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## Chapter 5

# A Legacy for the Future: Preserving Space-Related Historic Sites<sup>1</sup>

John R. London III<sup>2</sup>

### Introduction

The period from 1945-1975 marked a unique, epochal time in history. During these 30 years the era of space exploration was born, nurtured, and brought to fruition by the successful accomplishments of various national manned and unmanned programs. Despite the historic significance of these events, very little has been done to preserve the actual sites where they occurred. The vast majority of space-related historic sites have either fallen into decay after being declared obsolete, or they have been drastically modified from their original configuration because of the requirements of new programs. Many sites of great historic importance have already been destroyed, and steps must be taken soon if those that remain are to be protected.

In late 1979 a campaign was initiated to preserve the historic launch sites at Cape Canaveral Air Force Station and Kennedy Space Center (KSC) in Florida. The effort was led by members of the Missile, Space, and Range Pioneers, a local organization of early space age workers, and by the local Brevard County, *Florida Today* newspaper. Joined by other space enthusiasts from around the country, the Florida contingent convinced the ranking Republican member of the U.S. House of Representatives' Committee on Interior and Insular Affairs to draft legislation calling for the Department of the Interior to initiate “. . . a study of locations and events associated with the historical

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<sup>1</sup> Presented at the Twenty-Second History Symposium of the International Academy of Astronautics, Bangalore, India, 1988. Copyright © 1988 by John R. London III.

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theme of Man in Space.” This legislation became Section 18 of Public Law 96-344, approved on 8 September 1980.

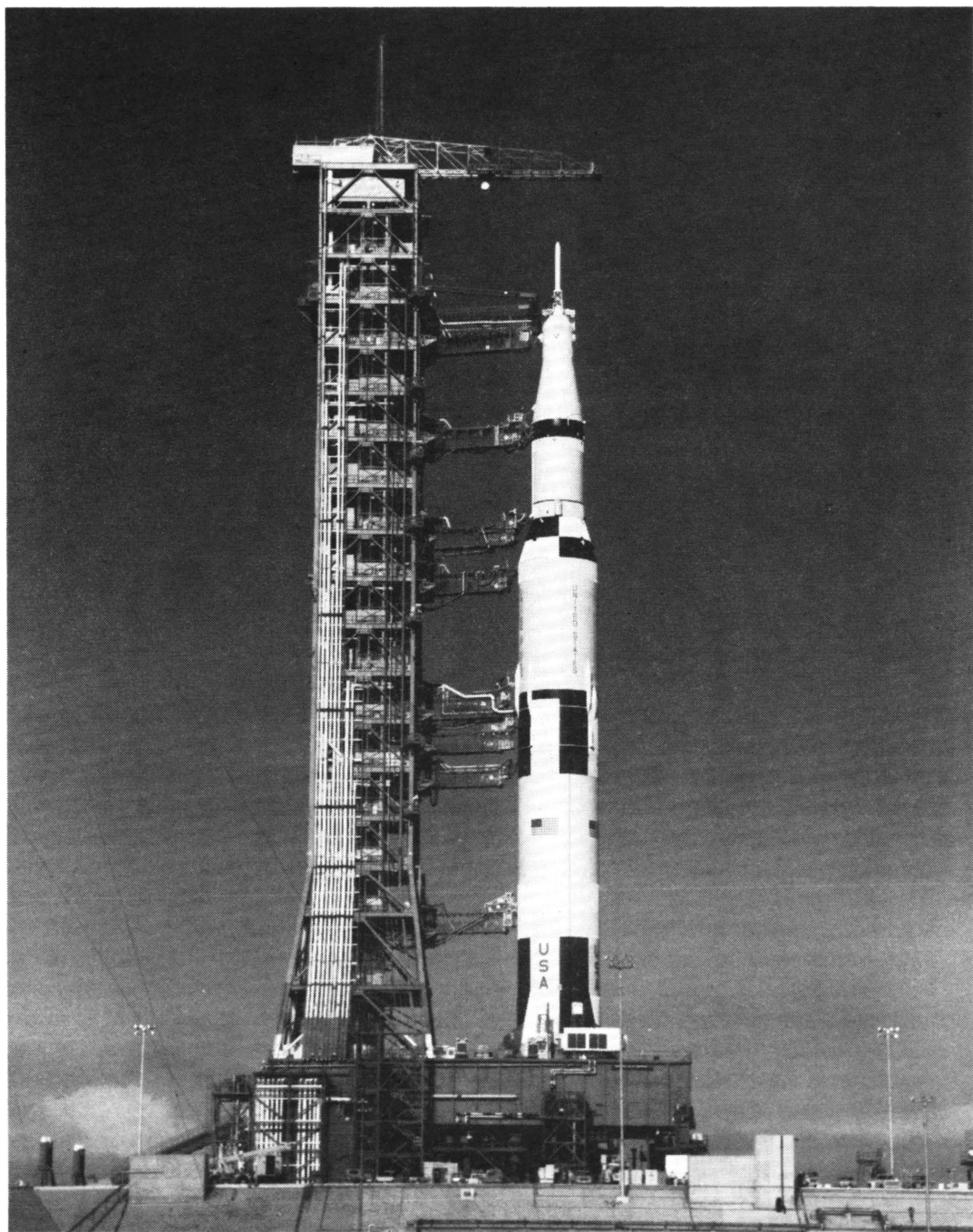
Responding to P.L. 96-344, The National Park Service (NPS), preservation arm of the Department of the Interior, accomplished a reconnaissance survey in 1981 of the sites associated with the early U.S. space program. This effort began the federal government’s slow and arduous task of determining which sites should be preserved, and what methods should be used in their preservation. Despite significant progress, the final report to Congress on potential preservation alternatives required by P.L. 96-344 has not been delivered.

Obviously, the preservation of individual historic space sites does not require federal government involvement. An excellent example of this is the superb job done by state and local officials in preserving the historic V-2 gantry and blockhouse at White Sands Missile Range, New Mexico. However, the NPS effort has a national scope, attempting to identify those sites that best represent the entire spectrum of the early U.S. space program. Given the realities of austere budgets and limited resources, and recognizing that there are numerous potentially significant U.S. space sites, it appears the prioritizing of the most significant sites by the NPS is the correct path to take toward a comprehensive preservation program.

Regardless of which sites are determined to be the most important, or which sites ultimately receive the proper preservation and public interpretation, the job to protect our space heritage will not be easy. However, the benefits of a properly interpreted historic space facility can be enormous. Preservation of these historic sites will insure the establishment of a space inheritance, where future generations can see, touch, and experience this important part of our history in a more personal way. During 1983-1984, a concerted effort was made to save a particular historic space resource. The difficulties encountered in trying to preserve this significant structure epitomize the challenges typical of any space preservation project.

## **Apollo LUT-A Case Study**

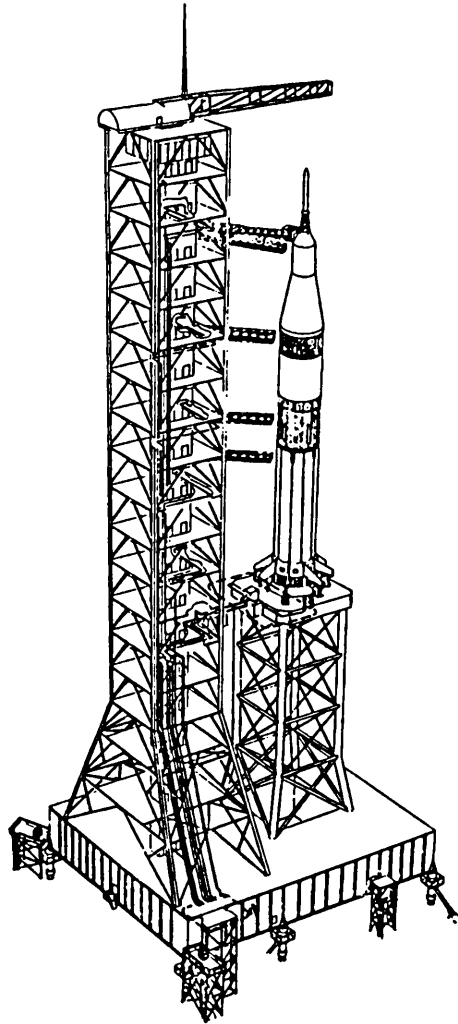
The Apollo/Saturn V launch vehicle was the largest operational space booster in history. Its dimensions required launch support systems of equal magnitude, and the Saturn V umbilical tower was no exception. The Launcher-Umbilical Tower (LUT) stood almost 134 meters tall, and it was a maze of fluid, mechanical, and electrical systems attached to a gigantic steel framework. The entire structure sat on top of a large, box-like platform that acted as the launch pad for the vehicle. Three of these LUTs were built for the Apollo Moon Program, and one of them was later modified to accommodate Saturn 1B boosters in support of the Skylab Program and the Apollo Soyuz Test Project. The other two LUTs were disassembled after the Apollo Program was over, with certain components salvaged for use by the Space Shuttle Program. The Saturn 1B-modified LUT remained intact through the first few Shuttle launches, but its box-shaped base was ultimately needed for Shuttle use.



**Figure 1** *Apollo 11* on Launcher - Umbilical Tower (LUT) at Pad 39A, July 1969.

## LUT Preservation Effort

In January of 1983, NASA announced its plans to dismantle the last remaining LUT, so its base could be modified into a Mobile Launch Platform (MLP) for the Space Shuttle Program. The 122 meter-tall umbilical tower and the Saturn 1B adapter pedestal would be sold for scrap. This particular LUT happened to be the one used for the most significant launches of the Apollo Program. The launches conducted from this tower were *Apollo 4*, the first launch of a Saturn V vehicle; *Apollo 8*, the first manned Saturn V launch and first manned flight around the Moon; *Apollo 11*, of the Skylab/Saturn 1B manned launches; and the Apollo Soyuz Test Project/Saturn 1B launch.



**Figure 2** LUT with Saturn 1B adapter pedestal, used for Skylab and Apollo-Soyuz manned missions.

The *Today* newspaper carried an article on 19 January 1983 describing the NASA announcement to scrap the tower, and among the readers that day were two U.S. Air Force captains stationed at the Kennedy Space Center. Although these officers had never officially participated in the Apollo Program, it made a lasting impression upon them as teenagers which motivated them to pursue careers in space. After reading the *Today* article, they decided that an alternative to the scrap heap was needed for the last of the Apollo LUTs. Before the end of January, the Air Force officers sent a letter to the NASA Administrator proposing the preservation of the LUT because of its extraordinary historical value, with informational copies of the letter forwarded to appropriate Florida senators and representatives in the U.S. Congress. This letter touched off a controversy that lasted four months, with the fate of an important piece of space history hanging in the balance.

The letter sent to the NASA Administrator proposed the LUT be disassembled in a manner that would preserve the option to reassemble it at some future date outside KSC operational areas, probably at the KSC Visitor's Information Center (VIC). The ownership of the tower's metal would be retained by the government, and the tower sections would be stored on government property until needed. This approach avoided impacting the planned modification of the LUT launcher base into the Shuttle MLP.

The Air Force officers contacted the same congressional staffers who drafted Section 18 of P.L. 96-344 to inform them of the LUT preservation proposal. One staffer for the Republican side of the House's Committee on Interior and Insular Affairs acted immediately to notify various Washington, D.C.-based preservation groups of the proposal. A coalition of these groups was formed, including the National Trust for Historic Preservation, The Advisory Council on Historic Preservation, and Preservation Action. In parallel with the formation of this coalition, a number of members in Congress responded positively to the LUT preservation proposal and agreed to encourage NASA to consider it. Notable among the congressional supporters were Representative Manuel Lujan—Republican from New Mexico, Representative John Seiberling—Democrat from Ohio, and Representative Bill Nelson—Democrat from Florida, whose district included KSC.

NASA's initial reaction was negative to the preservation proposal, primarily for two reasons. They believed exercising a "preservation option" of disassembly would delay the modification schedule for the Shuttle MLP, and the projected Shuttle launch schedule could not accommodate the delay. They also felt the cost of the preservation option would be prohibitive. The preservation coalition and interested members of Congress did not agree with the NASA position, and a number of letters were sent back and forth between the groups expressing their respective positions. NASA finally agreed to request an estimate for a preservation option from the disassembly contractor, Best Wrecking Company in Detroit, Michigan. After lengthy negotiations between NASA and Best Wrecking, a preservation option cost of \$1.818 million was agreed to. This cost was over and above the tower demolition contract price of \$0.574 million already awarded to Best Wrecking. The extra \$1.818 million would pay for the additional cost of disassembling the tower in a manner that would allow for future reassembly, transportation expenses to move the tower segments to a suitable storage site, and the esti-

mated scrap value of the steel, since possession and ownership of the tower material would now be retained by the government.

Despite requesting the preservation option estimate from Best Wrecking, NASA only allowed sixty days for Congress and the preservation groups to review the estimate and come up with a means to fund it. In response, Representative Lujan offered House Resolution 2065 on 12 April 1983, which proposed to amend the fiscal 1984 NASA Authorization Bill by adding \$1.818 million to fund the preservation option. The resolution was adopted by voice vote. Although the money authorized by H.R. 2065 would not be available until October 1983, Lujan felt the action would send a strong message to NASA that Congress wanted the tower preserved.

In a separate but parallel activity, the coalition of preservation groups in Washington filed suit in federal court against NASA, seeking to obtain a temporary restraining order and injunctive relief to prevent the space agency from executing the existing plan to scrap the tower. The suit was filed on 18 April 1983, with the Washington, D.C. law firm of Arnold and Porter representing the preservation coalition.

With pressure mounting from Congress, preservation groups, and interested citizens from around the U.S. and especially from Florida, NASA informed Representative Lujan on 24 May 1983 that the preservation option would be exercised. The additional \$1.818 million required by Best Wrecking would come from the fiscal 1983 NASA budget that was already authorized. Since the tower would now be preserved by NASA, the lawsuit was settled out of court on 27 May.



**Figure 3** LUT base after removal of tower and Saturn 1B adapter pedestal, November 1983.



Now that the preservation option was funded, Best Wrecking began the careful disassembly of the tower to insure it could be reassembled at some future date.

The tower was taken down one level at a time, and each of these segments was moved to a storage area on improvised transporters. The designated storage area for all the tower components was behind the KSC Headquarters Building in an open field. The disassembly and storage of the tower components took place during the Summer of 1983.

In an effort to establish a consolidated and permanently chartered group to champion the cause of the LUT, the preservation coalition formed a non-profit Washington-based corporation called "Save the Apollo Launch Tower (STALT), Incorporated" in November 1983. The primary purpose of STALT was to provide centralized management for the planned fund-raising needed to finance the tower's reassembly. The president of STALT was an employee of the National Trust for Historic Preservation, and board members for the corporation came from each of the organizations that made up the original preservation coalition. The name of the corporation was later changed to "The Apollo Society" to emphasize the broader scope of historic preservation interests the board members felt their organization represented.

Best Wrecking Company management was keenly aware of the controversy that had surrounded the tower, and they had obviously profited from NASA's decision to save it. They knew that although the tower's disassembly and storage had been funded, the methods for financing the LUT's reassembly and public interpretation were not yet settled. Best Wrecking felt the tower had excellent potential as a profit-making tourist attraction and privately drafted a reassembly and long-term operation proposal to be made to The Apollo Society and NASA. To add legitimacy to their proposal, Best Wrecking management formed a separate company called "Apollo Launch Tower Associates (ALTA)."

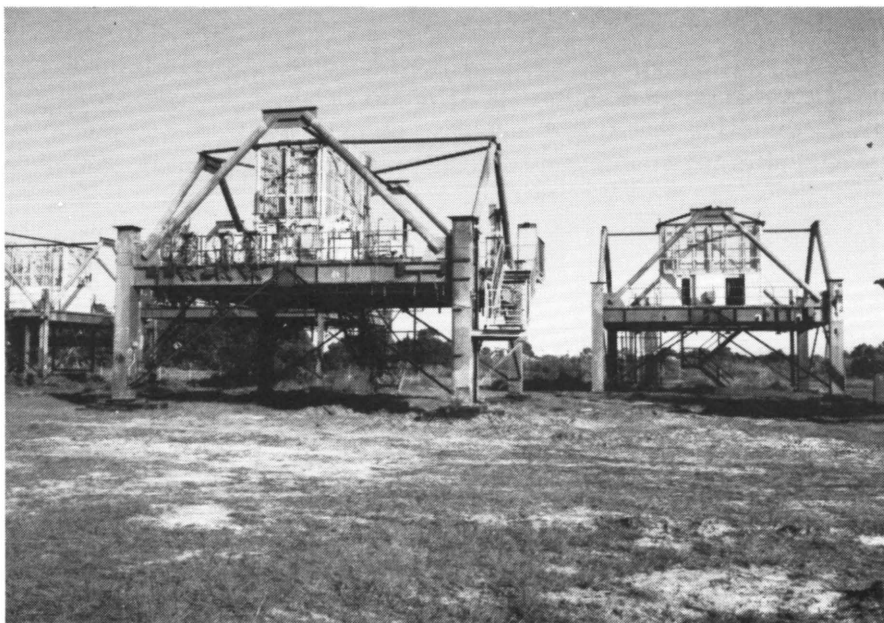
The proposal that ALTA ultimately presented had certain advantages from the Apollo Society's standpoint. Allowing ALTA to do the entire job avoided a massive fund raising campaign that would otherwise be required for the reassembly. This approach would also meet the Society's goals of preserving the tower and interpreting it for the public's use. NASA's reaction to the ALTA plan was, at best, lukewarm. NASA's concerns stemmed partially from ALTA's desire to put the tower at the KSC Visitor's Information Center with a mock-up Saturn V next to it, and to charge tourists a hefty fee for a ride to the top. The ALTA proposal was strongly influenced by the group's desire to insure an appropriate profit margin for their investors. NASA managers were uncomfortable with the distinctively commercial flavor the tower was beginning to take on. NASA also had doubts about the technical expertise of ALTA in taking on such a large construction job. NASA and The Apollo Society both agreed the commercial aspects of ALTA's approach threatened the dignity of how the tower would be interpreted to the public.

As negotiations wore on, the amount of money ALTA expected The Apollo Society to contribute to the reassembly costs continued to grow. This development diminished the Society's enthusiasm for the ALTA proposal. Wearing by the bureaucratic red tape required to place a commercial venture on government property, and steadily losing

The Apollo Society as an ally, ALTA lost interest and unceremoniously dropped their proposal.

After the ALTA pull-out, The Apollo Society was left with their original plan—to generate the estimated \$8.5 million in reassembly costs through a nation-wide fund-raising campaign. The initial approach selected was a direct mail campaign, using the membership lists of various space-related groups as prospective donors. Based on published statistics for the expected response to an initial direct mail campaign the results of the mail-out were better than average. However, these results did not meet the expectations of certain Apollo Society board members. The president, in particular, was very discouraged and expressed doubt the American public would ever support such a project. Shortly thereafter, the president resigned and the National Trust for Historic Preservation pulled formal support from the Society. The organizational structure of the Apollo Society quickly collapsed, although the Society still exists as a non-profit, corporate entity. Ironically, the leadership of the Society has reverted back into the hands of the two Air Force officers who started the original preservation campaign.

The tower segments are currently still in storage at the Kennedy Space Center and are in no immediate danger of destruction. However, the natural corrosive environment of the Florida coast continues to slowly take its toll, and all of the tower segments have become overgrown with weeds. Since ownership of the tower material is retained by the government, the threat always exists that NASA might decide to dispose of some or all of the tower components. At present, though, the last of the Apollo Launcher - Umbilical Towers still holds the promise of someday being resurrected to its former glory, to allow people from around the world to experience a physical manifestation of one of the greatest accomplishments in human history.



**Figure 4** Apollo launch tower segments in storage at Kennedy Space Center, November 1983.

## The Preservation Challenge

The preservation of historic space sites is a task that faces monumental challenges. Contrary to the preservation of most types of historic space artifacts, space site preservation creates unique problems that, for the most part, have not yet been solved. During the lengthy campaign to keep it out of the scrap heap, the effort to save the Apollo LUT touched on just about every problem potentially facing the space preservationist. For any space site preservation project to be successful, it is mandatory to have a working knowledge of the numerous and varied challenges to the project, as well as a strategy to overcome them.

One of the first challenges that the LUT preservationists faced was providing solid justification to many key people for pursuing such an enormous undertaking. Any site preservation project must have a strong case built at the start on why it needs to be preserved and interpreted for the public. Many people needed for project support lack the vision to imagine the potential long term benefits, so the preservationist must provide a visionary "assist" to help them better understand the value of the project. Specific preservation benefits that a properly protected and interpreted site affords will be addressed later in the paper, and these benefits should serve as key ingredients of the preservation justification package.

A curious and somewhat frustrating aspect of historic space site preservation is the lack of appreciation by many people that a given site is truly historic. This attitude is probably attributable to several factors, including the relatively recent occurrence of space age events and the "high tech" nature of spaceflight. During the LUT preservation campaign, many NASA personnel could not understand why anyone would want to save an obsolete launch tower. To them, it was surplus hardware that stood in the way of the current program's progress. Many times when people have been a part of history, their awareness of the historic implications of what they have accomplished is dulled. Therefore, the people expected to be some of the strongest supporters might be only mildly interested. Also, it is difficult for some people to mentally associate a high technology pursuit like spaceflight with an event of great historical significance. Movies like *The Right Stuff* and *Space* have started to change this perception, but it still persists in the minds of many. A continuing emphasis that key space accomplishments of the last 30 years are as significant as other important historical milestones is vital to achieving the public support needed in any major preservation project.

The structural complexity of many space sites creates challenges relatively unique to historic preservation. As an example, the preservation of a battlefield or a historic house is simple when compared to the preservation of a launch pad service gantry. In the case of the LUT, the umbilical tower is an incredibly complex structure that would require a sophisticated design and construction project for segment transportation, reassembly, and appropriate public interpretation. Maintenance of complex structures can be difficult and expensive, particularly if a structure is close to the corrosive environment of a coastline. The maintenance of a complex, historic structure under these conditions is not without precedent, however, when one considers the numerous warships worldwide that are preserved in coastal environments as wartime memorials.

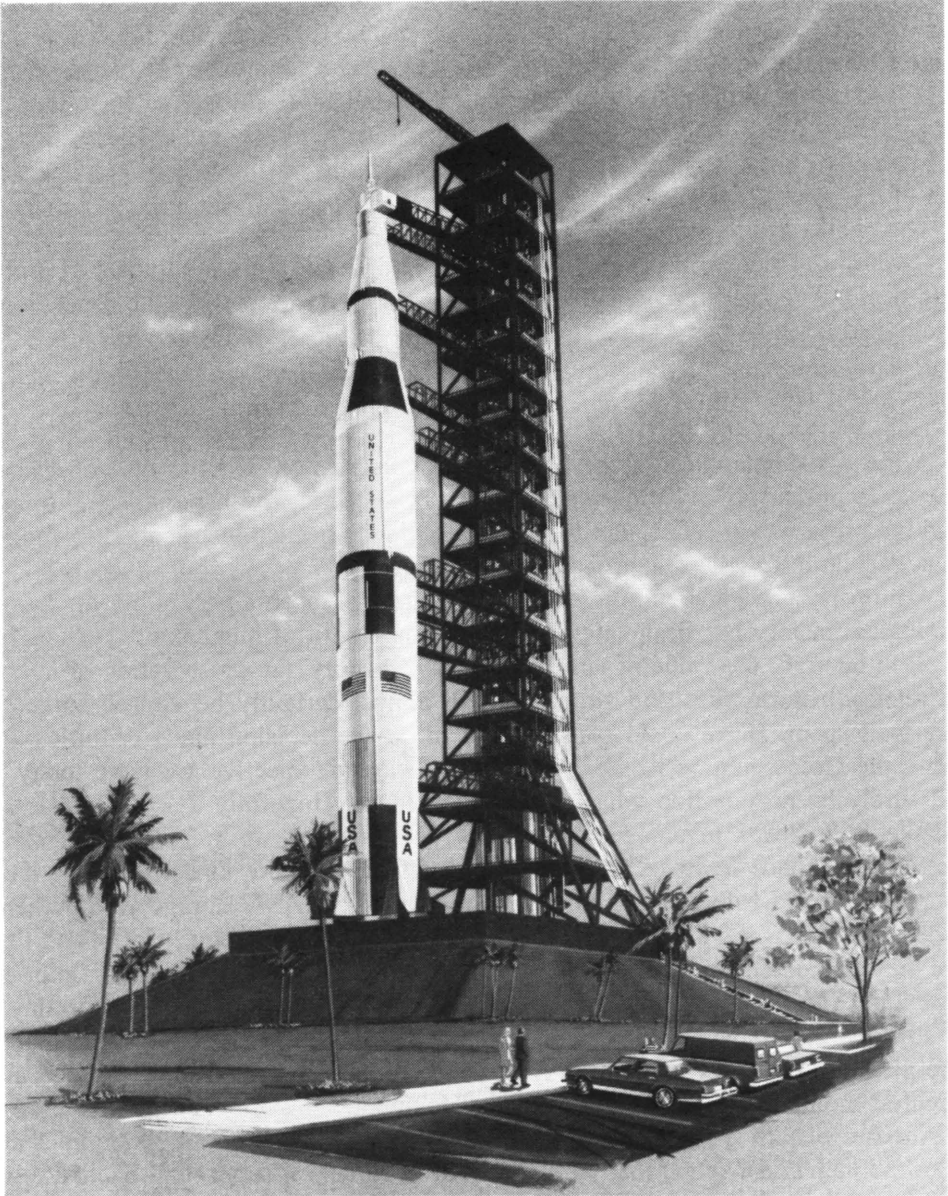
Another difficulty in protecting historic space assets is that many sites are subject to drastic modification if an operational use is identified for part or all of the site. This can result in the site's original configuration being lost and much of the historic fabric that was part of the history-making event being destroyed. It is extremely difficult to try to justify the need for historic preservation in the face of hard operational requirements for a historic site. One of the reasons NASA was so reluctant to exercise the preservation option for the LUT was their belief the option would jeopardize the modification schedule for the LUT's base, which was needed as the third Shuttle MLP. All three of the original LUT bases have been radically modified from their original Apollo/Saturn configuration to become Shuttle-compatible MLPs. There is, therefore, no Apollo-era LUT base left in existence.

Many historic space sites are located on operational government installations, and public access to these locations ranges from very limited to nonexistent. Increased public access would require a strong commitment to this end by government leadership at all levels. Before making such a commitment, officials would have to be convinced of the benefits this increased access would provide. This is another challenge the would-be preservationist faces. If funds were unlimited and there were no operational considerations, the LUT should have been preserved on top of Pad 39A at KSC with a high-fidelity Saturn V mockup next to it. However, the realities of Shuttle operations and fiscal constraints have resulted in the LUT being placed in storage, with its future reassembly location probably at the KSC Visitor's Information Center, miles from where *Apollo 11* actually lifted off. This solves the problem of public access, but at the cost of sacrificing important aspects of historic site interpretation. Reaching an agreement with NASA on placing the tower at the VIC was not without difficulty. A critical communication station is located southwest of the VIC, and it is used for communicating with the Shuttle before and during the launch phase. It just so happens that the VIC is between the station and Launch Complex 39, creating the threat that a poorly-located tower could disrupt communications between Mission Control and the flight crew. After many long months of negotiation between The Apollo Society and NASA, a specific site location adjacent to the VIC was finally approved.

Institutional attitudes of the government agency with which a given preservation group is dealing can create impediments to the successful accomplishment of space site preservation. First and foremost, government agencies involved in space-related activities will not have historic preservation anywhere near the top of their priority list. The confrontational aspects of the LUT preservation campaign could possibly have been avoided if an effort had been made much earlier to organize and implement a campaign to save the tower. However, the eleventh hour effort was not without benefit, as the NASA-announced schedule to scrap the tower created a "crisis" atmosphere and evoked an enthusiastic response from preservation groups and members of Congress. Therefore, a carefully planned diplomatic approach is important to avoid the ire of the government organization, while at the same time a strong level of commitment and enthusiasm must be established in each preservation supporter.

The safety of the public is of paramount importance when planning the development of a historic space resource. The nature of the sites and structures that would be candidates for preservation is such that providing for adequate safety would not be a

trivial task. Space facilities do not generally lend themselves to being modified with appropriate safety features. The Apollo Society intends to have the LUT's elevator system in working order so people can take the same ride to the top of the tower that Neil Armstrong did. However, protecting people that are on the tower would be a complicated job, requiring significant design and construction money to accomplish. As an example, tower levels with public access must have additional barriers added around their perimeter.



**Figure 5** Artist's concept of Apollo Society proposal for Apollo tower reassembly with Saturn V mock-up at KSC Visitor's Center.

The single most difficult challenge confronting the space preservationist is the extremely high cost required to finance most preservation projects. The LUT, of course, requires major construction to return the stored tower material to its original 134 meter tall configuration. Although most sites and facilities do not need a major construction project to bring them up to public-access standards, corrosion repair and protection must be initially accomplished and maintained on all metal structures.

The method to finance many space preservation projects will likely be some form of fund raising campaign. Experience with the LUT fund raising effort emphasized the importance of achieving a professional and well-planned start, so the project can quickly become financially self-sustaining. People with extensive fund-raising experience should be involved in the project from the beginning. A potential alternative to private fund-raising is partial-to-full government financing of certain government-identified sites. This alternative has many attractive features, but would be limited to, at best, a small subset of the overall site preservation candidates.

The challenges to preserving historic space sites are extensive, but not insurmountable. Careful up-front planning can avoid many pitfalls and limit the impact of problems that do occur. The space preservationist's motivations and reward are the protection of a technological heritage that can be studied and enjoyed for centuries to come.

## **Preservation Benefits**

A clear understanding of the benefits the preservation of an important space site can bring is critical to any preservation project's success. The benefits are the reasons behind the preservation effort, and they can provide the needed justification to "sell" the project, despite the challenges probably confronting it.

A properly protected and preserved space site will mean a part of our civilization's technological history has been safeguarded for the benefit of humankind. Although it is difficult to quantify the value of tangible pieces of history, the preservation of important space-related historic sites and structures will almost certainly be viewed someday as money well spent. If we could somehow be in on the decision made centuries ago to preserve the Colosseum in Rome, with the historical perspective we have today there would surely be no question what our vote would be. Hopefully, our descendants will not shake their heads in amazement at how short-sighted we were when it came to preserving our space heritage. The Apollo LUT is a structure that potentially has immeasurable historic value, yet its pieces lie rusting in a NASA storage yard. When one considers that this tower was the last earthly foothold for Armstrong, Aldrin, and Collins before they thundered off to the Moon, you begin to sense the overwhelming importance of protecting the legacy of the early space age. After the burning issues of today, that seem so important, have become mere footnotes in history, the first steps that man took off the planet in the latter half of the twentieth century will probably be counted among the greatest moments of our civilization's development.

Another benefit a preserved space site provides is its symbolic value as a monument to the men and women that worked on the programs it supported. Each site would be a tribute not only to "heroes" such as astronauts and cosmonauts, but also to the

millions of people that worked together to accomplish these staggering feats of human ingenuity.

One potential benefit of protecting our space heritage that is often overlooked is the inspirational potential these sites could have, particularly with young people. By better understanding the effort and sacrifices required for the great accomplishments of the past, we can be inspired to strive for even greater accomplishments in the future.

The economic benefit potential of properly interpreted historic space resources cannot be ignored. Although this certainly should not be the main justification for protecting these sites and structures, if the preservation task is carefully engineered, space sites can and should become powerful magnets for a large number of people. One option in financing the maintenance of these historic locations would be to charge a modest admission fee. However, even if a preserved space site does not generate any revenue itself, the influx of people into the area surrounding the site should have a positive effect on the local economy. A preserved Apollo LUT, which would be taller than the Statue of Liberty and slightly shorter than the Washington Monument, would certainly stand out on the Florida landscape, or any other location where it might be reassembled. The intrinsic historic significance of the tower, combined with its imposing size and unique shape, could make it one of the most important tourist destinations in the world.

The effort to save the Apollo LUT stands as a singular example of the overall space preservation difficulties facing us today. Although the project has not yet attained its goal, the lessons learned from the campaign may prove valuable for future space preservation endeavors. The Apollo LUT effort did demonstrate that, in the face of operational requirements, there is widespread support at the local and national levels for the protection of space history. The challenges to protecting our space heritage are great, but the long-term benefits of these historic sites and structures may be much greater. Governments and their citizens must make decisions in the coming years that will determine what kind of space-age inheritance we will leave to our children.

## The NPS Study of Alternative

In the United States, the NPS has undertaken an effort to recommend to the Congress a set of alternatives on how to approach the preservation of sites associated with the early U.S. space program. As previously mentioned, P.L. 96-344 requires the NPS to accomplish this task, and the NPS has responded with a three phase plan. Phase one was the *Reconnaissance Survey, Man in Space Study*. The survey documented the preliminary findings concerning the historic resources associated with the "Man in Space" theme, including a report on the significance and conditions of various sites and installations. Phase two of the NPS plan was the "National Historic Landmark Theme Study," which was completed in 1984. It inventoried and evaluated more than 300 resources in relationship to the original theme. The study recommended 24 of the sites for designation as National Historic Landmarks (NHL) because of their national significance. These 24 sites represent the best and most important remaining examples of the technology needed to land a man on the Moon, as well as to explore the Earth, planets, and the surrounding universe.

The final phase of the NPS plan is the *Study of Alternatives*, which was the ultimate intent of P.L. 96-344. A draft of this study was completed in 1987, describing four preservation alternatives to protect the most important sites and structures of the early U.S. space program. Unfortunately, the final version of the study has not yet been delivered to Congress. Nevertheless, the NPS effort represents the best chance in the United States for a comprehensive space preservation strategy. Other nations seeking ways to protect their own space sites and facilities may want to adopt an approach similar to the NPS plan. By establishing the priorities for protection up front, governments, as well as privately-sponsored organizations, can make the maximum use of available funding for the appropriate historic resources.

## **NPS Resource Description and Analysis**

The “National Historic Landmark Theme Study” accomplished an important milestone in the quest for historic space site preservation. After a laborious survey and evaluation of numerous space assets in the United States, a list of the 24 most significant sites and facilities were nominated, and ultimately afforded, National Historic Landmark status. Prior to the NHL designation for the 24 locations identified by the Theme Study, the Cape Canaveral Air Force Station had received NHL status on 16 April 1984. Launch Complex 39 and all of its assets at KSC were listed in the National Register of Historic Places on 24 May 1973. Formal NHL designation recognizes the historic importance of these 24 locations in particular, and of the early space program in general. NHL designation also carries certain legal stipulations that provide some protection for the sites from modification or salvage. However, the designation does not signify any requirement to provide funding for maintenance or public interpretation.

The 26 total sites and facilities are diverse in both geographical location and their original application. This diversity was by design, of course, to show the broad spectrum of activities required to support the simultaneous efforts to place a man on the Moon, as well as to conduct a detailed scientific exploration of our solar system. Examples of the sites selected by the Theme Study include the early wind tunnels at Langley Research Center in Virginia; propulsion and structural test facilities at Marshall Space Flight Center in Alabama; the V-2 launch complex at White Sands Missile Range, New Mexico; the Goldstone Pioneer Deep Space Station in California; the Apollo Mission Control Center at Johnson Space Center in Texas; the Unitary Plan Wind Tunnel at Ames Research Center in California; the rocket propulsion research and test facilities at Lewis Research Center and Plum Brook Operations Division in Ohio; and the Rogers Dry Lake at Edwards Air Force Base, California. The 26 historic space resources form the heart of the draft *Man in Space - Study of Alternatives* report currently in the government coordination and approval cycle.

## **Alternatives and Impacts**

The 26 historic locations are presented by the Study of Alternatives report in the context of four alternative preservation scenarios. This approach discusses the pros and cons of each scenario, so a correct decision on preservation priorities and options can be



made by the U.S. Congress. Each of the alternatives will be reviewed, including a discussion of their implementation impact.

Alternative One, stated bluntly, would be to do nothing. This means the government agencies currently responsible for these sites (primarily NASA and the Air Force) would continue to administer them as they are doing today. As previously stated, preservation and public interpretation of historic sites are a low priority for these government agencies, primarily because their charters and missions have a different orientation. Therefore, those sites and facilities not in use would be expected to continue to deteriorate, and little effort would be made to document or interpret the historical aspect of the active sites that have been altered to support current programs.

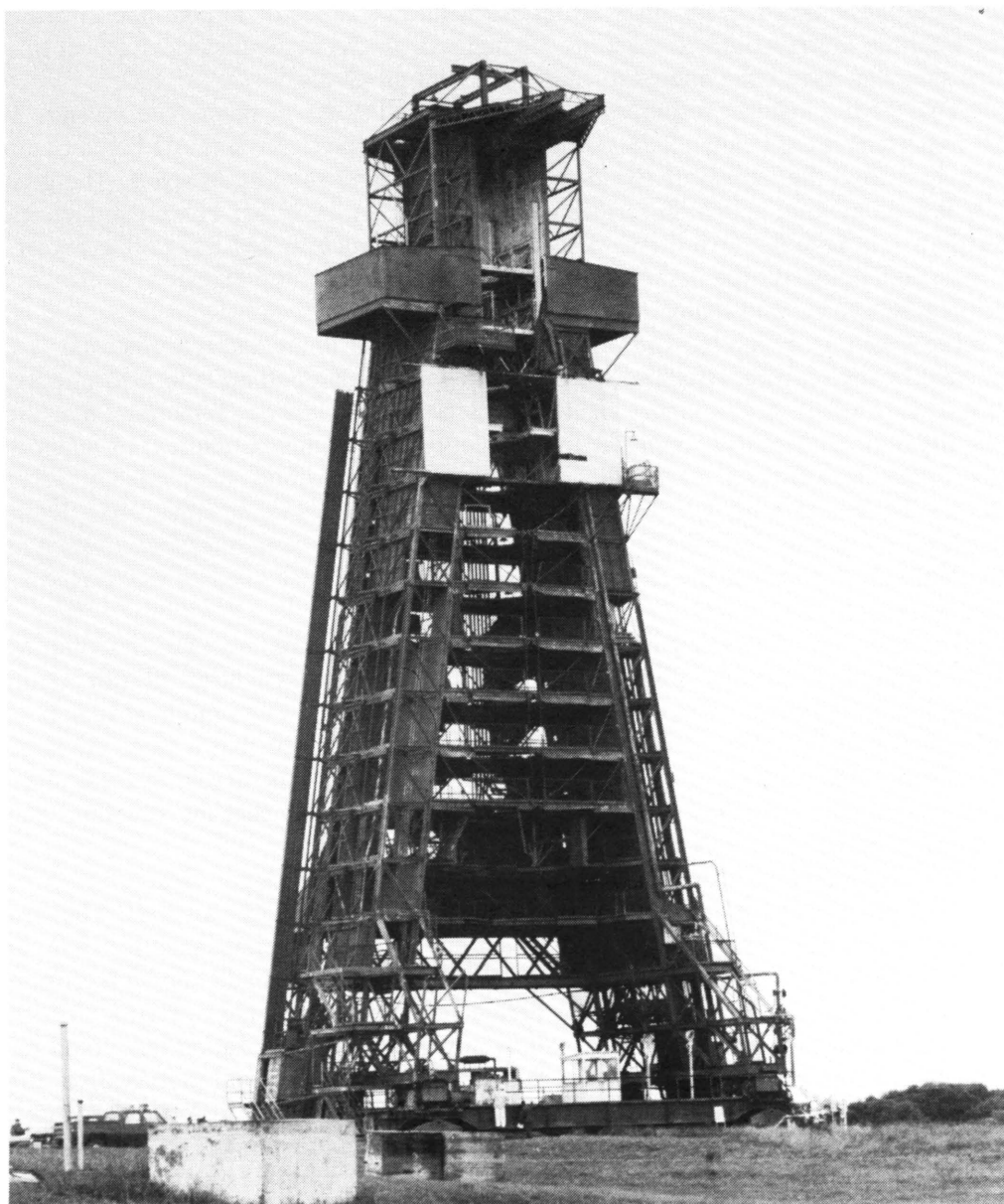
Two of the historic resources studied by the NPS are in immediate danger. The most important is the Complex 26 service structure at Cape Canaveral Air Force Station, which supported the launch of *Explorer I*, America's first satellite in space. The gantry is the last of its kind and is in serious need of repair. A 1985 Air Force estimate indicated it would take \$1.25 million to rehabilitate the structure and \$77,000 per year to maintain it. The Air Force has stated it simply does not have the budget to preserve the Complex 26 gantry, and under Alternative One, it will probably be torn down and sold for scrap in the near future. The other historic structure immediately threatened is the Complex 13 service structure, also located at the Cape. Although no launch as important as *Explorer I* took place at Complex 13, the facility is the last one remaining that illustrates the support facilities required for Mercury/Atlas flights. Complex 13 supported Atlas/Agena launches for Earth orbit and deep space missions. It is the last service structure associated with U.S. manned space flight still standing, other than Launch Complex 39. Currently, no maintenance is performed on the structure, and under Alternative One, it will almost certainly go the way of all the other gantries that once made up the Cape's "ICBM Row."

The most significant launch complexes at Cape Canaveral are Launch Complexes 5/6 (all Mercury/Redstone Flights), 14 (all Mercury/Atlas flights), 19 (all Gemini flights), and 34 (*Apollo 1* fire and *Apollo 7* manned launch). The umbilical towers and service structures for these complexes have long been scrapped, but a large amount of each facility remains, including the launch control centers. Public access to these sites is extremely limited, as is their historic interpretation. It is likely that the situation would not improve under Alternative One.

It should be noted that the Air Force recognized the historical value of the Complex 14 Mercury/Atlas A-frame gantry well before it was actually salvaged. The structure had deteriorated from salt spray corrosion and a lack of maintenance by 1976, and the Air Force was planning to have it removed. However, they made known their intentions publicly and announced a waiting period prior to the salvage operation. The Air Force established this period of time to allow any group or organization that could raise the funds to come forward and preserve the gantry. When no formal preservation effort was organized, an Army demolition team was called in and the historic Complex 14 structure was destroyed.

The second alternative proposed by the NPS study would establish an expanded role for preservation and public interpretation by the agencies currently responsible for their respective sites. Congressional action will be required to provide a new funding

base to permit the responsible agencies to carry out this task. One major benefit of Alternative Two is that the Man in Space theme would be established in a coordinated fashion using all of the 26 identified historical resources. Public access to the actual sites would not increase substantially, but off-site media would be utilized to emphasize the overall theme. Preservation of the actual sites would not be undertaken, and their long term status would be similar to what could be expected under Alternative One. Total budget outlays to support this alternative should not be high.



**Figure 6** Launch Complex 14 Mercury/Atlas service structure at Cape Canaveral, December 1976.



**Figure 7** Destruction of Complex 14 service structure, December 1976.

Alternative Three calls for the Congress to authorize and fund a private foundation or public commission to oversee, coordinate, and direct interpretive and preservation efforts for the 26 resources. All of the sites would remain under the administration of their respective agencies, and the legislation authorizing the foundation or commission would define its roles and responsibilities in interpretation, visitor use, and preservation of the sites. Administrative offices for the foundation or commission would be in Washington, D.C., where each responsible agency's headquarters is located, to assure a national focus for the 26 historical resources.

This alternative would increase emphasis on the preservation and on-site interpretation/visitation of each site. Funding could be augmented with fund raising programs and possibly with user fees. The responsibility to reassemble and interpret the Apollo Launch Tower at the KSC Visitor's Information Center would be assumed by the foundation or commission. Congress would also designate the 26 Man in Space sites as affiliated areas of the national park system, although they would not be national park system units. The NPS and other appropriate government agencies (like the Smithsonian Institution) would provide technical assistance in interpretive and preservation efforts.

The final alternative can actually be implemented in two ways. The first way would be to establish a new national park system unit at Cape Canaveral and the Kennedy Space Center to commemorate the first manned Moon landing and the events leading up to that achievement. The new unit would be known as America in Space National

Historical Park, providing interpretation of the Man in Space theme and preservation of the theme's resources. The park would include Launch Complexes 5/6 and 26 and the original mission control center at Cape Canaveral, and the Apollo Launch Tower at KSC. The NPS would assume on-site management responsibilities for these specific resources, while the remaining Man in Space sites around the country would be designated as affiliated areas of the national park system.



**Figure 8** Army demolition team with razed Complex 14 gantry in background.

The second implementation approach for Alternative Four would designate all 26 of the Man in Space sites as affiliated areas of the national park system. The NPS would not directly manage any of the areas, but, through cooperative arrangements, it would be responsible for directing, coordinating, and funding interpretive and preservation activities related to the Man in Space theme. New Congressional legislation would be needed for either implementation approach, to provide funding and define the NPS roles and responsibilities.

From the preservationist's perspective, Alternative Four, with the NPS establishing a new national park system unit, is probably the preferred option. Given the excellent track record the NPS has in preserving and interpreting other historical sites and facili-

ties nationwide, the protection of U.S. space history could not be in better hands. This alternative does have operational impact implications that would have to be worked out with the Air Force, but there are a variety of solutions available.

The NPS *Man in Space - Study of Alternatives* draft provides an excellent strategy to develop a comprehensive preservation and interpretation program for the historically important sites and facilities of the early U.S. Space Program. It is important that the study be finalized and delivered to Congress so the alternatives can be considered. With the twentieth anniversary of the *Apollo 11* Moon landing less than a year away, it would seem appropriate that action be taken soon by the U.S. Congress to provide for the long term protection and public availability of the American space story.

### **International Considerations**

The challenges and benefits of historic space site preservation are certainly not limited to U.S. locations. Every spacefaring nation should take stock of their historical space assets to determine the proper course of action for site protection and public interpretation. As an example, the Soviet launch complex at the Baikonur Cosmodrome for *Sputnik 1* and Yuri Gagarin's flight has historic value that is rivaled only by the *Apollo 11* launch site. This complex unquestionably deserves protection for the benefit of the people of the world.

Within the Soviet Union, virtually the entire array of launch complexes at Baikonur could arguably be declared a historic district. The long-term protection and interpretation of these space facilities is a real possibility, given the penchant the Soviets have already demonstrated for space history. The preservation of Gagarin's study in its original condition is a clear indication the Soviets are aware of the historic value that locations of the early space age hold. Considering the monuments erected to the accomplishments of the Soviet space program, it is obvious that the Russian people take pride in both their current and past space achievements.

Elsewhere in the world, there are a sprinkling of space sites and facilities of various nations that are historically important. Even if a particular space site does not have great international significance, the responsible nations should consider its value in relation to their national space effort. An example would be the early launch facilities at Woomera, Australia. Fortunately, most of the nations with a space technology tradition have a good record of historic preservation for non-space-related resources. Justification should, hopefully, not be hard to establish for the protection of appropriate space sites.

### **Conclusions and Recommendations**

In the same fashion the NPS proposes to provide overall management of U.S. historical space sites and locations, an international body should be identified to, as a minimum, act in an advisory capacity to individual nations on the preservation of historic space resources around the world. The international organization could establish a

preservation strategy that is global in scope, assuring the protection of historic sites that tell the story of the initial human thrusts into space. Like the NPS plan, the international preservation initiative could establish a worldwide theme of human exploration, free of nationalistic trappings.

The events of the early space program that once made headline news have receded far enough into the past so that a preliminary assessment can be made of their importance in the context of our civilization's history. This assessment should be the starting point in our efforts to capture physical manifestations of these earth-shaking events. Although it is difficult to look past the next crisis, government leaders around the world must be encouraged to consider the long-term benefits of historic space site preservation. Similarly, individual citizens can do much to help this cause, by working together with other interested people and organizations to raise the consciousness of the nation at large to the importance of this technological legacy. Just as the Pyramids of Egypt and the Great Wall of China symbolize stepping stones in the development of man's technology, so should the world's historic space sites serve as guideposts for future generations seeking to trace the roots of our civilization's progression into the universe.

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