

An account of the Smithsonian Institution : its origin, history, objects and achievements / [G. Brown Goode].

Contributors

Goode, G. Brown 1851-1896.
Smithsonian Institution.

Publication/Creation

Washington, 1895.

Persistent URL

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AN ACCOUNT
OF THE
SMITHSONIAN INSTITUTION
ITS ORIGIN, HISTORY,
OBJECTS AND ACHIEVEMENTS

Promote, as an object of primary importance, *institutions for the increase and diffusion of knowledge*: in proportion as the structure of a government gives force to public opinion, it is essential that public opinion should be enlightened.

GEORGE WASHINGTON, 1796.

I bequeath the whole of my property to the United States of America to found at Washington *an establishment for the increase and diffusion of knowledge among men.*

JAMES SMITHSON, 1826.

Let the trust of James Smithson to the United States of America be faithfully executed by their representatives in Congress: let this result accomplish his object—*the increase and diffusion of knowledge among men.*

JOHN QUINCY ADAMS, 1846.

CITY OF WASHINGTON
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1895

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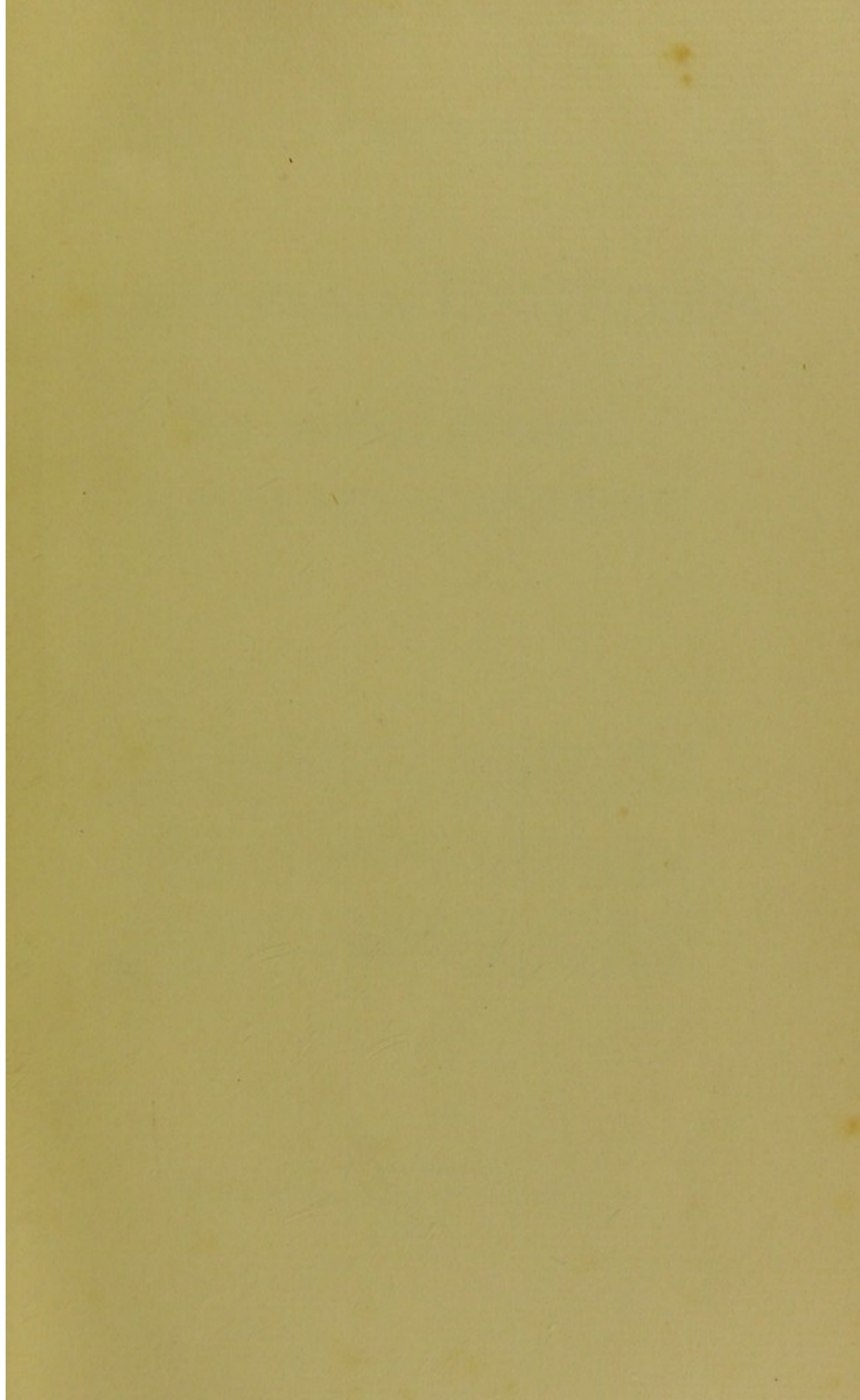
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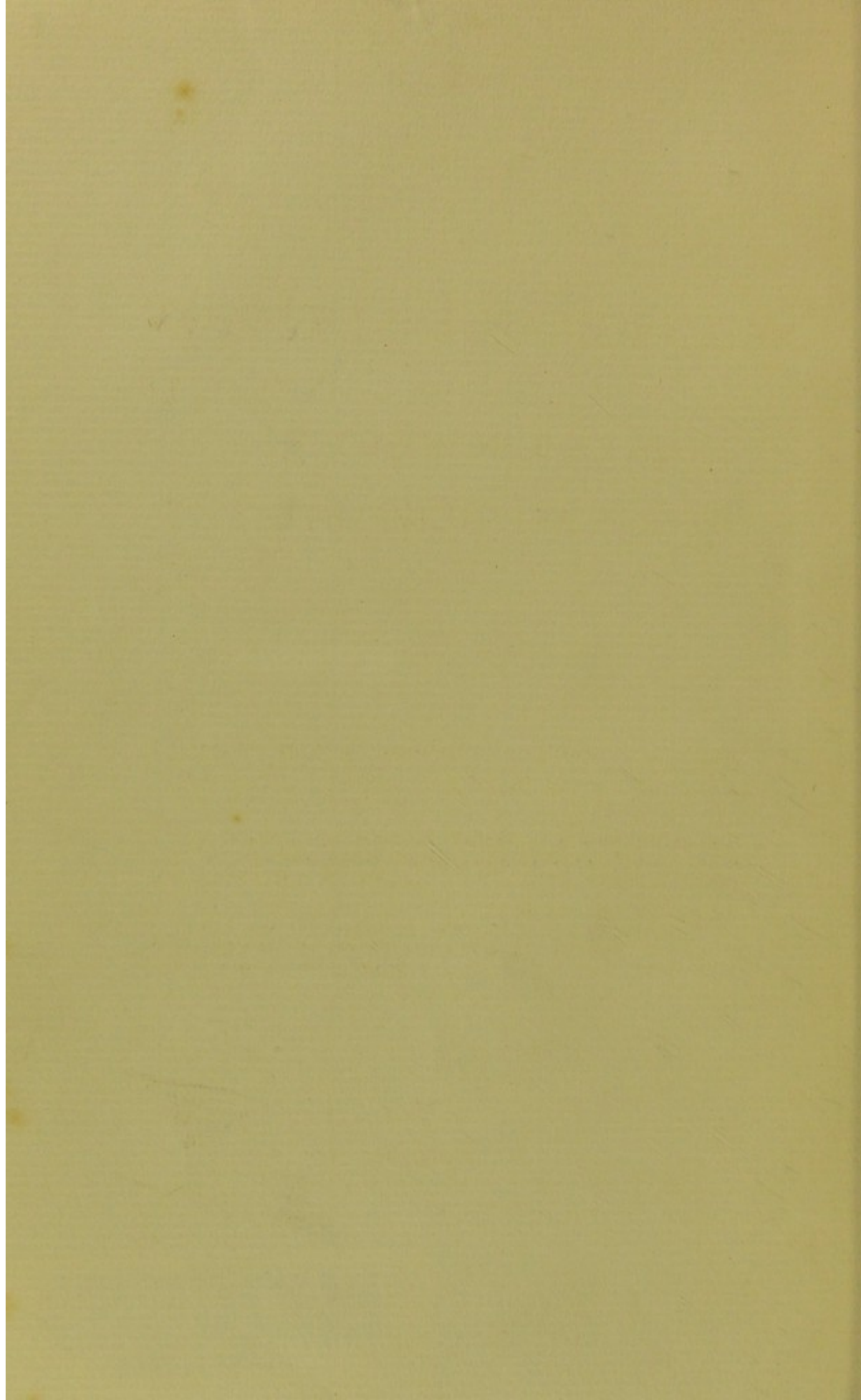
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THE SMITHSONIAN INSTITUTION.

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ADLAI E. STEVENSON, Vice-President of the United States.
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- S. P. LANGLEY, Secretary of the Institution.
G. BROWN GOODE, Assistant Secretary.



THE SMITHSONIAN INSTITUTION.

BY G. BROWN GOODE.

THE name of the Smithsonian Institution is a household word in America, while in every center of intellectual activity abroad, it is regarded as the chief exponent of the scientific thought of the people of the United States, thus representing that which is deemed in other lands to be the chief glory of our nation; for, whatever may be thought of American art and literature, or of American institutions in general, the science of America is everywhere accepted as sound, vigorous and progressive.*

Its activities are, however, not limited to science, but embrace every branch of human knowledge.

The Smithsonian Institution, although it bears the name of a foreigner, has for half a century been one of the most important agencies in the intellectual life of our people. It has been a rallying point for the workers in every department of scientific and educational work, and the chief agency for the free exchange of books, apparatus of research and of scientific intelligence between this and other countries. Its publications,

* THIS PUBLICATION is intended to serve as a "descriptive label" to accompany the collective exhibit of the Smithsonian Institution and its dependencies. It is based upon my essay on THE SMITHSONIAN INSTITUTION, printed in 1885, in "The Chautauquan" (Vol. V, pp. 275-79), and upon later writings, especially "The Origin of the National Scientific and Educational Institutions of the United States" (Report American Historical Association, 1889, pp. 53-100); "The Genesis of the National Museum" (Smithsonian Report, 1891, II, pp. 273-380) and the article "Smithsonian Institution" in Johnson's Cyclopædia, new edition (Vol. VII, 1895).

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which include more than two hundred volumes, are to be found in all the important libraries in the world, and some of them, it is safe to say, on the work-table of every scientific investigator. Its great library constitutes an integral and very important part of the national collection at the Capitol, and its museum is the richest in existence in many branches of the natural history and ethnology of the New World. Many wise and enlightened scholars have given their best years to its service, and some of the most eminent men of science to whom our country has given birth, have passed their entire life-time in working for its success.

The most important service, however, which the Smithsonian Institution has rendered to the nation—intangible, but none the less appreciable—has been its fifty years of constant cooperation with the Government, with public institutions, and with individuals in every enterprise, scientific or educational, which needed its advice, support, or aid from its manifold resources.

Visitors to the city of Washington carry away pleasant memories of the quiet group of buildings among the trees in the Mall, filled with the wonders of nature and art, and the trophies of scientific discovery: Few of them, however, have the opportunity to visit the administrative offices and laboratories, or to gain any idea of the real significance and value of the work which is being carried on within those walls.

It is probable that no class of the American people appreciates the work of the Institution more fully than the members of Congress. This has been clearly shown by the uniform liberality with which, throughout many successive terms, regardless of changes in the political complexion of the administration, they have supported its policy; by the care with which they disseminate its reports; by the judgment with which they select their representatives upon its Board of Regents, and above all, by the scrupulous care with which they protect the institution in its independence of political entanglements. That the Institution has accomplished so much in the past is largely due to the support which it has received from these practical men of business, and through them from the people of the United States. It is to such support that it will owe its effi-

ITS ORIGIN AND ACHIEVEMENTS

ciency in the future, and it seems right that every opportunity should be taken to explain its operations to the public. No intelligent American can fail to appreciate the benefits which the highest interests of the American people receive through the proper administration of the Smithsonian bequest.

THE ORIGIN OF THE INSTITUTION.

The story of the foundation of the Smithsonian Institution sounds more like romance than fact. It seems like the fulfillment of some prophecy, and all the more so because of the promise of the future.

The father of the founder of the Smithsonian Institution, in early life known as Sir Hugh Smithson, was one of the most distinguished members of the English peerage. Upon the plate of his coffin in Westminster Abbey, where he was buried "in great pomp" in 1786, he was described as "the most high, puissant and most noble prince Hugh Percy, Duke and Earl of Northumberland, Earl Percy, Baron Warkworth and Lovaine, Lord Lieutenant and Custos Rotulorum of the Counties of Middlesex and Northumberland and of all America, one of the Lords of his Majesty's most Honorable and Privy Council and Knight of the most noble Order of the Garter, etc., etc., etc."

While his aged father was supporting this overwhelming burden of honors and dignities, and while his half brother, Earl Percy, was serving as a Lieutenant-General in the war against the rebellious British colonies in North America,* James Smithson, a youth of modest fortune, was acquiring the rudiments of a scientific education in English schools and colleges. He received the degree of Master of Arts from Pembroke College, Oxford, in 1786, the year of his father's death. He was then known as James Lewis Macie, for he did not assume the name of Smithson until several years later, after he had attained to some reputation as a man of science. His mother was not the Duchess of Northumberland, but her cousin, Elizabeth Keate Macie, of "Weston" near Bath (widow of James Macie), great-granddaughter of Sir George Hungerford of

* LORD ALGERNON PERCY, afterwards Duke of Northumberland, commanded the reinforcements at the battle of Lexington in 1775, and led the column which reduced Fort Washington, near New York, in 1776.

THE SMITHSONIAN INSTITUTION

"Studley," and his wife, Lady Frances Seymour, sister of the sixth Duke of Somerset and aunt of Algernon Seymour, Lord Percy, whose daughter Sir Hugh Smithson married, and was thus enabled to assume the name of Percy and the title of Duke of Northumberland.*

The Smithsons were an old Yorkshire family; Sir Hugh, the great-grandfather of James Smithson, having been created baronet by Charles II in 1660.

James Smithson was undoubtedly proud of his illustrious ancestry, for in his will he described himself as "son of Hugh, first Duke of Northumberland and Elizabeth, heiress of the Hungerfords of Studley, and niece of Charles, the Proud Duke of Somerset."

He was, however, a man of broad, philosophic mind, and his training in the best scientific methods of his day, and association with leading investigators in Germany and France, and with his brother Fellows of the Royal Society of London, had developed in his mind a generous appreciation of the value of scholarship and scientific culture, and of the still greater importance which these were to have in coming years.

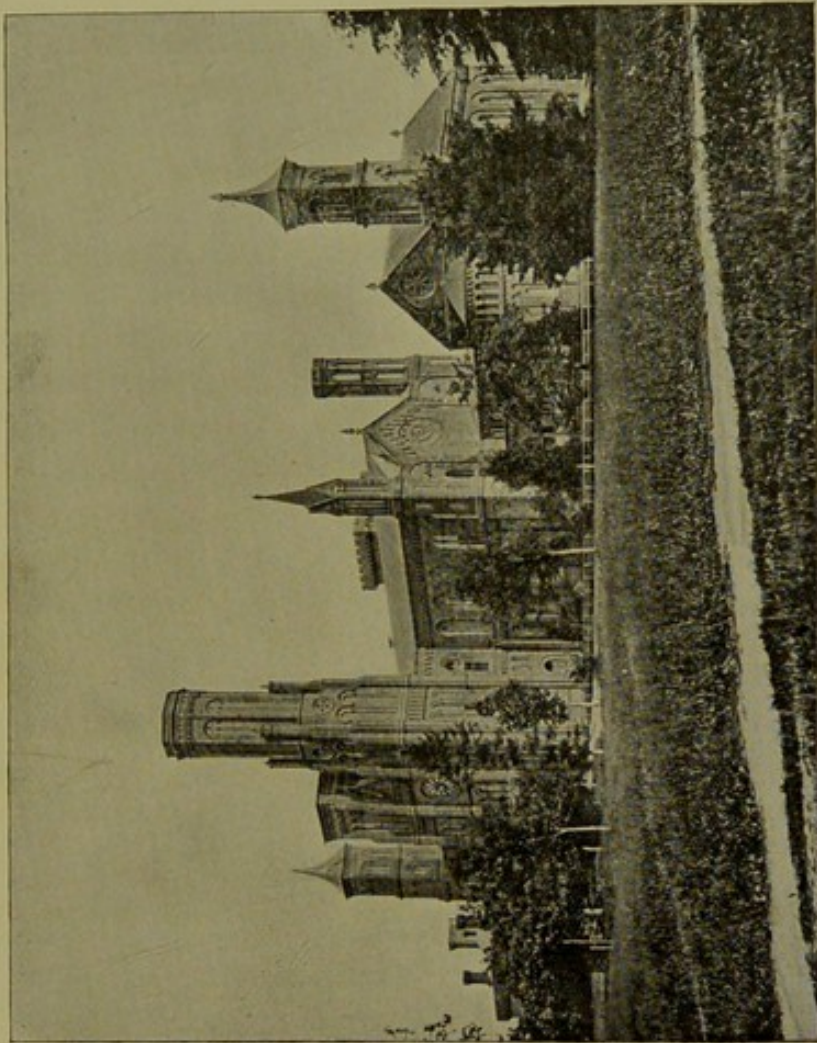
"The best blood of England flows in my veins," he once wrote; "on my father's side I am a Northumberland, on my mother's I am related to kings,† but this avails me not. *My name shall live in the memory of man when the titles of the Northumberlands and the Percys are extinct and forgotten.*

These words seem little less than prophetic. The founder of the Smithsonian Institution has already earned perpetual

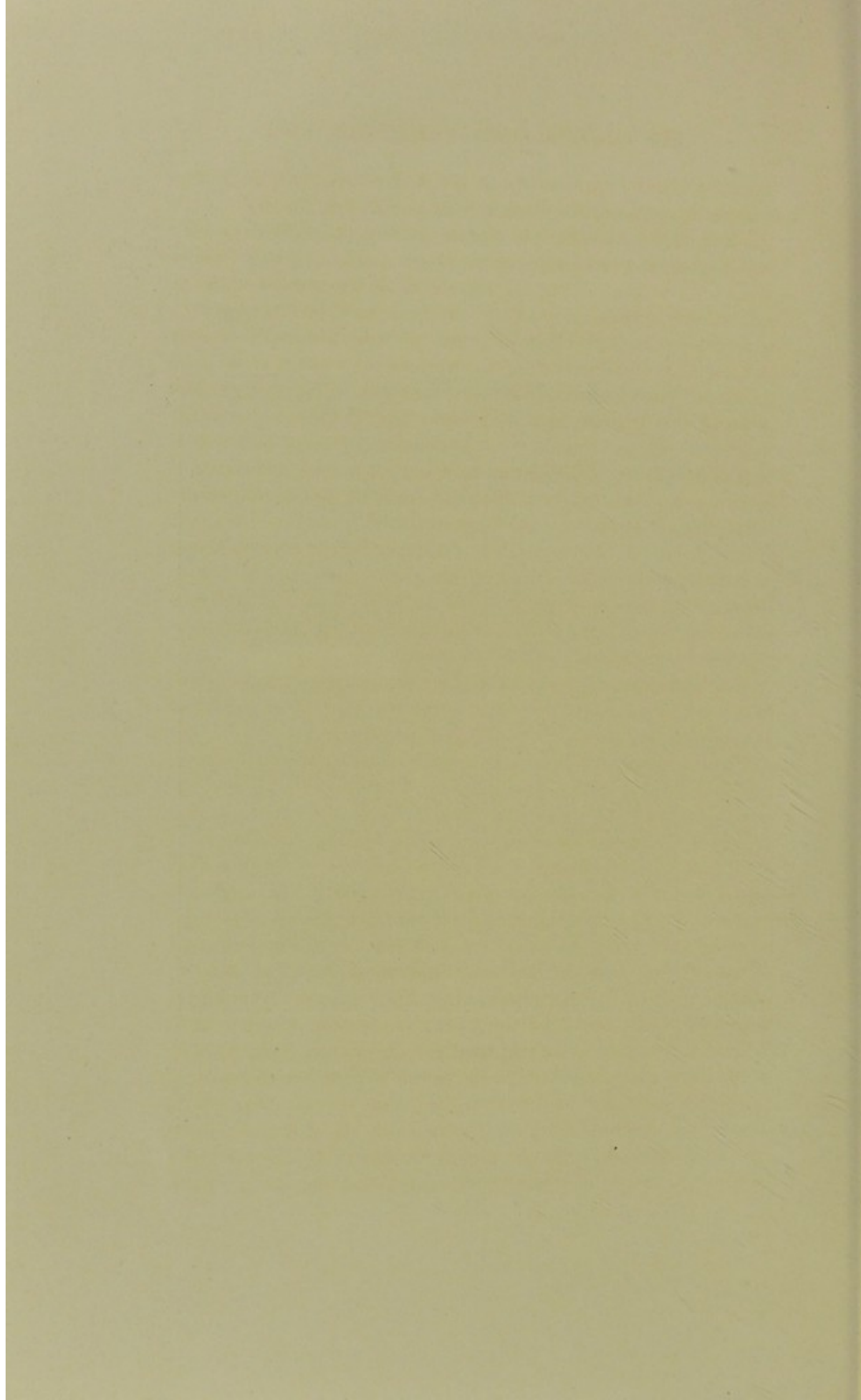
* SMITHSON was born in France in 1765. The date 1754 usually given for his birth, and engraved upon his tomb is wrong, as is shown by his Oxford matriculation records.

The source of his fortune is not certainly known. At Oxford, where he was entered as a Gentleman Commoner, he was understood to have succeeded to the estate of his mother's husband, Macie, and in 1794 he received a bequest of 3,000 pounds from his half sister, Dorothy Percy. The major portion of his estate however came to him by the bequest of his half brother, Col. Henry Louis Dickinson of the 84th Regiment of Foot, who died in Paris in 1820. The statement of Smithson that his mother was "heiress of the Hungerfords of Studley," probably indicates the source of a considerable portion of the wealth of which that document made disposition.

† SMITHSON was of royal descent, through his maternal ancestor, the ill-fated Lady Catharine Grey, great-granddaughter of King Henry VII, grandniece of Henry VIII and cousin of Elizabeth. His ancestor in the ninth generation, Edward Seymour, the first Duke of Somerset and Protector of England, was the brother of Queen Jane Seymour and the uncle of King Edward VI.



THE SMITHSONIAN BUILDING



ITS ORIGIN AND ACHIEVEMENTS

fame; while the name of the Duke of Northumberland is now scarcely known outside the circle of the British Court.

Smithson seems, early in life, to have come fully into harmony with the scientific spirit of his time. In 1784, while still an undergraduate at Oxford, he made a scientific exploration of the coasts of Scotland in company with a party of geologists. In 1787 he was admitted a Fellow of the Royal Society, and during the remaining forty-two years of his life, in Berlin, Paris, Rome, Florence, and Geneva, he was an associate of the leading men of science, and devoted himself to research. He made an extensive collection of minerals, which was destroyed by the burning of a portion of the Smithsonian building in 1865, and he always carried with him in his travels a portable laboratory for chemical research.

His contributions to science are included in twenty-seven memoirs, chiefly upon topics in mineralogy and organic chemistry, though some of them relate to applied science and the industrial arts. His work, though not of an epoch-making character, was remarkable for its minute accuracy.

Smithson was a greater man than is indicated by his published writings alone. Berzelius declared that he was one of the most accomplished mineralogists in all Europe.

He was a man of generous culture who understood thoroughly the needs of the world in the direction of scientific endowment, and his action in bequeathing his estate to the people of America was deliberate and well considered.

In that admirable little monograph entitled "Smithson and His Bequest," Mr. W. J. Rhees has pointed out that the tendency of the time of Smithson was toward the establishment of permanent scientific institutions. Between 1782 and 1826 over twenty of the most important academies and societies now in existence were organized. "This period" he writes "was not less marked by the gloom occasioned by long, protracted and almost universal war, and the extent and rapidity of its social changes, than by the luster of its brilliant discoveries in science, and its useful inventions in the arts. Pure science had many illustrious votaries, and the practical application of its truths gave to the world many of the great inventions by means of which civilization has made such immense

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and rapid progress." In support of these statements he quotes the words of Lord Brougham, a representative statesman of the day, who said that "to instruct the people in the rudiments of philosophy would of itself be an object sufficiently brilliant to allure the noblest ambition."

Brougham forcibly recommended this idea to the wealthy men of England, pointing out that by the promotion of such ends, a man, however averse to the turmoil of public affairs, might enjoy the noblest gratification of which the most aspiring nature is susceptible, and influence by his single exertions the fortunes of a whole generation.

Very closely do these thoughts correspond to those expressed by Smithson in various passages in his note books, and especially with that which is used for a motto upon the publications of the Institution:—

"Every man is a valuable member of society, who by his observations, researches, and experiments, procures knowledge for men."

Another sentence of his is still more pregnant with meaning. It is this:—

"It is in his knowledge that man has found his greatness and his happiness, the high superiority which he holds over the other animals who inherit the earth with him, and consequently, no ignorance is probably without loss to him, no error without evil."

It was with a mind full of such thoughts as these, with perhaps the support and inspiration of Lord Brougham's words quoted above from his "Treatise on Popular Education," printed in 1825, with such models in mind as the Royal Society, whose object is "the improvement of natural knowledge," the Royal Institution "for diffusing the knowledge and facilitating the general introduction of useful mechanical inventions and improvements, and for teaching the application of science to the common purposes of life," and the Society for the Diffusion of Useful Knowledge, established in London in 1825, that in 1826 Smithson drew up his will, containing this most significant provision:—

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"I BEQUEATH THE WHOLE OF MY PROPERTY TO THE UNITED STATES OF AMERICA TO FOUND AT WASHINGTON, UNDER THE NAME OF THE SMITHSONIAN INSTITUTION, AN ESTABLISHMENT FOR THE INCREASE AND DIFFUSION OF KNOWLEDGE AMONG MEN."

There is no reason known why he should have selected the United States as the seat of his foundation, though it is certain that he was in full sympathy with republican governments and the liberty of the people. His library contained only two books relating to America. Rhees quotes from one of these, "Travels Through North America," by Isaac Weld, secretary of the Royal Society, a paragraph concerning Washington, then a small town of 5,000 inhabitants, in which it is predicted that "the Federal city, as soon as navigation is perfected, will increase most rapidly, and that at a future day, if the affairs of the United States go on as prosperously as they have done, it will become the grand emporium of the West, and rival in magnitude and splendor the cities of the whole world."

It is probable that he knew Joel Barlow in Paris, and was familiar with his plan for a realization of Washington's project for a great national institution of learning in the Federal city.*

Inspired by a belief in the future greatness of the new nation, realizing that while the needs of England were well met by existing organizations such as would not be likely to spring up for many years in a new, poor, and growing country, Smithson founded in the new England an institution of learning, the civilizing power of which has been of incalculable value. Who can attempt to say what the condition of the United States would have been to-day without his bequest? Well did John Quincy Adams say:—

"Of all the foundations of establishments for pious or charitable uses which ever signalized the spirit of the age or the comprehensive beneficence of the founder, none can be named more deserving the approbation of mankind."

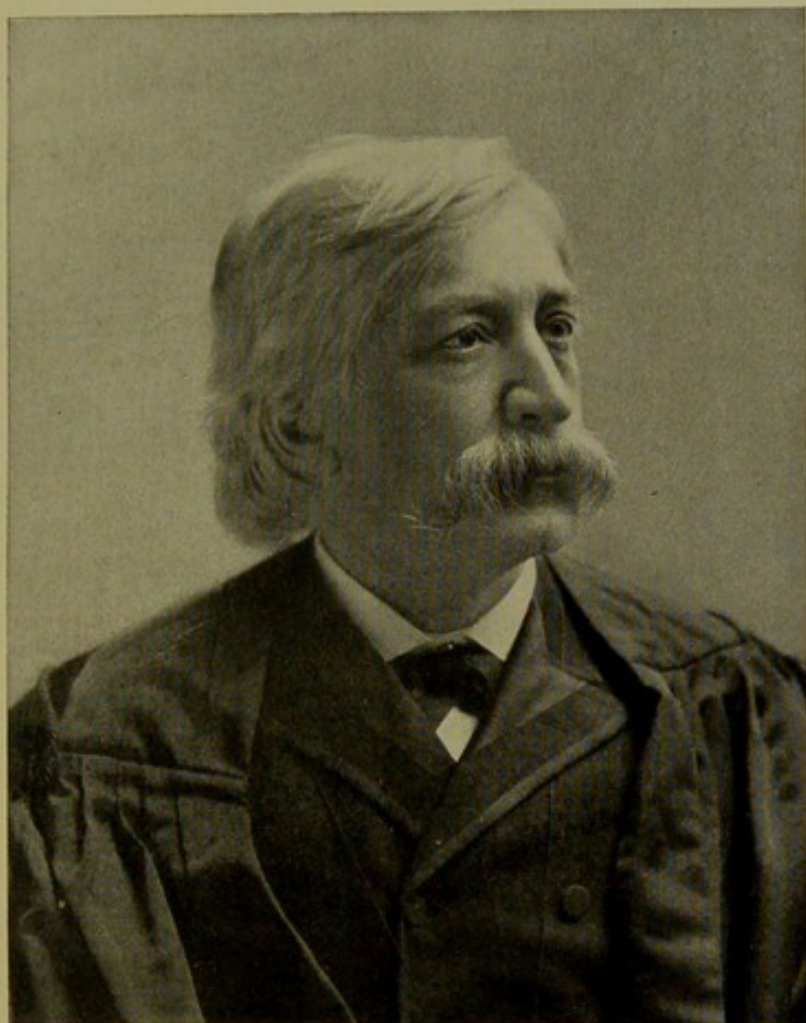
In 1835, six years after Smithson's death, the United States legation in London was notified that his estate, amounting in value to about £100,000, was held in possession of the accountant-general of the British court of chancery.

*See Washington's Farewell Address (September 19, 1796).

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As soon as the facts became public, great opposition to the acceptance of the gift arose in Congress. Eminent statesmen, led by Calhoun and Preston, argued that it was beneath the dignity of the United States to receive presents, and that the donor was seeking immortality for too moderate an equivalent. The wise counsels and enthusiastic labors of John Quincy Adams, who seems to have had from the first a thorough appreciation of the importance of the occasion, finally prevailed, and the Honorable Richard Rush was sent to England to prosecute the claim. He entered suit in the Courts of Chancery in the name of the President of the United States, and obtained in less than two years, an event unparalleled in the history of Chancery, a favorable decision. The legacy was brought over in the clipper ship "Mediator" in the form of 104,960 gold sovereigns. These were delivered September 1st, 1838, to the Philadelphia mint, and immediately recoined into American money, yielding \$508,318.46, as the first installment of the legacy. This was soon after increased to \$515,169, and in 1867 by a residuary legacy of \$26,210.63, the total sum derived from the founder's beneficence, which by careful management had been in 1867 increased to \$650,000. At one time in the early history of the Institution a large portion of its fund was in certain State bonds which became worthless. Congress appropriated money to make good the loss, and the permanent fund, which, swelled by recent bequests, now amounts to \$911,000, is held as a deposit at six per cent. in the United States treasury.

For eight years this legacy lay in the Treasury, while the wise men of the nation tried to decide what to do with it. At the time, the adage that in a multitude of counselors there is wisdom, did not appear to be applicable; yet the delay, though irksome to those who desired to see immediate results, proved to be the best thing for the interests of the trust. Every imaginable disposition of the legacy was proposed and discussed in Congress; the debates fill nearly three hundred and fifty pages of Rhee's compilation of Smithsonian documents. Hundreds of letters advisory, expostulatory, and dissuasive were received from representative thinkers and from societies at home and abroad. Every man had a scheme peculiar to himself, and opposed all other schemes with a vigor proportionate to their



CHIEF JUSTICE FULLER
CHANCELLOR OF THE SMITHSONIAN INSTITUTION

FROM A PHOTOGRAPH BY C. M. BELL



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dissimilarity to his own. Schools of every grade, from a national university to an agricultural school, a normal school and a school for the blind, were proposed. A library, a botanical garden, an observatory, a chemical laboratory, a popular publishing house, a lecture lyceum, an art museum, any and all of these and many more were proposed and advocated by this voluntary congress of many men of many minds.

THE THREE SECRETARIES.

The successful organization of the Institution has been the result of long continued effort on the part of men of unusual ability, energy, and personal influence. No board of trustees or regents, no succession of officers serving out their terms in rotation could have developed from a chaos of conflicting opinions, a strongly individualized establishment like the Smithsonian Institution. The names of Henry and Baird are so thoroughly identified with the history of the Institution during its first four decades that their biographies would together form an almost complete history of its operations. A thirty-two years' term of uninterrupted administrative service was rendered by one, thirty-seven years by the other. Perhaps no other organization has had the benefit of so uninterrupted an administration of forty years, beginning with its birth and continuing in an unbroken line of consistent policy a career of growing usefulness and enterprise.

The first meeting of the board of regents took place on September 7, 1846, and before the end of the year the policy of the regents was practically determined upon, for, after deciding upon the plan of the building now occupied, they elected to the secretaryship Professor Joseph Henry, and thus approved his plan for the organization of the Institution which had previously been submitted to them.

Henry was a man greatly distinguished in science through his epoch-making discoveries, which had already given to the world the electro-magnetic telegraph, and which form the foundation of all systems of electric lighting and power.* From the age of forty-seven to that of seventy-nine, he merged

*SELF-INDUCTION, and the intensity magnet, with which Henry and Faraday subsequently discovered magneto-electricity.

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his life in that of the Institution. Professor Asa Gray has shown so clearly the deep impression which he made upon the organization while it was yet plastic, that I quote his words as the best explanation of the character of this element in its history :

“Some time before his appointment,” writes Professor Gray, “he had been requested by the members of the Board of Regents to examine the will of Smithson and to suggest a plan of organization by which the object of the bequest might, in his opinion, best be realized. He did so, and the plan he drew was in their hands when he was chosen Secretary. The plan was based on the conviction ‘that the intention of the donor was to advance science by original research and publication; that the establishment was for the benefit of mankind generally, and that all unnecessary expenditures on local objects would be violations of the trust.’ His ‘Programme of Organization’ was submitted to the Board of Regents in the following year, was adopted as its governing policy, and has been reprinted in full or in part in almost every annual report. If the Institution is now known and praised throughout the world of science and letters, it is fulfilling the will of its founder and the reasonable expectations of the nation which accepted and established the trust, the credit is mainly due to the practical wisdom, and the catholic spirit, and the indomitable perseverance of its first Secretary, to whom the establishing act gave much power of shaping ends, which as rough-hewn by Congress were susceptible of various diversion. Henry took his stand on the broad and ample terms of the bequest, ‘for the increase and diffusion of knowledge among men,’ and he never narrowed his mind and to *locality* gave what was meant for mankind. He proposed only one restriction, of wisdom and necessity, that in view of the limited means of the Institution, it ought not to undertake anything which could be done, and well done, by other existing instrumentalities. So as occasion arose he lightened its load and saved its energies by giving over to other agencies some of its cherished work.”

His statue, erected by order of Congress, stands in the Smithsonian Park.

Henry was succeeded in the office of Secretary by Professor Spencer Fullerton Baird, then the leading authority on the mammals, birds, fishes, and reptiles of America, the founder of the U. S. Fish Commission, and of “public fish culture,” elected in 1878; and he in his turn, by Samuel Pierpont Langley, pre-eminent as physicist and astronomer, the inventor of the bolometer, the discoverer of the greater portion of the infra-red spectrum, and the highest authority upon the physics of the atmosphere, elected in 1887.

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Each of the three secretaries, in addition to his general administrative work, has made some feature of the general plan peculiarly his own. Secretary Henry gave especial attention to the publications, the system of international exchanges, and the development of that great system of meteorological observation and weather prediction which has since become the Weather Bureau.

Secretary Baird continued the development of the museum, which had been under his special charge during his twenty-seven years of service as assistant secretary, secured the erection of the new museum building, gave much attention to zoological and ethnological explorations and, in connection with his special work as Commissioner of Fisheries, secured the construction of the exploring ship "Albatross" and carried on extensive investigations in American waters.

To Secretary Langley is due the establishment of the National Zoological Park and the Astro-physical Observatory, renewed activity in the library and exchange work, and a new system of encouragement of original research in the physical as well as the biological sciences. Under his administration, also, important donations and bequests have been added to the permanent fund of the Institution. The limit of \$1,000,000 which may by law be permanently deposited in the United States treasury at six per cent., having nearly been reached, Congress has recognized the authority of the Institution to receive and administer other funds beyond this limit, thus making it possible for it to undertake the administration of financial trusts for any purpose within the scope of its general plan.

THE SYSTEM OF ADMINISTRATION.

The Smithsonian Institution was formally established by the act of Congress approved August 10, 1846. As defined in the act of establishment, it is composed of the President of the United States, who is presiding officer *ex-officio*, the Vice-President, the members of the Cabinet, and the Chief Justice; and the "Establishment" thus constituted is made responsible for the duty of "the increase and diffusion of knowledge among men."

In addition to the "Establishment" the act provides for a

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'Board of Regents' by whom the business of the Institution is administered, composed of the Vice-President of the United States, the Chief Justice of the Supreme Court, three members of the Senate, three members of the House of Representatives, and six citizens, no two of whom may be from the same state, though two must be residents of the District of Columbia.

The presiding officer of the Regents is the Chancellor, whom they may elect from their own number. This position is customarily held by the Chief Justice. The executive officer is the Secretary of the Institution, who is also elected by the Regents. The duties and responsibilities of the Secretary are such as in other institutions usually belong to the office of director, but the name of "Secretary" is that which in Washington designates the highest grade of executive responsibility. The Secretary makes all appointments on the staff of the Institution, is responsible for the expenditure and disbursement of all funds, is the legal custodian of all its property, and, *ex-officio*, its librarian and the keeper of its museum. He presents to the Regents an annual report upon the operations, expenditures, and condition of the establishment, which is transmitted by the Board to Congress for publication. By special act of Congress, of 1884, an Acting Secretary is provided in case of the absence or disability of the Secretary, the designation being left with the Chancellor of the Institution. There is at present but one Assistant Secretary, who is in charge of the National Museum.

The annual meeting of the Regents is held in January ; their executive committee of three members meets quarterly.

The building occupied by the Institution and bearing its name is an ornate structure of Seneca brown stone, occupying a prominent position in the 'Mall,' which extends from the Capitol to the Washington Monument, in the square known as the Smithsonian Park. This edifice, planned by James Renwick, was begun in 1847 and completed in 1855. Features selected from the Gothic and Romanesque styles are combined in its architecture, but its exterior, owing chiefly to the irregular sky line, is very picturesque and pleasing.

The eastern wing of the building, for so many years the hospitable home of Professor Henry, has been reconstructed in-

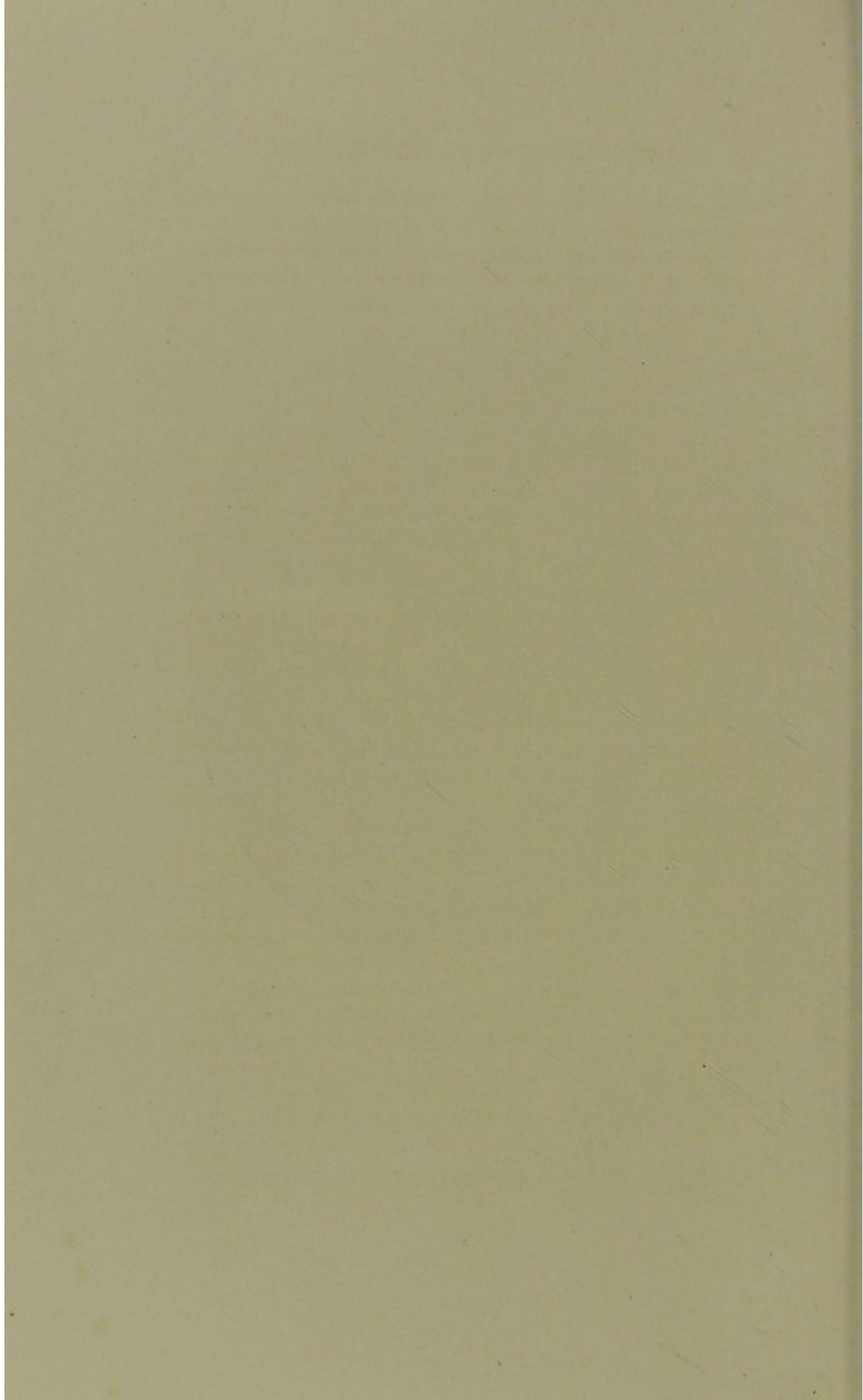


JOSEPH HENRY

FIRST SECRETARY OF THE SMITHSONIAN INSTITUTION

1846-'78

FROM A PHOTOGRAPH BY GUTEKUNST



ITS ORIGIN AND ACHIEVEMENTS

ternally, and the offices of the Institution are all established within its walls. The remainder of the building is occupied by the laboratories and exhibition halls of the National Museum.

Another building of brick, 325 feet square, was built east of the Smithsonian in 1881, for the reception of a portion of the Museum collections.

THE OBJECTS OF THE INSTITUTION.

The objects of the Institution as defined by Henry are, first, to increase knowledge by original investigations and study either in science or literature; and, second, to diffuse knowledge not only through the United States but everywhere, especially by promoting an interchange of thought among those prominent in learning in all nations. No restriction is made in favor of any one branch of knowledge.

The leading features of the plan of Professor Henry were, in his own words, "to assist men of science in making original researches, to publish them in a series of volumes, and to give a copy of them to every first-class library on the face of the earth." There are not many scientific investigators in the United States to whom a helping hand has not at some time been extended by the Institution, and the hand has often reached across the Atlantic. Books, apparatus and laboratory accommodation have been supplied to thousands, and each year a certain number of money grants have been made. Not less important has been the personal encouragement afforded, and the advice given in the tens of thousands of letters of information written in response to inquiries.

It is not, as some persons suppose, a teaching institution, nor does it receive students. It constantly aids, however, in the improvement of the educational system of the country.*

An important feature in the educational work of the Institution has been its participation in the various International Ex-

*THE INSTITUTION supports a table at the International Zoological Station in Naples for the benefit of naturalists.

There is an assembly hall in the Museum building, in which meetings of scientific bodies of national scope are held. Here the National Academy of Sciences holds its annual meeting every April, and the American Historical Association (which is by law affiliated with the Institution), its December meeting. Here also each year a course of popular scientific lectures is delivered under the direction of the scientific societies of Washington.

THE SMITHSONIAN INSTITUTION

positions. It was represented at Philadelphia in 1876; Berlin, 1880; London, 1883; New Orleans, 1885; Cincinnati, 1889; Madrid, 1892; Chicago, 1893; and has received many medals and diplomas of commendatory nature upon these occasions.

THE PUBLICATIONS.

The publications are numerous, and include many important and authoritative works. There is no restriction as to subject, and they consist of memoirs upon archæology, ethnology, botany, zoology, geology, paleontology, meteorology, magnetics, physics, physiology, and philology, and many other branches of investigation.

These books are practically given away, for although there is a provision for their sale at cost price, only a few hundred dollars worth are sold each year. They are regularly distributed to about 4,000 institutions in all parts of the world, and are supplied also to numerous private investigators. There are several series, the aspect of which must be familiar to every observing person who has ever spent a day among the shelves in any American library of respectable standing.

(1) The *Annual Report* of the Regents to Congress, of which the 49th, that for 1894, is now in press. Since 1884 the report of the Museum has been printed in a separate volume (Part II).

(2) The *Smithsonian Contributions to Knowledge*, thirty-two volumes in quarto, containing over 7,000 pages and many fine plates.*

(3) The *Smithsonian Miscellaneous Collections*, in thirty-five octavo volumes, aggregating about 22,000 pages.*

(4) The *Bulletins of the National Museum*, fifty in number, beginning in 1875.†

(5) The *Proceedings of the National Museum*, including already 1,100 separate papers, embraced in seventeen annual volumes, beginning in 1878.†

(6) The *Annual Reports of the Bureau of Ethnology*, beginning in 1879 and forming a series of twelve illustrated volumes in royal octavo.

* Published at the cost of the Smithsonian fund and not "Public Documents."

† Published in a limited edition from a special appropriation, and not "Congressional Documents."

ITS ORIGIN AND ACHIEVEMENTS

(7) The *Bulletin of the Bureau of Ethnology*, of which twenty-six numbers have appeared.*

The value of the books distributed since the Institution was opened has been nearly \$1,000,000, or nearly twice the original bequest of Smithson.† Many of the publications in each of these series are now out of print.

THE LIBRARY.

One of the most important features of the Institution is the library which has grown up under its fostering care. For nearly fifty years its publications have been distributed throughout the world, to almost every scientific and literary establishment of good repute. In return for these, and by purchase, it has received the great collection of books which forms its library and which is one of the richest in the world in the publications of learned societies, and therefore of inestimable value, containing as it does the record of actual progress in all that pertains to the mental and physical development of the human family and affording the means of tracing the history of every branch of positive science since the days of the revival of letters until the present time.

This library was, in 1865, deposited at the Capitol, as a portion of the Congressional Library.

The Smithsonian collection, which includes more than three hundred thousand volumes and parts of volumes, constituting perhaps one-fourth of the National Library, is to be installed in a special hall of its own upon the main floor of the new Library Building. The rapidity with which it is increasing is indicated by the fact that in 1894, 37,952 titles were added.‡

The Institution has probably done more toward building up a great library in Washington than would have been possible had all its income been devoted strictly to library work, as was at one time seriously proposed.

* The Bureau also supervises a series of quarto volumes, bearing the title *Contributions to North American Ethnology*, begun in 1877 by the U. S. Geographical and Geological Survey, of which nine have been issued.

† This estimate is based upon the prices which are charged for the books by second-hand dealers, as shown in their sale catalogues.

‡ The working libraries of the National Museum and the Bureau of Ethnology are distinct from the general Smithsonian library, and are separately administered. All of these are placed at the service of advanced students and specialists.

THE SMITHSONIAN INSTITUTION

THE NATIONAL MUSEUM.

The Smithsonian Institution is the custodian of the National Museum, which is the only lawful place of deposit of "all objects of art and of foreign and curious research, and all objects of natural history, plants, and geological and mineralogical specimens, belonging to the United States." The nucleus of the collections consists of the specimens brought home by the Wilkes and other exploring expeditions, but for many years the Museum was supported entirely at the expense of the Smithsonian fund, and a considerable portion of the collections is the property of the Institution.

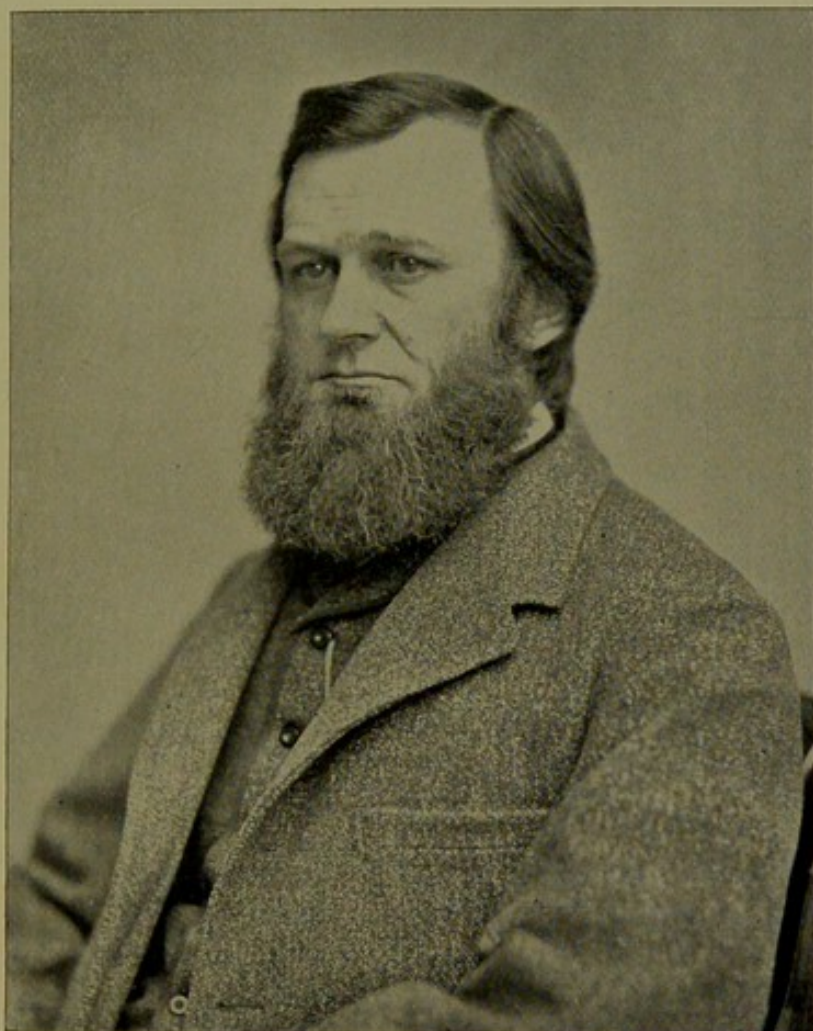
Professor Huxley defines a museum as "a consultative library of objects." The National Museum is such a consultative library and it is a great deal more. It is an agency for the instruction of the people of the whole country, and it keeps in mind the needs of persons whose lives are not occupied in the study of science as well as those of the professional investigator and teacher.

Its benefits are extended without cost or reserve to hundreds of thousands of visitors from all parts of the United States who pass through its doors each year, as is shown in the following table:

NUMBER OF VISITORS SINCE 1881.

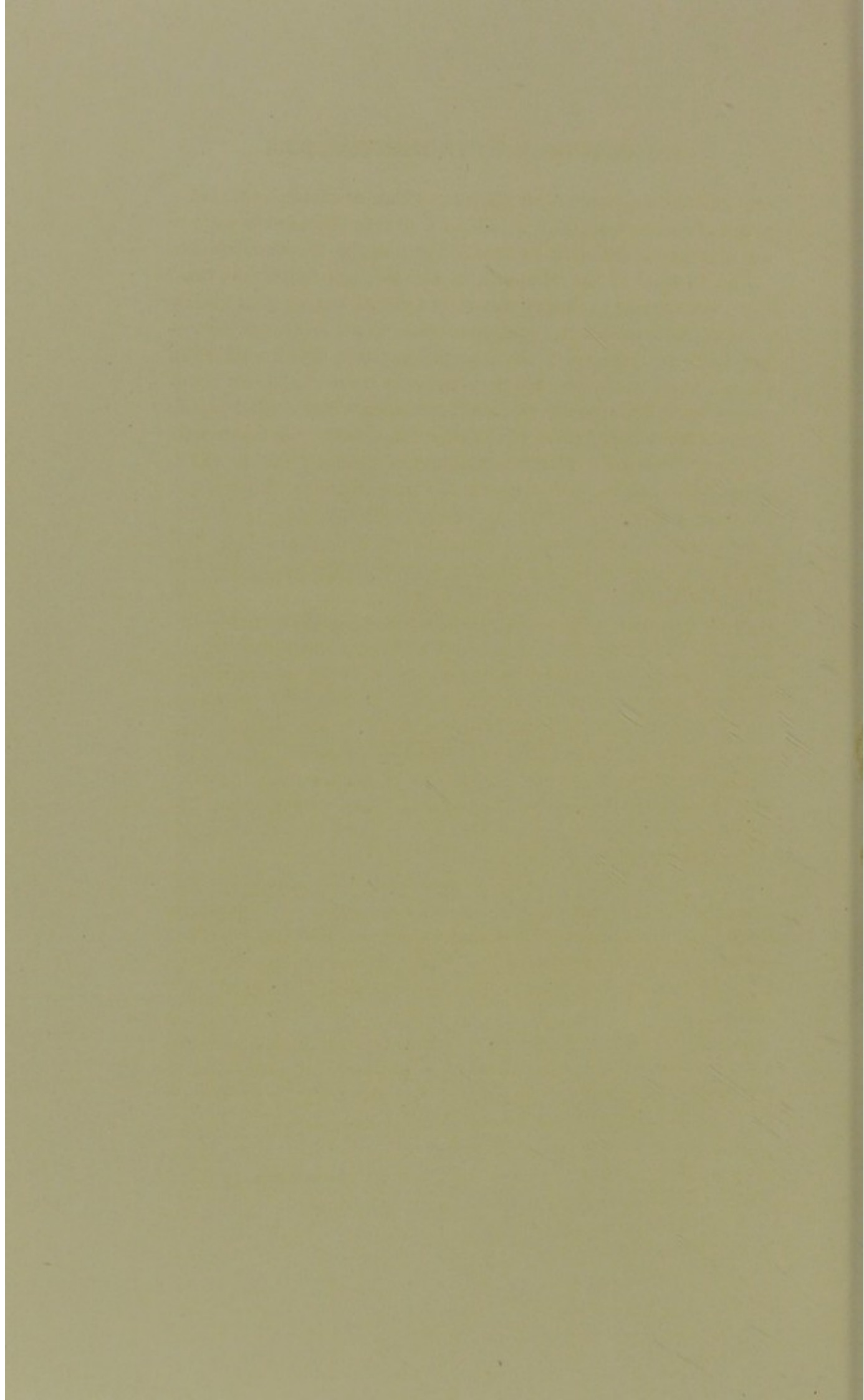
Year.	New Building.	Old Building.	Total.
1881.....	150,000	100,000	250,000
1882.....	167,455	152,744	320,199
1883.....	202,188	104,823	307,011
1884 (half year).....	97,661	41,565	139,226
1884-'85.....	*205,026	102,093	307,119
1885-'86.....	174,225	88,960	263,185
1886-'87.....	216,562	98,552	315,114
1887-'88.....	249,665	102,863	352,528
1888-'89.....	*374,843	149,618	524,461
1889-'90.....	274,324	120,894	395,218
1890-'91.....	286,426	111,669	398,095
1891-'92.....	269,825	114,817	384,642
1892-'93.....	*319,930	174,188	494,118
1893-'94.....	195,748	103,910	299,658
1894-'95.....	196,375	109,847	306,222
	3,380,253	1,676,543	5,056,796

* Years of Presidential inaugurations.



SPENCER FULLERTON BAIRD
SECOND SECRETARY OF THE SMITHSONIAN INSTITUTION
1878-'87

FROM A PHOTOGRAPH BY WILLIAM BELL



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and also through the distribution of the duplicate specimens in the Museum, which are made up into sets, accurately named and given to public institutions in all parts of the country.

The history of the Museum is divided into three periods: First, that from the foundation of the Smithsonian Institution to 1857, during which time specimens were collected purely and solely to serve as materials for research, no special effort having been made to publicly exhibit them or to utilize them except as a foundation for scientific description and theory. Second, the period from 1857, when the Institution assumed the custody of the "National Cabinet of Curiosities," to 1876. During this period the Museum became a place of deposit for scientific material, which had already been studied, this material, so far as practicable, being exhibited to the public, and thus made to serve an educational purpose. Third, the present period, beginning in the year 1876, during which the Museum has entered upon a career of active work in gathering collections and exhibiting them on account of their educational value.

During the first period, the main object of the Museum was scientific research; in the second, the establishment became a museum of record as well as of research; while in the third period there is growing up also the idea of public education.

The three ideas, *Record*, *Research* and *Education*, co-operative and mutually helpful as they are, are essential to the development of every great museum. The National Museum endeavors to promote them all.

It is a *Museum of Record*, in which are preserved the material foundations of an enormous amount of scientific knowledge—the types of numerous past investigations. This is especially the case with those materials that have served as a foundation for the reports upon the resources of the United States.

It is a *Museum of Research*, which aims to make its contents serve in the highest degree as a stimulus to inquiry and a foundation for scientific investigation. Research is necessary in order to identify and group the objects in the most philosophical and instructive relations, and its officers are therefore selected for their ability as investigators, as well as their trustworthiness as custodians.

THE SMITHSONIAN INSTITUTION

It is an *Educational Museum*, through its policy of illustrating by specimens every kind of natural object and every manifestation of human thought and activity, of displaying descriptive labels adapted to the popular mind, and of distributing its publications and its named series of duplicates.

The collections are installed, in part, in the Smithsonian building and, in part, in the large building adjacent, covering three and a half acres of ground, which was erected in 1881 to afford temporary accommodations for the overflow until such time as an adequate new building could be constructed.

The number of specimens in the various departments of the Museum, in 1894, is shown in the following table:—

STATISTICS OF THE NATIONAL COLLECTIONS.

Arts and Industries.	
Historical collections, coins, medals, etc.,	29,998
Musical instruments,	1,219
Modern pottery, porcelain, bronzes, etc.,	3,583
Graphic arts,	1,704
Physical apparatus,	366
Transportation and engineering,	1,793
Naval architecture,	802
Fisheries,	10,080
Animal products,	3,028
Domestic animals,	162
Chemical products,	1,309
Materia medica,	6,317
Foods,	1,111
Textiles,	3,306
Forestry,	726
Ethnology,	423,000
Oriental antiquities and religious ceremonial,	4,145
Prehistoric anthropology,	153,424
American aboriginal pottery,	33,293
Mammals,	12,948
Birds,	73,325
Birds' eggs and nests,	58,041
Reptiles and batrachians,	34,215
Fishes,	125,000
Vertebrate fossils,*	1,595
Mollusks (including cenozoic fossils),	510,256
Insects,	610,000
Marine invertebrates,	520,000

* Only that portion of the collection which is in Washington is included.

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Comparative anatomy,	14,828
Paleozoic fossils,	95,631
Mesozoic fossils,	89,493
Fossil plants,	113,685
Recent plants,	252,111
Minerals,	25,431
Geology,	63,606
Total,	3,279,531

The intrinsic value of such collections as these cannot well be expressed in figures. There are single specimens worth hundreds, others worth thousands of dollars, and still others which are unique and priceless. Many series of specimens which owe their value to their completeness and to the labor which has been expended on them, cannot be replaced at any price. The collections at a forced sale would realize more than has been expended on them, and a fair appraisal of their value would amount to several millions of dollars.

In the direct purchase of specimens, but little money has been spent, less perhaps in fifty years than either France, England, Germany, or Austria expends in a single year on similar objects. The entire museum is the outgrowth of government expeditions and expositions, and of the gifts prompted by the generosity of the American people.

THE BUREAU OF EXCHANGES.

The Smithsonian system of international exchanges, begun in 1852, had for its object the free interchange of scientific material between scientific institutions and investigators in the United States and those in foreign lands. For this purpose it established correspondence with learned men all over the world, until there is no civilized country or people, however remote, upon the surface of the planet, so far as is known, where the Institution is not thus represented. The list of correspondents has lengthened until those external to the country alone number nearly 17,000, while the total number is about 24,000.

The operations of this Bureau have affected most beneficially the libraries of all learned institutions in America. In 1867 Congress assigned to the Institution the duty of exchanging fifty copies of all public documents for similar works published

THE SMITHSONIAN INSTITUTION

in foreign countries. Finally in 1889 a definite treaty, made previously at Brussels, was formally proclaimed by the President of the United States, wherein the United States Government, with a number of others, undertook the continuation of the exchange service on a more extensive basis. Out of this has grown the Bureau of International Exchanges, for the maintenance of which Congress partially provides by annual appropriation. From 1852 to 1895 the Smithsonian exchange service handled 1,459,448 packages, and for three years past the weight of books passing through this office has been considerably over one hundred tons annually.

SPECIAL GIFTS AND TRUSTS.

The authority of the Institution to undertake the administration of financial trusts for any purpose within the scope of its general plan, preserving in connection with each fund the name of the person by whom it was established, has been recognized by Congress.

There is no institution in the world which is more favorably situated for the administration of trusts of this character, and this privilege has already been accepted by several benefactors.

MR. JAMES HAMILTON, of Carlisle, Pa., left, in 1874, the sum of \$1,000, the interest to be devoted to the promotion of some scientific or useful subject.

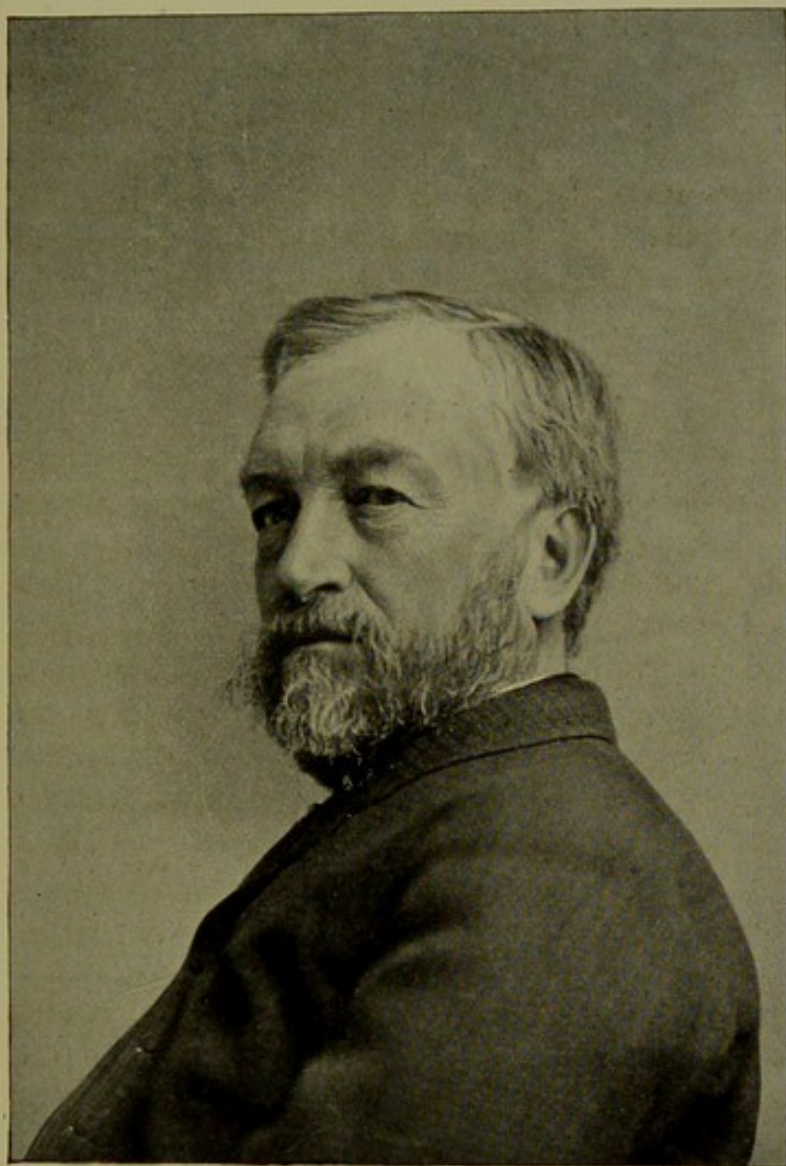
DR. JEROME H. KIDDER, of Washington City, bequeathed, in 1889, \$5,000 for the purpose of an astro-physical observatory.

DR. ALEXANDER GRAHAM BELL, in 1889, gave \$5,000 to the Secretary for his personal use in physical investigation, which has been transferred by him to the credit of the Institution, and devoted to astro-physical work.

MR. THOMAS G. HODGKINS, of Setauket, N. Y., gave, in 1891, nearly \$250,000, the income from about \$142,000 to be applied to the investigation of atmospheric air.*

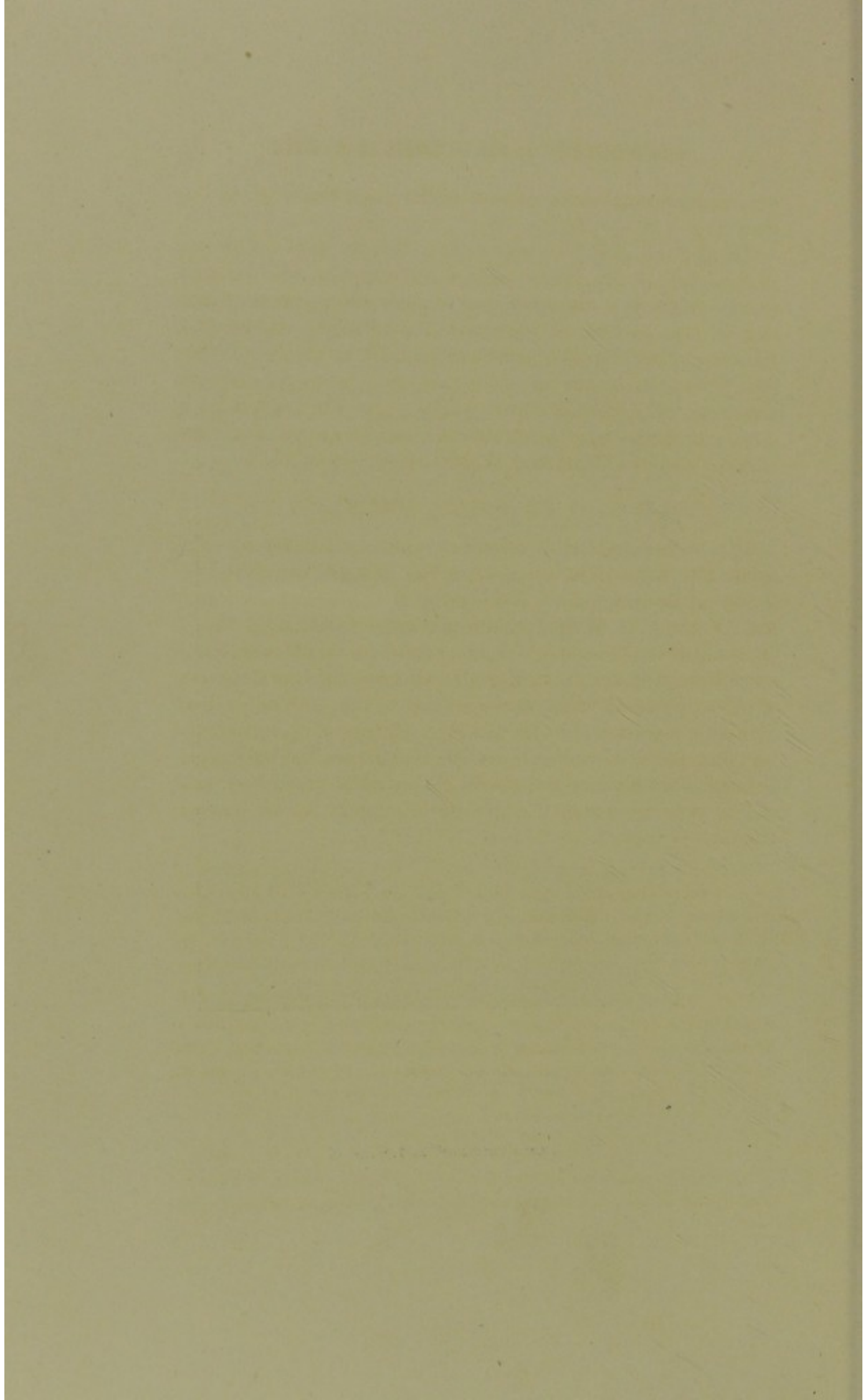
ROBERT STANTON AVERY, of Washington City, who died in 1894, left property estimated to be worth at least \$75,000 to

*A prize of \$10,000, derived from this fund, was awarded August 6, 1895, to Lord Rayleigh and Professor William Ramsay, of London, for the discovery of *Argon*, a hitherto unknown element in the atmosphere.



SAMUEL PIERPONT LANGLEY
THIRD SECRETARY OF THE SMITHSONIAN INSTITUTION

FROM A PHOTOGRAPH BY T. W. SMILLIE



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provide for special investigations in the field of magnetism and electricity.

There have also been many valuable gifts to the Museum, such as that of DR. ISAAC LEA of Philadelphia, who gave his great collections of mollusks, and of gems and precious stones; that of MR. JOSEPH HARRISON of Philadelphia, consisting of the collections of Indian portraits painted by George Catlin; that of MR. R. D. LACOE of Pittston, Pa., the largest existing collection of American fossil plants; and the collections of American birds' eggs given by MAJOR CHARLES BENDIRE, U.S.A., and DR. WILLIAM H. RALPH, of Utica, N. Y.

THE ASTRO-PHYSICAL OBSERVATORY.

The Astro-physical observatory was established in 1891 under the immediate direction of the present Secretary, five thousand dollars having been given for this purpose by the late Doctor J. H. Kidder, and five thousand dollars by Doctor Alexander Graham Bell. The expense of maintenance has since been provided for by a small appropriation from Congress. Here is carried on work corresponding to that of similar institutions maintained by the principal European governments; and on a much less expensive scale, though not less effectively.

Since astro-physics is almost the newest of sciences, it may not be amiss to give here a brief description of the purposes of this observatory:

"Within the past generation," we are told, "and almost coincidentally with the discovery of the spectroscope, a new branch of astronomy has arisen, which is sometimes called astro-physics, and whose purpose is distinctly different from that of finding the places of the stars, or the moon, or the sun; which is the principal end in view at such an observatory as that, for instance, at Greenwich.

"The distinct object of astro-physics is, in the case of the sun, for example, not to mark its exact place in the sky, but to find out how it affects the earth and the wants of man on it; how its heat is distributed and how it in fact affects not only the seasons and the farmer's crops but the whole system of living things on the earth, for it has lately been proven that in a physical sense, it, and almost it alone, literally first creates and then modifies them in almost every possible way.

"We have however arrived at a knowledge that it does so, without yet knowing in most cases how it does so, and we are sure of the great importance of this last acquisition, while still largely in ignorance how

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to obtain it. We are, for example, sure that the latter knowledge would form among other things a scientific basis for meteorology and enable us to predict the years of good or bad harvests, so far as these depend on natural causes, independent of man, and yet we are still very far from being able to make such a prediction, and we cannot do so till we have learned more by such studies as those in question. Knowledge of the nature of the certain, but still imperfectly understood dependence of terrestrial events on solar causes, is, then, of the greatest practical consequence.

"It has been observed that this recent science itself was almost coeval with the discovery of the spectroscope, and that instrument has everywhere been largely employed in most of its work. Of the heat which the sun sends, however, and which, in its terrestrial manifestations, is the principal object of our study, it has long been well known that the spectroscope could recognize only about one-quarter—three-quarters of all this solar heat being in a form which the ordinary spectroscope cannot see nor analyze, lying as it does in the almost unknown "infra-red" end of the spectrum, where neither the eye nor the photograph can examine it."

The special feature of the observatory in Washington has been the continuation of the famous researches in regard to that invisible portion of the solar spectrum which lies beyond the limit of the red, which had been begun by Mr. Langley while Director of the Allegheny Observatory. The exploration of "this great unknown region" which was first rendered possible by the invention of the bolometer, is now being carried still further by means of a new method, much perfected during the last four years, which has rendered it possible to produce a complete map by an automatic and absolutely trustworthy process, which shows the lines which resemble the so-called Fraunhofer lines in the upper spectrum. The results already attained are believed to be the most important which have ever been reached in regard to that region of the spectrum of which so little is known, and which includes the greater portion of all those energies of the sun which, through its heat, affect climate and the crops, and are thus related not only to questions of abstract interest but to utilities of national importance.

THE NATIONAL ZOOLOGICAL PARK.

The National Zoological Park was established by Congress in 1890 as a result of the desire to secure the preservation of such American animals as are upon the verge of extinction and

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will soon vanish forever if something is not done to protect them.

The Park occupies a tract nearly twice as extensive as that of any zoological garden in the world: this includes one hundred and sixty-seven acres upon Rock Creek, two miles north of the center of the city. The site has admirable natural advantages, and much has already been done in the opening of drives and the construction of buildings. A small representative collection of native American animals has been formed, including about five hundred individuals, among them a fine herd of young elk and a small herd of buffaloes; but the annual appropriations have not been sufficient to permit satisfactory progress.

THE BUREAU OF AMERICAN ETHNOLOGY.

The Bureau of Ethnology is an outgrowth of activities beginning early in the history of the Institution, which has from the very outset devoted much attention to the native American races.

The Special work of the Bureau in its present form was begun in 1872, in response to a request from the Commissioner of Indian Affairs, who desired trustworthy information concerning the affinities of the Indian tribes, to serve as a guide in grouping them on the reservations. The question was referred by the Secretary of the Smithsonian Institution to Major J. W. Powell, then engaged, under the direction of the Institution, in explorations in the Southwest. Combining the vocabularies and other manuscripts already in possession of the Institution, he prepared a report showing the character and extent of existing information, and the manner in which it was possible to utilize this in the segregation of the Indian tribes, at the same time suggesting plans for the completion of the work of classification.

This was the beginning of the Bureau, which since 1879 has been supported by special appropriations from Congress, with the understanding that the research should be so extended as to embrace the habits and customs of the American Indians, their tribal organizations and government, and their myths and ceremonials.

Major Powell was made director, and no one could have

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been better fitted for the task. For more than thirty years he had been a student of the native races of this continent. He and his associates in the Bureau have succeeded in placing on record, before it was too late, a vast number of facts in regard to the Indians. The Annual Reports of the Bureau, twelve in number, and nine volumes of Contributions to North American Ethnology, with the Bulletin of the Bureau, form a considerable library in themselves. The archives still contain much unpublished material, including hundreds of vocabularies.

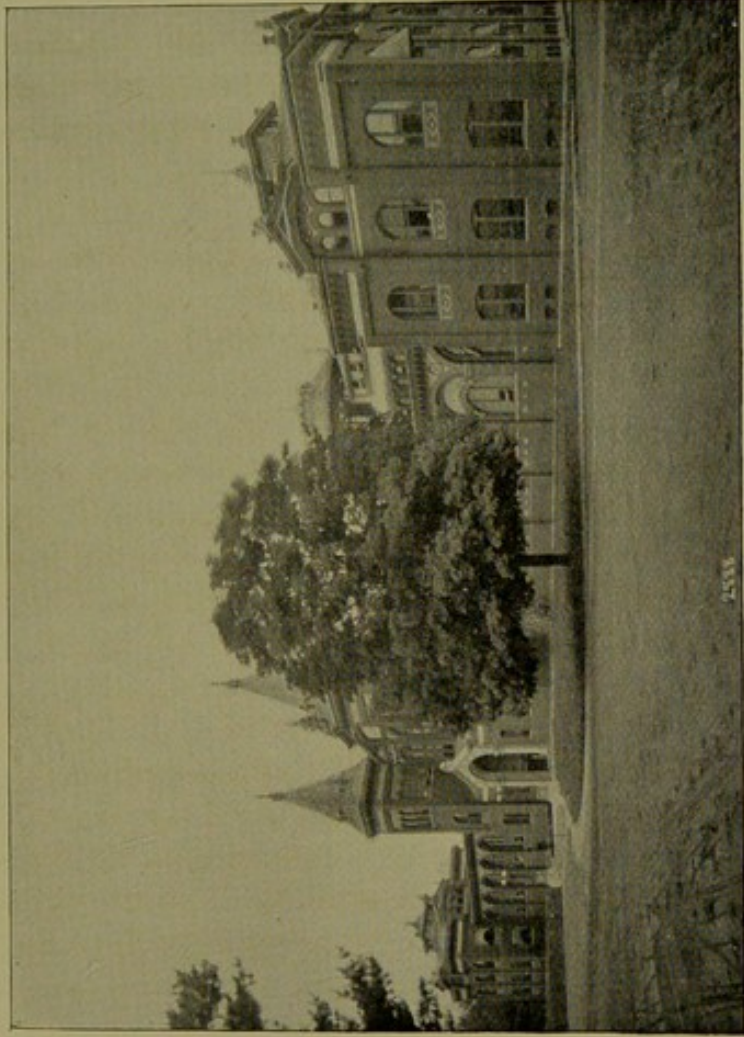
A complete linguistic classification of the native languages of the United States has been prepared by the Director, and an effective classification of the tribes on the reservation, reducing materially the danger of warlike outbreaks, has already been accomplished.

Important explorations of the western continent have been made by the Bureau staff, especially those of the Stevensons, Cushing, Fewkes, and the Mindeleffs, among the Pueblo people and the ruins of the Southwest; those of Holmes among the prehistoric quarry sites and villages of the eastern part of the continent; those of Thomas among the mounds of the Mississippi valley, and of McGee among the Papago and Seri Indians of the Mexican boundary; and the notable explorations of Powell himself, among the tribes of Utah, California, Arizona and New Mexico.

THE PROMISE OF THE FUTURE.

At the time of the Smithson bequest the endowment of research had scarcely been attempted in America. There were schools and colleges in which science was taught, and certain of the teachers employed in these institutions were engaged in original investigation. There were a few young and struggling scientific societies, very limited in extent and influence, but at that time the chief outcome of American scientific work. Science in America was an infant in swaddling clothes. Fifty years have passed, and American science now stands by the side of the science of Great Britain, of Germany, of France, a fellow worker, competing on an equal footing in nearly every field of research.

The Smithsonian Institution did what was, at the time of its



THE NEW MUSEUM BUILDING



ITS ORIGIN AND ACHIEVEMENTS

organization, absolutely indispensable to the rapid and symmetrical development of American scientific institutions, and but for it science in America would no doubt have advanced with much less rapidity. It is also certain that the progress of American science has had an immense influence upon the welfare of America in every department of intellectual and industrial activity, and also a reflex action upon the scientific and industrial progress of the entire world.

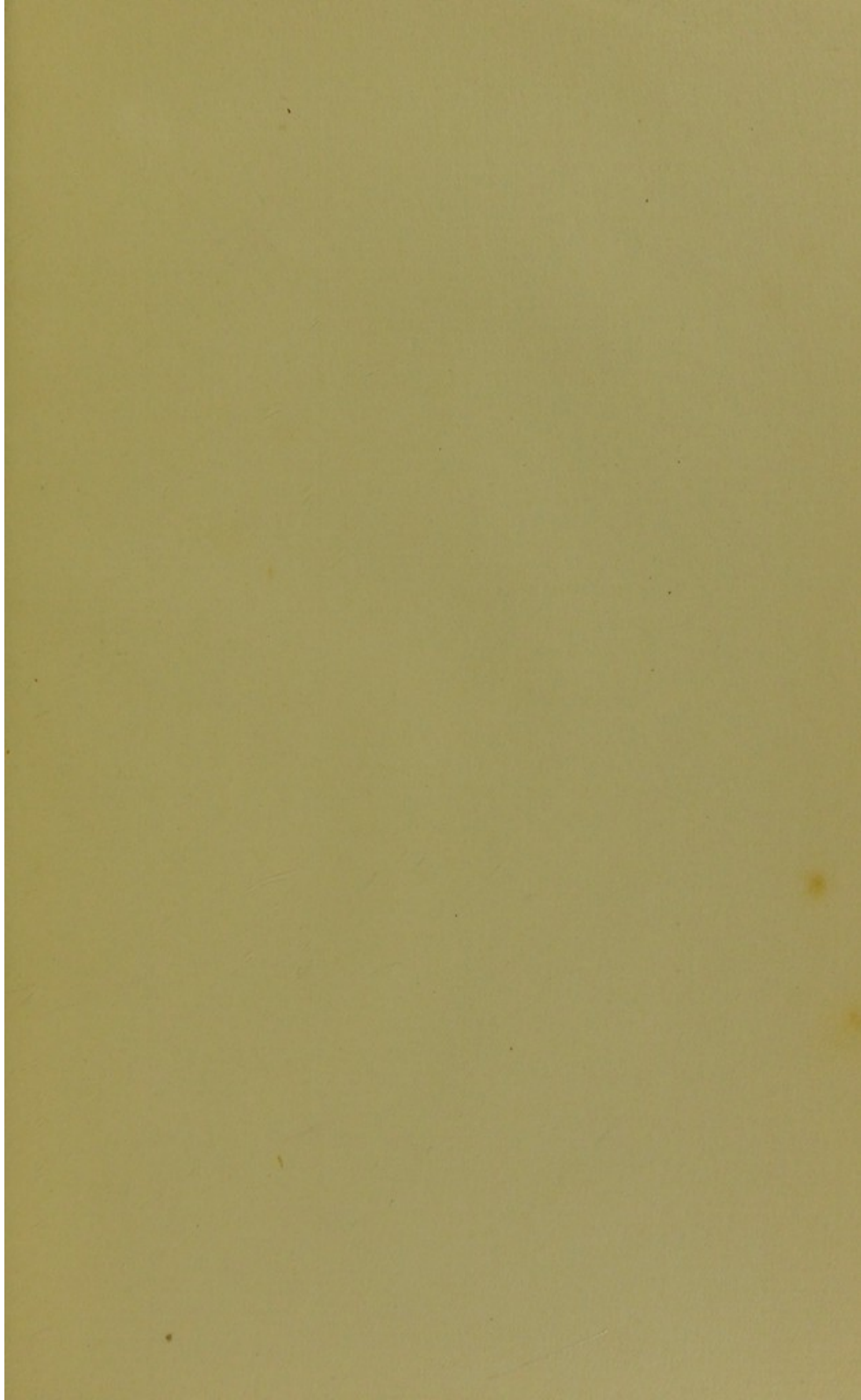
In 1896 the Smithsonian Institution will celebrate the end of its first half century. A special volume will be published to commemorate the event, and two memorial tablets will be erected in honor of the Founder in the city of Genoa, where he died, June 26, 1829; one in the English church, and one upon his tomb in the beautiful little English cemetery on the cypress-clad heights of San Benigno.

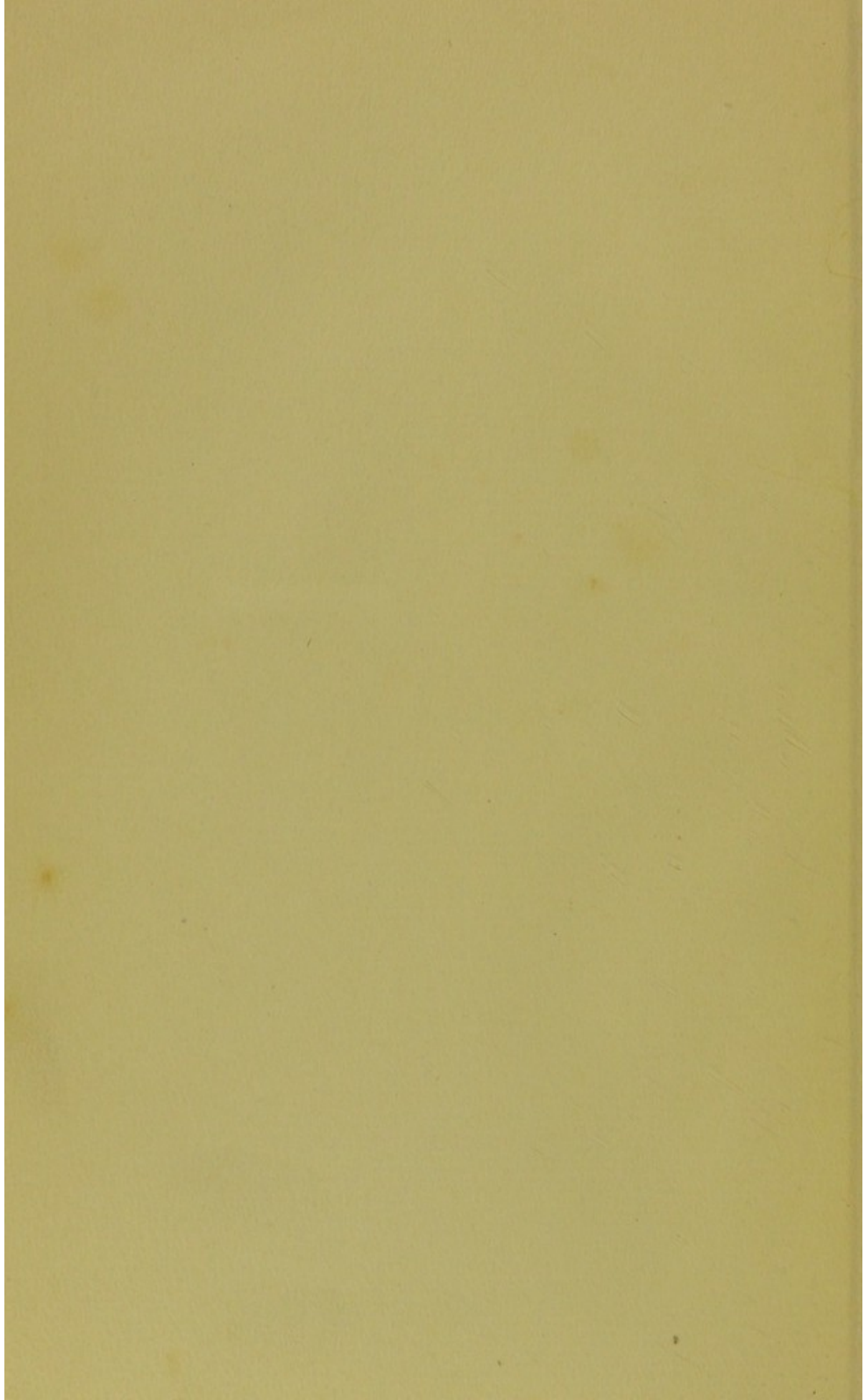
It is interesting to remember that in September, 1896, will occur not only the semi-centenary anniversary of the birth of the Institution founded in the City of Washington by Smithson, but also the centenary of the delivery of that immortal address in which Washington so forcibly recommended to his countrymen "to promote as an object of the highest importance INSTITUTIONS FOR THE INCREASE AND DIFFUSION OF KNOWLEDGE."

The first part of the book is devoted to a general history of the United States from the discovery of the continent to the present time. The second part is devoted to a detailed history of the United States from the discovery of the continent to the present time. The third part is devoted to a detailed history of the United States from the discovery of the continent to the present time.

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PRESS OF W. F. ROBERTS,
WASHINGTON