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## Chapter 13

# Organizational History of the Space Collections at the University of Alabama in Huntsville\*

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### Introduction

The Department of Archives and Special Collections at the library of the University of Alabama in Huntsville (UAH) was built on the history of space activities. Even before there was an official archives department in the library, efforts were made to protect and preserve early space documents. When the close relationship between UAH and research related to the space industry is considered, the production of documents and information relating to space and rocket research is not at all unusual. However, the foresight to save the materials was very fortunate for the establishment of the Space Collections at the UAH library.

The relationship between space research and UAH was made possible by circumstances converging in Huntsville, Alabama, in 1949.<sup>1</sup> That year, officials of the U.S. Army reached the decision to transfer the Army rocket activities from Fort Bliss, Texas, to Army facilities at Redstone Arsenal adjacent to Huntsville, Alabama. Meanwhile, community leaders in Huntsville convinced the University

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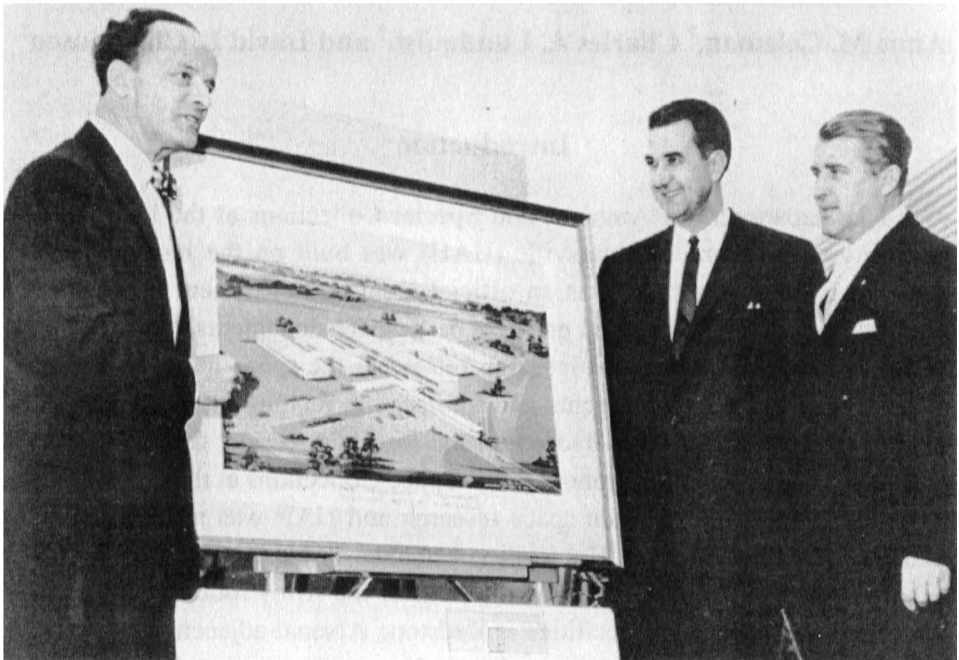
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of Alabama to establish a center for instruction in Huntsville. The first classes at the new center began in January 1950. Shortly thereafter, in 1950, personnel from the Army rocket activity in Fort Bliss began moving into Huntsville. The new residents included Dr. Wernher von Braun and his rocket team transplanted from Germany after World War II.<sup>2</sup>

Research at the Army Ballistic Missile Agency and at UAH continued to grow, and the need for a Research Institute became apparent. In 1962, Dr. Rudolph Hermann accepted the directorship of the Research Institute. However, with only the one building for classroom instruction, Morton Hall, completed in 1960, the research needs had outgrown the one building. With the goal of a building dedicated for graduate research, Dr. von Braun addressed the Alabama legislature to request a three million dollar general revenue bond issue to build and equip a research institute building in Huntsville. The bill was passed to implement the bond, and the research institute building was completed in 1964 (Figure 13-1).



**Figure 13-1:** Left to right, R. Hermann, F. Rose, and W. von Braun at the UAH Research Institute Groundbreaking, 1962.

Research reports were being generated and saved, and now form a special collection held in the Archives and Special Collections Department (hereafter called “Archives”) of the UAH library. In those fledgling days, however, the re-

search reports were held in the research institute. An example of an early research report from 1965 is titled *Hypersonic Non-Equilibrium Flow and Its Thermodynamic Relations*, written by Dr. Rudolf Hermann. Dr. Hermann was one of the people who had the foresight to save this document and many more to contribute to the holdings of the Space Collections at the UAH library.

Meanwhile, a building dedicated for library use was also needed. Morton Hall, the original building for classroom instruction on campus, included a room, which served as the library. In 1970, a three-story building was dedicated for the library, with an additional wing completed in 1978. In 2001, a new addition was added to the south end of the existing structure, enabling the Archives to share the lower level with government documents. This new area allowed for additional security for the collections, room to add more documents and new collections, and room for researchers to study and copy the documents.

### **Rudolf Hermann Papers**

The collection known as the Rudolf Hermann Papers includes reports from the 1930s to the 1970s; a selection of Peenemünde papers known as Series 66; and technical books. A portion of this collection includes NASA materials and reports of corporate contractors and university research facilities dealing with rocketry and space science, and is in English or German, with translated selections. This collection has been used for research for a presentation titled “The Peenemünde Wind Tunnels: A Technical Overview” by Jurgen Thoenes, and for a master’s thesis titled “Der Technologietransfer Deutschland—USA nach dem zweiten Weltkrieg am Beispiel der Kochel Windkanalanlage” by Sebastian Klapdor.<sup>3</sup>

Rudolf Hermann (1894–1991) was a pioneer in the development of supersonic wind tunnels and their contributions to the aerodynamics of rocket vehicles.<sup>4</sup> His early involvement in such topics took a dramatic step in 1934 when the German Air Force began funding the development of supersonic wind tunnels at the University of Aachen.<sup>5</sup> Professor Wieselsberger selected Hermann, who was already at Aachen, to play a lead role in this development project. Two years later, von Braun visited Hermann at the Aerodynamic Institute at Aachen. This contact resulted eventually in an offer to Hermann to work at Peenemünde as Director of the Supersonic Wind Tunnel. He began his work there on 1 April 1937, reporting directly to General Dornberger, as did von Braun. Hermann worked at Peenemünde and later at a new wind tunnel site in Kochel until World War II ended in Europe.

After the American military occupied Kochel, the wind tunnel equipment was ultimately transported to a naval ordnance facility in the United States. While some Kochel staff members went with the equipment, Hermann did not. Instead, from 1945 to 1950, Hermann was a technical consultant for the supersonic and hypersonic wind tunnel and propulsion facility design at Wright Patterson Air Force Base in Dayton, Ohio. He left Dayton at the end of 1950 to become a professor in the Department of Aeronautical Engineering at the University of Minnesota. From 1959 he was concurrently Technical Director, later Director of the Hypersonic Laboratory at the University of Minnesota Rosemont Aeronautical Laboratories.

In late 1961, a research institute was approved for the Huntsville operations of the University of Alabama.<sup>6</sup> Hermann was immediately offered the directorship, which he subsequently accepted. He moved to Huntsville in the summer of 1962, where he directed the formation and operation of the research institute. On reaching mandatory retirement age, he left the directorship in 1970, but continued teaching until 1980. Astronomy and astrophysics were favorite subjects in the latter years of this period.

In his memoirs,<sup>7</sup> Hermann related that he and his staff at Kochel ignored a German order to destroy all technical documents and equipment as the Allied occupation swept across Germany, reaching Kochel on 5 or 6 May 1945. The documents were hidden, and then retrieved when the American military occupied Kochel. Hermann explained that he was able to bring with him to the United States 150 reports written by members of his staff in Peenemünde and Kochel. He kept and used these documents during his subsequent positions in America. When he concluded his active employment at the University of Alabama in Huntsville, these historic German documents were placed in the UAH Archives. Hermann also gave to the library at UAH books and files of reprints of scientific papers he collected in the course of his research. The collection of Peenemünde and Kochel reports on aerodynamic topics was augmented later by Jurgen Thoenes, a previous Hermann doctoral student, and Anne Coleman, who made paper copies of pertinent reports from a film record of German documents made by Allied occupation forces.<sup>8</sup>

## **Saturn V Collections**

The Saturn V Collection is a unique collection of documents that was organized to support the preparation of the book titled *Stages to Saturn*.<sup>9</sup> This technological history of the Apollo/Saturn launch vehicles was published by NASA

in 1980 as one of a series of special publications providing NASA project histories and can be viewed online at <http://history.nasa.gov>.

The Saturn history project was initiated by the NASA Marshall Space Flight Center in Huntsville, Alabama, in 1968 and a contract (NASA contract number NAS8-21321) was made with the University of Alabama Research Institute to support this endeavor. An intense data gathering activity was required to obtain reference materials, interview NASA and contractor personnel and establish a well-organized documentation data base for use by selected historians.

The need to acquire key Saturn program documents became apparent as the developmental phase of the large Saturn rockets reached maturity and the Apollo flight program reached its operational status. Design and engineering activities had been essentially completed by 1968; much of the engineering talent had completed their prime task, and many of the personnel were leaving the program in large numbers.

The NASA History Office under the direction of Dr. Eugene Emme had initiated a series of special publications about human space exploration and other space-related subjects of interest. The histories of the Mercury project (NASA SP-4201)<sup>10</sup> and the Gemini project (NASA SP-4203)<sup>11</sup> were published or in preparation, and it was decided that the Apollo program warranted a history dedicated to the Saturn space launch system including the complete family of large rockets (Saturn I, Saturn IB, and Saturn V).

A proposal was requested by NASA and was submitted to the NASA Marshall Space Flight Center (MSFC) in December 1967 by the University of Alabama Research Institute.<sup>12</sup> The proposal effort was led by Dr. Rudolph Hermann, Director of the Research Institute since 1962 and supported by Frederick I. Ordway and David L. Christensen. Additional support was provided by Dr. Irving B. Holley, Jr., Professor of History at Duke University; Professor Melvin Kranzberg, Case Western University; and several other consultants/advisors to aid in the search for historians/authors. Mr. David S. Akens, Chief of the MSFC Historical Office provided technical guidance on the resulting contract. He had also compiled the *Saturn Illustrated Chronology*<sup>13</sup> covering the period from 1957 to 1967, which served as a very useful reference for the project.

Although Christensen (with direct engineering experience on Redstone, Jupiter, and Saturn rockets) was initially recruited as a consultant to support the project, he was selected as the Acting Principal Investigator. As such, he became heavily involved in the acquisition of documents, contacts with key governmental and industrial participants across the country, and development of an extensive data base with chronological charts needed to support the research of poten-

tial historians. Mrs. M. L. Childress provided very valuable organizational, cataloging, and transcribing skills in support of this intense activity.

Some 14 broad categories of key subjects were established with more than 200 subcategories to help define and abstract more than 1,600 documents of historical interest. All documents were filed by using the date of the document as the identification number needed for retrieval purposes.

During this period, Christensen made many trips to various NASA and industrial sites and contacted many of the individuals who worked on the various stages, engines, and other elements of the Saturn rockets. Also, history team members were invited to observe several Saturn V launches at the NASA Kennedy Space Center (Figure 13–2). Reports, publications, technical papers, speeches, and interviews were solicited and forwarded to the Research Institute in Huntsville.



**Figure 13–2:** The Saturn History Team (left to right, D. Christensen, M. Kranzberg, I. Holley, Jr., R. Hermann, and F. Ordway) at Apollo 10 Launch Site, NASA-KSC.



Candidate historians who worked on the project included John S. Beltz; Dr. Barton C. Hacker (coauthor of *On the Shoulders of Giants*, the NASA history of the Gemini program); and Dr. Roger E. Bilstein. Because of NASA funding reductions and other circumstances, only Bilstein remained with the project and helped NASA to complete the publication of *Stages to Saturn* in 1980, some 12 years after it started. The final product is an outstanding technological history of one of humankind's greatest endeavors and achievements. It tells the complex story of the challenges, the efforts of thousands of dedicated organizations (20,000 private firms) and individuals (more than 300,000 people) who were directly involved in the successful Apollo/Saturn program. The book can be found in its entirety at <http://history.nasa.gov/SP-4206/contents.htm>.

The Saturn historical documents were transferred to the NASA Johnson Space Center to allow Bilstein to have better access to them after he joined the staff at the University of Houston at Clear Lake in 1974. Later, they were returned to Huntsville and have become a cornerstone for the Archives and special collections held at the M. Louis Salmon Library at the University of Alabama in Huntsville.

Now, almost four decades after it was initiated, the value and legacy of this valuable resource is apparent. The documents are being reviewed by researchers, engineers, sociologists, managers, and technologists as this nation again starts to gear up to return to the Moon and then to send humans out to Mars and beyond.

### Willy Ley Collection

In 1969, the Willy Ley Collection was pursued by both UAH and the Smithsonian Institution. An agreement was reached, and the Willy Ley Collection at UAH consists of more than 5,000 books and journals, while the Smithsonian holds the personal papers of Ley.

Willy Ley (1906–1969) had amassed an amazing collection of books on every scientific subject, especially in the realm of rocketry and space travel. A native of Berlin, he studied at the University of Berlin and at the University of Königsberg, specializing in paleontology, astronomy, and physics.<sup>14</sup> When Ley read a book by Hermann Oberth in 1926 on the subject of space travel, he became interested in rockets and space travel. Ley and other experimentalists formed the Society for Space Travel (Verein für Raumschiffahrt), of which Ley was the vice president.

In 1933, the German government dissolved the fledgling private rocket research organization, and some of the members of the dissolved society for space travel went to work at Peenemünde, where the V-2 was developed. Leaving

Germany in 1935, Ley had to wait until after the end of World War II to meet with his rocket society scientist friends, such as Wernher von Braun, who had been introduced to the society by Ley.<sup>15</sup> After the German rocket team, led by Dr. Wernher von Braun, arrived in the United States in 1945, professional interests reunited Ley with von Braun. Included in the Willy Ley Collection is a copy of *Das Marsprojekt*, a booklet by von Braun, which is inscribed “To Willy Ley— (Another brick to the house we’re building together for the last 22 years!)” and signed “Wernher 15 April 1952.” Another prized possession in the Willy Ley Collection is Ley’s copy of the first edition of *Space Journal*, published in Huntsville, Alabama, in the summer of 1957, and inscribed by H. Oberth to “Herrn Willy Ley mit freundlichem Gruss.”<sup>16</sup>

The Willy Ley Collection includes all of Ley’s books and journals dealing with rocketry, space travel, astronomy, history of science and technology, aeronautics, physics, chemistry, mathematics, the biological sciences, anthropology, evolution, geography, philosophy, and science fiction. Ley, who loved to fly and whose foremost wish was to “live to rise to the moon,”<sup>17</sup> accumulated a collection of books and journals so appropriate to the subject area of spaceflight and space travel. It is easy to see why this collection of Willy Ley, a rocket scientist and a science fiction writer, was sought by a research university such as UAH.

When it was known that the Ley Collection was on the market, many rocket and space scientists had written letters to Mrs. Ley after Ley’s death, reassuring her that UAH would be a good home for her late husband’s book collection. Dr. Hermann, Director of Research Institute at UAH, and Dr. Wernher von Braun, Deputy Associate Administrator at NASA Headquarters, were among the letter writers. Dr. Hermann wrote that he enjoyed talking with Ley in the early days of meetings of the American Rocket Society. Perhaps the letters were helpful, because arrangements for the UAH purchase of the collection were made by Frederick I. Ordway with Olga Ley, Willy Ley’s widow. In April 1970, Ordway was on his way to the Ley home on Long Island to supervise the packing and transportation of the collection. According to Ordway, the books were to be found everywhere in the home—in the attic, and even in closets. On 7 May 1970 172 moving cartons with an estimated weight of 8,000 pounds were loaded onto an Allied Van Lines truck and delivered to the UAH library.

The Willy Ley Collection was dedicated on Friday, 16 April 1971, in a ceremony at the University of Alabama in the Huntsville library (Figure 13–3). Numerous dignitaries, including space scientists Dr. Wernher von Braun, Dr. Eberhard Rees, Dr. Ernst Stuhlinger, and Dr. Arthur Rudolph, witnessed the dedication of such an important collection. Dr. Benjamin Graves, President of UAH at the time, accepted the collection from Mrs. Olga Ley.



**Figure 13–3:** Left to right, W. von Braun, J. Perreault, O. Ley, and B. Graves at the Willy Ley Collection Dedication, 1971, UAH.

### **Robert L. Forward Collection**

The Robert L. Forward Collection, measuring 45 linear feet, consists of technical publications, such as journal articles and conference proceedings; patents; 35 millimeter (mm) slides and artwork; and news clippings and journal articles about Dr. Forward (1932–2002). Like the Willy Ley Collection, part of Dr. Forward’s papers is housed elsewhere—the science fiction papers are held by the University of California at Riverside.

Dr. Forward had never lived in Huntsville, but had worked with researchers at UAH, and at Marshall Space Flight Center. He was a well-known member of the propulsion community, and had worked with Dr. Clark Hawk, Director of the Propulsion Research Center at UAH. So it came about that, after being diagnosed with brain cancer, Forward made a point to meet with old friends and colleagues. Hawk and Forward discussed where to house Forward’s technical and scientific papers, and then Coleman was contacted about assuming responsibility for maintaining the collection in the UAH Archives and Special Collections.<sup>18</sup>

Like Willy Ley, Forward was a scientist and researcher who also wrote science fiction, so it was that the Willy Ley Collection, in part, was responsible

for the interest shown in the Archives and Special Collections at UAH by Forward. In August 2002, a telephone call from Forward was received by Anne Coleman, UAH library archivist, about the possibility of creating a library home for the Robert L. Forward Collection.

It was an unusual telephone call for Coleman, in that Forward knew that his time was limited, and that arrangements for the transfer of his library needed to be made soon. Many telephone calls between the Archives in Huntsville, Alabama, and Forward's home at Whidbey Island, Washington, followed to settle the details about the care and preservation of the Robert L. Forward Collection.

The Robert L. Forward Collection was dedicated on Wednesday, 23 July 2003, in the M. Louis Salmon Library at UAH (Figure 13–4). Dr. Hawk presented the introduction and remarks, and Dr. Wilson Luquire, Dean of the library, noted that 2003 was the 100th anniversary of powered flight and the donation of Forward's papers concerning propulsion was particularly appropriate.



**Figure 13–4:** M. Forward (left) and C. Hawk (right) at Robert Forward Collection Dedication, July 2003. Photo: Mike Mercier/*Huntsville Times*.

Lastly, Mrs. Martha Forward spoke and said that “Bob would have loved this.” With friends, colleagues, and library representatives at the ceremony, the books and papers that Forward collected and used in his writings to promote space research were dedicated in their new home—bookcases with glass doors that Forward helped to select.

## NASA–MSFC Retirees

By the 1980s, many of the leaders of the heroic space missions from 1950 through the 1970s were retiring. Some of them held substantial collections of personal documents and memorabilia that deserved to be archived for the use of historians and scholars. Meanwhile, UAH, including its Archives, had grown dramatically in conjunction with progressing space activities. Likewise, other Huntsville organizations with library and archival elements were evolving. These circumstances motivated ad hoc meetings among these archival organizations to discuss the means by which the historic collections of the retirees and others could be preserved.

In UAH, the library personnel were early initiators of these community discussions.<sup>19</sup> In an enclosure with a 26 March 1987 letter, Delmus E. Williams, then Director of the Library, listed eight objectives of a “Consortium for Aviation and Space History.”<sup>20</sup> Various meetings that continued in subsequent years reemphasized the importance of saving the existing historical material, and each archival organization sought to develop its niche in this activity. However, all were constrained by meager resources.

On 12 July 2002, UAH again provided community leadership. After communication with Wilson Luquire, Dean of Libraries, Vice President Derald Morgan convened a meeting on a potential UAH library Space Material Archival Project.<sup>21</sup> The NASA–MSFC Retiree Association was represented at the meeting by its president, Bill Hallisey. As a move to achieve definitive progress, the Retiree Association represented by Ed Buckbee, in July 2002 circulated an archives questionnaire to all its members, asking for specific information on the historical material they would wish to see archived. Some 20 positive responses were submitted initially, and others came later.

After evaluating the responses, Dave Christensen and Charles Lundquist found that the retiree holdings were largely program or project oriented, and they judged that an archive organized by programs would be particularly convenient for potential users. Therefore, they formulated a plan for a space programs archives emphasis that was agreeable to both the Retiree Association and the UAH Archives.<sup>22</sup>

As a pilot activity, the first product produced was a small Lageos program archive. This archive was based on a document collection donated by Robert Spencer, the former Lageos program manager at NASA Headquarters, augmented by contributions from other program participants. As a matter of policy, each document entry in the resulting online catalog has an abstract of the document contents.

A Skylab Program Archive was completed next, in time for the 30th Anniversary Celebration of Skylab on 10 November 2003. Skylab was the first U.S. space station. One event in a busy day of celebration was a ribbon cutting by Leland Belew, the retired program manager, officially opening the archive for public use (Figure 13–5).<sup>23</sup> All of the living Skylab astronauts attended the ceremony at the UAH library.



**Figure 13–5:** L. Belew (left) and G. Mueller (right) at the Skylab Collection Dedication, 11 November 2003.

In 2004, a Lunar Roving Vehicle program archive has been finished, based on documents provided by Sonny Morea, the former MSFC Program Manager. The collection was meticulously processed for the archives by Nikki, one of a team of dedicated volunteers.

## The Future of Archives

The UAH Archives are, of course, dynamic. Augmentation of existing collections continues when new material is acquired. Further full program collections are added and processed regularly. New collections are sought, and the support for saving historical space documentation is encouraged.

Other program collections now being processed include Apollo–Soyuz, Gravity Probe A, and Gravity Probe B. In addition, two large collections are expected in the coming months. The first is an International Space Station collection. The Space Station program is at about the same stage of maturity as was the Saturn program when its archive was assembled. UAH anticipates collaboration with the Boeing Company and its retirees to produce this archive. The second is a large collection from Dave Christensen on space transportation systems and programs. The collection will be a timely historical reference to support the current plans of the United States to extend exploration of the moon and Mars.

Still others will follow.

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