Building a Better Natural History Museum

If you could put the history of the world in one building, how would you do it? That is the question posed to curators and scientists at the Smithsonian Institution National Museum of Natural History. One of the world's leading museums, the collections of the National Museum of Natural History are always changing.

The Smithsonian Institution, created in 1846, is the world's largest group of research institutions, museums, and collections. The Institution is the legacy of a British scientist named James Smithson. At the time of his death in 1829, he bequeathed his fortune to the United States under the directive that it be used to establish a research foundation. However, Congress only learned of the donation in 1835, after the estate had initially gone to Smithson's nephew. When his nephew died childless, control of the fortune was rightfully put in the hands of the government. The bequest represented an extraordinary sum of money, approximately $500,000 at the time. President Andrew Jackson sent an American diplomat to England to collect the money, who eventually brought back 105 sacks containing 104,960 gold sovereigns.

Even with all of the money, Congress had trouble getting the project off the ground. Among the points of contention was how to follow Smithson's directive. Smithson had described the institution he envisioned as a place designed "for the increase and diffusion of knowledge." What he meant by that exactly was considered open to debate. And the United States was still a young nation in the mid-19th century, so there were not many museums that had been established. Therefore, very few museums could even act as models for success.

Charles Willson Peale's popular "Cabinet of Curiosities" ("cabinet" really meant "room" in this usage), which had been open for more than forty years, in Philadelphia provided a bit of a blueprint. Peale was a painter and a "naturalist," or a person who studies "natural history." He put together a large collection of botanical, biological, and archaeological specimens for display. His collection eventually became known more formally as the Philadelphia Museum.

After Peale's death in 1827, the collection was split up and sold. P. T. Barnum, the legendary circus impresario, acquired a portion of it. Barnum took some of the so-called "static curiosities" that Peale displayed and supplemented them with live attractions. His "P. T. Barnum's Grand Traveling Museum, Menagerie, Caravan and Hippodrome" was a kind of traveling cabinet of curiosities.

Both Peale and Barnum's collections were, according to historians, legitimate attempts to document the wonders of the natural world. Fossils, animals preserved by taxidermy, mastodon bones, and wax castings of human deformities were all on display. The question of

whether these types of collections were of educational or entertainment value was a matter of debate. In this light, determining what exactly the Smithsonian Institution would be, look like, and provide was still a pressing question for Congress.

What Is Natural History?

Like Charles Willson Peale, Smithson was a naturalist. He was also formally trained in chemistry and mineralogy, and possessed a wide range of interests. His areas of research included the science of human tears and the chemistry of brass and snake venom.

During Peale's time, the sciences had not become as specialized as they are today. "Natural history" was the term that meant the study of the organisms of the entire world. As a field of intellectual inquiry, it has been around for centuries.

The Greek philosopher Aristotle worked on natural history topics that would now fall into the fields of geology, biology, and medicine.

Throughout the Scientific Revolution, which began as early as the 16th Century, prominent natural historians were dedicated to systematizing and classifying plant and animal families.

John Ray, a clergyman, was one of the leading natural historians of the 17th century. He wrote important treatises on the topics of biology, zoology, and botany. His work paved the way for the modern study of taxonomy.

Similarly, Charles Darwin considered himself a naturalist. The avid beetle collector and founder of the field of evolutionary studies observed plant and animal physiology over time. Thus, he added a linear element to the study of the natural world.

In the 20th century, the definition of natural history only broadened. It expanded to include new knowledge of ecology and ecosystem dynamics. The emphasis now is on the study of individuals and their interaction with the environment.

Contemporary authors H. W. Greene and J. B. Losos have written on the topics of systematics—the study of biological relationships of organisms for the purpose of classification—as well as natural history and conservation. They describe natural history as a field of inquiry that "focuses on where organisms are and what they do in their environment, including interactions with other organisms. It encompasses changes in internal states insofar as they pertain to what organisms do."

Other scientists emphasize the impact of evolutionary history in their definition of natural history. This is the idea that the effect of large-scale changes in the past, both within

the genetic history of a species and the climatic history of the environment, can explain behaviors, functions, and traits of an individual organism.

The Bartholomew Award is a prize given to young biologists. The award's namesake, George A. Bartholomew, worked as an integrative biologist. He described his job this way:

> A student of natural history, or a naturalist, studies the world by observing plants and animals directly. Because organisms are functionally inseparable from the environment in which they live, and because their structure and function cannot be adequately interpreted without knowing some of their evolutionary history, the study of natural history embraces the study of fossils as well as physiographic and other aspects of the physical environment.

Wildlife biologist S. G. Herman echoes this idea. He describes natural history as "the field of the scientific study of plants and animals in their natural environments. It is concerned with levels of organization from the individual organism to the ecosystem, and it stresses identification, life history, distribution, abundance, and inter-relationships. It often and appropriately includes an aesthetic component."

Few scientists working today call themselves natural historians. The term "natural history" is applied and tested more as a curatorial concept than a field heading. Organization, identification, history, and interaction—these are the thematic contexts that structure exhibits at natural history museums. At natural history museums around the world, you will find exhibits on subjects ranging from geology to paleontology to biology to botany to astronomy. Many also add exhibits on cultural topics such as anthropology and history.

The National Museum of Natural History

Congress eventually decided to hire a scientist named Joseph Henry to build and direct the collections of the Smithsonian. The institute quickly developed its research collections and specimen holdings, mostly from United States military and exploratory operations. What started as one collection has grown into an organization of 19 museums and galleries. Most of these are in Washington D.C., on the National Mall.

The National Museum of Natural History, as it is known today, is in many ways the lynchpin of the Smithsonian Institution. Founded in 1846, it was first called the United States National Museum and was housed in what was at the time considered a very large building.

The research collections kept growing. Congress approved the construction of the Natural History Building in 1902.

As of the summer of 2013 at the National Museum of Natural History, visitors can find exhibits on the following topics: the genome, ancient Egypt, marine paleogeology, gemology, physical anthropology, marine biology, and agricultural chemistry. Each of these exhibits is vetted by a world-class team of researchers and curators. The goal is to piece together a comprehensive look at the natural processes that have shaped the story of the earth and the organisms that inhabit it.