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**JOHN F. KENNEDY SPACE CENTER
UNIVERSITY OF CENTRAL FLORIDA**

KSC HISTORY PROJECT

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ABSTRACT

The KSC History Project focuses on archival research and oral history interviews on the history of Kennedy Space Center (KSC). Related projects include the preparation of a precis and chapter outline for a proposed book-length narrative history, a bibliography of key primary and secondary resources, a brief monograph overview of the history of KSC, and a monograph on the history of safety at the Center. Finally, there is work on the development of a web page and a personal history data base associated with the oral history project. The KSC History Project has been a joint endeavor between Henry C. Dethloff and Dr. Noble Lee Snaples, Jr.

KSC HISTORY PROJECT

Henry C. Dethloff

Introduction

John F. Kennedy Space Center, organized as an independent National Aeronautics and Space Administration (NASA) Launch Operations Center on March 7, 1962, is strategically situated at the apex of NASA's programs for the exploration and development of space. *Liftoff* at KSC is the most important and visible milestone in NASA space program development. Because Kennedy Space Center has been so omnipresent in the total story of NASA and space exploration, it, perhaps more so than other NASA Centers has been in the focus of the national (and global) media and press. A public presence has affected its history more so than that of other NASA facilities. External and public relations, a stress on safety, and on accommodating and educating the media, NASA's customers, and the general public have been an integral part of KSC's history.

KSC has been on the verge of NASA's interface with other NASA Centers. KSC has an historical interface with the Air Force and other government agencies and has pioneered in creating an integrated space community. KSC also has been on the leading edge of NASA's interrelationships with international partners and associates, and with the broader global community. And KSC has pioneered in NASA's changing relationships with its contractors, and with the private sector and NASA payload and launch customers.

John F. Kennedy Space Center has a very rich and complex history which considerably predates its founding, and which, in many ways is integral to the historic role of Cape Canaveral as a milepost and way station by which Western civilization came to the New World. As Cape Canaveral became a milepost and a way station in the European exploration of the New World five hundred years earlier, Cape Canaveral's Kennedy Space Center has become Earth's stepping stone and way station to space.

An Historical Overview

Cape Canaveral, a protrusion of land from the Florida peninsula into the Atlantic first encountered by European explorers about 1500, became a milepost and a way station for the European discovery and exploration of the New World. Half a century later the Cape resumed that role as a milepost and a way station in the new age of Off-World planetary discoveries and the exploration of space. "Space," commented Kennedy Space Center's first center Director, Kurt Debus, perhaps reflecting on the common heritage of the New World explorers and those engaged in space and planetary exploration, "is not something new. It's part of the total environment, and we've been looking for the total environment ever since we looked out of caves at the stars." Ponce de Leon, who explored the area around Cape Canaveral in 1513, and multitudes of aerospace engineers, scientists, technicians, administrators, businesses, and their associates throughout the old world and the new, through NASA, the National Aeronautics and Space Administration, share a common bond in the continuing exploration of the total human environment.

First organized in December 1959, as the Launch Operations Directorate under the authority of the Marshall Space Flight Center located in Huntsville, Alabama, NASA's John F. Kennedy Space Center became the Launch Operations Center at Cape Canaveral on March 7, 1962. Twelve years earlier, in July 1950, an Army rocket team launched the first long-range missile, utilizing a refined version of a German World War II era V-2 rocket and a second-stage American WAC (Without Any Control)-Corporal rocket from Cape Canaveral. By the close of the decade American space vehicles, fired from the Cape, had taken the United States through the threshold of space. Just as Cape Canaveral was geographically situated to mark the way for the European exploration of the Americas, so the Kennedy Space Center is strategically situated at the apex of NASA's programs for the exploration and development of space. Earth and Space sciences and aero-space technology, new ideas, and new products, are incubated in the intricately-meshed management teams of NASA Centers and Laboratories, and in the laboratories and offices of their contractors from industry and academia. Those ideas, the space flight vehicles and missions, the Earth and Space science laboratories, and their accompanying designs, innovations, and inventions are then "hatched" or tried and tested, as it were,

under the management and direction of Kennedy Space Center. "Liftoff," at KSC is the most important and visible milestone in NASA space program development.

The history of Kennedy Space Center revisits the story of the inception of an American space program and the creation of NASA, and provides a new understanding of those remarkable events. It examines for the first time the unique relationship between KSC and the other NASA centers, and between KSC and other agencies engaged in space related activities, including the Department of Defense, the Army, the Air Force, and the Navy. This is the story, for the most part, of the men and women who managed the fantastically complicated send-offs of the launch vehicles and payloads designed and manufactured by American, and indeed, by the developing international aero-space, science, engineering, and space exploration community—and made them work.

It is the story of the Atlantic Missile Range and early experiments with long-range missiles, and of American successes and failures in early piloted flight. It is the history of Apollo and the lunar landings, now more than a quarter-century past. Including Apollo 7 and 8, there were eleven piloted Apollo missions. Nine of those went to the vicinity of the Moon. Six of those landed astronauts on the Moon. The Kennedy Space Center's role and mission in those endeavors had to do with assembling, testing, and validating the flight ready status of each of the diverse components of the Apollo systems: the three-stage rocket boosters, command module, service module, lunar module, communications systems, fuel systems, and the crew. As one of the engineers explained: "We had to take it all and put it together and make it work." That is what Kennedy Space Center was all about.

The narrative focuses heavily on the new, post-Apollo, Space Transportation System which, since the first flight of the Shuttle in April 1981, by the turn of the 21st Century had flown over 100 missions in space. Over the next two decades NASA launched over one-hundred Space Shuttle missions, each originating from KSC's Launch Complex 39, and each extending our information and knowledge of Earth's environment, and extending the human presence in space. There were, to be sure, some missions that were more notable and memorable than others. STS-7, which left Kennedy on June 18, 1983, carried Sally Ride, the first American woman in space. STS-9, launched in November 1983, carried aboard the first European-built Spacelab containing seventy-one experiments, and a West

German physicist—the first non-U.S. citizen to fly aboard an American spacecraft. STS 41-C performed the first space satellite repair. The first seven-member crew flew in October 1984. The Shuttle enabled the delivery of more communications satellites into orbit. More space walks (EVAs or extravehicular activities) became the norm. The Shuttle began a series of Spacelab flights in 1983, focusing on the conduct of multi-disciplinary Earth-science experiments by scientists and payload specialists from the United States, Great Britain, and Germany. The frequency of Shuttle flights rose. And then, on January 28, 1986, after twenty-four safe and successful Shuttle launches, *Challenger* exploded seventy-three seconds after liftoff. The entire crew, including Francis R. Scobee, Michael J. Smith, Ellison S. Onizuka, Judith A. Resnik, Ronald E. McNair, Gregory Jarvis, and Christa McAuliffe died. It was one of Kennedy Space Center's, NASA's, and the nation's "worst days." Throughout the organization there were studies, investigations, and reviews. KSC began a rebuilding, and a restoration. The Center reconstituted its tests and check-points to improve already tough quality controls, and to provide greater assurance and safety. *Challenger* was both an agonizing, and a learning experience.

Finally, almost three years after the *Challenger* explosion, on September 29, 1988, the twenty-sixth Shuttle flight, now appropriately designated STS-26, left the Cape on a mission to prove the safety of the redesigned Solid Rocket Boosters, and to launch a TDRS (Tracking and Data Relay) satellite. The American public, and the world watched carefully this "return to flight." Over 2,000 media representatives were on hand for the launch, as compared to the 2-300 who had been present for the *Challenger* launch. NASA's focus, and that of the media and the public, remained on the Shuttle and on Kennedy Space Center. In June 1995, NASA celebrated the 100th U.S. human space flight with the launch of *Atlantis* (STS-71). Perhaps even more significantly, *Atlantis* docked for five days with the Russian space station *Mir*, marking the extension of international cooperation in the exploration and utilization of space that had begun earlier under Skylab, Apollo-Soyuz, and Spacelab programs. In October 2000, Space shuttle *Discovery* flew the 100th Shuttle mission, all substantially expanding human understanding of space, the Solar System, and most especially knowledge of planet Earth and its

environment. Space, as Dr. Kurt H. Debus, Kennedy Space Center's first director pointed out, is but a part of the total human environment.

The assembly of an International Space Station, beginning with the delivery of a 20-ton Russian Zarya module in June 1998, followed by the STS-88 delivery in December of a Unity connecting module marked the inception of a sustained international program for living and working in space. Over the next few years, the International Space Station began to assume form and content. The addition of a joint air-lock module by STS-104 in July 2001, enabled station inhabitants to conduct space walks and to function independently over an extended time without the supplementation of the Space Shuttle. KSC is integral to the inception and development of the International Space Station, which promises to give not just Americans but the people of Earth a more permanent presence in space—that “extended environment of Earth”—well into the new millennium. In addition, KSC is NASA's lead center for the acquisition and management of Expendable Launch Vehicle launch services, so essential to the maintenance of a continuing off-world presence. Living and working in space had become a part of the human experience in the 21st Century.

And because Kennedy Space Center has been so omnipresent in the total story of NASA and space exploration, it, perhaps more so than other NASA Centers has been in the focus of the national (and global) media and press. That has created unique management problems, situations, and opportunities at KSC. A “public” presence has affected its history more so than that of other NASA facilities. External and public relations, a stress on safety, and on accommodating and educating the media, NASA's “customers,” and the general public, have been an integral part of KSC's history. As Cape Canaveral became a milepost, a way station in the European exploration of the New World five hundred years earlier, Cape Canaveral's Kennedy Space Center has become within the past half-century our stepping stone, a literal launch pad, a way station in the exploration of space. Liftoff is the most critical event in the history of space exploration.

Chapter Outline: 3,2,1...Liftoff: A History of Kennedy Space Center

Dethloff and Snaples prepared a brief outline for a proposed narrative history of Kennedy Space Center which would produce a manuscript of thirteen chapters and approximately 520 pages of text plus front and end matter (bibliography and appendices), that would emphasize and develop the themes described in the historical overview. The only published histories of Kennedy Space Center include a text by Charles D. Benson and William B. Faherty entitled *Moonport: A History of Apollo Launch Facilities and Operations* (NASA SP-4204) published in 1978, and closely tied to the Apollo/Saturn lunar program. The book has recently been republished in two volumes by the University Press of Florida, without revision or update. The second publication is the NASA Public Affairs title: *The Kennedy Space Center Story*, published in 1991. A comprehensive, readable, narrative history designed for a general public audience, and technically credible and accurate is believed to be a critical requirement as KSC completes its first four decades of operation. Such a book, it is believed, will provide a useful management tool for NASA scientists, engineers, and managers, and help significantly in the education and edification of the American and global public regarding NASA, Kennedy Space Center, and space exploration.

3,2,1...Liftoff: A History of Kennedy Space Center

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Oral History Program

In cooperation with Dr. Roger D. Launius, Lisa Malone, Elaine Liston and others, Interviews of approximately 1-1.5 hours have been completed with each of the following:

Bridges, Roy D., Jr.
Bruckner, Bobby G.
Greenfield, Terry
Harris, Hugh W.
Malone, Lisa A.
Morgan, JoAnn
McCartney, Forrest S.
Page, George F.

Parrish, Alan J.
Rigell, I.A. "Ike"
Sieck, Robert B.
Smith, Richard G.
Solid, L.D. "Lee"
Straiton, John
Thomas, James A. (Gene)

Transcripts of the interviews, and as applicable, video tapes are being supplied by Dynacs, Inc.

Copies of the transcriptions will be deposited in the KSC Archives, and in the NASA Historical Records Collections at NASA Headquarters.

KSC and Safety

Dr. Lee Snaples has prepared a brief monograph on the history of Safety at KSC, which explores the development of safety policy and procedures at Kennedy Space Center over the course of its forty-year history. The most remembered space flight accidents, Apollo 1, Apollo 13, and Challenger, are irrevocably linked to KSC in the nation's collective memory. Each of these accidents had led directly to changes in policy, procedure, and organizational structures at KSC. Safety remains a prime consideration in all design, launch, and operations work. In 1997, the Center adopted the DuPont Safety Standards for a universal code of safety.

Database and Web Page

The historians have provided assistances to the KSC Archives in the development of a database and web page that can help in the preservation and dissemination of Kennedy Space Center history. Based on the design of the Ellis Island web page, former KSC employees and those nearing retirement are encouraged to enter pertinent biographical and contact information in an electronic data base, and to recount their favorite or most memorable moments at KSC.

Conclusion

Henry C. Dethloff, with Noble Lee Snaples, Jr. have, under the auspices of the 2001 NASA/ASEE Summer Fellowship, conducted substantive research in the archives and manuscript collections of Kennedy Space Center. They have completed or assisted in the completion of sixteen oral history interviews associated with the KSC History Project. They completed a proposed chapter outline for a comprehensive, readable, and informative narrative history of Kennedy Space Center. Dr. Snaples prepared a brief monograph on the history of safety at KSC, and Dethloff prepared a 50-plus page monograph providing a brief historical overview of the Center that may have use and application in association with KSC's fortieth anniversary which is being celebrated in 2002.