News and Comment

Smithsonian: Under New Secretary It Is Seeking To Regain Place as Center for Scientific Research

For millions of laymen, and probably for the bulk of the scientific community, too, the Smithsonian Institution is best known as a wondrous repository of historic artifacts and natural curiosities.

It contains John Glenn's space capsule, a mounted bull elephant at the gallop, a cube of uranium from the first atomic pile, a 19th-century apothecary shop, Lindbergh's "Spirit of St. Louis," gowns of every first lady, a 92-foot replica of a whale, the Hope Diamond, several shrunken heads, a virtually complete collection of all coins struck in Newfoundland between 1865 and 1947, and some 59 million other items—a fraction of 1 percent of them on display and the rest in storerooms and workrooms. In 1953, 3½ million persons visited the Smithsonian. Last year the Smithsonian was host to some 14 million at its various public buildings and displays, which include the Museum of Natural History, the Museum of History and Technology, the National Air Museum, the National Zoological Park, the Freer Gallery, and the National Gallery of Art. The volume of visitors not only makes the Smithsonian one of the most popular institutions in the world but, in the federal establishment, of which it has been a part since 1846, it probably ranks just behind the Post Office as a personal acquaintance of the American people.

Thus, the Smithsonian is renowned as a showplace, and by and large is regarded as no more than a showplace. But the fact is that the Smithsonian is vastly more than a wondrous repository, for in the history of American science it has periodically gone beyond its function of collector and exhibitor to play a uniquely creative role as a stimulator and organizer of research—and, more importantly, as a counterweight when the balance of the nation's research effort has gone askew. And at the moment, under the leadership of a new chief executive, S. Dillon Ripley, a distinguished ornithologist who became Secretary of the Smithsonian in February 1964 after 4 years as director of Yale's Peabody Museum of Natural History, the institution is once again working its way toward a period of creative influence in the direction and scope of scientific research.

In examining the Smithsonian's current aspirations and potentialities in scientific research it is useful to look briefly at the traditions that both bind and inspire the institution. Of the Smithsonian it can be said that, if it did not exist, no one could possibly invent it, for in history, structure, and performance there is nothing like it to be found anywhere. It originated with the bequest of an illegitimate, unmarried, and wealthy British chemist, James Smithson, who died in 1829, leaving no close relatives and a will that stated, "In the case of the death of my third nephew . . . I then bequeath the whole of my property . . . to the United States of America, to found at Washington, under the name of the Smithsonian Institution, an Establishment for the increase and diffusion of knowledge among men." Seventeen years later, the last of Smithson's heirs died, leaving an estate of $500,000. Then followed a decade of politicking and bickering over what the United States should do about Smithson's curious bequest. In Congress, anti-British feeling and an aversion to federal involvement in research and education produced some opposition to acceptance of the gift. John C. Calhoun, leading the opposition in the Senate, was quoted as saying that he considered it "beneath the dignity of the United States to receive presents of this kind from anyone." And a colleague added the warning that, if Smithson's will was fulfilled, "every whippersnapper vagabond that has been traducing our country might think proper to have his name distinguished in the same way."

But a free half-million dollars wasn't easily dismissed, and after the patriotic oratory was delivered, Congress voted to accept the money, thereby opening the way for years of fighting over what specifically should be done to implement Smithson's desire for an "Establishment for the increase and diffusion of knowledge among men."

Some favored setting up no more than a library, John Quincy Adams wanted to use the money for an observatory, others favored the establishment of a graduate school for teachers, and still others thought that the issue could best be resolved by sending the money back to England. Meanwhile, this country had been through a long and unsuccessful experience with efforts to encourage research and exploration through a National Institute for the Promotion of Science. This institute, chartered by Congress but existing on the periphery of government, eventually foundered from lack of support, and by 1844 attention concentrated on Smithson's bequest. The fighting resumed, but within 2 years the differences were compromised. The Smithsonian would function as a library and a museum, but it clearly wasn't barred from other activities. Under the direction of a board of regents appointed by the Congress, it was to function "according to the will of the liberal and enlightened donor"—which came to mean that it could employ its discretion in choosing fields of activity.

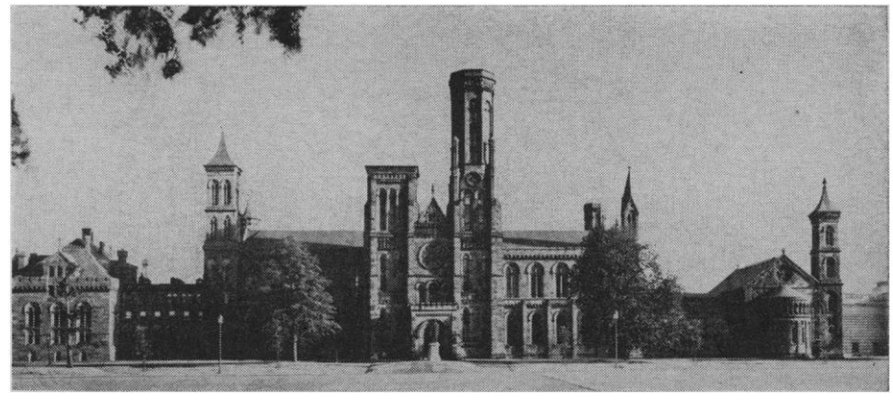
That it would seek preeminence in the sciences was quickly established by the board of regents, which resolved that the Secretary—whose duties were scarcely defined in the founding legislation—should be a person possessing "eminent scientific and general acquirements . . . capable of advancing science and promoting letters by original researches and effort." The regents added that the Secretary should be "worthy to represent before the world of science and letters the Institution over which the Board presides."

As far as its place in research is concerned, the Smithsonian has chosen its areas of responsibility with very special care throughout its long history. Under Joseph Henry, the physicist who became the Smithsonian's first Secretary, the institution evolved a style of functioning both as a stimulus to

research and as what might be called a filler of gaps in American science. Henry decreed that the Smithsonian's goal in science would be to produce only those results "which cannot be produced by the existing institutions in our country." The institution would remain small, and it would not attempt to become a holding company of American science. The projects it initiated would be turned over to other organizations if they were prepared to accept them. The products of this policy are to be found throughout the history of the nation's scientific establishment; they include such prominent examples as the Weather Bureau, which grew out of Henry's promotion of meteorological research. When geological research became entangled in political fights, Henry and the Smithsonian provided a refuge for what eventually evolved into the Geological Survey. Under Henry, the Smithsonian, with its *Contributions to Knowledge*, promoted scientific publishing in this country, and its naturalists regularly accompanied exploratory and rail-building parties for systematic studies of the West before mass migrations began.

This tradition of performing many scientific functions which, for one reason or another, were being neglected by other institutions was carried into this century by Henry's successors. For example, around the turn of the century, Secretary Samuel P. Langley made the Smithsonian a center for aeronautical research, and out of his efforts there developed the National Advisory Committee for Aeronautics, from which there eventually evolved the National Aeronautics and Space Administration.

Thus, history records for the Smithsonian a long and distinguished series of accomplishments in scientific organization and research, but, with a few outstanding exceptions, the fact is that during the past few decades science has raced past the Smithsonian, and the influence that it once exerted on the American research scene is now very little in evidence. The reasons for this are obvious ones. During the postwar burgeoning of federal support for research, some 75 percent of the funds for research have come from the Defense Department, the Atomic Energy Commission, and the space agency. For better or worse, a heretofore unknown dynamism was suddenly injected into American scientific research and science organization, and there was little room in this vast and hurried scene for the low-keyed efforts through which the Smithsonian had earlier influenced science.



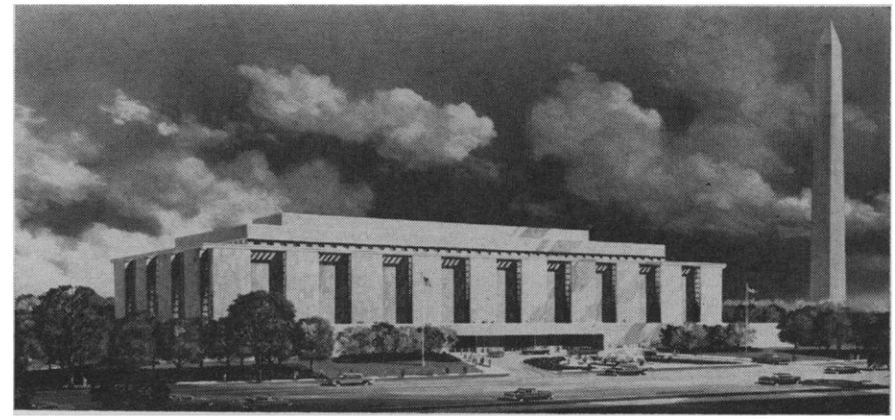
The oldest Smithsonian building, the red-brown Maryland freestone "castle" on Washington's Mall. Joseph Henry, first Smithsonian Secretary, once resided there.

Furthermore, the Smithsonian, because of its role as a repository of the natural and biological sciences, found itself heavily involved in fields that were not considered fashionable by the granting agencies, universities, and young researchers. Systematic biology is fascinating and intellectually rewarding for its practitioners, but a poorly conceived project in molecular biology probably stands a better chance of getting financial support than an excellent one in taxonomy.

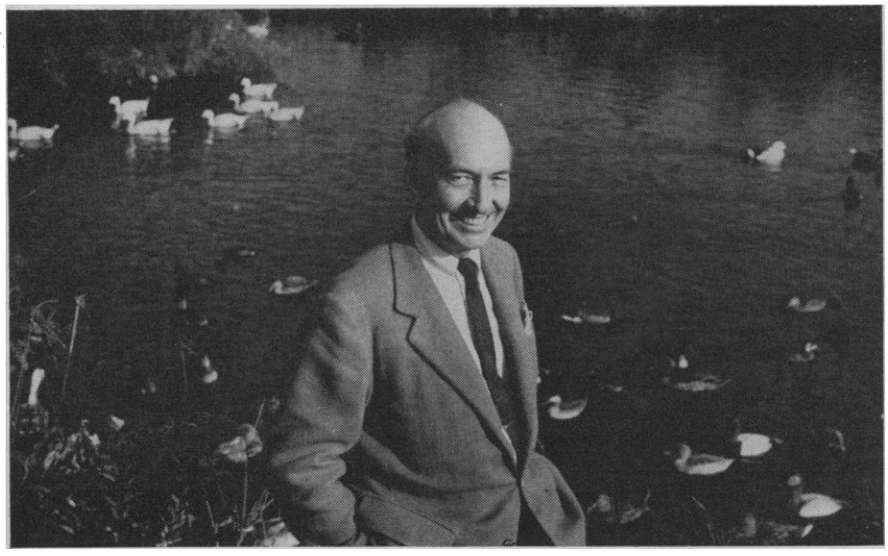
Finally, in looking for reasons for the Smithsonian's decline as a scientific establishment, it must be noted that during the past decade the institution has concentrated its attention and resources on its role as a museum, with enormously successful results. A building program in excess of $50 million has produced a monumental new Museum of History and Technology, two large new wings for the Museum of Natural History, a 10-year program to rebuild the zoo, and an effort to improve the display of all exhibits throughout the institution.

While this building program has been in progress, the Smithsonian's efforts in the sciences have tended to concentrate on service functions for other organizations. In recent years these have included the operation of an oceanographic sorting center, which has come to play a vitally important role in cataloging and distributing the results of oceanographic research. The Smithsonian also operates a Science Information Exchange, which has been struggling, amidst a good deal of indifference on the part of federal agencies, to become a central source of information on research projects in the life and physical sciences.

The building and service programs, carried out during the secretaryship of Leonard Carmichael, who retired last year after 11 years as head of the institution, were not altogether at the expense of research; but those parts of the institution that excel in research generally have had to obtain their



The newest Smithsonian building, the Museum of History and Technology, across the Mall from the "castle," has quickly become one of Washington's most popular tourist attractions.



Ornithologist S. Dillon Ripley, secretary of the Smithsonian Institution. A specialist in the fauna of Asia, Ripley sets aside 1 day a week for his own research at the Smithsonian, and is currently co-authoring a handbook on birds of India.

support from outside sources. For example, the Smithsonian Astrophysical Observatory, at Cambridge, Massachusetts, receives $1.2 million from the Smithsonian and about $4 million from NASA. The Division of Radiation and Organisms has done a remarkable job of scavenging surplus equipment from other government agencies; about one-fifth of its $340,000 budget comes from the Atomic Energy Commission, and some of its most important facilities were obtained with a $50,000 gift from the Research Corporation.

But outside of these and a few other exceptions, it must be said that, when Ripley became Secretary 13 months ago, the status of scientific research at the Smithsonian was deplorable. As one of the institution's 300 scientists put it, "It became very easy to vegetate here, and I think a lot of us did. Now," he said, referring to Ripley, "things are changing." Previously, another scientist explained, budgets for research were once so tight that "I had to save old mayonnaise jars to preserve specimens." Clerical and subprofessional help were in such short supply, another added, "that a lot of researchers spent most of their time typing labels and keeping up the card files." Research programs often had to take second place to assisting with the preparation of public exhibits.

A lot of Smithsonian scientists quite obviously found it not at all uncomfortable to exist in this drowsy atmosphere, and a good number of them appear to have been profoundly disturbed when Ripley arrived and started to make the place over with a vigor that was a bit reminiscent of the way Robert S. McNamara shook up the Defense Department. But now it is probable that a poll at the Smithsonian would produce a nearly unanimous endorsement of Ripley's designs for returning the institution to a position of influence in American science.

His efforts can best be described in terms of his grand design and the immediate steps that he is taking to implement it. The Smithsonian, he stated in a recent memorandum, "is free to concentrate on needs that were not immediately obvious in the first years of the Nation's rather frantic progress toward present levels of scientific activity. One unfortunate result of the rather rapid growth in financial support for scientific research has been the concentration of universities on courses of work where effort could be most rapidly mobilized. The project grant system has given to the current fashions in science an influence that they could never have achieved on the basis of their inherent intellectual merit. Complex natural systems have been too largely neglected in favor of simpler experimental ones in biology, for example. Such fields as anthropology, where it often seems that insights appear by slow ripening rather than in sudden intuitive flashes, tend to fall into neglect.

"The Smithsonian's scientific commitments tend to be in those classical fields most readily abandoned by the volatile spirits of 'modern' science—anthropology, environmental and systematic biology, and astronomy. And yet, in the latter, the efforts of the Smithsonian have recently been rewarded by the lustrous reputation and scientific achievements of the Smithsonian Astrophysical Observatory. The most urgent objectives of our present efforts are to achieve comparable results in biology and anthropology."

That being the grand design, as far as it has been formulated, the specific steps for its implementation have been concentrated on two points, both aimed at a long-range objective of having the institution ultimately evolve into what Ripley describes as "an institute for advanced study that will assemble and use collections for research, rather than viewing collections as an end in themselves." The steps toward this goal call for the internal strengthening of the Smithsonian's research capabilities and, closely tied to this, the establishment of an intimate working relationship between the Smithsonian and the university research community. To build up the internal structure, Ripley is rapidly enlarging the institution's subprofessional staffs to free the research staff from the clerical chores that have come to dominate many of their working days. For example, the Department of Entomology, with 13 professionals and a collection of 17 million specimens, now has two technicians. Ripley plans to expand the subprofessional staff to eight or ten. He has devised a broad program of fellowships for undergraduate and pre- and postdoctoral studies, designed to bring students into the institution to perform research under and in conjunction with the staff.

Similar arrangements for students have existed in the past, but on a very small scale and not in all departments. In addition, the institution is exploring or has worked out cooperative arrangements with a number of universities, including Johns Hopkins, Duke, the University of Maryland, and the University of Kansas. Under these arrangements, it is expected that students from these universities will spend some time in residence at the Smithsonian, and Smithsonian staff members will be given leave to teach and conduct research at the universities.

Ripley has also established, but not yet filled, the positions of assistant secretary for science and for the humanities; he has established an office of systematics and an office of ecology, and has combined the institution's various anthropological activities under a new office for anthropological research. And he has done such small, but im-

portant things, as arranging to keep the library open at all hours for the staff. Previously it was closed nightly at 10 p.m. and during weekends. (When Ripley arrived at the Smithsonian, he found many curious practices in effect. For example, as Secretary he was required to sign all checks for supplies and services—about 1500 a month. One of these included a 7-cent refund to Harvard. It took 4 months of negotiations with the U.S. Treasury to transfer this function to a check-signing machine.)

"The great strength of the Institution," Ripley said in a recent interview, "is its ability to renew itself at its own springs and sources. In the early days, we were a research institute, in contrast to the colleges that then existed. The levels have risen, and now it should be our function to serve as an institute for advanced study.

"Where would I like to see the Smithsonian 10 years from now? I would like to see it as a center for research and scholarship. I would like to see our collections used creatively and across disciplinary lines. You know, a skillfully presented anatomical exhibit can be as meaningful as a book. Collections should be a tool; they should not rule you.

"There are many contributions that we are uniquely equipped to make to contemporary science. Our young people have been led to believe that systematic and environmental biology are exhausted fields. I think it is criminal that this impression is being sold to them. There are vast areas about which we know little or nothing. Throughout the world, more and more genetically distinct systems are being eliminated by man-made environmental changes before we have a chance to study them. The Smithsonian pioneered in studying our west before it was overrun by man; I would like us to lead the way in studying the tropics, where vast man-made changes are now in the works, before whole species are eliminated without our ever having known of their existence.

"I think we are the organization to do this. But we cannot do it until we begin to think of ourselves as a research institution. We should not be dominated by our collections, or 'in' boxes, or the scientific apathy that settled on this place."

In his quest to restore the Smithsonian to an influential position in scientific research, Ripley is the beneficiary of a number of fortunate circumstances.

On 17 and 18 September, the 200th anniversary of the birth of James Smithson, founder of the Smithsonian Institution, will be observed in Washington with a gathering of scientists and scholars from throughout the world. The speakers will include J. Robert Oppenheimer, Lewis Mumford, G. Evelyn Hutchinson, Jerome Bruner, Herbert Butterfield, Kenneth Clark, and Fred L. Whipple. More than 700 persons from at least 90 countries are expected to attend.

First of all, universities have pretty well dropped out of systematic biology —to a large extent simply because of the amount of space required for useful collections—and, as a result, the Smithsonian's efforts to expand in this area do not threaten any existing institution. In addition, no government agency has any reason to feel threatened by the Smithsonian's ambitions; to the contrary, some of the research-supporting agencies feel a bit guilty about having neglected the area of concern staked out by Ripley, and they are happy to see someone come forward to do something about it. Finally, the Smithsonian enjoys a unique relationship with Congress, and Ripley can reasonably count upon congressional support for his request to raise the institution's annual appropriation for operations from the present $15.4 million to $20.8 million. (The institution also received $8.4 million in grants and contracts last year, as well as separate funds for its long-range construction program.)

The basis of the Smithsonian's good relationship with Congress rests on the fact that Congress tends to think of the Smithsonian as its own charge, rather than as a branch of the Executive. The institution's board of regents is appointed by joint resolution of Congress, and in recent years the regents have included the chairman of the House Appropriations Committee and the chairman of the subcommittee that handles the Smithsonian's budget. Furthermore, like museums in most large cities, the Smithsonian plays something of a chic role in Washington social life. When it opened a new bird house at the Zoo last month it marked the occasion with a black-tie reception which a large part of official Washington happily attended.

It also appears that official Washington has taken a liking to S. Dillon Ripley. He has a degree of urbanity, wit, and fine tailoring that is not commonplace in the trade of science administrator. One of his first moves was to restore to mid-19th-century decor the executive suite that once served as Joseph Henry's home in the Lombard Romanesque Smithsonian "castle" on Washington's Mall. It now contains a rolltop desk for one of Ripley's secretaries, wooden shutters, Victorian chairs in red damask and patterned velvet, carpets specially woven from period patterns, a Tiffany clock, and burnished brass and glass chandeliers. The ladies, and not a few of the men, of official Washington love it, and, to a remarkable extent, they seem to be under the spell of the man who brought it about and who plans to restore the Smithsonian to the place of influence that it once occupied in American science.

—D. S. GREENBERG

Space: A White House Endorsement and a NASA View on the Attitudes of Scientists toward the Program

When Lyndon Johnson was Senate Majority Leader he sponsored the legislation that established NASA. And when he was Vice President he presided over the National Space Council. In that position he played a key part in setting the moon-landing goal and in boosting NASA from a $2-billion to a $5-billion-a-year budget.

Now that Johnson is President, how does space stand in his affections? According to Vice President Humphrey, it couldn't be higher. Standing at the President's side in Washington at a recent public briefing on the Mariner spacecraft now en route to Mars, Humphrey made it clear that critics of the space program aren't likely to find any support in the White House. The President, he stated, is the "father" of the space program. "He has put his heart into it, his spirit into it, his hands into it and his mind to it. And the fact that he was the author of the Space Act and not only authored it but shepherded it to success and then nourished it into fulfillment is, I think, the real strength, the real underpinning of this program.

"The President of the United States, with all of his many duties, still has