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THE NATIONAL AIR MUSEUM

President Eisenhower's recent signing of a bill passed by the 85th Congress to authorize a site for the National Air Museum should be heartening to those interested in aviation. The desperate need for a building with adequate exhibition space for the world's largest and finest aeronautical collection has concerned and troubled many people for a long time.

The display problem at the Smithsonian Institution is acute, not only in the aeronautical division, but in nearly all other divisions. The passage of time has seen exhibition technique at the Smithsonian become increasingly outmoded as public taste has changed. Collections swelled and the halls became crowded. Lighting was poor and dim. The buildings became old and dingy. Funds and staff became increasingly inadequate to keep pace with modern progress. In time the Smithsonian has come to be termed "the nation's dusty attic." These problems are not peculiar to the Smithsonian since most museums at one time or other encounter them.

However a great change has quietly taken place in the Smithsonian during the past five years. New dynamic leadership has come to this venerable national institution in the person of Dr. Leonard Carmichael, its Secretary. Dr. Carmichael is primarily an educator, a former president of Tufts University. He has accurately gauged the changes needed at the Smithsonian. He has fought successfully for money and has brought new blood and fresh thought to the organization. He set up an exhibit committee to streamline and modernize the exhibits and displays to make them attractive, interesting, and truly educational. At the same time the holdings were culled for the significant items. Older buildings were cleaned and painted and new buildings are now being planned and built. Slowly the Smithsonian has become a more dynamic educational institution for the preservation of our national heritage and the display of our national progress in the arts, crafts, sciences, and engineering.

Outstanding examples of these modernized displays are the superb "Life in Early America," the Halls of Naval and Military History, First Ladies' Hall, the Hall of Power, and the natural history exhibits of birds and native

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cultures. The development of prime movers in the "Hall of Power" is a splendid example of modern museum technique and the presentation of a theme in an attractive manner. The hall once was a dusty, high-ceilinged Victorian room, inadequately lighted by tall, narrow windows and weak drop lights. Row upon row of idle engines and relics, some of great historical importance, rested in this morgue. Today the ceiling has been lowered to half height, all windows eliminated and everything artificially lighted. Decoration and architectural treatment are modernistic. The exhibits move chronologically from the first concepts of the steam engine, through the internal combustion engine to the turbo-jet engine. Water and electrical power finish the presentation. Nearly every engine and scores of new model engines operate at the touch of a button, and some are in motion continuously. The entire exhibit is fascinating, uncluttered, educational, and completely related. This type of modern exhibition technique is receiving serious consideration with the National Air Museum staff.

An appropriation for a new National Museum building for history and technology has been secured, and construction is under way on the Mall on the west side of the Natural History Building. Now comes the new National Air Museum building to be located on the Mall, on the same side and east of the present Aircraft Building between 4th and 7th Streets on Independence Avenue opposite the National Gallery of Art.

The administration of the National Air Museum is described in its Report of the National Air Museum for the Year Ended June 30, 1947: "On August 12, 1946, President Truman approved an act of the Seventy-ninth Congress (H. R. 5144) establishing, under the Smithsonian Institution, a bureau to be known as a National Air Museum. The act, now referred to as Public Law 722, stipulates that this bureau shall be administered by the Smithsonian Institution 'with the advice of a board to be composed of the Commanding General of the Army Air Forces or his successor, the Chief of Naval Operations or his successor, the Secretary of the Smithsonian Institution, and two citizens of the United States appointed by the President from civilian life, who shall serve at the pleasure of the President.'" The first Advisory Board was composed of Maj. Gen. E. M. Powers, Rear Adm. H. B. Sallada, Grover Leoning, William B. Stout, and Dr. Alexander Wetmore, then Secretary of the Smithsonian Institution. The current Advisory Board is composed of Gen. Reuben C. Hood, Jr., Rear Adm. Robert Dixon, Grover Leoning, Gen. James H. Dodittle, USAF (Ret.), and Dr. Leonard Carmichael.

One of the men most responsible for the establishment of the National Air Museum was General of the Air Force H. H. Arnold. He had participated in the historical development of aviation from the earliest days and therefore possessed a keen appreciation of aeronautical history and its importance. He believed that the role of the Air Force in World War II was of such historical significance that a major effort should be extended to save for posterity the artifacts of this period. Accordingly, at the end of the war, General Arnold set aside a significant example of each type of allied and enemy aircraft held by the Air Force for subsequent evaluation by competent historians and aeronautical experts. His "save one of each" program was not intended to be taken at face value for all time, but to apply as an interim measure to prevent the irreparable destruction of important and historic aircraft until a proper organization was established to handle the situation. He was well aware that both physical and financial limitations would limit efforts to save and exhibit aircraft.

As General Arnold's views became known he was joined by others of national stature who were interested in the establishment of a national aeronautical museum. Since the Smithsonian Institution was pre-eminent in this field, it became logical that this famed organization should be considered for the direction and administration of a bureau to collect, preserve, and present the nation's aeronautical history and technical development. Accordingly when General Arnold and his group presented their ideas to Congress, the Honorable Jennings Randolph, then Representative (now Senator) from West Virginia, authored a bill for the establishment of a National Air Museum to preserve the history of aeronautical development. Historical sources included the Air Force, Army, Navy, Marines, Coast Guard, National Advisory Committee for Aeronautics, Civil Aeronautics Administration, all other air units of the Government, the airlines, manufacturers, organizations, and individuals of the United States of America. The law further directs the National Air Museum to "memorialize the national development of aviation; collect, preserve, and display aeronautical equipment of historical interest and significance; serve as a repository for scientific equipment and data pertaining to the development of aviation; and provide educational material for the historical study of aviation." Thus it becomes evident that the National Air Museum is the official public aviation museum of the United States of America and has permanence and authority under the sanction of Public Law.

This last statement presents the question of the relationship of other governmental aeronautical museums and collections to the National Air Museum. As far as can be determined by the author, these museums and collections were established by direction of their parent departments or agencies and therefore lack the degree of permanence enjoyed by the National Air Museum. The most prominent museum in this category is the United States Air Force Museum near Dayton, Ohio, with which many AAHS members are familiar. Harmonious cooperation exists between the National Air Museum and the Air Force Museum, whereby each is assisting the other to acquire and preserve Air Force historical material. When the new National Air Museum building is completed some nationally significant aeronautical items of the Air Force Museum might be exhibited in the National Air Museum. (Of interest to readers, a decision has recently been made at the Air Force Museum to limit its collections to Air Force material. This has resulted in the deletion of civilian and naval equipment.) The United States Navy has not established a comprehensive aeronautical museum, though various specialized collections have existed for several years. However, the Navy has preserved and is maintaining in storage at the Norfolk Naval Air Station a significant selection of naval aircraft which in time will be transferred to the National Air Museum when exhibition space is available.

The National Air Museum is in a unique position, provided full cooperation exists all around, to present to the public a well rounded history of aeronautics. This is so because in the 71 years during which the Smithsonian Institution has collected items and participated in the early studies of aeronautics, it has preserved much irreplaceable aviation material of the highest historical importance; material which is held by no other museum in the world. The physical origin of this collection goes back to 1876 when the first aeronautical items, a group of kites, were obtained from the Chinese Imperial Commission at the close of the Centennial Exposition in Philadelphia. This was an appropriate beginning for the National collection, as kites were the first form of aircraft devised by man.

Paul E. Garber noted in his book, The National Aeronautical Collections (Smithsonian Institution, Washington, D. C., 1956, \$1.50): "It was the astronomer

Samuel Pierpont Langley who built up the great tradition in aeronautics at the Smithsonian. When he became third Secretary of the Institution in 1887 he continued his researches in aerodynamics and the construction and testing of his now famous aircraft. . . . Langley's interest in museum collections resulted in the acquisition of valuable aircraft material of the pioneer era, and the wonderful aeronautical library he assembled forms the basis for the Museum's extensive reference files." Following the public demonstrations by the Wright Brothers in 1908 and 1909, the Smithsonian desired to exhibit a Wright airplane. Eventually the Wright airplane purchased by the U. S. Army Signal Corps in 1909 was selected and transferred in 1911.

With the close of World War I, the Smithsonian obtained a separate building for the exhibition of aircraft. This is now called the Aircraft Building. It is a prefabricated steel structure that was erected in 1917 on the Institution's grounds as a place for testing wartime installations of the Liberty engine. The first aircraft exhibited in this building were military planes of that time. Several of these--a Martin bomber, LePere Fighter, Aeromarine 39-B seaplane, and a skeletonized DeHaviland-4--were subsequently recalled by the War and Navy Departments and replaced by planes that had made record flights. The Alaskan Flyer of 1920 and the transatlantic Bremen of 1928 were formerly exhibited in this building, but were transferred to Wright Field and the Ford Museum, respectively.

By means of substitutions and rearrangements within the Aircraft Building and the suspension of airplanes overhead in the Arts and Industries Building, it was possible to exhibit such notable aircraft as the Fokker Transcontinental T-2, the Douglas World Cruiser Chicago, the Ryan Spirit of St. Louis, the Lockheed Winnie Mae, and the Northrop Polar Star. The growing importance of aeronautics to mankind and its increased representation in the Smithsonian exhibits resulted in the decision to establish, in 1932, a separate section of aeronautics in the Institution's organization; but there was no provision of additional space for exhibits, and so, with the exception of one small airplane--the U. S. Navy Curtiss Sparrow Hawk--the only increases of specimens at that time were in the form of scale models, engines, and relatively small objects. (It was also during this period that the NC-4 was discovered and obtained. Though there was no space to erect it some parts were exhibited while the remainder was placed in safe naval storage.)

During World War II many important types of aircraft were developed and the exhibits should have been expanded with significant types, but lack of space prevented the Museum from keeping pace with progress. One airplane of that period, however, was of such impressive importance that Institution officials decided to wedge it into the Aircraft Building. That airplane was America's first jet-powered flyer, the Bell XP-59A. (Garber, The National Aeronautical Collections.)

On August 1, 1947 the National Air Museum was activated when the Smithsonian aeronautical collection of over 3,500 items was transferred to it. In November, 1948, the large collection of Air Force material assembled at General Arnold's order was given to the National Air Museum. Subsequently, regular additions to the National Aeronautical Collection have been made by the military services, manufacturers, associations and private individuals.

In every spare corner of the National Museum, in the old "temporary" metal Aircraft Building, and in a large storage depot is hidden the fabulous National Aeronautical Collection. On the surface it appears to be a somewhat grubby, disjointed affair, but underneath lies a sleeping beauty. The National Air Museum often has been severely criticized for its crowded, dusty exhibit, its antiquated display furniture, its lack of theme, its lack of written materials authored by the staff, and many other similar complaints. Some of this criticism has been justified, but there were reasons why the exhibition was not rejuvenated. The major reason was the scarcity of funds, which can be attributed to the times. In the early days aviation was generally treated rather lightly as something of limited application and therefore not warranting the expenditure of large sums of money to memorialize it. Only the very historic items were considered worthy of retention. Later when aviation had been firmly established as a valuable and significant arm of the military and a major element of commerce, the difficult economic conditions of the times made funds extremely hard to get. During World War II the nation had other things on its mind beside aeronautical museums. Yet throughout this period there was a relatively small core of persons who were interested and recognized the immense impact that aviation was having upon our national life. To them we owe a debt of gratitude for saving the best historical material for future generations.

The basic materials--engines, airplanes, armament, propellers, etc.--are not purchased by the Museum, they are obtained as transfers, loans or gifts. Therefore the budget is devoted to such items as building maintenance, exhibit repairs and restorations, furniture, staff salaries, heat, light, and the like. For many years the staff consisted of only two persons. Probably the principal reason, especially since 1948, for deferring the rejuvenation of the exhibit was the decision of the Museum to put all available funds into preserving the large number of aircraft in its possession. This preservation involved not only actual preservation and repair of aircraft, but the continued construction of the Silver Hills, Maryland, storage facility, 96,000 sq. ft. of space in metal buildings on concrete slabs, including a shop for the repair and reconditioning of exhibits. This facility is now built and the aircraft there are all protected from the weather.

Despite these problems the Museum is still so interesting that people visit it in greater numbers probably than any other exhibition of its type. By actual count, annual attendance at the present Aircraft Building was more than 700,000 persons in 1958, more than visited that year's various national aircraft shows. In the Arts and Industries Building of the National Museum, where some of the aircraft hang, actual count was more than 2,000,000 persons during the same year.

Having reviewed some of the problems of the National Air Museum, let us examine what is being done to correct these conditions. Under the Museum's Director, Philip S. Hopkins, and aided by its veteran Head Curator and Chief Historian, Paul E. Garber, and the curatorial staff, great changes are in motion. The budgetary situation seems to be improving. The addition of

personnel and the separation of administrative and curatorial duties have resulted in more concentration on each function, with resultant improvements in both areas. Acknowledgement of correspondence and information requests are now handled with dispatch.

Since it will be some time before the new museum building can be built, the Museum has recently completed a complete renovation of the metal Aircraft Building. Those familiar with the crowded exhibit in this building will find a startling new exhibit which was opened on April 1, 1960. The original exhibit was completely removed and the building altered, redecorated and re-lighted to provide a spacious modern decor. Concepts of modern museum exhibition techniques of space, light, color and orderliness have been incorporated. Many new ideas have been tried to gain experience and to test public reception for possible incorporation into the new museum building under design. One of these concepts was to install two large floor to ceiling windows on the street side opposite the Rodgers Wright "Vin Fiz" for out-of-doors strollers to look in. At night this area would be lighted to attract attention.

The history of aeronautics is depicted by a continuous series of models and panoramic and photographic exhibits displayed in lighted store-front type wall cases. Some of the engines are displayed in exotic positions to show more clearly certain unique features. Other engines are displayed in conventional flight positions. Some of the aircraft are hung in various flight attitudes as a bank or a dive. Public reaction to the display techniques will have an important bearing upon the use of them in subsequent exhibits.

Aircraft displayed in the new exhibit are (in order from the main entrance) Calbraith Rodgers' Wright Brothers "Vin Fiz"; Wiley Post's Lockheed Vega Model 50, the "Winnie Mae"; the Sikorsky XR-4, the first helicopter to make an extended cross-country flight; the Hiller "Flying Platform"; McDonnell FH-1 with wings folded; Bell X-1 "Glamorous Glennis"; the Robert Goddard rocket collection; and the Gorgon IIA missile.

All of these aircraft have been beautifully restored. Extensive restoration and repair was required on the "Vin Fiz" and the "Winnie Mae" to put them into first-class condition and to preserve them for years to come. John Mitchell's article, "Antique Aircraft Factory," in Flying (April, 1960), describes some of the preservation work which has been accomplished for this exhibit.

The Bill, which on September 6, 1958 became Public Law 85-935, authorizes the preparation of plans and specifications for the National Air Museum building and the selection of a site for this building. The building and its site are subject to approvals by the National Capital Planning Commission for location and the Commission of Fine Arts for design. The Museum staff is in the process of determining its requirements for the new building. Architects have been commissioned to design a structure and prepare building specifications which will then be presented with a budget request to Congress for a construction appropriation.

Understandably the Smithsonian is not ready to release details for a new building at this time, as the plans are still in the formative stage with no firm conclusions having been reached. The following excerpts from the Report on the National Air Museum for the Year Ended June 30, 1955 describe some of the planning incorporated in the aborted second building plan. Though there is no assurance that any of these concepts will be retained in the new building

plan, still it would seem conceivable, in the light of the searching studies which have been made, that at least some of these ideas, although modified, would be retained.

It is important to realize that an aeronautical museum has never yet been constructed. Existing collections of aircraft make use of existing buildings. The architects were, therefore, undertaking this work without previous examples to guide them. More than 80 separate plans and renderings were prepared and from each concept the best features were selected. One of the most impressive details was the plan to enshrine the 'Kitty Hawk Flyer' in a scene reproducing the historic moment when man first flew in a powered heavier-than-air craft, December 17, 1903. In a full-scale diorama the airplane would be seen just rising from the ground, Orville at the controls, and Wilbur running beside it, the amazed Coastguardsmen in the background, and with the sheds built by the Wright Brothers and Kill Devil Hill in the distance. Next would be the Hall of Famous Flying Firsts, exhibiting outstanding American pioneer aircraft (Author's note: these were to have been the Wright 1909 Military, Wright EX "Vin Fiz," NC-4, Fokker T-2, Douglas World Cruiser "Chicago," Ryan "Spirit of St. Louis," Lockheed Vega "Winnie Mae," Bell XP-59A, and Bell X-1.); and beyond that the main exhibition hall, where about 75 aircraft including commercial types, fighters, bombers, racers, seaplanes, flying boats, autogyros, helicopters, and lighter-than-air-craft would be arranged, some shown on the floor to permit close technical study and others suspended as though in flight. Other unit-displays of this first true aeronautical museum would feature the old wood-and-wire craft of the 'Early Birds,' heroic warrior planes of World War I, interesting and unique experimental types, ex-enemy planes of World War II contrasted with our own victorious fighters, technical exhibits showing details of aeronautical developments from the flight of the kite to the sonic boom, dioramas illustrating the varied and valuable uses of aircraft, an aeronautical Hall of Fame, provision for special displays, and manufacturers' shows, together with the necessary facilities for museum operation.

This is the National Air Museum! When this museum is completed, there will be nothing like it in the world. Into the beautiful new building will be brought the choice of the world's largest and finest aeronautical collections. Yet there is much hard work with perhaps further disappointments ahead. When the funds become available it will probably take three or four years to clear the land, remove the old buildings and complete the new structure. Then will come another period of dedicated labor to install the exhibits.

By the law of the land this museum is designated the National Air Museum. Because of its origin, enterprise, and resultant prestige, it has acquired most of the truly historic and significant aircraft of our country. It thus occupies an eminent position and it is appropriate that it should continue to have this privileged position. Yet that does not mean that other aeronautical museums should

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