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More than 150 years of Administrative Ups and Downs for Natural History in Washington

Smithsonian Institution, United States National Museum, National Museum of Natural History

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From its inception, the Smithsonian Institution has had interests in natural history with a modest start during the early days of Joseph Henry, the first Secretary. The United States National Museum came into being in a sense when 1858 brought Federally-owned specimens from the Wilkes Expedition and Federal money to the "Castle." S. F. Baird, eventually to become second Secretary, encouraged the study of natural history and effectively changed the course of the Institution; he was able to obtain a museum building. S.P. Langley, next in line, cared little for the subject but was at least indirectly responsible for starting construction of the "new National Museum" on the north side of the Mall. The fourth Secretary, C.D. Walcott strongly supported the museum and its staff, but following World War I obtaining appropriate levels of Federal funding became more complex. Fifth Secretary C. G. Abbot did his best to hold the Smithsonian and museum together during the great depression and the start of World War II — no mean feat. Following him, Alexander Wetmore refurbished the place to its prewar strength. The seventh Secretary, Leonard Carmichael, a psychologist, obtained money for new major exhibits and wings on the building, and the staff began to grow. Under the eighth Secretary, S. Dillon Ripley, there was dramatic expansion of the Smithsonian Institution and the newly named National Museum of Natural History. Under the three living Secretaries, Adams, Heyman, and Small, natural history has declined for both internal and external reasons. The role of the Director of the National Museum of Natural History has changed, and his power within the Smithsonian complex has diminished.

In considering the entity as a museum of education, it has been adequate, but never outstanding; currently, about one-third of former exhibit space is closed to the public. As a museum of record, it has performed yeoman service and the collections are immense and fairly well catalogued; how much the collections contribute to the nation is a difficult subject to quantify, but at times they have yielded critical data. As a museum of research, the organization has been superb, and it is the last major bastion of systematics and taxonomy in America, even though the number of staff members has declined about 20% during the last two decades. Predictions are always uncertain, but there is no reason to assume that increased funding will come about to correct current difficulties. The most optimistic view of the future of National Museum of Natural History is that it is hazy; a realistic view is that it is cloudy, although actions of a new director provide hope.

As the title correctly suggests, this paper is, sadly, only a study of administration of natural history in Washington, not a more useful study of the study of natural history. Still, no one involved with natural history works in a vacuum and there must be some surrounding support structure. For examples, Linnaeus was on a university faculty, and Darwin and Lord Rothschild had the advantage of rich parents. This work does not document all places in Washington, D.C., that have supported natural history investigations but only those under that peculiar entity, the Smithsonian Institution (SI). The SI is a public trust to the American people — a term seldom used today — and it gave rise to the United States National Museum (USNM) which, when it disappeared, gave rise to several entities including the National Museum of Natural History (NMNH). As one aspect of continuity, the USNM prefix is still used with catalogue numbers for the specimens.

History is a safe subject to wallow in, what with facts, figures, and dates to quote; Henry Ford commented, "History is bunk." In preparing an historical manuscript, a writer conventionally puts a slightly different spin on what has been written previously and no one is deeply concerned, other than the next person to consider the subject. Commonly, one begins prolix and, in moving forward through time, events become increasingly complex but concurrently increasingly compressed. Once a chronology is established, events can be rehashed from various aspects, sometimes to emphasize particular points, but sometimes only to provide a patina or illusion of scholarship.

In discussing events from past to present, at some point one crosses a vaguely placed line, clear only in retrospect, between history and current events. Discussing the present differs from considering history, for events and interpretations are tightly bound, reputations and egos are at stake, and each observer brings his/her prejudices/observations/agendas to the subject. Writing about a spouse is quite different from discussing a long dead ancestor. Once past the present, pontificating on the future is even less troublesome than writing about the past. Unless one actually controls the course of events by controlling the funding sources — "He who has the gold, rules" — only speculation is involved and the further into the future one projects, the safer it is to speculate. This constitutes the theoretical basis to pursue the past, present, and future of the nation's natural history museum.

Illustrations are supposed to illuminate a discussion. Despite the wonders of digital cameras and other cutting edge technology, one cannot illustrate the future, except in a metaphorical sense. The present is an era of color pictures, still expensive to print, and the recent past had more snapshots than documentary-type photographs. Thus, the last half-century is not so easy to portrait in pictures. Museum photographers, past and present, concentrate on the exhibits and the organizational leaders. It is rare to find a photograph of mundane day-to-day life in the "good old days."

Though the subject is a museum, that entity is one way or another bound to the SI. There are a number of books on SI history, for example Goode (1897), True (1950), and Conaway (1995), which consider the entity during 50 years intervals. For a century, natural history and Smithsonian were nearly synonymous. In a shorthand way, the title "The Smithsonian: Octopus on the Mall," (Hellman 1967) pinpoints a dramatic time during which the Institution changed and the museum grew. Both SI and NMNH are now undergoing changes that some observers might characterize as decline. This interpretation may be partly the result of factors outside the control of the SI, partly it may be due to changing internal priorities, and partly it may be due to a change in the nature of biological investigations.

Before becoming mired in the past, it may be useful to contrast engineering and art museums with natural history museums; museums catering to human history are intermediate, but may have more in common with natural history than with art. Engineering and art deal with a severely limited number of objects. The first steam turbine may be on exhibit along with the first and five millionth personal computers, but few later turbines are needed make the point of size and operation, and to illustrate box after box of computers, even if they show trends in size and styling, is not par-

ticularly instructive. In art museums, the size of individual collections is obviously limited, for each dead artist supplied only a finite number of pieces. A more fundamental difference, noted by an art curator colleague, is that the objects themselves carry an aura and this aura may be as important as the quality of the object itself. The first heavier than air aircraft has great significance, as does a pencil sketch — if it was signed by Renoir.

Once one gets beyond the largest elephant or *Tyrannosaurus rex*, natural history specimens convey no aura to the public. But natural history is far more complex than its largest cultural artifacts. And large collections are needed to document some of the complexity, both in terms of display and research. Consider the term "can of worms" and compare the dozen or so people in the world who would delight in opening such a can to the millions who prefer to avoid the prospect, either real or metaphorical.

Finally, despite similarity in the history, problems, and prospects of all natural history museums, application of "He who has the gold, rules" may vary widely. State, county, local, and, especially, private funds are not controlled in the same way as are Federal funds. To cite a specific example, for several decades, the Congress has authorized pay raises for Federal employees, but it rarely increases the size of the appropriations to cover the added cost. This is akin to the peddler who improves his profit margin by feeding the horse less and less hay each day. He was able to train the horse to pull the wagon with no overhead costs, just before the animal died. The example cited is not humorous; it is a pernicious way to operate and one cause of present difficulties, not only specifically for the museum, but, in general, for science conducted by Federal employees.

Joseph Henry and The Smithsonian Institution

Twelve decades after Smithson wrote his will, one interpretation of the SI by Joseph Henry was still accepted. "No local or even national interests limited the scope. Knowledge was to be promoted by original research, and it was to be diffused as widely as possible" (Abbot 1946:326). This is well-plowed ground and it is sufficient to note that "increase and diffusion of knowledge among men" is not a crystal clear directive.

Just what constitutes appropriate limits in connection with a donation has been a problem from the start (L. Small, oral commun., 2002). Those who insisted that Smithson's money should be refused may have had a point, but accepted it was, and a decade of congressional wrangling ensued. At the SI founding, August 10, 1846, the enabling legislation mentioned that among other assignments the secretary, yet to be designated, "shall also discharge the duties of librarian and of keeper of the museum . . . ." This bill covered a wide spectrum of possibilities for the SI, including that of a museum for "all objects of natural history, plants, and geological and mineralogical specimens, belonging to, or hereafter to belong to the United States . . . ." (Rhees 1901:435.) The legislation further specified ". . . a suitable building, of plain and durable construction materials and construction . . ." If one has ever seen the Smithsonian "Castle," no more comment needed. As regards the function of a museum staff, one may also ponder use of the British usage of "keeper" versus the traditional American term "curator."

Prior to the election of Secretary Joseph Henry, meeting minutes of the Board of Regents mention a national museum. In his inaugural plan for the SI, Henry indicated that ethnographic investigations might be supported financially by the Smithsonian, but. "(9.) It is believed that the collections of natural history will increase by donation as rapidly as the income of the institution can make provision for their reception, and, therefore it will seldom be necessary to purchase any articles of this kind. . . . . (17.) When the building is completed, and when, in accord with the act of Congress, the charge of the National Museum is given to the Smithsonian Institution, other assis-

tants will be required" (Henry 1847: 4). For whatever it signifies, in 1846, the Regents did not capitalize *museum* whereas Henry did in the above quote.

"In his 1849 Annual Report, Henry wrote 'It could not be the intention of Congress that an Institution founded by the liberality of a foreigner, and to which he affixed his name, should be charged with the keeping of a separate museum, the property of the United States.' But Henry was wrong, Congress did so intend . . . ." (Oehser 1970:73). In my view, Secretary Henry was the outstanding Secretary, not simply because he was the first, but because of his vision. Lest one get the wrong idea, he was by no means opposed to investigations in natural history as such and instituted public lectures that included this subject long before he was saddled with the Smithsonian Castle (Hafertepe 1984). The first volume of *Smithsonian Contributions to Knowledge* was concerned with anthropology.

Objects, private and public, were given to the Institution and a few were purchased. Once the Castle opened to the public, the SI was in the museum business. In 1856, when construction of the Castle was finally completed, Henry recruited a paleontologist, F.B. Meek, for the SI. Meek was unsalaried, but allowed to live in his office. Like Henry, he was literally a scholar in residence.

It is well known that in the fall of 1850, Henry hired a junior Assistant Secretary, Spencer F. Baird, who brought a dowry of two freight cars of natural history specimens (Rivinus and Youssef 1992). Henry had plenty for Baird to do, with handling official correspondence and editing, and, after Assistant Secretary W.C. Jewett was fired as librarian and the SI investigated by Congress, Baird was also placed in charge of the library and of exchanges. The young man still found time to pursue natural history with a vengeance and collections accumulated. In particular, the western railroad surveys of the late 1850s contributed material, mainly biological specimens. There may have been earlier formal listings of titles, but in a March 3, 1855, Congressional document one finds "Spencer F. Baird, Assistant Secretary, in charge of the Museum." Even so, it was not until 1872 that Baird was given full administrative responsibility for the museum.

In his annual report for 1856, Henry suggested, in part, that the SI might sell, or even give away the Castle "for no other consideration than that of being relieved from the costly charge of the collections" (Hafertepe 1984:129). The standard story is that Henry reluctantly agreed to accept custodianship of the Wilkes Expedition collections, which were in the Patent Office building (Stanton 1975), and that these led to founding of the United States National Museum. (Viola and Margolis 1985). The SI had a large number of natural history specimens at that time; the Wilkes material accounted for only about 20% of the total holdings (M. Rothenberg, oral commun., 2002). After several years of refusing to take custody of these specimens, when Henry finally agreed he insisted the collection be accompanied by money for transport and display cases, plus an annual sum to support the material. The latest interpretation is that Henry was short of funds for his meteorological program and needed more income. "Those few thousand dollars from the Patent Office helped restore the good name of the Smithsonian meteorological program, but they destroyed Henry's vision of a Smithsonian free of political control through the annual appropriations process" (Rothenberg 2000:3). It was not until 1871, after several failed attempts, that Henry was able to persuade Congress to raise the annual appropriation from $4,000 to $10,000.

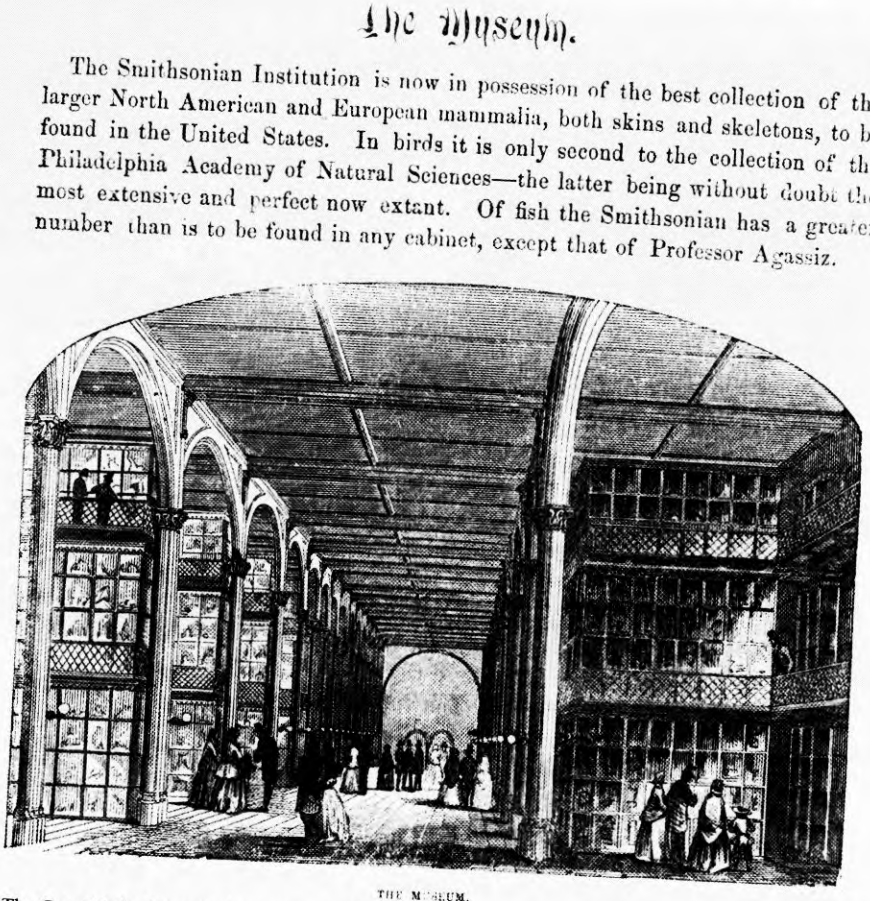
The rhetoric in 1860 over collections in particular and the Smithsonian in general provides fascinating reading (Rhees 1901:611–627) and only a smidgen can be inserted here: "Mr. Mason. Mr. President, I have been for many years one of the Regents of this Institution; under the appointment of the Senate, in connection with my friend from Maryland. We know that it is a public trust; one, we think of a sacred character. We know as a fact, and it appears in the records of that Institution, that these specimens of natural history sent from the Patent Office to the Smithsonian Institution, were sent there against the remonstrances, repeated from year to year, of the Institution, and if

FIGURE 1. The statue of Joseph Henry in front of the "Castle." After Henry's death this sculpture was authorized by Congress, June 1, 1880. The statue by W.W. Story was unveiled April 19, 1883, and was moved several times before settling at the north portico. One of Secretary S. Dillon Ripley's first acts was to turn the statue to face the Mall, symbolically opening the museums to all. Courtesy Smithsonian Institution Archives. (SIA Negative number 76-3110-36.)

either the Senator from New Hampshire, or any gentleman who thinks with them, would introduce an amendment to this bill directing the Institution to throw what they have received from the Government out of doors — just put it out of doors and let it rot — I will vote for it. It belongs to the Government. It does not belong to the Institution. It has no business there within the terms of the trust, none whatsoever. It was forced upon them against their will; as they believe, in violation of the trust left by Smithson; and if these gentlemen will devise any mode to take away all these specimens of natural history sent there by the Government I will vote for it cheerfully. I do not know that I would not consider it incumbent upon me, for purposes of getting rid of them, if the Government will not bear the expenses of getting rid of them, if the Government will not bear the expense of throwing them out of doors, to vote it out of the funds of the Institution" (Rhees 1901:624-625). Baird would have been very depressed by this statement, but Henry would have cheered.

Accordingly, the USNM had no formal beginning and simply came about serendipitously. On a previous occasion, I had suggested that the trickle of Federal funds, first appropriated in 1858, could be considered as logical a starting place as any (Yochelson 1985:15). Should anyone wish to pursue the subject further, there are several studies of interest of the early history written by Goode (Walcott 1899:83–192).

Henry did his best to make it perfectly clear that the collections were the responsibility of the Federal government and had simply been moved from one place to another. As one who was responsible to the Board of Regents rather than to the Federal government, in Henry's judgment he was not empowered to receive funds directly from Congress. Federal money was appropriated to



THE MUSEUM.

FIGURE 2 The Great Hall of the Castle somewhat idealized, for the third story exhibit gallery shown in the drawing was never installed. From the 1859 SI guidebook assembled by W.J. Rhees. (MAH-43804-H.)

the Department of Interior and, in turn, some was doled out to the Smithsonian. The methodical Rhees, who chronicled Congressional documents relative to the SI, has no index listing for "founding of" under National Museum and his "Appropriations, history of" (Rhees 1901:1250–1251) is an 1889 action of Langley to have the Federal appropriation come directly to the SI. The first use by Congress of the full title of United States National Museum was March 3, 1875, in connection with postage stamps.

One example in February 1873 shows Henry's wisdom in trying to keep the Smithsonian focused and shielded from requests for Federal funds. "Mr. John W. Stevenson. Professor Baird, in a letter before me, says he made this estimate of $15,000 which is the usual estimate, before the transfer was made from the Land Office of all these specimens, and the additional appropriation is required to prepare for the large increase of these specimens, and also to prepare duplicates for distribution. The amendment simply proposes an appropriation of $20,000 instead of $15,000. I hope the Senate will agree to it.

"Mr. Cornelius Cole. I think $20,000 is probably more than the whole thing is worth" (Rhees 1901:693).

FIGURE 3. An 1867 stereo-pair of a meteorite acquired in 1863 and placed on display in the Great Hall of the Castle; exhibits on the balcony and in the cases below are in the background. This "wedding ring" of iron, moved to the new USNM building next door, and then across the Mall to the next new set of displays, and it was again recycled when further new geological exhibits were installed. (SIA Negative number 87-5252-3)

Henry met with Louis Agassiz of the Museum of Comparative Zoology in 1860 and in December, Agassiz wrote Baird reporting on their discussion. "I believe Prof. Henry is right in considering the collections as superfetation[1] of the Smithsonian Institution as long as Congress does not make an appropriation for a National Museum" (Herber 1963:161.).

About six weeks later, Baird responded to Agassiz with a statement of loyalty that will still bring a tear to one's eye. "I am sorry you think there is a difference of sentiment between Professor Henry and myself in regard to the Smithsonian Museum. On the contrary, I consider it my duty to maintain his policy as far as I understand it and I shall always endeavor to do so. If he were to forbid the entrance of a single additional specimen of Natural History into the building and give me orders to that effect I would unhesitatingly obey him and act accordingly. I am well aware that the present means and space of the building do not admit a vast and unlimited addition of materials such as you have at Cambridge [Museum of Comparative Zoology]. All I do care for is to do full justice to materials we are obliged by law of Congress to receive and keep in order, but I have no desire to make a show with these. I am much interested in the development and exploration of any new regions of North America but will not restrict my views to Natural History and feel as much gratified when we get a batch of important Meteorological reports from a new arctic station, as with the birds and beasts accompanying them" (Herber 1963:162–163.)

Although the Civil War caused disruption, and the 1865 fire in the Castle more disruption, despite his pious awareness of physical limitations of the building and of finances, Baird continued to encourage collectors and the collections rolled in. Henry rearranged the building's interior so that SI activities *per se* were in the east wing and the museum took over the west wing and much of the central part of the building. Balconies in the great hall became crowded with specimens and youthful natural historians. The Secretary occasionally went on a rampage when the specimens

[1] The first meaning of this word is conception during pregnancy, surely an atypical occurrence, but, as used in the quotation, it probably implies the piling of one growth or overgrowth upon another, or, somewhat less likely, the idea of overproduction.

FIGURE 4. The caption on this drawing does not identify the ornithologist, but the shape of the window suggests that the office may have been in one of the towers of the Castle. (MAH-43754A.)

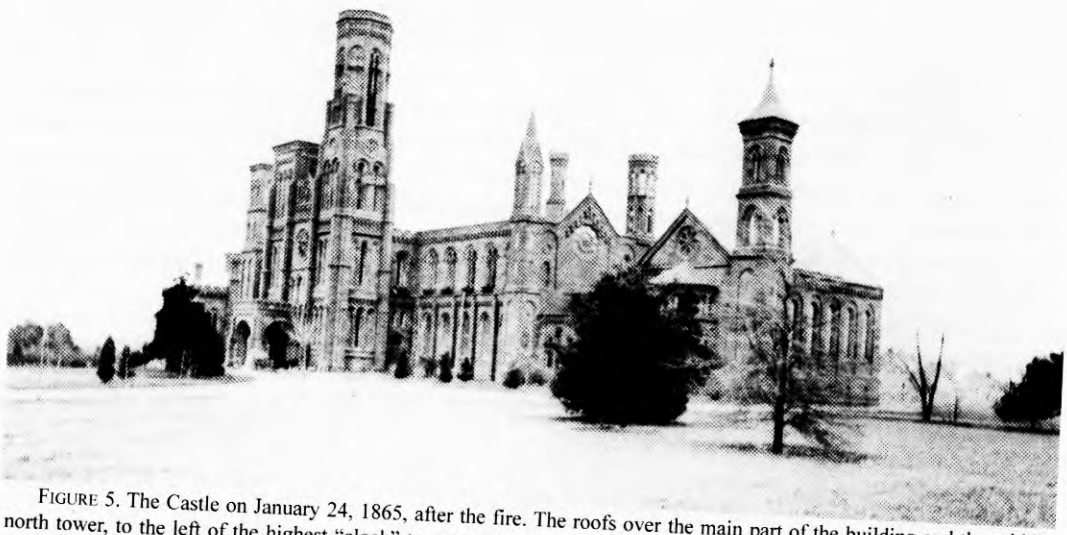


FIGURE 5. The Castle on January 24, 1865, after the fire. The roofs over the main part of the building and the middle north tower, to the left of the highest "clock" tower are missing. A century later for the Smithson bicentennial the north tower roof was restored and in 1996 for the Smithsonian sesquicentennial a bell was added to the to toll the hours. (SIA Negative number 30792-a.)

FIGURE 6. Photograph of Great Hall, probably looking west and probably in 1867 after a temporary roof was installed. The stove in the foreground provided what heat there was for the tourists. (SIA Negative number 72-1973.)

intruded on his space or their smells became intolerable. Henry insisted that "duplicates" be distributed to cut down on the bulk, but like the water of the sorcerer's apprentice, the flow of material could not be stemmed. The territorial surveys in the west of the 1870s contributed specimens, but probably more came from Baird's network of private and Army collectors.

Baird began to wiggle out from under Henry's control when the Fish Commission was founded in 1871. As a partial consequence, the museum probably has the world's largest fish collection. Baird was also able to find Federal money for publication and convince Henry to start another series. *United States National Museum Bulletin 1* was published in 1875; as might be expected, it was for long papers and nearly 100% of them were on natural history subjects.

By January 1876, Henry, though enfeebled, was seriously concerned that even the SI display at the Philadelphia Centennial could not be accommodated in the Castle when the exposition ended. "He was becoming more and more convinced of the advisability of separating the Smithsonian from the National Museum, in light of the latter's stupendous growth and subsequent dependence on federal appropriations, which in turn required extensive lobbying" (Hafertepe 1984:146). At Philadelphia, Baird solicited donations from commercial businesses and foreign countries, pointing out that it was cheaper to send the material to Washington to than pay the freight costs of returning their own exhibit material. Baird collected fifty boxcars of miscellanea donated by foreign countries. Private firms and government agencies also shipped former exhibits to the city, so the conventional report of 60 freight cars of material is probably correct.

Marc Rothenberg (oral commun., 2003) has noted that in the Annual Reports for 1875 and 1876, Henry defined his concept of a national museum and questioned whether such a museum was properly part of the function of the Smithsonian. In his efforts to rescue the Smithsonian from dissipation of resources and to shape it into an Institution for the pursuit of knowledge, Henry effec-

FIGURE 7. "The Ornithological Laboratory in the Smithsonian Building." An 1884 photograph of the south balcony of the Great Hall. (SIA Negative number 6063.)

tively disposed of the library and art functions, but he could not shake off the museum. "When Joseph Henry breathed his last [May 13, 1878], his Smithsonian Institution died with him" (Hafertepe 1984:153). Four days later, the Regents elected Assistant Secretary Baird as the second Secretary.

Spencer Fullerton Baird and the United States National Museum

To backtrack a little, the Philadelphia Exposition is important for at least two aspects. First, it began a long series of regional, national, and international exhibits in which the SI figured prominently for nearly half a century. The heart of all of these displays was natural history. For most of this interval, these expositions were pre-automobile occurrences and they had a remarkable impact on the public. It is virtually impossible to explain to the current generation the concept of a pre-television world, let alone the significance of these expositions.

Second, George Brown Goode, born in 1851, came into the natural history story. He began as a volunteer with the Fish Commission and is given credit for the fisheries display at Philadelphia, though he did a good deal more. As Baird took over more duties when he became Secretary, along with greater activities of the Fish Commission, Goode became the *de facto* head of the museum. As late as June 1886, Baird was still listed as both Secretary and Director, though at that time he did formally delegate essentially all responsibility to Goode.

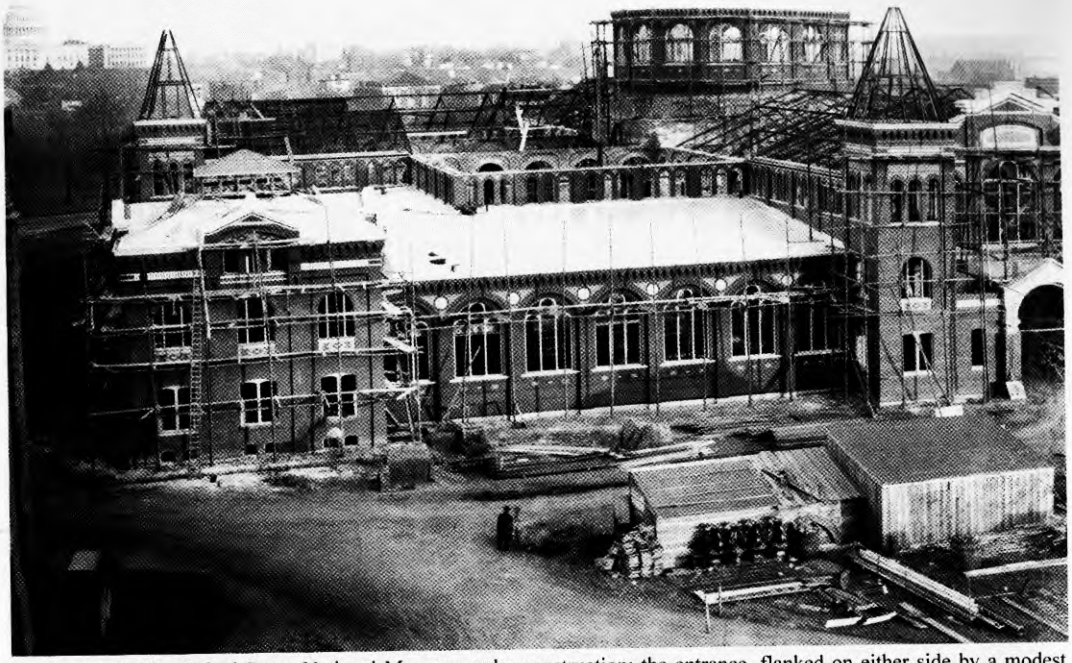


FIGURE 8. The United States National Museum under construction; the entrance, flanked on either side by a modest spire, is partially shown at the right. (SIA Negative number 2003-36480.)

In the regional, national, and international expositions in which the SI participated, Goode was responsible for the temporary displays, in addition to all his efforts in Washington. The final item of overwork, which killed him, was a massive book detailing the first fifty years of the Institution. In my opinion, and one shared by others, Goode was the outstanding museum man in North America of all time and worldwide may have been the best of his era.

Henry's body was hardly cold when The *Proceedings of the United States National Museum* began publication. The first volume for 1878 came out in 1879. Like the *Bulletins*, Federal money was involved, but this series differed in containing shorter papers. 1879 was an excellent year and, in particular, March 3 deserves the title of a red-letter day for Baird and many of his cronies, even if that antique phrase has lost most of it meaning. The sundry civil act for 1880 contained an appropriation of $250,000 to construct a building 300 feet square (Rhees 1901:778). Likewise, the Bureau of Ethnology was founded, again more or less by happenstance, and placed under the direction of the SI, with John Wesley Powell in charge. Finally, in the same act, establishment of the U. S. Geological Survey included one major general provision; almost certainly Baird had a part in its framing. "And all collections of rocks, minerals, soils, fossils, and objects of natural history, archaeology, and ethnology, made by the Coast and Interior Survey, the Geological Survey, or by any other parties for the Government of the United States, when no longer needed for investigations in progress, shall be deposited in the National Museum" (King 1880:1).

An original inhabitant provided a vivid description of the USNM building. "It was a square squatty affair of red, blue, and yellow brick, exteriorly an architectural horror, internally a barren waste. It presented one redeeming feature — space; and as it was space that Baird was after, I presume it may at first thought to have been considered a success" (Yochelson 1985:24). After displays were installed, a few years later the term "Nation's attic" began to be bruited about, and it

FIGURE 9. Installing whale skeletons before the opening of the United State National Museum building. (SIA Negative number 11254.)

FIGURE 10. Secretary S. F. Baird, with wife and daughter, a man utterly devoted to promotion of natural history who laid the foundation for the extensive collections. (SIA Negative number 10714.)

FIGURE 11. Constructing a full-size model of a whale jaw for exhibit in the United States National Museum during the early 1900s. The temporary shed was probably behind the Castle. (SIA Negative number 83-3373.)

was used in a pejorative sense. Even with the new building, natural history collections and offices were still crowded into a significant part of the Castle. The balconies in the Great Hall were converted from exhibits to office space and remained until 1914 (Field, Stamm, and Ewing 1993).

Goode oversaw details and set standards in the museum. For example, he required curators to have two kinds of ink for writing labels and indicated what data should be included, as well as the size of labels for different purposes. The specifications developed for wooden cases and drawers run to more than two pages. In many of the behind-the-scene operations, Goode provided standards, innovation and leadership for American museums.

From 1881 though 1886, the most illustrious title that Baird allowed him was that of Assistant Director. Not until January 12, 1887, was George Brown Goode finally appointed by Baird as Assistant Secretary, a position he richly deserved. Simultaneously, Samuel Pierpont Langley was brought in from the outside and also appointed as an Assistant Secretary. Probably the Regents recognized the mortality of Baird and insisted on bringing in an outside scientist to administer the other SI functions. A few months before Baird's death, the Director of the USNM was directed to report annually to Congress. "When Baird died, on August 19, 1887, following a long period of overwork and heart strain, America lost what many thought was its greatest naturalist" (Oehser 1949:91). Within three months, Langley was appointed Secretary.

Secretary Baird was personally one of nicest of men, but he had a complex character. How one in retrospect reads his character depends on what one reads (Dall 1915; Rivinus and Youssef 1992). The traditional interpretation that Baird changed the course of the Smithsonian is rock solid. "The average annual expenditure for original research for 1850 to 1877 was a little over $2000 a year. After Professor Baird took charge, in 1878, it fell to $802.80 for each of the next three years, and then ceased entirely" (Rivinus and Youssef 1992:130). Funding went mainly to the collecting of natural history specimens and their curation. Considering the size of the SI, Professor Baird developed an enormous tail to wag an exceedingly small dog.

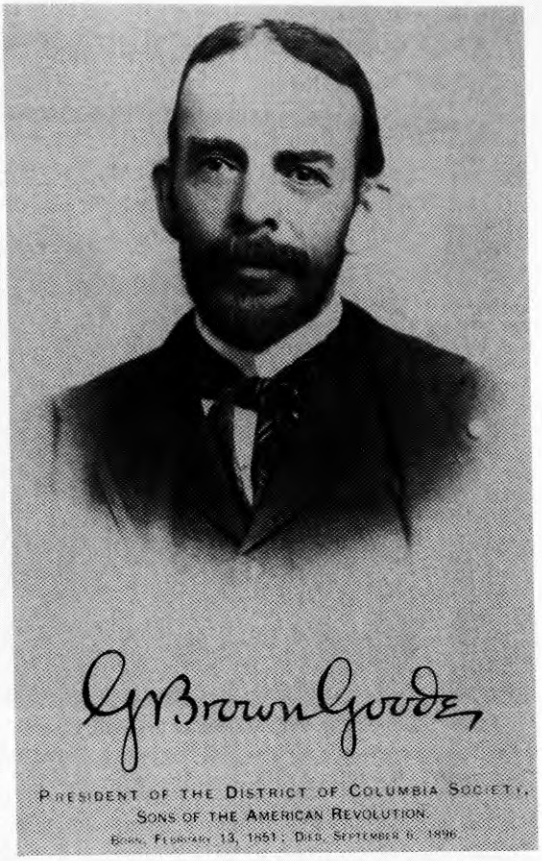


FIGURE 12. George Brown Goode, the best museum man of his time, who should have been appointed Secretary. (SIA Negative number 2003-36479.)

Samuel Pierpont Langley

The astronomer Langley was secretary for 18 years. It is a fair statement that at his very best, he was little interested in natural history. He did study the flying of buzzards, but it was the flying, not the birds, that was of interest. As late as the early 1950s, occasionally old-timers still told Langley stories and most anecdotes concerning his tenure are not particularly flattering (Abbot, 1958). His founding of the Astrophysical Observatory and his experiments in aeronautics were important, but did not impinge on natural history.

Baird's death prompted a series of events in Congress. First was whether his estate should be compensated for his efforts as Fish Commissioner. Baird had purchased a large house, 1445 Massachusetts Avenue NW, and devoted it mainly to Commission offices. He charged no rent and received no salary as Commissioner. A bill was introduced to pay his widow $50,000. After much discussion of whether this was a legal claim, moral responsibility, or whatever (Rhees 1901:1045–1104) widow Baird received $25,000.

Goode temporarily took charge of Fish Commission, but when Marshall McDonald was appointed Commissioner of Fish and Fisheries, new quarters were needed. A building on the Mall, originally designed as an armory, occupied part of the site of the present National Air & Space Museum. For years, it had served as storage area and extra office space for both USNM and Fish Commission. After congressional wrangling, including returning the place to its original purpose, the SI effectively lost all this space, which led to further crowding within the USNM building.

As a next major step in natural history studies, 1888 saw the first formal attempt to form a zoological park (Rhees 1901:1149). William Hornaday, an outstanding taxidermist, developed within the USNM a Department of Living Animals so that their movements could be studied and taxidermy made more realistic. The animals behind the Castle became a tourist attraction. (During the

FIGURE 13. American buffalo south of the Mall, behind the Castle. These were donated shortly after a variety of other small live American animals and birds had been collected and donated. Buffalo returned briefly to the Mall during one of the summer Folk Festivals. (SIA Negative number 9730.)

Smithsonian Sesquicentennial, in commemoration, gardeners grew several topiary "buffalo" on the site.) Hornaday had shot the last group of wild buffalo garnered for a museum display. Preservation of vanishing American species, especially the buffalo, was a prime consideration for him and Hornaday was the leading force in the push for a zoo.

Congressional remarks wandered between a zoological park and a major city green space, eventually to become Rock Creek Park. It is surprising what remarks some congressmen are willing to leave for posterity. "Next year we will be called upon to appropriate $200,000 to buy buffaloes, tigers, lions, monkeys, and other animals to put in there. The next year after that we will have to appropriate another $200,000, because we will have to buy reptiles, snakes, and things of that kind." (Rhees 1901:1159). On the other hand "The study of life always has, and always will have, a fascinating interest for the human mind, and where can lower forms of life be better studied than in zoological gardens? . . . . Therefore I say Mr. Speaker, that the expenditure of this money will be productive of great and lasting benefit to science" (Rhees 1901:1163). On yet another hand, "Why, Mr. Speaker, if gentlemen want to study this science, and the habits of monkeys, bears, and elephants, I suppose it would be better to go into the country where they are grown and reared and study their habits in their native land. But to bring them here for 'scientific' purposes is not a proper use of the word. . . . . if this circus is to inaugurated . . . it should be put on wheels." (Rhees 1901:1164).

After an incredible amount of discussion, Congress acted and the Department of Living Animals segued into the National Zoological Park (Mann, 1946). Langley refused to appoint Hornaday to head up this new organization, and he left the Smithsonian for a long and distin-

guished career in New York. There are many good reasons why historians may not rank Langley as one of the outstanding SI Secretaries, but his discarding of Hornaday has to rank high among his various poor decisions.

Had Hornaday had been in charge, perhaps the zoo would have become more of a force in classical natural history studies, but perhaps not. When the legislation was finally passed, half the annual appropriation was to come from the District of Columbia budget. As a consequence, the facility was perpetually short of funds. It was not until the 1950s, following the death of a child mauled by a lion, that the physical plant began to receive proper attention, and it was not until a quarter century later with the acquisition of the Conservation & Resource Center at Front Royal, Virginia, that scientific studies of animals there and in Rock Creek Park became significant. The outgrowth of the National Zoological Park from the USNM is a SI milestone, but a zoo is not a museum and details of its history will not be pursued here.

In 1888, John Wesley Powell, then second Director of the U.S. Geological Survey, as well as head of the Bureau of Ethnology, failed in his effort to obtain funding for a new building adjacent to the National Museum. As part of his campaign he made a few points of interest to museology. "There are certain collections . . . which are of intrinsic value and are readily marketable; and there are certain other materials . . . fossils, typical rocks . . . for which there is a demand for educational and museum purposes. . . . and a trade in such material has sprung up. . . . . But there is another class of material collected by the investigator, comprising rocks, soils, ... ill-preserved fossils, which have no money value, would be worthless in a museum . . . . It would manifestly be unwise to preserve such material in the National Museum, and it is accordingly destroyed" (Rhees 1901:1113). Thus, there was some discussion concerning what was to be stored in the Nation's attic.

Funding for the USNM was anemic and there was essentially no scientific staff to support the collections. Goode honed the concept of appointing honorary curators, that is not paid by the USNM, to a fine art and if needed to salve an ego or snare a prize, he would designate a new department for the non-paid curator. Eventually there were more than 20 USNM departments, nearly all concerned with natural history. Feeble attempts were made to improve the place; digging a full basement was not deemed feasible. Congress was in no mood to provide funds for a new building, but after years of effort, the floors were fixed and in the early 1890s balconies were added; to fund them took two separate appropriations. Conditions prior to the adding of the balconies are best described in the unpublished manuscript of G.P. Merrill, previously quoted.

"The building was flat upon the ground with no basements except at the four corners. Within were no partitions, no ceiling, nothing but acres of space interrupted by vertical columns and over head a network of iron rods to support the roof. Light streamed in from high windows producing shadows and reflections everywhere but where wanted. The quadrennial period of silliness for which Washington was noted came on early in 1881. A place must be found for the inaugural ball on March 4 [presidential inaugurations were later changed to January], and as there was no other place the museum building was selected. All begun and unfinished projects were pushed aside and preparations for the ball begun.

"The available time not being sufficient for laying tiles, a board floor was hastily laid on joints laid in grooves dug in the soft black earth. On these boards were nailed, with the same spirit of governmental economy that permits the continual repairing on the lath and plaster [Civil] wartime structures in South Washington. These shoddy floors were allowed to remain until the occasional breaking thru by rotting necessitated their replacement. The down pipes carrying water from the roof proved insufficient for our torrential rains and they burst, locally flooding interior, the broad iron roof also sprang periodically a leak and one early summer I recall such a host of newborn ter-

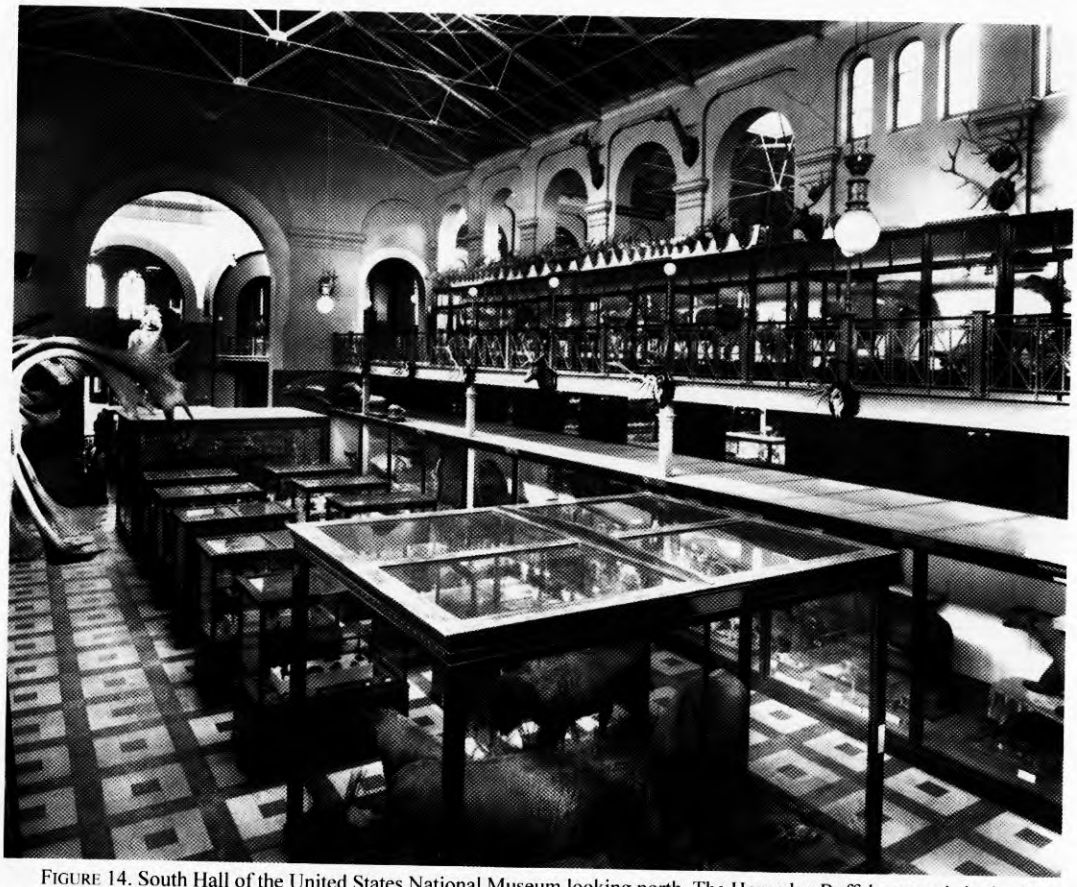


FIGURE 14. South Hall of the United States National Museum looking north. The Hornaday Buffalo group is in the foreground. (SIA Negative number 16247.)

mites bored their way through rotting floors and attacking the woodwork of the cases as to threaten . . . .

"Yet thru it an energetic body of inexperienced and untried men labored conscientiously and courageously, for the love of G.B. Goode and his cause, inspired by the silent approval of Baird and Goode for order. Baird did not live to see it, and Goode broke under the strain. Those of us only who were young, tough and irresponsible lived to tell the tale."

Quite apart from his manifold works in ichthyology, Goode distilled his philosophy of museums into three significant papers. Perhaps the most significant of his concepts was a three-fold classification of museum functions, and one year Goode even tried to explain this idea to Congress. He divided the history of the USNM into three periods. In his view, until 1857 specimens were collected purely for research, from 1858 to 1879, the museum acted as a deposit for government objects, and from 1879 the museum actively collected and exhibited specimens. "The three ideas, record, research, and education, cooperative and mutually helpful as they are, are essential to the development of every great museum. The National Museum endeavors to promote them all." (Rhees 1901:1713–1714).

A letter to Congress, four months before his death, gives some notion of his method of operation. Goode pointed out that the National Herbarium was nominally under the control of the Smithsonian, but for years have been curated by Department of Agriculture employees. Two years

FIGURE 15. Office and storage space for anthropology on a balcony of the United States National Museum building, a powerful argument for another building. (SIA Negative number MNH-3680.)

earlier an agreement was reached to move it physically to the Castle. To maintain the herbarium would require $10,000 annually for assistants, clerks, preparators, postage for exchanges and so forth. "Should the desired sum be granted, it will be possible to maintain this vast collection, which is of much importance to botanical science, in a manner befitting the dignity of the nation" (Rhees 1901:1733). This letter was accompanied by one from the Assistant Secretary of Agriculture. If the transfer was made: the collection would be in a fireproof building; more space would be available in the Agriculture building; there would be no request for new positions to fill those of the men transferred to the Smithsonian; and the Department appropriation could be cut by the amount transferred to the Museum. Since everyone would seem to gain, Congress agreed and the annual museum appropriation went from $40, 000 to $50,000.

Goode died September 6, 1896, and as a tribute his papers on history of natural history and on museums were reprinted (Walcott 1899). They are well worth studying in detail. A later book (Kohlstedt 1991) reprinted some of his papers, though not the key ones on museology. Sir William Flower of the British Museum, Natural History, a star in the history of museums, noted his death. "Here I cannot refrain from expressing my deep sense of loss this cause [dissemination of knowledge though the development of museums] has recently sustained by premature death of Dr. Brown Goode, Director, United States National Museum" (Flower 1898:vii). He went on to laud "The

FIGURE 16. The new natural history building in 1909, looking northeast, with a wagon in front and with work continuing on the roof. For several generations this was almost always referred to as the New National Museum. (SIA Negative number 87-4899-20.)

principles of museum administration" (Goode 1895). Goode deserves a book length biography, but so far he has only received a chapter (Oehser 1949).

Langley now faced a serious problem. Some Regents were less than enthusiastic toward the Secretary and others were downright hostile. Names of several candidates for Goode's position were floated in the local papers. Langley surprised everyone by suggesting Charles Doolittle Walcott, who had been director of the U.S. Geological Survey for two years, salary, $5,000. Prior to that Walcott had spent a decade working in the USNM building and was also an honorary curator; he knew both the SI and his way around Washington. Walcott agreed, but insisted on a title to indicate the appointment was temporary (Yochelson 1998). During 1897 and part of 1898, while Walcott was Acting Assistant Secretary in Charge of the United States National Museum, the Regents paid him $1,000 annually.

In less than six months, Walcott reorganized the chaotic museum structure into three departments and the heads of each are still remembered as prominent in their fields. Anthropology was under William Henry Holmes, who was a geologist-ethnologist-artist, and he served until Powell's death, whereupon in 1902 he became Chief of the Bureau of American Ethnology; Otis T. Mason replaced him. Biology was under the distinguished mammalogist, Frederick W. True. Geology was headed by George P. Merrill, known for his study of building stones and their weathering, meteoritics and history of geology.

It is difficult to convey one feature of a century ago, namely just how tiny was the staff. If one excludes the aides and honorary positions and counts only paid curatorial positions, including the head curators, for the fiscal year 1905, when the museum annual report was first bound separately, Anthropology and Geology each had five positions and Biology may have had at most 15.

The annual reports Goode prepared were always optimistic. Walcott was realistic. "Curators and assistants are hampered for want of room to lay out, arrange, classify, mount, and label speci-

FIGURE 17. Secretary Charles Doolittle Walcott sitting on rocks in the Canadian Rockies with his famous panorama camera. (SIA Negative number 2003-36478.)

mens . . . . Owing to the pressure for space, courts, halls, and galleries intended for exhibition purposes, both in the Smithsonian building and the Museum building, are unavoidably occupied to a considerable extent as laboratories and storerooms, . . ." (Walcott, 1900:9). He presented considerably more detail on what was wrong, and what was needed.

Besides reorganizing the USNM, Walcott saw need for other changes within the SI, but Langley was not interested. When Walcott saw a problem, he attempted to solve it, and before leaving his acting position, he performed one signal service. "During his administration 'Uncle Joe' Cannon was Speaker of the House and it was his habit after a fatiguing session to walk up Pennsylvania Avenue. Walcott, as if by chance, would draw up beside the curb with a fast-stepping bay and a light buggy and suggest a drive to Rock Creek Park, but during these rides he never mentioned business. On one occasion 'Uncle Joe' paused, his foot on the step, and said: 'Walcott, you may have a building for the [U.S. Geological] Survey or one for the National Museum, but you can't have both.' And Walcott took the Museum" (Willis 1947:32). It was not until 1974, that the new John Wesley Powell building in Reston, Virginia, became U.S. Geological Survey headquarters.

After Walcott left, Richard Rathbun, like Goode another who started with the Fish Commission, took over without the Acting in his title. He steered a course through Congress toward a new building, once Walcott had laid the financial foundation of planning money. Construction began June 14, 1902, with Langley digging a shovelfull of dirt in a plot directly across the Mall from the Castle. As the Secretary at the time, technically Langley deserves credit for the building, but his head was elsewhere. To be fair, one must note that the architects Hornblower & Marshall had plans for an incredibly elaborate dome (Yochelson 1985:25), and Langley did bring

in another architect to correct that flaw (Field, oral commun., 1990). Langley died February 27, 1906, slightly more than two years after his aerodrome failed and the Wright brothers flew.

Charles Doolittle Walcott

In December, 1906, the Regents offered the Secretaryship to Henry Fairfield Osborn, the great Pooh-Bah of the American Museum of Natural History. Osborn could tell a well-running organization from one with difficulties and he promptly declined. On January 31, 1907, Walcott was appointed Secretary and served twenty years; he was the last SI Secretary to die in office (Yochelson 2001). Nineteen of his twenty years, he conducted a strenuous field season collecting fossils and studying rocks.

By 1909, the museum building was complete enough so that collections could be transferred. All items of the new structure were described in loving detail (Rathbun 1913). Thanks to the planning by Rathbun, the move across the Mall was executed with efficiency (Yochelson 1985). Except for the botanists who had their herbarium in the Castle, those involved with natural history relocated on either the ground or third floors. There was storage space for arranging collections and vast exhibit halls to fill. (Actually, the first hall to open, March 17, 1910, was devoted to art rather than natural history, for the SI had no other place to display these objects). Federal funds were always in short supply, but the scientists had a new facility and they were a happy staff. As an indication of good feelings, occasionally Walcott would write from the field to "Sir Richard."

About the time of the move, Holmes returned to the museum staff — not that he had ever really left — as Head Curator of Anthropology. In 1911, F.W. True moved up to Assistant Secretary and Leonhard Stejneger became Head Curator of Biology. Stejneger held the position for decades because he began government service as a presidential appointee to study the fur seal industry, and Civil Service regulations could not be applied to him. Stejneger is typical of the grand old men who spent their entire life in the building. When he was in his 80s, his doctor insisted the zoologist give up waltzing.

To recount the various heads of the departments through time would add to the tedium, but some of the staff who had begun as aides in the old building or the new ended up as curators; for example, Waldo Schmitt later was Head Curator of Biology (Blackwelder 1979). One name on the staff list from 1912 that must be mentioned in any history is that of C.W. Stiles, honorary curator of the helminthological collection and a career member of the Department of Agriculture. Stiles was in at the beginning of modern codification of zoological nomenclature. He was one of the original members of the International Commission on Zoological Nomenclature and served from 1895 until 1941; he was the secretary of the Commission from 1897–1936 (Melville 1995:25). Anyone who studies the systematics of living or fossil animals can recognize his significance.

The new building, second in size only to the Capitol (Rathbun 1913), was the Natural History Building of the United States National Museum, but was immediately dubbed the "new national museum." The brick monstrosity became the Arts & Industries Building, and for completeness, two tangential comments concerning it are inserted. First, a curator of Ethnology recalled visiting the building as a young child and seeing a case of a few lamps resting on crumpled newspaper. When he joined the staff in the 1950s, he opened the case and removed the 1910 paper. Second, the old building had its moment of glory in 1976 when the four remaining exhibit halls were developed as a simulacrum of the 1876 Philadelphia Exposition. One of the halls was devoted to the Government exhibits and included a replica of the Smithsonian display; eventually all this display was dismantled, to be replaced by brief temporary exhibits and now a coffee bar. The roof continued to leak. Indeed, in 2003 the rains associated with Hurricane Isabelle caused so much damage, that in

FIGURE 18. The lion family group collected by Theodore Roosevelt, shortly after installation in the first floor of the new museum; because of strong sunlight coming though the windows in the afternoon, one duty of the guards was to draw the curtains. The group was moved when the Hall of Mammals was first revised and installed as a diorama, only to be lost when the new hall opened in 2003. (SIA Negative number 24881.)

January, 2004, the building was closed to the public and the staff is gradually being moved out. What happens next to the building is quite uncertain for, wreck though it is, the place is designated as historic landmark.

Walcott aided natural history in subtle ways. *Smithsonian Contributions to Knowledge* ended in 1916, but earlier he revamped *Smithsonian Miscellaneous Collections*, making it faster and easier to publish in this series, and the *Annual Report* began to include for more original papers rather than almost entirely reprinting of published papers. These publication outlets helped supplement the *Proceedings of the United States National Museum*.

Walcott also started a report of "Explorations and Research" to provide publicity for annual fieldwork and activities; he had a section every year on his paleontological investigations and used it to publish magnificent panorama photographs of the Canadian Rockies. He raised private funds for Roosevelt's African expedition and occasionally obtained money for fieldwork by the staff. Walcott announced publications by issuing press releases, a perfectly obvious action, except no one else had thought to do so. More importantly than any other item, Walcott was an actively working scientist, who set an example for the scientists under him in the Bairdian tradition. Among his other collections were the world famous ancient Burgess Shale fossils.

Once after Walcott consulted with Schmitt comparing some living Crustacea to his fossils, the

FIGURE 19. An Anthropology display on the second floor; the figures of native Americans may have been sculpted and arranged by W.H. Holmes, originally for the 1893 Chicago Exposition.. Note the ceiling lights and the enormous amount of glass to be cleaned each morning. (SIA Negative number 2003-36481.)

young curator mentioned that the museum did not own a Camera Lucida. This is a simple device to reflect a microscope image onto a sheet of paper so an accurate drawing can be made. Walcott found the money for one, but it is an indication that, despite the new building, the museum suffered from inadequate funding for even basic equipment.

The First World War began to bring global problems, and from 1916 Walcott, as President of the National Academy of Sciences, tried to make American science part of the war effort. When America finally went to war, President Wilson requested a bit of office space in the new building for the Bureau of War Risk Insurance. The Bureau kept requiring more space, and in July, 1918 took the entire building, apart from staff offices. As one of the ironies of fate, Rathbun died the day the museum building was closed to the public.

When the conflict ended, Walcott got the museum reopened and even persuaded the Army to pay for the damage done. Rather than appoint a new Assistant Secretary or a Director, Walcott anointed William de C. Ravenel as an Administrative Assistant to run day-to day affairs at the natural history building. The staff eventually came back to the prewar level, but Federal funding could not keep up with basic requirements. A few years after the wartime dramatic growth of the Federal government, the Bureau of the Budget was established. Requests for an annual appropriation now had to be filtered through another set of offices before reaching any Congressional appropriations hearing.

November 1924, the director of the zoo died, and Walcott arranged for Alexander Wetmore to transfer from the Biological Survey to that position. Within three months, however, Wetmore was

FIGURE 20. A ground floor office in the new museum. The woman at the desk is probably Mary Jane Rathbun, sister of the Assistant Secretary, an expert on crabs and one of a small handful of woman curators in the first six decades of the building. (SIA Negative number MNH-26552.)

appointed Assistant Secretary in charge of the National Museum. Meanwhile, Walcott recognized how much the SI endowment had declined in yield relative to need and he began to develop plans for a major SI endowment drive. Walcott died February 9, 1927, and at his insistence while he was failing, on the 10th the kickoff conference for the drive convened; his funeral was held on the 11th.

Charles Greeley Abbot

The astrophysicist Abbot came on the Smithsonian scene during 1895 as an assistant to Langley (Abbot, 1958) and died in 1973 at the age of 102. In 1916, Walcott had appointed him Assistant Secretary. Early in 1928, he became the fifth secretary and he continued his research on the sun, sunspots, and weather cycles.

With still lots of space remaining in the new building and fairly new displays, plus the prospects of an endowment drive, Abbot should have had an easy time. The endowment drive stalled before it started, and collapsed as a result of the great depression. The Abbot interval might be characterized as a "do nothing" time, but that is an unfair assessment, for he and the country were in the grip of something new and terrible. There were reports of rats seen in the stairwells .and probably these are true, for the physical plant deteriorated. The staff was still employed and that alone was a tremendous administrative feat during the 1930s. Federal programs of WPA and PWA

FIGURE 21. A photo of the "brass" on the east of the Castle, January 11, 1915. Secretary Walcott is the far left, and left to right Assistant Secretary R. Rathbun in charge of the National Museum, G.P. Merrill, Head Curator of Geology, Frank Baker, Superintendent of the Zoological Park, W.H. Holmes, Head Curator of Anthropology, and at the end of the row, Chief Clerk Harry Dorsey, who ran everything. On the next row, Assistant Secretary C.G. Abbot is behind Walcott, and second from the right is Leonhard Stejneger,. Head Curator of Biology. (SIA Negative number 82-3221.)

brought help into the museum, as essentially unskilled labor making card catalogues and writing labels. There is more routine work on collection curation than those who are not involved with museums realize and more than the staff can handle. As a result of this help, the backlog of specimens to record and number was reduced considerably.

One natural history effort of Abbot's time was a Division of Radiation and Organisms (Johnston 1946). Research included growing plants under controlled environmental conditions in the "Castle" basement. Abbot began the effort in 1929 and kept it going for a dozen years on "outside" money, quite a trick during those years. He started SI radio broadcasts devoted to science. Abbot wrote several volumes and pushed the completion of the twelve volumes of the popular "Smithsonian Scientific Series" which brought in funds when the days were especially grim. Again, these items sound trivial in the information age, but they were groundbreaking in the context of the times.

Abbot recognized the coming second World War and had committees in place to deliver information on such items as harmful plants and animals in obscure regions. A few of the staff had collected in areas that were essentially unvisited by the military and they had priceless life-saving

FIGURE 22. One of the dioramas installed during the 1930s in the Hall of North American Mammals, and closed during the late 1990s. The Rocky Mountain sheep were collected by Secretary Walcott and hunters, and the background painting was paid for by his widow Mary Vaux Walcott. (SIA Negative number 85057E.)

information. Washington was so poorly organized during the early days of the war that a request of an employee for a map of the Solomon Islands resulted in a map of Solomons Island, Maryland. Those servicemen with interests in natural history who were assigned to far away places, sent specimens back to Washington (Walker 1946).

The Natural History Museum was not closed during this war, for the argument was made — and accepted — that visiting the exhibits would provide innocent recreation for the young soldiers far from home. It is not generally known that because there was such concern over possible bombing of Washington, that type specimens were wrapped and moved out of the city. In mid-June 1994, Abbot officially retired, but continued investigations into his late 90s.

Alexander Wetmore

At the January, 1945, Regents meeting, Assistant Secretary Wetmore was appointed the sixth Secretary. After a century, the SI was finally in charge of a scientist with a Ph.D. Wetmore's primary research activity was ornithology and his studies are still treasured. Following the close of the war, staff members came back from the military, a few new positions opened and collections began to accrue at an increasing rate. Wetmore had little time to prepare for a major event, so the SI Centennial in 1946 was commemorated by the issuance of a small booklet, articles in a few scientific journals, a postage stamp, and a modest local celebration.

During the years when USNM Director Wetmore reported to SI Secretary Wetmore, the administration ran smoothly, which is just as well, for there were difficulties of rebuilding after the war. In 1947, the basic departmental structure began to change when Director Wetmore divided the department of Biology into Zoology and Botany, and a few new staff positions were available.

In 1948, Remington Kellogg was appointed USNM Director. He is remembered as an expert

FIGURE 23. Seventh Secretary Leonard Carmichael to the left of former Secretaries Abbot , and Wetmore. Dr. Carmichael obtained funding to replace the aged displays in the natural history building. (SIA Negative number 42377-C.)

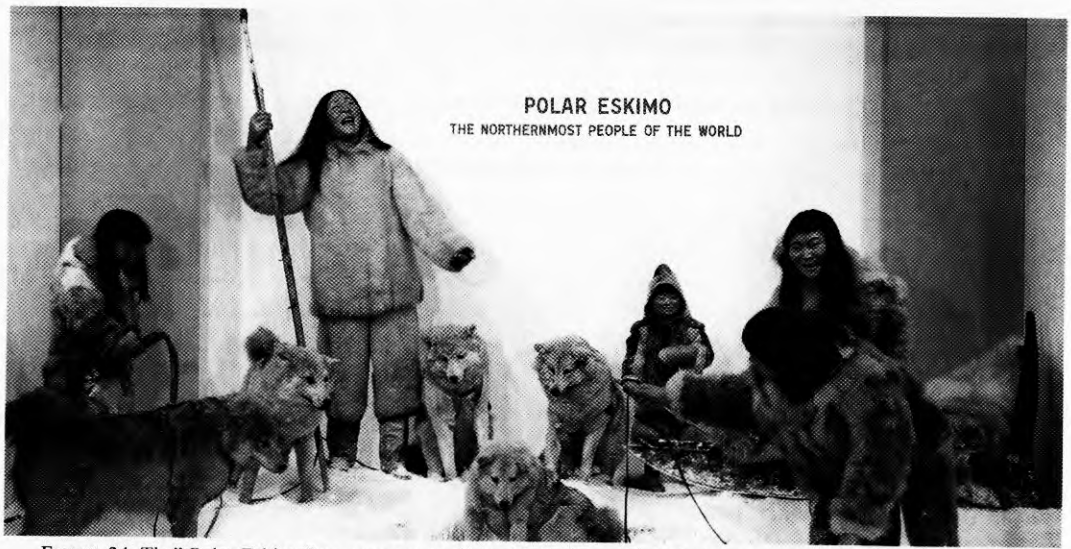


FIGURE 24. The" Polar Eskimo" as an example of an old displays refurbished. It is one of the few remaining dioramas in the building. (SIA Negative number MNH-035.)

on both living and fossil whales and he fought for years to slow the slaughter of whales. In keeping with rumors at the time of primates in the Himalayas, because of his administrative style Kellogg was known as the "abominable no man." When Wetmore retired in December, 1952, he returned to full-time research in the Division of Birds until he was in his 90s. Dr. Wetmore, who died in 1979, was a cautious, gentle man.

One opinion Wetmore voiced summarizes the tenor of the SI and the USNM just after World War II. Because the museum was a Federal establishment, no sales tax was paid on any purchases. If a shop was opened in the museum to sell items to the tourists, his dual concerns were that this would be unfair competition with the local merchants and, further, might result in adverse publicity and the wrath of Congress.

Leonard Carmichael

The first six secretaries had alternated between physical sciences and natural history in their own research interests, but almost certainly this was happenstance, not any inherent pattern. If there was a pattern, it was broken by the appointment immediately after New Year's Day, 1953, of a Secretary from the outside world with no personal experience in either natural science or museums. Leonard Carmichael was a psychologist who had an academic background, but had been extremely active in Washington during the war marshaling scientific manpower.

Administrative actions in the "Castle" were to have an effect on the organization. Within four years, the USNM was subdivided into a Museum of History and Technology and a Museum of Natural History. During 1958, after Kellogg moved on as Assistant Secretary in overall charge of the museums, A.C. Smith became the Director of Natural History. Smith was a botanist who had worked briefly at the museum before transferring to the new National Science Foundation. Under Smith, an Office of Oceanography was installed in the museum and it tapped funds that resulted in an almost explosive growth in the staff. After four years, Smith left and T. Dale Stewart, a physical anthropologist, became Director.

In 1957, the Russian Sputnik focused attention on America's seemingly second-class position in science. Suddenly money for research was no longer in short supply. Along with his concern that research be properly supported, Carmichael was able to persuade Congress to grant money to improve the exhibits in the natural history building, nearly unchanged since the 1910s. The first cycle of more modern exhibits began to appear in halls of natural history (Yochelson 1985). However, the first hall to be modernized, devoted to Latin American archeology opened April 14, 1954, due entirely to the single-handed efforts of Clifford Evans and Betty Megers.

The affiliated agencies, which had offices in the museum, grew relatively rapidly in new staff. Until "oceanography" provided new funding, the museum staff itself had only modest growth and money was still short. On the other hand, morale was high, hope was in the air and a few people were able to travel overseas for collecting and study. It is useful to note that in March, 1959, Secretary Carmichael dedicated the Fénykövi elephant. This is the largest Recent land animal on display in any museum. It was placed in the Rotunda and for the first time the Natural History Building had a symbol.

Even more significantly, Carmichael obtained funding for the wings on the museum building. This is a great Washington story of one administrator outwitting another (Yochelson 1985:104-105). In 1928, Congress passed a bill authorizing wings on the building but never followed with an appropriation. A special SI assistant determined that the authorization was still in force and asked the head of the Bureau of the Budget for money for two wings. This was refused, but a request to Congress for money to construct one wing was approved. With an appropriation in hand, construc-

tion on the east wing began in 1960. Any Congressman could see that the building was asymmetrical, and three years later the west wing was under construction.

Along with the wings came air conditioning. One is hard pressed imagine living anywhere in Washington without this convenience, but the building was particularly grim. It began to soak up heat in March and continued to get increasingly hotter until October when outside temperatures dropped and it then became increasingly colder. There were other amenities installed. One old-timer considered that the two greatest advances in systematics during his time were fluorescent lights so that one could see the specimens, and closer bathrooms; the main museum building had only one set of toilets on the third floor and another set in the foyer.

Before Carmichael retired, the Department of Entomology had been created and Geology was divided into departments of Paleobiology and Mineral Sciences. The transfer of some of the staff and collections to the east wing was more or less concurrent with the end of the concept of lifetime appointments for departmental heads and the start of departmental chairmen serving for a fixed term; the change in title may have been deliberate, for chairmen had far less power. As an example of the weird comments, which might pass for humor in a museum, T. Dale Stewart, whose forte in physical anatomy was skulls, was a curator of heads and, therefore, when the title of chairman came into vogue, he became known as the last head curator in the museum.

The end of January, 1964, the National Museum of History and Technology — now American History — was dedicated by Secretary Carmichael. The following day, the Ripley era began. The

FIGURE 25. The one-winged museum looking northeast. Years after the west wing was added, a building was constructed in the west courtyard and then another in the east courtyard. (SIA Negative number P63361-B.)

time of Secretaries Carmichael and Ripley were a golden era for the study of natural history in Washington, and its like may never be seen again.

S. Dillon Ripley and the National Museum of Natural History

The patrician ornithologist Ripley had been employed briefly in the Division of Birds at the museum during his graduate student days. Following World War II, he went to the Peabody Museum of Natural History at Yale University and became its Director. When Ripley moved to Washington, he had definite notions of what he wanted to accomplish and ". . . he had both class and stature . . . ." (Challinor 2003:301). The two secretaries who significantly changed the course of the Smithsonian were Baird and Ripley. The former forced change by steadily increasing pressure over decades. The latter did it with a dramatic commemoration of the 200th birthday of James Smithson in 1965. In the most positive sense, it shook to the rafters what had been a staid, gray institution. "Examples abound of Ripley's willingness to confront the executive branch to protect the independence of the Institution" (Challinor 2003:300).

As he wrote a few years later "These are excited times. . . . The Smithsonian Institution is in a fortuitous position to focus on the problem of change" (Ripley, 1970:v). A great deal happened, in a short time, but how, let alone why, is difficult to catalogue. The last Annual Report was for the fiscal year 1964. When Smithsonian Year began a few years later, it was an entirely different kind of document. During this gap, the last *Bulletin*, number 293, came off the press in 1969. The last *Proceedings*, volume 125, was published in 1968.

The two museums of History and Technology and of Natural History were under one Director-General for several years and under a second for even a shorter time. Then the name of the United

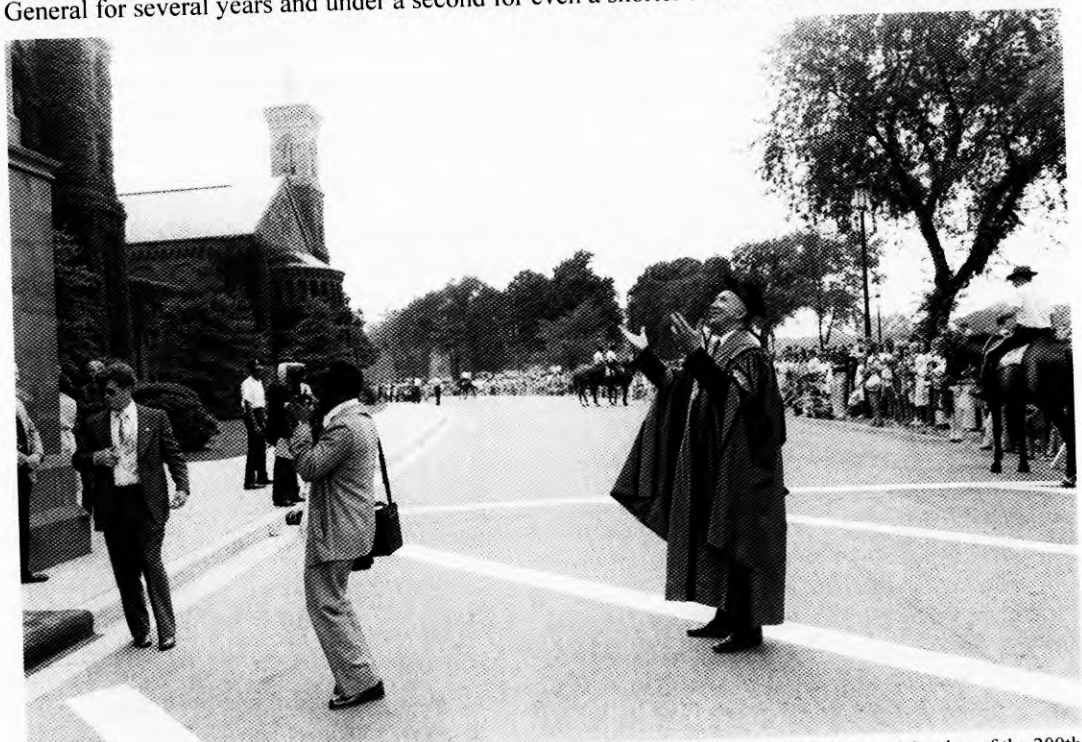


FIGURE 26. Eighth Secretary S. Dillon Ripley, a happy man, in front of the castle in 1965 at the celebration of the 200th anniversary of the birth of James Smithson. (SIA Negative number 76-8525-90.)

States National Museum vanished as mysteriously as it had appeared. A National Museums Act laid out some duties, but little funding, followed by no funding, effectively ended any semblance of an overall museum. On March 24, 1969, the official name of the place of interest here became the National Museum of Natural History. For those interested in administration, the various museums and research organizations were considered by the SI staff in the Castle as bureaus under the Institution. In theory, the head of each had an equal voice, regardless of the size of the facility or the number of staff he directed.

At some uncertain point in time, probably during the early days of the Ripley era, a Museum of Man came into being and was somehow affiliated with, or is part of, Natural History. The name appears on one or two door plaques of the natural history building and was occasionally mentioned in official reports. It is not clear what its staff and function were supposed to be. As the Museum of Man exists today, it is in the form of letterheads and it was never a paper tiger or even a house cat. Another stray item of interest is an unpublished 1972 marketing study of the potential of the SI to increase private monies. Thereafter, the shops and business enterprises began to slowly appear.

In the last year that Stewart was Director, the west wing was completed. With more space, the Department of Botany was moved from the Castle and for the first time, all natural history was under one very large roof. At the start of the fiscal year in 1965, the department of zoology was divided into two departments for vertebrates and invertebrates, respectively. An Office of Ecology and an Office of Systematics were emplaced in the office of the director, though neither had the impact brought to the museum by the Office of Oceanography. At about this time a new series of Smithsonian Contributions to . . . began to appear from each department to replace the two defunct publication series.

Prior to 1964 — the records are a little fuzzy — some of the curatorial staff organized a "Senate of Scientists." The officers met occasionally with the director, as a group distinct from the chairmen with different concerns. Among their few activities, they arranged informal gatherings with various members of the secretariat in an attempt at mutual understanding. One action that did not endear them was to set up a paper Smithsonian investment committee that in a few years of stock picks would have yielded a substantially higher return.

During March 1966, Richard S. Cowan became Director, moving up from Assistant Director. Like A.C. Smith, he was a botanist who had worked briefly in the Division of Botany before transferring to the National Science Foundation. The times of both Smith and Cowan were characterized by growth in the staff and relatively high levels of funding for research. "In 1967, the office [of systematics] staged the first annual summer institute in systematics in collaboration with a number of outside agencies" (Oehser 1970:222). This three-week, three-ring activity continued for four more years and greatly aided the careers of scores of young systematists. (I was in charge of the first one and am pleased to have that fact on my résmué.) Cowan also suggested that the staff and collections might be moved to new quarters on the Department of Agriculture experimental farm at Beltsville, Maryland, but there was too much resistance to this plan and it died. Cowan stepped down late in 1972 and returned to his plant investigations.

Another far-reaching development was the nomenclatural activity of Curtis Sabrosky, an entomologist paid by the Department of Agriculture to work at the museum. For many years, beginning in 1963, he was a long-time member of the International Commission on Zoological Nomenclature; Sabrosky assisted with two revisions of the Zoological Code. In the Department of Botany, Daniel Nicolson played a comparable international role as regards botanical nomenclature and was involved with four revisions of that nomenclatural code.

In mid-January 1973, Porter M. Kier took over as Director, after Cowan returned to the

FIGURE 27. The staff of the newly created Department of Invertebrate Zoology in 1965, as representative of staff increase. In the second row, far left, is Waldo Schmitt, the last Head Curator of Zoology. Three of the curatorial staff hired in 1964 are still active. (SIA Negative number MNH-1536.)

Department of Botany as a curator. Kier was a paleontologist specializing in fossil echinoderms, especially sea urchins. To consider physical structure first, the original natural history building was built around two hollow courtyards. During Kier's tenure, a substantial structure was built in the west courtyard, after a few temporary buildings, which had been used to fabricate the new exhibits that Secretary Carmichael had funded, were dismantled. The lower floor contained a few classrooms and a cafeteria, the first place to buy a meal in the history of the building. The second floor was a naturalist center where interested amateurs could identify specimens and learn more concerning natural history. Some of the activities formerly in the west court were transferred to temporary structures in the east courtyard. Kier is also to be credited with installation of an escalator from the foyer to the rotunda. The staff was certain that he was wrong in his view that hoards of people would visit the museum during America's bicentennial. But Kier was right!

Although the growth of the scientific staff slowed, the scientists had a feeling that they were well represented in the necessary dealings across the Mall. Several people who had come to the museum earlier and still remain judge Kier to be the finest director in their memory for he circulated among the staff and seemed to know what almost everyone was doing. Kier agreed to serve for five years. At the end of that time he had a vote by the staff and with their support stayed in office for another year, until mid-1979. Kier spent a short time back in the Department of Paleobiology. Then, having seen almost all of the collections in the world of echinoids which interested him, and having studied the group to his satisfaction, he retired.

After an interim with an acting director, James F. Mello, Secretary Ripley let it be known that he wanted Richard S. Fiske to apply. Fiske applied in November and was appointed director in January, 1980. He had been a member of the U.S. Geological Survey and had transferred to the Department of Mineral Sciences a few years earlier. Funds were still sufficiently fluid so that when a staff member was lost to a department, a replacement could be hired for that department. Fiske was even able to obtain new congressional funding to build an outstanding group for the study of volcanology and rapid dissemination of information on eruptions, and a Caribbean reef initiative. Near the end of his time, the foundation was also laid for new Federal money to support Arctic anthropology. When Fiske returned to research, he could note that the Museum Support Center had opened and the ground floor of the NMNH boasted a fine gallery for temporary exhibits in the foyer.

To return to more general matters that impinged on the NMNH, Dr. Ripley died March 12, 2001, and received, appropriately, a memorial tribute on the Mall in front of the Castle. He had created out of the old SI a very large dog to match in size the tail of the USNM, which Baird had formed. Indeed, considering relative size and importance of its function, this "tail" of natural history may have been a little small to be in the correct proportion. It should also be noted that during his time, the NMNH was not engaged in any fund raising.

To quote an older work "I have a feeling that the Smithsonian, with it phenomenal growth, has not been entirely successful, probably inevitably so, in escaping the pitfalls of overorganization and overmanagement. . . . . I have portrayed the Smithsonian - a great though not perfect institution — as I see it and in historical perspective" (Oehser 1970:x-xi). Even with this earlier expression of disquiet, it may be too soon to evaluate Secretary Ripley's manifold accomplishments, which resulted in opening eight museums and doubling the number of visitors, along with significant new initiatives.

Still, since "fools rush in," I must now play the devil's advocate. Near the end of his tenure, I think Ripley reached too far in creating new entities. When told by Congress that there were to be no new buildings on the Mall, the tenor of his response was that the area behind the Castle would be the first building under the Mall. As his final major project, funding was secured for the Quadrangle complex, but relations with Congress, which had been mutually congratulatory for years, were certainly cooled. No one intentionally overextends, but by 1984, the Smithsonian may have been overextended.

To continue in this vein, it is difficult to define certain general terms to the satisfaction of all. Even so, it is my view that during the two decades when Ripley was in charge, the Smithsonian Institution moved away from the field of "knowledge" and into the sphere of "culture." One of the keys to the dramatic growth of the Smithsonian was that the rigid line between public and private funds was breached. Everyone became confused as to which monies were involved where to do what. This was surely not the intent, yet in my judgment the consequence is that this confusion of funds and purpose became the root causes of subsequent difficulties in obtaining appropriate Congressional appropriations.

The notion that the SI, and especially the museum, was in some aspects a sort of a university was bruited about during this era and at least a few staff members with hubris viewed themselves as more than mere civil service employees. Yet, how can one decry the vision of this extraordinary man. If he has one monument, apart from several buildings, it is the annual Folk Festival on the Mall (Kurin 1997).

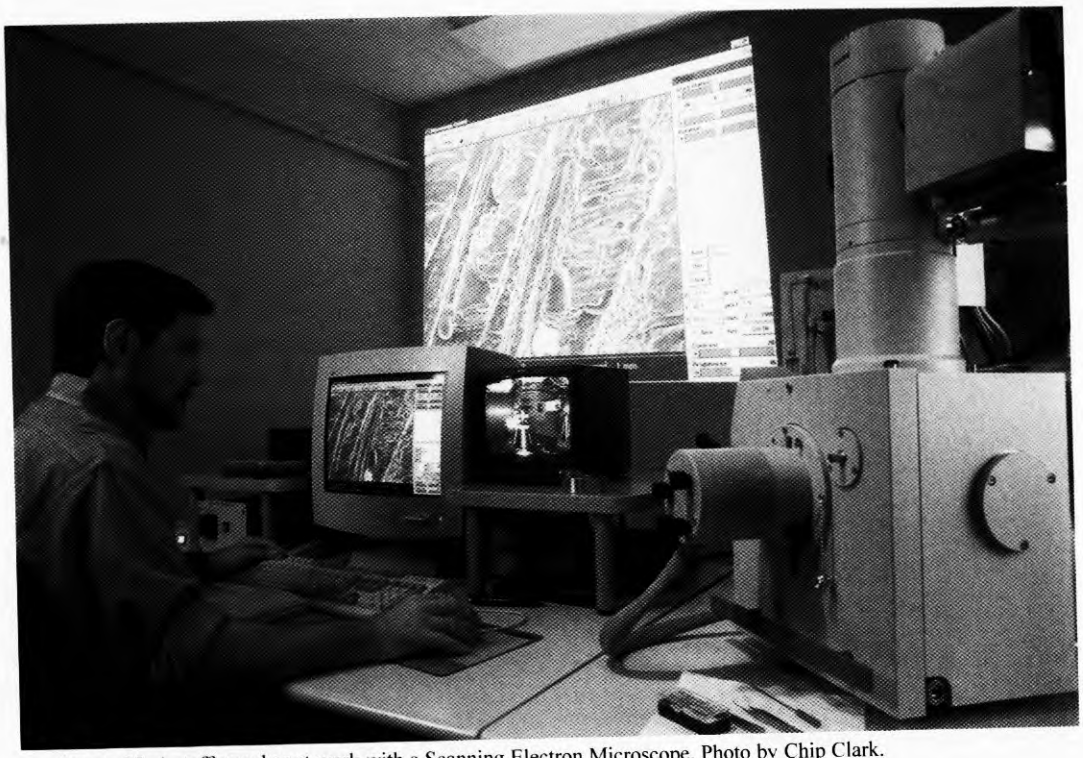


FIGURE 28. A staff member at work with a Scanning Electron Microscope. Photo by Chip Clark.

Robert McCormick Adams

The ninth, tenth, and eleventh Secretaries are alive and active. As a typographical device to distinguish them from their forebearers, no pictures of them are included. To otherwise mark them distinctively might be taken as an indication of disrespect where none is intended. With that caveat, recall the introduction noted that current events and those that are immediately past differ from traditional history.

The domain of history was past after Secretary Ripley retired, or perhaps even during his tenure. Journalists can draw value judgments on the events they witness, but history requires time to marinate views. Notions on exhibits changed and "political correctness" became an issue (Henderson and Kaeppler 1997). It remains an issue for the new mammal hall brought up concern about trophy hunters and that old bugaboo evolution; shortly before the opening of the National Air & Space Museum where the "Enola Gay" is displayed, a group asked that labels contain information on how many were killed by the atomic bomb dropped on Hiroshima. Still, to continue the story one must at least touch on events of the last two decades. As a further difficulty in rendering judgments, all former directors from Kier onward are still very much alive and two are quite active in museum research; likewise acting and interim directors are equally active.

The decade following Secretary Ripley was presided over by Robert McCormick Adams, an anthropologist from academia interested in ancient irrigations systems. If a brief comment on this interval were necessary, the two words I would choose would be "financial decline." In regard to appropriations, relations with Congress did not begin well and from there went downhill. Several persons have indicated that Secretary Adams lacked "charm" and that he preferred detailed intellectual discussion of a subject to decision making.

If a holophrastic summary is wanted, probably "drifting" is realistic. Each part of the Smithsonian empire was effectively cut loose to succeed or fail without much overall direction, though the more elegant term "decentralization of functions" was used. In keeping with some of the other "bureaus," the museum organized its own office to solicit private funds. This may have been inevitable as pay raises authorized by Congress, but without increase in appropriations, began to take their toll. Increasingly, funds were used for salaries and most of what little money was left seemingly went into buying or upgrading computers. Old-fashioned Civil servants would have been shocked by the concept of fund raising, for Federal employees are forbidden to solicit money. Those in "development" were Smithsonian Trust employees and their activities were legally correct; the moral issue of whether any fund raising for a Federal establishment is appropriate or not, is not a legal point.

During March, 1985, the natural history building celebrated 75 years of its first public displays (Yochelson 1985). Among a few scientific activities, a grand party filled the rotunda; it may be that even the elephant did a little jig on his pedestal. Nine months after Secretary Adams was installed, with James Tyler serving as Acting Director to space them, in June 1988 Fiske was followed in the Director's Office by Robert S. Hoffmann, a mammalogist.

Hoffmann had spent a sabbatical at the Museum, but had no other ties to Washington. Still, for many years both at Montana and Kansas he had been in charge of the natural history museums and, accordingly, had knowledge of the kind of research that was appropriate for the building. Money was becoming tighter. Hoffmann was aware of difficulties and had an outside management make a report on the condition of the museum. As a result, low morale was recognized as a serious problem, and staff members were formed into a number of committees to advise on how to correct this and some of the other concerns.

Hoffman was not able to accomplist much of a change in direction. Unfortunately, Federal personnel ceilings and restricted funding are intractable hurdles for most any director. So, after only eighteen months in the museum building, he transferred across the Mall, leaving the museum Director's office to become Assistant Secretary of Research, for four years, and then Assistant Secretary for Science, for another two. The move of Hofmann across the Mall resulted in James Tyler again serving as Acting Director in the large southwest corner office before Frank Talbot was appointed. Talbot began life as a marine biologist primarily concerned with the systematics and ecology of marine fish, but his career was mainly that of an administrator running several different museums on several different continents.

Following Talbot's arrival, one small exhibit space became an elaborate director's conference room. The hall of physical anthropology simply vanished and was replaced by a series of offices. Halls for physical geology and for mineralogy were closed for major rebuilding before all the necessary funding was in hand. The Insect Zoo was rebuilt and renamed the O. Orkin Insect Zoo. The director's office saw nothing wrong in naming Federal public space after a donor and was quick to state that the name was, of course, that of an individual, not the name of company dedicated to killing insects. As another development, the number and size of shops in the building grew, further nibbling away public displays. All of this commercialization led to diminution of public exhibits and the foyer became the site of two large shops. Concomitant with these activities, there was an exponential growth in the office of director with four associate directors, each with a staff. Meanwhile, the numbers of the scientific staff continued to decline. Increasingly, each temporary exhibit had an associated shop.

Talbot was aggressive in seeking outside funding for exhibits and had some success. Like Cowan, Talbot seriously discussed moving the staff to the campus of the University of Maryland or the Department of Agriculture Beltsville Agricultural Research Station. The initiative actually

FIGURE 29. Entrance to the Hall of Geology, which emphasizes plate tectonics, meteorites, and volcanism. The original hall lasted for nearly 40 years, before being closed for office space; a new hall opened with this globe and when it was rebuilt, the globe was recycled. Photo by Chip Clark.

moved to the stage of examining several sites, before it foundered. Talbot retired and returned to his adopted home in Sydney, Australia, from whence he had come via a stint in San Francisco as Director of the California Academy of Sciences. In his place, Robert McCormick Adams was appointed Director.

In some sense, two events help define the Adams period. First, the Board of Regents deemed it proper to provide a house for the Secretary; this property was later sold. One may speculate that the action was based on the notion that universities provide presidential housing and therefore the SI should emulate them. At that time, the cost of this property was nearly the same sum as the Smithson bequest. Granted that the effects of more than a century of inflation make for a poor comparison, it is in symbolic of what was deemed important. Few of the natural history staff remarked on this event, but other actions or non-actions continued to lower morale. Second, after Secretary Adams retired to become an adjunct professor, the press release issued by the University of California, San Diego, listed his many honors and accomplishments, but did not include his ten years as Secretary of the Smithsonian.

During the latter part of Secretary Adams' tenure, the west court building was torn down and replaced with a far taller structure. The Naturalists' Center moved to suburban Virginia and seemingly there are no plans to return it to the museum. The new building contained a public cafeteria, an IMAX [Registered trademark] theater and an interactive computer theater facility on the upper floor. The new theater was to be the principal contribution of NMNH to the 150th anniversary celebration in 1996. Further, within three years, revenues were anticipated to pay for the equipment and running costs and thereafter provide scads of funding. The theater finally did open in the latter part of 1999; seemingly, the anticipated flow of money has not yet trickled down very far, for the debt has not yet been fully repaid.

In fact, during the second half of the Adams decade, some of the SI Trust employees were terminated with little notice. It was a graphic lesson in the difference between employees in the various museums who were on the Federal payroll and those dependent on Smithsonian trust funds.

Although it did not directly affect the NMNH, unfavorable criticism of an exhibit in the National Museum of American History which reinterpreted western history marred the earlier part of Adams tenure. His era ended with a flaming argument centered on an exhibit proposed for the National Air & Space Museum, but the smoke from it engulfed the entire institution. Never had the SI been subject to such unfavorable publicity.

I. Michael Heyman

The tenth Secretary, a former professor of environment law, at the University of California, Berkeley, took over in the midst of difficulties. He put out the major fire at the Air & Space Museum and few minor ones elsewhere within the SI. Likewise, with his greater concern for personal relations, he was able to improve relations with the Office of Budget and Management and with Congress though he was not an insider as the term is applied in Washington, and his efforts were accordingly limited. He was also able to bring in some private funds to augment the Smithsonian endowment. Even though all this considerable effort was useful overall, virtually none of this effort materially affected, let alone improved, the lot of the natural history museum, for decline in staff continued and research funds diminished.

In keeping with the "university" approach, a change from Assistant Secretary for Science to "Provost" occurred. Understandably, a new Secretary would want his own advisors and after as short period, Hoffmann returned to the museum building to continue studying mammals. With little in the way of a formal search and less fanfare, Dennis J. O'Connor, from the University of California, Los Angeles, became the second provost. His background was primarily in academic administration, though he had begun his career briefly in genetics and had no experience in museums. After a relatively short time, he was regarded by some members of the natural history staff who had dealing with him as a person who would say one thing in a conversation and then take an action quite different.

More or less at the start of Secretary Heyman's tenure, Talbot left as Director of the National Museum of Natural History, though the foundation for this change may have been laid earlier. He retired as a result of "ill-health," with a year's salary so that he could resume his research at another location. Donald Ortner, a senior physical anthropologist took over as Acting Director for a stay of two years in the front office. With the title of "Acting," there was little of a permanent change he could affect. One accomplishment was the first "bug day" on the Mall. This Saturday event now occurs every other year.

The sesquicentennial of the Smithsonian Institution occurred in 1996; there had been essentially no planning for it by the previous secretary. Some fine things were done to mark the year. On the other hand, by taking the advice of outside consultants who wanted a major traveling exhibit and not taking the advice of the SI organizing committee who saw problems, the net result was a major loss in trust funds ~~were~~ lost. Some accounts place the loss at 60 million, though this may include hoped for donations that never materialized As a result, the SI Trust funds which had helped to support post-doctoral investigators and bring in short-term scientific visitors for the NMNH and other parts of SI vanished.

Work began on a reconstruction of the heating and air conditioning in the museum building. This affected the third floor of the older building and the sixth floor of the wing. As a result, most of the Department of Anthropology and all of Division of Birds, respectively, moved into what had

been exhibit space on the second floor. The halls full of former displays of Native American pots and arrowheads had already been closed for well more than a decade when the library was remodeled and had never been reopened for public exhibits. As might be expected, the construction scheduled for eighteen months took about twice as long. Independent of this disruption, because Federal funds for salaries were so short, the SI received authorization from the Office of Management and Budget for employee "buyout" and for early retirement. Some at the museum availed themselves of this opportunity to leave. These were particularly among the ranks of what might be termed scientific aides, a group always in short supply. As an indication of change in exhibits, the last taxidermist to help reconstruct the Fénykövi elephant retired.

Early in 1996, Robert Fri moved from the think tank "Resources for the Future, Inc." to become Director; previously he had been assistant director of the Environmental Protection Agency. Seemingly, there are neither strongly positive or strongly negative comments on his tenure, for the general view was that all power resided in the Castle and there was little a director could do to influence the course of events. The title of Director does not necessarily convey information concerning the person in charge. Fri was commonly viewed by the staff as an administrator rather than a leader.

When the disruption of the anthropologists finally stopped, the staff on the fifth and fourth floors of the east wing was displaced. Those who studied mollusks moved to the west wing, whereas the Department of Mineral Science moved to the vacated space on the second floor. That reconstruction took about two years. Along with this, work began on a building to be placed in the east courtyard. Earlier, the air conditioning plant was moved to the east parking lot and various buildings in the courtyard were demolished. All waste material moving out and all building material moving into this interior space had to be hoisted over the roof. This construction was not an inexpensive operation.

Lawrence Small

This now surely brings one to the time of current events, which from several different aspects brings considerable discomfort in writing a chronicle, let alone making an evaluation. As with all the secretaries, the eleventh Secretary was appointed by the Board of Regents, and reflected their immediate concerns. The appointment of L.M. Small was announced during September, 1999, and he was installed January 24, 2000. He was a former banker and money manager, and he has made no pretense of a scientific or academic background.

Secretary Small began on a high note by noting the deterioration of the buildings. He moved funds and changed priorities so that work on the heating and air conditioning in the east wing stopped with the job half completed, though this was no hardship for those in the Department of Paleobiology on the second and third floors who dreaded being displaced.

Meanwhile some work on the west wing and on the roof continued. He also took control of a variety of small funds which had accumulated from honoraria and book royalties; the Federal employees could not directly accept these monies, but they could be used to support travel and research. Their loss resulted in a view that this was a first attempt to remove natural history research from the Smithsonian.

Within the Castle a plan was developed to reorganize scientific activities and "focus on fewer than double digit numbers of research areas." There was so little consultation with those concerned that it became known as the stealth plan. While Secretary Heyman was still in office several committees were appointed to evaluate the various departments. Considerable uncertainty and unease was in the air as to what sort of reorganization might take place. Early in February, 2000, Director Fri announced a Department of Systematic Biology, formed by combining the four departments

which dealt with living organisms:, Invertebrate Zoology, Vertebrate Zoology; Entomology: and Botany. It added another level of management, and partly as a consequence, two of the four fund managers involved, retired. Although about 35% of the NMNH curators are involved with marine organisms, there was now no longer any voice for marine biology when the chairmen meet with the Director.

The first week of April 2000, the Castle announced plans to abolish the Conservation & Research Center of the zoo, at Front Royal, Virginia, and the Conservation Analytical Laboratory, at Suitland, Maryland (Trescott 2000). Morale plummeted and dudgeon rose. Those who had earlier stated that things could not get worse apologized to their colleagues, for rightly or wrongly this was perceived as an all-out attack on science by the high level Smithsonian administration. *The* actions provoked comment from outside the Institution in many journal and newspapers, all of it adverse. Although for many newspapers, the problems at the SI were front-page news, The *Washington Post* invariably assigned SI events to the "Style" section. The storm of unfavorable views eventually reached Capitol Hill, and within a month the proposed abolition of these units stopped in its tracks.

In retrospect, there have been several different guesses as to the cause of the brouhaha. The most benign is that the budget shortfall was $5,000,000 and the budget of these two groups totaled that amount. One persistent rumor is that to retain his position, the Provost simply offered up these facilities without any consideration as to merit of the choice. More sinister scenarios have been suggested, but there was much gossiping and few facts.

The premise that funding was in critically short supply was absolutely correct and the corollary that not all current activities could be supported was equally correct. Notwithstanding these basic considerations, someone should have foreseen that the lack of explanation and the heavy-handed approach were bound to prompt major upset.

A few months later, additional unfavorable publicity ensued in connection with donations for halls at the National Museum of American History and the issue of how much control a donor, either private or corporate, should exert over an exhibit. This did not directly impact those in natural history, but sale of the "naming rights" for halls became an extremely sore subject, and adverse publicity affected everyone under the aegis of the SI. All in all, 2000 was not a good year!

During the late 1990s, a "Congress of Scholars" was initiated in part to see if the concept of the NMNH Senate of Scientists could be expanded to other parts of the Institution. For the first year or two little was accomplished by that group, but the attempt to close facilities energized almost everyone. One wag asked to comment on the early days of the Small regime, pondered and stated "Well, he has become a cohesive force." Others speculated that Ripley was 20 years in office, Adams 10, Heyman 5, and perhaps Small would only have 2½ years in the position. This is simply an example of scientific minds trying to interpret any area alien to their accustomed sphere.

However, 2001 was no improvement over 2000. The Director of the NMNH, Fri, announced his retirement in May of 2001, shortly after the plan to close the two facilities was blocked, announcing that he could not support the plans of the Secretary (Trescott 2001). The Provost, now retitled Under Secretary of Science, was then simultaneously appointed Director of the Museum. This did nothing whatsoever to improve morale and lower the level of gloom. To add to that, in December, the Office of Management and Budget announced a plan that would have effectively gutted the SI. In accordance with Harry Truman's desk sign "The buck stops here," those who have laid full blame on the Secretary for the debacle of 2000, should bestow full credit for thwarting the plans to cut funding (Trescott 2002).

By early 2002 most of the adverse public publicity had died down. More importantly, there was a feeling that perhaps the nadir had been reached. After a relatively short stay wearing two

hats, O'Connor left for Academia. Research then seemed to have gradually come to the fore both in Secretary Small's office and elsewhere in the Castle. The NMNH staff was pleasantly surprised when a sensible interim appointments of an Under Secretary was made from the Smithsonian Astrophysical Laboratory. He in turn interviewed members of the museum staff, especially the newer ones and selected an Interim Director. Douglas H. Erwin, a paleontologist assumed the role. The relatively rapid appointment of a new Under Secretary, David Evans, who had been a Federal employee, a scientist and an administrator of scientists, was a positive development.

The search for a new director seems to have been conducted in a thorough manner and on April 1, 2003, Cristián Samper assumed office. From then to submission of the manuscript is too short a time to evaluate the impact of a director, unless he is incredibly bad. That is certainly not the case with Dr. Samper! One of his first actions was to become affiliated with the Section — formerly Department — of Botany. He has been seen around the building more in these few months than his predecessor was in years. The new Director has been frank that the funding situation for at least a year, and perhaps longer, is grim. Nevertheless, he has projected an aura of caring about the museum in general and research in particular. Morale has improved though a stage of hopeful waiting to hope; there is a feeling that for the first time in over a decade positive actions might occur.

Meanwhile, Secretary Small has had his interest in science sparked and during the spring of 2003 had a meeting with scientists from the affiliated agencies, a first for the Castle administration, and agreed by all as a good event. Early in November, 2003, Director Samper dissolved the Department of Systematic Biology, and reinstated the Departments of Botany and Entomology; the remainder constituted a Department of Zoology. The new Hall of Mammals (Fig. 30) opened on schedule in mid- November, providing another boost to the Samper regime. It is architecturally spectacular; the cost was $31,000,000.

In the wake of the attempts to close the facilities mentioned above, an SI Science Commission was appointed in 2000 by the Regents. Its charge extended beyond natural history, though this was a significant factor in its conclusions. The commission consulted with a variety of staff members during the process and submitted a long report to the Regents January 7, 2003. An hour before noon the full report was placed on a web site (Sabloff et al. 2003). The next morning this effort resulted in a front-page article in *The Washington Post*.

The report provides an opportunity to document the current speed of dissemination of information. Within an hour, a colleague in Indiana received a phone call from a former student currently at the museum. Shortly thereafter, he noted on the Sigma Xi website, a summary of the newspaper article and reference to the website containing the full text. When he next consulted the electronic *Chronicles of Higher Education*, the same information was present. For better or for worse, the report must have been available worldwide in less than a few hours.

The Science Commission was not the only group that was active. As mentioned, over the last few decades, the line between government and private funds has been so confused that many can no longer make a distinction. Indeed, in 2002 the Office of Management and Budget suggested that Federal funding for research at the Smithsonian's Astrophysical Laboratory, the Tropical Research Institute, and the Environmental Research Center be transferred to the National Science Foundation, and that employees should compete for funding against their colleagues in academia. Fortunately, the NMNH was not included and one can surmise that the suggestion was based primarily on summing up the total funds involved without concern for their purpose. It has been a standing policy that Federal employees cannot be funded by the National Science Foundation.

Fortunately again, both the National Academy of Sciences and the National Academy of Public Administration were asked to comment and both responded with strong reports against such a specific idea. These appeared shortly before the Science Commission report. In my view, short-

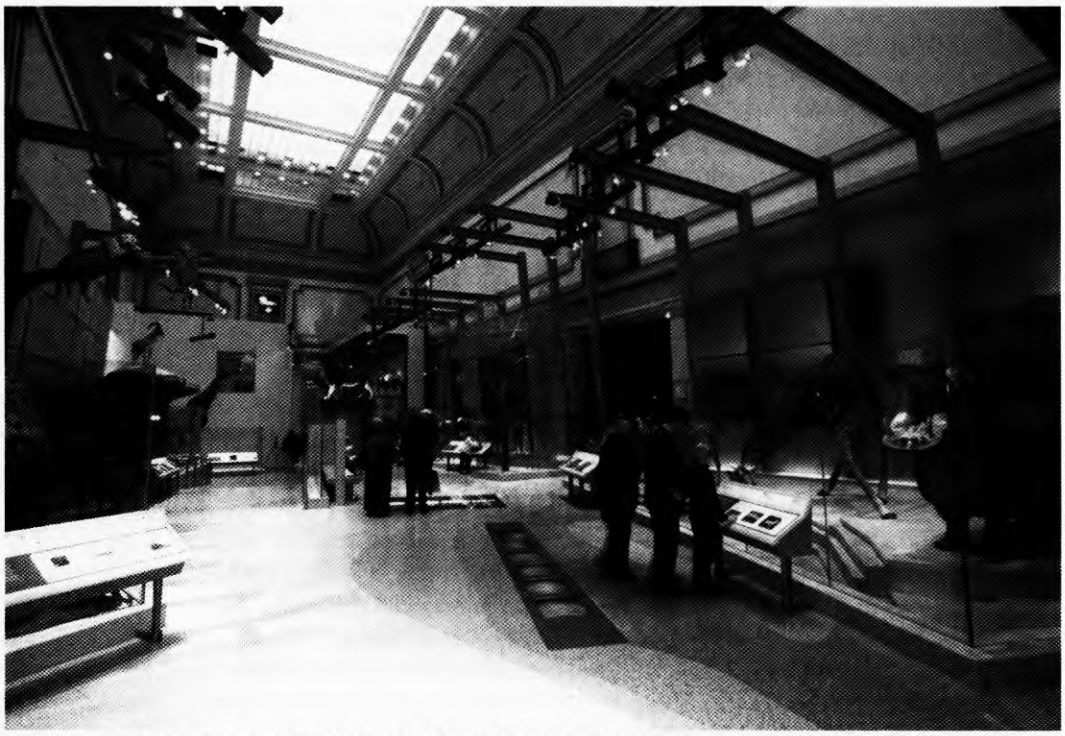


FIGURE 30. A portion of the central part of the new Hall of Mammals, which opened in mid-November, 2003. The older mammal hall was to the left, life in the seas was in the center, and birds were to the right. Photo by Chip Clark.

term grants, which are the norm for the National Science Foundation, place a premium on short papers, whereas the works that are significant in natural history studies are monographic and of necessity are long-term projects. In contrast to the two reports mentioned above, the Science Commission recommended that the staff be allowed to apply for NSF grants. If that is put in effect, a possible short-term gain in research funds, may lead to a long-term decline in Federal funding. Current competition for NSF funding resembles a shark feeding frenzy and I doubt that this situation will improve, though one can always hope. As a result of this flurry of reports, a new arrangement between the SI and the National Science Foundation is in process and it may result in more funding.

Whereas the attempted closing of two facilities was front-page news for days in the Washington papers, the elimination of five persons who delivered mail around the various buildings of the Smithsonian was not. Whereas, each mail stop used to receive its mail and then sort it for the staff, now each day someone must take the outgoing mail to a central spot and bring back the incoming material. This appears to be a saving, on paper, but it is yet another way to use the time of assistants and to delay research. The bottom line always seems to overshadow the big picture.

The new east courtyard building opened in 2001 and the architects had done an excellent job. The upper floors were devoted to entomology, the best collection and research space the group has ever had. The lower floors were offices and several class rooms, along with a much improved day care center. A nice touch is a small playground in front of the east wing for the toddlers. It gives a little life to the place.

The SI again received some unfavorable publicity during the winter of 2003 with the death by

poisoning of two animals of an endangered species, culminating a series of earlier animal deaths at the National Zoological Park. This led to an inquiry by a House of Representatives Committee, but fortunately once more, the committee was relatively sympathetic. The National Academy of Sciences has been asked to examine the zoo. No one at the NMNH has commented, but there seems to be unspoken agreement that the skinned, pickled, pinned, and rock-like specimens have some advantages over the living ones subject to dying unexpectedly.

Outposts

Although the National Museum of Natural History consists primarily of a large building on the Mall, it does have a presence elsewhere. Perhaps a more appropriate heading for the topic would be "field stations," but that is not quite accurate either. To begin, when the Panama Canal was flooded, Barro Colorado became an island in Lake Gatun. The potential for natural history study appealed to a few hardy souls and for three decades people came and went under limited administration. In 1946, the Canal Zone Biological Area was placed under the SI. Whether it was ever formally part of the United States National Museum, is not clear, but Washington natural historians did use its facilities. Under Secretary Ripley this facility became the Smithsonian Tropical Research Institute (STRI), and was administered as a separate entity from the museum.

Also under the Ripley regime, donation of a farm adjacent to Chesapeake Bay led to another facility. The aim was to concentrate on the ecology of the brackish bay and the adjacent land. After a few name changes, the place became the Smithsonian Environmental Research Center (SERC). Early in the history of SERC, the efforts of what had been the Division of Radiation and Organisms were partly folded into the place and partly dropped. Within the last few years, as a result of administrative shuffling, at the moment SERC is part of the NMNH.

During the heyday of the oceanographic push, a center to sort the specimens dredged from the oceans was established in southeast Washington. It spawned another center, or field station if you will, in India, which existed for about four years, and another in Tunisia, which lasted for more than a decade. All of these 1960s and 1970s places are gone, but a few alumni of the sorting centers joined the museum staff.

Off the coast of Belize in Central America is a major coral reef tract. For more than three decades this field station has served as a base of operations for many of the staff members and their colleagues. Somewhat later, the Harbor Branch Foundation in Ft. Pierce, Florida, provided space for museum employees. By the turn of the century a modest building at another site in the city was completed and in 2002, Mary Rice, the first director of the Smithsonian Marine Station, retired.

The Museum Support Center opened in Prince Georges County, Maryland during 1983. It is a curiosity of history that the two curators who were its strongest advocates left Washington for other museums before that date. According to listings in the telephone book, as of 1992, the center was at least nominally part of the office of the Director of the Natural History Museum. A few staff research activities are conducted there, including a modest molecular systematic laboratory, and mosquito identification for the Armed Forces.

Many stories, most of them true, have circulated concerning the support center. It began as a high security facility when such a concept was alien to Washington. Guard dogs and jack-booted guards armed with batons and revolvers were present. To insure that there were no "vermin," staff were forbidden to have plants, eat in their offices, or hang anything on a wall. When three groups vied for space in the three floors of the first pod, a huge cavernous building, the decision was made that each would get one-third of each of the floors.

The center is increasingly being filled with specimens transferred from the museum. There are now four pods and miscellaneous other buildings. In one respect the place has also taken on the

aspect of the old USNM in that other kinds of objects are being stored there. For example, new space originally designated for the alcohol collection is needed by the Portrait Gallery and Museum of American Art; it is not clear how that particular turf war will play out. The place is not a black hole into which objects vanish forever, but it does make browsing of the collections extremely difficult. If you know precisely what you want to see, it can be retrieved more or less promptly. Congress has now given authorization for construction of a fifth pod, presumably mainly for the specimens in alcohol. One problem is that the museum staff has had virtually no input on the design and has essentially no way to change the plans. This is not an isolated event, but is more common than not when major construction or repair is contemplated.

When plans were made for the old west court building to be torn down, the naturalist center was lost. By perseverance, those involved with it found a place in Leesburg, Virginia. For more than a decade this center has continued to serve a smaller public, but how long the concept of supporting amateur effort in natural history will continue is extremely uncertain. There do not appear to be any plans to return this educational activity to the museum building or even to any place on the Mall.

Governance of the Museum

Congressional inquiries in 1888 in regard to the "classified service" provide a little data on the small size of the United States National Museum. The Assistant Secretary in charge received $4,000 and the combined curator and executive officer $3,000. Five curators each received $2,400 and five more received $2,100. Four assistant curators were paid $1,600 and four more junior assistants $1,400 annually. Four "aids" — that was the spelling — made $1,200 and six more made $1,000. Finally $4,000 in special services was contracted out, making a total of $56,300; this covered the entire span of the museum's holdings, not simply natural history. The cost of running the entire USNM in 1888 was $199,121. "The rates of pay indicated are in most cases considerably lower than are customarily allowed for similar services in the Executive Department" (Rhees 1901:1240). History teaches that low salaries for museum workers is nothing new.

Governance is an incredibly dull subject except to those near the bottom of the ladder, and when problems appear, the subject is retitled "employee morale." Henry kept Baird on a relatively short leash, but he had considerable latitude compared to that which Baird allowed his subordinates (Rivinus and Youssef 1992). Langley was neither interested in natural history nor very much in those beneath him, but fortunately Goode, Walcott, and Rathbun seemed to understand those whose interests were in natural history. In photographs, Ravenel looks like a typical bureaucrat, but there are no horror stories resulting from his regime. Wetmore, wearing two hats as both Director of USNM and Assistant Secretary of SI, and then later as Secretary, was favored by the staff; salaries continued to be low but morale was high.

If a quick summary of a century is in order, natural history fared far better under the leadership of the three secretaries who were specialists in the field than under the three who were not. This is not due to prejudice or preference, but was affected more by external events influencing Congress than any other factor. Baird was memorialized late in 1971 when the meeting room in the Natural History Building was designated as the Baird Auditorium. The contributions of Walcott and Wetmore to the Institution have never been properly recognized anywhere within the Smithsonian!

Secretary Carmichael was easy of access as was Secretary Ripley, especially in his early days; if an unexpected opportunity for a trip or a conference appeared, a staff member could write a note directly to the Secretary asking for a small sum and it would come back "OK SDR". Since then for those within NMNH, a subtle change ensued in that the secretary has become more remote and voice of the director became less significant. Some staff spoke of a "grass curtain" separating

Castle and museum building, analogous to the "bamboo curtain" which surrounded China for decades.

Kier was the last director to come directly from the ranks of the staff without other employment on his record, and the last who apparently had direct and easy access to the Secretary, although Fiske could well be considered "in house." Since then, directors have come and gone; it is up to others to judge their relative capabilities and accomplishments. Meanwhile, paralleling the increasing complexity of administrative structure in the "Castle," the NMNH became more complicated and currently has four associate/deputy directors. Whereas four decades ago it was no problem for a staff member to reach the Secretary for a brief meeting, the route now for even a memorandum is through the Department Chairman, to Associate Director, to Director, to Assistant Secretary, as only the most obvious of the many steps which must be followed.

On a lower level, after Walcott reorganized the USNM, there were effectively a director and three Head curators. These were lifetime appointments. Subordinates may have been under the thumb of the Head, but at least it was a consistent thumb. Likewise, when the Director was supported by three eminent scientists, he could make a strong case to the Secretary for a particular need.

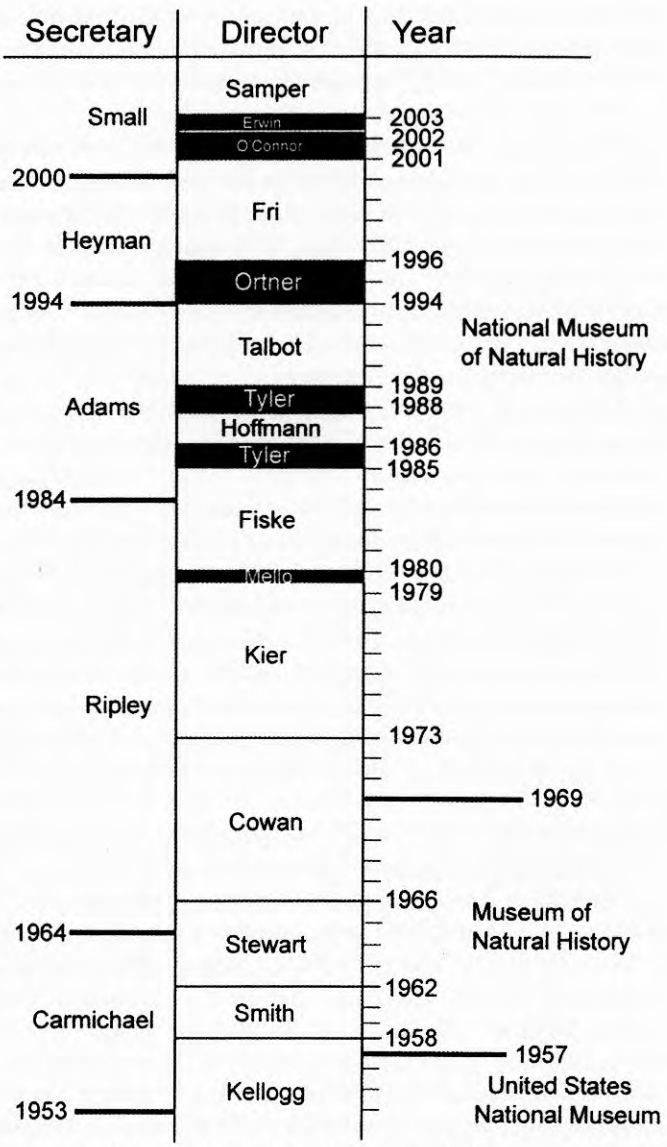


FIGURE 31. Leadership of the Smithsonian and the Museum during the last half century. The two names at the top are not to scale, in part to allow space for the names and in part as a hope of stability during the coming years.

According to one corollary of Murphy's Law, there are always unintended consequences of an action. Regardless of who was director, consultation with the heads of departments as a group was a regular, often weekly, activity. Notwithstanding that cooperation, the increase in the number of museum departments and the change from Head to Chairman with a stated term, in effect shifted any power from the offices of the scientists to the office of the Director.

In turn, during the last half century, the power of the director has increasingly been limited,

both by the "Castle" and by events outside of their control. If there is a policy as to how long a director should remain in office, it is by no means public knowledge. Over the last four decades, not counting the "acting" appointments, most of the good, poor, and indifferent directors have been in office for four to six years.

When times were good there were no serious problems, but under worsening conditions, the staff tended to lay blame mainly at the door of the Director. As another generalization, with decreasing funds and limitations on staff positions, there develops less comradeship among the curatorial staff. From the beginning, a caste system was always in place, with the aides paid far less and working far harder than the curators. In that regard, the museum is no different from the business world. Nevertheless, until after the Second World War a diligent young man — and very rarely even a young lady — who wanted to learn might eventually become a curator. This rung of the ladder has long since been broken away.

Likewise the very top rung is gone. Directors used to come up though the ranks either from the museum itself or from affiliated agencies. Now they are brought from the outside. To me, this seems to present two distinct problems. First, is that there is a difference between museums and academia and those who come from an academic background with no experience in natural history museums will likely try to reinvent the wheel and in the process break some of the spokes.

Second, is that the office of the director of the NMNH and the heads of the other Federal bureaus under the SI no longer a Federal Civil Service position. The rationale is that to obtain an appropriate person, a higher salary must be paid and this can only be done from Smithsonian Trust funds. As a former member of the Department of Interior, this troubles me, though no one else seems to care about either the legality or propriety. There is resentment that about thirty of the Castle appointed earn more than $200,000 each and some of these considerably more.

A standard remark during the Ripley era was that 20% of the Smithsonian funding was private and 80% was Federal money. To save Trust funds for other purposes Ripley even arranged for one Assistant Secretary to be paid from public funds on the grounds that he was doing work of service to the government. This trend has now been reversed.

Currently it is stated that the Smithsonian operates on 70% Federal money. I do not believe this as a trend. A one-time large donation does not substitute for a steady amount appropriated annually, for there is always the hope — admittedly more often than not forlorn — that it might be increased. If the NMNH is part of the Federal government, it should be treated as such and funded as such. Public and private are distinct, but once the concept of a quasi-federal arrangement is introduced, it can rapidly degrade into quasi-private and move further into arguments that the activity, which is performed, is not a proper function of the government. There is a real fear that a consequence of soliciting private donations will result in diminished Federal appropriations.

To rephrase this point, a Smithsonian employee paid from Trust funds has no job security. When Secretary Adams reduced that group, he did give those affected two weeks notice. A Federal employee has more job security and for any scientist involved in a long time study, this is important. By law, Federal employees cannot speak out, except in their capacity as private citizens, and they are, therefore, an easy target. Because of the furor over "big gumment," it makes political capital to attack small groups whose work is not immediately obvious. The concept of the dedicated Civil Servant has been transmogrified into that of the bureaucrat swilling at the public trough. To attempt to explain that one is not a bureaucrat, but a specialist on the spiders of eastern North America and therefore assisting the general public will not enhance job security. A director who has no familiarity with government employees and their customs might not understand, let alone be able to explain the need of such efforts to those who hold the purse strings.

Under Talbot, a National Museum of Natural History Board was appointed to advise the direc-

tor. It may have originally been conceived as a mechanism for fund raising, for its two dozen members included both businessmen and scientists. How much attention Talbot paid to the Board is for others to determine. When Fri became director, it was because he was a candidate suggested by the Board.

Even more tangential to the direct lines of governance is the Senate of Scientists, which has now been around for nearly fifty years. There are no unions for the professional staff anywhere within the SI and in some ways this organization hoped to be the equivalent of an academic faculty senate. The Senate of Scientists is a voluntary organization, and not all those within the building choose to join.

In its early days, the organization was of young turks full of vigor. In large measure, this group was responsible for blocking Cowan's plan to consider a move of the staff to the Beltsville Agricultural Research Center. Another action of the Senate was to set up a paper investment group and compare that yield for several years with that of the SI investments. That the financial advice of the scientists would have produced substantially more income than the course taken by the "Castle" was not appreciated and was ignored.

The influence of the Senate has never been great, and has waxed and waned with the various directors. For years to a large extent, Senate activities were mainly along the lines of having dinners with a speaker concerned with science or holding a "sherry seminar" to have a member of the secretariat meet staff members. The group played a negative role in being less than enthusiastic toward any of the candidate scientists to replace Talbot when he left the director's office.

One important action begun a few years earlier was developing a "Congressional night" to show members of the Congress, along with their staff and families, something of the inner workings of the museum. This became increasingly successful in terms of attendance, until it was then taken over by the Castle at the beginning of the tenure of the current Secretary, whereupon it was delayed until it was dropped.

During 2001 and 2002 the Senate played an extremely active role in opposing the closing of facilities, and attempts to reorganize SI science without consulting the scientists. Just what influence the group will have on policy in the future depends in part on the temperament of the new director, but it may provide some slight counterbalance in governance to high-level directives from those higher in authority who do not understand natural history.

What if?

Occasionally, a game is played by some purveyors of history that has the title used for this section. It is a fun game for there are no rules to follow, no serious considerations to ponder, and no consequences from what is written. Hindsight view is always perfect 20/20 vision. On rare occasions, such an exercise does highlight poor decisions and might prevent comparable ones in the future. Although one might make a fruitful historical study by an analysis of how the NMNH has fared when different political parties controlled its Congressional funding, that might impose a fact on unbridled speculation and delay the start of this foolishness.

To begin at the beginning, Henry started serious meteorological investigations, but once the efforts began to move from research to development, the activity was spun off to the Federal government. Baird did not actually spin off the Fish Commission, but he kept its activities separate from the Institution. Now what if Henry had been able to move the museum out of the Smithsonian or Baird had been inspired to do so? What a marvelous opportunity for unbridled speculation as to whether a museum devoted to natural history would have flourished, vanished, or developed as a place devoted to research and preserving collections.

What if Goode had become Secretary and Langley Assistant Secretary? The USNM might have prospered, for Goode was both passionate and persuasive. After his death, the Regents might have elected someone other than Langley, or at the least he would then have been a Secretary forced to have a broader vision. What if Acting Assistant Secretary Walcott had pressed for a new Geological Survey building and let the old brick structure collapse under he weight of its collections, leaving room for a decent facility?

In 1906, Congress passed the Antiquities Act which for much of the twentieth century governed collecting on public lands. One of Walcott's first acts as Secretary was to arrange with the Federal agencies that had jurisdiction over public lands to review applications for collecting permits as regard to their scientific merit. What if this function had continued? It would certainly have brought the museum staff and those from academic institutions into closer contact, to their mutual benefit. How many permits were reviewed and when the Smithsonian let this function slip through its fingers might make a reasonable thesis problem for someone.

When the National Science Foundation came into being, Federal funds were given to folk not connected with the national government. What if the enabling legislation had been tinkered with a bit, so that all natural history collections made with Federal funds eventually reverted to the National Museum? This would have been a tremendous boost to the museum as a national institution and would have required several large storage facilities. The positive side is that huge quantities of irreplaceable material would not be scattered or discarded.

By the 1950s, the USNM/NMNH was recognized as the outstanding repository for meteorites. When meteorites began to come out of Antarctica, those interested in them agreed that all collected by American scientists should be deposited in the Department of Mineral Sciences. Collecting in Antarctica is an exceedingly expensive endeavor. Apart from meteorites, much of material gathered by American scientists from that continent is dissipated and some has already been discarded by other organizations. What if everyone agreed that at least all Antarctic collections would come to the NMNH?

The several government agencies that are involved to some degree with natural history are part of their assigned mission have varied widely in their adherence to the 1879 law. The administration of the SI has paid no attention to this issue for decades and the later group of the NMNH Directors likely did not even have any detailed knowledge of its laissez faire enforcement. Because some of the scientists were preoccupied with their own research efforts, rather than with the function of the museum and because space for new material became increasingly short, the "shall" of this law has been transmogrified into a "may."

NASA developed its own storage program for moon rocks and controlled who did what research on which material. The NMNH certainly did not have the background or the funding to administer this program, but if a Federal agency is required to obey Federal law, the collections should have been given at least a metaphorical catalogue number and placed on indefinite loan to NASA with authorization for that agency to prepare and distribute specimens. What if the moon rocks were nominally part of the NMNH collection?

Perhaps this is a bad example, for NASA was a new agency not affiliated with any of the old-line departments. However, during the 1980s and 1990s, parts of the Interior Department, mainly the Bureau of Land Management and National Park Service embarked on collecting and storage programs. A logical and legal approach would have been to assign collections to the National Museum and the museum, in turn, place them on indefinite deposit at various localities. That way there would be no fear of the collections being discarded in the future when agency agendas and funding changed. That way there would have been proper and uniform standards for curation and storage. That way there would have been a clearer notion of what specimens existed where.

This never, never land inquiry then may be summed up in one last question. What if the national museum of natural history actually had functioned as THE NATIONAL MUSEUM of Natural History? Having has the fun of this game, it may be appropriate to summarize the past and current status of the NMNH using the perspective of Goode's classification of museums.

The Exhibits [Museum of Education]

Say the word "museum" to the average person and what comes to mind are displays and nothing else. The three-legged stool of disparate museum activities outlined by Goode is almost impossible to keep level. The public function of exhibits increasingly takes more resources, time, and money, than research. Occasionally, a bone is thrown to research, though funding for it is harder to justify than for displays. Historically, more often than not, the concept of a museum of record is intermixed with or subsumed under staff investigations, though at most of the Congressional budget hearings, officially preservation of collections was subordinated to research.

It is probably a fair generalization that from the time of Goode until after the Second World War, exhibit philosophy changed little. The USNM building is best described as showing the public a hodge-podge, though within the limits of space and what was available, the natural history displays were probably as good there as in any other place in America. The standard charge hurled in hindsight is that, for example, cases containing 10,000 arrowheads were displayed. This has an element of truth, and such displays are boring, but the concept of evolution was strongly in the air and to show individual variation among specimens and how stone technology had changed were worthy objectives.

Starting in 1909, the new natural history building provided remarkable opportunities and the staff rushed to fill the space. Theodore Roosevelt shot many African mammals for the displays and was accompanied in the field by museum taxidermists. By 1916, the exhibits were completed, and even allowing for the art on the first floor, at that point there were more natural history displays than any subsequent time. On the first floor, paleontology was on the east side and biology on the west with ethnology near the art. The second floor had more specialized halls on all three themes.

Following the First World War, some of the machines of war were crowded in, and when in the 1930s they were moved, a few collections from the Arts & Industries building were transferred to that space; a case of domestic chickens was adjacent to the lace display. During the mid-1930s a fine hall with eight large cases of North American mammals was installed, — it was destroyed during the 1990s — but otherwise almost nothing had changed on the first and second floors. The ground floor foyer mounted numerous temporary exhibits. During and after the Second World War, one or two exhibit halls were translated into office space.

In the 1950s, the exhibit halls were extensively revised and some of those closed for offices were opened to the public. The halls of the 1960s were enthusiastically summarized by one who knew how drab had become those original installations that predated the First World War and how little they had changed (Oehser 1970:92–93). Over the next decades some of the major halls even went through a second cycle of displays (Yochelson, 1985:91, 120).

The philosophy of displays has changed since Goode's day and a summary might be that a more ecological approach is now taken. More significantly, the later exhibits have been constructed with a gradual change more toward entertainment than didactic education. Since the advent of computers and elaborate video displays, this trend has accelerated. Virtual reality has not yet taken over display of the real objects, but it may well do so, if, as, and when, the current exhibit halls are again reconstructed.

Since the 1980s the story has been of more and more closing of halls and few openings.

By the end of 2002, at least one-third of the exhibit halls were closed. Emphasis has shifted to "tin cupping" in the private sector for funding rather than trying to increase Congressional appropriations. Whereas, in the old USNM building the collections encroached on the displays, this change is more pernicious. Shops with a diversity of items occupy what was major space for temporary exhibits in the foyer. Several halls where formerly permanent exhibits were present are now used for visiting ephemera, and more shops encroach on other display areas. Almost every temporary display is accompanied by a specialty shop. Buying by the visitors is now expected to be a significant part of the museum experience.

In the past, the museum has had some good exhibit halls. They have never been the finest in America; other museums can argue for that title. It seems to me unlikely that the natural history exhibits will ever rise to the first rank. In keeping with the current trends, there are far fewer specimens on display and more gadgets for "interaction" by the public, generally pushing buttons to get the right answer to simple questions. Despite the closed halls, the NMNH counts its visitors in millions. Indeed, it was the first of the Smithsonian museums to experience the summer event of filling to the point where the guards closed the building until some visitors left. Despite the uncertainty of the times, counts of visitors are still in the millions. For a few years it was the most attended museum in the world.

Traditionally, the number of visitors has been determined by a guard clicking a hand counter. When bored, the guard may simply click the counter for something to do. When overwhelmed by the security concerns causing a searching the bags of visitors, the count may lag. One unintended consequence of the installation in May, 2003, of metal detectors to screen tourists is that for the first time in history there will be an accurate number of how many people visit the exhibits.

A large private donation for NMNH was accepted by the Director Fri. Although there was some consultation with staff members concerned with mammals, no one on the curatorial staff expected that a new hall of mammals would result in the loss of both the hall of marine life and the bird hall, along with the loss of the hall of North American Mammals for use as a staging area. Even by being cushioned by several exhibit halls disappearing over the last decade, abruptly, it was a shock that 25 percent of the remaining halls were closed abruptly. Indeed, the bird hall was closed without any prior knowledge to the curator, who then had to arrange to move specimens and dismantle displays.

The Rotunda has been named in honor of the donor, and the donation covered part of the cost of the new halls on the west side of the building. Not only was the priority of exhibits jettisoned, the new halls encompass a total reversal of exhibit policy of the 1950s, which tried to make the exhibit space more intimate. The central hall opens to the skylight towering above, and the walls separating the two lateral halls have vanished. In keeping with commercial trends, a store for tourists has been part of the construction and opened six months prior to the hall itself.

The new mammal hall actually did open on time, despite the common formulation that everything takes longer. Despite that success, there is little likelihood that the lost halls now used for offices ever being reclaimed in the immediate future. A proper, though modest natural history display now costs in the $15,000,000–$20,000,000 range and to expect six or seven times that amount in public or private funds is in the realm of pipe dreams.

From time to time, suggestions have been put forth to charge admission, but fortunately these have all come to naught. Experience from other institutions indicates that at best, admissions collect less than half the cost of running museums. To take a family of five to a museum may well cost $50 or more. The taxpayers have supported the NMNH and they received good value for their money when they enter the doors without charge. Travel agents are well aware of the lure of free admission and tout it as one of the reasons to visit Washington. As a result of free admission, mil-

lions come to see the displays; how many might not have come if there was a cost cannot be answered, but likely it is a substantial percentage of the total. Perhaps in exposing many to the educational aspects of natural history who might not otherwise be inclined to enter the building, the NMNH performs its single most important function in education.

The Collections [Museum of Record]

According to one source, which I consulted many years ago and, of course, neglected to document, the galleries in the United States National Museum building added about 15% more space, whereas from 1881 to the time of Walcott's "Acting" the collections increased 20-fold in size; almost all this growth was in natural history specimens. Such a rate of increase cannot be sustained, but the present collections dwarf those that were present when the 1890s ended.

There are still a few reactionaries who would argue that specimens are the "be all, do all, and end all" of natural history museums. The third of these points is clearly wrong, and the second may be argued, but the first is basic. If a scientist has no interest whatsoever in collecting and collections, there is no reason for him/her be on the staff of a natural history museum; under such people the collections suffer and eventually may be discarded. The "be all" is the only reason for a balanced natural history museum. Without collections or those interested in them, the building might just as well be a gallery of things, real or virtual, to entertain the public. Differentiating them from theme parks may well be an issue for the 21st Century.

The USNM and its successor have the largest assemblage of natural history collections in America, and probably in the world. The bird collection of the American Museum of Natural History is larger with that in Washington a close second (Banks, oral commun., 2002). The mineral collection is the largest, the fossil collection is the largest, fish collection is the largest, as is the insect collection, etc., etc., etc. The fishes in alcohol occupy about 2500 square meters of shelving and it is estimated that the collection may grow by about 1.5% percent per year; 40% of the collection remains to be catalogued (Poss and Collette 1995:53). In every division the collections of natural history specimens are the first or second largest in the country and more often than not, the first in the world.

The material collected comes from donations, efforts by the staff and transfer from government agencies. Estimates vary but as a minimum, at least 50% of the collections in each museum department derive from the last source and it may be closer to 75% in some divisions. The Federal sources are many and varied and some no longer exist. The General Land Office, Fish Commission, Bureau of Ethnology, 10th Census and a few others are gone.

Donations from individuals are more limited than in the past and I predict will continue to decline. About two decades ago, lawyers determined that the NMNH must show clear title to all items that were accessioned. Whereas one could give a curator material with the appropriate locality data, now it must be accompanied by deed of gift certifying that the specimens were collected legally, that they are the property of the individual donating them, and so forth. The museum must then send a letter acknowledging the gift. More paper work for the sake of paper work.

Collection managers for fishes have been at the principal American museums for more than two decades (Parenti 1999:205). They have probably been associated with other groups in natural history for about that long, and the collection manager concept is a major change over the old ways. What problems there might have been between those concerned with research on specimens and those concerned with care of the specimens have more or less been resolved. For me, it is a reasonable assumption that if times continue to worsen and staffs are depleted, more of the research staff will disappear than that of the collection managers. At the same time, there will be more turnover and the collections group will have less and less experience.

Specimens still arrive in droves, but the days of huge new collections are over. Live specimens are becoming scarce as the inexhaustible resources of the sea are going the way of the vast inexhaustible forests of America. Environmental regulations, and laws protecting endangered species are inhibiting; acid etching of limestone to free silicified fossils (Yochelson 1969:599) is nearly a lost art, what with concerns over air pollution. While it is true that one cannot solve new problems directly with old collections, they have always provided a starting place for new investigations and in that sense are going to be of increasing importance in the future.

Despite that point, the future is not at all rosy. Coordinate with the development of the collections management concept is the arrangement of collections for the convenience of the computer inventory rather than the investigator. Rearrangement of collections to test a new concept is an increasingly complex operation, one that transcends mere physical labor of moving drawers. It may be that the items in some of the collections are on their way to become icons rather than specimens for study. That word is not chosen lightly.

Even more troubling is that the need for space has resulted in the transfer of collections to another location distant from the curators. This is a further disconnect between research and specimens. It is important to browse through collections. Just as in a library, in looking for the book one thinks that one needs, it is actually the associated books that become important.

Whereas in the old brick building, collections crowded exhibit space and in the 1950s crowded the halls of the research areas and were stacked nine feet high, there is now, to me, a feeling of loss or a degree of hollowness as more and more collections are transferred to the museum support center. The aura of the place has changed. A museum is supposed to be stuffed to overflowing with material on the assumption that even if it is not currently being studied, sooner or later someone will come along and make good scientific use of the specimens. That seems no longer to be case.

For a century and a half, alcoholics — that is the specimens in bottles of spirits, as distinguished from those who empty bottles of spirits — have been readily available for study. Suddenly, they are interpreted by outside authorities as a fire hazard and most must be moved; the few remaining collections are to be stored in small rooms. Interestingly enough, the Natural History Museum in London does not consider them to be a major hazard. Liquor stores are not noted for especially violent fires, yet the alcoholic collections of the museum must move out of downtown Washington; national security may be involved and once pronouncements are made in that field there is no recourse.

Even worse than assumptions of fire hazard, cost/benefit ratios are the bane of collections. It is easy enough for a bean counter to figure the cost of square feet in a building, the cost of cases, and the cost of heat and light, let alone staff. Those who study mollusks estimate that it costs $40.00 to accession a collection; at least half an hour is needed to enter data in a computer lists and print labels. One is forced to decide what is currently worth the money to preserve it and what may not be saved, and once the decision is made and material discarded, it cannot be recovered. Collection policies are established and policies have a tendency to lose flexibility the longer they are in place.

Although it is easy to assign cost, it is impossible to define benefit in regard to collections. Depending on the view one takes, such assemblages of specimens are either worthless or priceless and the latter cannot be assigned a dollar value regardless of how the bean counters calculate.

From time to time some efficiency expert suggests that exhibits be confined to American organisms or that the research collections be pruned of material from other continents. When analyzing bureaucratic ideas, it is impossible to determine when the most foolish proposal ever will come to fore, for someone will always underwit one's wildest assumption, but surely confining natural history specimens to the United States is shortsighted and just plain dumb. The global village concept insures that vermin from elsewhere will sooner or later descend on us. Alien predatory

earthworms destroying the native species do not receive the press coverage of airplane crashes destroying buildings, but they may in the long run be a more serious threat to our country.

There are many examples of novel uses of the collections. The story of the Japanese fire balloons, or the mercury scare with swordfish, are well known, but I would like to add one more. In the fall of 2001, I received a phone call from a colleague on the U.S. Geological Survey. He in turn had heard from other colleagues who were assembling data on possible caves in Afghanistan. I was to go to the library, find a particular French periodical and see if I could find a paper on cave-dwelling oligochaete worms that contained a map. The library did not have that journal, but I remembered that the invertebrate zoology library included some boxes of reprints. A reprint of the paper was there and though it had no map, it listed the latitude and longitude of a number of caves. A half hour after the phone call, this request the information had been FAXed and moved up the line to the interested parties. Now how does one put a dollar value on this benefit?

Museum Staff/Associates [Museum of Research]

It may be helpful to start with a quotation. "I never knew exactly how Baird conducted his diplomacy; but he smoothed Bendire's ruffled plumes effectively, soon had him well in hand, and in due course thereafter the Bendire collection was in Baird's hands also, becoming the nucleus of the present unrivaled oological [bird egg] cabinet in the National Museum, of which Bendire was honorary curator until his death . . ." (Rivinus and Youssef 1992:172). Baird probably instituted the concept of honorary curatorship, which is a euphemism for volunteer, in turn a euphemism for unpaid worker. Goode honed the concept so that at the time of his death, the United States National Museum had more than 20 departments, mostly staffed by honorary curators, assistant curators, and investigators.

Some of the honorary appointments in the old days were to public-spirited folk, as in the example of the Army Captain in the quotation above. More were drawn from the ranks of those paid by other government agencies. To those on the outside, all curators were part of the museum staff, but there is a distinction between the paid staff in a strict sense, and the museum community. If the Museum began in 1858, then for at least the first century, more than 50% of the community were not paid by that organization; for much of that period the proportion was higher, but it would be tedious to determine who was paid out of which pocket.

The honorary title began to fade and as the Museum staff began to grow after World War II, the title of research associate took its place. Not all employees of government agencies who maintain a presence in the building are research associates, though the majority are. Not all research associates are employees of other government agencies, though again the majority are. As with any family, some members got on well and some not so well. From what one can gather, there were and are few formal agreements on space for those from affiliated agencies, yet somehow the system seems to work. During the last few decades, just as the staff had begun to shrink, the numbers of others in the museum community has also begun to decline. This is in the face of several official reports and pious comments over the importance of systematics.

The quality of research by the museum community has been excellent and continues at a high standard. This comment will have to be accepted at face value. Whereas a few museums have one or two stars, the Washington museum community has depth and those willing to do the basic work. Perhaps as a participant, I cannot be unbiased, but my impression is that this group has substance rather than flash. T. Dale Stewart, who died at the end of the last millennium, was, until one year ago, the last of the staff to be a member of the National Academy of Sciences. If that is the only measure of excellence, so be it, but it is my impression that the few members of the National

Academy who are engaged in natural history study more often come to the museum to consult and examine the collections than their counterparts visit them.

What are perhaps remarkable historical features of the staff during long history outlined, are the remarkably low rate of turnover and the long tenures. Few curators left for other employment and several of those who left for teaching, returned. Most of the scientists had more than thirty years of Federal service, a number stayed for forty, and a few were active for sixty years.

For at least the first Century of natural history under the aegis of the Smithsonian, male WASP would be a fairly accurate shorthand description of the scientific staff. This has changed and seemingly the change has not affected the quality of research in any discernible way. The museum staff had Mary Jane Rathbun, and later, Doris Cochran, as token woman on the staff for the first half of the 20st Century. Currently, a significant number of women are in both scientific and administrative ranks; others can figure percentages and plot trends. There are a few handicapped — pardon, physically challenged — staff members and they are as productive as others. As to other aspects of politically correct hiring, the so-called minority groups are still very much in a minority on the scientific staff. Apparently, this is not for lack of trying as a few years ago Federal funds were directed toward minority scientists, but rather there is essentially no pool of minority groups interested in careers in natural history.

When one cites numbers, some readers mentally associate with this thoroughness and precision. On occasion, numbers do help to convey a concept of size, which cannot be derived by using words. For the 1985 diamond jubilee of the national history building a directory of those in the building and associated facilities was compiled in which 1243 names are listed. Of these, 25 were on the museum payroll at the Smithsonian Oceanographic Center in Washington, and 6 were at Ft. Pierce, Florida. It is fair to say that about 1200 people inhabited the main building and wings in Washington. Not all were on the museum staff in a restricted sense, for guards, librarians, painters, and so forth were included, as part of one big family. All of these persons are important to keep the machinery running. There is no current comparable comparison of ready access, and there have been shifts in priorities, but about 1200 still seems a reasonable figure for total building occupancy.

Thanks to summary listings, it is somewhat easier to gain an idea of size of the museum community than the larger building community. The 106 staff members of outside agencies were included in the count. The National Marine Fisheries Service counted eight people, the biosystematics unit of Walter Reed Army Hospital had five, 38 were in the Systematic Entomology Laboratory, paid by the Department of Agriculture, and the Department of Interior had 15 employees with the Fish & Wildlife Service and 40 with the U.S. Geological Survey. It is difficult to equate these with curators, but among this group 35–40 "professionals" may be accurate. The Army folk, much concerned with biting insects, are now at the museum support center in Suitland, Maryland. The fish and wildlife employees are now part of the U.S. Geological Survey, whether they like it or not, and the paleontologists of the U.S. Geological Survey are now represented only by a few retirees. Agriculture entomologists are still prominently present, as is the NOAA fisheries group. It is my sense that all have shrunk and my prediction is that the trend will continue. There is no easy way to count present numbers, but by my definition and guess, the current number of "professionals" may be between 20 and 25 with a few of these close to retirement.

In 1985, the listed staff of the seven departments was 455. though this may have included a few emeritus people, fellows, and research associates, not paid directly by the museum. Other figures below refer to those called curators of various rank, or comparable titles. With almost no exceptions, this now refers to those holding a Ph.D. Most emphatically that does not mean that they are more important or better scientists than some designated as aides. That understood , Yochelson

(1985:140) compiled figures from various sources for most of the years in the 1974–1984 interval, and they average about 110 Federally funded "professionals" for each year.

Using my definition and the 1985 book, the "professionals" numbered 113. A simplistic dividing of numbers would suggest three support people for every research scientist, but that is a cruel illusion. The true figure for direct assistance is closer to one-half than it is to one. If there is any trend, it is that lower level positions associated with research have decreased and the number of outside volunteers in the departments has increased.

A Smithsonian-wide telephone book was printed late in 2002. Because there is a listing of departments and divisions one can summarize the "professionals,." though not the total staff in the departments. I count 92 "professionals" being paid by the Federal government, supplemented by a sprinkling of emeritus members. Of these 13 were hired during the first half of the 1980s, 14 were hired during the 1970s, 20 during the 1960s and 2 during the 1950s. In other words, more than half have had at least 20 years in service and at least one-third are eligible to retire at any time. This is a dramatic graying of the staff. Considering the problems of hiring ceilings and the glacial pace of the employment procedure, even if more funds were immediately available, it is likely a number of the staff will be gone before there are replacements. Part of the value of the collections lies in who collected them and under what conditions. This kind of lore is oral tradition and without a younger understudy for an older staff member, some of the history is lost.

Prior to opening of the wings, in some parts of the building two persons to an office was not unusual. Now in some places the ratio is two offices per person. Collections which once lined the halls have been moved to the support center,, and a similar decline in the number of people is apparent to anyone who walks the research halls. For me, these observations bring the first stirring of a sense of major loss to science, one that may never be recovered.

The Present

If a summary of the last three decades is needed from the standpoint of natural history in Washington, it can be presented easily. Smithson's aim was for increase and diffusion of knowledge. Diffusion has been in the forefront, despite the point that increase was mentioned first by benefactor Smithson. It should be obvious even to administrators that the more the diffusion, the thinner becomes that which is being diffused. To further summarize, most of the staff could be characterized as in an interim state, carrying on for the moment with their research, but with no view of what the future may bring.

Two critical points were summarized by the Senate of Scientists during 2000 when, to some extent, research seemed to be under attack. The first was that from 1985 to 2000, the staff in the Directors office increased by 150%; much of this increase occurred under Frank Talbot. The second point is that during this same interval, the scientific staff decreased by 23%. This seems to be yet another graphic example of the famous law expounded by C.N Parkinson. It is much to early in the career of the new director to see whether any of these percentages will change.

An item touched upon by the Science Commission report is that of leadership. By the standards they used, there were eleven changes in the Office of the Director during twenty-two years. Those who were designated as "acting director" were skipped over the preceding short history. Even if those "acting," maintained the previous status quo, there has been considerable turnover and no obvious direction for directors. Some of the staff might argue that conditions for uninterrupted research seem to have been a little better when the office was officially vacant.

The impact, if any, that the Science Commission report may have on the course of events cannot be evaluated for months, at best. It presented strong support for research within the Institution.

Whether that will change the current emphasis on bricks and mortar is a real question. Mission statements, policy papers, evaluations, reports of special commissions and similar document contribute to the prime export of the District of Columbia, namely waste paper. Still, occasionally, there is impact and concomitant change and one can only hope.

One concern in regard to this report is the view that by retiring an older staff member, two younger persons could be employed. There is no question that the staff is gray, but this seems to be seen by some, especially the older geezers such as myself, as extremely shortsighted. People examining specimens are like wine, the longer they stay around the better they are, even if an occasional bottle or person goes sour. In the winter of 2003, the Office of Management and Budget granted the SI the right to offer "early retirement," but refused to grant authority to "buyout." A very few persons left before 30 years Federal Service, but had a money supplement been offered a fair number of senior persons might have left.

There is a real fear that when any older collection-oriented person retires, he will be replaced by a hot-shot who thinks everything can be done by manipulating data by computer. The worst of all possible worlds is that retirement will be followed by loss of that staff position. Encouragement of staff to retire should be resisted tooth and nail. A classic remark some years ago from a member of the Director's entourage was "Of course, our word is only as good as our budget."

Most of the scientific staff in the National Museum of Natural History is concerned, in one way or another, with biological diversity. This is such a huge and complex field of knowledge that anyone who hopes to understand even a small part of it, must, despite all external appearances, be an optimist. Even allowing for the underlying attitude that "come hell or high water, my personal investigations will continue," there appears to be a general feeling that if the nadir of all current problems has not been reached, it is close and perhaps the remainder of the decade will be better.

Random inquiry as to why people stayed on the staff rather than fleeing occasionally touched on the paucity of outside opportunities, but these were exceptions. Characteristically, answers more or less centered on the view that with all it problems, the museum remained the best place in the world to pursue the kind of scientific inquiry the person wished to pursue. As to what is good about the museum, one succinct reply summed it up nicely, "Outstanding collections, excellent library, good people."

The collections deserve a little more comment. They are the starting point. As natural history efforts become more detailed, the precise identification of species is critical. It is important to obtain material, and one can still encounter a marine strand collector or a grizzled field geologist (Gladfelter 2002), but "dusty boot" botanists, or the man in pith helmet and shorts flailing a butterfly net, are anachronistic rare and endangered forms. Biology in the 19th century was different from biology of the 20th century and predictions have been made for more change in the future (Kress and Barrett 2001). The earth sciences and paleontology have likewise undergone dramatic change.

To move to another significant item of the present, seldom mentioned, but especially vital to those whose primary research efforts are in foreign counties is that the NMNH is linked to the SI. The name of the Institution carries a cachet like no other in the world and opens doors which otherwise would be impregnable. The point is particularly important to younger staff members. Many years ago, a senior staff member commented that the place reminded him of Harvard in that some features were incredibly good, some were incredibly bad, but all took themselves incredibly seriously. There is a kernel of truth in that observation, for the public does view the Smithsonian as the ultimate authority. Many institutions have been considered first class long after their day of glory passed. This is by no means the case with the NMNH, but it is a distinct possibility if staff positions and funding continue to diminish.

During the "old days," that is up through the 1970s, most of the scientists stayed on after official retirement, and commonly very long after. Despite the many attractions now offered by the outside, this tradition continues and a fair amount of the current strength resides in emeritus members of the natural history community. It has been the exception that a staff member retires and leaves the area. Indeed, a few who leave have taken a microscope with them and soldier on for a few years. There is no certainty that in the future many of staff will choose to stay by the museum when they finally retire. A few in mid-career are already making other plans for when they retire.

Museums seem to attract a very select and very strange group of people when compared to the general population. With few exceptions these people are driven by curiosity to examine specimens and tease out their relationships, life histories, and other details. They are bound and determined to do this, despite all obstacles placed in their path. America never directly suffered the horrors of World War II or subsequent smaller wars. Despite what was happening, those who were in museums in afflicted areas continued to pursue their objectives and there is no doubt in my mind that precisely the same spirit imbues those in Washington.

The academic community and the museum community have much in common, in that they are not part of the so-called "real world." Yet there are differences between universities and museums. In particular a presumed National Museum is quite different from any university. The distinctions may be traced in part to the source of funding, in part to Civil Service regulations, and in part to tradition. Good teachers are more flexible and more people-oriented, as a result of interaction with students. Those in museums are more solitary and focused. Whether Federal or privately funded, museums do not support basketball or football teams. Scientific talks presented by good academicians tend to be slightly less dry than those by curators.

This is not to say that the NMNH is not involved in education. The staff has supervised and instructed many students over the years. It is, in a way, tutorial rather than classroom-oriented, and both setting and goals are quite different. It is my sense that in recent years the number of students has diminished, and the number of American scientists examining the collections for a few days or weeks has also declined. A short-term visitors program, which brought foreign colleagues to the museum, vanished as funds declined, although more recently some limited funding for this program has been restored.

A vital point, in my view, is that important research is conducted in spite of administration, not because of administration. Years ago, government organizations were run by directors who set a tone for the scientific staff and had under their direction various clerks to aid the scientific work. Then more than half a century ago, directors gradually became administrators in function if not in title, and clerks became administrative assistants. There is an opinion in some quarters that natural history scientists are woolly headed and tend to know nothing of administration. In fact, they are acutely aware of administrators and can readily differentiate the bad from the not so bad. As a rule, the USNM has worked best when directed by a working scientist who delegated the nuts and bolts to a subordinate administrator. The minute any director felt his office space was more important than his research desk, morale began to go down.

To provide a general formulation, for at least the last one-third of the previous century in America there has been a shift in emphasis from product to process. This downhill slide continues, yet to the best of their ability the researchers in natural history do concentrate on the product. Not all publish at the same rate, yet all know that knowledge, which is not shared, is worthless. These people need only be given a metaphorical pencil stub and a scrap of paper and then be left alone. As perhaps illustrated by events in the last days of the Soviet Union, if allowed to continue to investigate, they would even forgo salary and provide their own pencil stubs.

This touches on the concept of team research. It works well when dozens of people are need-

ed to service an expensive machine or be serviced by it. It works poorly with eccentric individuals who know that what they are doing is fundamental to them and far more important than the work of anyone else. It works well when one of these folk can persuade a colleague to cooperate such as "I'll look at the insects and you look at the plants they visit." A worldwide survey of diversity is foolish in the extreme, not because of the magnitude of the objective, nor the paucity of personnel, but the reason for it. A rough map of human genome is now available, but it is not clear just what can be done with this information. The museum programs that involve several people and are successful are those that the scientists have conceived. Those that have been crafted by administrators typically do not live up to the presumed potential. The staff overall has developed the ability to somehow find the funds or team up with those who have the funds to carry on research.

A few people studying natural history at government expense require, in present-day spending, an exceedingly modest amount of money. An immediate short-term financial reward will not result from their efforts. The government spends billions on investigation of the cosmos, for example, with the Hubble Telescope. An immediate short-term financial reward, likewise will not result from this investigation. Why one part of science is starved and another is fattened has never been clear. What is clear is that big science tends to crowd out little science, so that there hardly ever even a crumb of support left for the little folk. Perhaps those who wrote the Bible knew human nature all too well. "To them that hath, it shall be given and to them that hath not, it shall be taken away."

Again in a more general formulation, this is a time of great uncertainty. Even with a new museum director appointed, it will likely be a year before measurable change, either for better or for worse, can be observed. Even if the SI should miraculously provide the authorization for a new director to double the research staff and triple the funds for assistants, travel, collecting, and publication, current events in domestic and foreign policy may well thwart any change. Indeed, a few souls are of the view that in a decade or so, the first few years of the twenty-first Century may be referred to as the "good old days" of science in America.

The Future

The picture painted above is gloomy, but it is important to recognize that this is not a Washington phenomenon. Throughout America, current emphasis at museums has concentrated on raising money, but more than the dot.com bubble has burst and the day of large donations is over. Almost invariably when funds are raised, that money goes to public exhibits, to the detriment of other functions. This problem is actually worldwide as the expansion of the last century begins to contract. To be blunt, too much of the immediate future is uncertain and out of the control of any organization. Without attempting special pleading, it should be apparent that the generally poor prospects for museums might even worsen for the NMNH, a place dependent on government largess. Access to those who control funding is much further away than in either a private or academic museum. Not only are there more hoops to jump through in seeking money, there is less of a local constituency to support funding requests.

If national security and national defense continue to be prime governmental concerns, Federal natural history science will continue to decline. In the most unlikely event that the importance of such investigations to the economy can be demonstrated, there may be modest growth, but never to the extent of the 1960s and 1970s. It is an exceptionally large "if" that a connection can be made in the minds of political leaders as to the importance of natural history. Still, the spread of West Nile virus, the impact on agriculture of alien species, the decline of fisheries, and other comparable worldwide problems may work to the advantage of this old-fashioned scientific inquiry.

Assuming that all goes well, predictions can be made. As I shall not be around when they are subject to Popperian falsification, this cannot be a serious exercise. In appropriate scientific manner, I would add that not all the notions are mine, but equally I will take full credit herein for authorship of the opinions.

(1) The system of a collections manager with subordinates seems to be one of limited opportunity for anyone involved in that machinery to develop to the point where they may have a chance to advance knowledge of natural history though basic research, though there are some exceptions. Proper collection management requires a knowledge of organisms, not simply shuffling of data. People trained at the doctorate level are drifting into this discipline as typical curatorial positions become rarer, and they expect to do some research and publish. Two kinds of positions may eventually evolve, one for those concerned with specimens (Goode's museum of record), the second, for those concerned with problems and processes (Goode's museum of research).

(2) After the application of wads of money, if that ever happens, a few of the closed halls lost during the last two decades will be restored to their original use (Goode's museum of education). The hypothetical new exhibits will certainly be adequate, but public exhibits have never been a strong point of NMNH and, if history is any teacher, it is unlikely that they ever will be. To a large extent there is a disconnect between scientists and exhibit planners, and there is no reason to assume that gulf will be narrowed. Educational activities in a broad sense have already moved into cyberspace and those that remain will consist of hall tours and similar activities. The public is increasingly programmed toward virtual reality as distinguished from the genuine article. What effect this will have on design of exhibits and total number of visitors is too murky an area to discuss, but the roaring models of Dinorama, which fortunately was a financial bust at the NMNH, presage the theme-park prospects for future halls.

(3) For more than half a century taxonomy and systematics have been downgraded by other biologists, especially in academia. Will the model for the future be the departments of classical languages at many institutions? There are still a few strange people who translate useless Latin and Greek simply for the satisfaction of translating. There are fewer and stranger people who study fossil spiders for inexplicable reasons. If there is to be any knowledge of the diversity of the world to be transmitted from one generation to another, it will have be done by developing a program of term appointments for investigators comparable to medical residency. With considerable luck the point may sink in that the background acquired in the understanding of what constitutes a taxon, regardless of what level that term is applied, can be applied in good stead when the interns go off to other fields of endeavor. It may also be the glue that will make collection-oriented and problem-oriented folks cooperate is the recognition that starvation of one group will later lead to extinction of the other.

(4) The growth of collections will continue to slow down for a complex set of reasons, but mostly the facade will be "conservation." In biology, those collections, which are assembled, will be oriented toward molecular research and will require refrigeration rather than paper trays and cabinet drawers. One consequence is that this new type of material will cost much more to collect and to maintain. Another consequence is that it may take a long time to educate those who hold the purse strings; the salvage of an irreplaceable collection of whale blubber a few years ago is an interesting case study.

(5) Fortunately, it is becoming evident to at least a few folk that if we knew the genetic code of every living organism, we still would not have all the answers to all the current concerns in biology. It might also become evident that the interrelationships of various groups of organisms worked out over the years in a low-cost, low-tech manner are remarkably similar to those obtained by expensive genetic sequencing. Thus, there is some hope that some systematists will continue to be

employed, if only because they will develop new ideas in fields such as the spread of invasive species to which, the real scientists (those requiring a high salary, expensive equipment, and many technicians) can then apply their expert talents.

(6) Considerable effort and money will be spent in digitizing images of type specimens. The rationale will be that this will make material readily available worldwide. It will be a spectacular failure, for no image can substitute for looking at the real object. Unfortunately, the tenor of American life is conditioning the public and some scientists to the view that anything that is not on the Internet is insignificant and can be ignored. If this attitude expands, it will mark the eventual end of natural history for as a consequence, a single classification, or a single illustration or an organism, or even a single interpretation will be continuously recycled through future generations.

(8). It is unlikely that Federal appropriations will increase significantly and it equally unlikely that the staff will ever increase to the level of the 1960s and 1970s. Coordinate with this prediction is that the work load on the staff will increase to the point where the days of the United States National Museum building will resemble living in Valhalla.

(9). More and more of the Natural History building and other parts of the Smithsonian complex will bear the name plaques of donors, but as the economy winds down outside money will become harder to raise and the donors will demand more exposure for less funding.

(10). Despite the prospects of nothing of major good coming in the foreseeable future, the museum will persist. In the unlikely event that administrators or bean counters concerned with the NMNH read this account, which because of my predilections and prejudices, is partially a diatribe, they should recall the famous quotation from G. Brown Goode. "A finished museum is a dead museum and a dead museum is a useless museum." It is better however, to end on the same note that gentle soul used in one of his other papers. "My prayer for the museum of the United States and for all other similar agencies of enlightenment is this -that they may never cease to increase" (Goode 1891:445).

ACKNOWLEDGMENTS

Not counting occasional visits as a child, and a summer of volunteering during high school — most of which was spent pasting locality numbers on fossils — I have been around the natural history building of the SI for more than 50 years, a fact of interest to no one else. Despite aggravations, disappointments, and lost opportunities over the decades, there may be truth in the old shibboleth that time flies when you are having fun. To be honest, I have difficulty staying at one task for too long and my research in invertebrate paleontology has flitted around. Likewise, although I began shy, I found that I liked to lecture and to talk. I also found out that if you want to have an audience of even one person, you have to be prepared to listen when others talk.

Because I was a member of the U.S. Geological Survey for 32 years, and subsequently the Smithsonian authorities generously granted me an office, I have remained around for 19 more years; (I acknowledge with thanks being assigned the status of research associate in 1967 and having that honor renewed every three years). Thus, I have been in the building, but not directly of the building. This is a subtle distinction, but not a minor one, for I was an observer, and never a staff member affected by actions of the SI or the NMNH. As a result, many people in the community, including, a number of whom are no longer present, have conversed with me and shared views on the Institution and Museum. I have filed away their comments, but never passed them on to others. Much of that material is included in the above account. Thus, in one sense, although I have tried to present a consensus view of events, I confess they are likely much tempered by my own experiences.

I have never held an administrative post, nor had to raise funds, and admit that this lack of

experience has colored my views of these subjects. Where I have expressed my personal opinion on other matters I have tried to be objective within the limits of an idiosyncratic writing style. I thank Brian Huber, head of Senate of Scientists during 2000, for reading an early draft and adding significant information. A later draft was read by David Pawson, again giving new insight. Finally, Michele Aldrich, Alan Leviton, and J. Thomas Dutro, Jr., applied their many skills to both text and illustration. As a result of these efforts, the prose is slightly less turgid and a few of my opinions on recent happenings have been modified or muted. Notwithstanding all this direct assistance, the text, containing both sins of commission and sins of omission, remains my full responsibility.

The woodcuts and some photographs are from the collections of the Smithsonian Archives; those concerned with historic preservation are from the Office of Architectural Preservation. More recent photographs are from Chip Clark, photographer for exhibits; they are as yet uncataloged. The Smithsonian Photographic Services performed yeoman service in printing old negatives. Mary Parrish, Department of Paleobiology, drafted the summary of administrative changes.

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Author's Note (added in proof)

In preparing for my participation in a symposium on museums being organized in celebration of the sesquecentennial of the California Academy of Sciences, I began work on this manuscript during the spring and fall of 2002, which was not a particularly good time for the Smithsonian Institution. As a consequence, any realistic view of developments was likely to be pessimistic. Shortly before the time of oral presentation of this study in the late spring of 2003, a new museum director, Dr. Christán Samper, had been appointed, but he had only just moved in to his new office. It is exciting to report that during slightly more than a year of his administration, morale of the staff of the National Museum of Natural History has improved dramatically.

Although Dr. Samper must be given considerable credit for this change, the visibility and overall morale of the Smithsonian Institution also improved. Tourist visitation has increased since its dramatic decline after September 11, 2001 and figures for 2004 so far are more than 20% over those of 2003. A flurry of successful displays and new halls in several of the buildings are important, and a major new aircraft annex has attracted more than one million visitors in less than a year. This has had a positive effect on the various museum stores, and thus a modest increase in revenues, a portion of which are allocated to Natural History. The only unfavorable publicity concerns the National Zoological Park, and its difficulties seem to be on the way to resolution.

For the Natural History building itself, a key event was the opening of the new mammal exhibit. This occupies three former halls on the west side of the building. Interior walls on both sides of the central hall were broken out and the skylight above this main hall has been restored so that this central area now resembles the original configuration of 1910. The view into the hall is impressive and the work of taxidermists is aptly described as magnificent. On the negative side, two smaller exhibit halls in the west and north ranges of the building remain closed. Habitat groups, as such, of the animals have virtually disappeared and the tourist may learn less about mammals than was provided by the former smaller hall. The cost of the new display has been estimated at $15,000,000.

Despite the price, this new hall has received considerable favorable publicity and serves as the model for future major innovations in the exhibits. Planning is well underway for a major hall of the oceans, which will attempt to integrate physical oceanography, marine biology and paleontology. This will occupy the northern axis of the original building. Funding is in hand to start basic electrical work and construction, and it may already have started. A projected opening date is the fall of 2008.

Unfortunately, as a result of this new activity several more of the older halls have been closed. The direct consequence is that among the public displays, anthropology is now greatly underrepresented. If the east side of the building is used to emphasize fossils and geology in a manner comparable to that of mammals and the oceans, the only space left for anthropological exhibit will be on the second floor. The new National Museum of The American Indian opens in the fall of 2004, but that may not have significant impact on either the collections or directions of research within the department of anthropology.

Another point of public display has been refurbishing of the Rotunda. In part, this was by cleaning the walls, and, in part, by building a large pedestal surrounding the elephant and moving it away from the center of the Rotunda. Several video and small displays were installed in the

pedestal, but there is minor discussion as to whether this has increased or diminished the impact of viewing the world largest (former) living land animal.

The former Associate Director for Research and Collections (ADRC) now heads the Smithsonian Environmental Research Center on Chesapeake Bay, south of Annapolis, Maryland. Although this facility is a division of the National Museum of Natural History, it is semi-independent, in large measure because of its physical separation from the main building. There are several areas where mutual interests overlap, one being an annual survey of bird life on the Mall conducted by the Center. Early in 2004, the vacancy in the office of ADRC was filled by a vertebrate paleontologist who previously had been at the museum for a decade.

Insofar as research collections are concerned, efforts to build a new "pod" at the Museum Support Center (MSC) to house specimens stored in alcohol are continuing. They continue to be housed in the west wing adjacent to the curators who study them. It is not entirely clear when this major displacement of fishes, amphibians and reptiles, and marine invertebrates will occur, but seemingly it will occur. The drawers of human skeletons, which lined the east side of the third floor since 1909, are being transported to the MSC.

It has been reported, informally, that when Christán Samper was appointed director, only one member of the curatorial staff was younger than him. Since then, there have been interviews for new staff in at least three departments and though the Federal personnel system moves at a glacial pace, new faces may soon appear. The staff continues to gray, and it will be a real race to find replacements so as to pass along accumulated tradition and wisdom to a next generation of curators. There are too many uncertainties to make predictions, but it will be a real feat to find replacements for all professional staff positions, and one can "bet the farm" that the curatorial staff will never again rise to the level of the 1960–1970 decade.

Within the structure, the transfer of mollusks to the third floor of the west wing and move of the entomologists to their former space and to the east courtyard building has been completed long enough now so that these new quarters are like home. This has left the sixth floor of the west wing empty for refurbishing. Who will move there when the contractors leave has not been announced. The installation of a new phone network with far too many features for some to comprehend has been enough immediate concern.

Several programs to support visiting scientists that had been cut have been partially restored, and a small increase in funding for research and collection maintenance has been obtained. These developments are all to the good. Indeed, there is enough expectation of continuity that at least a few persons are informally considering what might be planned in 2010 to commemorate the centennial of the "new" National Museum.

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