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April 2000

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...From the NASA STI Program's Principal Center



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Refer to the *STI Catalog for STI Product and Service Information*

The results of 20th century aeronautics and aerospace research and development, a worldwide investment totaling billions of dollars, have been captured, organized, and stored by the NASA STI Program. New information is continually announced and made available as it is acquired, making this a dynamic and historical collection of value to business, industry, academia, federal institutions, and the general public.

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The *STI Catalog* can be accessed through the STI webpage at <http://www.sti.nasa.gov>.

New Bibliographies Available on Systems Analysis:

Three new bibliographies (failure modes and effects analysis (FMEA), tree analysis, and probabilistic risk assessment) are available online in condensed form at <http://www.sti.nasa.gov>, under "What Is New." A more extensive version will be available within the next few months as NASA/SP-2000-6110 (FMEA), NASA/SP-2000-6111 (Fault Tree Analysis), and NASA/SP-2000-6112 (Probabilistic Risk Assessment). For more information, contact help@sti.nasa.gov.

The NASA Center for Aerospace Information Announces Four New Information Management Tools and Resources

The *NASA Aerospace Science & Technology Dictionary* is a CD-ROM ready-reference tool containing over 10,000 definitions. This resource brings together definitions from over 20 different sources and covers terminology in aviation and space engineering and the natural space sciences, as well as terminology from supporting areas. In the core aerospace areas, both current and historical terminology is covered. This product assists researchers, educators, students, technical writers, and others in understanding and using aerospace terminology.

The *NASA Scope & Subject Category Guide* is available on CD-ROM and as a printable PDF file, providing effective assistance to aerospace information analysis and database builders with the high-level subject classification of technical materials. It includes 76 subject categories and a browseable index of over 2,200 specific research topics hyperlinked to subject categories.

Aerospell is a supplemental spell check file that can be used as a resource for researchers, writers, editors, students, and others who compose scientific and technical texts. It contains more than 13,000 words in a broad range of aerospace and related disciplines. It can be easily added to your word processor's spell check dictionaries.

Building on the Shoulders of Giants is a database of rare photographs, video clips from documentary footage, and practical documents from NACA as well as the NACA-era. Many of these have never been widely available. The embedded search engine allows users to pilot their way into a dynamic sphere of human experience, adventure, and aviation achievement. The database leads to selected full text documents, citations, and multimedia clips all with the ease and versatility of the Alchemy search engine. This product will appeal to the aviation enthusiast, engineering student, and aviation engineer--anyone who wants the advantage of a wide range of information topics--all on a handy, locally controlled CD-ROM.

For information regarding these products, visit the STI website at <http://www.sti.nasa.gov> and click "STI Online Catalog" or contact the STI Help Desk at helpdesk@sti.nasa.gov or (301) 621-0390.

NASA Thesaurus

The Monthly Update of the *NASA Thesaurus* is available at the *Thesaurus* webpage <http://www.sti.nasa.gov/thesfrm1.htm>. The *Thesaurus* contains the authorized subject terms by which the documents in the NASA STI Databases are indexed and retrieved.

Comments regarding the site or the electronic products can be forwarded to the CASI Lexicographer at mgenuardi@sti.nasa.gov or (301) 621-0114. Orders for any of the printed or electronic *Thesaurus* products can be directed to the CASI Helpdesk at help@sti.nasa.gov or (301) 621-0390.

STI Program to Exhibit at Oshkosh Airshow:

Each year, an annual Experimental Aircraft Association convention is held in Oshkosh, Wisconsin. This is considered by many people to be the world's premier aviation event. Oshkosh 2000 will be held July 26 – August 1, 2000, at the Wittman Regional Airport, in Oshkosh. More than 800,000 attendees are expected this year. We are pleased to announce that the STI Program has been accepted to exhibit at Oshkosh this year. Our exhibit, which will be manned for the length of the event by personnel from the NASA Center for Aerospace Information, will be displayed in the Langley building.



...STI Program Plan



In part, the NASA STI Program states, "The NASA Scientific and Technical Information Program is an integral part of NASA's future. The program supports the Agency's missions to communicate scientific knowledge and understanding to help transfer NASA's research and development to the aerospace and academic communities... By ensuring a fast, two-way process of internal and external information exchange, the STI Program helps NASA avoid duplication of research, time, and cost and to make its wealth of information available to benefit its customers... Each Center is responsible for acquiring, tracking, and producing, or having produced, NASA STI related to their Center mission; and for ensuring that Center STI reaches the STI Database [at the NASA Center for AeroSpace Information]."

To that end, each NASA Center executes the STI Program mission and objectives by way of a team of individuals that applies professional publishing standards to all scientific and technical information passing through its doors. Whether the information will result in a document to be distributed through the traditional print and mail process or an electronic document available on the Internet--or both--the team is responsible for making it happen, going through the process step-by-step with each customer. For information about the STI Program at any NASA Center, visit http://stipo.larc.nasa.gov/sti_link4text.html.

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...From Dryden Research Center



Publication Announcement

Dryden Flight Research Center announces the recent release of the CD-ROM version of *Fifty Years of Flight Research: An Annotated Bibliography of Technical Publications of NASA Dryden Flight Research Center, 1946-1996*, compiled by David F. Fisher and Robert Binkley.

The bibliography, originally published as NASA-TP-1999-20656, contains citations from more than 2200 unclassified and unrestricted technical reports published from September 1946 to December 1996 by NASA Dryden Flight Research Center and its predecessor organizations. As noted in the foreword, by former Dryden Center Director Kenneth J. Szalai, the bibliography is dedicated "to the memory of Dr. Hugh L. Dryden, scientist, engineer, manager, father, and technical author."

The first entries in this document deal with transonic and supersonic. The latter entries deal with tailless flight, hypersonic flight, and civil transport safety. The technical reports describe and give results of flight research performed by NACA and NASA, from the X-1, and other early experimental airplanes, to the X-15, Space Shuttle, X-29 Forward Swept Wing, and X-31 aircraft. Some of the other research airplanes tested were the D-558, M-2, HL-10 and X-24 lifting bodies, Digital Fly-By-Wire and Supercritical Wing F-8s, XB-70, YF-12, F-111, F-15, F-18 High Alpha Research Vehicle, and F-18 Systems Research Aircraft.

In addition to the bibliography, the CD-ROM includes video clips of many of the research airplanes tested at Dryden, from the X-1 airplane to aircraft flown up to the date of production of the CD.

For information regarding the purchase of these products, please contact the NASA Center for AeroSpace Information at (301) 621-0390 or helpdesk@sti.nasa.gov.

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...From Goddard Space Flight Center



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The Goddard Library Newsletter: *FLAG* (Friends of the Library at Goddard)

The Goddard Library has a newsletter, called *FLAG* (*Friends of the Library at Goddard*). The first two editions are posted on the Web at <http://library.gsfc.nasa.gov/flag/flag.htm>



...From Johnson Space Center



Nutrition in Spaceflight and Weightlessness Models, compiled and prepared at Johnson Space Center, has been published in the CRC Press Modern Nutrition series. This 13-chapter book combines nutritional observations from 38 years of human spaceflight, reports physiological research results, and addresses research needed for space exploration in the 21st century. Contributors were NASA, various university medical and nutrition departments, and industrial laboratories.

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...From the NASA History Office



BEFORE THIS DECADE IS OUT WINS FEDERAL HISTORY PRIZE

Before This Decade is Out Personal Reflections on the Apollo Program (NASA SP-4223, 1999) has been awarded the Pendleton Prize by the Society for History in the Federal Government. This annual award is given for an outstanding major publication on the Federal Government's history produced by or for a Federal history program. The Pendleton Prize commemorates Ohio Senator George H. Pendleton, sponsor of the 1883 civil service reform act that bears his name. Kudos to editor Glen E. Swanson, who assembled this fine collection of oral histories.

There are oral histories of 14 key individuals included in this collection, from NASA administrators James E. Webb and Thomas O. Paine to top managers such as Wernher von Braun, Max Faget, Gene Kranz, Robert Gilruth, and George Mueller to astronauts Harrison Schmitt and Charlie Duke. *Before this Decade is Out...* also features a foreword by Chris Kraft and an introduction covering the legacy of Apollo by Roger D. Launius. This volume is sure to provide enlightening reading for space historians, for historians of technology, and for space fans.

This book is for sale for \$38.00 (domestic postpaid or \$47.50 abroad), from the U.S. Superintendent of Documents. By mail: U.S. Government Printing Office, Documents Warehouse, 8610 Cherry Lane, Laurel, MD 20707. By phone: (202) 512-1707 ext. 30273. By fax: (202) 512-1657. Order stock number 033-000-01216-1. This book also may be purchased from the NASA Information Center, Code CMI-1, NASA Headquarters, 300 E Street SW, Room 1H23, Washington, DC 20546-0001, (202) 358-0000. Order NASA SP-4223

NEW NASA HISTORY PUBLICATIONS:

Power to Explore: A History of the Marshall Space Flight Center

In late 1999 a much-awaited institutional history of the Marshall Space Flight Center was published. *Power to Explore: A History of the Marshall Space Flight Center (NASA SP-4313, 1999)*, was written by Andrew J. Dunar and Stephen P. Waring, history faculty members at the University of Alabama in Huntsville. It analyzes 30 years of history at Marshall from its origins as an Army center where Wernher von Braun presided over the development of the Redstone IRBM through the Saturn rocket development era to its present multifaceted role as the center for excellence in space transportation systems and microgravity research. It traces the evolution of the institution from its origins as an Army missile development organization to its status in 1990 as one of the most diversified of NASA's Field Centers.

Among the many insightful sections of this book, the two chapters on the Challenger accident--one on the accident and investigation and another on the recovery--are among the best ever to appear. They discuss at length the evidence to conclude that the Challenger accident had more to do with NASA's organizational patterns and technological decisions that made sense at the time they were enacted--mostly in the austere period of the early 1970s--but that in retrospect turned out to be faulty. Detailed analysis of both documentary evidence and testimony showed that.

They also show that engineers involved in the O-ring question were convinced that the joints were safe, and that there were numerous other problems--especially with the Shuttle main engines--that consumed most of the MSFC propulsion team's attention. Most importantly, there had been little engineering data at the time of the accident to support a correlation between O-ring anomalies and low temperatures. The fact that the seals had always done their jobs before contributed to a sense that they would not cause a major accident.

The authors appropriately discuss how the catastrophic failure was a total shock to the MSFC staff, made all the more painful by their perception that the Rogers Commission had used the center as a scapegoat to deflect blame away from political leaders in Washington. The authors make a very sophisticated case about this, and then follow it with a fine discussion of activities at MSFC to return to flight.

This book is for sale for \$49.00 (domestic postpaid or \$65.25 abroad), from the U.S. Superintendent of Documents. By mail: U.S. Government Printing Office, Documents Warehouse, 8610 Cherry Lane, Laurel, MD 20707. By phone: (202) 512-1707 ext. 30273. By fax: (202) 512-1657. Order stock number 033-000-01221-7. This book also may be purchased from the NASA Information Center, Code CMI-1, NASA Headquarters, 300 E Street SW, Room 1H23, Washington, DC 20546-0001, (202) 358-0000. Order NASA SP-4313.

The History of the XV-15 Tilt Rotor Research Aircraft: From Concept to Flight

The NASA History Division has just released *The History of the XV-15 Tilt Rotor Research Aircraft: From Concept to Flight (Monographs in Aerospace History, NASA SP-2000-4517, 2000)*, by Martin D. Maisel, Demo J. Giulianetti, and Daniel C. Dugan. This monograph tells the important story of the development of a unique flight technology, the tilt rotor, which incorporates ideas from both rotary wing and fixed wing aircraft. The authors, all participants in the XV-15 program at NASA's Ames Research Center, have been involved in

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This monograph is available free of charge by sending a self-addressed 9"x12" envelope with appropriate postage for 15 ounces (typically \$3.20 within the U.S., \$4.10 for Canada, and \$7.20 for overseas--international customers are asked to purchase U.S. postage through an outlet such as www.stampsonline.com) to the NASA History Division, Code ZH, Washington, DC 20546.

NEW NASA HISTORICAL INFORMATION ON-LINE

We are pleased to announce a new site devoted to the X-15 research aircraft at <http://history.nasa.gov/x15/cover.html> on the Web. The X-15 had its first, unpowered glide flight on June 8, 1959, while the first powered flight took place on September 17, 1959. Air launched from a B-52 aircraft, the X-15 set a number of speed and altitude records before its final flight on October 24, 1968. The highly successful program helped researchers design the spacecraft for all of NASA's human missions. This site includes a chronology, biographies, bibliography, and links to other Web sites on the X-15. Our special thanks go to Hans-Peter Engel for designing this useful site, as well as formatting other publications on the X-15 for the Web.

We are also pleased to note that *Apollo Over the Moon: A View From Orbit* (NASA SP-362, 1978), edited by Harold Masursky, G.W. Colton, and Farouk El-Baz, is now available on-line at <http://www.hq.nasa.gov/office/pao/History/SP-362/cover.htm>. Special thanks to Chris Gamble for formatting this book with many interesting photos for the Web.

We now have the complete version of the *1997 NASA Pocket Statistics* available on-line at <http://history.nasa.gov/pocketstats/index.html> on the Web. Please note that the 1997 version is the latest available. NASA has decided not to publish further editions, either in print or electronic format.

Ron Baalke of JPL has placed on-line a special exhibit on Galileo's discovery of Jupiter's moons 390 years ago. He has written an article on this discovery, with images of the transcripts written by Galileo, available on-line at <http://www.jpl.nasa.gov/galileo/ganymede/discovery.html> on the Web.

Just for fun Kipp Teague has scanned and placed on his website a copy of the commemorative medallion that we produced last summer for the Apollo 11 30th anniversary. It is in the Memorabilia section of Contact Light Project Apollo Archive at http://www.retroweb.com/apollo_archive.html on the Web.

The NASA History Office's annual report for 1999 is available on-line at <http://history.nasa.gov/1999.html> on the Web.



...The NASA Commercial Technology Program *An Overview*



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The NASA Commercial Technology Program encompasses a national network of specialized centers and organizations that assist U.S. businesses and industry in accessing, utilizing and commercializing NASA-funded research and technology. The organizations work closely with each other to provide a full range of technology transfer and commercialization services and assistance. The NASA Commercial Technology Network (NCTN) consists of the Commercial Technology Organizations at each of the NASA field centers, the Jet Propulsion Laboratory, the National Technology Transfer Center (NTTC), the six Regional Technology Transfer Centers (RTTCs), NASA Tech Briefs, UNISPHERE, and other specialized organizations and services. All are dedicated to fostering dual-use technology partnerships and the transfer and commercialization of NASA-sponsored research and technology.

The NCTN provides access to a wide variety of information resources that can be searched and consulted for research and technology, patents, technical expertise, and R&D facilities, as well as for technology partnering, licensing, and commercialization opportunities. In addition to serving as an integrated information resource, the NCTN is developing into an electronic marketplace for NASA-sponsored technology, facilitating communications, transactions, and partnerships between NASA and the U.S. private sector.

Visit the NCTN website at <http://www.nctn.hq.nasa.gov> for more information on the NASA Commercial Technology Program and the members of its network.



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About Spinoff

NASA's premier publication, *Spinoff*, features over 40 companies annually that have successfully utilized NASA technology in commercial products and processes. The main purpose of the publication is to generate greater awareness of the practical benefits resulting from the nation's investment in aerospace research and development.

Each year NASA distributes tens of thousands of *Spinoffs* through trade shows, conferences, and special requests. The *Spinoff* website, located at <http://www.sti.nasa.gov/tto/spinoff.html>, includes a searchable database with an entry for every article, as well as manufacturer information for articles published since 1986. Online versions of *Spinoff* 1996, 1997, 1998, and 1999 can also be accessed through this site.

The *Spinoff* publication focuses on NASA's contributions to areas in the private sector, including health and medicine, transportation, public safety, home and recreation, environment and resources, computer technology, and industrial productivity.

The *Spinoff* team welcomes new information regarding companies with successfully transferred NASA technology into the development of a commercial product. If you know of any companies that have done so, please contact the *Spinoff* editors, Ms. Zoë Rush, at zrush@sti.nasa.gov, telephone (301) 621-0244, or Mr. David Ferrera, at dferrera@sti.nasa.gov, telephone (301) 621-0242.

To receive a printed copy of *Spinoff*, please contact the National Technology Transfer Center (NTTC) at (800) 678-6882 or visit the NTTC website at <http://www.nttc.edu>.
