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Missiles as Artifacts: The Creation of the Air Force Space and Missile Museum

by GORDON PATTERSON

On November 18, 1963, Major General Leighton I. Davis, commander of the Air Force Missile Test Center (AFMTC), ordered his director of administrative services to form a committee of officers "for the purpose of providing guidance and assistance in the establishment of an Air Force Space Museum to be located at Cape Canaveral."¹ Davis named General Harry Sands the committee's chairman. Major Robert White, who headed the AFMTC's Community Relations Office, was chosen to serve as the project manager for the proposed space museum. Seven years elapsed before the Air Force Space and Missile Museum received its official dedication. The space museum's inventory of missiles, nose cones, capsules, launch equipment, and exhibits were dedicated to preserving the memory of "the pioneers of rocketry and space whose work and vision raised men's eyes from the Earth to the stars."²

Creating the space museum was not an easy task. Like the space program that it aspired to chronicle, the history of the Air Force Space and Missile Museum reveals an interplay of competing and sometimes contradictory objectives. From its conception, the museum's proponents contended with difficult questions: Where should the museum be located? What should be depicted? What should be included in the collection? How should an air force museum represent the other military services' contributions to the space program? What relationship should the museum have with the National Aeronautics and Space Administration (NASA) and

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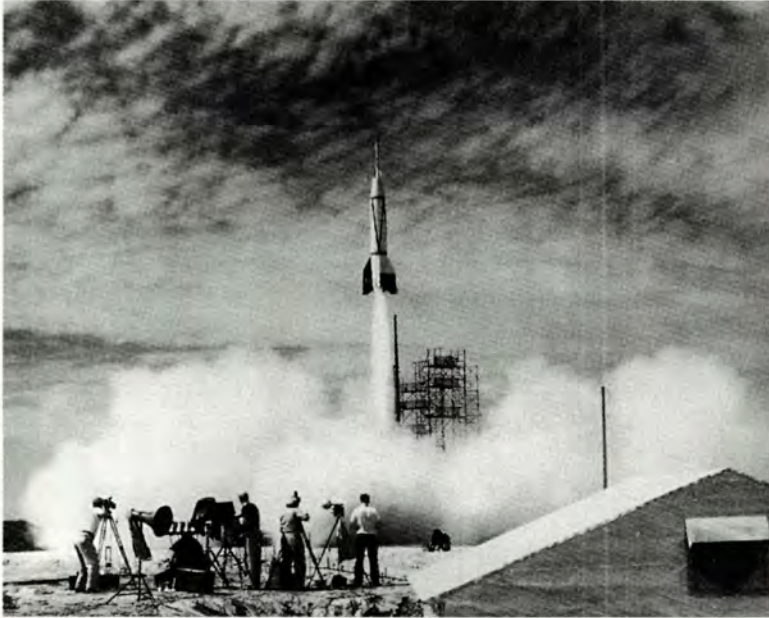
1. Special Orders, M-119, Headquarters Air Force Missile Test Center, Air Force Systems Command, Patrick Air Force Base, Florida, November 18, 1963, Air Force Space and Missile Museum Document Archive, Cape Canaveral Air Station (hereafter cited as AFSMMDA-CCAS).
2. *Florida Today*, July 25, 1970, 2B.

the Kennedy Space Center? Underfunded and with no professional staff, a cadre of air force personnel, missilemen, contractors, and volunteers confronted these issues and succeeded in launching Florida's first federally sponsored space-age attraction.³

Florida entered the space age at 9:29 a.m. on July 24, 1950, when Bumper 8, a German V-2 missile topped with an Army WAC-Corporal as its second stage, soared over the Cape Canaveral lighthouse.⁴ Later, more than one visitor to the Cape "invited to watch a missile launch . . . kept his eyes glued to the lighthouse while the real missile lifted off from an entirely different area."⁵ The handful of engineers and scientists who crouched behind sand bags during the countdown for Bumper's launch did not make this mistake.

A year earlier in May 1949, President Harry Truman signed legislation creating the Joint Long Range Proving Ground (JLRPG), which was to be located on Merritt Island and Cape Canaveral. Army Colonel Harold Turner was named head of the new facility. In May 1950, the Jacksonville-based Duval Engineering Company started construction on the first paved road and launch facility at

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3. In 1957, Joseph Yasecko opened what was probably the first space related "tourist attraction." Yasecko, an early missileman, launched his Spacarium on US 1 in Sharpes. The Spacarium closed in 1960 when Yasecko sold the collection to Charles Bell. At least one missile engine from the Spacarium was later included in the Air Force Space and Missile Museum. Ella and Joseph Yasecko, telephone interview by author, March 16, 1998.
 4. The WAC-Corporal was a sounding rocket. It was named for the Women's Army Corps and considered the "little sister" to the larger Corporal Missile. See Harry Wulforst, *The Rocketmakers* (New York, 1990), 161. Construction on the original lighthouse at Cape Canaveral began in 1843. The lighthouse was moved to its present location in 1894. Cape Canaveral was renamed Cape Kennedy following President Kennedy's assassination in 1963. Cape Canaveral Air Force Station became known as Cape Kennedy Air Force Station. There was local resistance to the name change. Governor Reuben Askew ordered the return of the name Cape Canaveral to state maps and brochures. In October 1973, the Board of Geographic Names, U.S. Department of Interior, announced it would follow Florida's lead. Cape Canaveral Air Force Station was renamed Cape Canaveral Air Station in April 1994. See A. Koller, *The History of Cape Kennedy and the Kennedy Space Center* (Titusville, 1972), 1; Milt Salamon, "Milt," *Florida Today*, November 4, 1997, 10A; Charles D. Benson and William Barnaby Faherty, *Moonport: A History of Apollo Launch Facilities and Operations* (Washington, D.C., 1978). Also available at <http://www.hq.nasa.gov/office/pao/History/SP-4204/ch7-7.html>.
 5. "Welcome to Cape Kennedy Air Force Station," Air Force Publication, 1964-1967, n.p., AFSMMDA-CCAS.



Launch of Bumper 8 on July 24, 1950. *Photograph courtesy of the Air Force Space and Missile Museum.*

the Cape. The twenty-five square miles that comprised what would become Cape Canaveral Air Station and the Kennedy Space Center was a barren scrubland consisting of saw palmetto, sea oats, and sandspurs.⁶

The army, air force, and navy competed for control of the missile program. From its beginning the JLRPG presented administrative challenges. The enabling legislation for the JLRPG charged the Department of the Air Force with responsibility for creating the range's command center. However, because the proving ground was a joint service endeavor, the command of the range could be drawn from the army, navy, or the air force. Each of the services developed its own missiles and test programs.⁷

Between 1949 and 1958 the missile test center underwent a number of administrative reorganizations. In December 1953, the

6. Marc Cleary, *The 45th Space Wing: Its Heritage, History & Honors 1950-1996* (Washington, D.C., 1997), 2-4.

7. *Ibid.*, 3.

Department of Defense contracted with Pan American World Services to operate the launch facilities at the Cape. The RCA Corporation assumed responsibility for maintaining the telemetry and tracking facilities at the Cape as well as the down-range monitoring sites.⁸ In July 1958, President Dwight Eisenhower signed Public Law 85-568 authorizing the creation of the National Aeronautics and Space Administration (NASA). Three months later NASA announced the organization of Project Mercury.⁹

General Davis's decision to form a committee to oversee the development of a space museum grew from his awareness that the founding phase of the U.S. space program was concluding. A new generation of larger rockets as well as the need for more sophisticated launch facilities led to the deactivation of the first launch complexes. Some of the launch pads were demolished. Others were assigned new uses. Unless immediate steps were taken, the physical record of the first stage of the U.S. space program would vanish.¹⁰

The deactivation of Launch Complex 26 A/B in 1963 and the planned decommissioning of Launch Complex 5/6 in 1964 served as catalysts for the space museum initiative. Pad 26 A/B had an impressive history. Construction started on the twenty-acre dual launch complex in 1956. The first launch from the complex came in September 1957. The complex was designed to serve as a test facility for the U.S. Army Redstone and Jupiter missile programs. In addition to serving the U.S. Army test program, Italian and Turkish missile crews used the launch complex for practice firings. At least thirty-six Redstone, Jupiter, Jupiter C, and Juno missiles were launched from Complex 26 A/B between 1957 and 1963.¹¹

Launch Complex 26, however, held a unique place in the history of the space program. On January 31, 1958, a modified Jupiter C missile carried Explorer I, America's first satellite, into orbit from Pad 26 A.¹² Explorer I led to the discovery of the Van Allen Radiation Belt. Four months later a Jupiter Intermediate Range Ballistic Missile (IRBM) boosted an American rhesus monkey named Able

8. *Ibid.*, 6.

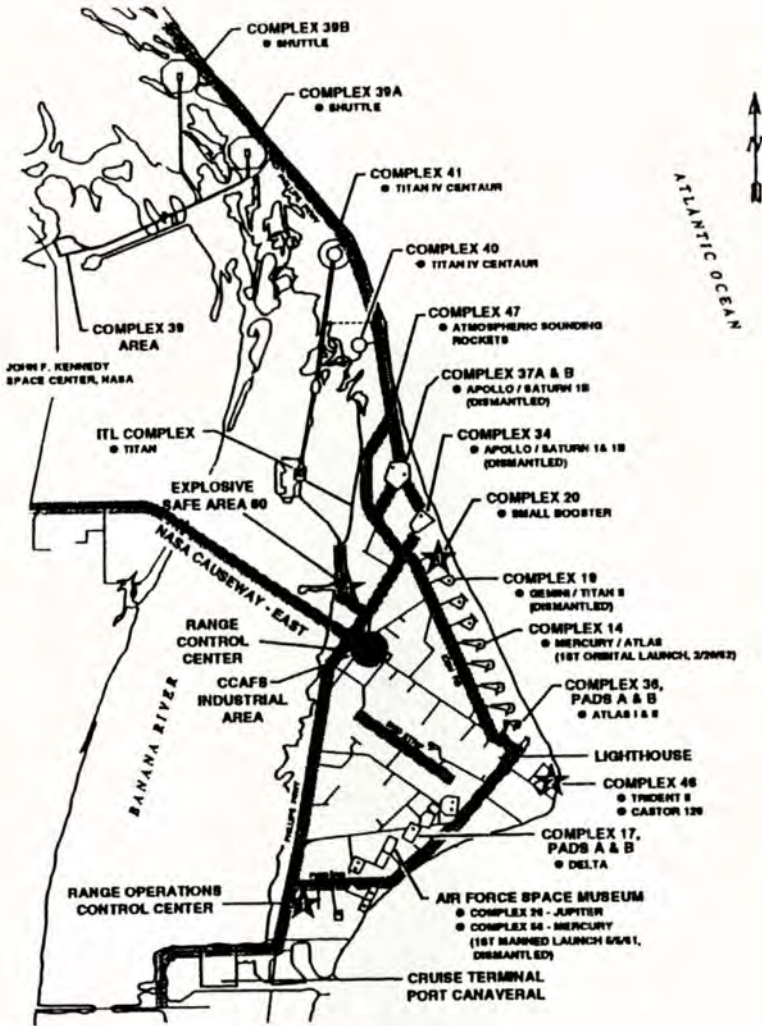
9. Eugene M. Emme, comp., *Aeronautics and Astronautics: An American Chronology of Science and Technology in the Exploration of Space, 1915-1960* (Washington, D.C., 1961), 94-105.

10. *Cocoa Tribune*, July 22, 1965.

11. Emme, *Aeronautics and Astronautics*, 51.

12. "Launches from 26A and 26B," typescript, AFSMDA-CCAS.

CAPE CANAVERAL/KSC LAUNCH COMPLEXES



Map courtesy of 45th Space Wing, Patrick Air Force Base.

and a South American squirrel monkey called Baker three hundred miles above the earth. Both monkeys survived the flight. Additional simian astronauts paved the way for the first American manned missions. On May 5, 1961, Alan Shephard became the first American to fly in space. Two months later Gus Grissom followed Shephard's lead. Both Shephard and Grissom's Mercury capsules were launched from Launch Complex 5/6, which is adjacent to Launch Complex 26 A/B.¹³

Project Mercury's success led NASA to move forward with the second phase of the manned space program. Late in 1961 the plans for Project Gemini were completed. Gemini was officially announced on January 2, 1962. The two-man Gemini capsule required a more powerful missile than the Army Redstone to lift it into orbit. NASA officials chose the Titan II as the launch vehicle. An even more powerful generation of missiles that included Saturn, Saturn 1B, and the Saturn V were already being prepared for their first missions. In 1969, a Saturn V rocket carried the crew of Apollo XI to the moon for the first lunar landing.¹⁴

Early in 1961, Major General Harry Sands, then vice commander of the Air Force Eastern Test Range, proposed the idea for creating a space museum at Cape Canaveral.¹⁵ Sands's superior, General Leighton Davis, passed the proposal to Air Force Headquarters at the Pentagon with a request for funding. The original plan called for locating the museum at Launch Complex 5/6 with the completion of the Redstone sub-orbital phase of the Mercury Project. Launch Complex 14 was to be used for the orbital Atlas powered Mercury missions.¹⁶

In January 1964, General Sands succeeded General Davis as range commander. Neither Davis nor Sands had forgotten the museum project. As one of his last actions, Davis named Sands to head the advisory committee charged with planning the space museum. General Sands in turn directed Major Robert White, range community affairs officer, and his assistant, Arthur Hicks, to formulate

13. Public Affairs Office, Eastern Space and Missile Center, *From Sand to Moondust: A Narrative of Cape Canaveral, Then and Now*, comp. from air force and NASA Documents, 45 SPW Pamphlet 19, Department of the Air Force, 45th Space Wing (AFSPACECOM), Patrick Air Force Base, March 1972, reprinted circa 1991, 32.

14. *Ibid.*, 28.

15. Walt Mack, "Complex 26," *All Florida Magazine*, January 30, 1966, 13.

16. "Cape Kennedy Starts Space Museum Plans," *Air Force Times*, October 28, 1964, n.p., clipping file, AFSMMDA-CCAS.



Arthur Hicks in front of launch console in bunker at Pad 26 A/B. *Photograph courtesy of the Air Force Space and Missile Museum.*

a plan for the museum. No funds were appropriated for the museum project. "The Air Force," Art Hicks later observed, "is very economy minded, so we had a good idea, but we had no money."¹⁷

Seven months later White sent General Sands a memorandum outlining his progress. The space museum was taking shape. White reported that he and Hicks were "well along in gathering items of historic interest."¹⁸ They had found that there was considerable support for the space museum throughout the air force, which noted that officials at the Air Logistics Command, the Air Force Museum at Wright-Patterson Air Force Base in Ohio, and the different sections of the Eastern Test Range had been "extremely cooperative in helping to locate items, arranging their speedy

17. Don Meitlin, "Complex 26: Kittyhawk of the Space Age," *Today's Sunrise*, n.d., clipping file, AFSMMDA-CCAS.

18. Robert White to ETG (General Sands), memorandum, July 10, 1964, AFSMMDA-CCAS.

transfer to us and assisting in every possible way."¹⁹ Only NASA expressed hesitancy about the museum. White told Sands that he planned to make "no further overtures to NASA on this project."²⁰

Misunderstandings, however, were to plague the relationship between the space museum's boosters and NASA. Part of the problem was that no one in the air force had formulated the space museum's mission. Without any formal authorization, White had begun to collect nose cones, small rockets, and missiles. The first sign of friction between the space museum and NASA came when Major White requested that NASA donate a Mercury capsule. NASA officials refused. White cautioned against reading too much into NASA's decision. The Washington-based officials who led the manned space program did not have a clear idea of the space museum. He told General Sands that he believed that once the air force museum was operational that "they [NASA] will come to us with an offer of a capsule."²¹ Meanwhile, White's team busied themselves refurbishing the blockhouse on Launch Complex 5/6, which had been deactivated in January 1964.

White planned to use the blockhouse as an Air Force Visitor's Briefing Center and as a temporary home for the space museum. The directors of the Air Force Museum at Wright-Patterson Air Force Base had suggested this.²² This approach had several advantages. Since the Department of the Air Force at the Pentagon had not given its official go-ahead for the space museum, White was forced to muster whatever resources he could find for the museum. If the blockhouse was used as an official Air Force Visitor's Briefing Center, White could justify paying for the renovations out of the Community Affairs budget.

White had at least two additional reasons for preparing the July 10 memorandum. First, General Sands was scheduled to give up his command of the Eastern Test Range on July 16. White wanted the general to endorse his summary of what he had done to advance the space museum. Moreover, he hoped Sands would approve his plans for the future. "Inasmuch as many facets of the above programs, resulted from informal discussions with you," White wrote at the end of the memorandum, "I would appreciate a note indicat-

19. *Ibid.*

20. *Ibid.*

21. *Ibid.*

22. *Ibid.*

ing your concurrence so that we can proceed as planned without interruption during the changes in command."²³

White had good reason to seek General Sands's approval. The work on Launch Complex 5/6 and Complex 26 A/B had proceeded beyond the requirements for a Visitor's Briefing Center. An Army Redstone missile was being shipped from Huntsville to Cape Kennedy. The launch tower from Pad 26 had already been moved to Complex 5/6 and readied for the Redstone's arrival. Simultaneously, White was organizing the shipment of an eighty-two-foot-long Atlas D missile to the Cape from Sheppard Air Force Base in Texas.²⁴

Transporting the Atlas D training missile from Texas to Florida opened a new use for the space museum. White proposed to use the Atlas caravan as an air force public relations tool. The missile would follow a route so as to "reap maximum Air Force publicity for the missile program."²⁵ "We are planning," White explained,

each overnight stop in a medium-sized town, at which time the missile technicians accompanying the truck will explain the Atlas and hand out prepared materials. The truck will be equipped with flood lights and a sound system. A trained speaker with slides, films and brochures will precede the missile by a short time, making appearances before Rotaries, Chambers of Commerce and other civic organizations enroute.²⁶

White happily reported that the Air Force Recruiting Service was enthusiastic about the caravan and planned to make full use of it in their recruiting efforts. "The Air Force spent a little on gas," Major White concluded, "but we got a million dollars' worth of publicity."²⁷

General Sands approved of White's actions. In less than a year White had taken the idea of creating an air force space museum and turned it into a reality. With virtually no financial support, White's team had started to collect missiles. Workers were renovat-

23. Ibid.

24. Ibid.

25. Ibid.

26. Ibid.

27. *Daytona Beach Morning Journal*, January 22, 1966.

ing the blockhouse at Complex 5/6. Sands returned the memorandum to White with a three-word hand-written message attached to it: "I concur completely."²⁸

General Sands gave up his command of the Eastern Test Range on July 16, 1964. Less than a month later the Atlas D left Texas for its journey to the Cape. During the next two years White and Hicks worked tirelessly to build the museum. White envisioned a museum that memorialized the pioneering moments of the space program. Lacking both official authorization and funds, White and Hicks let it be known that they were looking for old missiles.²⁹

Throughout 1965 White and Hicks accumulated thirty missiles for the space museum's collection.³⁰ Contributors ranged from USAF base commanders to a junior high school principal. The acquisition of a X-10 Navaho missile illustrates the collection's haphazard growth. In 1965, Walt Robshaw, editor of the Brevard edition of the *Orlando Sentinel*, contacted Bob White when he learned that the Air Force wanted to build "a complete space museum." The air force Navaho was missing from the collection. The Navaho, a 24,000-pound air-breathing ICBM with a range of 5,500 miles, was first fired from the Cape in 1955. The Air Force terminated the Navaho program in 1957. Firings continued until 1959 when the inventory of Navahos was exhausted.³¹ None of the missiles were thought to exist.

Robshaw, however, recalled that there used to be an X-10 Navaho in front of Clearlake Junior High School. He was right. In August 1959, a teacher saw a Navaho in the disposal yard at Patrick Air Force Base. Clearlake's principal, Clyde E. Stephens, thought the "bird" would make an impressive marker for the school. A few weeks later the Florida Development Commission approved the school's application for the missile. "A unique aspect of the situation," principal Stephens noted, "is that the missile in its stripped down condition was estimated to be worth \$750,000, or more than the cost of the modern 38-classroom school in front of which it stood."³²

28. Robert White to ETG (General Sands), memorandum, July 10, 1964, AFSM-MDA-CCAS.

29. Staff Sergeant Robert Dwyer and Airman First Class Clyde Vergessen from the 6555th Test Wing were loaned to the project. See Ted R. Sturm, "Wanted: Old Missiles," *Air Force Times*, September 1965, 25, clipping file, AFSMMDA-CCAS.

30. *Baltimore Sun*, October 6, 1965.

31. *Orlando Sentinel*, August 16, 1964.

32. *Ibid.*

By 1961, the venerable Navaho again stood in the way of progress. Bob Blubaugh, Stephen's successor as principal, explained that "there were some safety factors involved."³³ School children liked to climb on the Navaho's smooth torso. The rusting missile had begun to show signs of age. The decision to expand the school's parking lot gave school officials a convenient excuse to remove the Navaho. County workers broke the missile into three pieces and removed it from the school. Robshaw's phone call put White and Hicks on the Navaho's trail. They found the Navaho lying in a field next to a warehouse on State Road 520.³⁴ Finding old missiles like the Navaho opened a host of challenges. The next step was transporting the missiles to the Cape. Since the Navaho was still in Brevard County, White and Hicks could use local volunteers to move the missile. Unfortunately, the Navaho was not complete. The Navaho's huge finned booster and ramjet engines were missing. The booster had fallen away from the missile when the Navaho's upper-stage ramjet engines cut in. By chance, White and Hicks discovered a "rusted booster lying on its side in a defunct tourist attraction on US 1."³⁵ Friends at Florida Power and Light purchased the booster for the museum.³⁶

Once the Navaho and its booster reached the museum, restoration began. "Having the entire missile," Sergeant Geoffrey Sillifant recalled, "was not enough. Damaged and lost parts" were needed "before work on the Navaho could proceed."³⁷ Lacking a budget, White and Hicks either begged or borrowed whatever they needed. North American Aviation, prime contractor on the Navaho, donated replacement engines and other parts. Millwrights and sheet metal mechanics from Pan American's Guided Missile Division volunteered their time to restore the missile.³⁸

The huge red and white Navaho was in good shape. More often, White and Hicks were not so lucky in their finds. In 1965, the Chamber of Commerce in Homestead, Florida, donated a Snark ICBM to the museum. The Snark, a Strategic Air Command (SAC)

33. Ibid.

34. Ibid.

35. Sergeant Geoffrey G. Sillifant, "Step into the Near Past," United States Air Force News Release, Release Number 233-68, August 21, 1968, 9, in clipping file, AFSMMDA-CCAS.

36. Ibid.

37. Ibid.

38. Air Force Accession Register, 1964-1971, AFSMMDA-CCAS.

bombardment missile, was in "such bad shape" that volunteers treated it as a "space age jigsaw puzzle" when it reached the missile "graveyard" adjacent to Pad 26.³⁹

None of the missiles were designed for permanent display. The Atlas D, which traveled from Texas to the Cape, posed a formidable challenge. Unlike the Navaho and Snark, the Atlas's "skin" was so thin that it would collapse unless it was kept under constant pressure. As a stopgap measure, White and Hicks pumped the missile full of nitrogen. Later, they hoped to raise the \$20,000 needed to "stuff it with Styrofoam."⁴⁰

There was no time to develop a detailed plan for acquisitions and restorations. No single person appears to have been responsible for the idea that the missile collection would be the museum's focal point. "After all," Major White explained to a reporter from an air force publication, "we are marking the milestones of the space age for coming generations."⁴¹ Funding would have to come later. "We aren't," White acknowledged, "turning down any hardware."⁴² Missiles were disappearing each day. If the space museum was going to present the "milestones of the space age," the missiles had to be acquired. Sometimes White and Hicks were lucky and the missiles were in good condition. Some were in terrible shape. The museum could not afford to be choosy. "We don't care what kind they are," White explained. "Even those that were not so successful have contributed in some way to our knowledge about space."⁴³ In any case, more missiles were arriving each day.

Finding and restoring missiles were only two of White's worries. The space museum's relations with NASA reached a crisis point in 1965. The absence of official air force approval for the space museum exacerbated the situation. NASA's plans for its own visitor center also may have contributed to the rift. White and Hicks' prized collection of Atlas, Pershing, Bullpup, Snark, Thor, Navaho, Quail, and other pioneering missiles may have been the final straw. The boosters of the space museum viewed the growing array of ancient missiles as a priceless treasure. NASA was interested in portraying the space program's future, not its past. The

39. "Cape Space Museum: An Invitation to the Past," *Pan Am Clipper*, August 1967, 6.

40. *Daytona Beach Morning Journal*, January 22, 1966.

41. Sturm, "Wanted: Old Missiles," 25.

42. *Daytona Beach Morning Journal*, January 22, 1966.

43. Mack, "Complex 26," 13.

space museum's collection of thirty ancient rockets, which White and his cohort had "salvaged off the junk and surplus heaps," stood in sharp contrast to NASA's projects at the Kennedy Space Center.⁴⁴

Whatever their reasons, NASA administrators decided to keep control of Launch Complex 5/6. It is unclear when NASA made this decision. Lacking any official status, the agreements between the Air Force Space Museum and NASA were unwritten. Work continued on the parking and display areas at Launch Complex 5/6 in May 1965.⁴⁵ By October the site of the space museum had changed. NASA officials decided to develop their own plan to "memorialize" Launch Complex 5/6.⁴⁶ This decision forced White to shift the space museum's location to Launch Complex 26 A/B.

White had hoped the space museum would be open for Sunday drive-through tours in 1965. NASA's decision was a setback. "We are having," White admitted, "a problem getting the funds" for the necessary improvements.⁴⁷ White, however, put an optimistic interpretation on NASA's decision. NASA's renewed interest in Pad 5/6 might help solve the problem of making both launch complexes accessible to the public. In his 1964 memorandum to General Sands, White recognized this problem.

The location of the air force space museum was perhaps White's greatest challenge. White and Sands believed that there could be no better setting for the museum than the launch pads at Cape Kennedy Air Force Base.⁴⁸ The historical value of placing the space museum at the Cape was obvious. The difficulties in finding a way to make the museum accessible to the public were equally clear. Locating the space museum on a military base posed a number of vexing security questions. These issues were made more complex because Cape Kennedy Air Force Base was a joint military and civilian test facility. Army, navy, and air force tests were being conducted there. NASA launched two unmanned and ten manned Gemini missions from Complex 19 between April 1964 and November 1966.⁴⁹ Balancing safety and security concerns with the

44. *Miami Herald*, August 4, 1965.

45. "Pershing will be Installed In Air Force's Cape Museum," *Martin Times*, May 21, 1965, clipping file, AFSMMDA-CCAS.

46. *Melbourne Daily Times*, October 28, 1965, 15.

47. *Ibid.*

48. From late 1963 until 1974 the missile complex was known as Cape Kennedy Air Force Base.

49. Cleary, *The 45th Space Wing*, 48.

need for public access to the museum was a complex problem. In 1964, before NASA reversed its decision on Launch Complex 5/6, White had recommended three possible solutions. First, the south gate of Cape Kennedy Air Force Station could be moved to the north "so that Pad 5/6 is open to the public on a daily basis." Second, he proposed "clearing the field to the west of Pad 5/6" and creating a parking area for Sunday visitors. Finally, he suggested enlarging the display area in front of the Tech Lab at Patrick Air Force Base on State Road A1A.⁵⁰

Moving the gate was the optimum solution for the Air Force Space Museum because it insured public access. There was another advantage in this recommendation. It was rumored that NASA was planning its own museum. Moving the gate, White told Sands, "would put us in a highly favorable competitive position with respect to the proposed NASA museum."⁵¹ White did not know that in less than a year NASA would renege on its transfer of Pad 5/6 to the space museum.

General Sands favored moving the gate. His notes attached to the July 10, 1965, memorandum reflect this. Paving the field adjacent to the launch pads, he wrote, "would be fine after we move the gate."⁵² Nothing came from these discussions. A week later Sands took up a new command leaving White to follow through on the recommendations. Fourteen months later the base's south gate remained in its original place and the parking lot was not constructed. The opening of a new bridge across the Indian River, however, allowed the space museum to "capitalize on the future heavy A1A tourist traffic."⁵³

In retrospect, NASA's decision to "memorialize" Pad 5/6 proved a blessing for the space museum. Air Force officials were put on notice that the space museum was going to have competition. NASA possessed the resources needed to make the complex accessible to the public. White saw this as an opportunity for the space museum. He persuaded NASA's project managers to share the road construction costs. "This will lighten our expenses," White

50. White to ETG (General Sands), memorandum, July 10, 1964, AFSMMDA-CCAS.

51. *Ibid.*

52. *Ibid.*

53. *Ibid.*

explained, "and make it sooner [sic] that we can open the museum."⁵⁴ The space museum and NASA's proposed historical center would operate independently. The road would permit visitors to drive past both Pads 5/6 and 26 A/B. Eventually, White hoped that Sunday visitors would be able to get out of their cars and "walk around." They needed a parking lot before this could happen. "Unfortunately," White acknowledged, "this is a long way off."⁵⁵

White hoped that the space museum would be operational before his scheduled retirement in 1966. "It would be a fitting climax to my Air Force career," he explained, "and I could retire without feeling that I had left an important job unfinished."⁵⁶ In the weeks before his retirement, White drew up a three-phase plan for the space museum. Phase 1 called for widening the access road. Planners set a target date of July 15, 1966, for opening the "missile park" for Sunday drive-through tours. During Phase 2, a three-hundred-car parking lot would be constructed by January 1967. This would allow Sunday visitors to stop and examine the missiles in detail. Sixteen of the twenty major missiles on display lacked permanent mounting. Walk-ways and restrooms would have to be constructed for the tourists. Signs needed to be placed on each of the missiles. Most important of all, "the USAF Space Museum must be formally recognized as a mission requirement of AFETR (Air Force Eastern Test Range) in order to submit budgets, submit manpower requirements and draw equipment."⁵⁷ The paperwork requesting formal recognition had already been forwarded to the Pentagon. During Phase 3 the renovated blockhouse at Launch Complex 26 would be opened to the public. The blockhouse would contain exhibits and a refurbished vintage MOD I Atlas/Thor computer programmed to simulate launches.

The road-widening project moved at a glacial pace. Engineers visited the launch complex in February 1966. On April 18, 1966, Major General Robert Warren, Air Force Chief of Staff, approved White's idea. In a terse, two-paragraph memorandum General Warren authorized the Air Force Eastern Test Range (AFETR) "to establish an Air Force Space Museum at inactive Launch Complex 26." The commander of the AFETR was instructed to prepare a

54. *Melbourne Daily Times*, October 28, 1965, 15.

55. *Ibid.*

56. Sturm, "Wanted: Old Missiles," 25.

57. "Phase II: Parking at Museum During Drive-Thru Tour," AFSMMDA-CCAS.

budget outlining the "manning and financial requirements of the museum, mindful of the present austerity of Command manpower and financial resources."⁵⁸ White's dream of a "space museum" where the public could visit the "Kitty Hawk of the Space Age" was becoming a reality.⁵⁹

The museum opened on August 28, 1966. Air Force officials estimated that 2,170 people participated in the museum's first Sunday drive-through tour.⁶⁰ A month earlier, NASA had launched its own daily guided tours. Buses operated by Trans World Airlines allowed the public to visit the Kennedy Space Center.⁶¹ Local response was enthusiastic. The editorial writer for the *Orlando Sentinel* noted that the tours complemented one another. NASA's bus tour of the sprawling Kennedy Space Center allowed "visitors a peep into the future." The space museum offered a different perspective, linking the space museum with its dramatic past.⁶²

General Warren's order authorizing the space museum initiated a new stage in the museum's development. Bob White retired in September 1966. Lt. Colonel William T. Coleman Jr. replaced White as director of information at Patrick Air Force Base. Arthur Hicks assumed the position of the museum's director.⁶³ The museum had never had a clear plan for its development. Official recognition brought new administrative and professional responsibilities. Hicks and Coleman drafted a mission statement. They declared that the museum existed "to preserve for the American public the hardware and spirit of United States' rocketry." Additionally, they promised that the museum's displays and programs would further "aerospace power education by providing details of the past and present developments in the space program."⁶⁴

Official recognition brought new resources. Six uniformed air force personnel were assigned to the museum in 1967.⁶⁵ Base officials authorized funding for physical improvements. Workers fin-

58. Robert H. Warren, Major General to AFETR (ETG), April 18, 1966, AFSMMDA-CCAS.

59. "Kitty Hawk of the Space Age," The Air Force Space and Missile Museum Proposal, typescript, n.d., 8, AFSMMDA-CCAS.

60. *Orlando Sentinel*, September 4, 1966.

61. *Miami Herald*, July 7, 1966.

62. *Orlando Sentinel*, September 4, 1966.

63. "Space Museum Becoming a Major Attraction," *AFSC Newsreview*, Air Force Systems Command newsletter, April 1967, 10.

64. "Kitty Hawk of the Space Age," 8.

65. "Space Museum Becoming a Major Attraction," *AFSC Newsreview*, 10.



This cartoon appeared in the *Orlando Sentinel*, September 12, 1966. Used by permission.

ished the long-planned parking lot in time for the base's celebration of Armed Forces Day in May 1967. Renovations on the blockhouse were nearly completed by year's end.

Considerable challenges remained for the space museum. The museum's first supporters were motivated by their desire to preserve a record of the space program. None possessed professional experience in how to organize a museum. White and Hicks had simply put out a call for antiquated missiles. They were grateful for whatever they were given. No guidelines existed on what was to be collected. Consequently, the museum's collection lacked a coherent plan for development.

Hicks launched the space museum's official accession register in 1967. The register documents the museum's acquisitions. By 1971 the museum's collection had grown to more than one hundred objects. Most of the 126 items collected between 1964 and 1971 consisted of missiles, boosters, rocket engines, and recovery vehicles. Most were transferred to the museum from air force facilities. In 1964 and 1965 both the army and navy contributed missiles to the collection. NASA appears only twice in the register. In 1965, NASA donated a Jupiter IRBM with its launcher. Five years later NASA's Houston Center contributed a small quantity of Apollo space food.⁶⁶

The accession register contains both omissions and a handful of curiosities. In 1967, a three-hundred-year-old Spanish cannon was transferred to the museum from Patrick Air Force Base.⁶⁷ There is no record of this item on the accession list. Also listed are gifts from private individuals. General Sands gave the museum a picture of the Mercury Atlas autographed by John Glenn as well as a pair of models of the Navaho missile. There are more items connected with the Navaho than any other missile. Undoubtedly, the strangest item on the accession register came in July 1970, when the Smithsonian transferred "Indian Bones" to the space museum. No explanation was given.⁶⁸

Nineteen hundred sixty-eight marked a year of transition for the space museum. In January, nearly two hundred missilemen and veterans of the space program gathered at Pad 26 to commemorate the tenth anniversary of Explorer 1. Between January and May, an average of 13,000 tourists visited the museum each week. The partially renovated blockhouse was open to the public. Newly poured concrete walk-ways allowed visitors to examine the missiles up close. An American version of the German V-1 "buzz bomb," the JB-2 missile, was added to the collection. And finally, after three years of hard work the restorations on the ancient Navaho were complete.⁶⁹

66. Air Force Accession Register, 1964-1971, AFSMMDA-CCAS.

67. "Old Spanish Cannon is Space Museum Display," *AFSC Newsreview*, July 1967, n.p. The cannon, which was found in a "former pirate stronghold," was donated to the Air Force Missile Test Center at Patrick Air Force Base in 1953. Peter Bleakley, the British Island Commissioner on Grand Turk Island (then part of the British West Indies), was responsible for the gift. See Press Release, Public Information Office, Air Force Missile Test Center, April 10, 1953, AFSMMDA-CCAS.

68. Air Force Accession Register, 1964-1971, AFSMMDA-CCAS.

69. James H. Denmark, "Complex 26," *All Florida Magazine*, June 16, 1968, 16.

Don Engel became the museum's first curator in 1968. Art Hicks remained on board as Engel's assistant. Engel had high expectations for the museum. He hoped to convince NASA to include Launch Complex 5/6 in the space museum.⁷⁰ In the meantime, Engel and his air force assistant, Master Sergeant Charles Sweeting, strove to enlarge the collection. "We're just getting started here," Sergeant Sweeting explained. "Our plans call for a complete indoor exhibit and a fully renovated blockhouse."⁷¹

In 1970, Engel initiated a new phase in the museum's development. He used the twentieth anniversary of Bumper 8 as the occasion for the official dedication of the museum. "You have to hand it to the Air Force," the editorial writer for the *Orlando Sentinel* declared. "Their fine museum at Cape Kennedy . . . was started from scratch and has been developed much along the same line—little money and lots of proud effort."⁷² The planned opening of Disney World in 1971 and the anticipation of millions of tourists created a unique opportunity for the space museum. Engel believed that an expanded space museum would draw many of these tourists to the Cape.

Engel envisioned the creation of a "Space Park" at Cape Kennedy Air Force Station. He used the museum's dedication as an opportunity to present Colonel Walter C. Vitunac, Cape Kennedy Air Force Station's commander, with a formal request for the creation of a "Space Park." Colonel Vitunac endorsed the proposal.⁷³ In October, Engel presented a detailed outline of his proposal to General David Jones. The museum desperately needed new facilities. "Most of the existing plant structures, i.e. the blockhouse, gantry and service buildings," Engle explained, "serve better as exhibits than as exhibit, storage and work areas." The current visitor load already exceeded the museum's capacity. Engel and Hicks had surmounted innumerable problems through "ingenuity . . . and modifying the present structures."⁷⁴ Additional modifications were not possible.

70. Ibid.

71. Don Norton, "Rocketry's Action Museum," *Rendezvous*, March 1968, n.p., clipping file, AFSMMDA-CCAS.

72. *Orlando Sentinel*, July 26, 1970.

73. Walter Vitunac to General Jones, memorandum, July 30, 1970; James Smith to General Jones, memorandum, August 5, 1970, AFSMMDA-CCAS.

74. "Justification of Additional Building Requirement," October 1970, typescript, AFSMMDA-CCAS.

The first step in Engel's plan was the construction of a one-hundred-person briefing room that would "permit handling large and separate VIP groups simultaneously." The new briefing auditorium would allow new slide and film presentations. The second step in Engel's plan called for the creation of new exhibit space. "The collection and preservation efforts of a museum are valueless," the report concluded, "if the treasures in their custody cannot be presented effectively." The space museum's exhibits were "cluttered and overcrowded." New exhibition space would allow the museum to remedy this problem and undertake new projects.⁷⁵

Engle saved his most important recommendations for its concluding paragraphs. Throughout its history little attention had been given to the space museum's educational mission. "Much of the hardware by itself," Engel declared, "is meaningless to the laymen." He recommended that an art shop and education office be established that would present the history of the space program in a "meaningful setting . . . which will be both exciting and educational."⁷⁶

Engel's vision of the space park and the space museum as an "educational" center languished for nearly a year. In January 1972, Engel indicated that the proposal was "still alive" but bogged down in safety concerns. He reported that "General Jones is aware of this [safety issue] as are Real Property people, Facilities, Safety, etc." Tests in the Polaris and Poseidon area and the use of Launch Complex 17 for Deltas placed the space museum and space park "in [the] launch danger zone." Engel put the best face possible on the situation. Certainly, expanding the space museum and creating the space park presented a number of problems. The problems presented an opportunity to examine the museum's mission and possibilities. "At least it won't go down the crack by default or from lack of consideration," Engle concluded, "and compromise areas may be developed."⁷⁷

What Engel did not know was that General Jones had already decided to shelve the proposal. In March 1972, Jewell Thompson, Chief of the Programs Division, prepared a Memorandum for the Record. Thompson informed Engel of the general's decision. The

75. *Ibid.*

76. *Ibid.*

77. Arthur Hicks for Don Engel, "Space Park Proposal Status," memorandum, January 14, 1972, AFSMDA-CCAS.

space museum's new facilities were relegated to the list of projects to be considered during the next twenty years.⁷⁸

There was nothing Engel could do. From the beginning the location of the space museum had represented both an opportunity and a challenge. The American space program had begun at the Cape. Simultaneously, Cape Kennedy Air Force Station and the adjacent Kennedy Space Center were active launch sites. This meant that safety requirements would inevitably restrict public access to the museum.⁷⁹ Without assured visitor access the space museum could not develop.

In July 1972, Engel prepared a somber assessment of the space museum's current status. They desperately needed a painting and restoration plan. The Navaho was fading. The Snark was corroding. Eighteen missiles were in desperate shape. Even the flag pole was rusting. They needed to take immediate action. Some of the exhibits were past repair. Restoration of an X24-A lifting body "space plane," Engel explained, "would be prohibitively costly. I suggest that when it becomes unsightly it be salvaged."⁸⁰

The deterioration of the X24-A revealed the magnitude of the challenge facing the space museum. None of the missiles had ever been intended for permanent display. Preserving the missiles against the Atlantic's salt breezes would require considerable expenditures. Department of Air Force budget officers required justification for funding increases. Engel and his successors found themselves caught in a dilemma. The only way to increase funding was to attract more visitors to the museum. Safety concerns, however, prevented the space museum's development as a tourist attraction. Unless these problems were resolved, the budget planning report for fiscal year 1973-78 concluded, "the Museum can only continue to operate at a decreasing rate of performance."⁸¹

78. Jewell W. Thompson, "FY:74 MCP Project-Air Force Museum, CKAFS," Memorandum for Record, March 23, 1972, AFSMMDA-CCAS.

79. Twenty-five years later this remains the case. In 1997, the Air Force Space and Missile Museum was closed for five of twelve months because of launch activities. Emily Perry, interview by author, October 31, 1997.

80. Don Engel, "Memo for the Record," July 13, 1972, AFSMMDA-CCAS. The X24-A was a prototype for the Space Shuttle. Film footage of an X24-A dropped from a B-52 was used in the television program *The Six Million Dollar Man*. Emily Perry and Roger McCormick, interview by author, December 12, 1997.

81. "Five Year Facilities Program, FY 1973-1978," typescript, AFSMMDA-CCAS.

The Air Force Space and Missile Museum continues to exist twenty-five years after the abortive attempt to create an "educational and exciting" space park. The strengths and weaknesses of the space museum have remained much the same. On the one hand, safety and security requirements restrict visitor access. The missiles continue to corrode and rust. In 1997, the explosion of a Delta missile dropped toxic debris on the space museum and forced its closing during the clean-up. Protests over NASA's Cassini mission to Saturn caused the museum's closing during the summer and fall.⁸² On the other hand, a hard-working and committed group of fifty-five veteran missilemen and volunteers devote countless hours to preserving the missiles and exhibits. In 1994, a professionally trained curator was hired to direct the museum. New displays have been developed.

On October 15, 1997, the space museum received its newest addition. Brigadier General F. Randall Starbuck, commander of the 45th Space Wing, participated in the dedication of a copper-domed gazebo adjacent to the museum's parking lot. Thirty years earlier the completion of the parking lot opened the museum to a generation eager to see the history of the space age. The gazebo's copper dome was the original roof of the Cape Canaveral Lighthouse. In 1995, the Coast Guard decided that the lighthouse's one-eighth-inch-thick copper roof was too expensive to restore. A subcontractor decided to sell the copper "to finance an employee party."⁸³ The vigilance of a senior environmental engineer at Johnson Controls and the work of volunteers led to the cupola's restoration. The copper dome was saved and placed beside the missiles. "The lighthouse," Emily Perry, curator of the space museum explained, "remains a faithful beacon for local mariners and a precise reference point for all launches from the Cape and Kennedy Center."⁸⁴ It is fitting that the dome of the lighthouse that early visitors to the Cape sometimes mistook as a missile should find a resting place in the rocket garden.

Like Cape Canaveral, the Air Force Space and Missile Museum is a study in contrasts. Past, present, and future converge there. Much of the Cape is a wildlife preserve and bird sanctuary. During

82. In August 1998 the base was placed on a Threatcon (Threatening Conditions) Alpha Alert status. Public access to the base is closed.

83. *Florida Today*, November 4, 1997, 10A.

84. *Ibid.*

the day visitors sometimes see solitary armadillos moving among the rockets. At night raccoons raid the museum's garbage cans. Space history continues to be written across the Banana River at the Kennedy Space Center and at the launch complexes at the Cape. The space museum's ancient missiles are a silent testament to the "work and vision [that] raised men's eyes from the Earth to the stars."⁸⁵ It remains an open question whether this "Kitty Hawk" of the space age will be preserved for future generations.

85. *Florida Today*, July 25, 1970, 2B.