taneous measures have been made on thousands of days by stations in the Northern and Southern Hemispheres. No differences above the small experimental errors have ever been found between the solar constant results obtained under these diverse conditions of atmospheric transmission. In all, as many as 12 different stations have been occupied by us for solar constant work. These have been located in North and South America, Africa, and Asia and range from sea level to 14,500 feet in elevation. Several of them have been continuously occupied in desert regions for 20 years or more.

During World War I C. G. Abbot and L. B. Aldrich were active in the improvement of searchlights. The Corps of Engineers report on that activity even gave the leading place to our efforts. In World War II studies were made of the relations of radiation to clothing and on a filter to exclude visible light and infrared rays while admitting the ultraviolet. Both researches were successful.

Since the end of the war the Observatory, now under the direction of L. B. Aldrich, has been amassing great quantities of data for the Army on the intensity of sun and sky radiation at the earth's surface at all times of the day and year.

For many years the writer had been keenly interested to know which of the sun's rays were most effective in supporting plant growth, through the assimilation of carbon dioxide from the air. About 1930 the Division of Radiation and Organisms was established under grants from the Research Corporation of New York. W. H. Hoover did there a fine piece of research which fixed the relative efficiencies of different wave lengths to promote photosynthesis in wheat. He used with close agreement three different sources of radiation: the Mazda lamp, the carbon arc, and sunlight. The curve of wave length and photosynthesis showed two maxima in the blue and the red, respectively, where chlorophyll has absorption bands. Rays of wave lengths less than 4,000 A. or more than 7,500 A. appear to be totally ineffective in photosynthesis. Many other interesting researches which relate to different aspects of radiation and plant growth have been carried on in the Division. Most of these have been published in *Smithsonian Miscellaneous Collections*.[1]

Congress has supported the Astrophysical Observatory financially in part and has authorized the inclusion in it of the Division of Radiation and Organisms. A considerable part of the financial support has, however, come from private sources, including the Hodgkins Fund and the Arthur Fund of the Smithsonian endowment and gifts from John A. Roebling aggregating over $500,000 during the past 26 years. Mr. Roebling is well versed in science and ardently interested in the problems of the dependence of climate and weather on solar radiation. He makes no blanket appropriations but discusses with great acumen each individual project. Without his aid and wise suggestions we should have come far short of our present accomplishment.

[1] See papers by Johnston, McAlister, Weintraub, Meier, and others.

One Hundred Years of Smithsonian Anthropology

Frank H. H. Roberts, Jr.
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FROM ITS VERY INCEPTION the Smithsonian Institution has been a leading participant in the field of anthropology, particularly in the study of the New World aborigines. Throughout the 100 years of its history, this phase of its operations has been one of its better-known and more generally popular activities. However, the word anthropology does not appear in the heading summarizing such work until the Annual Report for 1877. Previously, and reflecting American concept in general, most of the branches at present incorporated under Anthropology were grouped under Ethnology. In the rare cases where the word was used it was, for the most part, in the restricted sense of the study of physical man. The change was brought about by influences spreading from Europe, where, during the 1860's under the stimulus of the appearance of Darwin's *Origin of species* and the determination of the geologic antiquity of man, the subject had a rapid growth. Many societies and museums devoted to the "whole science of man" were organized, and there was an accompanying, although somewhat delayed (because of wartime conditions in the United States), increase of interest in the American field. It was two decades or more, however, before thinking in the Institution and the country at large changed from ethnology, archeology, and Indian linguistics to the more comprehensive anthropology.

In line with Joseph Henry's policy of not recruiting men for original research and supporting them and their work entirely from the funds of the establishment, it was many years before an anthropological staff was organized. When such steps were taken, the necessary funds were furnished by the Government.

For almost 30 years the Institution's activities in this field consisted of arousing public interest and obtaining voluntary assistance in the solution of special problems, providing means of publication for the monographs and reports prepared by others, granting modest funds or other assistance to further the work of recognized scholars, and cooperating with other institutions and scientific societies in promoting various kinds of researches. As a matter of fact, these activities are still carried on and, in conjunction with the now established and widely known original investigations by staff members, form an important part of the Institution's program. From the beginning to the present, cooperation has been an important factor in anthropological work.

One of the first acts of the newly founded Institution was to send out circulars requesting information about mounds, monuments, and other evidences of former occupation which was to be used in the preparation of an "Ethnological Chart" showing the location of all such remains in every part of the country. The response was immediate and most satisfactory. The practice was continued over a period of years, later requests being expanded to include all types of anthropological information, with an impressive body of data being accumulated. Several maps were drawn from them, at different times, and all proved of value in the advancement of the plans for specific investigations. At the same time Secretary Henry stressed the importance of prompt and continuing archeological excavation to preserve evidence that was rapidly being destroyed by the plow. As a result, many local groups and societies dug sites in their areas, following instructions sent out from the Institution, and much was accomplished.

Directions for collecting Indian vocabularies and other linguistic information were also sent to teachers, missionaries, professional men, Army officers, government officials, and the factors of trading posts wherever tribes were located. A gratifying series of manuscripts valuable for studies in comparative linguistics were sent in from all parts of North America, the Russian Telegraph and Hudson's Bay Companies being particularly helpful in this respect. The material thus received was lent to various scholars and subsequently appeared in their publications, some of which were issued by the Institution and others by outside organizations. The manuscripts, however, were retained by the Smithsonian as source material. During the period when Lewis Henry Morgan was carrying on the investigations that culminated in his "Systems of consanguinity and affinity of the human family," the Institution, with the sanction of the Department of State, contributed to his efforts by sending questionnaires to qualified individuals in different parts of the world asking for pertinent information about the natives in the countries where they were located. The replies were forwarded to Morgan and played an important part in the preparation of the manuscript later published by the Institution. This method of obtaining data proved so successful that on occasions it is still used. The Smithsonian researches in anthropology have benefited greatly from the aid of the thousands of volunteer collaborators who have furnished information in response to such questionnaires.

Probably the greatest contributions to anthropology during Secretary Henry's tenure of office were in the printing of memoirs, monographs, and reports. The first scientific publication of the Institution, Vol. 1 of the *Smithsonian Contributions to Knowledge,* was the well-known "Ancient monuments of the Mississippi Valley," by E. G. Squier and E. H. Davis. When it appeared, requests for copies were so numerous that Henry wrote: "If all were granted it would completely exhaust all of the income of the Institution." The second volume contained Squier's "Aboriginal monuments of the State of New York," while C. Whittlesey's "Descriptions of ancient works in Ohio" appeared in the third. The fourth was devoted entirely to S. R. Riggs' "Dakota grammar and dictionary." Scattered through subsequent volumes were such papers as I. A. Lapham's "Antiquities of Wisconsin," S. F. Haven's "Archeology of the United States," T. J. Bowen's "Grammar and dictionary of the Yoruba language," J. G. Swan's "Indians of Cape Flattery," Morgan's previously mentioned "Systems of consanguinity" (a controversial work when it first appeared and one which even now is much debated in anthropological circles), Swan's "Haidah Indians of Queen Charlotte's Islands, British Columbia," Joseph Jones' "Explorations of the aboriginal remains of Tennessee," S. Habel's "The sculptures of Santa Lucia Cosumalwhuapa, in Guatemala, with an account of travels in Central America and on the western coast of South America," and W. H. Dall's "On the remains of later prehistoric man, obtained from caves of the Aleutian Islands."

During these years the appendices of the Annual Reports also contained numerous articles and reports of varying length on anthropological subjects. Considerable knowledge about developments in Europe was diffused in this way, and from their pages many American readers first became informed about the geologic antiquity of man, the Danish kitchen middens, the Swiss lake dwellers, and the determination of the ages of stone, bronze, and iron. Brief notices and longer articles describing finds and discussing ethnological studies in the New World were also included. A very helpful feature, started toward the

end of Henry's regime and continued for a number of years under Baird, were the bibliographies and summaries of general progress in anthropology prepared by Otis T. Mason, of Columbian College (George Washington University), Washington City. Publication of articles in the appendices of the Annual Reports has, of course, continued to the present. In recent years many anthropological items have been printed in *Smithsonian Miscellaneous Collections,* one of the more notable examples being Charles Upson Clark's translation of Espinoza's "Compendium and description of the West Indies." This early 17th-century treatise on Spanish America is a veritable treasure house of ethnological and historical information.

Cooperative projects were mainly along archeological lines, although other branches were not neglected. The Institution shared with the Historical Society of New York the costs of Squier's original surveys and explorations of the remains in that state. It joined with the Antiquarian Society of Worcester in furthering Lapham's work on the antiquities of Wisconsin. When the Peabody Museum was established at Harvard University, the Smithsonian invited it to join in a program of mound excavation in Kentucky, and some years later the two cooperated in making casts of the heads and faces of the Indians held prisoners at St. Augustine, Florida. The Institution and the Academy of Natural Sciences of Philadelphia together gathered information to be used in a study of the physical nature of European man in America. It cooperated to a greater or less extent, over a period of years, with the Chicago Academy of Sciences in collecting ethnological material from the Arctic regions. A group of collaborators to promote the study of American Indian linguistics was formed under its direction. These men—Alexander S. Taylor, of California; George Gibbs, of Washington Territory; Buckingham Smith, the Spanish scholar and historian, of Florida; and J. G. Shea, of New York—were to obtain information about all existing manuscripts in Indian languages with a view to publishing at least one grammar and dictionary of each of the representative languages of North America. Such material as was obtained was turned over to Dr. Shea, who was then preparing a "Library of American Linguistics," the Institution helping him by purchasing a stated number of copies of his works and distributing them to learned societies and libraries. The influence of Gibbs and Shea was important, and the assistance given by the Institution in promoting and diffusing their ideas was most opportune.

Another field of cooperation was that of the numerous government exploration parties, inaugurated shortly after the end of the Mexican War and the founding of the Institution. These boundary and railroad surveys and miscellaneous War and Navy Department expeditions, acting at the suggestion of, and under instructions from, the Smithsonian, obtained considerable anthropological material as well as that pertaining to natural history in general. The series of explorations was interrupted by the Civil War, however, and when the new surveys were started after its close, the Institution did not have as active a part in them as previously. A single exception was that of the Colorado River surveys of Maj. John W. Powell (1867–69), which were fostered by Secretary Henry. In 1871 they were extended into a geographical and geological survey of the Rocky Mountain region by a grant from Congress and were continued under the direction of the Smithsonian until 1 July 1874, when they were transferred to the Department of the Interior. The anthropological researches initiated by Powell during these years eventually had an important bearing on developments in the Institution. Upon his departure, Secretary Henry turned over to Powell all the ethnological and linguistic manuscripts in the Institution's files for use in furthering his studies.

Anthropology in the Museum

In the beginning it was not planned to make extensive collections of ethnological and archeological specimens for either study or exhibit purposes. A greater part of such as were received was turned over to men engaged in making special studies—such as Jeffries Wyman at Harvard, who received most of the human crania—or to museums and societies which were assembling objects of that nature. When Prof. Baird became assistant secretary, he made it a practice to retain a few choice articles, but it was not until after the collections of the U. S. Government were transferred from the Patent Office to the Smithsonian in 1858 and appropriations were made by Congress to support a museum that a definite program for assembling anthropological objects was started. Included in the Patent Office collections were items obtained by Lewis and Clark in 1803, by Gen. Cass in the Northwest Territory in 1820, and by the Wilkes Exploring Expedition in 1838. These 500-odd specimens were the nucleus to which were added the materials gathered by the boundary and railroad surveys; the Treasury Department's expedition to the new Territory of Alaska; the later Hayden, Wheeler, and Powell explorations; the special collections made by W. H. Dall, Edward Palmer, E. W. Nelson, and Lucien M. Turner, of the U. S. Signal Service, Roderick MacFarlane, of the Hudson's Bay Company, and the Rev. W. W. Kirby; the artifacts uncovered by excavations; and the articles sent in from America and

other parts of the world by volunteer contributors. In 1868 the Institution made an agreement with the Surgeon General whereby all its human crania and anatomical specimens were transferred to the Army Medical Museum in exchange for all ethnological material gathered by Army surgeons and other officers throughout the country. This increased the material-culture collections but delayed for many years the development of the study of physical anthropology in the Institution.

Great impetus was given to the gathering of Indian costumes, weapons, and other objects of their handicraft through Congressional appropriations for displays to illustrate the native American cultures at the Centennial Exhibition at Philadelphia. The actual collecting was done by, and at the expense of, the Bureau of Indian Affairs with the cooperation of the War and Treasury Departments and the U. S. Coast Survey, but the direction of the work and the preparation of the exhibits were entrusted to the Smithsonian Institution. Both archeological artifacts and objects made by the living Indians were included. In addition, many individuals, in response to requests prepared by the Institution and circulated by it and the Indian Bureau, sent specimens from all parts of the United States, Alaska, Puerto Rico, El Salvador, Costa Rica, Peru, Mexico, and the Samoan Islands. The work became so involved that Prof. Baird was no longer able to take full personal charge, and Edward Foreman was made assistant in ethnology. Otis T. Mason was appointed a resident collaborator and prepared plans for the exhibits at Philadelphia. Charles Rau aided as a collaborator but was soon named assistant in archeology, and Frank Hamilton Cushing was added as another assistant in ethnology. These men prepared the specimens and installed the exhibits at Philadelphia. When the collections, including those sent by foreign governments, were returned to Washington and to the Smithsonian Institution, Rau, Foreman, and Cushing were made permanent members of the organization and became the first anthropological staff of the now legally designated National Museum.

The Division of Anthropology was not established as such until 1883. When first organized, it contained three Departments: Arts and Industries, Races of Men, and Prehistoric Archeology. This was changed the following year, Ethnology being substituted for Races of Men, and Antiquities and American Prehistoric Pottery for Prehistoric Archeology. At this time Prof. Mason was named curator of Ethnology; Dr. Rau, curator of Antiquities; and W. H. Holmes, honorary curator of American Prehistoric Pottery. The assistant director of the Museum acted as curator of Arts and Industries, a department with seven sections. The Division was all inclusive, comprising the products of civilized as well as semi-civilized, barbaric, and savage peoples. Some years later (1897) the Museum was reorganized. The system of head curators was installed, and there was a reversal of nomenclature. The major groupings became departments, and the subgroups, divisions. The sections retained their former status. W. H. Holmes became the first head curator of the Department of Anthropology and, as such, supervised the Divisions of Ethnology, Historic Archeology, Prehistoric Archeology, Technology, Graphic Arts and its Section of Photography, Medicine, Religions, and History and Biography. In 1903 a Division of Physical Anthropology was added. As time went on, a number of the divisions and sections became sufficiently distinct and specialized to warrant detaching them from anthropology, and they either were made autonomous units, such as the Division of History, or were transferred to a new and separate Department of Arts and Industries, formed in 1919. Subsequently other divisions and sections were combined. The Department now consists of the Divisions of Archeology, Physical Anthropology, and Ethnology. The curator of the latter also has charge of the Sections of Period Art and Textiles, Heating and Lighting, Ceramics (including glass and silver), and Musical Instruments.

During its entire history anthropology in the Museum has had two main aims. These are (1) well-arranged displays of anthropological material for the benefit of the community at large, the thousands of visitors who annually visit its exhibits, and (2) large reserve collections available for study by those engaged in original researches. The Institution was a pioneer in the installation of life-sized groups depicting activities of the New World aborigines and in the use of scale models to illustrate Pueblo villages and cliff dwellings in the Southwest and types of Indian communities in other parts of the country. Beginning with Dr. Rau and Prof. Mason, the curators have divided their time between classifying, preserving, and arranging the collections and writing papers based on them. To this, of course, has been added original investigations in the field and the gathering of specimens to fill gaps. These extensive collections, now totaling 728,318 catalogue numbers, have been in constant use not only by members of the Institution's staff but also by students from all parts of the world. Many important articles, memoirs, and monographs have been based on them. These have appeared in the Annual Reports of the U. S. National Museum, the Museum Bulletins, in other of the Institution's series, and in numerous outside publications. Among the many studies may be mentioned those by Rau on stone implements; Mason's exhaustive articles

on throwing sticks, aboriginal basketry, bows and arrows, primitive travel and transportation, and cradles of the North American Indians; those by J. G. McGuire on primitive methods of drilling, and pipes and smoking customs of the American aborigines; the papers of W. H. Holmes on Indian pottery and on the lithic industries; Thomas Wilson's descriptions of arrowpoints, spearheads, and knives of prehistoric man; Hough's studies of fire-making and lighting equipment; Frances Densmore's work on musical instruments; and Hrdlička's numerous papers on the skeletal material. In the latter connection it should be mentioned that, following the organization of the Division of Physical Anthropology, the Army Medical Museum returned all the crania and skeletons transferred to it under the agreement of 1868 and many additional specimens acquired by it in the ensuing years. This formed the basis for what has now become one of the largest series of human skeletal material of its kind in the world.

Original anthropological explorations by members of the Institution staff had their beginnings in 1868–69, when Prof. Baird, impressed by similar work in Europe, examined a cave in central Pennsylvania for signs of "early man" and began excavations in shell heaps around the Bay of Fundy. Powell's work among the Indians in the Rocky Mountain region during these years might be construed in the same light, but at that time he was not in the true sense of the word a member of the Institution staff. The sponsorship of those particular investigations is more comparable to the practice of preceding years, when qualified men from the outside were asked to undertake specific tasks and were only temporarily associated with the Institution. A few years after Baird's excavations Cushing was detailed from the Museum to join Henry J. Biddle, of Philadelphia, in the exploration of a cave near Hagerstown, Maryland. This was followed by Cushing's examination of newly discovered aboriginal soapstone quarries in Virginia and on Soapstone Run, a branch of Rock Creek, in the District of Columbia.

The Bureau of American Ethnology

Extensive and intensive field work actually had its inception in 1879. In that year Congress passed an act discontinuing the four surveys then operating in the Western Territories and established the U. S. Geological Survey. The act also provided for the continuance of the anthropological researches that had been carried on by the surveys and directed that all the materials which had been gathered should be turned over to the Smithsonian and that the Institution assume responsibility for furthering the investigations. Powell, who was mainly responsible for the program of Indian studies in the surveys, was asked to direct the work for the Institution and proceeded to organize the Bureau of Ethnology, the adjective American being added to the title in later years. This was the first, and for a long time the only, example of a government agency committed to a systematic study of its native peoples and one which subsequently served as a model for others elsewhere. Appropriations for the continuance of these researches have been made annually by Congress since that time. A year after the founding of the Bureau, Powell was also appointed director of the Geological Survey and served in both capacities until 1894, when he resigned from the Survey and devoted all his energies to the Bureau. Succeeding heads of the organization have continued its operations in large part along the lines laid down by Powell.

At first, plans were to restrict investigations to the living tribes and tribal remnants in order that rapidly passing facts might be preserved. In 1881, however, as a result of popular petition, Congress enlarged the scope of the Bureau and specifically required that researches pertaining to prehistoric remains in the United States be undertaken. From them until now both fields have occupied the attention of members of its staff, although until recent years most efforts were directed to studies of the living Indians. At present, because of changing conditions, more of the researches are in archeology. As the work progressed it became evident that the Indians of the United States were only a part of much larger and more widespread problems, and the field of studies was broadened until it now includes all of North, Middle, and South America and the Hawaiian Islands.

The researches of the Bureau have been based on actual investigations in the field, either in the observation of peoples or in the excavation of archeological sites, and the subsequent study and correlation of data thus obtained. After their study has been completed, all ethnological, archeological, and skeletal specimens derived from this work are turned over to the Museum. The results of the researches and the conclusions reached have been published in part or in full. When of widespread general interest, they have been given extended treatment. When of a highly technical nature or of interest to a limited group, as in linguistics, only typical examples have been printed, the mass of the material being held for comparative study. The Bureau has several thousand ethnological and linguistic manuscripts of this type, including most of those which were collected by the Institution during its early years, turned over to Powell when he went to the Department of the Interior, and brought back

when he returned in 1879. They contain valuable source information and are in constant use by students.

The publications of the Bureau consist of 62 Annual Reports, 143 Bulletins, and 12 Miscellaneous Publications. It collaborated in the preparation of six *Contributions to North American Ethnology*. This series was started by Powell when he was in charge of the Geographical and Geological Survey of the Rocky Mountain Region, and two volumes were published before he organized the Bureau. Although the series was actually transferred to the Bureau and all the editorial work involved in the issuance of the last six volumes was under its jurisdiction, all appeared under the imprint of the Survey. The first 47 Annual Reports contain, in addition to the administrative report, ethnological papers and monographs treating of all phases of aboriginal life and numerous archeological reports. The 48th contains an index to all preceding reports, while those from 49 through 62 are wholly on the administrative work. The Bulletins comprise articles, memoirs, and monographs on language, native arts and industries, institutions and organizations, myths and beliefs, ethnobotany, ethnogeography, bibliographies of Indian languages, physical anthropology, and archeology. Bulletin 30, consisting of two volumes, is the *Handbook of the American Indians north of Mexico*; Bulletin 40, also in two volumes, is the *Handbook of American Indian languages*; Bulletin 78 is the *Handbook of the Indians of California*; while Bulletin 143, of which two volumes have just appeared, two are in press, and the fifth is ready for the printer, is the *Handbook of South American Indians*. The last is a joint project with the Department of State's Interdepartmental Committee on Cultural and Scientific Cooperation and includes the work of some 70 scholars in the American Republics. The Miscellaneous Publications are mainly circulars of directions and forms prepared for the use of collaborators and staff members working in the field. The Contributions contain ethnological, linguistic, and archeological papers. All the volumes in the several series are standard references and are in continual demand by libraries, universities, professional anthropologists, and students in all parts of the world.

The printing of manuscripts by the Bureau has not been restricted to those prepared by members of its own staff and the men in the Department of Anthropology at the Museum. The work of experts affiliated with other scientific institutions, colleges, and universities and that of qualified independent investigators have been included. Throughout its 67 years of activity the Bureau has made extensive use of collaborators and contributors, and many of its important additions to anthropological knowledge were derived from such sources. Included in this category are such well-known names as Jeremiah Curtin, Daniel G. Brinton, Charles P. Bowditch, Stephen Powers, H. L. Morgan, Franz Boas, Roland B. Dixon, Alexander F. Chamberlain, E. Förstemann, E. Seler, Garrick Mallery, Washington Matthews, H. C. Yarrow, John Murdoch, W. H. Dall, Stewart Culin, Alfred L. Kroeber, Waldemar Bogoras, Frances Densmore, and Elsie Clews Parsons.

Current investigations by the Bureau include explorations in the Veracruz area of Mexico in cooperation with the National Geographic Society, and in Peru, where a program for a study of the Virú Valley is being carried on in cooperation with Yale University, Columbia University, the American Museum of Natural History, the Chicago Natural History Museum and the Instituto de Etnologia de Perú; linguistic studies of the Kiowa and certain California tribes; ethnological observations among the Iroquois of northern New York and southern Canada; and studies pertaining to the "early man" problem in America, a subject to which the organization has made definite contributions through its discoveries relating to so-called Folsom Man. Furthermore, the Smithsonian Institution, through the Bureau, is cooperating with the National Park Service, the Bureau of Reclamation, and the Corps of Engineers in initiating a program to save as much as possible of the archeological evidence from sites to be inundated by the construction of dams and formation of large reservoirs in many of the river systems of the United States. Three survey parties are at present locating such remains in the Missouri River Basin, and additional groups are expected to start in other basins by late summer or early fall.

The Institute of Social Anthropology

The newest anthropological unit established in the Institution is the Institute of Social Anthropology, which was created in 1943 to carry out cooperative projects in anthropological teaching and research. This is part of the program of Cultural and Scientific Cooperation with the American Republics, organized by the Department of State. The Institute is supported by funds transferred to the Smithsonian by the Department of State from funds appropriated by Congress. The cooperative programs of the Institute have two objectives: (1) to introduce modern social science theories and techniques to other countries so that they may train their own scholars for such work, and (2) to accumulate basic social science data about the rural populations in those countries. The work in general is closely allied to that of rural

sociology, but the approach is anthropological. A series called *Publications of the Institute of Social Anthropology* has been established, in which the results of the field studies appear. These monographs contribute to a broader knowledge of the social sciences and furnish material, comparable in scope and purpose to studies made in other parts of the world, that may be used in arriving at generalizations concerning culture processes and culture changes. They also provide information that may be of help to administrators whose duty it is to carry out practical programs among peoples whose basic cultures are being greatly affected by the growth and changes in present-day civilization.

Since its organization, the Institute has had members of its staff in Mexico, cooperating with the Escuela Nacional de Antropología; in Peru, working with the Instituto de Estudios Etnológicos and the Ministry of Education; and in Brazil, assisting the Escola Livre de Sociología e Politica de São Paulo. The contemplated expansion of the general cooperative program to the Eastern Hemisphere suggests the possibility of the Institute's eventually having projects in the Near East, China, and Russia.

During the war period members of the various anthropological staffs in the Institution devoted much of their time to searching out and preparing information about native peoples and little-known parts of the world and to writing pamphlets and handbooks for various branches of the armed services. This work was coordinated by the Ethnogeographic Board, an organization set up as a joint project of the Smithsonian Institution, the National Research Council, and the American Council of Learned Societies. The offices of the Board, which went out of existence on 30 June 1946, were in the Smithsonian Building.

Throughout the history of the Bureau of American Ethnology, the Department of Anthropology, and the recent Institute of Social Anthropology, there has been no duplication of effort. The researches and other work have been planned and carried on as an integrated whole. The activities of each unit supplement those of the others, and in conjunction the three comprise the Smithsonian program for anthropology.

The Smithsonian: Pioneer in American Geology

Ray S. Bassler

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ROCKS, MINERALS, AND FOSSILS are popularly regarded as the sole objects of the geologist's study. The rocks do, indeed, furnish basic ideas of the earth's composition and history; the minerals are their expressions in chemical form or their artistic representations as gems; and the fossils reveal the story of prehistoric life, its environment, and its development. The natural science geology is, however, a broader subject, because it records the entire history of the earth and its inhabitants from our planet's origin in the sun to the present. Thus, geology is a composite science in which astronomy, biology, physics, and chemistry, contribute toward unraveling this complicated history. Furthermore, its findings lead directly to the modern sciences of economics, history, geophysics, and other subjects. It is in this larger sense that some of the pioneer researches of the Smithsonian Institution are here outlined. Since 1846, geologic research in many of its phases has been fostered and encouraged by the Institution and in some instances has been personally cultivated by its secretaries. This broad conception of the science is illustrated in Elliot's large mural painting, "Diana of the Tides," overlooking the dinosaur hall of the Natural History Building. Although primarily intended to represent the story of mythology, "Diana" does in fact picture astronomy, physical geology, petrology, sedimentation, fossils, glaciation, and other subjects of geological inquiry.

Progress in the earliest days of American geology was made largely by men engaged in the "learned" professions who pursued its study as a hobby. At that time there were no maps and no railroad cuts where the rocks were exposed to view; in fact, the country was largely a wilderness. It was logical, therefore, that certain gigantic fossil bones found weathered out at the surface in western Virginia (now West Virginia) should be investigated first. These were described by Thomas Jefferson as *Megalonyx,* which later was found to be not a lionlike animal, as he thought, but a giant sloth. When Jefferson became President, he continued his paleontological studies and had in the White House more than 300 fossil bones, chiefly from Big Bone Lick, Kentucky.

The James Smithson bequest came at an opportune period in the history of American geology. During this very year or shortly afterward New York and 12 other states inaugurated state geological surveys, being preceded only by North Carolina in 1824 and Tennessee in 1831. These early surveys were primarily charged with such essential projects as preliminary mapping, soil and mineral analyses, and other require-