In addition to the American distribution, several hundred copies were sent the following year to scientific and other learned institutions abroad, in return for which many valuable publications were received from these institutions. To continue this desirable exchange of intelligence with the other nations of the earth, Joseph Henry appointed agents in a number of foreign countries. He then offered to other learned bodies the privilege of utilizing this Smithsonian exchange system, an offer that was promptly accepted.

Thus began a project that has grown steadily in scope and usefulness to the present day. By 1880 the cost of the exchange system to the Smithsonian became a very heavy burden, in spite of the generous granting of free ocean freight by many international steamship lines and the cooperation of our own and of foreign governments in admitting exchange shipments free of duty. Congress was appealed to for aid, and in 1881 a small appropriation was granted for the support of the system. This support has continued down to the present time, reaching approximately $50,000 a year just before World War II. War conditions naturally disrupt the international exchange of publications, although exchanges were continued throughout the war years with all countries of the Western Hemisphere and a few in other parts of the world.

From the beginning of the Smithsonian exchange system, U. S. Government departments made use of the service for exchange of their official documents for those of other governments. In 1867 Congress passed a law systematizing this governmental interchange, and in 1873 the first shipments were made by the Institution under the new law. A few years later international conferences began in Brussels to discuss the exchange between countries, not only of governmental documents, but also of