1917 - 1992
75 Years
NACA
NASA
Langley Research Center

Researcher News

Bi-weekly Employee and Contractor Publication

Volume 6 ❖ Issue 1 ❖ January 17, 1992

75th Celebration Takes Langley's Message to Public

ON THE INSIDE

❖ Whatever happened to Langley's Helicopter Test Tower? Page 4.

As the 75th Anniversary commemoration gets underway, the Center will carry its message to local schools with educational programs, an art contest and other activities that promote interest in aeronautics, space and Langley.

Volunteers sought

National Vocational Education Week and Career Day will be held in February. Also in February, the Center will provide speakers to local schools for National Engineers Week. The program encourages students to continue their math and science studies. Employees are being sought to teach a class. Volunteers should call Marny Skora, ext. 43315.

The Speaker's Bureau will be called on to give talks on the history of Langley. Anyone wishing to volunteer to speak should call Ann Suit at ext. 43305.

An art contest for elementary and middle school students will be held in February and March. Elementary school students, focusing on International Space Year (ISY), will be invited to create their own space shuttles based on a cardboard pattern. Middle school students will design a commemorative stamp to illustrate some aspect of Langley's contributions in the past 75 years.

In addition, students in broadcasting classes at Newport News' Telecommunications Center will begin presenting monthly TV and radio features on Langley. And, the Engineers Council is sponsoring a February anniversary supplement in local newspapers.

More events are planned throughout the year to mark Langley's 75 years of accomplishments. Langley employees will have the chance to mix business with pleasure during several major events, including a weekend-long celebration centered around the Center's anniversary July 17. The festivities will include a barbecue, tours of the new Virginia Air and Space Center and dedication of a Langley time capsule.

Other major events include a Family Day picnic in the spring and an Open House in the fall. The **Researcher News** will update events as they draw near; each issue also will feature stories and photos highlighting the Center's history.

NASA Langley aircraft will bear the 75th Anniversary logo. This one has been taped on the vertical tail of a T-38 aircraft in the Hangar to see how it will look.

International Space Year: A Global Perspective for 1992

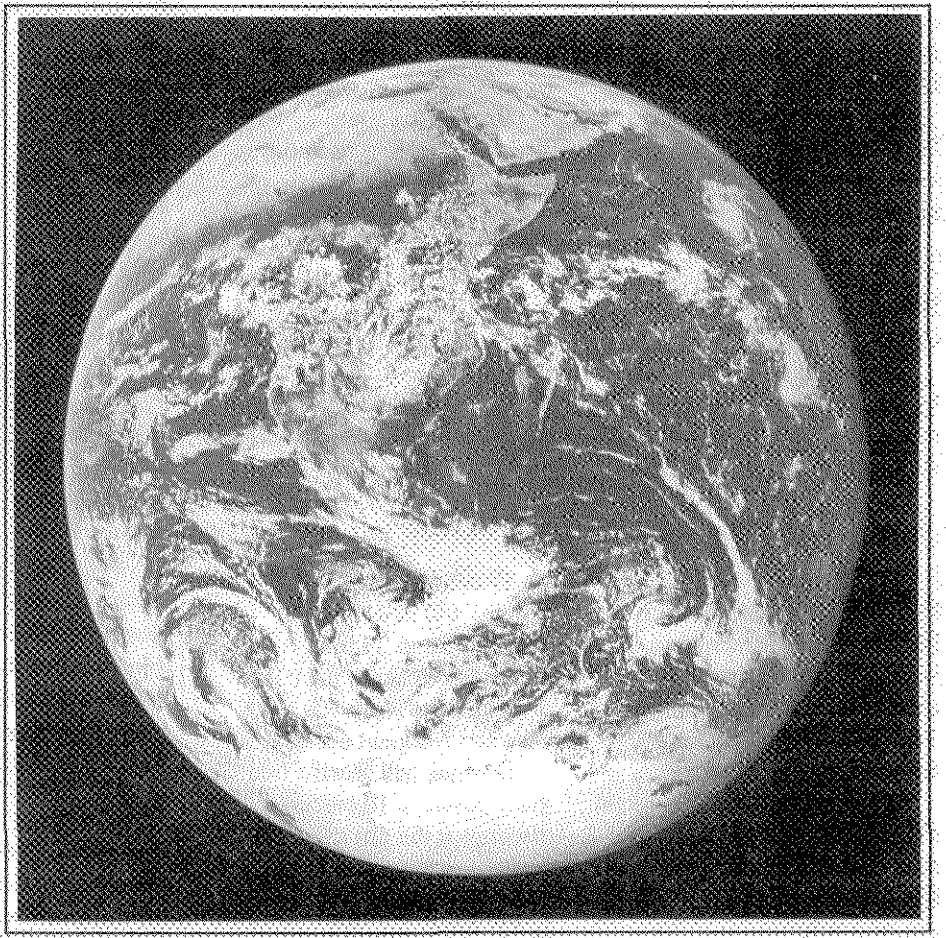
"The International Space Year celebrates a new age that inspires a unifying perspective on Earth as we continue to push back the frontiers of space."

– President Bush

By Marny Skora

The International Space Year (ISY) is the first year-long, worldwide celebration of humanity's venture into space. ISY will be highlighted throughout 1992 by globally coordinated space activities that will extend into the 21st century.

The year's theme is the global perspective of the space age with emphasis on exploration and scientific inquiry. ISY activities will revolve around Mission to Planet Earth, in which scientists worldwide are using space technology to assess such threats to the Earth's environment as global warming, deforestation and ozone depletion. In addition, a wide range of educational programs and public events will carry ISY's global perspective to students and the public.



Space Exploration has allowed us to view Earth from a unique perspective. The International Space Year (ISY) promises unparalleled cooperation between spacefaring nations to pool their efforts to study the Earth as a total system. This photograph, taken by the Apollo 17 astronauts on the final mission to the moon, illustrates the global perspective advocated by ISY.

Space-age frame of reference

The 1992 international space focus was proposed by Congress in 1985 to commemorate the 500th anniversary of Columbus' voyage to the New World and the 35th anniversary of the International Geophysical Year which, with the launch of Sputnik, ushered in the space age.

To foster further discovery, ISY was also conceived to encourage a space-age frame of reference that incorporates the unique character and challenge of long-term space exploration. It is this spirit of exploration that will enable mankind to return to the Moon and venture on to Mars.

ISY has won unanimous support from other nations and international organizations. Twenty-three national space agencies have agreed to pool their efforts to study the Earth as a total system. These spacefaring nations are planning to coordinate operation of more than 20 future Earth-viewing satellites and ground-based support campaigns. Contributions of historical and future data as well as the development of common approaches to data management signal continued cooperation around the world through Mission to Planet Earth.

Understanding planet Earth

Human activity has changed large portions of the Earth's landscape and altered the composition of the global atmosphere. Development of comprehensive Earth system models is a key component in the drive to understand global change. The challenge of Mission to Planet Earth is to develop an integrated view of the physical, chemical and biological processes of the Earth as a system.

Scientific understanding is a prerequisite to intelligent, responsible policy-making in response to the consequences of global changes. The U.S. Global Change Research Program (GCRP) is a key component of the President's approach to global stewardship. Its goals are to monitor, understand and predict global change in order to establish the scientific basis for national and international decisions about natural and human-induced changes. ISY is setting the stage for a coordinated approach to decisions of global significance. Mission to Planet Earth will ensure continuity of observations through the development and operation of satellites and information systems designed to measure global change.

Earth Viewed as Total System at Center for Decades

The International Space Year advocates a global perspective for viewing the Earth. Since the mid 1960s, Langley scientists have been conducting research to improve understanding of the Earth as a system using remote sensing and the unique vantage point of space. Langley researchers also are identifying and developing technologies for advanced space transportation systems, large space systems and Space Station Freedom.

The Center's atmospheric research has been focused on the stratosphere, the troposphere and on the relationship between the clouds and the Earth's radiation budget. A number of instruments have been used to provide new insights into the details of Earth's atmospheric and climate processes.

Langley's SAM II, the Stratospheric Aerosol Measurement experiment, was launched October 24, 1978, aboard the Nimbus-7 spacecraft and has, for more than13 years, collected data on the effects of aerosols on the polar climate.

Langley researchers are on a mission to analyze ozone depletion in the Arctic. Story, page 3.

A reusable experiment called MAPS, Measurements of Air Pollution from Satellites, was flown on the Space Shuttle in 1981 and 1984, and is scheduled for more flights. MAPS studies the global distribution of carbon monoxide in the middle troposphere.

Langley's SAGE II, the Stratospheric Aerosol and Gas Experiment II, was launched aboard the Earth Radiation Budget Satellite (ERBS) in October 1984. SAGE II is still collecting data that is contributing to the development of global aerosol, ozone, nitrogen dioxide and water vapor data bases for studying their effects on climate and such phenomena as the Antarctic springtime ozone depletion.

Please turn to page 4

News Briefs

Editorials

Pilot to Discuss X-15 Program at AIAA Dinner in February

Bill Dana, chief pilot at Ames-Dryden Flight Research Facility, will speak on the X-15 rocket research aircraft at a dinner meeting Tuesday, February 4, at 7 p.m. in the H.J.E. Reid Conference Center.

The dinner starts at 7 p.m., the program at 8 p.m. Dinner reservations are required by noon Thursday, January 30.

Call Steve Rizzi at ext. 43599 or 599-1947, or Dell Freeman at ext. 44451 or at 868-0802.

The event is being organized by the Hampton Roads Section of the American Institute of Aeronautics and Astronautics (AIAA).

Dana has been an aerospace research pilot with NASA since 1958.

He is the project pilot on the F-15 Integrated Digital Electronic Control program.

He flew the triple-sonic YF-12 research aircraft and the Advanced Fight Technology Integration/F-16 airplane previously.

He also was a pilot on the manned lifting body flight test program and flew the X-15 research aircraft 16 times, reaching a top speed of 3,897 miles an hour and a peak altitude of 310,000 feet.

Air and Space Center Seeks Docents

The Virginia Air and Space Center and Hampton Roads History Center is recruiting volunteers for its first docent class to be held from February 17 to 28. Volunteers are sought for weekends or weekdays.

Weekday docents will attend a two-week training program at the center during that period and from February 24 to 28 from 10 a.m. to 1 p.m.

Training for weekend docents will be held from February 22 to 29 from 10 a.m. to 3 p.m. Weekday docents must agree to work 100 hours per year, weekend docents, 50.

Docents will receive free guest passes, a 10 percent discount at the gift shop and invitations to special events. Call Kelly Nolte or John Mannarino at 727-0800, ext. 715.

Hook is on Monthlong Detail to OAST

Director for Space W. Ray Hook is on a one-month detail as special assistant to the associate administrator for Aeronautics and Space Technology. He is focusing primarily on the Space Technology Program and assisting in the review and assessment of program goals.

Hook, who has served at Headquarters twice before, returns to Langley in February.

During Hook's absence, Dr. James D. Lawrence Jr. will serve as acting director for space. H. Scott Wagner will serve as acting chief, Atmospheric Sciences Division.

SEI to be Topic of Space Society Talk

The Space Exploration Initiative (SEI) will be the topic of a talk by Langley's SEI Office manager, Brian Pritchard, at 5:30 p.m. February 3 at the H.J.E. Reid Conference Center.

The SEI goal is to return to the moon and explore Mars and was begun two years ago by President Bush. Pritchard's talk is sponsored by the Langley Chapter of the National Space Society. The talk is open to the public.

November Speakers Bureau Report

Dr. Patrick McCormick, Electrochemical Society, on volcanic eruption of Mount Pinatubo.

Frank Quinto, Nettie Orie, Susan Althoff and Bob Schwartz, Hunt High School, Wilson, N.C., on aerospace careers and tunnel operations.

Joseph Stickle, Williamsburg Daughters of the American Revolution, on NASA's aeronautics program.

Tom Yager, Peninsula Chapter, Hampton Rotary Club, on the future of airports.

Naomi McMillin, Grafton Bethel Elementary School, York County, on the Baroncopter.

John Tanner, Thomas Eaton Middle School, Hampton, on Shuttle tire wear and toys in space.

Leroy Spearman, Men's Breakfast, First United Methodist Church, Newport News, on five decades of aerospace research.

George Helfrich, Council II, International Training in Communication, workshop training.

Dr. Jalaiah Unam, citizenship class, Langley Air Force Base, on career success.

Allan Hanrahan, McIntosh Elementary School, Newport News, on space exploration.

Dr. Robert Costen, Defense Logistics Agency, Richmond, on useful semianalytic solutions.

Shelley Canright, Woodstock Elementary School, Virginia Beach, on engineers and exploration.

Dr. Patrick McCormick, Hampton Kiwanis Club, on volcanic effects to the climate.

Thank you . . .

From Noel A. Talcott Jr.: My wife, Nancy, and I would like to again thank those of you who kept us in your thoughts and prayers during the year. Our daughter Natalie's bone marrow transplant in 1990 was a success. However, this year she developed graft vs. host disease, wherein her new immune system attacks and tries to reject her body. She was hospitalized several times and is on a treatment protocol that should help the disease subside, though it may take a long time. All of your cards and letters, especially the ones for Natalie, were most appreciated. I am also grateful to those who donated leave so that I could be with Nancy and Natalie through this ordeal.

From Margarette Pitts: I wish to thank everyone for their donations at the last NASA bloodmobile for my niece, Carolyn Sommer. She and her family would also like to express their appreciation for your generosity.

In Memoriam . . .

John James Catherines, 59, died December 11. Catherines, an engineer, had retired from Langley after 25 years of service. His wife, Donnell, also worked at Langley before retiring.

Charles E. Feller, 70, died December 17. Feller retired as an electrical engineer in instrumentation in 1985 after 41 years of service at Langley.

Cecil G. Phillips, 57, died December 9. Phillips was assistant to the head of the Engineering Technologies Division at Thomas Nelson Community College for the past 20 years and worked closely with Langley's co-op program.

Leave Transfer

The following individuals are approved recipients in the Voluntary Leave Transfer Program, which allows employees to donate annual leave to co-workers who are having family or personal medical emergencies:

Linda E. Edmundson
Glenn D. Ormsby
Cassandra D. Stevens
Noel A. Talcott Jr.
Belle L. Wood
Catherine B. Worth

Those who wish to donate leave should call Linda Park, Employee Relations Office, ext. 42610.

PERSONAL PROFILES

Langley Man is Coast Guard's Outstanding Reservist of Year

By Alan Hanrahan

Vernon E. "Butch" Watkins

The United States Coast Guard was established by an Act of Congress on January 30, 1915, but some traditions and services of that organization date from 1790.

Vernon E. "Butch" Watkins dates only from February 7, 1948, but he has already become a part of the Coast Guard's history and tradition. Watkins, an engineering contract monitor in the Aeronautical Systems Engineering Branch, Systems Engineering Division, is the Naval Enlisted Reserve Association's Outstanding Enlisted Coast Guard Reservist for 1990.

The citation accompanying the awarding of the Coast Guard Achievement Medal cited Petty Officer Watkins "for superior performance of duty while serving as senior Damage Controlman in the Engineering Support Detachment, USCG Reserve Unit York River, from July 1985 to October 1990.

Outstanding performance

According to the Coast Guard citation, "With over 10,400 enlisted reservists in the Coast Guard, Petty Officer Watkins was selected for his outstanding performance, his exemplary military appearance, his extensive involvement in several civic organizations and his leadership skills. Demonstrating exceptional professional competence, Petty Officer Watkins was responsible for engineering, construction and maintenance support for the Reserve Training Center Yorktown, U.S. Coast Guard cutters Reliance, Morro Bay and Cherokee.

"Additionally, he built a scale model of the Coast Guard cutter Cuyahoga, spending over 200 hours of his own time to construct the model. It was presented to Reserve Center Yorktown as part of the Tenth Anniversary Memorial Service for those lost on the Coast Guard cutter Cuyahoga. He has also been president of the Poquoson Jaycees, member of the Poquoson Planning Commission and has served as a volunteer to the Poquoson Fire Department and Rescue Squad. Petty Officer Watkins' diligence, perserverance and devotion to duty are most heartily commended and are in keeping with the highest traditions of the United States Coast Guard."

Watkins served on active duty in 1972 and was in the reserve until 1978 "as an obligation that became my choice," he says, explaining why he remained. "I had some friends that were in the reserve."

Watkins has been at Langley since September 1979. Prior to that, he worked at Newport News Shipyard, having graduated from the apprentice school in machinery design. He later earned an associate's degree in mechanical engineering from Thomas Nelson Community College and has taken mechanical engineering classes at Old Dominion University (ODU).

The Poquoson native, who likes to hunt and fish, is a member of Trinity Methodist Church. Watkins and his wife, Darlene, have two children, Dawn, an ODU student, and Brian, who attends Poquoson High School.

Brainbusters Reunion

The Brainbusters Model Airplane Club, formed in 1942, is planning a 50th anniversary reunion April 24 to 25. For information, contact Edward M. Sullivan, 19 Frederick Drive, Newport News, Va. 23601. His telephone number is 596-6104

Martin Luther King

January 15, 1992 is the 63rd anniversary of the birth of the Rev. Dr. Martin Luther King Jr., preacher and civil rights leader. It is this date, rather than the day of his death, that this commemoration takes place.

News Researcher

The **Researcher News**, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23665-5225, is published every other Friday in the interest of all Langley staff and retirees. Submit contributions to the Editor, Mail Stop 115, telephone 864-6126. Articles are due at noon on the Tuesday following the date of this issue.

Managing Editor ..... Jean Drummond Clough

Editor ..... Michael Finneran

Photojournalist ..... Carol Petrachenko

Photographer .....Fred Jones

The privilege of advertising in this publication is restricted to the employees and retirees of the Langley Research Center. Articles advertised here must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

People & Places

Center's Work Shines at Tech Transfer Show

By Craig Murden

The inventiveness of Langley scientists, engineers and technicians was abundantly demonstrated as the Center displayed 12 technologies and presented 19 papers at Technology 2001, the 2nd National Technology Transfer Conference and Exposition, held December 3 to 5 in San Jose, Calif.

"We not only presented more papers than any other federal laboratory, but ours was one of the most active of the 183 exhibits," said Joe Mathis, head of Langley's Technology Utilization Office. "I was really impressed by the way our people interacted with the attendees who came by our booth and with the media in videotaping interviews."

Setting up Langley's display are, from left, Joe Mathis; Steve Shope, head of Sandia Research Associates, a contractor; John Samos; and Dr. Frank Farmer.

More than 40 federal laboratories, representing NASA and 11 other government agencies, were joined by about 150 high-tech companies and universities.

Nearly 4,000 leaders from these sectors attended the event, sponsored by NASA, *NASA Tech Briefs* magazine and the Technology Utilization Foundation.

Langley inventions on display were:

- Induction Heating Gun.
- Fetal Heart Rate Monitor.
- Pressure Sensitive Surgical Knife.
- Hyperthermia Temperature Monitoring System.
- Flow Rate Logging Seepage Meter.
- Bladder Distention Sensor.
- Bolt Stress Monitor.
- X-Ray Fluorescence Spectrometer.
- Extended Attention Span Training System.
- Cooling Garments.
- Advanced Underwater Location Aid.
- Explosive Joining Process.

John Samos, who, along with Dr. Frank Farmer, worked with Mathis on the Center's display booth, said the focus of the event is to attract industry to commercialize the technology. Farmer said that during government-industry workshops, federal agencies brief attendees on their research and development initiatives and technology transfer mechanisms, spotlighting opportunities for industry to work with the government toward commercial applications.

Mathis added, "I know that the Center management takes pride in the capabilities of our LaRC workforce, and Tech 2001 underscored those capabilities.

"It was not only a technical conference but also an exhibition," Mathis said. "It had a trade show atmosphere where organizations 'hawked' their technologies. Our folks did a great job. Now, hopefully, we'll get phone calls and visits so that we can help some U.S. companies reap a greater return on their investment of tax dollars in NASA."

Arctic Expedition Examines Loss of Ozone in Stratosphere

Langley Sends Up Lidar to Analyze Vortex

Langley scientists are participating in a second airborne expedition over the Arctic to examine ozone depletion in the stratosphere.

The first flights, in 1989, were to see if the same chemistry depleting Antarctic ozone was occurring in the Arctic. Researchers found the same perturbed chemistry and "we were there long enough to see the onset of ozone depletion", said Dr. Edward V. Browell, head of the Lidar Applications Group, Atmospheric Sciences Division.

This January, February and March, the Airborne Arctic Stratospheric Expedition II will carry a Langley instrument - Browell's airborne differential absorption lidar (DIAL) - on an Ames DC-8 aircraft.

The polar expedition is the latest in a series of global atmospheric studies involving Langley

Because the 1992 expedition will last a month longer than the one in 1989, "we'll be able to see the ozone-depletion process start and go through the full cycle, which we weren't able to do before," said Browell, who has 14 group members working on various aspects of the expedition.

The DIAL system consists of four lasers that simultaneously transmit six laser beams through a quartz window on the top of the DC-8 to measure ozone and aerosols in the lower stratosphere. The laser light is backscattered from the atmosphere to a telescope on the DC-8 for analysis of ozone and aerosol profiles.

A similar expedition to the Antarctic took place in 1987. Browell said that nearly all of Antarctic ozone in the 14 to 22 kilometer altitude range inside the polar vortex is depleted during September and October. By contrast, a 17 to 20 percent ozone loss has been observed in the Arctic early in the onset of the depletion cycle, which reaches its peak in late February and March.

"In the Arctic, the ozone depletion is shaped more like a doughnut rather than an ozone hole," Browell said.

Since the entire cycle is being observed in the current Arctic expedition, a higher percentage of ozone loss is likely to be recorded, he said.

Still, Arctic ozone loss is not likely to match the levels found in the Antarctic, Browell said. That's because weather and geological features combine to break up the vortex of air that traps the perturbed chemistry that is responsible for depletion. The Arctic has a less symmetrical land mass than the Antarctic, and in combination with mountains at high latitudes, these conditions generate air movement that makes it difficult for a polar vortex to persist. In addition, because the Arctic vortex breaks up before the spring, it gets less sunlight than the Antarctic – and sunlight is needed to trigger the chemical reactions that destroy ozone.

Studies have indicated that ozone is destroyed by reactive chlorine atoms freed from chemicals such as chlorofluorocarbons, which are used in various commercial applications.

Ozone loss has been associated with an increase in skin cancer and other adverse health and environmental effects.

The expedition is being led by Harvard University and Ames and includes instruments from Goddard and the Jet Propulsion Laboratory. A NASA ER-2 aircraft also will be used in the expedition, which will be flown from Ames to Fairbanks, Ala., and Bangor, Maine. Flights of the DC-8 will be made from Ames to Anchorage, Alaska, over the Arctic to Stavanger, Norway, and back.

The expedition is the latest in a series of global atmospheric studies involving Langley since the early 1980s. "We are the only group internationally that is flying lidar systems to measure ozone in the atmosphere in the remote regions of the world," Browell said.

Langley also will be represented on the DC-8 by a High-Speed Research Program instrument. The instrument, a laser spectrometer, will measure carbon monoxide, methane, nitrous oxide and carbon dioxide, said Glen W. Sachse, Laser Technology and Applications Branch, Flight Electronics Division. Sachse and Dr. Bruce E. Anderson, of the Atmospheric Studies Branch, will study the impact of high speed, high altitude aircraft on the stratosphere.

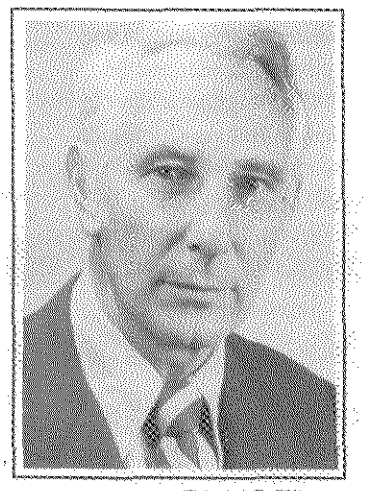
The work is not directly related to the ozone study but "it might complement it," said Sachse. "The hope is to fly into aircraft corridors to look for signatures of exhausts from commercial, subsonic aircraft," he said.

Edwin Kilgore, former NASA official, new president at Virginia Air and Space Center

Succeeds Thomas Chisman, Who Died on Nov. 22

Former NASA employee Edwin C. Kilgore has been named president of the board of Virginia Air and Space Center and Hampton Roads History Center. He succeeds Thomas P. Chisman, the Center's founding president, who died November 22.

Kilgore, after 37 years with NASA and NACA, was director of Management Operations at Langley when he retired. He joined Langley after graduating from Virginia Polytechnic Institute and State University in 1944. The Coeburn native was appointed technical assistant of the Machine Design Branch in 1954 and became assistant chief of the Engineering Services Division in 1960.



Edwin C. Kilgore

He was responsible for management of all Scout Vehicle hardware systems through the development phase and was project manager for the Echo I balloon program.

Kilgore, who lives in Hampton, organized and became chief of the Flight Vehicle and Systems Division in 1968. He went to NASA Headquarters in 1970, and in the next five years was deputy associate administrator (management), and then associate administrator, in the Office of Aeronautics and Space Technology.

In 1974, he was named deputy associate administrator for Center Operations, a new management office responsible for all NASA Field Centers. He is the recipient of numerous NASA awards. Kilgore also is president of the Old Dominion University Research Foundation, and serves on several other boards.

Vice president appointed

Dr. Stephen J. Wright has been named to the new position of executive vice president for the center's board. He is past president of Bluefield State College and Fisk University. Wright, of Hampton, is a member of the Virginia State Board for Community Colleges.

Discovery will Examine Effects of Weightlessness on Materials and Life

Space Shuttle mission STS-42, the 45th Shuttle flight will be a worldwide research effort into the behavior of materials and life in weightlessness.

Scientists from NASA, the European Space Agency, the Canadian Space Agency, the French National Center for Space Studies, the German Space Agency and the National Space Development Agency of Japan have cooperated in planning experiments aboard the International Microgravity Laboratory-1 (IML-1) in Discovery's cargo bay.

More than 200 scientists from 16 countries will take part in the investigations.

STS-42 will be the 15th flight of Discovery. Air Force Col. Ron Grabe will command the mission. Steve Oswald will serve as pilot.

Mission specialists include Dr. Norm Thagard; Marine Corps Lt. Col. Dave Hilmers; and Bill Readdy. Dr. Robert Bondar, of the Canadian Space Agency, and Ulf Merbold, of the European Space Agency, will be payload specialists.

The launch is planned for 8:54 a.m. January 22. Landing is planned for 10:06 a.m. January 29 at Edwards Air Force Base.

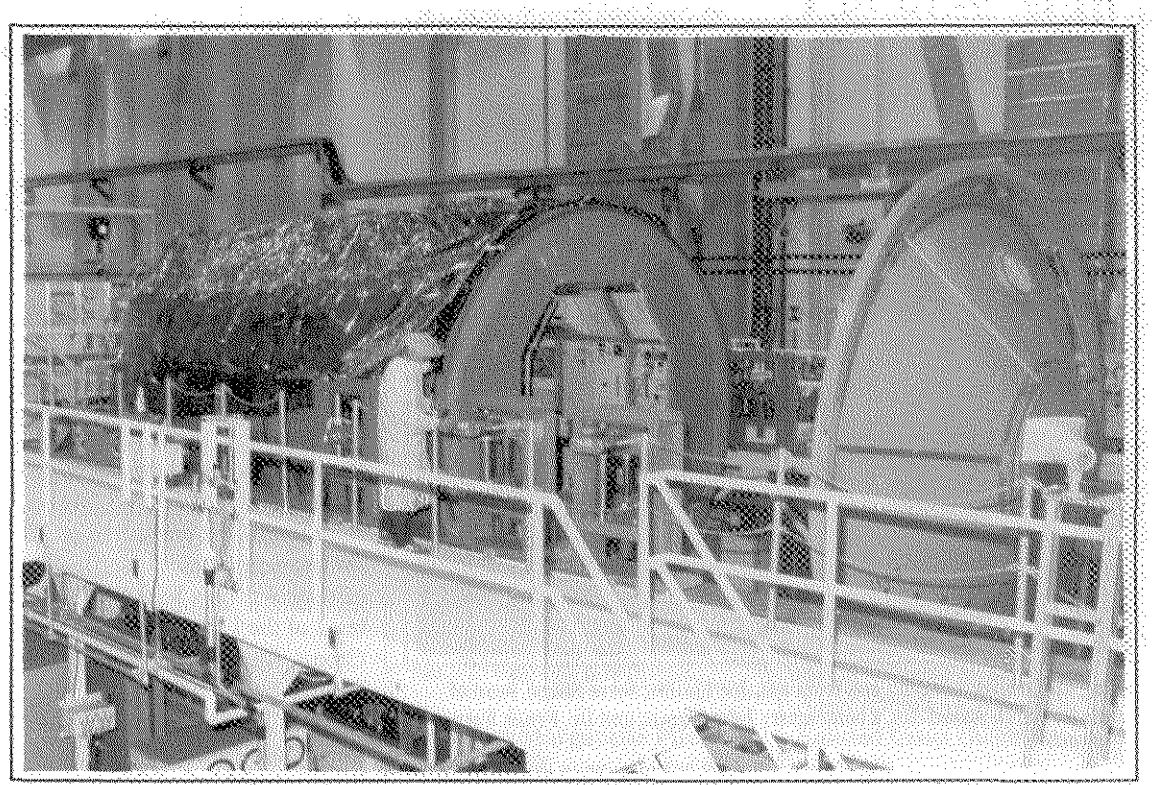


Photo courtesy Kennedy Space Center

Technicians at Kennedy Space Center install the aft end cone on the International Microgravity Laboratory. The instrument will turn the Shuttle into a lab dedicated to investigating the effects of microgravity.

Along with the IML-1 module, 12 Get Away Special containers will be mounted in Discovery's cargo bay containing experiments ranging from materials processing work to investigations into the development of animal life in weightlessness.

Also aboard Discovery will be the IMAX camera, a large-format camera flown on several Shuttle missions as a joint project by NASA, the National Air and Space Museum and the IMAX Film Corp.

On Discovery's lower deck, the Investigations into Polymer Membrane Processing will investigate possible advances in filtering technologies in microgravity, and the Radiation Monitoring Equipment-III will record radiation levels in the crew cabin.

Car passes to the launch may be obtained by calling Ann Suit, ext. 43305.

Student experiments

Two experiments developed by students under the Space Shuttle Student Involvement Program also will fly on Discovery. Convection in Zero Gravity, conceived by Scott Thomas while attending high school in Johnstown, Pa., will make a second Shuttle flight to investigate the effects of heat on fluid surface tension in weightlessness.

The Zero-G Capillary Rise of Liquid Through Granular Porous Media, conceived by Constantine Costes in Huntsville, Ala., will investigate how a fluid flows through granular substances in weightlessness.

STS-42 will be the first of eight Shuttle flights planned in 1992, five of which will feature international participation.

Employee Awards

The following employees have received cash awards for outstanding job performance:

Billy W. Beasley Sr., supervisory electrical engineering technician in the Operations Support Division (OSD), for technical and supervisory support to the Center's wind tunnels and associated research equipment.

Kathryn C. Murphrey, technical resources analyst in the Programs and Resources Division (PRD), for exceptional service in performing duties in a professional, diligent and thorough manner.

James M. Michael Jr., technical resources analyst, PRD, for performing duties in a professional, diligent and thorough manner.

Robert J. Huston, aerospace technologist, technical management, Director for Structures, for exceptional performance in implementing the Structures Directorate technical program.

Patricia G. Clukey, computer programmer analyst in the Applied Aerodynamics Division (AAD), for outstanding efforts in the implementation of the new MODCOMP computer system and continued support of data acquisition/reduction at the 8-Foot Transonic Pressure Tunnel.

Delores K. Poupard, computer assistant, Flight Systems Directorate, for exceptional support in providing reports and information critical to the efficient management of budget resources.

Erik Vedeler, electrical engineer in the Guidance and Control Division (GCD), for exceptional contributions to the development of the Advanced Compact Range Reflector System in the experimental test range.

Anthony Fontana, aerospace engineer, GCD, in recognition of innovative flight experiment concept development for a CSI Free-Flyer Satellite System.

Richard J. Re, aerospace engineer, Applied Aerodynamics Division (AAD), for outstanding contributions to the development of innovative nozzle concepts which offer the potential for significant performance improvements.

Robert K. Faison Jr., construction manager in the Facilities Engineering Division, for exceptional performance in the Hypersonic Facilities Project.

Robert L. Gage, student trainee, FENGD, for exceptional performance in the development of projects for the Center's research and administrative community.

Spencer D. Boullianne, engineering technician, Operations Support Division (OSD), for superior technical contributions to the acoustical wedge modifications in the Jet Noise Facility, Bldg. 1221A.

Mark W. Frye, engineering technician in the Fabrication Division (FD), for highly effective and innovative support to the Crew Equipment Translation Aid Program.

Rodney T. Harris, FENGD architect in the Civil Engineering and Architectural Section and technical project engineer, for excellent performance and contribution in support of CoF project management, design and construction management.

Charles A. Monroe Jr., FENGD aerospace technologist, for completing the seeder design for the 16-Foot Tunnel and other assigned design projects in a professional and timely manner.

Nicholas D. Murray, Information Systems Division computer engineer, for exceptional leadership and technical contributions to the definition phase of the Information Systems Experimental System.

Kathryn A. Smith, ISD mathematician, for superior leadership in the review, selection, advocacy, and direction of innovative ideas that have resulted in outstanding automated software engineering tool development.

Steven D. Young, personnel security specialist, for outstanding contributions to the development of a joint Langley/JPL plan to survey and identify the best available computing system design tools for use by the Remote Exploration and Experimentation Project.

Volunteers Sought to Encourage Students in Science, Engineering

The Hampton Roads Section of The American Institute of Aeronautics and Astronautics (AIAA) is seeking engineering and science professionals as volunteers to participate in the Regional Summer Math and Science Institute (RSI) program.

The RSI program is a pilot project born out of the need for more people trained in the sciences, mathematics and engineering.

The program is directed by Thomas Nelson Community College, with support from the public school systems in Hampton, Newport News and York County; Langley, and CEBAF.

Volunteers may choose to participate as outside speakers or field-trip hosts who can share real-life experiences to stimulate interest and understanding in the work of scientists and engineers.

Volunteers can also serve as a mentor or project advisor to help students with science projects, conduct classroom lectures and take a role in hands-on activities throughout an academic year. Membership in the AIAA is not required to participate.

For more information, call Dr. Tom Gates, ext. 43400, or Beth Lee, ext. 42269.

Managing Change is Subject of Empowerment Series Video

"Managing Constant Change" is the subject of the January video seminar offered in the Empowerment Series by Executive Communications Inc.

The video will be shown live January 22 from 2 to 3:30 p.m. via satellite on a first-come, first-served basis in Room 203, Building 1194A.

The presentation will be made by Terry L. Paulson, president of Paulson & Associatates, a management consulting firm based in California.

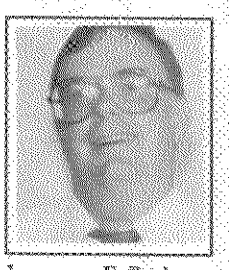
The theme of the seminar is based on a book by Paulson that challenges participants to embrace change. The seminar explores successful strategies to manage the tension of constant change and provides techniques for viewers to use.

To enroll, submit an Application for On-Site Training Form (NASA Form 24) to Kim M. Dobbs, Mail Stop 309.

The forms are available from the Employee Development Branch, ext. 42597, or from your training coordinator.

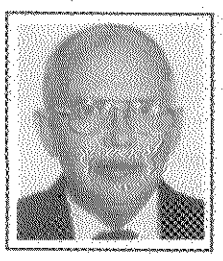
People & Places

Recent Retirees

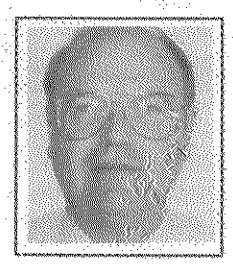


Lawrence E. Barker Jr., Analysis and Computation Division

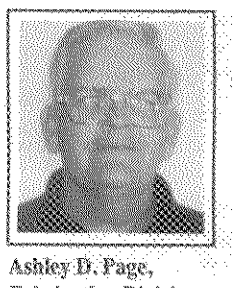
Benjamin F. Defendeifer, Research Information and Application Division



Ruben L. Jones, Guidance and Control Division

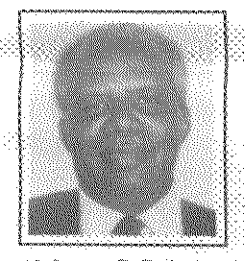


Robert A. Kilgore, Applied Aerodynamics Division



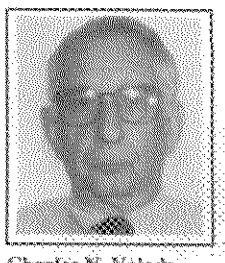
Ashley D. Page, Fabrication Division

Anne S. Reed, Acquisition Division

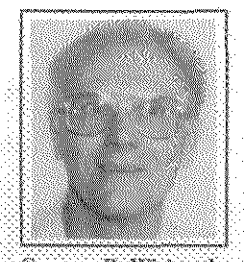


Alphonso C. Smith, Instrument Research Division

Yi Tung, Analysis and Computation Division

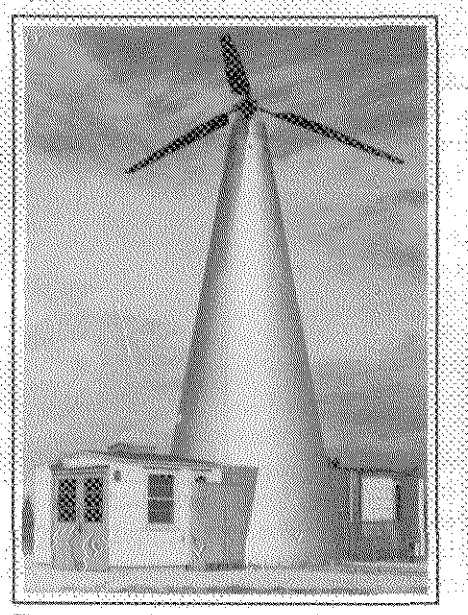


Charles N. Valade, Analysis and Computation Division

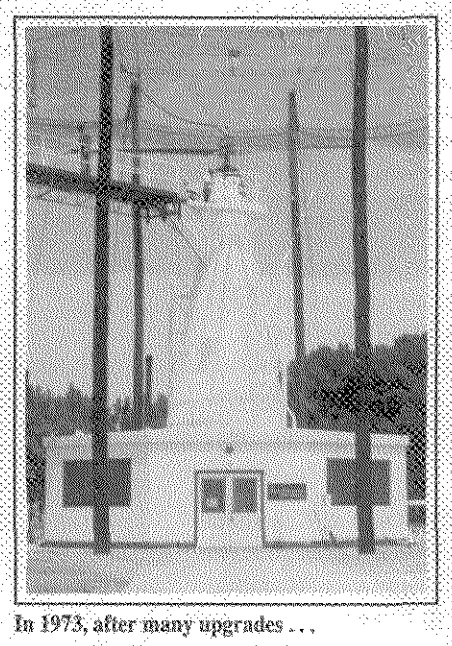


Gregory R. Wichorek, Materials Division

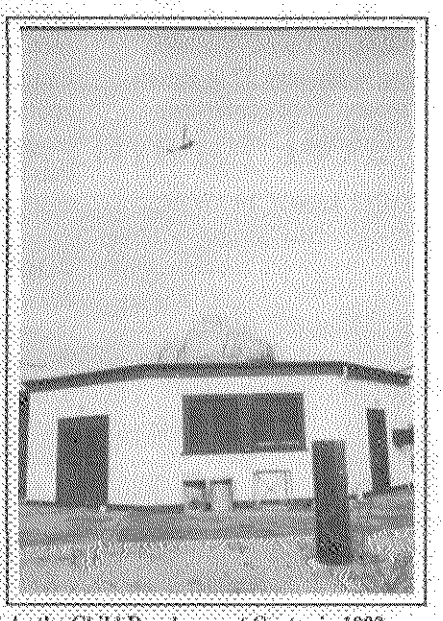
THEN & NOW



The test tower in 1946 . . .



In 1973, after many upgrades . . .



As the Child Development Center in 1992.

Child Development Center Used to be Helicopter Tower

CELEBRATING 75 YEARS

It's a safe bet that few at Langley in 1946 could have guessed that the Helicopter Test Tower would end up as a facility for child development.

But that's what happened.

The building complex at 10 Lindbergh Road was built for the study of aerodynamics and the dynamics of a hovering helicopter. That function ceased in 1976, when Ames Research Center was give the lead role in rotocraft research.

Building 1231 served as the Langley Skywatchers Observatory before becoming the Child Development Center, the function it serves today.

– Bob Huston

Acoustical Society Names Yu, Shepherd to Fellowship Status

Honor Recognizes Exceptional Service

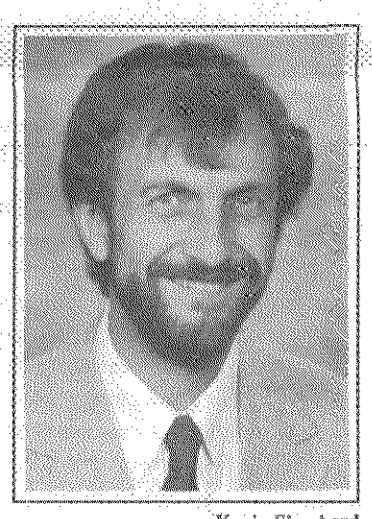
Dr. James C. Yu and Dr. Kevin P. Shepherd, Acoustics Division, have been elevated to fellowship status by the Acoustical Society of America.

The honor is bestowed on members who have rendered exceptional service to the advancement or diffusion of the knowledge of acoustics or the fostering of its practical application.

The society, organized in 1929, includes members from a variety of fields, including electrical, mechanical and aerospace engineering; oceanography, biology, physiology; psychology; architecture and music. The society has 7,000 members, including 500 fellows, in 60 countries.

Yu, assistant chief of the Acoustics Division and manager for Rotocraft Research and Technology, was cited for "contributions to aeroacoustics." Yu was born in Hunan, China. He has a master's degree in aerospace engineering and a doctorate in mechanical engineering from Syracuse University. He is enrolled in the Stanford University Sloan Program.

James Yu



Kevin Shepherd

Shepherd was cited for "contributions to noise control technology and human response to noise." Shepherd, born in London, has a master's degree and a doctorate in acoustics from the Institute of Sound and Vibration Research, University of Southampton. Shepherd is assistant head of the Structural Acoustics Branch.

International Space Year Focuses on Understanding Earth from a Global Perspective

Continued from page 1

ERBE, the Earth Radiation Budget Experiment, consists of instruments on three spacecraft and gathers information necessary to understanding the long-term, large-scale processes of the Earth's weather and climate. A pair of ERBE instruments were launched on ERBS in October 1984; an identical set of instruments was launched in December 1984 on NOAA-9 and another set on NOAA-10 in September 1986. All but one of these instruments continue to operate satisfactorily in orbit, validating previous data and archiving valuable Earth radiation information.

Space Shuttle Discovery astronauts deployed the Upper Atmosphere Research Satellite (UARS) in September 1991 to initiate a decade of intense environmental monitoring from space. UARS is the first of nearly 20 space missions to be launched by the United States, Japan and Europe through the late 1990s.

STAY TUNED

Langley initiatives previewed here will be expanded in a series of articles appearing monthly throughout International Space Year.

HALOE aboard

Aboard UARS is Langley's HALOE, the Halogen Occultation Experiment monitoring important trace gases in the upper atmosphere.

Looking forward, Langley's LASE, the Lidar Atmospheric Sensing Experiment, is the first step in the Agency effort to develop an autonomous remote atmospheric sensing capability. Scheduled to fly aboard a NASA high altitude research aircraft, the ER-2, in late 1993, LASE will measure water vapor and aerosols in the atmosphere. The LITE, Lidar In-Space Technology Experiment, will demonstrate this new remote sensing capability from space using the Shuttle as the flight platform. LITE hardware is now being assembled in Langley cleanrooms in preparation for its validation flight on the Shuttle in late 1993. Langley researchers are committed to the next generation of space-based remote sensing systems for studying Earth. The Center has had three remote sensing systems accepted for the Earth Observing System (EOS), the flagship of NASA's Mission to Planet Earth.

CERES, the Clouds and the Earth's Radiant Energy System experiment, will continue the long-term studies of the ERBE through observations of short- and long-range heat sources. SAGE III will extend the SAM, SAM II, SAGE and SAGE II studies of the upper atmosphere. SAFIRE, the Spectroscopy of the Atmosphere Using Far Infrared Emissions, will extend the HALOE studies.

In addition, Langley will be a node of the EOS Data and Information System (EOSDIS) with responsibility for operation of a Distributed Active Archive Center (DAAC) as well as for providing the science expertise to use the stored data.

Consistent with the ISY theme of exploration, Langley has been heavily involved in the design of Space Station Freedom. In fact, a Langley study had major impact on Freedom's recent restructuring. The Space Station will utilize information from Langley's work in robotics and composites technology.

Specialized vehicles

Accomplishments in exploration presuppose the development of specialized vehicles. Langley has conducted studies for an expanded space transportation system, Shuttle II; a 10-passenger "space taxi," the HL-20; and a hypersonic vehicle capable of flying through the upper atmosphere.

Happenings

TOASTMASTER CLUB meets the second and fourth Wednesday of each month from 11:30 a.m. to 1 p.m. The next meeting is January 22 in Room 200, second floor conference room, Building 1212.

ALUMNI ASSOCIATION monthly luncheon February 11 at 11:30 a.m. in the cafeteria will feature Jack Reeder speaking on Alaskan travels.

THE CONSERVATION CLUB is now holding its regular membership meetings on the third Tuesday of odd-numbered months. The next meeting will be held January 21 from 11:15 a.m. to noon in the cafeteria's executive dining room. For more information, call Tim Collins at ext. 43113.

RECYCLING PROJECT help is needed. Anyone with a truck larger than a pickup who would like to help the Conservation Club with a recycling project should call Keith Henry, ext. 46120.

SITTER NEEDED: In the Denbigh High School area. Teenagers with own transportation welcome. One night a week, Thursday, 6 to 9 p.m. your home or mine. Call 877-2140 after 5 p.m.

FEDERALLY EMPLOYED WOMEN, Langley Chapter, meets the last Wednesday of each month at 11:30 a.m. in the Langley Air Force Base golf course snack bar. The next meeting is January 29. Call Patsy Campbell at ext. 43291 for more information.

BODY DYNAMICS high-energy, low-impact aerobics classes are held Mondays, Wednesdays and Fridays at 6:15 a.m. in the LAA gym. Classes are free and open to civil servants.

HEALTH FOR LIFE weight loss class is about to begin. The 12-week weight loss program emphasizes behavior modification in nutrition and exercise. The next class begins February 5 and only a few openings are available on a first-come, first-served basis. For an application, stop by or call the Fitness Center at ext. 46387.

SKI TRIP: Two days at Whiteface Mountain and one at Gore Mountain in New York. Bus leaves at 6 p.m. February 14 and returns at 6 a.m. February 18. Cost is $265, including transportation, lift tickets, two nights lodging, two dinners and three breakfasts. Call Dave Hahne at 874-7414.

LOW-IMPACT AND BENCH AEROBICS classes are held Tuesdays and Thursdays, 5 to 6 p.m., in the Langley Activities Association (LAA) gym. Cost is $12 per month. The classes are open to civil servants, contractors and their families.

LOST BOOK: *Advances in Aerospace Sciences*, volume in honor of Luigi Crocco on his 75th birthday. Return to Paul Hyer, Room 209, Building 1202, ext. 47603.

SKI TRIPS: January 23, Massanutten; January 30, Wintergreen; February 6, Bryce. Cost of $49 includes transportation and lift ticket. Bus arrives Newmarket South in front of Hechinger's at 4:30 a.m. and leaves at 5 a.m. Arrive at ski area by 9:30 a.m. and leave at 5 p.m. Make check to Richard Bennett, 11 Bosch Lane, Newport News, Va. 23606. For information call 599-5585.

LOST BOOK: *Electron Beam Diagnostics* by W.H. Buckalew and L.D. Posey. Call Kim Chi Ngo at ext. 44672.

FOR RENT: Share Poquoson townhouse. Full use of home, washer/dryer, phone in bedroom, cable TV, full kitchen privileges. Call 868-9556 after 7 p.m.

Photo by Carol Petrachenko

Andrew J. Hansbrough, chief of the Research Information and Applications Division, and Lisa Ryan, general manager of the Exchange Shop, draw the winning ticket in the raffle of a Paddington Bear in December. Nina Esquilin, of Harvey's Janitorial Service, won the stuffed animal.

Tennis Club Awards

Carol Wilson and Charles Bryant were named Club Champions by the Tennis Club at its annual awards party. They won more events than any other other players. Honored as most improved were Danny Chiu and Susan Sorokach.

Beggs is New NAL Head

Former NASA Administrator James M. Beggs has been elected national chairman of the NASA Alumni League. He replaces Robert C. Seamans Jr.

Runners' Club Results

The Langley Runners' Club Interdirectorate 5KM Race on December 5 was won by a team from UNISYS with 24 points. Scoring was the sum of finish positions of team members Steve Robbins, Steve Sudik, Robert Tattle and Bill Henderson. The Flight Systems team of Erik Vedeler, Bill Rogers, Al Graham and Dave Holmes finished second with 28 points. UNISYS was the women's team winner, with 33 points from Pat Parker and Pat Earl.

Researcher News

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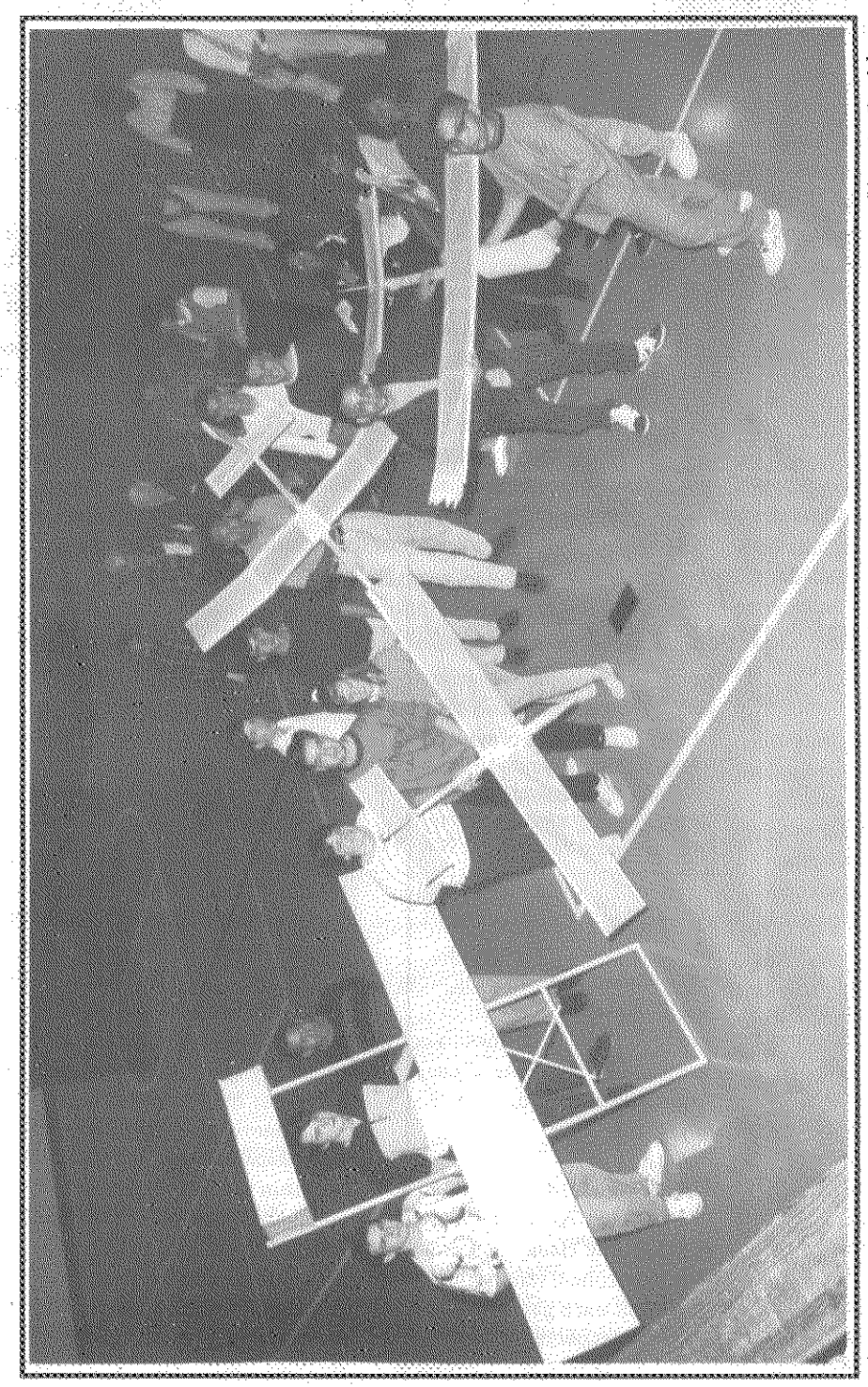


Photo by Fred Jones

Students from four Hampton high schools display the paper airplanes they designed and built as part of a project sponsored by the American Institute of Aeronautics and Astronautics, Hampton schools and the Virginia Air and Space Center. With help from NASA engineers and contractors, the students test-flew the planes at the Hampton School Administration Building in preparation for an attempt to win a spot in the Guiness Book of World Records. The current record-holder had a 16.4-foot wingspan and flew 84 feet from a 10-foot platform in 1991. The Hampton students are redesigning and enlarging their planes for the actual attempt to break the record, which will coincide with the opening of the Virginia Air and Space Center in April, said Lockheed's Dr. Ferdinand W. Grosveld, AIAA project coordinator. The project is aimed at encouraging students to pursue careers in engineering and science. Participating in the effort are Bethel, Phoebus, Kecoughtan and Hampton high schools.

1917 1992 75 Years NACA NASA Langley Research Center

Researcher News

Bi-weekly Employee and Contractor Publication

Volume 6 ❖ Issue 2 ❖ January 31, 1992

Looking Up

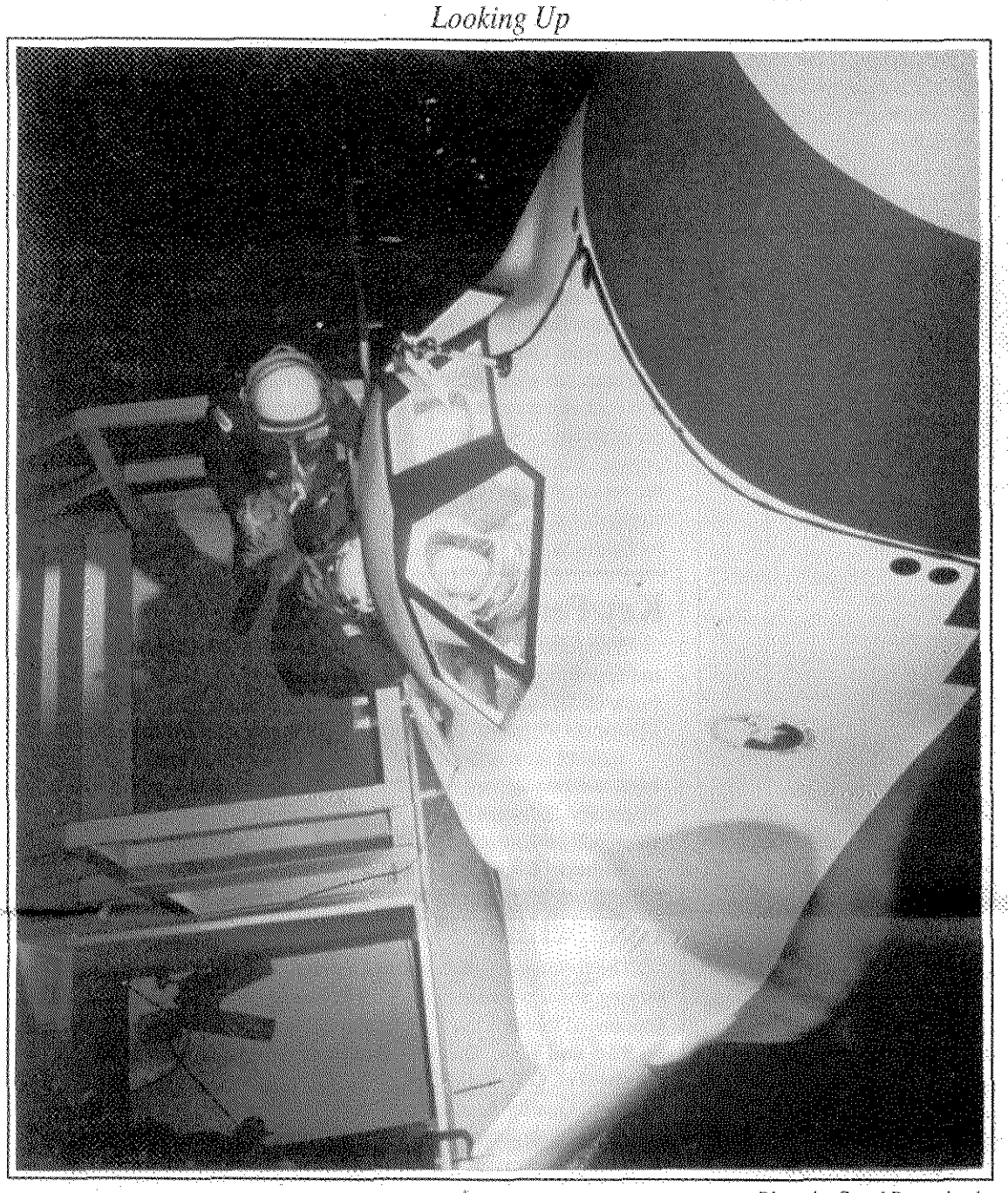


Photo by Carol Petrachenko

The HL-20, Langley's candidate personnel launch system, is one of several designs being considered by NASA as a complement to the Space Shuttle. Human factors studies, using Langley volunteers as subjects, have been ongoing since last March to assess crew seating arrangements, habitability, ingress and egress, equipment layout and maintenance and handling operations, and to determine visibility requirements during docking and landing operations. Langley volunteers, wearing non-pressurized flight suits and helmets, were put through a series of tests with the craft placed in both horizontal and vertical modes.

Spin Tunnel to Undergo $1.9 Million Improvement

Work will Replace Fan, Upgrade Motor

Langley's 20-Foot Vertical Spin Tunnel will undergo a five-month, $1.9 million renovation beginning in April. The three-phase project will replace or refurbish the tunnel's primary components.

"It's a major upgrade to the facility and is, by several orders of magnitude, the largest upgrade we've ever had," said Raymond D. Whipple, spin research group leader in the Flight Dynamics Branch, Flight Applications Division. "When completed, we'll have the best spin tunnel in the world."

"When completed, we'll have the best spin tunnel in the world."

Raymond D. Whipple

The three main phases of the project are:

■ Motor upgrade. The motor, original from when the tunnel was built in 1941, will be refurbished with modern, solid-state technology and its horsepower boosted to 700 from the current 400.

■ Fan replacement. The three-blade, fixed-pitch wood fan will be replaced with a five-blade, variable-pitch composite fan "and all the associated controls that go with it," Whipple said. "Our ability to change the speed of the airflow in the tunnel is very important and this upgrade is intended to do that."

■ Balance system replaced. The rotary balance system, which examines aerodynamic forces under rotating conditions, will be replaced. "We're going to completely replace the rotary balance system," Whipple said. "The equipment we've been using is very old."

Other improvements include replacing the net used to catch free-spinning models. The net hangs in a bowl shape from the sides of the tunnel, which is vertical. The configuration "messes up the airflow," Whipple said. The new net will be strung flat across the bottom of the tunnel.

In addition, the tunnel's walls will be padded to protect models from damage. And, the honeycomb at the bottom of the tunnel will be moved up several feet to improve airflow.

Tunnel shutdown is scheduled for April 1, but replacement of the video-tracking system has begun. An automated video-tracking system will replace a hand-operated system.

HOW A SPIN TUNNEL WORKS

Air is drawn upward through the test section by a fan at the top. After passing through the fan, the air circulates through turning vanes that direct it down into an annular return passage and back up the test section.

Models are hand-launched from the control room. A flick of the hand imparts spin; the model's fall is offset by up-rushing air. Model surfaces are driven by tiny electric servo-actuators, which are activated electromagnetically to initiate spin recovery.

Nearly every U.S. fighter, light bomber, attack plane and trainer has been tested in Langley's spin tunnel. Current work includes tumbling research, X-31 support, and testing of the F-16 C and D models.

Colloquium: Shuttle Engineer to Discuss Soviet Space Program

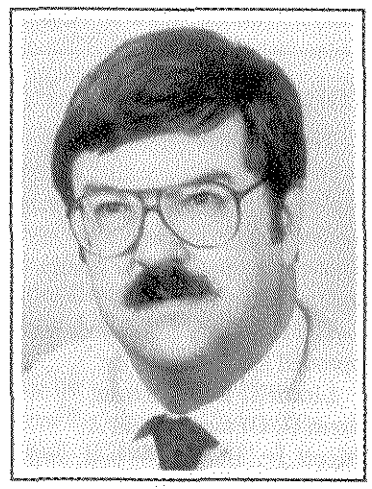
What's really been going on in the Soviet space program and how can we find out?

What space disasters are being covered up by the Soviet Union? Where are their secret space bases? What really happened to Yuri Gagarin, the first man in space? Why and how did the Soviets copy our Space Shuttle? Can they ever be trusted to tell the truth on space? Can we learn anything useful for our own space projects?

James Oberg will address these subjects in two lectures on the Peninsula Monday, February 10.

Two talks scheduled

At 2 p.m., Oberg, a Space Shuttle senior engineer at NASA's Johnson Space Center, Houston, Texas, will speak on "Buran—Russia's Space Shuttle, Boon or Boondoggle?" His lecture will be given to NASA Langley employees, retirees and contractors during a colloquium in the H.J.E. Reid Conference Center, 11 Ames Road.



James Oberg

At 7:30 that evening, Oberg will speak on "Sleuthing Soviet Space Secrets" at the Radisson Hotel Hampton as part of The Sigma Series. The Sigma Series is a series of free public lectures sponsored by the Virginia Air and Space Center, the Daily Press and NASA.

In the afternoon lecture, Oberg will discuss the Buran program, comparing it to the NASA shuttle design, and will predict its future. Early manned atmospheric tests and the shuttle cosmonaut cadre will be addressed. The Soviet training and flight activities tell a lot about future Russian shuttle mission plans. Many of the pilots have died tragically.

Oberg's evening lecture reflects his original research in figuring out what the USSR was (and Russia is) hiding about its past, present and future activities in space and in actually prodding them to grudgingly reveal hitherto restricted information.

His private sleuthing has proven to be remarkably successful as even the Soviets have begun to admit.

New on the Menu: Cafeteria Offering Domino's Pizza on 7-Week Trial Basis

Employees with a craving for pizza won't have to leave the Center at lunch to get it, at least for the next few weeks.

The cafeteria has been offering Domino's pizza since January 13.

"We're going to try a trial period until February 28 to see how it goes," said Lisa Ryan, business manager for the NASA Langley Exchange. "They are offering pizza by the slice and whole pizza."

The pizza, which comes from the Domino's near the Wythe Creek gate, is being sold from 10:45 a.m. to 12:30 p.m. at a table in front of the temporary site of the Exchange Shop. Cost is $1.50 a slice, $9 for a whole (large) pizza with a choice of a cheese, sausage, pepperoni or vegetable topping.

You'll have to make the trip to the cafeteria, however.

"They don't deliver," said Ryan.

News Briefs

Hubble Discoveries — Scientists have reported discovering about 50 bright objects that appear to be young, massive globular star clusters at the center of galaxy NGC 1275. The Hubble Space Telescope discovery was reported by astronomers led by Dr. Jon Holtzman of the Lowell Observatory, Flagstaff, Ariz. Globular star clusters are believed to be among the oldest objects in the universe, leading Holtzman and his team members to tentatively conclude that these new clusters may be the visible result of a merger or collision of two galaxies - of which NGC 1275 is the result.

Massive Black Hole — Another Hubble team from the National Optical Astronomy Observatories and the University of California reported they have found evidence of a massive black hole at the center of the giant elliptical galaxy M87. The images, obtained by Hubble's Wide Field/Planetary Camera, show a densely concentrated cusp of light at the heart of the galaxy. The team reports that the galaxy has a central density of stars over 300 times the density of a normal elliptical galaxy.

Editor's note: To obtain a copy of any of these NASA Headquarters News Releases, contact Susan Smigielski, Mail Stop 146, ext. 43293. Please request information summarized above by headline printed in bold.

Lankley Artist would Rather be a Rock Star

He'll have to Settle for Drawing Cartoons

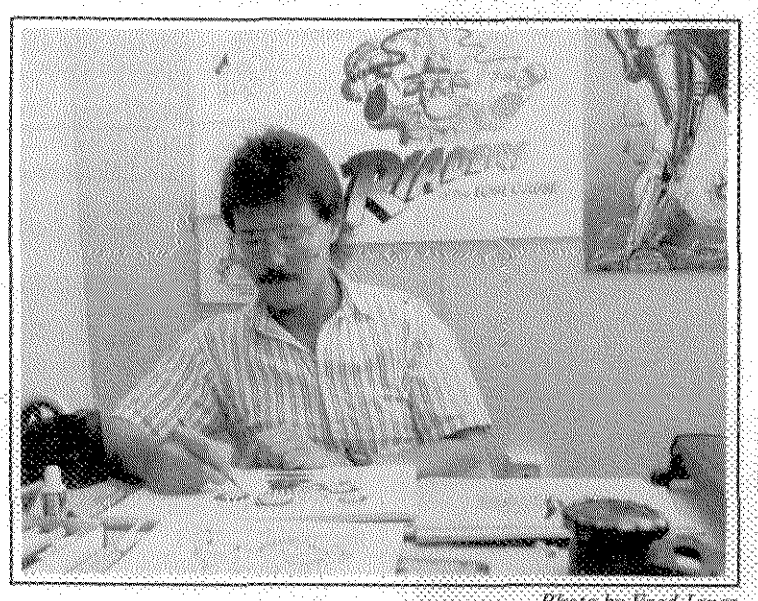


Photo by Fred Jones

Rod Waid has been drawing Lankley since 1987.

If Rod Waid could be anything in the world, he would be lead singer for a rock-and-roll band. But while musical stardom has eluded the 30-year-old Waid, there are substitutes. Waid sings locally and recently performed at a wedding party where he noticed Center Director Paul F. Holloway in the crowd.

"That took me by surprise," says Waid, a visual information specialist in the Graphics Section, Research Information and Applications Division, on a contract with Mason & Hanger Services Inc.

Then there's *Lankley*, the cartoon that runs every two weeks in the **Researcher News** and has been - so far - Waid's closest brush with fame.

The Denbigh resident has been drawing *Lankley* since 1987, when the **Researcher News** was redesigned and the idea of running a cartoon was resurrected (a cartoon had run years previously) After some brainstorming, *Lankley* was born. Waid, who had been at Langley for a year, was asked to draw it.

Married with children

Who is Lankley? He's married, with children: wife Trixie, son Einstein, daughter Judy and dog Spotnik. But the specifics end there.

"He's basically a generic reasearcher," Waid says. "He can be just about anybody. He could be a scientist, he could be a wind tunnel operator - he could be anyone."

Waid says Lankley hasn't existed long enough for him to change a whole lot. But there have been some changes. He's lost weight and hair. And Lankley and his family members often look slightly different than they did in previous cartoons because Waid draws them from memory.

Most of the changes have been stylistic, Waid said. "As I'm drawing him I refine him and I try to make him look better, the way I'd like him to look."

Waid credits television cartoons with piquing his interest in art. "Every Saturday morning I was there, in front of the TV set," he says, "and reading comics. My favorite was *Peanuts*."

"That one inspired me to do cartoons with funny captions," Waid says. His father encouraged him by bringing scrap paper home from work for him to draw on.

"I'm a huge Disney fan," he added. "I have a large collection of Disneyana. I'm always looking for new stuff for my collection."

Lankley not his only job

Waid pursued drawing into adulthood. He graduated with an associate's degree in commercial art from Thomas Nelson Community College. He did air-brushing for a toy company, heraldry (coats of arms) for Busch Gardens, and a lot of free-lancing.

In 1986, an artist friend at Langley helped him land a job at the Center, where drawing *Lankley* is only a part of the job.

Waid also draws caricatures for special occasions, such as retirement parties and birthdays, in addition to his regular duties of producing computer-generated technical drawings for researchers' presentations.

Childrens' book

Recently Waid began collaborating on a children's book with an English teacher at Thomas Nelson Community College.

"It's about a little boy and a little frog," he said. "He's writing it and I'm illustrating it. I think it has real potential."

Lankley

In Memoriam. . .

Sympathy is extended to the families of the following:

George Stech, an Army employee who died December 27. He worked in the Joint Research Programs Office of the U.S. Army Aviation Systems Command Avionics Research and Development Activity.

Blake W. Corson Jr., who died December 23. Carson retired from NASA on June 23, 1972.

Richard H. Cutler Sr., who died January 2. He retired from Langley July 12, 1977 as a production controller.

Gay R. Gilbert, who died January 7. Gilbert, a mathematician, retired in 1975.

Retirement Social

Robert J. Huston will be honored at a retirement party Saturday, February 29, at the H.J.E. Reid Conference Center. The cash bar social will begin at 6 p.m; dinner at 7; and program at 8. Cost is $15 per person. Contributions for gift are welcome. Respond via check to Jim Gardner, MS 118, by February 19.

Thank You . . .

Sonny and Belle Wood write, "Your cards, calls, flowers, prayers, encouragement and donated leave have meant so much during the past weeks. Words cannot begin to express how much each of you mean to us. With your love and support, Sonny will make it and will be back to NASA. Thank you for being there for us."

Key Personnel Changes Made

The following key personnel appointments have been made under the Competitive Placement Program at Langley:

Robert A. Kudlinski has been named assistant head, Flight and Software Graphics Branch, 91-69.

Robert Gifford, assistant head, Aircraft Operations Branch, 91-71.

Robert Letchworth, head Projects Control Branch, 91-72.

Scott Kjelgaard, assistant head, Experimental Methods Branch, 91-77.

Ruth Martin, assistant head, Aeroacoustics Branch, 91-79.

Competitive Positions Announced

The following vacancies, open to Langley employees currently serving under permanent civil service appointments, have been announced through the Competitive Placement Plan:

92-5 and 92-6: Quality Assurance Specialist (Precision Hardware), GS-1910-11 or 12; SE&O Directorate, Fabrication Division, Quality Assurance & Inspection Branch (QAIB); two positions; close February 3.

92-7: Supervisory Quality Assurance Specialist (assistant head, QAIB), GS-1910-12 or GM-13; SE&O Directorate, Fabrication Division, QAIB; closes February 3.

92-8: Supervisory Quality Assurance Specialist (head, QAIB), GM-1910-13 or 14; SE&O Directorate, Fabrication Division, QAIB; closes February 3.

92-9: Contract Specialist, GS-1102-7 or 9; Management Operations Directorate, Acquisition Division, Purchase & ADP Contract Branch; closes February 5.

92-11: AST, Heat Transfer, Aerospace Engineer, GS-861-9; SE&O Directorate, Systems Engineering Division, Engineering Analysis Branch, Thermal Analysis Section; closes February 6.

Voluntary Leave Program Approvals

The Voluntary Leave Transfer Program is designed to permit employees to donate annual leave to other employees who are experiencing personal or family medical emergencies.

The following employees are approved leave recipients:

Linda E. Edmundson, Glenn D. Ormsby, Noel A. Talcott Jr., Belle L. Wood, and Catherine B. Worth.

If you wish to donate annual leave to these recipients or to receive more information concerning the Volunteer Leave Transfer Program, please contact Linda Park or the Employee Relations Office, ext. 42610.

Oshkosh Forum Signup

Langley personnel interested in participating in the Forum presentations at the EAA Annual Convention in Oshkosh, Wis., July 31 through August 6 should contact Harry Verstynen at ext. 43874 or Barbara Trippe at ext. 43874 by February 7 for information and signup procedures.

News Researcher

The **Researcher News**, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23665-5225, is published every other Friday in the interest of all Langley staff and retirees. Submit contributions to the Editor, Mail Stop 115, telephone 864-6126. Articles are due at noon on the Tuesday following the date of this issue.

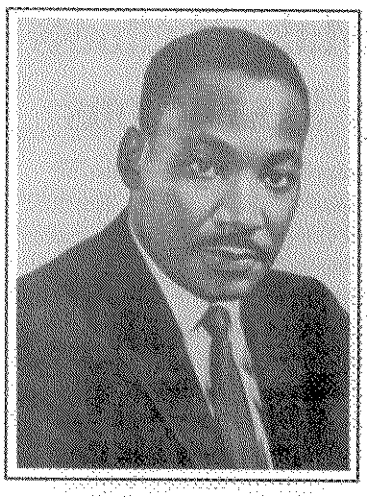
Managing Editor ..... Jean Drummond Clough

Editor ..... Michael Finneran

Photojournalist ..... Carol Petrachenko

Photographer .....Fred Jones

The privilege of advertising in this publication is restricted to the employees and retirees of the Langley Research Center. Articles advertised here must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.



A Poem for Dr. King

The following poem honors the Rev. Dr. Martin Luther King Jr., the slain preacher and civil rights leader who would have been 63 this year.

Re-Formation
A Poem for Dr. King

The black King came forth
under a Lutheran name.
Perceiving an impartial God,
he moved his pulpit to the
streets
and proclaimed his dream.
Before God and the world,
he stood and marched,
he stood and preached,
he stood and prayed.
Although voted the most
peace-loving man
on our planet,
violent, conspiring hands
ended his march.
At last he is free
to stand in the land
of perfect peace.

– Ramona C. Carroll

Local Women in Aerospace Section is Established at Langley

The Hampton Roads Section, the first section of Women In Aerospace (WIA), was established at Langley in July 1991.

The foundation of the Hampton Roads Section is based on the purpose and goals of the national WIA organization that was founded in 1985 in Washington, D.C., by a small group of women working in the aerospace field.

Expanding opportunities

The WIA, whose purpose is to provide a formal network for women working in the aerospace field, is a non-profit professional society dedicated to the goals of expanding women's opportunities for career advancement, professional development and visibility as aerospace professionals.

WIA also supports educational initiatives related to the aerospace field. Its goals are achieved through program meetings, projects and a variety of working groups.

Regular participants at the national WIA events, held mostly in Washington, D.C., iclude industry executives, NASA officials and congressional staff.

More than 400 members

Today, there are over 400 women and men who are members of WIA and other sections are forming in Texas, California and Colorado.

Photo by Paul Bagby

Members of the Hampton Roads Section of the Women In Aerospace are (first row, from left) Pamela Davis, Gaudy Bezos-O'Connor, Mary Sandy, Veloria Martinson, Jessica Woods-Vedeler; (second row) Kelli Willshire, Sharon Crockett, Chen Tanner, Beth Lee; (third row) Mary Ann Smith, Sue Bostic, Joan Funk and Carol Weiseman. Not pictured: Debra Carraway, Eric Dahlstrom, Diana Freeman, Wendy Poston, Jocelyn Pritchard and Rosemary Rallo.

Meets first Tuesday

Throughout this past year, the Hampton Roads Section, which meets the first Tuesday of each month, has upheld the goals of WIA by sponsoring three programs of interest to all people in the aerospace field.

The first program featured Debra Carraway, who presented results from the "Eye of the Needle" study; the second program, "HL-20 Human Factors Research," was given by Dr. Kelli Willshire; and the third program, given by Jim Meyers, addressed "Part-Time Career Employment" at NASA.

Programs for 1992

Programs planned for this year include "Networking," "The Role of Scientists and Engineers in Grade School Education" and "Health and Fitness for Working Women in the '90's."

Hampton Roads Section officers, who were installed in September, are Jessica Woods-Vedeler, president; Veloria Martinson, vice president of programs; Pamela Davis, vice president of membership; Mary Sandy, secretary; and Gaudy Bezos-O'Connor, treasurer.

All of the current officers are Langley employees except Mary Sandy, who is director of the Virginia Space Grant Consortium.

Senior Management Research and Review

The Senior Management Research Review will be held Tuesday, February 18, from 9 to 11 a.m., at 17 West Taylor Road, Subsonic Tunnels Offices, Room 200. All employees are invited to attend. Program accomplishments will be given by the following Langley scientists:

TIME	PROGRAM AND SPEAKER
9:00	Fully Integrated Aerodynamic/Dynamic Optimization Procedure for Helicopter Rotor Blades Demonstrated, **Joanne L. Walsh** (IRO, SDYD, Structures)
9:15	HSCT Climb-to-Cruise Noise Prediction Comparison, **Robert A. Golub** (AB, ACoD, Structures)
9:30	Shuttle Upper Atmosphere Mass Spectrometer Experiment (SUMS), STS-35 Flight Results, **Robert C. Blanchard** (AB, SSD,Space)
9:45	Compressible Turbulence/Chemistry Interaction, **Richard L. Gaffney Jr.** (ASM, Aeronautics)
10:00	CFD-Based Aerodynamic Design of Hypersonic Wind-Tunnel Nozzles, **Dr. John J. Korte** (TFPB, FLDMD, Aeronautics),
10:15	Preliminary Test Results for a Telerobotic Hand Controller Study of Force Reflection with Position Control Mode, **Dr. Kelli F. Willshire** (ATB, ISD, Flight Systems)
10:30	Director's Comments

After these presentations, program directors will give status reports.

Fax Machines are Available from MSD

The Management Support Division has three portable FAX machines available for use by employees or contractors for up to 30 days. The FAX machines are to be used when an employee or contractor is on extended leave or is attending a special retreat or conference off-center.

To acquire a FAX machine, please call Nannette Lloyd, ext. 46753.

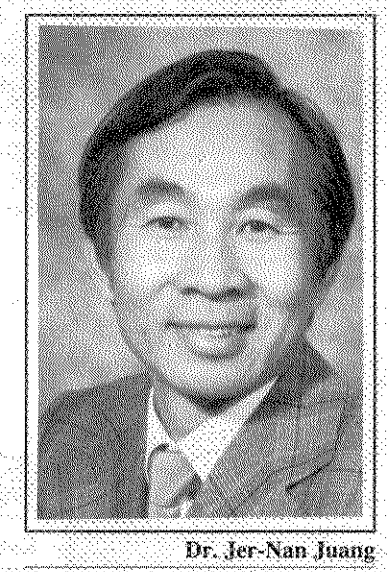
Juang Wins Astronautical Society's Dirk Brouwer Award

Dr. Jer-Nan Juang, principal scientist, Spacecraft Dynamics Branch, has won the 1990 Dirk Brouwer Award given by the American Astronautical Society (AAS).

The award was presented for Juang's outstanding contributions to the control of flexible spacecraft, particularly in the development of structural identification techniques.

Juang conducts analytical and experimental research in the fields of mechanical designs, controller designs and system identification for control of flexible space structures, including robotics.

He coordinates joint technical activities with other Langley and NASA organizations, other government agencies and industry/universities on a national and international basis. Juang is a fellow of the AAS, and the American Institute of Aeronautics and Astronautics (AIAA).



Dr. Jer-Nan Juang

Numerous awards

He is the recipient of several NASA Outstanding Performance, Special Achievement and Technical Excellence Dual Career Ladder awards. He received the Award of Merit for a prize-winning paper on Mechanism, Design, Analysis or Application at the 21st ASME Mechanism Conference.

Juang was an associate editor of the Journal of Astronautical Sciences. He is an associate editor of the Journal of Guidance, Control and Dynamics and the Journal of Vibration and Acoustics.

New Street Name and Sign Installation is Underway

February Distribution for Telephone Directory

Work is progressing on the renaming of Langley's streets.

Shortly, crews will remove the old street corner signs, according to John Mouring, Center master planner in the Facilities Program Development Office.

The old "area" signs will also disappear, as did the area locator system on the Center map.

Also to be taken down are the few non-conforming old facility lawn signs that escaped removal during the first wave of new address signs, Mouring said.

In early February, workers also are scheduled to correct the names on the new lawn signs.

The lawn sign corrections will be followed by installation of new street corner signs. These 36 new corner signs are designed to match the lawn signs and to be highly visible, even at night.

By mid-February, the Center telephone directory will be distributed and will contain the new street names.

"Unless hampered by severe weather, this coordinated changeover should be accomplished rapidly," said Mouring.

Employee Awards

The following employees have received cash awards for special acts.

Marcella F. Hogge, Flight Management Division secretary, in recognition of the extra efforts and productivity in preparation for wind shear remote deployments while efficiently handling the normal office duties.

Tracey E. Miller, student trainee, Office of the Director, for exceptional performance and support as a first-year co-op secretarial student assigned to the Office of External Affairs.

Lindy A. Fleck, aerospace technologist, Facilities Engineering Division (FENGD), for the superior performance, high motivation, and significant contributions exemplified in supporting the design of research facilities and experimental hardware.

Mark S. Wampler, engineering technician, FENGD, for exceptional performance in providing technical engineering design, fabrication, inspection, and installation testing support for the Center's research facilities and research hardware.

Ashby G. Lawson, engineering technician, FENGD, for excellence in repairing the Unitary Wind Tunnel Shell.

Terry J. Tyler, mechanical engineering technician, FENGD, for excellence in monitoring the Configuration Management, Underground Utility and Engineering Services.

Randolph W. Mixon, senior engineer, Information Systems Division, in recognition of selection as Outstanding Property Custodian December, 1990.

Harold C. Lester, aerospace engineer, Acoustics Division, for the development and evaluation of an analytical model for coupling piezoelectric actuators with a finite cylinder fuselage model for active noise and vibration control.

Jack D. Leatherwood, aerospace engineer, Structural Acoustics Branch, for the conduction and interpretation of studies of human response to shaped sonic booms.

Kevin N. Barnes, senior technician, ISD, for timely development of processor covers to enhance reliability of the Laboratory Telerobotic Manipulator.

William M. Cirillo, aerospace technologist, Space Station Freedon Officet, for the development of requirements and concepts for the evolution of the Space Station Freedom.

Richard T. Layman, supervisory management analyst in the Management Support Division (MSD), for exceptional and dedicated service in assuring a highly professional and superior quality cafeteria and in managing the Center's Historical Program.

Billy J. Smith, security specialist, MSD, for exemplary performance and support to the Center's Security Program.

Health Corner: Make Wellness Plans, Not Merely Resolutions

The beginning of each new year usually brings hope of better things to come—success, happiness and health usually top the list. But how do we intend to get there? Usually through New Year's resolutions—"This year, I'll start exercising, take some courses, quit smoking, start a new hobby, start a college or retirement savings plan, lose weight." You know how it goes.

What are the chances of New Year's resolutions bringing the desired results? Not very good as long as they are left in the form of good intentions.

It takes a good amount of detail to transform a New Year's resolution into a workable, achievable plan whether you're talking about exercise or improvements in the areas of family time, education, spiritual development or whatever makes you feel successful, happy and healthy. Give it a try. Take one of your good intentions and see if you can develop it into a detailed plan. It may make the difference between another failed New Year's resolution and a significant lifestyle improvement.

If you need assistance with making lifestyle adjustments due to problems that are negatively affective your health, happiness, job productivity or family life, call your Employee Assistance Program Counselor at (800) 950-3434.

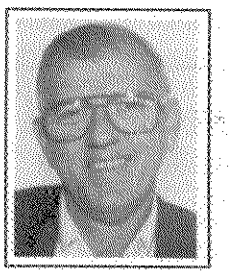
Help is just a phone call away.

Deadline Call for Conference Papers

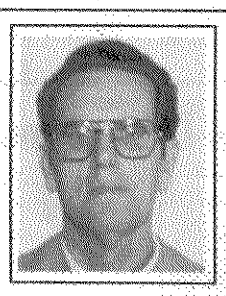
Titles of papers to be presented at the Materials Science Section of the Virginia Academy of Sciences are due by February 24, 1992. The meeting will be held May 21, 1992, at the University of Richmond. Call Linda Black, ext. 41453 for more information.

Langley engineers and scientists interested in presenting papers at The Second Symposium on Parallel Computational Methods for Large-Scale Structural Analysis and Design, February 24-25, 1993, have until June 1, 1992, to submit abstracts to Olaf Storaasli, technical chairman. The conference will be held February 24-25, 1993, in Norfolk. For more information, call Storaasli, ext. 42927.

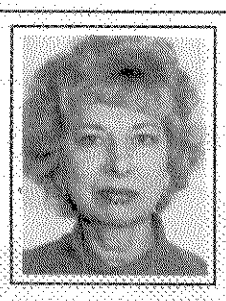
Recent Retirees



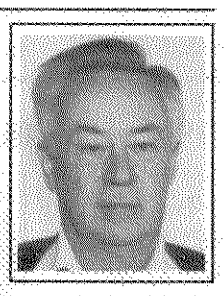
Richard R. Adams
Instrument Research Division



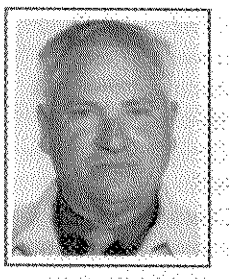
Frederick Austin
Flight Applications Division



Kay S. Bales
Structures Technology Program Office

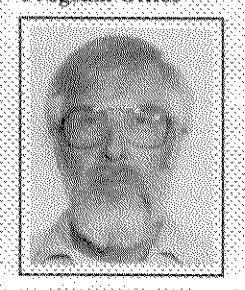


Alfred G. Beswick
Flight Electronics Division

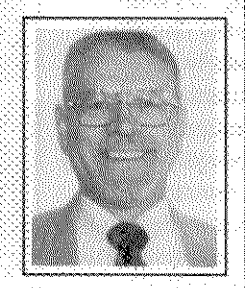


Donald L. Ewton
Fabrication Division

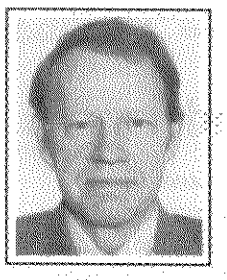
Steve W. Farmer
Analysis and Computation Div.



James T. Howlett
Structural Dynamics Division

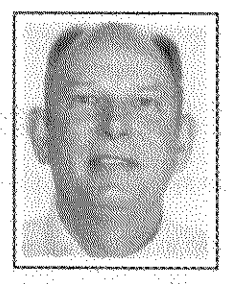


Robert J. Huston
Office of Director for Structures

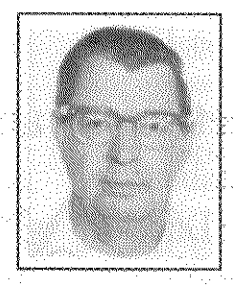


Virgil S. Laney
Systems Engineering Division

Raymond Midden
Space Systems Division



Warner W. Smith
Operations Support Division



Carson E. Yates
Structural Dynamics Division

Not pictured are **James C. Ferris**, Applied Aerodynamics Division; **Evelyn B. Goodrich**, Facilities Engineering Division; **Carroll D. Lytle**, Flight Electronics Division; **Frederick J. Rosensteel**, Instrument Research Division; **Betty E. Walker**, Research Information and Applications Division; and **William L. Weaver**, Atmospheric Sciences Division.

Speakers Bureau

Dr. Joel Levine spoke on "A Planet at Risk" October 17 at the Langley Chapter, National SpaceSociety; October 22 at the Norfolk Rotary Club; October 24 at the Association of the Peninsula United Nations, Christopher Newport College; November 11 at the Kingsmill Women's Club; November 15, Sloan School of Management, Massachusetts Institute of Technology; November 19, at an economics seminar, Hampton University; November 24, Peninsula Chapter, American Society of Civil Engineers; and December 17 Southern Peninsula Amateur Radio Club.

Levine discussed global atmospheric environmental issues during a geology seminar at The College of William and Mary on November 24.

Sharon Tanner spoke on "Issues of the Working Woman" at the Leadership Institute December 5.

David Glass discussed the National Aero-Space Plane program at North EastMissouri State University December 6 and 7.

Nick Lagen addressed the "Principles of Flight" December 12 at the Portsmouth School district meeting.

Cathy Schauer spoke on "Flying is Fun" during a Marlbank Cove student program December 14.

Working with Diverse People is Topic of Seminar

"Working with People from Diverse Backgrounds," a video seminar via satellite, will be shown Wednesday, February 12, from 2 to 3:30 p.m. in Building 1194A, Room 203. The seminar features Carmen Colin, senior associate, ODT Inc., and is sponsored by Executive Communications Inc.

To register for the seminar, submit an application for On-Site Training Form (NASA Langley Form 24) to Kim Dobbs, MS 309. The form is available from the Employee Development Branch, ext. 42597, or your training coordinator.

Air Scoops and Researcher Newses are Sought

Past issues of the **Researcher News** and *Air Scoop* are being sought. Original issues are preferred, but photocopies will be welcomed.

The following old issues of the **Researcher News** and *Air Scoop* are needed:

1945, Issue 9, Vol. 4; 1949, Issue 38, Vol. 8; 1965, Vol. 4, No. 6; 1967, Vol. 6, No. 15; 1968, Vol. 7, No. 15; 1969, Vol. 8, No. 3; 1971, Vol. 10, No. 12; 1973, Vol. 12, No. 14 and Vol. 12, No. 5; 1988, Sept. 22 issue; 1989, August 14 issue.

To donate a copy or an original, please call ext. 46126 or send to Mail Stop 115.

Mixed White Paper Now Being Collected Under New Recycling Contract

Mixed white paper is now being recycled at Langley.

The Center will continue reclaiming carbonless computer paper and in addition will collect - in separate boxes - white paper that previously was not recycled.

The new procedure is made possible under a contract negotiated by the Management Support Division.

Employees key to success

"Whether this works or not depends on the individual," said Dean Eklund, paper recycling team leader for the Conservation Club and a research associate in the Fluid Mechanics Division.

"All an individual has to do is separate the two kinds of paper, put the appropriate form on the box and put the box in the hall," Eklund said.

Eklund said that 49 tons of recyclable computer paper were collected at Langley in fiscal 1991. That accounts for 42 percent of the 116 tons of computer paper ordered on the Center during that period. The recycled paper earned $5,679 for the U.S. Treasury, he said.

Recyclable paper will be picked up each Wednesday and placed outside by Harvey's Janitorial Service employees. Groundskeeping workers for MLB Enterprises Inc. will then transfer the paper to a trailer to be collected by Langley's recycling contractors. The following is a list of paper that can and cannot be recycled:

DO recycle

- White paper.
- Carbonless forms (white copies only).
- Dry process copier paper.
- Letterhead.
- White pages of outdated calendars.
- June 1991 and later editions of the Center's telephone directory.

Do NOT recycle

- Envelopes (white and manila).
- Carbon paper.
- Food wrappers, waxed paper.
- Chemically treated paper, such as fax paper.
- Wet process copier paper.
- Heavy cardboard, corrugated board or chipboard.
- Newspapers or magazines, including the Federal Register.
- Coated copier paper.
- Gummed labels or paper with gummed labels applied.
- Rubber bands, paper clips.
- Adhesives, glue bindings and cellophane.
- Slick or glossy paper.
- Photographic or blueprint paper.

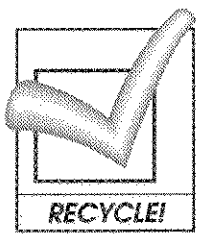
Recycle Phone Books

Old Langley phone books are being recycled and should be turned in by Thursday, February 6. Personnel should place the phone books on their branch or building package pickup table.

The project is sponsored by the Conservation Club, Tidewater Fiber Corp. and the Management Support Division.

ORDERING THE FORMS

- Computer paper will continue to be collected using NASA Langley Form 122, "Recyclable Paper - Deposit Only Carbonless Bifold Computer Paper."
- All other white paper will be collected using NASA Langley Form 122A, "Recyclable Paper - Deposit White Paper Only."These forms, available from Stock, are to be attached to boxes used for recyclable paper.



ORDERING THE BOXES

- Recyclable paper is to be collected in used copier or computer paper cartons or shipping boxes available from Stock (NSN 8115-00-290-3379 or NSN 8115-00-179-0579).

WHO TO CALL

- Contact Loretta W. Watkins, ext. 43564, if you have questions. For pickup problems, call ext. 42664 or 42658.

Air Scoops

DONATE TODAY TO DIMES EFFORT

The Laboratory's March of Dimes effort will be climaxed tonight when the Activities Association sponsors its third annual benefit dance at the Activities Building. All proceeds from the dance will go to the polio campaign.

A line-up of high ranking "table hops" will be on hand to render service to those attending the affair.

Heading up the waiters will be Percy Keffer. He and his crew will try to entice partygoers to tip heavily so that they will have a tidy sum to turn over to the March of Dimes.

Music will be furnished by the Southerners and dancing will be from 9 p.m. 'til 1 a.m.

CELEBRATING 75 YEARS

A special door prize will be given away and carnival games will be set up in the lounge room for those who would like a rest from dancing.

A minimum donation of seventy-five cents per person will be required at the door. Plan to come out and join in the fun tonight.

EXAM OPENED TO SCIENTISTS

The Fourth United States Civil Service Region announces the opening of an examination for Junior Scientists and Engineers with grades GS-6, $3410 per annum, and GS-7, $4205 per annum.

The following options are included in the examination:

Physicist, Metallurgist, Mathematician, Chemist, Engineer, and Electronic Scientist.

This examination announcement cancels and supersedes Announcement No. 4-10 (1951). Persons whose notices of eligibility in the previous examination are dated prior to August 1, 1951, and who have not been appointed as a result of that examination should file application under this announcement if they desire continued consideration for appointment.

Applications may be filed until further notice with the office of the Director, Fourth U.S. Civil Service Region, Temporary Building "R", 3rd and Jefferson Drive, S.W., Washington 25, D.C.

LIFE AT THE LABORATORY...

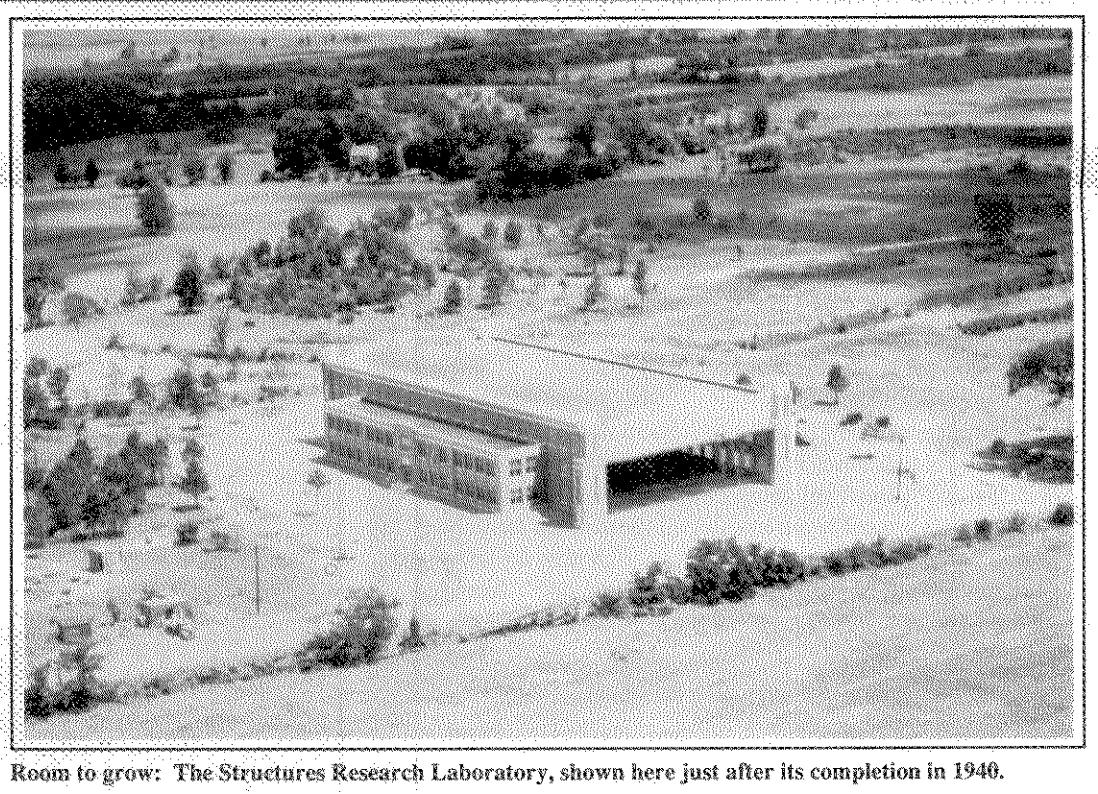
Dan Cupid.....

seems to be vacationing but the stork is spending a very busy season. He delivered a daughter last Friday to the Walter Lee household. The father works in Blueprint and the mother, Evelyn, is of Flight Research.

Keeping.....

the Arthur Ellis household awake at nights is a son who arrived on Sunday, January 27. The father works at the 16-Foot High Speed Tunnel.

THEN & NOW



Room to grow: The Structures Research Laboratory, shown here just after its completion in 1940.

Structures Lab Was First Major West Area Facility

By Allan C. Hanrahan

The Structures Research Laboratory, 8 West Taylor Street was the first major research facility of any kind built in Langley's West Area.

Begun in August 1938, it was completed in September 1940 and occupied the following month by the Structures Research Section for the purpose of aircraft structural research. It is now used for structures and materials research.

Built of structural steel and brick walls with a gravel roof, the total gross floor area of 40,600 square feet initially cost $719,955.

The initial equipment cost another $83,358.26. Included was the Combined Loader that was removed only about five years ago and the 1.2-Million-Pound-Load machine still in use.

The building was extensively rehabilitated in 1964, and the latest rehab was completed in January 1991. There was also a Structures Research Laboratory Annex (Building 1150) contemporary with the main building. It stood on what is now the parking lot between the medical services building and the cafeteria. In its last days, before its demolition around 1979, the building housed the Fabrication Division's model shop.

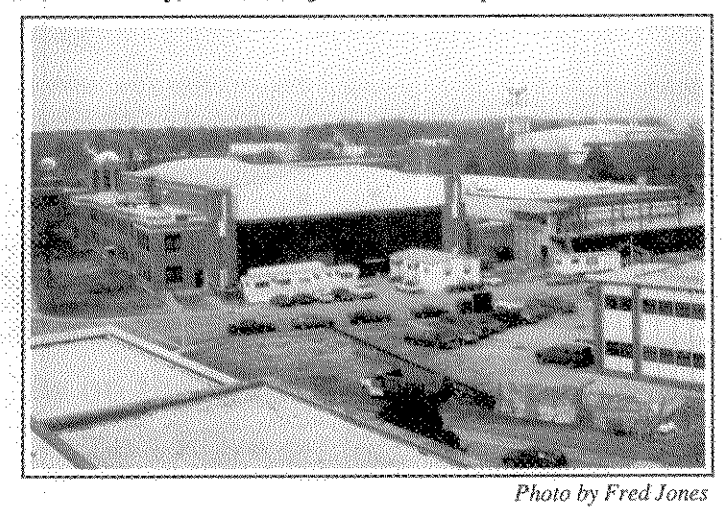


Photo by Fred Jones

The laboratory on West Taylor Street in 1992.

Happenings

LAA SOCIAL will be held today from 4 to 6:30 p.m.

LAA VALENTINE SOCIAL will be held Friday, February 14, from 4-8 p.m. Music by DJ Warren Briggs, $1 cover charge.

LOST: A set of car keys on a red plastic Casey Honda key ring. If found, please call Mary at 42463.

DISCOUNT TICKETS: The Exchange Shop in the cafeteria has discount tickets available for AMC Movie Theaters, $3.75, and Colonial Williamsburg, adult prices ranging from $22 to $26.50 and children's from $14 to $16.

NASA TOASTMASTERS meet the second and fourth Wednesday of each month in the H.J.E. Reid Conference Center. The next meeting is February 12 from 11:30 a.m. to 1 p.m.

LANGLEY ALUMNI ASSOCIATION'S monthly get-together luncheon will be held Tuesday, February 11, in the cafeteria. Jack Reeder will present an Alaskan travelogue.

SATURDAY AEROBICS IS BACK! 9:30 to 10:30 a.m. in the Activities Center. $6/mo. Call 42295.

LOW-IMPACT AND BENCH AEROBICS classes are held Tuesdays and Thursdays, 5 to 6 p.m., LAA gym. Cost is $12/month or $6/month if attending only one day a week. The first class is free. The classes are open to employees, contractors and families. Call 42295.

BODY DYNAMICS. High energy-low impact aerobics classes will be held Mondays, Wednesdays and Fridays at 6:15 a.m. in the LAA gym. Classes are free and are open to civil servant employees.

DISABLED PERSONS SATELLITE COMMITTEE will meet Thursday, February 13, from 8:15 to 9:30 a.m. in the NASA cafeteria. The meetings are open to all employees and contractors.

SKI SEASON is here. Ski February 6 at Bryce and February 13 at Wintergreen. Bus leaves Newmarket South at 5 a.m. and returns at 9:30 p.m. Total cost is $49. Trips are open to all employees, contractors and their friends. For reservations, send check, payable to Richard Bennett, to him at Mail Stop 397 or 11 Bosch Lane, Newport News, VA 23606.

NATIONAL SPACE SOCIETY, Langley chapter, will meet Monday, February 3, at 5:30 p.m. in the H.J.E. Reid Conference Center. Election of officers for 1992 will be held and E. Brian Pritchard, manager, Space Exploration Initiative Office, will speak on "The Space Exploration Initiative—Current Status and Future Plans."

JAMES RIVER VELO SPORT, the Peninsula's longest-established bicycle racing club, will meet at the Grissom Library Tuesday, February 4, at 7 p.m. New members are welcome. Call 874-3247 for more information.

FEDERAL WOMEN'S PROGRAM COMMITTEE will meet Wednesday, February 12, at 8:15 a.m. in the cafeteria executive dining room.

LAFB OFFICERS' CLUB is offering a Marina Buffet, featuring seafood and prime rib every Friday night in February at 6 p.m. Special entertainment for Valentine's Day, February 14, includes D.J. Gator Almond, from 7 to 10:30 p.m. Make reservations early. Please call 766-1361 for details.

FOR SALE: Pine student desk, $25; oak office desk, $25; Sperti sun lamp, $25; Singer sewing machine, $50; Geri baby carrier, $5. Call 865-7623.

WOMEN IN AEROSPACE, Hampton Roads Section, will hold an orientation meeting Thursday, February 6, in the Langley Room of the H.J.E. Reid Conference Center from 3:30 to 4:30 p.m. Call Pamela Davis, 41307, or Jessica Woods-Vedeler, 42829, for more information.

HEALTH FOR LIFE lunch bag seminars, "Let's get Started on a Change in Lifestyle" and "Food Exchange System," will be held Wednesdays, February 5 and 12, respectively, from 12 to 12:45 p.m. in the Fitness Center; The exercise sessions will be held Tuesdays and Thursdays from 7:30 to 8:30 a.m.

ROOMMATE wanted to share townhouse in Northampton area, 2 master bedrooms, 2 baths, great-room w/fireplace, washer/dryer, private telephone. Contact Sandy at 838-0200 during the day or at 838-9204 after 6 p.m.

TELA TAX SERVICE; member National Association of tax practitioners; electronic filing; small business bookkeeping service; by appointment. Call 874-3121.

TAXES PREPARED: Please call and leave name and phone number for appointment. Nancy Taylor, 723-5227

Thermal Protection Systems Workshop

The NASA Langley Thermophysics Committee will sponsor a workshop, "Current Technology for Thermal Protection Systems," February 11 and 12, from 8:15 a.m. to 4 p.m. in the H.J.E. Reid Conference Center auditorium.

The purpose of the workshop is to bring together experts to discuss the current technology and the state of the art being applied to thermal protection systems.

The workshop includes 14 technical presentations from researchers at NASA's Langley, Ames, Johnson and Goddard centers and from industry.

The adjoining Langley Room will be set up for displaying examples of thermal protection hardware.

All Langley employees and contractors are invited. For more information, call Obie Bradley, ext. 47040.

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Researcher News

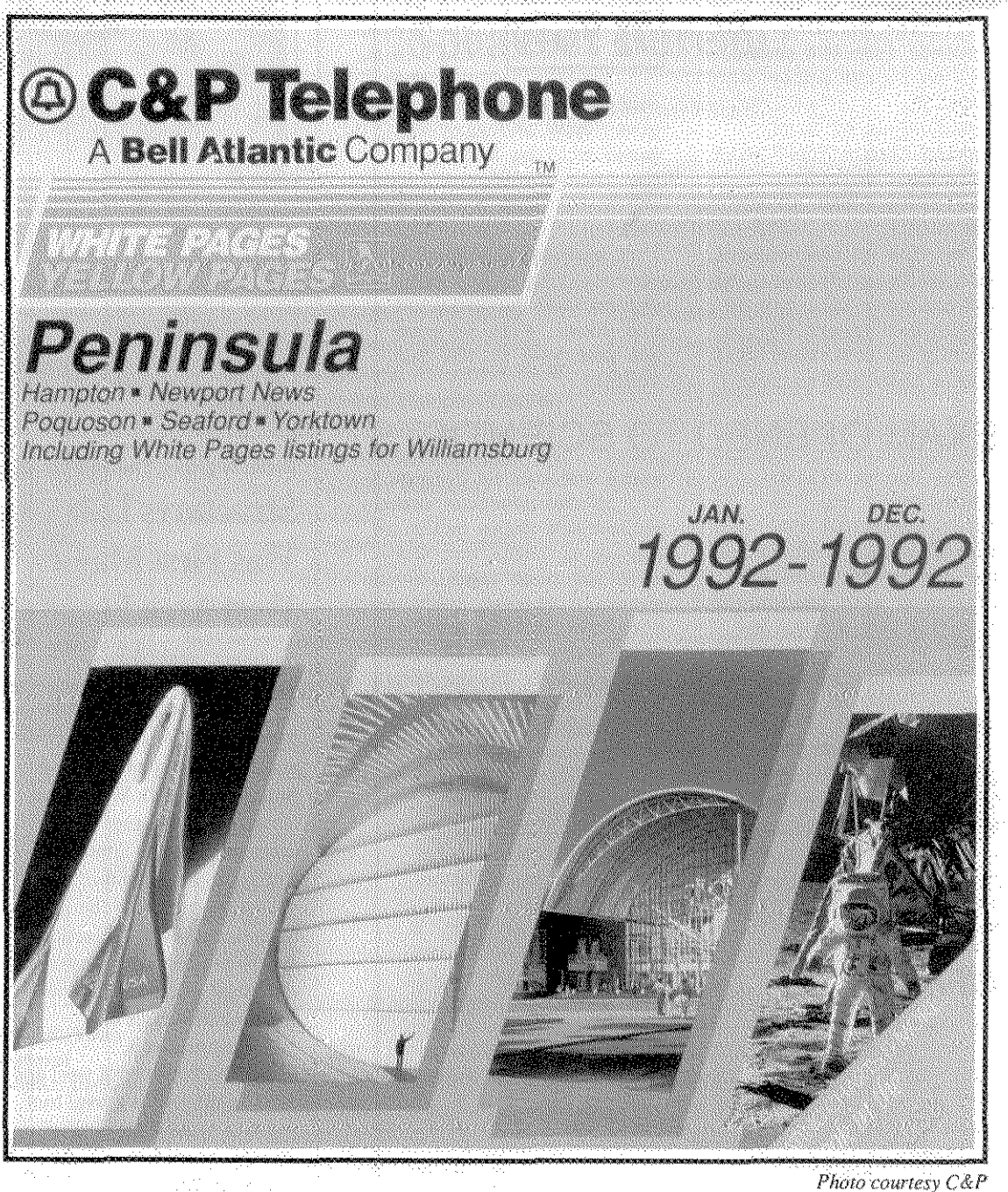


Photo courtesy C&P

The 1992 C&P Telephone Directory pays tribute to the NASA Langley Research Center during its 75th Anniversary. Pictured from left are the National Aero-Space Plane, for which Langley is the lead center; the 16-Foot Tunnel, the Virginia Air and Space Center and Neil Armstrong on the surface of the moon.

1917 - 1992
75 Years
NACA
NASA
Langley Research Center

Researcher News

Bi-weekly Employee and Contractor Publication

Volume 6 ❖ Issue 3 ❖ February 14, 1992

One More Trip for Apollo

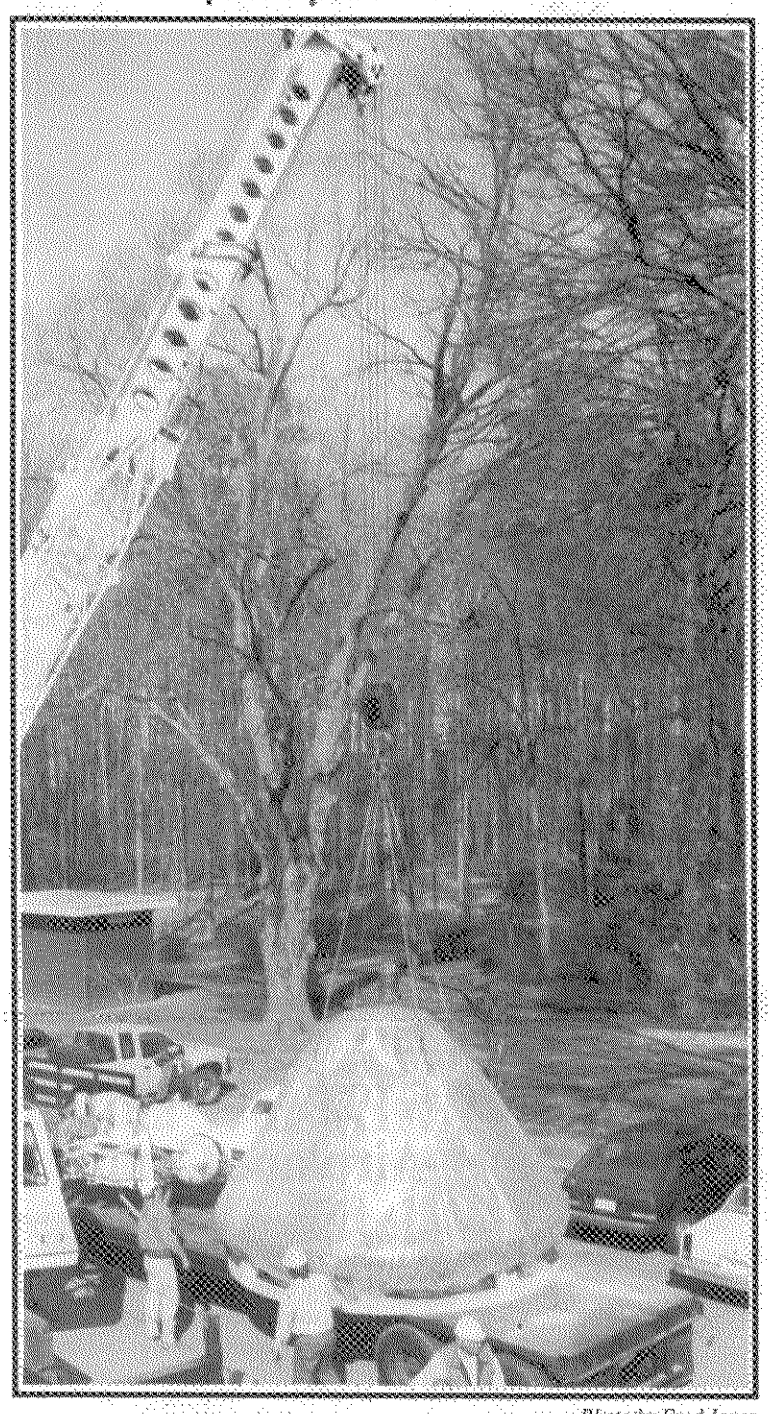


Photo by Fred Jones

The Apollo 12 capsule is moved from Langley to a new home at the Virginia Air and Space Center. The center, gearing up for its April 5 opening, is planning several events for the public. See Page 5.

Tests Examine Easing Shuttle Launch Rules

Langley Learjet Takes Part in Final Phase of Weather Study

BY H. KEITH HENRY

In February, NASA began its final phase of "field mill" flight tests to study launch-related weather at Kennedy Space Center. Field mills are instruments that detect the presence of electric charges in the atmosphere.

Results from earlier flights demonstrated that existing weather rules fully protect space launch vehicles from triggered lightning hazards. Strong evidence, however, suggests that some of the rules are overly conservative and could delay launches under weather conditions that do not pose real lightning threats.

Photo by Clement Mayes

This NASA Learjet has been modified to collect data on meteorological and electrical field strengths. Five sensors measure three components of the local electrical field and the electrical charge on the aircraft. The tip of the vertical tail has been modified with a video pod to document cloud types. Paint has been removed around the fuselage and tail to improve response to the sensors.

A NASA Learjet from Langley has been flown in the vicinity of Kennedy and Air Force launch facilities at Cape Canaveral, collecting meteorological data and atmospheric electric field strength data. Seasonal data has been taken for two summers and one previous winter. The flight-test series just underway, the last in the series, is planned for eight weeks.

"In a limited number of cases to date," said William Bihner, NASA Airborne Field Mill Program Manager, "the weather was in violation of launch commit criteria as written, but we did not measure an electrical hazard aloft.

"It looks very promising that by the conclusion of the program we will be able to recommend changes to present launch commit criteria that will maintain launch safety while reducing launch restrictions."

The set of criteria most likely to be relaxed are those that govern launches through or near

Please see **LAUNCH RULES,** *Page 5*

College Scholarships Available to NASA Employee Dependents

Applications being Accepted for 1991-92

College scholarships are available for the 1991-92 academic year and will be awarded by the NASA College Scholarship Fund, a nonprofit organization established to aid qualified dependents of NASA and former NASA employees Agency-wide.

The scholarship fund is in its 10th year.

Timothy Olin Jarrett, son of Olin Jarrett Jr., an aerospace engineer in Langley's Fluid Mechanics Division, won a NASA scholarship in 1990. Michael Fripp, son of Archibald L. Fripp, senior research scientist in Langley's Information Systems Division, won a scholarship in 1989.

The scholarship fund was established as a direct result of a substantial unsolicited gift offer by Pulitzer Prize-winning author James Michener. Many NASA employees also contributed to the fund.

Applicants must be pursuing a course of study that will lead to an undergraduate degree in science or engineering at an accredited college or university in the United States. Scholarships are renewable each academic year for six calendar years.

March 31 deadline

Completed application forms must be received at Johnson Space Center no later than March 31. Late applications will be returned unopened.

For more information on eligibility requirements and selection criteria, or to receive application forms, contact Allan C. Hanrahan, at ext. 42762 or 48240.

Pauls Selected for Presidential Rank Award

Associate Director Sidney F. Pauls has been selected as a Presidential Rank Award recipient. He received the rank of Meritorious Executive in the Senior Executive Service (SES) for his substantial contributions to the management of NASA programs. Each year, only five percent of SES executives may receive this award.

Award recipients will be honored at a reception/dinner February 26 at Bolling Air Force Base in Washington, D.C.

Pauls has made many significant management and administrative contributions to the Center and the Agency during his 29-year career at Langley. In 1979, he led an inter-Center study team that analyzed the Agency's processes for providing Headquarters visibility into the management of each Center's resources. Many of the team's recommendations were adopted and remain in use.

Pauls was temporarily assigned to NASA Headquarters twice and to another Center once. In 1980, he was deputy director of the Administration and Program Support Division in the Office of Aeronautics and Space Technology.

In 1987, he spent a year at Johnson Space Center in support of the Space Station Technical and Management Information System Source Evaluation Board (TMIS), where he chaired the management committee. After a successful evaluation, a $300 million contract was awarded. In 1988, Pauls spent five months at Headquarters as associate administrator for Headquarters Operations.

Sidney F. Pauls

Pauls began his NASA career at Langley in 1963 as a resources analyst in the Manned Orbiting Laboratory Studies Office. He has served as branch head, chief of the Personnel Division and chief of the Business Data Systems Division. In his present position, he is involved in all aspects of management at the Center, which has an annual budget of about $500 million and employs some 3,000 civil servants and more than 2,000 contractors. Paul's duties including planning, directing and evaluating programs; formulating and executing policy; developing and directing administrative and technical support functions; and providing representation to top NASA management and other government agencies, industry, universities and the public.

Pauls has a bachelor of administration degree in economics from The College of William and Mary, a master's in engineering management from George Washington University and received a one-year fellowship at the Massachusetts Institute of Technology Center for Advanced Engineering Studies and Harvard School of Business. He received the NASA Exceptional Service Medal in 1986. He is a member of the American Institute of Aeronautics and Astronautics, serving on the finance committee.

Pauls is an assistant professorial lecturer at George Washington University, where he teaches graduate courses in engineering economic analysis and engineering management.

• ALSO HONORED: DR. RALPH J. MURACA. PROMOTED: DR. BRUCE J. HOLMES. SEE PAGE 3.

News Briefs

AROUND THE AGENCY

Supersonic Engines Contract — Lewis Research Center has awarded a five-year, $88 million contract to General Electric Aircraft Engines, Cincinnati, and United Technologies' Pratt & Whitney Division, East Hartford, Conn., for research and development work on supersonic aircraft engines for the next century. The engines will use advanced materials such as metal matrix composites to operate at temperatures above the melting point of iron for hours. They also will have to meet environmental standards for emissions and noise. The NASA-industry effort, called the Enabling Propulsion Materials Program, is intended to keep the U.S. aerospace industry ahead of the pack in this type of technology.

Arctic Ozone Danger — Spacecraft and airborne studies indicate an increasing likelihood that an Arctic ozone hole might develop later this winter. The results come from NASA's Airborne Arctic Stratospheric Expedition II and the Upper Atmosphere Research Satellite (UARS). Langley's Lidar Applications Group, in the Atmospheric Sciences Division, has an instrument on the expedition that uses laser technology to study ozone and aerosols in the lower stratosphere.

Lost City Discovered — Scientists and archaeologists say they have found the fabled Lost City of Ubar using Jet Propulsion Laboratory computers and Shuttle Imaging radar data. Where is Ubar? On the edge of the Empty Quarter desert in southern Oman, about 100 miles north of the Arabian Sea. Radar imagery and computer enhancements made ancient camel tracks visible in the area where ruins have been unearthed, suggesting that the spot was a population center.

As You See It — The Headquarters quarterly publication *NASA Magazine* is seeking contributions from any NASA employee for its "As I See It" column. Submissions should be personal and try to hit on issues with which other employees might identify. Length is three double-spaced pages. Accepted submissions will be subject to editing. Call the editor, Beth Schmid, at FTS 453-1201 for more information.

AIR SCOOPS

Excerpts from Langley's old newsletter, Air Scoop, *will appear throughout Langley's 75th Anniversary year. These are from the February 12, 1954 issue.*

RADIO CONTROL CLUB MEETING

Eighteen radio control fans turned out for the first official club meeting last week.

It was decided to have meetings on alternate Thursdays with the next date set for February 18, 1954, in the Activities Building.

John Worth, Flight Operations, will serve as temporary chairman of the model airplane group.

To help select a name for the new club, members are requested to turn in suggestions at the next meeting.

A committee composed of Harry Shoaf, Jim Penland, Helmut Kuehnel and Worth was formed to study available flying sites. Highlight of the meeting was a discussion of members' experience in the model and radio control fields.

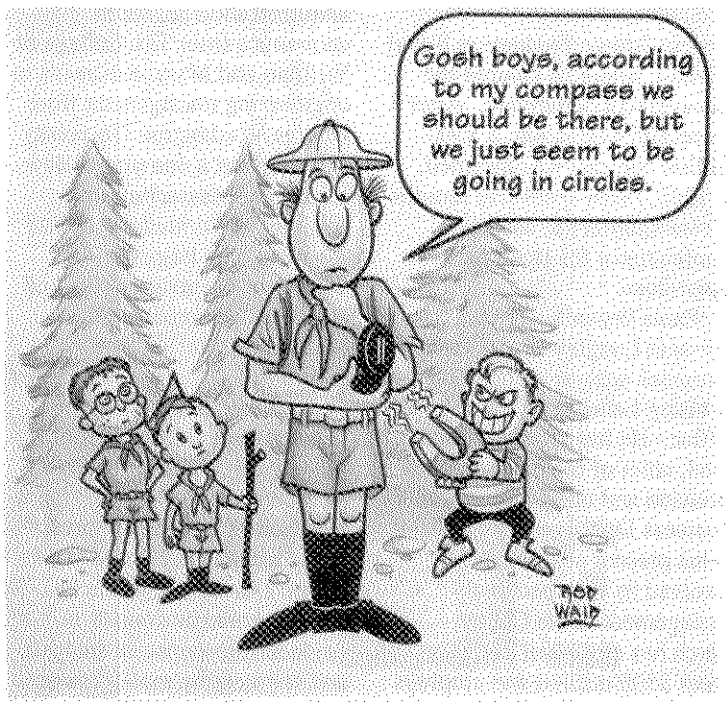
CELEBRATING 75 YEARS

A flying session was held last Sunday. Kuehnel's ship made the longest and best flight while Don Lindley made the most flights of the day.

LIFE AT THE LABORATORY

The programs of the public meeting on Tuesday at 8 p.m. in the Hampton courthouse, sponsored by the Hampton Citizens Advisory Committee on Public Education, will include discussions on textbooks by Charles Zimmerman, Stability Research Division, school finances by Hartley A. Soule, Assistant Director, and classroom needs by Ray Hooker, Engineering Service Division.

Lankley



IN MEMORIAM

Sympathy is extended to the families of the following Langley retirees:

Floyd Ransom Bryant, 71, a retired engineer, died January 22. He retired from Langley in 1978 after 30 years of federal government service.

Charles Robert Perdue, 76, a retired engineering technician, died January 17. He retired from Langley in 1977 after 26 years of service.

Warren S. "Duke" Forrest Sr., 83, a retired inspector, died January 17. He retired from Langley in 1973 after 30 years of federal government service.

Ogie Long Hayes, 68, a retired technician, died January 26. He retired from Langley after 31 years of service.

Robert V. Garletts, 57, a retired Langley employee, died January 27. He retired in 1991 after 30 years of service.

LETTERS

From **Richard H. Petersen**, former Center Director: "Many thanks for the outstanding going-away party on January 4. It was wonderful to see so many friends and receive some great mementoes of my time at Langley. Without doubt, the last 11 years were the best years of our lives! Jody and I thank all of you – we will miss Langley very much – but we'll be around now and then."

From **Anne S. Reed**: "I wish to thank the many friends and co-workers who made my career at Langley so rewarding. I especially want to thank those who planned and participated in my retirement luncheon. It was perfect in every way and I will always cherish the memories."

LETTERS ARE WELCOME. Keep them short and concise. Send to MS 115 or fax to ext. 46333. Include name and phone number.

Teacher for a Day

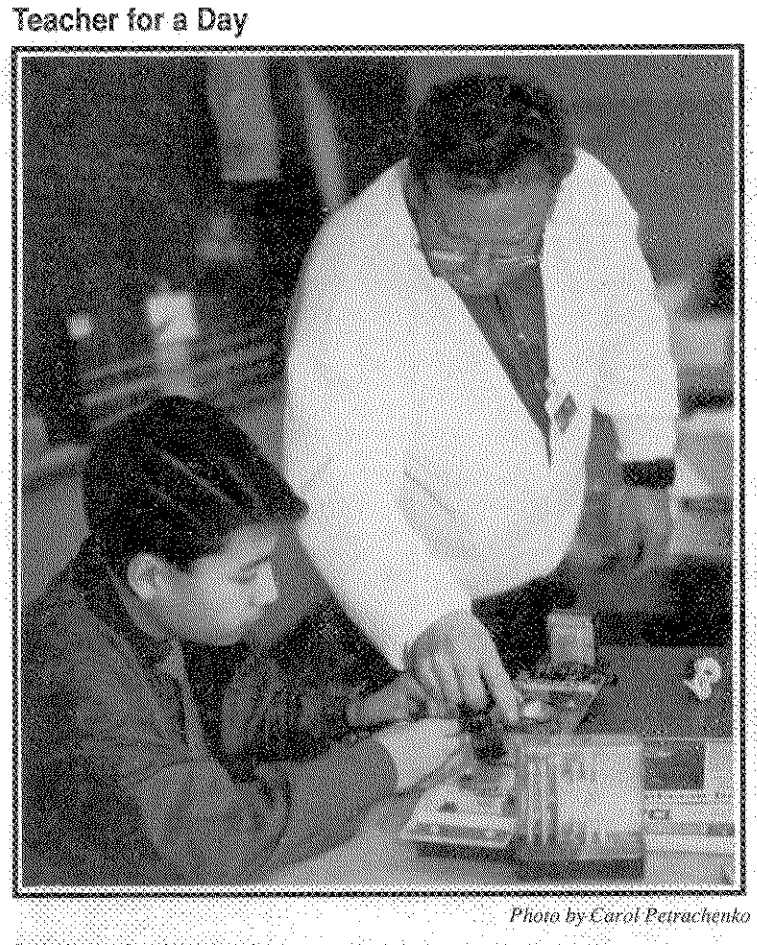


Photo by Carol Petrachenko

Langley scientists, engineers, technicians, managers and support personnel will vacate their offices, laboratories and workshops to visit local schools during National Engineers Week, February 16 through 22. More than 150 volunteer "teachers" will do multiple presentations in over 180 schools in 12 local districts. This weeklong initiative has the potential to influence more than 50,000 students. Above, Bill Hood, a volunteer in last year's pilot program, demonstrates an electrical circuit in a middle school classroom. This hands-on activity initiated a discussion of transformers, resistors and the basics of electricity, followed by the importance of lasers to NASA avionics and propulsion systems. Hood came from the Center's Operations Support Division.

Engineers Week to Feature Student Paper-Airplane Contest

A National Engineers Week Paper Plane Contest will be held at the Coliseum Mall, Thalhimers court, on Saturday, February 22, from 11 a.m. to 2 p.m.

The contest, sponsored by the Hampton Roads Section of the American Institute of Aeronautics and Astronautics, is open to all students in kindergarten through eighth grade.

Contestants will compete in either Category I (grades K-2), Category 2 (grades 3-5) or Category III (grades 6-8).

Each contestant may enter one paper airplane and must use the same one to compete in separate accuracy and endurance contests. Contestants will have 30 minutes to build an airplane from official airplane paper and materials, which will be supplied. The winner will be the person who has the best combined score for the two events. Nine prizes will be awarded, one in each category, to the first, second- and third-place winners.

AT LANGLEY

Students from 14 middle schools will compete for math honors at the annual MATHCOUNTS contest Saturday, February 15. Winners will advance to state finals.

Nearly 700 high school students and teachers will attend Career Day during National Engineers Week, February 16-22.

Order your Anniversary Stationery with Logo

Don't forget to order the following items with the 75th Anniversary logo on them: Letterhead stationery, white envelopes and large brown envelopes.

Stock numbers are: Letterhead stationery: 7530-00-LPO-112; 3-7/8 x 8-7/8-inch white franked envelopes: 7530-00-LPO-1038; 9-1/2 x 12-1/2-inch brown franked envelopes: 7530-00-LPO-1109. To order, contact Suzanne Melson, Mail Stop 380, ext. 43568.

News Researcher

The **Researcher News**, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23665-5225, is published every other Friday in the interest of all Langley staff and retirees. Submit contributions to the Editor, Mail Stop 115, telephone 864-6126. Articles are due at noon on the Tuesday following the date of this issue.

Managing Editor ..... Jean Drummond Clough

Editor ..... Michael Finneran

Photojournalist ..... Carol Petrachenko

Photographer ..... Fred Jones

The privilege of advertising in this publication is restricted to the employees and retirees of the Langley Research Center. Articles advertised here must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

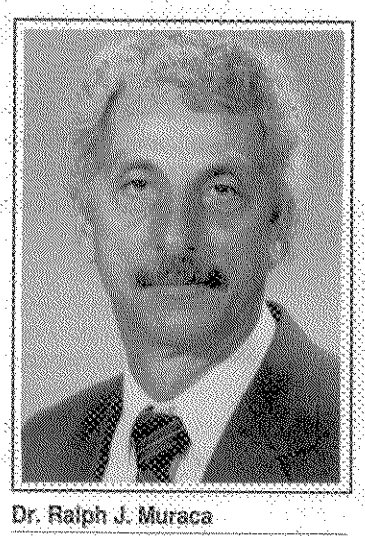
Muraca Receives Presidential Rank Award

Dr. Ralph J. Muraca, chief of the Systems Engineering Division, has been named a recipient of the Presidential Rank Award. He received the rank of Meritorious Executive in the Senior Executive Service (SES) for his outstanding contributions to the management of NASA programs.

A reception/dinner will recognize award recipients February 26 at Bolling Air Force Base, Washington, D.C.

Muraca, in his 30-year career at Langley, has provided outstanding leadership to an engineering and technical organization of 135 civil servants and 50 contractors supporting an array of aerospace research and development programs.

Muraca's division has provided engineering support to numerous projects. On the space side, those include completion of the Halogen Occultation Experiment (HALOE), a satellite that is measuring gases that influence the climate; a Crew Equipment and Translation Aid (CETA) experiment for a 1991 Shuttle flight; and the recovery of the Long-Duration Exposure Facility (LDEF).


Dr. Ralph J. Muraca

In aeronautics, the division supported F-106 leading edge vortex flap development, which demonstrates the potential for improved fighter aircraft performance at low speed.

Other support includes the B-757 Hybrid Laminar Flow Control project, which showed that a practical system to maintain smooth air flow over the wing could be installed on an aircraft and decrease fuel consumption; and completion of the first phase of the B-737 wind shear detection project, a NASA/Federal Aviation Administration program to develop technology for the early detection and avoidance of hazardous wind shear and heavy rain conditions.

Muraca began his NASA career at Langley in 1962 as a member of the Engineering Analysis Section.

He has authored or co-authored 20 technical publications. He is an associate fellow of the American Institute of Aeronautics and Astronautics.

In 1981, Muraca received the NASA Exceptional Service Medal. He attended the Brookings Institute program, the Federal Executive Institute, the Senior Executive Program and the Harvard University Program for Senior Executive Fellows.

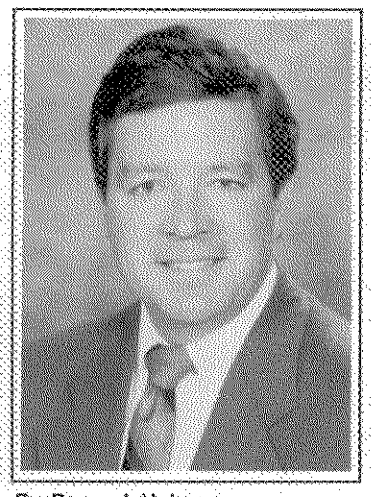
Muraca received a bachelor of science degree in mechanical engineering from the Drexel Institute of Technology; a master's in aerospace engineering from the University of Virginia and a doctorate in aerospace engineering from the Virginia Polytechnic Institute and State University.

Holmes is Named Assistant Director for Aeronautics

Dr. Bruce J. Holmes has been named assistant director for Aeronautics. He was acting deputy director until October.

"Since my lifelong passion is aviation, I am excited about working to shape its future," Holmes said of his appointment.

In his new position, Holmes helps direct the experimental and theoretical research work of the Directorate's four research divisions: Advanced Vehicles, Applied Aerodynamics, Flight Applications, Fluid Mechanics and the Hypersonic Technology Office. He also helps coordinate Center-wide aeronautics research involving the Structures, Flight Systems and Space directorates.


Dr. Bruce J. Holmes

He began his NASA career in 1977. Much of his technical background has involved basic and applied aerodynamics research. He was leader of the Viscous Drag Reduction Research Group before serving as head of the Flight Research Branch, Flight Applications Division, from 1986 to 1989. In this position he directed the NASA program on natural laminar flow drag reduction technology, as well as the NASA F-106 Vortex Flap Flight Research program on high-lift systems for supersonic aircraft.

From 1987 to 1989, Holmes led a team of Langley researchers in the study of generic hypersonic subscale flight research, called HYpersonic Flight and Instrumentation REsearch (HYFIRE). This effort defined the critical hypersonic technical problems requiring access to flight and developed the approaches to experiment design, instrumentation, payload launching and recovery.

Holmes was detailed to NASA Headquarters from 1989 to 1990 as acting deputy director of the Aerodynamics Division in the Office of Aeronautics and Space Technology. There he was responsible for the overall direction, planning and advocacy for aerodynamics and aerothermodynamics research and technology programs. While at NASA Headquarters, he led the development and advocacy of a major expansion of NASA's research in advanced measurements technology. Holmes' efforts were instrumental in focusing national attention on the critical technical needs in the aeronautical community for research on future instrumentation devices and test techniques.

Before joining NASA, he was a commuter and instructor pilot for Lawrence Aviation Inc. He also served as a project test pilot and engineer for Roskam Aviation and Engineering Inc., Lawrence, Kan. He was an instructor and research assistant at the University of Kansas.

Holmes earned his bachelor and master of science degrees in aerospace engineering and doctorate in engineering from the University of Kansas, Lawrence.

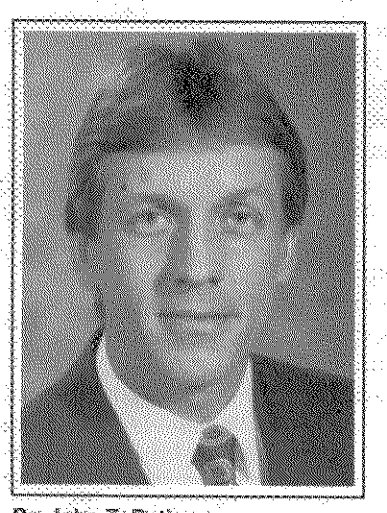
The author or co-author of 70 technical publications, he is an associate fellow of the American Institute of Aeronautics and Astronautics (AIAA) and has served on AIAA technical committees. He is a member of Sigma Gamma Tau, a national aerospace engineering honor society; and the Society for Automotive Engineers (SAE). He has four U.S. patents.

He has won numerous awards and honors, including the NASA Medal for Exceptional Engineering Achievement, the Arthur S. Fleming Award, the AIAA Aerodynamics Award and the AIAA's Piper General Aviation Award in 1991.

Batina Wins AIAA's Lawrence Sperry Award

Dr. John T. Batina, of the Unsteady Aerodynamics Branch, has won the 1992 Lawrence Sperry Award given by the American Institute of Aeronautics and Astronautics (AIAA).

The award is for "outstanding contributions to the development and application of computational fluid dynamics methods for the prediction of unsteady transonic aerodynamics and aircraft aeroelastic response."


Dr. John T. Batina

Notable contributions

The award is named for Lawrence B. Sperry, a pioneer aviator and inventor, and is presented yearly for a notable contribution made by a young person to the advancement of aeronautics and astronautics.

Since 1990, Batina has been a senior research scientist in the Unsteady Aerodynamics Branch, where he is also leader of the Computational Fluid Dynamics Development Group.

Batina came to Langley in 1983 as a research scientist. Prior to that, he was a graduate teaching assistant from 1979 to 1983 and a graduate research assistant from 1981 to 1983 at Purdue University's School of Aeronautics and Astronautics.

Batina has won numerous other honors and awards and is the author of more than 100 publications in computational fluid dynamics, unsteady aerodynamics, aeroelasticity and structural dynamics.

He is a senior member of the AIAA and a member of Tau Beta Pi, Phi Kappa Phi and Sigma Gamma Tau, a national aerospace engineering honor society.

Batina also is a member of the America Society of Mechanical Engineers, the Society of Automotive Engineers and associate editor of the AIAA Journal.

Batina is a graduate of Purdue, where he earned a bachelor of science degree in aeronautical and astronautical engineering, a master of science degree in aeronautics and astronautics and a doctorate from the School of Aeronautics and Astronautics.

Employee Awards

The following employees have received cash awards for job performance:

Robert W. Feldhousen, aerospace technologist, Experimental Facilities Development; **R. Todd Lacks**, contract specialist, **Henry L. Livas Jr.**, supvy. eng. contract specialist, **Patrick H.Seabolt**, supvy. eng. technician and **P.M. Jackson Jr.**, aerospace technologist, Experimental Facilities Development, for outstanding performance as voting members on the Engineering Support Services Source Evaluation Board.

Frank D. Wiggs, contract price/cost analyst, **Charles A. Rawls**, engineering technician, **James F. Watson Jr.**, supvy. electrical engineer aerospace technologist, **Richard B. Rountree**, supvy. ast., Experimental Facilities Development, **Carl E. Horne**, aerospace technologist, Experimental Facilities Development and **Thomas J. Quenville**, supvy. aerospace technologist, Experimental Facilities Development, for oustanding performance as consultants on the Engineering Support Services Source Evaluation Board.

Kenneth L. Jacobs, supvy electronics engineer, for outstanding performance as chairman of the Engineering Support Services Source Evaluation Board.

Jacqueline J. Jackson, clerk, Fabrication Division (FD), for exceptional job performance, cooperation and dedication to assignments.

Raymond D. Burris, quality assurance specialist, FD, for excellence in the performance of quality assurance assignments on the NTF Blade project.

William H. Garrison, quality assurance specialist, FD, for excellence in the performance of quality assurance assignments on the NTF Blade project.

Ronald D. Lewis, engineering technician, FD, for exceptional performance in support of the Lidar In-Space Technology Experiment (LITE) Project.

BACK THEN

First American in Space

February Marks 30th Anniversary of John Glenn's Historic Flight

BY KRISTINA MURDEN

When John Glenn streaked through space in Friendship 7 on February 20, 1962, he became the first American to orbit the Earth. It was a magical day for all Americans. And particularly for the employees of NASA Langley Research Center, who had the initial responsibility for the nation's first manned space venture – Project Mercury.

Glenn completed three Earth orbits on the five-hour mission and provided America with the first detailed description of the planet as seen from outer space. In less than three years, Project Mercury proved that men could be sent into space and returned safely to Earth, setting the stage for the longer duration Gemini flights and the Apollo lunar landings. Mercury also made Langley and its astronauts famous.

John Glenn

Only six months after NASA was formally established on October 1, 1958, the first seven astronauts were selected and began their nationally publicized training at Langley. In 1962, Hampton honored the "Original 7" and Project Mercury by naming Mercury Boulevard and six bridges after them.

Langley's role in Project Mercury included training the original team: Alan Shepard, Virgil "Gus" Grissom, John Glenn, Scott Carpenter, Donald "Deke" Slayton, Walter Schirra and Gordon Cooper. The Center's facilities provided much of the knowledge and know-how for the development of the Mercury spacecraft and its systems.

While familiarizing the astronauts with the Mercury setup, Langley personnel also helped them specialize in the technical areas crucial to the success of the program. At the same time, they guided and monitored the astronauts' activities through the many procedure trainers and spaceflight simulators built at the Center for the manned space program.

To get Mercury off the ground, Langley provided extensive research and technical support for the development of "Little Joe," a test launch vehicle driven by a cluster of four Sargeant solid rockets in a single airframe. Conceived by Langley engineers, Little Joe quickly proved to be a reliable means of testing the Mercury capsule configuration at Wallops Island before preceding to the more expensive and difficult phases of testing at Cape Canaveral. Although the Sergeant rocket for Joe was too weak to propel the Mercury capsule into orbit, testing with the little rocket ensured the dependability of the Mercury capsule's escape system and parachutes.

The "Original 7" astronauts pose with a Mercury capsule at Langley. From left: Walter Schirra, John Glenn, Donald "Deke" Slayton, Virgil Grissom, Alan Shepard, Scott Carpenter and Gordon Cooper.

Langley engineers also designed "Big Joe," a full-scale instrumental mockup of the proposed Mercury spacecraft. This prototype, launched from Cape Canaveral on the top of an Atlas in September, 1959, verified the feasibility of the Mercury capsule design. The Space Task Group formed at Langley that conceived and managed Mercury later evolved into the Manned Spacecraft Center in Houston.

Glenn has been a U.S. senator since 1974 and a prominent lobbyist for NASA endeavors, such as the Shuttle and Space Station Freedom. He is a supporter of the Space Station and of the research and development component of NASA, said Chris Kline, Glenn spokesman. "He is interested in the spinoff applications of research and development that can be applied to other aspects of society besides space."

Health Corner: Cancer Van Will be at Langley in March

The Office of Occupational Health Services will host the Cancer Awareness Education Service (CARES) van at Langley beginning March 3. Find out your risk for developing a variety of cancers, and how to reduce that risk, by making an appointment by calling ext. 43191.

In addition, the Riverside Health System will conduct serum Prostate-Specific Antigen (PSA) tests at the Center's Health Clinic in April. Employees must bear the $43 charge. For an appointment, call ext. 43191.

The PSA test is tumor marker. Elevated levels of tumor markers in the blood suggest the presence of cancer. The test is useful following prostate cancer surgery to monitor serum levels, which may indicate a recurrence of the disease. However, the test does not appear to be a useful screen for the detection of preclinical disease.

The best method of early detection is still an annual physical exam by your private doctor or the health maintenance exam at Langley's Health Clinic.

More information about the PSA test is only a phone call away. The Cancer Health Link may be reached at 594-3181 or 1 (800) 533-2046.

FWP Committee Plans Tree-Planting In March to Honor Achievements

A tree-planting ceremony, sponsored by the Federal Women's Program Committee, is scheduled for Monday, March 2, at 9:30 a.m. near Building 1219. The ceremony kicks off a month of activities commemorating the contributions of women to NACA/NASA on the occasion of Langley's 75th Anniversary. Employees are invited. Bad weather date: Wednesday, March 4, 9:30 a.m. Charge to Job Order A1599.

Fax Machines Available from MSD

The Management Support Division (MSD) has three portable fax machines available for use by NASA employees and contractors for short-term loan (no longer than 30 days).

The machines are to be used when a fax machine is not accessible for official business only under these criteria:

- For attending a special retreat off Center.
- For extended sick leave.
- For attending a conference off Center.

Recycle Old Langley Phone Books

Old Langley phone books can be recycled! Put them in your building's recycling box labeled "Recyclable Paper – Deposit White Paper Only."

New on Center

Langley has an addition – a new Structures Directorate facility, Building 1208A, for the Applied Acoustics Branch of the Acoustics Division. From left at the ribbon-cutting are Dr. John Groeneweg, assistant chief, Acoustics Division; David Stephens, chief; Director for Structures Charles Blankenship; Deneace Hines, branch secretary; David Chestnutt, branch head; Robert Huston, former structures technical manager; Dr. Joe Posey, assistant branch head; and William Willshire and Dr. Carl Gerhold of the Applied Acoustics Branch.

Speakers Bureau Report

The following Langley employees spoke to outside groups for the Speakers Bureau in January:

Sharon Tanner, on two occasions, discussed women's issues in the workplace at with the board of directors of the Virginia Peninsula Council on Domestic Violence.

Naomi McMillin spoke on the "Aeronautical Experiment – The Baroncopter Spins Again," at Wythe Elementary School.

Teresa Graham spoke on "Hearing" at Trinity Lutheran Church.

Gary Price discussed "Communications in the Future" at the Edison Electric Institute Visual Communications Conference in Miami.

Dr. Patrick McCormick spoke on the Mount Pinatubo volcanic eruption to the Sierra Club–York River Group.

George Helfrich discussed inventions, patents and trade secrets at the Hampton Roads Chapter of the American Chemical Society at Old Dominion University.

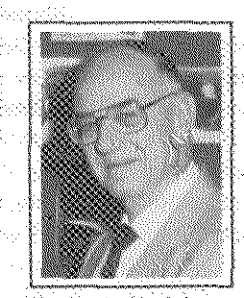
Robert Rivers spoke about flight testing at Langley at the Alachua County Seminar in Florida.

Harry Verstynen discussed aviation careers at the Aviation Invasion in Hagerstown, Md.

40-Year Service Awards

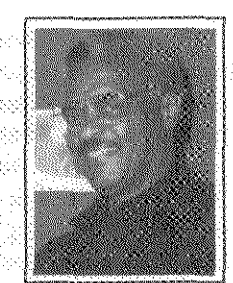
The following Langley employees recently received 40-year service awards presented by the Center Director:

James L. Hudgins, George L. Willis, John Witherspoon (not pictured) and Betty R. Riggin.



James L. Hudgins

Betty R. Riggin



George L. Willis

Virginia Air and Space Center Plans Public Events Tied to April 5 Opening

The Virginia Air and Space Center, in recognition of its April 5 grand opening, is planning several events of special interest to Langley employees and the public.

♦ On March 16 at 6 p.m., the American Institute of Aeronautics and Astronautics (AIAA) will dedicate a wind tunnel exhibit at the center. Tickets are $4 each for AIAA members, $6 for non-members and $2 for student members. Call Steve Rizzi, ext. 43599, or Del Freeman, ext. 44451, for tickets. Reservations are required by noon, March 12 and space is limited to 300 people.

♦ On April 3 at 7 p.m., a fund-raising cocktail reception will be held at the center. Festivities will include an IMAX Theatre preview. The theater features a 50 x 70-foot screen, and film whose frames are three times the size of standard 70-millimeter frames, giving audiences the feeling of "being there." For tickets, which are $50 per person, call 727-0800.

♦ The April 5 dedication and public opening will offer free admission to the center, an IMAX preview, a flyover by five military aircraft and music by the Fort Monroe Continental Army Band.

♦ On April 6 at 7:30 p.m., Charles "Pete" Conrad Jr. will conduct a Sigma Series lecture.

Capital campaign

The nine-story center, at 600 Settlers Landing Road in Hampton, already has completed its third phase of a capital campaign, exceeding its $1 million goal by more than $500,000. The total of the first and second phases of the fund-raising campaign exceeds $6.8 million, according to A. Lewis Allen, chairman of the development committee of the center's board of directors.

MUSEUM FACTS

The Virginia Air and Space Center has a capital budget of $29.7 million and an annual operating budget of $1.6 million.

The center spans 110,000 square feet and nine stories on 2.2 acres.

Operating hours will be from 10 a.m. to 7 p.m. Thursday, Friday and Saturday; 10 a.m. to 5 p.m. Monday, Tuesday and Wednesday; and noon to 7 p.m. Sunday.

Admission will be $3 for adults, $6 including an IMAX film; $2.50 for senior citizens, $5.50 including an IMAX film; and $1.50 for children, $4.25 including an IMAX film.

Photo by Fred Jones

ABOVE: A P-39 is hung at the Virginia Air and Space Center. RIGHT: The Apollo 12 capsule is delivered from Langley to the center for display.

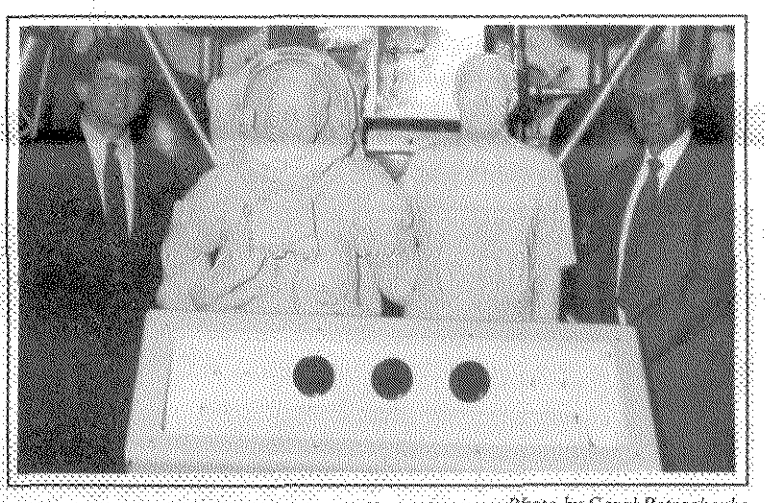


Photo by Carol Petrachenko

Ralph Johnston, left, center director, and Edwin Kilgore, board chairman, flank statues of astronaut Alan Shepard and a NASA engineer.

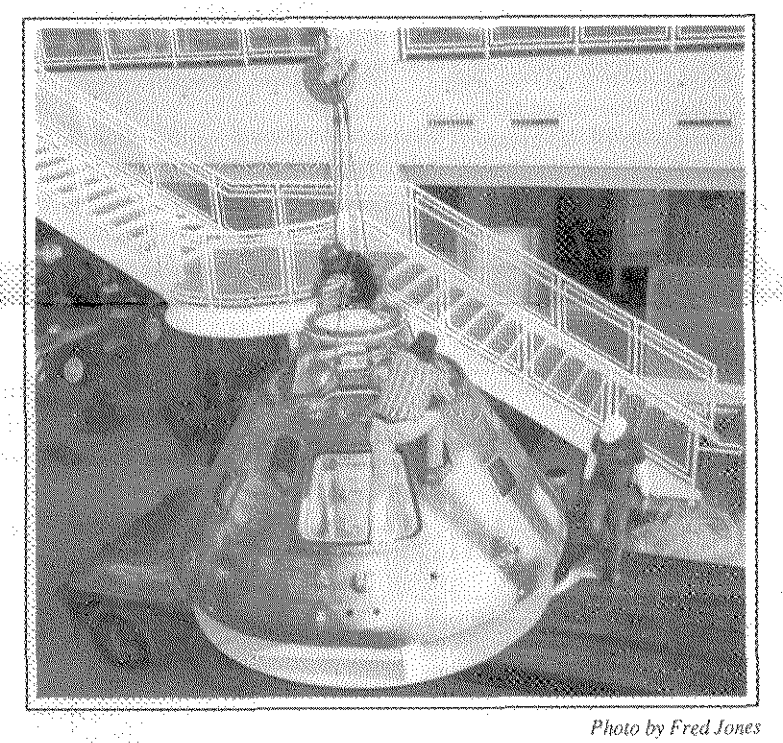


Photo by Fred Jones

Continued from page 1

LAUNCH RULES:

cumulus clouds, large puffy clouds that appear most often in the spring and summer. The next best candidate for relaxation are those associated with layered clouds, seen most often in the winter. The layered cloud phenomena has the greatest impact on Space Shuttle and other rocket launches from Kennedy and the Air Force's Eastern Test Range.

There are six natural and triggered lightning constraints that can delay a launch. Flight data was collected for each. The first rule prohibits a launch within 10 nautical miles of any type of lightning 30 minutes prior to launch. The second prohibits a launch through or near cumulus clouds, depending on the combination of distance and temperature at the cloud top.

The remaining rules deal with the intensity of the electric field as measured at the surface, the presence or absence of vertically continuous layers of clouds and the presence of disturbed weather (moderate or greater precipitation) or debris clouds associated with a thunderstorm.

Safely opening the launch window even a little in thunderstorm-prevalent Central Florida could result in a significant reduction of lightning-related launch delays. Electrically charged clouds, believed to be lightning conducive, pass over Cape Canaveral more than 100 days each year, especially from May to September. A lightning strike to a spacecraft can be triggered when the vehicle passes near a thunderstorm or even through an electric field left from a decaying thunderstorm. Components in the rocket or its payload can be damaged by the strike.

A change in lightning rules will not occur immediately, Bihner said. Enough data must be collected to be considered statistically significant and the conclusions must be scientifically validated; then Air Force and NASA officials will have to approve changes, he said.

NASA Langley Toastmasters Club Installs 1992 Officers

Dr. Marco A. Egoavil has been elected president of the NASA Langley Toastmasters Club for the January to June term. He has been an aerospace engineer for the Facility Engineering Division and is a two-year member of the club, serving as secretary last year.

Other officers installed were: Richard G. Booth, vice president, education; Laguduva Kubendran, vice president, membership; Myra L. Walton, vice president, public relations; George G. Ganoe, secretary; Regina V. Byrne, treasurer; and Jeffrey Sullivan, sergeant-at-arms.

Sadie L. Boyer, a recent Langley retiree, was last year's president. Some highlights of 1991 include:

♦ Dr. Karen Credeur received a Communication and Leadership Award from the district.

♦ Dr. Steven Yaros was elected Toastmaster of the Year.

♦ The club's monthly newsletter, Lines of Communication, received an honorable mention at the district level for best newsletter by a single editor.

♦ The club finished sixth in the district and 244 out of 3,363 clubs internationally in the 20- to 29-member category.

Meeting times

The club meets at 11:30 a.m., second and fourth Wednesday of each month, at the H.J.E. Reid Conference Center. Meetings are open to NASA employees, contractors and Langley Air Force Base personnel.

Bloodmobile Report

The Bloodmobile received 251 donors in January, including 10 first-time givers.

Coordinating the activity for NASA was Annette Forrest. Marye Hoeflein coordinated for the Red Cross.

Totals for donors are as follows:

Fourteen gallons – Davis B. Wright Jr.

Eleven gallons – Harvey W. Murray.

Eight gallons – William C. Woods.

Seven gallons – Robert M. Connel Jr.

Five gallons – Robert Turner, Janice L. McCollum and Todd B. Meyer.

Four gallons – Kevin B. Johnson and Gregory Buck.

Three gallons – Gilda A. Miner, Robert E. Caldwell and Kurt N. Detweiler.

Two gallons – Stephan R. Bollman and Diane N. Tingen.

One gallon – Michael Houseknecht, Thomas E. Harris, Gerald E. Smith, Paul S. Daspit and Carl J. Martin.

First-time donors were: Michael K. Chambers, Robert E. Jordan, Wade S. Saltzgiver, Bruce C. Munro, Mark E. Strickland, Michael L. Cole, Thomas A. Slate Jr., Matthew O'Rourke, Royce Snider and Ann W. Heath.

Happenings

FOR SALE: Four 15 x 6-inch steel auto rims with valve stems. GM "big-bolt" pattern; fits many cars – even Fords – from the late '70s onward. $10 each; 4 for $35. Also, 3 radial tubes for 14- to 15-inch rims, $6 each or 3 for $15. Call Youngblood, leave message, at 1-588-8617.

DISCOUNT THEATER tickets – AMC Movie Theater, $3.75; Colonial Williamsburg Patriot's Pass, adult $26.50, child, $16; Royal Governor, adult $24, child $15; basic admission, adult $22, child, $14. Tickets are available at the Exchange Shop in the cafeteria. Prices subject to change.

FOR SALE: New international version – Bible on cassette; deluxe fully dramatized/orchestrated, $100. Pioneer quartz-PLL turntable, electronic full-automatic PL, $50. Panasonic rice steamer, $10. Exercise bike, Performax 200, electronic time-calorie-distance readout, $75. Ladies 14-karat yellow-gold ring with 1-1/2-karat pear-shape ruby accented with 14 .02-karat diamonds, $1,000. Ladies 14-karat yellow-gold tennis bracelet, 23 1/4-karat rubies accented with 46 .02-karat diamonds, $2,500. Negotiable. Call Lisa, 865-6234.

THE FEDERAL WOMEN'S PROGRAM will continue to meet the second Wednesday of each month at 8:15 a.m. in the cafeteria executive dining room. The next meeting is March 11. For more information, call Patsy Campbell, ext. 43291.

FEDERALLY EMPLOYED WOMEN, Langley chapter, will meet the last Wednesday of each month at 11:30 a.m. in the Langley Air Force Base snack bar. The next meeting is February 26. For more information, call Patsy Campbell, ext. 43291.

SKI! Ski February 20 at Massanutten, February 27 at Wintergreen, March 2 at Massanutten and March 9 at Bryce. Bus leaves Newmarket South at 5 a.m. and returns at 9:30 a.m. Total cost is $49. Trips are open to all employees, contractors and their friends. For reservations, send check, payable to Richard Bennett, to him at Mail Stop 397 or 11 Bosch Lane, Newport News, 23606.

TELA TAX SERVICE, member National Association of Tax Practitioners. Electronic filing. Small-business bookkeeping. By appointment. Call 874-3121.

DISABLED PERSONS SATELLITE COMMITTEE will meet Thursday, March 12, from 8:15 to 9:30 a.m. in the cafeteria. The meetings are open to all employees and contractors and to anyone else who has an interest in the Disability Program.

SATURDAY AEROBICS IS BACK! 9:30 to 10:30 a.m. in the Activities Center. Cost is $6 a month. Call ext. 42295.

LOW-IMPACT AND BENCH AEROBICS classes are held Tuesdays and Thursdays, 5 to 6 p.m., LAA gym. Cost is $12 per month or $6 per month if attending only one day a week. The classes are open to employees, contractors and their families. Call ext. 42295.

BODY DYNAMICS. High-energy, low-impact aerobics classes will be held Mondays, Wednesdays and Fridays at 6:15 a.m. in the LAA gym. Classes are free and open to civil servant employees.

ROOMMATE WANTED to share townhouse in Northampton area. Two master bedrooms, 2 baths, great-room with fireplace, washer/dryer, private phone. Call Sandy at 838-0200 during the day or 838-9204 after 6 p.m.

LAA SOCIAL HOUR will be held Friday, February 28 from 4 to 6:30 p.m. in the H.J.E. Reid Conference Center.

LOST: $20 bill in the Langley Federal Credit Union, NASA branch parking lot Thursday, January 30, at about 11:15 a.m. If found please contact Kathy at ext. 45987.

INCOME TAX PREPARATION. Please call and leave name and phone number for appointment. Nancy Taylor, 723-5227.

AFGE LOCAL 2755 union meeting will be held February 19 at 4:15 p.m. in the Union Office Building, 8B Ames Road.

CARPOOL: I would like to join a carpool originating from Williamsburg's Queens Lake area. Call Cindy at ext. 48132.

ENGINEERS WEEK BANQUET will be held Saturday, February 22, at the Sheraton Inn-Coliseum. Social hour at 6 p.m.; dinner at 7; program at 8; dancing at 9. Tickets are $15. The banquet is sponsored by the Peninsula Engineers Council. Contact Abe Leiss, 877-2939, for reservations.

FOR RENT: Elizabeth Lake Estates, 366 Hopemont Circle, Hampton, 4-bedroom, two-bath, living room with fireplace, dining room, kitchen, garage, CA, neighborhood association with pool, close to schools, Langley. No pets. $800 a month, deposit required. Call 851-8388 and leave message.

TOASTMASTERS meets the second and fourth Wednesday of each month from 11:30 a.m. to 1 p.m. The next meeting is February 26 in Building 1222.

LAFB OFFICERS' CLUB is offering a Marina Buffet, featuring seafood and prime rib every Friday night in February at 6 p.m. Special entertainment for Valentine's Day, February 14, includes D.J. Gator Almond from 7 to 10:30 p.m. Please call 766-1361 for details.

PLACING YOUR AD

To place an ad in Happenings, fax it to ext. 46333 or 48199, or send to Mail Stop 115. Include name and phone number. For more information call ext. 41626.

Researcher News

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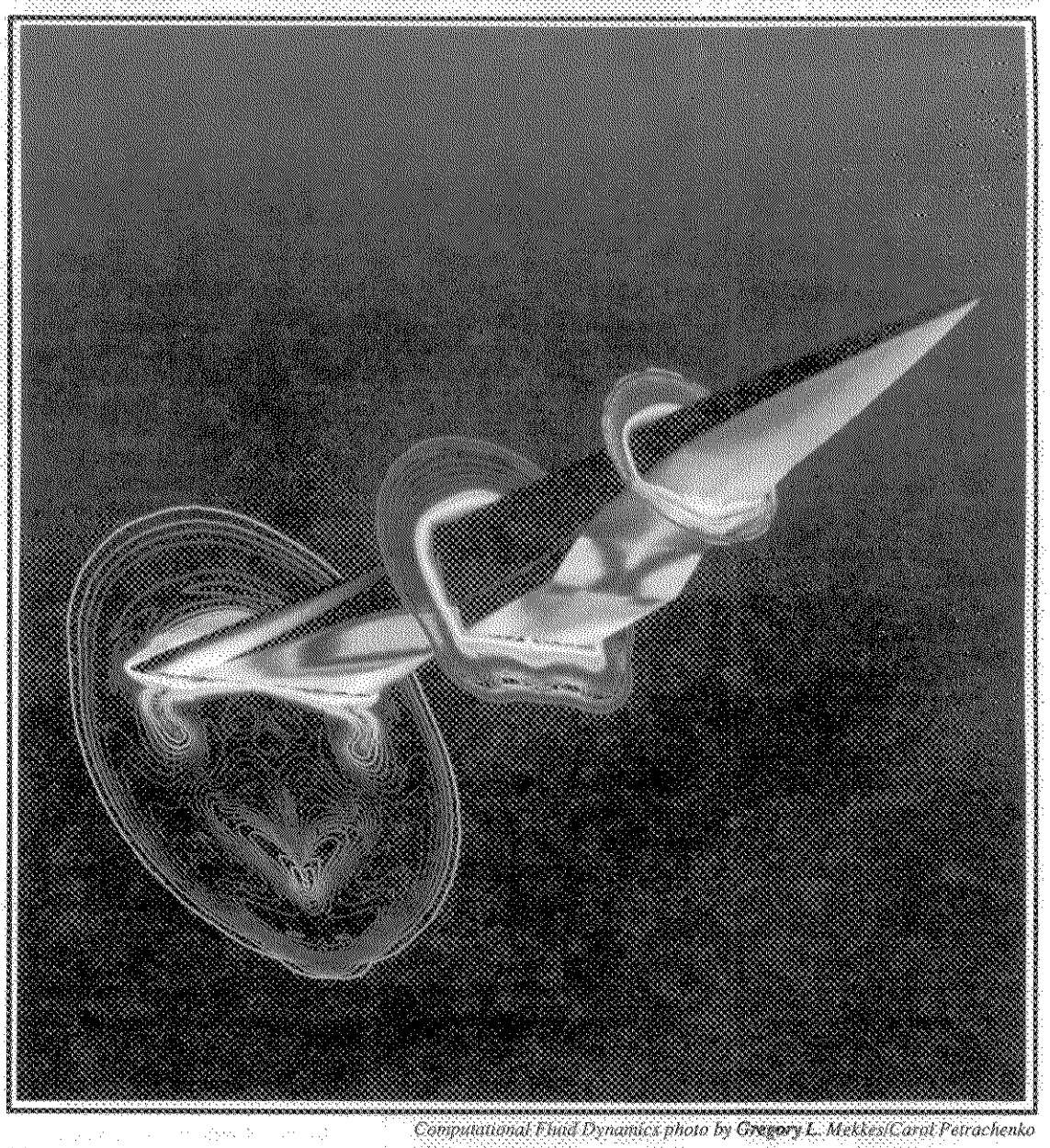

Computational Fluid Dynamics photo by Gregory L. Mekkes/Carol Petrachenko

SCRAMJET engine exhaust is modeled in this supercomputer-generated image of an aerospace vehicle as part of the National Aero-Space Plane (NASP) Program. Light to medium shades indicate areas of highest air density, including the exhaust area seen on the under surface at rear. Contour lines that ring the airplane indicate air density away from the surface at selected points. Langley researchers are studying engine nozzle performance and exhaust effects on tail control surfaces. The image simulates wind tunnel test conditions at Mach-10 – about 6,500 miles per hour. An aerospace plane would take off like an airplane, accelerate to 17,000-plus miles per hour and reach low-Earth orbit. Such a vehicle could deploy payloads, pick up or repair satellites or visit Space Station Freedom before returning to Earth for a runway landing.

1917 - 1992
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NACA
NASA
Langley Research Center

News Researcher

Bi-weekly Employee and Contractor Publication

Volume 6 ❖ Issue 4 ❖ February 28, 1992

Global Smog: 'Bad' Ozone Is Harming Crops, Forests And Human Health

Nitric Oxide From Car Exhaust, Never Regulated, Is Major Cause

BY CRAIG MURDEN

The two major influences on global atmospheric change have been expanded to include a third dangerous ingredient in what humans are doing to foul the air they breathe.

To the global warming from carbon dioxide and the depletion of protective ozone from chlorine is now added the widespread increase of lower atmosphere toxic ozone or "global smog." This man-made hazard, whose levels have doubled or even tripled in the last century, is now being viewed as the source of reduced crop yields, widespread damage to forests and human respiratory problems.

But, there is hope for reducing global smog, says the Langley atmospheric scientist whose breakthrough research with satellite measurements confirmed the worldwide spread of this bad ozone.

Dr. Jack Fishman of the Atmospheric Sciences Division points out that this problem was previously thought to be confined to cities with high concentrations of automobiles or heavy industry. Toxic ozone comes from a chemical process that begins when incomplete combustion of fossil fuels – such as car exhaust – releases partially oxidized hydrocarbons and nitric oxide into the atmosphere, where they react to form ozone.

In the 1970s, Fishman notes, a mistake was made in addressing the control of auto emissions. At the time stricter car emission standards were enacted, it was believed only hydrocarbons had to be treated to reduce smog. Only recently has it been realized that both parts must be reduced. This omission has led to ozone levels as high now as they were prior to strict controls. Additionally, the presence of nitric oxide has now been shown to influence not only local concentrations but the global spread of toxic ozone as well.

And, it is the study of that distribution, previously thought inconsequential outside urban areas, which has occupied much of Fishman's research and that of other Langley atmospheric scientists. Projection of urban smog problems to global proportions has only been possible with the use of satellites that can track migrating pollution plumes at any point on the Earth.

Creative use of these space-borne platforms has also made it possible to identify and map dirty ozone coming from other sources. For instance, Fishman was one of the first scientists to identify the massive contribution of biomass burning, in southern Africa and South America, to the deteriorating world condition.

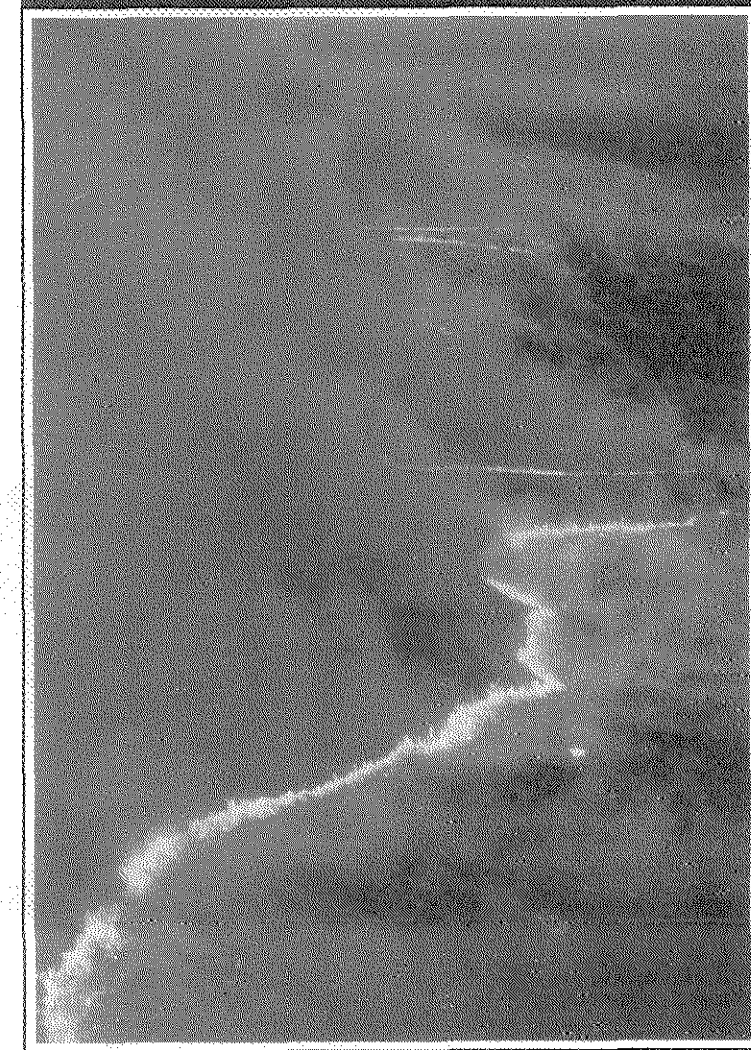
Those effects are serious across a range of areas. Unlike most other trace gases now increasing in the atmosphere, ozone stands apart because it is a gas with toxic attributes. It is already estimated that ozone causes more than $1 billion in crop damage per year in the United States.

Toxic ozone is also responsible for forest dieback in Germany and bodes ill for other forested areas of the world. An insidious thing about this ozone is that its damaging effects increase with rises in temperature. Thus, for instance, stress to biological systems brought on by drought conditions from climate warming will be augmented by elevated ozone concentrations. Taken a step further, higher ozone levels have a direct effect on the growth rate of trees because photosynthesis is hindered by higher concentrations of the gas. Seedlings, exposed to the kind of ozone concentrations typical of summers in the eastern United States, showed a 29 percent reduction in growth from the control group that had no toxic ozone exposure.

Perhaps the most alarming factor, which scientists have documented, is the adverse impact on human health from the levels of ozone measured throughout the United States during the summer. For example, studies have shown

Please see **SMOG**, *Page 2*

UP IN SMOKE



Toxic ozone buildup is a worsening problem in the Earth's lower atmosphere, where it is a pollutant, unlike the "good" ozone in the upper atmosphere that blocks harmful ultraviolet radiation. Factors contributing to the increase of toxic ozone include:

- **The burning of large tracts of land, such as in Botswana, Africa, shown in the photo above.**
- **Emissions from automobiles and heavy industry.**

The smog is:

- **Reducing crop yields and damaging forests.**
- **Causing human respiratory problems.**

NASA's 'Vision 21' Looks Toward Planet Earth As Well As The Sky And Beyond

Vision 21, the strategic plan of outgoing NASA Administrator Richard H. Truly, is being reprinted and will be distributed on Center.

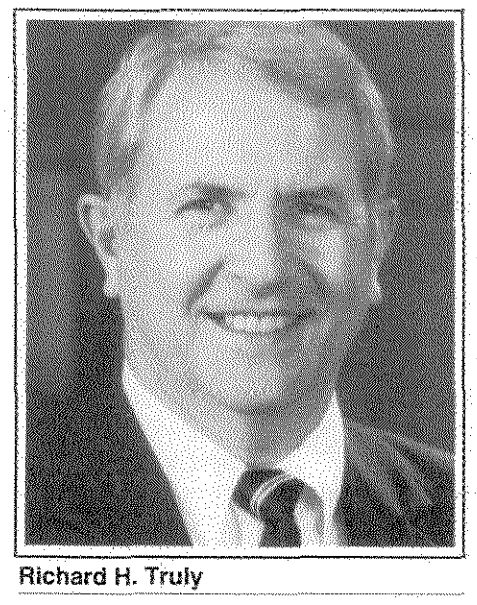
The plan, announced earlier this year, is an inhouse document that outlines the agency's goals and missions for the coming years.

"Vision 21 is based on my conviction that NASA exists to make the United States the world leader in space exploration and aeronautics research and, through our achievements, to inspire and better the lives of all Americans," Truly said in introducing the document.

The 41-page plan outlines four goals:

- Advance scientific knowledge of the Earth, sun, solar system, universe, and fundamental physical and biological processes.
- Expand human activity beyond Earth's orbit and into the solar system.
- Strengthen the nation's competitive posture in space and aeronautics.
- Attract young people to math, science and technology and ensure a more technically literate society.

Four missions are identified to achieve those goals:



Richard H. Truly

- Space science - the pursuit of basic discovery and understanding.
- Mission to Planet Earth - the use of the perspective of space to understand our home planet and global change.
- Mission from Planet Earth - the exploration of space and the expansion of human presence and activity beyond Earth orbit into the solar system.
- Aeronautics research - vehicular technology and disciplinary research to sustain U.S. leadership in the increasingly competitive field of aviation.

Five "linchpins" are identified to enable the success of the missions:

- Human resources - NASA's well-educated, highly skilled, experienced, culturally diverse, extremely motivated men and women in the civil service, aerospace industry and university workforce.
- Physical resources - NASA's cutting-edge test facilities, launch pads, wind tunnels, computational centers, aircraft, research laboratories, management systems and equipment.
- Space technology - the development and transfer of advanced technology, bridging the gap between concept and application in manned and robotic missions, and the active transfer of these to industrial and commercial applications.
- Space Station Freedom - the development of a permanently manned outpost in space where we will learn to live and work productively, build and operate large systems, and conduct advanced research to benefit all mankind.
- Space transportation and communications - the provision of high-confidence, reasonable-risk, manned and unmanned launch services, plus an effective and efficient command, control, and communications infrastructure.

Improving quality of life

Said Truly: "Whereas in the past, the space program primarily looked outward, today's space program looks inward as well in order to better understand our fragile planet.

"Whereas in the past, the space program was the symbol of a superpower race for technological dominance, today's space program represents common pursuits by all nations of the world to improve the quality of life for all humankind," he said.

"And finally, whereas the space program of the past was the responsibility of governments, the space program of today and tomorrow represents the combined efforts of the government and the private sector to fulfill the fundamental goals of the civil space program and to capture new markets and economic opportunities."

News Briefs

AROUND THE AGENCY

The No. 2 Job – Aaron Cohen, director of Johnson Space Center, has been named acting deputy administrator of NASA. In addition to day-to-day duties, Cohen will help Administrator Richard H. Truly "provide for continuity in the transition period as the President nominates and the Senate confirms a new administrator and deputy administrator," said Truly, who is resigning effective April 1. Upon completing the assignment, Cohen will return to his position at Johnson. Meanwhile, Roy S. Estess, director of Stennis Space Center, will remain in his temporary role as special assistant to the administrator.

More Appointments – Darrell R. Branscome has been appointed deputy associate administrator (management) for the Office of Space Flight at NASA Headquarters. He had been technical assistant to the associate administrator for Space Flight since January 1991. Robert W. Phillips has been appointed chief scientist, Space Station Freedom. Since 1991, he has been a CIT/Jet Propulsion Laboratory visiting senior scientist with the Life Sciences Division at NASA Headquarters.

Flying By Light – Lewis Research Center has begun flight tests of an optical-based flight control system. Optical sensors and fiber optic cable are advantageous because they are immune to electrical interference. Tests are in the F-15 Highly Integrated Digital Electronic Control aircraft at Dryden Flight Research Facility. Future flights will be on the F-18 Systems Research Aircraft.

Competitive Positions Announced

The following vacancies, open to Langley employees serving under permanent civil service appointments, have been announced through the Competitive Placement Plan:

92-16: AST, Technical Management, GM-801-14 or 15; SE&O Directorate, Systems Safety, Quality & Reliability Division. Closes March 3.

92-17: Voucher Examiner, GS-540-6 or 7; Management Operations Directorate, Financial Management Division, Accounting Branch, Cost Accounting Section. Closes March 4.

Positions Filled

The following individuals have been selected to fill positions:

John Powell, head, Composites Section; **Joseph Howell,** head, Sensor System Branch; **Preston Carraway,** head, Electro-optics Branch.

Paper Abstracts For Technology 2002 Are Due By May 1

Paper abstracts for Technology 2002 are being accepted and should be submitted no later than May 1. Papers should describe innovations developed by or for a government agency in one of the following categories: advanced manufacturing, biotechnology/medical technology, computer technology, electronics, energy/environmental technology and materials science. Abstracts should be 1 to 1-1/2 pages long and describe the technology's importance and commercial potential.

Abstracts submitted by government contractors should include the name of the agency/laboratory for which the work was done and the contract number. All submitters will be notified by June 30. Mail or fax abstracts to: Leonard A. Ault, program chairman, Technology 2002, Code CU, NASA Headquarters, 600 Independence Ave. S.W., Washington, D.C., 20546. Fax: (703) 557-8186.

For more information call Ault at (703) 557-5598, or Justina Cardillo at (212) 490-3999. Technology 2002 is sponsored by NASA, *NASA Tech Briefs* and the Technology Utilization Foundation.

James A. Schoenster, Applied Acoustics

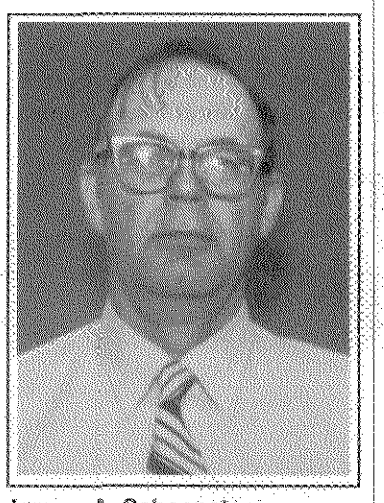
IN MEMORIAM

James Arthur Schoenster, 57, died January 23 from cancer. He was an aerospace engineer in the Applied Acoustics Branch, Acoustics Division.

Schoenster would have completed 30 years of service at Langley in May. He came from the Grumman Corp. in New York and spent his NASA career in dynamic loads and acoustics research.

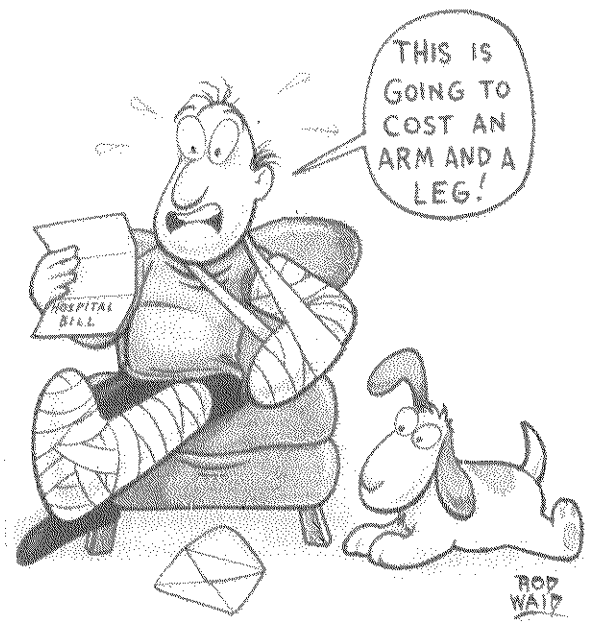
"His helpfulness, sense of humor and technical competence will be greatly missed by his colleagues," said David Chestnutt, head of the Applied Acoustics Branch.

Services were held at St. Rose of Lima Catholic Church in Hampton, where he taught church history and moral values. He is survived by his wife, Pat, and three adult children.



James. A. Schoenster

Lankley



LETTERS

Thank You

From **Ann Worth**: I would like to express my sincere thanks to my friends and co-workers who have donated their leave to me through the Leave Sharing Program.

Your generosity has enabled me to continue working at NASA Langley Research Center. I will always remember what you have done for me and my family.

LETTERS ARE WELCOME. Keep them very short and concise. Send them to Mail Stop 115 or fax to ext. 46333 or 48199. Please include your name and phone number. Letters are subject to editing.

NASA Picks 9 Langley Employees For Management Fellowships

Nine Langley employees have been selected by NASA to receive fellowships to study various aspects of management at institutions of higher learning across the United States.

Selectees include:

Dr. Harry F. Benz, heading, Information Processing Technology Branch, MIT-Management of Technology Program.

Dr. Karen R. Credeur, deputy head, Office of External Affairs, Harvard University Mid-Career Master Program in Public Administration.

Richard A. Foss, head, Thermal Analysis Section, Syracuse-Maxwell Mid-Career Program.

Ruth M. Martin, aerospace engineer, Flight Vehicle Acoustics, Smith College Management Program for Women.

Sally O. Mauldin, attorney advisor, Office of Chief Counsel, Simmons College Program for Developing Executives.

Jerry R. Newsom, head, Controls-Structures Interaction Office, Carnegie-Mellon Senior Executive Seminar.

Dr. Thomas A. Shull, head, Electronics Branch, Massachusetts Institute of Technology (MIT) Advanced Studies in Engineering Technology.

George G. Steinmetz, manager, Advanced Transport Operation Systems Program office, Pennsylvania State University Scientist/Engineer as Manager.

Dr. Woodrow Whitlow Jr., assistant head, Aeroservoelasticity Branch, Pennsylvania State University Scientist/Engineer as Manager.

"Langley's senior management places a high value on the opportunities provided by these Agency fellowships," said Dr. Belinda H. Adams, chief of the Human Resources Management Division. She is a member of the Langley committee that recommends candidates and is on the intercenter panel that provides Headquarters with a slate of nominees. "Managers are encouraged to invest in their employees by making provisions for individuals to participate in these and other developmental assignments. As a result, Langley's candidates are selected from a roster of highly competitive applicants and have historically done very well in competition. This year the Center can again be very proud of not only of those selected to receive the fellowships, but also of all employees who participated in the competition."

The NASA management fellowships are varied in duration and focus. Time frames range from one week to one year, and requirements vary from GS-12 to Senior Executive Service level. Programs differ in focus from a public sector viewpoint to management in a business context. For more information, contact Louise Hamilton, Employee Development Branch, ext. 42571.

Continued from Page 1

SMOG:

significantly reduced pulmonary function in healthy children and adults even in rural areas and even when levels are below federal Environmental Protection Agency (EPA) standards. And, the effect on humans, like the effect on foliage, is more acute with warmer temperatures.

Fishman believes the detrimental aspects of global smog may be considerably greater than from the other two causes.

"It is time the world community acts to combat this ever increasing global problem by reducing emissions of nitric oxide as well as those of hydrocarbons, which have been curtailed in this country through use of catalytic converters on automobiles," he said. "New knowledge about the role of nitric oxide should now trigger new emission control strategies using existing technology."

This strategy has also been recommended in a report recently released by the National Academy of Science. This report also recommends that a research program be established to study tropospheric ozone in the same fashion as the program currently established to address the depletion of the ozone layer.

Fishman also emphasized a strong focus on the agricultural and economic alternatives which can reduce the biomass burning in vast areas of the world.

Fishman presented his perspective as one of a group of international scientists invited to participate in public hearings conducted by the German Bundestag (parliament) on the theme of "Protecting the Earth's Atmosphere" held in Bonn in mid-January.

News Researcher

The **Researcher News**, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23665-5225, is published every other Friday in the interest of all Langley staff and retirees. Submit contributions to the Editor, Mail Stop 115, telephone 864-6126. Articles are due at noon on the Tuesday following the date of this issue.

Managing Editor ..... Jean Drummond Clough

Editor ..... Michael Finneran

Photojournalist ..... Carol Petrachenko

Photographer ..... Fred Jones

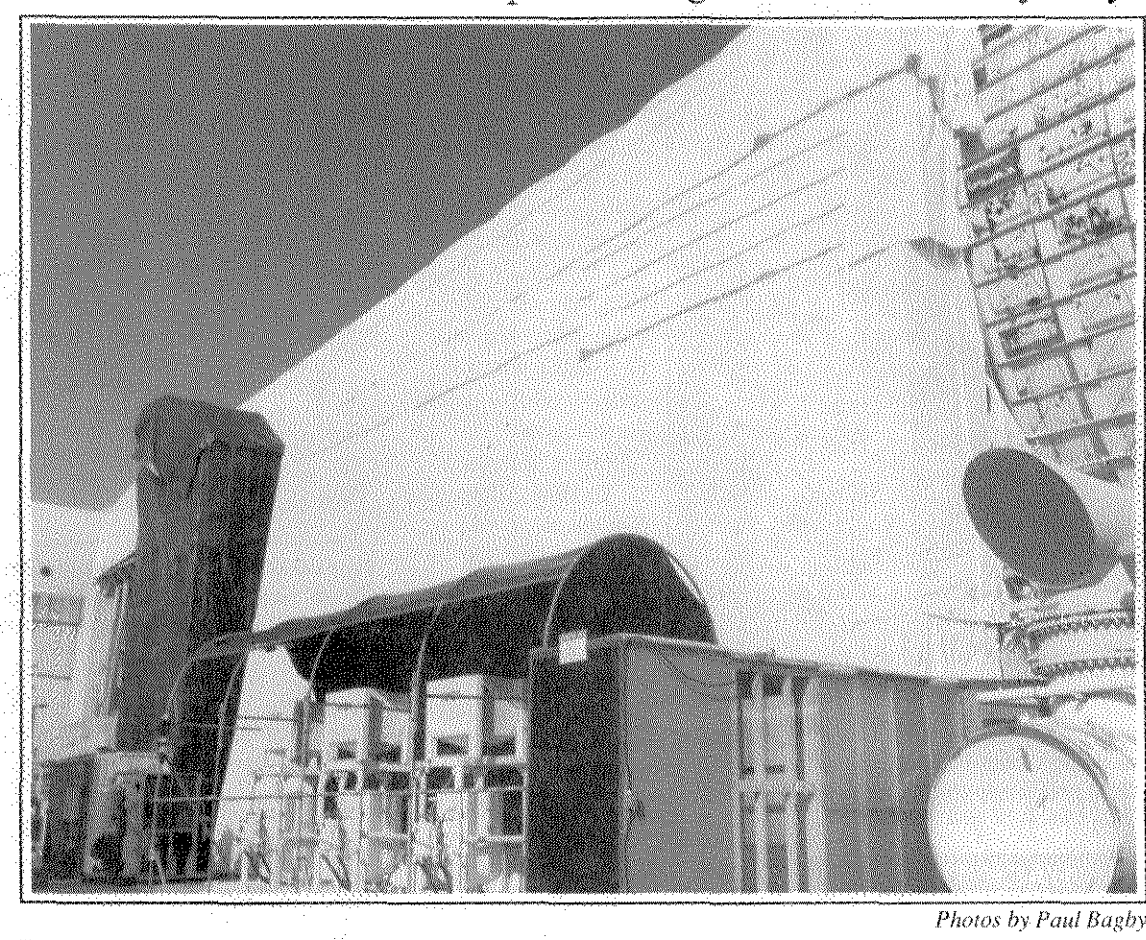
The privilege of advertising in this publication is restricted to the employees and retirees of the Langley Research Center. Articles advertised here must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

Getting The Lead Out: Paint Removal Process Protects Environment

Procedures Ensure That Chips No Longer Fall Where They May

The 16-Foot Transonic Tunnel and several other Langley structures are being stripped of hazardous paint using an environmental protection system that its developers say is unique in the country.

A frame that resembles a greenhouse is built around the structures to keep contaminants, such as lead, out of the air, ground and water. Workers wear protective suits. And the steel grit used to remove the paint is reclaimed and reused.



Photos by Paul Bagby

Tarps over a frame on the 16-Foot Transonic Tunnel and prevent lead paint dust escaping.

Innovative design

"A lot of things that we're doing here are innovative and have never been done before," said Ray Anderson, corrosion control manager for EG&G, the inhouse contractor that developed the system. "We're driven by two issues. One is the environmental hazard. You have to contain the material, otherwise you'd contaminate the environment with hazardous dust and debris. The other issue is worker safety."

The frame is built of PVC pipe covered with a tarp, and attached to the structure with clamps or erected around it like a tent. A sectional wood floor is laid under the structure, and moveable catwalks are set up for workers. Because it's lightweight, flexible and portable, the system can be used in a variety of settings, said Dennis Cross, EG&G project supervisor.

"With this type of equipment you can contain a 60-foot sphere or a 60-foot building, it doesn't matter," he said.

As the removal work proceeds, paint debris and used steel grit funnel into storage containers. Later, the grit is cycled through a machine to separate it from the dust and paint chips. The grit is reused many times. The paint debris is disposed of at an approved hazardous waste site. Air samples are taken regularly.

Workers undergo extensive training to prevent contamination of the environment – and of themselves. They wear protective suits, respirators and exposure monitors. At the end of the day, they vacuum their suits in an airlock, then take showers. Even the shower water is filtered, sampled and held before being released into the sewage system so that the local treatment plant can prepare to receive it. Workers aren't allowed to smoke, chew gum or do anything else that would allow them to ingest or inhale contaminants. Workers also undergo initial and periodic blood lead-level monitoring.

Expensive process

Satisfying federal environmental and worker-safety laws doesn't come cheap. "Compliance is costing us a fortune," said George F. Palko, head of the Work Control and Contracted Services Branch, Operations Support Division.

Stripping and repainting just the 16-Foot, where the hazard is lead paint, will cost more than $3 million. Part of the cost, Palko said, is for equipment that will be reused. Palko said that virtually every future paint job will require use of the containment system to comply with federal Environmental Protection Agency (EPA) regulations and the Occupational Safety and Health Act (OSHA).

"Anything that you paint now you have to take down to bare metal," he said.

The process is time-consuming as well. EG&G spent about a half-year developing and setting up the system at the tunnel and plans on another year of stripping and painting.

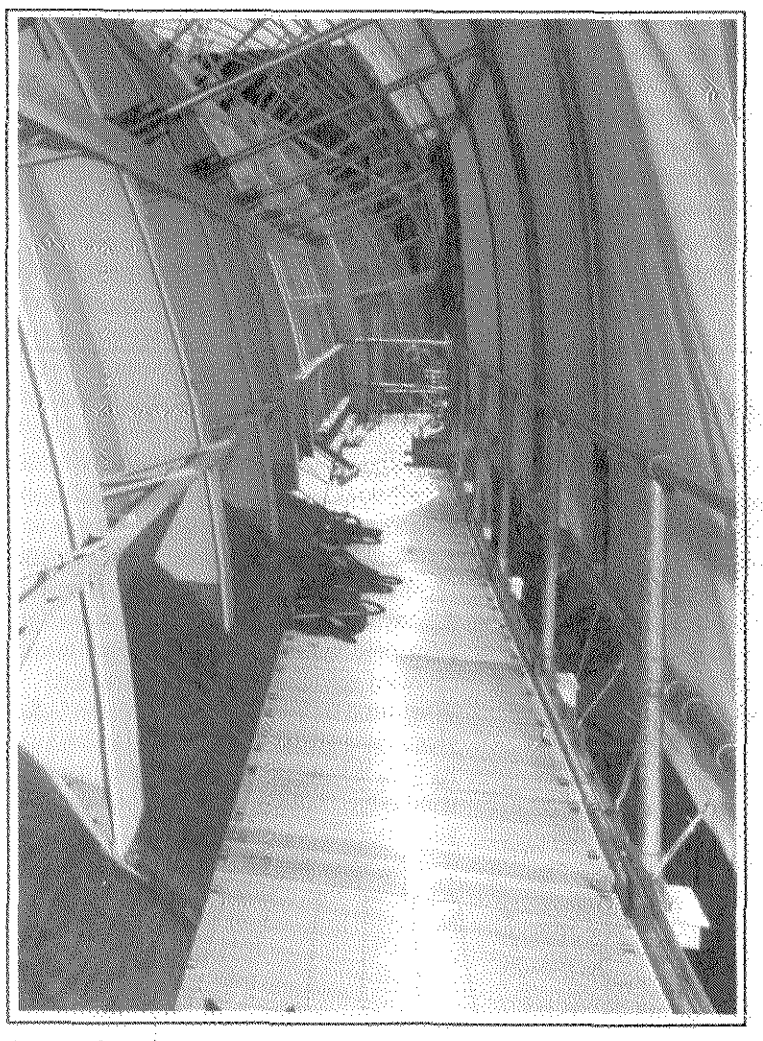
Several structures in the East Area already have been stripped and repainted. This spring, EG&G will tackle the four 60-foot spheres, whose paint contains chromium, on the edge of Langley Boulevard.

After the 16-Foot tunnel, work will start on the 100-foot sphere at Facility 1247. The final color of the structures will be Langley's standard oyster grey.

"Our work will be very evident over the next few years," said Cross.

Anderson said the containment system developed by EG&G is generating interest across the country and from other NASA centers struggling to comply with strict federal standards.

Said Anderson: "We've been getting a lot of phone calls."



A catwalk provides a platform for workers inside the containment system at the 16-Foot tunnel.

A worker wears a protective suit to guard against contamination.

AIAA Elects 4 At Langley As Fellows

Four Langley members of the American Institute of Aeronautics and Astronautics (AIAA) have been elected 1992 fellows.

Selection of AIAA fellows is limited to those who have not only distinguished themselves in the field of aerospace, but who show strong potential for leadership in the future.

Election as a fellow is recognition of this commitment and contribution made to aerospace. Thirty-five individuals have been elected fellows in 1992. The four Langley selections are:

Dr. Richard W. Barnwell, associate chief, Space Systems Division. Barnwell is a recipient of the H.J.E. Reid Award, Langley's highest honor, and a NASA Exceptional Scientific Achievement Medal. Prior to his current position, he was chief scientist at Langley. Barnwell is the author or co-author of more than three dozen technical papers.

Dr. Ajay Kumar, head of the Theoretical Flow Physics Branch. He is the author or co-author of some 100 technical publications and is a recipient of a Best Paper Award from the Aeronautics Directorate at Langley. Kumar also was awarded the Johns Hopkins University Applied Physics Laboratory Award for Best Technical Paper.

Dr. Ahmed K. Noor, Ferman W. Perry Professor of Aerospace Structures and director of the Center for Computational Structures Technology of the University of Virginia, Langley. He is a fellow of the American Society of Civil Engineers, American Society of Mechanical Engineers and American Academy of Mechanics. He is editor or on the editorial board of several journals and has more than 130 publications.

Dr. Jaroslaw Sobieski, head, Interdisciplinary Research Office, Structures and Dynamics Division. Sobieski has more than 70 technical publications on numerical methods in engineering. He is a recipient of the NASA Medal for Exceptional Engineering Achievement. He is a founding chairman of the AIAA Technical Committee for Multidisciplinary Design Optimization.

The Washington, D.C.-based AIAA is the largest professional society, principal voice and information resource devoted to the progress of engineering and science in aviation and space.

Zimmer's Skimmer: It's A Bird, It's A Plane, It's . . . A Flying Pancake

BY MARK CHAMBERS

During the heyday of aviation research in the mid-1930s, many unique aircraft designs were developed and tested by the NACA. One of the most innovative was the "Flying Pancake."

In 1933, Charles H. Zimmerman, head of the Stability and Control Section at the Langley Memorial Aeronautical Laboratory, began experimenting with short-winged, or low aspect ratio, designs. His research indicated these wings could be as efficient as conventional longer wings and produce more lift at low speeds.

Photo by Fred Jones

Charles H. Zimmerman, creator of the "Flying Pancake," says the design could still be used for reconnaissance aircraft and poor-weather operations.

One obstacle was the reduced aerodynamic efficiency caused by air spirals, or vortices, spinning off the wingtips. Zimmerman found that he could delay formation of these vortices with large, wingtip-mounted propellers rotating in opposite directions to the vortices.

Novelty becomes reality

Zimmerman demonstrated his design in an inter-NACA contest for innovative light aircraft. While considered the winner based on originality and aerodynamic ingenuity, his project was rejected for further NACA development as being "too advanced" and "too much of a novelty," said Zimmerman.

In 1937, Zimmerman joined the Chance Vought Aircraft Division, which was interested in the concept for its military applications.

Engineering design and aerodynamic studies were funded by the Navy, and a prototype that received the company designation V-173 was

BACK THEN

designed as a manned flying test bed. The V-173 was built of a complex but light wooden structure with fabric covering. The tail surfaces consisted of twin fin-and-rudder assemblies for directional control and elevons for lateral and longitudinal control.

Full-scale wind tunnel tests were conducted at Langley Field beginning in December 1941. These tests verified that the high drag of the low aspect ratio wing could be offset by the large propellers operating ahead of the wing. The propellers produced, in effect, an increase in wing span, which provided better lift. Free-flying model tests were also conducted at Langley to assess stability and control characteristics.

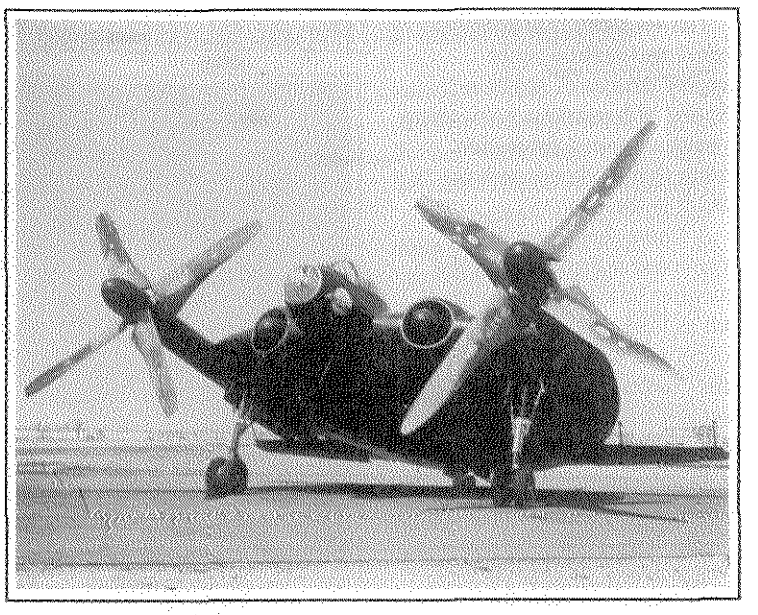
The V-173 was first flown on November 23, 1942 and found to exhibit outstanding low-speed flight behavior. Charles A. Lindbergh and several Navy pilots participated in test flying the V-173. Throughout the flights, it was impossible to force the aircraft to stall or to approach a spinning condition.

"Lindbergh was so impressed by the performance of the design that he said he had to fly it," says Zimmerman. After more successful test flights, the aircraft became affectionately known as the "Zimmer Skimmer."

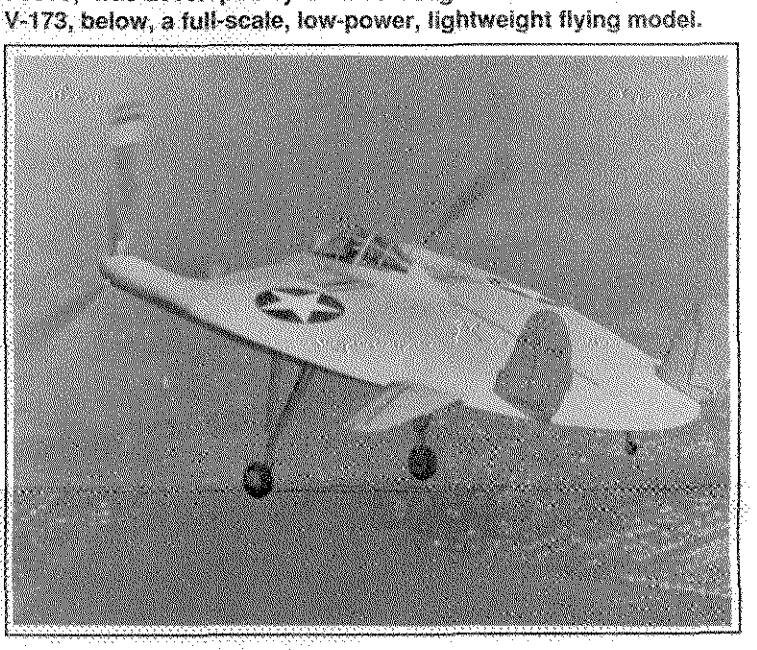
In 1941, Chance Vought received a Navy contract for developmental studies and testing of the revolutionary fighter design, which received the official designation XF5U-1. In an attempt to develop the XF5U-1 for carrier use, Zimmerman directed his efforts toward improving the speed range between takeoff and landing.

The XF5U-1 was faster than other naval aircraft of the time, holding an estimated 40 mile-per-hour advantage over the fastest aircraft in service at the time, the F4U Corsair. The Navy hoped to utilize the short-takeoff-and-landing and high-speed characteristics of the XF5U-1 to protect the naval fleets in the Pacific from the relentless Kamikaze suicide attacks by Japanese aircraft.

Unfortunately, teething problems were encountered with the propeller blades of the XF5U-1. Test pilots observed that the propeller blades displayed large flapping motions that caused violent vibrations at low speeds. Zimmerman solved the problem by inventing propeller hubs with two pairs of articulated, or angled, propeller blades for each powerplant. The blade-hub assemblies closely resemble the "teetering" blades



Two versions of the unusual "Zimmer Skimmer": The XF5U-1, above, was developed by Chance Vought. It was based on the V-173, below, a full-scale, low-power, lightweight flying model.



used by some present-day helicopters. Solving the prop problem delayed the project beyond the war, and the Navy soon lost interest in further development of the XF5U-1. Despite its unsuccessful ending, the "Flying Pancake" concept remains one of the most innovative ideas in aircraft design.

Cancellation disappointing

In a recent interview at his Hampton home, Zimmerman reflected on the concept and his many other contributions to aeronautical technology.

"I was tremendously disappointed when the Navy cancelled my project, but I really enjoyed doing the research. I still believe that the aircraft design could be applied to reconnaissance aircraft today and would be well suited for poor-weather operations," he said.

He recalled his contributions to wind-tunnel technology, including the design of Langley's Spin Tunnel and the Free-Flight Tunnel. Said Zimmerman: "The thing I enjoyed most was performing the tests on the individual models and confirming the engineering concepts."

How Much Do *You* Know? Langley Trivia Contest Will Test Your Knowledge

How's your history? Let's have some fun and test your knowledge of Langley and NASA history. The Federal Women's Program Committee, in recognition of Langley's 75th Anniversary, offers the following Trivia Contest.

Submit your written answers on letter-size paper to Patsy Campbell by close of business on March 13 at Mail Stop 178. All of the responses to each question must be correct to get credit for the complete question.

Winners will be announced in the March 27 edition of the **Researcher News**.

The questions

1. What does NACA mean? Who was the NACA's first chairman? What year(s) did his service span?

2. All women hired in the 1950s and 1960s with degrees in mathematics were assigned to a particular group within a division. What group was it?

3. In what year was the NAS Act signed? What did the NAS Act stand for? Name the Centers designated as NASA Research Centers during the initial signing of the NAS Act.

4. What major brand name of mechanical calculators was used in computing sections at Langley in the 1950s and 1960s?

5. What are the names of the first American astronauts? At which Center were they first trained at? Who was the U.S. President at that time?

6. Who made the first powered flight in a heavier-than-air aircraft? When, where and at what time?

7. What was the meaning of the term "paper clip?"

8. What year was the Collier Trophy established? Name two different Langley recipients of the Collier Trophy.

9. What NASA engineer invented the paraglider?

10. William O'Sullivan appeared on the television show *I've Got a Secret*. What was his secret?

11. What NASA engineer is famous for finding the low drag configuration shape for high-speed aircraft above the speed of sound.

12. When and where was the first cryogenic tunnel built?

13. Who thought of the pressure tunnel? Who built it? Where and when was it built? What was the maximum pressure? What is its correct name?

14. What year did the Langley Full-Scale Wind Tunnel become operational? What type of research was it used for and what was its cost?

15. What was the "Little Joe" project? How many were there? What was the total cost? Where is one of the last "Little Joes" located?

16. When was the U.S. National Transonic Tunnel dedicated? What two agencies were in contention to build it? What time was it dedicated? Which U.S. vice president attended the dedication?

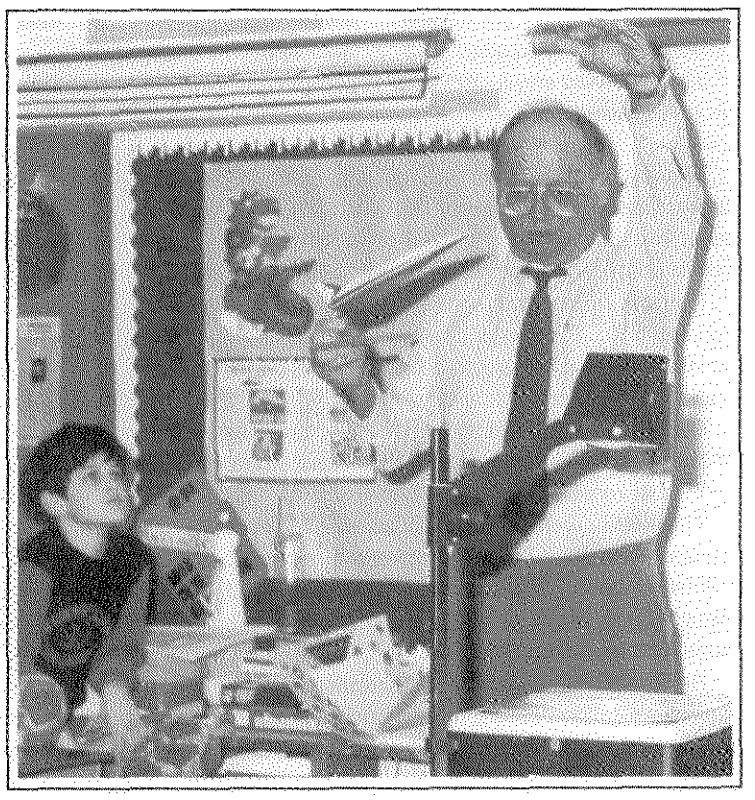
17. When and where was the first wind tunnel built? Who designed the first wind tunnel?

18. Name the wind tunnels at Langley, active/inactive, that have been designated National Historic Landmarks.

19. What year did the first American orbit the Earth and who was he?

20. Name the person who fabricated the protective coverings for the engine nacelle for the B-29 aircraft.

In The Classroom



Study hard, participate in extracurricular activities and work on math, science and communications skills, Associate Director Sid Pauls advised this fifth grade class. At right, he explains the National Aero-Space Plane, a high-speed, high-altitude aircraft that will achieve orbit under its own power.

Photos by Sandie Horsey

Associate Director 'Teaches' Fifth Graders For National Engineers Week

BY MARNY SKORA

"Keep your options open" was the message Associate Director Sid Pauls delivered to Nancy Anderson's and Susan Belanger's fifth-grade science classes. Pauls kicked off Langley's School Visitation Program, an educational outreach effort intended to encourage local students to excel in math and science as preparation for life in our increasingly technological world.

Pauls was joined by over 260 Langley employees – civil service and contractor – who left their laboratories and offices to "teach" lessons in area schools. The visitation program is one of three initiatives in which Langley participated during National Engineers Week.

"This kind of project gives our employees the opportunity to not only interact with students but impact their own communities by providing positive role models," the associate director said.

Pauls, born and raised in nearby Poquoson, returned to Poquoson Elementary School to present his lesson.

"I was impressed with the questions the students asked," he said. "They all seemed to know a great deal about NASA. As we got further into the lesson and they shared experiences with me, I realized I was speaking to the sons and daughters of many of our employees."

Jobs go to well-rounded

"My main message to the students was to keep their options open by studying hard, participating in extracurricular activities and working on math, science and communication skills. Employers are looking for well-rounded individuals—not necessarily straight-A students but conscientious, reliable and punctual prospective employees," said Pauls.

The response from the schools was overwhelming. More than 182 schools requested NASA "teachers" during National Engineers Week, most schools asked for multiple presentations. It is estimated that NASA Langley employees had the opportunity to impact more than 50,000 students through this outreach effort.

In addition, in cooperation with the Virginia Society of Professional Engineers, Langley supported MATHCOUNTS, an international math competition for seventh and eighth graders. NASA Langley and the Peninsula Engineers Council also sponsored Career Day February 19 and 20 for high school juniors and seniors.

About 700 students participated in this interactive program during which they had an opportunity to speak to local engineers and view their tools and products.

Health Corner: 'Diet' Really Means Less Fat

Interested in a low-fat life? A brown-bag seminar at noon, March 5 in the cafeteria executive dining room will show you how to eat a low-fat diet, determine the amount of fat you should consume and offer 10 steps to lowering fat intake. Civil servants and contractors are invited.

The word "diet" has become a fatal four-letter word – because they can make you fatter. They also are temporary and destructive to the body's natural metabolism. They deprive the body of energy, and the metabolism slows down to conserve energy for later use. As soon as the diet is over, the pounds creep back. The key to losing weight safely and for good is by making lifestyle changes.

The current focus is on eating less fat. Fat is twice as fattening per gram than carbohydrates and protein. A gram of fat has nine calories, while a gram of protein or carbohydrate has four. By cutting back on fat you can reduce your caloric intake.

But you must know what fats are, where they are found and how to limit them. It has been estimated that the typical American consumes more than 40 percent of his or her calories from fat. Most of the foods we eat have some fat in them, from trace amounts to up to 100 percent. Fat has 45 calories per tablespoon, and most people eat eight times that each day – equal to a stick of butter.

All products containing fat have three types: saturated, polyunsaturated and monounsaturated. Some of these fats can be seen, while others are unseen.

Saturated fats are hard and solid at room temperature, such as the lard seen on and in meats, butter, margarine and cheese. Other foods that contain saturated fats are whole milk, cream, ice cream, chocolate and coconut and palm oils. Saturated fats increase cholesterol levels and are related to heart disease. Research indicates that it is best to limit saturated fats to 10 percent of your daily calories.

Polyunsaturated fats are liquid at room temperature and found in corn, cottonseed, sunflower, safflower, soybean and sesame oils, soft margarine, mayonnaise, walnuts, wheat germ, tuna, salmon and mackerel. Polyunsaturated fat has been found to lower cholesterol, but too much isn't good either.

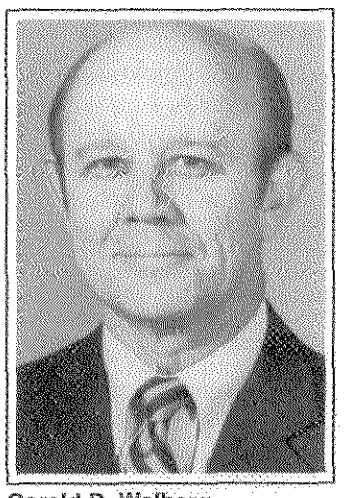
Monounsaturated fats also are not solid at room temperate but will become partly solid when chilled. Olive oil is the best source. Others include almonds, cashews, macadamia nuts, canola oil, peanut oil, chicken fat and olives.

Most fruits and vegetables have little to no fat. Grains, cereals, breads, pasta and beans have some, but there are exceptions, such as avocados, granola-type cereals and muffins.

Avoid items that have tropical oils; choose leaner meats and fishes. Reduce one or two fatty items in your diet at time. Switch from ice cream to nonfat yogurt or plain yogurt instead of sour cream on your potato. Take it one step at a time and make positive changes toward a healthier and leaner body.

Colloquium: Walberg To Discuss Mars Mission

How Should We Get There?



Gerald D. Walberg

How shall we go to Mars?

Various scenarios for manned missions to Mars will be discussed at a NASA Langley Research Center colloquium Monday, March 9, 1992. A Mars mission, for example, would be affected by such factors as the effects of reduced gravity over a long period, physical deconditioning caused by the lower gravity on Mars and exposure to space radiation.

Dr. Gerald D. Walberg, former deputy director for space at the Langley Research Center and now professor of mechanical and aerospace engineering at North Carolina State University and deputy director of the Mars Mission Research Center in Raleigh, will address employees, retirees and contractors in the H.J.E. Reid Conference Center, 14 Langley Boulevard, at 2 p.m.

In July 1989, following his retirement from NASA, Walberg accepted the position of research professor of engineering and applied science with the NASA/George Washington University Joint Institute for Advancement of Flight Sciences.

Walberg also leads a cooperative George Washington University/North Carolina State University program to carry out mission analyses under the NASA-sponsored Mars Mission Research Center at NC State.

Video Seminar Features Team Decision Making

"Team Decision Making" is the subject of an Empowerment Series live video seminar via satellite that will be presented Wednesday, March 11, from 2 to 3:30 p.m. in Building 1194A, Room 203.

The seminar features Dr. Charles Kepner, president of Charles Kepner Associates Inc., which specializes in collaboration and productivity research and consulting.

To register on a first-come, first-served basis, submit an application for On-Site Training Form (NASA Langley Form 24) to Kim Dobbs, Mail Stop 309. The form is available from the Employee Development Branch, ext. 42597, or from your training coordinator.

Employee Awards

The following employees have received cash awards for job performance:

Wesley L. Goodman, facility safety head, Systems Safety, Quality & Reliability Division (SSQRD), for leadership in performing the duties of facility safety head and for contributions to the Langley Safety Program.

Patricia A. Holland, senior project secretary, Projects Division (PD), for outstanding performance and individual excellence in support of the CERES contract modifications effort.

Carolyn V. Carey, secretary, PD, for dedicated and proficient performance of expanded responsibility during a period of reorganization and expansion.

Thomas L. Owens, research engineer, Atmospheric Sciences Division (ASD), for outstanding contributions in defining and establishing the GTE Pre-TRACE-A field operations network to obtain scientifically significant ozone data in a timely manner.

Richard K. Bird, materials research engineer, Materials Division (MD), for significant contributions in the development and upgrading of high temperature mechanical test capability of materials and structural subelements including procurement, setup, and operation of test frames and chambers, strain transducers and signal conditioning and data acquisition.

Gregory R. Wichorek, materials research engineer, MD, for dedicated, high-quality service in the planning, detailed design and integration of research and engineering for the development of the light alloy laboratory requirements.

Diane M. Stoakley, research polymer chemist, MD, for technical and administrative assistance to the Polymeric Materials Branch and the Advanced Aircraft Program Office.

Jimmy L.McRae, engineering technician, Fabrication Division (FD), for exceptional job performance and dedication to duty.

Mark A. Spiers, engineering technician, Operations Support Division (OSD), for exceptional skill, dedication and initiative in support of the 8-Foot High Temperature Tunnel shakedown operations.

Peter G. Coen, project manager, Advanced Vehicles Division (AVD), for outstanding performance as project engineer in planning and implementing the tasks to establish a multidisciplinary analysis/design system for the High-Speed Airframe Integration Research Project.

Willie Mae Beckett, secretary, Research Information and Applications Division (RIAD), in recognition of personal initiative in typing an Exchange Employees Handbook.

Roland Hatten, offset press operator, RIAD, for continued excellence of performance and contribution of craftsmanship rendered in the production of technical reports and other printing for Langley and Headquarters.

Jeffrey G. Gragg, offset operator, RIAD, for outstanding performance and contribution to the Center's printing requirement.

Thomas H. Brinkley, editor, RIAD, for superior performance in coordinating, editing and planning the production of *Aeroacoustics of Flight Vehicles*, NASA RP-1258.

Joy W. Italiano, editorial assistant, RIAD, for superior performance in proofreading during production of *Aeroacoustics of Flight Vehicles*, NASA RP-1258.

Betty E. Walker, manuscript preparation assistant, RIAD, for superior performance in typesetting and layout during the production of *Aeroacoustics of Flight Vehicles*, NASA RP-1258.

Carolyn L. Helmetsie, technical information specialist, RIAD, for exceptional contributions in the serial and budget areas of the technical library branch.

Frank L. Jones, facility coordinator and safety head, Flight Electronics Division (FED), for outstanding individual contributions.

Miriam A. Hall, secretary, Instrument Research Division, (IRD) for outstanding contributions to the 1991 Langley Combined Federal Campaign as campaign committee secretary.

Courtney E. Russ Jr., senior engineering technician, IRD, for leadership and innovation in meeting the research test instrumentation needs of 14-by 22-foot, 31-inch Mach 10, and Unitary tunnels.

Gloria C. Carney, secretary, Systems Engineering Division (SED), for her sustained high level of performance in timely support of the numerous major project activities managed by the Space Systems Engineering Branch.

Kelly D. Smith, aerospace engineer, SED, for exceptional performance in providing structural analyses for the Stanford University-NASA Lidar In-Space Technology Experiment (SUNLITE) Project.

William L. Terrill, project schedule analyst, SED, for superior performance in the development and implementation of systems schedules analyses and real-time logistics management during Kennedy Space Center operations for the LDEF Retrieval Project.

Jill M. Marlowe, aerospace engineer, SED, for exceptional performance in providing structural analyses for the HL-20 model, SAFIRE, SAGE III, LITE, AFE RAME and GOES programs.

Ruth M. Amundsen, project thermal analyst, SED, for exceptional performance in the support of the thermal design and analysis of the SUNLITE project.

James R. Elliott Jr., technical project engineer, SED, for outstanding effort in the technical management/engineering support of a complex, dual phase flight test effort.

William C. Wilson, electrical engineering technician (apprentice), SED, for timely and dedicated technical support of Systems Engineering and Electrical Systems Section projects.

David D. Shuster, engineering technician, SED, for superior achievement of assigned duties over an extended period of time and in recognition of contributions made in the field of pyrotechnic technology.

E. Miles Riley Jr., aerospace technologist, SED, for exceptional technical competence and dedicated support of Systems Engineering and Electrical Systems Section projects.

Joseph R. Phillips, aerospace engineering technician, SED, for outstanding technical leadership, coordination and dedication in support of the HALOE Repeat Gas Response Test.

Jeffrey R. Knutson, electrical engineering technician, SED, in recognition of contributions made to enhance the capabilities of environmental testing facilities.

William G. von Wald, program analyst, PD, for superior effort leading to outstanding success in the completion of important new office areas in Building 1300.

Edward P. Phillips, aerospace engineer, Materials Division (MD), for outstanding leadership of the NASA Boeing 737 Lap Splice Joint Strain Measurement program.

Jeremy Becker-Welts, attorney advisor (general), for outstanding performance in analysis, preparation and presentation of the government's position in the case, *M.R.I. v. U.S.*

Stuart K. Johnson, aerospace engineer, AVD, for outstanding contributions to the research programs of the Advanced Aircraft Branch.

George E. Lockard, engineering technician, Facilities Engineering Division (FED), for outstanding individual contributions as lead electronics support technician for the LASE Nd:YAG pump laser development.

Lori S. Rowland, student trainee - clerk/stenographer, Fluid Mechanics Division (FldMD), for professionally and efficiently carrying out the Theoretical Flow Physics Branch office activities in the absence of a full-time secretary.

Casimir J. Jachimowski, aerospace engineer, FldMD, for outstanding contributions to the understanding of the hydrogen-air reaction mechanisms associated with scramjet combustion.

Dr. Pramote Dechaumphai, aerospace engineer, Structural Mechanics Division (SMD), for outstanding contributions in the development of adaptive unstructured grid techniques that significantly enhance solution accuracy and efficiency.

Elvin L. Ahl Jr., aerospace engineer, SED, for authoring the 1990 SED Paper of the Year entitled, "15 Meter Diameter Hoop Column Antenna Surface Control Actuator System."

James B. Miller, electrical engineer, SED, for authoring the 1990 SED Paper of the Year entitled, "15 Meter Diameter Hoop Column Antenna Surface Control Actuator System."

Melinda F. Cagle, mechanical engineer, SED, for outstanding dedication and initiative in the application of CAD/CAM technology in the improvement of productivity.

Luther R. Gentry, aerospace engineering tech, SED, for the outstanding engineering design and support of the RAO-004 model helicopter.

Christopher M. Cagle, mechanical engineer, SED, for outstanding efforts in the area of productivity improvement through the development of optimization routines for plotting engineering drawings.

William M. Langford, mechanical engineer, SED, for outstanding initiative in the engineering design and fabrication during the outfitting phase of the HL-20 Personnel Launch System Mock-Up.

Charles F. Bradshaw, TPE, SED, for outstanding effort in design, analysis and integration of hardware to support multiple complex ATOPS flight programs.

Monica Smith, secretarial support, Information Systems Division Office, for enthusiastic and capable secretarial assistance to the division's staff.

Sidney G. Allison, aerospace engineer, IRD, for exceptional contributions to the testing and verification of the NESB Bolt Tension Monitor and for the initiation and management of the first NASA Workshop to establish a joint development agreement technology transfer to industry.

Daniel F. Perey, aerospace technologist, IRD, for exceptional contributions to the design, development and management of the NESB Bolt Tension Monitor and for the first NASA Workshop to establish a joint development agreement technology transfer to industry.

Rise W. Ramsey, secretary, IRD, for exceptional contributions to NESB in the development of an efficient time/schedule management for the branch office during a period of growth while contributing to the quality of the branch output.

Dr. William T. Yost, aerospace technologist, IRD, for physical insight, analysis and innovative experimental verification, resulting in a scientific basis for observed behavior of the NASA Solid Rocket Motor contamination monitor and for identifying specific actions to improve its operation.

Eric C. Stewart, aerospace engineer, Flight Applications Division (FAD), for outstanding analysis leading to the development of a wake vortex encounter simulation model.

Larry R. Tant, aerospace technologist, Technical Management, PD, for superior effort and leadership that contributed significantly to the success of the Scout S-216 launch.

Kathy A. Dezern, administrative assistant to the FldMD chief, for outstanding administrative contributions to the division.

Rudolph A. King, aerospace engineer, Fluid Mechanics Division, for innovative research on crossflow-induced transition in supersonic boundary layers.

Mary S. Adams, aerospace engineer, FldMD, for timely creation of three videos using the composium system of the Langley Scientific Visualization Laboratory that enhanced physical understanding of flowfield predictions from computational fluid dynamics codes.

Dr. Gerald L. Pellett, aerospace engineer, FldMD, for superior performance in conducting an extensive analytical and experimental research program relating to the extinction and re-ignition of counterflow diffusion flames.

Charles B. Johnson, aerospace engineer, FldMD, for professional and dedicated performance as research project engineer for the repair, modification and activation of the 20-Inch Supersonic Wind Tunnel.

John C. Lin, aerospace engineer, FldMD, for innovative research on vortex-generator flow physics and their application to control boundary-layer separation on multi-element airfoils.

Annette L. Forrest, employee relations specialist, Human Resources Management Division (HRMD), for contributions to the Center's Occupational Health Services Program.

People & Places

Employee Awards

Octavia M. C. Judge, secretary, HRMD, for contributions to the Center's Occupational Health Services Program.

Elizabeth F. Buchan, administrative officer, Aeronautic Directorate, for providing outstanding guidance and support to the division Applied Aerodynamics Division (AAD).

Dawn M. Winder, clerk, Systems Engineering and Operations, for dedicated professional clerical assistance in the office of the director of SE&O.

Marna H. Mayo, AST, technical management, Director for Flight Systems, for planning and implementing a Flight Systems Directorate program awarding a plaque to authors of refereed papers.

Cuyler W. Brooks, Facility Safety Head, Systems Safety, Quality & Reliability Division (SSQRD), for leadership in the performance of the duties of facility safety head and for contributions in furtherance of the goals and objectives of the Langley Safety Program.

Robert P. Rhinehart, aerospace technologist, Earth Sciences Program Management, Atmospheric Sciences Division, for outstanding dedication to the management of support for the division.

John D. Rollins, electronics engineer, Analysis and Computation Division (ACD), for outstanding performance in carrying out major upgrades to the Center's Visual Motion Simulator and Secure Simulation facilities.

Ralph B. Lewis, engineering technician, AMMB-Instrument Research Division, for superior achievement in directing and coordinating instrumentation support for the joint NASA/U.S. Army Long Range Propagation Test.

Jay H. Robinson, aerospace engineer, Structural Acoustics Branch, for development of time domain and probabilistic finite elements for predicting nonlinear dynamic response of structures to acoustic loads.

H. Benson Dexter, materials research engineer, aerospace technologist, structural materials, Materials Division (MD), for outstanding performance in formulating, advocating, and executing a program of research to develop advanced composite materials for application as transport aircraft primary structure based on the concept of advanced textiles coupled with resin transfer molding.

John N. Shoosmith, chief scientist, ACD, for outstanding performance in improving the quality of the division's technical literature.

Tommy C. Steele, engineering technician, Facilities Engineering Division (FED), in recognition of outstanding individual contributions as lead technical support for the IBEX thermal-vacuum testing.

Softball Organizational Meeting

A NASA Softball Association organizational meeting will be held Thursday, March 12, at 5 p.m., in the H.J.E. Reid Conference Center, Hampton Room. Only one representative per team should attend. Call Lou Glaab, ext. 41159 for more information.

AIR SCOOPS

Excerpts from Langley's old newsletter, Air Scoop, *will appear in this column throughout the Center's 75th Anniversary year. The following item is from the March 1, 1957 issue.*

NEW NACA CHAIRMAN DISCUSSES FUTURE

In his first public appearance since he became chairman of the NACA, Dr. James H. Doolittle spoke to a group of aviation writers at a luncheon meeting on February 21 at the Press Club in Washington. Among those attending were several officials of the Headquarters Office and two laboratory directors - Dr. H.J.E. Reid of Langley and Dr. E. Raymond Sharp of Lewis.

CELEBRATING 75 YEARS

After paying high tribute to the man he succeeded, Dr. Jerome C. Hunsaker, the new chairman reviewed the critical world situation and cited the importance of NACA's contributions to air supremacy in the maintenance of peace.

"What we do now will determine our deterrent power tomorrow," the NACA Chairman said. "Every dollar spent on fundamental research and development to gain leadership in weapons technology today will, in the long run, save many more dollars and possibly many lives."

Dr. Doolittle commented "that we must increase our reserve of aeronautical knowledge, by developing and using the radical new tools so essential for study of the complex problems demanding early solution, and even more important, by obtaining, training and retaining the added numbers of talented young men competent to work in the scientific disciplines that are involved."

To make clear the urgency of what the NACA must do, Dr. Doolittle discussed briefly some of the problems for which answers are needed.

As one example, he called attention to the "mare's nest of problems that have to be solved, every one of them, before the intercontinental ballistic missile can become a practical weapon system. Structural problems, configuration problem, propulsion problems, guidance problems, aerodynamic heating problems.

"In the current budget now before the Congress we of the NACA are asking $41.5 million to build new research tools. Of that amount, roughly half is for facilities useful in hypersonic research," Dr. Doolittle reported. "It will take anywhere from 2 to 3-1/2 years to complete these new tools, starting from the day we get the green light."

Dr. Doolittle pointed out that one of the new facilities requested was a hypersonic physics test setup that will cost just under $2 million.

"So far, we have learned how to duplicate on a piecemeal basis in the laboratory - all together, at one time - the conditions of speed, temperature, and gas chemistry for as long as a missile might experience in actual flight."

Tax Tips: Educational Expenses Often Are Deductible

On November 27, the House and Senate passed the Tax Extension Act of 1991 to extend for six months 12 popular tax breaks, including Section 127, that were due to expire at the end of 1991. Section 127 of the Tax Code, Employee Educational Assistance (EEA) allows an employee to exclude up to $5,250 of non-job-related employer-provided education assistance from gross income. President Bush signed the bill into law December 11, 1991.

Rep. Dan Rostenkowski, D-Ill., chairman of the tax-writing House Ways and Means Committee, warns that this will be the last temporary extension for the package of tax breaks. He plans to hold hearings this year to determine if each will be incorporated permanently into the tax law.

The tax status of graduate assistance is determined by Treasury Regulation 162.5 (T.R. 162.5), which says job-related educational assistance is excludible from gross income. There is no cap on the amount of tax-free educational assistance that can be received under T.R. 162.5.

Educational assistance employees receive from the Center is covered under Section 127 or T.R. 162.5. The Employee Development Branch will keep employees informed of any changes concerning tax-free educational assistance.

Voyager's 'Burt' Rutan Visits Langley, Gives Technical Talk

Elbert L. "Burt" Rutan, designer of the Voyager aircraft that flew around the world without refueling, visited Langley on February 12. Rutan presented a technical talk to engineers, toured the Center and was interviewed as part of a video the Center is producing on laminar flow. Rutan developed a lightweight kit airplane called the VariEze, which was tested at Langley and found to have a high degree of natural laminar flow. Laminar flow is the smooth flow of air across a surface, which improves aerodynamic efficiency.

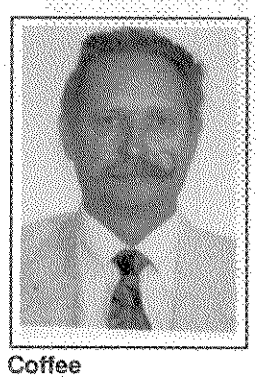
Rutan, president of Rutan Aircraft Factory Inc. in Mojave, Calif., visited the Unitary Tunnel, the 16-Foot Transonic Tunnel, the 14- x 22-Foot Wind Tunnel and the General Aviation Simulator.

Recent Langley Retirements

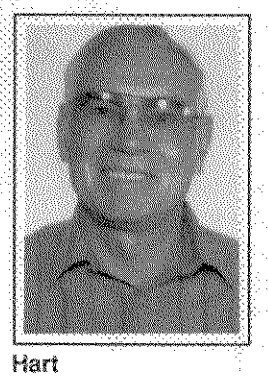
The following Langley employees have retired:

Donald M. Coffee Jr., Systems Engineering & Operations Directorate; **Ralph B. Lewis,** Instrument Research Division; **Roger L. Hart,** Fabrication Division; and **Joseph F. Haggerty Jr.,** Financial Management Division.

Also: **Grace N. Rodman,** Financial Management Division; **Lois D. Collier,** Financial Management Division; and **Donald L. Lansing,** Analysis and Computation Division.



Coffee



Hart

Award Winners

Two EG&G Florida employees have received "Good Egg" awards for outstanding work performance and involvement in other company-related areas, such as fund-raising for Christmas charities. Award-winners Shirley O'Connell, left, and Linda C. Edwards flank contract manager Jim Carbonneau. O'Connell and Edwards are work control coordinators.

Tree-Planting Will Kick Off A Month Of FWPC Activities

A tree-planting ceremony, sponsored by the Federal Women's Program Committee (FWPC), will be held Monday, March 2 at 9:30 a.m. near Building 1219.

The ceremony kicks off a month of activities commemorating the contributions of women to the NACA and NASA on the occasion of Langley's 75th Anniversary.

Employees are encouraged to attend. The bad-weather date is March 4 at 9:30 a.m.

Charge time to job order A1980 (not A1599 as previously listed).

Happenings

DISCOUNT THEATER tickets – AMC Movie Theater, $3.75; Colonial Williamsburg Patriot's Pass, adult $26.50, child, $16; Royal Governor, adult $24, child $15; basic admission, adult $22, child, $14. Tickets are available at the Exchange Shop in the cafeteria. Prices subject to change.

THE FEDERAL WOMEN'S PROGRAM COMMITTEE will continue to meet the second Wednesday of each month at 8:30 a.m. in the conference room, Building 1212. The next meeting is March 11. For more information, call Patsy Campbell, ext. 43291.

SKI! Ski March 2 at Massanutten and March 9 at Bryce. Bus leaves Newmarket South at 5 a.m. and returns at 9:30 a.m. Total cost is $49. Trips are open to all employees, contractors and their friends. For reservations, send check, payable to Richard Bennett, to him at Mail Stop 397 or 11 Bosch Lane, Newport News, 23606.

FOR RENT: Elizabeth Lake Estates, 366 Hopemont Circle, Hampton, 4-bed., 2-bath, living room w/ fireplace, dining room, kit., garage, CA, neighborhood association with pool, close to schools, Langley. No pets. $800 a month, deposit required. Call 851-8388, leave message.

DISABLED PERSONS SATELLITE COMMITTEE will meet Thursday, March 12, from 8:15 to 9:30 a.m. in the cafeteria. The meetings are open to all employees and contractors and to anyone else who has an interest in the Disability Program.

SATURDAY AEROBICS IS BACK! 9:30 to 10:30 a.m. in the Activities Center. Cost is $6 a month. Call ext. 42295.

LOW-IMPACT AND BENCH AEROBICS classes are held Tuesdays and Thursdays, 5 to 6 p.m., LAA gym. Cost is $12 per month or $6 per month if attending only one day a week. The classes are open to employees, contractors and their families. Call ext. 42295.

BODY DYNAMICS. High-energy, low-impact aerobics classes will be held Mondays, Wednesdays and Fridays at 6:15 a.m. in the LAA gym. Classes are free and open to civil servant employees.

TELA TAX SERVICE, member National Association of Tax Practitioners. Electronic filing. Small-business bookkeeping. By appointment. Call 874-3121.

INCOME TAX PREP. Please call and leave name and phone number for appointment. Nancy Taylor, 723-5227.

LAA SOCIAL ST. PATTY'S DAY SOCIAL will be held Friday, March 13, from 4 to 8 p.m. in the H.J.E. Reid Conference Center. Music will be provided by D.J. Gator Allmond. Cover charge is $1.

TOASTMASTERS meets the second and fourth Wednesday of each month from 11:30 a.m. to 1 p.m. The next meeting is March 25 in Building 1222.

BEACH TIMESHARE: Atlantic Beach timeshare, two-bedroom oceanview unit sleeps six, has modern kitchen, large Jacuzzi in master bath, indoor/outdoor swimming pools and tennis courts. Will sell two summer weeks (26 and 27) together or separately ($10,000 each). Week 26 starts June 28, week 27 starts July 5. Call Jeanette Jenkins at 865-7623 after 5 p.m.

WASHER/DRYER: Maytag washer and dryer, working condition, $50. Call Jeanette Jenkins at 865-7623 after 5 p.m.

BABYSITTING SERVICE: Poquoson, our home, 17 years of experience. Fenced yard, references. Fulltime or parttime, from 7 a.m. to 5 p.m. Call 868-7481.

LOST BOOK: *Lighting Design* by Moon and Spencer. Call 229-2219, ask for Jack Davidson.

HOUSE FOR SALE: Brick home in Northampton area, 136 Albany Drive, three-bedroom, one bath, ceiling fans, central air and gas heat, new roof and many extras, $77,500. For more information call 838-1043.

ROOMMATE WANTED: Looking for responsible nonsmoking professional to share a two-bedroom, two-bath third-floor apartment at The Harbours. Includes washer/dryer, paid water, storage and view of woods. Rent $281.50 monthly plus half of utilities and $87.50 deposit. Available April 1 or sooner. Call Marilee at 591-2609.

FEMALE ACHIEVERS PANEL and the Lewis Research Center FWPC will visit the H.J.E. Reid Conference Center, Thursday, March 12, 9:30 to 11:30 a.m.

THE VIRGINIA CHORAL SOCIETY will present "A German Requiem" by Johannes Brahms along with short classics by Shubert, Casals and Rutter. Two concerts will be given: Friday, March 13 at Christ and St. Lukes Episcopal Church, Olney Road, Norfolk, and Saturday, March 14 at Trinity Lutheran Church, River Road, Newport News. Both start at 8 p.m. Tickets $8 at the door; $5 for senior citizens, students and military. Call 1 (800) 400-4VCS for more information

A DANCE sponsored by the Alumni Association will honor the April 5 opening of the Virginia Air and Space Center. The April 4 event starts at 8 p.m. at the H.J.E. Reid Conference Center and features the Charley Johnson Orchestra. Admission free, everyone invited. For reservations call Abe Leiss, 877-2939.

NETWORKING IN THE '90s, a program, will be held Thursday, March 5 from 2 to 3 p.m. at the H.J.E. Reid Conference Center. The program is sponsored by The Hampton Roads Section of Women in Aerospace. Employees are to charge time to J.O. A1619. For more information, call Donna Roper, ext. 42505.

ROOMMATE WANTED to share two-story, four--bedroom, 2-1/2-bath house in Saulau Lakes subdivision. Asking $190/month plus 25 percent of utilities. Call 865-1491.

ROOMMATE & APT. WANTED: Professional female seeks same; no smokers. Susan, 857-6875.

PLACING YOUR AD

To place a free ad in Happenings, fax it to ext. 46333 or 48199, or send to Mail Stop 115. Include name and phone number. For more information call ext. 46126.

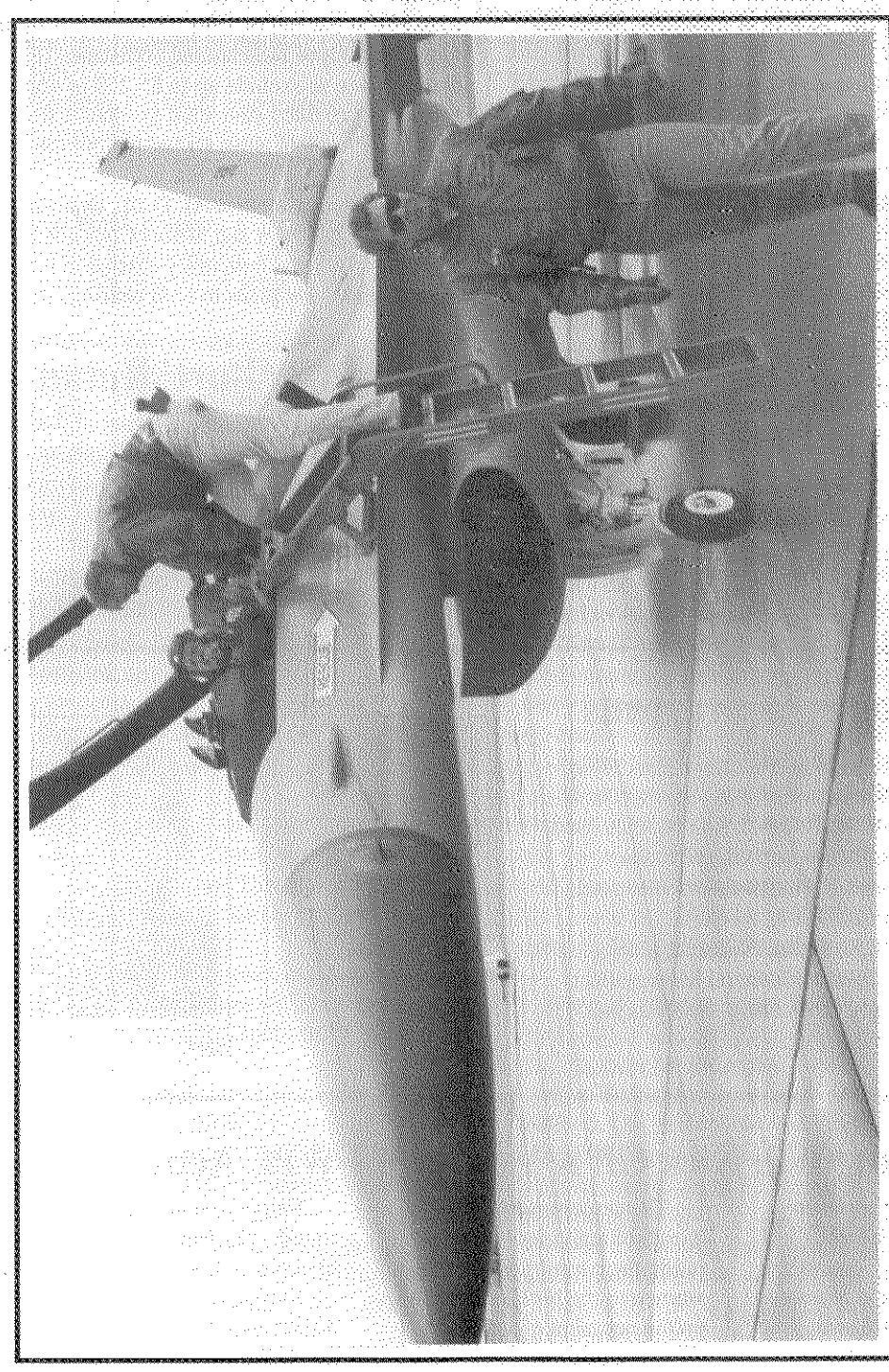


Photo by Fred Jones

LANGLEY'S F-16A gets off the ground: Research pilot Lt. Col. Mike Phillips, in the cockpit, has taken the F-16A up twice since it arrived at the Center in August. Helping out are crew chiefs Buddy Burcham, on the ladder, and Dale Bowser, both of the Research Aircraft Support Section. This state-of-the-art vehicle has a special connection to Langley because the General Dynamics airplane incorporates three major elements developed by the Center's aeronautical engineers – the vortex lift strake, the basic wing airfoil and the flight control logic for high-angle-of-attack conditions.

National Aeronautics and Space Administration

Langley Research Center
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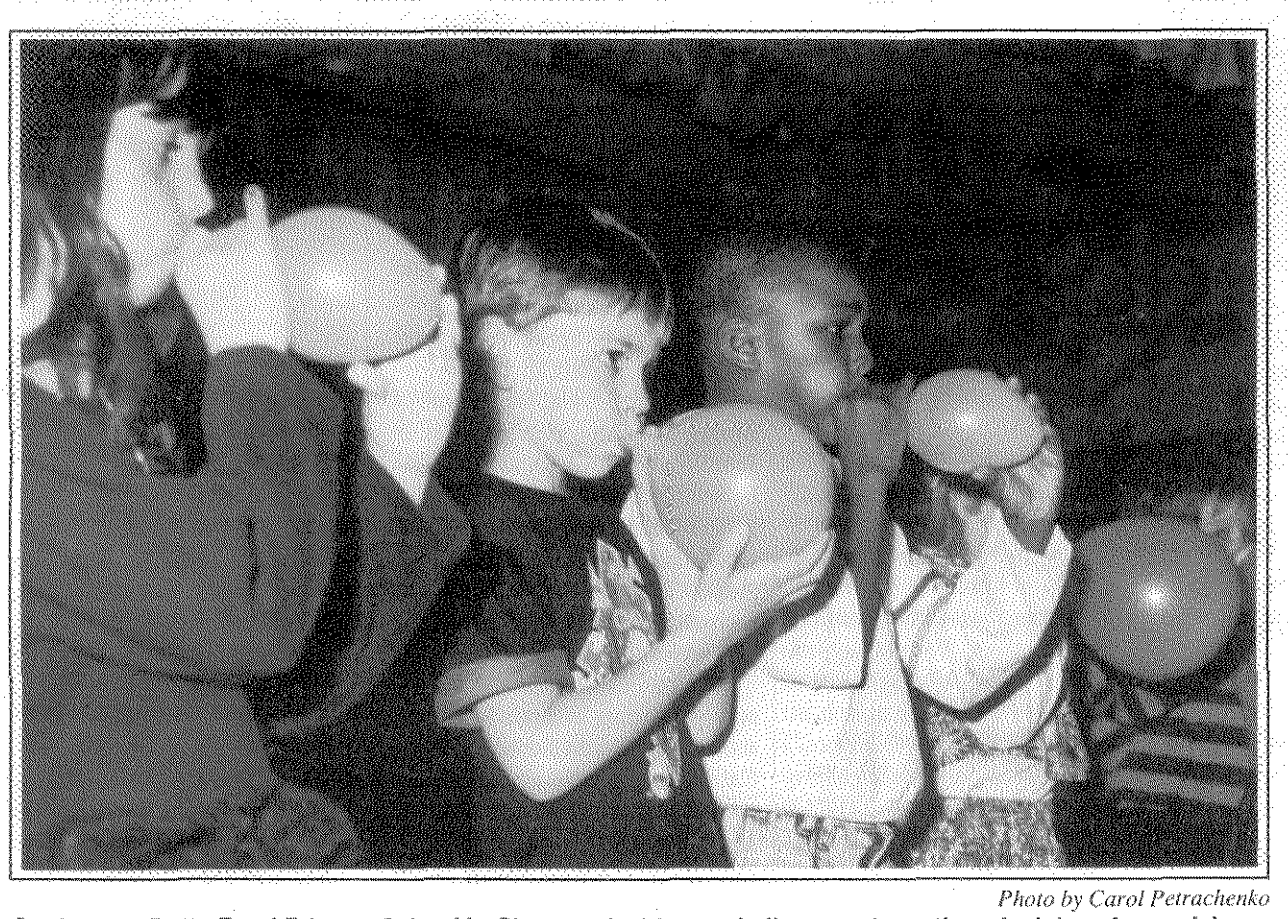


Photo by Carol Petrachenko

Students at Butts Road Primary School in Chesapeake blow up balloons to learn the principles of propulsion.

Engineers Week Takes Langley To The Classroom

BY KRISTINA MURDEN

What was Langley engineer Mike Scott doing riding a skateboard on his hands last week? He was among more than 270 Langley engineers encouraging area students to study math and science during Engineers Week.

Scott immediately grabbed the attention of his first and second graders at Butts Road Primary School in Chesapeake when he entered the auditorium in a space suit. The children fell silent as Scott reported, "When I was in second grade, I decided I wanted to be an astronaut, so I started studying science and math."

The kids got their first lesson in propulsion by blowing up a balloon and letting it go. Their second was watching Scott transport himself across the stage via skateboard, using a fire extinguisher as a rocket.

Scott's moon jumping was another hit. The children laughed their way through an experiment in which they jumped as far as they could and then were carried by Scott to where they would have landed on the moon using the same effort.

As Scott discussed the Space Shuttle and how astronauts live in weightlessness, he proceeded to walk on his hands down the steps, across the floor, and even rode the skateboard upside down. The students had an entertaining lesson in zero gravity – and Scott had a lot of fun.

"It was great to see the children so interested and excited," said Scott, an engineer in the Spacecraft Dynamics Branch who is working on control-structure interaction problems and the Shuttle remote manipulator system. "You've really got to be visual with them to hold their attention."

In all, 274 Langley volunteers spoke to more than 800 classes in 182 schools in 12 districts, reaching about 50,000 students, said Marny Skora, Engineers Week project manager. "The main message," she said, "was that careers as scientists, engineers, technicians and support personnel at NASA begin with strong backgrounds in math and science."

Davis

When Pamela Davis rolled two huge Space Shuttle tires into Poquoson Middle School, the sixth graders were wide-eyed and attentive. She demonstrated how satellites are carried in the Shuttle, showed a NASA video, then discussed her work with Shuttle tires. Questions ranged from "How many square feet are in the Shuttle?" to "Did you know that NASA uses B.F. Goodrich tires?" to "Have you ever gotten inside of one of those tires?"

She also discussed math and science applications to NASA jobs and how important it is to study. Her correlation that even football players must know math got their attention and made that night's homework more relevant.

Please see **LANGLEY,** *Page 4*

ON THE INSIDE

MATHCOUNTS contest winners are . . . Page 4.

A scientist encounters a tough questioner in the classroom. Page 5.

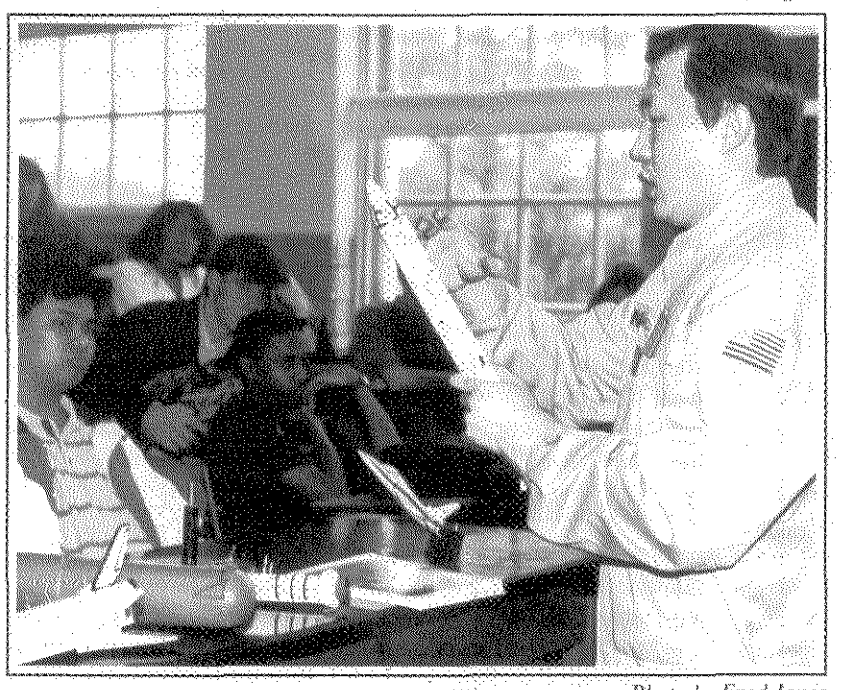


Photo by Fred Jones

Langley's Frank Quinto, an aerospace engineer, spoke about the Shuttle program and NASA careers at Granby High School in Norfolk.

HALOE Finding Presents New Puzzle For Scientists In Ozone Depletion Study

Preliminary results from Langley's Halogen Occultation Experiment (HALOE) appear to indicate much lower than expected levels of hydrogen chloride in the lower stratosphere, presenting scientists with a major new puzzle in the study of the planet's depleting ozone layer.

Hydrogen chloride is an indicator of the total input into the upper atmosphere of chlorine, which is destroying the ozone that protects Earth from the sun's harmful ultraviolet rays. Similar findings have resulted from the Arctic Airborne Stratospheric Expedition II, a series of aircraft flights probing ozone depletion over the arctic region.

ISY

"This is a very significant and perplexing finding," said Langley's Dr. James M. Russell III, the principal investigator for HALOE.

Russell said the results have yet to be validated, but if they hold up to scrutiny, "it means that we don't understand chlorine chemistry or ozone depletion as well as we thought we did."

Russell said it is not yet possible to say what it all means except that "we should be cautious in drawing conclusions based on past findings."

Chlorofluorocarbons, or CFCs, are generally believed to be a major source of the chlorine that is destroying ozone at a rate of about 100,000 ozone molecules for each chlorine atom that is formed.

CFCs are used as refrigerants and in various industrial applications.

Another hydrogen compound, hydrogen fluoride, is an indicator of the total input of chlorine from human sources. Hydrogen fluoride levels are about as expected, Russell said, showing a roughly 50 percent increase since 1985.

Part of overall effort

HALOE is one of 10 experiments deployed in September from the Space Shuttle Discovery on the Upper Atmosphere Research Satellite (UARS), which is examining the processes involved in ozone depletion.

HALOE is monitoring the vertical distributions of temperature and of the key upper atmosphere traces gases, including ozone, hydrogen chloride, hydrogen fluoride, nitric oxide, methane, water vapor and nitrogen dioxide.

Russell said the HALOE instrument has permitted measurements over a much broader range in the atmosphere than had been anticipated.

"The experiment is operating superbly. It's performing at least as well as specified. We should be able to meet all of our scientific objectives," he said. "We couldn't ask for higher performance."

Russell said HALOE is expected to continue operating for at least three years. The instrument was designed jointly with TRW Corp. It was fabricated, tested and calibrated at Langley.

News Briefs

AROUND THE AGENCY

STS-55 Assignments - Steven R. Nagel will command the Spacelab-D2 mission, STS-55, scheduled for launch in early 1993. This is a cooperative mission with the German Space Agency to conduct research in robotics, materials processing and life sciences. Nagel is a veteran of three Space Shuttle missions. Pilots on STS-55 will be Terrence T. "Tom" Hendricks, who was pilot of STS-44 in November 1991. Charles J. Precourt, astronaut class of 1990, will be a mission specialist on his first flight assignment. Previously assigned crew members are payload commander Jerry L. Ross, mission specialist Bernard A. Harris Jr. and German payload specialists Hans Schlegel and Ulrich Walter.

STS-57 Assignments - G. David Low, mission specialist on two Shuttle flights, will be payload commander on STS-57, which will carry the commercial middeck augmentation module called SPACEHAB and retrieve the European Retrievable Carrier. STS-57 is scheduled for launch in mid 1993. Janice E. Voss is assigned to this flight as a mission specialist. It will be her first flight assignment; she is a member of the 1990 astronaut.

STS-60 Assignments - Thomas D. Jones will be a mission specialist on the Space Radar Laboratory-01 flight, STS-60, in late 1993. It will be the first flight for Jones, a member of the 1990 astronaut class. Linda M. Godwin was assigned in August 1991 as mission payload commander. SRL-01 will acquire radar images of the Earth's surface for making maps and interpreting geological features and resource studies.

Senior Management Research and Review Agenda

The Senior Management Research Review will be held Monday, March 16, from 9 to 11 a.m. at 17 West Taylor Road, Room 200. All employees are invited to attend. Program accomplishments will be given by the following Langley scientists:

TIME	PROGRAM ACCOMPLISHMENT	SPEAKER
9:00	Development of Application of a Revolutionary Flight Display Research Tool Accomplished: VISTAS – the Visual Imaging Simulator for Transport Aircraft Systems.	Anthony M. Busquets (CTB, FLTMD, Flt Sys)
9:15	Assessment of CFD Methods for Predicting Aileron Effectiveness.	W. Kelly Londenberg (Vigyan Inc., Aero)
9:30	Planar Laser-Induced Fluorescence (PLIF) Imaging of Combustion Efficiency in a Mach 2 Flow Field Using OH	Dr. R. Jeffrey Balla (OSS, IRD, Electronics)
9:45	Robust Alpha-Joint Controller Design Accommodates Large Structural Parameter Estimation Error.	Renjith R. Kumar (AMA, Space)
10:00	Stress Analysis and Life Prediction for Counter-Sunk Rivet Holes.	Dr. James C. Newman Jr. (MOMB, MD, Structures)
10:15	Sonic Boom Propagation Experiment.	William L. Willshire Jr. (AAB, ACoD, Structures)
10:30	Director's Comments.	

Following these presentations, the program directors will give status reports.

NASP Workshop Planned For March 24, 25

Langley and the National Aero-Space Plane Program is sponsoring a Technology Workshop on Advanced Materials and Instrumentation at the Center on March 24 and 25.

Attendees must be U.S. citizens and they or their companies must have executed a Military Critical Data Agreement (DD Form 2345).

Conference organization and agenda are being handled by Langley's Technology Utilization Office.

NASA emplyees attending will be charged $5 to cover the cost of refreshments for the 1½-day conference.

Those planning to attend should notify the Technology Utilization Office at ext. 42484 so a badge can be prepared and the number of refreshments can be determined.

The conference moderator is Dick Culpepper, a Langley employee assigned to the Joint Programs Office at Wright Patterson Air Force Base.

Langley Has 3 Small Business Proposals

Three Langley proposals are among 28 selected for immediate negotiation of Phase II contracts in NASA's Small Business Innovation Research Program. The proposals were submitted by 65 small, high-technology firms in 16 states.

Langley proposals are from:

- Charles River Analytics Inc., Cambridge, Mass.: A Formal Design and Validation CASE Approach to High-Reliability Software.
- EIC Laboratories Inc., Norwood, Mass.: High-Tc Superconducting Composites for Interconnects to Cryogenic Equipment.
- United Applied Technologies Inc., Huntsville, Ala.: Remotely Deployable, Self-Rigidizing, Composite Space Structures.

Selections were made competitively from 258 proposals submitted for Phase II continuations of Phase I projects initiated in 1990. Total value of the 28 awards will be about $14 million. In December 1991, 89 selections also were chosen from among these proposals, bringing the total number of proposals selected to 117 for a value of about $58 million.

Retirement Party Planned For Worth

Catherine B. Worth will be honored at a retirement party Wednesday, April 8 at the Fort Monroe Officers Club. The cash bar social will begin at 6 p.m., dinner at 7 p.m. and program at 8 p.m.

Cost will be $15 per person or $28 per couple. Contributions for the gift are welcome. Make reservations with Jeanne Hill, Mail Stop 274, by April 1.

IN MEMORIAM

Stanley Rau, 80

Sympathy is extended to the family of Stanley W. Rau, 80, a Langley retiree who died January 30. Rau served at Langley from 1964 to 1972. His son, Tim, worked at Langley from 1964 to 1987, when he transferred to the Space Station office in R ston.

Jackie Cain, 62

Sympathy is extended to the family of Jackie E. Cain, 62, of Yorktown, who died on February 28.

Cain retired as training coordinator at Langley in 1985 after 36 years of service.

Women's History Month: FWPC To Host Mar. 24 Awards Luncheon

Dr. Harriet Jenkins

The Federal Women's Program Committee will host the First Annual FWP Awards Luncheon on March 24 from 11:30 a.m. to 1 p.m. in the H.J.E. Reid Conference Center. This is the finale to a series of events the FWPC has sponsored this month in honor of Women's History Month and the Center's 75th Anniversary.

The keynote speaker will be Dr. Harriet Jenkins, assistant administrator, Equal Opportunity Programs, NASA Headquarters. Jenkins joined NASA in February 1974 as deputy assistant administrator for Equal Opportunity Programs and in August 1974 was named assistant administrator for Equal Opportunity Programs.

Prior to joining NASA, she served 19 years as a public school educator in Berkeley, Calif. She began as a teacher and rose to vice principal, principal and director of Elementary Education before becoming assistant superintendent for instruction in 1971.

In 1977, Jenkins received NASA's highest award, the Distinguished Service Medal, and chaired the Task Force on Equal Opportunity and Affirmative Action, one of nine task forces of the Personnel Management Project that led to the Civil Service Reform Act. For this work, she received the Civil Service Commissioners' Award for Distinguished Service.

She has received numerous other awards and commendations. The Fort Worth, Texas native received a bachelor of arts degree in mathematics from Fisk University in Nashville, Tenn., a master's in education from the University of California at Berkeley and a doctorate in education – policy, planning and administration from the University of California.

She also has completed the Advanced Management Program of the Harvard Business School and has a law degree from Georgetown University.

The FWPC will present its awards to employees/supervisors who have contributed to the advancement of women in the workplace. The luncheon menu is a sandwich buffet with soup and dessert for $4.75 per person, limited to the first 200 reservations. For reservations, call Patsy Campbell, FWP manager, at ext. 43291 by March 17.

Women's History Month Resolution

The following is the Congressional resolution designating March as Women's History Month:

Whereas American women of every race, class and ethnic background have made historic contributions to the growth and strength of our nation in countless recorded and unrecorded ways;

Whereas American women have played and continue to play a critical economic, cultural and social role in every sphere of the life of the nation by constituting a significant portion of the labor force working inside and outside of the home;

Whereas American women have played a unique role throughout the history of the nation by providing the majority of the volunteer labor force in the nation;

Whereas American women were particularly important in the establishment of early charitable, philanthropic and cultural institutions in our nation;

Whereas American women of every race, class and ethnic background served as early leaders in the forefront of every major progressive social change movement;

Whereas American women have been leaders, not only in securing their own rights of suffrage and equal opportunity, but also in the abolitionist movement, the emancipation movement, the industrial labor movement, the civil rights movement and other movements, especially the peace movement, which created a more fair and just society for all; and

Whereas despite these contributions, the role of American women in history has been consistently overlooked and undervalued, in the literature, teaching and study of American history:

Now, therefore, be it resolved by the Senate and House of Representatives of the United States of America in Congress assembled, that March is designated as Women's History Month.

News Researcher

The **Researcher News**, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23665-5225, is published every other Friday in the interest of all Langley staff and retirees. Submit contributions to the Editor, Mail Stop 115, telephone 864-6126. Articles are due at noon on the Tuesday following the date of this issue.

Managing Editor ..... Jean Drummond Clough

Editor ..... Michael Finneran

Photojournalist ..... Carol Petrachenko

Photographer ..... Fred Jones

The privilege of advertising in this publication is restricted to the employees and retirees of the Langley Research Center. Articles advertised here must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

New Time And Distribution System Debuts In Space Directorate; Will Go Centerwide

The automated Time and Distribution System (TADS) has been put into use in the Space Directorate and should be operational throughout the Center by September.

The system is intended to improve the collection of time and cost information by allowing time and attendance clerks to enter employee data electronically.

The TADS system will offer clerks many options for recording employees' time and will eliminate use of Time and Attendance Form 186 now in use. The system will handle the new variable work day schedule as well as the first-40 and all standard shifts.

TADS will maintain current leave balances in all categories and provide many up-front edits to the data that will greatly reduce use of the Time and Attendance Correction Report.

Certifiers will also use the new system to review employee data electronically and certify employees one at a time or all at once. In addition, TADS will maintain all employee time and cost information online for up to one year, providing clerks and certifiers with ready access to past data.

Development of the system, which began in October 1990, was a joint effort of the Business Data Systems Division (BDSD) and the Financial Management Division (FMD) in the Management Operations Directorate, the Space Directorate and Unisys, BDSD's support service contractor.

TADS uses a different architecture than normally used by BDSD. A configuration was picked that would use LaRCNET, Langley's networking infrastructure, as well as a Unix-based operating system, Ultrix. ORACLE's relational database system was selected for the database.

Barbara von Wald, Space Directorate, tries the new system with the help of BDSD's Chris Tremper, left, and Unisys' Bob Bailey.

AIAA Sponsors Course On Aircraft Conceptual Design

The American Institute of Aeronautics and Astronautics (AIAA) will sponsor a short course called "Aircraft Conceptual Design" June 1 through 5 at the AIAA National Headquarters in Washington, D.C. The seminar is designed for engineers involved in advanced aircraft design in industry and government as well as for those who teach aircraft design.

Topics include:

- Analytical and design layout skills required for the initial design of new aircraft concepts.
- Practical aircraft design techniques, including configuration layout development and design rules of thumb.
- Stealth and VSTOL aircraft design.
- Special use of computer-aided design in design in conceptual design.

Specific topics will include thrust-to-weight and wing loading, initial sizing, configuration layout and loft, systems integration and special considerations, propulsion and fuel system integration, aerodynamic and stability/control analysis, propulsion analysis, loads, structures, and weights, sizing, performance, cost and trade studies, design examples and computer-aided conceptual design. Daniel P. Raymer, course instructor, is president of the design and consulting firm Conceptual Research Corp. He is military aircraft consultant at the RAND Corp. and teaches aircraft design at California State University. He is the author of the best-selling textbook *Aircraft Design: A Conceptual Approach*. He holds two patents, is a graduate of the U.S. Army Airborne School and is an aerobatic pilot.

For more information, call David Owens, continuing education coordinator, at (202) 646-7447.

Ten Space Grant Scholarships Go To Langley-Affiliated Students

Ten of 19 scholarships awarded by the Virgnia Space Grant Consortium have gone to college students who will work on projects with Langley.

One-year undergraduate scholarships, valued at up to $8,500, were awarded to:

Tahani Amer of Yorktown, majoring in mechanical engineering at Old Dominion University (ODU), received $8,500 and will study control of asymmetric vortex flow around pointed cones using strakes.

Andrew Jackson of Virginia Beach, majoring in electronic and computer engineering at ODU, received $6,000 and will study measurements of oxygen concentration and temperature by laser absorption spectroscopy.

Mary Burford of Lynchburg, majoring in electrical engineering at The Virginia Polytechnic Institute and State University (VPI), received $3,950 and will study multiplexing fiber sensor systems for aerospace applications.

Wendelyn Krause of Williamsburg, majoring in chemistry at The College of William and Mary, received $8,500 and will study the radiation effects on boron-loaded polymers.

Albert Pierce of Richmond, majoring in chemistry at William and Mary, received $6,000 and will study atomic oxygen effects on polymer films containing bis(Triphenyltin) oxide.

Graduate fellowship awards for $5,000 were made to:

Apriel Hodari of Hampton, majoring in physics at Hampton University, will study laser remote sensing of the atmosphere.

Mark Robeson of Grafton, majoring in mechanical engineering at ODU, will study characterization of the behavior of composite shell structures under combined mechanical and internal pressure loading.

Yool Kim of Lanham, Md., majoring in mechanical and aerospace engineering at the University of Virginia (U.Va.), will study thermally induced vibrations of a rotating spacecraft's solar engineering arrays.

Kenneth Victor of Charlottesville, majoring in mechanical and aerospace engineering at U.Va., is investigating the interaction between back pressure-induced shock systems and fuel injectant mixing in a modeled scramjet combustion tunnel.

Tracey Beauchat of Williamsburg, majoring in computer science at William and Mary, will study a radiosity model for the voxel environment.

A major goal of the consortium, which received space grant designation from NASA in 1989, is helping develop the engineers and scientists of the future.

The consortium has awarded 16 one-year scholarships totaling nearly $92,000 and 25 three-year fellowships worth $375,000 from funding provided by NASA and Virginia's Center for Innovative Technology.

C&P Phone Books – 12,440 Lbs. Of Them – Recycled

Employees And Conservation Club Collect 3,700 Outdated Directories

For the second year in a row, Langley employees responded enthusiastically to the recycling of outdated C&P phone books. The project, initiated by the Langley Conservation Club, succeeded because of a tremendous effort that involved the Management Support Division (MSD) and Tidewater Fibre Corp. in Chesapeake.

About 3,700 phone books were collected, for a total weight of 12,440 pounds.

"The number of phone books collected this year represents a nearly 55 percent increase over last year's total of 2,400 books and is equivalent to about 85 percent of all the books distributed to employees each year.

"The credit for the success of the program lies with the MSD employees who were incredibly cooperative with the club's efforts to get the books recycled," Collins said.

Said Mike Benedito of Tidewater Fibre, "the phone books will be recycled for use in the fabrication of a variety of products, including cardboard boxes and roofing material."

The Conservation Club thanks Colon McMath, head, Institutional Support Branch; Barbara Newtown, head, Correspondence and Records Management Section; Nanette Lloyd and Charlie Lewis from MSD for arranging to have the books collected and taken to Tidewater Fibre.

A special thanks goes to mailroom personnel who carried the books from each building to a central collection site: Bob Fortuna, Gary Nichols, Anita Goodson, Bill Ward, Frank Furby, Tanya Freeman, Elaine Heitman, Joseph Hopson, Terry Stevenson Jr., Stephen Brown, Harriet Edwards, Brenda Dorsey and Becky Johnson.

Virginia Air And Space Center Offering Memberships

Memberships to the new Virginia Air and Space Center and Hampton Roads History Center, which will open April 5, are now available.

Basic membership includes:

- Free unlimited basic admission.
- Free admission to each new IMAX film.
- Discounted IMAX tickets.
- Free subscription to the center newsletter.
- Invitation to members-only events. Membership categories are:
- Bronze, $35: basic benefits for individuals or families, including children 17 and younger living at home.
- Silver, $50: basic membership privileges plus four single-admission guest passes to center exhibit areas.
- Gold, $100: basic membership privileges plus free admission to the IMAX theater, 12 single-admission guest passes to exhibits and the IMAX theater and free parking validation.
- Director's Circle, $1,000: all Gold privileges plus use of the center's facilities to host special events subject to a fee and availability.
- Corporate membership, $1,000: all Gold privileges plus four non-transferable passes, 12 single-admission guest passes to exhibit areas/IMAX theater and use of center facilities subject to availability and fees.

Measurement Technology Conference Scheduled For April 22, 23 At Langley

The 1992 NASA Langley Measurement Technology Conference will be held at the Center on April 22 and 23.

The focus of the conference will be measurement technology for aerospace applications in high temperature environments. Speakers will address various topics of interest in the basic disciplines of pressure, strain/force, temperature/heat flux and flow field diagnostics.

For information and a registration form, which is due back by April 1, contact Dr. Richard R. Antcliff at ext. 44606.

Tabb Grabs First Place In Math Contest

BY MARNY SKORA

Students from Tabb Intermediate School in York County took first place in the Peninsula competition of the national MATHCOUNTS program February 15 in the H.J.E. Reid Conference Center. Langley research pilot **Lee Person** presented the awards. Members of the winning team are George Chiou, Shishir Mehrotra, Kathy Vick and Dhanya Chithrabhonu. The Tabb team is coached by Kathy Mobley.

Photo by Kristina Murden

Tabb coach Kathy Mobley and first-place team members Dhanya Chithrabhonu, Kathy Vick, Shishir Mehrotra, George Chiou and Langley research pilot Lee Person.

Placing second was Gildersleeve Middle School, Newport News; third was Dozier Middle School, Newport News. Winners in the individual competition were George Chiou, first place, and Shishir Mehrotra, second place, of Tabb and Chris Glenn, third place, of Eaton Middle School, Hampton.

The Tabb team and the three individual high scorers advance to the state finals at the Virginia Power Innsbrook Technical Center in Richmond March 21. Schools participating in the program were Benjamin Syms, Jefferson Davis and Thomas Eaton in Hampton; B.T. Washington, Hines, Gildersleeve and Dozier in Newport News; Queens Lake, Yorktown and Tabb in York County; James Blair in Williamsburg; Peasley in Gloucester; and private schools St. Mary Star of the Sea in Hampton and Hampton Roads Academy in Newport News.

MATHCOUNTS is a nationwide program created to stimulate students' interest in exploring math. It is also designed to answer the problem of declining math skills among precollege students.

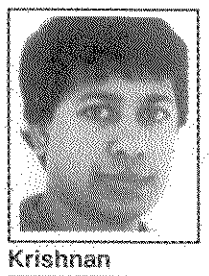
The seventh and eighth grade students are tested on probability, statistics, linear algebra and polynomials. The competition consists of written tests and fast-paced matches. NASA Langley sponsors this competition jointly with the Peninsula Society of Professional Engineers. At the national level, MATHCOUNTS is sponsored by NASA, the National Society of Professional Engineers, CNA Insurance Group, Cray Research Foundation, General Motors and the National Council of Teachers of Mathematics.

Aplomb Assignment: Scientist In The Lion's Den

BY RAMKI KRISHNAN

IN PERSON

It was National Engineers Week and like a lot of my colleagues at Langley, I had volunteered to visit with neighborhood schoolchildren to encourage them to pursue careers in science and engineering. As we have been hearing recently, American kids are falling behind Japanese and German children in math and science, but winning hands down at Nintendo and Ninja Turtles trivia. I was asked to handle a roomful of second graders at Tabb Elementary for about an hour, an assignment I figured I could handle with great aplomb.



Krishnan

On the appointed day, I showed up at Sandra Carroll's class trying to look the proverbial research scientist. The second graders trooped in from their gym hour, and most of them smiled and said hello as they walked past me. At the column's tail, I encountered a very young person who eyed me the way the lions eyed the Christians at the Roman coliseum. You know, the kind of look Don Rickles has when he spies an unsuspecting target for a particularly delicious insult. Ms. Carroll introduced me to the students and little Don Rickles promptly jumped up and said, "He looks like . . . like . . . Dracula!" As his teacher turned to admonish him, I gave Don one of my best don't-mess-with-me looks, but it had all the impact of a feather landing on a rampaging elephant.

The subject I wanted to talk about that day was space exploration, and the children seemed to be most interested in what I had to say. It was especially heartening to see how sharp their questions and comments were, and how quick was their grasp of science.

I handled questions like, "How come when we have daylight here, it's nighttime in China or India?" (The result of an United Nations-brokered 1937 Daylight-Sharing Treaty; before that, the reverse was true.) "How come people in the South Pole don't fall off?" (They are professional gumshoes). "When you smile widely, do your fangs show?"

That last question came from young Rickles. I looked at Ms. Carroll for help, but she appeared to be overcome by a paroxysm of coughing.

The class continued with more questions on scientific probes and space travels to Venus, Mars and Jupiter. The children had questions on what made up the rings on Saturn (aliens on roller-coaster rides), whether Pluto is cold (dogs' noses are always cold), and so on. I expected, and got, the usual snickers when I pronounced the seventh planet. One little kid, who had never heard of Uranus, had such a hard time controlling his laughter that he fell off his chair.

Young Rickles put his hand up, and I prepared myself for another of his zingers. To my surprise, he asked, "Are there any aliens on Mars?" My relieved reply was, "Experiments conducted on the surface of the planet discount that."

"What if these aliens lived below the ground?" he shot back. I countered with, "Elements required to sustain life, as we know it, were absent." But there was no stopping this kid: "What if these aliens require elements different from humans to sustain life?" he asked.

I was out of my depth here and decided it was time to cut my losses and slink away. I looked at my watch in a very significant fashion, and Ms. Carroll saved the day by saying "Our visitor needs to get back to NASA to help redesign the Space Shuttle."

As the children thanked me in unison, I couldn't help wondering if the pundits lamenting the sad state of education in this country have had the occasion to see the spirit of inquiry evident in the kids in Sandra Carroll's class.

Mrs. Carroll thanked me for my ordeal, saying she would like me to teach her class again. I would like to go back and talk to the children about the importance of science, math and space exploration. But I also intend to be prudent and wait until Don Rickles graduates before venturing back to the classrooms of Tabb Elementary.

Ramki Krishnan is a research scientist in the Theoretical Flow Physics Branch, Fluid Mechanics Division. He works for Analytical Services & Materials Inc.

Langley's Finest Show Ki

Continued from Page 1

"You have to get young people interested in science and math between fourth and sixth grade or you've lost them," said Davis, who works at the Aircraft Landing Dynamics Facility and tests radial aircraft tires.

Sharon Tanner's fifth grade classes at Sedgefield Elementary in Newport News played with a slinky, jacks and magnetic marbles, then predicted how and why the toys would react differently in space. The students gave group presentations of their ideas and viewed astronauts playing with the same toys while in orbit.

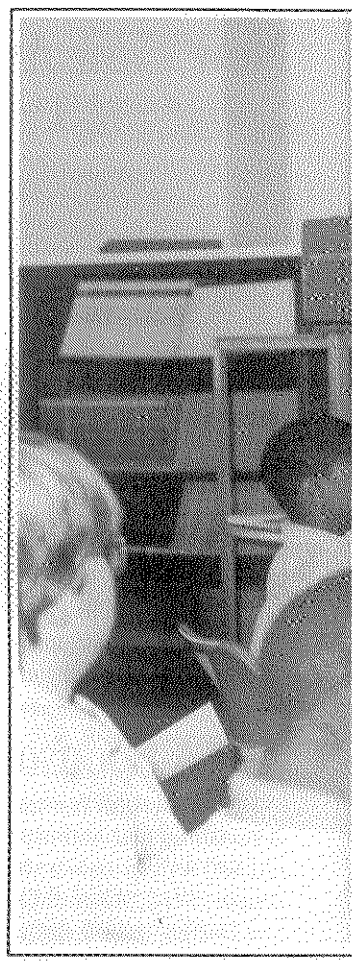
"The kids were very involved and it was very exciting," said Tanner, a structural dynamicist in the Spacecraft Dynamics Branch. "The presentations were a positive experience for all of us. Reaching elementary school students is so important because by the time they are in high school they have developed a bad attitude about science and math. My goal is to have them overcome fears of science by making it fun."

Robin Edwards' classes, at Marshall Elementary School in Hampton, got hands-on experience with paper airplanes and balloons. The kindergarteners enjoyed the thrust experiment with balloons, a demonstration of helicopter flight, a history of flight video and were given take home activities. "The activities really get them excited," she said.

The first graders watched astronauts float around the Shuttle playing with various toys while learning about gravity. One student claimed it was just like being in water, so Edwards explained the underwater training facilities at Johnson Space Center. They also watched paper airplane and Shuttle models fly, and predicted how each would flip and turn.

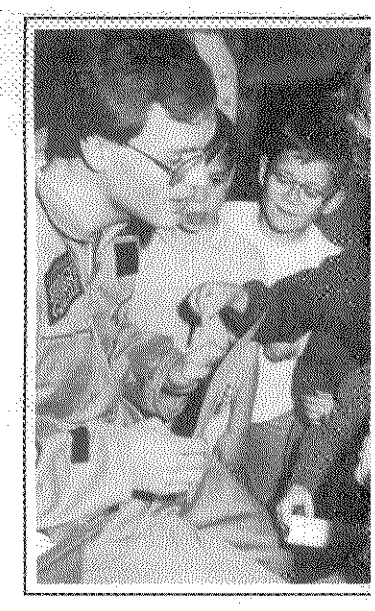
"I really tried to bring together what NASA does with visuals that the students would enjoy and learn something from," said Edwards, an engineer in the Engineering Analysis Branch who works on structural analysis projects that will fly on the Shuttle and also apply to aeronautics.

"The hands-on experiments are so important because of the short attention spans of these children. The kids were excited and really enjoyed the activities."



Bill Dziedzic, of Lockheed Eng of the National Aero-Space Pla

Frank Quinto, an aerospace neer, spoke to students at his al mater, Granby High School in N about the Shuttle program and careers. "What I wanted to do i



At left, Mike Scott talks with kid At right, Steve Lee, Operations tion using dry ice for sixth grad

That Was The Week That Was! Than

National Engineers Week is over and what an expanded week it was! Langley volunteers are reporting on their rewarding experiences and local educators are applauding the outstanding presentations.

Students in the Tidewater area have been entertained, mystified, involved, educated, amused, startled, captivated and tested. One student wrote thanking **Jim Osborne**, Facilities Engineering Division, for his visit. "You are a good talker. I've always wanted to be a pilot, now I think I'll be a better one."

The approaches were many; the results singular – to stress the importance of studying math and science. Though they expressed it in a multitude of ways, area teachers are thankful for the help in making their classroom studies relevant to everyday life. Tremendous thanks go to our 274 volunteers – civil servant and contractor – and their supervisors for making this effort so successful. The initiative was challenging. More than 180 schools requested a NASA "teacher." Most asked for multiple presentations. Some wanted the whole student body included.

We asked the so that our volunt with each present rose to the challer than one assignm techniques to stin of students.

An unparallel **Dave Shuster**, Sy with his partner D students in 18 cla Winning went as Williamsburg and **Bruce Outlaw** returned to his ol Washington High graduate worked 250 students. **Sha** Division, and **Rol** spoke to 500 and **Steve Yaros,**

s The Wonder of Math, Science

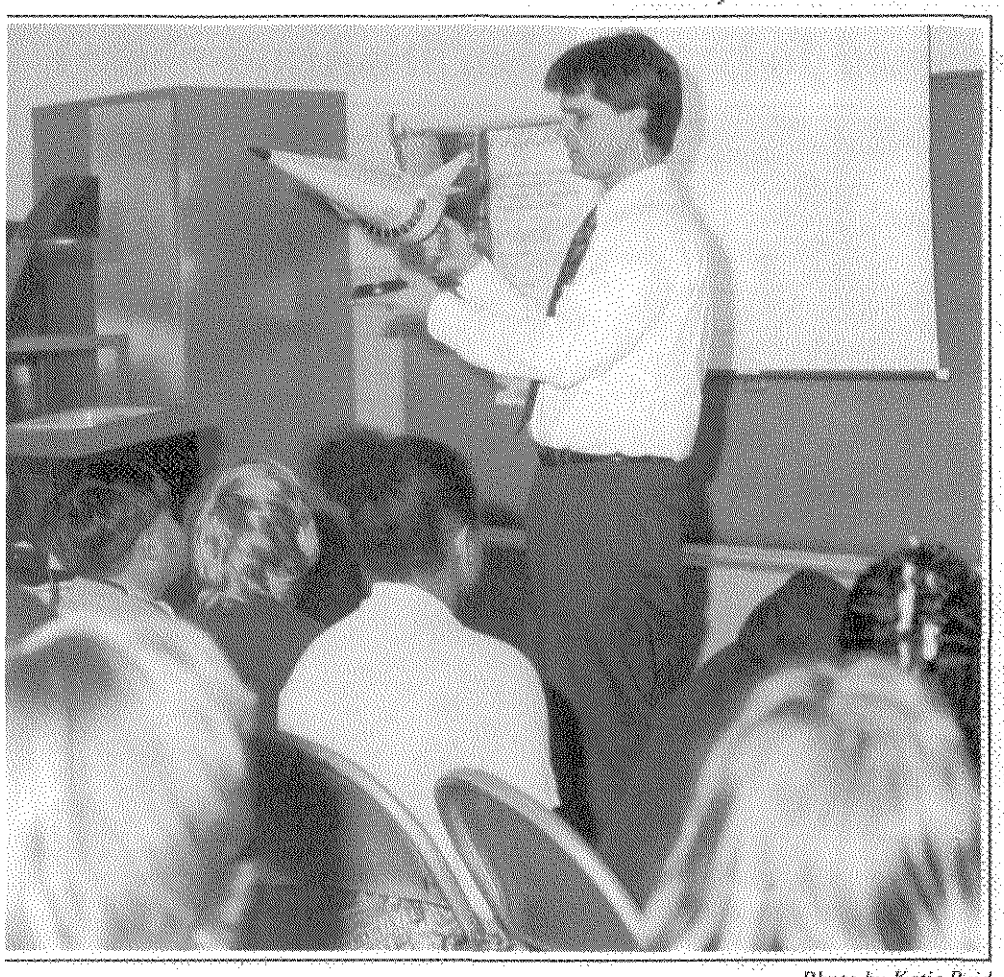


Photo by Katie Reid

ing and Sciences Co., uses a model of an early NASP design to explain the evolution rogram to fifth graders at Phillips Elementary School in Hampton.

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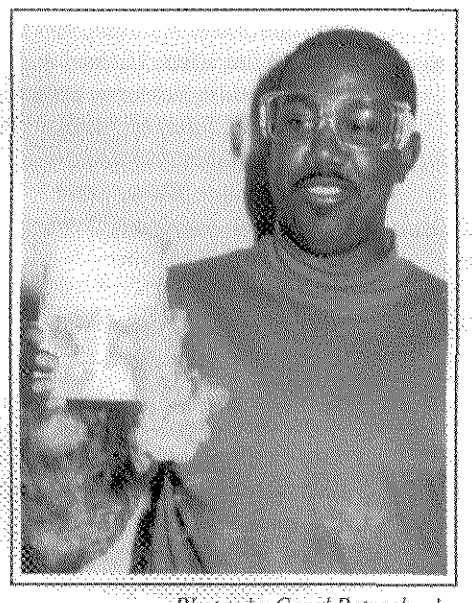
an interest in aerospace engineering. Although only 25 percent of the students at this age are actually interested, I wanted them to leave at least curious about NASA's activity," said Quinto, operations engineer for the 14- by 22-Foot subsonic wind tunnel. Quinto compared a team of engineers that builds an airplane to a football team, saying each requires special squads to meet particular needs. He also compared football practice to astronaut practice by describing how astronauts rehearse deploying satellites from the Shuttle.

Quinto also used a model to demonstrate the Shuttle and showed a video highlighting Langley's support of the National Aero-Space Plane (NASP) and the X-29.

The 11th graders, however, were more interested in Quinto's lesson in astronaut potty training. They perked up when the subject arose and were full of questions.

"I tend to change the thrust of my presentations to capture the attention of my audiences," Quinto said. "Anything to get them interested in NASA. This seemed to be it."

Said Edwards: "These presentations make them aware of areas they could have careers areas that relate to math and science."



Photos by Carol Petrachenko

Butts Road Primary School in Chesapeake.
port Division, teaches a lesson on evapora-
at Spratley Middle School in Hampton

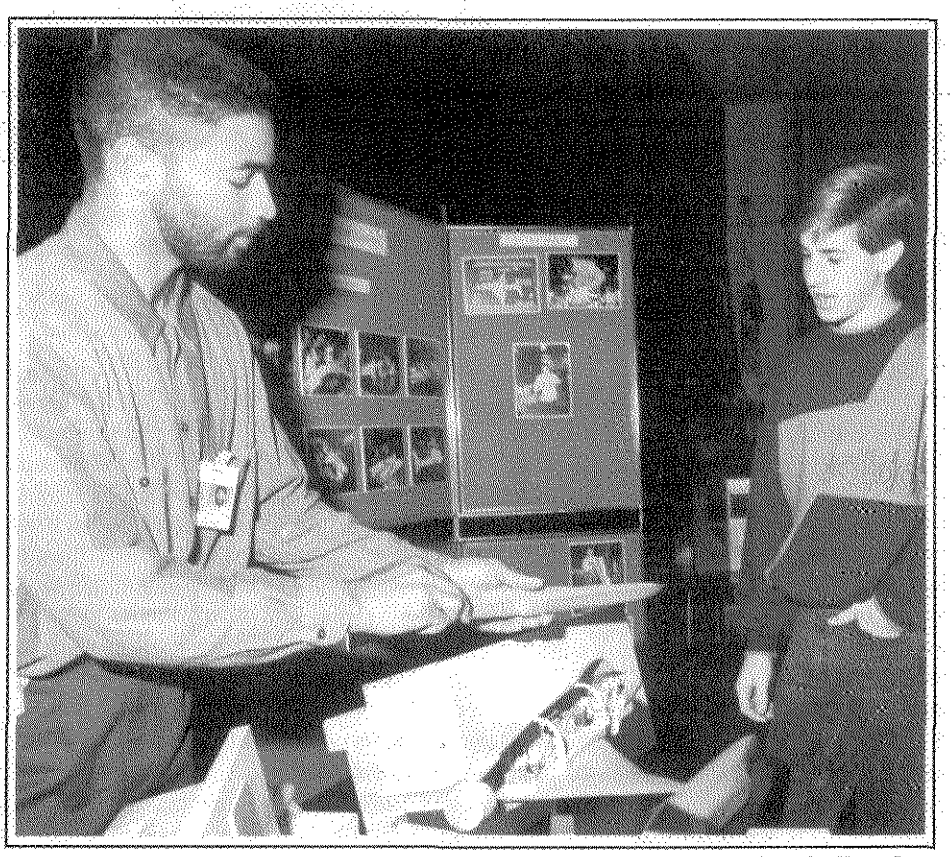


Photo by Katie Reid

Samuel James, Operations Support Division, explains how fiberglass is applied to make models such as the one he is holding.

Career Day Draws Nearly 700 To Center

BY MARNY SKORA

Nearly 700 high school students and teachers from the Greater Hampton Roads area attended Career Day February 19 and 20 in the H.J.E. Reid Conference Center.

Sponsored by NASA and the Peninsula Engineers Council (PEC), Career Day provides an opportunity for students to interact with local engineers, scientists and technicians. In keeping with the educational focus of National Engineers Week, a main objective of this activity is to reinforce or broaden student career interests.

The keynote speaker was **Domenic Maglieri,** the 1991 Engineer of the Year. Maglieri is Director of Projects for the Hampton Division of Eagle Engineering Inc., and has been a practicing engineer for 40 years.

A brief presentation by high school students from the Hampton Public Schools stole the show. The student team is working with engineers from the American Association of Aeronautics and Astronautics to build and fly the world's largest paper airplane. Plans are to construct a craft with a 24-foot wing span to garner a spot in the *Guinness Book of World Records*. The fly-off will occur March 25 in the NASA hangar.

"Career Day was expanded to two days this year to enable us to reach more students," said PEC President **Andy Schuster.** Some 44 exhibitors displayed work-related equipment and communicated details of a typical engineer's day."

Following the program, during the interactive session, students had the opportunity to discuss careers and related topics with practicing engineers from PEC member societies, NASA, Newport News Shipbuilding and the Supervisor of Shipbuilding.

Schools from Hampton, Newport News, Gloucester, Mathews, Williamsburg-James City County, York County, Suffolk, Portsmouth and the private sector participated in this year's event.

"As a follow-up to Career Day, local engineers visited area high school classes to present hands-on demonstrations and talk career planning," said Schuster. "Our aim is to make studying math and science relevant to today's students."

To Dedicated Volunteers, It Was A Success

esting teachers to group classes could reach the most students . And our Langley volunteers Most volunteered to take more Many altered presentation an auditorium or cafeteria full

rformance was turned in by s Engineering Division, who, **Winning,** reached 1,000-plus n four schools. Shuster and Norge Elementary in upper Chesapeake Alternative School. ght Management Division, nping grounds, Booker T. ool in Norfolk. The 1964 problems into a magic show for **Crockett,** Systems Engineering **Letchworth,** Projects Division, students, respectively. ied Aerodynamics Division, taught about 300 students at Lynnhaven Junior High School in Virginia Beach. Again this year, Yaros requested high school but graciously accepted the junior high assignment – on the condition that next year he get his first choice!

Norm Akey Sr. came out of retirement and went to Birdneck Elementary School in Virginia Beach, where 600 students in eight classes benefitted from his experience and enthusiasm. Fellow retiree **Clarence Brown** talked to more than 200 students at Deep Creek Center Elementary in Chesapeake.

The list goes on and on. One teacher aptly summed up the enthusiasm generated: "My students were spellbound. You inspired some future scientists, mathematicians and engineers today. We want to do this again next year." Finally, special thanks to **Audrey Coppedge,** Teacher Resource Center coordinator, and **Susan Smigielski,** Public Mail technician, for their help coordinating this effort.

– Marny Skora
Office of Public Services

The Volunteers — All 274 Of Them

The following individuals taught classes in area schools for National Engineers Week:

William Adkins, Elvin L. Ahl, Norm Akey, Sr., George Allison, Jonathan K. Alston, Richard Antcliff, Stephen Appleby, Ruth Amundsen, Scott Asbury, John Asby, John S. Austin, Ron Barnes, David Beals, Harold Beazley, Laurence Bement, Fabio Bertolotti, Patterson Biggs, Jay Brandon, C.L. Britt, J.L. Brudos, Ellen Bullock, Kathryn Bush, Lance Bush, Ricky Butler, Donald Cahoon, Tony Calabrase, Richard Campbell, Ann Carlson, Mark Carpenter, Angela Carter, Arlen F. Carter, Rajinish Chardrasekhar, Dianne Cheek, Terry O. Clark, Timothy J. Coats, James A. Coleman, James R. Comstock, Vickie Connors, Bruce Conway, Vic Cooley, Lawerence B. Cooper, Elizabeth A. Cornell, Robert C. Costen, Karen Credeur, Catherine Croall, Sharon K. Crockett, Liz Connell, Eric Dahlstrom, Taumi Daniels, Pamela A. Davis, Randall Davis, Richard Davis, John Deaton, Vic Delnore, Russell Young, John P. Deyst, James Dezern, Glenn Diskin, Ben Di Vito, Scott Dorsey, George Douglas, Dana Dunham, Doug Dwoyer, Bill Dziedzic, Robin Edwards, Marco Egoavil, Gary Farley, Melvin Ferebee, Michelle Ferebee, George Ficklen, James Fields, Jr, George B. Finelli, Archie Fripp, George Ganoe, Terry Ghee, Lawrence J. Gilbert, Vernon Gillespie, Peter Gnoffo, William H. Gough, John Greco, Diane Griffen, Steve Lee, Donald Grigsby, David Guthrie, Allan C. Hanrahan, Keith Harris, Timothy Harris III, Jennifer Heeg, George Helfrich, Joanne J. Herring, Gloria Hernandez, Steven Heuser, Joe Heyman, Lana Hicks, Edward Hogge,

Please see **VOLUNTEERS,** *Next Page*

STS-45 To Carry First In ATLAS Series Designed To Examine Earth's Atmosphere

The Space Shuttle Atlantis later this month will carry the first of a series of ATLAS missions that are part of the first phase of NASA's Mission to Planet Earth.

Throughout the ATLAS series – the Atmospheric Laboratory for Applications and Science – scientists will gain a better understanding of how the atmosphere reacts to natural and human-induced changes. ATLAS will fly on mission STS-45 as the first of up to nine ATLAS missions undertaken throughout one solar cycle, 11 years. During that period, solar flares, sunspots and other magnetic activity go from one extreme to the other and back.

The mission will carry 14 experiments. The experiments will study the chemistry, physics and movement of the middle and upper atmosphere by measuring the sun's energy. They also will observe the links between magnetic fields and electrified gases, called plasma, that lie between the sun and Earth. By studying these factors throughout a solar cycle, scientists will be able to form a more detailed picture of Earth's atmosphere and its response to changes in the sun.

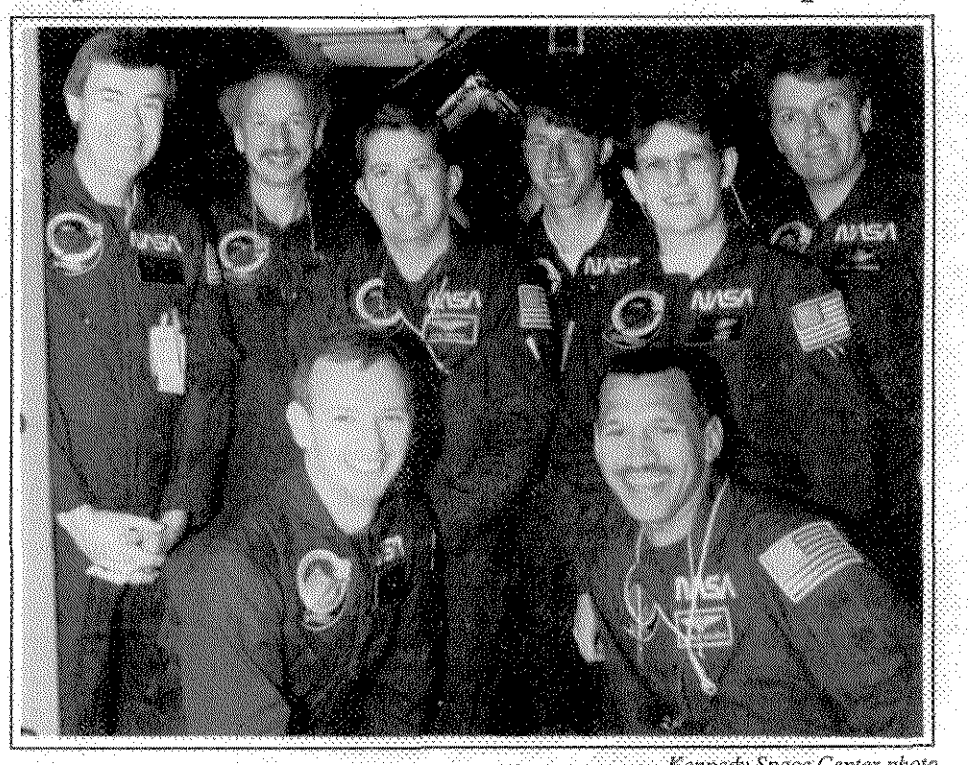
FOR A CAR PASS TO THE LAUNCH, CALL ANN SUIT AT EXT. 43305.

Also, an astronomical telescope will examine sources of ultraviolet radiation in the Milky Way and other galaxies to learn more about the stages in the life of a star.

The European Space Agency provided the reusable Spacelab platform in 1981 as its contribution to the Space Shuttle program.

Charles Bolden is commander of STS-45. Brian Duffy is pilot; mission specialists are Kathy Sullivan; Michael Foale and David Leestma; payload specialists are Dirk Frimout and Brian Lichtenberg.

The mission is scheduled for launch Monday, March 23, at 8:01 a.m. and landing at 6:08 a.m. Tuesday, March 31, at Kennedy Space Center.



Kennedy Space Center photo

Back row from left: Charles Chappel, backup payload specialist; payload specialist Dirk Frimout; mission specialists David Leestma and Michael Foale; mission specialist and payload commander Kathy Sullivan; payload specialist Bryon Lichtenberg. Front row: pilot Brian Duffy, left, and commander Charles Bolden.

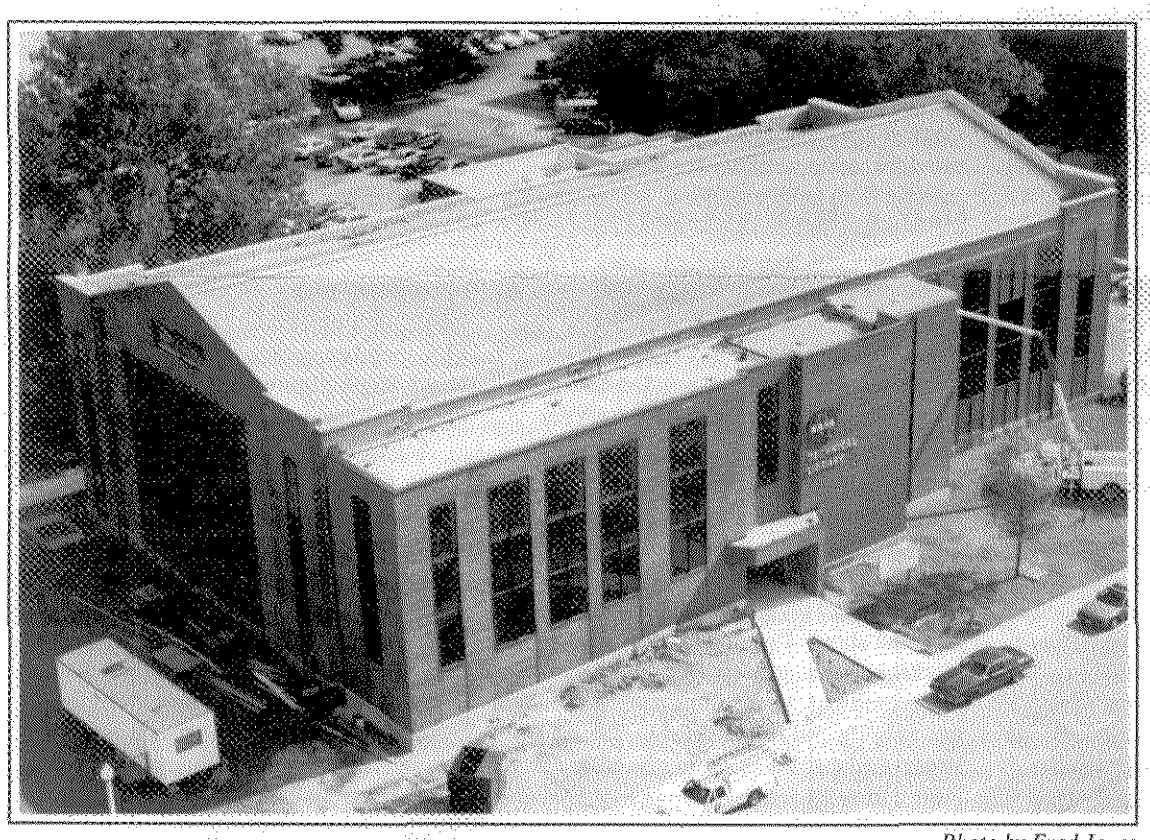


Photo by Fred Jones

The Technical Library has been home to many tenants since it was built four decades ago.

Technical Library: A Rich History Behind The Shelves

BY ALLAN C. HANRAHAN

Langley's Technical Library has seen many alterations and occupants in its 40-year history. Construction of the library started October 15, 1941, and was completed August 22, 1942, for $205,256.12. The building was placed in operation the following month.

The building, covering a ground area of 13,125 square feet, consists of a steel framework with a steel truss roof and is set on pile footings. It has brick walls 16 inches thick and heavily reinforced concrete floors six inches thick.

The original equipment cost $143,518.75 – a relatively large sum – because the building was to house the West Area sheet metal shop, the west machine shop, the model finishing shop and the technical service office.

THEN AND NOW

For some years, it would be known as either the "main shop" or the "west shop."

Other tenants included some of the first branches of engineering in the West Area. In the late 1940s, part of the building served as the garage and even into the 1960s there were operating gas pumps by the east end of the building.

In the mid 1950s, the Equipment Engineering Section was on the second floor and the electric shop occupied part of the first, remaining there until the mid 1960s. It was joined early in that decade by an element of the Fabrication Division's electronic shop. Over the years, as the shops moved to more modern and suitable facilities, internal remodeling was done. For example, in 1960, space personnel were located there and in 1963, Research Models and Facilities Division elements were housed in the building.

In the late 1960s, a mezzanine, supported by steel bridge beams, was added and the second floor underwent a major renovation to house the Technical Library. The move took place in August 1969 and renovations continued until the formal dedication nearly three years later.

In 1976, a contract was awarded for a building to house the West Area Training Facility. The two-story addition was completed on June 24, 1977, at a cost of $199,140.76. The last addition was begun in 1988 and finished in the spring of 1991, completing the extension of the main building's south face.

VOLUNTEERS:

Continued from previous page

S.E. Holloway, Bruce J. Holmes, William R. Hood, John Hoppe, Julie Hudgens, C. Michael Hudson, Patricia Hunt, Mark Hutchinson, Richard Irby, Cheryl Jackson, Karen Jackson, Charles Jenkins, Greg Jones, Kennie Jones, Lisa E. Jones, Rhett Jones, Ronald D. Joslin, Michelle Kattan, Eleanor Ketchum, Marion Kidwell, Brian D. Killough, John J. Korte, Roberta Knight, Ramki Krishnan, Nancy Kruse, Sue Kullerd, Nicholas T. Lagen, John Lamar, Robin Land, Elizabeth Lee, Steve M. Lee, Abe Leiss, Robert Letchworth, Mike Logan, Karen Lyle, Robert J. Mack, Michael Mann, Randy Manning, Scott Martinson, Veloria Martinson, Larry Matthias, Tony Maturo, Wayne Mautay, Frank Mayhew, Shane Mayor, Janice McCollum, Steve McCoy, Patricia Roberts McDaniel, Naomi McMillin, Clyde Medley Jr., Jesse Midgett, James Miller, Robert Miserentino, Tom Mitchell, Anutosh Moitra, Chuck Monroe, Gene Monroe Jr., Alvah Moore, Eugene A. Morelli, Terry Morris, Mark Motter, Chris Mouring, John Mouring, Harvey Murray, Dinesh Naik, Michael Nelson, Jerry Newsom, Gim Shek Ng, Nancy Nimmo, Keith Noderer, Gaudy Bezos-O'Connor, Michael Oliver, Ann Van Orden, Matthew O'Rourke, Jim Osborn, Rosa Oseguera, Bruce K.E. Outlaw, Roland Padilla, Sid Pauls, Wendy Pennington, James Pezern, Merven N. Pfeiffer, William C. Phaup, Hewitt Phillips, Joe Posey, Frank S. Preston, Brian Pritchard, Dan Pritchard, P. Frank Quinto, J.W. Ramsey, Wendell R. Ricks, Julian R. Roberson, Paul Robinson, Jim Rogers, James R. Rooker, Larry Rowell, Carrroll Rowland, Dick M. Royster, James W. Russell, Odilyn Santa Maria, Michael J. Scherner, Dave Schuster, Richard Schwartz, Michael A. Scott, David J. Selembo, David T. Shannon, Jason Shimshi, John Shoosmith, Dave Shuster, Dick Winning, Walter Silva, Bart Singer, Mia Siochi, Milton Skolaut, Keith M. Sobczak, M. Leroy Spearman, David Sobota, Mark D. Soucek, Charles M. Southall III, Vic Spain, Kelly D. Smith, Doug Stanley, Gary Steed, Bill Stevens, Brian Stewart, Olaf O. Storaasli, Karen Suzuki, Frank John Tambone, Karen Taminger, Sharon Tanner, Barney Taylor Jr., Beverly A. Taylor, Lawrence W. Taylor III, Ping Tcheng, Geoffrey Tennille, William Tennis, Darrel R. Tenney, Kris Torre, James Townsend, Charles Edward Townsley, Joyce Tucker, Dave Turnock, Michael D. Uenking, William Vance, Steve Van Liwe, Erik Vedeler, Harry Verstynen, Dan Vicroy, Susan Voigt, A. Von Theumer, Ronald Von Theumer, Robert J. Wallis, Thomas Walker, Richard Wallsom, Gary Warren, Marty Waszak, W. Allen Waters, Noel West, Christina L. Weston, Richard White, Julia Whitehead, John J. White, Woodrow Whitlow Jr., Norman F. Willey, Bob Williams, Bill Willshire, Dick Winning, Stephanie Wise, Fred Wilson, Robert Fox, Stan Woodard, Kenneth Wright, Mary Beth Wusk, Tom Yager, Steven F. Yaros, W.R. Young, Otto Youngblood, Glenn Yue, Joe Zalameda.

Q&A: Former Center Director Petersen Talks About Life Inside The Beltway

Recently, **Researcher News** *Editor Michael Finneran interviewed former Center Director Richard H. Petersen, now associate administrator for the Office of Air and Space Technology (OAST). Petersen spoke about his reorganization of OAST, talked about the aerospace industry in general and discussed his first few months at Headquarters. The following is an edited transcript of that interview.*

What's your reaction to three months at Headquarters?

It's been a very interesting and challenging time. I am enjoying it. It's a new kind of challenge. The people I'm working with are excellent people, they're hard working and they're good people to work with. The system has been more responsive than I thought it might be to implementing the things that I wanted to get done and that's been a pleasant observation. Coming in and wanting to make a reorganization, of course, turns everything upside down but the people have worked with that and I think have been very positive in terms of saying, OK, let's make it work. So that's been good and basically I'm enjoying the new job. It's very different from being a center director and I hope that some of the changes I'm making are making things work better here and at the centers.

How is it different from being a center director?

It's hard to get my finger on that, really. It's coming in first of all and learning a whole bunch of new faces and relationships and so forth. There's obviously a difference when you're a center director – your bosses are far away and my bosses are kind of near here and there's a variety of them, such as the Congress and OMB (Office of Management and Budget) and obviously more political things involved. You're further from where the real technical action is. I was at JPL (Jet Propulsion Laboratory) a couple weeks ago and got some chance to see some good things and kicked the tires, and I'm leaving tonight to be at Ames for the next three days. So I may still get enough of the technical fix now and then.

You have moved up here?

Yes, we have an apartment in Crystal City. I'm planning to keep my home in Williamsburg, so normally I drive home Friday evening and come back Monday morning. Jody is coming about half time when it's convenient. But we're pretty settled into that routine.

How are the OAST staff and the three centers accepting the reorganization?

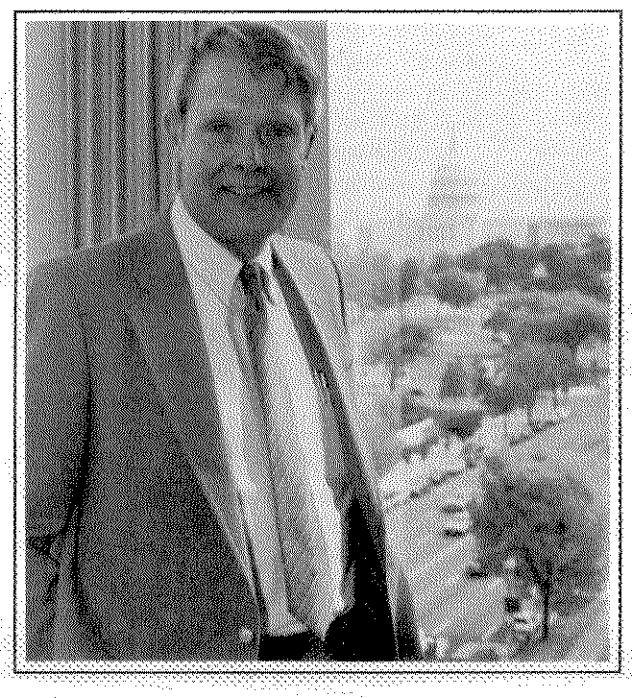
I think the reorganization has gone well. It always consumes a lot of energy when you have a change, but people seem to have accepted it and moved to make it work. It'll probably take a full-year cycle to settle into a new kind of pattern, so I don't think we're there but I'm pleased with the progress. There are still concerns up here in Headquarters because we haven't physically moved the people as yet and that's perhaps one of the most difficult processes. I think from a center standpoint it's probably slower in that they're obviously not immediately affected in the way the organization is here. At the same time, it does have a considerable effect on who they deal with at Headquarters and the budget processes, which I think is just beginning to become apparent at the centers. So there's a lot more to work on there and that will continue. The timing was such that we went very quickly into the '93 budget process, almost immediately after this reorganization, which was not ideal, and yet I'm glad we were able to do it before that rather than after that. But it means this budget process is very much a transition sort of thing and I think we just have to work through that. I hope that as that develops, the centers will see new possibilities in the ways in which they can operate with the new organizational structure.

Has there been much industry reaction to the reorganization?

Not really significantly, aside from a few people who sort of understand, who deal with us regularly and who said this looks like it may improve things. But I haven't had any kind of strong reaction from outside.

Are you planning changes in staffing levels?

I have stated that I would like to try to reduce the staffing level slowly at Headquarters because I feel it had built up, as there is a natural tendency, and I hope with the changes in organization and perhaps some new efficiencies that we can do the things we need to be doing with a few less people. We'll be working on that. That's strictly by attrition, and it's still difficult to do but I certainly don't expect to see growth in the staffing.



Petersen: "I'm enjoying the new job. It's very different from being a center director."

How about any major program changes?

No, I think my viewpoint was right in line with what had been our OAST plans for the next few years: Strong priority on trying to get the high speed research phase two new start in fiscal '94; strong priority on getting some real increases in the space technology budget; and continuing support and effort to keep the aero-space plane funded and progressing.

Do you see any chance of solving the construction of facilities funding problem anytime soon?

No, I don't see anything that can cause a major change in the process and it is a difficult process. We have to keep looking at our priorities and try to fit those into the budget constraints. It really is a very difficult problem with the large funding that we appropriately put into the wind tunnel revitalization, but that has kind of stacked up and not given us as much new capability as I would like and we're just going to have to continue to work on that.

Do you plan to keep the amount of OAST funding to the non-OAST centers about the same or are there plans to change that?

Generally speaking, yes, I don't see any large changes in the funding balance, I do feel that I want to look particularly at the R&D base funding and most of that should appropriately go to the research centers. But that's a background philosophy and then you look case by case, and there are good reasons for some of that to be in a non-OAST center in some cases. Then I want to look at strengthening some of the relationships where we can pair one of our research centers and one of the development centers when we move towards application of a technology. So I hope to be able to strengthen that and I hope we can increase the space technology budget so that all the centers are getting increases in the next few years, but that's a real challenge.

Do you anticipate any major changes in the way OAST funds?

I don't know that I'd call them major changes, but there are changes as we have moved the organization, changed the organization and eliminated the disciplined divisions. And I think as a part of that we expect the centers to have more flexibility in planning in their base R&D programs and to deal less with Headquarters, although there still needs to be good oversight and integration from the Headquarters offices of that program. So I think there are real changes associated with the changes in the organization, and the way we're doing the budget is designed to give the centers somewhat more freedom in developing a high quality research program with the resources they have.

There have been some published reports that NASA and the U.S. aircraft industry are falling behind. Do you have a response to that?

We have put a lot into the wind tunnel revitalization and I think we improved our facilities. Because of the revitalization, we haven't been able to do some new capabilities, and of course things like the best acoustic tunnel in the world is in the Netherlands and we've been concerned about that for a number of years. We could have a stronger aero program if we were not so tightly constrained with the budget, but I think we still have a very strong aero program and it's been well supported by Congress. But the biggest difficulty we have is with the budget constraints. And in this particular time period the overall NASA is very tightly constrained, and that makes it difficult in aero and in space technology and in everything else NASA's doing. So I think we just have to keep working with that constraint in what already is a very good program.

Can you comment on foreign competition in the aircraft industry?

Well, of course there's good strong competition from Europe and from the Japanese that's been growing. At the same time there is a lot of cooperative effort over the years and I think in many areas it's good for us to cooperate with other countries where we both benefit, and we've been very careful to ensure that there are benefits passing in both directions. We need to keep a premier aeronautics program because that industry is very important to our competitiveness. I think if we can continue to be well-funded, if we can get HSR2 (high speed research phase 2) funded, which gives us a chance for a real breakthrough early in the next century, that the US. can continue to be very strong in aerospace.

Aeronautics figures very prominently in the Vision 21 strategic plan. What does that look like to you?

I was pleased with the way that developed in the strategic plan. I was not surprised because I've had a lot of dealings and discussions with Admiral Truly and he is a very strong supporter of our aeronautics program who has regularly looked for a way to say that. I think the strategic plan has a good balance in handling both the aeronautics and the space technology needs and I think we have a good charter to work from.

What do you think of the recommendations of J.R. Thompson that have been approved?

I thought what the Augustine group recommended seemed like a good recommendation as long as we didn't let it get down into too much of a fine detail structure. I think the report he did was very helpful and suggested a lot of things that will make for a better NASA. With regard to Code R, there were not any sizable recommendations that had a large impact in my mind – some clarification of center lead roles, some dealing with some small pockets of people doing things at the various centers that might be better shut down. On the other side there were some significant changes in Shuttle operations and Space Station management and so forth. It seemed good to me, but doesn't directly impact what the OAST centers are involved with.

Happenings

GARAGE SALE: Seeking items "A to Z" for garage sale to help a seriously ill employee defray medical costs. Call Jean Eley, ext. 43271.

THE ALUMNI ASSOCIATION announces its 1992 Get-A-Way May 22 to 24 to Hershey, Penn. Everyone is invited. For information, call Abe Leiss at 877-2939.

THE AFGE LOCAL 2755 union meeting will be held March 18 at 4:15 p.m. in the Union Office Building, 8B Langley Blvd.

LAA ST. PATTY'S DAY social hour March 13 features live music, $1 cover charge, from 4 to 8 p.m. On March 27, a social hour will be held from 4 to 6:30 p.m.

THE NASA GOLF ASSOCIATION seeks members for the '92 season. Membership forms can be picked up at the H.J.E. Reid Conference Center or by calling Tom Yager, ext. 41305. Annual dues are $20; 12 tournaments are planned between now and October.

FOR SALE: 1984 Plymouth Turismo, runs great. Asking $1,800 or best offer. Call 595-7017.

RUGBY – The Newport News Rugby Football Club seeks new players, no experience needed. Practices are held Tuesdays and Thursdays at 7 p.m. at Warwick High School. Call Jeff Singleton at ext. 41261 or George Fiscella at 873-1321.

FRENCH EXCHANGE STUDENTS need good families to house them from July 13 to August 10. Call Julie Harper, 865-6915.

AN OLD FASHIONED "sock hop," featuring live music by Coolin' Out, will be held at the Sheraton Inn-Coliseum on Mercury Boulevard on Friday, March 27, 8 p.m. to midnight. Tickets at $15 each are available at the door or by calling the Virginia Choral Society, 1 (800) 400-4VCS.

WATCH FOUND: A wristwatch was found February 21 between Flight Electronics Division and Systems Engineering Division. Call Tom to identify at ext. 47506.

BODY DYNAMICS. High-energy, low-impact aerobics classes held Mondays, Wednesdays and Fridays, 6:15 a.m., LAA gym. Classes free and open to civil servants.

FOR SALE: Twin mattress and bed frame, $50. Frame is white metal tubing, very nice. Call 827-8784.

DISCOUNT THEATER tickets – AMC Movie Theater, $3.75; Colonial Williamsburg Patriot's Pass, adult $26.50, child, $16; Royal Governor, adult $24, child $15; basic admission, adult $22, child, $14. Tickets are at the Exchange Shop in the cafeteria. Prices subject to change.

FOR RENT: Elizabeth Lake Estates, 366 Hopemont Circle, Hampton, 4-bed., 2-bath, living room w/ fireplace, dining room, kit., garage, CA, neighborhood association with pool, close to schools, Langley. No pets. $800 a month, deposit required. Call 851-8388, leave message.

SATURDAY AEROBICS IS BACK! 9:30 to 10:30 a.m. in the Activities Center. Cost is $6 a month. Call ext. 42295.

LOW-IMPACT AND BENCH AEROBICS classes are held Tuesdays and Thursdays, 5 to 6 p.m., LAA gym. Cost is $12 per month or $6 per month if attending only one day a week. The classes are open to employees, contractors and their families. Call ext. 42295.

TELA TAX SERVICE, a member of the National Association of Tax Practitioners. Electronic filing and small-business bookkeeping. By appointment. Call 874-3121.

INCOME TAX PREP. Please call and leave name and phone number for appointment. Nancy Taylor, 723-5227.

TOASTMASTERS meets the second and fourth Wednesday of each month from 11:30 a.m. to 1 p.m. The next meeting is March 25 in Building 1222.

A DANCE sponsored by the Alumni Association will honor the April 5 opening of the Virginia Air and Space Center. The April 4 event starts at 8 p.m. at the H.J.E. Reid Conference Center and features the Charley Johnson Band. Admission free, everyone invited. For reservations call Abe Leiss, 877-2939.

PLACING YOUR AD

To place an ad in Happenings, fax it to ext. 46333 or 48199, or send to Mail Stop 115. Include name and phone number. For more information call ext. 41626.

THE VIRGINIA CHORAL SOCIETY will present "A German Requiem" by Johannes Brahms along with short classics by Shubert, Casals and Rutter. Two concerts will be given: Friday, March 13 at Christ and St. Lukes Episcopal Church, Olney Road, Norfolk, and Saturday, March 14 at Trinity Lutheran Church, River Road, Newport News. Both start at 8 p.m. Tickets $8 at the door; $5 for senior citizens, students and military. Call 1 (800) 400-4VCS for more information.

Abstract Correction

Paper abstracts for Technology 2002 should not be mailed directly to Len Ault, Code CU, but to the Technology Utilization and Applications Office, Mail Stop 200, by April 24, where they will be coordinated as a Langley submission and transmitted to Headquarters as a package to meet the conference deadline. Direct questions to Joe Mathis at ext. 42484.

Positions Filled

The following individuals have filled positions: **Donald Beasley,** assistant head, Quality Assurance Inspection Branch; **Roland Lee,** head, Quality Assurance Inspection Branch.

Researcher News

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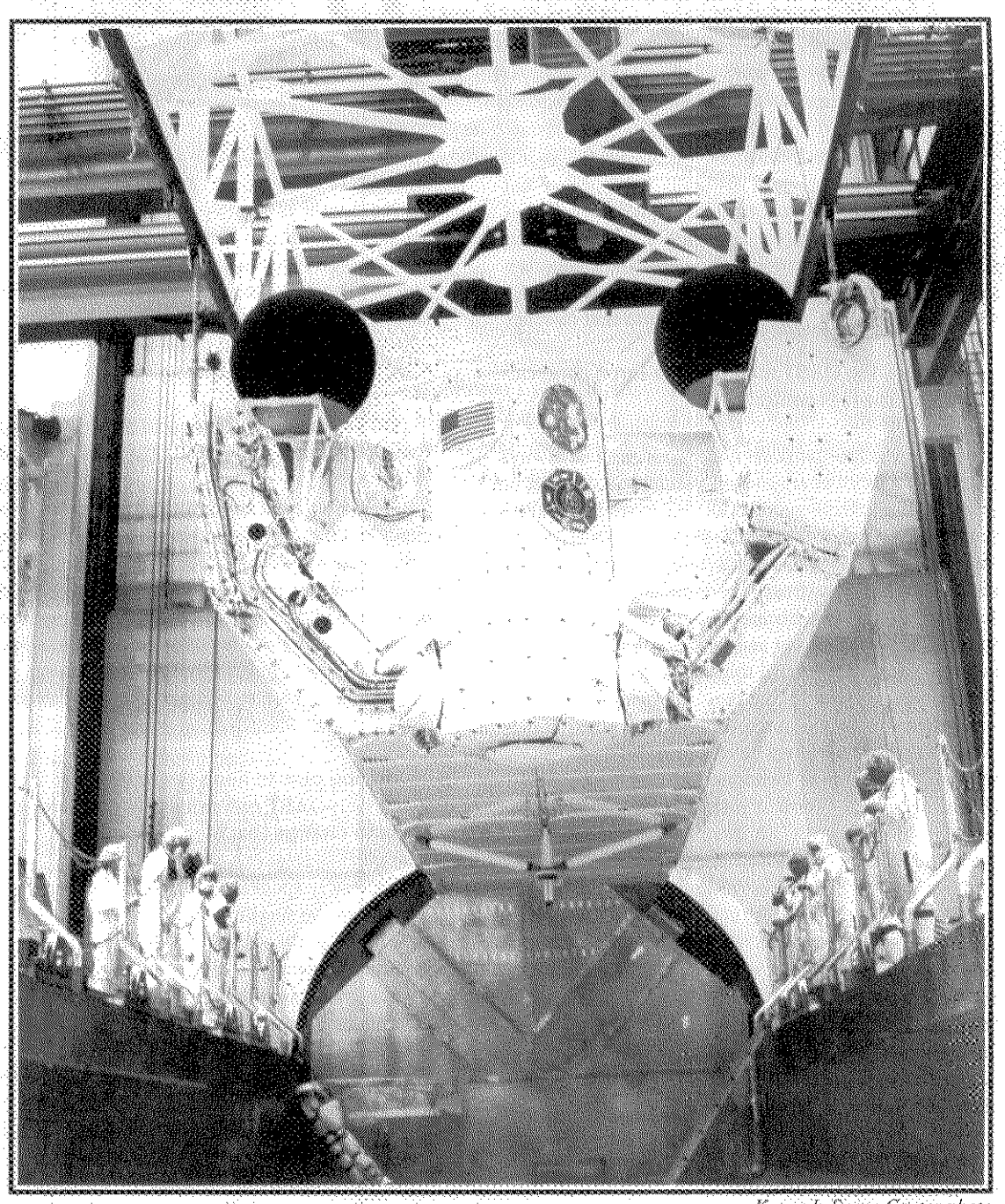

Kennedy Space Center photo

The ATLAS-1 payload is moved from a test stand at Kennedy Space Center to the payload canister for transport to the Orbiter Processing Facility. There, the research platform will be installed in the cargo bay of the orbiter Atlantis, scheduled for launch March 23. See story, page 6.

1917 1992 75 Years NACA NASA Langley Research Center

Researcher News

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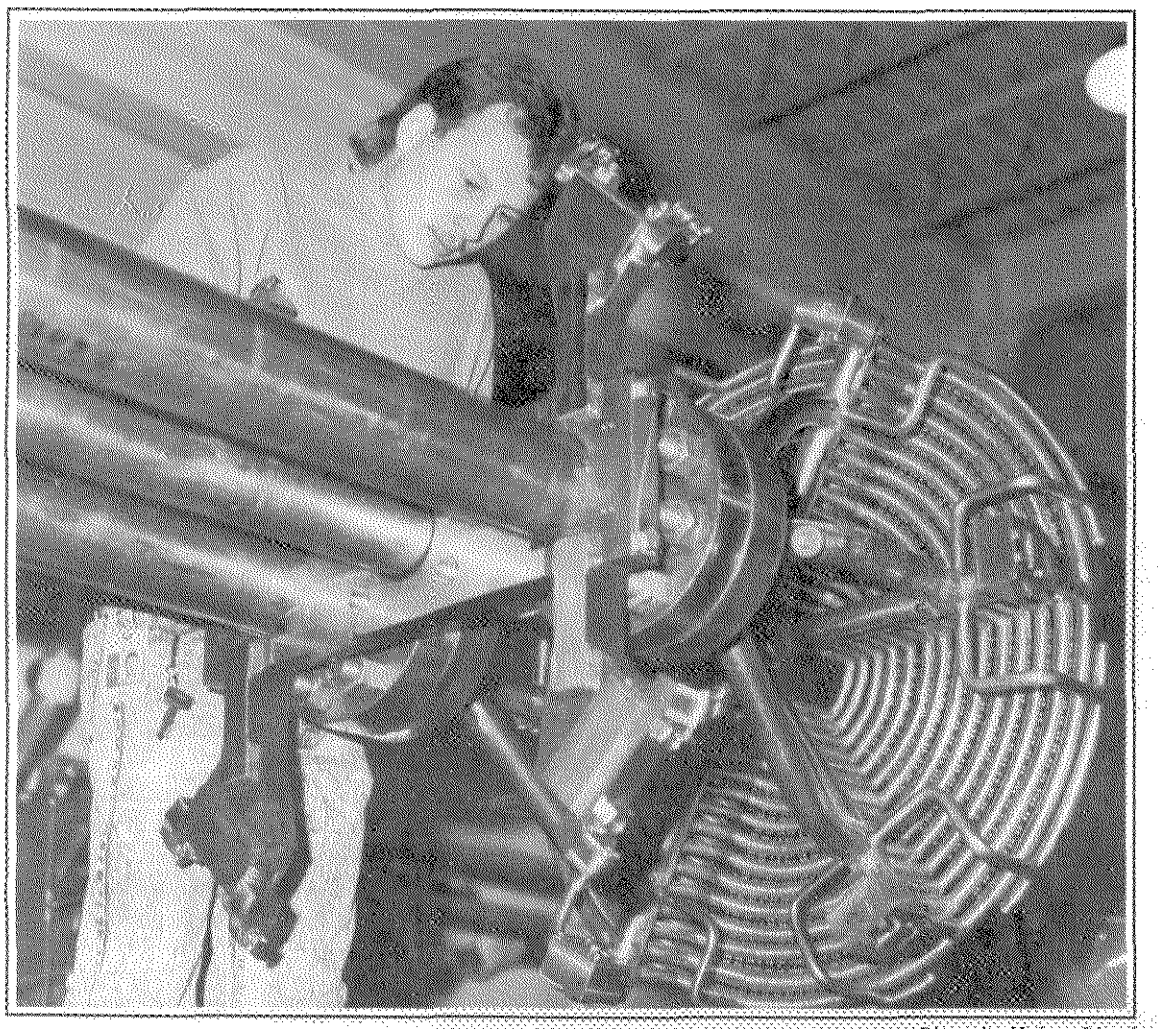


Photo by Hubert Lloyd

David Reid, of the Operations Support Division, performs verification on instrumentation wiring along the fuel lines at the 8-Foot High Temperature Tunnel.

High Temperature Tunnel Undergoes Shakedown

BY H. KEITH HENRY

If you haven't seen its flame, you've heard its rumble. It's the new 8-Foot High Temperature Tunnel at the end of East Reid Street. Built in 1964, the tunnel has been extensively modified for key tests of Scramjet engines as part of the National Aero-Space Plane (NASP) program.

Oxygen has been added to the flow to accurately simulate flight conditions for hypersonic airbreathing engines. Hydrogen has been added to fuel the engines. The first engine to be tested is the Conceptual Design Engine (CDE), a large-scale scramjet considered the prototype engine for the NASP X-30 vehicle.

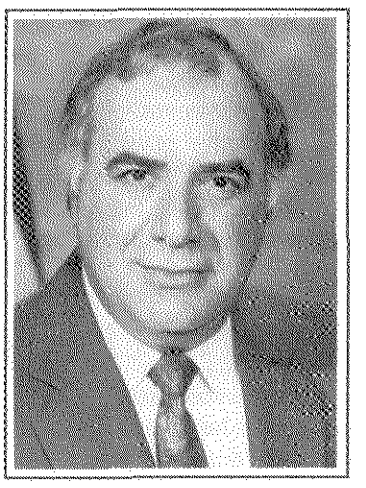
The tunnel is scheduled to complete its shakedown period and begin testing in the Fall. The present checkout phase is aimed at extending "hot" run times and transitioning to automatic pressure and temperature controls.

The tunnel has always been high speed at Mach-7, about 5,000 miles per hour, and high temperature, up to 3,200 degrees Farenheit. But a realistic simulaton for an airbreathing engine flying through the Earth's atmosphere has not been possible at large scales until now. Heating the gas that flows through the tunnel burns oxygen, which must be replenished before a scramjet engine can breathe enough for combustion. Another significant modification is the addition of hardware that will allow tests at Mach-4 and Mach-5.

If you've wondered about the gas flame from the top of the new exhaust stack, it's a byproduct of purging the fuel lines before and after each high-temperature run.

DIRECTOR'S MESSAGE

New Senior Staff Positions Created For NASP, Finance



Paul F. Holloway: Positions will increase effectiveness.

As many of you may already know, I am creating two new Senior Staff positions, one to serve as chief financial officer and the other to head the National Aero-Space Plane program at the Center. I would like to review the need for these positions and tell you about their functions.

Chief Financial Officer. In response to recently enacted legislation dealing with financial concerns, each center is required to establish the position of chief financial officer (CFO). Most centers already had a comptroller position reporting to the center director, which fulfills this function. Since Langley did not have a comptroller, the action of creating the position is required. This position will be announced through the merit promotion system. The individual selected to be CFO will report to me. At the same time, organizational responsibility for the Programs and Resources Division and the Financial Management Division will be transferred to the new chief financial officer.

NASP Manager. Langley has been named lead NASA center for the National Aero-Space Plane Program. Since the beginning of the NASP program, even when it was highly classified, Langley has been at the forefront of the Agency's participation, and, in fact, of all government labs. In naming Langley lead NASA center for NASP, the administrator has recognized the Center's solid contributions and ensured that we have official Agency recognition. To manage this new lead-center role, the current Hypersonic Technology Office (HTO) will have significantly broadened responsibilities and will be renamed the NASP Office reporting to the director. Lana M. Couch, currently manager of the HTO, will be the director of this new office.

Both of these new Senior Staff positions will add to our Center's overall effectiveness. On the financial management side, the new chief financial officer will respond to the nation's increasing concern over fiscal integrity and financial performance of the federal government. Elevating the NASP office corresponds with the Agency's new strategic plan, Vision 21, which highlights the importance of developing an aero-space plane. I am confident that the results of both of these actions will reflect positively on our Center.

– **Paul F. Holloway**
Director

Nominee To Succeed Truly Started As Researcher At Lewis

Bush Picks Daniel Goldin, Vice President For TRW

Daniel S. Goldin, vice president and general manager of the TRW Space & Technology Group, has been nominated by President Bush to succeed Richard H. Truly as NASA administrator.

Truly, in a prepared statement, said, "I am pleased to learn that President Bush intends to nominate Daniel S. Goldin as the next administrator of NASA.

"Mr. Goldin has a long history of working in the space arena, in both NASA and DOD (Department of Defense) programs, and the NASA team stands ready to support him," Truly said.

"The continued achievements of NASA's space and aeronautics research programs are vitally important to the nation, and Mr. Goldin will be arriving at a time of great challenges and opportunities for the future. I wish him every success as he comes to this elite organization."

Goldin's nomination is likely to require several months to clear the confirmation process. Meanwhile, President Bush is expected to name an interim administrator.

Goldin began his career at Lewis Research Center in Cleveland in 1962 and remained there until 1967. A research scientist in electronic propulsion, he was involved in the Space Electric Rocket Test (SERT II).

Currently, he is on the board of the Ohio Aerospace Institute, a nonprofit consortium being built at Lewis and scheduled to open in the fall.

Goldin, who assumed his current position with TRW in 1987, has managed the development and production of numerous advanced spacecraft and space science instruments.

The TRW group's products include scientific spacecraft such as NASA's Compton Gamma Ray Observatory; the Tracking & Data Relay Satellites that support NASA space communications; environmental spacecraft, including NASA's Total Ozone Mapping Spectrometer-Earth Probe; the Air Force's Defense Support Program, which provides early warning of missile launches; and the Strategic Defense Initiative Organization's Brilliant Eyes and Brilliant Pebbles programs.

Goldin was born in 1940 in New York City. He earned a bachelor of science degree in engineering in 1962 from the City College of New York. He completed the Executive Management Program at the University of California at Los Angeles in 1982.

He and his wife, Judy, live in Manhattan Beach, Calif. He has two daughters, Ariel, 27, and Laura, 25.

TRW photo

Daniel S. Goldin with two TRW-built spacecraft: the Space Test Experiments Platform Mission I, left, and NASA's Pioneer 10. Goldin has worked with both NASA and the Department of Defense.

News Briefs

AROUND THE AGENCY

Shuttle Crew Assignments — Frank L. Culbertson Jr. will command Shuttle mission STS-51, scheduled for early 1993. He and his crew will deploy the Advanced Communications Technology Satellite (ACTS) and the German-developed Astronomy Telescope-Shuttle Pallet Satellite (ASTRO/SPAS). ACTS will test technology for future communications systems. ASTRO/SPAS will carry the Orfeus telescope to study radiation absorbing material in the solar system. Other crew members are William F. Ready, pilot; Daniel W. Bursch, mission specialist; and James H. Newman and Carl E. Walz, mission specialists.

Ice Systems Study — NASA's Earth Science and Applications Division will fly data runs over the North Pole region beginning in April to measure the amount of arctic sea ice and the depth of the glaciers on Greenland. Changes in the ice systems, such as increased melting, could affect the global weather system. The data will be gathered by the Wallops Island Flight Facility P-3B Orion aircraft outfitted with instruments that include laser-ranging devices.

NASP Appointment — Veteran astronaut Vance Brand has accepted a new post, effective immediately, as the director of plans for the National Aero-Space Plane Joint Program Office at Wright-Patterson Air Force Base. Brand has been at NASA for 25 years and has logged 746 hours of space flight, beginning with the historic 1975 Apollo-Soyuz Test Project. Brand has commanded three Shuttle missions. He was selected as an astronaut in 1966.

Second LDEF Post-Retrieval Symposium Set For June 1-5

Plans for the Second LDEF Post-Retrieval Symposium have been finalized by the LDEF Science Office at Langley and the American Institute of Aeronautics and Astronautics (AIAA). The symposium will be held June 1 to 5 at the Town & Country Hotel in San Diego, Calif. Attendance is unrestricted and an open invitation is extended to all interested persons.

The Long Duration Exposure Facility (LDEF) is a spacecraft that housed 57 science and technology experiments and supporting hardware. It was retrieved by the Space Shuttle Columbia in January 1990, 69 months after being deployed.

The analysis of the onboard experiments and flight hardware has revealed information about man-made space debris, meteoroids, radiation, contamination, biology, materials and systems exposed for a long duration in space. The first symposium was held in Kissimmee, Fla., in June 1991.

The second symposium will offer concurrent sessions in radiation, meteoroids and debris, materials, systems and science, as well as general sessions with invited review papers and future directions for LDEF. A compilation of abstracts will be available at the symposium, and symposium proceedings will be printed shortly after the event.

For more information, call Dr. Arlene S. Levine, ext. 43318 or 43782.

Fitness Challenge Starts March 1

Headquarters has presented a fitness challenge to all centers from March 1 through the end of September. NASA and the President's Council on Physical Fitness are trying to increase the number of participants in a consistent, long-term fitness program.

Everyone can get involved – employees, contractors and family members.

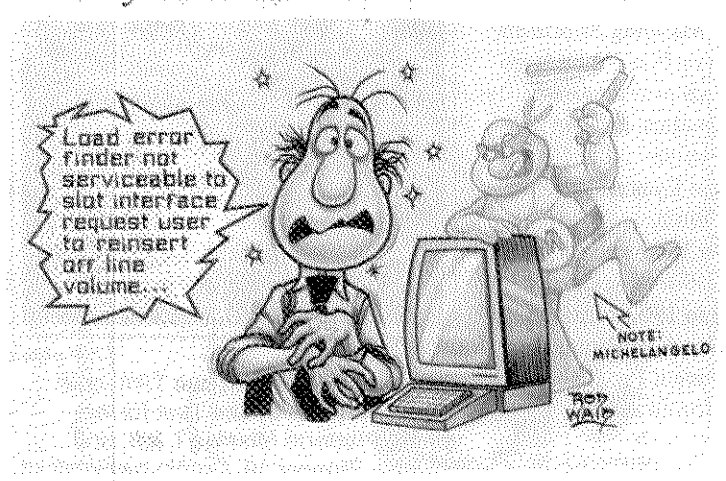
Last year, Langley came in fourth. The competition will be in the following categories this year:

- Highest number of total participants (contractors and civil servants).
- Highest percent employee participation.
- Recognition of the three employees with the highest number of completed events.
- Special recognition to the center with the most family participants (family members will be counted separately from the other awards).

Participants will pick from 58 exercises or sports activities, from walking to sailing to karate, and record their activity on a log sheet.

For more information, call ext. 46387 or stop by the Langley Fitness Center, Health Clinic or cafeteria and pick up a brochure, rules and log sheet.

Lankley



Lankley, having neglected to take proper precautions, contracts a computer virus.

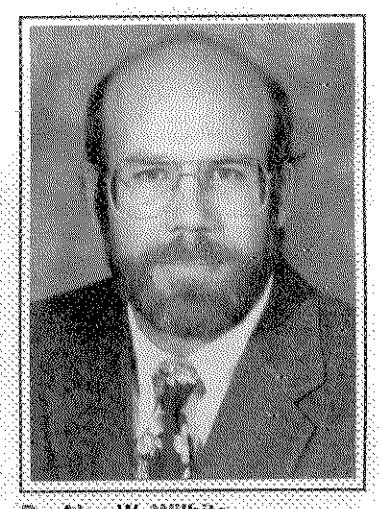
LETTERS

From **Sonny and Belle Wood:** Dear NASA Family, your cards, calls, flowers, prayers, encouragement and donated leave have meant so much during the past months. Words cannot begin to express how much each of you mean to us. Sonny's care consists of three phases. Phase 1 was acute care in the hospital environment to become medically stable. Phase 2 was continued hospital care and rehabilitation, with emphasis on muscle strengthening, mobility, self-care and daily living skills. Sonny is now in phase 3, intensive rehabilitation, at Craig Hospital in Denver, Colo. With your love and support, Sonny will make it and will be back to NASA! Thank you for being there for us.

From **Donald M. Coffey Jr.:** Thanks to everyone who participated for a wonderful retirement luncheon – especially to Everette Brown, the organizer. Working at Langley was one of the most significant events of my life, and I am proud to have been a part of NASA. My fondest memories of all are of the good friends I have known.

From **Patricia Schoenster:** The family of James Schoenster would like to thank all of his friends and colleagues at Langley for their many acts of kindness. The numerous donations of leave before his death, and the lovely memorial article, will be remembered with gratitude.

Wilhite Named Assistant Chief Of Advanced Vehicles Division


Dr. Alan W. Wilhite

Dr. Alan W. Wilhite has been named assistant chief of the Advanced Vehicles Division. In this position, he assists the chief in directing multidisciplinary advanced aerodynamics studies to assess the benefits of discipline research advances and to identify potential new research thrusts. He also serves as the Langley focal point for the High-Speed Research Program.

Before assuming his new position, Wilhite was head of the Vehicle Analysis Branch, Space Systems Division. He began his Langley career in 1973 as an aerospace engineer in the Vehicle Analysis Branch of the Space Systems Division. He led the division team for the analysis and design of initial government concepts of the National Aero-Space Plane (NASP). In 1987, he was selected director of base technology for NASP. In this position, he was responsible for the development of high-risk and high-payoff technologies. Wilhite became head of the Vehicle Analysis Branch in 1990, with responsibility for an aggressive national research program to identify key technologies for advanced space vehicle systems.

He received a bachelor of science degree in aerospace engineering in 1973 from North Carolina State University, a master of science in 1976 from George Washington University and his doctorate in aerospace engineering in 1983 from North Carolina State University.

He received a NASA Exceptional Engineering Medal in 1992, a Langley Outstanding Leadership Award as NASP base technology director in 1988; and three special achievement awards for the development and application of a computer-aided system for advanced aerospace vehicle design.

He is the author of 25 papers on aerodynamics, propulsion, trajectory/performance, multidisciplinary design, optimization and system studies. Wilhite is an expert in aerospace vehicle design with emphasis in aerodynamics and the application of aerodynamic theory to vehicle design.

Clear Business Writing Is Focus Of Live Video Seminar April 15

"Clear Business Writing" is the topic of an Empowerment Series live video seminar Wednesday, April 15, from 2 to 3:30 p.m. in Building 1194A, Room 203.

The seminar features Lucie Barron Eggleston, president of Letter-Perfect Communications Inc., Columbia, S.C. The program teaches a step-by-step process for organizing, drafting and editing anything required in writing.

Eggleston's firm conducts workshops in writing, presentation skills and instructor training. She has worked with thousands of managers in banks, utilities, manufacturing, insurance companies and accounting firms and is known for her practical approach and entertaining style.

To register on a first-come, first-served basis, submit an application for on-site training form (form 24) to Kim Dobbs, Mail Stop 309. The form is available from the Employee Development Branch, ext. 42597, or from your training coordinator.

Got A Question?

We'll get the answer. The **Researcher News** is beginning an occasional feature designed to answer those nagging little work-related questions you've always had but were afraid to ask. Send your question, along with your name and phone extension, to the **Researcher News,** Mail Stop 115. Your name won't be printed – but your answer will be.

News Researcher

The **Researcher News**, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23665-5225, is published every other Friday in the interest of all Langley staff and retirees. Submit contributions to the Editor, Mail Stop 115, telephone 864-6126. Articles are due at noon on the Tuesday following the date of this issue.

Managing Editor ..... Jean Drummond Clough

Editor ..... Michael Finneran

Photojournalist ..... Carol Petrachenko

Photographer ..... Fred Jones

The privilege of advertising in this publication is restricted to the employees and retirees of the Langley Research Center. Articles advertised here must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

Ten Employees Earn Degrees In Graduate Program

Master, Doctorates Awarded To 1,430 Since Beginning

Ten Langley employees have earned advanced degrees through the Center's Graduate Study Program.

The program, established in the late 1940s, provides Langley scientists, engineers and administrators an opportunity to improve their proficiency in aeronautical and space research and earn advanced degrees while working at the Center.

About 1,430 employees have been awarded master of science or doctoral degrees through the program.

Doctoral degrees have been awarded to the following employees:

Barton Bacon, Building and Control Division, doctor of philosophy in aerospace engineering, Purdue University.

Christopher L. Moore, Systems Engineering Division, doctor of philosophy in mechanical engineering from the University of Minnesota.

Master of science degrees were awarded to the following employees:

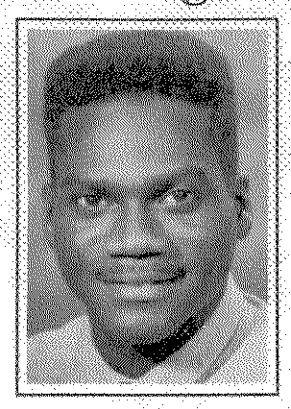
Raymond S. Calloway, Flight Electronics Division, master of science in engineering management, George Washington University.

Juan R. Cruz, Structural Mechanics Division, master of science, mechanical engineering, George Washington University (photo unavailable).

Brian D. Killough Jr., Systems Engineering Division, master of science, mechanical engineering, George Washington University.

Rudolph A. King, Fluid Mechanics Division, master of science in mechanical engineering, Old Dominion University.

Michael K. Ponton, Acoustics Division, master of science in aeroacoustics, George Washington University.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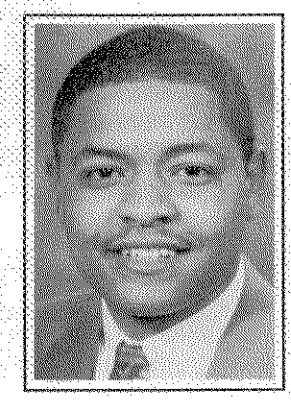
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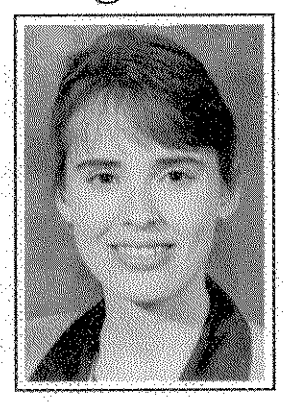
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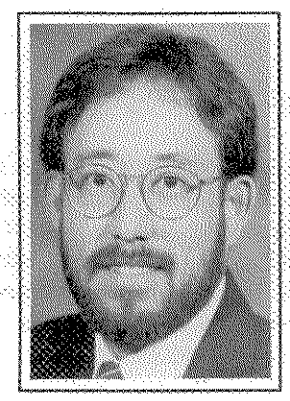
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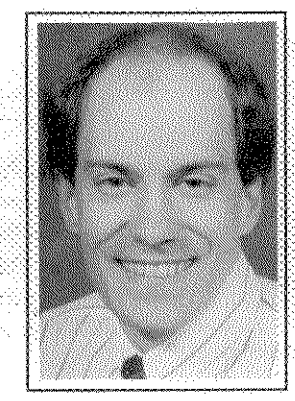
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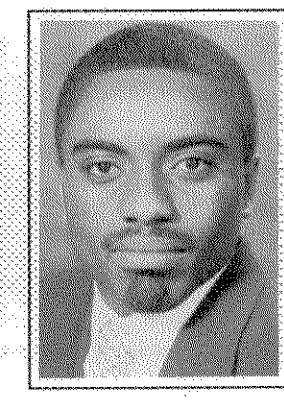
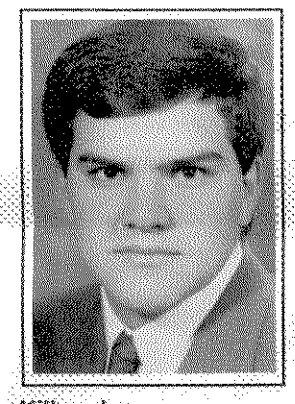
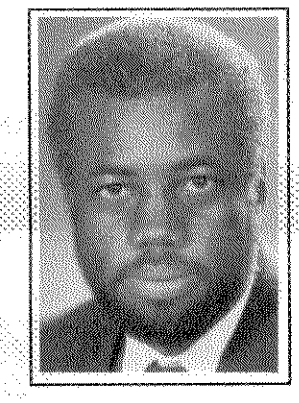

King


Killough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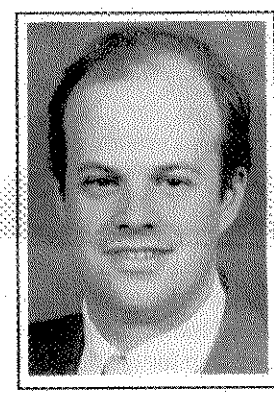

Bacon

Catherine J. Prohaska, Programs and Resources Division, master of business administration, Old Dominion University.

Rufus C. Sykes, Flight Electronics Division, master of science, electrical engineering, University of Virginia.

Jacob Walker Jr., Facilities Engineering Division, master of science, electrical engineering, University of Virginia.

The Employee Development Branch congratulates these individuals for the long hours and hard work necessary for this academic accomplishment. Such work not only brings additional expertise to Langley but also enhances the individual's professional growth and career development.

Employees interested in pursuing an advanced degree on a full-time basis or having questions about the Center's Graduate Study Program should contact the Employee Development Branch at ext. 42594.

The Committee on Advanced Study will meet in April or May to review all full-time graduate study requests for the new academic year.

Langley Team Finishes As Finalist In Contest For Inventor Of Year

A Langley team that created a catalyst for carbon monoxide oxidation finished as a finalist in NASA's Inventor of the Year competition.

Team members include Dr. Billy T. Upchurch, Patricia P. Davis and David R. Schryer, of the Aerodynamics and Thermodynamics Measurement Branch, Instrument Research Division; Dr. Kenneth G. Brown, the late Dr. John D. Van Norman and Erik J. Kielin, Old Dominion University Research Foundation; and Irvin M. Miller, Science and Technology Corp.

Langley's nominees found a way to keep pulsed CO_2 lasers operating continuously. Such lasers have potential space-based applications that require long-life laser operation.

However, the electrical discharges frequently used to energize the lasers decompose some of the CO_2 to CO and O_2. This can adversely affect laser performance, resulting in power loss or complete failure.

In ground-based applications, this problem is overcome by adding fresh laser gas and exhausting decomposition products – a process not practical in space.

The answer for space applications is to catalytically recombine the decomposition products to regenerate CO_2. Langley's nominees achieved this by producing high-efficiency oxidation catalysts. The novel catalyst includes platinum, a reducible metal oxide with multiple valence states – for example, SnO_2 – and a compound that can bind water, such as silica gel. Its efficient CO_2 recycling will allow the laser aboard NASA's Laser Atmospheric Wind Sounder, which measures global winds from orbit, to operate continuously for five years.

Schryer said the Langley team cannot be considered the original inventor of the Pt/SnO_2 catalysts, but, "we were the first ones to identify them as a class and to determine the importance of traces of water to achieve high activity at low temperatures.

"Also, there is enormous potential for these catalysts far beyond lasers," Schryer said. "The possibilities this opens up are tremendous."

The invention can be applied to any CO_2 laser as well as to gas masks and low-temperature air purification in closed environments such as submarines. It can remove CO and other automobile exhaust gas constituents during and shortly after engine startup.

The Langley team is one of five finalists in the NASA's 17th Inventor of the Year competition.

Tied as winners are Johnson Space Center, for a rotating bioreactor cell culture apparatus, and Marshall Space Flight Center for a sprayable lightweight ablative coating.

All of the inventions were patented and/or commercially available in 1991.

Astronaut Conrad To Discuss Space Travel Options In Colloquium, Sigma Lectures

Conrad

What will be our next venture into space and how will we get there?

Astronaut Charles "Pete" Conrad will discuss space travel and future space transportation systems in two lectures Monday, April 6. The lectures commemorate the scheduled opening of the Virginia Air and Space Center on April 5 and are in conjunction with International Space Year, the worldwide celebration of humanity's venture into space.

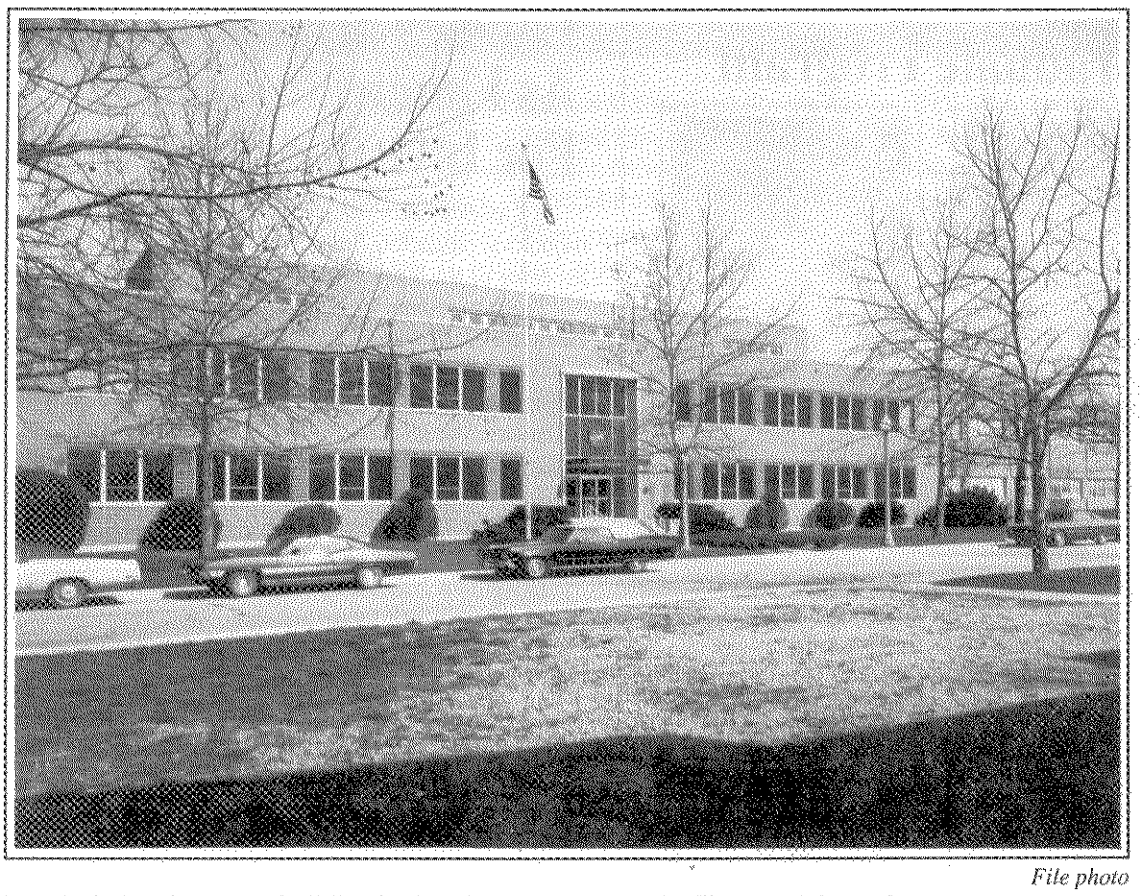
At 2 p.m., Conrad, vice president for new business for McDonnell Douglas Space Systems Co., will speak on "Delta Clipper, From the Sea to the Stars." The lecture will be given to Langley employees, retirees and contractors during a colloquium in the H.J.E. Reid Conference Center, 11 Langley Boulevard.

The lecture will address the past, present and future of space travel and colonization.

At 7:30 p.m., Conrad will present the first Sigma Series lecture in the new Virginia Air and Space Center in Hampton. His talk is titled "Space Transportation – The Next Generation." On display at the center is the Apollo XII command module that Conrad commanded for the nation's second landing on the moon. The Sigma Series is a series of free public lectures sponsored by the Virginia Air and Space Center, the Daily Press and NASA.

In the afternoon lecture, Conrad will discuss the competitiveness issue facing the U.S. launch vehicle industry and will present one of the many solutions being pursued. Future launch systems will be outlined and one high potential system, the Delta Clipper single-stage-to-orbit vehicle, will be discussed in detail.

Conrad's evening lecture addresses the past, present and future of space travel and future colonization. Conrad will also discuss the research and development of the single-stage-to-orbit vehicle, scheduled to fly as a prototype in the spring of 1993. Conrad believes the vehicle represents the next generation of space travel. Conrad's first flight was Gemini V and he commanded Gemini XI, Apollo XII and Skylab I.



File photo

Langley's headquarters building in the 1970s, when a road still passed the main entrance.

Headquarters Was Aircraft Loads Laboratory

THEN AND NOW

BY ALLAN C. HANRAHAN

Langley's headquarters building, like many others at the Center, had a different use when it was built in the early 1940s – it was the Aircraft Loads Laboratory.

Construction of the building began in 1943 and was completed in May 1945, for an initial cost of just over $225,000. The 21,208-square-foot building has a steel truss and concrete roof, brick walls and concrete floors. It was built by Endenbrock-White Co. Inc. and Virginia Engineering Co. The latter firm, now known as Basic Construction Co., has been very active at Langley.

The building has been altered internally over the years, particularly in late 1956, when it was converted to its present use.

Significant exterior changes were made in 1966, when a two-story addition was built on the northeast end of the building and the front entrance replaced.

Window improvements in the late 1980s altered the building's appearance considerably. An entrance ramp for the disabled was added in November 1982.

Brown Bag Seminar: Beware The Toxins Of Summer

HEALTH CORNER

BY DR. WAYNE HEGGAN

Summertime brings us gorgeous weather, but while we enjoy these carefree balmy breezes, we must still consider some unpleasant and even dangerous companions in the outdoors – such as bees, spiders and poison plants. The topic will be addressed at a Brown Bag Seminar at noon April 2 in the cafeteria addition.

Insects, the most prevalent creatures on Earth, will find their way into almost any location, and because they are cold-blooded, they become more active with warm weather.

The black widow and brown recluse spiders have especially venomous bites. Black widow bites produce headache, elevated blood pressure and severe abdominal cramping, but are rarely fatal. Brown recluse bites are usually intensely painful and will often result in extensive ulceration at the site of the bite.

If either of these two bites is suspected, get medical help as soon as possible. A cold or moist compress applied to the bite often will provide temporary relief.

Bee stings are a different matter. There are two medical situations that can arise from a bee sting:

- Local pain, trauma and swelling,
- An allergic reaction that often causes profound shock and respiratory and/or cardiac arrest within a few minutes. The patient should be treated for shock and rushed to the nearest medical facility, with cardio-pulmonary resuscitation begun. Those with a bee sting allergy should have immediate access to a bee sting emergency kit.

The poison ivy plant produces a resin that causes a delayed but often severe hypersensitivity reaction. Poison oak and poison sumac also produce a similar resin, and usually anyone who is sensitized will react to all three agents. In a few hours to days, the affected area will begin to itch, swell and frequently break out in clear vesicles. Contrary to popular belief, if this fluid spreads to other areas of the body it will not cause the rash to spread. But contact with clothing contaminated by the resin can cause re-exposure. Washing with Fels Naptha soap immediately after exposure often deactivates the resin and prevents all or most of the customary discomfort.

So be careful in your outdoor exploits and summer will be a much more enjoyable experience. Note: VHS tapes and cassettes of each seminar will be available at the Learning Center.

Intercenter Spring Races Planned

The NASA Intercenter Competition-Spring Races will be held in April. The 10K races will be run April 6, 15, 21 and 30. The 2-mile races will be held April 9, 23 and 27. The races will start at 5 p.m. on Doolittle Road. Also, a 2-mile race will be held at noon, April 14 at the Bethel High School track. All NASA employees, retirees, on-site contractors and co-ops at work earn points for Langley by taking part. Walkers are welcome in all races. For more information, call Richard Shearer, ext. 47036.

Tennis Club Memberships Open

The Langley Research Center Tennis Club is getting organized for the 1992 season. Membership forms can be picked up at the H.J.E. Reid Conference Center, the bulletin board next to court 2 or by calling Tom Yager at ext. 41304. Annual dues are still $5 with league, ladder and tournament competition throughout the season. Plans are underway to resurface the tennis courts this spring.

FWP Tree Planting

Photo by Katie Reid

The Federal Women's Program Committee and some of the Senior Staff helped plant a Bradford pear tree near the headquarters building March 2 to kick off a month of events commemorating the Center's 75th Anniversary and Women's History Month. The tree is marked with a plaque bearing the Center's anniversary logo and the committee's logo. The Conservation Club and the AFGE Local 2755 donated the money for the tree. Shown above, from left, are Center Director Paul F. Holloway; Burnett W. Peters Jr., head of Equal Opportunity Programs; Donna Speller; Pamela Verniel; Deputy Director H. Lee Beach Jr.; Sandra Zumbrun; Mary Ann Smith; Patsy Campbell; Weldon Staton; Diane Forrest; Dona Gibbs; Judy Cottle; June Howell; and Ben Schlichenmayer.

Speaker Of The Year

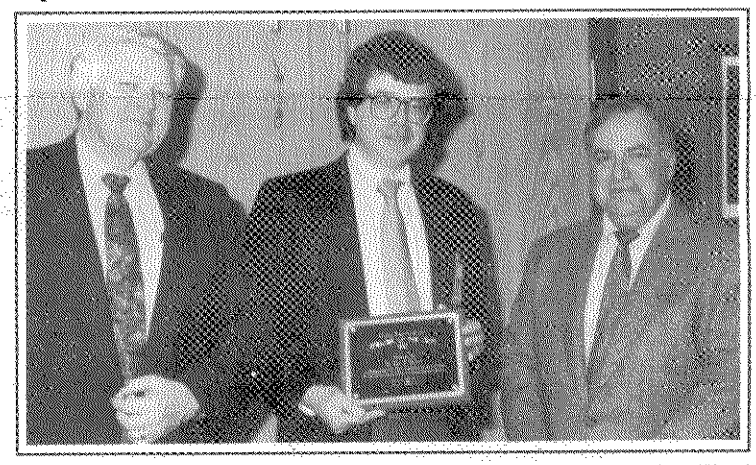


Photo by Don Ward

Dr. Joel S. Levine, Theoretical Studies Branch, Atmospheric Sciences Division, was named Speaker of the Year for 1991 at Langley's Speakers Bureau Recognition Ceremony. Flanking Levine are, left, Director for Space W. Ray Hook, and right, Center Director Paul F. Holloway.

Outstanding Property Custodian

Photo by Don Ward

Reuben A. Williams, Systems Validation Methods Branch, Information Systems Division (ISD), has been selected as Outstanding Property Custodian of the Quarter for the last quarter of 1991. He was presented with a certificate of appreciation by Ronald R. Krodel, chief of the Management Support Division, in a ceremony February 14. From left, H. Milton Holt, ISD chief; Krodel; Williams; and George B. Finelli, assistant head, Systems Validation Methods Branch.

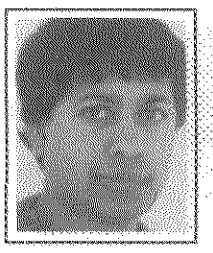
People & Places

IN PERSON

Balky Toilet Flushes Engineer's Reputation

BY RAMKI KRISHNAN

I may be a research scientist with a Ph.D in engineering, but my wife often wonders how I hold down my job. To her, a good mechanical engineer is a plumber, an electrician, and a carpenter all rolled into one. Whenever I disappoint her with my lack of prowess at odd jobs around the house, she sighs deeply, clearly anticipating the day my boss discovers my ineptitude and tells me to hit the bricks. Her confidence levels in my capabilities could be increased if I could figure out how to fix leaky faucets, repair rickety chairs, and replace blown light bulbs. And judging by the success of my recent efforts in fixing our faulty commode, that could take eons.



The commode in question is the one adjoining our bedroom and it started to act up a couple of months ago. At first, the sounds emanating from our bathroom were gentle sad sighs, like the ones my aunt Neela uttered when her son told her that his ambition in life was to emulate Dan Quayle. Two weeks later, the tone of the commode changed to a hissy spiteful noise. If we stuffed our ears with cotton, we could manage about four hours of nightmare-infested sleep.

My wife pleaded with me to get it fixed, but, being an incurable optimist, I decided to give the stricken appliance a little more time to heal itself. One evening, the noise from the bathroom transformed to a high-pitched screechy noise that had the neighborhood dogs howling their heads off. That night we slept not a wink, and I was finally convinced "Macbeth" (as we christened him that night) had to be fixed.

With daylight fueling my courage, I approached Macbeth warily and inspected his innards with a lot of thoughtful "Hmms" and "I sees' and threw in a few "Ah-Hahs." We men make these ritualistic vocalizations every time we open up appliances – especially the ones we have not the foggiest idea of how to fix. I fiddled with the big round thingamabob and bent back the rod attached to it. It snapped with a deafening crack that had my startled internal organs playing musical chairs.

I then twiddled with the doohickey that the rod attaches to and Macbeth's only response to my continued ministering was an increase in the decibel level of his screams. I gently tapped the doohickey with a hammer and Macbeth hit me in the left eye with a well-directed stream of water. I was convinced that this toilet was possessed and it was time for an exorcism. My wife, pooh-poohing my theories, called in a professional "engineer." The plumber waltzed into the bathroom and 30 seconds later had Macbeth completely muzzled. I asked if the commode had attacked him like it had me. He backed away, gave my wife a pitying look, collected his king's ransom and exited.

My wife turned to me with worried eyes, "I hope he does not meet your boss and ask him for a job," she said, "He certainly knows more about fluid dynamics." I was only half-listening to her because a distant yet familiar sound invaded my auditory canals. I could be wrong, but I thought I heard gentle, sad sighs coming from the spare bathroom.

Ramki Krishnan is a research scientist in the Theoretical Flow Physics Branch.

Wright Wins Value Engineering Award For Work On Tunnel

Henry S. Wright, Facilities Engineering Division, has been named winner of the Second Annual Value Engineering Award for his work as technical project engineer on the $4 million fiscal 1991 Construction of Facilities Project Modifications to Upgrade the 30- by 60-Foot Tunnel.

The $1,000 citation is "For initiative and leadership in applying Value Engineering principles in the reconfiguration of the High Pressure Air Systems for the Modifications to the 30- by 60-Foot Tunnel Project."

Wright's work eliminated a projected $800,000 overrun in the $3 million budget for the Model Propulsion High Pressure Air System Work Package. In addition, savings of $98,000 and 1,050 Operations Support Division man-hours are expected annually, along with a decline in noise pollution and waste oil generation – all while allowing for future expansion.

Wright was nominated for the award by Robert L. Swain, director for Systems Engineering and Operations.

NASA's Value Engineering Program is an effort to analyze the functions of hardware, software, services and facilities to achieve the lowest life-cycle cost consistent with required performance, reliability, maintainability, human factors, logistics, quality and safety. The program addresses both contracted and inhouse activities.

To nominate an individual for the next Value Engineering Award, submit a letter through line management to the Employee Relations Section, Employee Development and Services Branch, Mail Stop 129. Individuals and groups are eligible. Nominations will be considered through December 31 and the winner will be announced shortly afterward.

Photo by Katie Reid

Deputy Director H. Lee Beach Jr., right, presents the Value Engineering Award to Henry S. Wright. His work prevented a projected $800,000 cost overrun.

Langley To Play A Prominent Role In N.C. Spaceweek Activities

NASA's Community Involvement Program (CIP) will offer visitors a variety of activities April 6 to 15 during the Spaceweek celebration at the Lincoln County school system in North Carolina.

Lincoln County is one of four communities selected nationwide to host aeronautics and space activities and also will be the display site of Langley's space taxi, the HL-20 vehicle under consideration as a ferry for crew and passengers to Space Station Freedom. The full-scale model was built by engineers and students at North Carolina State University.

Highlights of the exhibit include: the Saturn V Rocket Model; a model of the National Aero-Space Plane (NASP); a rotating model of the Space Shuttle; moon rock replicas; an Apollo Command Module model; a photographic display on the theme "Aeronautics and Space: The NASA Story," a model of the Hubble Space Telescope; and a model of the Gemini capsule used to prepare for lunar missions.

The main exhibit will be at the Lincoln Cultural Center.

Among the activities, Langley aerospace specialist Lawrence J. Gilbert was scheduled to present seminars and take part in other events from March 23 to 27.

On March 24, Langley's Pete Thomas, educational program assistant, was scheduled to appear on WBTV Channel 3's midday *Top 'O The Day* show.

Other events:

- April 4, a "Voyage into the 21st Century" parade starting at 10 a.m., with Thomas as the grand marshal.
- April 5, a 2 p.m. ribbon-cutting at the cultural center, with Larry Bilbrough, a Headquarters aerospace educational services project officer, as speaker.
- April 6 to 15, the exhibit is open to school tours and the public. In addition, The Aerospace Education Specialist Program's "Spacemobilers" will present an assembly program in each public and private school.
- April 10, astronaut Fred Gregory will be at Catawba Springs Elementary School. He will return a medal, designed at the school, that he took on a Space Shuttle mission.
- April 11, Gregory and an official from the Young Astronauts Council will attend a luncheon hosted by Lincoln County Schools.
- April 11 and 12, a static air display and the space taxi will be at the Lincolnton-Lincoln County Airport.

February Speakers Bureau Report

The following individuals represented Langley through the Speakers Bureau during February:

Dr. Joel Levine spoke on "A Planet at Risk" at St. Luke's United Methodist Church in Yorktown, North Carolina Agricultural and Technical State University, Professional Engineers of North Carolina and Richmond Joint Engineers Council.

Dr. George Helfrich, Dr. Kimberlyann Bowmer and **Dr. Kevin Osborne** spoke on "Inventors – Patents, Trademarks, Copyrights" at the Peasley Middle School. **Helfrich** spoke separately on "Inventions and Their Protection" at the Gildersleeve Middle School in Newport News.

E. Thomas Hall Jr. spoke on "Materials Processing" at the Foundations of Technology Class, Peninsula Graduate Center and Norfolk State University Graduate Center.

Dr. Karen Jackson spoke on the "GA Full-Scale Crash Test Program" at Embry-Riddle University and on "Crash Dynamics" in five talks at Green Run High School in Virginia Beach.

Leroy Spearman spoke on "Five Decades of Aerospace Research" at the American Institute of Aeronautics and Astronautics Virginia Polytechnic Institute and State University Chapter.

Sharon Jones spoke during Career Day at the Reservoir Middle School in Newport News.

David A. Throckmorton spoke on "Advanced Space Transportation Systems" at the Chester Kiwanis Club.

Dr. Christine Darden spoke on "Aerospace in the 21st Century" at Hampton University.

Charles McClinton spoke about the National Aero-Space Plane at the Mid-Continent Space Development Conference in Ames, Iowa.

Bill Hood spoke on "Lasers and Optics" in five talks at the Jefferson Davis School in Hampton.

Michael Scott spoke on "Careers and Space Research and Shuttle Biological Experiments" in two talks at Butts Road Primary School in Chesapeake.

Dan Vicroy spoke during Career Day at Poquoson Primary School.

LFCU's Annual Meeting To Celebrate Center's 75th

Langley Federal Credit Union will commemorate the Center's 75th Anniversary at its annual meeting Saturday, March 28, at the Hampton Holiday Inn Conference Center. Jim Kincaid, of WVEC-TV, will be the keynote speaker.

Also on hand will be Center Director Paul F. Holloway and Congressman Herbert Bateman. The meeting is open to members only.

Employee Awards

The following employees have received cash awards for job performance:

Jeanne K. Buchanan, office systems technology student trainee, Structural Mechanics Division (SMD), for outstanding achievement in support of the division during the absence of the division secretary.

Jerry C. South Jr., chief scientist, Fluid Mechanics Division (FldMD), for the development of the Computational Aerodynamics Branch.

Dennis M. Bushnell, senior scientist for viscous flows, FldMD, for the development of the hypersonic airbreathing propulsion performance enhancement (HAPPE) program.

Randy A. Manning, program analyst, Acquisition Division (AD), for outstanding contributions to the Occupational Medical Support Services Source Evaluation Committee.

Roscoe C. Edge, labor relations specialist, AD, for outstanding contributions to the Occupational Medical Support Services Source Evaluation Committee.

Peter J. Edgette, health manager, AD, for outstanding contributions to the Occupational Medical Support Services Source Evaluation Committee.

Cathryn L. Murray, management analyst, AD, for outstanding contributions to the Occupational Medical Support Services Source Evaluation Committee.

Neil G. Price, contract specialist, AD, for outstanding contributions to the Occupational Medical Support Services Source Evaluation Committee.

Debra H. Sherman, contract price/cost analyst, AD, for outstanding contributions to the Occupational Medical Support Services Source Evaluation Committee.

Susan L. Lilly, management assistant, AD, for outstanding contributions to the Occupational Medical Support Services Source Evaluation Committee.

Cecelia G. Grzeskowiak, technical information specialist, Research Information and Applications Division (RIAD), for exceptional performance in increasing productivity and service within the interlibrary loan functional area, reference services section, of the Technical Library Branch.

Antoinette L. Lynch, secretary, RIAD, for exceptional performance in increasing productivity and service within the Technical Library Branch.

Earl E. Williams Jr., general lithographer, RIAD, for continued excellence and contribution of craftsmanship rendered in the production of technical reports and other printing for Langley and NASA headquarters.

Joyce A.C. Bartlett, loan office, Management Support Division (MSD), for superior service in ensuring that appropriate control and accountability is established for loans at Langley.

Tammy L. Spellman, secretary, Director for Electronics, for exceptional performance and dedication in support of the secretarial operations within the Electronics Directorate.

Gale Sharon Fairheart, administrative officer, Director for Electronics, for dedication and professional administrative services provided to the Electronics Directorate.

Leonard V. Clark, ADP officer, Director for Electronics, for outstanding management in the area of Information Resources Management.

L. Frederick Tomlinson, production controller, Fabrication Division (FD), for excellence in monitoring and coordinating the manufacture of research hardware.

Robert Miserentino, Structural Dynamics Division (SDyD), for outstanding achievement in managing the Spacecraft Structural Dynamics Branch's research facilities during an extended period of intense, high priority test activity in 1990-91.

Vickie Robideau, stay-in-school clerical, Materials Division (MD), for outstanding dedication in performing research branch clerical duties on an interim basis.

Donna L. McIntosh, secretarial co-op, Facilities Engineering Division (FEngD), for exceptional dedication in support of the Facility Systems Branch clerical activities.

Virginia Cordle, technical resources analyst, Programs and Resources Division (PRD), for exceptional service in performing duties in a professional and thorough manner.

Michelle A. Kattan, aerospace technologist, technical management systems, Projects Division (PD), for superior effort and accomplishment in the development of the SAFIRE logic networks and schedule analysis.

Carolyn D. Reaves, employee relations clerk, Human Resources Management Division (HRMD), for outstanding accomplishment in support of the Langley employee benefits program.

Shaun B. Reno, engineering technician apprentice, Operations Support Division (OSD), for exceptional support to research activities conducted at the Aircraft Landing Dynamics Facility, Bldg. 1262.

Joan Taylor Wright, infrared systems engineer, Flight Management Division (FltMD), for high quality support of the AWAS instrument and associated software in preparation for and during remote windshear experiments.

Sandra C. Mims, funds control assistant, FltMD, for highly efficient and rapid turnaround of experimental data gathered during the Orlando Windshear Experiment.

Fred H. Proctor, research engineer, FltMD, for excellence and outstanding service as research meteorologist during the 1991 Orlando and Denver windshear deployments.

William R. Jones, electronics engineer, Guidance and Control Division (GCD), for superior performance through the experimental research flight tests of AMRB's airborne Doppler radar sensor and for determining the feasibility to detect hazardous wind shear.

Philip R. Schaffner, electronics engineer, GCD, for superior performance through the experimental research flight tests of AMRB's airborne Doppler radar sensor and for determining the feasibility to detect hazardous wind shear.

Steven D. Harrah, electronics engineer, GCD, for superior performance through the experimental research flight tests of AMRB's airborne Doppler radar sensor and for determining the feasibility to detect hazardous wind shear.

Emedio M. Bracalente, electronics engineer, GCD, for superior performance through the experimental research flight tests of AMRB's airborne Doppler radar sensor and for determining the feasibility to detect hazardous wind shear.

Robert J. Balla, aerospace technologist, optical physics, Instrument Research Division (IRD), for exceptional performance in designing and operating the Rayleigh scattering apparatus for the NASP mixing augmentation tests in the Mach 6 HRN facility.

Linda R. Smith, clerk-stenographer, Director for Electronics, for outstanding secretarial support to the staff.

Sharon S. Welch, aerospace engineer, GCD, for superior performance in technical creativity, management and leadership leading to the successful development of an Advanced Optical Measurement System.

E. Bruce Jackson, aerospace engineer, GCD, for superior performance in the conduct of real-time-piloted simulation studies of the approach and landing task of the Langley HL-20 lifting body configuration.

Barbara A. Yeager, recorder, FEngD, for exceptional support to the Engineering Support Services Contract Source Evaluation Board.

John K. Molloy, technical assistant, Director for Aeronautics, for contributions to the NASP government work packages and Langley's wind tunnel revitalization program.

Tricia L. Smith, secretarial co-op and clerical assistant, FEngD, for outstanding performance in support of the clerical functions of the division.

Michael D. Uenking, engineering technician apprentice, for exceptional service to the Mechanical Engineering Section, and, in particular, his continued self-development and assistance to others in the use of AutoCAd.

Mary Morgan C. Hunter, program analyst, Facilities Program Development Office, for dedicated support in helping to achieve successful contract/contractor transition for the Center's Support Services Contract.

Davy A. Haynes, aerospace technologist, HRMD, for exceptional service in quick response studies in support of the SEI program.

Humbert E. Rockey Jr., engineering contract specialist, FEngD, for exceptional service as COTR for the engineering support services contract, NAS1-18400, and for outstanding support of the Award Fee Evaluation Board and the Source Selection Board for the follow-on contract.

Sheila D. Johnson, secretary, Atmospheric Sciences Division (ASD), for sustained superior performance as secretary of the Theoretical Studies Branch.

James I. Richardson, section head, OSD, for excellent leadership in providing effective lines of communication to improve the productivity and mission of the Work Control Section.

K. Elliott Cramer, aerospace technologist, IRD, for exceptional contributions to the development of experimental technologies for thermal NDE and for successful application of the technique to aging aircraft fuselages.

James W. Baldwin, apprentice electronics technician, IRD, for outstanding performance in the development of an automated, portable pressure calibration system for hypersonic facility applications.

Behrooz Shirinzadeh, aerospace technologist, optical physics, IRD, for exceptional service in performing the optical design and analysis of the NASP mixing augmentation tests in the Mach 6 HRN facility.

Bruce W. Barnes, electronics technician, IRD, for exceptional performance in implementing the test section optical access designs and for set-up of the Rayleigh apparatus for the NASP mixing augmentation tests in the Mach 6 HRN facility.

Mervin E. Hillard Jr., aerospace technologist, optical physics, IRD, for exceptional performance in the experimental design, analysis, and computer display of Rayleigh data for the NASP mixing augmentation tests in the Mach 6 HRN facility.

Willard R. Weaver Jr., technical assistant, HRMD, for outstanding contributions in coordination and preparation of the Center's FY '92 Integrated Program Plan.

Carolyn H. LeDuc, mathematician, Analysis and Computation Division (ACD), for superior accomplishments in the design and management of ACD's Computer Resource Management System.

Gerry L. McAninch, aerospace engineer, Applied Acoustics Branch, for excellence in leadership in the area of sonic boom propagation in the atmosphere.

Sandra S. Chaney, secretary (stenographer), Systems Engineering and Operations, for exemplary service in the Systems Engineering and Operations Directorate Office.

John W. Fogle, engineering technician, FD, for exceptional contributions to the HL-20 project.

A. Bruce Clark, electrical engineer, FEngD, for outstanding performance and contributions in support of the design and installation of projects for the upgrade of Langley's Power Distribution System.

John W. Kirtley, electrical engineering technician apprentice, OSD, for excellence in replacing the oil flow meters at the Unitary Wind Tunnel.

LaMont A. Hinton, college aide-clerical, OSD, for exceptional achievement in fulfilling his duties in the Work Control Section.

Dr. James N. Moss, senior researcher, Space Systems Division (SSD), for technical leadership in the advancement of the Direct Simulation Monte Carlo method for rarefied gas dynamics.

Michael L. Carr, electrical engineering technician, OSD, for excellence in providing high level support for the redesign and installation of flare stack ignitor system for the 8-Foot High Temperature Tunnel Rehab Project.

Charles D. Bailey, engineering technician, Systems Engineering Division (SED), for sustained exceptional support to the development of the LITE project.

George B. Whitehurst Jr., aerospace engineer, SED, for outstanding innovation, dedication and technical leadership in support of the Lidar In-space Technology Experiment (LITE).

Norma F. Davis, secretary, SED, for outstanding support as recorder for the Design and Fabrication of Aerospace Model Systems and Developmental Test Hardware Source Evaluation Board.

Employee Awards

Holly M. Ross, research engineer, Flight Applications Division (FAD), for research in developing and documenting active forebody flow control to provide desired control characteristics for advanced configurations.

Kamran Daryabeigi, electronics engineer, IRD, for exceptional contribution to development of the infrared technique for off-surface flow visualization of aerodynamic phenomena in the PA-28 research flight program.

David W. Alderfer, electronics technician, IRD, for exceptional contribution to the development of the infrared technique for off-surface flow visualization of aerodynamic phenomena in the PA-28 research flight program.

Robert E. Wright Jr., electronics engineer, IRD, for exceptional contribution to the development of the infrared technique for off-surface flow visualization of aerodynamic phenomena in the PA-28 research flight program.

Robert E. Wright Jr., aerospace technologist, IRD, for superior achievements in the advancement of thermal measurements technology.

Stephen E. Borg, electronics engineer, IRD, for exceptional contribution to the development of the infrared technique for off-surface flow visualization of aerodynamic phenomena in the PA-28 research flight program.

John L. Allen, aerospace technologist, Space Station Freedom Office, for outstanding performance in establishing and implementing systems commonality tasks in support of the OSSA Microgravity Science and Applications Program.

William T. Bundick, aerospace technologist, GCD, for sustained superior performance in the development of an adaptive failure detection and identification system for detecting aircraft control element failures.

Paul J. Hayes, aerospace technologist, electronics of materials, ISD, for leading the team that delivered the first VHSIC multicomputer with predictable execution of tasks in data-flow structure.

William T. Suit, aerospace technologist, GCD, for outstanding performance in the development and evaluation of aerobrake guidance concepts for lunar-and-Mars-manned missions.

Robert L. Wright, aerospace technologist, science missions, Space Station Freedom Office, for consistently providing quality technology guidance and programmatic support for earth-orbiting programs and the manned Mars and lunar initiatives.

Charles A. Baldwin, aerospace engineering technician, SED, for outstanding technical performance and continuous dedication to the Lidar Atmospheric Sensing Experiment (LASE) and Titanium:Sapphire Projects.

Robert D. Brown, industrial hygienist, Systems Safety, Quality & Reliability Division (SSQRD), for contributions to the Langley environmental compliance program.

Lois D. Collier, lead accounting technician, Financial Management Division (FMD), for quality performance in controlling the appropriated funds transactions for this center.

Edna C. Cox, editorial assistant, RIAD, for essential service to the NASA Scientific and Technical Information Program in preparing covers and proofreading technical reports.

Stephen E. Devan, personnel staffing and classification specialist, HRMD, for exceptional contributions and dedicated personnel staffing and classification services.

Joseph M. Drozdowski, mathematician, ACD, for outstanding technical performance resulting in significant improvements to productivity and cost effectiveness of Langley's Central Scientific Computing Complex.

Barbara B. Eutsler, secretary, Structural Mechanics Division (SMD), for providing outstanding administrative and secretarial support to the division during a time of management transition.

Judith W. Hoyle, secretary, 8-Foot High Temperature Tunnel Shakedown Project Office, for exceptional high performance in establishing files and carrying out secretarial duties for the office.

Robert J. Huston, special assistant, Structures Directorate, for exceptional performance in implementing the Structures Directorate technical program.

Cecil E. Nichols Jr., materials research engineer, FEngD, for continuous technical support in providing innovative "Seeding Delivery Systems" for the Laser Velocimeter Systems.

Henry G. Parker, aerospace technologist, experimental facilities development, FEngD, for providing outstanding administrative support for the Card and Barnwell Committee in obtaining the necessary technical resources to complete these activities.

Tony L. Parrott, aerospace engineer, Acoustics Division (AcoD), for quantifying unsteady pressure loads in scramjet engines under unprecedented conditions of high temperature and hypersonic grazing flow.

Edward P. Phillips, aerospace technologist, Materials Division (MD), for exemplary technical contributions to the Aging Aircraft research program including the development of a biaxial fatigue testing system.

David S. Shaw, aerospace technologist, Applied Aerodynamics Division (AAD) for exceptional performance acquiring and processing data for Supersonic/Hypersonic Aerodynamics Branch Facilities.

Linda W. Sutherland, secretary, AcoD, for providing outstanding administrative and secretarial support to the division and associated professional organizations.

Carolyn V. Snead, secretary, Fluid Mechanics Division (FldMD), for outstanding performance in providing secretarial support to the Experimental Flow Physics Branch research staff and management.

James R. Thomas, engineering technician, FD, for outstanding contributions to the Powder Metallurgy Aluminum Alloy Program.

Charlotte W. Tyeryar, secretary, Structures Directorate, for outstanding achievement in providing administrative support to the office.

Jimmy W. Usry, aerospace technologist, aerospace engineer, FAD, for leadership and coordination of the development of the Doppler Global Velocimetry concept for flight test applications.

Judy M. Wainwright, secretary, SSQRD, for continued outstanding performance in providing administrative and clerical support to the division, assisting in successful accomplishment of the organizational mission.

Ralph D. Watson, aerospace engineer, FldMD, for outstanding leadership in experimental turbulence and transition research, especially in hypersonic boundary layers.

Carolyn C. Wilt, secretary, Office of Director for Flight Systems, for consistent excellence and outstanding judgement.

Dennis L. Dicus, aerospace technologist, Materials Division (MD), for exceptional service and technical contributions to the development of titanium matrix composites for the National Aero-Space Plane and generic hypersonic vehicle airframe structures including fiber development, direct consolidation of blended titanium intermetallic matrix composites, and processing and joining technology.

Goldie C. Smith, secretary, ASD, for providing very high quality secretarial and administrative support to the division.

William I. Scallion, aerospace engineer, Space Systems Division, for innovation and technical maturation of Advanced Hypervelocity Aerophysics Facility (AHAF) concept - ultimate aerodynamic/aerothermodynamic ground-based test capability.

Granville L. Webb, aerospace engineer, Structural Dynamics Division (SDD), for outstanding management of the aircraft landing dynamics facility during simultaneous testing of the surface traction and radial tire program and the simulated heavy rain program.

Carolyn C. Eby, branch secretary, Systems Architecture Branch, for superior secretarial and administrative support in the planning and execution of a successful peer review in reliable software research for the branch.

Jean G. Cridlin, secretary, ASD, for excellent secretarial support to the Radiation Sciences Branch.

Alfred G. Beswick, aerospace technologist, FED, for many key contributions to the space program and to the Langley research and development programs.

Evelyn D. Harris, personnel staffing and employee development specialist, Human Resources Management Division (HRMD), for exceptional service in support of the Center through recruitment of the highest caliber of minorities and females into the Cooperative Education Programs.

Arlene R. Mitchell, resource control assistant, Flight Electronics Division (FED), for outstanding individual contributions in the LASE Program Replan.

Angela M. Davis, secretary, FED, for outstanding individual contributions to the division.

Antoinette W. Releford, secretarial support, FED, for exceptional service in providing secretarial support for the Flight Instrumentation Branch, including a large quantity of project documentation of the CLASS and RAME flight instruments.

Peter J. LeBel, electronics engineer, FED, for outstanding individual contributions to the development and testing of the DARE (Denuder Atmospheric Research Experiment) for in-situ measurement of trace atmospheric species.

Jane C. Leffel, secretary, FED, for outstanding individual contributions made to the Laser Technology and Applications Branch and division offices.

Jessica E. Dail, secretary, FED, for outstanding individual contributions to the division.

Joseph J. Howell, computer specialist, FED, for outstanding technical leadership and management contributions that led to effective conversion of the Rarefied-flow Aerodynamic Measurement Experiment to an in-house development.

Stephen G. Jurczyk, electronics engineer, FED, for technical leadership of the Spaceflight Optical Disk Recorder Controller Development effort, and the preparation of the Statement of Work for the Drive Development contract.

William C. Edwards, electronics engineer, FED, for outstanding individual contributions to the LASE and Ti:Sapphire breadboard demonstration.

Richard E. Campbell, electronics engineer, FED, for outstanding leadership and management contributions that led to exceptional progress in the conceptual development and selection of the Ti:Sapphire laser subsystem for LASE.

Carroll D. Lytle, electronics engineer, FED, for excellent performance and flight instrumentation contributions to the Transport High Lift Flight Research Project.

Charles R. Hyde, electronics engineer, FED, for excellent performance and flight instrumentation contributions to the Free-Flight Drop Model Research Program.

Michael P. Blythe, electronics engineer, FED, for outstanding technical leadership and management contribution which led to exceptional progress of the Lidar In-space Technology Experiment Electronics Subsystem.

John L. Singleton, electrical engineer, Facilities Engineering Division (FENGD), for outstanding performance and contributions in support of the design and installation of various Construction of Facility projects.

Cathy Dunn, clerk/typist, FENGD, for outstanding performance in the administrative support of the Facilities Utilities Section.

Dorsey E. Whitehill, mechanical engineering technician, FENGD, for dedicated service to the 8-Foot High Temperature Tunnel Project in managing and coordinating the transpiration cooled nozzle repair program.

Dolores W. Thomas, computer systems analyst, Business Data Systems Division (BDSD), for exceptional support of the payroll system and significant contributions in the acceptance testing of the NASA Personnel Payroll System.

Michael C. Garula, computer systems analyst, BDSD, for exceptional performance and contributions in the design, development, and implementation of agency-wide systems and Langley uniques.

Charles E. McCormick, civil engineer, FENGD, for outstanding project management for the Light Alloy Research Laboratory.

Happenings

RIDE NEEDED to Langley from Easterly Avenue (near the corner of Mercury Boulevard and King Street). Work schedule is 7:30 a.m. to 4 p.m. but will come in earlier if necessary. Call ext. 46664 during the day or 723-4799 at night.

CAR SALE: 1972 MG Midget, needs work, or use for parts. Best offer. Call Paul Link, 930-2634.

HOME SALE: Roberts Trace/ Northampton area, 43 Roberts Trace. A 1,460-square-foot energy saver home built in 1986; 3 large bedrooms with spacious closets, 2 baths, laundry area, country kitchen with bay window, great room/dining area 14 by 26, attached garage, fenced backyard on cul-de-sac. Asking $96,900, will pay $2,000 toward closing costs. Call 838-8422.

A DANCE sponsored by the Alumni Association will honor the April 5 opening of the Virginia Air and Space Center. The April 4 event starts at 8 p.m. at the H.J.E. Reid Conference Center and features the Charley Johnson Band. Admission free, everyone invited. For reservations call Abe Leiss, 877-2939.

VOLUNTEERS are needed to help build Fort Fun, a handicapped-accessible playground at Huntington Park in Newport News. Volunteers are needed April 29 and 30 and May 1, 2 and 3 to build, serve food and provide child care. Call 595-5462 or 599-6299.

FOUND: In NASA gym, a reversible, cut-through jersey, "Paul's 45," purple on one side, gold on the other. Call ext. 43369 or 826-8610.

BED SALE: 4-poster bed, king, includes head/foot board, side rails, solid pine, great condition, $200 or best offer. Call 451-0160 (Norfolk), leave message.

THE FEDERAL WOMEN'S PROGRAM COMMITTEE will meet Wednesday, April 8, at 8:30 a.m. in the H.J.E. Reid Conference Center, Hampton Room.

CAR SALE: 1970 Plymouth Barracuda – hot rod material, many new parts, no engine or transmission, $500 or best offer. Call Dave, 865-6281.

RIDE NEEDED from the Wythe area of Hampton, mornings only, beginning May 18. Call R. Norman, 723-0205 after 5 p.m.

AIRPLANE TRAINER SALE: Model PC, already built, PT electric with radio, batteries, chargers, instructions, VHS video, $150. Call Bill, 838-8820, after 5 p.m.

BOAT SALE: 17-foot Folboat, super model with paddle, cushions and life preservers. Red top, white hull. First $350 takes it all. Call 898-8459 after 5 p.m.

DISABLED PERSONS Satellite Committee will meet from 8:15 to 9:30 a.m. April 9 in the cafeteria, 16 West Taylor Road. The meetings are open to all employees and contractors or anyone interested in the Disability Program.

BIKE SALE: 26-inch men's Boss Cruiser bicycle in excellent condition, $150. If you like riding, you'll like this bike. Call Rita at 874-5478.

INCOME TAX PREP. Please call and leave name and phone number for appointment. Nancy Taylor, 723-5227.

LAA SPRING FLING social hour will be held Friday, April 10, from 4 to 8 p.m. Music will be provided by D.J. Mark Bradley. Cover charge is $1.

FRENCH EXCHANGE STUDENTS need good families to house them from July 13 to August 10. Students are prepaid and have their own money. Call Julie Harper, 865-6915, by the May 1 deadline.

TOASTMASTERS meets the second and fourth Wednesday of each month from 11:30 a.m. to 1 p.m. The next meeting is April 8 in Building 1222.

ASTRONOMY NIGHT. The Skywatchers Astronomy Club will host a telescopic viewing Friday, April 10, from 8 p.m. to midnight at the club observatory, 10 Lindbergh Road. A variety of telescopes will be set up for use. For more information, call Marilyn Ogburn, ext. 41175.

SATURDAY AEROBICS IS BACK! 9:30 to 10:30 a.m. in the Activities Center. Cost is $6 a month. Call ext. 42295.

BIFOCALS FOUND in brown case in IRD parking lot. Translucent gray frames. Call Tom Mcintosh, ext. 44676.

PROM GOWN: Full-length, worn twice. Pink with white lace. Size 10. Asking $175 or best offer. Call Tracey, 868-6182 after 5 p.m.

LOW-IMPACT AND BENCH AEROBICS classes are held Tuesdays and Thursdays, 5 to 6 p.m., LAA gym. Cost is $12 per month or $6 per month if attending only one day a week. The classes are open to employees, contractors and their families. Call ext. 42295.

TELA TAX SERVICE, a member of the National Association of Tax Practitioners. Electronic filing and small-business bookkeeping. By appointment. Call 874-3121.

BODY DYNAMICS. High-energy, low-impact aerobics classes held Mondays, Wednesdays and Fridays, 6:15 a.m., LAA gym. Classes free and open to civil servants.

COUPON BOOK SALE: The Child Development Center's PTA will sponsor its Annual Coupon Book Sales from March 30 to April 13. Cost is $8 each. Proceeds are contributed to educational supplies and playground eqquipment. For more information, call ext. 44827 or stop by at 8 Lindbergh Road (next to the Hangar).

Fax ads to ext. 46333 or 48199, or send to Mail Stop 115. Include name and phone number.

Kennedy Space Center photo

The Endeavour, the nation's newest orbiter, is rolled from Kennedy Space Center's Vehicle Assembly Building and moved the three miles to Launch Pad 39-B. The Shuttle is scheduled for launch in May. One experiment to be performed by astronauts is the Assembly of Station by EVA Methods (ASEM) flight experiment, managed by Johnson Space Center. Astronauts will go outside the orbiter and erect a truss pyramid using truss joints designed and built at Langley.

Researcher News

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Researcher News

Bi-weekly Employee and Contractor Publication

Volume 6 ❖ Issue 6 ❖ April 10, 1992

Students Aim Paper Planes At Guinness Record

Chalk up another one for the record books — this one for the world's largest paper airplane.

Aided by Langley and contractor engineers and the American Institute of Aeronautics and Astronautics (AIAA), students from four local high schools are aiming for a place in the Guinness Book of World Records with a 114-foot, 9-inch flight by a paper airplane with a wingspan of 30 feet, 6 inches.

The March 25 event took place in the hangar, where students broke the record twice before setting the final milestone with a handmade aircraft weighing less than eight pounds. The record they broke had been set by a paper plane with a 16.4-foot wingspan that glided 85 feet, 6 inches.

Launching from a 10-foot-high platform, the Hampton students first broke the record with a flight of 103 feet, 9 inches using a plane with a wingspan of 24 feet, 3½ inches. The second record, 106 feet, 2 inches, was set with an airplane with a wingspan of 28 feet, 3 inches.

Students and teachers from Bethel, Hampton, Kecoughtan and Phoebus high schools participated, along with members of the AIAA Hampton Roads Section and the Virginia Air and Space Center. Together they designed and built the airplanes entirely of paper, adhesives and tape.

Project coordinator Ferdinand W. Grosveld, of Lockheed Engineering and Sciences Co., said that while it was nice to break the record, the real point of the effort was the educational value.

As part of the project, students took part in a study trip to the National Air and Space Museum in Washington, D.C., to learn about state-of-the-art paper airplane design. At Langley, they visited a subsonic wind tunnel during testing of an aircraft model, learned about 3-D interactive computer-aided design and rode in a flight simulator. Virginia Soaring Inc., provided soaring rides to give participants the experience of flying without propul-

Please see **RECORD**, *Page 2*

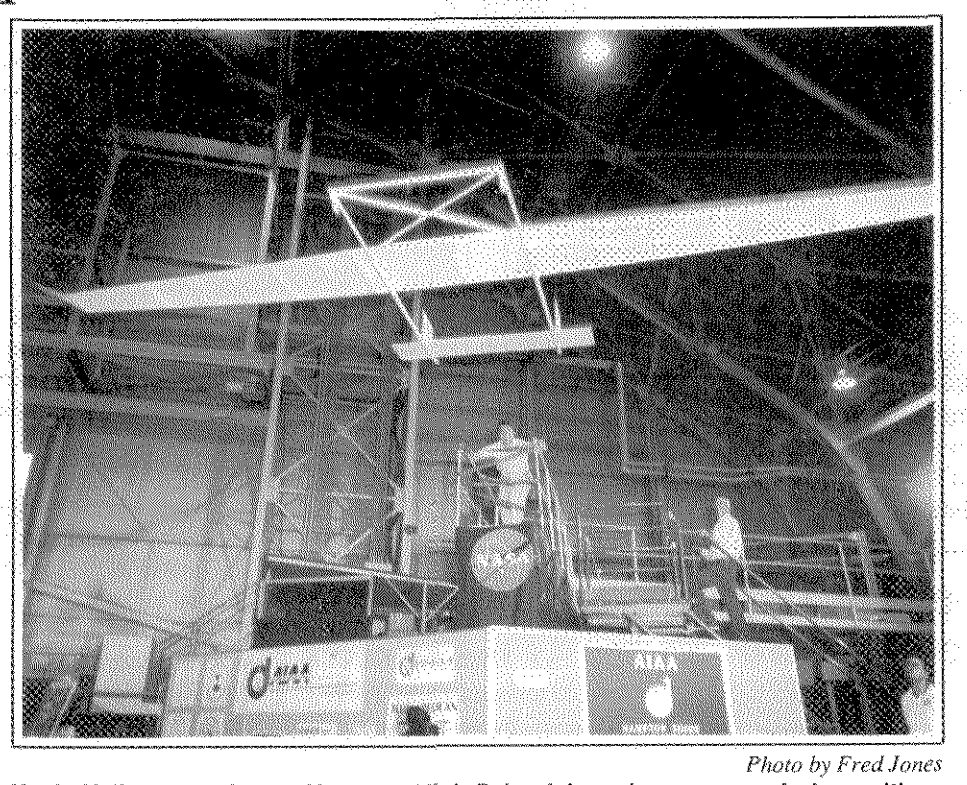


Photo by Fred Jones

Kevin Kelley, a student at Hampton High School, launches a paper airplane with a 28-foot, 3-inch wingspan. It flew 106 feet, 2 inches.

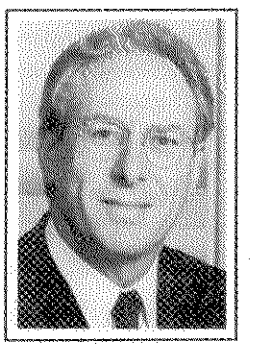
ON THE INSIDE

⊠ For a complete listing of the recipients of Langley's H.J.E. Reid Award and NASA's Honor Awards, see Page 3.

⊠ Confused about recycling on Center? See Page 7.

Goldin Urges NASA To Give More For Money

In his first public act as NASA's ninth administrator, Daniel S. Goldin challenged the agency to "go better, higher" and improve the nation's competitive stance in aeronautics and space. "Americans must prepare for a new century in which aeronautics and space will play an even greater role in our national and world economy," he said in an April 1 talk on NASA Select TV.



Daniel S. Goldin

"NASA must continue its leadership and mastery in both air and space. NASA must push the limits, go to the edges of technology to enable a successful execution of our missions, and NASA must continue to transfer these technologies to the private sector, not hold it to the chest but really reach out to ensure that America is competitive in the world marketplace.

"The American taxpayer has

Please see **GOLDIN**, *Page 2*

When He's Told To Go Fly A Kite, This Engineer Is Happy To Oblige

Charlie Dunton has crafted kites sporting the visages of Uncle Sam, the Statue of Liberty, Yoda, Chief Sitting Bull, a tiger, a falcon and a fortune teller. This year, the Langley aerospace technologist decided on a kite that would honor the Center's 75th Anniversary.

He came up with a design featuring a large "75" and the likenesses of Dr. Samuel Pierpont Langley, the Wright brothers and Alan Shepard. Dunton hoped he and the kite would return home with a prize from the Smithsonian International Kites Festival in Washington, D.C., on March 28.

Dunton, of the Fractured Mechanics Section, Facilities Engineering Division, had reason for optimism. His Sitting Bull kite won first place last year for rokkaku design, a six-sided Japanese style that Dunton has specialized in since he began building kites 13 years ago. He also figured the Langley connection couldn't hurt; after all, Samuel P. was a former secretary of the Smithsonian Institution and is the Center's namesake.

And Dunton was encouraged when he showed the kite around on the mall at the Washington Monument, site of the 26th annual competition.

"It got a lot of good comments," he said. "It was doing quite well in the ground-based judging."

Dunton, who was inspired by his kite-building dad, began to design and build his own kites in 1979.

Dunton, inspired by his kite-building father, began designing kites in 1979. He favors the tailless rokkaku style for its stability and large display area. "It's a very nice-flying kite, and it gives you a nice big picture area for illustrations," he said. "It's a very well-balanced kite. It's easy to fly, and it scales up nicely — you can make a very big one if you want to."

The 75th kite is eight feet tall and about 80 inches wide. Dunton, as he does with all his kites, crafted it by hand, investing about $150 and 100 hours of labor.

He used a sewing machine to affix his design to ripstop nylon sail cloth and fiberglass epoxy tubing.

Dunton won at the Smithsonian last year in the amateur "kitemaker" category. This year he entered as a "kitemaster" by virtue of his previous win.

"I wanted this judged against the people I have taken inspiration from," he said prior to the competition. "It's going to be judged more strenuously than the kitemakers would be, and the kites are going to be of higher quality than you would find overall."

Kites are judged in six categories that cover construction, appearance on the ground and in the air, and flight characteristics. The rules also require kites to stay aloft for at least one minute. Unfortunately, Dunton couldn't pull any strings with the fickle Washington wind, whose strong gusts kept his craft grounded and out of competition. "That's the way it goes," Dunton said.

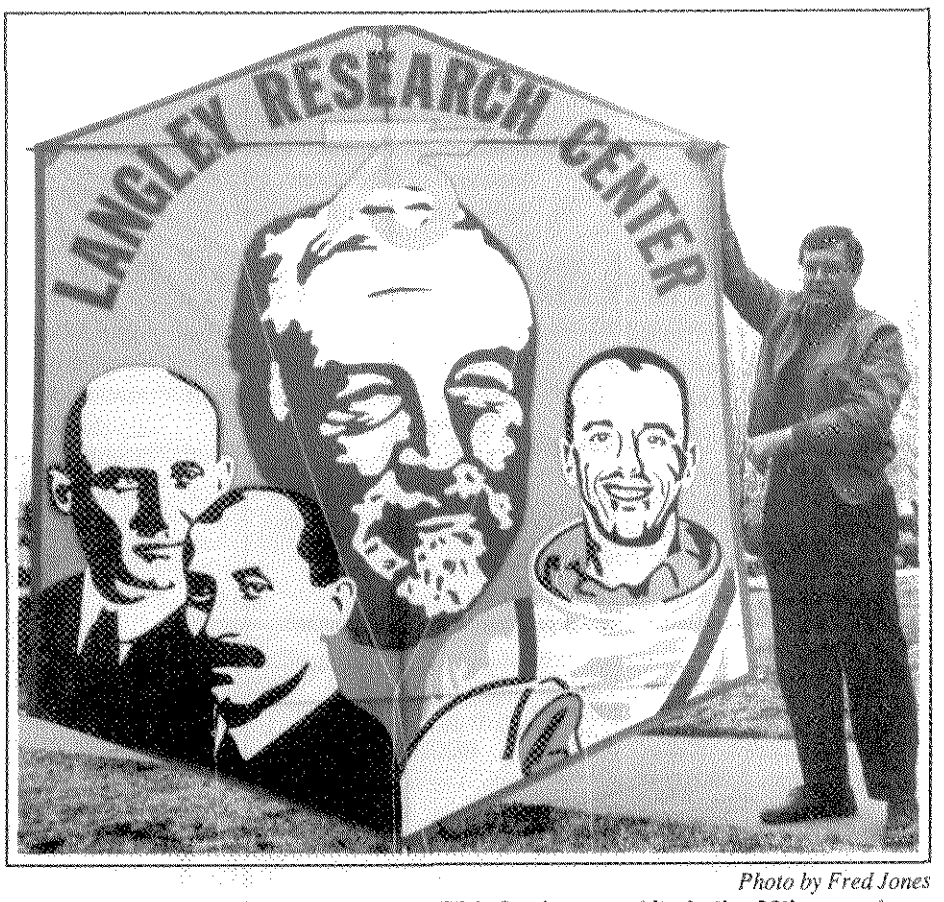


Photo by Fred Jones

Charlie Dunton entered his handmade 75th Anniversary kite in the 26th annual Smithsonian International Kites Festival in Washington, D.C., on March 28.

News Briefs

AROUND THE AGENCY

Lenoir Resigns — Associate Administrator for Space Flight Dr. William Lenoir is resigning effective May 4. Lenoir joined NASA in 1967 as an astronaut and served as backup astronaut for the Skylab 3 and 4 missions and flew as a mission specialist on the STS-5 mission. In 1984, he left the agency to become vice president and board member of the consulting firm of Booze, Allen and Hamilton. He returned to NASA in 1989 as space flight associate administrator. In his tenure, the Shuttle has safely flown 17 times and NASA completed a restructuring of the Space Station Freedom program, reducing its cost by nearly $6 billion.

Artificial Intelligence Conference — The Seventh Annual Goddard Conference on Space Applications of Artificial Intelligence will be held May 5 and 6. The focus is on artificial intelligence research and applications relevant to space systems, space operations and space science. Also to be featured is a pre-conference session on probabilistic reasoning and genetic algorithms, as well as a post-conference workshop on fuzzy logic featuring Lotfi Zadeh. Register by phone by calling (301) 937-6104. For more information, call (301) 286-315.

Supersonic Performance and Control Tests — NASA will begin supersonic flight tests of a new electronic control system that will improve the performance, reliability and safety of high-speed military aircraft, future commercial supersonic transports and the X-30 National Aero-Space Plane. A NASA F-15 research aircraft will begin supersonic testing of the Performance Seeking Control in April at the Ames-Dryden Flight Research Facility. The system monitors the plane's computerized control systems in flight and automatically adjusts the combination of factors such as fuel flow and air flow into the engines to get the most thrust for the lowest possible revolutions per minute.

Hardened CARS Development Team Receives Langley Excellence Award

Members of the Hardened CARS (Coherent Antistokes Ram Scattering) Development Team have been honored with a NASA Langley Research Center Team Excellence Award. The award is for outstanding dedication and exceptional efforts resulting in the development of an important flow diagnostic technique for the investigation of complex reacting flows.

Team members received a certificate of appreciation at a reception February 28 at the H.J.E. Reid Conference Center.

Team members are: Dr. G. Burton Northam, Dr. Michael W. Smith, Olin Jarrett Jr. and Glenn S. Diskin, Fluid Mechanics Division; Willis P. Simmons, Barry K. Lawhorne, Dennis R. Williams, Clinton J. Reese, Reginald C. Rose, Operations Support Division; Dr. Richard R. Antcliff, Instrument Research Division; Dr. Andrew D. Cutler, George Washington University; and Diego P. Capriotti, Analytical Services and Materials Inc.

Competitive Positions Announced

The following vacancies, open to Langley employees under permanent civil service appointments, have been announced through the Competitive Placement Plan:

92-26: AST, Computational Facilities Techniques Engineer, GS-801-13 or 14; Aeronautics Directorate, Fluid Mechanics Division; closes April 15.

92-27: Supervisory Aerospace Engineer, AST, Fluid & Flight Mechanics Program Manager, GM-801-14 or 15 (head, Flight Research Branch); Aeronautics Directorate, Flight Applications Division; closes April 14.

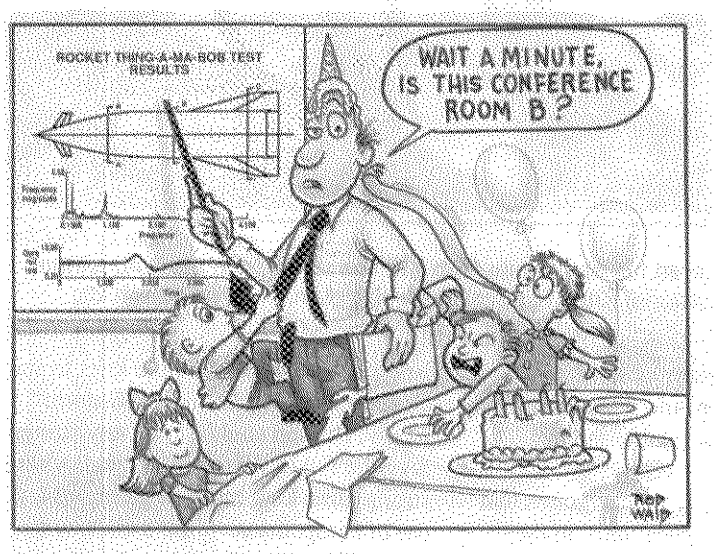
Retirement Party Planned For Stickle

Joseph W. Stickle, chief engineer, will be honored at a retirement party Friday, May 1, at the H.J.E. Reid Conference Center.

A cash bar social will begin at 6 p.m., dinner at 7 p.m. and the program at 8 p.m. The cost, including dinner and gift, will be $15 per person or $25 per couple. Contributions for the gift are welcome.

Make reservations with Sandy Patrick, Mail Stop 106, or Pat West, Mail Stop 246A, by April 24.

Lankley



LETTERS

Thanks To Engineers

From Marny Skora: Two additional volunteers who "taught" classes during National Engineers Week are Robert L. Myers, Composites and Models Development Section, and Anne D. Harmon, Lockheed Sciences and Engineering Co.

This brings the total of Langley employees who assisted in this educational outreach effort to 276.

Thanks Bob and Anne.

Thanks For Support

From Jean Eley: A special thank you to all who contributed to the backyard sale, gave cash donations and volunteered your time.

Because of your support, I was able to exceed my goal of $1,200.

GOLDIN:

Continued from Page 1

made a significant investment in NASA and they expect value for their investment. We have given them a high return on their investment, but in this competitive environment, where federal dollars are getting harder and harder to obtain, it is necessary for us to work together as a team to give them more value, an even better return on their investment.

Goldin stressed the importance of aeronautics. "The American aeronautics industry is counting on us," he said, "and let's ask ourselves, have we really lived up to the expectations of the aeronautics industry?"

He added, "We need to do a better job of clearly depicting the relationship of the space program to the American's everyday lives — to what they do, along with how they do it and why we do it — in the workplace, the classroom, the home and the marketplaces of today and tomorrow.

Goldin said he will visit the centers "to find out what your aspirations are for NASA, what your concerns are and what suggestions you have as to how we can do our job even better.

"I have become a true believer in the value of Total Quality Management (TQM) to the successful and efficient operation of an organization," he added.

"If you can't measure it, you can't manage it. I intend to bring this philosophy to NASA and to further develop our continuous improvement activities to establish clearly defined goals and objectives and to empower the employees to meet the goals, while at the same time holding myself and every goal I have, and each employee and every goal they have, personally accountable.

"I intend to reassess the long-term vision and to formulate, with your input, a strategic plan with clearly defined milestones."

Goldin said everyone should "stretch themselves" and ask what steps can be taken to ensure:

- That NASA facilities are world class and equipped for the challenges of tomorrow.
- Development of world class management techniques to get more value for less money.
- The improvement of employee training and recognition programs to better reward and inspire.
- That NASA is the world leader and standard for TQM.
- That children are encouraged to pursue math and science in elementary school and junior high and that mature members of the workforce are encouraged to get additional training in math and science to help them with the next phase of their careers.
- That NASA's stakeholders — the American public, Congress, contractors and the university community — are more involved in the direction of the space program and that the program becomes more attractive and relevant to a broader segment of society.
- That high schools and universities receive the help they need to train the next generation of scientists and engineers.
- That NASA can better determine what world class feats need to be undertaken to lift the spirit of the American people, push the edge of technology and help make the nation more competitive.

RECORD:

Continued from Page 1

sion. Incorporating innovative honeycomb and tubular structural design techniques, several six- to nine-foot concept airplanes were built and flown as students learned the principles of aerodynamic and structural design. Testing and optimizing the structural strength and weight of the designs were an integral part of the project, and unique construction techniques were used to built tapered spars to optimize weight and strength distribution.

Students learned that in engineering, teamwork is important, Grosveld said.

"It was interesting to watch the students change during the project," he said.

"At first they were a little shy and didn't know what to expect from this design project," he said.

"There also was some competition between them because they came from different schools. But as time went on, they began to open up, and by the end, they were working as a team and interacting with each other and the advisors very well. Setting the record was really a team effort," according to Grosveld.

Other participants included:

- From the AIAA: Jim A. Penland, W. Hewitt Phillips, Wilmer H. Reed III, Mohammed A. Takallu, Richard T. Whitcomb and Edgar G. Waggoner.
- From the Virginia Air and Space Center: Ralph T. Johnston, director.
- From the Hampton City Schools: Susan Booth, Susan McBurney, Dale E. Rose and Joyce A.R. Weeks.
- From Bethel High School: Beneta Brown, teacher/advisor, and students Russell Bascomb, Brian Harley, Sean Harley, Caroline Hill, Greg Selby and Ben Spencer.
- From Hampton High School: Betty H. Long, teacher/advisor, and students Tony Bordeaux, Phillip Check, Kumaravel Jagasivamani, Kevin Kelley and Richard Mack.
- From Kecoughtan High School: Marc Caristman, Don Johnston and Debra Mortimer, teachers/advisors, and students Amy Nichols, William Perry and Becky Richey.
- From Phoebus High School: James Sherrard, teacher/advisor, and students Ian Bilyj, Jon Davis, Kristin Wallio and Michael Whitlock.

News Researcher

The **Researcher News**, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23665-5225, is published every other Friday in the interest of all Langley staff and retirees. Submit contributions to the Editor, Mail Stop 115, telephone 864-6126. Articles are due at noon on the Tuesday following the date of this issue.

Managing Editor ..... Jean Drummond Clough

Editor ..... Michael Finneran

Photojournalist ..... Carol Petrachenko

Photographer ..... Fred Jones

The privilege of advertising in this publication is restricted to the employees and retirees of the Langley Research Center. Articles advertised here must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

Annual Honor Awards

Langley's highest award, the H.J.E. Reid Award, recognizes the outstanding scientific or engineering paper first-authored by a Langley Research Center employee or group of employees.

The H.J.E. Reid Award has been presented to Rick W. Butler and Allan L. White for their outstanding paper, entitled "SURE Reliability Analysis."

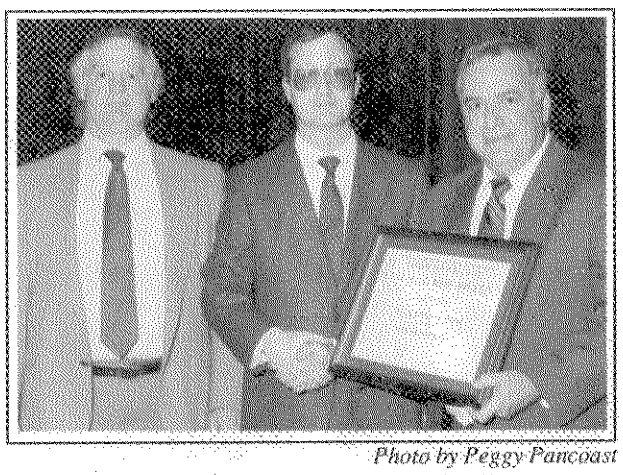
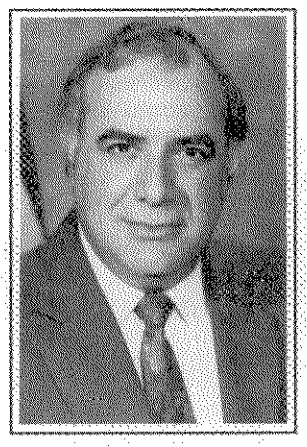


Photo by Peggy Pancoast

H.J.E. Reid Award

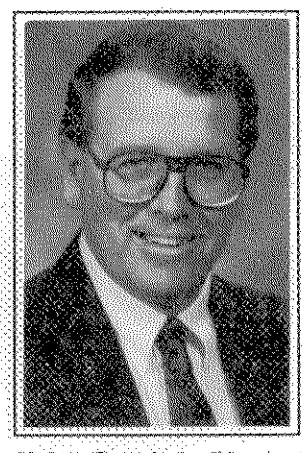
Allan L. White, left, and Rick W. Butler accept their awards from Center Director Paul F. Holloway

Distinguished Service Medal & Equal Employment Opportunity Medal



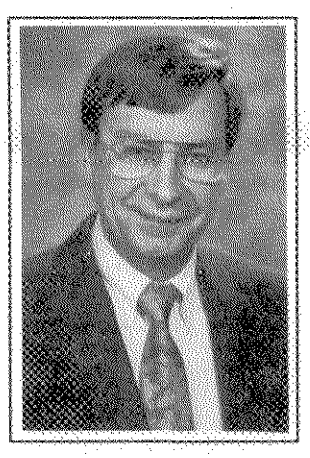
Paul F. Holloway (Nominated by NASA Headquarters)
For an outstanding record of service to NASA, devoted to ensuring the superiority of aeronautical and astronautical programs; and, for exemplary leadership, commitment to equity, diversity and excellence and long-term support of equal opportunity and affirmative action principles.

Exceptional Service Medal

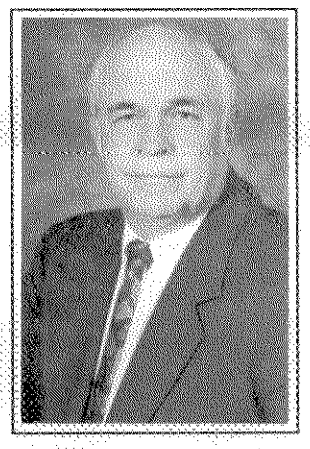


H. Lee Beach Jr. (Nominated by NASA Headquarters)
For contributions in managing NASA's contributions towards achieving the goals of the National Aero-Space Plane Program and NASA's hypersonic research.

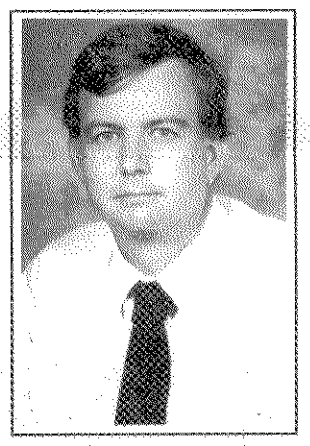
Outstanding Leadership Medals



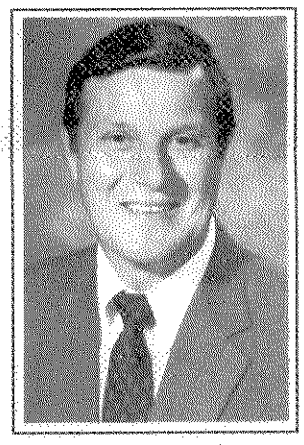
Douglas L. Dwoyer
For outstanding leadership and sustained technical contributions in developing NASA's computational fluid dynamics research program.



Richard B. Holt
For outstanding leadership in the fabrication of major Agency projects.



Jerry R. Newsom
For outstanding leadership and management in developing the engineering methodology for the multidisciplinary design of the integrated controls-structures systems for large flexible spacecraft.



Darrel R. Tenney
For outstanding technical management leadership and personal contributions to the NASA Structural Materials Research and Technology Program.

NASA Honor Awards: Employees Recognized For Outstanding Achievements

Langley employees who have made outstanding contributions in aeronautics and aerospace research during the past year were recognized for their accomplishments at the Annual Honor Awards Ceremony on Friday, March 27, in the H.J.E. Reid Conference Center. NASA Associate Deputy Administrator Samuel W. Keller and Langley Director Paul F. Holloway presented the NASA medals.

PUBLIC SERVICE GROUP ACHIEVEMENT AWARDS

Bihrle Applied Research Group, accepted by Billy P. Barnhart, "for sustained group achievement in the conduct of experimental rotary balance research and the development of innovative analytical methods for predicting spin characteristics of military aircraft."

Institute for Computer Applications in Science and Engineering (ICASE) Numerical Analysis and Algorithms Group, accepted by M. Yousuff Hussaini, "for pioneering developments in advanced numerical analysis and computational algorithms which have formed the foundation of modern computational fluid dynamics."

GROUP ACHIEVEMENT AWARDS

Aging Aircraft Nondestructive Evaluation Team, accepted by William P. Winfree, "for outstanding team accomplishments in developing and conducting practical field demonstrations of innovative nondestructive evaluation systems technology to determine bond integrity in aging aircraft."

Acoustics Sensing Research Team, accepted by Arnold W. Mueller, "for outstanding technical contributions in the field of aeroacoustics and signal processing related to the quiet operation of rotorcraft."

Airborne Wind Shear Radar Flight Experiment Team, accepted by Emedio M. Bracalente, "for successfully conducting the experimental flight tests of NASA's airborne Doppler wind shear radar and for establishing the feasibility of the system to detect hazardous wind shear."

Control-Structures Interaction (CSI) Phase-Zero Model Development and Test Team, accepted by W. Keith Belvin, "for key contributions to the development of the CSI Phase-Zero Model testbed and highly successful CSI Phase-Zero test program."

Disabled Persons Advisory Committee, accepted by Diane E. Forrest, "for developing an Agency role model for the retention, recruiting and hiring of the disabled corps."

Faultfinder Development Team, accepted by Kathy H. Abbott, "for developing Faultfinder, an integrated fault management system which assists pilots in preventing or reducing the severity of aircraft accidents."

First International Satellite Cloud Climatology Project (ISCCP) Regional Experiment (FIRE) Team, accepted by Stephen K. Cox, "for outstanding contributions to increasing the understanding of cloud and radiation processes for climate studies."

Jet Engine Exhaust Simulator Support Group, accepted by Fred L. Rudolph, "for outstanding contributions in support of research on jet engine exhaust products for advanced aircraft."

Langley Operation Desert Storm Instrumentation Group, accepted by Antony Jalink Jr., "for outstanding engineering and technology contributions to the Desert Storm Operations."

Rotorcraft Higher Harmonic Control Noise Reduction Team, accepted by Thomas F. Brooks, "for exceptional team effort in implementing a comprehensive rotorcraft test program for demonstrating the noise reduction potential of higher harmonic control."

Shuttle Runway and Modified Tire Testing Team, accepted by Sandy M. Stubbs, "for conducting definitive tests which validated the adequacy of initial Kennedy runway surface modifications and which demonstrated superior tire wear performance of a modified Orbiter tire compound."

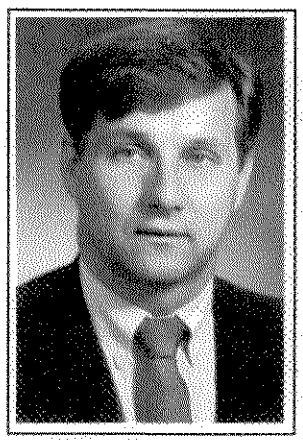
Space-Based Beamed Power Research Team, accepted by Ja H. Lee, "for outstanding and sustained accomplishments in the development of in-space laser-beamed power technology."

Unstructured Grid Methodology Team, accepted by Neal T. Frink, "for outstanding achievement in developing unstructured grid methodology, including grid generation, flow solver and flow visualization, for efficiently and accurately solving the Euler equations about complex shapes."

Wind Shear Sensor Systems Flight Tests Team, accepted by Michael S. Lewis, "for exceptional service in design, integration and operational implementation of the wind shear sensor systems flight tests aboard the Transport Systems Research Vehicle (TSRV)."

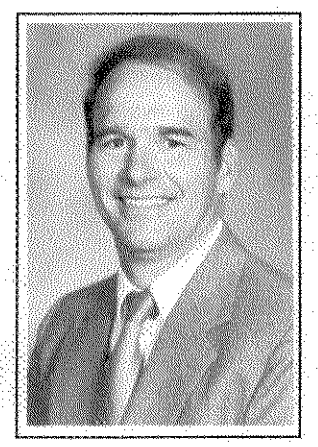
Awards

Exceptional Scientific Achievement Medal

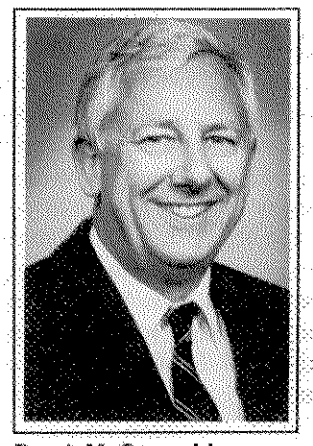


Bruce A. Albrecht
Pennsylvania State University. For outstanding contributions to the understanding of the lifecycle of marine stratocumulus clouds and their interaction with aerosols and the Earth's climate.

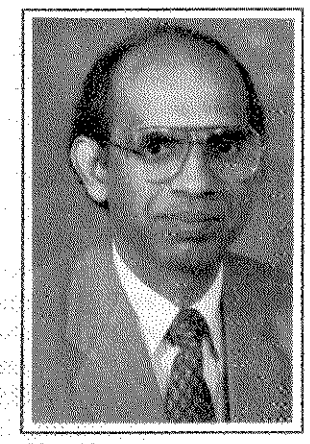
William P. Chu
For significant contributions to SAM II, SAGE I and SAGE II through the conception and implementation of techniques for obtaining, analyzing and interpreting atmospheric data.



Stephen K. Cox
Colorado State University. For pioneering and creative contributions to the understanding of atmospheric radiation processes associated with clouds and their role in Earth's climate.

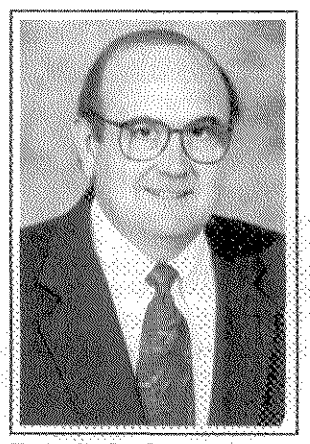


Derek M. Cunnold
Georgia Institute of Technology. For significant contributions to the analysis and validation of the Stratospheric Aerosol and Gas Experiment ozone and nitrogen dioxide data sets.

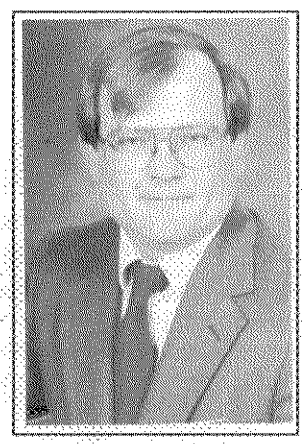


Ajay Kumar
For outstanding research contributions in computational fluid dynamics.

Ruth H. Pater
For outstanding contributions to the development of materials and processing of high-temperature polymer matrix composites.

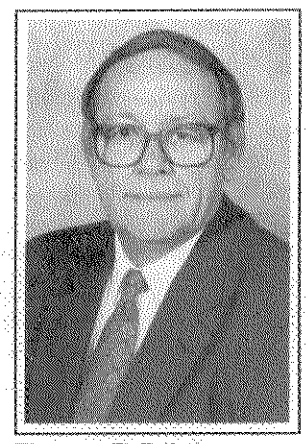


Terry L. St. Clair
For the development of high-performance polymers and technology in support of aerospace programs.

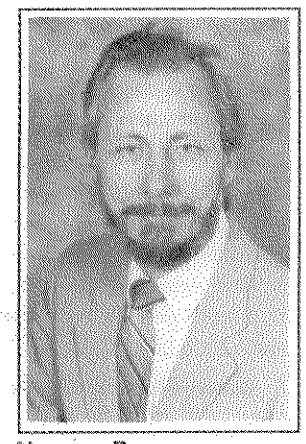


Bruce A. Wielicki
For outstanding contributions to the understanding of clouds and their effect on the Earth's radiation budget climate.

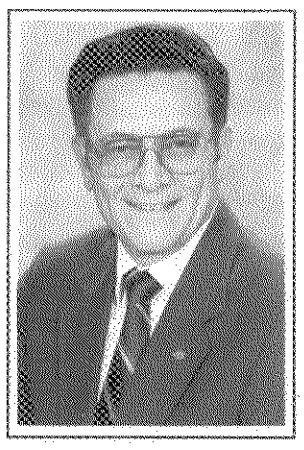
Exceptional Engineering Achievement Medal



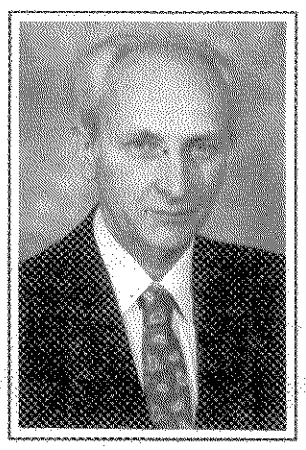
Thomas T. Bales
For outstanding technical innovations in the processing and fabrication of advanced metallic structural materials.



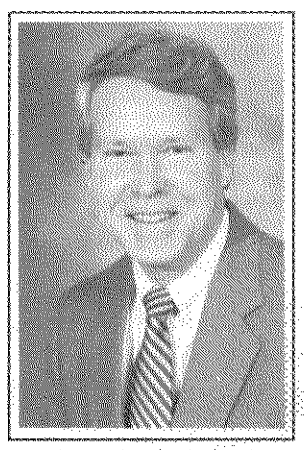
Norman Barnes
For contributions to solid-state laser systems development.



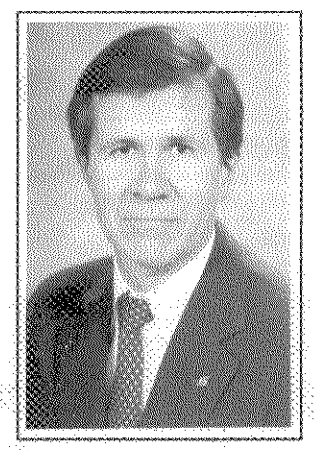
Emedio M. Bracalente
For significant and innovative contributions to airborne Doppler radar technology which have provided a solution to wind shear detection and avoidance.



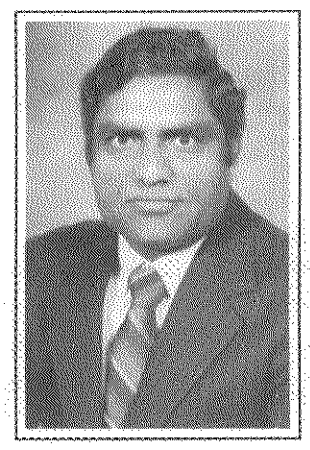
Vladislav Klein
George Washington University. For innovative contributions in the development of advanced techniques and computer programs in the field of systems identification.



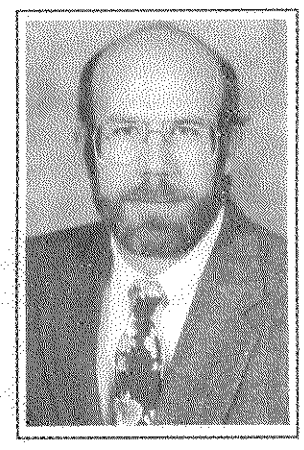
Edwin P. Riddle
For innovative engineering and implementation of an advanced large-scale NASA computer network.



Robert E. Smith Jr.
For outstanding engineering contributions through the development and application of advanced grid generation methods for computational fluid dynamics.

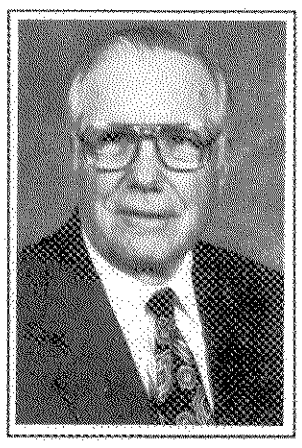


Veer N. Vatsa
For development of a highly efficient and accurate method for simulating transonic and supersonic, high-Reynolds number, turbulent flows about wing-body configurations.



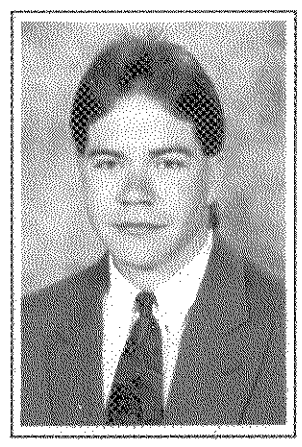
Alan W. Wilhite
For outstanding engineering contributions to the formulation, development and implementation of state-of-the-art engineering design and analysis capability for advanced space transportation systems.

Distinguished Public Service Medal



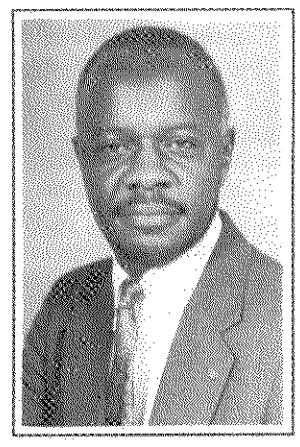
Harvey H. Hubbard
Lockheed Engineering & Sciences Co. For sustained, significant and lasting contributions to aerospace acoustics.

Exceptional Bravery Medal



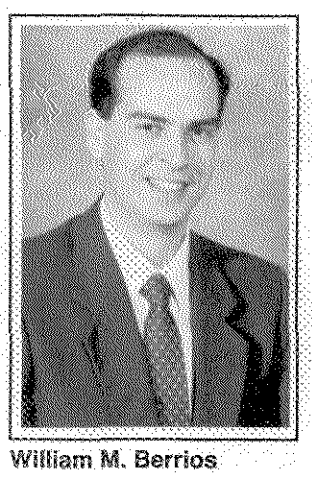
Rodney A. Robertson
For courageous actions while disregarding personal safety to prevent further injury or possible loss of human life.

Equal Employment Opportunity Medal

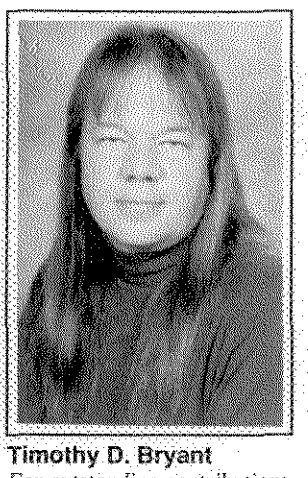


Roger A. Hathaway
For significant advancement towards NASA's equal opportunity goals for minorities pursuing science and engineering careers.

Exceptional Achievement Medal



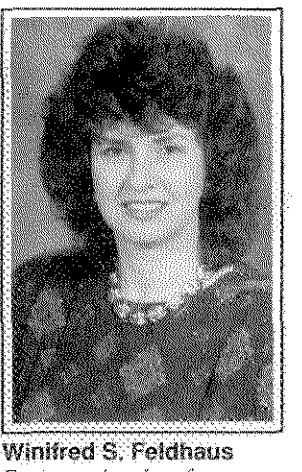
William M. Berrios
For exceptional contributions to the completion of thermal modeling, analysis and design for deployment, flight mission and retrieval of the Long Duration Exposure Facility.



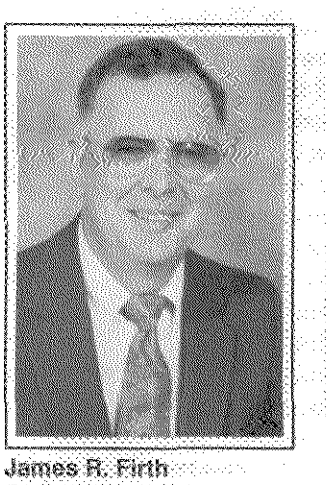
Timothy D. Bryant
For outstanding contributions in the electronics design, development and application of an ambulatory fetal heart monitor.

Lana M. Couch
For exceptional achievement in the development and management of the National Aero-Space Plane Government Work Packages and overall contributions to the NASP Program.

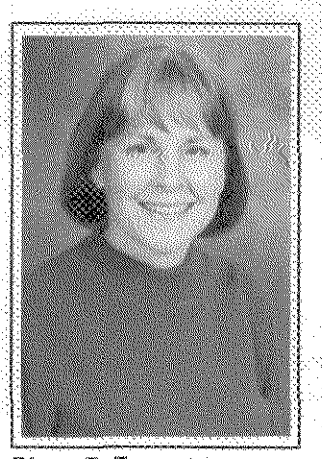
Buena E. Crawford
For exceptional service and unique professional contributions to the implementation and management of the NASA Langley Child Development Center.



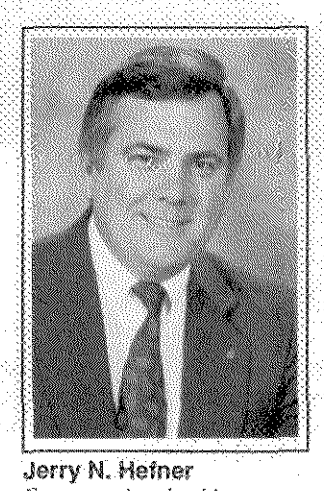
Winifred S. Feldhaus
For exceptional performance in complex finite-element modeling and postprocessing results for structural analysis of NASA aerospace and spacecraft projects.



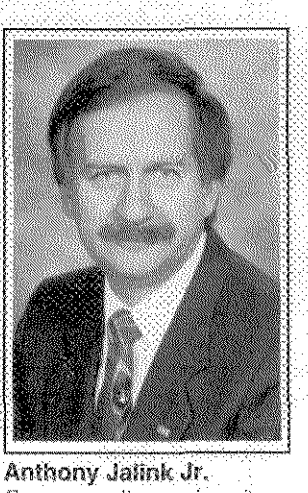
James R. Firth
For exemplary quality assurance leadership during the manufacture of National Transonic Facility fan blades.



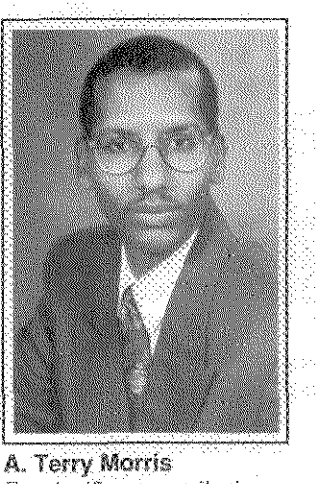
Diane E. Forrest
For special contributions to the Center's Disabled Program.



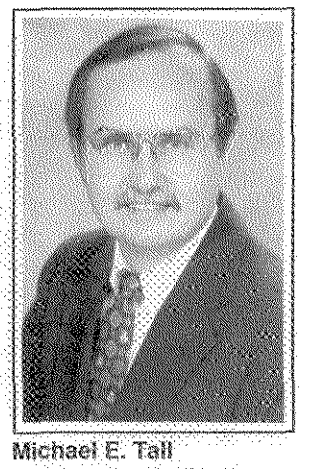
Jerry N. Hefner
For exceptional achievement in the areas of viscous drag reduction and laminar flow technology which provides the potential for significant increases in the fuel efficiency of civil transport aircraft.



Anthony Jalink Jr.
For outstanding engineering concepts and systems developed in support of the Desert Storm Operation.



A. Terry Morris
For significant contributions to NASA's role as community leader by outstanding service to the Combined Federal Campaign.

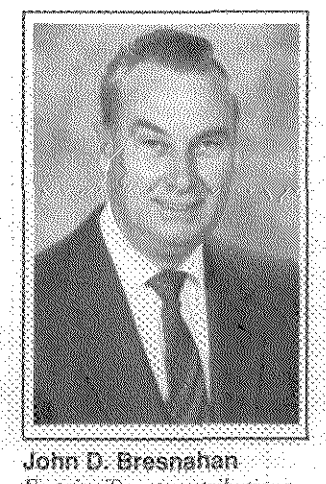


Michael E. Tall
For exemplary leadership in the development and advancement of space structures joint hardware.

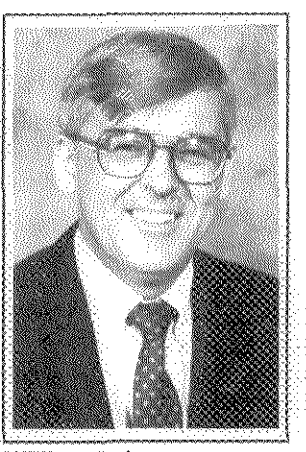
Sang Q. Tran
For outstanding contributions to the design, development and application of direct-deposit thin-film sensors for 2- and 3-dimensional models.

Exceptional Service Medal

Belinda H. Adams
For outstanding dedication and achievement in organizational and human resources leadership.

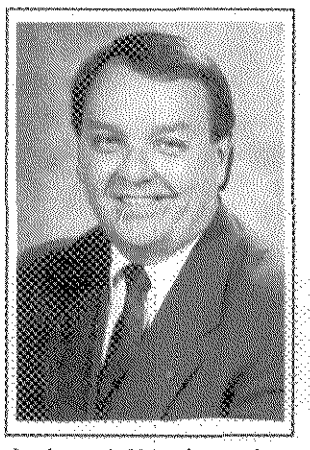


John D. Bresnahan
For significant contributions to the support of the Center's fluid systems.

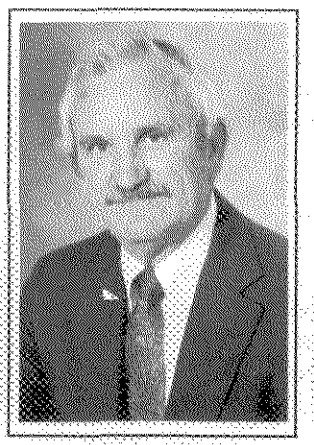


William Debnam
For contributions to the Microgravity Materials Science Program in the innovative design and development of furnace calibration cartridges.

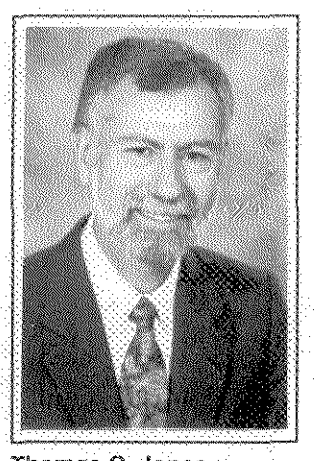
Lorelei S. Gibson
For outstanding contributions to the development of spaceflight pressure instrumentation systems.



Andrew J. Hansbrough
For exceptional contributions in effecting significant increases in the productivity of scientific and technical information support of the Center's mission.

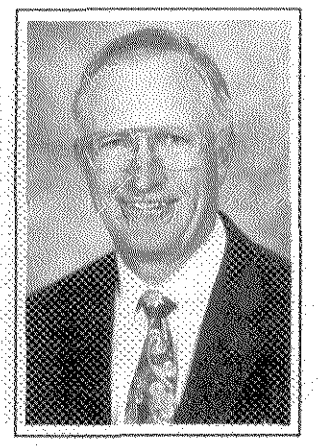


Frederick D. Jones
For exceptional service in providing photographic support to Langley's research and development programs.

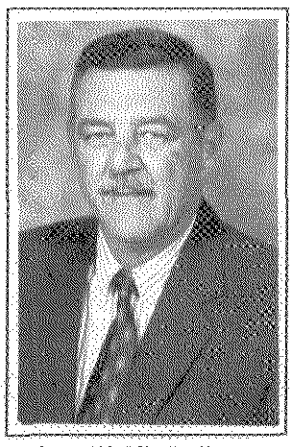


Thomas C. Jones
For exceptional contributions to the integration and testing of the Halogen Occultation Experiment instrument with the Upper Atmosphere Research Satellite.

Jean M. LaNeave
For exemplary performance in providing professional staff support to the Center Director's Office.



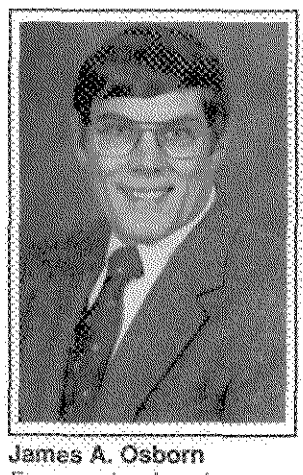
David S. McDougal
For outstanding contributions to the study of climate processes through excellent management of the highly successful First International Satellite Cloud Climatology Project Regional Experiment.



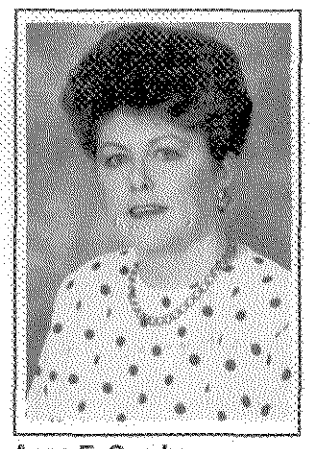
Robert W. Mitchell
For significant contributions to the rehabilitation and modification of facilities located in the Building 1247 Complex.

Awards

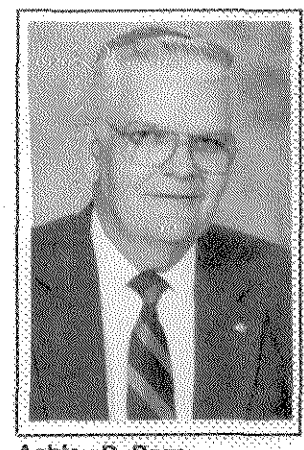
Exceptional Service Medal



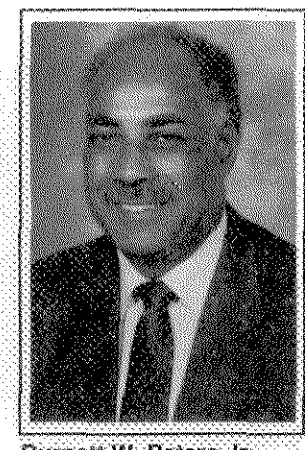
James A. Osborn
For exceptional service as systems engineer and project manager in the design, development and construction of research facilities at the Center.



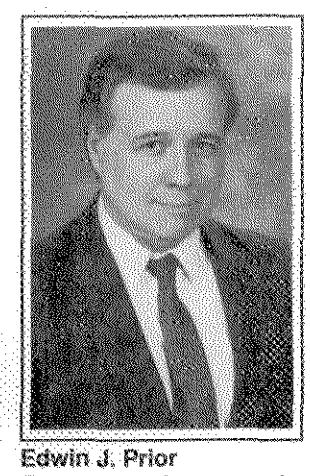
Anne E. Overbay
For outstanding performance and dedicated service to the Aerosol Research Branch, Atmospheric Sciences Division.



Ashley D. Page
For outstanding contributions to the development of fabrication technology for advanced aircraft programs.

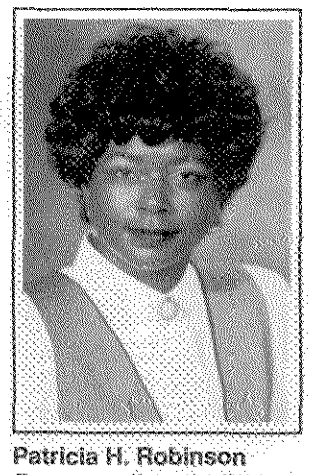


Burnett W. Peters Jr.
For personal commitment and outstanding contributions to the Equal Opportunity Program at the Center.



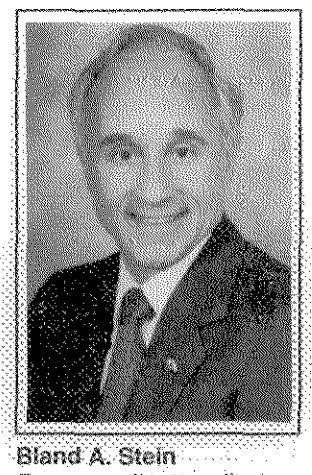
Edwin J. Prior
For exceptional support to the Office of the Chief Scientist at the Center.

Rise W. Ramsey
For exceptional service and accomplishment in managing the Nondestructive Evaluation Sciences Branch operations through development and implementation of innovative administrative practices.

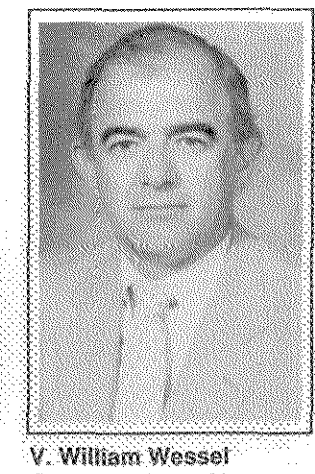


Patricia H. Robinson
For outstanding contributions and individual excellence in administrative support of Langley's major spaceflight projects.

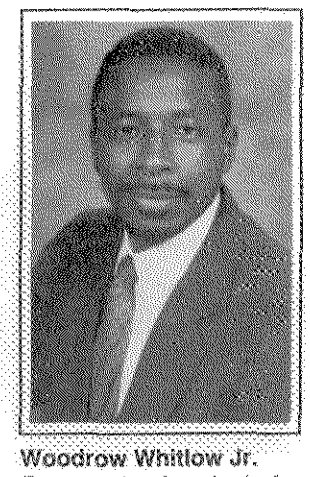
Frances E. Sabo
For exceptional service in administrative, resource and logistics support to the Agency's High-Speed Research and Advanced Aircraft Programs.



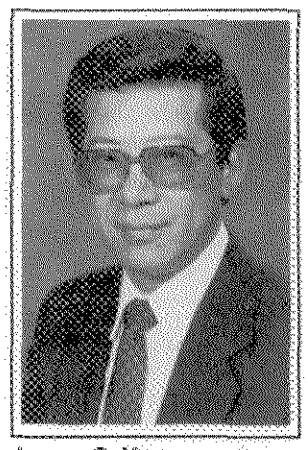
Bland A. Stein
For outstanding contributions and leadership in the Agency's aerospace structural materials program.



V. William Wessel
For outstanding achievements in the development and management of the Langley Research Center Safety and Environmental Program, resulting in improved productivity, operational safety and environmental sensitivity.

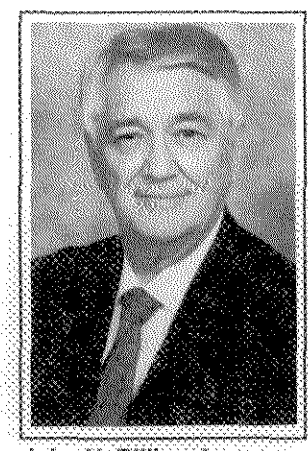


Woodrow Whitlow Jr.
For exceptional service in the planning and execution of the unsteady aerodynamics and aeroelasticity program within NASA.

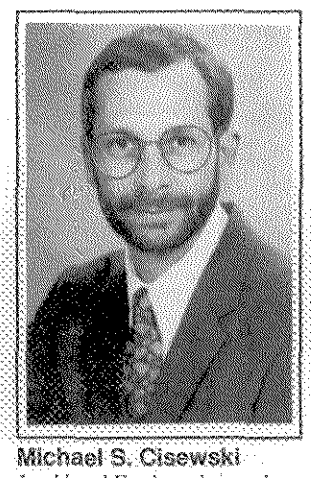


James C. Yu
For outstanding leadership and contributions in the field of rotorcraft technology.

Public Service Medal

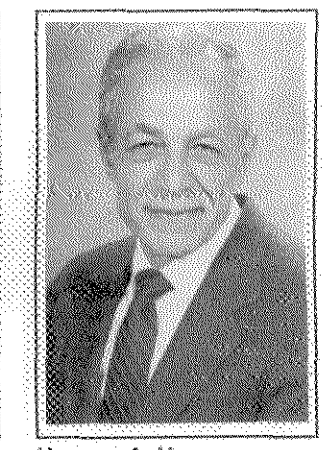


John H. Billingsley
Sverdrup Technology Inc. For exemplary construction management of the 8-Foot High Temperature Tunnel Modificantions, Hypersonic Facilities Complex, and the Transonic Dynamics Tunnel Heavy Gas Recovery Projects.



Michael S. Cisewski
Lockheed Engineering and Sciences Co. For exceptional contributions to the HALOE instrument's integration and testing with the UARS and on-orbit activation.

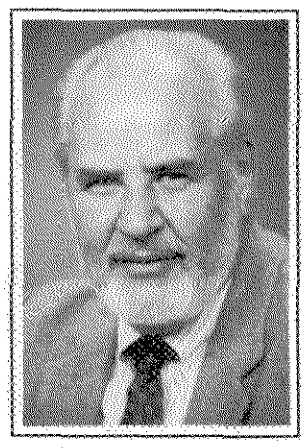
Debbie M. Garrett
Sverdrup Technology Inc. For exceptional service in the engineering modeling and computer science support of critical and unique research facilities at Langley.



Hassan A. Hassan
North Carolina State University. For exceptional contributions to NASA's basic research and technology program through personal research and the direction of graduate research.

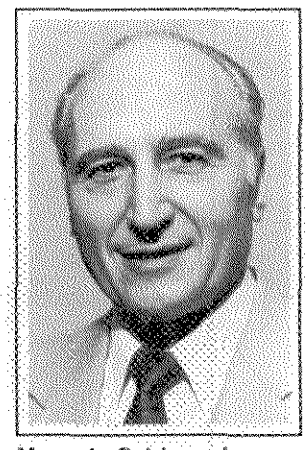
Photo not available

Heinz Otto Kreiss
University of California, Los Angeles. For fundemental theoretical contributions to computational fluid dynamics and insights into the nature of compressible turbulence.

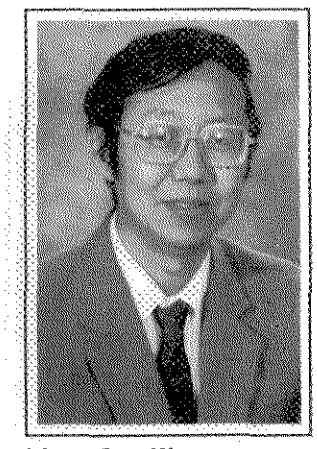


Adelbert L. Nagel
Boeing Commercial Airplane Co. For outstanding leadership and technical direction of the hybrid laminar flow control flight experiment on a Boeing 757 aircraft.

Cecil G. Phillips Jr. (deceased)
Thomas Nelson Community College. For outstanding and innovative contributions in support of Langley's Engineering Technician Apprentice Program.



Morry L. Schimmel
Schimmel Co. For outstanding technical contributions to the advancement of the pyrotechnic technology base critical to the successful completion of major NASA programs.



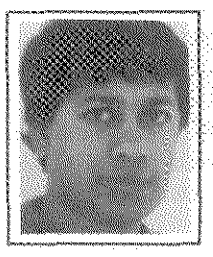
Liang-Guo Wang
The College of William and Mary. For exceptional contributions in the development and application of laser-based concepts to meet atmospheric research objectives.

IN PERSON

Snow Flakes A Rare Appearance

BY RAMKI KRISHNAN

About two weeks ago, my wife and I were on the interstate near Williamsburg when we saw something we could hardly believe. We pinched ourselves silly, but there was no denying the beautiful white objects that were descending languidly, trying to decide where to land. No, they weren't UFOs, but something even more astounding—snowflakes! Now, you might sneer, "Snowflakes? On the Peninsula? What kind of medication are you on?" The skepticism is warranted because my wife thought I was babbling too, and muttered something about being in the company of the world's biggest flake. Cars screeched to a halt on both sides of the interstate and great big cheers erupted.



This flurry of anemic flakelets was not forecast by weather experts at the local TV stations. Even if these meteorologists had predicted snow, the reaction from most viewers would be a cynical "Yeah, and Donald Trump is a wealthy man!"

The real problem, I think, is that people are now really listening to the forecast instead of watching the forecaster. In the good old days we had pretty, fluffy and generously endowed weather girls who flounced and giggled their way through the daily highs and lows. Men who sat riveted during the weather segment ingested everything but the atrocious weather forecast. This ruse worked very well until feminism mushroomed and women started demanding equal rights and young, well-muscled weather hunks in Giorgio Armani suits. To appease all sides, TV stations offered up sacrificial bookworm types, whose forecasts were totally unappetizing to viewers of either gender. Men and women who had flounced and pranced their way through the weather segments were forced to find equally inane jobs, and the result is the mess we call Congress.

My relatives ask me why NASA cannot send up a weather satellite that can beam down accurate forecasts. Being non-scientific types, they don't realize that all weather satellites have to be fitted with the expensive "Look-again-you-dodo" scrambler. This is because today's sophisticated satellites study cloud shapes and, like humans, sometimes see images that resemble Wayne Newton or a banana peel. That can confuse a satellite, and you can image what a forecast of "This evening Roseanne Barr will be falling in Nevada" might do. The bookies in Las Vegas would have a field day drawing up the odds on whether the impact will measure 7.0 or 8.0 on the Richter scale.

I like an inexact weather forecast because it adds a dash of adventure in our lives. After all, if Dorothy knew what the weather in Kansas would be that fateful day, she would never have traveled to the Land of Oz. I usually go to bed hoping for heavy snowfall in Hampton. I could really use a couple more hours, every weekday morning, in the Land of Doze.

Krishnan is a research scientist in the Theoretical Flow Physics Branch. He works for Analytical Services & Materials Inc.

75th Anniversary Honors

Photo by Fred Jones

Center Director Paul F. Holloway, right, accepts a plaque honoring the Center from George R. Hayes, chairman of the board of the Langley Federal Credit Union. Hayes presented the award at the credit union's annual meeting March 28. The meeting included a tribute to the Center for its 75 years of achievement.

Aluminum Can Recycling, Earth Day High On Conservation Club's Agenda

BY JAMES C. TOWNSEND

You've probably seen them. We hope you've sought them out. In many facilities as you go around Langley Research Center you will find what look like trash cans marked "Aluminum Cans Only." They *aren't* for trash; please don't discard anything in them but aluminum cans. Most of these collection containers are part of the aluminum can recycling program of the Langley Activities Association Conservation Club.

Collection site coordinators are still being sought for several buildings on the Center.

Aluminum can recycling was the first project undertaken by the club when it was founded in January 1990. As set up by club founders and with the continuing support of collection site coordinators and contributors, can recycling has been a great success. In little more than two years, some 350,000 cans have been collected. That's more than seven tons of aluminum that have gone back into aluminum projects instead of into the Hampton landfill. Thanks go to all the can donors and, especially, to the site coordinators, who have kept this effort going.

Conservation of the Earth's resources is the principal concern of the club and is the motivation for the aluminum recycling effort.

Can recycling, however, is also the club's only fund-raising activity. After paying collection expenses, money from the sales of cans goes to support other conservation efforts. The largest of these is the annual Earth Day educational program: Literature explaining and advocating good, practical conservation measures that individuals can take is bought and distributed to Langley employees and contractors; U.S. Savings Bonds are purchased and awarded to winners of a student art contest with an environmental theme.

Also, in 1991 the club paid transportation expenses for the Center's telephone book recycling program. This year the club will plant 75 trees at Langley as part of the Center's 75th Anniversary celebration. The club has received awards from Newport News and Hampton for its community service. After some problems collecting payments from a now-defunct recycling company, the Conservation Club has arranged for aluminum can pickup and sales to the Tidewater Fibre Corp. Langley management continues to support the can recycling and has provided a place to store cans between pickups. The club would like to get as many of the Center's aluminum drink cans as possible. After you empty a drink can, drop it in one of the collection containers. If there is a can crusher at the site, crush the can first — it gives a very satisfying "crunch."

There are still several buildings on the Center without collection sites. If you are interested in coordinating the collection of aluminum cans in one of these buildings, the club will provide collection containers, liner bags, signs and detailed instructions. You provide about 15 minutes a week and receive the satisfaction of doing something to help preserve the Earth for future generations.

Call Jim Townsend at ext. 42299 or Tim Collins at ext. 43113 for more details. Stop by the Conservation Club information table in the cafeteria during the week of Earth Day, April 20 to 24, to learn more about what you can do for conservation.

THEN AND NOW

Excerpts from Langley's old newsletter, Air Scoop, *will appear throughout Langley's 75th Anniversary year. These are from the March 15, 1957 issue.*

KEYHOE TO ADDRESS ENGINEERS' CLUB

The Engineers' Club of the Virginia Peninsula will meet on Thursday, March 21, at 8 p.m. at Parkview School. Guest speaker will be Maj. Donald E. Keyhoe, director of the National Investigations Committee of Aerial Phenomena.

CELEBRATING 75 YEARS

In his speech, Keyhoe will cover verified sighting of unidentified objects navigating in the atmosphere. After presenting the authentic evidence, he will discuss the possible answers, the present censorship, and some inside stories on the official investigation.

THEATRE TRYOUTS

Tryouts for the Hampton Little Theatre's spring production of "The Happy Time" will be held on Sunday, March 17 at 2:30 p.m. and Monday, March 18 at 7:30 p.m. at the Willis-Syms Eaton Building on Academy St.

Ed Ivory will direct the play which will be presented on April 25, 26, and 27 at Hampton High School. Ned Wagner, IRD, has been named producer and Irene Farster is business manager.

TRADING POST

FOR RENT: 2 bedroom house - completely furnished - available for 18 months - $90 per month.
FOR SALE: 3 bedroom house near Langley Field, $9,999.95.
1948 Plymouth convertible - $225.
FOR RENT: 3 room furnished apartment - $50.

Happenings

LAA SPRING FLING social hour will be held Friday, April 10, from 4 to 8 p.m. Music will be provided by D.J. Mark Bradley. Cover charge is $1.

TOASTMASTERS meets the second and fourth Wednesday of each month from 11:30 a.m. to 1 p.m. The next meeting is April 22 in Building 1222.

SATURDAY AEROBICS, low-impact and bench. We're back in the LAA gym. Classes open to NASA, contractors and family, $6 a month or $2 per class, 9:30 to 10:30 a.m. Call ext. 42295 for more information.

LOW-IMPACT AND BENCH AEROBICS classes are held Tuesdays and Thursdays, 5 to 6 p.m., LAA gym. Cost is $12 per month or $6 per month if attending only one day a week. The classes are open to employees, contractors and their families. Call ext. 42295.

BODY DYNAMICS. High-energy, low-impact aerobics classes held Mondays, Wednesdays and Fridays, 6:15 a.m., LAA gym. Classes free and open to civil servants.

RIDE NEEDED to Langley from Easterly Avenue (near the corner of Mercury Boulevard and King Street). Work schedule is 7:30 a.m. to 4 p.m. but will come in earlier if necessary. Call ext. 46664 during the day or 723-4799 at night.

RIDE NEEDED from the Wythe area of Hampton, mornings only, beginning May 18. Call R. Norman, 723-0205 after 5 p.m.

INCOME TAX PREP. Please call and leave name and phone number for appointment. Nancy Taylor, 723-5227.

HAMPTON ROADS INFERTILITY GROUP will meet April 13 at the Jewish Community Center on Newport Avenue in Norfolk. The topic is advanced reproductive technologies. For more information call 877-3094.

TELA TAX SERVICE, member National Association of Tax Practitioners. Electronic filing and small-business bookkeeping. By appointment. Call 874-3121.

FOR RENT: Elizabeth Lake Estates, 366 Hopemont Circle, Hampton, 4-bedroom, 2-bath, living room with fireplace, dining room, kitchen, garage, central air, neighborhood association with pool, close to schools, Langley. No pets. $800 a month, deposit required. Call 851-8388, leave message.

QUALITY CHILDCARE in Denbigh home. Experienced, loving, excellent environment. Call 877-2186.

WEDDING GOWN for sale, size 12, sheath type with detachable chapel train. Brand new, never worn. $250. Call 887-2597 after 5:30 p.m., leave message.

ANTIQUE VANITY for sale, curved front with matching carved mahogany bench, $200. Call 887-2597 after 5:30 p.m., leave message.

FURNITURE FOR SALE: Solid walnut inlaid coffee table and end table, made by Lane. Excellent condition, $150. Call 898-5003.

AFGE LOCAL 2755 union meeting will be held April 15 at 4:15 in the Union Office Building, 8B Ames Road.

BABYSITTER WANTED for 18-month-old Wednesday in my home. Call Aimee Thornton, 851-2994.

THE WILLIAMSBURG SYMPHONIA will present a concert featuring the music of Beethoven, J.C. Bach and Alan Stein on Sunday, April 26, 8:15 p.m. at Phi Beta Kappa Memorial Hall on Jamestown Road, Williamsburg. Call 229-9857 for more information.

RADIO-CONTROLLED model car group. Anyone who is interested, call 865-6281.

CAR FOR SALE: 1967 Mustang convertible, excellent body, new 6-cylinder engine, automatic, very roadworthy, $5,800. Call 693-5053.

ROOMMATE WANTED: Male or female to share large 4-bedroom house in Tabb Lakes, only 10 minutes to Langley. $350 a month, no pets or smokers. Professionals preferred. Call Phil at 867-9108, leave message.

FOR SALE: power lawn mower, $25; exer-cycle, $50; 9 x 12 rug, $10; cat basket, $5; cradle, $50; swing with bassinet, $30; infant car seat, $25; crib gym, $2; baby monitor with intercom, $20. Call Aimee Thornton, 851-2994.

ROOMMATE WANTED: Looking for a responsible, nonsmoking professional woman to share a 2-bedroom, 2-bath third-floor apartment at The Harbours. Includes washer/dryer, paid water, storage and view of woods. Rent is $281.50 a month plus half of the utilities and an $87.50 deposit. Available May 1 or sooner. Call Marilee at 591-2609, leave message.

THE NASA-LANGLEY Agriculture Club (Honeybunch) will meet at 7 p.m. April 20 in the cafeteria executive dining room. The program will be the viewing of the videotape *The Monk and the Honey Bee* and a discussion of summer management. All interested persons are welcome. Call Hank, ext. 47226.

CAR FOR SALE: 1982 Dodge Ram Charger, 4-wheel drive, 117,000 miles, 318-cubic inch V-8, air conditioning, automatic, good condition, $3,400 or best offer. Call 865-6281.

HOUSE FOR SALE: 136 Albany Drive, Hampton. Three-bedroom, 1-bath, eat-in kitchen, ceiling fans, central air, gas heat, new roof, 1½-car detached garage, $77,500. Call for appointment or details, 838-1043.

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Researcher News

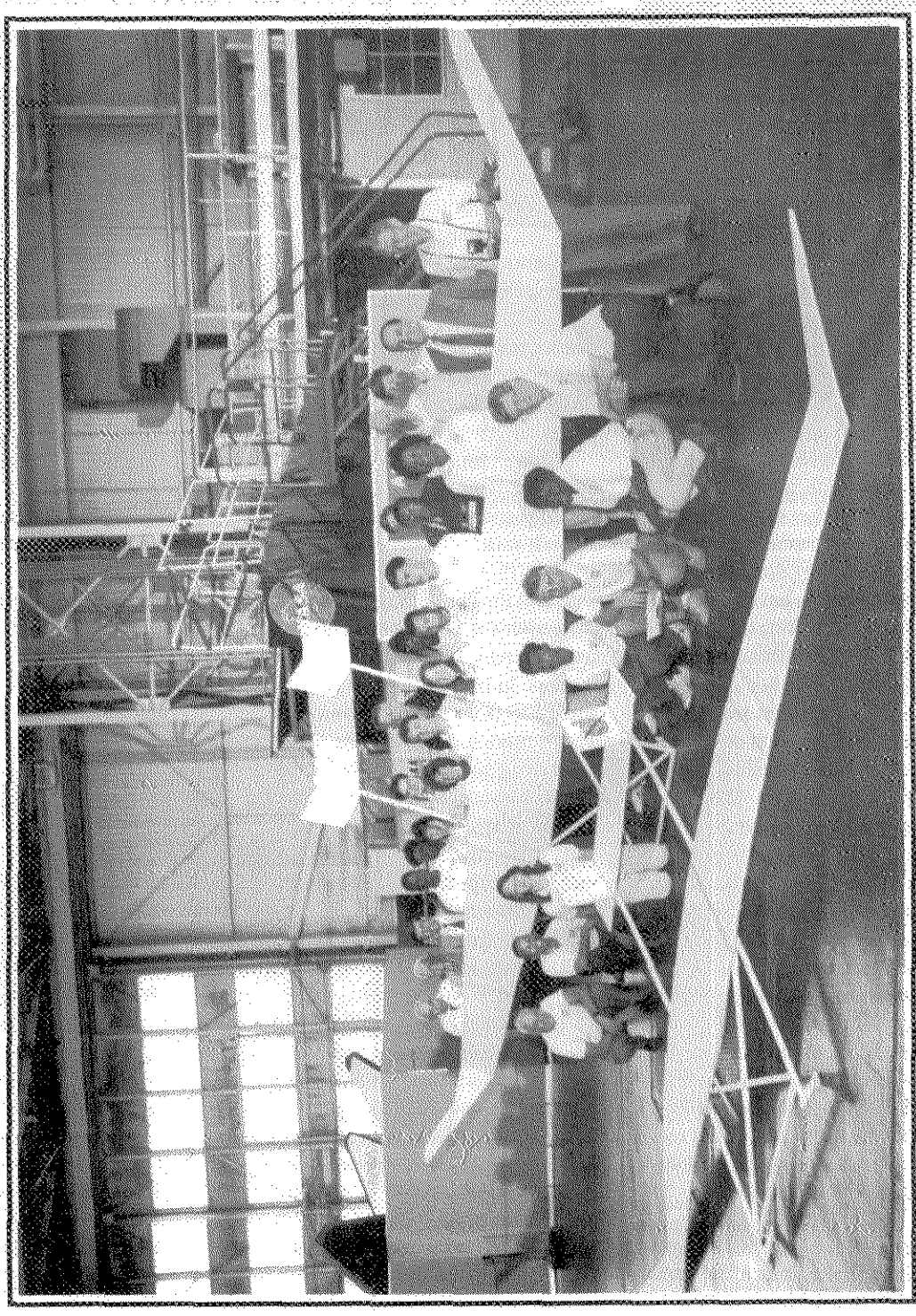


Photo by Fred Jones

OK, so they didn't break the sound barrier or land on the moon. But it was a singular achievement in its own right when students from four Hampton high schools took aim at the Guinness Book of World Records for the world's largest paper airplane. See Page 1.

1917 - 1992
75 Years
NACA
NASA
Langley Research Center

News Researcher

Bi-weekly Employee and Contractor Publication

Volume 6 ◆ Issue 7 ◆ April 24, 1992

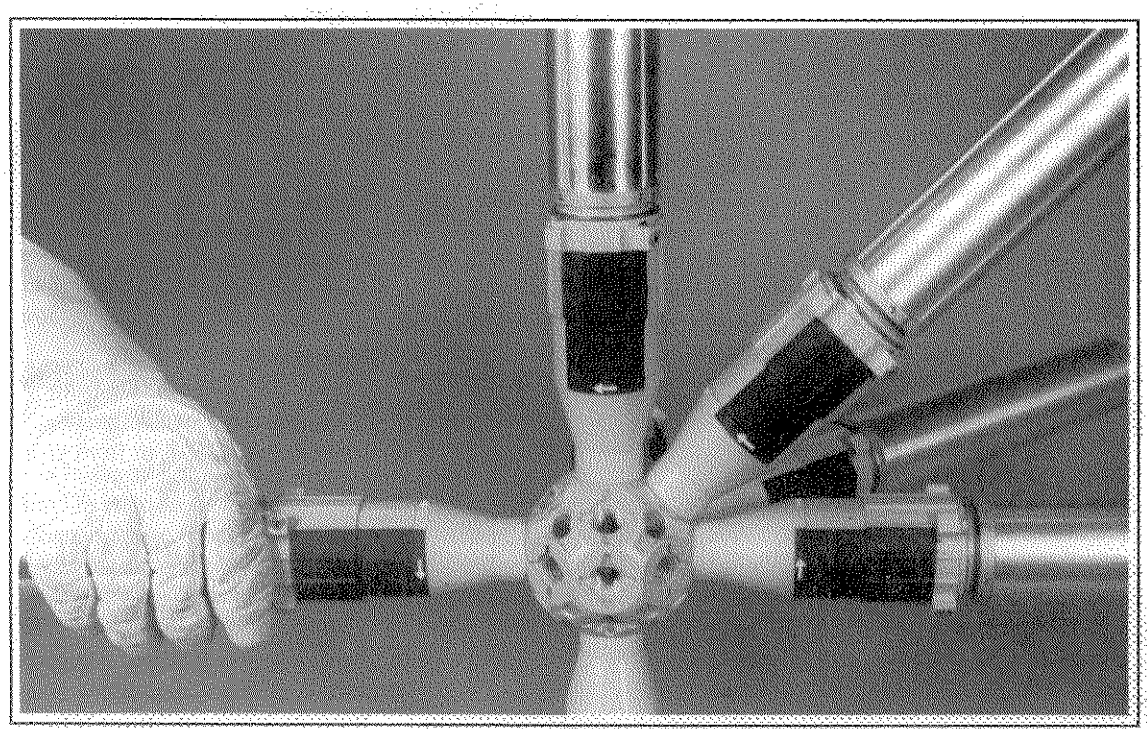


Photo by Terry L. Shepard

Langley's truss joint is designed to be operated manually by astronauts or, if required, robotically.

Endeavour Debut To Carry 137 Pieces Of Langley

Space Structure Assembly To Use Joint Hardware

BY JEAN CLOUGH

Erectable truss joint hardware designed and fabricated at Langley will be used to assemble a space structure during Space Shuttle Endeavour's maiden voyage in May.

The Assembly of Station by EVA Methods (ASEM) flight experiment on STS-49 will be the first time the Langley truss joint hardware has been used to assemble a truss structure in space.

During ASEM, two astronauts will perform two EVA's or spacewalks to erect a truss pyramid structure. ASEM will demonstrate EVA methods similar to those planned for Space Station Freedom (SSF).

For an overview of the Endeavour mission, please turn to Page 3.

The high-fidelity quick-attachment joint hardware is easily operated without the aid of tools and provides a strong and stiff connection between truss components. The truss joint, which requires only the simple rotation of a collar to lock, was designed to be operated manually by the astronauts, or robotically.

"Langley's truss joint has been tested extensively by the astronauts on the ground and in neutral buoyancy, and their evaluations have led to improvements in the design, which will be demonstrated during the ASEM operations," said Harold G. Bush, head of the Spacecraft Structures Branch, Structural Mechanics Division.

The truss joint, selected as the baseline structural joint for the original larger, erectable SSF design, is a key product of an extensive Langley program to develop the technology for efficient on-orbit construction of spacecraft which are too large to be boosted into orbit intact.

The unique in-house design, engineering and fabrication capability, developed to support space structures research activities, enabled NASA to utilize a flight opportunity for astronaut training in EVA structural assembly methods which otherwise would have been missed.

"The joint components are produced on numerically controlled machine tools for accuracy and economy and are made of a high strength aluminum alloy," said Bush. "A total of 137 strut end joint assemblies

Please see **JOINTS,** *Page 3*

Photo by Carol Petrachenko

Michael E. Tall, Advanced Machining Development Section, fabricates an erectable truss joint for an STS-49 flight experiment, Assembly of Station by EVA Methods (ASEM). Tall recently received an Exceptional Achievement Medal for his work on space structures joint hardware.

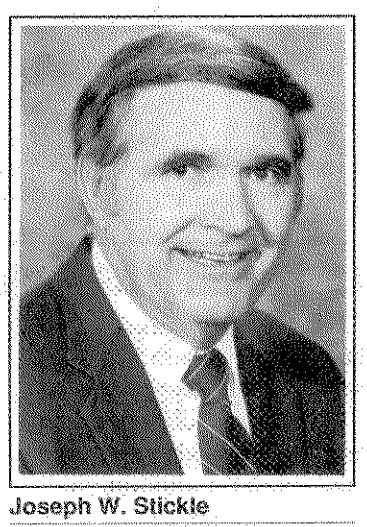
ON THE INSIDE

The Virginia Air and Space Center's grand opening introduces one of the region's most breathtaking attractions. See center section for story, photos.

The "Brainbusters" club celebrates its 50th anniversary. Story and photos on Page 6.

The Langley Federal Credit Union is offering a scholarship. Page 7.

Chief Engineer Joseph Stickle Retires After Three Decades



Joseph W. Stickle

Chief Engineer Joseph W. Stickle has retired after 33 years at Langley. His last day was April 3. The Hampton native was chief engineer for three years.

Stickle began his Langley career in 1959 as an engineer conducting research in aircraft operating problems, including runway roughness, aircraft landing contact conditions, clear air turbulence, flight path control, aircraft trailing vortices and fuel reserve requirements for advanced aircraft.

He was chosen in 1970 to represent NASA on the aeronautics staff of the National Aeronautics and Space Council, where he worked on national aeronautical programs, policies and problems.

Stickle returned to Langley in 1971 as technical assistant to the director for aeronautics, assisting in planning, coordinating and evaluating aeronautical aerospace research programs.

He became assistant head of the Airworthiness Branch in 1972 and was responsible for the Center's general aviation programs, covering aerodynamics, structures, avionics, propulsion, noise and human factors, and research on accelerated breakup of aircraft trailing vortices.

He was named assistant chief of the Low-Speed Aerodynamics Division and acting chief in 1980.

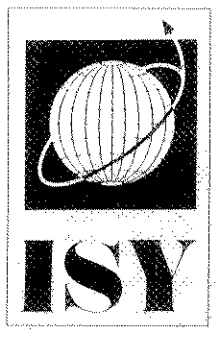
Stickle served in the Army Signal Corps from 1955 to 1957.

He received a bachelor of science degree in physics from Wofford College in Spartanburg, S.C., in 1959. Stickle is the author or co-author of 26 technical publications and holds a NASA patent. He is an associate fellow of the American Institute of Aeronautics and Astronautics. He received a NASA Exceptional Service Medal in 1986 for "outstanding leadership and management of research in low-speed aerodynamics, flight dynamics and flight environmental effects, resulting in significant improvements in aircraft efficiency, safety and productivity."

Center Researchers Help Keep A Finger On The Earth's Pulse

BY CRAIG MURDEN

A major new program to answer questions about the conditions that sustain life on Earth was launched when Atlantis blasted away from the Kennedy Space Center on March 24 and returned nine days later with data about the atmosphere and the stability of the Sun. This important international focus on Earth closely involved researchers Dr. Curtis P. Rinsland and Linda Sue Warren of the Atmospheric Sciences Division (ASD).



The initiative, whose long-term aim is to provide the basis for decisions about humankind's role in the stewardship of the planet's resources, is called the Atmospheric Laboratory for Applications and Science (ATLAS). It combines an international team of scientists over an 11-year solar cycle to investigate how Earth's atmosphere and climate are affected by the Sun and industrial and agricultural activities. The recent ATLAS 1 mission represented eight countries with investigations in four disciplines: atmospheric science, solar science, space plasma and ultraviolet astronomy. The missions use elements of Spacelab, a laboratory built by the European Space Agency and installed in the shuttle's payload bay.

Rinsland is a co-investigator for the Atmospheric Trace Molecule Spectroscopy (ATMOS) experiment, which measures the concentrations of several dozen gases in the atmosphere between 6 and 93 miles high. This scrutiny of global, seasonal and long-term changes in the vertical profiles of gases, especially those related to the chemistry of ozone, will

Please see **ATLAS,** *Page 7*

News Briefs

AROUND THE AGENCY

Aerospace Mechanisms Symposium — The 26th Aerospace Mechanisms Symposium will be held at the Goddard Space Flight Center in Greenbelt, Md., from May 13 to 15. Twenty-four papers will be presented on topics including robotic manipulators, flexible solar arrays and covers, Space Station Freedom mechanisms and cryogenic mechanisms. For more information, call Stuart Lowenthal, (408) 742-2461, or Bowden Ward Jr., (301) 286-3820.

National Engineering Award — Astronaut Bonnie J. Dunbar has won the National Engineering Award presented by the American Association of Engineering Societies (AAES). Dunbar, an astronaut at the Johnson Space Center in Houston, also has worked for Boeing Computer Services and Rockwell International Space Division. She joined NASA in 1978.

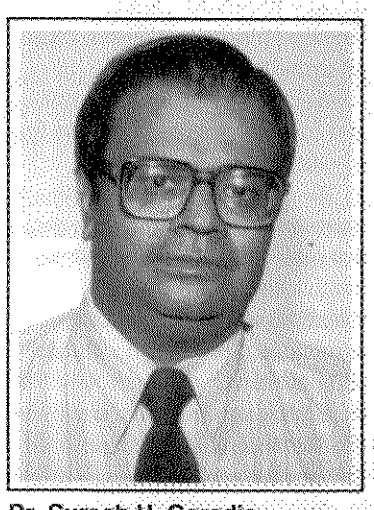
More On Mars Team — Thirty-three scientists have been added to the Mars Observer science program. The mission is expected to get underway in September when Mars Observer is scheduled to be launched on its 11-month journey to orbit the planet. The spacecraft will provide a 687-day (one Mars year) record of geological, atmospheric, chemical and morphological changes.

Dr. Suresh H. Goradia, of ViGYAN, Dies

Sympathy is extended to the family of Dr. Suresh H. Goradia, who died Saturday, March 14.

His association with Langley began in 1968, when he started working on the aerodynamics analysis of multi-element airfoils as an employee of Lockheed Georgia Co.

Goradia pioneered the development of advanced boundary-layer and transition methods used extensively to design improved powered and unpowered high-lift systems and Laminar and Hybrid-Laminar Flow Control airfoils for application to a wide range of aircraft configurations.



Dr. Suresh H. Goradia

In his current assignment with the Hypersonic Technology Office, he performed aerodynamic analysis on the National Aero-Space Plane project and supported the Generic Hypersonic Program for ViGYAN.

He earned his bachelor of science degree from Gujarat University in India, his master's from the University of Michigan and his doctorate from Georgia Tech. He is survived by his daughter, Meera Goradia of Bombay; a son, Kuman Goradia of Bombay; a sister, Indu Gandhi of Bombay; and a brother, Dhanvant Goradia of Charlottesville. He will be missed by his colleagues at NASA and ViGYAN.

Software Systems Workshop Planned

A workshop on Software Systems for Surface Modeling and Grid Generation will be held from April 28 to 30 in the H.J.E. Reid Conference Center. Thirty-nine papers and 25 software demonstrations, covering a wide spectrum of surface modeling and grid generation, will be presented. Call Marie Noland at ext. 45779 for registration information.

Runners Club Schedules Spring Races

NASA Intercenter Spring Running Competition will end with a two-mile race April 27 and a 10 kilometer race April 30. The races will start at 5 p.m. on Doolittle Road. Walkers are welcome. For more information about the races or the Langley Runners Club, call Richard Shearer at ext. 47036.

LETTERS

Thanks For Blood

Conrad Willis would like to thank everyone who designated blood to his brother-in-law, Plumer Wiseman, at the October Red Cross Bloodmobile. The donor address card was lost, leaving the Red Cross unable to supply the information required for the family to send individual notes.

Thanks For Party

From **William H. Richards:** I would like to thank all who participated in the planning of my retirement party and everyone who attended. It was a very enjoyable occasion. I will always possess many fond memories of the people and experiences at NASA.

IN MEMORIAM

Z. Bird Truitt

Z. Bird Truitt, 89, died Sunday, March 22.

The long-time Peninsula resident, a native of Darby, Pa., retired from Langley in 1964 as a pattern-maker.

Stanley Hauenstein

Stanley Hauenstein, 79, died Tuesday, March 31. He retired as a purchasing agent from Langey in 1973 after 30 years of service.

The former Peninsula resident lived in Moline, Kan. at the time of his death.

'Mastering Meetings' Is Seminar Topic

"Mastering Meetings" is the topic of an Empowerment Series live video seminar on Wednesday, May 13, from 2 to 3:30 p.m. in Building 1194 A, Room 203.

The seminar features Russell Lowell Osmond, founder and president of Change Strategies International, an Atlanta-based change management consulting firm.

The company specializes in working with CEOs and senior management teams of firms in transition.

The program challenges conventional meeting wisdom and provides proven tools and tested methods that can be applied immediately. Participants learn how to reduce meeting time, increase meeting output and support individual empowerment. The program forces a candid evaluation and measurement of the time consumed in meetings and offers techniques for what and how to control in meetings.

To register on a first-come, first-served basis, submit an application for on-site training form (No. 24) to Kim Dobbs, Mail Stop 309.

The form is available from the Employee Development Branch, ext. 42597, or from your training coordinator.

'Flight To The Future' Is Set To Take Off

Portsmouth is now boarding for a Flight to the Future.

The two-week expedition takes off May 2 and promises adventure for the entire Hampton Roads area in celebration of International Space Year (ISY).

During ISY, Portsmouth Public Schools and community have been chosen to host a NASA-Community Involvement Program, an honor extended to only four cities each year.

The Flight to the Future program uses NASA's educational and public affairs resources to help generate a comprehensive space education experience for Tidewater.

The event will feature:

- The most extensive space exhibits ever on display in Virginia from Langley Air Force Base, Johnson Space Center, and Marshall Space Flight Center. Exhibits will be at Tower Mall.
- A Grand Opening Parade.
- Visits from astronauts, presentations by NASA spacemobilers, scientists and engineers.
- Sky Day for kids and parents.
- A special performance by the Air Force band.
- A static air display featuring 78 experimental aircraft and antique aircraft displays, plus 1,000 scale models.

For more information, call 393-8840.

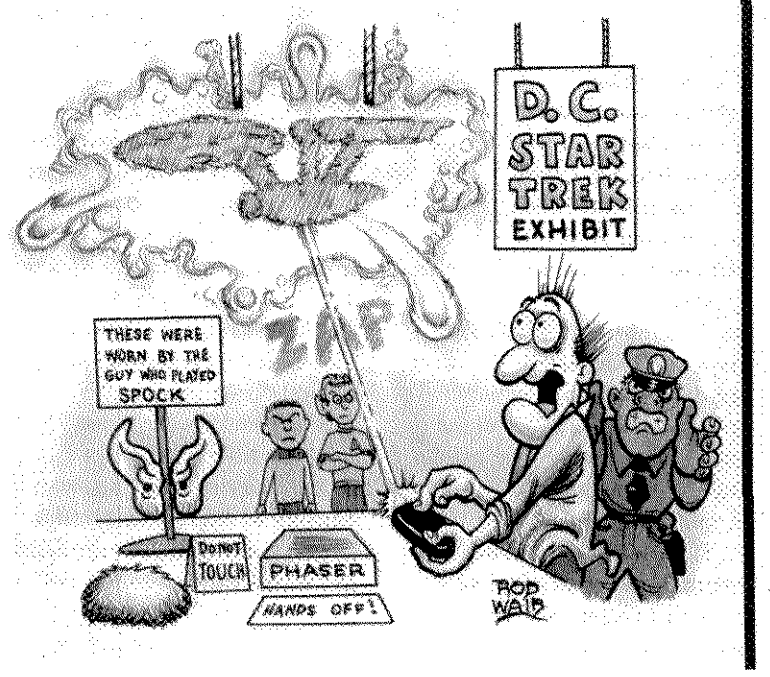
Huffman, LeDuc Retirement Parties

Two parties will be held this month to honor retiring employees:

Carolyn H. LeDuc, of the Computer Management Branch, Analysis and Computation Division, will be honored at a retirement social May 21 at 4:30 p.m. in the cafeteria executive dining room. Cost is $8 per person, including gift. Gift-only donations will be graciously accepted. Send reservations to Shirley R. Brown or Peggy B. Rollins at Mail Stop 157D by May 14. Please make checks payable to Shirley R. Brown.

Jarret K. "Jerry" Huffman will be honored at a retirement party Friday, May 22, at the Fort Monroe Officer's Club. A cash bar will begin at 6 p.m., dinner at 7 p.m. and program at 8 p.m. Cost, including prime rib buffet dinner and gift, will be $15 per person or $28 per couple. Contributions for the gift are welcome. Make reservations with Pat Clukey, ext. 41066, or Mail Stop 361, by May 15.

Lankley



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A public service of this publication

News Researcher

The **Researcher News**, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23665-5225, is published every other Friday in the interest of all Langley staff and retirees. Submit contributions to the Editor, Mail Stop 115, telephone 864-6126. Articles are due at noon on the Tuesday following the date of this issue.

Managing Editor ..... Jean Drummond Clough

Editor ..... Michael Finneran

Photojournalist ..... Carol Petrachenko

Photographer ..... Fred Jones

The privilege of advertising in this publication is restricted to the employees and retirees of the Langley Research Center. Articles advertised here must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

Endeavour To Put New Rocket Stage In Communications Satellite

Endeavour's maiden space flight will rendezvous with a crippled communications satellite, repair it with a new rocket stage to put it in a proper orbit and feature the first-ever three spacewalks by four astronauts in as many days.

The launch of STS-49 is planned at 8:03 p.m. Eastern Daylight Time on May 5. With an on-time launch, landing would be at 4:58 p.m. Pacific Daylight Time on May 13 at Edwards Air Force Base, Calif.

■ For car passes to the launch, call Ann Suit at ext. 43305.

Endeavour's crew — Commander Dan Brandenstein, Pilot Kevin Chilton and Mission Specialists Pierre Thuot, Rick Hieb, Kathy Thornton, Tom Akers and Bruce Melnick — will rendezvous with the INTELSAT VI (F-3) communications satellite on the fourth day of the flight. The INTELSAT VI was launched two years ago by an unmanned Titan rocket and stranded in a useless, low orbit when the Titan's second stage failed to separate.

Going outside the shuttle, Thuot will grasp the satellite using a specially designed capture mechanism. He and Hieb will attach a new solid rocket motor and it will be deployed. INTELSAT VI's final destination is a 22,400 nautical mile high orbit, where it will be stationary above the Atlantic Ocean, providing telecommunications services to more than 180 countries for at least the rest of this decade.

For the next two days, two astronauts will perform two spacewalks to evaluate equipment and techniques needed to build Space Station Freedom.

The evaluations will include construction of a pyramid simulating the space station truss structure; the ability of an astronaut to manipulate large, heavy objects in weightlessness; and the usefulness of five different prototype designs of devices to assist a spacewalker whose tether comes loose.

The Endeavour also will carry the Commercial Protein Crystal Growth experiment in its middeck, one of an ongoing series of experiments that grow near-perfect protein crystals in weightlessness for use in developing products and drugs.

In addition, the Air Force Maui Optical Station (AMOS), an optical facility on the Hawaiian island of Maui, will attempt to calibrate its equipment by viewing jet firings and water dumps from Endeavour on a non-interference basis.

And the Ultraviolet Plume Instrument (UVPI), an instrument on the LACE satellite, will observe the shuttle for calibration information.

JOINTS:

Continued from Page 1

was made by Langley's Fabrication Division to support the Johnson Space Center's requirements for three sets of hardware for STS-49."

Bush said the quality of the research hardware produced by the technicians in the Advanced Machining Development Section was so high that it qualified for flight, resulting in a large production-time savings, since many of the needed joint components were already machined.

The truss segment will be assembled on Endeavour's cargo bay sills. A Multiple Purpose Experiment Support Structure (MPESS) pallet in the forward payload bay will be used to simulate attachment of a payload to the truss. The pallet also will house most of the hardware needed to build the space structure.

Additional objectives of the ASEM flight experiment are to evaluate crew self-rescue devices and techniques; examine proposed SSF assembly areas forward and above the payload bay; gather data on various techniques and handling aids during manipulation and berthing of large masses in weightlessness; and evaluate Remote Manipulator System berthing operations using EVA verbal guidance and portable video camera to augment direct viewing.

ASEM, which will fly as a secondary payload on STS-49, is managed by the McDonnell Douglas Space Systems Co. for the Johnson Space Center's Crew and Thermal Systems Branch for the Work Package-2 Space Station Freedom Project Office.

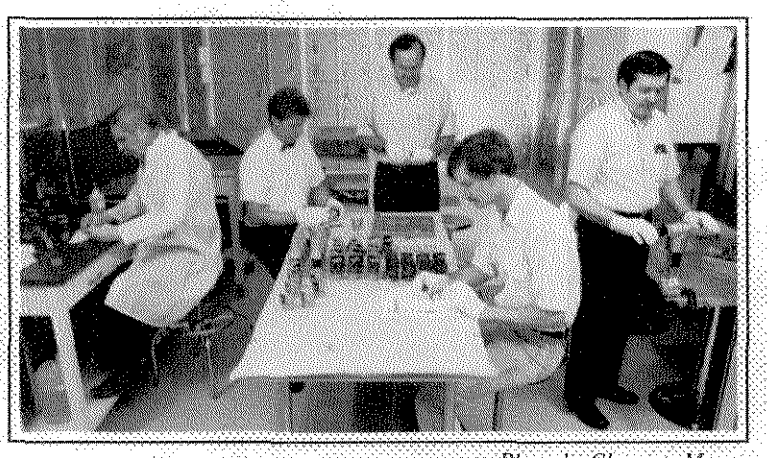


Photo by Clements Mayes

Behind the glass walls of the high bay clean room in Building 1250, Langley researchers assemble flight hardware for the shuttle mission. From left are Richard E. Hanna, Lockheed Engineering and Sciences Co.; Henry N. Zumbrun and Michael E. Tall, Langley; James E. Phelps, Lockheed; and David T. Fahringer (foreground) Langley. One hundred thirty-seven strut end joint assemblies were delivered to Johnson Space Center.

Dr. Sidney Altman

Nobel Prize Winner To Talk On Lab Life

"Understanding Life in the Laboratory" has a double meaning for Dr. Sidney Altman, professor of biology at Yale University — molecular basis of life and the social interactions between workers in the laboratory. He will share these definitions at two lectures in Hampton on Monday, May 4.

At 2 p.m., Altman will address Langley employees, retirees and contractors at a colloquium in the H.J.E. Reid Conference Center. At 7:30 that evening, he will speak at the Virginia Air and Space Center as part of The Sigma Series, which features free public lectures sponsored by the Virginia Air and Space Center, the Daily Press and NASA.

Altman will introduce the audience to the fundamentals of molecular biology. He also will look at the social framework within which scientific research is conducted and the ways scientific knowledge is assessed.

Altman was co-recipient of the 1989 Nobel Prize in chemistry along with Thomas Cech of the University of Colorado. His work led to the discovery that the RNA molecule, which had been considered as the mechanism for transfer of the hereditary information in the DNA molecule to direct the production of proteins, was also indispensable for the chemical reaction to take place, and therefore acted as an enzyme.

Altman was chairman of the Biology Department at Yale and later, from 1985 to 1989, was dean of Yale College. During his deanship, the role of science in a liberal arts education was greatly increased by requiring that all students complete three science or engineering courses to qualify for graduation, including two courses in the natural sciences. In addition, more emphasis was placed on languages and interdisciplinary studies.

Altman received his bachelor of science degree in physics from the Massachusetts Institute of Technology in 1960 and his doctorate in biophysics from the University of Colorado in 1967.

Gender Politics Is Topic Of Seminar Sponsored By Women in Aerospace

"Organizational and Gender Politics for the 1990s" is the focus of a seminar sponsored by the Hampton Roads Section of Women in Aerospace.

Regina Jackson, a nationally recognized trainer, speaker and facilitator, will use the 1½-day seminar to help women understand how organizational systems really work and how they can be savvy organizational participants. Her program teaches successful strategies for bartering and negotiation; understanding, developing and using power effectively; and coping with differing values in the workplace while performing as a team player.

The course, subtitled "What you don't know that nobody tells you that you don't know," will give participants the opportunity to discuss individual workplace concerns.

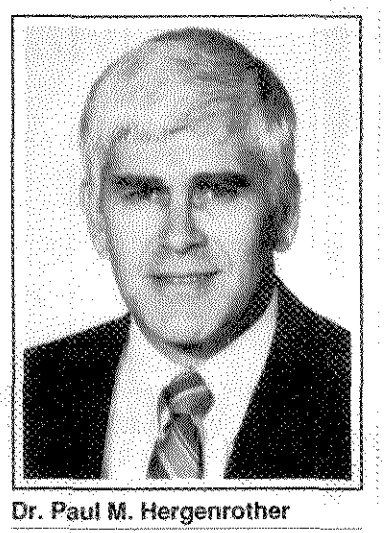
Two sessions are offered. The first is 8:30 a.m. to 4 p.m. May 14, and 8:30 a.m. to 12:30 p.m. May 15. The second session is 6 to 9:30 p.m. May 15 and 8:30 a.m. to 4:30 p.m. May 16.

Cost is $120 ($95 for members of Women in Aerospace). Some federal installations will underwrite the cost for employees.

Registration deadline is April 27. Call 865-0726 for registration information.

Hergenrother Honored By Chemical Society

Award Is For Distinguished Service



Dr. Paul M. Hergenrother

Paul M. Hergenrother, senior polymer scientist in the Polymeric Materials Branch, Materials Division, has received the Distinguished Service Award from the Division of Polymer Chemistry of the American Chemical Society.

The award is given annually for outstanding participation, dedication and contribution to the division. The honor was presented at the division's banquet, which was held at the American Chemical Society National Meeting in San Francisco April 5 to 10.

Hergenrother was recognized for organizing and participating in technical workshops, short courses, symposia and meetings. His meetings on Polyimides and Other High Performance Polymers in 1985, 1987 and 1990 have been recognized throughout the world. He plans a fourth such meeting in 1993.

Hergenrother joined Langley in 1980. Prior to that, he held various technical and management positions with the Whittaker Corp., The Boeing Co., the Koppers Co. and the Mellon Institute.

Hergenrother has received numerous awards, including the NASA Medal for Exceptional Scientific Achievement, three Best Paper awards from the Society of Advanced Materials and Process Engineering and the Distinguished Lecture Award from The Society of Polymer Science, Japan.

Hergenrother said that one of his greatest honors was being invited as one of 17 speakers who appeared before an audience of 1,500 at the Scientific Jubilee Symposium in Germany to celebrate the 125th anniversary of the founding of BASF.

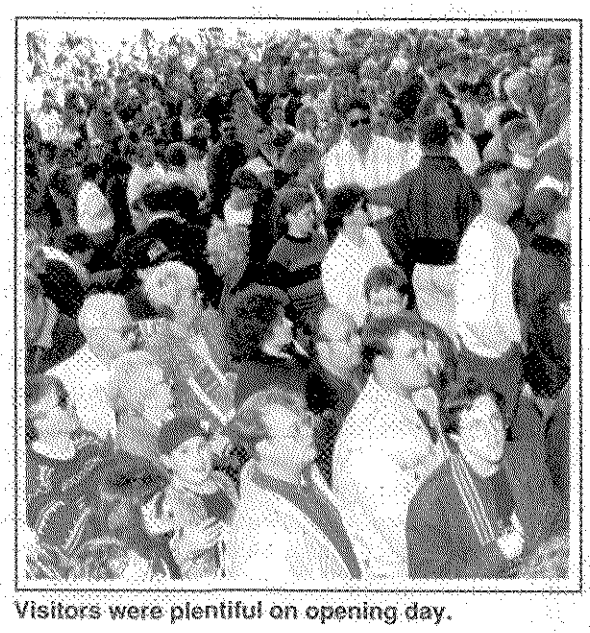
Hergenrother has 100 refereed journal publications, 80 other referenceable publications, 25 patents, a book and 250 oral presentations.

His work has been primarily in high performance/high temperature polymers. He serves on the editorial board of three journals.

THE AIRPLANE EXHIBITS hang in silence at the Virginia Air and Space Center shortly before the grand opening. It was a different scene just hours later, when thousands of vis

The Dream Is

Pomp, Circumstance And Awe Mark Opening Of Virginia Air A



Visitors were plentiful on opening day.

Linsey Tran, left, and husband Sang pause near the F-4E Phantom with daughter Jennifer. Sang Tran works in the Fabrication Division.

The Virginia Air and Space Center and Hampton Roads History Center opened April 5 in a ceremony that featured speeches, an aerial salute, music by the U.S. Continental Army Band and an overflow crowd of visitors.

Some 12,000 people took advantage of the downtown Hampton center's free tour from 2 to 7 p.m. to view more than 100 breathtaking exhibits that tell the story of the region's history, aeronautical research and space exploration.

A highlight of the day was a free 90-second preview of the IMAX film, *The Dream is Alive*, in the center's 300-seat IMAX Theater, the only one in Virginia.

Featured speakers included Gov. L. Douglas Wilder, who hailed Virginia's leadership in aeronautics and space.

"Virginia has been a pioneers in aeronautics: the first American aeronautical research laboratory, our nation's first Air Force base, the birthplace of the space program. And today, the continued research and application of aerospace technology at the NASA-Langley Research Center," Wilder said during the opening ceremony outside the center.

"All these historic landmarks and events and the progress of aerospace occurred right here in Virginia. And so it's only fitting that the Virginia Air and Space Center be here on this site, alongside the Hampton Roads History Center."

Michael Wood, foreground, and Sonny Walters get a pilot's-eye view of a hands-on aircraft cockpit.

Said Wilder: "Our commitment to this center is emblematic of Virginia's continuing role in aerospace and in furthering future discoveries. Virginia has a very important place to play in our aerospace future, and that includes research at the nearby Langley Research Center. It is my hope that Virginia will once and again, for all, be called the home of the annex of the (Smithsonian) Air and Space Museum."

Former Center Director Richard H.

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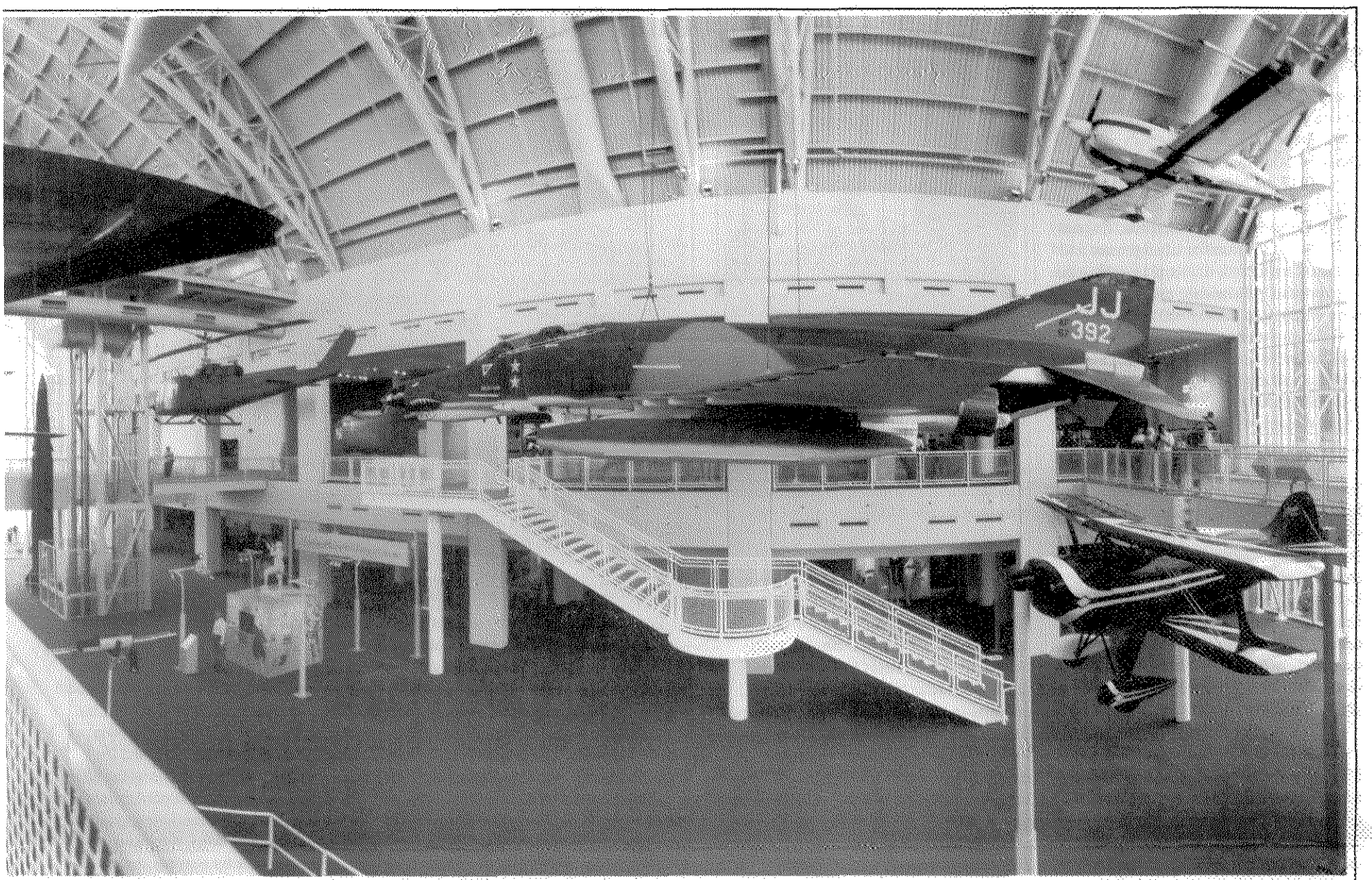

s thronged the 110,000-square-foot facility for a free peek at the jewel of Hampton's waterfront.

Photos by Fred Jones

Alive

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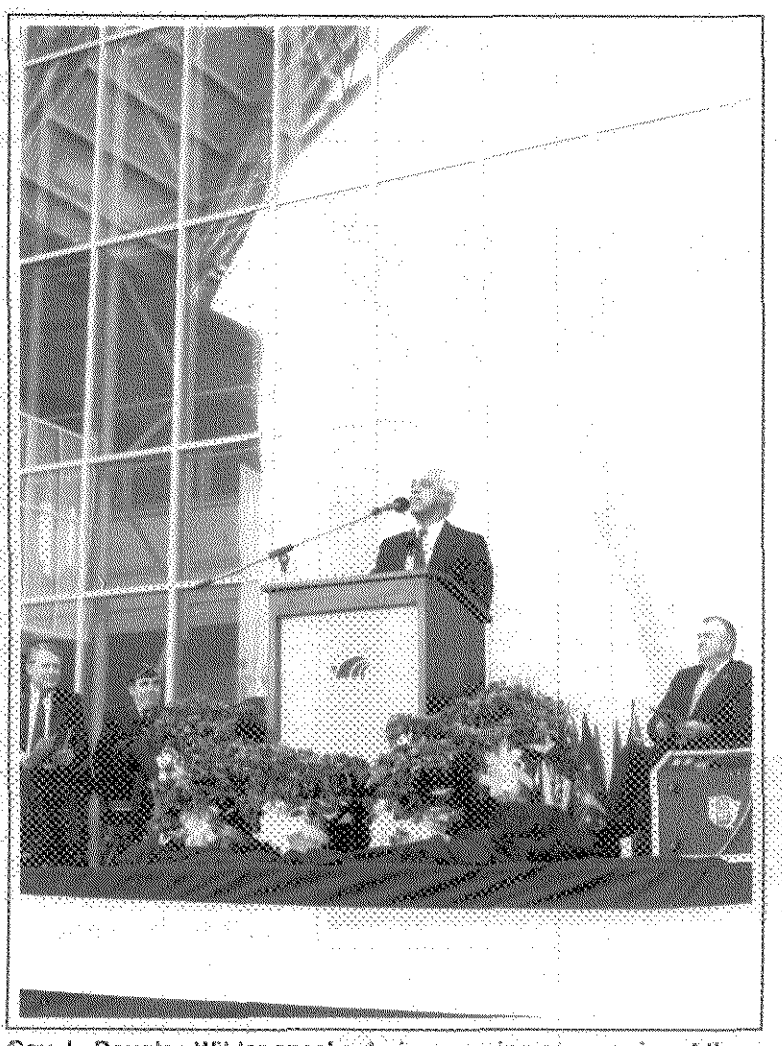
is the best aerospace educational center in the nation," he said. "While NASA will help with all aspects of the museum, we will pay special attention to the needs of students and teachers and the education which is being put together by the museum and the NASA staff."

Sen. Hunter B. Andrews, echoing the comments of other speakers, hailed the late Thomas P. Chisman for his efforts on behalf of the center as its board chairman.

The new chairman, Edwin Kilgore, praised Langley's work and said the new center will serve not only the present, but the future.

"The present is depicted by technology which has been and continues to be developed at NASA Langley. This technology is largely responsible for the preponderance of the world's commercial aircraft being built in the United States and for our military aircraft which are second to none," he said. "The future will be influenced by the use of this building as an education center to help interest and develop the next generation of scientists and engineers and assure the Commonwealth of its continuing role as a leader in the world of high technology."



Gov. L. Douglas Wilder speaks during opening ceremonies at the Virginia Air and Space Center. With him are, from left, Richard H. Petersen, associate administrator for the Office of Aeronautics and Space Technology; Air Force Gen. John Michael Loh; and U.S. Rep. Herbert H. Batemen. Center Director Paul F. Holloway also was among the honored guests.

HOURS AND ADMISSION

- The center is open Sunday from noon to 7 p.m., Monday through Wednesday from 10 a.m. to 5 p.m. and Thursday through Saturday from 10 a.m. to 7 p.m. IMAX films will run at frequent intervals throughout the day.
- Basic adult admission is $3, or $6 including an IMAX film. Basic seniors admission is $2.50, or $5.50 including IMAX. Admission for children is $1.50, or $4.25 including the film.
- Teacher Resource Center hours will be noon to 5 p.m. Monday through Wednesday and noon to 7 p.m. Thursday through Sunday.

'Brainbusters' Model Airplane Club Celebrates 50th Anniversary With Reunion

BY EDWARD M. SULLIVAN

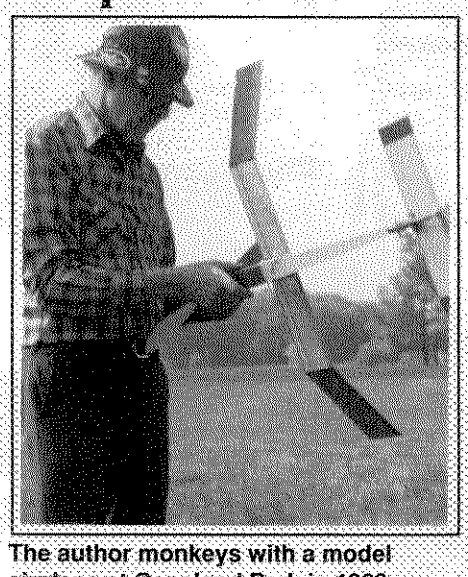
The Brainbusters Free Flight Club of Hampton will join that rare group of classic model airplane clubs when it holds a reunion April 24 to 25 to celebrate its 50th anniversary.

In 1917 the NACA established its first research center at a new Army Signal Corps base near Hampton. Legend has it that as the number of engineers and scientists increased, the local people, who were primarily fishermen and farmers, were hard put to understand these new arrivals who worried about airfoils and engines and struts and longerons. It was said that talking to the NACA employees was enough to "bust your brains." For a while, the term "Brainbusters" applied to all NACA engineers.

Along came World War II and the NACA Langley Memorial Aeronautical Laboratory, charged with aeronautical research to support the military, hired a large number of young model airplane enthusiasts as model builders and technicians. These soon founded a model airplane club, in 1942, but for a while it operated without a name. Then, after some debate (make that heated discussions) the name "Brainbusters" was adopted in June 1943.

Oldtimers will remember that the Hampton Roads Model Airplane Club (or Model Association) was formed in 1928 as a chapter of the Virginia Model Association, which later became affiliated with the American Model Association (AMA). Prior to the buildup of personnel at Langley after the start of WWII, this was the local model club.

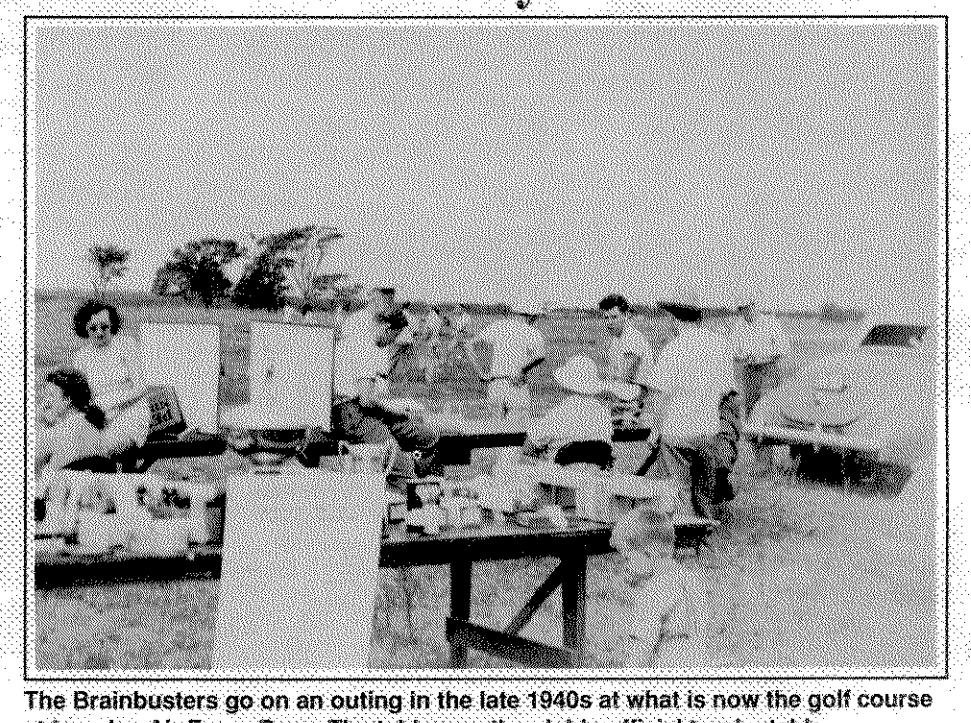
Both clubs flourished and co-existed — even to sharing meeting facilities in the Hampton community center at the Syms-Eaton Academy. Eventually, the older club merged with the Brainbusters, although there was a good-natured attempt on the part of some of the "oldtimers" to re-establish the Hampton Roads club in 1944 because of "philosophical" differences. The oldtimers rejoined the fold some time later, and the Hampton Roads Model Airplane Club ceased to exist except as a predecessor to the Brainbusters.



The author monkeys with a model airplane at Copeland Park in 1989.

The Brainbusters have always been primarily a competition-oriented free flight club — and they have always been active. In the 1940s and '50s, the members flew in both Rises Off the Ground (ROG) and Rises Off the Water (ROW) contests in Hampton and Portsmouth and had an excellent ROW tank at Langley Field. For many years, they were the model airplane club for NACA and then NASA at Langley, and they had permission to fly on Langley Army Air Corps and Air Force property. As the amount of air traffic increased, however, the conflicts for air space became too great.

At some point in the late '50s or early '60s, the club began flying at Curles Neck Dairy farm near Richmond. At Curles Neck, the club hosted two contests per year, plus several trials each summer certified by the Federation Aeronautics International (headquartered in France). This arrangement lasted until 1981, when Curles Neck ceased to be a dairy farm, and all of the pasture was converted to corn and soy beans.



The Brainbusters go on an outing in the late 1940s at what is now the golf course at Langley Air Force Base. The table was the club's official trophy table.

THEN & NOW

The club still hosts two contests a year with the permission of the airport outside of Petersburg. The spring contest is a two-day affair, while the fall contest lasts one day. The spring contest includes most of the AMA official events and several unofficial events. The fall contest generally focuses on the AMA events.

The Brainbusters membership, like that of most clubs, fluctuates dramatically. At one point in the late '70s, the active membership was down to between 10 and 15. Currently, the membership is near 35, of which 15 to 20 regularly attend meetings.

The early membership was exclusively NACA employees. Over time, the membership base was expanded to include military and non-NACA/NASA personnel. The current membership includes NASA active and retired personnel, Air Force officers, a retired Army sergeant, and a number of civilians from the Tidewater area.

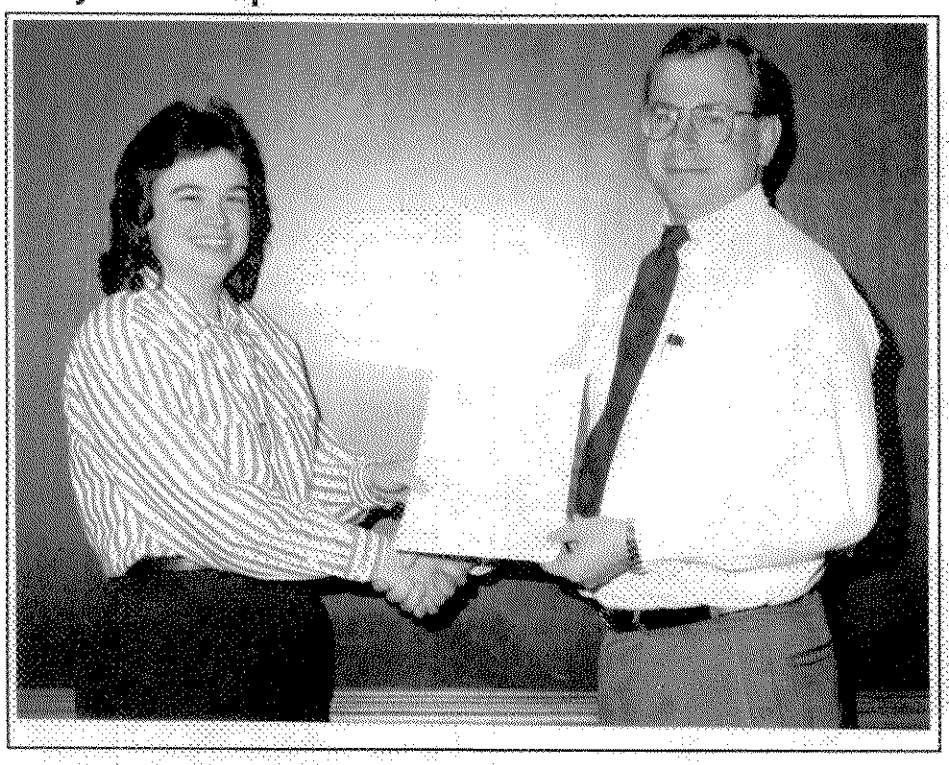
Why have the Brainbusters maintained their identity for 50 years, while many other clubs have expired? There are a number of reasons.

The club has kept its focus on free flight, realizing that there are other model clubs locally that cater to Control Line and Radio Control. There have been active leaders over the years and the membership willingly supports the club's semi-annual contests and participates in the inter-club winter outdoor and indoor monthly contests. Also, the members help one another by sharing ideas, designs, and even supplies.

Many of the members have an aeronautical background and a love of aircraft, and almost all have a healthy attitude. As they see it: building and competing are fun; winning is fun; but losing isn't terrible. The club has had its share of national honors, but the members are real people.

Allan C. Hanrahan contributed to this report.

Lindy On-The-Spot



David Beals, head of the Structural Engineering Section, hands Lindy A. Fleck Langley's first On-The-Spot Award (OSA). Fleck received the award for her exceptional efforts preparing the Facilities Engineering Division's display for the Center's Career Day 1992. OSAs were begun at Langley with the fiscal year 1992 awards budget. These awards, subsidiaries of Superior Accomplishment Awards (SAAs), focus on immediate recognition of employees who perform quality service in an exceptional manner. The cash awards take three days to process. SAAs take about three weeks.

Brown Bag Seminar Focuses On Safe Exercise

Are you a safe exerciser or a victim of improper training techniques? Do you wonder why your foot hurts after your workout or what you should do for a sore muscle or sprained ankle? The answers to these and more questions will be discussed in a brown bag seminar, "Safe and Sane Exercise."

The seminar will be at noon May 7 in the cafeteria's addition.

Many fitness enthusiasts strive to keep exercising as part of a healthier lifestyle, but when improper techniques are used, injuries can occur. For example, many exercisers get into the bad habit of neglecting to warm up. By going straight into their exercise regimen, the individual is not allowing for the gradual increase of heart rate and core temperature needed to meet the demands of the workout. The same is true of a cool-down. The body must slowly return to a resting state in which the blood flows easily back to the heart, preventing the likelihood of fainting and decreasing post-exercise muscle soreness and stiffness.

Stretching is another key to injury prevention and is often overlooked or done incorrectly. Stretching makes the muscles more elastic and gives the whole body added flexibility. With an increased range of motion, the exerciser has more mobility, coordination and control. Stretching also decreases the chance of cramping during or after the workout.

Overtraining, another pitfall, can also lead to injuries. By not allowing the body to appropriately rest and recover, fatigue may occur and open the way for injury. Proper rest and a decrease in intensity level may remedy this condition.

Pain is also an important indicator of impending injury. Injuries to the foot, ankle, knee and leg will be reviewed in the upcoming seminar by a podiatry specialist, Dr. Joseph Agistinelli. These and other injury prevention strategies will all be included.

Fitness Day Is May 13

The Langley Fitness Center will celebrate Federal Fitness Day on May 13 with a day of activity and exercise. Festivities will start with an open house. A free low-impact aerobics class open to everyone will start at noon. A 5K race will be held at 5 p.m. And a social will be held at the H.J.E. Reid Conference Center, with munchies and a cash bar. More details will be published later.

Getting A Lift

Flight tests recently were completed on the Langley 737-100 aircraft to measure aerodynamic pressure distributions as part of a multiphase high-lift flight research program. As with most flight projects, much teamwork is needed to achieve success. Many people and organizations were involved, including fabrication, engineering, instrumentation and aircraft operations. The high-lift flight research program is managed by Long Yip of the Flight Research Branch, Flight Applications Division.

Photo by Paul Bagby

Credit Union Offers Scholarships To Center Employees, Contractors

The Langley Federal Credit Union announces its "Salute to NASA Langley" scholarship in honor of the Center's 75th Anniversary.

The scholarship is open to all permanent NASA Langley civil service and on-site contractor employees and their immediate families.

The scholarship will be a one-time, nonrenewable award for someone pursuing a post-high school degree at an accredited college or university in the United States, full or part-time. The goal set for the scholarship is the furtherance of education, not only in mathematics, science or technology, but in any peripheral field that can be shown to be of benefit to the aerospace industry and to the United States. One $1,000 scholarship will be awarded. The scholarship, an unsolicited gift from the Langley Federal Credit Union to the local NASA community, via the NASA Alumni Association, salutes the NASA Langley Research Center for its 75 years of accomplishment and supports the nation's educational initiative. The scholarship is also in recognition of those employees of the NACA (the predecessor of NASA) who founded the Langley Federal Credit Union in 1936 and sustained it through its embryonic years.

The scholarship winner will be honored at Langley's 75th Anniversary celebration on July 17.

Completed application forms must be postmarked no later than June 5, 1992. Late applications will be returned unopened. Send to: LFCU "Salute to NASA Langley" Scholarship Committee, C/O LARCAA Inc., Mail Stop 496, Langley Research Center Hampton, Va., 23665. Forms are also available at the credit union's branch office at the Center.

ATLAS:

Continued from Page 1

help predict the future evolution of the stratosphere. The principal investigator for the experiment is Dr. Michael R. Gunson of the Jet Propulsion Laboratory.

Rinsland said ATMOS performed as planned, gathering a wealth of data. About 10,000 atmospheric and solar observations were taken in 93 periods.

"Of special interest will be the several dozen measurement coincidences with the Upper Atmosphere Research Satellite (UARS) which carries the Langley-designed and developed Halogen Occultation Experiment (HALOE). ATMOS measures all of the gases analyzed by HALOE and the comparison of the results from both experiments will be very valuable for data validation," he said.

He added that he is being assisted by JoHanna Wilding in the development of software for that data analysis.

Also of special importance was the clearly seen absorption by stratospheric aerosol particles that resulted from the Mount Pinatubo eruption. The analysis of the effects of those particles will be an added ingredient in the developing research about the changing composition of the atmosphere.

Linda Sue Warren's involvement in the Measurement of the Solar Constant (SOLCON) experiment also has an additional Langley link. SOLCON, a Belgian experiment, measures the amount of solar radiation that arrives at the top of the upper atmosphere. That data compared well to Langley's Earth Radiation Budget Experiment (ERBE) data.

Warren's role in the experiment was twofold: She coordinated all SOLCON activities between Belgium, Kennedy, Marshall and Langley and led the software development team at Langley.

"It was a fantastic experience to become part of an international team responsible for getting an instrument ready to fly on board a shuttle payload," she said.

And, she pointed out how well the software team interacted to produce instrument, ground support equipment and graphical analysis software. She named James Donaldson, Susan Thomas, Alan Gibson and JoJo Leister as some of the key Langley players.

SOLCON improves the accuracy of measurements of the total solar energy arriving at the atmosphere and searches for long-term variations in the value of the solar constant. Continuous, more accurate measurements of the constant will let future generations identify solar and climatic trends over the centuries.

A human interest highlight for Warren was a visit from Prince Philippe of Belgium who, with her help, sent a command to SOLCON. Later, principal investigator Dr. Dominique A. Crommelynck spoke with fellow-Belgian Dr. Dirk Frimout, a payload specialist aboard Atlantis.

In characterizing the recent Langley ATLAS 1 activity, ACD Assistant Division Chief Scott H. Wagner said, "The corroborative roles of the two ATLAS 1 experiments with the already established Langley HALOE and ERBE programs is an example of the depth and scope of the Center's growing contribution to global atmospheric sciences."

Warren came to Langley as a co-op in 1982 and joined the ASD in 1985. A graduate of Mississippi State University with a bachelor of science degree in computer science, she specializes in developing data acquisition and data analysis software for division scientists.

Rinsland began his NASA career when he left his post as a research assistant professor at The College of William and Mary in 1982 to come to Langley. He is a senior research scientist with a bachelor's degree in physics from Pennsylvania State University and master's and doctoral degrees in astronomy from Ohio State. He specializes in the analysis of high resolution infrared spectra of the atmosphere and infrared laboratory spectra of atmospheric molecules. He is a frequent contributor to scientific journals and a member of the American Astronomical Society.

IN PERSON

In Spring, A Man's Thoughts Turn To Red Sports Cars

■ BY RAMKI KRISHNAN

I drive a car that's seven years old (that's 86 human years) and lately, I have been ruminating a great deal about getting me a shiny new automobile. This time I want a jazzy, hot number that will have people turning their heads, pointing fingers and collapsing on the sidewalk laughing, "That poor joker will be in debt for the next 60 years, with car payments, insurance, taxes, etc. What a dope!" I can only surmise that I am going through what psychologists term as "machopause." This is the reckless time in a man's life when his hair thins out but he throws follicles to the winds by driving around with the car top down.

The car that I have been salivating over for a long time is the Acura NSX sports model, which I've read somewhere boasts an Enviousness Index (EI) of 28 (The EI is the number of deliberate dents inflicted on a new car's side panels in the first five minutes at a mall parking lot). I drove to the nearby Acura dealer and expressed my interest in test-experiencing the NSX to the salesman in charge. His gaze shifted over to my still-sputtering jalopy and his enthusiasm receded as swiftly as today's IRA rates. To rekindle it, I blurted out that I was a doctor, which, technically was not a fabrication. My nose must have done a "Pinocchio" on me because the skeptical salesman said sternly "Sir, will you look me in the eye?" I told him that wouldn't help since I was not an eye doctor. I found out the hard way that most dealers who specialize in luxury cars have a low threshold for lame-brain jokes. I was quickly ushered out.

I tried the Porsche dealer next. The doctor story (half story, as I still contend) not paying the expected dividends, I decided to tell the salesman I was an investor. This was not a bald-face lie either, because I belong to an investment club that meets once a month. We chew the cud, tell risque jokes and throw darts at each other. The last guy to yell "uncle" gets to choose where to invest all the loose change we happen to have in our pockets.

To check my credentials, the Porsche dealer fired off a barrage of questions including, "Is junk bond a better agent than James Bond? Do you know Ivan Boesky's middle initial?" My shrugs and sheepish grins told him all that he needed to know. I realized I was as likely to get into one of the gleaming German machines as pop star Madonna was of joining a nunnery.

I did find my dream set of wheels after a long, hard search and a lot of compromises. I don't take it out much, just drive it around the house on weekends. It is bright red, real cute, and has an open top. It may not be great on gas mileage but it sure is a terrific riding lawn mower.

Krishnan is a research scientist in the Theoretical Flow Physics Branch. He works for Analytical Services & Materials Inc.

Happenings

CAR FOR SALE: 1984 Plymouth Turismo, standard 5-speed, hatch, power steering and brakes, runs great, $1,200 or best offer. Call 595-7017.

FEMALE ROOMMATE WANTED to share three bedroom house. No smokers. Rent is $250 per month plus half the utilities. Call Martha Brown at 722-7127 6 to 8 p.m.

GETAWAY: The Alumni Association's 1992 weekend getaway is May 22 to 24 in Hershey, Pa. All are invited. Call Abe Leiss for information at 877-2939.

BRICK HOUSE for sale, 136 Albany Drive, Hampton. Three-bedrooms, one bath, eat-in kitchen, ceiling fans, central air and gas heat, new roof, 1½-car detached garage, $77,500. Call for appointment, details: 838-1043.

LANGLEY AERO CLUB will hold a 1992 open house May 2 from 9 a.m. to 5 p.m. in Building 891 at Langley Air Force Base. Call 764-7486 for more information.

TOASTMASTERS meets the second and fourth Wednesday of each month from 11:30 a.m. to 1 p.m. The next meeting is May 13 in Building 1222.

FEDERALLY EMPLOYED WOMEN, Langley Chapter, meets Wednesday, April 29, at 11:30 a.m. in the Langley Air Force Base golf course snack bar, patio room.

ROOMMATE WANTED: Looking for a responsible, nonsmoking professional woman to share a 2-bedroom, 2-bath third-floor apartment at The Harbours. Includes washer/dryer, paid water, storage and view of woods. Rent is $281.50 a month plus half of the utilities and an $87.50 deposit. Available May 1 or sooner. Call Marilee at 591-2609, leave message.

FOR SALE: Campsite membership, Virginia Landing, Quimby, Va., on Atlantic Ocean on Eastern Shore. Good sea and shell fishing. Call 722-7045.

THE DISABLED PERSONS Satellite Committee will meet May 14 from 8:15 to 9 p.m. in the cafeteria. The meetings are open to all employees/contractors and to anyone who has an interest in the Disability Program.

WEDDING GOWN for sale, size 7-8, full length, fitted sequined/pearled bodice with short ruffled sleeves. Full skirt with long/ruffled train, low-cut back with bow. Four years old, stored in nice condition. Have pictures of dress to show. Paid $550, sell for $300. Call 838-4512.

ITEMS FOR SALE: 1984 Olds Cutlass Supreme, 4-door, AM/FM/cassette, runs good, looks good, $2,500 or best offer. Also, super single waterbed, 6-drawer pedestal, medium-size headboard with 3 compartments, full motion mattress, heater included, $175 or best offer. Also, 13-inch RCA color TV. Also, stereo, AM/FM/cassette with turntable and auxiliary inputs, two speakers, $125 or best offer. Nights call 599-6623 and leave message.

A MODEL TRAIN Show and Sale will be held at the Holiday Inn Coliseum on May 2 from 9 a.m. to 3 p.m. Operating model railroads, displays (including 1 1/2-inch scale live steam), dealer tables and hourly door prizes. Dealer tables available. Admission $2, under 12 free with adult. For more information, call Milt Pomelear at 473-1934.

SAILING LESSONS are available for both young and old through the Langley Yacht Club. Adult classes begin April 25 (special weekend class), June 2 and July 28. Each class runs for four weeks. Cost is $90 for LYC members and $110 for nonmembers. Junior classes for all levels begin June 15 and July 13 and run for four weeks, five days per week. Cost is $140 for LYC members and $160 for nonmembers. Windsurfing classes have not been finalized so call if you are interested. For more information or to obtain a registration form, call Chris Partridg at 766-1033. Some classes are limited, so sign up early.

ROOMMATE WANTED: Female to share Magruder Commons townhouse, two bedrooms, 1½ bath, washer/dryer, five minutes from NASA. Call 868-6557.

LOST: At NASA gym, brown sweatshirt with cartoon of cat flying airplane. From Hawaii; has sentimental value. Please call Nancy at 838-6689.

CARPOOL WANTED Monday, Wednesday and Friday, 8 a.m. to 4:30 p.m., from Ward's Corner, Norfolk. Call ext. 43293, ask for Susan.

BODY DYNAMICS. High-energy, low-impact aerobics classes held Mondays, Wednesdays and Fridays, 6:15 a.m., LAA gym. Classes free and open to civil servants.

SATURDAY AEROBICS, low-impact and bench. We're back in the LAA gym. Classes open to NASA, contractors and family, $6 a month or $2 per class, 9:30 to 10:30 a.m. Call ext. 42295 for more information.

LOW-IMPACT AND BENCH AEROBICS classes are held Tuesdays and Thursdays, 5 to 6 p.m., LAA gym. Cost is $12 per month or $6 per month if attending only one day a week. The classes are open to employees, contractors and their families. Call ext. 42295.

THE CONSERVATION CLUB will sponsor an information table as part of Earth Day celebrations at Patrick Henry Mall on April 25 from 10 a.m. to 3 p.m. and at the Virginia Living Museum April 26 from 10 a.m. to 6 p.m. Other environmental groups will take part. Call Tim Collins, ext. 43113, for information.

FOUND: Ladies gloves at the H.J.E. Reid Conference Center. Call 46362 or come by the center to claim them.

FOR RENT/SALE: Hampton Club condo, one bedroom, private entrance, end unit, first floor, washer/dryer, storage area and much more. Available June 15 for rent at $410 or possible sale terms. Call 868-9130.

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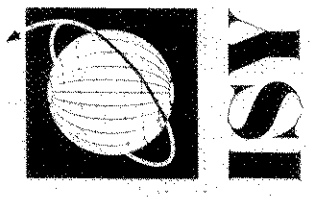
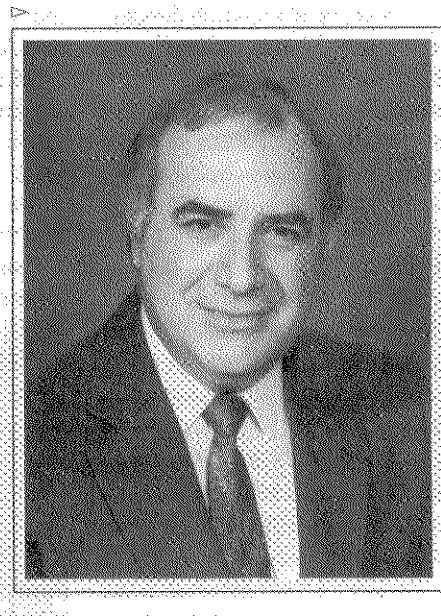
Penalty for Private Use $300

National Aeronautics and
Space Administration
Langley Research Center
Hampton, Virginia 23665-5225

Researcher News





State of the Center

Expanding the Frontiers of Flight

Paul F. Holloway

H.J.E. Reid Conference Center
14 Langley Blvd.

Four sessions have been scheduled to permit as many employees as possible to attend.

▷ **May 7**

1:30 - 2:15 p.m.	Office of the Director Aeronautics Directorate Fabrication Division
3:00 - 3:45 p.m.	Electronics Directorate Management Operations Directorate

▷ **May 8**

8:30 - 9:15 a.m.	Systems Engineering and Operations Directorate **except Fabrication Division and Operations Support Division* Structures Directorate
10:00 - 10:45 a.m.	Space Directorate Flight Systems Directorate Operations Support Division

This invitation is also extended to all retirees and support services contract personnel. These individuals are encouraged to attend the session scheduled for the directorate they support(ed).

1917 - 1992 75 Years NACA NASA Langley Research Center

1917 - 1992
75 Years
NACA
NASA
Langley Research Center

Langley Researcher News

Bi-weekly Employee and Contractor Publication

Volume 6 ❖ Issue 8 ❖ May 8, 1992

May 31 Employee Picnic To Be A Festival Of Fun

Mark your calendar and get ready for a day of food and entertainment — Langley's 75th Anniversary Employee Picnic, which has been scheduled for May 31.

CELEBRATING 75 YEARS

The event celebrates the creation of Langley Memorial Laboratory on July 17, 1917.

The old-fashioned picnic, open to employees, contractors and their families, will be held from 1 to 7 p.m. on the grounds of the Langley Activities Association.

Festivities will feature inexpensively priced food and a variety of attractions.

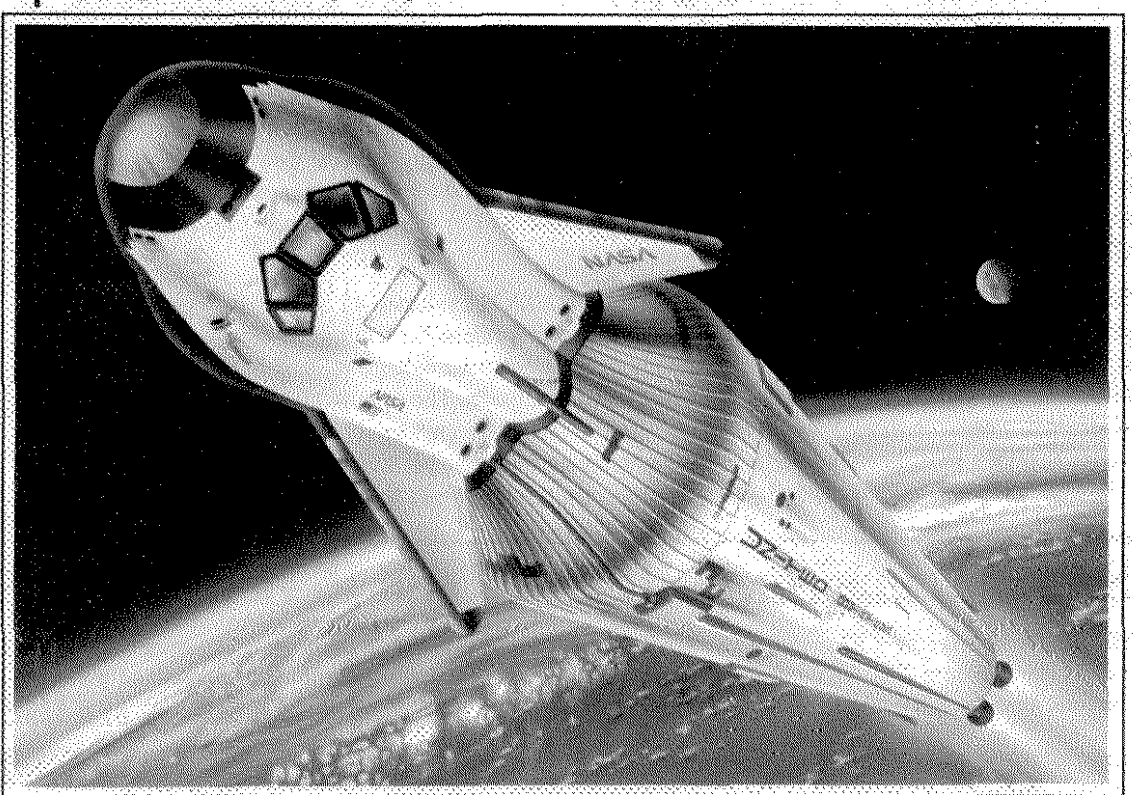
Opening remarks will be delivered at 1 p.m., followed by a magic show, children's puppet shows, a barber shop quartet, a bluegrass band, Hellenic Greek dancers and the Air Force Tactical Air Command Band's "Final Approach" unit.

Clowns will roam the grounds and give away free 75th Anniversary balloons. Face-painters also will be on hand.

The picnic also will feature an antique car display and athletic events organized by the fitness center.

Food will include hamburgers for 25 cents; hot dogs for 15 cents; chips for 10 cents; 10-ounce sodas for 10 cents; and 10-ounce beers for 20 cents.

'Space Taxi' A Work Of Art



Artist Paul DiMare of Cleveland portrays the HL-20 space taxi atop a National Launch System to transport astronauts to and from a space station. His artwork appeared in *Air&Space* magazine.

Langley's 737 Marks 25 Years of Flight

Venerable 'Flying Laboratory' Is A Major National Facility

BY KRISTINA MURDEN

The world's first 737 is soaring through its 25th year of flight, most of it as Langley's flying laboratory.

Boeing's 737 prototype first flew on April 9, 1967, arriving at Langley in 1974 after Langley and Boeing decided to team up and create a flying laboratory. It initially served as a testbed for advanced navigation, control and display systems from the Supersonic Transport Program that ended in 1971.

The specially-instrumented Transport Systems Research Vehicle (TSRV) aircraft is a "major national facility that serves as a very useful tool, much like our wind tunnels," said George Steinmetz, head of the office that manages the program.

Photo by Sandi Horsey

The Center's B-737 aircraft first flew April 9, 1967.

The aircraft has been a major influence on commercial airlines' improved safety, communications and traffic flow.

The goal of the Advanced Transport Operating Program System (ATOPS) is to provide a technology base for in-flight automation aids that complement evolving ground-based air traffic-control concepts.

The TSRV has two flight decks: a research flight deck in the aircraft's cabin that provides the capability to explore flight deck innovations, and a conventional deck crewed by safety pilots who can take control of the aircraft at any time.

The research flight deck presents information to the crew via electronic displays representative of technology to become available to commercial transports in the future. The state-of-the art color displays are driven by onboard computers and special computer software.

The testing of windshear sensors is the aircraft's most current undertaking, along with the problem of lack of capacity at airports.

"The plane is such a fun and interesting plane to fly," said Lee Person, chief pilot of the aft cockpit. "It involves new display and control technologies for evolving aircraft." Dick Yenni is chief pilot of the forward cockpit.

The TSRV has a backlog of impressive experiments. In the 1970s, researchers used a microwave landing system that was chosen as the international standard. They pioneered electronic cockpit displays and formats and used fuel-efficient descent into terminals, said Steinmetz.

Previous research program uses include velocity vector display development, total energy control yaw development and helmet mounted displays for precision manual landings.

More recently the flying laboratory has been used for satellite-based global positioning system for autoland, ground-aid data-link in lieu of voice communication and traffic flow management.

"The ATOPS Programs Office is full of enthusiastic individuals who work long, hard hours for our endeavor," said Steinmetz.

Up to 60 people from many organizations contribute to the program's research efforts and help increase the ability to transfer the technology yielded from research.

The plane flys about 150 research hours a year, which is considered a demanding pace for a research aircraft, said Steinmetz.

M.Y. Hussaini Is Elevated To Director's Job At ICASE

Dr. M.Y. Hussaini has been named director of the Institute for Computer Applications in Science and Engineering (ICASE) at Langley

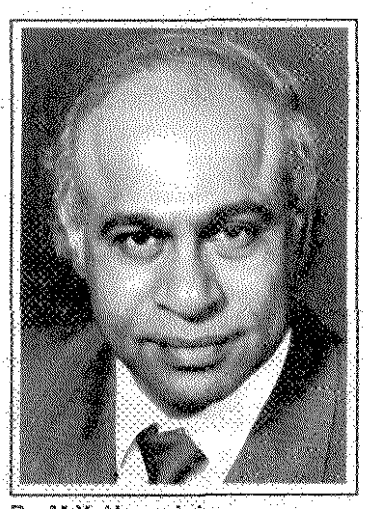
Hussaini received his doctorate in engineering from the University of California at Berkeley in 1970. He has basic degrees in mathematics and physics from the University of Madras, India.

Prior to joining ICASE in 1978, Hussaini held positions at the Indian Space Research Organization and Ames Research Center. He was appointed chief scientist of ICASE in 1986, acting director in November 1991 and director on April 3.

Hussaini's research interests include large-scale computations in fluid dynamics, parallel numerical solution of partial differential equations, mathematical combustion studies and computational aeroacoustics.

He is the editor-in-chief of the *Theoretical and Computational Fluid Dynamics* journal. He has authored and co-authored more than 100 technical papers. He has co-edited eight books and has co-authored a lengthy monograph titled Spectral Methods in Fluid Dynamics.

He has received several awards, including the NASA Exceptional Scientific Achievement Medal.



Dr. M.Y. Hussaini

Thriller Tomatoes From Outer Space

Remember the tomato seeds sent into space? According to recently published results from 8,000 reports by students and teachers who grew them back on Earth, the seeds germinated more quickly and grew faster initially. But they produced no noticeable difference in fruit.

The seeds had flown on the Long Duration Exposure Facility for nearly six years.

ON THE INSIDE

■ **State of the Center text and photos. See the center section.**

■ **The Conservation Club presents Earth Day poster contest awards and plants two trees from recycling money. Page 3.**

■ **The Trivia Contest questions are answered. The competition was one of several events highlighting Women's History Month. Page 7.**

News Briefs

AROUND THE AGENCY

KEY PERSONNEL CHANGES — Administrator Daniel Goldin has announced several appointments at Headquarters. Named as the new associate administrator for space flight is Maj. Gen. **Jeremiah W. Pearson III**, a Marine. He replaces **William B. Lenoir**, who was to leave May 4. Pearson will be responsible for overall management of the Space Shuttle program, Spacelab operations and planning for Space Station Operations. Astronaut **Bryan O'Connor** has been named deputy associate administrator for space flight. He will be responsible for the review of all Office of Space Flight programs to insure realistic planning and execution, particularly concerning Space Shuttle activities and overall Total Quality Management activities. Astronaut **Fred Gregory** has been named associate administrator for safety and mission quality; he replaces **George A. Rodney**, who is retiring in June. Gregory will be responsible for the safety and mission quality for all NASA programs and activities and for the direction of reporting and documentation of problem identification, problem resolution and trend analysis. Astronaut **Charles Bolden** is the new assistant deputy administrator. Bolden will be responsible for integrating and ensuring effective accomplishment of Total Quality Management review activities.

SPACE SCIENCES TRAINING PROGRAM — NASA has selected 48 college students, including international students, to participate in its annual Space Life Sciences Training Program. The intensive six-week program is held each year at Kennedy Space Center for college students who are interested in the life sciences, pre-medicine, bioengineering or related fields. The program is designed to attract such students to careers in those fields. The students were selected competitively from a field of 260 applicants. Those applying must be majoring in science or engineering and have a cumulative grade-point average of 3.0. More than 240 students have taken part in the program since its first class in 1985.

Senior Management Research and Review Agenda

The Senior Management Research Review will be held Monday, May 18, from 9 to 11 a.m. at 17 West Taylor Road, Room 200. All employees are invited to attend. Program accomplishments will be given by the following Langley scientists:

TIME	PROGRAM ACCOMPLISHMENT	SPEAKER
9:00	Adaptive Control Using On-Line System Identification	Lucas G. Horta (SDB, SDYD, Structures)
9:15	HALOE Sets NASA Standard for Pyrotechnic Qualification	Laurence J. Bement (MSS, SED, SE&O)
9:30	Aerodynamic Characteristics of the Magellan Spacecraft in Venus Upper Atmosphere	Dr. Didier F.G. Rault (AB, SSD, Space)
9:45	Comparison of Antenna Radiation Pattern Prediction Methods for Helicopter Configurations	David G. Shively (A&MRB, GCD, Flt Sys)
10:00	$Ti:Al_2O_3$, Titanium SAPPHIRE, Laser Technology Development at Langley	James C. Barnes (STB, FED, Electronics)
10:15	A Study of Viscous Interaction Effects on Hypersonic Waveriders	Lawrence D. Huebner (S/HAB, AAD, Aero)
10:30	Director's Comments.	

Following these presentations, the program directors will give status reports.

May Is National Hypertension Awareness Month

The National Institute of Health has declared May as National Hypertension Awareness Month.

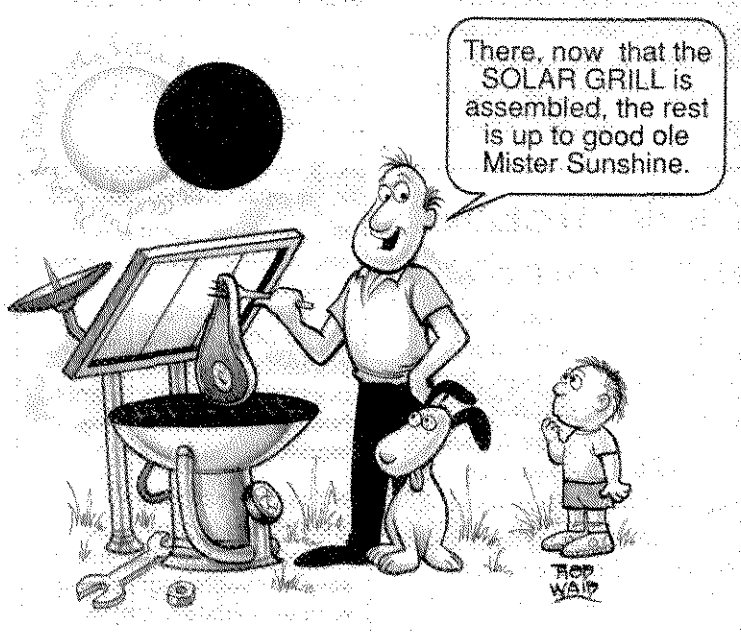
In recognition of this, the clinic will give two short programs on hypertension at the cafeteria on May 22 at 11 a.m. and again at noon. The clinic will also schedule blood pressure screenings throughout the month.

Blood pressure screenings will be held in the cafeteria from 11 a.m. to 1 p.m. on Thursdays, May 14, 21 and 28.

Blood pressure screening will also be offered in work areas upon request.

If you would like a screening in your building and have at least 15 employees participating, call Sharon Hartsell at ext. 43198.

Lankley



Uncle Sam (And Langley) Want YOU For Presidential Sports Award Contest

BY PAUL DERRICK

Way to go NASA LaRC! Completed personal fitness logs for the Presidential Sports Award have already begun to filter back to the fitness center. If you don't know what the Presidential Sports Award is yet, don't fret. It's free, it's fun and it's easy. All you have to do is exercise regularly and record the times when you do it! If you have not started on a log yet, it's time that you did. You still have more than enough time to complete a log in the exercise category of your choice. The selection of activities is huge. With 58 different sports and activities to choose from, there is sure to be at least one to interest you.

The competition will run until September, so join in. Remember, this is an intercenter challenge. Last year when we thought we were assured a first-place finish, it was snatched away from us and we ended up in fourth place. Come on NASA, get fit. Help Langley Research Center reach the top this year and win!

You can pick up fitness logs at the clinic, cafeteria and fitness center. For more information, contact the fitness center at ext. 46387, Mail Stop 498.

IN MEMORIAM

Scott M. Agnew

Scott Morrison Agnew, 78, died Sunday, April 19. He retired as a shipping clerk in 1980 after 20 years of service.

Clayton James

Clayton James, 60, died Friday, April 17. He retired from in 1990 after 34 years of service. He was a wind tunnel supervisor.

Horvath Receives Gene Zara Award

Thomas J. Horvath, of the Experimental Hypersonics Branch, Space Systems Division, was presented the Gene Zara Award at the National Aero-Space Plane (NASP) Mid-Term Technology Review in Monterey, Calif., April 22.

The award is presented for outstanding contributions by the Joint Program Office.

AIR SCOOPS

Excerpts from Langley's old newsletter, Air Scoop, *will appear throughout Langley's 75th Anniversary year. The following is from the May 12, 1961 issue.*

HAMPTON SEAL FEATURES MERCURY

CELEBRATING 75 YEARS

The City Council of Hampton this week adopted a new City Seal and Armorial Bearings designed by the College of Heralds in London, England.

As far as is known, Hampton, Virginia, is the first and only city to receive this design grant from the College of Heralds, an official department of the government of Great Britain, charged with designing seals and armorial bearings for all members of the British Commonwealth of Nations.

The crest of the Seal depicts a Chesapeake Bay crab holding in its claws the Mercury Space Capsule.

According to Hampton City Manager Clarence E. Johnson, Hampton...is proud to feature the space vehicle used when Astronaut Alan B. Shepard Jr. went into space last Friday.

Shepard and the other astronauts have undergone portions of their training at Langley.

Federal Fitness Day

is Wednesday, May 13

To celebrate, Langley Fitness Center will conduct the following activities:

MARK YOUR CALENDAR

- Open house during which employees are encouraged to stop by the fitness center.
- Free noontime aerobics in the gym.
- Fitness center funtime activities throughout the day.
- 5K race at 5 p.m., to be run across NASA.
- A social after the race, with munchies and a cash bar.

Come out and join the fun!

News Researcher

The **Researcher News**, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23665-5225, is published every other Friday in the interest of all Langley staff and retirees. Submit contributions to the Editor, Mail Stop 115, telephone 864-6126. Articles are due at noon on the Tuesday following the date of this issue.

Managing Editor ..... Jean Drummond Clough

Editor ..... Michael Finneran

Photojournalist ..... Carol Petrachenko

Photographer ..... Fred Jones

The privilege of advertising in this publication is restricted to the employees and retirees of the Langley Research Center. Articles advertised here must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

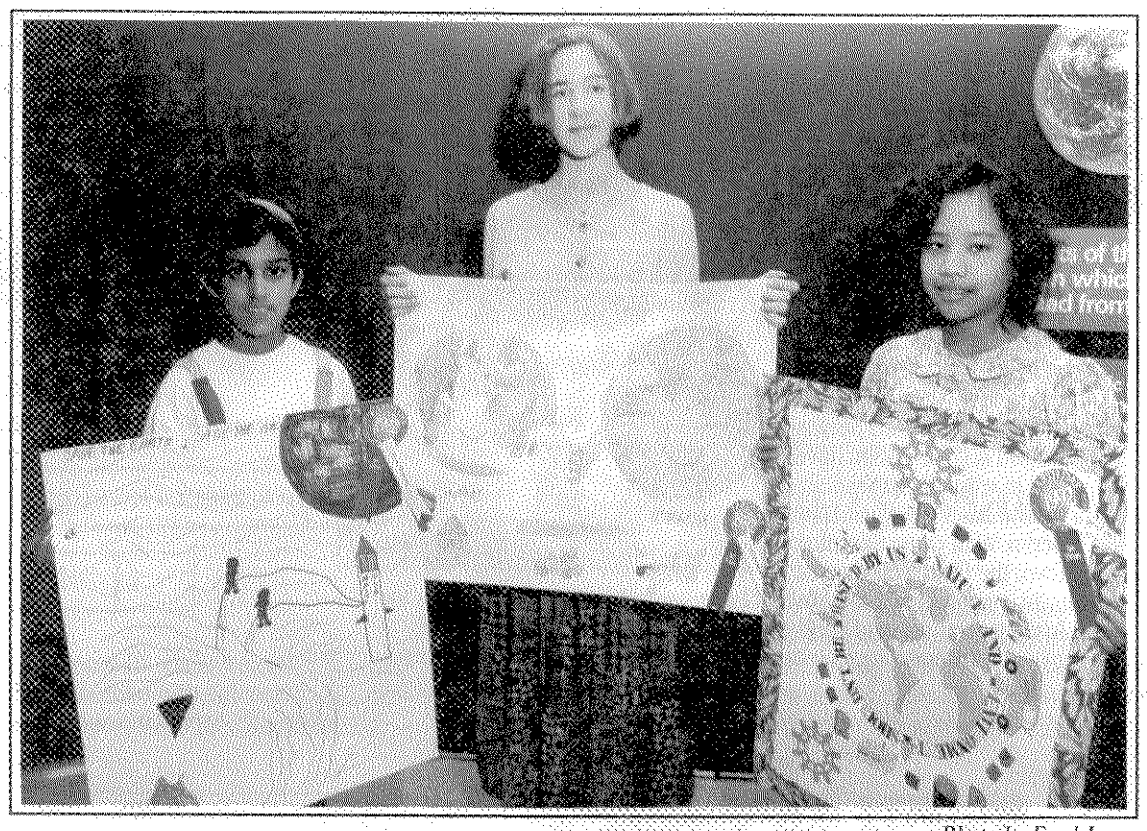


Photo by Fred Jones

Displaying their winning posters are, from left, Jyothia Natarajan, Catherine Winfrey and Joyce Yue.

Competition Produces Art For Earth's Sake

As part of its celebration of Earth Day 1992 on April 22, the Langley Activities Association Conservation Club held its third annual art contest for young people from kindergarten through 12th grade.

In commemoration of Langley's 75th Anniversary, the contest theme had each artist present suggestions on ways to protect and preserve the planet to make it an even better place in the next 75 years.

Contestants submitted their artwork in poster form along with a paragraph describing their entry. Entries were judged on creativity and imagination of design and the accompanying description, as well as awareness of environmental issues.

Winners were chosen from three categories: grades K-4, grades 5-8 and grades 9-12. Savings bonds, bought by the Conservation Club, will be awarded to first- and second-place winners. First-place winners will also receive passes to the Virginia Air and Space Center. The NASA Langley Exchange Shop, which co-sponsored the event, will supply T-shirts and patches to finalists in each category. Contestants will also receive a certificate of participation and a tree seedling from the state Department of Forestry. Finalists had their art work displayed in the Langley cafeteria during Earth Week.

THE WINNERS

Grades K-4
- 1st place: Jyothia Natarajan.
- 2nd place: Maggie Eberz.
- 3rd place: Mark Divito.
- Honorable Mentions: Mandy Moore and Grace Huang.

Grades 5-8
- 1st place: Joyce Yue.
- 2nd place: Rebecca Winfrey.
- 3rd place: Ester Huang.

Grades 9-12
- 1st place: Catherine Winfrey.
- 2nd place: (no entry).
- 3rd place: (no entry).

Newsom Picked To Attend Carnegie-Mellon Seminar

Jerry R. Newsom, head of the Controls-Structures Interaction Office, has been selected to attend the Carnegie-Mellon Senior Executive Seminar.

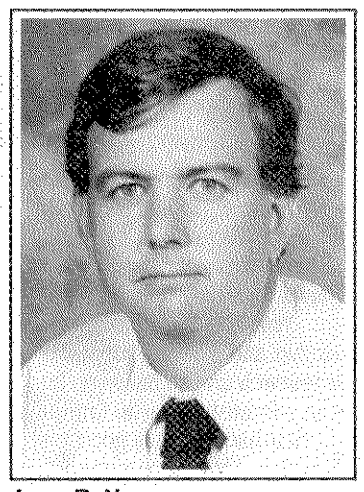
He is scheduled to participate in the seminar from May 26 to June 12 at the School of Urban and Public Affairs at Carnegie-Mellon University in Pittsburgh, Penn.

The three-week residential program is designed to help participants gain understanding of the political and economic processes that shape policy and of potential impacts of political, social, economic and technological changes.

The program is also intended to improve participants' grasp of management concepts and analytical techniques for more effective planning, coordination and control; to foster insight about human behavior in organizations; and to develop more effective, flexible leadership skills.

As head of the Controls-Structures Interaction Office, Newsom is responsible for managing interdisciplinary research related to the analysis, design and testing of spacecraft concepts involving structural flexibility and control system interaction.

Newsom began his Langley career in 1978 as an aerospace researcher. He was selected as assistant head of the Aeroservoelasticity Branch in 1984, and as branch head a year later.



Jerry R. Newsom

Newsom was selected as technical assistant to the NASA administrator in February 1987. He assumed his present position in June 1988.

Prior to joining NASA, he worked for a contractor at Langley.

Newsom has a bachelor of science degree in engineering science and mechanics from the Virginia Polytechnic Institute and State University and a master's degree in aerospace engineering from George Washington University.

He is a member of the American Institute of Aeronautics and Astronautics.

Newsom has authored or co-authored more than two dozen publications and is the recipient of several awards, including a NASA Group Achievement Award, three Special Achievement Awards and two Outstanding Leadership Awards.

Recycling Program Turns Trash Into Trees

Oak And Maple Are 1st Two of 75

BY ALLAN C. HANRAHAN

April 22 dawned with rain showers but it was a sun-dappled afternoon that greeted the assemblage on the mall near the Memorial at the planting of the first two of 75 trees that will be planted this year, thanks to the Conservation Club.

The 2½ year-old club hosted the tree-planting ceremony to honor Earth Week, Earth Day and Langley's 75th Anniversary.

Continuing in autumn — the ideal time for planting — many of the trees will be placed along the library leg of the pedestrian greenway, and the rest planted throughout the Center, some to replace the dying trees along Taylor Street and beyond.

Center Director Paul F. Holloway was the keynote speaker, and Deputy Director H. Lee Beach Jr. also attended. Standing near the newly-planted Red Maple, with a new willow oak in the background, Holloway reminded those in attendance that Langley is "very heavily involved in atmosphere and environment study. It's great for Langley that we have a Conservation Club."

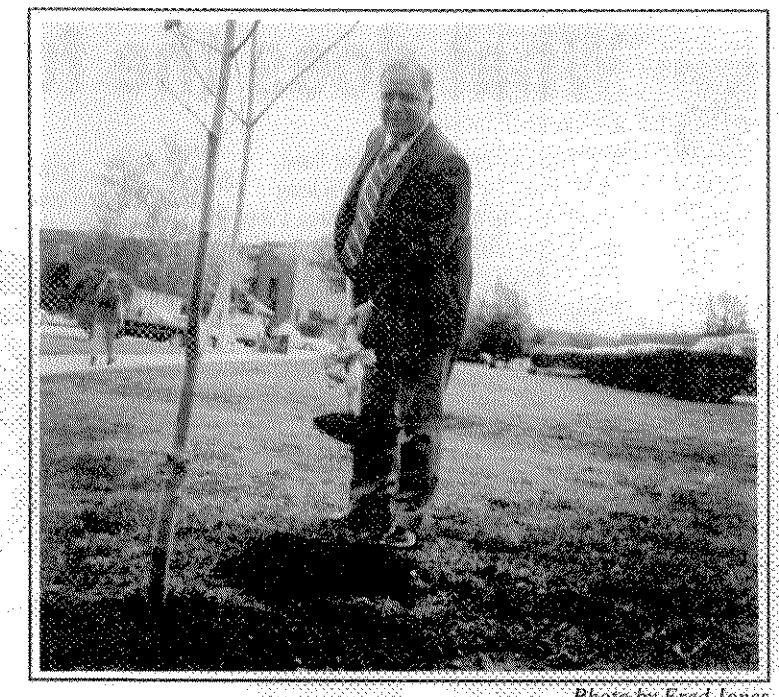


Photo by Fred Jones

Center Director Paul F. Holloway shovels mulch on a new tree.

Holloway noted that the Conservation Club, using funds from recycling at the Center, had purchased the 75 trees. Before distributing a ceremonial spadeful of fresh mulch around the base of the red maple, he placed the moment in its historic perspective: "These trees will be quite large and mature 25 years from now when the Langley Research Center celebrates its 100th anniversary," he said.

Micol Paper Wins Competition Held By Hampton Roads AIAA

John R. Micol, facility engineer for the Hypersonic CF_4 Tunnel, has won the Young Professionals Paper Competition sponsored by the American Institute of Aeronautics and Astronautics (AIAA), Hampton Roads Section.

Micol, of the Experimental Hypersonics Branch, Space Systems Division, entered a paper titled *Simulation of Real-Gas Effects on Pressure Distributions for Aeroassist Flight Experiment Vehicle and Comparison to Prediction.*

His was one of 17 entries reviewed by an independent committee headed by Dr. Jag J. Singh, chief scientist, Instrument Research Division. The competition is open to AIAA Hampton Roads Section members under 35.

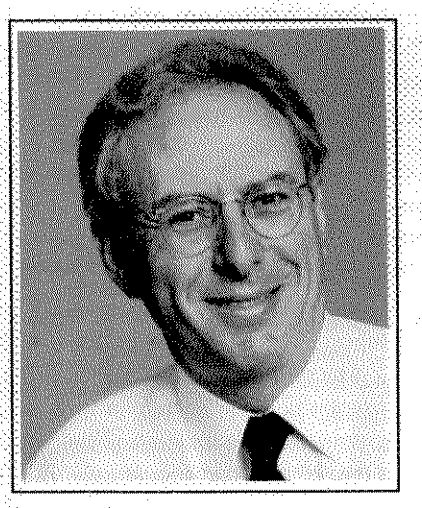
Micol began his Langley career as a co-op in 1979 and went to work in the Aerothermodynamics Branch. He joined the Experimental Hypersonics Branch when it was formed in 1986.

As an experimental research engineer, Micol has performed studies on advanced space transportation system concepts such as the Assured Crew Return Vehicle, Personnel Launch System, National Aero-Space Plane, Aeroassisted Space Transfer Vehicles and the Aeroassist Flight Experiment The purpose was to determine aerodynamic performance, convective heat transfer and fundamental flow phenomena associated with such configurations.

Micol has a bachelor of science degree in aerospace engineering from North Carolina State University. He received his master's degree in fluid mechanics and thermal sciences from George Washington University in September.

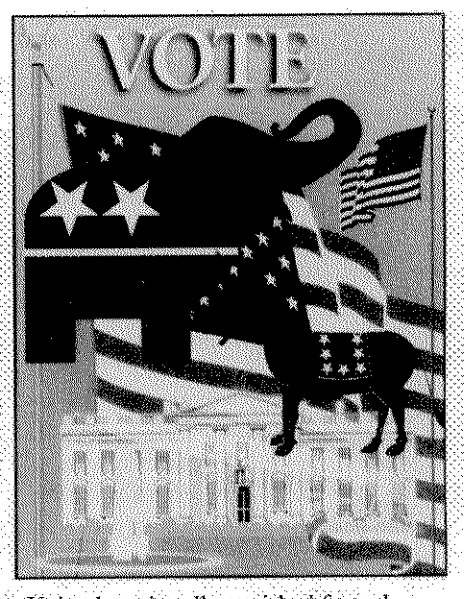
1992 State

"1992 is shaping up as a year of changing perspectives in a changing environment. The Agency has a new administrator. Langley has a new director. Being an election year, even more change in leadership across the nation is a possibility." With these words Center Director Paul Holloway opened the 1992 State-of-the-Center Address. The following are excerpts from that presentation:

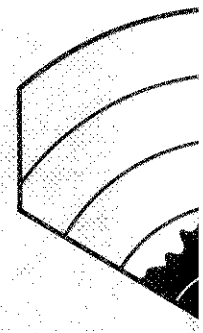


I am very happy with the President's selection of Dan Goldin as our new administrator. I have met with Dan on several occasions and know he knows and understands both Langley and basic research. As a former researcher and a strong supporter of research and technology, he is an administrator who knows first-hand what is good for Langley. "We have given the American taxpayers a high return on their investment," says Goldin,"but in this competitive environment, when federal dollars are getting harder and harder to obtain, it is necessary for us to work together as a team to given them more value and an even better return on their investment."

Election Year '92



High unemployment, massive layoffs and widespread anxiety over the recession-ravaged economy are key concerns for the American public. The world and the nation have changed in ways probably none of us would have imagined. The Berlin Wall came tumbling down, the Cold War thawed almost overnight and the Soviet Union has virtually vanished from the map. After several years of solid expansion, NASA's budget is unlikely to increase much more than the inflation rate in coming years.



Strat
Assessm

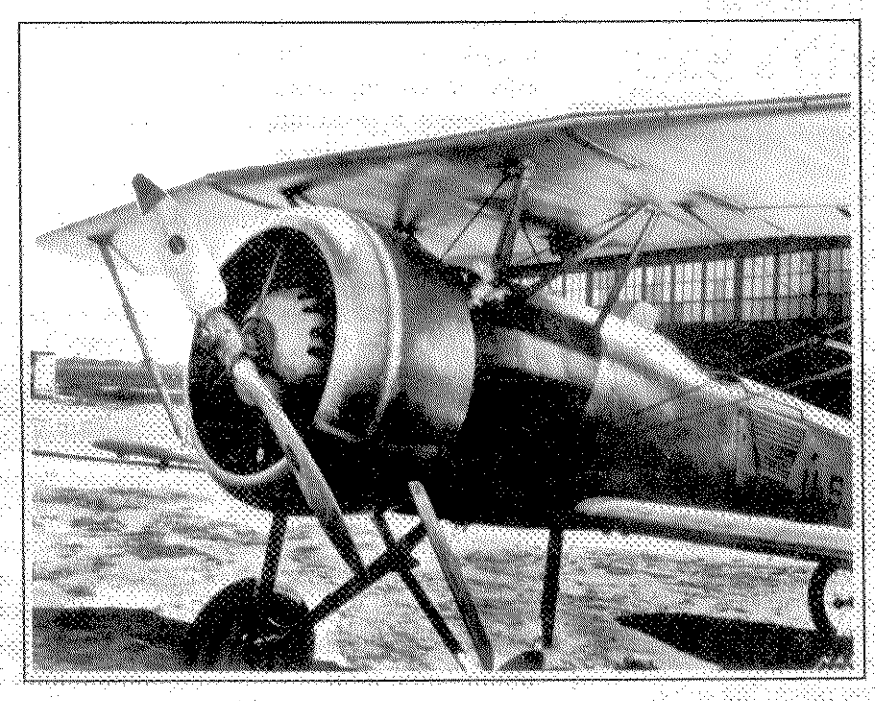
Career Development

Rewards

Fifty-one of the 61 recommendation
presented or modified. Such advar
fellowship opportunities and the variab

1920s

Langley's small staff found ways to make aircraft more efficient and safer to operate. The wood and fabric of the Wright brothers' era were replaced by metal. The double wing gave way to a single, internally-braced wing. Engines were lighter, more powerful and covered by a cowling.

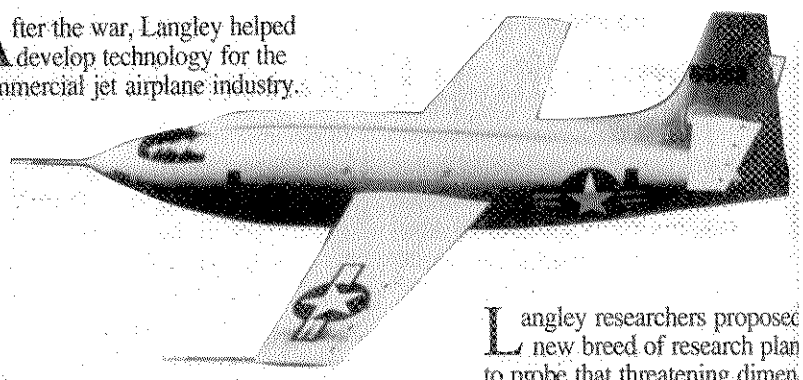


Military research and development overshadowed civilian initiatives. Nearly every aircraft in service during World War II went through drag clean-up at Langley. The enhanced performance often represented the margin between victory and defeat in air combat.

1930s-40s

1950s

After the war, Langley helped develop technology for the commercial jet airplane industry.



Langley researchers proposed new breed of research plan to probe that threatening dimen sion called the sound barrier--a rocket-powered aircraft shaped like a bullet--the X-1.

When President Eisenhower created NASA in October 1958, the nation's resources were focused in a new arena called "space." The Manned Space Task Group was formed at Langley to manage the Mercury program aimed at putting a man in space.

What does the future hold for

With our broad discipline base, Langley leads NASA's long range vehicle technology efforts. I feel that augmenting our current program with focused thrusts in subsonic transport technology and the initiation of the High-Speed Research Phase II are critical to the future of the U.S. aeronautics industry. As the NASA lead center for the National Aero-Space Plane, Langley is committed to this truly advanced technology challenge.

Langley has th
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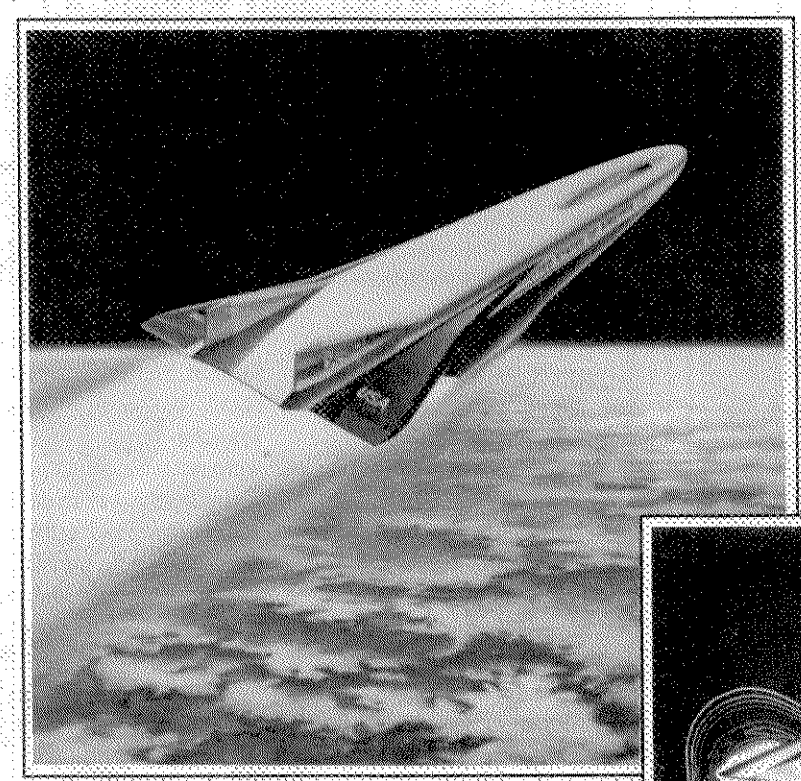
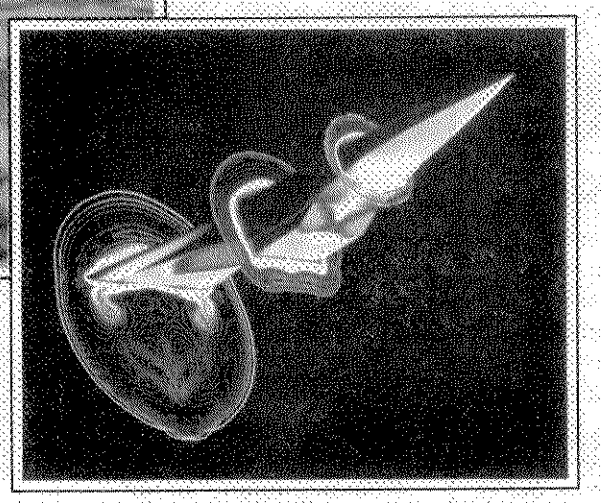
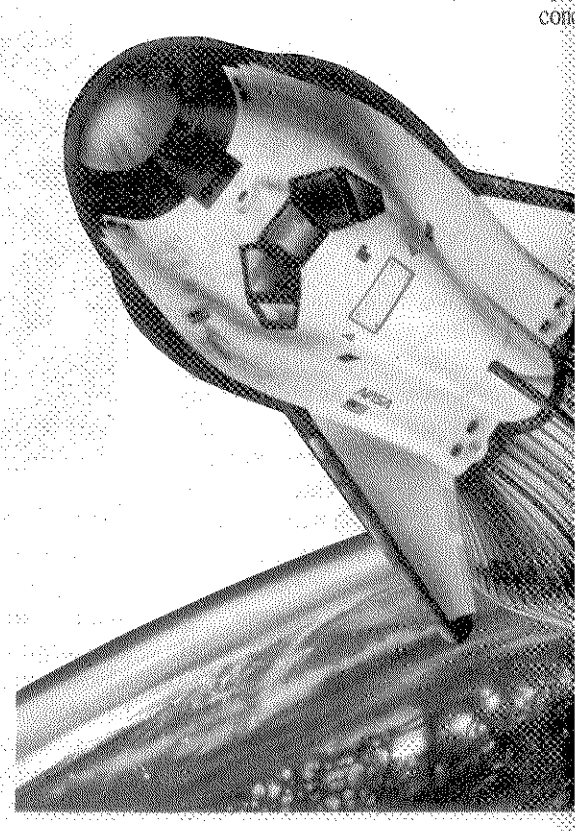




Our researchers are studying scramjet nozzle performance and exhaust effects on tail control surfaces. This supercomputer-generated image of an aerospace vehicle simulates wind tunnel test conditions at Mach 10.



SCAN

: Culture
: for the 90s

Communications

Recognition

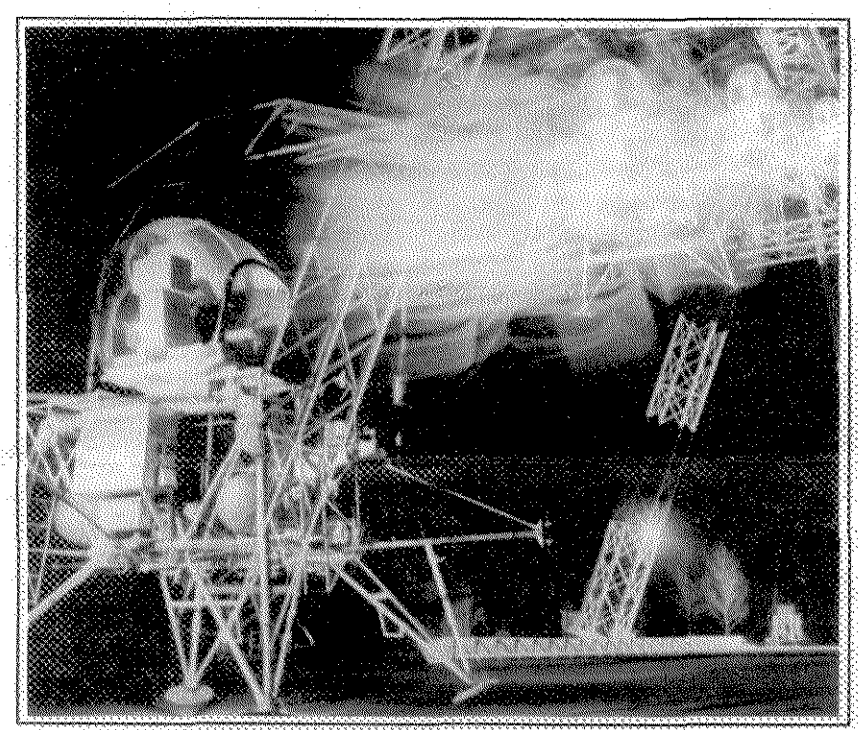
mitted by the SCAN team were accepted as
ents as employees forums, nonmanagement
y work schedule have been implemented.

Total Quality Management

We are now embarking on a process of continuous improvement — TQM — wherein we systematically identify areas for improvement. TQM involves a culture change — a shift from problem solving to problem prevention, but I see it as a win-win situation. You will have more say in what work we do at Langley and your pride in workmanship will result in an even better product.

Let's reminisce

Founded in 1917 as the Langley Memorial Aeronautical Laboratory, Langley was the nation's first civilian aeronautical facility. We have had a profound impact on man's journey into air and space. In fact, we helped establish the very foundation and infrastructure for aeronautics and space research in this country. We helped create the tools and train the scientists, engineers, managers and leaders who have made aerospace history throughout this century. Founder, pioneer, leader — this year we celebrate our 75th Anniversary. Let's take a broad-brush look at some of our accomplishments:



1970s

After the manned landing on the Moon, Langley managed the Viking project — probably the most ambitious unmanned space project ever undertaken —which landed two orbiters and two landers on the red planet. Presidential initiatives call for Americans to return to Mars and to the Moon — this time to stay. Who do you think the country will look to for the critical technologies to accomplish these goals?

1980s

With deep roots going back to the golden age of aviation, Langley has never forgotten that the first "A" in NASA stands for aeronautics. Langley has continued to advance aviation technology — concepts for safer, more fuel efficient aircraft; for advanced supersonic transports; for super-agile military aircraft; for the hypersonic aero-space plane and many more.

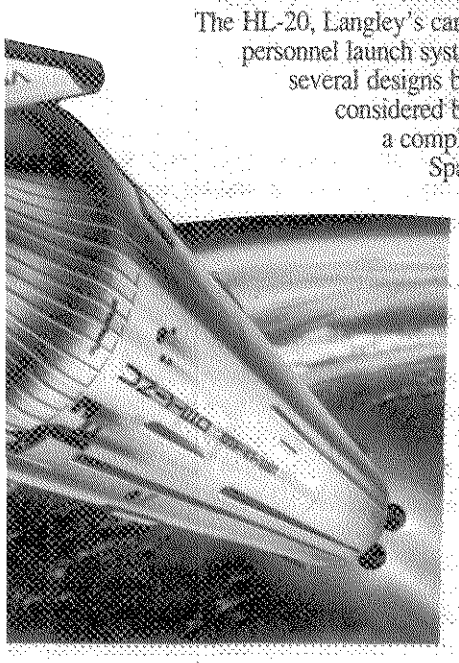
60s

We mapped the Moon with five Lunar Orbiters in 14 months; trained the astronauts for landing on the lunar surface using the Lunar Excursion Module Simulator suspended from this gantry; we practiced rendezvous and docking at the top of our hangar building.

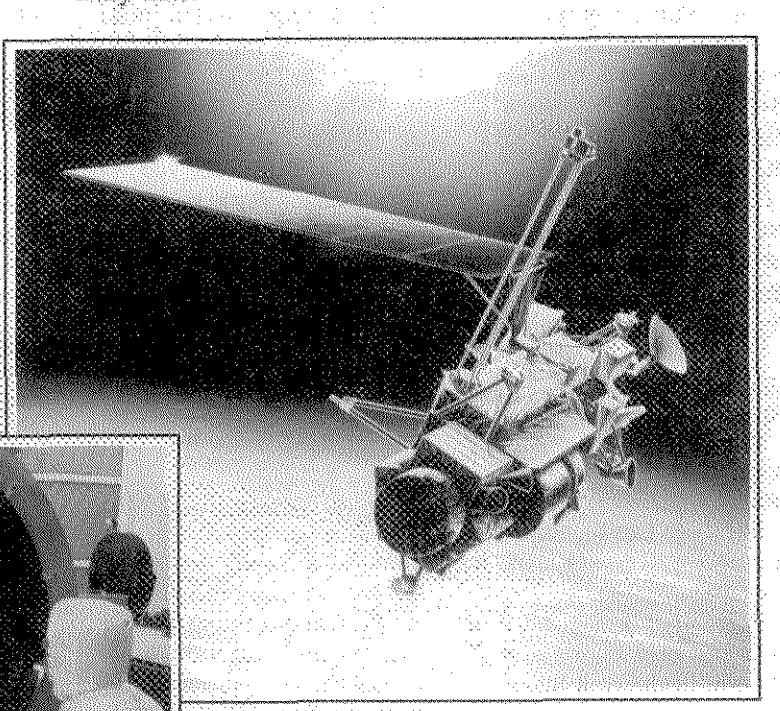
..angley?

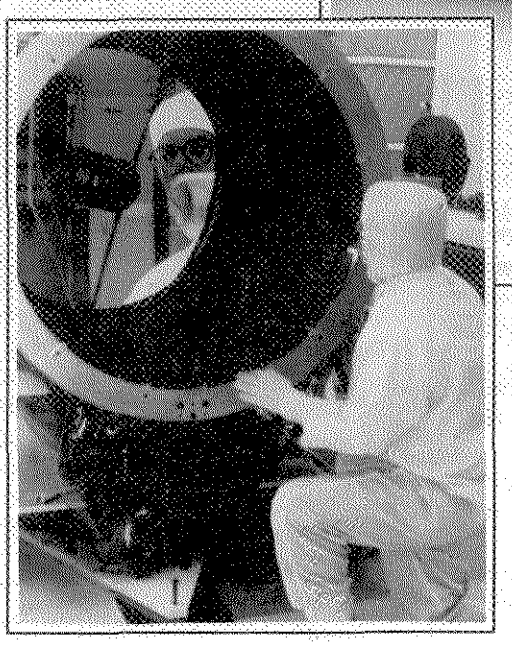
d in several disciplines critical to future Agency
ns and is recognized as the center of excellence for space
al and systems analyses. Our areas of expertise include
thermodynamics, aerobraking, advanced structural
concepts, controls-structures-interaction, on-orbit
assembly and construction, advanced active and
passive sensor systems and space radiation.

The HL-20, Langley's candidate personnel launch system, is one of several designs being considered by NASA as a complement to the Space Shuttle.



Langley leads NASA, the country and the world in the climatic impacts of radiation balance, clouds and aerosols. We direct the Agency Global Tropospheric Experiment with the active participation of other agencies and countries. Today we have six instruments in orbit and will be very involved in the Earth Observing System (EOS) through the CERES, SAGE III and SAFIRE instruments.





Langley's LITE instrument, built in-house and scheduled to fly on the shuttle in late-1993, will pioneer active remote sensing. LITE combines the proven technologies of the laser and the telescope to measure the atmosphere from the unrestricted vantage point of space.

Langley can claim leadership in so many of the areas critical to the Agency because of the talented men and women who work here.

People & Places

Manned Flight Awareness

Recent Manned Flight Awareness Launch honorees include, from left, Langley's Charles Llewellyn, Analytical Mechanics Associates; Robin Edwards, Structural Analysis Section, Structural Engineering Division; and James Newman, Mechanics of Materials Branch, Materials Division. They were honored for their involvement in STS-45.

Honored for their involvement in STS-44 are, from left, Langley's George M. Ware, Experimental Hypersonics Branch, Space Systems Division; Samuel Harper, Materials Processing and Development Section, Fabrication Divison; and Gordon Owsley, Mechanical Systems Section, Systems Engineering Division.

Savings Bond Campaign Sets Its Sights Higher

The 1992 Savings Bond Campaign is set for May 4 through May 22 with a goal of a 10-percent increase in participation.

"More than 50 years ago, President Franklin D. Roosevelt purchased the first Series E Savings Bond," said Adm. Richard H. Truly in a March 27 memo to NASA field installation directors, establishing the 1992 Federal Savings Bond Campaign.

"It was the beginning of what has become the most extensive savings bond program in American history, and one of the best federal benefits ever initiated," he said.

Payroll supervisor Joyce Fly, left, helps Deputy Director H. Lee Beach Jr. become the first Langley employee to join the savings bond payroll deduction plan. Looking on is pay technician Ethel Wescott.

Check your mail

To kick off the campaign at Langley, each employee should have received in the mail earlier this month a savings bond information packet with material explaining the program.

Also in the information packet is a NASA Langley Form 30 — Authorization for Purchase/Change of United States Series EE Savings Bonds.

On the back of the card is a chart showing the purchase price of bonds available through payroll deduction, allotments that can be deducted each pay period and the number of allotments required to buy each bond.

Once again this year, thanks to the effort of the Exchange Council, two $100 savings bonds will be given away at a drawing to be held after the campaign is over.

Enrollment as a new participant or an increase in a current deduction during the campaign period will automatically enter you in the drawing.

To be counted as a new participant, or to increase your deduction, your bond form must be filled out, signed and sent to the Payroll Section, Mail Stop 133, before May 22.

Did you know that the U.S. Savings Bond is better than it ever was?

Not only do savings bonds offer competitive, market-based rates, tax deferral and freedom from state and local income taxes, the interest earned on a bond may now be tax exempt if the proceeds are used for some of the costs of higher education.

Special seminar

To learn more about savings bonds, the U.S. Savings Bond Division area manager, Robert A. Macchia, will conduct a seminar at the H.J.E. Reid Conference Center on May 20 from 9 to 10 a.m.

Speakers Bureau Report

The following individuals represented Langley through the Speakers Bureau during March.

Leroy Spearman spoke on "Careers in Engineering" at Reservoir Middle School and "Five Decades of Aerospace Research" at the Men's Breakfast, Tabernacle United Methodist Church. He also spoke on "A History of Aviation" at Southeastern Virginia Ultralight Flyers and at Robert E. Lee School on "How We Fly."

Brian Pritchard spoke on "Lunar Mars Initiative" at Poquoson Primary.

Michael Uenking spoke at Career Day at Oakwood Elementary in Norfolk.

Elizabeth Lee spoke on Aerospace Careers at Richneck Elementary.

Veloria Martinson and **Scott Martinson** gave an overview of NASA at Deep Creek Junior High.

Dr. George Helfrich spoke on "Inventions and Other Creations and How We Protect Them" at Gildersleeve Middle School in Newport News.

Roger Hathaway spoke at career day at Hampton University.

Dr. Frank Farmer spoke on "Biomedical Spinoffs" at Bnai Israel Forum Group.

Lance Bush spoke on the HL-20 at Poquoson Festival of Arts and Sciences.

Dr. George Helfrich spoke on "Protecting Intellectual Property" at TNCC.

Dr. Christine Darden spoke on "Contributions of African-Americans To Science and Technology: Present and Future" at Hampton University and on "Technology and the 21st Century" at Oklahoma Regional Science Fair.

Dr. Arlene Levine spoke on "Psychological Effects of Long Durations Space Missions and Stress Amelioration Techniques" at NAGS.

Doug Stanley spoke on "Next Generations Space Shuttles" at Young Astronauts Club at Merrimac Elementary.

Dr. Lamont Poole spoke on "The Antarctic Ozone Hole and Global Ozone Depletion" at the Hampton Roads Chapter of the American Meteorological Society.

Dr. James Russell spoke on the ozone hole at Lee Hall Elementary.

Pat Troutman spoke on the Space Station at Virginia Tech AIAA.

Vickie Parsons spoke on "Space Flight" at Nansemond-Suffolk Academy.

Joe Mathis spoke on "Spinoffs from Aerospace Technology" at the Tidewater German Society.

Bob Miserentino spoke on the 75th Anniversary at Northampton Lions Club.

Frank Quinto spoke on "Astronauts and the Space Shuttle" at South Morrison Elementary.

Using TDD Wisely

If you are a hearing person calling someone with a telecommunications device for a the deaf (TDD), please follow the following steps:

- Call the Virginia Relay Center at 1-800-828-1140;
- Tell the communications assistant the name and telephone number of the person you want to call.
- The communications assistant will dial the numbers and advise you of the progress of the call (i.e. ringing) and how the call is answered (i.e. Space Directorate is here).
- As the call is being relayed, speak directly to the person you are calling.

With this, every call can be made.

Employee Awards

The following employees have received cash awards for job performance:

Yi Tung electronics engineer, Analysis and Computation Division, for outstanding contributions the development, Communication and Network Systems Branch.

Herschel G. McCoy, Jr. and Chad E. Rice, engineering technicians, Technical Support Section, for exceptional technical and dedicated support in the 15-inch Mach 6 Tunnels Upgrade.

Jan A. Benson, environmental engineer, Environmental Engineering Branch (SSQRD), in recognition of contributions to the construction safety program.

James A. Clark and Curtis Swackhammer, engineering technicians, Operations Support Division, for exceptional technical skill and innovative support to research conducted in the 7- by 10- Foot High Speed Wind Tunnel.

Philip R. Schaffnel, Antenna and Microwave Research Branch, for superior performance in the development of the flight computer system for AMRB's airborne Doppler radar sensor to detect hazardous wind shear.

Patricia L. Romanowski, environmental engineer, Environmental Engineering Branch, in recognition of contributions to the constructions safety program.

E. Steelman Ketchum, head, Grants, Supply and Construction Contracts Branch, for exceptional leadership and service for procurements in support of research facilities and aerospace programs at Langley.

Linda H. Park, personnel assistant, employee relations office, for exemplary performance and dedicated service in supporting personnel programs.

Brenda F. Spencer, management analyst, Management Operations Directorate, in recognition of outstanding and exceptionally dedicated service in managing the institutional furnishing program.

Cassandra G. Favor, accounting technician, Fluid Mechanics Division, for exceptional service and professional demonstrated as financial chairman in the Combined Federal Campaign for Langley.

Celebrating Women's History Month And Langley's 75th Anniversary

BY PATSY L. CAMPBELL

The Federal Women's Program Committee (FWPC) commemorated Women's History Month and the Center's 75th Anniversary with events in March.

On March 2, the FWPC planted a commemorative tree adjacent to Building 1219, in honor of women's contributions to aerospace research.

On March 12, the committee hosted a Female Achievers Panel at the H.J.E. Reid Conference Center. Dr. Maureen M. Yogodka, federal women's program manager for NASA, was the guest facilitator. The panelists were Dr. Kathy H. Abbott, head, Human/Automation Integration Branch, Flight Management Division; Vernet P. Boone, electrical engineering technician, Operations Support Division; Sharon K. Crockett, aerospace engineer, Systems Engineering Division; Anita L. Graham, manager, Federal Women's and Disability Programs, Lewis Research Center; Mary Jackson, manager, Affirmative Employment and Federal Women's Programs, retired from the Office of Equal Opportunity Programs; Tammy L. Spellman, secretary to the director for Electronics; and Rosa Webster, manager, advanced concepts, High Performance Aircraft Division, Headquarters.

On March 16, the FWPC hosted the Denbigh High School Math Club. About 30 students and teachers toured Langley. Presentations were given by Sharon Welch, Winifred Feldhaus, Maria Mitchum, Lorenzo Clark, David McCurdy, Janet Dail, Mary Liggins, Joe Drozdowski, R. Marshall Smith, Charles Fox, and Ralph Will.

On March 24, the committee sponsored its First Annual Awards Luncheon at the conference center. The keynote speaker was Dr. Harriett G. Jenkins, assistant administrator for the Equal Opportunity Program at Headquarters. Her talk integrated the theme of Women's History Month — "Women's History: A Patchwork of Many Lives" — with Langley's equal employment opportunity achievements. She recognized Dr. Christine Darden, recent recipient of the Women in Science Award for engineering achievement. Dr. H. Lee Beach Jr., deputy director, gave opening remarks and introduced Jenkins.

The FWP Award went to John W. Cox, head, Space Systems Engineering Branch, Systems Engineering Division. He was nominated by Crockett, William Berrios and Robert Sherrill. He was recognized for giving his employees, especially females, challenging and high-profile assignments, encouraging continuing education and directly influencing the hiring/transfer of female engineers into his branch. Cox received a plaque and a monetary award.

The other nominees were Anne D. Holland, Structural Design Branch, Facilities Engineering Division, nominated by David Beals; Frederick A. Kern, head, Aerodynamic and Thermodynamic Measurements Branch, Instrument Research Division, nominated by Bruce Conway; David G. Stephens, chief, Acoustics Division, nominated by Charles Blankenship; Dr. Allan R. Wieting, head, Aerothermal Loads Branch, Structural Mechanics Division, nominated by Dr. John Malone; and Jerry R. Newsom, manager, Controls-Structures Interaction Office, Guidance and Control Division, nominated by Rudeen Smith-Taylor.

Holland was recognized for rising from a low-grade mathematician to a high-grade computer programmer analyst due to hard work, perseverance and dedication to her work assignments. Kern was recognized for his adherence and devotion to equal opportunity principles that resulted in two females achieving career advancements. Stephens was recognized for encouraging and supporting the females under his supervision to seek additional training, approving a female engineer's request to go on a permanent part-time work shift and selecting the first female to rise to a supervisory position in the Structures Directorate. Wieting was recognized for providing his female employees with equal access to job-related career opportunities, such as hiring a handicapped female engineer that included identifying facility modifications to ensure her full integration into the workforce and supporting his female employee's efforts in pursuing advanced academic degrees. Newsom was recognized for effecting promotions, awards, outstanding performance ratings, NASA Exceptional Achievement Medals and a NASA Honor Awards Group Achievement Awards for his employees (three women and two men) in the three years since he took over the CSI Office. The nominees received a certificate of award signed by Center Director Paul F. Holloway.

Photo by Katie Reid

From left, FWP Award-winners are John W. Cox, Donna Speller, Mary Beaton and Robert Swain.

Photo by Katie Reid

From left, Trivia Contest winners were Allan C. Hanrahan, third place, and John W. Cox, first place. Not shown is second-place winner Linda Bangert.

Donna M. Speller, of the Analysis and Computation Division and FWPC chairperson, was nominated by Frank Allario but the award criteria does not allow a committee member to receive the award.

The FWPC also presented awards for unique contributions to the Center. Speller was recognized for outstanding leadership of the committee. Robert L. Swain, director for Systems Engineering and Operations, was recognized for outstanding support of the FWP. He has consistently encouraged his employees to attend every equal employment opportunity function at the Center and took the lead in sponsoring sexual harassment training for his directorate. Mary Beaton, director of the Langley Fitness Center and an employee of the Kelsey-Seybold Clinic, was recognized for her development of the "Health for Life" program, which has contributed to employees' health and morale.

Trivia Contest winners also were recognized. The contest ran in the February 28 edition of the Researcher News. John W. Cox received the first-place award, a framed lithograph of the Center's 75th Anniversary logo encircled by the pictures and signatures of four of Langley's present and past directors. He also received a membership to the Virginia Air and Space Center. Linda S. Bangert, Applied Aerodynamics Division, won second place. Allan C. Hanrahan, Office of Public Services, won third. They received a similar framed picture. Trivia Contest judges were William H. Phillips, Distinguished Research Associate, Guidance and Control Division; Mary Alice Woerner, Atmospheric Sciences Division; and Robert A. Kilgore and Gloria Champine, both retired.

Trivia Contest: 20 Questions, 20 Answers (Read This And You're An Historian)

■ What does NACA mean? Who was the NACA's first chairman? What year(s) did his service span? **National Advisory Committee for Aeronautics; Brig. Gen. Scriven; 1915-1916.**

■ All women hired in the 1950s and 1960s with degrees in mathematics were assigned to a particular group within a division. What group was it? **West Computing Section or Computing Group.**

■ In what year was the NAS Act signed? What did the NAS Act stand for? Name the centers designated as NASA research centers during the initial signing of the NAS Act. **1958; National Aeronautics and Space Act; Langley, Lewis and Ames.**

■ What major brand of mechanical calculators was used in computing sections at Langley in the 1950s and 1960s? **Frieden.**

■ What are the names of the first American astronauts? Which center were they first trained at? Who was the U.S. President at that time? **John Glenn, Virgil Grissom, Alan Shepard, Donald Slayton, Scott Carpenter, Gordon Cooper, Walter Schirra; Langley Research Center; Eisenhower.**

■ Who made the first powered flight in a heavier-than-air aircraft? When, where and at what time? **Orville Wright (Wright brothers); December 17, 1903; Kill Devil Hills; 10:35 a.m.**

■ What was the meaning of the term "paper clip?" **A program designed to round up German scientific personnel for possible employment in the United States.**

■ What year was the Collier Trophy established? Name two different Langley recipients of the Collier Trophy. **1911; Richard Whitcomb and John Stack.**

■ What NASA engineer invented the paraglider? **Francis M. Ragallo.**

■ William O'Sullivan appeared on the TV show *I've Got a Secret*. What was his secret? **Project ECHO, the first orbiting (passive) communications satellite.**

■ Which NASA engineer is famous for finding the low drag configuration shape for high-speed aircraft flying above the speed of sound? **Richard Whitcomb.**

■ When and where was the first cryogenic tunnel built? **Early 1970s; two pilot tunnels at Langley.**

■ Who thought of the pressure tunnel? Who built it? Where and when was it built? What was the maximum pressure? What is its correct name? **Max Munk (some say Margoulis); Newport News Shipbuilding & Drydock Co., Newport News; 20 atmospheres; Variable Density Tunnel.**

■ What year did the Langley Full-Scale Wind Tunnel become operational? What type of research was it used for and what was its cost? **May 2, 1931; testing of full-scale models or actual aircraft; $900,000/$1 million.**

■ What was the "Little Joe" project? How many were there? What was the total cost? Where is one of the last Little Joes? **Launch vehicle for Project Mercury capsules; six Little Joe boosters; Hampton Air & Space Park, Hampton.**

■ When was the U.S. National Transonic Tunnel dedicated? What two agencies were in contention to build it? What time was it dedicated? Which U.S. vice president attended the dedication? **December 6, 1983; NASA and the Department of Defense; 2 p.m., George Bush.**

■ When and where was the first wind tunnel built? Who designed the first wind tunnel? **1871 in Great Britain; Francis Wenham.**

■ Name the wind tunnels at Langley, active/inactive, that have been designated National Historic Landmarks. **Full-scale, 8-Foot High-Speed and Variable Density tunnels.**

■ What year did the first American orbit the Earth and who was he? **February 20, 1962; John Glenn.**

■ Name the person who fabricated the protective coverings for the B-29 engine nacelle. **Beulah Barger.**

Happenings

GETAWAY: The Alumni Association's 1992 weekend getaway is May 22 to 24 in Hershey, Pa. All are invited. Call Abe Leiss for information at 877-2939.

TOASTMASTERS meets the second and fourth Wednesday of each month from 11:30 a.m. to 1 p.m. The next meeting is May 13 in Building 1222.

THE DISABLED PERSONS Satellite Committee will meet May 14 from 8:15 to 9 p.m. in the cafeteria. The meetings are open to all employees/contractors and to anyone who has an interest in the Disability Program.

BODY DYNAMICS. High-energy, low-impact aerobics classes held Mondays, Wednesdays and Fridays, 6:15 a.m., LAA gym. Classes free and open to civil servants.

SATURDAY AEROBICS, low-impact and bench. We're back in the LAA gym. Classes open to NASA, contractors and family, $6 a month or $2 per class, 9:30 to 10:30 a.m. Call ext. 42295 for more information.

LOW-IMPACT AND BENCH AEROBICS classes are held Tuesdays and Thursdays, 5 to 6 p.m., LAA gym. Cost is $12 per month or $6 per month if attending only one day a week. The classes are open to employees, contractors and their families. Call ext. 42295.

LOST: Will the NASA employee who borrowed the videotape from the dispensary entitled *The Physical Exam, What it Can and Cannot do for You,* please return it to the clinic promptly or call the dispensary and let them know when you will be returning it.

STEEL RIMS for sale, 15 x 6-inch, for GM cars. Five-stud, big-bolt pattern, $10 each or four for $35. Three compatible radial inner tubes are $6 each or three for $15. In Norfolk, call 588-8617.

FOR RENT: Townhouse in Poquoson, 3 bedrooms, 2½ baths, eat-in kitchen, separate dining room, living room with fireplace, patio, attached storage building. Dishwasher, stove, refrigerator and garbage disposal furnished. Available July 1 for $575 per month. Call 838-6000.

LOST: NASA-Langley Apprentice School 1993 class ring, near Building 1267. Call Felecia Berry, ext. 43694.

THE FEDERAL WOMEN'S PROGRAM COMMITTEE will meet Wednesday, May 13, at 8:30 a.m. in the H.J.E. Reid Conference Center, Hampton Room.

THE LANGLEY KARATE CLUB invites you to discover Cuong-Nhu Oriental Martial Arts. Classes are held in the gym Mondays and Wednesdays from 5 to 7 p.m. New students will be accepted from June 1 to June 29. Enrollment is open to NASA employees, contractors and immediate family members. The cost is $6 per month. For more information, stop by the gym during class and ask for Roy Albang or call him at 596-7736 between 7 and 10 p.m.

MOWER FOR SALE: Push reel, one year old, excellent condition, $25. Environmentally, this is the correct way to mow. Call 827-6321.

CAR RAMPS FOR SALE: Almost mint condition, 6,500-pound capacity, dirt cheap at $6. Good for easy access under your car. Call 827-6321.

HOUSE FOR SALE: Scenic Suffolk setting on Lake Meade near Obici Hospital. Four-bedrooms, 4 baths, pine flooring in formal foyer with staircase and skylight. Large living room, kitchen, very large den. Has basement, 400-square-foot deck, 2½ car garage, $265,000. Call 539-6713.

MOBILE HOME for sale, 12 x 65, 3 bedrooms, 1 bath, reinforced floors in living room, kitchen, bath, fenced yard, central air, storage shed, gas cooking, oil heat, many other amenities. Can remain on lot, which is one-half mile from the Langley main gate and one mile from the Langley Air Force Base West Gate. Asking $10,000, negotiable. Call Don at 865-8176.

AFGE LOCAL 2755 union meeting will be held May 20 at 4:15 p.m. in the Union Office Building, 8B Ames Road.

THE NASA-LANGLEY APICULTURE CLUB (Honeybunch) will meet at 5 p.m. May 18 at the club apiary adjacent to the south end of the gardens near Building 1244. The club colony will be inspected and, hopefully, requeened. All interested persons are welcome. Only a limited number of veils will be available, so bring your own if you have one. In the event of sustained rain we'll meet at the cafeteria at 7 p.m. and view the video *Close Look at the Honey Bee.* Call Henk at ext. 47226.

THE TIDEWATER FINANCIAL FREEDOM GROUP meets Thursday, May 21, at the Western Steer Family Steak House, 450 N. Military Highway, in Norfolk, across from Best Square. Dutch dinner at 6:30 p.m., program at 7:30 p.m.; features a speaker. Call 825-0413 for more information.

HOUSE FOR SALE: Three-bedroom rancher with eat-in kitchen, new vinyl siding (lifetime warranty), very large lot with privacy. Great location. Includes ceiling fans and all appliances. A giveaway at $65,000. Call Ms. Washington at 827-9410.

Researcher News

National Aeronautics and Space Administration

Langley Research Center
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Photo by Fred Jones

Karen Freidt, of the Graphics Section, stands beside the National Aero-Space Plane (NASP) art exhibit she designed for display at Norfolk International Airport. The display features an image of computer-generated airflow around a hypersonic aircraft traveling at 6,500 miles per hour. It also highlights Langley's 75th Anniversary, which is being celebrated this year.

1917 - 1992
75 Years
NACA
NASA
Langley Research Center

Langley News Researcher

Bi-weekly Employee and Contractor Publication

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Langley Helps Space Rescue

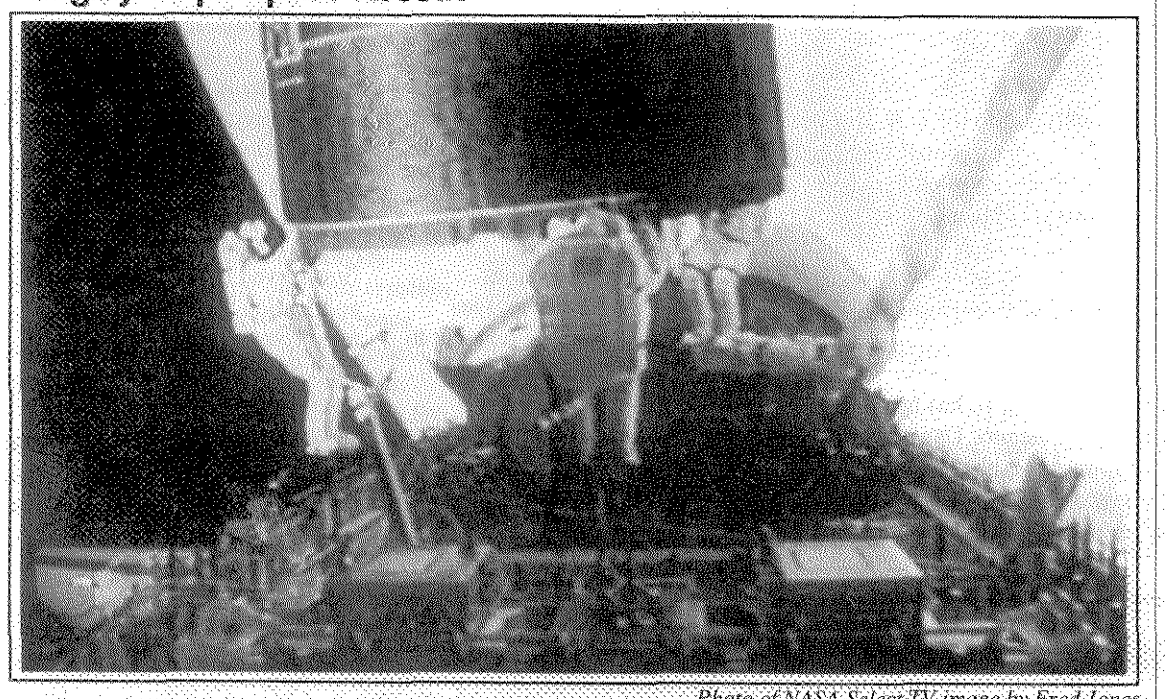


Photo of NASA Select TV image by Fred Jones

Astronauts Richard Hieb, left, Thomas Akers and Pierre Thuot hang onto the Intelsat-6 satellite May 13 after snaring it with their hands. The rescue was made possible, in part, by Langley-built joints that were on Endeavour for a different purpose, the assembly of space station hardware. A scaffold in the cargo bay was rigged with the Langley equipment, and Akers attached himself to it with a foot restraint. This allowed three, rather than just two, astronauts to work in space.

Building A New Breed Of Supercomputer

Langley Plays Role In Development Of Ultrafast Machines

Langley has hooked up to a prototype of a new generation of supercomputers as part of a national program aimed at speeding up the development of cutting-edge technology.

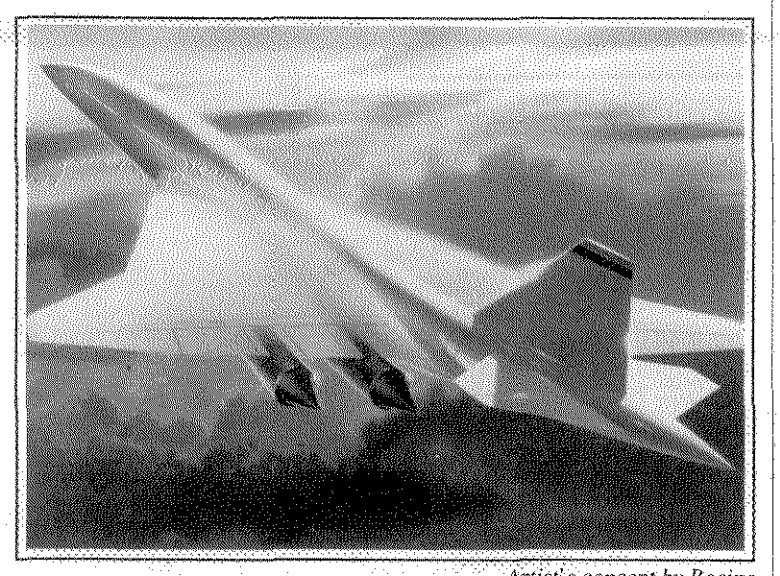
The arrangement, in which NASA has a lead role, links a consortium of researchers around the country to a one-of-a-kind supercomputer at the California Institute of Technology that for some applications is considerably faster than the most advanced supercomputer now on the market.

Intel's Delta, built for the consortium, is one of a new breed of "massively parallel" machine that is quickly outpacing the traditional shared-memory supercomputers such as the Cray, which set the standard for scientific and engineering calculations in the 1980s.

Current shared-memory technology weds several parallel, or interlinked, processors to a single memory system and disk drives. This setup limits the number of processors that can effectively be paralleled.

The new technology changes all that by combining processors and memory in one unit. Large numbers of these units can be interlinked to create a massively-parallel system with even greater capacity and speed.

The Delta supercomputer has 512 processors, each with 16 megabytes and functioning in parallel over a 20-megabyte-per-second communications link. By contrast, the most advanced computer using shared-memory technology has only 16 processors.



Artist's concept by Boeing

Data for the High Speed Civil Transport model represents four billion bytes—or roughly 32 sets of encyclopedias. That's how much information was processed by Langley researchers in 3.2 seconds using a Delta supercomputer prototype.

> *"The massively parallel computers are going to be taking over for high performance scientific and engineering applications."*
>
> —Dr. Olaf O. Storaasli

In addition, the new computers do not have to be liquid-cooled, which reduces costs, maintenance time and hazardous waste.

The new massively-parallel supercomputers also are "scalable"—they can be made virtually as large as needed by adding more processors. Intel's next supercomputer, the Paragon, will have up to 4,000 processors, said Dr. Olaf O. Storaasli, of Langley's Computational Mechanics Branch, Structural Mechanics Division.

"Over the next several years, the massively parallel computers are going to be taking over for high performance scientific and engineering applications," said Storaasli, who is using the Delta under the High Performance Computing and Communications (HPCC) program, a presidential initiative from the Office of Science and Technology Policy.

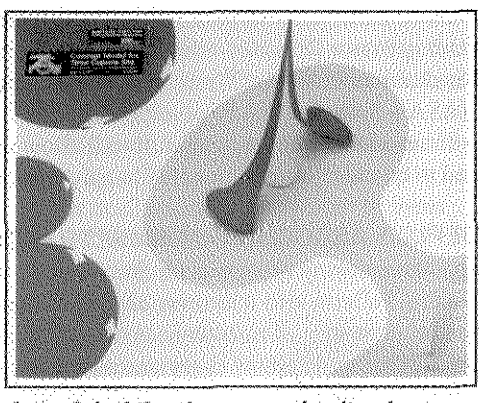
"We're going to be able to solve problems that we weren't able to do before, even on the best supercomputers of today,"

Please see **COMPUTERS,** *Page 2*

CELEBRATING 75 YEARS

Calling All Ideas: What Should Go Into 75th Time Capsule?

Seventy-five years of Langley achievement will be stowed in a time capsule in commemoration of the Center's 75th Anniversary. And Langley employees, contractors and retirees are being encouraged to submit suggestions for what to include in the capsule.



A model of the time capsule site shows a 12-foot red brass arch over the site. The model was designed by Center Master Planner John L. Mouring Jr. and built by Greg Freidt.

The capsule, about the size of a 25-gallon drum, tentatively is scheduled to be buried under a brass arch at the corner of West Durand Street and the Technical Library. It will be formally dedicated in November.

A working group developing plans for the event is considering making the capsule reusable so it can be opened in 25 years, resupplied, and resealed for another half-century. That way, some of Langley's current employees will be able to attend the first opening, while the 150th anniversary second opening would represent a more typical span for a time capsule.

Meanwhile, individuals who have suggestions should prepare a justification and mail to the historical program coordinator, Mail Stop 123. Suggestions must be received in writing, signed, no later than July 15 to be considered.

Family Picnic Set For May 31

Langley's 75th Anniversary Employee Picnic will be held Sunday, May 31.

The event celebrates the creation of Langley Memorial Laboratory on July 17, 1917.

The old-fashioned picnic, open to employees, contractors and their families, will be held from 1 to 7 p.m. on the grounds of the Langley Activities Association.

Festivities will feature inexpensively priced food and a variety of attractions.

Hamburgers will sell for 25 cents; hot dogs, 15 cents; chips, 10 cents; 10-ounce sodas, 10 cents; and 10-ounce beers, 20 cents.

SCHEDULE

1 p.m.	Opening remarks.
1:10-1:30	Magic show.
1:30-5:30	2 face-painters, 2 clowns roam grounds.
1:40-2:00	Children's puppet show.
2:10-2:30	Barbershop quartet.
2:40-3:30	Kentucky bluegrass band.
3:40-4:00	Children's puppet show.
4:10-4:30	Hellenic Greek dancers.
4:40-5	Middle Eastern belly dancers.
5:10-5:30	Barbershop quartet.
5:40-6:00	Closing remarks.
6-7 p.m.	Air Force Band Final Approach.

July 17 Anniversary Weekend To Feature Exhibits, Activities

To celebrate 7½ decades of aerospace accomplishments, Langley plans a weekend of activities, starting with a 75th Anniversary ceremony in the Hangar on July 17 at 2 p.m. Events are open to employees, contractors and retirees.

A highlight will be the unveiling of an anniversary painting by space artist Robert McCall. Also featured will be technical exhibits and a static display with aircraft from each decade. After the ceremony, Langley's 75th logo will be formed behind the Hangar by employees for an aerial photograph. Attendees also are invited to view a Langley Federal Credit Union video honoring Langley and go to a tent reception behind the Hangar. On Saturday, July 18, and Sunday, July 19, employees, contractors, retirees and their immediate families are invited to "Langley Days" at the Virginia Air and Space Center, where they will be admitted free to the exhibits.

News Briefs

AROUND THE AGENCY

HUBBLE SEES NEW SPACE PHENOMENON — European and American astronomers using the Hubble Space Telescope's Faint Object Camera have discovered an unusual and fascinating new class of phenomenon. The camera has produced images of a jet, in visible light, emanating from the nucleus of the elliptical galaxy NGC 3862. European Space Agency astronomer Phillippe Crane, of the European Southern Observatory, said "the jet-like feature was totally unexpected in this galaxy." Previous observations of this galaxy in radio wavelengths had revealed the presence of a very long, jet-like structure.

REPORT EMPHASIZES SMALLER MISSIONS — NASA has delivered a report to the U.S. Senate outlining a shift in emphasis towards smaller, lower cost and more frequent planetary missions. The Small Planetary Mission Plan describes two proposed missions that NASA has picked for preliminary studies leading to two launches—the Mars Environmental Survey Pathfinder in 1996 and the Near Earth Asteroid Rendezvous in 1998. "We're very excited about this plan," said Dr. Wesley T. Huntress Jr., director of NASA's Solar System Exploration Division. "It will enable more opportunities for planetary exploration without a large budget impact. It will allow us to more effectively take advantage of emerging technology and to quickly—and relatively cheaply—undertake new missions of discovery."

DEPUTY ASSOCIATE ADMINISTRATOR APPOINTED — Dr. Charles Pellerin Jr. has been appointed deputy associate administrator for safety and mission quality by Administrator Daniel S. Goldin. Pellerin also will serve as special assistant to the administrator for long-range planning. Pellerin has been director of astrophysics in the Office of Space Science and Applications since 1983. Many of the most complex satellites every conceived were completed under his leadership and launched in recent years.

Credit Union Scholarship Applications Due By June 5

Applicants for the Langley Federal Credit Union's "Salute to NASA Langley" scholarship are reminded that their submissions must be postmarked no later than June 5. Late applications will be returned unopened.

Send to: LFCU "Salute to NASA Langley" Scholarship Committee, C/O LARCAA Inc., Mail Stop 496, Langley Research Center, Hampton, Va., 23665.

The scholarship is being offered in honor of the Center's 75th Anniversary. It is available to all permanent NASA Langley civil service and on-site contractor employees.

The scholarship will be a one-time, nonrenewable award for someone pursuing a post-high school degree at an accredited college or university in the United States, full- or part-time.

The scholarship winner will be honored at Langley's 75th Anniversary celebration on July 17.

COMPUTERS:

Continued from Page 1

said Dr. Majdi Baddourah, of Lockheed, who works with Storaasli.

The HPCC program is a function of the Federal Coordinating Council for Science, Engineering, and Technology and its Committee on Physical, Mathematical, and Engineering Sciences. The program involves about a dozen federal agencies, each with access to the Delta. It has four main components: High Performance Computing Systems; Advanced Software Technology and Algorithms; National Research and Education Network and Basic Research and Human Services.

NASA has the lead in Advanced Software Technology and Algorithms. The goal is to accelerate the development and application of high performance computing technologies to meet the Agency's science and engineering requirements in two "grand challenge" areas: computational aerosciences, and earth and space sciences.

Using massively parallel systems, however, requires developing a host of new tools, including applications algorithms and programs, systems software, peripherals, networking and high performance computing hardware.

Developing a new algorithm—a set of problem-solving instructions for the computer—was part of the grand challenge for Storaasli and Baddourah. They fashioned an algorithm to generate the stiffness matrix involving 88,416 equations for a structural model of the High Speed Civil Transport. Then they used the algorithm to feed those equations into the 512-processor Delta and a Cray Y-MP using one processor. The process took 3.2 seconds on the Delta—66 times faster.

Companies besides Intel are developing similar massively parallel supercomputers, including Cray, Thinking Machines, Kendall Square, Tera, Convex, Alliant, Ncube, Alta, Hitachi, NEC and Fujitsu.

Storaasli said the use of computers in aerospace applications is becoming increasingly important as the capabilities of the machines grow.

"The use of massively parallel supercomputers in the future will permit comprehensive analyses of aerospace vehicles beyond just structural analysis. These computers will make possible integrated analysis involving structures, aerodynamics, propulstion and other disciplines."

Lankley

Seminar: Assessing Job Performance

"Assessing and Selection for High Performance" is the topic of an Empowerment Series live video seminar on Wednesday, June 10, from 2 to 3:30 p.m. in Building 1194 A, Room 203.

The seminar features William Jackson, vice president of the Selection and Assessment Group for Development Dimensions International, a Pittsburgh-based consulting and training organization.

The program outlines behavior-oriented employee assessment strategies relevant to the 1990s. It demonstrates assessment systems such as dimension-based interviewing and simulations used to determine the people who can thrive in empowered environments.

After completing the seminar, participants should understand the assessment strategies that work in today's business climate, and how a competency-based system works, including the implications for recruiting, promoting and developing people and for defining jobs.

To register on a first-come, first-served basis, submit an application for on-site training form (No. 24) to Kim Dobbs, Mail Stop 309. The form is available from the Employee Development Branch, ext. 42597, or from your training coordinator.

CNU Offers New Master's Program

A new master of science in applied physics program is being offered by the Department of Physics and Computer Sciences at Christopher Newport University.

The degree program has three concentrations: instrumentation and advanced computer systems; dynamical systems (computational physics); and solid state systems (superconductors, lasers, electro-optical materials and devices).

All courses will be offered in the evenings. All will be live—not video—and emphasize computer use and experimentation.

Courses offered this fall include software system design and implementation; models of dynamical systems; and data acquisition and instrumentation.

For more information, call George Webb, 594-7065.

Or, use e-mail: GWEBB@PCS.CNC.EDU.

IN MEMORIAM

W. Cecil Burtner

W. Cecil Burtner Sr., 75, died Monday, May 11. He retired in 1980 as a supervisor in the model finishing shop after 41 years of service.

Herbert A. Wilson

Herbert A. Wilson, 78, died Monday, May 11. He retired in 1972 as assistant director for space after 35 years of service.

Robert E. Nye

Robert E. Nye died Saturday, May 2. Nye retired in 1988 as a photographer after 37 years of service.

Ruby L. Felker

Ruby Lee Hellard Felker, 64, died Sunday, April 26. She retired as a publication coordinator supervisor in 1985 after 40 years of service.

LETTERS

From **Joe Stickle:** I want to thank all of my NASA friends for a great career. A special thanks to those who attended my retirement party. It was a very humbling experience to share the evening with so many who have contributed to the abundance of memories that I will cherish as my NASA life. Peg and I wish you all the best. Thanks again.

From **Steve W. Farmer:** I would like to thank the many friends and co-workers who attended my retirement party. A special thank-you to the people who organized the party and made everything go so smoothly. My family, special square dancing friends and I enjoyed the party very much. Thanks for the great gifts and memorabilia. I will try to put the gifts to good use. I will always remember the great people I have worked with throughout the career and will keep in touch.

Russell Places First In Shorthand Contest

Prina M. Russell, an Office Systems Technology Education student, has placed first in the Shorthand II category in the Future Business Leaders of America Thomas Nelson Regional Shorthand Competition for Phoebus High School.

As a result of her placement, Russell will compete on the state level.

She works in the Employee Development Branch of the Human Resources Management Division and plans to continue her cooperative education.

News Researcher

The **Researcher News**, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23665-5225, is published every other Friday in the interest of all Langley staff and retirees. Submit contributions to the Editor, Mail Stop 115, telephone 864-6126. Articles are due at noon on the Tuesday following the date of this issue.

Managing Editor ..... Jean Drummond Clough

Editor ..... Michael Finneran

Photojournalist ..... Carol Petrachenko

Photographer ..... Fred Jones

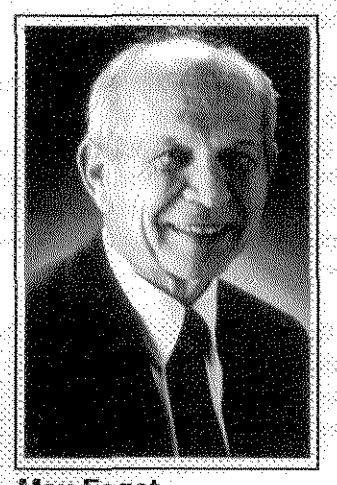
The privilege of advertising in this publication is restricted to the employees and retirees of the Langley Research Center. Articles advertised here must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

Max Faget, Space Flight Pioneer, To Speak At Colloquium

Max Faget, an original member of the Space Task Group formed at Langley, will discuss the Center's transition in the '50s as the space age dawned on the nation. Faget, chairman of Space Industries International, will speak as part of the Langley Colloquium Series on Monday, June 8 in the H.J.E. Reid Conference Center. The lecture will be held from 2 to 2:50 p.m., followed by questions and discussion until 3:30 p.m.

Faget's talk will focus on some of the more important activities at Langley during the years leading up to the creation of the National Aeronautics and Space Administration to replace the National Advisory Committee for Aeronautics.

"The '50s were years of transition for NACA," Faget said in a statement outlining his talk. "Many of the issues that faced aircraft designers during the early post-war years were either being suitably addressed or had been resolved during this period. By the end of this era, commercial airlines were introducing transcontinental and intercontinental jet-powered flights and supersonic flights were routine in military aircraft. On a completely new frontier, ballistic missiles and spaceflight were presenting new challenges and new approaches . . . Langley was by far best positioned with experienced personnel and facilities to lead NASA in the new activity of development and operations in addition to the familiar research and theoretical analysis."



Max Faget

Faget began his career at Langley in 1946 in the Pilotless Aircraft Research Division and moved to the Space Task Group created in 1958. He went to Johnson Space Center in 1962 as director of engineering until his retirement in 1981. With NACA, Faget did pioneering work on supersonic inlet and ramjet engines. He conceived and proposed development of the one-man spacecraft used in Project Mercury. The Gemini and Apollo spacecraft are derivatives of this original basic concept. He organized a preliminary design team to do an intensive feasibility study of a reusable spacecraft, which led to formal authority to develop the space shuttle.

Salute to Secretaries

Photo by Don Ward

Geraldine Rankin receives her Professional Secretaries' Day gift—a letter opener bearing the logo of the Federal Women's Program Committee—from Alberta Reid, committee representative from the Space Directorate. The committee held the Salute to Secretaries breakfast on April 24 in the H.J.E. Reid Conference Center.

AIR SCOOPS

Excerpts from Langley's old newsletter, Air Scoop, *will appear throughout the Center's 75th Anniversary year. The following is from the June 23, 1961 issue.*

DR. REID RETIRING AFTER 40 YEARS

CELEBRATING 75 YEARS

Dr. Henry J.E. Reid, Senior Staff Associate and former Center Director, has announced that he will retire June 30 after more than four decades of service.

Dr. Reid inaugurated his Federal civilian career April 12, 1921, as a junior engineer at Langley. He became Director in January 1926 and served continuously in that capacity for more than 34 years. Dr. Reid has been Senior Staff Associate since May 20, 1960, when he was succeeded by Floyd L. Thompson, who last month completed his first year as Langley Director. Thompson had previously served eight years as Associate Director. Long-time associates and other friends of Dr. Reid honored him at a luncheon at Langley Wednesday afternoon. Among the more than 300 guests were officials from Headquarters and other NASA centers.

When Dr. Reid arrived for his long stay on the Peninsula, Langley had about 40 staff members and modest research facilities, including one small wind tunnel, a flight hangar, and two converted military barracks for offices and shops. Today, Langley has a staff of 3,200, about one-third of whom are scientists, engineers and other professional personnel, and about 40 major research facilities representing an investment by the Government of more than $150 million.

Machine Perception Lectures To Be Conducted At Langley

A lecture series on "Machine Perception" will be held at Langley on September 3 and 4. The free event, which will feature scientists from around the world, is sponsored by the Advisory Group for Aerospace Research and Development (AGARD).

The series covers pattern recognition techniques; real time visual machine perception, principles and applications in guidance and control; and real time speech recognition and understanding in the guidance and control domain.

The speakers are as follows:

Dr. R. Onken, giving the introductory and concluding remarks.

H. Mangold, speaking on "Perception-based and Machine-oriented Signal Processing within Speech Understanding Systems."

T. Kanade, speaking on "Sensing and Interpretation of 3D Shape and Motion."

H.H. Baker, speaking on "Building and Using Scene Representations in Image Understanding."

B. Zavidovique, speaking on "Silicon Vision: Elementary Functions to be Implemented on the Electronic Retina."

Dr. G. Garibotto, speaking on "3D-Computer Vision for Navigation/Control of Mobile Robots."

Dr. E.D. Dickmans, speaking on "Machine Perception Exploiting High-Level Spatio-Temporal Models."

R. Evans, speaking on "3D-Computer Vision Techniques for Object Following and Object Avoidance."

For more information or to register, call William Howell at ext. 47521.

Trivia Contest Corrections

The following are corrections to two questions that were part of the Trivia Contest sponsored by the Federal Women's Program Committee. The answers ran in the May 8 issue of the **Researcher News.**

■ Question: All women hired in the 1950s and 1960s with degrees in mathematics were assigned to a particular group within a division. What group was it? Answer: West Computing Section or Computing Group. Correction: This answer best fits the late '40s, early '50s timeframe. Beginning in the late '50s and early '60s, the Analysis and Computation Division was formed and women mathematicians were hired or transferred to it.

■ Question: What major brand of mechanical calculators was used in computing sections at Langley in the 1950s and 1960s? Answer: Frieden. Correction: This answer again best fits the late '40s, early '50s timeframe. Beginning in the late '50s and early '60s, the Marchant and Wang systems were also used.

Corrections were provided by Kathryn Smith, Information Systems Division. The corrections do not change the results of the contest—the winners remain the same.

IN PERSON

For The Man Who Has Nothing, There's Junk Mail

■ BY RAMKI KRISHNAN

I have a few friends who I would dearly love to detest. These are the folks whose calendars are filled with exotic entries like "Bungee jumping next Tuesday," "Climb Mount Everest on Friday" and "Vacation in Tahiti with Paul McCartney."

My most exciting calendar entries have been "Examine lint balls found under bed" and "Count number of mites on Rover." It seems to me that the only daily unfathomable in my existence is what awaits me in my mailbox. On the short walk towards the mailbox, I experience what Jacques Cousteau might feel as he approaches a dark, unexplored underwater cave.

Once I pick up my mail, I don't open up the letters right away. I spend the next few minutes driving my wife to extreme distraction by scanning the envelopes and speculating on their contents. If the envelopes have windows on them, my breathing becomes labored while my brain pontificates, "Couldn't say no to 15 boxes of doughnuts from that fast-talking girl scout, could you?"

If a letter arrives from my mom, I smack my lips, anticipating juicy family gossip (Your Uncle Gunny eloped with the cleaning lady, leaving Aunt Seema heartbroken. She spent three months tracking them down and then begged and pleaded on her hands and knees to convince the cleaning lady to come back). A letter from my most frequent correspondent, Uncle Ed McMahon, and I imagine the lighthearted banter Johnny and I will indulge in when I'm presented with $10 million.

Of course, there are days when I don't get any "real" mail, only the much-maligned "junk mail." I realize that two pine trees, one rose bush and two tomato plants are decapitated for each piece of junk mail we get, but I believe that those deriding junk mail are overlooking its positive aspects.

For example, last month I received an informative letter with the salutation "Dear Space Executive." That expression of greeting infused so much confidence in me that I marched up to my boss and demanded a pay commensurate with my executive status. For the first time in my life I was assertive and sensed that the speech had moved my boss. He was so overcome with emotion that he turned away and his shoulders shook violently with, what I surmised were, sobs.

Lately, I have been getting junk mail indicating that my subscription to junk mail may be terminated if I don't order some of the junk advertised in the junk mail. To head off this calamity, I've put in an order for a calendar with Warren Beatty's schedule already penciled in.

Ramki Krishnan is a research scientist in the Theoretical Flow Physics Branch. He works for Analytical Services & Materials Inc.

Happenings

THE DISABLED PERSONS Satellite Committee will meet May 14 from 8:15 to 9 p.m. in the cafeteria. The meetings are open to all employees/contractors and to anyone who has an interest in the Disability Program.

BODY DYNAMICS. High-energy, low-impact aerobics classes held Mondays, Wednesdays and Fridays, 6:15 a.m., LAA gym. Classes free and open to civil servants.

SATURDAY AEROBICS, low-impact and bench. We're back in the LAA gym. Classes open to NASA, contractors and family, $6 a month or $2 per class, 9:30 to 10:30 a.m. Call ext. 42295 for more information.

LOW-IMPACT AND BENCH AEROBICS classes are held Tuesdays and Thursdays, 5 to 6 p.m., LAA gym. Cost is $12 per month or $6 per month if attending only one day a week. The classes are open to employees, contractors and their families. Call ext. 42295.

THE FEDERAL WOMEN'S PROGRAM COMMITTEE will meet Wednesday, May 13, at 8:30 a.m. in the H.J.E. Reid Conference Center, Hampton Room.

THE LANGLEY CHAPTER, Federally Employed Women, will meet Wednesday, May 27, at 11:30 a.m. in the Langley Air Force Base Non-commissioned Officers Club, Chapman Lounge. Guests are welcome.

HOUSE FOR SALE: 3-bedroom rancher, 1 bath, living room, fireplace, wood stove, newly tiled/painted laundry room, new central air, gas heat, more than 1,800 square feet of living space, a 12 x 16 workshop with electricity, fenced back yard, close to shopping, schools and Langley Air Force Base, $75,900. Call 850-4176.

CHILD CARE: Quality child care in my Denbigh home. Experienced, excellent environment. Reasonable. Please call 877-2186 or 877-2069. References available.

TOASTMASTERS meets the second and fourth Wednesday of each month from 11:30 a.m. to 1 p.m. The next meeting is May 27 in Building 1222.

WOMEN IN AEROSPACE will sponsor a brown-bag lunch meeting Tuesday, June 2, at 11:30 a.m. in the cafeteria's executive dining room. Featured program speaker will be Dr. Joel S. Levine, Atmospheric Sciences Division, who will speak on "A Planet At Risk." Everyone is invited. Call Veloria Martinson at ext. 47688 for more information.

COMPUTER GAMES FOR SALE: Genesis 16-bit system with "Sonic the Hedgehog," 2 controllers, $110. Genesis games, $23 each: Speedball 2, NHL Hockey; Thunder Force III. Sega Master System, 8-bit with "Castle of Illusion" and "Alex Kidd," $40. Call 595-3941.

HOUSE FOR RENT: In Running Man, 3 bedrooms, 2 baths with a large Jacuzzi, eat-in kitchen, dining/living room with fireplace, deck, shed, two-car garage with automatic door opener, washer/dryer, dishwasher, stove, refrigerator with ice dispenser, garbage disposal, microwave oven, available August 1 for $900 per month plus utilities. Call 868-7570.

CLEAN THE BAY DAY: Center employees and contractors are invited to help Langley AFB during Clean the Bay Day on Saturday, June 13 from 10 a.m. to 1 p.m. Several areas along the back river and in Bethel Manor will be cleaned. Meet at 10 a.m. at Langley Marina (Building 607) or Bethel Manor Youth Center (Building 1421), depending on area you'd like to clean. Call Terri Mosteller, 764-3987, by June 1.

ROOMMATE WANTED: Female wanted to share 3-bedroom, 1½-bath home in the Wythe area. No smokers. Rent is $250 per month plus half the utilities and a $200 deposit. Call 722-7127 before 9 p.m.

WANTED: Virginia Air and Space Center (VASC) features a Teachers Resource Center and two classrooms. The VASC would like to enhance these areas with donated models, reference books, magazines, slide rulers, and other appropriate items. To donate materials, call Shelley Canright, ext. 43313 or John Mannarino, VASC public programs manager, 727-0800.

COMPUTER FOR SALE: CompuAdd 810, IBM compatible—X-7 video display—monochrome (MDA), 20 megabyte hard drive, 5.25- and 3.5-inch drives, 640 kilobytes of memory, operating system is DOS 4.0, software includes Eight-in-One (word processor/speller, spreadsheet, database, label maker, calendar, memopad, graphics and communication); Works and Lotus 123. Asking $400 or best offer. Call 253-8871 or 229-7838.

HELP NEEDED to convert a European standard beta tape to VHS. Call 864-1513.

KINDERGARTEN PROGRAM: The NASA-Langley Child Development Center is registering children for its new kindergarten program. A full-day program will be provided by a certified kindergarten teacher. Applicants must be five years old by October 31, 1992. Call ext. 44827 for more information.

HOME FOR SALE: Lake One townhome duplex, Mercury Central, 1,700 square feet each, 3 bedrooms, 2½ baths, living room, dining room, secluded lakeside, 10 minutes from NASA. First townhome, new W/W, $85,000; second, new CA, $82,000. Will negotiate for unique live-in/rental opportunity. Call 826-8916.

MODEL RAILROAD OPEN HOUSE: Chesapeake Bay Railroaders, 110C Dare Road, Grafton, will open their HO gauge model railroad to the public Saturday, May 30, from 10 a.m. to 5 p.m. and Sunday, May 31, from 1 to 5 p.m. Call Joe, 864-3730, for more information.

National Aeronautics and
Space Administration

Langley Research Center
Hampton, Virginia 23665-5225

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News
Researcher

Photo by Don Ward

Stormy weather and high winds toppled this large tree into the parking lot at the H.J.E. Reid Conference Center on Thursday morning, May 7. Fortunately no one was injured and little damage was done.

1917 - 1992
75 Years
NACA
NASA
Langley Research Center

Researcher News

Bi-weekly Employee and Contractor Publication

Volume 6 ❖ Issue 9 ❖ June 5, 1992

Darrell Branscome Named Langley's Chief Engineer

Darrell R. Branscome, whose NASA career began at Langley, has returned after 16 years in Washington, D.C., to serve as chief engineer. Branscome succeeds Joseph W. Stickle, who retired in April.

Darrell R. Branscome

From January of this year until his appointment to Langley, Branscome was deputy associate administrator for space flight (management).

Branscome, a Galax, Va. native, worked at Langley from 1966 to 1973, starting as a space technologist before serving as manager, Advanced Engineering Systems Analysis and Economic Studies.

From 1973 to 1974, he was at Headquarters in the Management Development Program, and served as a technical assistant in the Manned-Space Technology Program Office and as acting program manager, Space Technology Shuttle Payloads Program.

Branscome returned to Langley in 1974 as technical project manager responsible for systems engineering support for spacecraft systems and space technology experiments.

He moved back to Washington in 1975, where until 1985 he served as staff director for the Subcommittee on Space Science and Applications, House of Representatives Committee on Science and Technology.

Branscome was special assistant to the associate administrator, Office of Space Flight, from 1985 to 1986. During that time he also served as NASA deputy co-director, National Space Transportation and Support Study.

From 1986 to 1987, he was director, special programs, Office of Space Flight. During that period he also was NASA co-director of the Joint NASA/DOD National Space Transportation and Support Study and the NASA Mixed Fleet Study.

Branscome was director of the Advanced Program Development Division in the Office of Space Flight from 1987 to 1991. From 1991 to 1992, he was technical assistant to the associate administrator for space flight.

Branscome has a bachelor and master's of science degrees in mechanical engineering from the Virginia Polytechnic Institute and State University.

He has received the NASA Exceptional Service Medal and several group and special achievement awards.

The 'Meatball' Is Back

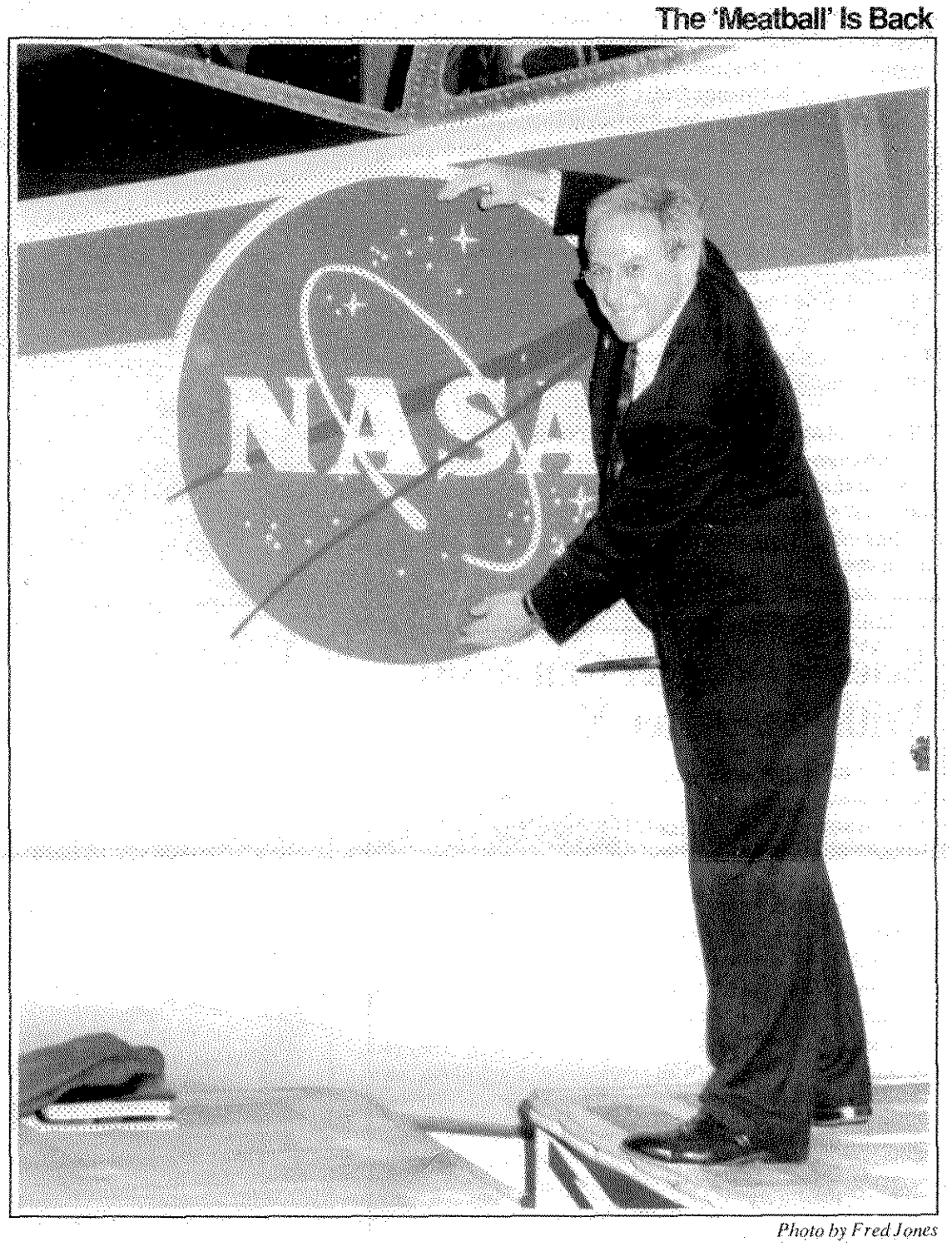


Photo by Fred Jones

NASA Administrator Daniel S. Goldin poses with the "meatball" logo on Langley's 737 research aircraft during a May 22 visit in which he declared the meatball the official NASA insignia and banished the "worm" logo created in 1972. The reheating of the meatball, designed in the late '50s when the NACA became NASA, signals that "the can-do spirit of the past is alive and well," said Goldin. "The magic is back." A transcript of Goldin's remarks appears on Page 4.

Exceptional Year Yields Three Floyd Thompson Fellowship Recipients

The winners of the 1992-93 Floyd L. Thompson Fellowships are Dr. Suresh M. Joshi, Spacecraft Controls Branch; Dr. Michael P. Nemeth, Aircraft Structures Branch; and Dr. Ruth H. Pater, Polymeric Materials Branch.

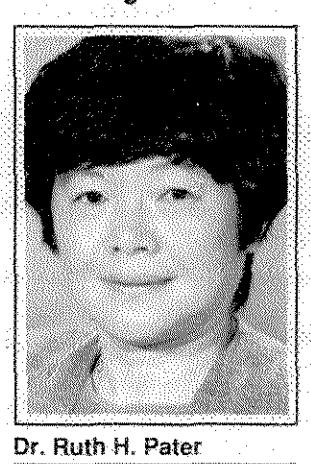
"This was an exceptional year in that the candidates were so outstanding we elected to award three fellowships instead of our usual one or two, " said Dr. Michael F. Card, chief scientist.

Joshi will spend a year at the University of Virginia investigating controller design robustness in the presence of structured parametric uncertainties as well as control synthesis for nonlinear systems.

He will work with Professor Miles A. Townsend in the Mechanical and Aerospace Engineering Department and with selected professors in the Electrical Engineering and Mathematics departments.

Nemeth will spend six months at Delft Technical University studying the collapse behavior of laminated composite shells with cutouts. He will work with Professor Johann Arbocz, an international expert in imperfect shell structures. For the rest of the year, he will work with Professor James G. Simmonds at the University of Virginia. Simmonds is internationally recognized as a leading expert in shell theory.

Dr. Michael P. Nemeth



Dr. Ruth H. Pater

Dr. Suresh M. Joshi

Pater will spend a year at the Tokyo Institute of Technology developing ultra high temperature inorganic/organic polymers. She will work with Professor Masa-Aki Kakimoto, who is a worldwide expert in high temperature polymers.

Part of Pater's research will include investigating Hot Isostatic Pressing (HIP) at high temperatures and pressures to produce new polymeric materials.

As a Thompson Fellow, researchers may choose to spend a year away from Langley out of the two-year program.

"We would like to accommodate less mobile individuals by permitting researchers to stay in the local area and selectively visit other organizations.

"Over the next year, I hope to see more researchers consider either an external or internal option of pursuing creative research through the Thompson Fellowship program," said Card.

The program was established in 1977 to promote the development of research among the Langley staff. It is named in memory of Dr. Floyd L. Thompson, Langley director from 1960 to 1968. For more information, call Card at ext. 46062 or George Allison at ext. 42594.

News Briefs

AROUND THE AGENCY

CONTINUOUS IMPROVEMENT ADMINISTRATOR NAMED — Laurie A. Broedling has been appointed associate administrator for Continuous Improvement effective May 27. She reports to Administrator Daniel S. Goldin and serves as NASA's primary facilitator of Total Quality Management (TQM). Broedling has extensive experience leading the implementation of TQM in federal agencies. She served in the Department of Defense as deputy under secretary for Total Quality. She also served in the Department of the Navy, where she held numerous managerial posts, including TQM technical advisor to the secretary of the Navy, where she created the structure that institutionalized implementation of TQM across the Navy and Marine Corps. Broedling also has been a professor at San Diego State and George Washington universities, where she taught courses in strategic planning, organizational behavior and organizational development. She has a bachelor of arts degree in psychology from Brown University and a master's and doctorate in industrial-organizational psychology from George Washington.

COMMUNICATIONS ASSISTANT NAMED — Bill Livingstone has been appointed special assistant to the Administrator for communications, a new position. For the last seven years, Livingstone was press secretary for then-U.S. Sen. and now Gov. Pete Wilson (R-Calif.). Before that he was press secretary for U.S. Sen. Jim McClure (R-Idaho). He also was press secretary for Wilson's gubernatorial election in 1990 and McClure's reelection in 1984. Livingstone, a Montana native, has a bachelor of science degree from Montana State University and attended graduate school at the University of Southern California in motion picture production, and the Fletcher School of Law & Diplomacy in international relations.

U.S.-RUSSIAN TEAM PROBES ANTARCTIC — Three U.S. scientists, including one from Ames Research Center, have completed the first U.S.-Russian Antarctic expedition. The expedition investigated the physical, chemical and biological properties of the ice-covered lakes in the Bunger Hills Oasis in East Antarctica. Ames scientists have studied dry moraine valleys in the McMurdo Sound area because of the possibility that those ice-covered lakes may represent an analogy to condition that may have existed on Mars in the geologic past.

Recent Retirees

The following employees have recently retired:

Richard E. Bloxom, Fabrication Division, effective May 1.

Robert C. Basford, Facilities Engineering Division, effective May 1.

Jarrett K. Huffman, Applied Aerodynamics Division, effective May 1.

Carolyn H. LeDuc, Analysis and Computation Division, effective May 1.

Robert W. Mitchell, Operations Support Division, effective May 29.

James C. Manning, Acoustics Division, effective May 29.

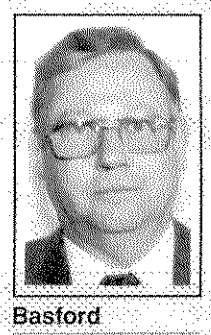
Glenna D. Martin, Projects Division, effective May 29.

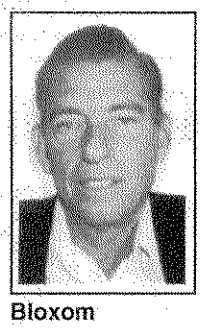
Maxwell E. Hoffman, Flight Applications Division, effective April 30.

Curtis R. Horton, Fabrication Division, effective March 27.

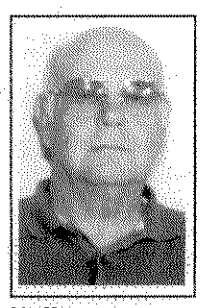
William H. Richards, Systems Engineering Division, effective February 28.

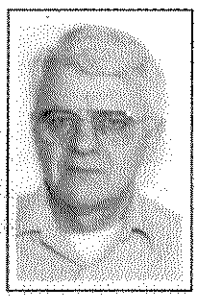
Catherine B. Worth, Applied Aerodynamics Division, effective February 28.


Basford


Bloxom

Hoffman


Huffman


Richards

Science Internet Can Assist With Computer Networking

Ever had a networking question? Can't find anyone down the hall to answer your question? The NASA Science Internet (NSI) is an international dual-protocol (TCP/IP and DECnet) network whose function is to support and facilitate research among NASA's scientists and engineers.

Two networks, Space Physics and Analysis Network (SPAN), which contained the DECnet component, and the NASA Science Network (NSN), which contained the TCP/IP component, have been incorporated into the NSI since 1990.

NSI has a Network Information Center (NIC), with a Help Desk staffed to answer questions and solve problems. They can be contacted by electronic mail or telephone. The NSI NIC also offers other services, such as an anonymous FTP site with numerous useful sets of network information and software utilities in the data archives (the NSI File Cabinet), an online networking help utility (NONA), and the capability for custom network user service, both information requests and networking application service requests.

- The NSI NIC Help Desk can be contacted by:
  E-mail (for NSI-TCP/IP): help@nic.nsi.nasa.gov
  For NSI-DECnet: nsinic::help
  Phone: (301) 286-7251. Fax: (301) 286-5152.

- The anonymous FTP site, NSI File Cabinet, can be accessed by:
  For NSI-TCP/IP: ftp nic.nsi.nasa.gov
  For NSI-DECnet: set default nsinic::nic_files: [000000].
  Use the DECnet COPY to copy files.

- The NSI Online Network Aide, NONA, is accessed by:
  For NSI-TCP/IP: telnet nic.nsi.nasa.gov
  User name nsinic
  For NSI-DECnet: set host nsinic
  Username nsinic

Voluntary Leave

The following employees are approved for leave under the Voluntary Leave Transfer Program: Linda E. Edmundson, Francine W. Guthrie, Noel A. Talcott Jr., Belle L. Wood and Darrell A. Wood.

The program lets employees donate annual leave to other employees with personal or family medical emergencies. If you wish to donate leave or need more information, call Linda Park, of the Employee Relations Office at ext. 42610.

IN MEMORIAM

Ernest C. Hooper

Ernest Carlton Hooper, 69, died Saturday, May 23. He retired as an electronic technician.

E.J. Hartmangruber

Eugene J. Hartmangruber, 72, died Monday, May 25. He retired as a modelmaker in 1975 after 34 years of service.

Archie D. Myers

Archie D. Myers died on May 4. He retired in December of 1989.

Walter H. Lane Jr.

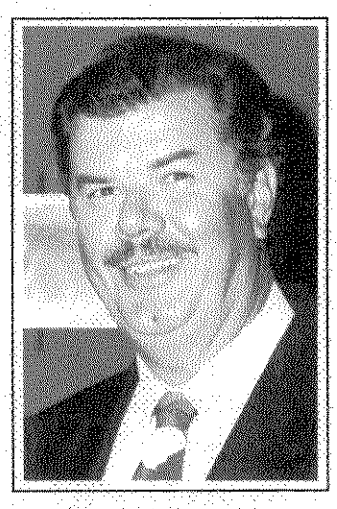
Walter H. Lane Jr., 72, died Thursday, March 12. He retired as a modelmaker in 1974.

Photo Lab Idea Wins Causey Suggester Of The Year Award

Everette R. Causey, Operations Support Division, is the most recent recipient of the Suggester of the Year Award.

His suggestion provided a successful alternative to the expensive replacement of the photo lab drainage system and the trucking of large volumes of wastewater to a treatment center. It also allowed the lab to continue operation while cleaning and flushing the drains.

He received the award April 13 from Deputy Director H. Lee Beach Jr.


Everette R. Causey

U.S. And Russians Issue Space Stamps

The U.S. and Russian postal services have issued a series of four stamps commemorating advancements in space exploration.

American artist Robert McCall and Russian artist Vladimir Beilen designed the stamps.

Issued on May 29, the block of four represents events in Russian and U.S. space history, including both countries' space shuttles, the Apollo moon landing, an astronaut and cosmonaut, the Russian space station Mir and several space probes.

The stamps are the same in both countries except for the name of the country and the monetary denomination.

Brown Bag Seminar

The next health-related brown-bag seminars, to be held June 4 and 12, will focus on minor emergencies and common sense treatment. The noon seminars will be held in the cafeteria executive dining room for all civil service and contractor employees.

Sharon Hartsell, a nurse practitioner, will present the seminars.

ViGYAN Owner Cited By Chamber

The owner of ViGYAN Inc. has been named 1992 Small Business Person of the Year by the Virginia Peninsula Chamber of Commerce.

Sudhir Mehrotra opened ViGYAN in 1979 with three people to work as a contractor for Langley.

The Hampton firm now employes about 150 people and also has offices in Falls Church and North Carolina.

ViGYAN is a research and development company that also provides software and computer maintenance work.

News Researcher

The **Researcher News**, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23665-5225, is published every other Friday in the interest of all Langley staff and retirees. Submit contributions to the Editor, Mail Stop 115, telephone 864-6126. Articles are due at noon on the Tuesday following the date of this issue.

Managing Editor ..... Jean Drummond Clough

Editor ..... Michael Finneran

Photojournalist ..... Carol Petrachenko

Photographer ..... Fred Jones

The privilege of advertising in this publication is restricted to the employees and retirees of the Langley Research Center. Articles advertised here must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

People & Places

Breakthrough Supercritical Wing Plane Retired At Dryden

BY WHITNEY BARTLETT

The one-of-a-kind F-8 Supercritical Wing (SCW) research plane has been restored and put on display at Dryden.

The SCW was a major breakthrough for the aviation industry. It solved the transonic problem of shock waves occurring across the wing when the aircraft approaches supersonic speeds.

This innovation was designed by retired Langley engineer/researcher Dr. Richard T. Whitcomb, who was chief of the Transonic Aerodynamics Branch here.

Whitcomb developed the SCW airfoil in Langley's 8-Foot Transonic Pressure Tunnel in the mid 1960s. It was found that the wing delayed transonic drag-rise to a Mach number about one-tenth higher, which in turn increased the speed of the aircraft.

"The Supercritical Wing was originally designed to go fast — right up to the speed of sound," said Whitcomb.

The Navy's Vought F-8A Crusader was chosen as the flight-test plane. The structure of its wing mount made it easy for NASA to replace it with the new wing design.

Although the SCW was flight-tested on a Navy fighter, it was intended to be used for civil purposes.

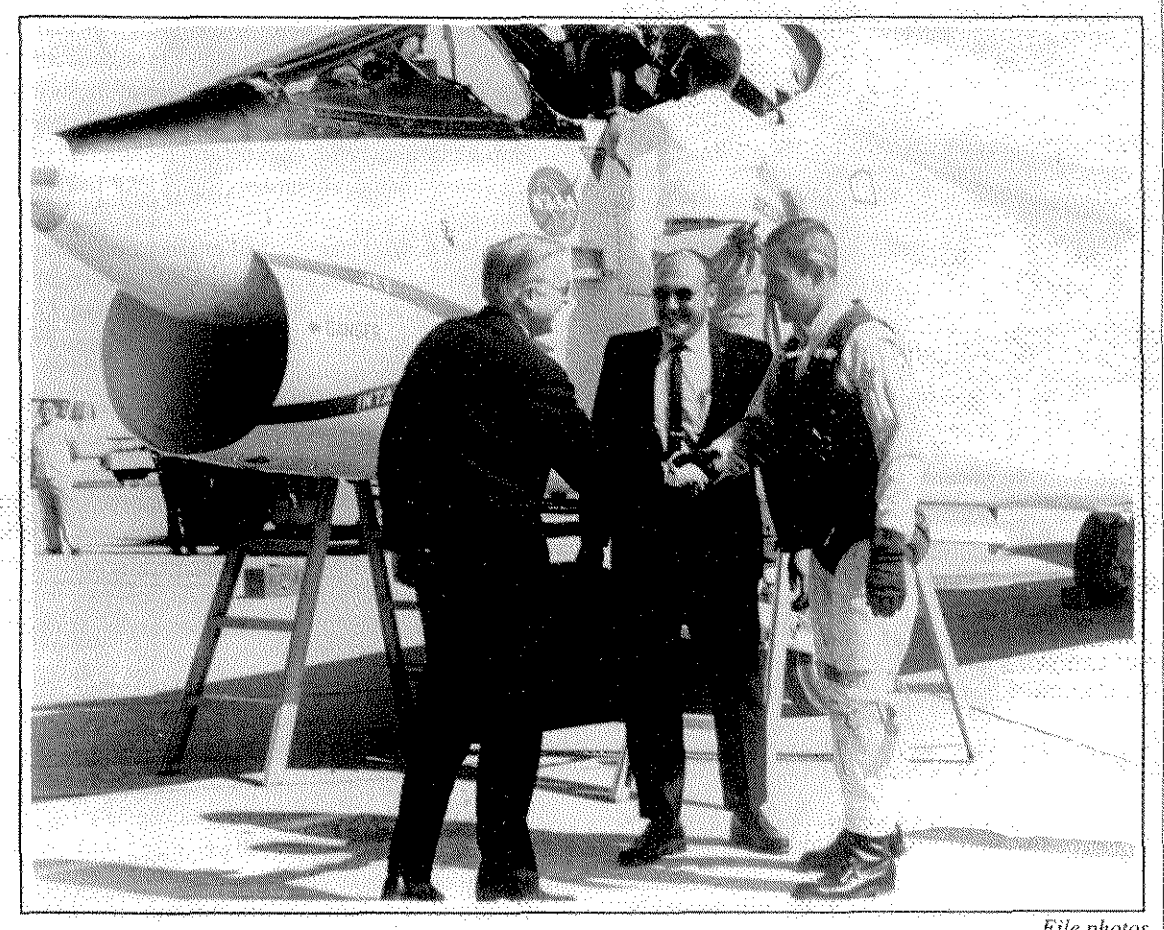
"The Supercritical Wing was never intended to be used on the F-8. It's used on military transport planes, but it is not used at supersonic speeds," said Whitcomb.

Whitcomb adds that the flight-test results at Dryden showed that the F-8 flew 20 percent faster than the current transports with the conventional wing design.

After the price of fuel rose in the early 1970s, there was no longer a concern for aircraft speed. Therefore, the original supercritical design was modified to a thicker wing-section and increased wing-span, which reduces fuel consumption.

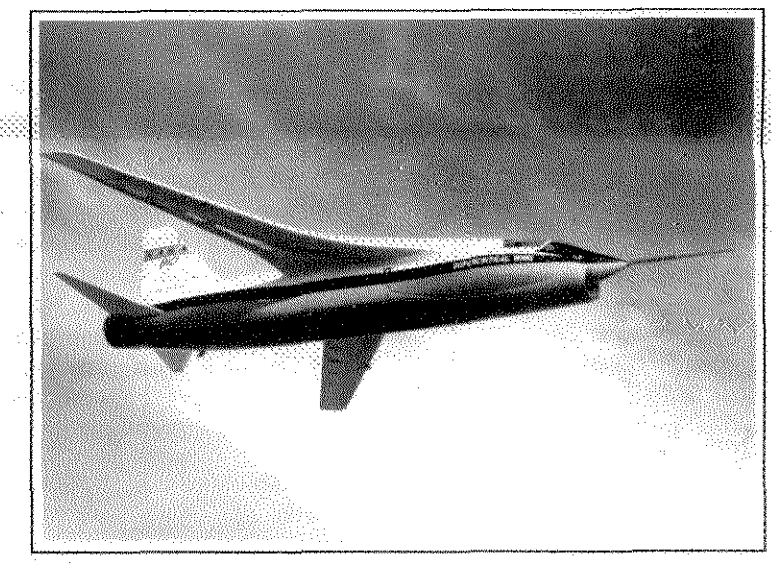
The initial flights of the F-8 research plane were recognized at Dryden's 20th anniversary ceremony on May 26 and 27.

Whitcomb attended the dedication ceremony and spoke about the state of technology before the F-8 SCW, as well as its design and flight program.



File photos

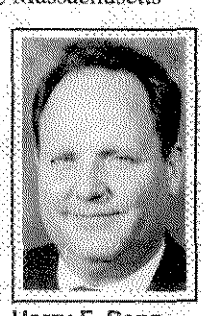
In this 1971 shot, the developer of the Supercritical Wing, Dr. Richard Whitcomb, greets lead project pilot Tom McMurty. John McTigue, center, was Supercritical Wing program manager at Dryden.



The F-8 SCW aircraft flies over Dryden in this 1971 photo.

Benz To Study Management In MIT Course

The head of the Information Processing Technology Branch has been selected to attend the Management of Technology Program at the Massachusetts Institute of Technology.



Harry F. Benz

Dr. Harry F. Benz will participate in the program for experienced engineers and scientists who are likely to assume managerial responsibilities in technology-based organizations. It will run from June 10 to May 28, 1993.

The 12-month program will have the specialists prepare a thesis and analyze theories, concepts and practices in the area of technology management.

Benz began working at Langley in 1967 as a junior research electrical engineer. He is responsible for managing a broad research program, which includes spaceborne multicomputing, semiconductor lasers and microgravity liquid phase crystal growth.

He has authored and co-authored more than two dozen publications and has received several awards, including the OSTA-1 Mission Group Achievement Award and the Tech Brief Award.

Benz has a doctorate in electrical engineering from the University of Virginia.

Vay Receives ODU Award

The Department of Chemistry and Biochemistry at Old Dominion University chose Stephanie Vay as this year's recipient of the Analytical Chemistry Award.

The award, sponsored by the Analytical Chemistry Division of the American Chemical Society, is given to the student with the top performance in Chemistry 321 and 322. Vay, of the Sensor Technology Branch, Flight Electronics Division, was recognized at a banquet in April.

Zang Receives Berman Award

Dr. Thomas Zang has received an Alan Berman Research Publication Award for 1991. The award was presented at the Annual Research Publication Award Dinner in March at Bolling Air Force Base.

Zang works in the Theoretical Flow Physics Branch, Fluid Mechanics Division. The award honors non-contractors for their research.

They're off . . . Langley runners race from the starting line.

Langley Employees, Contractors Take Part In Intercenter Races

Forty-four Langley employees and contractors took part in the NASA Intercenter Competition's 10 KM Race and 96 ran in the 2-mile event in April. The top Langley runners were, 10 KM, men: Erik Vedeler, 32:23; Bill Rogers, 34:12; and Steve Robbins, 37:32; women: Valerie Plyler, 38:56; Kathy Powell, 42:02; and Karen Sage, 52:30. In the 2-mile race, men: Erik Vedeler, 9:59; Bill Rogers, 10:35; and Steven Robbins, 11:19; women: Valerie Plyler, 11:40; Kathy Powell, 12:46; and Dianne Cheek, 14:10. Alene Heuser took part on crutches, finishing the 2-mile in 34:51 and later in 30:58.

THEN & NOW

Excerpts from Langley's old newsletters will appear throughout the Center's 75th Anniversary year. The following is from the March 12, 1965 issue of the Langley Researcher.

PRESIDENT JOHNSON PRAISES NASA

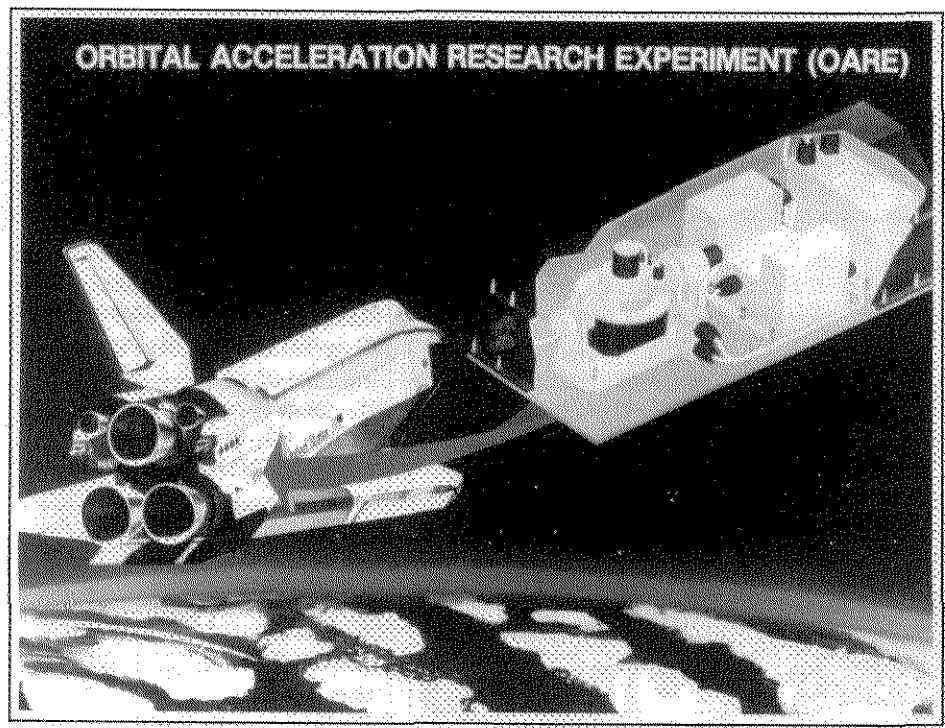
CELEBRATING 75 YEARS

During a visit to NASA Headquarters on February 25, President Johnson praised NASA employees for their progress in the space effort and declared the true goal of the U.S. space program is to foster peace and bring all the nations of the world together in exploring the universe.

The President told the 230 NASA officials attending the briefing that "the nation and the peoples of the world have a deep debt to you people who selflessly sacrifice so much in order that we might see so far ahead and build for our future."

In recalling his own roll as a senator in getting the space program started he said, "I feel somewhat close to this agency and this program. The Space Act of 1958 was one of the measures that I authored during my 25 years in Congress, and I suspect is one of my proudest legislative achievements. I think it is really incredible that we have come so far. It was only seven years ago this month that we were deliberating and debating and still seeking to come to grips with the realities of the space age.

"I need not recall some of the comments made during that period about the follies that we were about to embark upon. But from that beginning we have moved in these years to realities of accomplishments far beyond our greatest expectations."



This illustration shows the location of Langley's Orbital Acceleration Research Experiment (OARE) on Space Shuttle Columbia. Launch is scheduled for June 22.

Langley Experiment Is Set To Fly On Space Shuttle Columbia Mission

The longest flight ever for a space shuttle and around-the-clock investigations of the effects of weightlessness on plants, humans and materials will highlight the STS-50 mission.

A Langley experiment will also be onboard for the planned launch at 12:05 p.m. June 22. The 48th flight of the shuttle and the 12th flight of Columbia will carry the United States Microgravity Laboratory-1 (USML-1) on a 13-day mission. An additional payload will be Langley's Orbital Acceleration Research Experiment (OARE), which will provide measurements of orbiter aerodynamic data within the thin atmosphere of extreme altitudes.

The data will be gathered during the high-altitude portion of Columbia's reentry for a scheduled July 5 landing at Edwards Air Force Base. The OARE instrument has a set of extremely sensitive linear accelerometers, which measure the orbiter's response to aerodynamic forces. The accelerometers are capable of measuring acceleration levels as low as one part per billion of Earth's gravity.

Because of their extreme sensitivity, the OARE sensors cannot be adequately calibrated on the ground in the presence of Earth's gravity. Thus, the sensors are mounted on a rotary calibration table that enables an accurate calibration while in orbit.

The OARE instrument is installed at the bottom of the orbiter's payload bay on a carrier plate attached to the shuttle keel. Data is recorded on the mission payload recorder and in OARE's solid-state memory. Langley's Robert C. Blanchard, Aerothermodynamics Branch, Space Systems Division, is the OARE principal investigator.

Car passes to launch the are available by calling Ann Suit at ext. 43305.

The crew is led by Richard N. Richards. The pilot will be Kenneth D. Bowersox. Mission specialists include Bonnie Dunbar, who is also payload commander; Ellen Baker; and Carl Meade. Payload specialists are Lawrence J. DeLucas and Eugene H. Trinh.

The instrument will provide measurements of orbiter aerodynamic data within the thin atmosphere of extreme altitudes.

USML-1 includes 31 experiments, ranging from methods of growing plants in weightlessness to manufacturing crystals for possible semiconductor use to the behavior of weightless fluids. The shuttle will also carry the Investigations into Polymer Membrane Processing experiment in which polymers are manufactured, and the Space Shuttle Amateur Radio Experiment-II, which allows crew members to contact ham radio operators worldwide and conduct question-and-answer sessions with schools.

Columbia is the only shuttle capable of a 13-day flight and will carry extra hydrogen and oxygen on a pallet in the cargo bay. New systems for removing carbon dioxide from the crew cabin, for containing waste and for increased stowage of food and crew equipment also have been added.

The crew will perform several ongoing medical investigations during the flight as part of research aimed at counteracting the effects of prolonged exposure to weightlessness on the human physique.

Competitive Placement Positions Announced

The following vacancy, open to Langley employees under permanent civil service appointments, has been announced through the Competitive Placement Plan: **92-33: Supervisory Electrical Engineer, AST, Electrical Experimental Equipment,** GM-850-13 or 14, (Term Appointment) (Head, Facility Automated Control Section), Systems Engineering and Operations Directorate, Facilities Engineering Division; closes June 9. The following CPP selection has been made: **Cynthia Lee,** head, Flight Research Branch.

Employee Awards

The following employees have received cash awards for job performance:

Robert H. Huffman Jr., engineering technician, Operations Support Division (OSD), for exceptional technical contributions in integrating the 70 foot Vacuum Sphere with the existing Test Cell #1 and #2 systems, Building 1221C.

Robert G. Edwards, engineering technician, OSD, for exceptional technical contributions and improvements to the ESP Instrumentation at the Unitary Wind Tunnel.

Charles A. Sweet, electrical engineering technician, OSD, for high quality performance in maintaining the integrity of the electrical drive equipment at Langley.

Wendell G. Adams, engineering technician, OSD, for exceptional foresight in recognizing an anomaly at the 8-Foot Transonic Pressure Tunnel, which prevented damage and costly downtime.

Eric C. Vinson, engineering technician apprentice, OSD, for exceptional performance in support of the Mach 4 Blowdown Tunnel 2-D Inlet/Isolator Parametric Model Test.

John H. Crosby III, supervisory engineering technician, OSD, for exceptional technical contributions and facility coordinator support for the installation of 27 new fatigue test frames in the Mechanics of Materials Laboratory.

Loyd W. Overbay, supervisory engineering technician, OSD, for exceptional leadership and technical contributions to the Atmospheric Sciences Division Tropospheric Chemistry Program.

John W. Swartzbaugh, engineering technician apprentice, OSD, for exceptional performance in support of the High Frequency Jet Noise tests and the 1/60 scale High Subsonic Acoustic Wind Tunnel while assigned to the Acoustics Research Laboratory, Building 1208.

Gregory K. Draughon, electronics technician apprentice, Fabrication Division (FD), for exceptional skill, dedication and initiative in support of the Hypersonic Models Heat Transfer Program.

Keisha R. Armistead, clerk stenographer, FD, for exceptional performance in implementing variable day schedules in the advanced machining development section.

John B. Callis, electronics technician, FD, for excellence in the support of the Airborne Field Mill Experiment.

Lloyd W. Spangler, electronics technician, FD, for exceptional technical skill, dedication, and innovative support of the Lidar In-Space Technology Experiment.

John D. Thompson, engineering technician, FD, for exceptional performance and dedication to duty.

Nancy M.H. Kruse, electronics technician apprentice, FD, for superior performance and significant technical contributions in microelectronic fabrication.

Frederick O. Allamby, aerospace technologist, technical management, Projects Division (PD), for outstanding and innovative leadership in management of the Center's activities for the NASA Office of Commercial Programs.

Jack E. Harris, supervisory aerospace technologist, project management, PD, for outstanding technical and managerial performance as deputy chairman of three extensive review panels for the Earth Observing System Program.

Lindy A. Fleck, aerospace technologist, Experimental Facilities Development, Facilities Engineering Division (FENGD), for exceptional and timely completion of the FENGD Overview Display.

Henry S. Wright, technical project engineer, Systems Engineering and Operation, FENGD, for initiative and leadership in applying Value Engineering principles in the reconfiguration of the High Pressure Air System for the Modifications to the 30 by 60 Foot Tunnel Project.

Daniel A. Folta, safety engineer, Systems Safety, Quality, and Reliability Division (SSQRD), in recognition of timely and effective support to the Center's Safety Engineering Program.

Donald J. Porter, safety engineer, SSQRD, in recognition of timely and effective support to the Center's Safety Engineering Program.

John W. Wainwright III, construction representative, SSQRD, in recognition of his contribution in assuring consistent and standard requirements in construction specifications and for implementing productivity improvements in the division's specification review process.

Barbara G. Newton, supervisory management analyst, Management Support Division (MSD), for outstanding leadership and dedication for over 12 innovative years in the management of Langley's records and central files program.

Gail L. Lanning, management assistant, MSD, for exemplary performance and dedicated support of Support Operations Office activities.

Nannette D. Lloyd, secretary, MSD, for outstanding support to the Directives and Forms Management Office.

David B. Rhodes, physicist, Instrument Research Division (IRD), for sustained contributions that have advanced flow visualization techniques for ground facilities and flight tests.

Reginald J. Exton, supervisory optical physics, IRD, for exceptional technical contributions, dedication and teamwork on the source evaluation committee for the NASP high-temperature sapphire optical fiber contract.

Ken K. Tedjojuwono, electronics engineer, IRD, for exceptional technical contributions, dedication and teamwork on the source evaluation committee for the NASP high-temperature sapphire optical fiber contract.

Robert S. Rogowski, aerospace technologist, basic properties of materials, IRD, for exceptional technical contributions, dedication and teamwork on the source evaluation committee for the NASP high-temperature sapphire optical fiber contract.

Nita W. Langford, secretary, IRD, for exceptional service in support of the first NASA Langley Measurement Technology Conference.

Allan J. Zuckerwar, electronics engineer, IRD, for exceptional technical contributions, dedication and teamwork on the source evaluation committee for the NASP high-temperature sapphire optical fiber contract.

Administrator Goldin Brings 'New NASA' Message To Langley

The following is a transcript of comments by NASA Administrator Daniel S. Goldin during an appearance before Langley employees on May 22 in the H.J.E. Reid Conference Center. In addition to his address to employees, Goldin held a press conference and toured the Center.

Photo by Fred Jones

Administrator Daniel S. Goldin, far right, observes construction of space station joints. From left are Michael E. Tall, technician; Richard B. Holt, head, Advanced Machining Development Section; and Martin P. Kress, assistant administrator, Office of Legislative Affairs, Headquarters.

Last weekend was historic—the NASA senior management team made a commitment to establish a new and better NASA. Because NASA started here at Langley, I want you to be the first group of NASA employees to hear firsthand about this historic decision and about our plans for the future at NASA.

In less than 90 years, our nation has gone from the sands of Kitty Hawk to the orbit of Uranus, from the marvels of flight to the marvels of spaceflight. And to do this took the ingenuity, talent and innovation of the NASA employees like those sitting right here in this very room.

The new NASA is committed to restore the technical and managerial excellence that made NASA the hallmark of the world in the '60s and '70s. But the new NASA must do more than succeed with its aeronautics and space programs—the new NASA also must take the lead to provide hope and promise and opportunity to all Americans.

The new NASA must reflect the cultural diversity of America and of its workforce. And the new NASA must be socially responsible and care about the entire population and the humanity of the future. NASA has done a good job in these areas in the past, but we must do a better job in the future for all Americans and all the people of the world to realize their dreams.

I am sure there are as many rumors rampant here at Langley as there are at Headquarters and in Washington, so let me tell you what we are going to do and what the response of the contractor team and Congress has been to our proposal. Our goal is simple—we are going to ask the NASA employees to define the goals and objectives of the space and aeronautics program and then we are going to ask the NASA employees to tell us how we can implement our mission in a more cost-effective manner.

I am going to ask each one of you to think real deep and go home and search your souls and tell us how you can do your job a little better. I am going to ask each one of you to stretch beyond your comfort zone. I am going to ask each of you to think of new and better ways to do our mission—to do it faster, better, cheaper, without compromising safety. Why have I initiated this activity? When I arrived at NASA seven weeks ago, I found the Agency on the brink of a budget disaster. We had set up expectations that were unrealistic and could not be supported in the out-years by the President and Congress in tough financial times.

Yes, we might have been able to get through FY 1993 if Congress provided the President's budget request, but the budget requirements for the out-years—'95, '96, '97—were well beyond the bounds of reality and sanity. To correct that situation, we have established a series of Blue and Red Teams, a concept that I have found to be very successful in industry, where the best and brightest minds challenge the content, time, technology and schedule of a program. We have two groups that intellectually go at each other with peer pressure, which is the ultimate of all possible bosses.

These teams will be finalized by next Tuesday, as will their charters—and then I'll be going on NASA Select to tell you who are the members of the teams and what their charters are. I personally am not selecting one human being; there'll be about 100 people selected broadly across the Agency.

To start, these teams will look at our major programs, but as we progress, teams will start to look at our other programs, as well as our institution. The Langley employees will play a key role in these studies, as will the Langley senior managers. These teams will reflect the cultural diversity of the agency and of our workforce—and these teams will be a permanent feature of NASA.

So you ask, can it work? I believe yes, and let me give you some feelings about that. In the last few months, due to the budget pressures, the Office of Space Science and Applications established internal teams to review the AXAF and the CASSINI programs, both of them big ticket items in the NASA budget. Based on their reviews, both programs are being recommended for restructuring and not cancellation. These restructurings will reduce the cost of each program by 20 to 30 percent, and even though we're reducing cost, we're holding the schedule, and what's more, they will maintain the quality and with incredible scientific content. It solves a paradox. We can do it better, and without any help from the outside, the brilliance of NASA has shone through on two of our big programs.

So I say once again, will it work? You bet it will. If you are willing to accept the challenge and if you are willing to incorporate total quality into everything you do in the NASA culture. I realize it is hard to believe, but you can cut cost, you can maintain schedule, you can improve quality, you can get outstanding science—the facts are there right in front of you. All you have got to do is take the first step, and the journey is both rewarding and it is stimulating.

Let me say, this is not an effort to cut the workforce. What I hope to do is to make sure that more and more of the NASA and contractor employees are doing value-added work, hands-on cutting-edge technology, and not doing non-value-added work, causing people to go home frustrated and depressed. I want the NASA employees to have the technical excellence and I want NASA employees to be the standard of excellence throughout the world. You have the capability. We in management have to unleash you to do the things you've been trained to do.

During the last week, I've gone to Capitol Hill. I've gone to our contractor workforce and I've gone to the administration. And in a number of circumstances there were some surprised faces about this approach. Lots of support—but unless we are willing to take our own fate in our hands, there are lots of people out there who will do it for us and will not serve the nation very well.

Unless we are willing to establish our priorities, there are lots of people out there who, as I said, will do it for us. So we will set our own priorities and then test them with the nation. Unless we are willing to decide what we can do and what we cannot do within a reasonable budget runout, there are people, again, that will do it for us and not in the national interest.

We have a historic opportunity—the future is in our hands. And I am convinced that we have the brainpower and the ingenuity in NASA to respond to this challenge. I believe that we can find significant economies in our programs and I believe we can use the savings from our existing programs—even though we're living within a given budget wedge—to invest new resources into much bolder, much more aggressive space and aeronautics programs that will offer hope and opportunity to our children, our children's children, and their children.

And yes, as I said before, we may have to get more efficient. We may have to execute total quality. We may have to prioritize and in some circumstances eliminate the lowest priority programs, but this will be done for the health of the Agency and civil space as we move forward to the stars.

Let me assure you, I have not forgotten about the first "A" in NASA. "A" is for aeronautics, and aeronautics is an incredibly high priority for the nation and is a high priority to me, because aeronautics generates over one million high-quality jobs in America and $30 billion a year in exports and strengthens our nation. And at Langley, you've been the major resource of leading the fire and we have to support what you're doing. I am determined that we are going to protect America's market share in this area and those things that go with it.

Last week, we all had the thrill—and the anxiety—of watching the Space Shuttle Endeavour crew manifest the value of teamwork and ingenuity. And Langley played a very key role in this success. Last week, as our spirits were lifted by the triumphs of the Endeavour mission, I went on national news and I said "The magic is back at NASA." The can-do spirit of the past is alive and well.

Now let me tell you, we have a little surprise today. In honor of that spirit, it seems only fitting that the original NASA insignia—affectionately we know it as the "meatball"—will be part of our future. I know you feel this way too, because large numbers of you have stopped and told me so as I've been visiting all the NASA centers around the country.

This does not mean that as of today we will throw out all the stationery and repaint every building and vehicle—although we'd love to do it. The new NASA will be frugal, finding ways to do everything faster, better and cheaper without compromising safety. And that includes the insignia too. But over time, the NASA symbol of old, the affectionate meatball, will replace the slick NASA logo and slowly it will die into the horizon and never be seen again. For those concerned about NASA frugality, since we pay for our business cards ourselves . . . zap!—you're empowered, go out and buy your business cards with the right NASA logo. I am going to do it on Tuesday morning myself. And when you give out the cards in the business meetings, hang your head high and feel proud that you represent a bold, creative organization that's going to make a better life for the people on this planet. Take pride in the symbol that stood for NASA excellence in the past—and now—looks to the world-class NASA of today and tomorrow.

When President Bush charged NASA with the mission of going back to the moon and on to Mars, he said we're going "back to the future." The old NASA insignia is back because the men and women of NASA wanted it to be back. A classic, it never goes out of style . . . Uh-huh (laughs). I've been dying to say that!

In closing, let me say that it is a distinct pleasure for me to be here at Langley. This is where the dream of space started, and this is where the dream of space is going to be rekindled. Technology is the fuel that fires the furnace of our nation's economy and NASA Langley is a critical element of our nation's investment in technology. I salute you for 75 years of excellence and I challenge you to work with me and the NASA lead team to turn the dreams of today into the realities of tomorrow.

There are many challenges on the horizon, but I am convinced that we can overcome these challenges and that we can rekindle America's support and enthusiasm for our space and aeronautics programs.

Happenings

AN AFGE LOCAL 2755 union meeting will be held June 17 at 4:15 a.m. in the Union Office Building, 8B Langley Blvd.

TOASTMASTERS meets the second and fourth Wednesday of each month from 11:30 a.m. to 1 p.m. The next meeting is June 10 in Building 1222.

ROOMMATE WANTED: Female sought to share 3-bedroom, 1½-bath home in the Wythe area. No smokers. Rent is $250 a month plus half the utilities and a $200 deposit. Call 722-7127 before 9 p.m.

CONTACT LENSES FOUND: Contact lenses in a case were found in the parking lot of Building 1300 on Thursday, May 21. If you think they're yours, call Larry Tant at ext. 41100.

HOUSE FOR SALE: Colony Pines/Denbigh, like new, 3-bedroom, 2½-bath, 2,000-square-foot home on quiet cul-de-sac. Formal living room, dining room, family room with fireplace, large loft, bay windows in master bedroom and living room, 2-car garage, $118,900. Call 874-4537.

BODY DYNAMICS. High-energy, low-impact aerobics classes held Mondays, Wednesdays and Fridays, 6:15 a.m., LAA gym. Classes free and open to civil servants.

ROOMMATE WANTED: Female with two children is looking for a responsible woman to share private home in Poquoson, $250 a month and part of the utilities. Call 868-0410 evenings.

HOUSE FOR RENT: Lakefront townhome near Coliseum Mall, 3 bedrooms, 2½ baths, large decks, immediate possession, $725 per month. Call 827-5253.

THE DISABLED PERSONS Satellite Committee will meet June 11 from 8:15 to 9 p.m. in the cafeteria. The meetings are open to all employees/contractors and to anyone who has an interest in the Disability Program.

KITTENS: Three very adorable and playful kittens are in need of good homes. They are very affectionate and are already litterbox-trained. All three are males. One is grey with long hair and two are brown and black tabby, one with long hair and one with short. Call 548-1966.

SATURDAY AEROBICS, low-impact and bench. We're back in the LAA gym. Classes open to NASA, contractors and family, $6 a month or $2 per class, 9:30 to 10:30 a.m. Call ext. 42295 for more information.

LOW-IMPACT AND BENCH AEROBICS classes are held Tuesdays and Thursdays, 5 to 6 p.m., LAA gym. Cost is $12 per month or $6 per month if attending only one day a week. The classes are open to employees, contractors and their families. Call ext. 42295.

THE FEDERAL WOMEN'S PROGRAM COMMITTEE will meet Wednesday, June 10, at 8:30 a.m. in the H.J.E. Reid Conference Center, Hampton Room.

THE LANGLEY CHAPTER, Federally Employed Women, will meet Wednesday, May 27, at 11:30 a.m. in the Langley Air Force Base Non-commissioned Officers Club, Chapman Lounge. Guests are welcome.

HOME FOR SALE: Lake One townhome duplex, Mercury Central, 1,700 square feet each, 3 bedrooms, 2½ baths, living room, dining room, secluded lakeside, 10 minutes from NASA. First townhome, new W/W, $85,000; second, new CA, $82,000. Will negotiate for unique live-in/rental opportunity. Call 826-8916.

HOME CHILD CARE: Quality child care in my Denbigh home. Experienced, excellent environment. Reasonable. Please call 877-2186 or 877-2069. References available.

KINDERGARTEN PROGRAM: The NASA-Langley Child Development Center is registering children for its new kindergarten program. A full-day program will be provided by a certified kindergarten teacher. Applicants must be five years old by October 31, 1992. Call ext. 44827 for more information.

HOUSE FOR SALE: Cozy 3-bedroom rancher, 1 bath, living room, den with fireplace and wood stove, ceiling fans throughout house, newly tiled laundry room, new central air and gas heat, over 1,800 square feet of living space, a 12 x 16 workshop with electricity, fenced back yard, and excellent schools and location. Reduced to $73,500, $1,400 below city appraisal. Call 850-4176.

TICKETS: Discount movie tickets and passes to Colonial Williamsburg are available from the NASA-Langley Exchange Shop in the cafeteria. Prices are: AMC Movie Theater, $3.75; Colonial Williamsburg, Patriots Pass, adult, $26.50; child, $16; Royal Governor, adult, $24; child, $15; basic admission, adult, $22; child, $14. Prices subject to change without notice.

YARD SALE: The Langley Child Development Center's PTA will sponsor a yard sale Saturday, June 20, from 8 a.m. to 1 p.m. at the picnic grounds of the H.J.E. Reid Conference Center. Donations of sellable items are sought from employees. The proceeds will go to educational supplies and playground equipment. Leftover items will be contributed to the Children's Hospital of the Kings Daughters. For more information on donating items, call ext. 44827 or stop by at 8 Lindbergh Road (next to the Hangar).

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News
Researcher

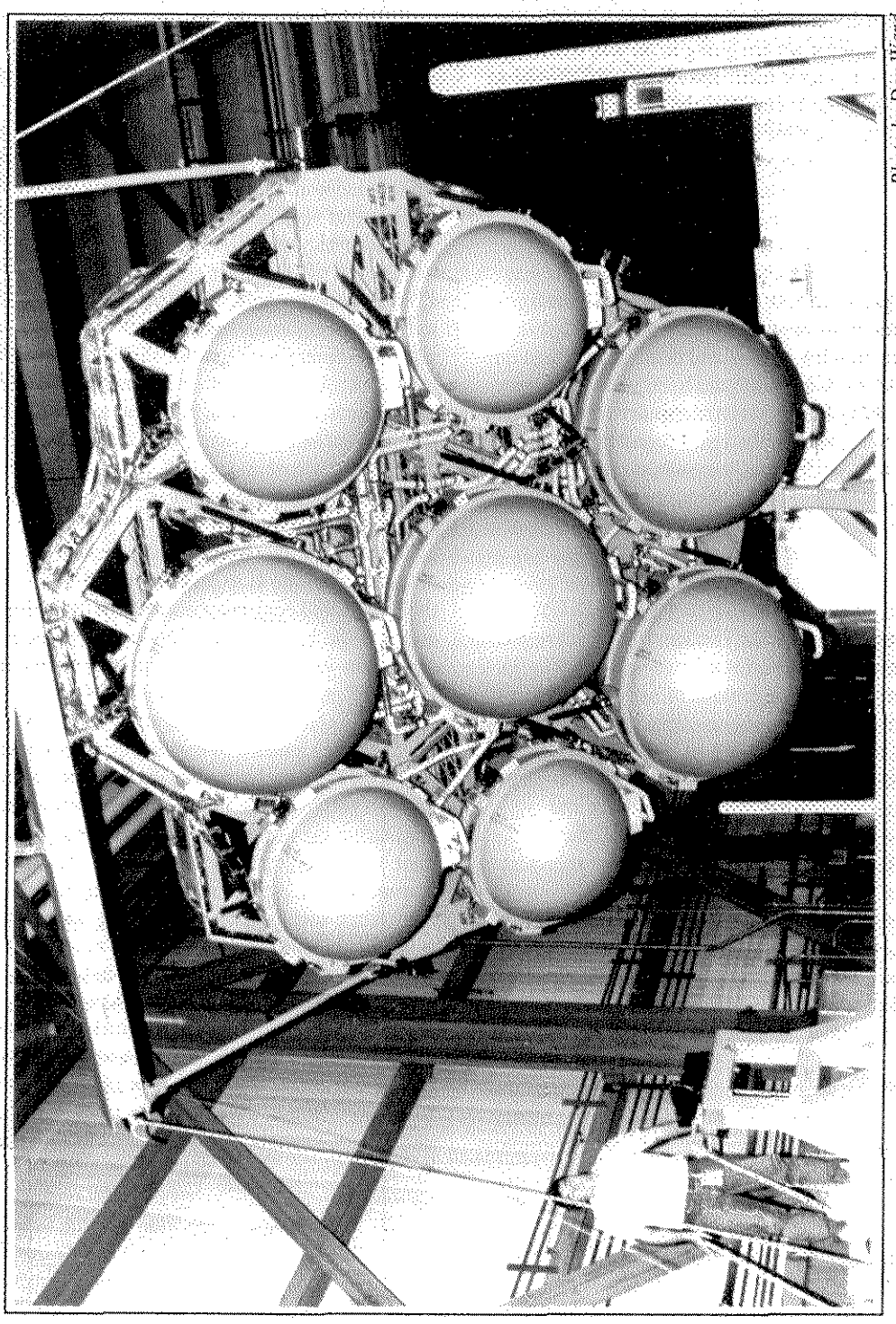


Photo by Don Ward

Workers at Kennedy Space Center install the extended duration orbiter pallet near the rear bulkhead in the cargo bay of the shuttle Columbia. The 15-foot-wide pallet has four extra tank sets to hold the additional liquid oxygen and liquid hydrogen reactants required to support extended duration flights. The tanks, plus other modifications will allow Columbia to remain in space for up to 16 days. A 13-day mission is planned for launch June 22. See story, Page 4.

1917 1992 75 Years NACA NASA Langley Research Center

Researcher News

Bi-weekly Employee and Contractor Publication

Volume 6 ❖ Issue 11 ❖ June 19, 1992

Langley Has The Lead In Cloud-Climate Study

BY CRAIG MURDEN

See related story on Page 3.

NASA's continuing focus on the factors that shape global climate patterns has once again drawn a Langley atmospheric scientist into the misty world of clouds. David S. McDougal, of the Atmospheric Sciences Division, is leading nearly 300 researchers in an international cooperative experiment June 1 to 28.

With NASA as the coordinating agency, scientists from more than 50 research institutions in the United States and seven other nations are using the combined measurement power of land, sea, air and space platforms. The project is based in the Azores and Madeira Islands of the eastern Atlantic Ocean.

The Atlantic Stratocumulus Transition Experiment (ASTEX) is studying the puffy, layered clouds of the region to assess their physical and radiative characteristics as well as how they affect the atmosphere and ocean. One result of the analysis will be to refine the predictive computer models used to anticipate worldwide weather patterns. McDougal led a similar effort in November when cirrus cloud formations were measured. In that project, as with ASTEX, Langley's Dr. Patrick Minnis is the project scientist.

The experiment includes scientists from Goddard Space Flight Center and Ames Research Center and representatives from the Office of Naval Research, the National Science Foundation, the Department of Energy and the National Oceanographic and Atmospheric Administration. Twelve U.S. universities also are represented. Additionally, independent contributions are being made by agencies from the United Kingdom, France, Germany, Russia, the Netherlands and Portugal.

ISY

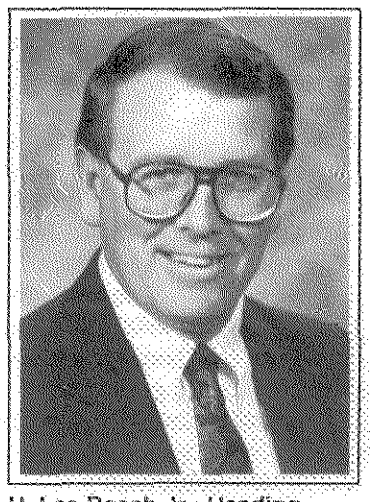
The concept of operations employed by McDougal as project manager is wide-ranging. Instruments are making atmospheric measurements from two islands while five instrumented ships are measuring atmospheric, and oceanographic areas and buoys are collecting oceanographic and surface measurements. Seven aircraft from three nations are flying atmospheric missions. These measurement efforts are being coordinated with the overflights of eight cloud-measuring satellites.

ASTEX is a key component of the United States contribution to the World Climate Radiation Program of the World Meteorological Organization.

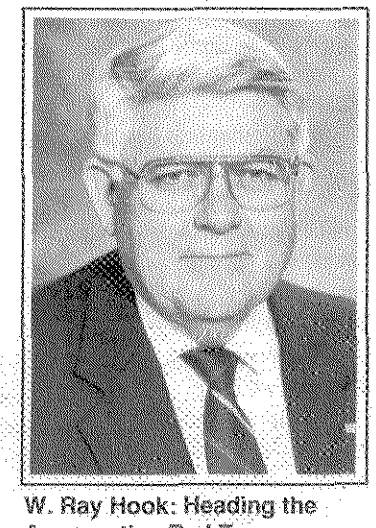
McDougal came to Langley in 1963 as an aerospace technologist. He has degrees from The College of William and Mary and George Washington University. McDougal spent one year at Headquarters, where he served as an advanced development program manager in the Space Station Freedom Program Office. He has authored 20 formal publications and been involved in 31 other presentations or publications.

Center Represented On Red, Blue Teams

Effort Aimed At Producing New, Improved NASA



H. Lee Beach Jr.: Heading Access to Space Red Team.



W. Ray Hook: Heading the Aeronautics Red Team.

Fourteen Langley representatives are among the leaders and members of special teams set up by NASA senior management to review major programs and make recommendations for the future. Ten Blue Teams will conduct program reviews, while six Red Teams will play the "devil's advocate" to make sure alternatives are considered across program areas.

In addition, an Integration Team will ensure that all the programs are in harmony and mutually reinforce one another. And a Vision Team has been created to develop an initial draft of a vision statement for NASA.

"With the start-up of this internal review process, members will look at all NASA programs, particularly in the out-years, to explore all alternative approaches to develop programs that are faster, better and cheaper without compromising safety," Administrator Daniel S. Goldin said. "We expect this activity will have no impact on the FY 1993 budget. The significant changes should be manifested in the 1995 budget and beyond. It is anticipated that we will find that some of our existing programs represent best value and will proceed on course without any change, at the conclusion of this review. In many cases, however, we will find that our programs can be improved."

Goldin said the teams will look for "significant savings . . . 30 percent has been suggested as a general target not a mandate. There will not be across-the-board cuts.

Red Teams will address the following areas: Aeronautics, Robotic Exploration of the Solar System and Universe, Human

Please see **TEAMS**, *Page 2*

You're Invited: 75th Anniversary Reception Will Be Held At Va. Air And Space Center

A July 18 wine-and-cheese reception at the Virginia Air and Space Center will celebrate Langley's 75-year history.

All employees, contractors, retirees and their spouses or guests are invited to the Saturday event, which starts at 7:30 p.m. The cost per person is $6, and reservations and payment will be through a reply form being distributed to announce the event.

CELEBRATING 75 YEARS

The festivities, co-sponsored by the NASA Langley Alumni Association and Langley Research Center, will feature a 75th Anniversary cake, a speaker to be announced, free showings of the IMAX film *The Dream is Alive* and the hanging of a 75th Anniversary painting by renowned space artist Robert McCall.

The reception will be one of several highlights of the July 17-19 commemoration of the anniversary. Weekend activities will begin with a ceremony Friday, July 17 at 2 p.m. in the hangar, where the McCall painting will be unveiled. Since seating is limited, this event is open only to on-site civil service and contractor employees and NASA retirees. Also featured will be technical exhibits and a display of aircraft dating from 1917. After the ceremony, Langley's 75th logo will be formed behind the hangar by employees for an aerial photo.

Attendees also are invited to a reception behind the hangar sponsored by Langley Federal Credit Union.

On Saturday, July 18, and Sunday, July 19, employees, contractors, retirees and their immediate families are invited to "Langley Days" at the Virginia Air and Space Center, where they will be admitted free to the exhibits. A NASA badge will be required for admittance.

It's Official: Paper Airplane Set Guinness World Record

A paper airplane designed and built by high school students and Langley engineers has swooped into the record books. The Guinness Book of Records has acknowledged the feat in a letter to the project coordinator.

"I am pleased to inform you that we have accepted your claim for the largest paper airplane and subject to space availability, details should appear in the 1993 edition of the Guinness Book of Records," Sheila Goldsmith, deputy editor, told Ferdinand W. Grosveld of Lockheed Engineering and Sciences Co. "Please pass on our congratulations to all members and supporters . . . This certainly is a magnificent achievement."

Involved in the project were students and advisors from Bethel, Hampton, Kecoughtan and Phoebus high schools. Helping the students were NASA and contractor engineers, the Hampton Roads Section of the American Institute of Aeronautics and Astronautics and the Virginia Air and Space Center.

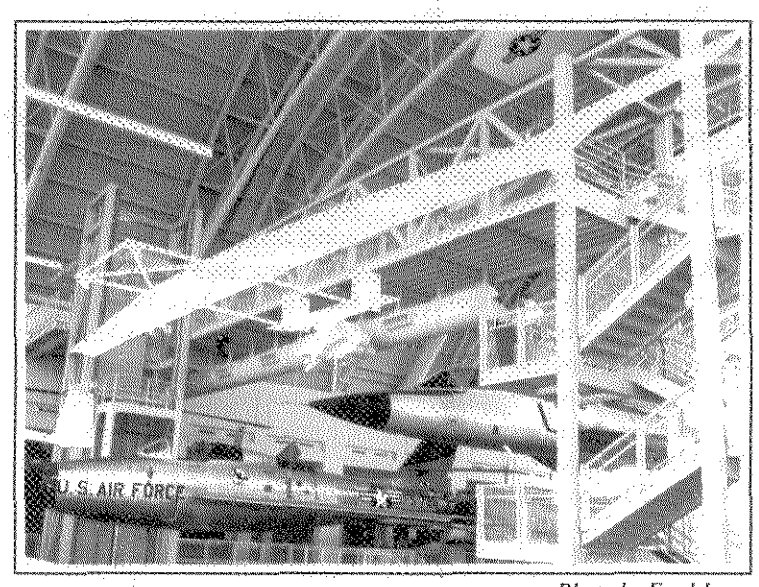


Photo by Fred Jones

The record-setting paper airplane, with a wingspan of 30 feet, 6 inches, is on display in the Virginia Air and Space Center.

More Anniversary Decals Available

A new supply of Langley's 75th anniversary logo decals is now available for civil servants, contractors and retirees. The initial distribution was made with the January 1992 mailing of the **Researcher News**. Positive response from employees depleted that supply and prompted a second printing, received last week.

Supplies are limited, and requests will be filled on a first-come, first-served basis. To request a decal, stop by the Public Mail Office, 1 W. Reid St., Building 1153, Room 115.

News Briefs

Winners Announced In Local School Art Contest

Winners have been selected in the school art contest sponsored by Langley, the Hampton Roads Section of the American Institute of Aeronautics and Astronautics and the Virginia Air and Space Center.

Elementary, middle and high school students took part in the contest.

The elementary contest theme was the 1992 International Space Year (ISY).

The middle-high school theme was Langley's 75th Anniversary. Eight Tidewater-area schools participated.

The elementary school winners were:

Kindergarten: **Kyle Russell,** Mount Vernon Elementary, York County. First grade: **Andrea Villaneda,** Coventry Elementary, York County. Second grade: **Mamie Patterson, Kerry Vautrot, Dominique Hundley** and **Shaye Systermann,** Rawls Byrd Elementary, Williamsburg-James City County. Third grade: **Laura Wenzel,** Coventry Elementary, York County. Fourth grade: **Peter Foytik,** Port Norfolk Elementary, Portsmouth. Fifth grade: **Elizabeth Hill,** R.O. Nelson Elementary, Newport News.

Winners in the middle and high school contest were:

Sixth grade: **Joyce Yue,** Poquoson Middle, Poquoson. Seventh grade: **Jameka Anderson,** Jefferson Davis Middle, Hampton. Eighth grade: **LeNell Timberlake,** Norview Middle, Norfolk. Ninth grade: **Hisako Saito,** Menchville High School, Newport News. Tenth grade: **Charles Parr,** Kecoughtan High School, Hampton. Eleventh grade: **Hector Stalling,** Woodrow Wilson High, Portsmouth. Twelfth grade: **Loriely Reyes,** Phoebus High, Hampton.

Brown Bag Seminar: Sun And Your Skin

A dermatologist will discuss the "Sun and Your Skin" at noon on July 2 during a brown-bag seminar in the cafeteria's new addition.

Dr. Susan Mackel will cover the immediate and long-term effects of the sun, skin cancers and reactions due to medications.

The topic is of particular concern now because the sun's ultraviolet rays reach the Earth's surface at peak levels during the summer—and can even reach under umbrellas and hats.

COMPETITIVE PLACEMENT

The following vacancies, open to Langley employees under permanent civil service appointments, have been announced through the Competitive Placement Plan:

92-34: Supervisory AST, Experimental Facilities Development, GM-801-14 or 15 (Head, Facilities Engineering Support Branch), SE&O Directorate, Facilities Engineering Division, Facilities Engineering Branch; closes June 22.

92-35: AST, Experimental Facilities Development, GM-801-13 or 14 (Head, Engineering Support Office), SE&O Directorate, Facilities Engineering Division, Facilities Engineering Branch, Engineering Support Office; closes June 22.

92-36: Supervisory AST, Project Management, GM-801-14 or 15 (Head, Facilities Projects Branch), SE&O Directorate, Facilities Engineering Division, Facilities Projects Branch; closes June 22.

92-38: Supervisory AST, Experimental Facilities Development, GM-801-13 or 14; OR Construction Manager, GM-1601-13 or 14 (Head, Construction Management Section), SE&O Directorate, Facilities Engineering Division, Facilities Projects Branch, Construction Management Section; closes June 22.

92-39: Supervisory Electrical Engineer, GM-850-13 or 14 (Head, Electrical Systems Section), SE&O Directorate, Systems Engineering Division, Systems Development Branch, Electrical Systems Section; closes June 19

92-40: Supervisory Electronics Engineer, AST, Ground Hardware Systems, GM-855-13 or 14 (Assistant Head, Analysis and Simulation Branch), Electronics Directorate, Analysis and Computation Division, Analysis and Simulation Branch; closes June 26.

NASA Scholarships Awarded To Four

Four students have been selected to receive a 1992 NASA College Scholarship.

The $6,000 scholarships went to Scott Seago, son of Johnson Space Center's Robert Seago; Matthew Hosler, son of Lewis Research Center's Michael T. Hosler; Mark Birmingham, son of Goddard Space Flight Center's Thomas Birmingham; and Matthew Clark, son of Kennedy Space Center's George Clark.

Three and possibly four scholarships will be awarded in 1993.

Tax-deductible donations may be made to the scholarship fund at mail code AH12, Johnson Space Center, or through the Combined Federal Campaign.

TEAMS:

Continued from Page 1

Presence in Space, Access to Space, Moon and Mars, and Remote Sensing and Environmental Monitoring of Planet Earth. Langley Deputy Director **H. Lee Beach Jr.** heads the Access to Space Red Team, which is vice-chaired by the Center's **Woodrow Whitlow Jr.,** head of the Unsteady Aerodynamics Branch, Structural Dynamics Division.

Langley Director for Space **W. Ray Hook** heads the Aeronautics Red Team, which is vice-chaired by the Center's **Michele Macaraeg** of the Theoretical Flow Physics Branch, Fluid Mechanics Division.

The Center's **David Haynes,** of the Space Exploration Initiative Office, Space Directorate, is a member of the Moon and Mars Team.

Langley's **Kelli Willshire,** of the Automation Technology Branch, Information Systems Division, is a member of the Human Presence in Space Team.

Blue Teams will address the following areas: Aeronautics, Space Station Freedom, Flight Systems/NLS, Flight Systems/ASRM, Space Shuttle, TDRS II, EOS, AXAF, Cassini, Space Science on Spacelab and Space Station, and Exploration.

Langley members of the Aeronautics Blue Team are Director for Flight Systems **Jeremiah F. Creedon,** Director for Aeronautics **Roy V. Harris Jr.,** Director for Structures **Charles P. Blankenship** and **Lana M. Couch,** director of the National Aero-Space Plane Office.

Vision Team members include Langley's **Jerry C. South,** chief scientist, Applied Aerodynamics Division; **Ruth M. Martin,** assistant head of the Aeroacoustics Branch, Acoustics Division; **P. Douglas Arbuckle,** head of the Vehicle Operations Research Branch, Flight Management Division; and, as a backup, **Jerry R. Newsom,** manager of the Controls-Structures Interaction Office, Flight Systems Directorate.

Phase I milestones call for Red and Blue teams completing initial reviews by June 15 and presenting them to the Integration Team on June 19 and 20.

A meeting with Goldin is set for June 24 to present fiscal year 1994 budget options. Phase I of the process will be completed, and Phase II initiated, on August 1. The NASA budget will be submitted to the Office of Management and Budget on September 1. Phase II fiscal 1994 budget options will be completed November 1.

Nominees Sought For Seminars, Conferences And Fellowships

Langley is seeking nominees for management development seminars, Brookings management programs and NASA-sponsored fellowships. All directorate and division offices have been sent memoranda listing the programs, eligibility guidelines and recent Langley participants who can share personal experiences.

Management education programs at the Office of Personnel Management (OPM) Management Development Seminar centers in Oak Ridge, Tenn., Lancaster, Pa. and Denver, Colo. are two-week seminars covering a variety of topics. The seminars are open to GS/GM 13s and above who have not attended an OPM seminar in the previous five years.

Brookings Institution conferences are for senior-level managers, GS/GM 15, and Senior Executive Service (SES). Many of these one-week conferences are offered in Williamsburg and cover broad policy issues.

NASA-sponsored fellowships are available for both managers and nonmanagers from GS-12 to SES. The management fellowships offer an opportunity to study at Harvard, Massachusetts Institute of Technology, Stanford, Carnegie Mellon, Pennsylvania State, Syracuse or Simmons College for a week to a year.

NASA also offers, in conjunction with the National Space Club, three fellowships that are open to nonmanagement employees. The three allow recipients to pursue research or coursework at any institution in the United States or abroad where a faculty sponsor is found. Competition for NASA fellowships begins at the Center. Nominees then enter the Agency-level competition, which ends in December.

Applications for all of these programs may be initiated by the individual and must be passed on to the directorate level. However, all nominations must have directorate endorsement. Competition for these programs is limited to Langley civil servants. Directorate nomination deadline is mid July or early August.

For more information, call Louise C. Hamilton at ext. 42571.

SPEAKERS BUREAU

The following Langley representatives spoke to organizations through the Speakers Bureau in March and April:

Dr. Joel Levine delivered a talk entitled "A Planet at Risk" at the Central Queens YMCA in New York, the Student Engineering Society at Old Dominion University and the Tidewater Chapter of the American Meteorological Society, Fort Monroe.

Carey Buttrill discussed NASA careers at the Math Computer Science Club at Virginia Weslyan College.

Richard Wallsom discussed Langley research in support of the ASEM experiment at the Hampton Roads Air Cargo Association.

Marny Skora spoke on the history of Langley at the Poquoson Women's Club.

Dr. Christine Darden delivered a talk entitled "You Can Achieve" at James Monroe Elementary School in Norfolk and a talk entitled "Bridges to Tomorrow" at the American Association of University Women at Hampton University.

Shelley Canright spoke about gender bias, issues and resolution, in mathematics and science before the America Association of University Women.

Larry Cooper discussed career opportunities at Bethel Christian Academy in Hampton.

Dr. Bruce Barkstrom delivered a talk entitled "Physical Basis for Concerns over Global Change: An Introduction," at the American Institute of Physics.

IN MEMORIAM

Robert E. McGee

Robert Eugene McGee, 66, died Saturday, June 6. He retired in 1975 after 25 years of service.

T.P. Wright Jr.

T.P. Wright Jr., 71, died Tuesday, June 2. He was a retired section head in the Plant Engineering Division and had 30 years of service.

James H. Daus

James H. Daus, former head of Graphics, died April 3. Daus retired in 1982 after 39 years of government service.

News Researcher

The **Researcher News,** an official publication of the Langley Reseach Center, National Aeronautics and Space Administration, Hampton, Va., 23665-5225, is published every other Friday in the interest of all Langley staff and retirees. Submit contributions to the Editor, Mail Stop 115, telephone 864-6126. Articles are due at noon the Tuesday following the date of this issue.

Managing Editor ..... Jean Drummond Clough

Editor ..... Michael Finneran

Photojournalist ..... Carol Petrachenko

Photographer ..... Fred Jones

The privilege of advertising in this publication is restricted to the employees and retirees of the Langley Research Center. Articles advertised here must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

Langley Scientists Take Part In Ozone Symposium

BY CRAIG MURDEN

Langley's broad contributions to atmospheric science were showcased when 10 Center scientists delivered key papers at the 1992 Quadrennial Ozone Symposium held June 4 to 13 at the University of Virginia. The gathering brought authorities from the world's concerned nations to share research data, exchange views and to seek new perspective about the complicated role of ozone in the future of the planet's health.

Among the newest research findings presented were the two Mount Pinatubo-related papers by Dr. William B. Grant whose most recent findings shed new light on what effect the volcano's eruption is having on stratospheric ozone. Using data from balloon-borne sensors that are not affected by the dirty stratosphere a satellite must try to see through, Grant's measurements suggest that significant ozone decreases may have occurred as a result of the injection of debris by the volcano in June 1991. Satellite measurements from space pointed to this condition but were not, alone, sufficient to prompt this new perspective. Now, the two data sets together show a maximum difference observed before and after the eruption of 18 to 20 percent.

Langley presentations at the symposium demonstrated the Center's wide-ranging commitment to atmospheric research led by Dr. James D. Lawrence Jr., head of the Atmospheric Sciences Division. The Langley contributions included treatments of how airborne Light Detection and Ranging (LIDAR) measured tropospheric ozone variability and polar stratospheric ozone depletion. Two papers were given by Dr. Edward V. Browell, head of the LIDAR Applications Group. Next, Dr. Jack Fishman discussed his extensive use of satellites in analyzing trends in the variability of tropospheric ozone, and Jennifer L. Richardson covered an investigation of the impact of biomass burning on tropospheric ozone at low latitudes.

Later in the symposium, Dr. James M. Russell III, head of the Theoretical Studies Branch, highlighted results from the Langley-developed Halogen Occultation Experiment (HALOE), launched on the Upper Atmosphere Research Satellite (UARS) in 1991. Related to that work, Dr. Jae H. Park explained effects of the Mount Pinatubo volcano aerosol layer on the HALOE results. Then, the head of the Aerosol Research Branch, Dr. M. Patrick McCormick, treated trends in global stratospheric ozone as related to both altitude and latitude.

Other presenters were Dr. Martin G. Mlyncza, heating processes in the middle atmosphere; Dr. Brian J. Connor, ISAMS measurement of ozone; and Khan M. Fakhruzzaman, large scale circulation of tropospheric ozone.

The symposium was sponsored by a variety of agencies, among them the Environmental Protection Agency, NASA, National Oceanic and Atmospheric Administration, National Science Foundation, Virginia Space Agency and World Meteorological Organization.

Martin Selected To Attend Management Program

Ruth M. Martin, assistant head of the Aeroacoustics Branch, Acoustics Division, has been selected to attend the Smith College Management Program for Women.

The program entails two three-week summer sessions, linked by a one-year on-the-job project. The first session begins July 11 and the second starts July 10, 1993.

The curriculum includes finance, accounting, budgeting, marketing, and production operations. Analytical skills and creation of an organizational perspective will also be emphasized.

Martin has been employed at Langley since 1980. She has performed several wind tunnel tests in both Langley's 14 by 22 Foot Subsonic Tunnel and the German-Dutch acoustics wind tunnel in Holland.

In addition to her wind tunnel experiments, Martin has also been active as a consultant for the American Helicopter Society and has served on the Society's Technical Committee on Acoustics.

Martin has a bachelor of science degree in mechanical engineering from Old Dominion University and a master's degree in acoustics from George Washington University.

She has authored and co-authored more than a dozen publications and has received several awards, including three Group Achievement Awards and three Special Achievement Awards.

Ruth M. Martin

Meter Mail System Begins October 1

Meter mail will begin on October 1 at Langley, requiring all outgoing government mail to go out through the mailroom in Building 1206 so that postage may be applied.

Forms and envelopes with the eagle and postage indicia will become obsolete September 30 and may not be used after that date.

Each piece of outgoing mail that requires postage must be stamped with the mail stop of the originating organization for identification. It is suggested that an adequate number of rubber stamps be purchased by divisions or directorates.

Other reminders:

- All incoming and internal mail requires a mail stop for delivery.
- Do no use the Center's mail system for personal mail. Outgoing personal mail may be placed in the post office box in front of the cafeteria or at the Langley Federal Credit Union.
- Check pickup tables frequently. Do not leave packages on them for long periods.
- Be on the lookout for a new zip code, which will be announced as soon as it is available. More information on meter mail also will be announced.

THEN & NOW

Excerpts from Langley's old newsletters will appear throughout the Center's 75th Anniversary year. The following is from the February 24, 1967 issue of the Langley Researcher.

ORBITER SENDING TOP QUALITY MOON PICTURES

CELEBRATING 75 YEARS

Lunar Orbiter III, which was launched from Cape Kennedy on February 4 and entered lunar orbit four days later, started televising new pictures from the moon on February 15. The pictures showed broad level areas pitted with small craters but probably safe for astronaut landings.

The photographs, flashed on screens at the Jet Propulsion Laboratory, were made at an altitude of 33½ miles over the dry Sea of Tranquility on the equator near the moon's eastern edge.

No scientific evaluation was released immediately but comparison of the pictures with those of the same area by Lunar Orbiter I and II indicates the site probably is smooth enough for manned landing.

The basic task of Orbiter III is to supplement information gained from Lunar Orbiter I and II by obtaining detailed photographs on selected areas of the moon's surface. Orbiter III is assigned 12 primary target sites within the Apollo zone of interest on the moon's front face. Other areas of the moon on the front and the hidden sides may also be photographed.

The photographic flight plan is an ambitious one and assumes that all spacecraft systems, ground support systems, and the operations team will be able to operate at maximum efficiency. Covering the 12 primary sites requires photography on a great many of the orbits; thus, there will be fewer priority readouts—the relay by radio to Earth of pictures between picture taking sequences—than on the first two.

Orbiter III also will monitor meteoroids and radiation intensity in the vicinity of the moon. After more than two months in orbit, Lunar Orbiter II had experienced four meteoroid punctures in its detecting instruments. The radiation counters on Lunar Orbiter I clearly measured the effects of a series of solar flares which took place after its photograph was complete.

IN PERSON

Oh For A Taste Of Big City Life

BY RAMKI KRISHNAN

Last week I had to participate in a technical conference in upstate New York and my wife, thirsting to sample big-city life, accompanied me. It was a long drive to Albany and we felt we were making good time till we got on that insatiable nickel and dime gobbler—the New Jersey Turnpike. I'm no slouch behind the wheel, but the only car I managed to pass till we hit Albany was driven by a myopic, ninety-something granny who was groping under the front seats of her Gremlin hatchback for her glasses.

In Albany we met up with my sister, and in typical hillbilly fashion, decided to wander around the downtown area and gawk at the tall buildings. We motored into an open garage and the parking attendant with his heavy "Noo-Yok" accent told us to "Live or kiss your kids carrots" which (after a hurried whispered conference among the three of us) we interpreted as "Leave your keys in the car."

Being a mite leery of big-city folk who speak with twangy accents, we left the keys in, but rolled up all the car windows and locked the doors. I say we, but, as my wife has lovingly pointed out, for the 657th time, to acquaintances and strangers alike, I was the one who secured the car. We "oohed" and "aahed" at the concrete and glass monuments for a while and developed a skyscraper-sized thirst for a cold soda. It was only after I paid the parking attendant that we realized our predicament and our faces turned ashen. That, in itself, was a remarkable accomplishment, for by that time we had been out in the sun so long that one little kid wandered up to us and asked me how often I rode with the Lone Ranger.

The locked automobile yielded to neither the criminal devices our parking attendant fished out nor the heart-rending pleas we tendered. I called a professional lock-picker and, while we waited, shuffled morosely around our impenetrable car, resisting the temptation to give it a few swift kicks. The attendant, sensing a captive audience, sauntered over and proceeded to recount tales of people who had locked themselves out, leaving assorted pets, gallons of ice cream, etc. inside their cars. He had us in stitches until it dawned on my companions that his amusing anecdotes were about hare-brained women. Two-thirds of his audience turned hostile, he beat a hasty retreat and we resumed our funereal shuffle.

After three sweaty hours and toting much lightened wallets, we were allowed back into our car and headed to our hotel. The hotel manager saw us come in and beamed, "Had a great time, eh? Isn't New York terrific?" My wife stopped dead in her tracks, turned, inhaled deeply, and delivered a response any die-hard New Yorker would have been proud of. We left for Virginia early next morning.

Krishnan is a research scientist in the Theoretical Flow Physics Branch. He works for Analytical Services & Materials Inc.

Happenings

TOASTMASTERS meets the second and fourth Wednesday of each month from 11:30 a.m. to 1 p.m. The next meeting is June 24 in Building 1222.

ROOMMATE WANTED: Female sought to share 3-bedroom, 1½-bath home in the Wythe area. No smokers. Rent is $250 a month plus half the utilities and a $200 deposit. Call 722-7127 before 9 p.m.

HOUSE FOR SALE: Colony Pines/Denbigh, like new, 3-bedroom, 2½-bath, 2,000-square-foot home on quiet cul-de-sac. Formal living room, dining room, family room with fireplace, large loft, bay windows in master bedroom and living room, 2-car garage, $118,900. Call 874-4537.

DAYBED WANTED: Looking for a daybed, preferably with a trundle attached, but can do without. Call 826-0016 after 5 p.m.

HOUSE FOR RENT: Quartermarsh Estates, York County, 3 bedrooms and bonus room, 2 1/2 baths, living room, dining room, kitchen/den combo, deck and porch, ceiling fans and Nutone vacuum, $900 monthly. Call 898-5819.

HOUSE FOR SALE: Hampton, brick rancher, maintenance-free exterior, 3 bedrooms, 1 ceramic-tile bath, living room, eat-in kitchen with chair railing and pantry, den with bay window, large utility room, gas heat, new roof, screened back porch, interlocking brick patio with basketball goal, 1 1/2 car detached garage, fenced backyard, 10 minutes from Langley Air Force Base, excellent location and convenient to schools and shopping, $79,900. Call 838-6056 or 826-9549 for appointment.

YARD SALE: The Langley Child Development Center's PTA will sponsor a yard sale Saturday, June 20, from 8 a.m. to 1 p.m. at the picnic grounds of the H.J.E. Reid Conference Center. Proceeds will go to educational supplies and playground equipment. Leftover items will be donated to the Children's Hospital of the Kings Daughters.

PARADISE FOUND: Sanibel Island, Florida, beautiful Gulf-front, ground-floor condo, 1 bedroom, 1 bath, living room, full kitchen, air conditioning, tennis, pool, cable, VCR, on-site management, $525 per week May-November. Call 565-1849 between 5 and 8 p.m.

FEDERALLY EMPLOYED WOMEN, Langley Chapter, will hold its monthly meeting on Wednesday, June 24 from 11:30 a.m. to 12:30 p.m. at the Langley Air Force Base NCO Club, Chapman Lounge. Guests welcome. The point of contact is Patsy Campbell at ext. 43291. A training luncheon will be held featuring Laurie Braun, president, Mid-Atlantic Region, on Saturday, June 27 from 9 a.m. to 1 p.m. at the Radisson Hotel in Hampton. Call Jackie Smith at ext. 43003 for a reservation.

HEADBOARD FOR SALE: Full/queen all-wood headboard, $75. Call 898-8463 after 5:30 p.m.

NINTENDO FOR SALE: Entertainment system with 12 games (Double Dragon, The Adventure of Link, Teenage Mutant Ninja Turtles, Mike Tyson's Punch Out, Kung Fu, Wizards and Warriors, Spy Hunter, Gauntlet, Air Fortress, Rampage, Super Mario Brothers 1 & 2). Asking $175, negotiable. Includes all original boxes. Call 898-8069.

AEROBICS: New classes added! Free and open to all employees, NASA and contractors. Noontime Energizer, Monday, Wednesday and Friday, from 11 to 11:45 a.m. Also for you early morning risers, don't forget Body Dynamics, a low-impact and interval training class on Mondays, Wednesdays and Fridays at 6:15 a.m. All classes are held in the LAA gym. Call the Fitness Center at ext. 46387 for more information.

LOW-IMPACT AND BENCH AEROBICS classes are held Tuesdays and Thursdays, 5 to 6 p.m., LAA gym. Cost is $12 per month or $6 per month if attending only one day a week. The classes are open to employees, contractors and their families. Call ext. 42295.

HOUSE FOR RENT: 107 Westphal Drive, Hampton, 3-bedroom brick rancher, den, living room, eat-in kitchen, utility room, gas heat, fenced backyard with shed. Good neighborhood with excellent schools. Available July 1, $560 per month. Call 851-0552.

ROOMMATE WANTED: Female with two children is looking for a responsible woman to share private home in Poquoson, $250 a month and part of the utilities. Call 868-0410 evenings.

HOUSE FOR RENT: Lakefront townhome near Coliseum Mall, 3 bedrooms, 2½ baths, large decks, immediate possession, $725 per month. Call 827-5253.

SATURDAY AEROBICS, low-impact and bench. We're back in the LAA gym. Classes open to NASA, contractors and family, $6 a month or $2 per class, 9:30 to 10:30 a.m. Call ext. 42295 for more information.

LOST GLASSES: Women's glasses with pink frames and gray earpieces in brown case. Lost June 1 somewhere between the classroom in Building 1229 and the cafeteria. Call Mary Adams, ext. 42314.

KINDERGARTEN PROGRAM: The NASA-Langley Child Development Center is registering children for its new kindergarten program. A full-day program will be provided by a certified kindergarten teacher. Applicants must be five years old by October 31, 1992. Call ext. 44827 for more information.

HOUSE FOR SALE: Cozy 3-bedroom rancher, 1 bath, living room, den with fireplace and wood stove, ceiling fans throughout house, newly tiled laundry room, new central air and gas heat, over 1,800 square feet of living space, a 12 x 16 workshop with electricity, fenced back yard, and excellent schools and location. Reduced to $73,500, $1,400 below city appraisal. Call 850-4176.

National Aeronautics and Space Administration

Langley Research Center
Hampton, Virginia 23665-5225

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NASA Researcher

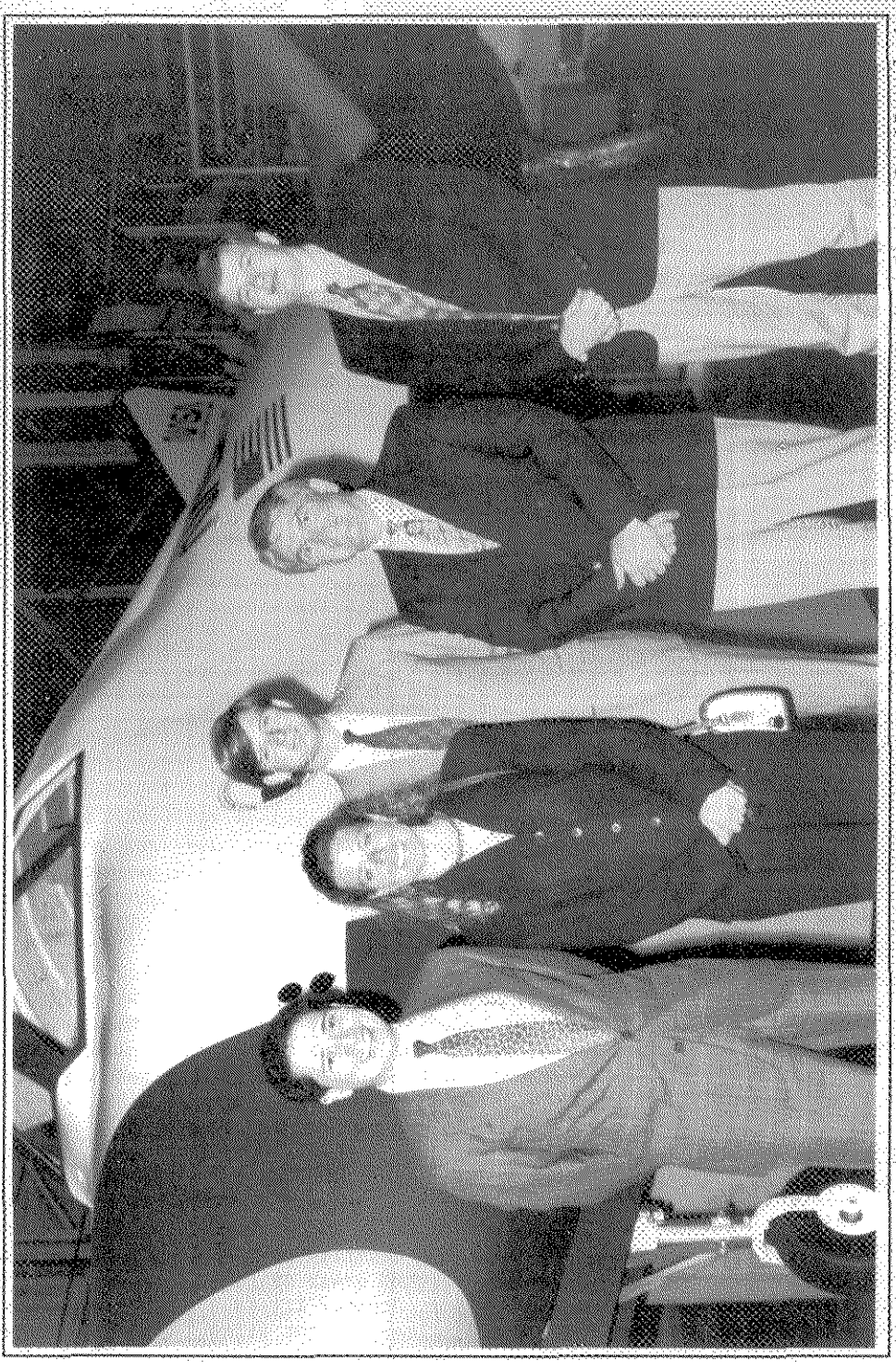


Photo by Carol Petrachenko

A look at the HL-20 "space taxi" was one of the highlights on a recent tour of Langley by the staff of U.S. Sen. John Warner (R-Va.). "It was just a fascinating visit," said Grayson Winterling (second from right). Warner's staff director. "We really enjoyed it and were very impressed with the quality of the people and the work that is being done." Others in the photo are, from left, George Cartagena, legislative assistant for space; Chris Vaughn, legislative assistant; Edward Edens, assistant national security advisor to Warner; and Geoffrey Tudor, legislative assistant to U.S. Rep Lamar S. Smith (R-Texas).

1917 - 1992
75 Years
NACA
NASA
Langley Research Center

Researcher News

Bi-weekly Employee and Contractor Publication

Volume 6 ❖ Issue 11 ❖ July 2, 1992

Cutting The Red Tape

TQM/Continuous Improvement Team Streamlining Management Instructions

Everyone who's Federal Expressed a report off Center is painfully familiar with the red tape involved—the process requires seven signatures and can take days, particularly if someone on the list is on vacation or out sick.

The rules were written to protect costly equipment such as office furniture and computers. But they also apply to paperwork, which has no monetary value yet often needs to get somewhere fast—a difficulty when multiple signatures are needed.

Soon, however, shipping documents will take only two signatures under a plan to streamline some of the rules and regulations at Langley.

"We're going to generate a new form for printed matter," said Ronald R. Krodel, chief of the Management Support Division. "It'll be a much simpler form to fill out. And with fewer signatures required, this will significantly speed up the process of getting paperwork where it needs to go with the fewest possible delays."

The shipping form isn't the only Langley Management Instruction (LMI) being considered for change. A newly formed team has reviewed 494 LMIs and NASA Management Instructions (NMIs). Of the 494, Krodel said, about 100 LMIs and 100 NMIs have been identified as ripe for revision.

"We're looking at everything from purchase requests to travel orders," said Krodel. "So instead of people having to sign things, maybe they'll be happy enough to just see them. We're even planning to reduce, from 19 to 7, the number of signatures required to change an LMI."

The review process began with a conversation in May between NASA Administrator Daniel S. Goldin and Center Director Paul F. Holloway.

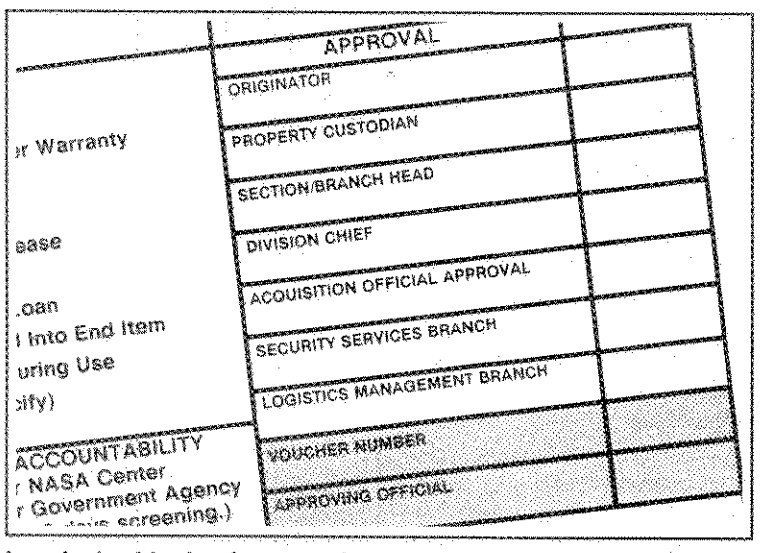
"Holloway asked me if I could eliminate some of the NMIs because he was frustrated. Those instructions hampered his ability to manage NASA Langley," Goldin said in a May 26 address to employees on NASA Select TV. "I said 'zap, you're in charge Paul. Tell me what needs to be eliminated and I'll do it.' "

Holloway quickly established a team to tackle the task.

"On May 22, our administrator, Dan Goldin, 'empowered' me to recommend changes to the NASA Management Instructions that control our NASA process and procedures," Holloway said. "With empowerment comes accountability. Thus, I decided to first get our own house in order before tackling the Agency controls. Reviews of Langley Management Instructions and, in particular, signature approval authority at Langley was initiated by a TQM/Continuous Improvement Team on the following Monday.

"The initial team members are from the Management Support Division (Institutional Support Branch) and the Office of the Director and are led by Bob Moore, who is acting as a special assistant to the director. The Acquisitions, Business Data Systems and Financial Management divisions also are involved.

"The first step, reducing signature authority to the lowest level possible, is being announced today. While this is an admittedly small step, it nevertheless represents the power of the continuous improvement process," Holloway said. "I hope that you will all join me in making Langley the best it can be, which is the best in the world at what we do."



Langley's shipping form requires seven signatures besides the requestor's. That number may soon be reduced to two.

NASP Model Rolls Out

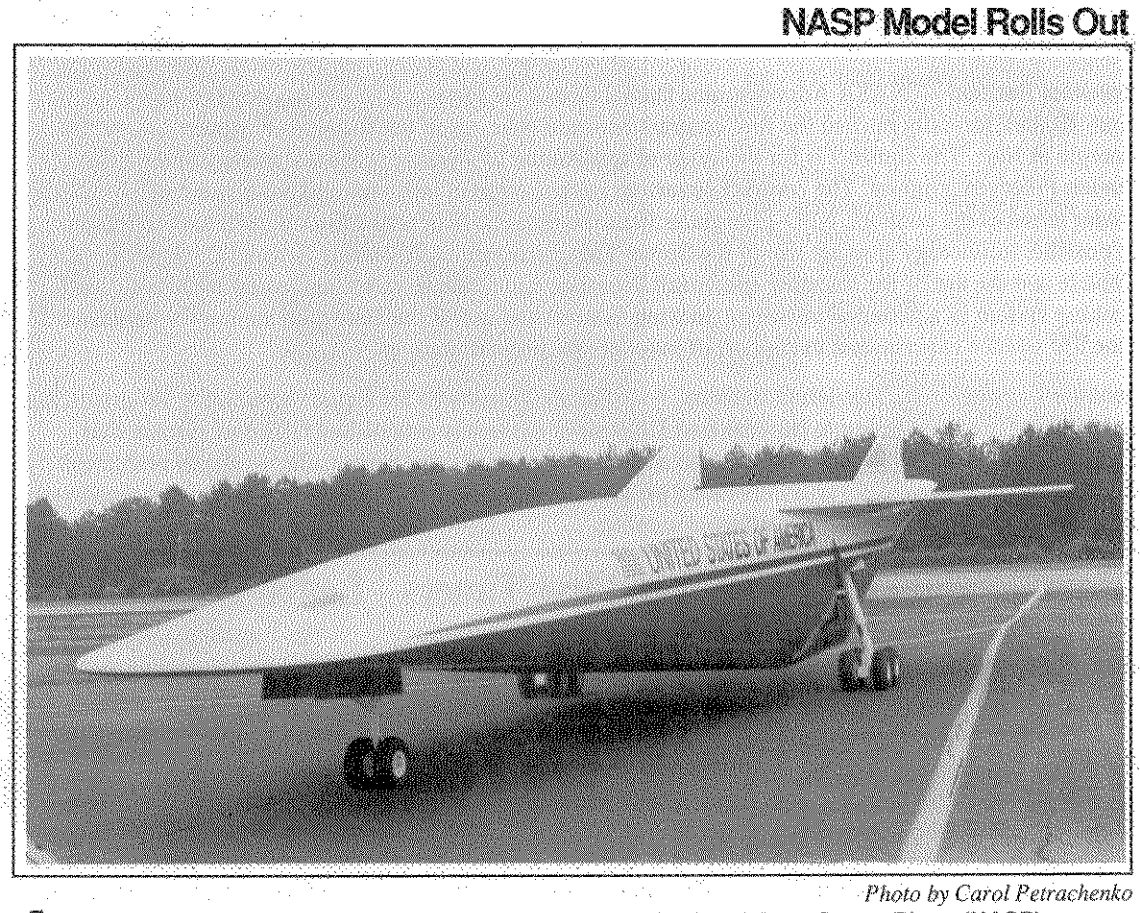


Photo by Carol Petrachenko

A 50-foot foam and fiberglass scale model of the X-30 National Aero-Space Plane (NASP) is poised on a runway after its rollout in June. The 5,000-pound model, completed by engineering students at Mississippi State University, is touring major aerospace events around the country. Plans for the real NASP call for it to take off horizontally like an airplane, accelerate to 17,000 miles per hour and reach low-Earth orbit. It could then deploy payloads, pick up or repair satellites or visit a space station before returning for a runway landing. Langley is the lead center for NASP.

75th Anniversary Weekend Celebration To Begin July 17 With Painting Unveiling

For map of bus routes and locations, see Page 2.

Seventy-fifth Anniversary events begin Friday, July 17, with a 2 p.m. ceremony in the hangar featuring the unveiling of a 75th Anniversary painting by renowned space artist Robert McCall, a special 75th anniversary video, technical exhibits and an impressive display of aircraft dating from 1917.

Guest speakers are to be announced. Since seating is limited, this event is open to civil service and contractor employees and NASA retirees.

After the ceremony, those wanting to participate will form a "75" for a group photo. Following this, attendees are invited to a reception sponsored by the Langley Federal Credit Union behind the hangar. The aircraft and technical exhibits will be on display from 12:30 to 4:30 p.m.

CELEBRATING 75 YEARS

From noon to 4 p.m., the Hampton Post Office will sponsor a special stamp cancellation featuring the 75th Anniversary logo and date. Guests may purchase 34-cent embossed envelopes and 19-cent postcards or may bring any item bearing a stamp for cancellation. For 30 days following the anniversary, the Hampton Post Office will stamp letters or envelopes with the special cancellation upon request.

Because parking will be severely limited, employees are encouraged to car pool or take buses, which will run a loop beginning at 1 p.m. to

Please see **ANNIVERSARY,** *Page 2*

New Faces On Center Are Summer Scholars

BY WHITNEY BARTLETT

If you see an unfamiliar face at Langley, it could be one of the 91 students taking part in the Langley Aerospace Research Summer Scholars (LARSS) Program. Or, it could be the face of a summer faculty fellow participating in the American Society for Engineering Education (ASEE) Program.

Every summer a select number of students and educators from colleges and universities across the country, including Hawaii and Puerto Rico, come to the Center to participate in these guest researcher programs.

The 10-week LARSS program was established in 1986 for rising juniors, seniors and first-year graduate students in an effort to motivate science and engineering students to earn advanced degrees and pursue careers in aerospace research. Each scholar conducts a research project under the supervision of a Langley researcher who assumes the role of a mentor.

"This is the most competitive LARSS program since its inception in 1986. The mean G.P.A. of the 1992 scholars is 3.46," said Robert Yang, Assistant University Affairs Officer.

This year, 318 undergraduates and 46 graduate students applied. The 91 scholars represent 49 colleges and universities.

The ASEE program was established in 1964 as a 10-week summer research program for college and university faculty. One hundred and twenty-three educators applied for an ASEE fellowship and 38 were selected, bringing the total number of participants to date over 5,500.

"We take pride in our collaborative university programs under which high-caliber students and faculty are offered direct participation in our aeronautics and space technology research programs, and one-on-one access to our world class researchers," said Yang.

News Briefs

AROUND THE AGENCY

Space Station Conference — NASA will hold the first Space Station Freedom Utilization Conference later this summer in Huntsville, Ala. The conference, August 3 through 6, will tell potential researchers about Freedom capabilities, plans and research opportunities. It will also provide an exchange of information and ideas between space station managers and potential investigators. Researchers who have flown equipment on Spacelab will describe their experiences. For more information, call Barry Epstein, Headquarters, (202) 453-8203, or Deb Gilman, BDM International, (202) 479-5250.

Contract Ratified — NASA Administrator Daniel Goldin and Russian Space Agency Director General Yuri Koptev formally ratified the first contract between NASA and the Russian aerospace firm NPO-Energia in June. The contract is for the study of application of Russian space technology to the Space Station Freedom program. The contract covers an initial period of one year and has a value of $1 million. Under terms of the contract, NPO-Energia, a 30,000-employee firm near Moscow, will look at three areas of possible technology sharing: use of the Soyuz TM spacecraft as an interim Assured Crew Return Vehicle and the use of the resupply spacecraft Progress; use of the Russian automated rendezvous and docking system as a potential universal docking system; and use of the Mir space station for long lead-time life science experiments in support of Freedom program objectives.

Jenkins Leaves — Dr. Harriett G. Jenkins, Assistant Administrator for Equal Opportunity Programs, has resigned her NASA position to become first Director of the newly established Office of Senate Fair Employment Practices. In that role, she will administer processes that review allegations of prohibited discrimination practices and will implement programs for the Senate to heighten awareness of employee rights in order to prevent violations from occurring.

May Bloodmobile Gets Seven First-Timers

The following persons have donated to the Bloodmobile:

21 gallons: Dorothy Kublak.

12 gallons: Ceylon C. Shout Jr.

10 gallons: Doyle T. Arboneaux, John M. Haines.

9 gallons: Edward E. Crum.

8 gallons: Lloyd W. Nelson.

7 gallons: Joseph B. Jackson, Otto C. Ripley.

6 gallons: Phillip L. Brown.

5 gallons: Michael Raiford.

3 gallons: Thomas Burns, William Abeyounis, Fernandus Rattliff, Jon E. Thompson.

2 gallons: James Bryant, Jeffery S. Johnson, Gretchen B. Murri, Lindsey Parker, Gary A. Wainwright.

1 gallon: Tracie Y. Green, Melissa S. Proffitt.

First time donors include: John Blevins, Valeka R. Copling, Bobby L Hibbitts Sr., Alice R. Hoff, Lisa E. Jones, Donna Marie Oswald, Dorsey White.

Leave Transfers

The following employees are approved recipients of the Voluntary Leave Transfer Program: Bette L. Duncan, Linda E. Edmundson, Francine W. Guthrie, Noel A. Talcott, Jr., Belle L. Wood, Darrell A. Wood.

If you wish to donate annual leave to these recipients, or wish more information concerning the program, please contact Linda Park of the Employee Relations Office at ext. 42610.

ANNIVERSARY:

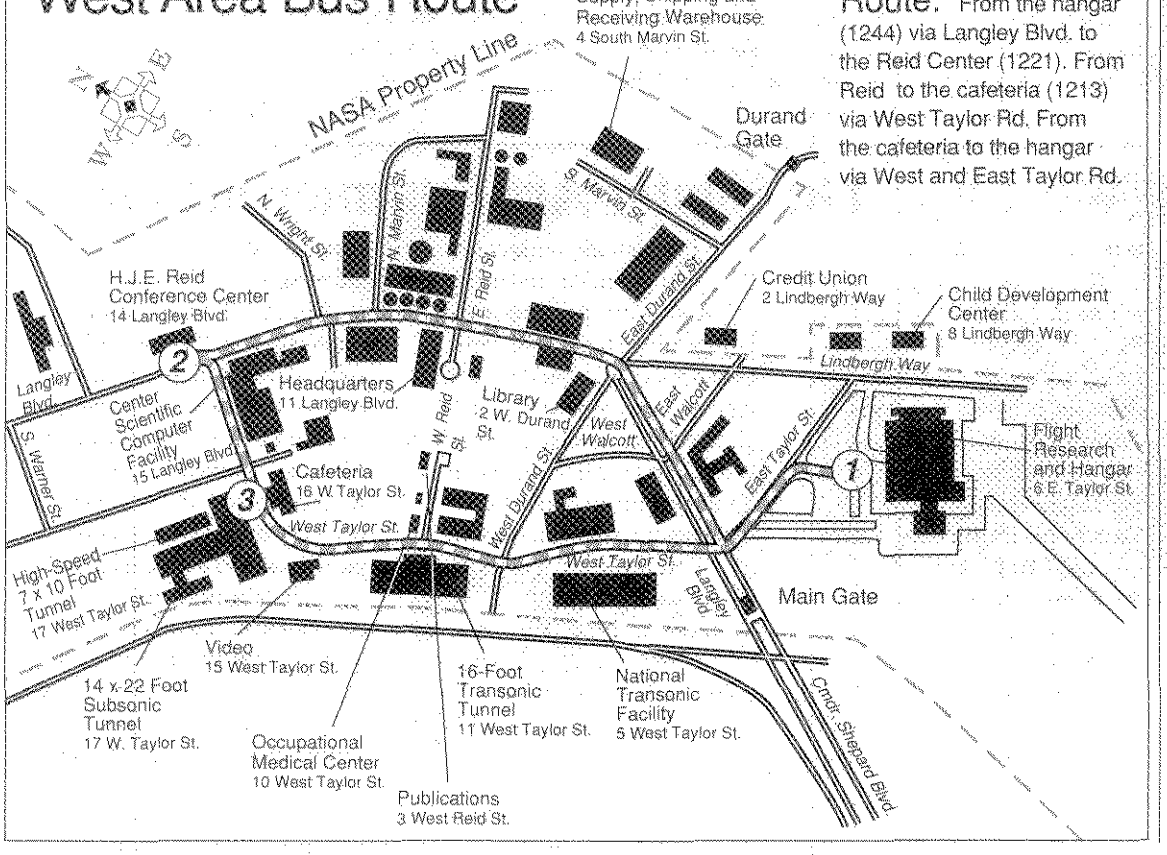
Continued from Page 1

the hangar from the cafeteria and the H.J.E. Reid Conference Center. If the hangar reaches capacity, arriving guests will be directed to buses for two overflow sites, the Reid center and the cafeteria, where the ceremony will be televised. Buses will be at the sites immediately after the ceremony to return guests to the hangar for the group photo, reception and exhibits. Anyone with a handicap or special needs should call Ann Suit at 864-3305 for a car pass that will admit them to a reserved parking area.

On Saturday, July 18, and Sunday, July 19, employees, retirees and their immediate families are invited to "Langley Days" at the Virginia Air and Space Center (VASC), where they will be admitted free to exhibits. A NASA badge will be required for admittance.

All employees, contractors, retirees and their spouses or adult guest are invited to a wine-and-cheese reception on Saturday, July 18, at 7:30 p.m. at the VASC. The cost is $6 per person. Reservations may be made by using the reply form that will accompany an announcement being sent to all employees, contractors and retirees. The festivities, co-sponsored by the NASA Langley Alumni Association and Langley Research Center, will feature McCall's painting, a 75th Anniversary cake and free showings of the IMAX film *The Dream is Alive*.

West Area Bus Route



Route: From the hangar (1244) via Langley Blvd. to the Reid Center (1221). From Reid to the cafeteria (1213) via West Taylor Rd. From the cafeteria to the hangar via West and East Taylor Rd.

Speakers Bureau Report

The following Langley representatives spoke to outside groups for the Speakers Bureau in April and May:

Jack Reeder and Lee Person spoke about "Aviation Over the Years" to the Pittsburgh Aero Club.

Harry Verstynen spoke on aviation careers to Aviation Invasion in Hagerstown, Md.

Lisa Jones spoke on "Response of Composite Fuselage Frames" to Aerospace Flutter and Dynamics Council in Williamsburg. She also spoke on "Impact Dynamics" at Olive Branch Elementary

David Dress discussed aeronautics at Grafton Bethel Elementary.

Nick Lagen spoke on "Heat Transfer in Every Day Life" at New Horizons Technical Center.

Sharon Tanner discussed NASA careers at Richneck Elementary School in Newport News.

Dan Vicroy spoke on NASA careers to Cub Scout Pack 200.

Beverly Taylor and Tom Mitchell discussed NASA careers at Newsome Park Middle School in Newport News. They also participated in Career Awareness Day at Hunnington Middle School in Newport News.

Vic Delnore spoke on "Wind Shear Research at Langley" at U.S. Naval Air Station in Norfolk.

Nancy Kruse, Greg Draughon and James Smith spoke on ATOMS Program - Electronics at Spratley Middle School in Hampton.

Beverly Taylor, Tom Mitchell, Elijah Kent, Kenneth Wright and Miguel Melendez discussed NASA careers at Bethel High School in Hampton.

Larry Cooper spoke about NASA Langley at Grafton Bethel Elementary School.

Dr. Olaf Storaasli spoke on NASA careers at Cary Elementary School in Hampton.

Veloria Martinson spoke on "Careers and Goal Setting" at Spratley Middle School in Hampton.

Dave Schuster spoke on NASA careers at Charter/ Westbrook Adolescent RTP Unit E in Richmond.

Ian MacConochie and Benjamin Guenther spoke on "HL-20—A Mini Shuttle" at the Portsmouth Kiwanis.

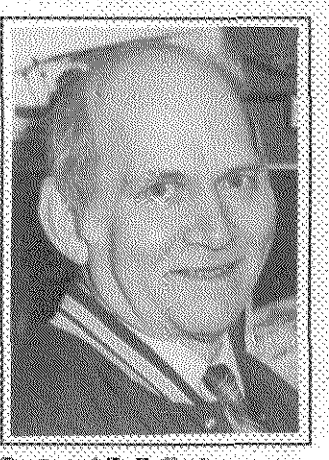
Dr. Karen Jackson discussed NASA careers at Robertson Elementary School in Suffolk.

George Hickman spoke on NASA careers at Magruder Primary School.

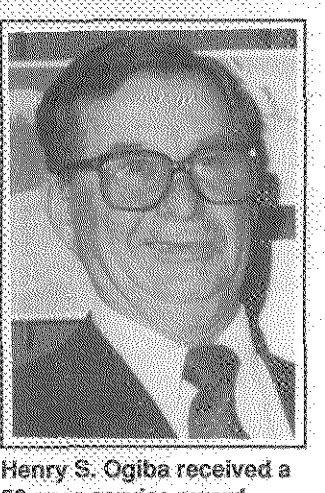
Jane Hogge spoke on "NASA and the Space Program" at Fairview Elementary in Roanoke.

Michael Uenking spoke on NASA careers at John Tyler Elementary in Portsmouth.

SERVICE AWARDS



Bertrand E. Fullerton received a 45-year service award certificate recently.



Henry S. Ogiba received a 50-year service award certificate recently.

LETTERS

Bob Basford writes: During my career at NACA and NASA, I was very fortunate to have had the opportunity to work on many challenging and exciting projects. However, the most rewarding part of my career was the staff with which I worked. This fact was demonstrated by the outstanding retirement party held on my behalf June 17.

The kind words, momentos and gifts were very much appreciated.

With so many friends, staff members and relatives in attendance, it was an overwhelming experience that I will cherish the rest of my life.

News Researcher

The Researcher News, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23665-5225, is published every other Friday in the interest of all Langley staff and retirees. Submit contributions to the Editor, Mail Stop 115, telephone 864-6126. Articles are due at noon the Tuesday following the date of this issue.

Managing Editor ..... Jean Drummond Clough

Editor ..... Michael Finneran

Photojournalist ..... Carol Petrachenko

Photographer ..... Fred Jones

The privilege of advertising in this publication is restricted to the employees and retirees of the Langley Research Center. Articles advertised here must be offered without regard to race, color, religion, sex or national origin.

All materials are subject to editing.

Teachers Guided At Va. Air and Space Center

BY WHITNEY BARTLETT

Langley has expanded its educational outreach program by establishing a NASA Teacher Resource Center (TRC) at the Virginia Air and Space Center. Educators are provided free educational resources and information on NASA discoveries for all grade levels, including preschool and graduate.

The 1,000-square-foot TRC has Macintosh computers with Apple 11e compatibility, video reproduction services and advanced laser education technology.

"An interesting feature to the laser technology that is available is the Videodisk for Teachers Program," said Roger A. Hathaway, educational and information specialist for the Office of Public Services at Langley.

"Educators can create their own video piece by extracting still-frame photos or special-effect scenes from the number of popular video programs that have been put on videodisk."

Hathaway said there are over 100 video titles that have been duplicated from Langley's Educational Resource Center. Teachers have access to video recorders so that they can make their own VHS copies.

The network CORE, Central Operation of Resources for Educators, is available at the TRC and can be used by educators for ordering items such as audio cassettes, filmstrips, videos, slides and other NASA materials.

"CORE is a national distribution center for aerospace educational materials. It is supported and co-sponsored by NASA," Hathaway said.

Lesson plans and activities for elementary, middle and high school levels are also available for teachers to copy and take back to their classrooms.

Photo by Fred Jones

A teacher over looks materials at the NASA Teacher Resource Center at the VASC.

Hathaway said there was a good representation from the Peninsula out of the estimated 80 teachers who attended the TRC's open house May 28.

Kim Hinson, events and media coordinator at the Air and Space Center, said more than 125 educators have used the TRC during its first three weeks of operation.

The Virginia Air and Space Center and Hampton Roads History Center attracted 80,000 visitors from its opening day on April 5, through June 21.

"The staff is delighted with the public acceptance of the Center. Our crowds have been greater than expected and the visitors have been pleased with our exhibits and programs," said Jeannette Petrolia, the center's acting director.

The IMAX Theater has contributed to the center's success, and more than 66 percent of April's visitors attended the film *The Dream is Alive*. Budget plans had projected 55 percent participation at the theater.

Petrolia said attendance is expected to climb through the summer months.

THEN & NOW

Excerpts from Langley's old newsletters will appear throughout the Center's 75th Anniversary year. The following is from the February 7, 1969 issue of the Langley Researcher.

NASA TO EVALUATE POTENTIAL AIRFOIL SHAPE

CELEBRATING 75 YEARS

NASA will evaluate the potential of a new airfoil shape that could substantially improve the performance and efficiency of future aircraft, particularly commercial jet transports.

A wing, called the NASA supercritical wing, will be tested in flight by Flight Research Center on a modified NASA F-8 jet fighter aircraft.

The supercritical win was developed at Langley Research Center as a result of wind-tunnel studies conducted by Dr. Richard T. Whitcomb, head of 8-Foot Tunnels Branch, Full-Scale Research Division.

The wing utilizes a new airfoil shape with a flat top and downward curved rear section as opposed to the curved top and sloped rear section of a conventional wing.

If the performance measured in Langley's wind tunnel tests is fully achieved in flight, the new airfoil shape could allow efficient cruise flight near the speed of sound, approximately 660 miles per hour at a cruising altitude of 45,000 feet.

In addition to permitting a substantial increase in cruise speed without increases in power, the new wing might significantly reduce the operational cost of the subsonic jet transport flights.

Viking Team Meeting Set

Thirty-three scientists will hold a three-day meeting February 19 to 21 at Langley Research Center at the invitation of the Viking Project Office.

This group has been selected by NASA Headquarters in order to assist the project in the development of candidate instruments for the Viking Lander.

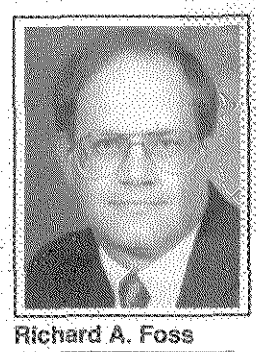
The eight teams comprised of the 33 scientists will work towards the development of cameras, biological detectors, gas analyzers, meteorological sensors, atmospheric mass spectrometers, a UV spectrometer and a seismometer.

Among the group are some of the most notable scientists, astronomers and engineers in the country, including three Nobel laureates.

Foss To Attend Career Program

The head of the Thermal Analysis Section for the Systems Engineering Division, has been selected to attend the Maxwell Mid-Career Program in Public Administration at Syracuse University.

Richard A. Foss is set to leave August 27 for a program for experienced government managers identified as having high potential. He will return December 22.



Richard A. Foss

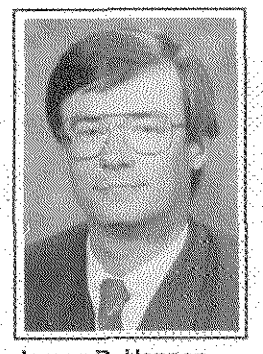
"The Syracuse-Maxwell Program will give me the opportunity to strengthen my decision making and leadership skills through course work and interaction with participants who have diverse backgrounds," said Foss.

He began his Langley career in 1980 as an aerospace technologist in the Facilities Engineering Division. He was the lead thermal analyst for the HALOE, CETA and ACCESS experiments. He has authored and co-authored 10 technical publications and has received several awards, including five Group Achievement Awards. Foss has bachelor's and master's degrees in mechanical engineering from Old Dominion University.

Historian Talks About 75 Years Of Research

July 17, 1992 marks the 75th Anniversary of the NASA Langley Research Center. On July 17, 1917, Langley became the nation's first civilian aeronautical laboratory and since then has been on the forefront of air and space flight.

To commemorate the historic event, Dr. James R. Hansen, Langley historian, will reflect on seven and a half decades of aerospace accomplishments during a NASA Langley colloquium on Thursday, July 16. Hansen's lecture, "A Flight Through 75 Years of Langley History," will be held in the H.J.E. Reid Conference Center, 14 Langley Boulevard, at 2 p.m. and is open to employees, retirees and contractors.



James R. Hansen

Hansen, a history professor at Auburn University in Alabama, is the author of *Engineer in Charge: An Institutional History of Langley Aeronautical Laboratory, 1917-1958.*

He is working on a history of NASA Langley from 1958 through 1975, and is transforming the tape-recorded historical reminiscences of Fred E. Weick, the pioneering American aeronautical engineer and NACA researcher, into a complete autobiography.

Hansen was a distinguished lecturer of the American Institute of Aeronautics and Astronautics for 1986-87.

In addition to *Engineer in Charge*, Hansen is the author of papers delivered before the American Institute of Aeronautics and Astronautics, the Conference for Historic Aviation Writers, the Society for the History of Technology, the Air Force Historical Foundation and the History of Science Society.

Hansen received the Dr. Robert H. Goddard Essay Award for 1985 from the National Space Club and the Air Force Historical Foundation Award for the best scholarly article to appear in *Aerospace Historian* in 1985.

Top Runner Named

Kathy Powell of SAIC was named Runner-of-the-Year by the Langley Runners' Club. Richard Shearer, president of the club, said she earned 56.64 points by winning her age group in all four races of the NASA Center Competition with times of 43:19 and 42:06 in the 10 KM and 13:20 and 13:24 in the two mile run.

The remaining top winners of the club are Steve Sudik (54.64), Bob Ferguson (48.64), John Hoppe (48.64), Gale Harvey (47.64), Karen Sage (41.48), Chuck Engle (36.64), Erik Kielin (31.48), Bill Roger (27.32), Alene Heuser (24.48).

Happenings

APRICULTURE CLUB - (Honeybunch) will meet at 7 p.m. July 20 in the Executive Dining Room of building 1213. The program will include a report of the events from the Virginia State Beekeepers Association meeting held in Harrisonburg. All interested persons are welcome. Call Henk at 47226.

FEDERAL WOMEN'S PROGRAM COMMITTEE - will meet July 8 at 8:30 in building 1212 conference room (second floor). Patsy Campbell 43291.

ROOMMATE - Hampton/Threechopt, female seeking non-smoking, mature responsible adult to share 2 BR townhouse, 2 full BA, washer/dryer, cable; $260/month, $260 security deposit, 1/2 utilities, leave message, 723-4723.

SUN AND YOUR SKIN - This month's brown bag seminar will be held July 2 in the cafeteria extension room at noon. Guest speaker will be dematologist Dr. Susan Mackel.

NATIONAL SPACE SOCIETY - Langley Chapter will host its second annual picnic and model rocket launch July 26 at 11 a.m. on the picnic grounds of the H.J.E. Reid Conference Center. All interested children and adults are invited to attend. Co-sponsored by the Virginia Air and Space Center and the Dismal Swamp National Space Society.

DOGS FOR SALE - German shepherd, three months old, black/tan, female, pure-breed without papers, mother on premises. Also AKC registered Samoyed two-year-old, not good with small children, excellent health, excellent guard dog, $200. 877-2186.

TOASTMASTERS meets the second and fourth Wednesday of each month from 11:30 a.m. to 1 p.m. The next meeting is July 8 in Building 1222.

ROOMMATE WANTED - Grafton, professional, non-smoking to share spacious house, large BR, private BA, full house privileges, washer/dryer, cable, $275/month plus half of utilities, $175 deposit, 898-3871 evenings.

FOR RENT - Scotland Lakes, off Fox Hill Road, brick house with two bedrooms, one study/bedroom, two baths, utility room, living room with fireplace, dining room and kitchen. $700 a month, starting September. Call 851-4667.

MOBILE HOME FOR SALE - 12x65 mobile home, 3 BR, 1 BA, reinforced floors, CA, oil heat, fenced yard, too many extras to list, $10,000 negotiable, one-half mile from NASA & Langley Air Force Base, call Don at 865-8126.

RENTAL COTTAGE - Kill Devil Hills, sleeps 9, two baths, fully equipped, 1 block from beach, three-day minimum, $60/day or $385 per week, Call Anne at 868-6427.

GEORGE WASHINGTON UNIVERSITY - School of Engineering and Applied Science at NASA Langley Research Center plans to offer a new set or courses leading to the Master of Engineering Management degree beginning in the fall semester 1992. Interviews at NASA Langley Research Center will be arranged Aug. 13- Aug. 14. Interested persons should call the GW-NASA Office at 864-1982.

HOUSE FOR SALE: Cozy 3-bedroom rancher, 1 bath, living room, den with fireplace and wood stove, ceiling fans throughout house, newly tiled laundry room, new central air and gas heat, over 1,800 square feet of living space, a 12 x 16 workshop with electricity, fenced back yard, and excellent schools and location. Reduced to $73,500, $1,400 below city appraisal. Owner will assist with closing costs. Call 850-4176.

PARADISE FOUND: Sanibel Island, Florida, beautiful Gulf-front, ground-floor condo, 1 bedroom, 1 bath, living room, full kitchen, air conditioning, tennis, pool, cable, VCR, on-site management, $525 per week May-November. Call 565-1849 between 5 and 8 p.m.

AEROBICS: New classes added! Free and open to all employees, NASA and contractors. Noontime Energizer, Monday, Wednesday and Friday, from 11 to 11:45 a.m. Also for you early morning risers, don't forget Body Dynamics, a low-impact and interval training class on Mondays, Wednesdays and Fridays at 6:15 a.m. All classes are held in the LAA gym. Call the Fitness Center at ext. 46387 for more information.

LOW-IMPACT AND BENCH AEROBICS classes are held Tuesdays and Thursdays, 5 to 6 p.m., LAA gym. Cost is $12 per month or $6 per month if attending only one day a week. The classes are open to employees, contractors and their families. Call ext. 42295.

SATURDAY AEROBICS, low-impact and bench. We're back in the LAA gym. Classes open to NASA, contractors and family, $6 a month or $2 per class, 9:30 to 10:30 a.m. Call ext. 42295 for more information.

KINDERGARTEN PROGRAM: The NASA-Langley Child Development Center is registering children for its new kindergarten program. A full-day program will be provided by a certified kindergarten teacher. Applicants must be five years old by October 31, 1992. Call ext. 44827 for more information.

TICKETS: Discount movie tickets and passes to Colonial Williamsburg are available from the Exchange Shop in the cafeteria. Prices are: AMC Movie Theater, $3.75; Colonial Williamsburg, Patriots Pass, adult, $26.50; child, $16; Royal Governor, adult, $24; child, $15; basic admission, adult, $22; child, $14. Prices subject to change.

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National Aeronautics and
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Langley Research Center
Hampton, Virginia 23665-5225

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Photo by Clements Mayes

Jeffrey Werner, engineering technician in the Operations Support Division, tightens a tether prior to a de-spin test of the Solar Anomalous and Magnetospheric Particle Explorer (SAMPEX) engineering unit. The test took place in Langley's 16-Meter Thermal Vacuum Chamber. SAMPEX is a Goddard Space Flight Center Small Explorer Program payload to be launched July 2 on a Scout expendable launch vehicle from Vandenberg Air Force Base, Calif. SAMPEX, an international collaboration with Germany, will yield information on the composition of energetic particles arriving at Earth from the solar atmosphere and interstellar space. The Scout Project was managed by Langley from 1959 until January 1, 1991, when management was transferred to Goddard.

1917 1992 75 Years NACA NASA Langley Research Center

News Researcher

Bi-weekly Employee and Contractor Publication

Volume 6 ❖ Issue 12 ❖ July 17, 1992

75TH ANNIVERSARY ISSUE

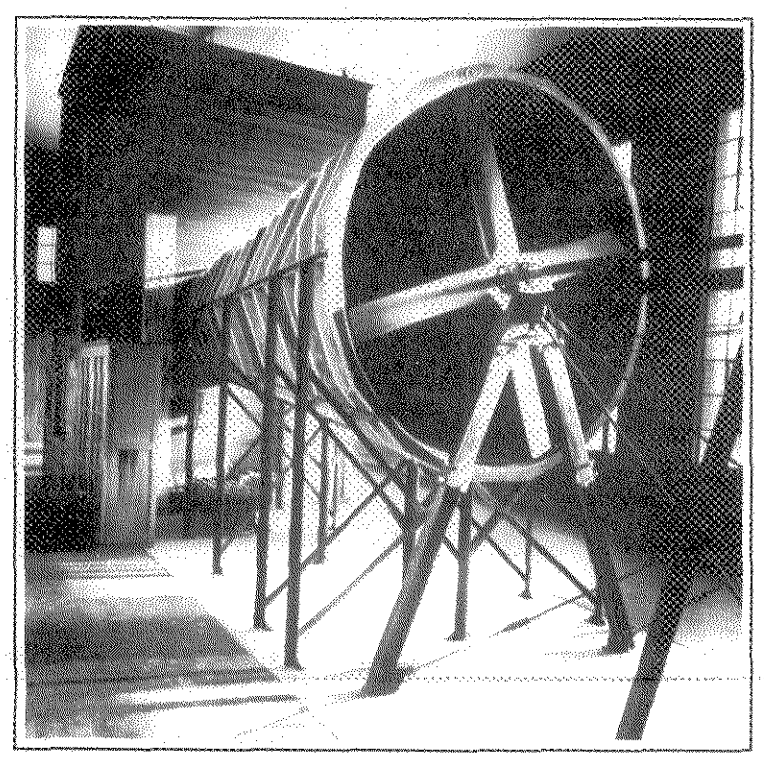
Happy Birthday Langley!

1917-1992: Roots Go Back To The Future

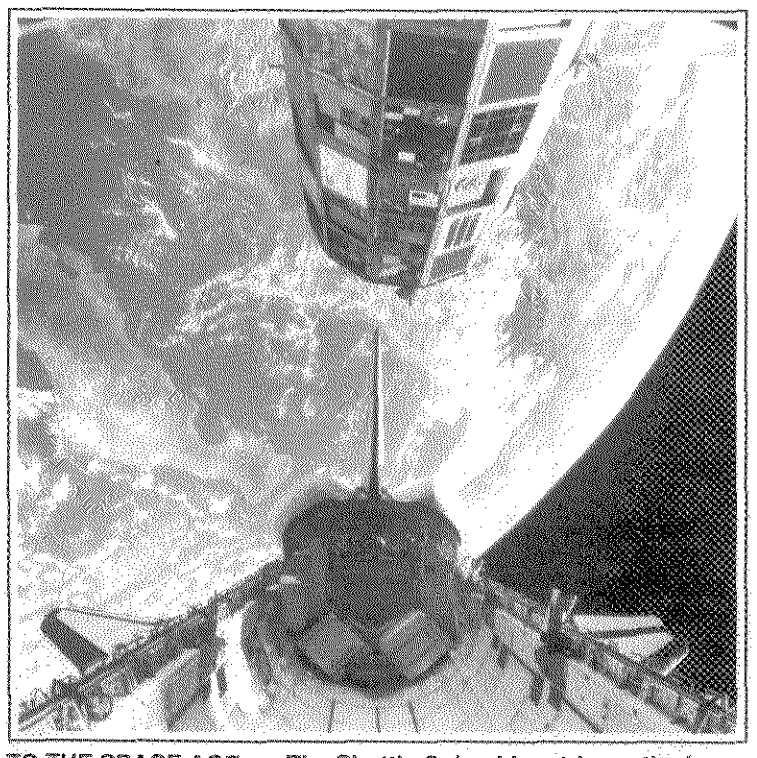
BY DR. JAMES R. HANSEN

We are rapidly approaching the dawn of a new century, the 21st, and a new millennium. In the last hundred years humankind has moved from the dim glow of the first electric light bulb to the cold cloud of the superconductor, from the clatter of the steam-powered railroad locomotive to the roar of the supersonic jet airliner.

In the last thousand we have progressed from the water wheel to the fusion reactor, from the ox-cart to the space shuttle. Only a clairvoyant could have forseen the course of our development. It will take an even bolder visionary to imagine where we shall end up 100 years from now, let alone 1,000. Our rate of change, already invisibly rapid, seems only to be picking up.



FROM THE EARLY DAYS . . . Langley's first wind tunnel was built in 1920, three years after the Center was established. A model of the tunnel is on display at the Virginia Air and Space Center.



TO THE SPACE AGE . . . The Shuttle Columbia retrieves the Long Duration Exposure Facility (LDEF) in 1990. LDEF, which spent six years in space, was conceived, designed and built at Langley.

Spectacular developments

In the field of aerospace technology the developments of the next century should be spectacular. Regularly scheduled flights of supersonic airliners and hypersonic aircraft capable of flying in and out of the atmosphere should enable the peoples of the world to join together on a veritable global village. No spot in the world should be farther away than two hours traveling time—or perhaps even less. There should be permanent outposts on the moon. We should visit Mars and venture out to even more remote bodies of the solar system. New scientific discoveries will change radically our understanding of the universe and our place in it. Perhaps signs of other life in the universe will be discovered.

All of these things might very well happen in the "Second Century" of powered flight. If they do, it will be because the next generations of aerospace scientists and engineers will be standing, in Isaac Newton's words, on the shoulders of giants. This article explores the history and contributions of Langley Research Center, the nation's first civilian aeronautics laboratory.

Back to NACA days

Today's National Aeronautics and Space Administration (NASA) was established in 1958, but its historical roots reach back much farther, to 1915. In that year, 12 years after the Wright Brothers' flight and two years before American entry into World War I, the U.S. Congress created the National Advisory Committee for Aeronautics, or NACA.

In 1915 the airplane was still largely a useless freak. Much had to be done to transform it into a practical and versatile vehicle. The NACA's mission was "to supervise and direct the scientific study of the problems of flight with a view to their practical solution." This meant that the NACA was to treat aeronautics not so much as a scientific discipline, but as an area for engineering research and development. In practice this turned out to mean that the NACA would perform basic research that provided 'practical solutions' to serious problems facing the aircraft industry and the military air services.

Please see **HISTORY,** *Page 4*

Weekend Celebration Starts With Ceremony On Friday

Seventy-fifth Anniversary events begin Friday, July 17, with a 2 p.m. ceremony in the hangar featuring the unveiling "Expanding the Frontiers of Flight," a 75th Anniversary painting by renowned space artist Robert McCall.

Events also will include a special 75th anniversary video, technical exhibits and an impressive display of aircraft dating from 1917.

CELEBRATING 75 YEARS

Guest speakers are to be announced. This event is open to civil service and contractor employees and NASA retirees.

After the ceremony, those wanting to participate will form a "75" for a group photo. Following this, attendees are invited to a reception sponsored by the Langley Federal Credit Union behind the hangar. The aircraft and technical exhibits will be on display from 12:30 to 4:30 p.m.

From noon to 4 p.m., the Hampton Post Office will sponsor a special stamp cancellation featuring the 75th Anniversary logo and date. Guests may purchase 34-cent embossed envelopes and 19-cent postcards or may bring any item bearing a stamp for cancellation. For 30 days following the anniversary, the Hampton Post Office will stamp letters or envelopes with the special cancellation upon request.

Because parking will be severely limited, employees are encouraged to car pool or take buses, which will run a loop beginning at 1 p.m. to the hangar from the cafeteria and the H.J.E. Reid Conference Center.

Map of bus routes on Page 6.

If the hangar reaches capacity, arriving guests will be directed to buses for two overflow sites, the Reid center and the cafeteria, where the ceremony will be televised. Buses will be at the sites immediately after the ceremony to return guests to the hangar for the group photo, reception and exhibits. Anyone with a handicap or special needs should call Ann Suit at 864-3305 for a car pass that will admit them to a reserved parking area.

On Saturday, July 18, and Sunday, July 19, employees, retirees and their immediate families are invited to "Langley Days" at the Virginia Air and Space Center (VASC), where they will be admitted free to exhibits. A NASA badge will be required for admittance.

All employees, contractors, retirees and their spouses or adult guest are invited to a wine-and-cheese reception on Saturday, July 18, at 7:30 p.m. at the VASC. The cost is $6 per person. Reservations may be made by using the reply form that will accompany an announcement being sent to all employees, contractors and retirees.

The festivities, co-sponsored by the NASA Langley Alumni Association and Langley Research Center, will feature McCall's 6½-foot by 19½-foot-wide painting, a 75th Anniversary cake and free showings of the IMAX film *The Dream is Alive*.

Time Capsule Ideas Sought

A time capsule preserving 75 years of Langley's achievements will be buried later this year on the Center.

But what should go in it? Organizers are seeking suggestions from Langley employees, contractors and retirees.

The capsule, about the size of a 25-gallon drum, tentatively is scheduled to be buried under a brass arch at the corner of West Durand Street and the Technical Library. It will be formally dedicated in November.

The plan is to open the capsule in 25 years, then reseal it for another half century.

If you have any ideas for what to include for posterity, mail them to the historical program coordinator at Mail Stop 123. Suggestions must be received in writing to be considered.

75TH ANNIVERSARY ISSUE

Spivey-Hunt Clan Spans Four Generations Working At Center

BY CAROL PETRACHENKO

In 1917, Lucy Spivey Hunt was 13 years old. By 1992, the Poquoson native's father, sister, husband, daughter, son, son-in-law and grandson would all work for the government agency that would one day put a man on the moon and a robot on Mars.

Like Spencer Watkins (*see article on Page 3*), Mrs. Hunt's father, Capt. John Wesley Spivey, who started in 1923, worked as a boatman.

"A lot of times, the planes would go out and they'd fall," reminisces Mrs. Hunt. "They'd take off over Back River, where the runway is now. This was when planes were a new invention. Maybe a part would fall off. They'd crash in the river. They were made of wood and would float. 'Poppa' and Spencer Watkins would go out in their boats and haul them back to shore—that was their job."

Lucy and Edwin Hunt in the early '40s.

To get an flavor of the times, Mrs. Hunt was asked if it was exciting to see the biplanes, blimps and dirigibles flying over her home. After all, these were the times when lighter-than-air craft were as promising as biplanes and jet engines were barely a figment of someone's imagination.

"Exciting! Of course it was," she replies. "But in those simpler days, it was also exciting when the cows went by. Where do you think the name Bull Island comes from? There was no fence law."

To further flavor the past, Mrs. Hunt adds that since her father was not paid the first six months ("They had to wait for Congress to approve the bill"), it was fortunate that families in the early 1900s were largely self-sufficient—without electric or water bills but *with* hens, pigs, a cow, a vegetable garden and of course wild game and fish.

Mrs. Hunt's husband, Robert "Edwin" Hunt, started at the NACA in 1929. His first job was washing airplanes. Later, Hunt was promoted because of his good handwriting. In the days before electronic records were kept, clear handwriting was essential for keeping good logs and records of research data. He was a member of the famous NACA cowlings flight crew. Because they didn't have a phone, on the eve of Pearl Harbor her husband came home to tell her, "Lucy, we've had an attack. I've got to go back. We've got to work all night." He was wearing a pistol.

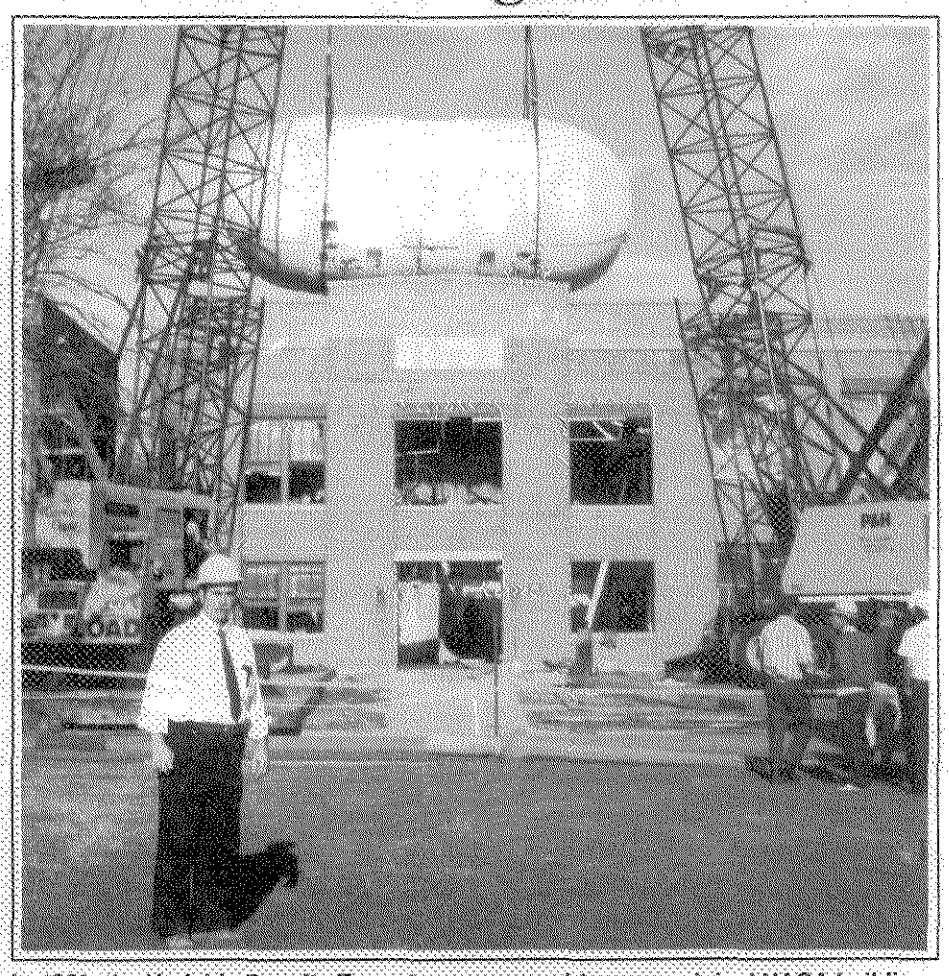
Mrs. Hunt says that then, as now, many people outside the agency didn't understand the importance of research, its practical applications or the reason for funding. During the war she remembers local people commenting on newly constructed wind tunnels:

"That's the funniest thing I ever did see."

"What's the federal government doing?"

"With buildings like that, the Germans will all be here and just blow us to pieces."

In 1972, Edwin Hunt retired. His son, "Johnny" John Edwin Hunt, who was working at Langley's foundry, made his dad's bronze retirement plaque, which happened to be the last time a bronze plaque would be made for a retirement gift. The plaque is displayed in the living room of Edwin's Poquoson home.



In 1989, the Variable Density Tunnel was removed from an original NACA building. The facility coordinator was William Otward Moore III, great-grandson of John Wesley Spivey, a painter and carpenter who probably worked on the tunnel in the NACA's early years.

In 1988, Edwin was sick with a heart condition. The doctors said he wouldn't live through the night. As a last resort, a pacemaker was installed. The miniaturization of the pacemaker had been developed at NASA. He lived.

"NASA has been my life," says the woman who became Edwin Hunt's bride. "Edwin gave his life to NASA, now NASA is keeping my husband alive."

Other members of Mrs. Hunts' family that worked at NACA/NASA were her sister, Nellie, who worked at the Unitary Wind Tunnel; her daughter, Novella, who worked as a secretary; and Novella's husband, William Otward Moore Jr., an electrician who was part of the team that proved the cryogenic wind tunnel concept leading to the National Transonic Facility. Her grandson, William Otward Moore III, continued in his father's footsteps as a member of the NTF startup team.

Women And Minorities

Emilio Alfaro-Bou

Mary Jackson

James L. Williams

Women and minorities long have been a part of Langley's achievements, and their numbers in the workplace continue to grow as society moves to the day when race and gender no longer are the targets of discrimination. Some of those who have contributed:

■ Emilio Alfaro-Bou was an aerospace technologist who selected instrumentation for full-scale airplane crash tests and analyzed resulting data. He specialized in design, analysis and testing of energy absorbing mechanisms for airplane seats and the launching of simulated hailstones and Mg particles to hypervelocities.

■ Mary Jackson started at Langley as a research mathematician and entered the Engineers in Training Program in 1954, qualifying as a research engineer in 1958. In 1982, she became manager of the Federal Women's Program until her recent retirement. She tutors in math and science.

■ James L. Williams was hired as an aeronautical engineer after graduating from the University of Michigan in 1951. His work consisted of research in curve flow wind tunnels. Since retiring in 1989, he has taught engineering at Hampton University and is in charge of recruiting for the engineering department.

75TH ANNIVERSARY ISSUE

All In The Langley Family: Like Father, Like Son—And Grandson

BY CAROL PETRACHENKO

"We had to take a nap when we went to work,' says Sid Pauls, associate director at Langley. "There were several of us grandsons that our grandfathers would bring to work in the summertime."

Work was the "Committee," the National Advisory Committee for Aeronautics (NACA). Pauls' grandfather was the third employee hired.

"I was just a little fellow, about six or seven years old. They blew a whistle at lunchtime and Miss Belle, who was Dr. Reid's secretary, would make us go up to the parachute loft in the hangar and take a nap after lunch.

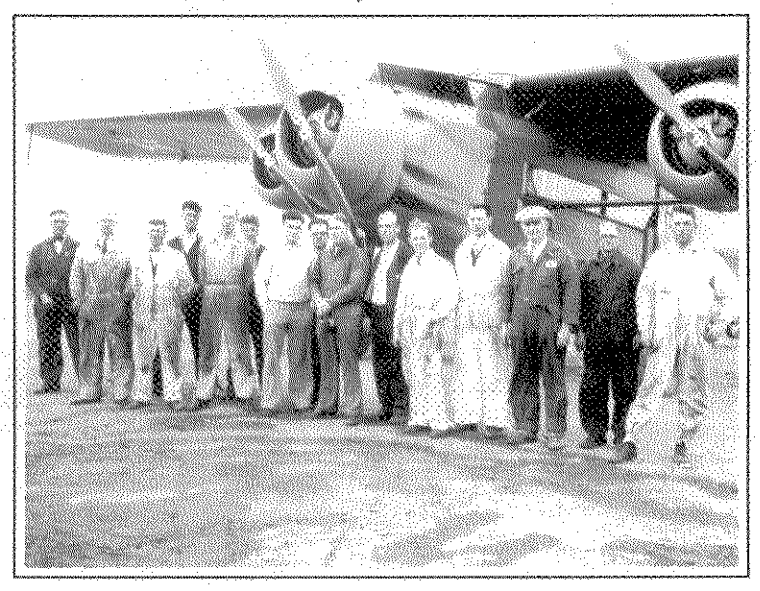
"My first flight—I was seven years old—I flew in an open place Ryan. Of course, I couldn't do that kind of thing with my grandson now—too many safety regulations. It was a great thrill."

Pauls' grandfather, Spencer Watkins, who worked for NACA from 1917 to 1950, and John Spivey (*see article on Page 2*) were the first two Poquoson natives to work at NACA.

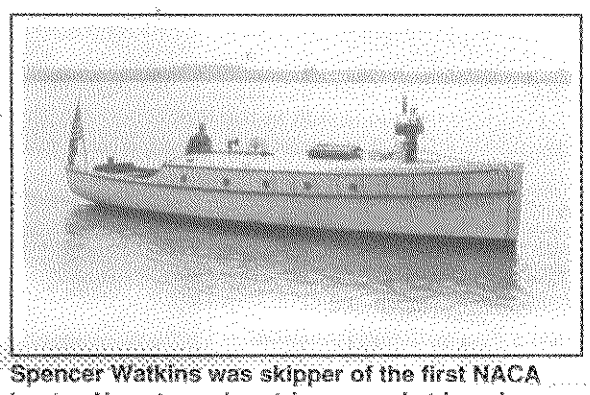
"Frequently my grandfather came over from Poquoson on a boat. The early guys over at the hangar said that he had the first radar set, that he would come across Back River on foggy mornings. It would be so thick you couldn't see anything. Still, he would leave the dock over there and put his Poquoson log canoe in the dock over here with no trouble.

"They used to make a joke: Before they would go flying on a flight test, they would check with the meteorology office and then they would go check with my grandfather. They felt he was better at predicting weather. The old people in Poquoson would look where the wind was coming from and what the tide was because they always felt, especially in summer, there was a close relationship between whether it was high tide, low tide, flood tide or ebb tide and whether or not we would have squalls coming."

One of Watkins' first duties was to cook for the members of the "Committee" who came from Washington, D.C., to plan and design the new NACA. A cook was needed at the "camp" in Fox Hill where dignitaries stayed. Cooking was natural for the waterman who sometimes had had to stay on his boat for days a time. (John Spivey oversaw a similar "camp" in Dandy.) In the early 1900s, hotels and restaurants were scarce on the Peninsula.



This late-1920s photo of Fokker Trimotor mechanics shows, second from left, Robert Edwin Hunt; far right, Spencer Watkins; and second from right, John Wesley Spivey.



Spencer Watkins was skipper of the first NACA boat, a Navy torpedo retriever used at Langley as a crash rescue craft.

The dignitaries, who reveled in the unspoiled wilderness of the Peninsula, also especially enjoyed the abilities of the Poquoson natives as fishing and hunting guides.

In his 33 years with the agency, Spencer Watkins worked primarily as an aircraft mechanic. In the early Committee days, he also was skipper of the first NACA boat, a Navy torpedo retriever used as a crash rescue craft.

Pauls' father, John William Paul(s) Jr., also worked for the agency retiring in 1973. One of his first jobs was as captain of another NACA boat, a 104-foot craft used for daily trips to Cape Charles and Wallops Island.

"This was in the early days, when the pilotless aircraft people were flying rockets on the beach over at Wallops."

After aircraft replaced the boat, he became an outside machinist and later a contract monitor.

Although he dropped out before finishing high school, John Paul(s) Jr. became the captain of an air-sea rescue boat during World War II and graduated number one in a celestial navigation course at Bar Harbour, Maine.

"Typically, if you were a local person working for the Committee, you found yourself in some support function. You built the models, or you ran wind tunnels, you were a taxi driver or you did things like that because local people typically did not go away to school to study aeronautical engineering. And so the term was coined, 'NACA-nuts'—those strange guys that moved in who did strange things out at the NACA. So, in the early days, if you'd gone around to the 'Laboratory'—that's what it was called then, Langley Memorial Laboratory—you would find that most of the professional staff on the engineering side of the house were not local people.

"However, there was no animosity among the working group here. It was a very close working group. They built a community unto themselves with softball, baseball and basketball teams and picnics and community functions.

"In fact, if you notice in this photo (*above*), my grandfather had his coveralls on over a shirt and tie. You'll notice many of the aircraft mechanics also wore ties. Even in the extreme heat of summer they wore shirts and ties in emulation of the scientists who worked here and in respect for the Committee they worked for."

Seventy-five years after Watkins was hired by the NACA, many of the local people's grandchildren did go away and get engineering and aeronautical degrees. How proud Watkins would be to know that his grandson is now Langley's associate director and that another Poquoson native, Paul Holloway, is director of the world-renowned center Watkins helped build.

McCall Painting Celebrates Langley And The Expanding Frontiers Of Flight

BY SUSAN A. SMIGIELSKI

Robert McCall set out to capture Langley Research Center's spirit in aerospace research, development and exploration when he created a large painting in recognition of the center's 75th Anniversary.

Entitled "Expanding the Frontiers of Flight," the 6½-foot by 19½-foot-wide painting is a pictorial history of Langley as well as a vision of the Center's future, from the meager beginnings of flight in the early part of the century to the dream of establishing colonies on Mars.

The painting's center is filled with an astronaut in full gear. The mask hides the face. McCall said he purposely did not paint a face because he did not want to establish gender or race.

"Above the astronaut is the spiral galaxy, as if the astronaut is rising on a pillar of flame to the stars," he said. "You can't identify the astronaut because its humanity rising with great power and energy into the cosmos."

In the painting, it is easy to see the past as well as the future. On one side there are various historical aircraft. Moving toward the center, the aircraft become more modern and futuristic.

On the bottom left horizon, an aerial view of Langley, complete with Virginia State flag, is shown. On the right horizon is the dream of travel to Mars.

Another representation of Langley is shown with the proposed National Aero-Space Plane flying through.

McCall said his optimism about space travel shows when he paints.

"Most of my thoughts are about the future—I am very optimistic," he said. However, he still sees a need for the past.

> *"Most of my thoughts are about the future—I am very optimistic. For an artist trying to guess what the future holds, the study of history becomes very important."*
>
> —Robert McCall

"For an artist trying to guess what the future holds, the study of history become very important," he said.

With the thought of future space travel in mind, McCall also wanted to show it as a pleasure trip.

"I wanted to paint in an optimistic way, nonfrightening," McCall said. "My desire was to show space in an inviting way."

The anniversary painting could be considered a mural if the artist had painted it on a wall, he said. He used acrylics on canvas for the painting.

Having been called "the nearest thing to an artist in residence from outer space," by the late science writer Isaac Asimov, McCall was the perfect choice for the commemorative painting.

McCall has a long list of space art, including the classic U.S. postage stamp that commemorates U.S. space achievement.

He also did conceptual paintings for such movies as *2001: A Space Odyssey*, *Star Trek* and Disney's 1981 space thriller *The Black Hole*.

At the National Air and Space Museum in Washington, D.C., some 10 million visitors have marveled at the six-story mural *The Space Mural a Cosmic View*. The mural celebrates the nation's first manned lunar adventure.

Featured at Horizons Pavilion in Walt Disney's EPCOT Center in Orlando, Fla., is *The Prologue and the Promise*.

McCall made a personal note when he painted himself along with his wife, their grown daughters and grandchildren in the horizon.

Other important McCall murals are at the Johnson Space Center and Dryden Flight Research Facility.

McCall has been associated with NASA for more than 20 years. He was the only artist privileged to chronicle the space program from the early Mercury flights to the space shuttle.

Much has been written about McCall, including by former astronaut Robert Crippen, now director of Kennedy Space Center. Crippen, in the jacket comments on the book *The Art of Robert McCall*, said "Bob McCall is not only the foremost aerospace artist in the United States, but he is a true friend of those of us operating in the space shuttle. His work captures the spirit of our endeavors."

Michael Collins, a retired Apollo 11 astronaut, said: "As no other artist has done, McCall captures the essence of space rather than just space itself. I like Bob's uplifting vision of the future, full of optimism as mankind presses out into the universe."

HISTORY:

Continued from Page 1

Although established in 1915, the NACA did not have operational laboratory facilities until 1920, when Langley came on line with its first primitive wind tunnel. Construction of Langley Field actually began in 1917, but the chaos of mobilizing for war in Europe delayed completion of the NACA's facilities for three years.

Once in possession of effective experimental equipment, however, the laboratory pursued its mission with distinction. Already by the end of the 1920s, with its ingeniously designed Variable-Density Tunnel, Propeller Research Tunnel, and Full-Scale Tunnel, which outperformed any other single collection of facilities anywhere in the world, NASA Langley was generally acknowledged to be the world's premier aeronautical research establishment. Thanks to the reliable data resulting from intelligent use of Langley's unique complex of experimental equipment, American aircraft began to dominate the world's airways.

Through systematic aerodynamic testing, NACA researchers found practical ways to improve the performance of many different varieties of aircraft. During World War II, they tested virtually all types of American aircraft that saw combat. By pointing out ways for these aircraft to gain a few miles per hour or a few extra miles of range, their effort in many cases made the difference in performance between Allied victory and defeat in the air.

After the war, NACA researchers turned their attention to the high-speed frontier and solved many of the basic problems blocking the flight of aircraft to supersonic speeds. They played essential roles in the development of several experimental high-speed research airplanes including Bell's X-1, the first plane to break the sound barrier, and North American's X-15, the first winged aircraft to fly into space.

Langley Research Center has been incubating the ideas and hatching the technology that has helped Americans take off and fly. Today, penetrating minds continue to pursue that mission.

The NACA flourished as a federal agency until the autumn of 1958, when it was formally abolished. In truth, however, much about the NACA lived on. Its laboratories and their staffs, although reorganized, formed the nucleus for the new space agency. The rest is history—NASA history.

The space frontier

Although its name changed in 1958 from NACA Langley Aeronautical Laboratory to NASA Langley Research Center, the mission of its staff members remained constant: to increase the country's knowledge and capability in a full range of aeronautical disciplines and in selected space disciplines.

In the early 1960s Langley helped give birth to the space age. Project Mercury, the nation's inaugural man-in-space program, was conceived and managed initially from Langley. Spearheading this effort was the Center's Space Task Group, a special force of NASA employees that later expanded and moved on to become the Manned Spacecraft Center (now Johnson Space Center) in Houston. Before their move to Texas, however, they led the Original Seven astronauts (Shepard, Grissom, Glenn, Carpenter, Slayton, Schirra, and Gordon) through the initial phases of their spaceflight training at Langley.

Langley went on to make several essential contributions to the Mercury, Gemini, Apollo, and Skylab manned programs. A thoughtful group of engineers at the Center proved the feasibility of lunar-orbit rendezvous. Without the articulation of this successful mission concept, the nation may have still landed men on the Moon, but it probably could not have happened as soon as it did, before the decade of the 1960s ran out, as President Kennedy had proposed.

Spaceflight simulators designed and operated at the Center gave NASA's astronauts the experience they needed to pilot their fragile craft through the many difficult challenges of rendezvous and docking in space and landing on the Moon. The high-resolution photographic maps of the lunar surface made by Langley's Lunar Orbiters made it possible to select the best sites for the landings of the Apollo and Surveyor spacecraft, and thereby learn more about the

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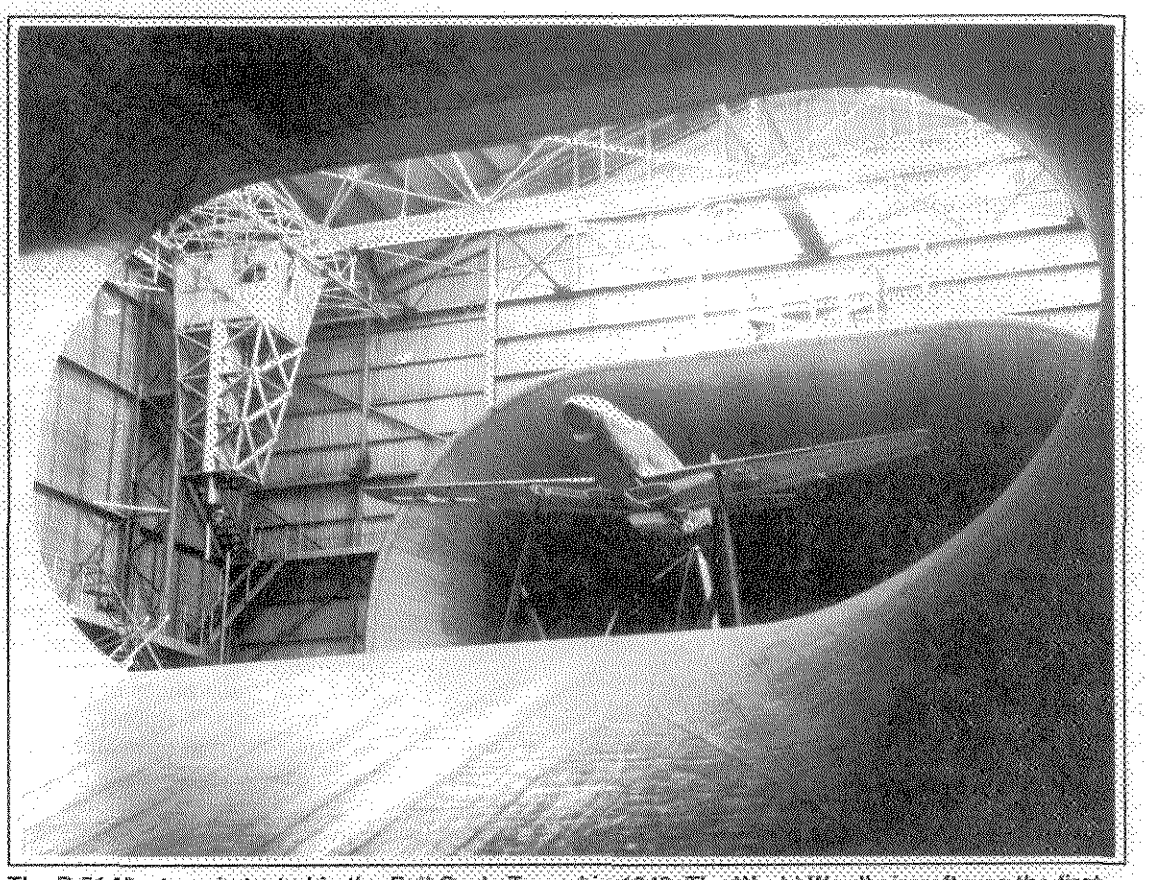
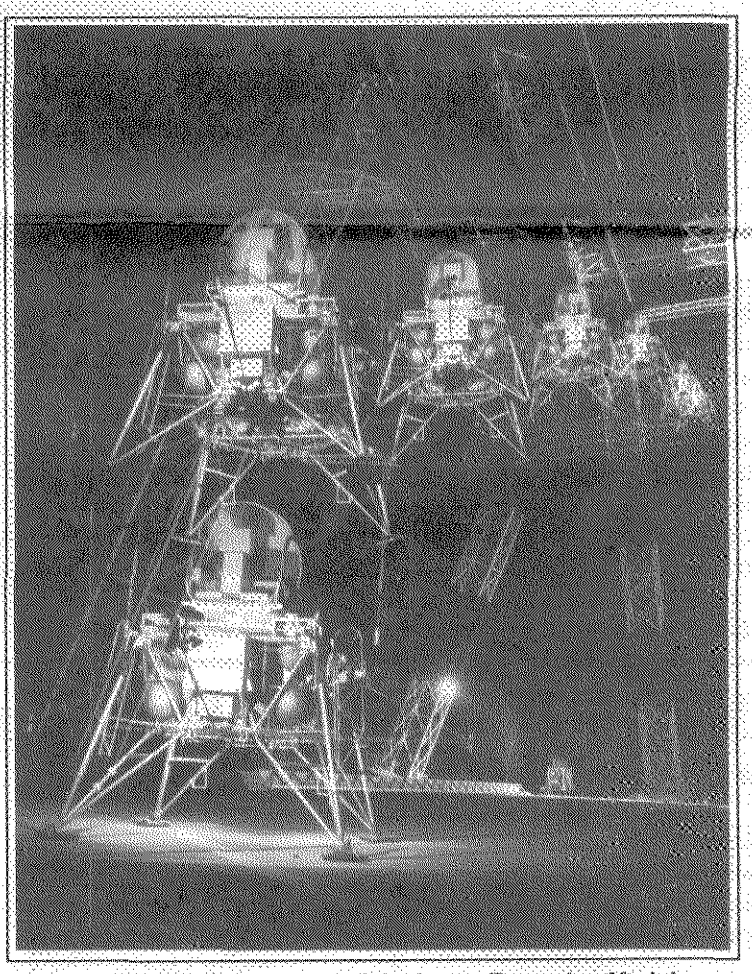


The P-51 Mustang is tested in the Full-Scale Tunnel in 1943. The World War II aircraft was the first to employ the NACA laminar-flow airfoil, which gave it very low drag.



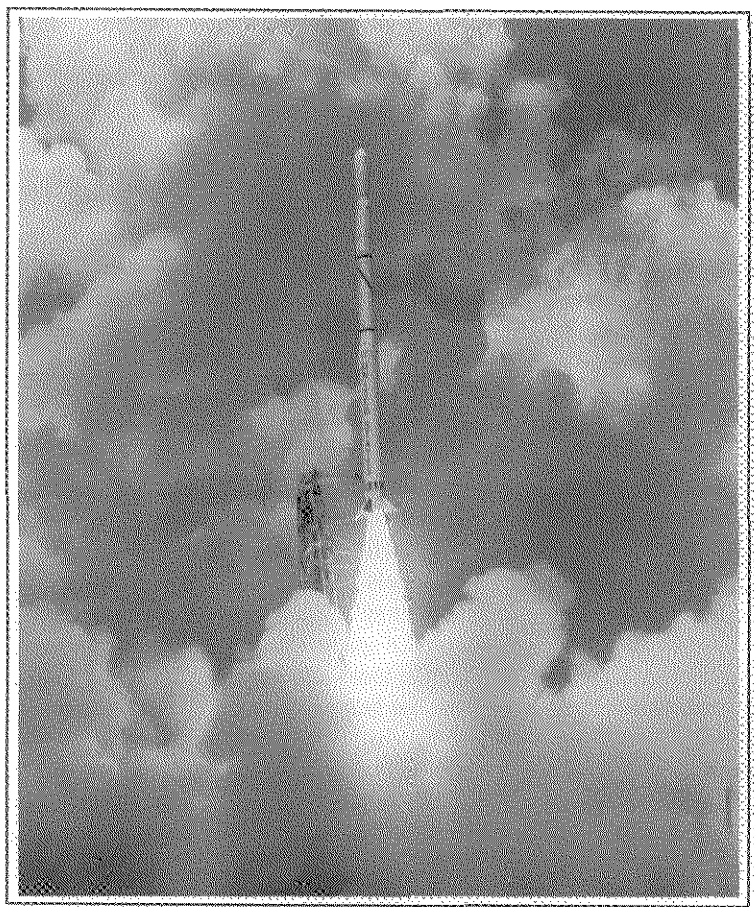
This multiple-exposure photo of the Lunar Excursion Module Simulator (LEMS) was taken at a nighttime session at Langley.

Project Mercury's Little Joe launch vehicle was conceived by Langley engineers Max Faget and Paul Purser.

The Original Seven astronauts who trained at Langley are, from left: Scott Carpenter, Gordon Cooper, John Glenn, Virgil Grissm, Walter Schirra, Alan Shepard and Donald Slayton.

Langley's Roots

75TH ANNIVERSARY ISSUE



A Scout vehicle is launched on August 10, 1965.

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nature of the Moon.

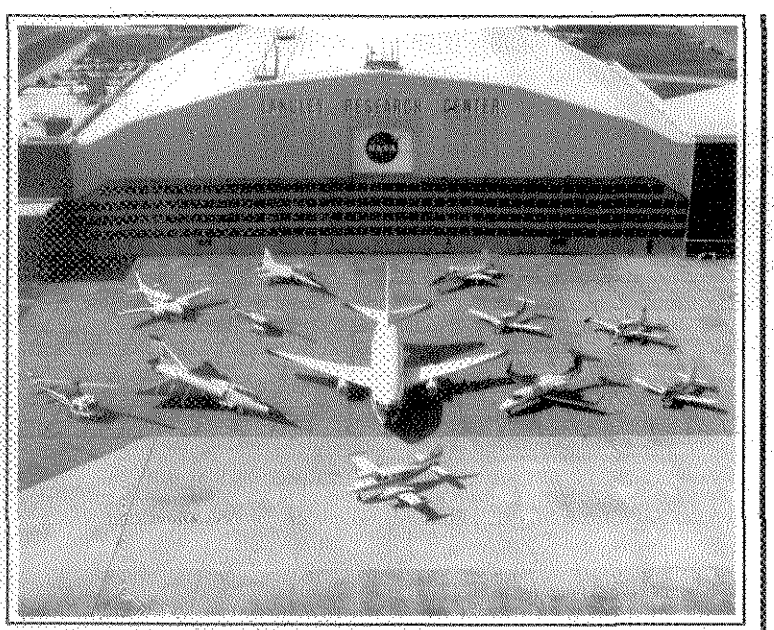
Early unmanned space projects involving considerable creative effort by Langley researchers included the Echo, Explorer, and PAGEOS satellites, all of which gave outstanding service as instruments for scientific research and global communications.

A solid-fuel rocket developed at the Center, the Scout, provided NASA with its lowest-cost, multipurpose booster. With it, a great number of precious payloads were launched into orbit. The first Scout was launched in July 1960.

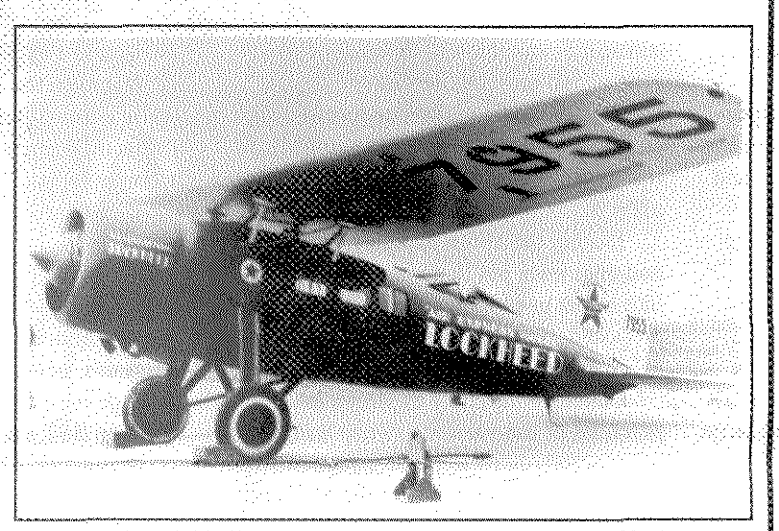
In the wake of the Apollo came Viking. In an effort that in many ways matched and even surpassed the magnitude and adventure of the lunar landing program, Langley helped to send two orbiters and two landers in the mid-1970s to the planet Mars. Although probes did not result in any definitive answer to the question of whether life exists (or has ever existed) on the mysterious red planet, Viking nonetheless provided a wealth of valuable scientific information.

In response to a growing concern in the late 1960s for protection of our environment, Langley researchers began to develop effective means by which to measure the Earth's oceans and continents, and detect the presence of dangerous pollutants. This effort in environmental space science quickly became a major research thrust at the Center. Its goal has been to preserve the Earth's precious ecological balance and prevent an environmental calamity that would have disastrous effects for the entire world. Today at Langley this critically important undertaking is part of what former NASA astronaut Sally Ride has called "Mission to Planet Earth."

An important contribution to this "mission" includes Langley's Halogen Occultation Experiment (HALOE), an atmospheric satellite deployed by the Space Shuttle in 1991. Its overall goal is to provide global-scale data on temperature, ozone, and other key trace gases needed to study and better understand the chemistry, dynamics and radiative processes of the middle atmosphere.



Langley's aircraft fleet poses in front of the hangar. The aircraft represent a variety of flight research conducted at Langley.



This Lockheed Air Express set a Los Angeles-to-New York nonstop record equipped with the revolutionary NACA cowling.

'Space planes'

Langley researchers had thought about "space planes" since the early 1950s. They had pioneered the concept of the boost glider and provided basic concepts for the development of the X-15, America's first hypersonic transatmospheric vehicle. So it was natural for them to become deeply involved in the development and testing of the space shuttle.

Even before it could be test flown in 1977 (its first orbital flight took place in 1981), the shuttle had to be put through thousands of hours of wind tunnel testing and other rigorous experiments. Much of this was done at Langley. Langley also was responsible for optimizing the design of the shuttle's thermal protection system, the unique arrangement of ceramic

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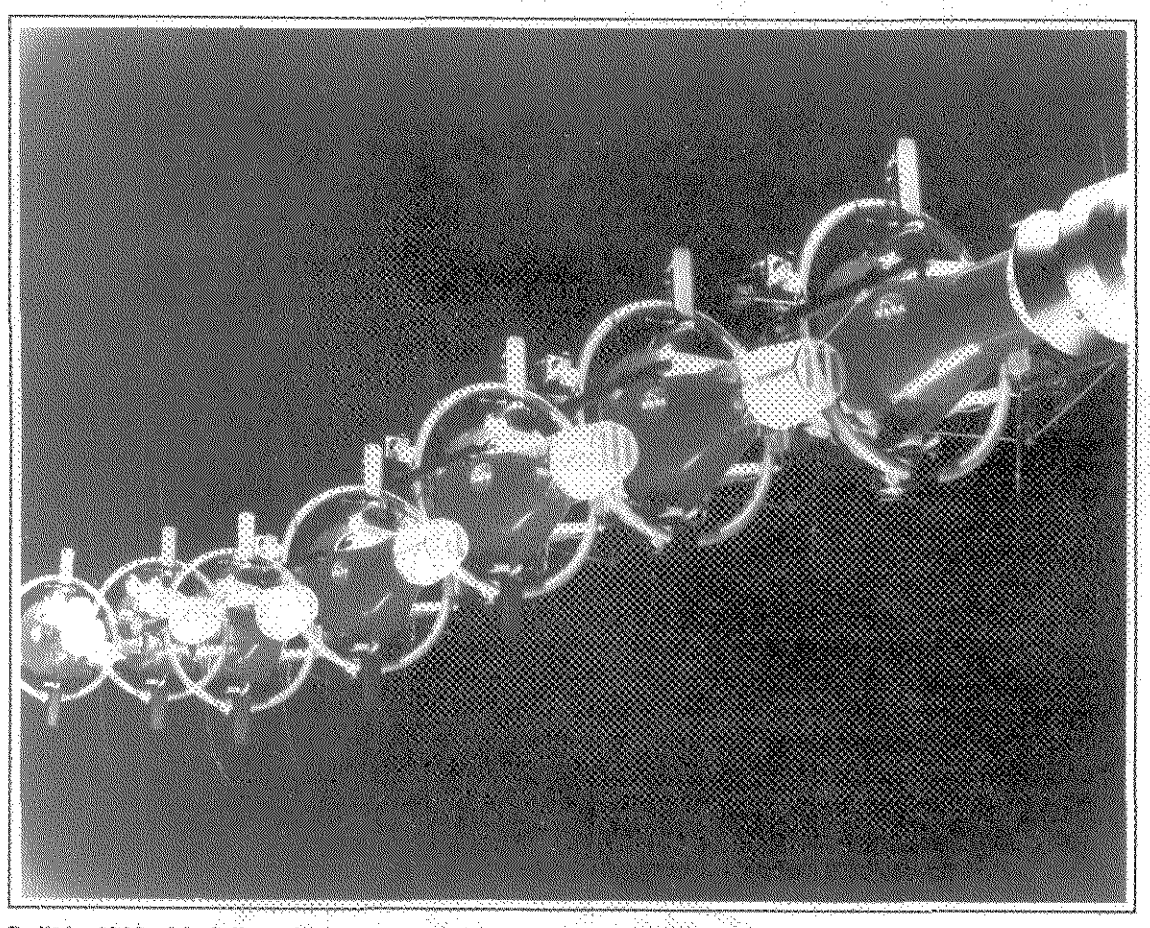


Built in 1963, this full-scale rendezvous and docking simulator was used at Langley by Gemini and Apollo astronauts to practice pilot-controlled techniques needed to link two vehicles in space.

CHRONOLOGY

1915: Creation of the National Advisory Committee for Aeronautics (NACA), Langley's first parent organization.

1917: Foundation of the NACA's Langley Memorial Aeronautical Laboratory (LMAL) and start of construction on original facilities.

1920: Formal dedication of LMAL; operation of first wind tunnel.

1948: Name shortened to Langley Aeronautical Laboratory (LAL).

1958: Dissolution of NACA and foundation of National Aeronautics and Space Administration (NASA); name changed to Langley Research Center.

Historic Landmarks

In 1985 the U.S. Department of Interior designated five Langley facilities as National Historic Landmarks. Each facility made a unique and outstanding historical contribution to American achievements in flight technology.

- Variable-Density Tunnel,1921.
- Full-Scale Tunnel, 1930.
- 8-Foot High-Speed Tunnel, 1935.
- Rendezvous Docking Simulator, 1963.
- Lunar Landing Research Facility, 1965.

Directors

In all of Langley history there have been only seven directors. Until 1948 this officer, Langley's top man, was known by the descriptive title, "Engineer in Charge."

- Leigh H. Griffith, 1922-1925.
- Henry J.E. Reid,1926-1960.
- Floyd L. Thompson,1960-1968.
- Edgar M. Cortright,1968-1975.
- Donald P. Hearth,1975-1985.
- Richard H. Petersen,1985-1991.
- Paul F. Holloway,1991-

Collier Trophies

Although NASA Langley has been honored to receive a number of national awards and international distinctions, over the years many have considered one award, the Robert J. Collier Trophy, to be the most prestigious.

Awarded annually for the greatest achievement in American aviation, the Collier Trophy has been awarded to Langley researchers on five occasions.

The trophy, first awarded in 1911, is named for Robert J. Collier, a prominent publisher, patriot, sportsman and aviator.

Langley's Collier Tropies were awarded in:

- 1929 for the low-drag engine cowling.
- 1946 for de-icing research.
- 1947 for supersonic flight research.
- 1951 for the slotted throat transonic wind tunnel.
- 1954 for the transonic area rule.

Langley's Roots

75TH ANNIVERSARY ISSUE

CONTINUED FROM PREVIOUS PAGE

tiles that protect the reusable vehicle from the intense heat of reentry.

To complement the shuttle system and provide assured manned access to space for the next generation of space programs, Langley has conceived the HL-20 lifting body as a candidate for the Personnel Launch System (PLS). This system was designed for the primary mission of changing the Space Station Freedom crews.

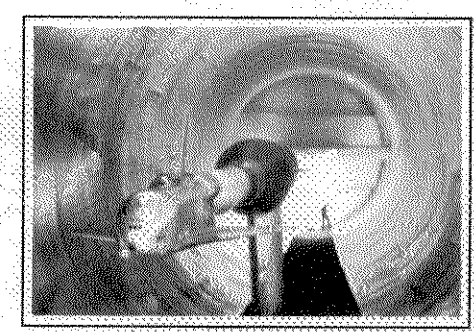
Visions of space stations orbiting the Earth had captured the imaginations of many Langley researchers as well. Long before plans for today's Space Station Freedom got under way, NASA scientists and engineers at the Center had understood the advantages of a manned laboratory in space for scientific experiments, for communications, for astronomical observation, for manufacturing, and as a relay base for lunar and planetary missions and many other purposes.

Excited by the thought of a multipurpose laboratory, they began to explore the problems of designing such a facility and operating it in Earth orbit.

This early brainstorming and testing has provided a solid basis for NASA's development of Space Station Freedom. Today Langley employees continue to investigate the technologies that will be necessary for the design and operation of the space station, as well as for other large space structures.

One such step was the deployment and retrieval of the Long Duration Exposure Facility (LDEF), which was conceived, designed and developed at Langley. The bus-sized satellite carried 57 space experiments to gather scientific data and to test the effects of long-term space exposure on spacecraft materials, components and systems. The wealth of information collected during its six-year journey will be invaluable for the design of future spacecraft.

With deep roots going back to the golden age of aviation, Langley never forgot that the first "A" in NASA stood for "aeronautics." Although its achievements in aeronautics were sometimes overlooked in favor of the glories and wonders of spaceflight, Langley not only maintained its historic position as a world leader in aeronautical research it actually built and improved upon it.



A shuttle model is tested in the 16-Foot Transonic Wind Tunnel at Langley.

During the 1960s Langley scientists and engineers put in a mammoth, Apollo-like effort in support of the government's proposed, but later cancelled, construction of a national supersonic transport or SST.

Concurrently, they explored the potential of the variable-sweep wing and other aerodynamically and structurally novel wing shapes both for the SST and for advanced performance military aircraft.

Noteworthy breakthroughs in aeronautics have included the improvement of vertical takeoff and landing (VTOL) capabilities; the design of the 'supercritical wing' for more effective flight at high subsonic speeds; the enhancement of laminar flow in the boundary layer of a wing; and the refinement of energy-efficient engines and fuels.

All of these research efforts—with the exception of SST, which was cancelled by the U.S. Congress in 1971—continued to yield valuable results into the 1970s and 1980s.

But even the supersonic work did not really come to an end. From the early 1970s on, Langley managed to keep alive a low-level but determined program to develop the technologies required for the effective flight of a supersonic transport. By the mid-1980s, there was a renewed interest at the Center in the development of an American SST. According to estimates, new technologies, including those developed at NASA Langley, now make an SST a much better bet.

In the 1970s Langley also kept the dream of hypersonic flight alive. This effort, which has important links back to studies made at Langley as early as the 1950s, now finds application in the National Aero-Space Plane (NASP). The focus of this program, in which Langley is the lead center for its development, is to create the technology base for an entirely new family of aerospace vehicles capable of flying at high Mach numbers to the edges of the atmosphere and beyond. Under this program a single-stage-to-orbit flight vehicle, known as the X-30, might be flying by the end of this century.

From the Curtiss Jenny to the Beech Starship and X-29, from the drone of propellers to the roar of rockets and jets, from a wind tunnel generating a maximum airflow speed of 90 miles per hour to tunnels generating Mach 8, from flight a few hundred feet above the ground to flight in space, Langley has been incubating the ideas and hatching the technology that has helped Americans take off and fly. Today, penetrating minds continue to pursue that mission at Langley. Tomorrow? Well, no one can be sure what tomorrow will bring. But based on what we know about Langley's record, one can rest assured that, where the progress of flight is concerned, Langley will be exploring all the possibilities.

The author, Dr. James R. Hansen, is Langley's historian and a history professor at Auburn University in Alabama. He wrote Engineer in Charge: An Institutional History of Langley Aeronautical Laboratory, 1917-1958.

Researcher News

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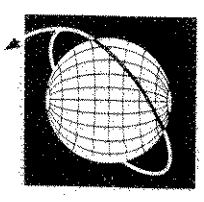
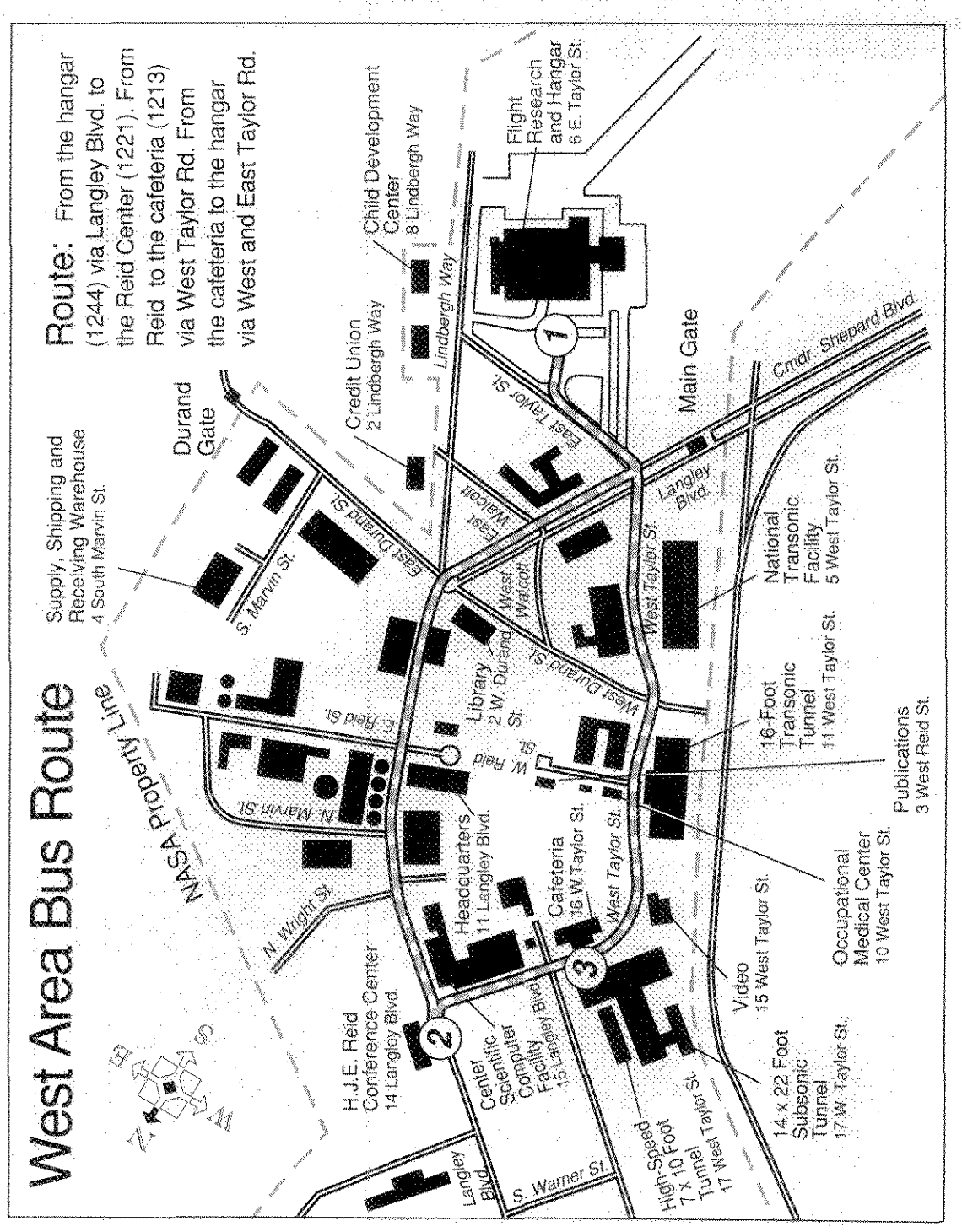




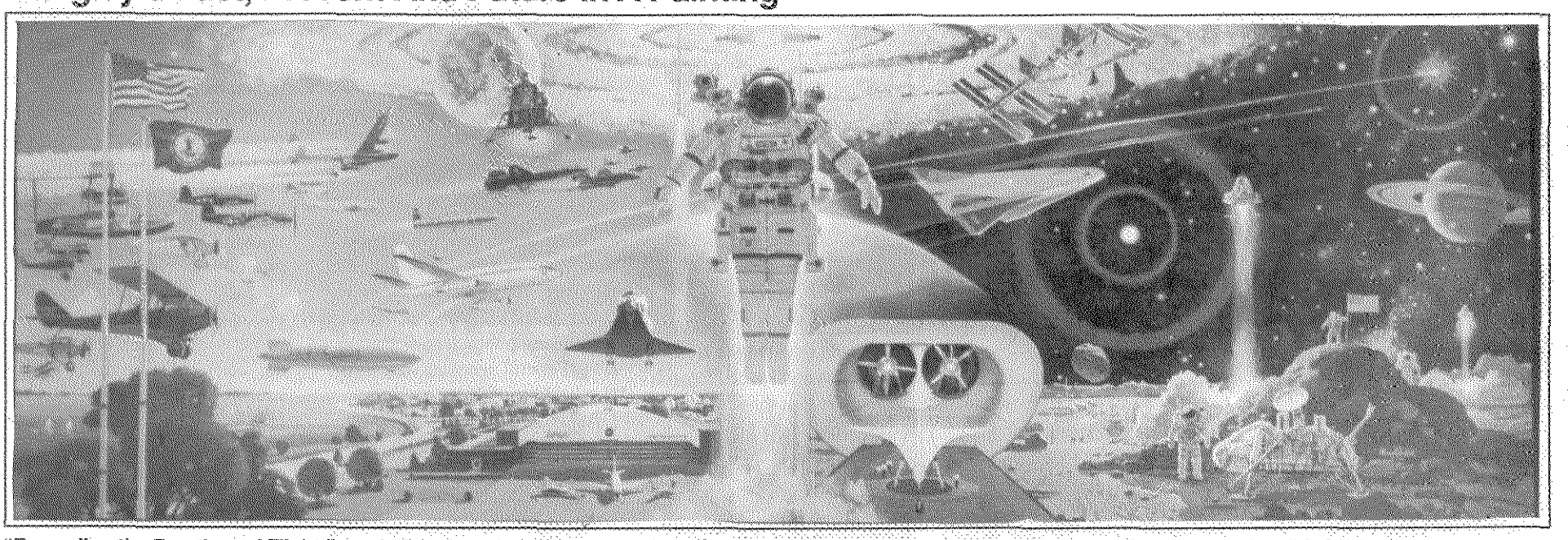
1917 1992 75 Years NACA NASA Langley Research Center

Researcher News

Bi-weekly Employee and Contractor Publication

Volume 6 ❖ Issue 13 ❖ July 17, 1992

Langley's Past, Present And Future In A Painting



"Expanding the Frontiers of Flight," a painting about Langley Research Center by space artist Robert McCall, will be unveiled today at the 75th Anniversary ceremony. The artist painted it at his Paradise Valley, Az., studio and will participate in the unveiling. Ceremony activities are scheduled to begin at 2 p.m. in the hangar.

LARSS, ASEE Participants Spend Time Researching And Learning

BY WHITNEY BARTLETT

Langley has a total of 91 Langley Aerospace Research Summer Scholars (LARSS) and 38 American Society for Engineering Education (ASEE) Summer Faculty Fellows this summer.

More than half of the LARSS and ASEE participants are working in the Offices of Director for Flight Systems, Structures and Space.

Dr. W. Steven Gray is one of the four ASEE educators in the Office of the Director for Flight Systems. He is working with Donald Soloway, aerospace technologist for robotics research in the Automation Technology Branch.

"We are applying my research experience in nonlinear dynamical systems to determine how a neural network can be used reliably in a control application," Gray said.

Gray has been a professor at Drexel University in Philadelphia for three years. The Saint Davids, Penn. resident received his doctorate from Georgia Institute of Technology in Atlanta.

This is Soloway's first time working with an educator in the ASEE program. His research interests include the fundamentals of neural networks for controls. He came to Langley in 1980 as a co-op and became a NASA employee in 1982.

Jose L. Maldonado-Salgado is one of the 13 LARSS students in Flight Systems. He is working under Robert L. Jones, aerospace technologist for the Information Processing Technology Branch.

Maldonado-Salgado's research includes the investigation through literature searches and experimenting the behavior of data dependent on algorithms executed in Algorithm to Architecture Mapping Model - based systems.

"Jose's experimental results are intended to lead to theories about the statistical behavior of the performance metrics which are characterized by random variables," Jones said.

Maldonado-Salgado has a bachelor of science degree in computer engineering from the University of Puerto Rico. "I'm not used to the cool air here," he said when temperatures were in the 70's. He will attend George Washington University to earn a a master's degree in aeronautics and controls.

Jones has worked at Langley for two years. He has several duties including, aiding in the development and implementation of operating systems and the characterization of their performance on various multicomputer architectures.

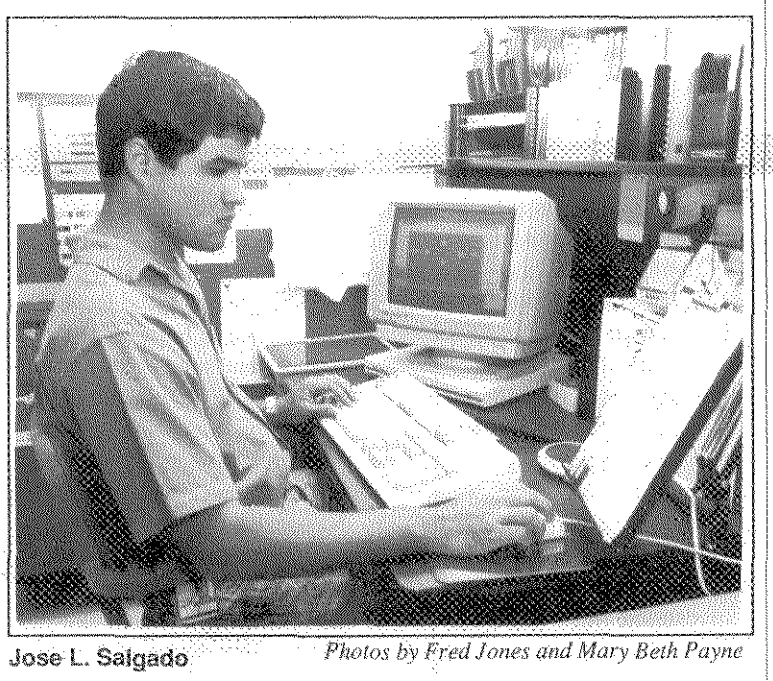
Andrea L. Schmidt is a LARSS student who is doing research in the Office of Director for Space. There are 18 students in this directorate.

"I am studying how the crew aboard the Mars Transport Vehicle (MTV) will be effected by radiation," Schmidt said. The MTV's first scheduled mission is in 2014.

Schmidt's mentor is Lisa C. Simonsen, an aerospace engineer in the Vehicle Analysis Branch. Simonsen's research includes human factors engineering and radiation shielding.

A rising senior at Kansas State University, she is majoring in mechanical engineering.

Dr. Fazley B. Malik is one of the five ASEE educators in the Space Directorate. He is a physics professor at Southern Illinois University at Carbondale. Malik is researching how the instruments and crew are affected by the radiation that penetrates the shields on spacecraft.



Jose L. Salgado

Photos by Fred Jones and Mary Beth Payne

Henry E. Lippard

Andrea L. Schmidt

Dr. Lawrence W. Townsend, senior research scientist of the High Energy Science Branch, is working with Malik. This is Townsend's third time working with an ASEE Summer Faculty Fellow. His research includes the study of galastic cosmic rays and radiation in space.

A native of Bankura, India, Malik received his doctorate in physics with professor Heisenberg at the University of Gottingen in Germany.

The Office of Director for Structures has 23 LARSS and 12 ASEE participants, more than the any other directorate.

Dr. David Dillard is one of the ASEE participants. He is working with Dr. Terry L. St. Clair and Dr. W. Steve Johnson. They are researching high temperature adhesives for

Please see **PROGRAM** *page 3*

Manuel Lujan

Secretary Of The Interior To Speak At Ceremony

Secretary of the Interior Manuel Lujan will be the speaker for Langley's 75th Anniversary ceremony at 2 p.m. today in the hangar. The ceremony begins a weekend of events.

The secretary has a long history of involvement in space and aeronautic research. Prior to serving on President Bush's Cabinet, Lujan was a member of the House of Representatives for more than 20 years. He was Ranking Republican on the Science, Space and Technology Committee in the 1980s. The committee is responsible for authorizing NASA's programs. In addition, he was a member of the President's Council on Space and received the National Science Foundation Distinguished Service Award.

The Department of Interior has jurisdiction over all Federal lands including National Historic Landmarks, five of which are at Langley.

Following the secretary's address, activities commemorating Langley's 75th Anniver-

Please see **CEREMONY** *page 3*

News Briefs

AROUND THE AGENCY

Agreement Signed - NASA Administrator Daniel Goldin signed an agreement this month between NASA and the International Technology Underwriters to explore ways the insurance industry can assist in financing human and robotic satellite rescue and repair missions. INTEC will look at options for providing incentives for the construction of commercial satellites which make them easier to rescue and repair. Administrator Goldin said "we need to consider new approaches to salvaging satellites that will encourage the further commercialization of space."

INTEC Chairman James Barrett said "the insurance industry has had a great tradition of salvage in the maritime field and similar concepts must be explored for the benefit of continued expansion of commercial and civil space enterprise.

Brandenstein Retires - Astronaut office chief Daniel Brandenstein announced he will retire from the U.S. Navy and leave NASA Oct. 1 to pursue other interests. Brandenstein flew the Endeavour on its maiden flight and had previously flown on three other shuttle missions.

Winner of "Salute to Langley" Essay Contest Tells Center's History And Every Day Life Involvment

The following essay is by Timothy O. Jarrett, winner of the "Salute to Langley" $1,000 scholarship, sponsored by Langley Federal Credit Union.

Many accuse the Western corporate "profit mentality" its emphasis on "bottom-line" thinking, of neglecting basic research as an unrewarding and unprofitable expenditure. The history of Langley Research Center, from its days as the National Advisory Committee for Aeronautics' Langley Memorial Field to its present status as "mother" and example to the network of National Aeronautics and Space Administration centers around the country, is a powerful rebuttal of such thinking. From its start, Langley has proved that basic research is fundamentally necessary to both scientific progress and to our progress as a nation in a community of nations.

Langley's beginning as a test center for planes involved in the war effort, and its subsequent growth to authority in the field of civilian aeronautics, has touched the life of every modern citizen of the world. Langley's military role has profoundly shaped our history through the development of the aerial machines that made victory over Fascism and military imperialism possible in the Second World War. Without Langley tests of the planes that would fill the skies in those desperate years, the fliers would have faced greater threats from their own machines than they did from their airborne opponents. The same research helped to make possible the growth of the civil air industry, as increasingly safer planes made travel by air not only possible but attractive - an early "spin-off," if you will, from the research of the then nascent NACA at Langley.

In fact there is really no such thing as a "spin-off" because there can never be research that can fulfill only one purpose, have only one result. In the usual sense of the term, Aunt Margie's slide of Greece, Chuck Yeager's military career, and the Marshall Plan can all be said to be social and political "spin-offs" of the military aeronautics research conducted at Langley Memorial Field during the early days of its existence.

Alternatively, they can be viewed for what they truly are: the long-term results from the investment of the time, talents and skills of the great minds of their time in basic research at Langley and other sites like her around the world.

We often hear the moniker "spin-off" applied to such products as Velcro and liquid crystal digital watches; those who would devalue the results of aeronautics and space research often claim that these examples are the only fruit of such research. This is, of course, far from the truth. Many who drive new cars experience more results of aerospace research: lighter, stronger alloys and plastics, in whose construction Langley has had a hand.

Finally, the greatest realization of our age - that we are a global people and need a global understanding of our problems to solve them - has been powerfully impressed on the collective unconscious by image of Earth sent back by astronauts. It will not be forgotten by her historians that Langley trained the first seven astronauts.

The scientific and technical importance of Langley Research Center continue into this, its 75th year. With research in space structures, already implemented into the design of Space Station *Freedom*, and the National Aero-Space Plane, designed to bring our world even closer together, Langley has set the stage for the next century and for the next act of human history. We may be unable to predict the course of the drama, but this one is sure: without Langley's commitment to basic fundamental research, the show would not go on.

Follow Procedures, Save Time When Using Purchase Request

There are several tips to keep in mind that will save time when purchasing items.

- Software: Indicate the disk media size, 5.25" or 3.5" on the purchase request.
- Recommended Sources: Furnish the telephone numbers/ fax numbers of the recommended vendors.
- Imprest Fund: Remember the maximum amount is $300 and receipt and inspection reports must be prepared by personnel in building 1206.
- Loan Agreement: Processed by Joyce Bartlett, Management Support Division, not Acquisition Division.
- Shipping Documents: Must reflect the contract/purchase order/purchase request number. A shipping control number must be obtained from Building 1206 prior to Aquistion Division (AD) approval.
- Electronic PRs': Supporting Documentation: Send to Sandra Ray, Mail Stop 138.

Do not list contractor employees as the technical monitor or the requestor on the purchase request.

- Reprints: When completing forms for reprints of journal articles, conference papers, etc., please indicate the shipping and billing addresses as NASA LaRC, TWS Bldg. 1206, P.O. number, Hampton, Va., 23665.

Bill to NASA LaRC, Mail Stop 175, Commercials Accounts, Hampton, Va., 23665.

Reprints need to be shipped into Building 1206 so that a receipt and inspection report can be completed and forwarded to FMD. This form indicates delivery had been made and, therefore, the company will be paid promptly. After reprints are received, the lot shipment is forwarded to Marvin Whitney, Mail Stop 180, for internal distribution. Questions call be addressed to Lisa Harvey at 42444.

- *Aviation Week* readers: Recently the telemarketing department for *Aviation Week* has called researchers to renew subscriptions. Please do not renew over the phone. This causes confusion in trying to credit the account. Instead attach your renewal notice to the purchase request and forward through normal channels to Lisa Harvey, AD. If your request is electronic, send form to Mail Stop 138 marked for attachment upon receipt.

Mass Transit Subsidies Ready

The Federal Government cannot, as a general rule, subsidize a federal employee's cost of commuting to or from work. However, Section 626(a), Title IV-General Provisions of the Treasury, Postal Service and General Government Appropriations Act of 1991 (Public Law 101-509) provides an exception. It states that Federal agencies may participate in any program established by state or local government that encourages employees to use public transportation, including the sale of discounted transit passes or other incentives that reduce the cost for using public transportation.

Federal agencies may thus subsidize, with appropriated funds, a portion of the public mass transportation costs of approved commuting employees. The monthly subsidy, to be paid this fiscal year by the employees's organization with Fund Source two travel dollars, will not exceed the current Internal Revenue Service limit on non-taxable fringe benefits of $21 per month.

Transportation services that are eligible to participate in the subsidy program must be operated by a state or local government and accept a government purchase order as payment since direct payment to an employee is prohibited.

Locally, only the services of Pentran and Handi-Ride meet the criteria for inclusion in the program.

LaRC employees utilizing public transportation for commuting to the Center who are interested in applying for this subsidy should contact Charlie Harris, Mail Stop 485, extension 43440, for an application or more information about the program.

By statute, the provisions of the subsidy program will expire Dec. 31, 1993.

Travel With Medical Clearance

NASA civil service employees scheduled for international travel should be medically cleared for travel through the Center Occupational Health Clinic. Medical clearance for international travel may, at the discretion of the Center Medical Director, require a pretravel physical examination or a review of the employees's medical chart. In any event, explicit medical clearance prior to international travel is necessary to ensure the health and safety of the employee. Extension of international pretravel examinations and medical clearance processes to contractor employees will be accomplished if the contractor employee is traveling at the direction of Langley Research Center.

The Center Medical Director many deny NASA civil service employees international travel medical clearance for overt health problems that could be significantly exacerbated by travel or for significant health problems that would result in inadequate monitoring and/or treatment if travel were allowed.

The clinic will provide NASA civil service and contractor employees scheduled for international travel, with up-to-date health education information, including any special medical travel precautions for the employee's specific geographic destination(s). This information will be communicated to employees in conjuction with their pretravel medical examination.

Employees on TDY-overseas travel, is so designated, will be covered by the State Department Medical Program as available. To designate these employees, their orders should state "Authorized while on this duty to participate in the State Department Medical Program in accordance with NASA Agency Occupational Health Standard/ OM 1845.2." This will be honored by State Department medical personnel abroad. If services are not available, the employee will obtain and pay for the necessary outpatient treatment required and be reimbursed through their own personal health insurance.

OBITUARY

Norman Woodrow Reynolds, 78, died May 20.

The Lakewood, Pa., native retired in 1970 from Langley in mechanical maintenance having worked with 25 years of service.

LETTERS

Carolyn Lehluc writes: Thanks to all who attended or participated in my retirement party and for the gifts. It was a wonderful party which I shall remember always, especially when I use my gifts. While I am enjoying my retirement, I do miss all my friends and associates at Langley.

News Researcher

The **Researcher News**, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23665-5225, is published every other Friday in the interest of all Langley staff and retirees. Submit contributions to the Editor, Mail Stop 115, telephone 864-6126. Articles are due at noon the Tuesday following the date of this issue.

Managing Editor ..... Jean Drummond Clough

Editor ..... Michael Finneran

Photojournalist ..... Carol Petrachenko

Photographer ..... Fred Jones

The privilege of advertising in this publication is restricted to the employees and retirees of the Langley Research Center. Articles advertised here must be offered without regard to race, color, religion, sex or national origin.

All materials are subject to editing.

PROGRAM:

Continued from Page 1

polymers to be used on the High Speed Civil Transport (HSCT).

"The HSCT is expected to reach a maximum speed between Mach 2.0 and 2.4, which could see a temperature as high as 400 degrees Fahrenheit," Dillard said.

St. Clair is head of the Polymaterials Branch and has worked with several ASEE educators. He has been at Langley since 1972.

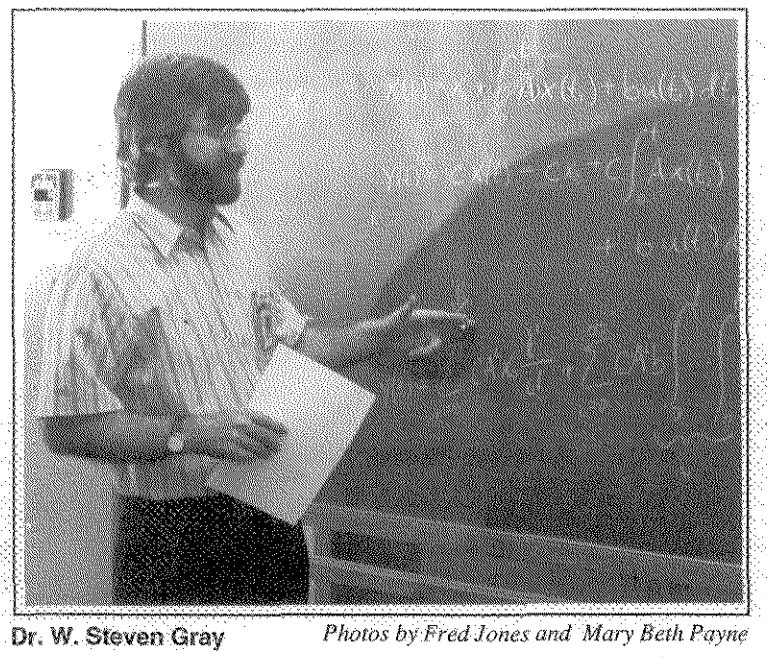
Johnson is the senior scientist for the Mechanics of Materials Branch. He has been a NASA employee since 1979 and is a team leader for the National Aero-Space Plane program.

Henry E. Lippard is one of the 23 LARSS students in the Office of Structures. He is working with Dr. Stephen J. Hales, an employee of Analytical Services and Materials, Inc. The two are studying the formation of superplastics of aluminum-lithium alloys for use on National Launch Systems.

Lippard's mentor is John A. Wagner, materials engineer for the Metallic Materials Branch. Wagner has been a NASA employee since 1983. He is responsible for coordinating activities for the innovative processing of advanced materials.

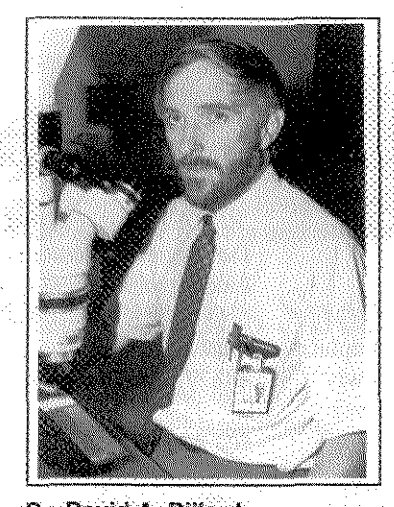
"This is my third summer as a LARSS student. I have informed other students at my university about the LARSS program, and now there are five from N. C. State in this directorate," Lippard said.

Having earned his bachelor's degree in materials sciences from North Carolina State University, Lippard plans to enter graduate school this fall at Northwestern University in Illinois.



Dr. W. Steven Gray

Photos by Fred Jones and Mary Beth Payne



Dr. David A. Dillard

Dr. Fazley B. Malik

1992 D League Champions

Left to right, front row: Drew Wallio, Woody Whitlow, Dale Bess, Creig Humes, Bobby Fox. Left to right, second row: John Wallace, Matt Hooker, Larry Bement, Greg Nowicki, Don Humes, Larry Hoffman, Jeff Seaton.

Red Team Member

The name of a Red Team member was omitted from an article in the June 19 issue of the Researcher News.

Virginia Cordle, of the Research and Development Programs Branch, Programs and Resources Division, is a member of the Aeronautics Red Team led by Langley Director for Space W. Ray Hook.

Miller Receives AIAA Ground Test Award

The head of the Experimental Hypersonics Branch, Space Systems Division, is the recipient of the 1992 American Institute of Aeronautics and Astronautics (AIAA) Ground Testing Award.

Charles G. Miller III received the award on July 7 during the awards luncheon of the 17th Ground Testing Conference at the Opryland Hotel, in Nashville, Tennessee.

The AIAA Ground Testing Award recognizes outstanding achievement in the development or effective utilization of technology, procedures, facilities, or ground testing associated with aeronautics and astronautics.

Miller has made significant contributions in the development and innovative utilization of hypersonic/hypervelocity wind tunnels. His research at Langley helped to advance wind tunnel facilities and testing techniques.

CEREMONY:

Continued from Page 1

sary will include aircraft and technical displays, a reception, a special stamp cancellation, the unveiling of the anniversary painting and "Langley Days" at the Virginia Air and Space Center.

Ceremony Highlights

At 2 p.m. today in the hangar, space artist Robert McCall will participate in the unveiling of his painting, "Expanding the Frontiers of Flight."

In addition, the 75th Anniversary video, "Pictures in the Mind," will be shown. The video features the machines of flight and how they have defined the 20th Century. Viewers will meet the Langley men and women who have dreamed the dreams of flight and made them real.

And don't miss the static aircraft display, also at the hangar, spanning seven decades—from a World War I Curtiss Jenny replica to the futuristic Beech Starship.

After the ceremony, attendees are invited help form a large "75" at the hangar that will be photographed. Following this, the Langley Federal Credit Union will host a reception behind the hangar.

Book Available To Retirees

Langley's 75th Anniversary commemorative book, *Winds of Change*, will be sent to all civil service employees in late July. Retirees who would like a copy should contact Cathy Schauer, anniversary chairman, at Mail Stop 154 or call (804) 864-3314.

The book is filled with historic photos and interviews with researchers who have dedicated themselves to the future of air and space flight.

EVENT SCHEDULE

Friday, July 17

•Noon to 4 p.m. Stamp cancellation at the hangar sponsored by the Hampton Post Office.

• 12:30 to 4:30 p.m. Aircraft and technical displays at the hangar.

•1 to 4:30 p.m. Buses will run a loop to the hangar from the cafeteria and H.J.E. Reid Conference Center.

•2 p.m. 75th Anniversary ceremony to begin in the hangar (open to civil service, contractor employees and NASA retirees).

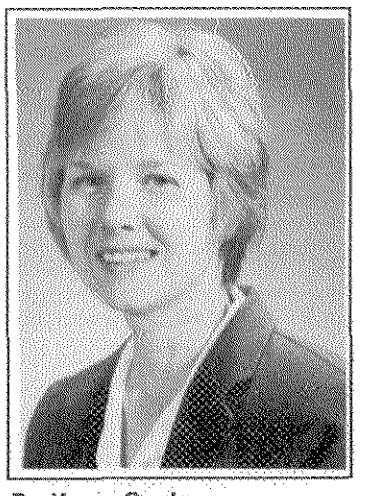
Saturday, July 18

•10 a.m. to 7 p.m. "Langley Days" at the Virginia Air and Space Center (free to civil service, retirees and immediate families with NASA badge).

•7:30 p.m. Wine-and-cheese reception at the Virginia Air and Space Center ($6 with reply form sent in mail).

Sunday, July 19

•Noon to 7 p.m. "Langley Days" at the Virginia Air and Space Center (free to employees, retirees, contractors and immediate families with badge.)



Dr. Karen Credeur

Credeur Returns To Harvard

Dr. Karen Credeur, the deputy head of the Office of External Affairs, and head of the Office of Public Services, will be participating in the Harvard University Mid-Career Masters in Public Administration Program.

She will leave July 30 for the 10-month development program intended for mid-career professionals who are motivated to become leaders in their fields. The program will emphasize effective operations within legal, political and civil service constraints.

This is a return visit to Harvard for Credeur. She earned her doctorate at the university.

Credeur began her NASA career in June 1964. She had a number of special assignments, including the position of Headquarters program manager of the then proposed Numerical Aerodynamic Simulator supercomputer for Ames Research Center.

In 1987, Credeur was technical assistant to Langley's Center Director. Before her current position she served as Langley's Research Requirements and Program Advocacy Manager for facilities projects.

Her present responsibilties include a wide range of activities relating to NASA's relationship with the external environment. She works with Congress, universities, state and governments, industry and the public.

Credeur has published eight technical papers. She received several awards including Agency Group Achievement and Technical Brief awards.

She was also elected associate fellow of the American Institute of Aeronautics and Astronautics. Credeur chaired the Hampton Roads Section in 1989-1990. During her tenure, it was selected as the nation's most outstanding section with more than 500 members.

Credeur earned her bachelor's degree and master's degree, both in math, at the College of William and Mary.

Happenings

APICULTURE CLUB - (Honeybunch) will meet at 7 p.m. July 20 in the Executive Dining Room of building 1213. The program will include a report of the events from the Virginia State Beekeepers Association meeting held in Harrisonburg. All interested persons are welcome. Call Henk at 47226.

SKI TRIP - Plan to join the fun and excitement during a "once in a lifetime" skiing trip to Sun Valley, Idaho, Jan. 9-16, as part of a NASA wide one week package deal. . For more information and reseravations, call Tom Yager, ski trip coordinator, at 41304 or 874-6819.

GOLF SHOES FOR SALE - Men's size 9, Ray Floyd golf shoes, worn twice, $15, Call 595-4593 between 6 p.m.-9 p.m. or 9 a.m.-9 p.m. Saturdays.

NATIONAL SPACE SOCIETY - The Langley Chapter will host its second annual picnic and model rocket launch July 26 at 11 a.m. on the picnic grounds of the H.J.E. Reid Conference Center. All interested children and adults are invited to attend. Co-sponsored by the Virginia Air and Space Center and the Dismal Swamp National Space Society.

DOGS FOR SALE - German shepherd, three months old, black/tan, female, pure-breed without papers, mother on premises. Also AKC registered Samoyed two-year-old, not good with small children, excellent health, excellent guard dog, $200. 877-2186.

TOASTMASTERS - meets the second and fourth Wednesday of each month from 11:30 a.m. to 1 p.m. The next meeting is July 22 in Building 1222.

ROOMMATE WANTED - Nonsmoking female seeking the same, 2 bedrooms, 2½-bath townhouse in Va. Beach/ Haygood, near Chic's Beach $360 includes utilities. Call 456-0493 nights.

LAWNMOWER FOR SALE -2 yr. old Craftsman, 20 inch cut, rear bagger, 4.0 hp engine, clean, excellent condition, $100. Call 851-2994

FOR RENT - Scotland Lakes, off Fox Hill Road, brick house with two bedrooms, one study/bedroom, two baths, utility room, living room with fireplace, dining room and kitchen. $700 a month, starting September. Call 851-4667.

HOUSE FOR RENT - Beautiful and clean, 2-story, 3 bedrooms. Close to W&M and shopping. Nice neighborhood and schools. $900 a month with yearly lease. No pets or smokers, call 220-8870 or (410) 450-6687.

RENTAL COTTAGE - Kill Devil Hills, sleeps 9, two baths, fully equipped, 1 block from beach, three-day minimum, $60/day or $385 per week, Call Anne at 868-6427.

GEORGE WASHINGTON UNIVERSITY - School of Engineering and Applied Science at NASA Langley Research Center plans to offer a new set of courses leading to the Master of Engineering Management degree beginning in the fall semester 1992. Interviews at NASA Langley Research Center will be arranged Aug. 13- Aug. 14. Interested persons should call the GW-NASA Office at 864-1982.

HOUSE FOR SALE: Owner transferring. Cozy 3-bedroom rancher, 1 bath, living room, den with fireplace and wood stove, ceiling fans throughout house, newly tiled laundry room, new central air and gas heat, over 1,300 square feet of living space, a 12 x 16 workshop with electricity, fenced back yard, and excellent schools and location. Reduced to $73,500, which is below city appraisal. Owner will assist with closing costs. Call 850-4176.

FEDERALLY EMPLOYED WOMEN - Langley Chapter, will hold its monthly meeting July 29 from 11:30 a.m.-12:30 p.m. at Langley Air Force Base NCO Club, Chapman Lounge. Guests welcome. Point of contact is Patsy Campbell at ext. 43291.

AEROBICS: New classes added! Free and open to all employees and contractors. Noontime Energizer, Monday, Wednesday and Friday, from 11 to 11:45 a.m. And for you early morning risers, don't forget Body Dynamics, a low-impact and interval training class held every Monday, Wednesday and Friday beginning at 6:15 a.m. Open to employees and contractors. Classes are held in the LAA gym. Call ext. 46387 for more information.

LOW-IMPACT AND BENCH AEROBICS classes are held Tuesdays and Thursdays, 5 to 6 p.m., LAA gym. Cost is $12 per month or $6 per month if attending only one day a week. The classes are open to employees, contractors and their families. Call ext. 42295 for more information.

SATURDAY AEROBICS, low-impact and bench, in the LAA gym. Classes open to NASA employees, contractors and families, $6 a month or $2 per class, 9:30 to 10:30 a.m. Call ext. 42295 for more information.

KINDERGARTEN PROGRAM: The Langley Child Development Center is registering children for its new kindergarten program. A full-day program will be provided by a certified kindergarten teacher. Applicants must be five years old by October 31, 1992. Call ext. 44827 for more information.

GO 40 MPH USING BANANAS AS FUEL - Kestrel 200 SCi bikycle, red, 58cm, Dura-Ace STI 8-spd. Very fast, stiff, light monocoque composite frame with EMS fork, Motor not included. $2695. Call 874-3247, leave message or talk to M. Motor directly.

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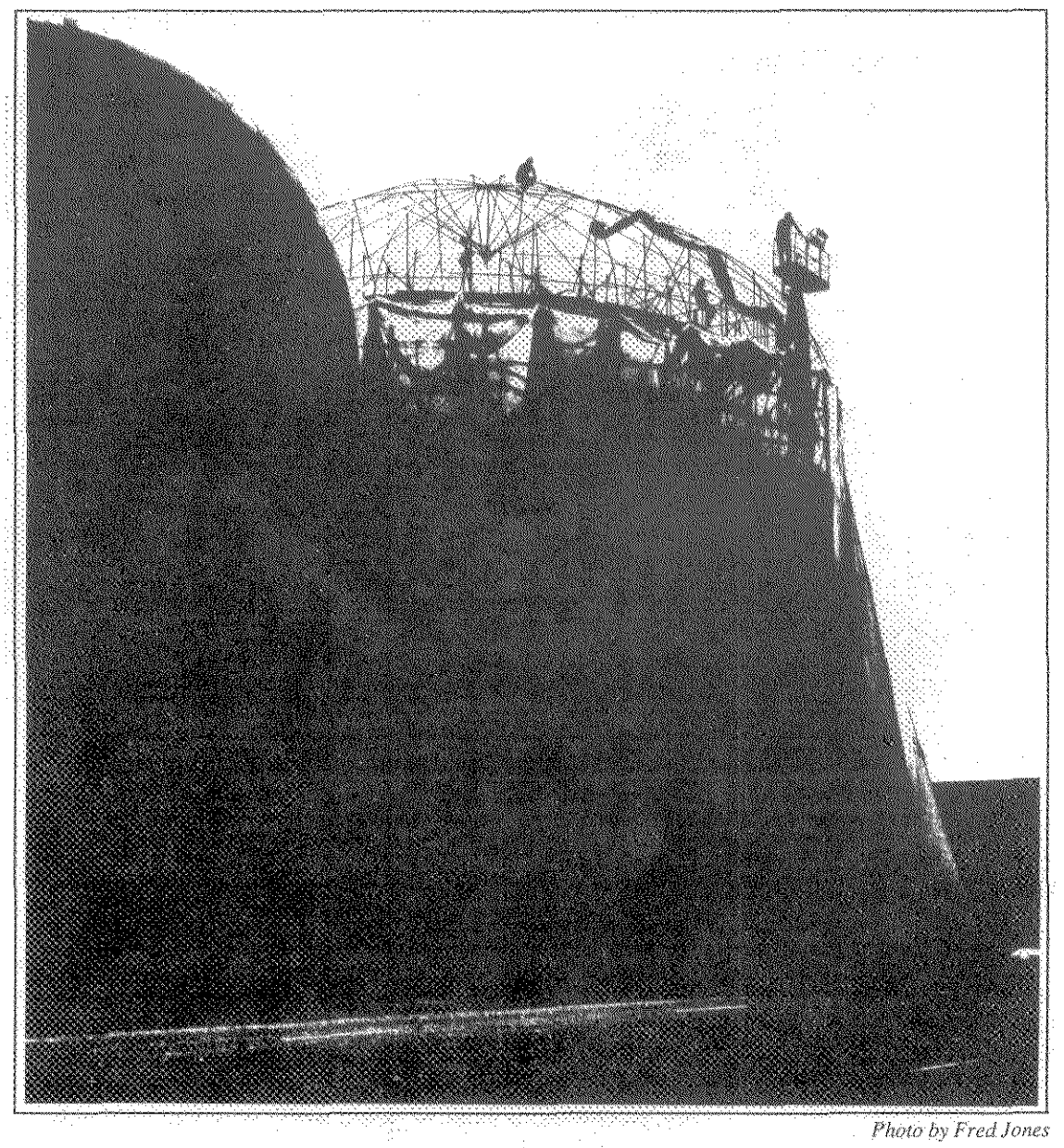


Photo by Fred Jones

Employees of EG&G tackle the four 60-foot spheres. The workers are blasting the sphers and painting them. New procedures in re-painting the spheres utilizes an environmental protection system that developers say is unique in the country. Workers must wear protective clothing and the steel grit used to remove the paint is reclaimed and reused.

1917 1992 75 Years NACA NASA Langley Research Center

News Researcher

Bi-weekly Employee and Contractor Publication

Volume 6 ❖ Issue 14 ❖ July 31, 1992

Parking Your Car On Center While On Leave Or Travel

Langley employees often park their personal vehicles on-site during official travel or when participating in LAA-sponsored trips.

The Center is happy to provide this convenience for those who are concerned about the theft and vandalism hazards of parking off-site.

Parking at Langley is safer—though not without some risk, because security personnel cannot be everywhere all the time.

Some difficulties also arise from time to time, such as when parking areas require painting or repair.

If the personal preference is to park on-site:

- Park in a low-traffic area to alleviate already crowded parking conditions.
- Lock your vehicle and leave a set of keys with a co-worker or with another on-site person.
- Provide written or oral notification to the Security Services Branch, ext. 43418, advising of travel dates, vehicle location and identity of an on-site person serving as vehicle custodian in case the vehicle needs to be moved or personal contact made.

Another parking option exists outside the Main Gate. This option may be more desirable that on-site parking because the proximity to the Main Gate, which is manned 24 hours a day, seven days per week, may deter theft or vandalism.

If Main Gate parking areas are to be used, the request should be coordinated with the Security Services Branch, ext. 43420, or the security dispatcher, ext. 45500.

Celebrating 75 Years

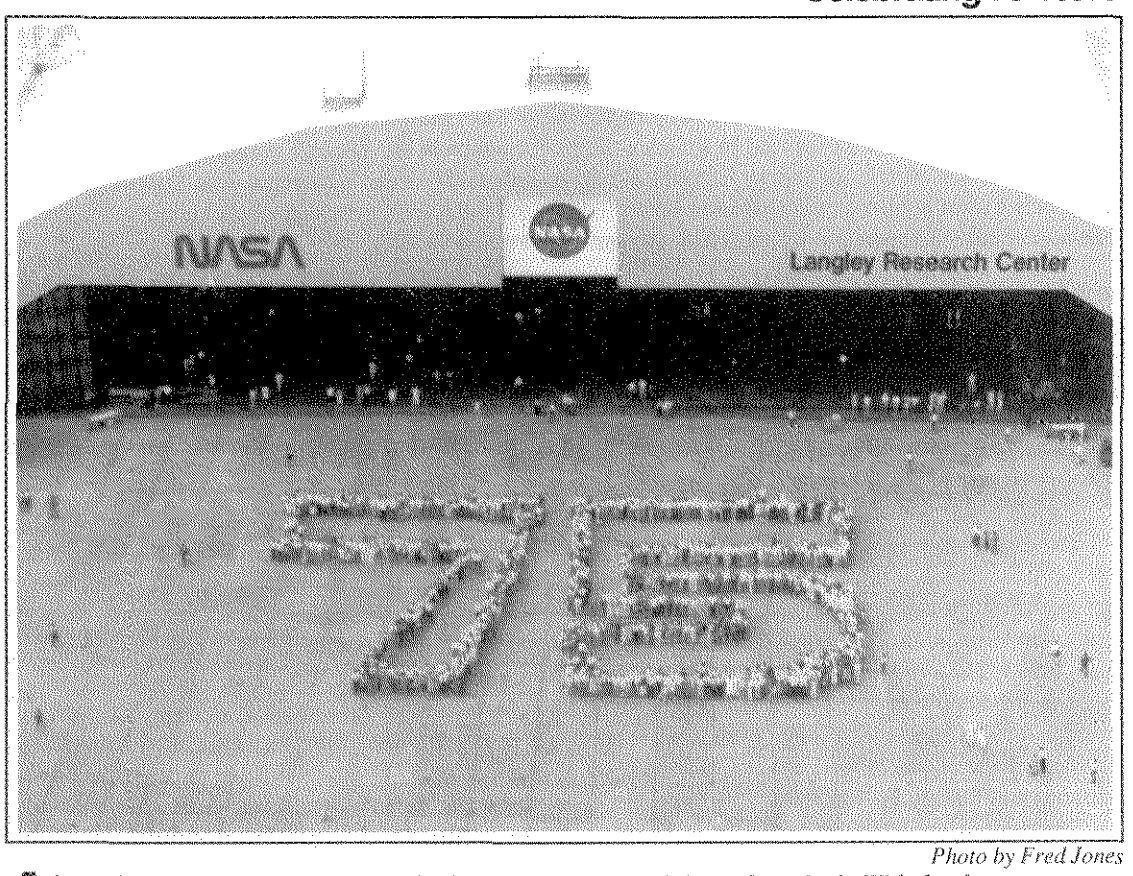


Photo by Fred Jones

About 1,600 people form a 75 on the hangar apron to celebrate Langley's 75th Anniversary on July 17. Employees, contractors, retirees and their families marked the Center's birthday with a weekend of festivities that began on Friday with a ceremony in the hangar. A centerspread in this issue records the events with photos and the remarks of speakers.

United Pilot Will Discuss Crash Landing

Capt. Alfred C. Haynes

On July 19, 1989, at 3:16 p.m., United 232, a DC-10, experienced engine failure while flying at 37,000 feet. The uncontained disintegration of an engine destroyed all three hydraulic systems, rendering the aircraft uncontrollable.

During two presentations on the Peninsula on Monday, August 17, Capt. Alfred C. Haynes will give a first-hand report of the flight. At 2 p.m., he will speak to Langley employees, contractors and retirees at a colloquium in the H.J.E. Reid Conference Center, 11 Langley Boulevard.

That evening at 7:30, he will give the same lecture at the Virginia Air and Space Center (VASC) as part of the Sigma Series. The Sigma Series is a series of free public lectures sponsored by VASC, the Daily

Please see **SPEAKER,** *Page 2*

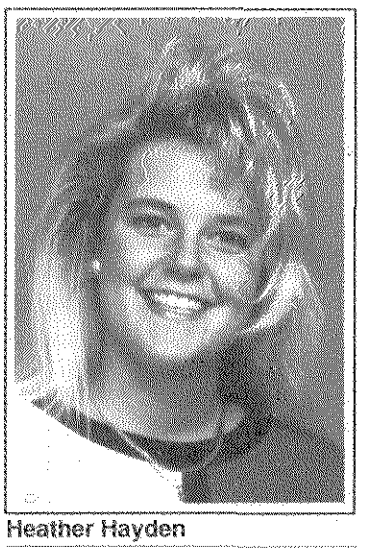
Scholars And Fellows Learn About Langley

LARSS, ASEE Participants At Work In All Directorates

BY WHITNEY BARTLETT

There are 33 Langley Aerospace Research Summer Scholars (LARSS) and 16 American Society for Engineering Education (ASEE) fellows working in the Offices of the Directorates for Systems Engineering & Operations, Management Operations, Aeronautics and Electronics.

The head of the Aeronautical Engineering Section, Allen C. Royal in the Systems Engineering & Operations Directorate, is acting as a mentor for LARSS participant Heather F. Hayden. The rising senior is majoring in aerospace engineering at Virginia Polytechnic Institute and State University. Hayden worked in the same section last summer with Royal.



Heather Hayden

One of the projects Hayden is working on is the OV-10A Wake-Vortex Flight Project. This project involves the detection of an aircraft's vortex.

"NASA researchers are trying to find a way smaller aircraft can identify the vortex of a larger airplane so they will not get pulled into it," said Royal.

Booms will be attached to the wings of the OV-10A, which will aid in the experimentation of vortex detection. "I am working on an instrumentation pallet, which will read the OV-10A test results," said Hayden.

Royal came to Langley in December of 1987. Two years ago he assumed the role as a section head.

David Johnson is an ASEE fellow working in the Electronic Systems Branch with the group leader for the imaging and Computer Aided Design and Drafting (CADD) projects, W. Brad Ball.

Ball was Johnson's ASEE associate last summer. "This summer we're looking at advanced information systems interfacing-especially virtual reality, and identifying applications across Langley that will service a demonstration project," Johnson said. His man-utilization project from last summer is currently in systems development for the Facilities Engineering Division.

Please see **FELLOWS,** *Page 6*

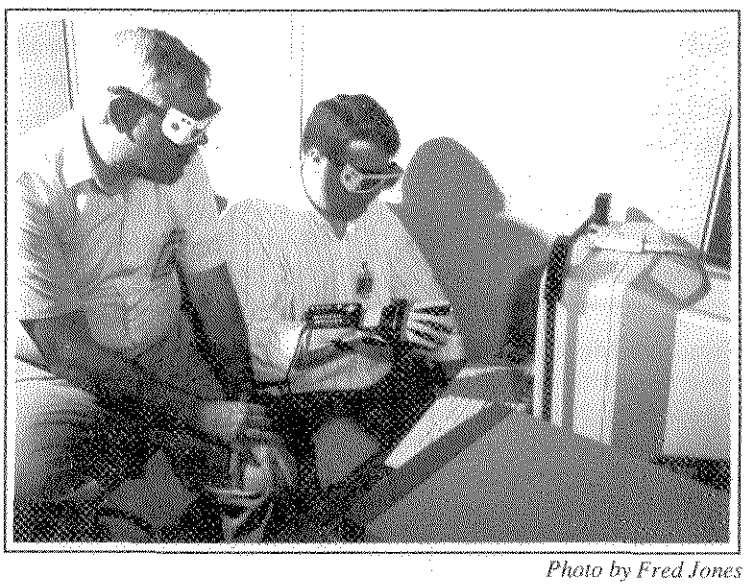


Photo by Fred Jones

David Johnson, left, and Robert Gage are working with virtual reality systems. Johnson is an ASEE fellow.

Commission Names Langley Clean Business Of Quarter

Langley has been selected Clean Business of the Quarter by the Hampton Clean City Commission's Business, Industry, and Governmental Agencies Committee.

"NASA Langley Research Center was selected on the basis of its exceptional appearance," said Leslie Bowie, executive coordinator of the commission. "It is truly an asset to the City of Hampton."

The purpose of the Hampton Clean City Commission is to improve and enhance the physical environment of Hampton through beautification, solid waste management education, coastal awareness activities and litter abatement programs and to encourage community participation in these areas.

The Business, Industry and Governmental Agencies Committee is among seven established to carry out programs that enhance the environmental quality of life in Hampton. They are staffed by volunteers.

The clean business sign will be on display at the Center through September.

News Briefs

AROUND THE AGENCY

GOLDIN TO ATTEND OSHKOSH — Administrator Daniel S. Goldin will take part in activities at this year's Experimental Aircraft Association (EAA) Fly-In convention at Oshkosh, Wis.—the nation's largest airshow. The annual event will run from July 31 through August 6 at Wittman Regional Airport. On August 1, Goldin will hold a news conference at the NASA Pavilion. He also will speak about NASA's aeronautical priorities at an evening program honoring the 75th Anniversary of Langley.

WIND, WAVES SUBJECT OF STUDY — Wallops Island Flight Facility and the Australian Commonwealth Scientific and Industrial Research Organization have completed a joint project to measure and observe the ocean winds and wave heights and wind-wave interaction off the coast of Australia. The aircraft measurements are expected to advance the performance of the Topex/Poseidon mission's ability to understand the transfer of energy from the Earth's winds to the ocean's currents. The Topex/Poseidon mission is a joint NASA-French effort to better understand the role of oceans in global climate change. The spacecraft is expected to be launched August 10 in French Guiana.

RUSSIAN PACT SIGNED — A $60,000 contract has been signed with the Russians to evaluate the feasibility of employing their Deep Space Communications Network for the retrieval of Galileo mission data in the event the Galileo high gain antenna remains inoperable. Repair of the earthquake damage to the Goldstone 70-meter antenna was to have been done by July 22.

Papers Sought For Mechanisms Symposium

The 27th Aerospace Mechanisms Symposium will be held at Ames Research Center in Mountain View, Calif., May 12 to 14, 1993. The symposium is co-sponsored by eight NASA centers, the California Institute of Technology and Lockheed Missiles and Space Co., Inc.

The symposium is devoted to the exchange of information on aerospace mechanisms hardware development. Papers pertaining to aerospace mechanisms are solicited for this meeting and should describe test-qualified or flight-experienced mechanisms. Papers should contain design details, requirements; unique criteria; particular problems of fabrication, test and flight performance; and other factors of interest to engineers developing flight hardware. Mechanisms used on related test and support equipment are also welcome. Authors are encouraged to discuss anomalies during design, development and operation.

Papers for presentation and publication are selected on the basis of abstracts of 500 to 900 words. The abstract should include the description and principal results of investigation, the status and extent of the work and two figures. Two copies of the abstract should be submitted no later that September 10 to Dr. Charles W. Coale, P.O. Box 3504, Orgn. 77-50, Bldg. 551, Lockheed Missiles & Space Co., Sunnyvale, Calif., 94088-3504.

The final paper will be due December 15. For more information, contact Stuart Loewenthal, LMSC, P.O. Box 3504, O/77-30, B/551, Sunnyvale, Calif., 94088-3504. His phone number is (408) 742-2491. Or, contact Ronald Mancini, NASA ARC, Mail Stop 213-4, Moffett Field, Calif., 94035-4000. His phone number is (415) 604-6319.

75th Book Available; Stamps Still Being Cancelled; Lost And Found

Langley's 75th Anniversary book, *Winds of Change*, was to have been sent to all civil service employees in late July. Retirees who would like a copy should contact Cathy Schauer, (804) 864-3314, the Alumni Association, Mail Stop 154.

Postal cancellations are still available like the ones done on July 17 if they go to the main Hampton post office. This opportunity expires 30 days from July 17. If items are then mailed with that cancellation, the post office will re-cancel on top with the current date.

Several items were lost or found in the hangar during the anniversary ceremony July 17:

Lost: Men's designer nonprescription sunglasses. Call Bob Schulman, (202) 453-8315. **Found:** Men's prescription "Charmant" bifocal sunglasses in burgundy case. Call ext. 46126. **Found:** Navy blue suit coat. Call Rolf Duerr, 865-0637.

Red Cross Goal Exceeded In Drives

The American Red Cross, in conjunction with the Office of Occupational Health Services, collected 1,881 units of blood in 1991. The goal of 300 units per visit was exceeded in each of the six scheduled drives.

Since December of 1949, 50,352 units of blood have been collected at Langley.

Every year, at the American Red Cross Awards Banquet, Langley receives Outstanding Support Awards from the Tidewater Blood Services Region.

Workplace Accessibility Expo Set For Langley

The Langley Workplace Accessibility Expo will take place August 18 and 19 at the Norfolk Airport Hilton from 9 a.m. to 4:30 p.m.

Sponsored by the Department of the Navy and the Office of Personnel Management, these free workshops will highlight workplace technology for workers with disabilities.

See technology developed at NASA for persons with disabilities. A new light-weight wheel chair, capable of being lifted by one hand, will be exhibited. Videos, and technology by many companies such as computers that talk, telephones that type and the latest in ramps and work stations are among the exhibits.

All federal, state and local government employees in Hampton Roads and all Community Service Organizations that work with persons with disabilities are invited.

SPEAKER

Continued from Page 1

Press and NASA.

Haynes' lecture, "Flight 232: The Sioux City Crash Landing," will focus on the incident and how his crew, assisted by a DC-10 instructor pilot who was a passenger, guided the airplane to a crash landing at the Sioux City, Iowa, airport. Of the 285 passengers and 11 crew members on board, 174 passengers and 10 crew members survived.

Haynes attended Texas A&M University. He began his flying career as a naval aviator and joined United as a flight engineer in 1956. In 1963 he was promoted to co-pilot and served in that capacity flying DC-6, Boeing 727 and DC-10 aircraft until his promotion to captain in 1985. Haynes flew Boeing 727s for 18 months before transferring to the DC-10, which he flew until his retirement in August 1991, accumulating over 27,000 hours of flight time.

Employees Receive Tech Brief Awards For Service

The following Langley employees received a NASA Tech Brief Award.

The works will be published in the monthly publication NASA Tech Briefs. The journal, distributed nationwide to over 200,000 subscribers, stimulates technology transfer by disseminating information on new developments stemming from aerospace research.

Maria V. Mitchum for LATDYN - Program of Simulations of Large Angle Transient Dynamics of Flexible and Rigid Structures.

Purnell Hopson Jr. for Multi-Element Thin Hot-Film Sensors on Polyimide Film.

Robert J. Swain, John D. Buckley and Robert L. Fox for Toroid Joining Gun for Fitting and Coupling.

Kyong B. Lim for Robust Eignsystem Assignment for Flexible Structures

Harry F. Benz for Optical Backplane Interconnection

Ricky W. Butler for The Fault-Tree Complier.

Timothy E. Hepner and **James F. Meyers** for Measurement of Complex Flow Fields Using A Three-Component Laser Velocimeter.

David B. Rhodes and Stephen B. Jones for Schlieren System for Flow Studies in Round Glass Pipes.

A. Don Scott Jr. , Lisa C. Simonsen, John E. Nealy and John B. Hall Jr. for A Lunar Habitat Configuration Derived From A National Space Transportation System External Tank.

Richard A. Thompson and Roop N. Gupta for Schlieren System for Codes for Evaluating Thermodynamic Properties, Transport Properties and Equilibrium Constants of an 11-Species Air Model.

Robert C. Costen for Schlieren System for Flow Studies in Round Glass Pipes.

Ja H. Lee for Far-Field Pattern of A One-Megawatt Combined Laser Beam.

William T. Freeman Jr. for Reusable Lightweight Cryogenic Liquid Rocket Propellant Tank With Replaceable Impermeable Liner.

Ruth H. Pater and Norman J. Johnston for Langley Research Center-RP41: A Tough, High-Performance Composite Matrix.

Ruth H. Pater for Langley Research Center-RP49: A Tough High-Performance Simultaneous Semi-Interpenetrating Polymer Network.

Stephen J. Scotti for SOL-Sizing Optimization Language Complier.

James L. Roger Jr. for DEMAID- A Design Managers's Aid For Intelligent Decomposition.

James W. Sawyer for Analytical and Experimental Results on Coated and Uncoated Stiffended Carbon-Carbon Compression Panels.

Shelia A. T. Long and Edward R Long Jr. for Spectroscopic Comparison of Effect of Electron Radiation on Mechanical Properties of Two Polyimides.

Jaroslaw S. Sobieski for Approximate Simulation Model for Analysis and Optimization in Engineering System Design.

Karen E. Jackson for Scaling Effects in the Static Large Deflection Response of Graphite-Epoxy Composite Beams.

Paul H. Hergenrother for Methyl-Substituted Polyimides Containing Carbonyl and Ether Connecting Groups.

Terence S. Abbott for Engine Health Monitoring System and Display.

Patrick G. Murphy for Efficient Computation of Parameter Confidence Intervals.

Ernest S. Armstrong for FREQ - Multivariable Frequency Domain Singular Value Analysis Package (Double Precision, Complete), FREQ - Multivariable Frequency Domain Singular Value Analysis Package (Double Precision, Not Including LINPACK and EISPACK Modules), FREQ - Multivariable Frequency Domain Singular Value Analysis Package (Singular Precision, Complete) and FREQ - Multivariable Frequency Domain Singular Value Analysis Package (Single Precision, Not Including LINPACK and EISPACKModules.

Melvin C. Gilreath for Almond Test Body.

IN MEMORIAM

J. Wayne Simonton, 53, died Wednesday, July 8. He retired in 1985 as an engineer after 28 years of service.

News Researcher

The Researcher News, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23665-5225, is published every other Friday in the interest of all Langley staff and retirees. Submit contributions to the Editor, Mail Stop 115, telephone 864-6126. Articles are due at noon the Tuesday following the date of this issue.

Managing Editor ..... Jean Drummond Clough

Editor ..... Michael Finneran

Photojournalist ..... Carol Petrachenko

Photographer ..... Fred Jones

The privilege of advertising in this publication is restricted to the employees and retirees of the Langley Research Center. Articles advertised here must be offered without regard to race, color, religion, sex or national origin.

All materials are subject to editing.

Dear Abby: Why Are Men So Pig-Headed?

BY RAMKI KRISHNAN

IN PERSON

I was reading Dear Abby the other day, and was struck by this letter from a woman complaining that on a vacation, "we were completely lost, but my husband refused to ask directions from all the nice gentlemen on the street. Why are men so pig-headed?"

Men, as a rule, hardly ever are stubborn (let me pause a few seconds for all the derisive female snorts to subside). In this case, the woman's husband knew (we men know these things) that the gentlemen on the street were hopelessly lost too, and what do you get when you ask lost people for directions ? Rude answers. This also explains how the denizens of New York City got their reputation for rudeness. Recent research indicates that on an average day, nine out of 10 people in NYC get lost. So, when you ask any New Yorker what he does for a living, he is only being candid when he answers "Get Lost."

Men may get lost, but the realization that we have strayed from our path hits us faster than it does women. When women drive, unusual landscaping, roadside garage sales and colorful overgrown weeds are among the things that take precedence over exit signs and speed limits. On a recent road trip, my wife detoured off an interstate into miles of unpaved country roads just to get a closer look at hundreds of yellow dandelions that carpeted the untended yard of a New Jersey homemaker.

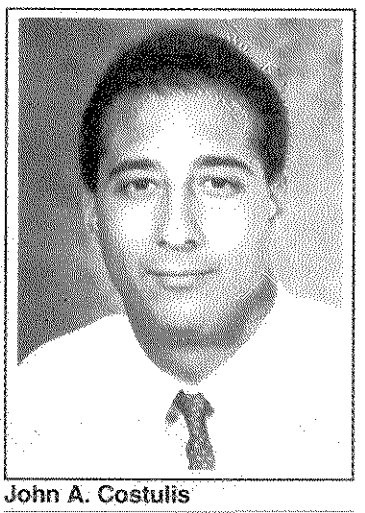
Guys, on the other hand, don't get distracted unless extremely unusual events occur along the way. The magnitude of such a event would have to equal, say, sighting a 1956 Thunderbird rolling along or spying Julia Roberts sashaying by in a miniskirt. Since a '56 Thunderbird is rare, and Ms. Roberts rarer, on most interstates, we men stay pretty much focused on driving.

Women also have unusual landmarks that they use for navigation. I once called up a friend of mine to ask for directions to his house and his wife answered the phone. She asked me to take the exit with the blooming roadside veronicas, turn left at the pink azaleas and drive till I hit a cluster of white dogwoods. Then, I was to bear right and look for a grey rancher with lavender daffodils. Unable to decipher those floral directions, I turned to my wife. She knitted her brows, pondered for a few seconds and remarked that lavender was indeed an inspired choice for a gray house.

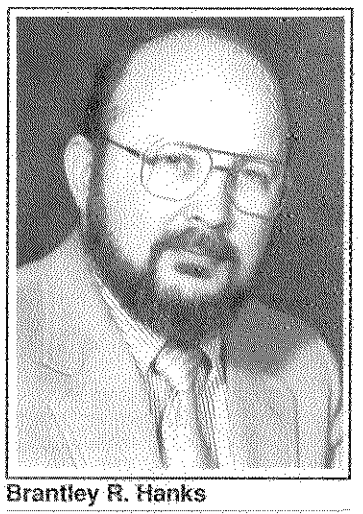
Members of the male gender might hand you cryptic directions but you can always decode them. A friend of mine, who is single and eats out a lot, uses fast-food restaurants as signposts. Call him up for directions and you might slobber all over the phone, overcome with an urge to munch some french fries, but you will get to your destination because fast-food restaurants, like weeds, are indestructible.

Getting back to the woman's question regarding her husband—could it be possible she was calling him a male chauvinist ? Is it possible all men think they are smarter than women? And why is my wife moving her head up and down most emphatically?

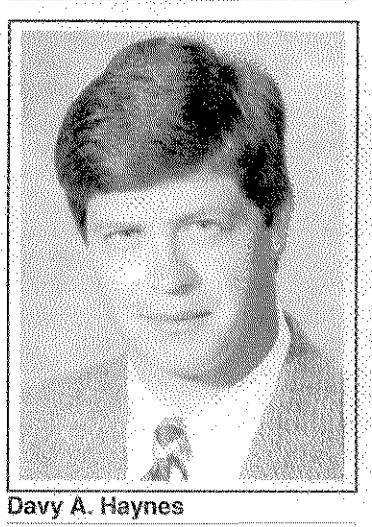
Krishnan is a research scientist in the Theoretical Flow Physics Branch. He works for Analytical Services & Materials Inc.



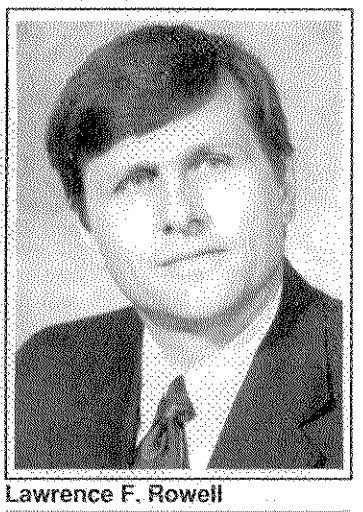
John A. Costulis



Brantley R. Hanks



Davy A. Haynes



Lawrence F. Rowell

Four Langley Employees Chosen For PDP Program

Four Langley employees have been selected to participate in NASA's Professional Development Program (PDP) for the period August 1 to July 31, 1993.

John A. Costulis, Brantley R. Hanks, Davy A. Haynes, and Lawrence F. Rowell are the PDP selectees.

Costulis, aerospace engineer in the Experiments Systems Section, will be working with Dr. Raymond Roberts in the Earth Observing System (EOS) Program Office at Headquarters. He will serve as manager of the technical, programmatic and budgetary aspects of a selected number of instruments identified for flight on the EOS AM platform.

He has worked at Langley for seven years and presently provides technical supervision and direction for the mechanical, structural, and thermal development spaceflight systems and instruments.

Hanks, head of the Spacecraft Dynamics Branch, will be working with Samuel Venneri at Headquarters. He will be responsible for replanning Space Base RNT for NASA research and technology.

Presently, Hanks plans, directs and coordinates the research, technology and science activities of his branch. He has been employed at Langley for 29 years.

Haynes is an aerospace technologist in the Space Exploration Initiative Office. He will be evaluating the Russian Space Capsule (SOYUZ-TM) with John O'Neill in the Missions Operations Directorate at Johnson Space Center.

His work at Langley includes the mission, systems, and operations analysis related to the space exploration initiative architectures.

Haynes began his Langley career in 1986 in the Supersonic/Hypersonic Aerodynamics Branch.

Rowell will be in the Office of Space Systems Development, Advanced Programs Division at Headquarters. He will be working with Peter Ahlf, head of the Systems Engineering and Analysis Office (SE&A). His job will be to assist in defining the SE&A team makeup and then to establish the necessary inter-center working arrangements so that studies can be conducted effectively.

Rowell's present duties include assisting the branch head in defining, directing, and advocating programs to assess future space transportation mission requirements, technology needs, and concept alternatives.

Rowell began working at Langley in 1969 in the Analysis and Computation Division.

The PDP is designed to broaden knowledge and understanding of NASA as an agency through a combination of developmental work experiences and formal training.

The selected personnel were required to have had 5 to 10 years of NASA experience.

Hubbard Honored For Book Editing

Langley's Harvey H. Hubbard has been honored for his extraordinary service to the aeroacoustics community as editor of the two-volume reference work Aeroacoustics of Flight Vehicles: Theory and Practice (NASA RP-1258, WRDC TR-90-3052).

The project was sponsored by the AIAA Aeroacoustics Technical Committee.

At a June 24 luncheon, Michael K. Myers, technical committee chairman, presented Hubbard with a plaque expressing the gratitude of the committee for his consistent excellence and untiring effort in producing the books and making them available to current and future researchers in aeroacoustics.

Hubbard retired in February 1980 as assistant chief of the Acoustics Division. He now works for Lockheed in the Acoustics Division.

More Visit VASC Than Expected

From April 6 to July 12, the Virginia Air and Space Center and Hampton Roads History Center attracted more than 101,379 visitors—20 percent above projection. IMAX Theater attendance has been a major factor, with more than 70 percent of visitors viewing *The Dream is Alive*.

Talk Planned On Coping With 'Job Burnout'

Do you feel like you want to "run away?" When you get up in the morning, do you dread going to work? Are you experiencing job burnout?

Job burnout happens when you continually cannot meet your work expectations. Job burnout can happen to anyone. Because is happens gradually, it is easy to dismiss early signals of burnout as fatigue, temporary irritability or laziness.

Charles McIntire, director of Perspectives, NASA Employee Assistance Program, will discuss job burnout, its effects on the individual and the organization and preconditions for burnout.

The presentation also will discuss causes, stages, signs, symptoms and coping strategies, as well as how to prevent burnout.

The program will be presented Wednesday, August 19, from 2 to 3 p.m. at the H.J.E. Reid Conference Center.

Visual And Printing Services Split Into Two New Branches

The Visual and Printing Services Branch has been split into two new branches in the Research Information and Applications Division (RIAD).

The change was effective July 26.

The Video and Photographic sections have been moved under the new Visual Imaging Branch. Dr. Thomas Pinelli, assistant to the RIAD chief, will be acting head of this branch until a permanent selection is made. He is expected to hold the position for at least 18 months.

The Graphics and Publications sections have been placed under the new Printing and Graphics Branch, headed by Barbara Pasternak.

All section assignments remain the same and no additional staff is required at this time. Secretarial support will be supplied to the Visual Imaging Branch by the division office during Pinelli's acting tenure.

Langley Ce

75th Events Held At

"YOU CAN QUOTE ME"

The following are excerpts from the remarks of the speakers during events commemorating Langley's 75th Anniversary:

President George Bush (presented by Secretary of the Interior Manuel Lujan Jr.): "I am pleased to send greetings to all those who are gathered at the NASA Langley Research Center to celebrate its 75th Anniversary. Congratulations on this milestone. We often praise people not only for what they have achieved, but also for what they have inspired in others. Similarly, Langley stands out among research facilities not only for its own historic discoveries in aeronautics and spacecraft, but for its contributions of personnel and ideas to other prestigious institutions. As the pioneers of a whole system of technological institutions, Langley's engineers and scientists can look with pride on numerous aeronautical inventions and successful space missions that have brightened this American century. From the monoplane aircraft and state-of-the-art engines and airframes, to a space shuttle that can land like an airplane, your innovations have enabled us to pursue our aspirations and theories into the sky and out to distant planets. I commend you for your creativity and your painstaking dedication to excellence, and salute you for your service to your country. Barbara joins me in sending best wishes for a memorable celebration."

U.S. Rep. Herbert Bateman: "Langley's meager beginning . . . has blossomed into the facility I see today. Over 200 buildings on about 800 acres, this lab now employs about 3,000 civil servants and 2,500 support service contractors, making Langley the third largest civilian employer on the Peninsula and the premier aeronautical research establishment in the world."

Former Center Director Edgar M. Cortright: "The Langley Research Center occupies a unique spot in the annals of flight. This did not happen simply because it was the first. On an occasion such as today, it's well to remember that it was the result of years of hard work by thousands of motivated, dedicated, gifted and frequently inspired men and women who've worked here over the years."

Center Director Paul F. Holloway: "I am obviously very proud to have the opportunity, as Langley's seventh director, to salute you and those who have gone before you, the men and women of Langley, the world's premier aerospace research center. Happy Anniversary!"

Secretary of the Interior Manuel Lujan Jr.: "To those who say the American worker is lazy and our products are shoddy, I say look at our aerospace industry. Here you will find the full measure of American ingenuity and craftsmanship. All of you here at Langley have helped to build this industry. 1992 not only marks the 75th anniversary of the Langley Research Center, it is also the 500th anniversary of Columbus' trip to the new world. Much like Columbus, we are continuing to reach beyond the known world, to explore that which is unknown. Who can predict what new wonders we will find over the next horizon? Whatever it may be, I am certain that Langley will be a part of that next wondrous discovery."

Former Center Director Richard H. Petersen: "I have always considered the work done here at Langley to be the best in the world. That's not at all surprising because I have always said that Langley has the best people and some of the best facilities in the world."

State Sen. Robert C. Scott: "NASA Langley is not only one of our oldest employers in the state of Virginia, it is certainly one of the most stable and undoubtedly one of the most successful. Out of this institution has come the technology, the science and the leaders to advance this nation and the world into the aviation and space age."

Former Boeing Vice President John M. Swihart: "Langley has played an outstanding role in helping to develop not only the world's premier aeronautical research facilities and organization, but also in the development of the industry itself. You have helped industry progress from hit-and-miss testing of stick, wire and cloth airplanes to systematic analysis of the most advanced structures, aerodynamics, propulsion and controls characteristics of the most advanced flying machines in the world today."

Photo by Fred Jones

Space artist Robert McCall and wife, Louise, stand in front of his painting, "Expanding the Frontiers of Flight," now on display at the Virginia Air and Space Center.

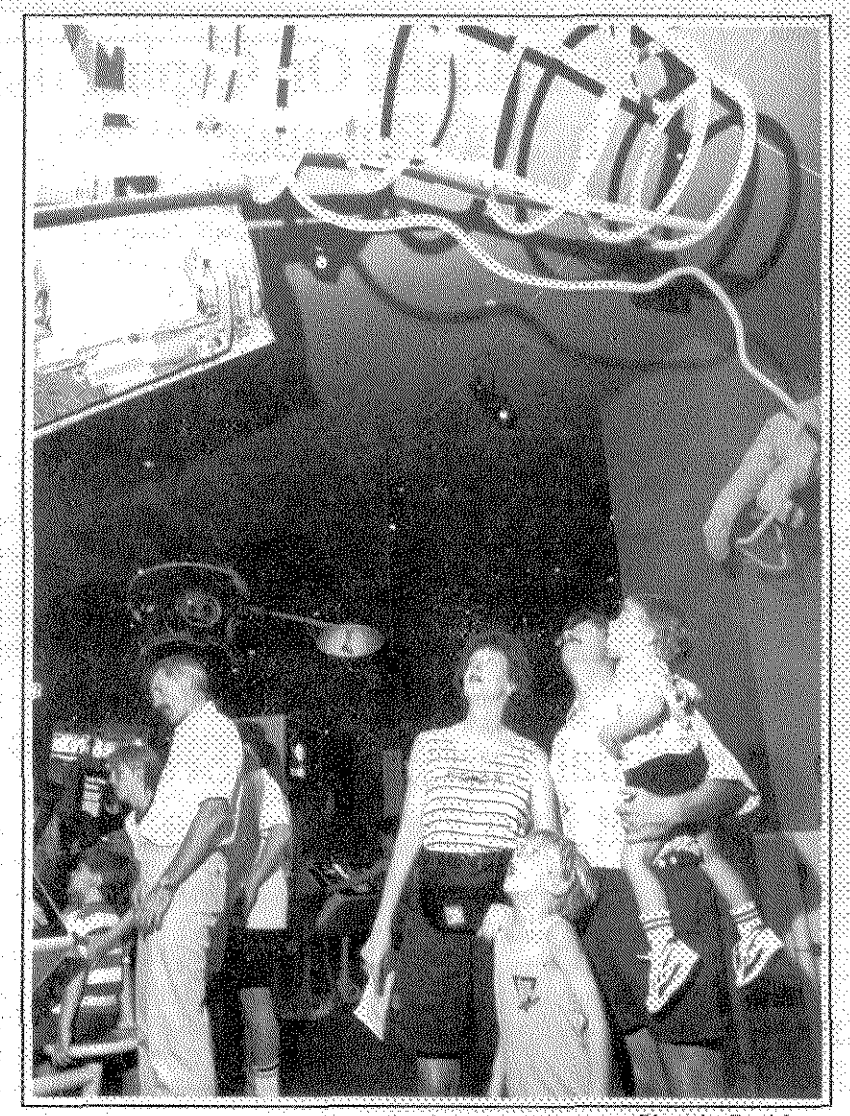
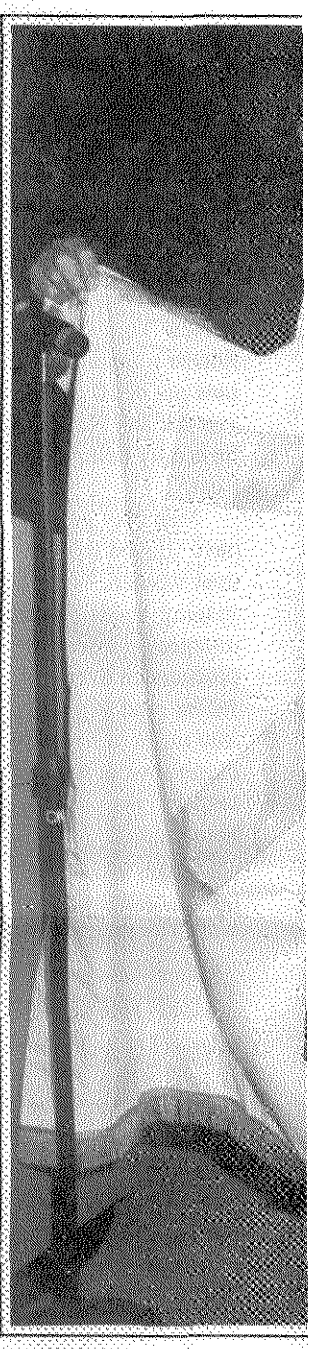


Photo by Fred Jones

David Dress, his wife, Cathy, and their kids check out the sights overhead at the Virginia Air and Space Center during "Langley Days." Dress works in the Supersonic/Hypersonic Aerodynamics Branch.



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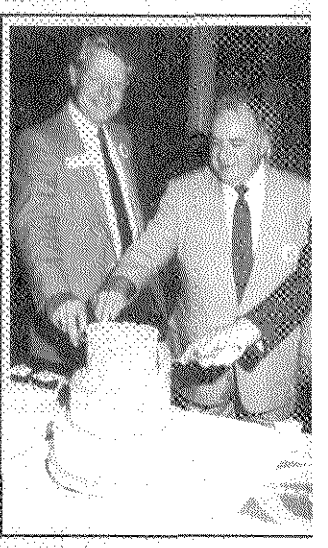


Center directors past and pr
anniversary cake at the Air
From left, Richard H. Peters
administrator for the Office
and Space Technology; Cen
F. Holloway; and Edgar M. C
Center director.

lebrates Its Roots

Hangar, Air And Space Center

Photo by Fred Jones

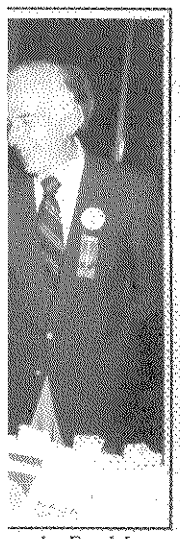
: From left, Fred Gregory, associate administrator for the Office of Safety and Mission Gilgore, chairman of the Virginia Air and Space Center, were among the many who -cheese reception July 18 at the center in honor of Langley's 75th Anniversary. The d featured festivities that began July 17 with a ceremony at Langley's hangar and Saturday and Sunday at the Air and Space Center.

Photo by Fred Jones

The Fort Monroe Color Guard looks sharp at the hangar ceremony.

Photo by Fred Jones

The Langley Alumni Association lent a hand on the Center's big day July 17 in the hangar.



oto by Fred Jones

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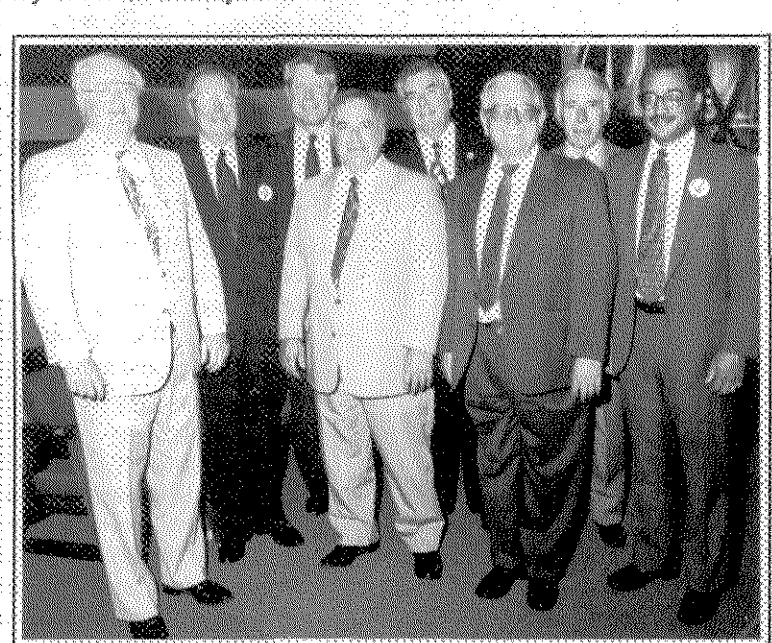
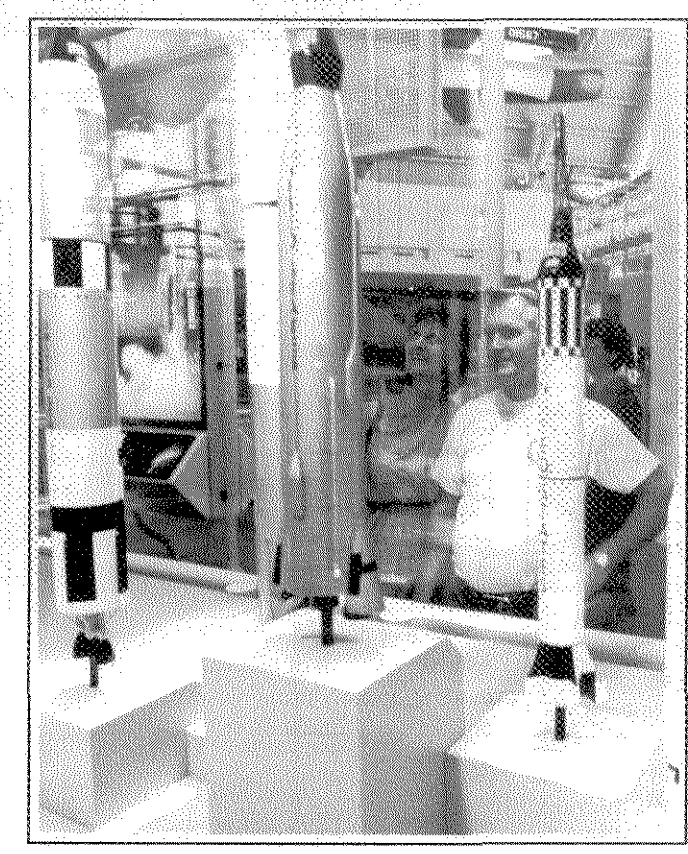


Photo by Alphonso Perabeles

Speakers at the ceremony in the hangar were, from left, Hampton Mayor Jimmy Eason; John M. Swihart, retired vice president of Boeing; Richard H. Petersen, former Center director, now associate administrator for the Office of Aeronautics and Space Technology; Center Director Paul F. Holloway; U.S. Rep. Herbert H. Bateman; Secretary of the Interior Manuel Lujan Jr.; former Center Director Edgar M. Cortright; and state Sen. Robert C. Scott.



Al Heaps and his wife, Mary, view an exhibit during "Langley Days" at the Virginia Air and Space Center. Heaps works for Mason & Hangar Inc.

Photo by Fred Jones

People & Places

Photo by Whitney Bartlett

Sherilee Beam is working in the Electronics Directorate as an ASEE fellow.

Photo by Fred Jones

Denise F. Hamlin is a photographer.

FELLOWS:

Continued from Page 1

Johnson teaches management and information systems courses at St. Paul's College in Lawrenceville, Va. He has a master's degree in industrial engineering and operative research from VPI and a master's in business administration from Virginia Commonwealth University. Johnson received a bachelor of science degree in physics and computer science from Randolph Macon College.

The Aeronautics Directorate ranks third in having the greatest number of ASEE participants and LARSS students.

ASEE participant Dr. Chivey Wu is working in the High-Reynolds-Number Aerodynamics Branch with his associate Lawrence E. Putnam, branch head.

"Dr. Wu is using applied CFD (computational fluid dynamics) to compute the effect of Reynolds number and the leading-edge radius of the vortical flow over a 65 degree delta wing configuration," said Putnam.

Wu is a mechanical engineering professor at California State University in Los Angeles. He has a master's in mechanical engineering from the University of Illinois and a bachelor's degree from Cheng Kung University in Taiwan.

Putnam came to Langley in 1959. He has worked in a number of wind tunnels including his present position at the National Transonic Facility.

LARSS student Alexander M. Benoliel is working with Zachary T. Applin in the Subsonic Aerodynamics Branch, Aeronautics Directorate.

"Alex has been doing programming for us to help with the data reduction and analysis from a transport model currently being tested," Applin said.

Benoliel is also working on a NASA report with Applin on the transport model testing.

Benoliel majored in aerospace engineering at VPI and plans to attend graduate school in the fall.

Applin has been a Langley employee for 13 years. He is responsible for conducting wind tunnel research on civilian transport aircraft, propulsion integration activities, high-lift aerodynamics and CFD.

ASEE fellow Robert L. Tureman, an assistant professor of management information systems for Paul D. Camp Community College, is working in the Human Resource Management Division (HRMD) for the Management Operations Directorate.

"We're doing a variety of computer-related tasks. All of them are related to more effectively using personal computers and the information that they have," said Tureman.

"The main project that I am working on is personal computer productivity—learning what the computer can do with information and then extracting information from the main frame to the personal computer. Therefore, they can become more productive in meeting special assignments and special projects they might have."

Tureman has a master's and a bachelor of science degree in computer science from Old Dominion University. His associate is James Meyers, personnel management specialist in the Human Resources Management Division. This is his first time as an ASEE associate since he began working at Langley in 1975.

LARSS student Denise Hamlin works in the Management Operations Directorate. She works in the photograhics section with her mentor, Alton T. Moore. Her current project involves photographing the students who are involved in university programs at Langley.

"I'm hoping my research project will unfold into a yearbook," said Hamlin.

Hamlin has a bachelor of arts in mass media from Hampton University. She participated in the LARSS program last year and worked in the video section. Hamlin comments on what she is learning this summer.

"I'm learning how things can look differently—as opposed to when you are standing right there with the photographer when he is taking the picture and then when you see it in a still photo," Hamlin said.

Photo by Whitney Bartlett

Robert L. Tureman is spending time this summer in the Human Resource Management Division.

Moore, who came to Langley in October of 1955, is now head of the photographics section.

LARSS student Lori L. Heustess and ASEE participant Sherilee Beam are working in the Electronics Directorate.

Dr. Patrick H. Johnston, group leader for ultrasonics in the Nondestructive Evaluation Sciences Branch, is Heustess' mentor.

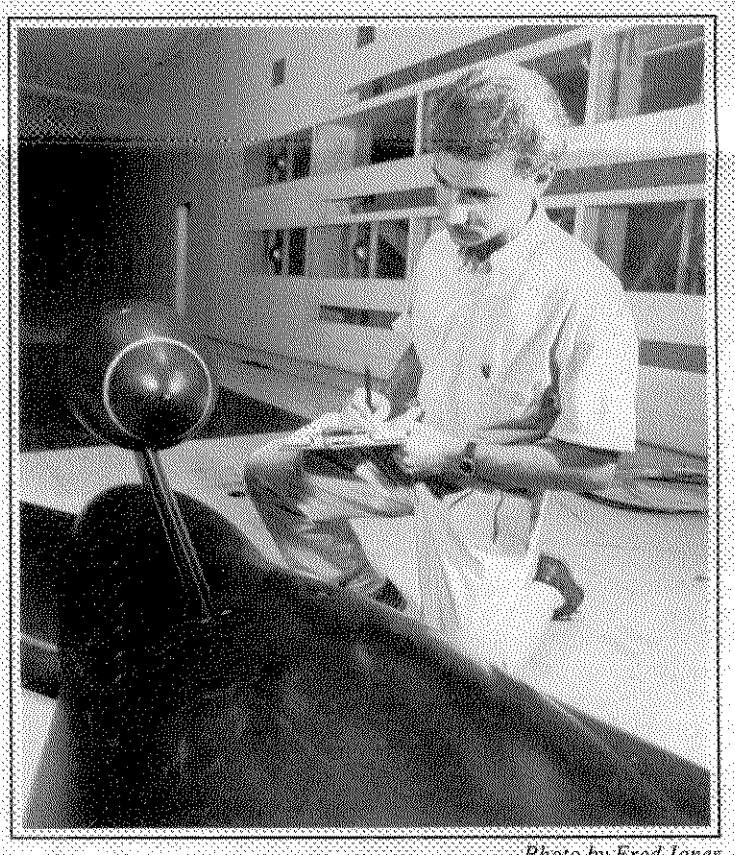


Photo by Fred Jones

Alexander M. Benoliel works on a wind tunnel transport model.

Intelligent sound

"We want to learn how to generate sound intelligently and detect it intelligently, and be able to put ultra sound into materials in a way that is useful.

"We are trying to understand the physics of the theoretical and the experimental of the generation and the detection of ultra sound propagation and interaction of ultra sound with complex materials like fiber reinforcements composites," said Johnston.

Johnston came to Langley six years ago as a contractor for Analytical Services and Materials Inc.

Heustess is attending graduate school at the University of New Mexico.

Beam is working on a project about high speed research in a joint effort with the scientific visualization lab.

"It is going to be a technical video report, which will encompass live video interviews, showing researchers at work as well as collecting some of their data visualization and animation through the system here and putting it together using the personnel here," she said.

Beam teaches video production at Hampton University. She has a master's in instruction media and television and film from Westchester University in Pennsylvania and a bachelor's degree from Mansfield University in Spanish and English.

Her ASEE associate Bill Von Ofenheim is pursuing a doctorate degree in computer science from the College of William and Mary. Von Ofenheim came to Langley in 1981. He is working in the data visualization and animation lab in the Flight Software and Graphics Branch.

Photo by Whitney Bartlett

Lori L. Heustess is working with Sherilee Beam in Electronics.

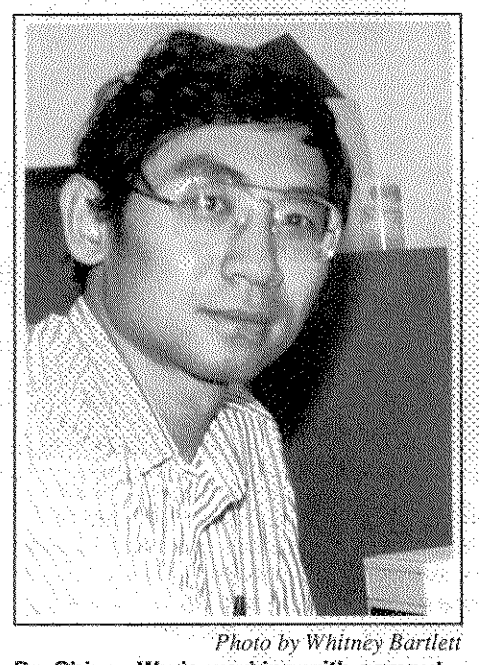


Photo by Whitney Bartlett

Dr. Chivey Wu is working with computerized fluid dynamics.

EMPLOYEE AWARDS

The following employees have received cash awards for job performance:

Eric G. Cooper, computer engineer, Information Systems Division (ISD), for planning and direction of 1992 Career Day display of image processing and vision-based guidance.

Reuben A. Williams, computer programmer analyst, ISD, for continually providing exemplary management of SVMB equipment resources as property custodian.

Ann W. Wilson, photographic control assistant, Research Information and Applications Division (RIAD), for exemplary support to the Photographics Section in developing its section of the RIAD procedures handbook and in supporting office activities necessary to the conduct of division employee tours.

Lillian C. Ross, graphics control clerk, RIAD, for exemplary support to the Graphics Section in developing its section of the RIAD procedures handbook and in supporting office activities necessary to the conduct of division employee tours.

Vernelle V. Robinson, secretary, RIAD, for exemplary support to the RIAD in developing its section of the RIAD procedures handbook and in supporting office activities necessary to the conduct of division employee tours.

Antoinette L. Lynch, branch secretary, RIAD, for leadership and personal contributions to the development and publication of a RIAD procedures handbook.

Cathy L. Jenkins, branch secretary, RIAD, for leadership and personal contributions in successfully planning and executing RIAD division tours in fiscal 1991.

Willie Mae Beckett, secretary, RIAD, for exemplary support to the Technology Utilization and Application Office in developing its section of the RIAD procedures handbook and in supporting office activities necessary to the conduct of division employee tours.

Harriet B. Machie, manuscript preparation assistant, RIAD, for superior performance in typesetting and meeting a short deadline for publication of Transport Methods and Interactions for Space Radiations, NASA RP-1257.

Annie P. Wright, clerk stenographer, RIAD, for exemplary support to the Visual Printing and Services Branch in activities necessary to the conduct of division employee tours.

Deborah S. Carroll, offset photographer, RIAD, for outstanding performance and contribution to the printing requirement.

Eloise L. Johnson, technical publications editor, RIAD, for superior performance in coordinating, editing, and meeting a short deadline, for publication of "Transport Methods and Interactions for Space Radiations," NASA RP-1257.

Joy W. Italiano, editorial assistant, RIAD, for superior performance in proofreading and meeting a short deadline for publication of "Transport Methods and Interactions for Space Radiations," NASA RP-1257.

Marilyn B. Heyson, technical publications editor, RIAD, for superior performance in editing and meeting a short deadline for publication of "Transport Methods and Interactions for Space Radiations," NASA RP-1257.

Sean P. Kenny, aerospace engineer, Guidance and Control Division (GCD), for superior performance in the application of an approximate structural eigenvalue/vector analysis technique to the integrated design software (CSI-DESIGN) of the Controls-Structures Interaction Analytical Design Methods Team.

Fred B. Beck, electronics engineer, GCD, for superior performance as Group Leader of the Advanced Vehicle Electromagnetics Research Group.

Return of LDEF

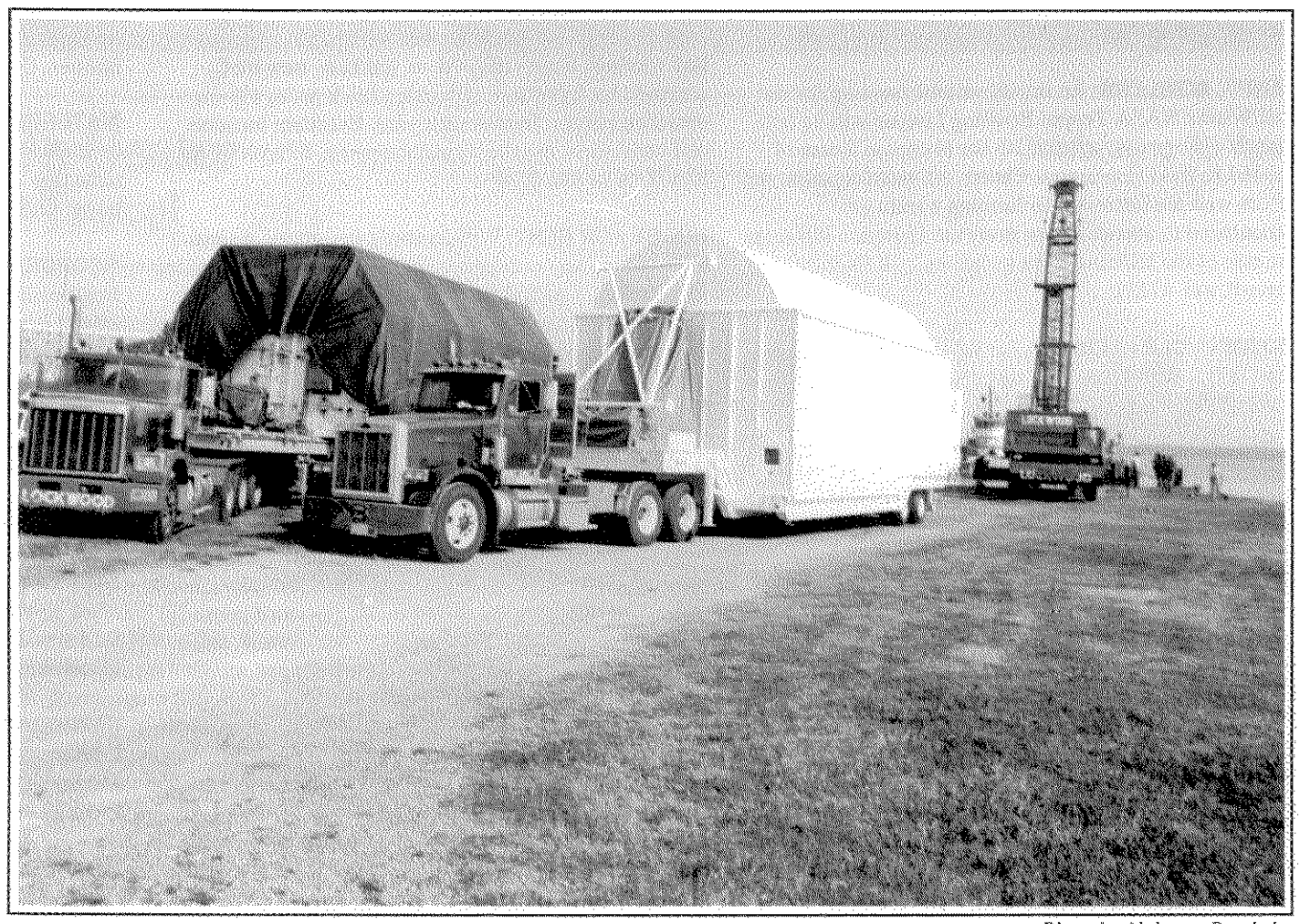


Photo by Alphonso Perabeles

The Long Duration Exposure Facility (LDEF) structural frame, packed in the white canister, returned to Langley on July 14. LDEF traveled by barge from Kennedy Space Center to the Non-Commissioned Officers' Club at Langley Air Force Base and was towed to Building 1250. LDEF, retrieved in 1990 after nearly six years in space, was designed and built at Langley.

Multidisciplinary Course Offered

A course entitled "Optimal Design in Multidisciplinary Systems" will be offered at Langley on August 20 and 21 in the H.J.E. Reid Conference Center.

The course, sponsored by the American Institute of Aeronautics and Astronautics-Hampton Roads Section, will be presented by Dr. Jaroslaw Sobieski of Langley, Dr. Prabhat Hajela of Rensselaer Polytechnic Institute and Dr. Garrett Van der Plaats of Z.M.A and Associates.

The course is for design engineers and technical managers involved with preliminary or detailed design of aerospace, mechanical and other multidisciplinary engineering systems.

Pre-registration is required by August 14. Registration forms should be returned to: AIAA-Hampton Roads Section. Professional Education Committee, Attn: Dr. Woodrow Whitlow Jr., P.O. Box 7392, Hampton, Va. 23666.

Form Is Eliminated

Starting July 24, Work Order and Shipping Memorandum (LF-165) is no longer required when submitting instruments for calibration and/or maintenance.

The new form(s) to use for submitting instrument(s) for service is NASA Langley Maintenance Shipping Form (LF-145) with continuation supplement LF-145A if needed. The LF-145 eliminates the requirement for a NASA Langley Delivery Ticket (LF-68) when shipping instrument(s) to IRD for service.

Completion instructions are in red at the top of the LF-145. Once the form is complete and the instrument(s) is ready for pick-up, Transportation Services (ext. 45765) should be notified for immediate pick-up (avoids processing delays). The new forms are available from stock.

STS-46 To Feature 12.5-Mile Tether

Will Be Longest Structure Flown In Space

Highlighting shuttle mission STS-46 will be experiments involving a 12.5-mile tether connecting a satellite to the orbiter Atlantis to demonstrate the feasibility of the technology for uses ranging from generating electrical power to researching the upper atmosphere.

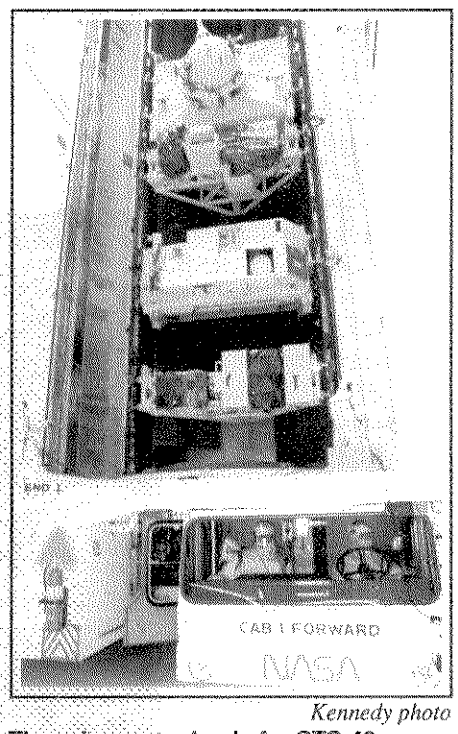
The crew also will deploy the European Retrievable Carrier platform, which contains experiments dealing with materials sciences, life sciences and radiobiology. The platform will remain in orbit for about nine months before being retrieved during a shuttle mission.

"First and foremost, this is a mission of discovery," said Thomas Stuart, manager of the Tethered Satellite System Program. "It's the first time we've ever deployed a satellite on a long tether in space. This system is at the leading edge of scientific discovery and will give us a glimpse of space technologies of the future."

STS-46 is scheduled for launch in late July. It will be the 12th flight for Atlantis and is scheduled to last six days, 22 hours and 11 minutes, with landing planned for Kennedy Space Center.

The Tethered Satellite System—a project of the United States and Italy—consists of a satellite, a .10-inch diameter tether and a deployer in the shuttle's cargo bay. The 1,139-pound satellite was developed by the Italian Space Agency (ASI) and the tether and deployer system by the U.S. The 12 main experiments were selected by NASA and ASI.

"During this mission we're going to learn a great deal about how to safely operate a tether system," Stuart said. "We're going to demonstrate the feasibility of using a tether to generate electricity, as a propulsion system to power spacecraft and for studying the Earth's magnetic field and ionosphere."



Kennedy photo

The primary payloads for STS-46 are positioned in the canister transporter for transfer to Launch Pad 39B from the Vertical Processing Facility.

When the tether is fully extended to its 12.5-mile length, the combination of the orbiter, tether and satellite will be the longest structure ever flown in space.

Atlantis will be commanded by Col. Loren Shriver, making his third shuttle flight. Maj. Andy Allen will serve as pilot on his first flight. Mission specialists will include Claude Nicollier, a European Space Agency astronaut making his first shuttle flight; Marsha Ivins, making her second flight; Jeff Hoffman, making his third; and Franklin Chang-Diaz, making his third shuttle flight. Franco Malerba, of the ASI, will be payload specialist.

Happenings

APARTMENT FOR RENT: Ghent/Norfolk, large one-bedroom with living room, dining room, study, yard, security system; heat included. $525. Call 1-623-2805.

TENPIN BOWLERS: An organizational meeting for the Fall/Winter NASA Tenpin Bowling League will be held Tuesday, August 4, at 1 p.m. in the Hampton Room of the H.J.E. Reid Conference Center. All team captains and others who are interested in forming a team are encouraged to attend. Please enter the Hampton Room on the side of the building. Any questions, call Rodney Russell, ext. 41221.

MOTORCYCLE HELMETS: For sale, one new ($50), one used ($15). Both black with tinted windshields. Call Jaye at 827-5291.

ROOMMATE WANTED: Looking for males to share three-bedroom house for $200 a month including utilities. Call 723-4782 and ask for Stephen.

THE DISABLED PERSONS Satellite Committee will meet Thursday, August 13, from 8:15 to 9:30 a.m. in the cafeteria. The meetings are open to all employees and contractors at Langley and to anyone else who has an interest in the Disability Program.

TOASTMASTERS meets the second and fourth Wednesday of each month from 11:30 a.m. to 1 p.m. The next meeting is August 12 in Building 1222.

FOUND: Water jug, near the tennis courts on June 17. Call John at ext. 42990.

PARADISE FOUND: Sanibel Island, Fla., beautiful Gulf-front, ground-floor condo, 1 bedroom, 1 bath, living room, full kitchen, air conditioning, tennis, pool, cable, VCR, on-site management, $525 per week through November. Call 565-1849 between 5 and 8 p.m.

HOUSE FOR SALE: Hampton, brick rancher, maintenance-free exterior, 3 bedrooms, one ceramic tile bath, living room, eat-in kitchen with pantry, den with bay window, large utility room, gas heat, new roof, screened back porch, interlocking brick patio, 1½-car detached garage, fenced back yard. Excellent location and convenient to schools and shopping, $79,900. Call 838-6056 or 826-9549.

HOUSE FOR RENT: Williamsburg timeshare, August 8 to 14. Maximum occupancy six. Two-bedroom, one sleep sofa, full kitchen and washer/dryer. Two miles from Colonial Williamsburg. Resort provides lighted tennis courts, swimming pools, an indoor athletic center and more, $450. Call 826-9549.

DOG: Healthy female dog needs home with yard. Loves children. Black English sheepdog-labrador mix. Up to date with all shots and spayed. Call between 6:30 and 9:30 p.m. or on weekends, 868-0968.

HOUSE FOR RENT: In Wythe section of Hampton, 2 bedrooms, one bath, hardwood floors, screened porch and single-car garage. Washer/dryer, refrigerator, stove and window air conditioner included, $450 per month with yearly lease. Call 868-0818.

KINDERGARTEN PROGRAM: The Langley Child Development Center is registering children for its new kindergarten program. A full-day program will be provided by a certified kindergarten teacher. Applicants must be five years old by October 31, 1992. Call ext. 44827 for more information.

LOW-IMPACT AND BENCH AEROBICS classes are Tuesdays and Thursdays, 5 to 6 p.m., LAA gym. Cost is $12 per month or $6 per month if attending only one day a week. The classes are open to employees, contractors and their families. Call ext. 42295 for more information.

ROOMMATE WANTED: Male roommate wanted to share apartment in Gloucester Point. Responsible nonsmoker/nondrinker, $100 deposit, $175 per month plus half the utilities. Call Mark at 642-6780.

WATERBED FOR SALE: King-size, 12-drawer, pedestal, headboard with light, less than a year on new 25-percent reduction mattress. Asking $200 or consider trade for futon. Call Tim, 864-8989.

GEORGE WASHINGTON UNIVERSITY, School of Engineering and Applied Science at Langley plans to offer a new set of courses leading to the master of engineering management degree beginning in the fall semester. Interviews at Langley will be arranged August 13 and 14. Those interested should call 864-1982.

AEROBICS: New classes added! Free and open to all employees and contractors. Noontime Energizer, Monday, Wednesday and Friday, from 11 to 11:45 a.m. And for you early morning risers, don't forget Body Dynamics, a low-impact and interval training class held every Monday, Wednesday and Friday beginning at 6:15 a.m. Open to employees and contractors. Classes held in LAA gym. Call ext. 46387 for more information.

SATURDAY AEROBICS, low-impact and bench, in the LAA gym. Classes open to NASA employees, contractors and families, $6 a month or $2 per class, 9:30 to 10:30 a.m. Call ext. 42295 for more information.

THE FWPC will hold a meeting August 12 at 8:30 a.m. in the H.J.E. Reid Conference Center.

CORRECTION: The telephone number for the Awards Office is ext. 42606. The number is listed incorrectly in the most recent Management Operations Directorate Services Directory.

National Aeronautics and Space Administration

Langley Research Center
Hampton, Virginia 23665-5225

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Langley Researcher News

Photo by Carol Petrachenko

U.S. Sen. John Warner, left, examines a McDonnel-Douglas C-17 model in the National Transonic Facility with Larry E. Putnam, head, High Reynolds Number Aerodynamics Branch. Warner toured Langley on July 14.

1917 - 1992
75 Years
NACA
NASA
Langley Research Center

News Researcher

Bi-weekly Employee and Contractor Publication

Volume 6 ❖ Issue 15 ❖ August 14, 1992

New Langley Zip Code 23681-0001

Effective immediately the new zip code assigned to Langley Research Center is 23681-0001. Use form 39 (available from stock) to inform addressees of change. For best delivery, address your mail as shown in the sample. Use all capital letters and no punctuation.

ATTN B A NEWTON
MS 101
NASA LANGLEY
RESEARCH CENTER
HAMPTON VA 23681-0001

Continue to use the current supply of envelopes, forms and stationary. To expedite receipt of incoming mail, indicate correct zip code within. The mail manager will advise when a new supply is available. Contact extension 46034, for more information.

Banquet Celebrates 75th Anniversary

NASA Langley's 75th Anniversary Alumni Banquet will be held at the Williamsburg Hilton Nov. 14. The cost is $16 per person which includes entertainment, dinner and dancing to "Remembrance," an orchestra from the big band era. The event is open to the public, so early reservations are encouraged. Tables may be reserved for groups of 10. The banquet will commemorate Langley's 75th Anniversary. For reservations or more information contact Abe Leiss, chairman of the event, at 877-2939, afternoons.

Langley Aircraft Looks To Make Skies Safer

Langley's 737 research aircraft has deployed to Orlando, Fla., to flight-test three sensor systems designed to give airline pilots advance warning of a sometimes-fatal weather condition known as windshear.

The Florida deployment follows two weeks in Denver, Colo., where similar flight tests were conducted as part of a joint NASA and Federal Aviation Administration (FAA) effort aimed at putting predictive windshear sensors on all commercial aircraft by the end of 1995.

"Our major role is to provide the industry with the design guidelines and data bases that relate to these instruments so they can go out and design, manufacture and certify a commercially viable product," said Dr. Roland L. Bowles, manager of Langley's Wind Shear Program Office, Flight Systems Directorate.

Windshear, a hazard particularly during takeoff and landing, can force a plane to lose airspeed and altitude and has been blamed for hundreds of airline deaths. Putting advance-warning sensors on planes will give pilots time to avoid the treacherous downdrafts and wind changes. Under strict safety criteria, flight tests will carry Langley's 737 research plane at low altitude directly into thunderstorms and other severe weather conditions to seek out the violent windshear "microbursts."

During the deployments, the 737 will be directed toward microbursts using experimental ground-based Doppler radar.

The flight tests are part of a more than $20-million research agreement signed in 1986 between NASA and the FAA. The agreement calls for the development of technology for airborne windshear detection and avoidance; the 737 flights are the final phase of the joint program.

Under a 1988 FAA directive, windshear detection devices are being installed on airplanes to meet a year-end 1993 deadline. But those systems do not detect windshear until a plane already has entered it—possibly too late to prevent a crash.

By contrast, the forward-looking remote sensor systems being test-flown by Langley can detect windshear from 20 to 40 seconds in advance, allowing time for avoidance maneuvers. Airlines that elect a predictive sensor system must install them on aircraft by 1995, according to the FAA directive.

"If you and your family are flying on a commercial airliner after 1995, there will be windshear detection technology aboard as a result of this NASA program," Bowles said. "I think with this technology we will put this problem behind us."

Langley is testing three types of forward-looking systems:

- The laser-based system, called Doppler "LIDAR" (light detecting and ranging) measures the speed of aerosols—minute particles in the air, such as dust—as an indicator of changes in the wind. Langley is flight-testing this system for the first time this summer.
- Another system uses microwave radar to locate microbursts by measuring sudden, large changes in the speed of raindrops in storm cells ahead of the airplane.
- Another system uses an infrared light sensor, which detects microbursts by measuring air temperature differences ahead of the aircraft.

The flights also will test a Langley-developed data link between ground weather radar and the 737. Researchers are developing a system for automatically transmitting windshear data from ground radar to a display in airplane cockpits. Currently, warnings from ground weather radar usually are relayed by voice—a slower and less precise method.

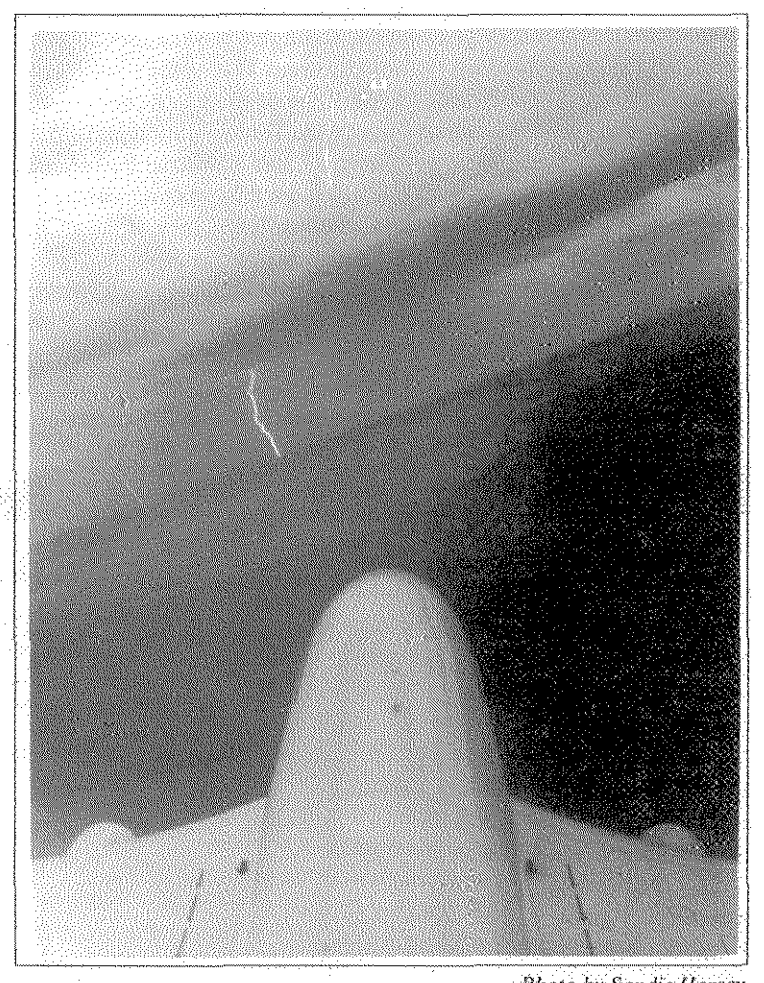


Photo by Sandie Horsey

Langley's 737 flies toward an area of windshear activity in Denver, Colo., during the July deployment.

ON THE INSIDE

- Shahid Siddiqi of Analytical Services and Materials, Inc. salutes the spirit of Oshkosh Fly-In on Page 3.
- Recycling procedures on page 2

Taking A Walk On The Wild Side

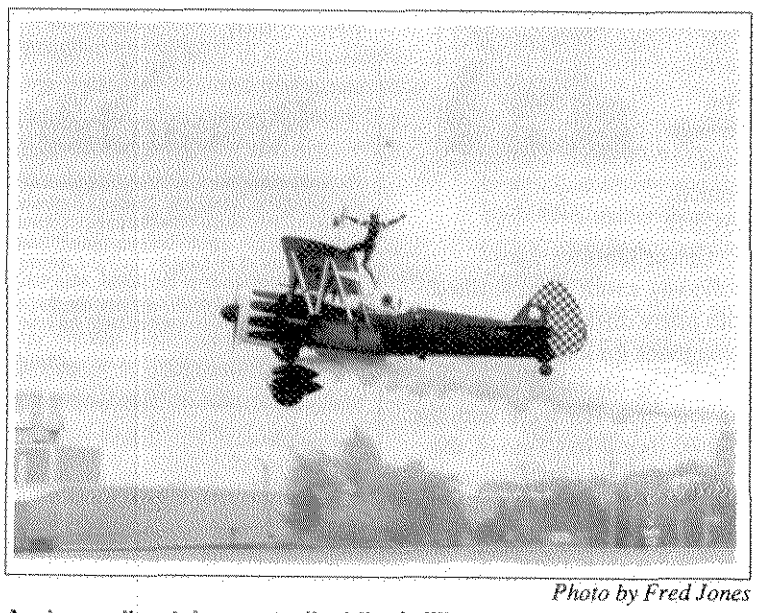
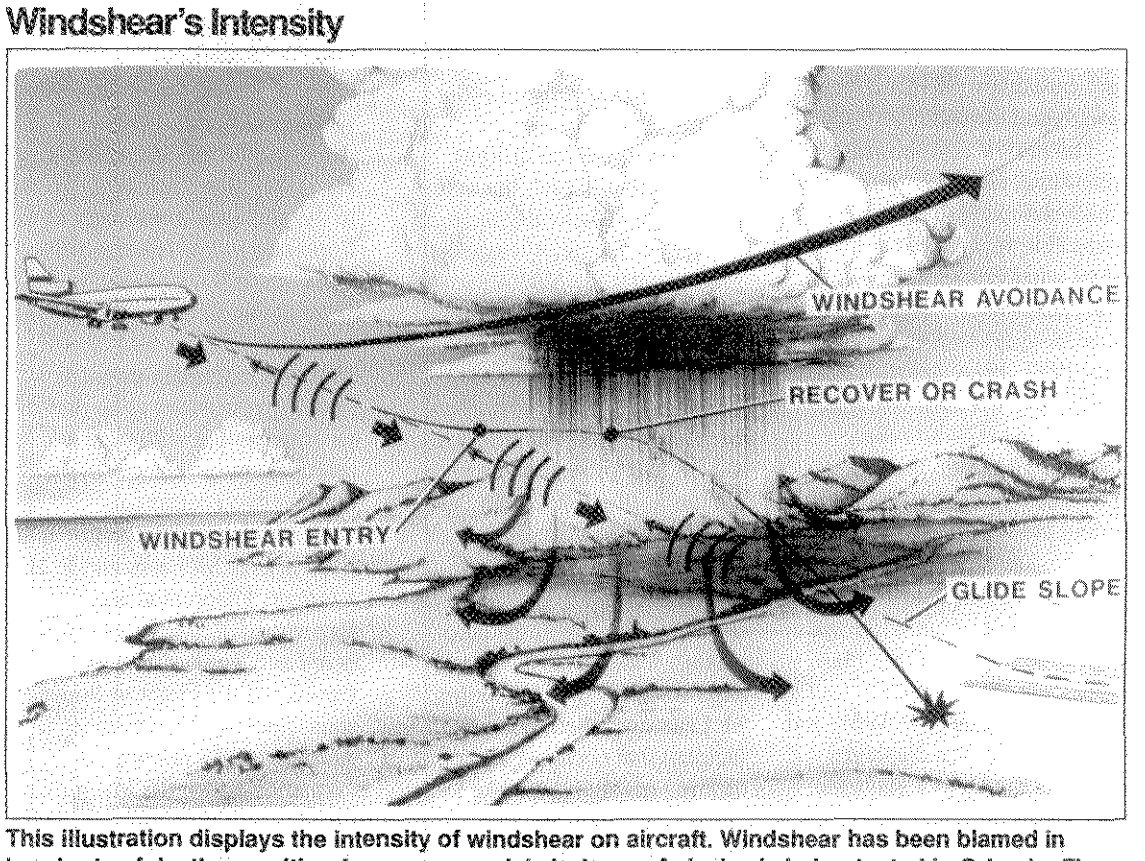


Photo by Fred Jones

A wing walker takes a stroll while thrilling audiences at the Oshkosh Air Show in Oshkosh, Wis. See stories Page 3.

Windshear's Intensity



This illustration displays the intensity of windshear on aircraft. Windshear has been blamed in hundreds of deaths resulting from commercial airplanes. A device is being tested in Orlando, Fla. The forward -looking remote sensor systems being tested can detect windshear from 20 to 40 seconds ahead. Thus allowing a pilot to maneuver accordingly.

News Briefs

AROUND THE AGENCY

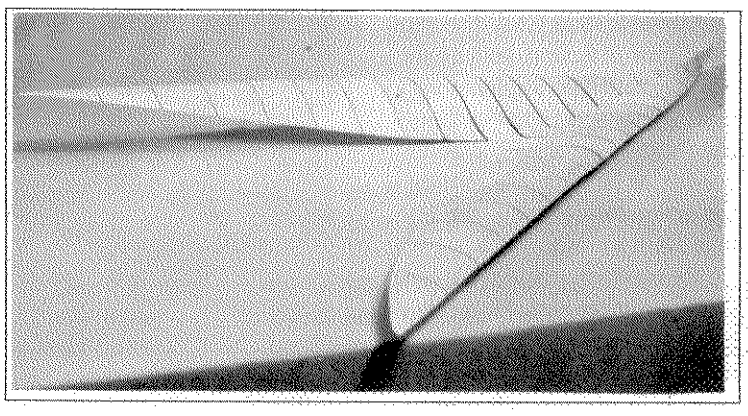
MEMORANDUM SIGNED — A Memorandum of Understanding was signed between NASA and the National Telecommunications and Information Administration Institute for Telecommunications Sciences (NTIA/ITS). NTIA/ITS is interested in cooperative research projects with telecommunications providers, vendors and users to develop and transfer new technologies. ITS wishes to enhance competitiveness of the U.S. satellite communications industry, to expand trade opportunities for U.S. Communications firms, and to increase U.S. industry productivity through telecommunications technology transfer. NTIA/ITS will test and evaluate Advanced Communications Technology Satellite (ACTS) unique capabilities and technology to gain documented knowledge of advanced communication satellite system performance.

NEW LASERS — The Center for Space Transportation and Applied Research (CSTAR) CCDS began a new laser application project under their Laser Industrial Partnership Program (LIPP). This project is being conducted with Siemens Nuclear, with the intent of solving a persistent problem with thermocouple attachment during thermal testing of nuclear boiler tube repairs. The laser technology was originally developed in CSTAR's space laser program.

PEARSON CHAIRS BOARD — Jeremiah W. Pearson III, Associate Administrator for Space Flight, has been named by the Administrator to chair the Performance Review Board. He will also serve as chair of the group of Headquarters staff offices whose SES performance ratings and bonus recommendations are forwarded to the PRB as a unit. The chair of the PRB will be filled, on a rotational basis, by a Program Associate Administrator. These changes are contained in a revision to NMI 3100.3E, Management of the SES, which is ready for publication.

LETTERS

'Meatball' Logo Based On Wind Tunnel Model



Jerry South writes: There has been a spate of news articles - the most recent appearing in the June 26, 1992 issue of *Science* (page 1765) - regarding the controversy about NASA Administrator Dan Goldin's decision to dump the NASA "worm" logo and return to the use of the original NASA insignia, affectionately called the "meatball." The insignia pictures a blue background overlaid with white stars, an orbiting spacecraft, and the letters NASA straddled by a red "V".

The NASA seal is similar, but more elaborate, showing the earth with an orbiting spacecraft departing for the moon or another planet in the background, and the same red "V": straddling the Earth. It's clear from the various articles that there is much confusion or just plain ignorance regarding the meaning and the origin of the red "V". The confusion extends not only to the media, but also to NASA spokespersons, according to the articles I have read. It has been referred to variously as a "V-shaped wedge," or a "vector," denoting a powerful effort, upward and outward.

The red "V" symbolizes the aeronautics research function in NASA mandated by the 1958 Space Act. It is based on an actual wind-tunnel model of an early supersonic wing design from Langley Research Center, circa 1957. Three aerodynamics researchers, C.E. Brown, F.E. McLean and E.B. Klunker, developed a design theory (ref. 1) for optimizing the ratio of lift-to-drag at supersonic speeds, producing a cambered, twisted, wing surface that had a very "swoopy" look. That wing was first tested in the Unitary Plan Supersonic Wind Tunnel (UPTW) at Langley in 1957, and after testing, it was displayed for visitors at the UPWT complex. A very similar design based on this wing was also tested at Ames Research Center. When the design of the NASA seal (subsequently the insignia) was undertaken early in 1959, the artist (James Modarelli, from Lewis Research Center Illustration Section, I am told) selected the supersonic wing he saw on display at Ames as the symbol for the aeronautics research function.

I came to NASA in January 1959, and because Brown, Klunker and McLean were mentors, colleagues and friends of mine, I went to see the wing model on display at UPWT. I had already seen a red plastic casting of the model displayed in Clint Brown's office. I was, of course, duly impressed by its elegant appearance that seemed to exemplify speed and efficiency.

Other improved designs followed that model, but none were more esthetically pleasing to the eye. To me, it's especially pleasing that the NASA symbol for aeronautics draws on the contributions of all three original NACA centers.

There is another historical anecdote I would like to pass on, related in an oblique way to the red wing. In 1960, Ed McLean presented the referenced paper at an international meeting in Zurich describing the theory for the wing design and the comparison with the wind-tunnel experiments. Upon his return, McLean described to me an incident that occurred at the meeting involving the late Dr. Hugh L. Dryden, our first NASA Deputy Administrator. As many of us remember, Dr. Dryden was an eminent scientist who explored the mysteries of turbulence in fluids. He set the tone and precedent for the position of Deputy Administrator, which for a number of years after Dr. Dryden's tenure was expected to be occupied by a premier scientist of international recognition. At the Zurich meeting, a scientist from the Soviet Union attempted to deliver his paper in English, but his English was too poor to make the paper understandable, so he delivered it in Russian. Few attendees understood Russian, so the presentation was almost written off as a waste of everyone's time. However, Dr. Dryden understood Russian well enough, and he was thoroughly familiar with the subject discussed by the Soviet scientist. He kindly stood up and delivered to the audience a summary of the important points and contributions of the Soviet paper, to the gratitude of all attendees, as well as the Soviet scientist.

I was extremely proud as a fledging researcher to be part of an organization with such a scientist and gentleman in the number two position.

References: Clinton E. Brown, F.E. McLean, and E. B. Klunker: Theoretical and Experimental Studies of Cambered and Twisted Wings Optimized for Flight as Supersonic Speeds. IN: Advances in Aeronautical Sciences, Pergamon Press, the Macmillan Co., New York, 1961. Proceedings of the Second International Congress in the Aeronautical Sciences, Zurich, September 12-16, 1960, pages 413-431.

Look Forward To Defend Yourself

Lt. Jim Bullard, a retired Memphis, Tenn., police officer, presented "Self Protection for Men and Women" at the H.J.E. Reid Center July 29, two sessions, to more than 500 people.

The seminar's tongue-in-cheek theme, "Looking Forward to Being Attacked" is also the subject of his book.

As a self-defense instructor for the Memphis Police Department, he developed his seminar after witnessing the fear women displayed during an attack.

The Federal Women's Program Committee and the Security Services Branch sponsored the seminar with help from the Employee Development Branch, the Office of External Affairs, the Visual and Printing Services Branch and the conference center staff.

For more information from Bullard contact Patsy Campbell, Federal Women's Program Manager at 43291.

Mock Presidential Ballot Planned

In honor of Women's Equality Day, The Federal Women's Program Committee will sponsor a mock election. Ballots will be available in the cafeteria and at the Equal Opportunities Programs Office in building 1153.

The results will be announced Aug. 26 at the H.J.E. Reid Center in a special program with Dr. Frances Conley. The time has not been announced.

Dr. Conley is a professor of neurosurgery at the Stanford School of Medicine and chief of neurosurgery section at the Palo Alto Veterans Affairs Medical Center in Palo Alto, Calif. Her resignation from Stanford Medical School, in May 1991, highlighted the "closet" problem of sexism in the workplace.

Upon her resignation, Dr. Conley said a hostile work environment, in a male dominated profession, was created by many of her co-workers based on her gender.

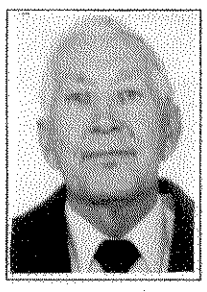
Langley - Congress Connection Discussed

The American Institute of Aeronautics and Astronautics (AIAA), Hampton Roads Section will present "The Congress Connection: How NASA Programs Are Authorized." at 3:30 p.m. Aug. 24 in the H.J.E. Reid Center. The discussion will be led by Dr. John Sigmon and Dr. Jim Greene, both Chief Congressional Consultants.

Sigmon, on leave from the University of Virginia, has served as Chief Consultant since 1990 through Rep. Tim Valentine (D-NC). Greene has served as Chief Consultant to the Ranking Member Rep. Tom Lewis (R-Fla.) since 1986.

The way NASA fares in Capitol Hill depends on certain factors both external and internal. External factors are the state of the economy, national priorities and past support level. Internal factors are how well NASA is managing its programs. These factors plus other consideration all influence NASA's mark in the President's budget, which is sent to the Congress in early February of each year. On receipt, four Congressional Committees (two Senate, two House, five Subcommittees) take an independent look at NASA's programs (authorizing) and funding levels (appropriating). The Chief Consultants, Sigmon (Majority) and Greene (Minority) on the Subcommittee set the program objectives for Langley through Valentine and Lewis.

Daniel Folta Dies



Daniel A. Folta died July 12. The Virginia Beach resident was assigned to the Facility Assurance Section, Risk Management Branch, SSQRD.

Center Director Paul Holloway wrote "Dan worked with many different facilities throughout the Center while performing his safety engineering activities. His work with the 30 x 60 foot Wind Tunnel, the Aircraft Landing Dynamics Facility and the 7-Inch High Temperature Tunnel was always conducted in an exemplary, professional manner. He was well liked and respected by his peers."

IN MEMORIAM

Daniel F. Slowikowski Sr., 55, died July 31. He retired last year from Langley after 28 years as an electronics engineer.

Memorials are asked to be sent to the American Cancer Society, 618-C J. Clyde Morris Blvd., 23601.

News Researcher

The Researcher News, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23665-5225, is published every other Friday in the interest of all Langley staff and retirees. Submit contributions to the Editor, Mail Stop 115, telephone 864-6126. Articles are due at noon the Tuesday following the date of this issue.

Managing Editor ..... Jean Drummond Clough

Editor ..... Michael Finneran

Assistant Editor ..... Susan A. Smigielski

Photojournalist ..... Carol Petrachenko

Photographer ..... Fred Jones

The privilege of advertising in this publication is restricted to the employees and retirees of the Langley Research Center. Articles advertised here must be offered without regard to race, color, religion, sex or national origin.

All materials are subject to editing.

Oshkosh Show Salutes Langley Pioneers

Langley's unique contributions to aviation and aerospace research were recognized by the Experimental Aircraft Association (EAA) during its 40th Annual Fly-In Convention in Oshkosh, Wis.

Langley Director Paul F. Holloway accepted a special presentation from EAA President and convention chairman Tom Poberezny. In addition, several Langley aviation pioneers were saluted during an evening program in the Theater in the Woods. NASA Administrator Dan Goldin was keynote speaker for the program.

"Langley stands as a symbol of what can be achieved when a society invests in entirely new fields of endeavor," began Goldin, who noted that America is not investing enough in the future.

"Investing in the future is the only way we'll have the resources to feed and house our children and their children," said Goldin. "Technology is the fuel in America's economic furnace. Technology creates growth . . . whole new industries and new jobs. We have these kinds of jobs today because generations sacrificed and invested in aeronautics and the space program. NASA is one of the few institutions in America that is dedicated to the future."

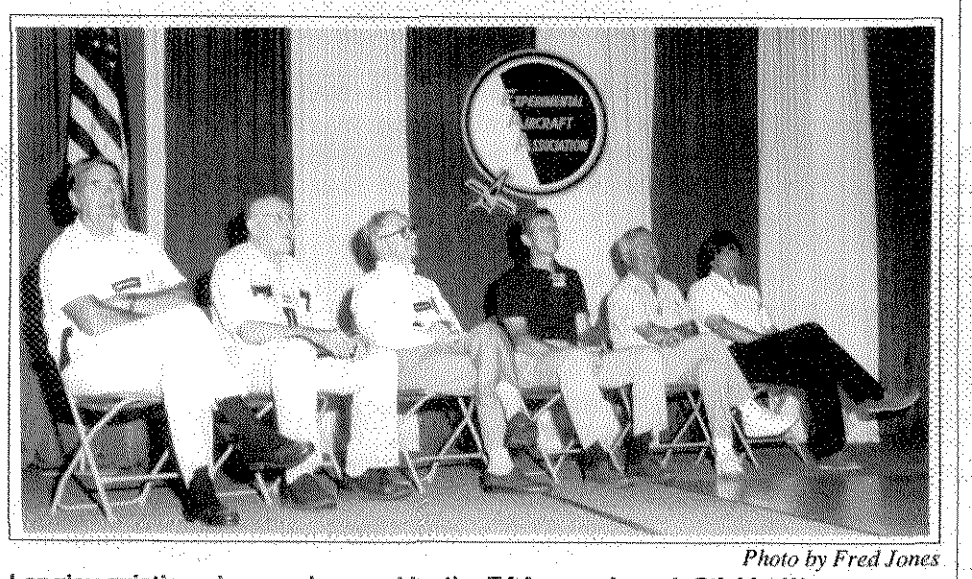
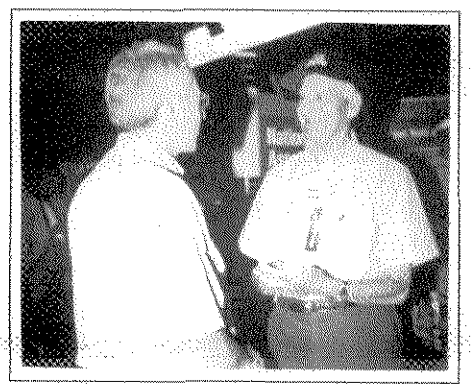


Photo by Fred Jones

Langley aviation pioneers honored by the EAA were Joseph Stickle, Werner Pfenniniger, Charles Zimmerman, Paul Staugh, James Patton and Jeff Viken. Francis Ragullo is inset talking with NASA Administrator Dan Goldin.



Holloway sees in Oshkosh much more than a gathering of flying machines. "Oshkosh has grown into a world class forum on aeronautics," he told the gathering of nearly 3,000 aviation buffs. "Oshkosh fosters an exchange of ideas and furthers international cooperation between industry, government, and individuals. Walking down your flight line today was like taking a stroll through aviation's colorful history."

Seven Langley pioneers were recognized by the EAA for contributions in three areas that have made aviation history.

Charles Zimmerman, **Joseph Stickle**, **James Patton** and **Paul Stough** were honored for their work in aircraft spin behavior studies. In the 1930s, Zimmerman tackled the challenge of understanding the dynamics of spins as one of the primary causes of plane crashes. The Stickle-Patton-Stough team developed spin resistance technology that was later accepted by the FAA and ultimately led to rewriting aircraft certification criteria.

Werner Pfenninger and **Jeffrey Viken** were saluted for their developments of natural laminar flow airfoil designs that have made revolutionary improvements in aircraft efficiency.

Francis Rogallo was singled out for his pioneering work in the development of the flexible wing that has had a major impact on the safety of ultra-light aircraft.

These Langley leaders epitomized a continuity in the creative atmosphere that has allowed the NACA generation to inspire the current NASA generation on the path of technical excellence. Holloway added his congratulations to the EAA recognition of these Langley employees and retirees.

"I am absolutely amazed at the many innovations that come out of our labs which are discussed in your technical forums, displayed in the Oshkosh exhibit areas and then show up on the aircraft at your flight line. We are committed to this partnership with the EAA which has been so mutually successful," Holloway said.

Keeping The Oshkosh Spirit Alive

BY SHAHID SIDDIQI

For one week a year, Wittman Field in Oshkosh, WI., becomes the world's busiest airport, handling over three times the flight operations of Chicago's O'Hare or Atlanta's Hatfield airports.

From July 30 to August 5, approximately one million visitors from over 50 countries passed through the Oshkosh gates. They come to see the 14,000 aircraft on exhibit—many of these home-built or kit-built aircraft lovingly crafted by individuals and families in garages and small airports all over the country.

These aircraft often incorporate innovative technology in aerodynamics and in their avionics and instrumentation systems. Much of this technology is a spinoff of NASA, FAA and university research programs.

The show also attracts production aircraft, aircraft manufacturers and the military. The annual Oshkosh Fly-In and Convention provides a venue for federal agencies and industry to cost-effectively reach out to a great number of people, a large percentage of whom are very interested in science and technology.

One of the show's favorites are the Warbirds, restored World War II-era aircraft. In addition to being on display, these aircraft participate almost daily in the airshow. The sight of the B-17, P-40, Spitfire and numerous P-51 Mustangs bring back a sweet nostalgia to many a WWII veteran. Especially thrilling is the powerful growl of the Warbird Rolls Royce Merlin, Pratt & Whitney Wasp and Wright Cyclone engines. This year featured the 40th anniversary of Doolittle's Raiders and a recognition of the contributions made by the Tuskegee Airmen.

In addition, daily aerobatic displays by amateur-built aircraft dazzle the audience with loops, rolls, cuban eights and other maneuvers.

But for the hundreds of thousands who attend, Oshkosh is not all spectacle. NASA, the EAA and the FAA have large display pavilions. The NASA display gives the public a composite view of NASA's research programs, contributions to aviation safety and the progress made by NASA researchers, engineers and technicians in aeronautics and in space exploration.

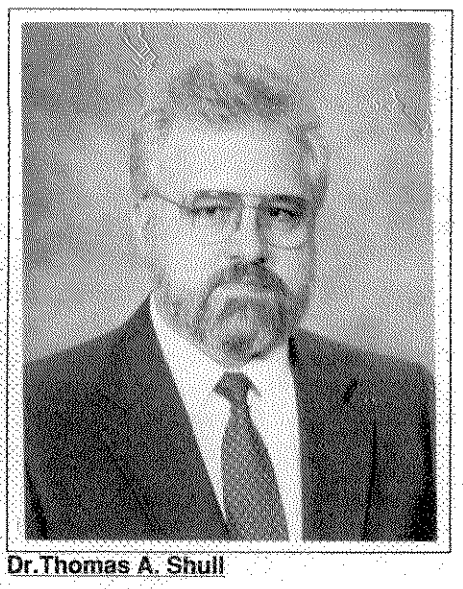
After hours there are many small dinner groups and meetings in dorm lounges where specific areas are discussed.

Why does NASA return to Oshkosh year after year? To be renewed by interacting with some of the most innovative aviation practitioners, and, in turn, share NASA technology. As an aviation enthusiast and professional, one comes away from Oshkosh confident that innovation in aviation is alive and well.

New IMAX Films Planned

The Virginia Air and Space Center will present free previews of the IMAX films the *Blue Planet, Living Planet and On The Wing* during the month of August on Mondays, Tuesdays and Wednesdays at the start of *The Dream is Alive*.

The second IMAX feature, *To Fly*, will open Sept. 22 and will run for three to six months. *The Dream Is Alive* will be shown at least twice a day through 1994.



Dr.Thomas A. Shull

Shull Heads To MIT For Advanced Engineering Study

The head of the Spaceflight Electronics Branch, Flight Electronics Division, has been selected to attend the Massachusetts Institute of Technology for the Advanced Engineering Study program.

Dr. Thomas A. Shull will leave August 31 for the thirteen-week program designed for technical managers who wish to understand developments bearing directly on their field of expertise. Each participant will be paired with a faculty advisor who helps to arrange individual projects.

Shull is the Center's consultant for flight microprocessor based design and is considered an expert in the development of spaceflight instrumentation, data acquisition and signal processing.

He is responsible for the work of nearly 80 civil service employees, contractors and university personnel. He is also the principal investigator for the Spaceflight Optical Disk Recorder (SODR) development program. SODR is a $20 million multi-agency project to produce a state-of-the-art, flight qualified, high performance disk drive system controller.

Shull began working at Langley in 1970 as an electronics designer of satellite instrumentation. He assumed his present position in 1990.

He has authored and co-authored more than two dozen publications and has received several awards including, two Group Achievement Awards and four certificates for outstanding performance.

Shull earned his doctorate from Old Dominion University. He is a licensed Professional Engineer in Virginia.

THEN & NOW

Excerpts from old Langley newsletters will appear throughtout the Center's 75th Anniversary year. The following is from the March 19, 1972 issue of the Langley Researcher.

The New Scout Project Office Building was officially opened last Friday when Director Edgar M. Cortright presided at an afternoon ribbon cutting ceremony.

In dedicating the new facility, Cortright said "Project Scout has brought honor and pride to our Center and our country for 14 years. Scout has had a successful record from the start and the last 23 launchings have been successful."

The addition, which cost about $200,000, was designed by Rancorn, Wildman and Krause, Architects and built by La-Sal Construction Company.

Roland English is head of the Scout Project.

The Scout is NASA's smallest four-stage, solid propellant rocket vehicle capable of putting a satellite payload into orbit.

Happenings

SEEKING CAR POOL: From Wards Corner area of Norfolk, 8 a.m.-4: 30 p.m., Mondays, Wednesdays, Fridays. Call Susan at 531-9685, evenings or leave message.

WEIGHT LOSS PROGRAM: Win at a losing game. Join the Health for Life Weight Loss Program. It is a three month program beginning Sept. 9. It includes exercise and nutrition education with topics such as fat free cooking and smart shopping. The Health for Life program offers an excellent environment to set goals and lose weight with the help of group support. Lunch and learn sessions are held on Wednesdays and exercise sessions on Tuesday and Thursday mornings. For an application and more information call 46387.

HOUSE FOR SALE: Harpersville area of Newport News, 1650 square feet, brick and aluminum siding, two-story Colonial on a quiet street, four bedrooms, living room, dining room, den with fireplace, eat-in kitchen with dishwasher and pantry closet, hardwood floors, large closets, gas heat and hot water, central air, fenced back yard, one car garage attached, 15 minutes to LAFB, $89,900.

HOUSE FOR RENT: Two bedroom, near Fort Monroe and Langley. Located on shady corner lot with porch and privacy fence around back yard. Dishwasher, refrigerator and stove. Utility room with washer-dryer hook-ups, gas heat, fireplace, Must see to appreciate. $460 month plus utilities and deposit required. Call 868-6320.

PRD/BUDGET OFFICE REUNION PICNIC: In celebration of NASA Langley Research Center's 75th Anniversary, the Programs and Resources Division (PRD) is planning a reunion of all past and present members of the office. The reunion is set, rain or shine, for Aug. 29 on the grounds of the Activities Center. For more information call Lisa Davis at 46080.

APARTMENT FOR RENT: Norfolk/Ghent, one bedroom with living room, dining room and study, yard, security system, heat included. $525 a month. Call 1-623-2805.

TOASTMASTERS: Next meeting of the NASA Langley Toastmasters Club #3184 will be Aug. 26 at the H.J.E. Reid Conference Center, room 200. The group meets the second and fourth Wednesday of each month from 11:30 a.m.-1 p.m.

ROOMMATE WANTED: Looking for males to share three-bedroom house for $200 a month including utilities. Call 723-4782 and ask for Stephen.

PARADISE FOUND: Sanibel Island, Fla., beautiful Gulf-front, ground-floor condo, 1 bedroom, 1 bath, living room, full kitchen, air conditioning, tennis, pool, cable, VCR, on-site management, $525 per week through November. Call 565-1849 between 5 and 8 p.m.

HOUSE FOR SALE: Hampton, brick rancher, maintenance-free exterior, 3 bedrooms, one ceramic tile bath, living room, eat-in kitchen with pantry, den with bay window, large utility room, gas heat, new roof, screened back porch, interlocking brick patio, 1½-car detached garage, fenced back yard .$79,900. Call 838-6056 or 826-9549.

DOG: Healthy female dog needs home with yard. Loves children. Black English sheepdog-labrador mix. Up to date with all shots and spayed. Call between 6:30 and 9:30 p.m. or on weekends, 868-0968.

KINDERGARTEN PROGRAM: The Langley Child Development Center is registering children for its new kindergarten program. A full-day program will be provided by a certified kindergarten teacher. Applicants must be five years old by October 31, 1992. Call ext. 44827 for more information.

HOUSE FOR RENT: In Wythe section of Hampton, two bedrooms, one bath, hardwood floors, screened porch and single-car garage. Washer/dryer, refrigerator, stove and window air conditioner included, $450 per month with yearly lease. Call 868-0818.

MOTORCYCLE HELMETS: For sale, one new ($50), one used ($15). Both black with tinted windshields. Call Jaye at 827-5291.

LOW-IMPACT AND BENCH AEROBICS classes are Tuesdays and Thursdays, 5 to 6 p.m., LAA gym. Cost is $12 per month or $6 per month if attending only one day a week. The classes are open to employees, contractors and their families. Call ext. 42295 for more information.

ROOMMATE WANTED: Male roommate wanted to share apartment in Gloucester Point. Responsible nonsmoker/nondrinker, $100 deposit, $175 per month plus half the utilities. Call Mark at 642-6780.

WATERBED FOR SALE: King-size, 12-drawer, pedestal, headboard with light, less than a year on new 25-percent reduction mattress. Asking $200 or consider trade for futon. Call Tim, 864-8989.

NASA-LANGLEY APICULTURE: (Honeybunch)will meet at 7 p.m. Aug. 17 in the Executive Dining Room of building 1213. A video program on honey bees will be presented. All interested persons are welcome. Call Henk 47226.

SATURDAY AEROBICS, low-impact and bench, in the LAA gym. Classes open to NASA employees, contractors and families, $6 a month or $2 per class, 9:30 to 10:30 a.m. Call ext. 42295 for more information.

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Langley Research Center
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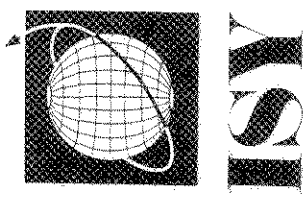
Researcher News



NACA

LAW ESTABLISHING THE NACA

Public Law 271, 63rd. Congress approved March 3, 1915

An Advisory Committee for Aeronautics is hereby established, and the President is authorized to appoint not to exceed twelve members, to consist of two members from the War Department, from the office in charge of military aeronautics; two members from the Navy Department, from the office in charge of naval aeronautics; a representative each of the Smithsonian Institution, of the United States Weather Bureau, and of the United States Bureau of Standards; together with not more than five additional persons who shall be acquainted with the needs of aeronautical science, either civil or military, or skilled in aeronautical engineering or its allied sciences: Provided, that the members of the Advisory Committee for Aeronautics, as such, shall serve without compensation: Provided further, That it shall be the duty of the Advisory Committee for Aeronautics to supervise and direct the scientific study of the problems of flight, with a view to their practical solution, and to determine the problems which should be experimentally attacked, and to discuss their solution and their application to practical questions. In the event of a laboratory or laboratories, either in whole or in part, being placed under the direction of the committee, the committee may direct and conduct research and provided further, That rules and regulations for the conduct of the work of the committee shall be formulated by the committee and approved by the President.

That the sum of $5,000 a year, or so much thereof as may be necessary, for five years is hereby appropriated, out of any money in the Treasury not otherwise appropriated, to be immediately available, for experimental work and investigations undertaken by the committee, clerical expenses and supplies, and necessary expenses of members of the committee in going to, returning from, and while attending, meetings of the committee: Provided, That an annual report to the Congress shall be submitted through the President, including an itemized statement of expenditures.

1917 1992 75 Years NACA NASA Langley Research Center

Researcher News

Bi-weekly Employee and Contractor Publication

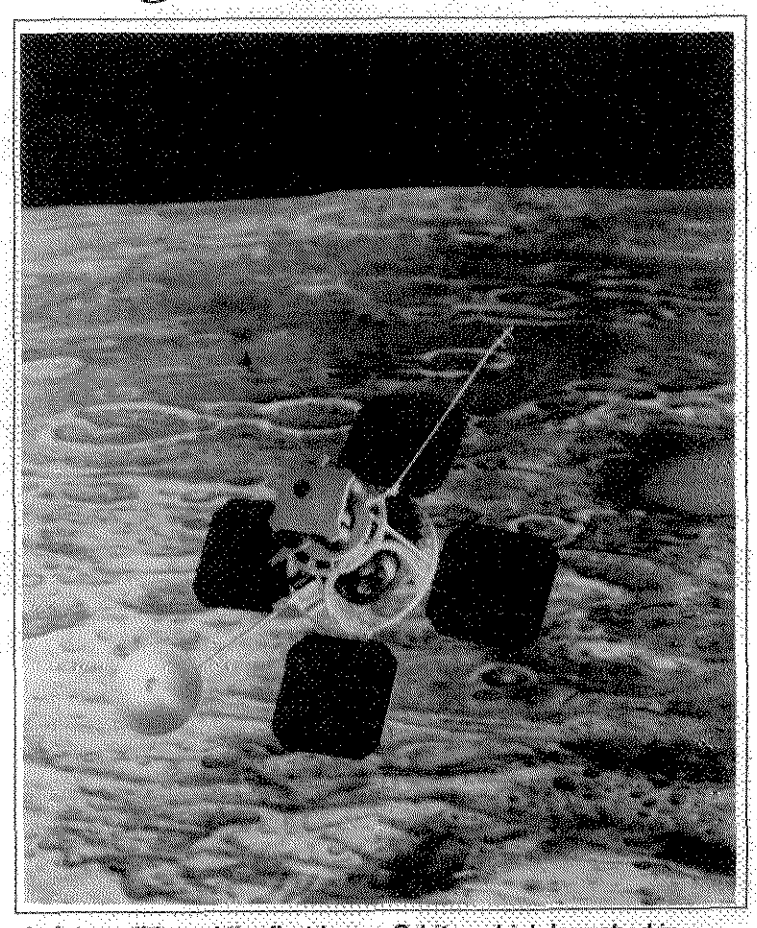
Volume 6 ❖ Issue 16 ❖ August 28, 1992

Langley's Lunar Orbiters Carved Far Reaching Path To The Future

"The time has come to look beyond brief encounters. We must commit ourselves anew to a sustained program of manned exploration of the solar system—and yes—the permanent settlement of space...

"I'm proposing a long-range, continuing commitment. First, for the coming decade—for the 1990s—Space Station Freedom—our critical next step in all our space endeavors. And next—for the new century—back to the moon. Back to the future. And this time, back to stay. And then—a journey into tomorrow—a journey to another planet—a manned mission to Mars."

—President George Bush (July 20, 1989)



Artist rendition of the first Lunar Orbiter which launched in August 1966. The program was managed by Langley.

BY MARK A. CHAMBERS

Langley's 75 years of accomplishments are highlighted this month with the 26th anniversary of the Lunar Orbiter program's first launch. The lunar satellites helped lead to the first human steps on the moon.

In recent years, commemoration of this historic first in space exploration has led to a general renewal and expansion of the dream, strongly supported by President John F. Kennedy, of putting men on the moon.

The Lunar Orbiter program, managed by Langley Research Center, put five spacecraft into lunar orbit between August 14, 1966 and August 1967. The program ultimately enabled managers to pick the best landing sites for the Apollo astronauts, including the exact spot in the Sea of Tranquility for the first moon landing on July 20, 1969.

Lunar Orbiter I was launched on August 10, 1966 and four days later, was placed precisely into the desired orbit about the moon. This event marked the first time that a United States spacecraft entered orbit about a celestial body other than the Earth and sun. (Pioneer IV entered solar orbit in 1959 and Ranger III missed the moon and entered solar orbit in 1962). The wide angle camera onboard the spacecraft covered about 41,000 square kilometers within the Apollo area of interest. The resolution of the resulting pictures was some 100 times better than can be seen from Earth and were instrumental in delineating the relative roughness of the various terrain types and eliminating areas that were obviously unsuitable for landings. Shots of the hidden side of the moon were also taken. Overall, Orbiter I photographed over five million square kilometers of the portion of the moon that cannot be seen from Earth. It also made a historic shot of the crescent of Earth looking from behind the eastern edge of the moon. It was man's first look at the Earth from such a distance.

While Orbiter I returned much information, Orbiter II, launched on November 6, 1966, would yield even more data. Orbiter II photographed over 10,000 square kilometers of Apollo landing areas at very high resolution. Portions of the hidden side of the moon were also photographed. Proven to be of major scientific significance, was an oblique view of the massive crater Copernicus. Another photograph from Orbiter II was the lunar panorama of the Marius Hills which has been described by some as the most spectacular evidence of volcanism ever seen on the moon.

Lunar Orbiter III utilized the data from its predecessors and continued to pinpoint the safest landing sites for eventually six lunar landings between 1969 and 1972.

The data generated from the Lunar Orbiter I, II and III missions enabled the selection of the eight most promising areas for the initial manned landing and spurred intensive analysis of these areas. Later, specific landing sites were ultimately chosen and necessary maps prepared. Lunar simulators were designed to train the Apollo astronauts.

The mission of Orbiter IV, which began in May 1967, was very much unlike the first three. Scientifically, it is known as perhaps the most significant. The spacecraft was placed in a high polar orbit and as much of the total surface of the moon as possible was photographed. The spacecraft photographed 99 percent of the front face at a resolution substantially better than can be obtained from Earth observations. This coverage is particularly important in the limb regions and around the poles where Earth visibility is poor. Orbiter IV also added to the far side coverage of the moon obtained by the three earlier missions. About 70 percent of the hidden side was photographed on the four missions, including a shot of the crater Tsiolkovsky first photographed by earlier Russian flyby missions.

The fifth mission extended coverage to 99 percent.

The Lunar Orbiter missions enabled NASA researchers to make more detailed observations of lunar characteristics and have provided a blueprint for charting favorable locations for moon-based colonies and stations that will serve as staging points for future manned missions to the planet Mars and beyond.

Combined Federal Campaign Sets Goal Of $305,000 For "All Star Gift"

photo by Sandie Horsey

Langley's Combined Federal Campaign committee for 1992-93 has been named by Center Director Paul F. Holloway. Dr. Belinda H. Adams (far right) is chairwoman. Assisting her are Anne S. Rockey, secretary; Jean W. Clough, publicity chairwoman, Dr. Douglas L. Dwoyer, co-chairman and Cassandra G. Favor, financial chairwoman. Not pictured are Thomas L. Vranas, Pattern Makers Union; Roscoe D. Edge, NASA-Union Liaison; Ben J. Schlichenmayer, American Federation of Government Employees Union; and John C. Martin, Langley representative to the Peninsula Federal Coordinating Committee.

BY JEAN CLOUGH

An "All Star Gift" and the Combined Federal Campaign (CFC) are synonymous. They both can provide a ray of hope for the less fortunate. They both can improve the way of life for friends and families in our community. In September, an opportunity will be given to help when you make your pledge, your "All Star Gift" to the CFC.

Langley Director Paul F. Holloway has launched this year's campaign by appointing a campaign committee, headed by Dr. Belinda H. Adams, chief of the Human Resources Management Division, to help the Center meet its challenging goal of $305,000.

Langley will conduct a one-day centerwide solicitation Sept. 29, preceded by a kickoff meeting for division chairpersons, key solicitors and new employees Sept. 23, at 2 p.m. in the H.J.E. Reid Conference Center.

This is the one time during the year that government employees are asked to give their "All Star Gift" to help the many worthy health, welfare and community service organizations. The CFC is not a charity drive. It is an opportunity for the Langley family to help improve the way of life on the Peninsula—and the world around us. Right here at home, though, we can make a difference. We can provide that ray of hope so many citizens need. Most of the CFC gifts are used directly to make the Peninsula a better place to live.

Langley has always exceeded the goal set by the director and the campaign committee. Let's continue that tradition and support the campaign. Give your "All Star Gift" by designating your pledge to your favorite agency. By designating your gift, you can be sure that your favorite agency will receive your money.

Colloquium Note

The Langley Colloquium Series will host Daniel F. Burton Jr., executive vice president of the Council on Competitiveness, Sept. 15 at 2 p.m. in the H.J.E. Reid Conference Center instead of Sept. 4 as stated in the fall quarterly. Burton will present "Industry as the Customer for Federal Service."

Charter Available

The calligraphy of the NACA charter, by Wesley Berryman, that appeared in the Aug. 14 issue of the *Researcher News* is available at the NASA Exchange Shop.

ON THE INSIDE

■ Challenge issued to all NASA centers to get people active, page 2

■ Ramki points out an unsafe airline feature, page 3

News Briefs

AROUND THE AGENCY

SULLIVAN GOES TO NOAA — Astronaut Kathryn D. Sullivan, Ph. D. will be detailed to the National Oceanic and Atmospheric Agency (NOAA) as chief scientist, pending Senate confirmation to make this a permanent assignment. A veteran of three space flights, Sullivan became the first spacewalking U.S. woman on her first mission, STS-41G, in October 1984, when she and fellow astronaut David Leestma conducted a more than three hour extravehicular demonstration of the feasibility of refueling satellites in space. The crew also worked on a number of scientific Earth observations.

FROGS IN SPACE — How will frog eggs develop in the weightlessness of space flight? Can astronauts learn to control the symptoms of space motion sickness? Scientists from NASA's Ames Research Center, Mountain View, Calif., will seek answers to these and other questions during the next Space Shuttle flight in early September. Their experiments are part of the Spacelab-J mission, a seven-day joint space venture of the United States and Japan. Kenneth A. Souza, principal investigator for the frog embryology experiment, said the fertilized amphibian eggs, unlike those of most organisms, show an obvious response to gravity. His experiment should answer a basic biological question: whether gravity is essential for the normal fertilization of frog eggs and the early development of seven frogs.

TETHERED SATELLITE INVESTIGATED — A Board of Investigation, headed by Darrell Branscome, chief engineer at Langley, will look into the problems that occurred during the first mission of the Tethered Satellite System. The board was appointed by Jeremiah W. Pearson, associate administrator, Office of Space Flight, NASA Headquarters. Pearson said, "The board is authorized to take all necessary action to review the anomalies associated with the TSS problems to determine the probable cause and recommend corrective measures to prevent reoccurrence." An initial report from the board to Pearson is expected by the end of the month. The Tethered Satellite System mission flew aboard STS-46 and was a joint project of NASA and the Italian Space Agency.

LETTERS

Machines Spark More Than Interest To Hardworking Group

Mary Ann Steuck writes: Weeks before the big event, the office talked of little else. "Monday's the big day," people said when they went to the snack machine - an older model with only about eight selections. Half the time it just took your money. Lately, however, it sported something new - a sign proclaiming the arrival of a new machine on Monday.

Monday morning our boss rushed in, his eyes bright with excitement. "Have you seen it, have you seen the new machine?" he asked, sounding like a kid on Christmas morning.

"Its got everything. Its got chips, its got candy, its got" (he paused for dramatic effect) Twinkies in a three pack!" We all gasped in amazement and the Twinkieholic among us ran to her desk to get some change.

The machine did, in fact, have everything. It was a junk food junkies dream come true, and a dieter's nightmare.

" I wish they'd never put the darned thing in here!" said one man as we stood gazing at the selections. He made his choice and left.

After much deliberation, I finally decided on a bag of pretzels. I put my money in and pushed the buttons. To my horror, the pretzels did not drop like they were supposed to. The spiral thingamajig still held the bag by the corner. I uttered a few words and shook the machine. I kicked the machine, all to no avail, it wouldn't give up. Suddenly, the solution came to me. If I selected the pretzels again, the second bag would hit the first bag and make it fall. I would need more money, but what if someone else came along while I was gone and got my pretzels? After looking up and down the hallway and seeing no one who looked like a pretzel thief, I decided to chance it. Feeling like an idiot, I ran back to my desk as fast as I could and grabbed more change.

"Machine's stuck!" I explained breathlessly to a co-worker who looked at me curiously. I hurried back to the machine.

I needn't have worried, my pretzels were still there. My idea worked! Now I always take enough money for two of anything, just in case.

The novelty of the machine has pretty much worn off now, although whenever something new appears, it is a topic of conversation once again. (Everyone raved about a chocolate snack cake with chocolate icing and chocolate creme filling). When the machine runs out of something, you can usually tell. "What's wrong with her?" someone asked about a co-worker when she was walking around dejectedly "Oh," someone else replied, "the machine is out of sugar doughnuts."

Now that the snack machine is old hat, leaving notes on the drink machine seems to be the "in" thing. "Please fill the Diet Cherry Coke," the first note read. "Gotta have it, uh huh!"

Magically, the Diet Cherry Coke soon appeared. Now someone wants Mr. Pibb. "How about Ms. Pibb?" someone else wrote.

We work hard here, we really do!

Materials Workshop Seeks Presentations

The second Langley workshop on Adaptive/Intelligent Smart Materials and Systems will be Sept. 28-29. Presentations are being solicited from Langley government and contractor employees on topics including but not limited to: material system development and applications, transducer development and applications, modeling, control system design, implementations or applications. The deadline for submission is Sept. 9.

The workshop will run for two days with the first day for in-house presentations and the second day for selected Department of Defense and university organizations to overview their work and/or technology needs.

The format of the workshop will be informal, with 20-minute presentations including discussion. No paper will be required, but copies of presentation material will be compiled and distributed to those attending after the conference. For more information, call Richard Silcox at extension 43590, M/S 463; Jennifer Heeg at extension 42795, M/S 243 or Mike Fox at 45590, M/S 413.

This workshop is sponsored by the Active Structures Technical Committee. The workshop's intent is to bring together researchers at Langley working or wishing to work in this area as well as to increase the awareness of this technology.

75th Anniversary Banquet Planned

Continue the anniversary celebration well into the fall with NASA Langley's 75th Anniversary Alumni Banquet.

The banquet will be held at the Williamsburg Hilton Nov. 14. The cost is $16 per person which includes entertainment, dinner and dancing to "Remembrance," an orchestra playing music from the big band era.

The event is open to the public, so early reservations are encouraged. Tables may be reserved for groups of 10.

For reservations or more information, contact Abe Leiss, chairman of the event, at 877-2939, afternoons.

Wanted: Recyclable Papers And More

Copier paper, ledger paper (IBM computer), bond paper and Center telephone books are being collected for recycling. Fax machine paper will not be accepted unless it's on bond paper. Paper should be boxed in used copier computer paper cartons, or shipping boxes (NSN 8115-00-290-3379 or NSN 8115-00-179-0579) which are available from stock. Affix Langley Form 122A, "Recyclable Paper," to the carton and place it in areas convenient for pick-up by the cleaning service crews for delivery to Building 1240, on a weekly basis. Office size recycling boxes are available in stock for your use (desk top containers NSN 8115-01-354-9548). Langley Form 122A can continue to be used until depletion. It is not necessary to remove staples, rubber bands or paper clips prior to placing paper in recycling boxes. Toner cartridges are now part of the recycling program. Return empty cartridges in their original carton or the carton the replacement one is removed from. They should be placed on the package pickup table in your building marked for Building 1240 - disposal. The disposal cartridges include NSN 6850-01-321-0640, NSN 6850-01-216-6823, NSN 6850-01-261-6064, NSN 7045-01--269-3828. For additional information, contact Dollie McCown, extension 43561 or Theresa Elliott, extension 43570, Transportation and Warehousing Section.

Sports Challenge Issued To NASA Centers

NASA Headquarters has issued the Presidential Sports Award challenge to all NASA installations once again this year. The challenge has each NASA center recording the total employees involved in an active lifestyle, and the center with the most active people wins.

Langley records the number of active people through Presidential Sports Award log sheets. A log must be completed following set requirements which are easy to fulfill. A log can be completed in one of 50 different activity categories.

The Challenge started March 1 and will end in September. Although most of this time frame has passed, activity may be recorded retroactively from the first of March. In order for Langley to win, it is important to show as much particpation as possible. Anyone still working on their logs, should keep up the consistent activity and get the logs in soon. For more information on the Presidential Sports Award Challenge, call Langley Fitness Center 46387.

Bloodmobile Reports Monthly Donors

The Bloodmobile report for July 22 includes 262 total donors with 12 first time donors, according to Coordinators Annette Forrest and Kitti Schatz.

William G. Johnson, 11 gallons.

James A. Dorst and Sharon Crockett, 10 gallons.

Frank L. Boyer, Michael T. Stubbs and Donald E. Phillips, eight gallons.

Steven F. Yaros, Henry E. Freeman, Ray L. Seals, Merrick D. Creech and Kathryn Smith, six gallons.

Bradley L. Crawford and Michelle Sample, five gallons.

Peter D. Thomas, four gallons.

Kevin M. Bonilla, Roger D. Martin and Daniel P. Giesy, three gallons.

Scott E. Colbert, Stephen B. Jones and Susan M. McMillin, two gallons.

Rodney Robertson, Karl Maddox and Otis L. Jones, one gallon.

First time donors include Gregory T. Kostanski, William E. Nuckolls Jr., Kathleen A. Conley, Mark C. Russell, Roger L. Cundiff, Edgar R. Morrisette, Preston S. Diamond, Donna K. Kraus, Denice L. Clark, Elizabeth M. Lee, Audrey Coppedge and Brickey Hughes.

IN MEMORIAM

M. Lee Sission Dies

M. Lee Sission, 80, died Aug. 5. The Wyoming native retired from Langley Research Center in 1972 as a technical advisor to the division chief of systems engineering after 33 years of service. He was a member of the NASA Alumni Association.

Herbert Strass Dies

Herbert Kurt Strass, 68, died July 28. The Baltimore native retired in 1979 as an aeronautical engineer from Langley Research Center.

News Researcher

The Researcher News, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23665-5225, is published every other Friday in the interest of all Langley staff and retirees. Submit contributions to the Editor, Mail Stop 115, telephone 864-6126. Articles are due at noon the Tuesday following the date of this issue.

Managing Editor ..... Jean Drummond Clough

Editor ..... Michael Finneran

Assistant Editor ..... Susan A. Smigielski

Photojournalist ..... Carol Petrachenko

Photographer ..... Fred Jones

The privilege of advertising in this publication is restricted to the employees and retirees of the Langley Research Center. Articles advertised here must be offered without regard to race, color, religion, sex or national origin.

All materials are subject to editing.

Airline Safety, Not In The Lavatory

Airlines are touting rock-bottom fares these days and I'm tempted to vacation in a far-away exotic place, such as Cleveland. The main reason I have not yielded to this temptation is my dread of having to use the airplane lavatory (The word lavatory comes from 'lava' a Latin word for elevation and 'tory' a Turkish word for being tortured into attending a Barry Manilow concert). While the other passengers are battling for the possession of small lumpy airplane-issue pillows, or busy dodging the regurgitated projectiles launched by colicky toddlers, I engross myself in dark contemplation of the inevitable trek to the airplane bathroom. I don't really have any neatness fetishes; it's just that the typical airplane lavatory is slightly less spacious than a Barbie-doll bikini.

Airplane bathrooms are so cramped and convoluted that even a contortionist wouldn't call it a restroom. I remember vividly a trip I took a few years ago on the now-defunct Sardines Airlines (whose motto was "We Convert Perfect Strangers To Siamese Twins"). That was the first time I saw a flight attendant stationed outside the lavatory, whose primary function was to untangle the human pretzels that tumbled out of the bathroom.

In an effort to combat the unnerving turbulence episodes, the airline companies give you a copy of their mind-numbing flight magazine, 'Fly-Comatose.' This magazine is almost as engrossing as the section in the safety instructions on how to buckle your seat belt. Articles in the magazine include a complete description of the seven ways to cut your pet's toenails and a detailed analysis of the cow-washing practices of 18th century Scandinavians. I hate to admit it, but the magazine did prove invaluable on one occasion. A spider, who had haunted my bookshelves and evaded all attempts at being squashed, hung himself on seeing this magazine added to my collection.

I figure airline companies will keep on slashing their expenses until, horror of horrors, they will do away with the flight magazine. If that happens, I may have to get a collection of Henny Youngman jokes to scare away the tropical insects.

Leave Program Set

The Voluntary Leave Program is designed to permit employees to donate annual leave to other employees who are experiencing personal or family medical emergencies.

The following employees are approved leave recipients:

Bette L. Duncan
Linda E. Edmundson
Francine W. Guthrie
Cassandra D. Stevens
Noel A. Talcott, Jr.
Carol C. Winbush
Belle L. Wood
Darrell A. Wood

If you wish to donate annual leave to these recipients or wish more information concerning the Voluntary Leave Transfer Program, please contact Linda Park, Employee Relations Office, at 42610.

On-The-Spot Awards Recognize Those Who Give Exceptional Service To NASA

The following employees received On-the-Spot Awards for exceptional service.

Jody L. Chandler, apprentice engineering technician, for exceptional awareness in detecting an anomaly in the high pressure air piping system at the 8-Ft. High Temperature Tunnel.

William E. Felty, engineering technician, for innovative design and fabrication of thermocouple protection on the Stagnation Temperature Probes at the 8-Ft. High Temperature Tunnel.

Gayle L. Johnson, secretary (stenography), for outstanding support of the Aeronautics Blue Team and the Mission, Goals and Values Red Team.

Gerald C. Clendenin, engineering technician, for outstanding achievement in facilitating the delivery, acceptance and setup of the quantitative experimental stress x-ray tomography system.

Michele D. Heath, electronics engineer, for outstanding achievement in establishing, coordinating and implementing the inter-Center Space Shuttle external tank remote ice detection project.

Leland D. Melvin, electronics engineer, for outstanding achievement, initiative and participation in inter-divisional and cross-disciplinary teaming that impacted the development of composite materials.

Debbi Tolliver, student trainee, for outstanding contributions that have enhanced the operation of the branch office.

Gordon G. Degear, program analyst, for outstanding efforts in developing an effective tool for managing support service contracts.

Shannon M. Lynch, secretary (typing), for exceptional service in performing the duties of branch secretary in such a professional, innovative and thorough manner.

Cheryl E. Duty, student trainee (engineering), for exemplary performance in support of the dynamic stability instrumentation project.

Kelly S. Tarkenton, engineering technician, for exceptional performance and diligent support to the research operations of the Unitary Wind Tunnel.

Catherine J. Prohaska, program analyst, for exceptional service in performing the duties as a directorate technical resources analyst and as lead analyst for OSSA in such a professional, diligent and thorough manner.

Sheri E. Koczka, secretary (stenography), for exemplary performance and dedication in temporarily filling the position of division secretary and in the transition period thereafter.

Troy O. Haskins, program analyst, for major contributions to the accuracy and efficiency of the updating process for the Center Director's overview charts.

Edward R. Medford, electrical engineering technician, for hard work, dedication, genuine desire to obtain operational status in a short period of time, and follow up support at the Unitary Plan Wind Tunnel.

Jamie L. Carter, student trainee (clerk/stenographer), for exemplary work as a secretarial science co-op in providing services of a branch secretary and in training a new secretary in branch procedure.

Gary E. Erickson, aerospace engineer, for outstanding efforts on the Department of Defense Independent Assessment Team reviewing the F/A-18E/F fighter-escort mission performance data.

Jean R. Migneault, computer specialist, for the expeditious solution to the Center's need for an overtime management report.

Artie D. Jessup, electronics technician, for a timely recommendation enabling shorter removal and reinstallation of research equipment aboard the Transport Systems Research Vehicle.

Fernald Set For Senior Executive Fellows Program

William W. Fernald, head of Systems Development Branch for the Systems Engineering Division, has been selected to participate in a Senior Executive Fellows program at Harvard University.

The program will be conducted from September 28 to November 20. It is designed to broaden senior executives' perspectives on their roles and opportunities as public managers.

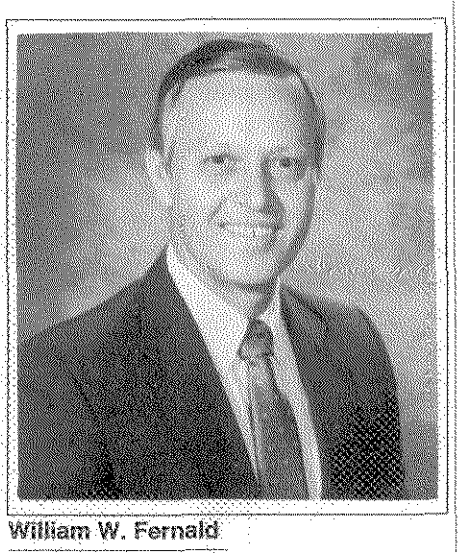
The eight-week session will focus on managerial practices, the managerial environment and policy analysis.

Participants can choose to spend up to one-quarter of their time participating in classes and activities throughout the university.

Fernald began his career at Langley as a design engineer and analyst in 1975.

Currently, he provides technical and administrative direction to approximately 50 engineers and engineering technicians working with the aerospace systems. As branch head he supported advocacy for the Space Flight Experiment Development Facility.

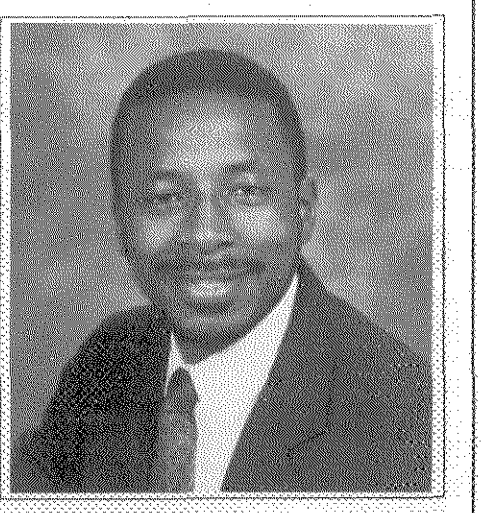
He is the recipient of several awards and honors, including six Group Achievement Awards.



William W. Fernald

He has written several publications including *Aircraft Energy Efficiency Laminar Flow Control Wing Design Study*. The publication was co-authored by T.F. Bonner Jr. and J.D. Pride Jr.

Fernald has a bachelor of science degree from Old Dominion University in mechanical engineering and a master's degree in engineering administration from George Washington University.



Dr. Woodrow Whitlow Jr.

Whitlow Selected For Managerial Program

The head of the Aeroservoelasticity Branch has been selected to attend a two-week managerial program at Penn State University.

Dr. Woodrow Whitlow Jr. is scheduled to participate in the program that is designed for technical specialists who have assumed management responsibilities. It will run from October 25 to November 6.

The specialists will participate in a computerized business simulation that emphasizes strategic planning and executive decision making.

Whitlow began working at Langley in 1979 as a research scientist. Presently, he is leading a research effort to perform transonic and hypersonic aeroservoelastic analysis of the National Aero-Space Plane.

Whitlow has authored and co-authored more than two dozen publications and has received several awards, including the NASA Exceptional Service Medal and U.S. Black Engineer of the Year in Government.

Prior to joining NASA, he was an adjunct professor for Hampton University and Old Dominion University.

Whitlow has a doctorate in Aeronautics and Astronautics from the Massachusetts Institute of Technology.

Employees Selected For Career Development

Six employees were selected last month for the Career Field Development Program (CFDP).

The CFDP is a competitive program designed to provide opportunities for selected employees to earn undergraduate degrees with financial assistance from the Center.

The program is structured in two tiers. Tier I participants may attend up to nine hours of classes each week during duty status. Those selected for the program include **Janice L. McCollum,** Tunnels Operations Branch and **Michael D. Uenking**, Facility Systems Branch.

Tier II participants attend courses during off-duty hours. Thoses selected include **Sheri E. Bias,** Employee Relations Office; **Patsy L. Campbell**, Office of Equal Opportunity Programs; **Simone S. Foretich**, Placement and Positions Management Branch; and **Glen C. King,** Models and Materials Technology Branch.

Laura J. Smith, of the System Validation Methods Branch, was elevated from Tier II status to Tier I.

The program is coordinated by Dr. Mary H. Lewis of the Employee Development Branch.

Happenings

SEEKING CAR POOL: From Wards Corner area of Norfolk, 8 a.m.-4:30 p.m., Mondays, Wednesdays, Fridays. Willing to drive to meet. Call Susan at 43293 or 531-9685, evenings or leave message.

WEIGHT LOSS PROGRAM: Win at a losing game. Join the Health for Life Weight Loss Program. It is a three-month program beginning Sept. 9. It includes exercise and nutrition education with topics such as fat free cooking and smart shopping. The Health for Life program offers an excellent environment to set goals and lose weight with the help of group support. Lunch and learn sessions are held on Wednesdays with exercise sessions on Tuesday and Thursday mornings. For an application and more information, call 46387.

HOUSE FOR SALE: Harpersville area of Newport News, 1650 square feet, brick and aluminum siding, two-story Colonial on a quiet street, four bedrooms, living room, dining room, den with fireplace, eat-in kitchen with dishwasher and pantry closet, hardwood floors, large closets, gas heat and hot water, central air, fenced back yard, one car garage attached, 15 minutes to LAFB, $89,900 call 599-5453.

GODDARD BOUND?: House for rent, Annapolis, tri-level contemporary home three BR, two BA, LR, DR, FR, eat-in kitchen, utility room, workshop, 2,000 square feet, pristine condition inside and out. All appliances convey, $1115 per month (lease required) 827-8452 after 6 p.m. or 267-5221 (8 a.m.-5 p.m.)

PRD /BUDGET OFFICE REUNION PICNIC: In celebration of NASA Langley Research Center's 75th Anniversary, the Programs and Resources Division (PRD) is planning a reunion of all past and present members of the office. The reunion is set for Aug. 29 on the grounds of the Activities Center. For more information, call Lisa Davis at 46080.

SKI TRIP: A NASA-wide, "once in a lifetime," ski trip to Sun Valley, Idaho, is planned for the week of Jan. 9-16, 1993. This special package is available to all NASA Langley employees, contractors and their family members. For more information and reservations, call Tom Yager, NASA Langley ski trip coordinator at 41304 or 874-6819 (home).

FOUND: Keys beside Wythe Creek Road, just outside of back gate. Key chain reads "Pat." Call 864-5240.

ROOMMATE WANTED: Looking for males to share three-bedroom house for $200 a month including utilities. Call 723-4782 and ask for Stephen.

WOMEN IN AEROSPACE: Brown-bag business lunch meeting will be Sept. 1 at 11:30 a.m. in Building1218, Room 107. For more information call Gaudy Bezos - O'Connor, 45083.

HOUSE FOR SALE: Hampton, brick rancher, maintenance-free exterior, three bedrooms, one ceramic tile bath, living room, eat-in kitchen with pantry, den with bay window, large utility room, gas heat, new roof, screened back porch, interlocking brick patio, 1½-car detached garage, fenced back yard. $79,900. Call 838-6056 or 826-9549.

KINDERGARTEN PROGRAM: The Langley Child Development Center is registering children for its new kindergarten program. A full-day program will be provided by a certified kindergarten teacher. Applicants must be five years old by October 31, 1992. Call 44827.

HOUSE FOR RENT: Foxhill area, great neighborhood, VGC, brick rancher, three-plus bedrooms, LR, DR, FR with fireplace, two BA, CA/Heat, fenced yard with shed, 1,500 SF, $670 a month, available Sept. 7; call 851-4819.

ROOM FOR RENT: Large three bedroom home with EIK, plenty of space, lots of privileges, front and back yard. Five minutes from Langley, $300 a month plus $150 deposit. Full size washer and dryer. Call 872-5241.

LUXURY FOR A WEEK: Spend Sept. 19-26 at West Gate Villas, Orlando, Fla. Ground floor condo one mile from the west entrance to Disney World. The two bedroom arrangement will accommodate six easily with one king size and two queen size beds and a sleeper sofa. Includes full kitchen, laundry, dining area, living area, screened porch, wet bar, jacuzzi, paddle boats, bikes, poolside breakfast free to occupants. A videotape, slides and pictures are available. $700 for the week. Call 868-9709.

BIBLE STUDY: Round table discussion each Tuesday, 4:30-5:30 p.m. For more information call Roane Hunt at 693-3467 or Chris Benner at 229-3091.

USED ADP EQUIPMENT FOR SALE: A sealed bid auction will be conducted on ADP equipment used on Center. Inspection will be Aug. 27-28, 9.am.-5 p.m., in Building 1249. Call Theresa Elliot at 43570 or 45764 for more information.

SOCIETY OF WOMEN ENGINEERS: Hampton Roads Section, will meet Sept. 9 at the Steak & Ale Restaurant on Coliseum Drive in Hampton. This is the first meeting for 1992-1993. The guest speaker will be Langley's Dr. Joel Levine, who will present "A Planet at Risk," about global warming and ozone depletion in the upper atmosphere. He will also discuss the recent Earth Summit in Rio de Janerio. For more information and reservations, call Chris Belcastro at 44035 or Celeste Belcastro at 46182 by Sept. 8.

LOST: Gold nugget wedding band with diamonds centered on top. Possible locations are Buildings 1299, 1268 and the recreation site. Call Barney Taylor, 46541.

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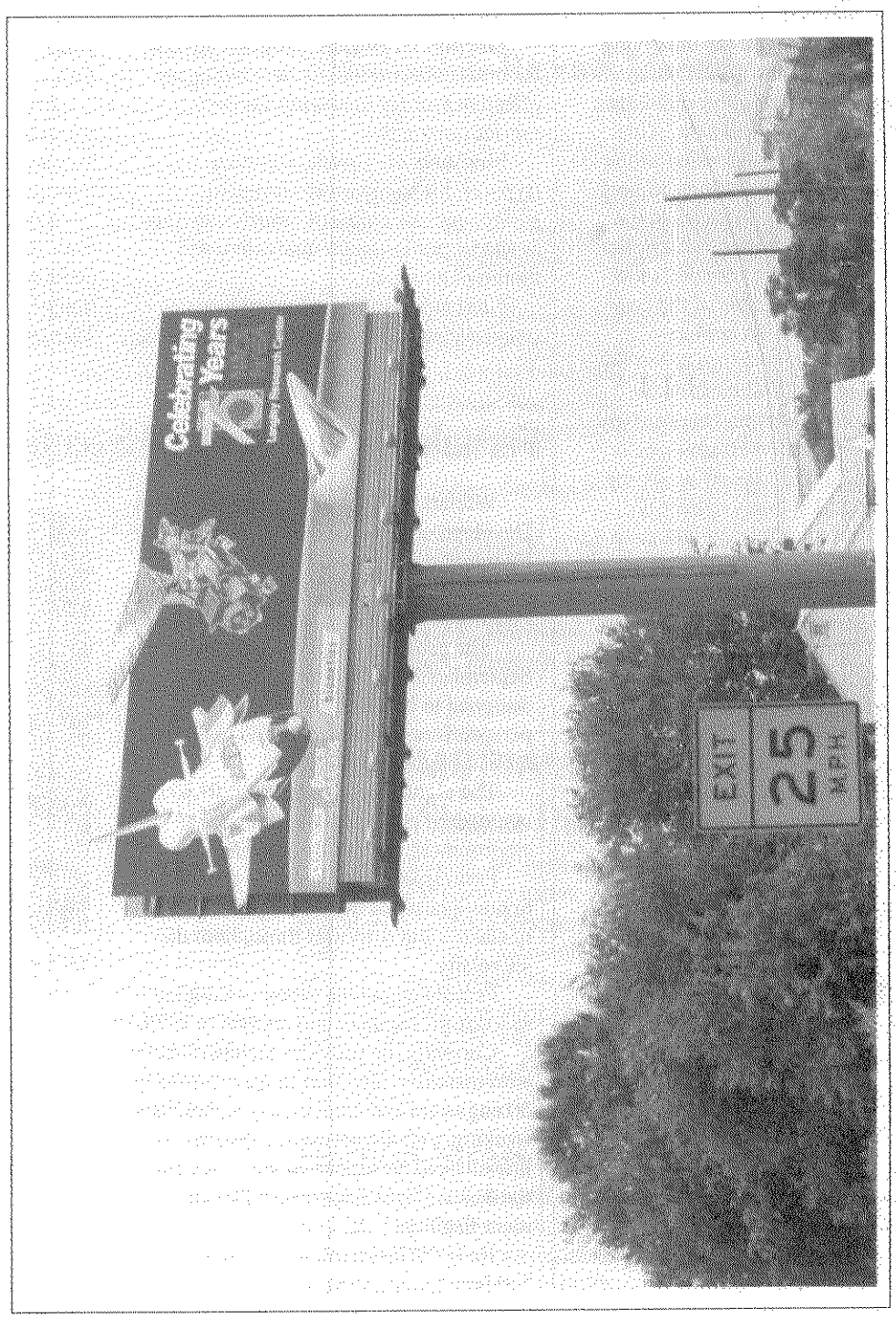
Researcher News



A public salute to Langley's 75th anniversary can be seen on Interstate 64 east, just before exit 267. The billboard was the idea of Adams Outdoor Advertising. The company donated and designed the billboard. Material costs were donated by the Bionetics, Corp. and Busch Gardens.

1917 - 1992
75 Years
NACA
NASA
Langley Research Center

News Researcher

Bi-weekly Employee and Contractor Publication

Volume 6 ◆ Issue 17 ◆ September 11, 1992

VASC Exhibit Highlights NASA, Langley Spinoffs

BY KRISTINA MURDEN

If you'd like to know how NASA technology can improve the environment, help diabetics or design a football stadium, you can find out from the likes of Tom Selleck, William Buckley and Whoopi Goldberg at the STARS exhibit at the Virginia Air and Space Center.

STARS is part of *NASA Highlights*, a new changing exhibit in honor of Langley's 75th Anniversary.

The Spinoff Technology Application Retrieval System (STARS) is a tool designed by the NASA Technology Applications team at Research Triangle Institute to entertain and teach the public about the rewards it reaps from NASA research.

Visitors simply touch the TV screen to follow paths from NASA's technologies to spinoffs that include health, sports, rehabilitation and environmental applications that have evolved in the past 15 years.

You create your own journey through the myriad of innovations, including Langley's "cool suit," a liquid-cooled outfit similar to a space suit, that allows people without sweat glands to lead normal lives.

STARS incorporates celebrity videos sponsored by the U.S. Space Foundation that highlights space spinoffs.

Stars like Frank Sinatra, Willie Nelson and Kareem Abdul Jabar remind us that "the benefits from space research are endless," as they talk about ozone, water purification, diabetes, a rechargeable pacemaker and athletic shoes.

The exhibit illustrates how NASA's research touches the lives of citizens and contributes to the economy.

"Besides entertaining and informing visitors, STARS will show people how they have benefited from NASA's technological breakthroughs," said Joe Mathis Jr., Langley's technology utilization officer.

STARS is an on-line database of facts also published by NASA in *Spinoffs*, a magazine that highlights the practical applications of basic scientific research on structural materials, air and space flight, weather and the environment.

NASA's Technology Utilization Program has distributed more than 30,000 aerospace innovations that have found their way into everyday use. For more information call Kim Hinson at 727-0900, ext. 731.

To Fly: New IMAX Film At Air And Space Center

Beginning September 21, the Virginia Air and Space Center presents *To Fly* in the IMAX Theater.

The film, seen by millions, traces the history of flight from the 1800s to the present. Viewers travel around mountains, over rivers and through clouds as they explore humanity's incessant desire to fly.

Production of the film was sponsored by Conoco, a subsidiary of Du Pont. Locally, *To Fly* is sponsored by 2WD Radio and Warner Cable.

The center is open Monday, Tuesday and Wednesday from 10 a.m. to 5 p.m., Thursday, Friday and Saturday from 10 a.m. to 7 p.m. and Sunday from noon to 7 p.m. IMAX films are shown every hour on the half-hour beginning at 10:30 a.m. The current feature, *The Dream is Alive*, also will be shown daily.

Admission to the center and the IMAX film is $6 for adults, $5.50 for senior citizens and military and $4.25 for children. For information call 727-0900.

ON THE INSIDE

SPECIAL FEATURE: What is Total Quality Management (TQM) and why are we doing it? Get some answers. ***Pages 4, 5 and 6.***

ALSO . . .

Who, me discriminate? A neurosurgeon visiting Langley for Women's Equality Day talks about how you may be gender-biased and not even know it. *See Page 3.*

Attention word-processors and number-crunchers: The Computer Expo is right around the corner. *See Page 6.*

CFC All Star Gift

Langley employees participated in processing meal trays for homebound adults in a visit to Meals on Wheels in Williamsburg. From left are Williamsburg Community Hospital workers Rhonda Tabb, Charles Graves and Elizabeth Hick; Belinda Adams, CFC chairwoman; H. Milton Holt, a former CFC chairman; and Anne S. Rockey, CFC secretary.

CFC Needs Your Help To Aid Needy

See kickoff story on Page 6.

Belinda Adams

As we move quickly toward Langley's kick-off of the 1992-93 Combined Federal Campaign (CFC), I ask each of you to think carefully about your response to this campaign at a time when so many people in our communities, our nation and our world are in unusually great need of our support.

We read daily of the human impact of Department of Defense cutbacks and the country's general economic problems, the difficulties faced by both our youth and aged in today's complex society and the alarming increase in AIDS in our community and the nation. Each of us has had family or friends touched by heart disease, cancer or Alzheimer's disease. In recent days, the total devastation of Hurricane Andrew has caught the attention of all of us, and our hearts ache as we read of those around the world desperate for food, medicine and shelter. We all know that the need is great for services supported by our donation to the CFC. If you wish to become better informed on the specifics in our own community, I invite each of you to join your campaign volunteer at the CFC Kick-off Program on Wednesday, September 23. Recently the Peninsula compiled a very sobering needs assessment for our community; a speaker at the kick-off will review this assessment for us. The second speaker will address the need and activities of the Food Bank.

In past years, individuals at Langley Research Center have opened their hearts and their pocketbooks to the agencies supported by the CFC. Each year, the Center's CFC goal has been exceeded. In response to the great need and the history of the Center for responding to this need, your CFC committee has set an ambitious goal again this year. The 1992 goat of $305,000 is seven percent above the 1991 goal. (Although the 1991 goal represented a significant increase over previous years, it was exceeded by $12,000.) As you plan your response to this year's campaign, please recall that the agencies supported by the CFC are being hit by a "double whammy" as the economy declines. The number of people needing support is increasing while the number able to contribute to the agencies is decreasing.

Although many of us do contribute significant amounts to the community and national charities outside the CFC, I urge you to consider increasing your contribution through this mechanism (CFC) so that we can once again take pride in the fact that the Langley community is a leader in caring for those who need our help. Each new participant and each increase in an annual gift will make a big difference to someone in need. The goal, although aggressive, should not be viewed as a limit. Give as much as you can. We are, in general, very fortunate and the need is very great.

— Belinda Adams, CFC campaign chairwoman

This Year's CFC Goal Is A True Challenge

It is again time for us at Langley to think about helping our neighbors and communities through contributions to the Combined Federal Campaign (CFC). We at Langley are especially fortunate during these difficult times in our country and area. We are blessed with stable employment while contributing to two vital high-technology areas of our nation's economy: aeronautics and space. As you are well aware, many of your neighbors face uncertain futures during this time of recession and reduction in defense spending. Heavy demands are placed on the services provided by many of the agencies partially funded by your CFC contribution. Organizations providing family counseling, food and shelter are particularly critical to our communities. I think it is important that those of use in fortunate circumstances respond generously to the CFC appeal

Please see **CFC,** *Page 2*

News Briefs

AROUND THE AGENCY

Helping Small Business — NASA Administrator Daniel S. Goldin has announced that he will upgrade the position of small and disadvantaged business director to assistant administrator, equal to directors of program and administrative offices. He called the decision a "strong signal" in a series of moves to ensure that the nation's small firms, including those owned by minorities and women, win a larger share of NASA contracts. "In the past, we have focused much of our attention on working with the giant aerospace companies with the big hardware contracts and comparatively little on working with small business," Goldin said. "We must change that orientation."

Galileo Gets Closer — Galileo is closing fairly rapidly for its December flyby of Earth, according to flight controllers at the Jet Propulsion Laboratory. As of late August, the spacecraft's distance was less than 82 million miles and closing at a rate of about 1.25 million miles a day. Round-trip communication time had been reduced to only 14 minutes. Since its launch, Galileo has traveled more than 1.36 billion miles. The next scheduled event for the interplanetary probe is a maneuver in early October to tweak the trajectory for the flyby.

Stamp Honors JPL Founder — A stamp bearing the likeness of Theodore von Karman, founder of the Jet Propulsion Laboratory, has been dedicated by the Postal Service. The 29-cent stamp was dedicated during the inaugural ceremony of the World Space Congress on August 31 at the D.C. Convention Center and was scheduled to be on sale in post offices nationwide in September.

Alumni Banquet Set For November

The Langley Alumni Association will sponsor a banquet and dance to honor the Center's 75th Anniversary. The event will be at the Williamsburg Hilton Conference Center, 50 Kingsmill Road, on Saturday, November 14.

The affair will include a cash-bar social at 6 p.m., dinner at 7 p.m., entertainment from an award-winning musical group from Menchville High School at 8 p.m., and dancing to the music of "Remembrance" from 9 p.m. to midnight.

The cost is $16 per person; checks should be made payable to the LaRCAA and sent to Abe Leiss, P.O. Box 2250, Newport News, 23609, by November 10. Provide first and last names for badges. Include your phone number. For more information, call Leiss at (804) 877-2939.

PLACEMENT

The following vacancies, open to Langley employees under permanent civil service appointments, have been announced through the Competitive Placement Plan:

92-50: AST, Facility Systems Safety, GS-801-12 or 13, SE&O Directorate, Systems Safety, Quality & Reliability Division, Risk Management Branch, Facility Assurance Section; closes August 21.

92-53: Electronics Engineer, AST, Electronic Instrumentation Systems, GS-855-7, SE&O Directorate, Systems Engineering Division, Systems Development Branch, Electrical Systems Section; closes August 21.

The following Competitive Placement Plan selections have been announced:

James Jarrell, head, Piping Systems Unit, Fluid Systems Section; **Noel Talcott,** assistant head, Advanced Aircraft Branch; **Dennis Bartlett,** assistant head, Vehicle Integration Branch; **Charles Niles,** head, Facility Automated Controls Section; and **James Miller,** head Electrical Systems Section.

Mustang Painting

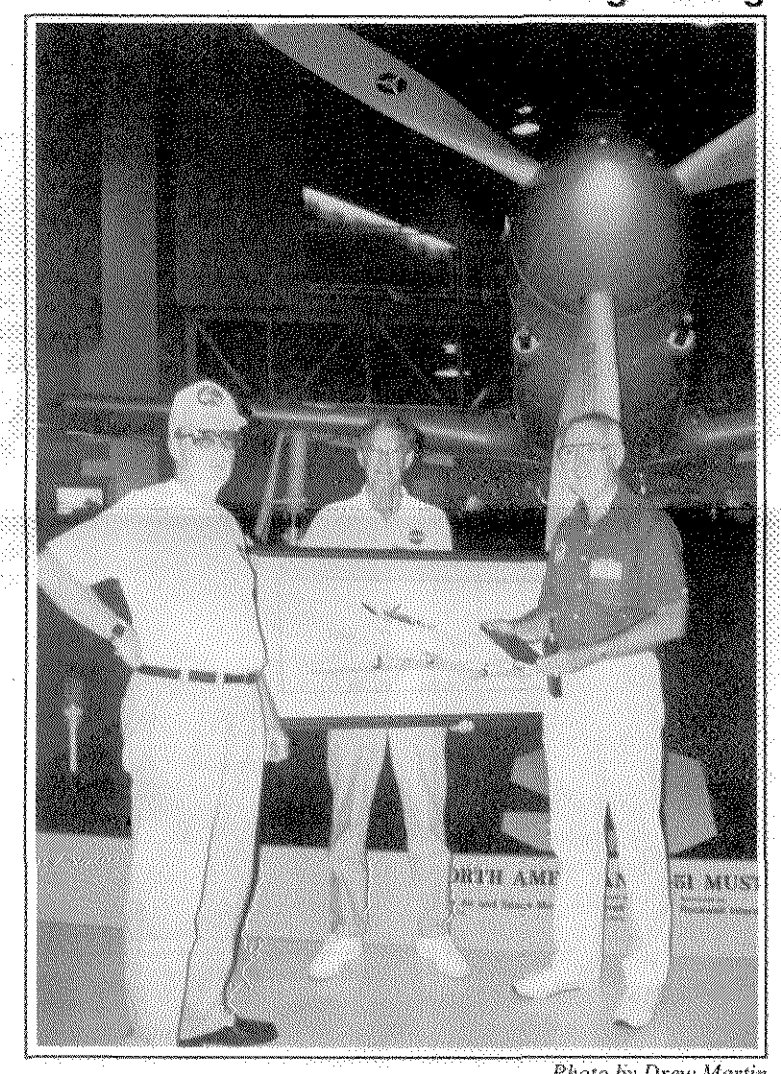


Photo by Drew Martin

A painting of the XP-51 Mustang is turned over to the Experimental Aircraft Association (EAA) Aviation Center in Oshkosh, Wis. From left are Dick Layman, Langley's Historical Program coordinator; John Witherspoon, NASA logistics manager for Oshkosh '92; and Carl Swickley, director of the EAA Air Adventure Museum. The painting is by Printing and Graphics Branch artist William B. Kluge and depicts the aircraft that was flight-tested at Langley from 1942 to 1944. It was the fourth production version of a new aircraft built by North American Aviation for the British in 1940. The Mustang incorporated an advanced, low-drag (laminar) wing developed at Langley in the late 1930s. Later versions of the plane, particularly the P-51B and P-51D, became mainstays of the U.S. Army. The P-51D with the Rolls-Royce "Merlin" engine was arguably the finest propeller-driven fighter of World War II. More than 15,000 Mustangs were built.

NARFE Opens Service Center At LFCU

The National Association of Retired Federal Employees (NARFE) has opened a Service Center at the Langley Federal Credit Union's main office at 1055 W. Mercury Blvd. in Hampton.

The center, which opened August 17, will be staffed by trained NARFE volunteers who will provide free information about filing for federal employment and social security annuities, change of beneficiaries, social security and federal health insurance, life insurance, etc.

The center will be open from 10 a.m. to 2 p.m. on the fourth Friday of each month. Another center will open September 11 at the Fort Eustis Federal Credit Union Branch. Office hours will be from 10 a.m. to 2 p.m. the second Friday of each month.

CFC:

Continued from Page 1

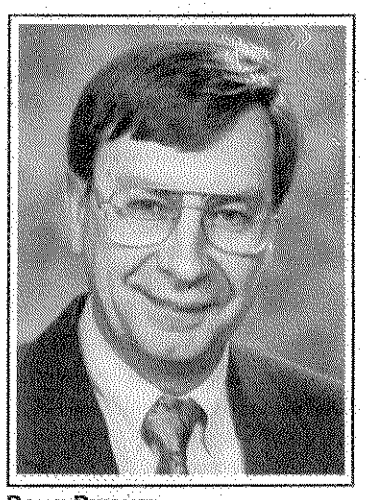
with an "All Star Gift."

This year the CFC will be conducted in a fundamentally different way than before. After months of hearings and comments from federal employees, the Office of Personnel Management has ruled to establish the CFC as an "all designation campaign." This year you, as a Peninsula CFC donor, will have 948 federations and agencies to direct your contribution toward. Of these, 163 are local federations or agencies, and the remaining 785 are national.

The local agencies are approved by the Peninsula's CFC Local Federal Coordinating Committee. Eligibility standards for federations or agencies wishing to participate in the CFC at both the local and national level limit participation to voluntary organizations delivering health and welfare services and benefits to people, and they must meet reasonable standards of financial integrity and public accountability.

There will be five ways to designate gifts via cash or payroll deduction. You may designate your gift:

- To any of the 934 agencies.
- To any of the 14 federations (groups or agencies).
- To all 948 listed federations/agencies "in the same proportion that all agencies receive designations."
- To all 785 listed national federations/agencies "in the same proportion that all federations/agencies receive designations."
- To all 163 listed local federations/agencies "in the same proportion that all agencies receive designations."



Doug Dwoyer

As you can see, you have a great deal of flexibility in controlling where your money goes. Your dollars will go exactly where you direct them, to the organizations you feel are best able to assist the people and causes you intend to help. With this degree of control over your contribution and the needs of our communities, I think Langley can once again exceed its campaign goal of $305,000 with "All Star Gifts" from each of us!

This year's campaign kickoff will be at 2 p.m. Wednesday, September 23, in the H.J.E. Reid Conference Center. The traditional one-day solicitation will occur Tuesday, September 29.

— Doug Dwoyer
CFC campaign vice chairman

Support Group For Breast Cancer May Be Formed

If there is sufficient interest, a breast cancer support group will be formed and will be open to government employees, contractors and spouses.

The group will offer mutual support and to disseminate information on medical advances in the treatment of breast cancer.

If interested, please contact Sharon Hartsell, Occupational Health Services, at ext. 43198. Confidentiality will be assured.

IN MEMORIAM

Odeon Bloodgood, 96, died Monday, August 31. He retired in 1964 after 22 years.

Douglas Eugene Hicks, 68, died Monday, August 24. He retired in 1988 as a computer electronics technician after 48 years of service.

Wilson Worrell Clark, 65, died Sunday, August 23. He retired in 1990 after 39 years of service.

Albert G. Willis Jr. died August 8. He retired from Langley in 1974.

Robert L. Goodrich died on July 26. He retired from Langley in 1973.

New Shipping Form Requires Only Two Signatures

NASA-Langley Form 52B, "Shipping Request for Noncontrolled Property," is now available from stock. The only signatures required on this new form are the originator and his or her supervisor.

The new form is a result of a TQM initiative aimed at reducing "red tape" at Langley.

If you have questions about the use of this form, call Claude Watts, ext. 43565.

News Researcher

The Researcher News, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23665-5225, is published every other Friday in the interest of all Langley staff and retirees. Submit contributions to the Editor, Mail Stop 115, telephone 864-6126. Articles are due at noon the Tuesday following the date of this issue.

Managing Editor ..... Jean Drummond Clough
Editor ..... Michael Finneran
Assistant Editor ..... Susan A. Smigielski
Photojournalist ..... Carol Petrachenko
Photographer ..... Fred Jones

The privilege of advertising in this publication is restricted to the employees and retirees of the Langley Research Center. Articles advertised here must be offered without regard to race, color, religion, sex or national origin.

All materials are subject to editing.

Branscome Heads Team Investigating Tethered Satellite Problems

Chief Engineer Darrell Branscome has been named chairman of the board investigating the problems that occurred during the first mission of the Tethered Satellite System during Shuttle mission STS-46.

The board was appointed by Jeremiah Pearson, associate administrator of the Office of Space Flight at NASA Headquarters.

"The board is authorized to take all necessary action to review the anomalies associated with the Tethered Satellite System's problems to determine the probable cause and recommend corrective measures to prevent recurrence," Pearson said.

An initial report of the review findings, supporting data and analysis was to have been submitted to Pearson by August 28.

Board members

The mission was a joint project of NASA and the Italian Space Agency.

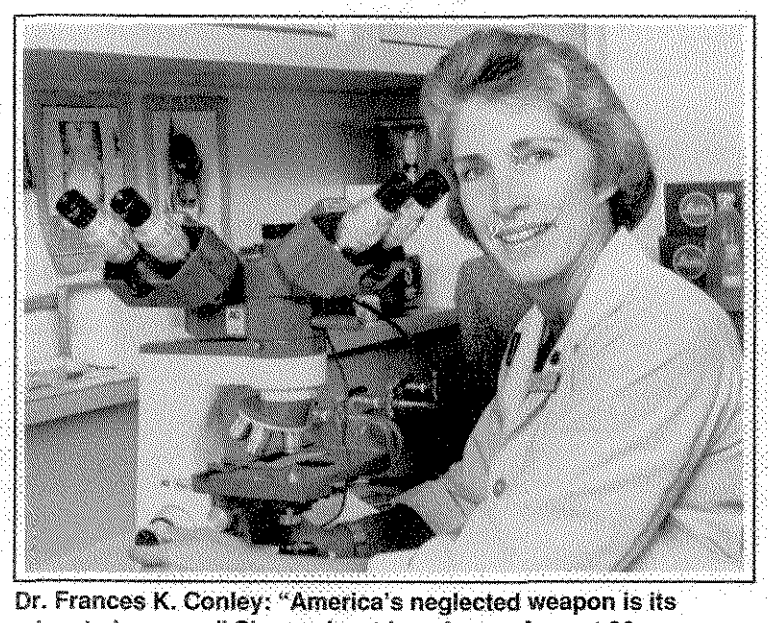
Board members include Gianfranco Manarini, Italian Space Agency; Bill Comer, Office of Safety and Mission Quality; William Mahoney, Payload Operations, Kennedy Space Center; John Wegener, Mission Operations, Johnson Space Center; Jim Strickland, deputy director of the Systems Analysis and Integration Laboratory at Marshall Space Flight Center; and Thomas Stuart, Office of Space Flight at NASA Headquarters.

Neurosurgeon Talks About Sexism In Workplace

Dr. Frances K. Conley, professor of neurosurgery at Stanford Medical School, presented the keynote address for the Center's celebration of Women's Equality Day at the H.J.E. Reid Conference Center on August 26.

Conley spoke about stereotypes and traditions and how society perpetuates those attitudes.

"We must consider the consequences of stereotyping and our ability to change, which is necessary if our nation is to benefit maximally from the diversity in our workforce," Conley said. "America's neglected weapon is its educated women. Women are an underutilized and under-appreciated source of talent and capability. Too many women are treated as though they don't belong in the work place and don't need or deserve careers. Because many of us have to, or want to, work, sexism has become an important 'ism' that prevents our society from fully incorporating diversity into our workforce or from optimally using the talent of that workforce."



Dr. Frances K. Conley: "America's neglected weapon is its educated women." She spoke at Langley on August 26.

Unintentional sexism

Conley said that most of the time, discriminatory behavior stems from stereotypic expectations and perceptions rather than deliberate animosity.

"When I am introduced as a neurosurgeon, many people are taken aback because I don't meet the 'Ben Casey' stereotype," she said. "We must broaden our perspective about what people can do rather than pigeonhole them with their appearance."

Director of Management Operations John Stokes, who delivered the official welcome and introduced Conley, said that statistically, Langley has the best equality record in the agency.

"However, true equality is yet to be attained," he said. "Management's job is to educate all levels of the workforce on the do's and don'ts, why's and why not's of equality. Our job is to show employees we really do care so when an incident does occur, it can be resolved quickly and to everyone's satisfaction."

Conley's talk, sponsored by the Federal Women's Program Committee, was videotaped and is available for viewing by calling Patsy Campbell, ext. 43291.

Students Get Hands-On In Rocket Payload Launch

Effort Is Part Of Space Grant

Three Virginia university students have found that it takes more than rocket scientists to support a space mission. The three—Amy Scoggin and Melissa Warner of Old Dominion University and Edgar Russell of Hampton University—are providing important support for a student-managed sounding rocket payload set for a mid-September launch.

The Colorado Student Ozone Atmospheric Rocket (CSOAR, pronounced "see-soar"), is designed to measure ozone levels over Wallops Island, site of the launch. The payload will be launched on a 16-foot Orion sounding rocket. Sounding rockets are suborbital spaceflight vehicles that support space and earth sciences research activities.

The payload will measure levels of ozone up to 60-kilometers in the atmosphere, the limit of its flight.

The project is being sponsored by NASA, the Colorado Space Grant Consortium and the Virginia Space Grant Consortium.

Colorado students have designed, built and are integrating components for the payload. The Virginia students have been coordinating public affairs activities for the mission and preparing for post-flight analysis of the data gathered by the payload instruments. Physics major Russell will use satellite data to verify the information received during the CSOAR flight. "This process is called 'ground-truthing' the data," he said.

Scoggin, a senior, and Warner, a 1991 graduate, have been with the project since the fall of 1991. They became interested in CSOAR while taking a public relations course as part of their degree work in English and journalism.

Their public affairs plan uses diverse techniques to generate media coverage. Scoggin and Warner gathered information by mail, phone and fax from more than 80 students working on the project at six Colorado universities. They wrote press releases, personality profiles, developed audiovisuals and planned media coverage for press conferences. They worked closely with NASA public affairs personnel, university representatives and print and electronic media.

Importance of public affairs

"One of the challenges was trying to explain to people the importance of public affairs in a project of this type," said Scoggin, a 1988 Hampton High School graduate. "Some of the engineering students were surprised to discover what an English major could contribute to a rocket project."

Said Warner: "Scientists and engineers need to know how to explain the importance of projects like this to the public. In an age of tight budgets and competing interests, this is even more true."

Competitiveness, Science Policy Transition Is Subject Of September's Colloquium

The transition in the United States from a science policy focused on basic research and specific national missions to a technology policy that includes international competitiveness will be the topic of the September colloquium.

The lecture Tuesday, September 15, will feature Daniel F. Burton Jr., executive vice president of the Council on Competitiveness, an industry and university consortium. Burton will summarize the lessons of the debate about critical technologies and review the implications for the federal research laboratories. His talk will be held at 2 p.m. in the H.J.E. Reid Conference Center.

Burton's overriding theme is that the federal labs have a new customer—U.S. industry—and need to develop new customer-driven programs to service its needs. The discussion will examine the role of the federal laboratory in technology and competitiveness from the point of view of U.S. industry. Burton will review the barriers to a more effective technology policy and examine some policies that can make technology transfer work for federal labs.

In his position on the Council on Competitiveness, Burton directs the technology program. Prior to joining the Council in 1987, he was the executive director of the Economic Policy Council. In 1985, Burton was a fellow in the U.S.-Japan Leadership Program and spent three months in Tokyo studying Japanese business practices and U.S.-Japan economic relations. He also worked as an international credit analyst and in the area of rural development in West Africa.

Burton has edited three books on the global economy and written numerous articles on international economics, most recently "Technology and Competitiveness," which appeared in *Foreign Technology Priorities for America's Future* and *Picking Up the Pace: The Commercial Challenge to American Innovation.* He also developed the Council's Competitiveness Index.

He has lectured on technology policy and testified before the Senate Subcommittee on Science, Technology and Space and the Joint Economic Committee on Technology and Public Policy. Burton has a bachelor of arts degree from the University of Pennsylvania and a master of arts degree in political economy from Columbia University. He is a member of the Council on Foreign Relations.

Langley To Sponsor Activities During Bay Days Celebration

Langley will take part in the Bay Days celebration, which is being held from Friday, September 11, through Sunday, September 13.

The Center will sponsor a paper airplane contest in the children's area Saturday at 3:30 p.m. and Sunday afternoon at 2 p.m. Children, divided into age groups, will build gliders from a single letter-size sheet of paper, using staples and Scotch tape if desired. The flights will be judged on accuracy (landing close to a designated spot) and endurance (time aloft), with winners having the best combined score for the two events.

The Virginia Air and Space Center will have a "Space Ball" outside in the courtyard area, flight simulators inside, and "make and take" crafts for children on the Observation Deck.

The Langley Commitment To Continuous Improvement

We've all heard the words—Total Quality Management, or TQM—but what do they really mean? What do they mean to Langley, to its employees, from management on down, and to the American taxpayer and the United States?

Where is the process of implementing TQM taking us as a Center? What have we accomplished so far? Where do we stand now? What does the future hold?

And most importantly, why?

These are short questions . . . but they have long answers. This article will provide those answers, beginning with why, followed by a definition of TQM, and then a summary of its history both globally and at Langley. Finally, we will wrap it up with a look at what we have achieved to date, what's taking place now and what's in store for Langley.

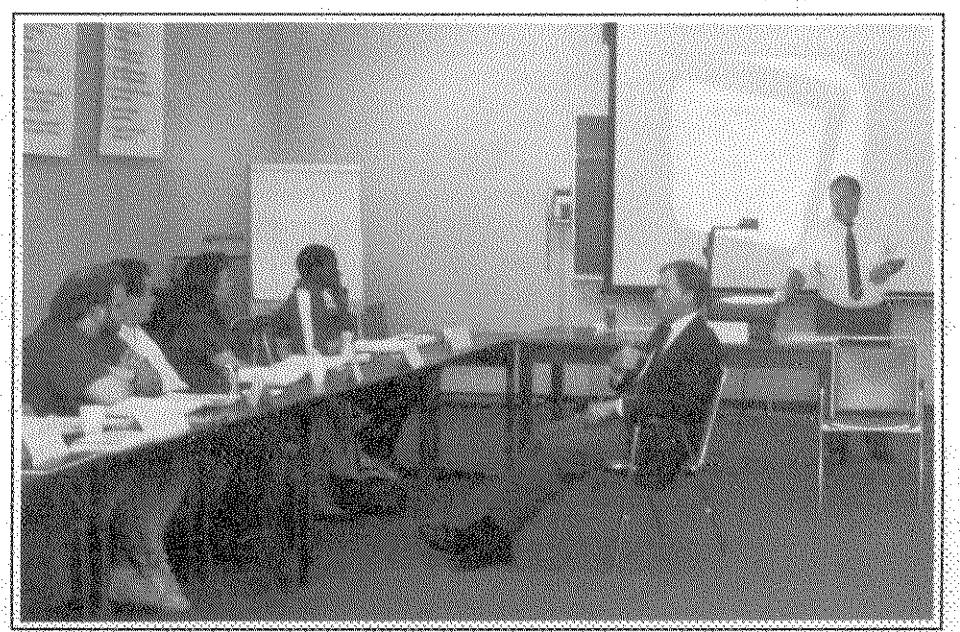


Photo by Fred Janes

Center Director Paul F. Holloway makes a point during a TQM training class. The man in front of him is an interpreter for the hearing impaired.

Here's 'why'

In a word: competitiveness. Currently, the U.S. maintains economic supremacy over the aerospace industry.

"It is one of the last remaining U.S.-lead industries in the world marketplace," says Langley Director Paul F. Holloway. "But foreign competition is closing in rapidly and threatening to take this edge away. Total Quality Management may be the key to the economic survival of our aerospace industry."

If lost, this nation's edge might never be regained. Preventing this from happening will require a transformation in the American style of management and the dedication and commitment to excellence of the people of our nation. TQM is the management philosophy that can bring this transformation about.

This view is held by President Bush, who said, in the book *Excellence in Government*, "Reasserting our leadership position will require a firm commitment to Total Quality Management and the principle of continuous improvement . . . to the public sector as well as private enterprise."

Says Holloway: "I am convinced that implementation of this management philosophy will result in improved productivity and make Langley an even better place to work."

TQM: a definition

But what is TQM? Total Quality Management has been defined variously, but the meaning used by Langley states that it is a process designed to focus on customer expectations, preventing problems, building commitment to quality in the workforce, and promoting open decision-making. It involves all managers and employees and uses quantitative methods to continuously improve an organization's processes.

Langley's TQM effort is based on five essentials and eight elements:

The **five essentials:**

- Quality is consistent conformance to customer expectations.
- Measurements of quality are through indicators of customer satisfaction, versus indicators of self-gratification.
- The objective is conformance to expectations 100 percent of the time.
- Quality is attained through prevention and specific improvement projects.
- Management commitment leads the quality process.

The **eight elements** are:

- Management leadership for quality improvement.
- Organization for quality improvement.
- Education for quality improvement.
- Develop sensitivity for customer expectations.
- Quantifying conformance for quality improvement.
- Communication for quality improvement.
- Action for quality improvement.
- Annual plan for quality improvement.

"TQM is based on the belief that everyone wants to do a good job and that overall performance is enhanced when employees are assisted, coached, trained and supported rather than directed and controlled," said Holloway.

Roots

Total Quality Management stems from the work of W. Edwards Deming, who used TQM to help Japan become an industrial superpower after World War II. Other figures who played a key role in helping the Japanese with quality improvement include Joseph M. Juran, Armand V. Feigenbaum, Kaoru Ishikawa and Genichi Taguchi.

During World War II, the U.S. itself used a form of quality control. The government devised a specification that related to a sampling method of quality control for defense contracts. But after the war—and the defense contracts—ended, so did many of the programs associated with statistical quality control. Emphasis in American manufacturing returned to production after the war. The American consumer was impatient. Greater demand was placed on getting a car—any car—rather than getting a quality product.

Ironically, as the U.S. was disregarding its quality programs, the Japanese—at our urging and with our help—were beginning theirs.

VISION

To be the world leader in pioneering science and innovative technology to ensure U.S. aeronautical and space preeminence.

MISSION

The mission of the Langley Research Center is to increase the knowledge and capability of the United States in a full range of aeronautics disciplines, selected space disciplines and in atmospheric science. This mission will be accomplished by:

§ Performing innovative research relevant to national needs.
§ Transferring technology to users in a timely manner.
§ Providing development support to other U.S. government agencies, U.S. industry and other NASA centers.

VALUES

§ Technical excellence, integrity and achievement.
§ Challenging programs which push the limits of technical accomplishment.
§ A research environment that fosters innovation, creativity and personal growth.
§ A diverse, highly skilled and enthusiastic work force.
§ A highly productive, safe, efficient and cost-effective operating environment.
§ Continuous quality improvement through consistently striving to meet customer expectations.

Back to the present

While the process called TQM is new to Langley, related concepts were introduced here in 1982 with the establishment of Quality Circles. This was followed by Strategic Planning in 1985, Langley Improvement Teams in 1988 and SCAN in 1990.

Total Quality Management found its way to Langley about two years ago under the leadership of then-Director Richard H. Petersen, now associate administrator for the Office of Aeronautics and Space Technology at NASA Headquarters. Holloway has since taken the baton and enthusiastically continued the effort.

And Administrator Daniel S. Goldin, who took over NASA's helm last spring, is a strong advocate of TQM. Goldin, while a vice president at TRW, was deeply involved in TQM under the banner of Continuous Process Improvement (CPI). Goldin's commitment to this philosophy has reinforced Langley's TQM efforts.

To train Langley's staff in TQM, 3M Management Services was picked from four expert consultant management firms interviewed in 1991. Twenty-eight Langley employees were sent to St. Paul, Minn., last fall to become inhouse facilitators, and more are being trained. Senior staff members and division chiefs were the first to receive awareness training.

What's happening

Currently, Langley's inhouse facilitators are providing two-day awareness training sessions for the rest of the civil servant workforce. As of the end of August, 1,375 employees had been trained—nearly half the workforce. Contractor employees are being trained on a space-available basis. The goal is to train 90 percent of employees by the end of 1992 and all employees by March 1993.

In addition:

- A Langley Contractors Steering Council was established in November 1990 to identify Center-wide issues to be cooperatively worked, to initiate study teams of Steering Council Members or Quality Action Teams and to inform Center management and employees of accomplishments. The Contractor Steering Council designed an Education Initiative to stimulate the interest of middle school students in education and to improve the future workforce through the involvement of NASA. Suggestions were solicited from school officials in the cities of Hampton, Newport News, Poquoson and Williamsburg, and the counties of York and James City. Each school system suggested ways to show middle school students how to prepare for a career in the aerospace industry. The Langley contractor and civil service team developed the products that will be made available to the school systems for pilot validation in the classroom during the 1992-93 school year.

Process Is Key To Economic Survival

■ A Quality Steering Team was established to provide guidance and assistance on policy and/or procedural determinations, to facilitate the development and continuance of the TQM initiative at Langley, to inform employees of continuous improvement developments and accomplishments and to support facilitators and Quality Action Teams. Steering team members consist of Langley's senior staff and union representatives, and the Center director is its chairman.

■ Langley's senior staff is finalizing an Annual Quality Plan to be integrated with the Center's Strategic Plan. (The Center's Vision, Mission and Values are shown in a box on the previous page.)

■ Langley facilitators are receiving training on problem-solving tools that they will use to help implement TQM at the Center and to help Quality Action Teams (QATs) formed to investigate and recommend process improvements and solutions to specific problems. They also will help develop Annual Quality Plans throughout the Center. A list of their names is on Page 6.

Ongoing continuous improvement projects at the Center include:

Procurement

Bob Moore, assistant director for the Management Operations Directorate, is heading a Procurement Process Continuous Improvement Demo Project. The Steering Committee includes Irving Abel, Bill Henderson, Reggie Holloway, Milt Holt, Bill Kivett, Alice Massey, Anne St. Clair, Mary Ann Smith, Joe Struhar, Scott Wagner and Bob Wingate.

Quality Action Teams have formed to study each of the following areas:

■ Purchase request process.
■ Award fee process.
■ Rules vs. policy - perception vs. facts.
■ Procurement training, information, timeliness, communications.
■ Ordering, receiving and inspection processes.
■ Funding processes.

The Purchase Request Process QAT worked from mid-April to mid-July to completely document the flow of purchase requests from originator to close-out. This study, headed by Chris Tremper and Sandra Ray, resulted in specific recommendations to improve the process in three phases:

Phase 1

■ Reduce directorate and division purchase request reviews by allowing each directorate to establish their own dollar thresholds for review.

■ Modify the functional review process to accelerate delivery of purchase requests to buyers.

■ Enhance the electronic purchase request system (EPRS) architecture/graphics by incorporating recommendations from the Purchase Request Process study and users configuration control requests for changes.

Phase 2

■ Integrate purchase request process with existing computer applications to minimize flow time.

■ Automate the generation of the receipt and inspection process to facilitate the electronic passing of data to the cost and disbursement process.

Phase 3 will move to a completely paperless system by incorporating imaging technology in the purchase request process to capture all external documents associated with purchases, contracts and grants.

Phases 1 and 2 will be carried out over the next 12 months. Another QAT will be formed later for Phase 3.

Future articles will focus on the other areas of the procurement process being studied by Quality Action Teams.

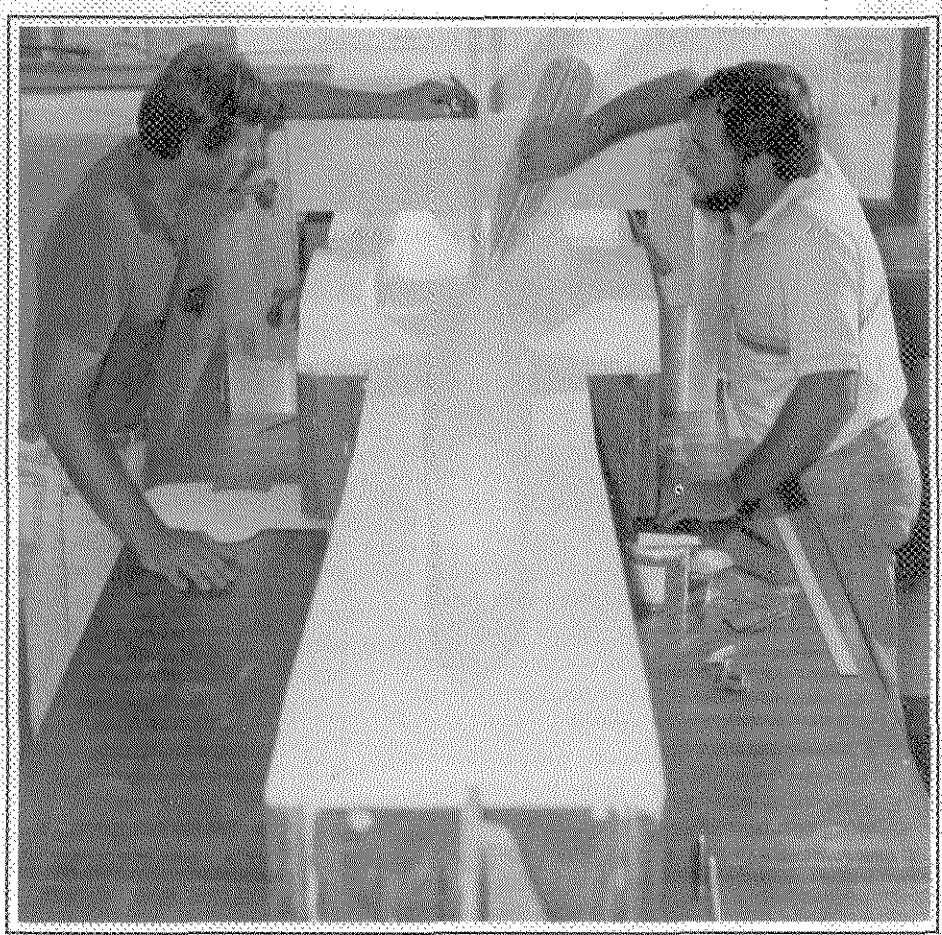
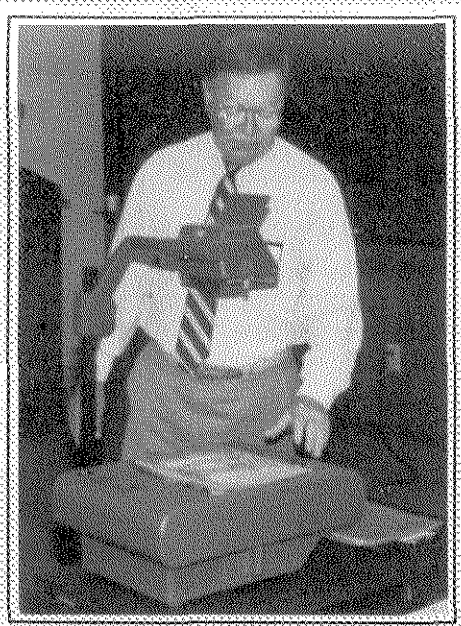


Photo by Peggy Pancoast

Glen Ormsby, left, and Dave Rollins work on an F-18 freeflight model for the Fabrication Division. The division is formulating ways to improve service to customers in the design and fabrication of models and related hardware.



Bob Moore

Technical reports

A Quality Action Team was formed to examine the process by which technical publications are written and approved within the Fluid Mechanics Division, whose chief, Doug Dwoyer, is heading this initiative. The team will determine problems, recommend solutions and form an evaluation process to determine the effectiveness of the project. The study was implemented because it was felt that the overall quality of technical publications was not up to par with the quality of research. In addition, the approval time through the system is too long and often frustrating. Recommendations will be made to streamline the process. The project involves placing a technical editor and a graphics person in the Computational Fluid Dynamics lab as a "productivity enhancement" experiment.

Streamlining LMIs, NMIs

During a conversation with Center Director Holloway, Administrator Goldin in May "empowered" Holloway to propose revision or elimination of NASA Management Instructions (NMIs) and NASA Handbooks (NHBs) that hampered his ability to manage Langley.

Before tackling the NMIs, Holloway wanted to make sure Langley's house was in order. A Quality Action Team of 14 employees, empowered by Holloway, began in July to look at Langley Management Instructions (LMIs) and Langley Handbooks (LHBs). Thus far the team has reviewed 494 Langley and NASA instructions under the leadership of Ron Krodel, chief of the Management Support Division. As of August 20, 19 LMIs and 10 LHBs had been identified for which signature authority could be reduced to lower organizational or functional levels; five LMIs and two LHBs that can be canceled; 33 LMIs and six LHBs that can be consolidated and 28 LMIs and 20 LHBs that require minor revisions. Next, about 100 NMIs and NHBs will be reviewed, with recommendations anticipated by later this fall. Finally, about 175 Langley forms will be reviewed.

On-The-Spot Awards

On-The-Spot Awards were initiated in March and are intended to quickly recognize one-time, short-term efforts that result in service of exceptionally high quality. Examples include situations in which employees produce exceptionally high quality work under tight deadlines; perform added or emergency assignments in addition to their regular duties; or exercise extraordinary initiative or creativity in addressing a critical need or difficult problem. Award amounts range from $50 to $300. This award takes only three days to process, compared with about three weeks for Superior Accomplishment Awards. All NASA employees, except for those in Senior Executive Service, are eligible.

Helping disabled employees

A process is being developed for incoming employees who are disabled to determine what accommodations will be needed, such as an interpreter, special equipment or facility modifications. The Disability Program Manager, Diane Forrest, will contact the employee before he or she starts working to determine his or her needs, then meet with the person's supervisor, mentor and facility coordinator to ensure those needs are met. The manager also will meet with the employee during in-processing to ensure that all needs are met and to take care of others that arise. Langley has six hearing-impaired employees who use interpreting services from time to time. Until this summer, Langley had to contract out to provide interpreters. Now, the Center has a full-time interpreter who is nationally certified by the Registry of Interpreters for the Deaf who can be called on quickly, by phone or in writing, to attend meetings, conferences or classes with the employee. In addition, sign language classes are being offered to employees interested in learning how to communicate with the deaf or hard-of-hearing through the Office of Equal Employment Opportunity Programs.

Union involvement

The American Federation of Government Employees and the Pattern Makers local of the International Association of Machinists is playing a key role in the implementation of TQM at Langley. Union representatives are members of the Quality Steering Team and also will participate in Quality Action Teams and Process Improvement Teams formed to look into personnel policies, practices and working conditions affecting bargaining unit employees. TQM, however, is not a substitute for the unions' roles as exclusive representatives of bargaining unit employees. Their places are firmly secured by the federal Labor Relations Statute and collective bargaining agreements that establish a broad range of personnel rules and working conditions. Center management is committed to ensuring that the unions' rights and agreements are not abrogated by TQM initiatives and that traditional areas of collective bargaining will continue to exist. TQM processes do not provide an automatic exception to this. Both unions have expressed support for TQM, and Holloway assured leaders that "there is no

Please see **QUALITY**, *next page*

Computer Expo Set For Conference Center

A Computer Expo will be held Wednesday, September 30, from 10 a.m. to 3 p.m. at the H.J.E. Reid Conference Center.

Attendees will be able to compare scores of products at one time and in one location.

The expo is being hosted by the Evaluation and Information Center and will feature hands-on demonstrations of the latest information systems products and services, including CD ROM and multimedia, laser printers, laptops, networking, database, CAD, microcomputers, graphics and software

Vendors

Industry vendors will include ALPS America, AT&T, FSAT, Beyond Inc., Borland, Central Point Software, CompuADD, Dell, ECCS Inc., EER, Egghead Discount Software, Fox Software, Frame Technology, GMS, Government Micro Resources, GTSI, ICN, Int'l Data Products, Madge Networks, Megadrive Systems, Microdyne, Micromagnetic Inc., Peak Technologies, Polaroid, Reference Software, Software Publishing, Todd Enterprises, WordPerfect, Xerox and Zenith Data Systems.

The expo is open to all federal and military personnel. Refreshments will be served.

Retirees May Order 75th Book

Langley's 75th Anniversary commemorative book, *Winds of Change*, is available to retirees by contacting Cathy Schauer, anniversary chairman, at Mail Stop 154 or (804) 864-3314.

The book is filled with historic photos and interviews with researchers who have dedicated themselves to the future of air and space flight.

NASA Magazine Is Available

The summer edition of *NASA Magazine*, saluting Langley's 75th Anniversary, is available by stopping by the Public Information Office, Building 1153, Room 115.

CFC Kickoff September 23 Features Two Speakers

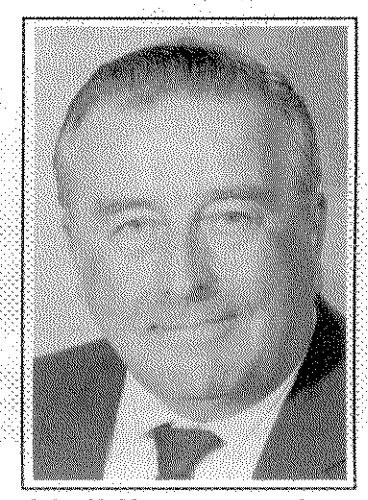
Heads Of Foodbank, Planning Council Will Be Guests

Langley will begin the 1992-93 Combined Federal Campaign (CFC) with a special kickoff ceremony Wednesday, September 23.

Jean C. Bruce, executive director of The Planning Council in Norfolk, and John N. Marston, executive director of Foodbank in Newport News, will be the guest speakers. The kickoff will be held for all employees at 2 p.m. in the H.J.E. Reid Conference Center. The national CFC film, "Gifts From The Spirit," will be shown during the program.

Bruce will address the results of the recent Peninsula community needs assessment. The council has a 50-year history of helping communities understand and meet human service needs. Her staff has worked with public and private corporations and produced more than 10 reports in the last two years.

Jean C. Bruce, executive director of The Planning Council, will be one of two guest speakers at the kickoff ceremony.



John N. Marston, executive director of Foodbank, will speak at the kickoff.

See related stories on Page 1.

Governor's appointee

Bruce has been with the council since 1968 and has been responsible for the administration of military family service centers, child care programs, child abuse programs and family life education in public schools.

She is a governor's appointee to the Southern Governor's Conference on Infant Mortality, Strategic Task Force on Teen Pregnancy Prevention; chairman, Virginia Council on Adolescent Pregnancy Prevention; and serves on the state Board of Social Services Board of Directors, Council for America.

Bruce was named one of the Top Ten Professional Women of Tidewater in 1990.

Marston will discuss the work of the Foodbank and how the organization collected and supplied food to Hurricane Andrew victims in Homestead, Fla.

There are 200 Foodbanks in the country that are part of Second Harvest, a nonprofit group that channels food and groceries to the needy.

Marston has been with Foodbank since August 1991. Previously, he worked in the banking industry from 1975 to 1990 and retired as vice president at Perpetual Savings Bank.

He served in the Air Force for more than 20 years. He received Financial Services Advocate Award for Virginia, federal Small Business Administration, in 1990.

Marston is a member of the Virginia Peninsula Chamber of Commerce, Virginia Peninsula Economic Development Council, Hampton Roads USO and Peninsula Home for the Aged.

QUALITY:

Continued from previous page

intent to diminish the impact of Langley unions . . . we need to work together to achieve common objectives of trust and employee empowerment."

Career paths

As a result of a SCAN Team recommendation, the Career Development Center established a mandatory 16-hour Career Guidance Workshop for all supervisors, managers and executives to heighten awareness of supervisors' roles as career developers. Senior management determined that all new employees would be assigned an advisor for guidance and assistance during their first year of employment. As a result of this program, new employees become more technically productive in a shorter time, and supervisors benefit from the more timely accomplishment of tasks. Both employees and supervisors benefit from an environment that is more conducive to professional development and career management. The workshop focuses on training supervisors in their roles of being a coach, appraiser, advisor and referral agent.

And so on

Several other continuous improvement projects also are underway. For example, a QAT is devising ways to improve service to customers in the design and fabrication of aerospace models and related hardware. The Systems Safety, Quality & Reliability Division (SSQRD) is conducting a survey aimed at evaluating improvement. The Electronics Directorate is looking at how to reduce the costs on mass-buys of personal computers. The Structures Directorate is examining its report/paper review and career-development processes.

The Management Operations Directorate's Photo Lab is determining how to improve its products—vugraphs, slides, color prints, etc. The Financial Management Division and the Human Resources Management Division participated in an Agency process improvement team working on retirement records processing. Because Langley gets its retirees' records to the Office of Personnel Management within the required 30 days of separation, the Center was asked to show other team members how to do it.

Photo by Fred Jones

Among Langley's facilitators are, from left, standing: Guy T. Kemmerly, Russell McHatton, R. Scott Young, Christyle M. Chamblee, Michael Glenn, J. Milam Walters, Bob Moore and Doug Dwoyer, and presenters Ben Schlichenmayer and Reggie Brown. Left to right sitting: Howard R. Puckett Jr., Allison Ballew, Doreen O. Neil, Irwin J. Schauer, Davis B. Wright Jr., Christopher L. Rumsey, Charles E. Jenkins Jr. and Delvin R. Croom Jr. Not shown: Frederick O. Allamby, Laurie W. Andrews, James G. Batterson, David C. Beals, Debra J. Carraway, Peter J. Edgette, George B. Finelli, Jerry L. Garcia, Arthur L. Gooden, Gretchen Gottlich, Roderick Harvey, Bruce D. Little, Donna L. Martin, Thomas M. Moul, David B. Rhodes, Gail Gibbs Scott, Woodrow Whitlow Jr., Davis B. Wright Jr. and Henry N. Zumbrun.

Future articles will address these and other continuous improvement projects as they develop.

"These teams have adopted the philosophy that whatever we do today, we'll do even better tomorrow," said Holloway. "I am proud of these individual and team efforts and hope they will be a prominent feature of how we do business in the future."

Employee Awards

ON-THE-SPOT AWARDS

Scott M. Bartram, engineering technician, Instrument Resources Division (IRD), for key contributions to the first successful application of a particle image velocimeter to a Mach 6 flow resulting in unique global velocimetry measurements of a NASP 201 model velocity field.

Kevin N. Barnes, electronics technician, Information Systems Division (ISD), for timely relocation and modification of laboratory facilities to minimize downtime and support continued research.

Hal A. Aldridge, electronics engineer, ISD, for dedicated efforts and skill in bringing the ARM II manipulator system to operational capability.

Paul F. Brown, electrical engineering technician, Operations Support Division (OSD), for dedication in an area of unfamiliarity and inexperience to minimize the downtime of two major facilities.

Everett R. Causey, engineering technician, OSD, for excellence as the technical project engineer on the installation of new street signs throughout Langley Research Center.

Paul C. Davidson, computer specialist, Business Data Systems Division (BDSD), for outstanding leadership in the installation and acceptance of the new business computing mainframe.

Mary H. Deuell, computer specialist, Acquisitions Division (AD), for superior performance and dedication during the installation and upgrade of the division's Novell network.

Lindy Fleck, aerospace technologist, Facilities Engineering Division (FENGD), for outstanding contribution to the 8-Foot High Temperature Tunnel data reduction and analysis.

Luther R. Gartrell, electronics engineer, IRD, for significant contributions to the first successful laser Doppler velocimetry measurements of a NASP 201 Mach 6 flow field and boundary layer.

Kevin J. LaFerriere, engineering technician, OSD, for exceptional skill, initiative and dedicated support to research conducted in the 31-Inch Mach 10 and 15-Inch Mach 6 tunnels.

Judy R. Neil, secretary (stenography), Facilities Program Development Office, for dedicated professional secretarial support to the Non-Advocate Review (NAR) Team in preparation of the final 151-page report on the Ames Moffett Field Transition.

James A. Phillip, engineering technician, OSD, for excellence as the technical project engineer on the Building 1300 basement rehabilitation project.

Carol H. Satterwhite, secretary (typing), IRD, for outstanding contributions to the NASA Langley Measurement Technology Conference and the American Institute of Aeronautics and Astronautics (AIAA) Sciences Meeting.

Charles A. Sweet, electrical engineering technician, OSD, for hard work, dedication, follow-up support and a genuine desire to obtain operational status in a short period of time.

SUPERIOR ACCOMPLISHMENT AWARDS

Pamela J. Schmidt, student trainee (clerk stenographer), Hypersonic Technology Office (HTO), for outstanding secretarial support to the Numerical Applications Office and HTO.

Stanley E. Woodard, aerospace engineer, Structural Dynamics Division (SDyD), for co-authoring the report selected by a committee of peers as the outstanding scientific paper documenting SDyD-sponsored, in-house research in 1991.

Sharon L. Padula, aerospace engineer, Structural Dynamics Division, for co-authoring the report selected by a committee of peers as the outstanding scientific paper documenting SDyD-sponsored, in-house research in 1991.

Dr. Jae H. Park, senior research scientist, Atmospheric Sciences Division (ASD), for superior achievement in the development of methods of correcting HALOE trace gas data for the effects of stratospheric aerosols.

David F. Rollins, engineering technician, Fabrication Division (FD), for exceptional performance on the T-45 spin model.

Rolando F. Padilla, engineering technician, FD, for exceptional job performance and dedication.

Warren S. Hartraft, engineering technician, FD, for outstanding devotion to the Wind Shear Laser Project.

Michael G. Fleck, engineering technician, FD, for exceptional performance in the implementation of the Pro-ENGINEER CAD/CAM system in the Advanced Machining Development Section.

Norman F. Willey Jr., quality assurance specialist, FD, for excellence in the performance of quality assurance assignments on the NTF Fan Blade Fairings procedures to improve efficiency in manufacture.

Patricia A. West, administrative officer, Flight Application Division (FAD), for superior accomplishment in the planning and administration of the retirement ceremony for the NASA F-106B research airplane.

Paul R. Pfeffer, supervisory aerospace engineering technician, FAD, for outstanding performance as supervisor, Research Aircraft Support Section.

Nathan R. Johnson, quality assurance specialist, FAD, for outstanding support of the Airborne Field Mill Program.

Ashton D. Brown Sr., aerospace engineering technician, FAD, for outstanding support of the Airborne Field Mill Program.

Michael D. Vaccarelli, electrical engineering technician, OSD, for excellence in the design of a replacement fuel flow monitor at the 8-Foot High Temperature Tunnel.

Robert P. Rhinehart, aerospace technologist, ASD, for outstanding performance in managing ASD financial resources and as a consultant to the Atmospheric Sciences Support Services Contract SEB.

Geraldine M. Rankin, secretary, Space Systems Division (SSD), for outstanding contributions associated with the proposed implementation of the new Time and Distribution System (TADS) for Center-wide use.

Margarette Pitts, secretary, SSD, for outstanding contributions associated with the proposed implementation of the new Time and Distribution System (TADS) for Center-wide use.

Althea O. Brown, secretary (stenography), SSD, for outstanding contributions associated with the proposed implementation of the new Time and Distribution System (TADS) for Center-wide use.

Pamela K. Brown, secretary (stenography), SSD, for outstanding contributions associated with the proposed implementation of the new Time and Distribution System (TADS) for Center-wide use.

Diane H. Andrews, secretary (stenography), SSD, for outstanding contributions associated with the proposed implementation of the new Time and Distribution System (TADS) for Center-wide use.

Robert L. Myers, engineering technician, FD, for outstanding and extraordinary effort to the F-18 HARV Program.

Catherine A. McCargo, resources control assistant, FD, for exemplary performance in support of the Fabrication Division's Management Information System.

Valinita L. Johnson, resources control assistant, FD, for exemplary performance in support of the Fabrication Division's Man-Hour Accounting System.

JoAnn W. Hudgins, mathematician, ACD, for outstanding contributions that resulted in the orderly close-out of the Aeroassist Flight Experiment Project Office.

Carol M. Forrest, administrative officer, SSD, for outstanding contributions in initiating an order system for the effective coordination and execution of the merit pay performance appraisal functions.

Michael H. Durham, aerospace engineer, SDyD, for the development and implementation of a new data transfer system which significantly contributed to the success and productivity of the Benchmark Models Program.

Jennifer Heeg, aerospace engineer, SDyD, for performing highly original and innovative research to extend and demonstrate, through wind-tunnel testing, the use of smart materials for actively suppressing flutter and alleviating the aeroelastic response and loads due to buffet.

Dr. Kenny B. Elliott, aerospace engineer, SDyD, for outstanding achievement in developing, procuring and accepting a large scale structural test data acquisition system for the Spacecraft Dynamics Branch.

Dr. Lucas G. Horta, aerospace engineer, SDyD, for outstanding achievement in development of the CSI Phase-One Evolutionary Model Truss hardware.

Lisa E. Jones, aerospace engineer, SDyD, for outstanding success in coordinating and conducting twelve F-111 Crew Module Drop Tests at the Impact Dynamics Research Facility (IDRF) and providing quality data to the Air Force under an extremely tight, externally imposed time schedule.

Donald F. Keller, aerospace engineer, SDyD, for outstanding analytical and experimental efforts in support of the NASP Engine Flutter Evaluation (Government Work Package 71A).

Elizabeth M. Lee, aerospace engineer, SDyD, for outstanding contributions to the development of advanced methods for computational aeroelastic analysis of the National Aero-Space Plane.

Walter A. Silva, aerospace engineer, SDyD, for contributions in verifying computational aeroelasticity methods.

Joanne L. Walsh, aerospace engineer, SDyD, for exceptional performance in the development and validation of a fully-integrated aerodynamic-dynamic rotor blade optimization procedure.

Gregory J. Brauckmann, aerospace engineer, SSD, for significant contributions to the hypersonic aerodynamic/fluid dynamic assessment of National Aero-Space Plane Configuration 201.

Vicki K. Crisp, AST, technical management, SSD, for outstanding contributions to the efficient and effective management of the fiscal and technical program process in the division.

Floyd N. Ayres, engineering technician, OSD, for designing and installing the Laser Velocimetry Flow Measurement Systems in the LTPT, 20-Inch M6, M6 HRN and Jet Noise Research Facilities.

Michael P. Blythe, electronics engineer, Flight Electronics Division (FED), for sustained outstanding technical leadership and problem resolution in the development of the Lidar In-Space Technology Experiment Electronics Subsystem.

David E. Cordner, computer engineer, Analysis and Computation Division (ACD), for outstanding performance in the development of the EOSDIS Distributed Active Archive Center at Langley.

Margaret Foster, secretary (typing), Systems Safety, Quality & Reliability Division (SSQRD), in recognition of excellent support to coordinate the T&A transition to a variable flex time work schedule and to organize the Systems Assurance Branch filing system.

Robert F. Hill, electronics technician, FED, for outstanding innovation and sustained exceptional support to the development of the Lidar In-Space Technology Experiment Electronics Subsystem.

Robert L. Jones, computer engineer, ISD, for conception and development of the first multipurpose dataflow analyzer compatible with the enhanced ATAMM multicomputing strategy.

Wayne L. Kitchen, electronics engineer, FED, for sustained technical leadership and design contributions in the development of the Lidar In-Space Technology Experiment Electronics Subsystem.

Albert L. Motley III, electronics engineer, FED, for technical leadership of the Tunable Laser Subsystem Electronics development effort, including the initiation of the Lamp Driver Unit development contract for the Lidar Atmospheric Sensing Experiment.

Michelle Perez, clerk-typist, FD, for exceptional job performance and dedication to duty.

John J. White II, aerospace engineer, Flight Management Division (FltMD), for the outstanding performance toward fulfilling both operations manager and flight test director duties from September 1991 to March 1992.

James B. Williams, electronics technician, FED, for sustained technical leadership and exceptional support in the development of the signal processing subsystem of the Lidar Atmospheric Sensing Experiment.

Happenings

THE FEDERAL WOMEN'S PROGRAM Committee will meet Wednesday, September 16, from 8:30 to 9:30 a.m. at the H.J.E. Reid Conference Center.

THE LANGLEY CHAPTER, Federally Employed Women, will meet Thursday, September 24, from 11:30 a.m. to 12:30 p.m. at the NCO Club at Langley Air Force Base.

TOWNHOUSE FOR RENT: 1,800 square feet, available October 1. One-year lease required. Living room, dining room, kitchen with appliances, family room with fireplace, 2½ baths, three bedrooms (master is very large), pool, fenced back yard, excellent schools, $725 a month. Call 898-8463 evenings.

TOASTMASTERS meetings the second and fourth Wednesday of each month from 11:30 a.m. to 1 p.m. The next meeting is September 23.

FREE AEROBICS: Get energized with NASA aerobics! Open to all employees and contractors. Low-impact with interval weight training classes in the LAA gym. Body Dynamics are held Monday, Wednesday and Friday from 6:15 to 7:15 p.m. Lunchtime Energizer is held from 11 to 11:45 a.m. For more information call ext. 46387.

LAA SOCIAL HOUR will be held Friday, September 11, from 4 to 6:30 p.m. A September 25 social hour "So Long Summertime" will be held from 4 to 8 p.m. and feature the music of deejay Dale Ashcom; cover charge is $1.

THE NASA-LANGLEY APICULTURE CLUB (Honeybunch) will meet at 7 p.m. September 21 in the executive dining room of Building 1213. A video program entitled "The Workable Africanized Honey Bee" will be presented. All interested persons are welcome. For information call Henk at ext. 47226.

CAR FOR SALE: 1977 Corvette, 16,000 original miles, L 82 engine, 4 speed. Original dark red paint, leather interior, optional special mirrors and wheels, $20,000 firm. Call 864-3215 or 220-9500.

GODDARD BOUND? House for rent, Annapolis, tri-level contemporary home three BR, two BA, LR, DR, FR, eat-in kitchen, utility room, workshop, 2,000 square feet, pristine condition inside and out. All appliances convey, $1115 per month (lease required) 827-8452 after 6 p.m. or 267-5221 (8 a.m.-5 p.m.)

ROOMMATE WANTED: For large 3-bedroom house with eat-in kitchen, garage and house privileges, fireplace, lots of benefits. Only $300 a month including utilities. Call digital pager at 872-5241.

THE TENNIS CLUB will hold its annual summer picnic Tuesday, September 22, from 4:30 p.m. until dark at the picnic grounds by the courts. There will be food, drink and lots of tennis. Members get in free if they bring a homemade dessert, other wise the cost is $2. Guest are welcome for $3.50 each. For more information call Sue Sorokach at ext. 41533.

A PICNIC REUNION is planned for past and present members of the Acquisition Division on October 2 at 4:30 p.m. on the grounds of the H.J.E. Reid Conference Center, rain or shine. Cost is $5 per person. For more information call Shirley Evans, ext. 42478.

HOUSE FOR SALE: Harpersville area of Newport News, 1650 square feet, brick and aluminum siding, two-story Colonial on a quiet street, four bedrooms, living room, dining room, den with fireplace, eat-in kitchen with dishwasher and pantry closet, hardwood floors, large closets, gas heat and hot water, central air, fenced back yard, one car garage attached, 15 minutes to LAFB, $89,900 call 599-5453.

HOUSE FOR SALE: Hampton, Willow Oaks, 4-bedroom brick rancher, 218 Missionary Ridge, 2 baths, living room, dining room, eat-in kitchen, den, utility room, garage, central air, gas heat, hardwood floors, patio, 1,980 square feet. Great neighborhood, excellent schools, available October 1, $117,900. Call 851-0552.

ROOMMATE WANTED: Looking for female to share a beautiful 2-bedroom riverfront house in Fox Hill. Has all utilities plus Jacuzzi and garage, $375 a month plus half utilities. Available October 1. Call 850-4756.

SKI TRIP: A NASA-wide ski trip to Sun Valley, Idaho, is planned for the week of Jan. 9-16. This package is available to all Langley employees, contractors and their family members. For more information and reservations, call Tom Yager, NASA Langley ski trip coordinator at 41304 or 874-6819 (home).

ROOMMATE WANTED: Looking for males to share three-bedroom house for $200 a month including utilities. Call 723-4782 and ask for Stephen.

LOW-IMPACT AND BENCH AEROBICS classes are held Tuesdays and Thursdays from 5 to 6 p.m. in the LAA gym. Cost is $12 per month or $6 per month if attending only one day a week. Free body composition and analysis and blood pressure screening is available before class. The classes are open to employees, contractors and their families. Call ext. 42295 for more information.

LUXURY FOR A WEEK: Spend September 19 to 26 at West Gate Villas, Orlando, Fla. Ground-floor condo a mile from Disney World. The 2-bedroom will sleep six with a king and two queen beds and a sleeper sofa. Includes kitchen, laundry, dining and living areas, screened porch, wet bar, Jacuzzi, paddle boats, bikes, free poolside breakfast. A videotape, slides and pictures are available. $700 for the week. Call 868-9709.

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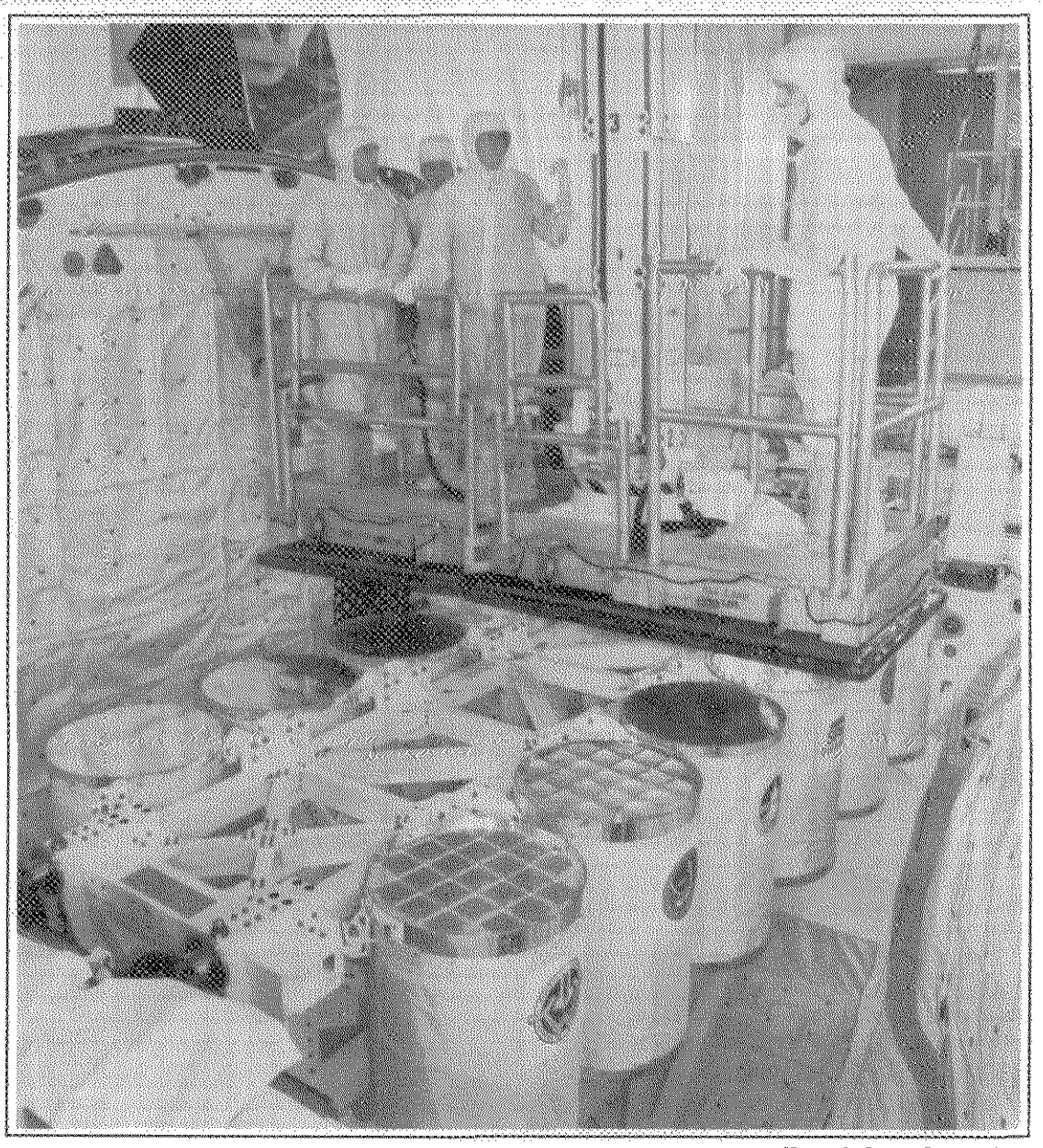
Researcher News



Kennedy Space Center photo

Members of the STS-47 crew and Kennedy support personnel inspect the payloads in the cargo bay of the orbiter Endeavour. To the right is the primary payload, the Spacelab-J laboratory, which contains 34 experiments provided by Japan, seven from the United States and two run jointly. Mission commander is Robert Gibson. Curtis Brown is the pilot. Mission specialists are Mark Lee, Jay Apt, Jan Davis and Mae Jemison, the first African American woman to fly in space. The first Japanese to fly on a NASA spacecraft will be payload specialist Dr. Mamoru Mohri. STS-47 was scheduled for launch the morning of September 11.

1917 - 1992
75 Years
NACA
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Langley Research Center

Langley Researcher News

Bi-weekly Employee and Contractor Publication
Volume 6 ◆ Issue 18 ◆ September 25, 1992

DIRECTOR'S MESSAGE

Congratulations, Graduates Of 1992 Apprentice Class

Coverage begins on Page 8.

Two congratulatory messages are in order for this year's Engineering Technician Apprentice Program, which graduates its 1992 class October 2.

First, let me say "well done" to the 43 students who have distinguished themselves in this demanding program. The numbers tell the story of your success: The class earned a 3.47 grade-point average overall, and 33 students—an impressive 76.7 percent—are graduating with honors. Six graduates earned a 4.0 grade-point average and deserve special recognition: Steven W. Gayle, Gregory S. Hogge, Glen C. King, Heather L. Layne, John W. Meador and Richard T. Wheeler.

Let me also congratulate the apprentice program on its 50th year in existence. For the past five decades, this program has provided on-the-job and academic training in support of aeronautical applications and research with the help of Thomas Nelson Community College, Tidewater Community College and Elizabeth City State University. Thus far, the program has turned out 1,344 journeyman technicians. These people have been critical to the Center's successes over these years.

Finally, let me thank you, the graduates. Your contributions to Langley help make this a world-class center.

Best wishes,

—Paul F. Holloway
Center director

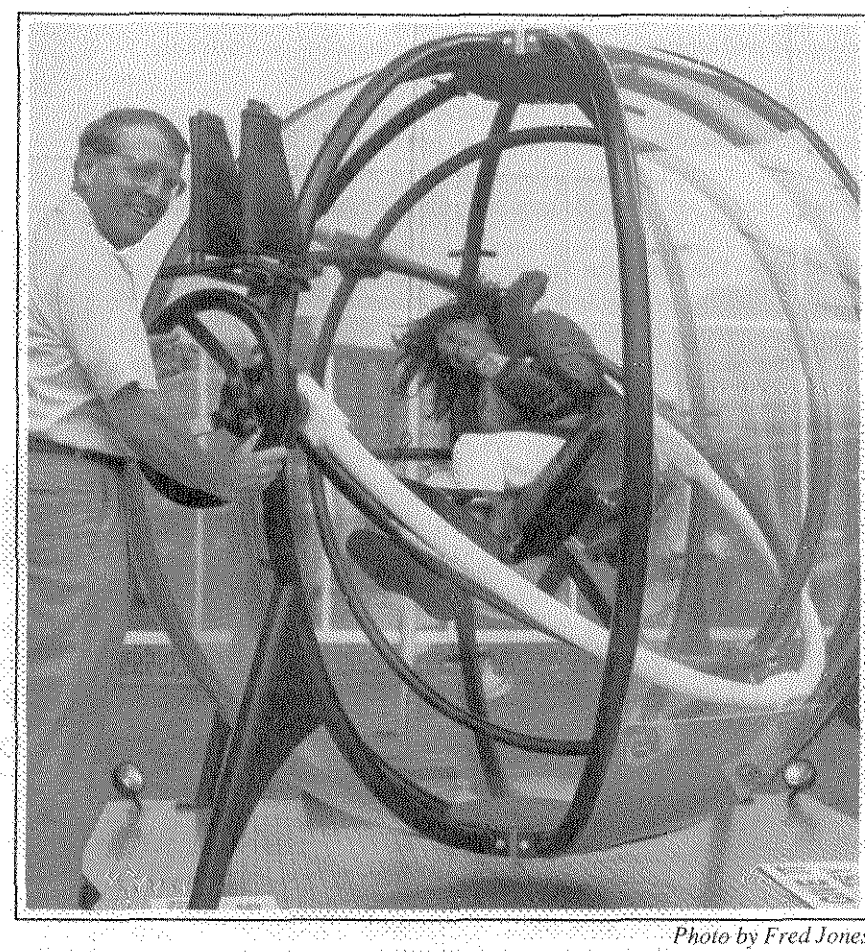


Photo by Fred Jones

Spin Test

Langley Deputy Director H. Lee Beach Jr. gives the "Space Ball" a spin at the Virginia Air and Space Center. The device, which simulates weightlessness, was a feature during Hampton's Bay Days Festival earlier this month. That's Shelley Canright, of the Office of Public Services, whom Beach is turning topsy-turvy.

Members of the apprentice class of 1992 pose in front of the Virginia Air and Space Center.

Langley Researchers Win R&D 100 Awards

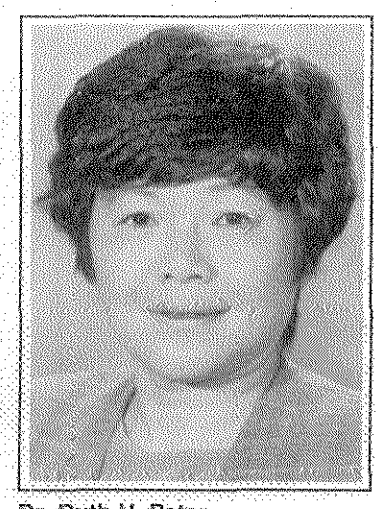
Pater Recognized For Safer Polymers

BY WHITNEY BARTLETT

A less toxic family of polymers, developed in response to a need for a safer and easy-to-process high temperature plastic, is the winner of a prestigious international award.

Research and Development magazine selected this family of polymers, LaRC-RP46, as one of the 100 most significant technological advancements of the year. It was developed at Langley by Dr. Ruth H. Pater, senior polymer scientist of the Materials Division, Structures Directorate.

LaRC-RP46 is a thermosetting plastic, meaning it cannot be reshaped after reaching its cured temperature.



Dr. Ruth H. Pater

The product's primary function is to provide structurally efficient, advanced composite materials, which are very lightweight and have high strength and stiffness.

The cost of LaRC-RP46's raw materials is comparable to the current industry standard, (PMR-15), but much lower than other newer matrix resins, which makes it the most cost-effective ultrahigh-temperature matrix resin known.

This product has several improved characteristics that PMR-15 lacks: easy processing of its tougher and more flexible composites, an ability to retain its properties at a temperature as high as 371 centigrade (or 700 Fahrenheit), greater resistance to

Please see **PATER,** *Page 2*

Wilson, Kelley Honored For Helicopter Safety Device

BY KRISTINA MURDEN

Helicopters may fly safer thanks to an economical aerodynamic device that is the winner of a prestigious international award. For pilots, the "Helicopter Anti-Torque System Using Fuselage Strakes" may actually mean the difference between maintaining or losing control of a helicopter.

Developed at Langley by John C. Wilson and Henry L. Kelley, the system was selected by *Research and Development* magazine as one of the 100 most significant technological advancements of the year. Its implementation offers an improvement particularly in

Please see **HELICOPTER,** *Page 2*

Henry L. Kelley, left, and John C. Wilson won an R&D 100 Award for developing a helicopter anti-torque system using fuselage strakes.

Anniversary Announcements

Help for open house

Volunteers are needed for the 75th Anniversary Open House on October 17 to work as parking attendants, bus guides, hosts and hostesses, etc. Apply through organizational channels. Each Program Director's Office has been asked to submit names to the Office of Public Services by October 1. For more information, call Ann Suit at ext. 43305.

Alumni banquet

Langley's 75th Anniversary Alumni Banquet will be held at the Williamsburg Hilton on Saturday, November 14. The cost is $16 per person, which includes entertainment, dinner and dancing to "Remembrance," a Big Band orchestra. The banquet is open to the public, so early reservations are encouraged. Tables may be reserved for groups of 10. For reservations or more information, call Abe Leiss, chairman of the event, afternoons at 877-2939.

CELEBRATING 75 YEARS

Commemorative book

Langley's 75th Anniversary commemorative book, *Winds of Change*, is available to retirees by contacting Cathy Schauer, anniversary chairman, at Mail Stop 154 or by calling (804) 864-3314.

ON THE INSIDE

SPECIAL FEATURE: The 1992 Combined Federal Campaign is off and running, and you're invited to help. Pages 5-7.

News Briefs

AROUND THE AGENCY

MARS OBSERVER SET TO EXPLORE — NASA will continue the exploration of Mars—started by Mariner IV 28 years ago—when Mars Observer is launched. It was scheduled to go up September 25 from Cape Canaveral Air Force Station. The last U.S. spacecraft to visit Mars was Viking 2 in 1976. "Mars Observer will examine Mars much like Earth Satellites now map our weather and resources," said Dr. Wesley Huntress, director of NASA's Solar System Exploration Division in Washington, D.C. "It will give us a vast amount of geological and atmospheric information covering a full Martian year.

PROCUREMENT OFFICIAL APPOINTED — NASA Administrator Daniel S. Goldin has named Deidre A. Lee as the deputy assistant administrator for procurement. Lee has been serving as executive officer to Acting Deputy Administrator Aaron Cohen. Lee joined NASA in 1984 and has served in a variety of procurement positions, including chief of space shuttle procurement at Johnson Space Center.

JUPITER BLOWING IN THE WIND — Data from the European Space Agency-NASA Ulysses spacecraft suggests that the Jupiter magnetosphere is far more influenced by the incoming solar wind that had been suspected or measured, according to a report in the journal *Science*. The planet's magnetic field has a layer in which it appears that Jupiter particles and solar wind particles are intermingling, the report said.

Intercenter Fall Races Planned

NASA Intercenter Fall Races will be held in September and October.

The 10-kilometer races will be held September 28 and October 8, 13 and 22; the 2-mile races October 1, 15 and 19.

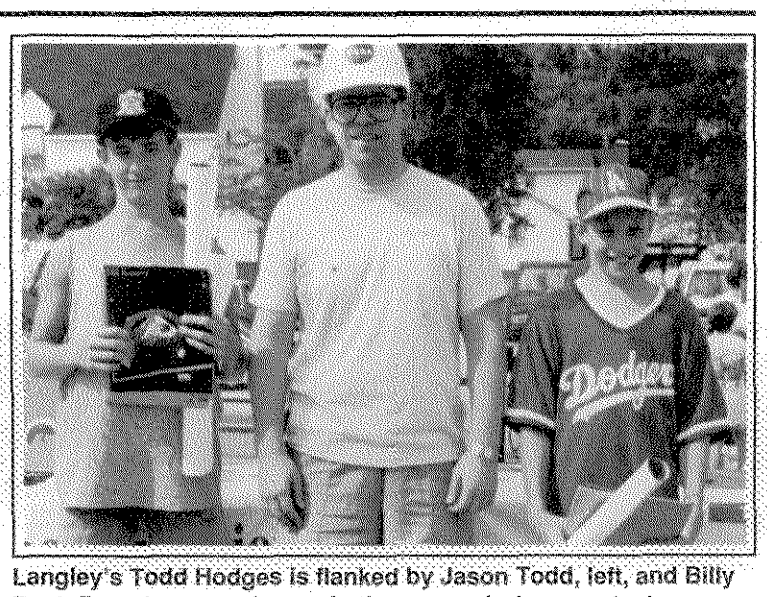
Races start at 5 p.m. on Doolittle Road.

A 2-mile race will be held at noon October 6 on the Bethel High School track.

All NASA employees, retirees, on-site contractors and co-ops earn points for Langley by taking part in this Agency-wide competition.

Walkers are welcome.

For more information about the races or the Runners Club, call Richard Shearer at ext. 47036.



Langley's Todd Hodges is flanked by Jason Todd, left, and Billy Best, first place co-winners in the paper airplane contest.

Paper Planes Soar At Bay Days

Langley sponsored a paper airplane contest at Hampton's Bay Days on September 12 and 13 in celebration of the Center's 75th Anniversary.

Ninety children made gliders using paper, scissors, tape and paper clips.

The planes were then flown for distance and accuracy, with the scores combined to determine winners in three age groups.

One glider landed only three inches from the target on the accuracy test while another, assisted by a nice breeze off the Hampton River, soared 84 feet.

Todd Hodges, of the Subsonic Aerodynamics Branch, headed the event with help from Doug Brown, Jacques Clemenceau, Chris Groom, Steve Garrahan, Jason Buhler, Frank Quinto, Bill Howell, Donna Kraus, Christopher Sontag, Royce Snider, Gretchen Murri and Dan Murri.

■ JOHN WITHERSPOON

LETTERS

Thanks For 75th Anniversary Book

From **Wilma S. Betts:** Dear Friends . . . although I know it wasn't meant to be, thank you for the nice birthday gift. *Winds of Change* appeared in my mailbox the day after I had celebrated my 90th birthday. I have read the book and really enjoyed it, especially the section covering the years 1940-1969. Those were the years I spent with NACA/NASA.

Many of the projects described and many of the names listed in the book were familiar to me.

Although I was assigned to the Procurement and Fiscal divisions, my duties were varied and gave me a personal interest in the projects initiated and developed at Langley Research Center.

Thank you again for *Winds of Change*. It is my sincere wish that NASA may experience many more years of successful endeavors in space and wherever the future may lead.

Organic Food-Buying Group Formed by Conservation Club

In an effort to provide a convenient way to buy organically grown produce, a food-buying group has been formed at the Center as one of the activities of the Langley Conservation Club.

An organizational meeting will be held at 11:30 a.m. September 30 in Room 103 of Building 1192C. It is important that all those interested attend, since the club needs a minimum number for the buying group to continue.

Produce that is certified to be organically grown is free of chemical fertilizers, irradiation and pesticides. Purchasing organic produce also supports farming methods that are ecological, since there is no agrichemical runoff from organically farmed land—nor are pesticides introduced into the air from the burning of residues of crops grown non-organically. Toxins are not introduced into the food chain through animals foraging on or near farmland, nor is landfill space needlessly occupied, since the use of compost as fertilizer helps recycle waste that otherwise would take space in landfills.

There is evidence that organic farming practices reduce greenhouse gas emissions, since synthetic nitrogen fertilizers, which release nitrogen dioxide, are not used. Finally, buying organic food supports small family farming communities interested in sustainable agriculture.

For more information, contact Bart Singer electronically at singer@tab00 or by calling ext. 42316.

HELICOPTER:

Continued from Page 1

right sideward flight, where a helicopter has the most potential to lose control and crash.

When a helicopter operates at that condition at low flight speeds, the thrust required from the tail rotor for directional control is high, and sometimes beyond its capability. In gusty winds the pilot could possibly lose control and not be able to regain it with movement of flight controls, resulting in a spin and crash. This is when the new strake makes the difference. A strake is essentially a spoiler mounted perpendicular to the tail boom and is about one to three inches high.

"The concept is important because it is beneficial at critical points of control," said Kelley.

A strake attached to the tail boom of a helicopter reduces the thrust required of the tail rotor by "spoiling" smooth air flow over the craft. The smooth flow primarily results from the rotor downwash and from crosswinds or sideward flight velocity. That flow and associated low pressure on the boom are replaced with turbulent flow and high pressure, thus adding to the thrust available so the craft can maintain control.

"This increases the pilot's control by at least five percent when the controls are pressed to their limit," said Wilson.

It also results in less wear and tear on the gear box, since the strakes reduce the power that has to go through it when the gears are to their limit. A second strake can be added to the lower side of the boom to improve efficiency of the upper strake.

The idea of using a strake to deal with yaw (directional) control was first suggested in a technical report by Wilson in 1975. This triggered a series of wind tunnel tests of helicopter models that showed that airloads on the tail boom of a helicopter were large at low flight speeds. Wilson and his team decided to change these airloads by disrupting the flow around the tail boom with a flow spoiler.

Langley's 14-by 22-Foot Subsonic Tunnel measured aerodynamic characteristics of tail booms with and without strakes, proving that significant benefits to helicopters were possible if the strakes were implemented. Later, flight testing of helicopters with strakes demonstrated that directional control at low flight speeds was improved.

The strakes are used on the British Sea King, some civilian McDonnell Douglas helicopters, and the French AS 350B; while kits are under development to upgrade some of the McDonnell Douglas Helicopter Co.'s Army special operations aircraft. The strakes can be easily, quickly and economically installed on most helicopters made in the U.S. They were patented in 1987 and first used on helicopters in 1991.

John C. Wilson and Henry L. Kelley are research aeronautical engineers for the U.S. Army Aeroflightdynamics Directorate.

PATER:

Continued from Page 1

microcracking and it is less toxic. LaRC-RP46 has all of the important characteristics required for many high temperature applications. It is suitable for the High Speed Civil Transport, a future aircraft that will fly at more than twice the speed of sound.

It also can be used in a variety of military and commercial aircraft engine components in which polymer matrix composite materials must operate at 500 to 700 degrees Fahrenheit for an extended period.

A small non-aerospace company, Plastics Technologies Industries, has licensed LaRC-RP46 for making large containers, each weighing as much as 800 pounds. The containers are intended for use in petroleum and marine industries in extremely corrosive environments.

Langley's achievements

Langley has earned 23 R&D 100 awards in its 25 years of competition. NASA ranks second on the list of R&D 100 award recipients, and Langley was the only center to win this year. An awards reception was to be held at Chicago's Museum of Science and Industry on September 24.

IN MEMORIAM

Arthur C. Combs, 71, died Sunday, September 6. Combs was retired from Langley Research Center and Langley Air Force Base.

Dr. Trutz Foelsche, 85, died Thursday, September 3. He retired in 1972 after 13 years of service.

News Researcher

The **Researcher News,** an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23665-5225, is published every other Friday in the interest of all Langley staff and retirees. Submit contributions to the Editor, Mail Stop 115, telephone 864-6126. Articles are due at noon the Tuesday following the date of this issue.

Managing Editor ..... Jean Drummond Clough

Editor ..... Michael Finneran

Assistant Editor ..... Susan A. Smigielski

Photojournalist ..... Carol Petrachenko

Photographer ..... Fred Jones

The privilege of advertising in this publication is restricted to the employees and retirees of the Langley Research Center. Articles advertised here must be offered without regard to race, color, religion, sex or national origin.

All materials are subject to editing.

Wyle Picked For Contract

NASA has selected Wyle Laboratories for negotiation of a five-year contract to provide instrument support services at Langley. The estimated contract value is $75.5 million.

Under the contract, Wyle will provide daily instrument support services to satisfy the Center's research measurement needs.

Services to be performed include repair, calibration and maintenance of research measurement instruments; evaluation of measurement needs, instruments and systems; maintenance of the Center's distributed digital equipment and systems; and design and modification of research data acquisition systems.

The company will do most of the work at its Hampton facility. Some work will be performed on-site at Langley and at the Wallops Flight Facility.

Space Club Essay Contest

The National Space Club announces the opening of the Robert H. Goddard Historical Essay Award Competition for 1992.

This is an annual nationwide competition with a $1,000 prize. It is open to any U.S. citizen.

Essays may explore any significant aspects of the historical development of rocketry and astronautics, and will be judged on their originality and scholarship. They may bring new information to light or cast a new and different light on events or individuals influencing rocketry and astronautics.

Entries must be submitted to the National Space Club by December 4. For more information, contact Kate Scholes, Employee Relations Office, ext. 42606.

Learning Center To Be Relocated

The Learning Center in the Technical Library Center at 2 W. Durand St. will be moving to modular units October 13.

The center will close October 5 and reopen in early November.

The new facility will be at the corner of East Taylor Street and Lindbergh Way.

Mauldin Attending Program For Developing Executives

Sally O'Neill Mauldin, an attorney-advisor with the Office of Chief Counsel, is attending the Simmons College Graduate School of Management's Program for Developing Executives in Boston.

The eight-week program, which began on September 13, is based on the content and design of the school's master's of business administration curriculum and involves participants from the private and public sectors from the United States and elsewhere.

"I have a strong desire for continued professional growth," said Mauldin, who began her Langley career in 1977. "At this point in my career, I feel it is important to enhance my present skills and to develop new skills to perform effectively in a position of increased management and program responsibility.

Sally O'Neill Mauldin

I anticipate many benefits from participation in a management program specifically designed for women."

Before coming to Langley and prior to obtaining her law degree, Mauldin was a public school teacher in Memphis, Tenn., from 1970 to 1974. Since 1987, she has been an associate professorial lecturer in engineering management at George Washington University.

Mauldin has a law degree from The College of William and Mary, a master of arts degree in political science from Memphis State University and a bachelor of arts degree in social sciences from Elon College in North Carolina.

Among her NASA honors are two Langley Certificates of Outstanding Performance and a Group Achievement Award. She was recognized in *Outstanding Young Women in America* in 1982 and won Elon College's Young Alumni of the Year Award in 1980. Mauldin, as a 1976-77 member of the National Moot Court Team at William and Mary, was honored for best individual and team moot court briefs.

She was elected to the Pi Sigma Alpha National Political Science Honor Society in 1972 and was recognized in the 1969-70 *Who's Who in American Colleges and Universities*. In 1970, Mauldin won the Pi Gamma Mu (National Social Sciences Honor Society) Medal/Scholastic Award for the highest grade-point average in her major, and graduated cum laude from Elon.

She is a member of the American Bar Association, Federal Bar Association (Tidewater Chapter), Virginia Women Attorneys Association, Hampton (Va.) Bar Association and National Contract Management Association. Mauldin was president of the Federal Bar Association's Tidewater Chapter in 1990 and its national delegate in 1991.

MLB Employees Honored

MLB Enterprises Inc., Langley's groundskeeping and pest control support services contractor, recently held its Employee Appreciation Day. Recognized for outstanding contributions to MLB were, from left, Hilton Saunders, job performance awardee; Bonnie Hampton, safety award winner; Robert Pauley Jr., employee of the year; Joseph Boswell, job performance awardee; and Jackie Trent, job performance awardee. Awards were presented by Michael L. Brittin, contract manager.

Obara Paper Wins Award From SAE

Clifford J. Obara, of the Flight Applications Division, Flight Research Branch, will receive a 1991 Arch T. Colwell Merit Award. Obara's paper is entitled "In-Flight Off-Surface Flow Visualization Using Infrared Imaging."

The award was established by Arch T. Colwell to recognize authors of outstanding papers presented at meetings of the Society of Automotive Engineers (SAE). Papers are judged for their value as original contributions to the knowledge of mobility engineering.

Obara's paper was one of 14 picked from 2,000 published for SAE meetings in 1991. Certificates will be presented September 30 in Dearborn, Mich., at the SAE Passenger Car Meeting and Exposition.

Stock Items Easier To Order Thanks To LMI Streamlining

Last month, Roy W. "Pat" Mason, chief of the Operations Support Division, initiated a Quality Action Team (QAT) to develop a quality plan for the division. While developing their Vision, Mission, and Values statements, team members noticed an apparent contradiction in practices concerning their value in employee trust.

How could they proclaim trust in employees when numerous levels of review were required to requisition certain common items from stock? The QAT and facilitators J.R. "Rusty" McHatton and R. Scott Young agreed that this would be an excellent demonstration project.

Marshall D. Johnson accepted the challenge of pursuing the project with the QAT that is streamlining NASA and Langley Management Instructions (LMIs). The LMI team welcomed the chance to streamline another LMI and did so in less than three weeks.

The result is that all employees are now empowered to sign for most stock items—except certain safety related items—without further approvals, effectively eliminating as many as four levels of review. Since incorporating this change, reaction has been overwhelmingly positive.

For more information about this process, call Marshall D. Johnson at ext. 44576.

MacConochie Is Elected As Fellow In SAWE

Ian "Mac" MacConochie, an employee of Lockheed Engineering and Science Co., has been elected to the position of Fellow in the Society of Allied Weight Engineers.

The award is given to an engineer who has achieved distinction in the field of mass properties and has an effective and continual record of international level service to the society.

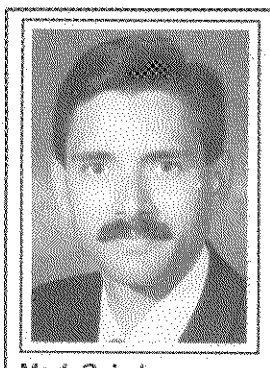
MacConochie is an engineering specialist and works as a consultant to Langley.

He was honored in May with the award at the SAWE 51st Annual International Conference in Hartford, Conn.

He has achieved distinction in every aspect of mass properties engineering from service to the SAWE to job performance at Lockheed.

MacConochie has received certificates of recognition from NASA for four patented inventions and several unpatented inventions and has received an Apollo Achievement Award.

People & Places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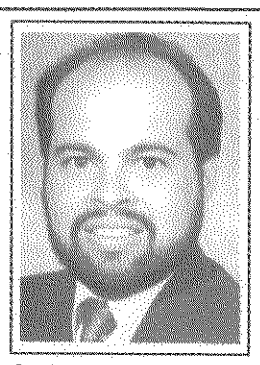
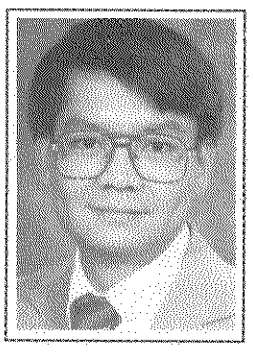
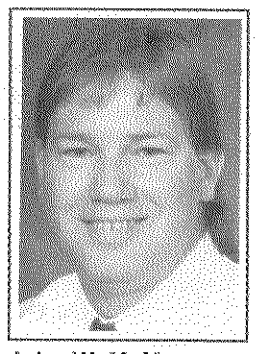
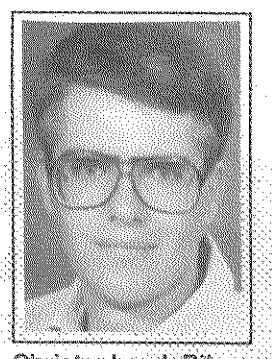

Carlos A. Liceaga

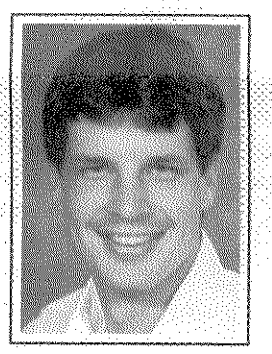

John C. Lin

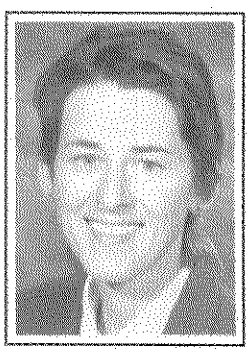

John W. McManus

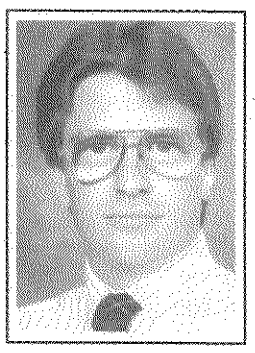
Raymond E. Mineck


Christopher J. Riley

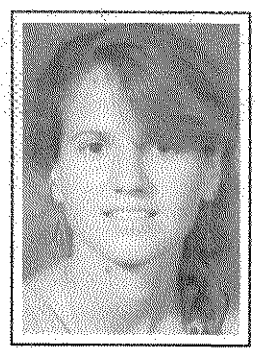
Marcus L. Brumfield

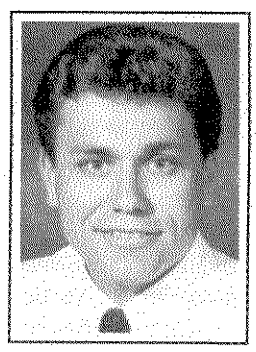

Anthony L. Cook


Anne Mackenzie


Mark L. McMillin

Nancy A. Nimmo


Sandra P. Polesky


K. Sheppardson

Thirteen Receive Advanced Degrees

Thirteen Langley staff members have earned advanced degrees through the Center's Graduate Study Program.

The program, established in the late 1940s, provides scientists, engineers and administrators an opportunity to improve their proficiency in aeronautical and space research and earn advanced degrees while working at Langley.

About 1,400 employees have been awarded master of science or doctoral degrees through the program.

Doctoral degrees have been awarded to **Mark S. Lake,** Structural Mechanics Division, who received a doctorate in aerospace engineering from North Carolina State University; **Carlos A. Liceaga,** Information Systems Division, who received a doctorate in computer science from Carnegie Mellon University; **John C. Lin,** Fluid Mechanics Division, who received a doctorate in mechanical engineering from Old Dominion University; **John W. McManus,** Guidance and Control Division, who received a doctorate in computer science from The College of William and Mary; **Raymond E. Mineck,** Applied Aerodynamics Division, who received a doctor of science degree from George Washington University; and **Christopher J. Riley,** Space Systems Division, who received a doctorate in aerospace engineering from North Carolina State University.

Master of science degrees were awarded to **Marcus L. Brumfield,** Projects Division, who received a master of engineering management from George Washington University; **Anthony L. Cook,** Information Systems Division, who received a master of science in electrical engineering from North Carolina State University; **Anne Mackenzie,** Guidance and Control Division, who received a master of science in electrical engineering from Virginia Polytechnic Institute and State University; **Mark L. McMillin,** Space Systems Division, who received a master of science in astronautics from George Washington University; **Nancy A. Nimmo,** Structural Dynamics Division, who received a master of science in mechanical engineering from North Carolina State University; **Sandra P. Polesky,** Structural Mechanics Division, who received a master of science in engineering mechanics from Old Dominion University; and **Kenneth C. Sheppardson,** Space Station Freedom Office, who received a master of science in engineering-economic systems from Stanford University.

The Employee Development Branch congratulates these individuals for the long hours and hard work necessary for this academic accomplishment. Such work not only brings additional expertise to Langley but also enhances the individual's professional growth and career development.

If you have earned or expect to earn an advanced degree during fiscal 1992 and have not notified the Employee Development Branch, please contact George D. Allison at ext. 42594.

Visiting Student

Steve Sherman, left, a 10th grader at Winona Senior High School in Winona, Minn., visited Langley for two days last month. Here he takes a look at the F-16A in the hangar. Sherman came at the invitation of Dr. Fayette S. Collier Jr., right, head of the Laminar Flow Control Project Office, Flight Applications Division (FAD). Sherman won first place medals for projects and papers in the 1989, 1990, 1991 and 1992 Minnesota State Science Fairs. His 1991 project won the first-place NASA award and a fourth-place grand award at the International Science and Engineering Fair. While at Langley, Sherman met Joseph R. Chambers, FAD chief; Dennis S. Bushnell, associate chief, Fluid Mechanics Division; and Dana J. Dunham, head, Flight Dynamics Branch. He toured the 30- by 60-Foot Tunnel, hangar, National Transonic Facility and 14- by 22-Foot Tunnel. As a result of his visit, Sherman is planning a science fair project involving the reduction of induced drags by controlling wing-tip vortices. He plans to attend the Massachusetts Institute of Technology.

Langley Employees Warned To Beware After Discovery Of Rabid Fox On Center

■ BY KRISTINA MURDEN

Employees are encouraged to be cautious around stray animals on Center since a rabid fox was destroyed in late August.

The isolated case was unusual, said Gary Carl, Langley safety specialist.

"We just want to encourage joggers and cyclists, particularly at night, to be cautious," he said.

Carl encountered the gray fox near the Aircraft Landing Dynamics Facility during a routine check of the area August 26.

At first, Carl thought the fox had been hit since it was reluctant to move. When the animal attacked his vehicle tire, he had it destroyed by security personnel and taken to the Langley Air Force Base veterinarian, where it was declared rabid.

Warning signs

Animals commonly spotted on Center include deer, rabbits, squirrels, raccoons and opossums. These animals instinctively flee when they encounter a human.

When an animal does not flee, or shows signs of aggressive or unusual behavior, caution should be taken.

"It was particularly unusual to see the fox because they are nocturnal," said Carl. "It was also quite thin, with very little hair."

Don't feed the animals

Employees should not feed animals, leave food outside for them or attempt to pick up or assist any animal that seems injured or sick. If an animal exhibits unusual behavior, call ext. 47233 (4-SAFE); for an emergency call ext. 42222.

"We'd like to encourage pet owners to make sure their dogs and cats are properly vaccinated, especially if you live in an area with these types of animals around," said Carl.

Anniversary Video To Air October 8

Pictures in the Mind will be shown on WHRO-TV, Channel 15, on Thursday, October 8, at 10:30 p.m.

The videotape was produced to commemorate Langley's 75 years of accomplishments.

Troubled Economy Boosts CFC's Need

As we kick off this year's Peninsula Combined Federal Campaign, many people, including government employees, find themselves in uncertain times. Each day we hear about people losing their jobs and how tough the economic times are. The CFC is one way of bringing a ray of hope into our local, regional and world communities.

Government employees have a tradition of taking care of those in need. It was in this spirit that President Kennedy established the Combined Federal Campaign in 1961. There are now 520 such campaigns throughout the nation, and last year federal employees donated more than $210 million.

Last year on the Virginia Peninsula alone, military and civilian men and women gave more than $1.6 million. This powerful act of caring was achieved despite the unsettled times. That money is currently being distributed to numerous local, regional, national and international human-service agencies.

Franks

All of the Virginia Peninsula can be proud that their gift put the Peninsula's campaign in the top 25 in America.

This year's "All Star Gift" goal of $1.4 million will be hard to achieve. But, we will succeed because tough times never last, but tough people do.

Americans have faced many challenges and fought many wars, but they never stopped caring for their fellow man. Today, as we kick off the 1992 campaign, we face yet another challenge.

I know I can count on you to join the CFC team and give an "All Star Gift" to help our friends in need.

—Gen. Frederick M. Franks Jr.
Honorary chairman, Peninsula CFC

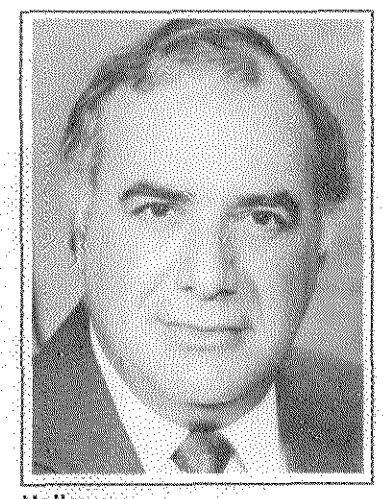
CFC Leaders Visit Cancer Society

Photo by Fred Jones

Combined Federal Campaign Chairwoman Dr. Belinda H. Adams; Bruce A. Conway, last year's chairman; and Edwin J. Prior, technical assistant to the chief scientist, recently helped volunteers at the American Cancer Society Loan Closet in loaning wigs and cosmetic kits to cancer patients. Over 12,800 cancer patients were reached this year with service and rehabilitation programs provided through volunteers in every Virginia community. These include transportation, home equipment, support groups and information and guidance. Living with cancer can be one of the hardest challenges anyone faces. The American Cancer Society will help guide patients through those challenges. Consider the needs of the society when you give your gift to the CFC.

All Star Gifts Will Help Needy Locally, Overseas

By now you have heard several appeals for your support of the many worthy causes supported by the Combined Federal Campaign (CFC). I would like to add my voice, not only as your Center director, but as a strong community supporter and a longtime contributor. I know that your generosity is a great help to our area's needy people.


Holloway

As you know, the 1992 CFC campaign goal is $305,000. This is higher than last year's goal, and I am confident that we not only will achieve it, but exceed it—just as we always have done.

The reasons for giving this year are the same as they were last year, but the need is far greater. Our national economy has suffered and our local economy is getting worse. A lot of people—including perhaps someone you know—have lost their jobs. Many of those who do have jobs still need our help. And many have gone without employment for some time.

For all of these people, the needs are very similar—and very basic. They have bills to pay. They have medical costs. They have children to feed, clothe and shelter. These are things that many of us take for granted because we have been very lucky at Langley. Unless we see the hardship with our own eyes, it is difficult to imagine. Sometimes we do not see it clearly in our own cities and towns. Sometimes it takes the devastation of a Hurricane Andrew to open our eyes. Anyone who has read the newspapers or watched TV in the last few weeks has seen what it is like to be without a home, job or food.

A catastrophe like Andrew both illustrates the problem and creates more need. Many organizations have emptied their coffers to help Andrew's victims, and now they are counting on our support to help them meet their continuing obligations.

But let us also remember our own community. The quiet struggle of so many people here on the Peninsula rarely makes headlines as Andrew has, yet the need exists. Your "All Star Gift" can make many lives a little easier.

Langley has always had the highest per-employee donation of any major organization on the Peninsula. Last year, each Langley contributor gave an average of $123.54, and our percentage of participation was 80.4 percent. Many outstanding volunteer agencies need our financial support. Please be generous, as Langley employees always have been. Give your gift by designating a pledge to the organizations of your choice.

—Paul F. Holloway,
Center director

We Can Exceed Goal Again

As last year's Langley Combined Federal Campaign chairman, I would like to take advantage of this opportunity to convey my appreciation to Center personnel for dramatically exceeding our goal and raising almost $300,000. We showed that Langley employees do care about their fellow human beings. The challenge has been extended again to do even better this year than we did last year.

The Center goal of $305,000 is certainly one that will stretch us, and when exceeded (as I am confident it will be) will represent yet another new high for the Langley workforce. I plan to do my part as a contributor to see that the increased target is met, and I urge each of us to give serious thought to what we can do to make life better for those who are less fortunate than we.

As CFC chairman, I was amazed (and gratified) by the number of Keel Club members at Langley, and I encourage those who can make this commitment to do so. But for all of us, whatever we can contribute to this most worthy of causes will be most welcome.

Please read the CFC literature your Key Person will provide, thoughtfully consider designating your pledge to one or more specific agencies, fill out your pledge card, and take pride and satisfaction in knowing you have helped to make a difference in your community and the world. Remember, a gift to the Langley Combined Federal Campaign is An All-Star Gift, and all givers make up the 1992-1993 CFC All Star Team.

—Bruce Conway
1991 Langley CFC chairman

Union Members Can Help Less Fortunate

The time is upon us to share our good fortune with those in need. The CFC campaign will begin September 23, and we encourage you to support a worthy cause.

As we have seen recently, many organizations and individuals unselfishly donated their time and valuables to those stricken.

However, not only are major disasters the target for those who care, but throughout the year many receive assistance from a great number of concerned agencies.

CFC
Virginia Peninsula

The need for help continues to rise. As the economy continues to weaken, the resources of the support agencies are in danger of being depleted. We don't have to look any further than our own community to be aware of the needs.

The unions (AFGE and IAM) encourage you to search your heart and if possible offer some assistance, no matter how small or large, to an agency of your choice.

There are 163 local and 785 national choices. We are confident the employees of Langley will again show their compassion.

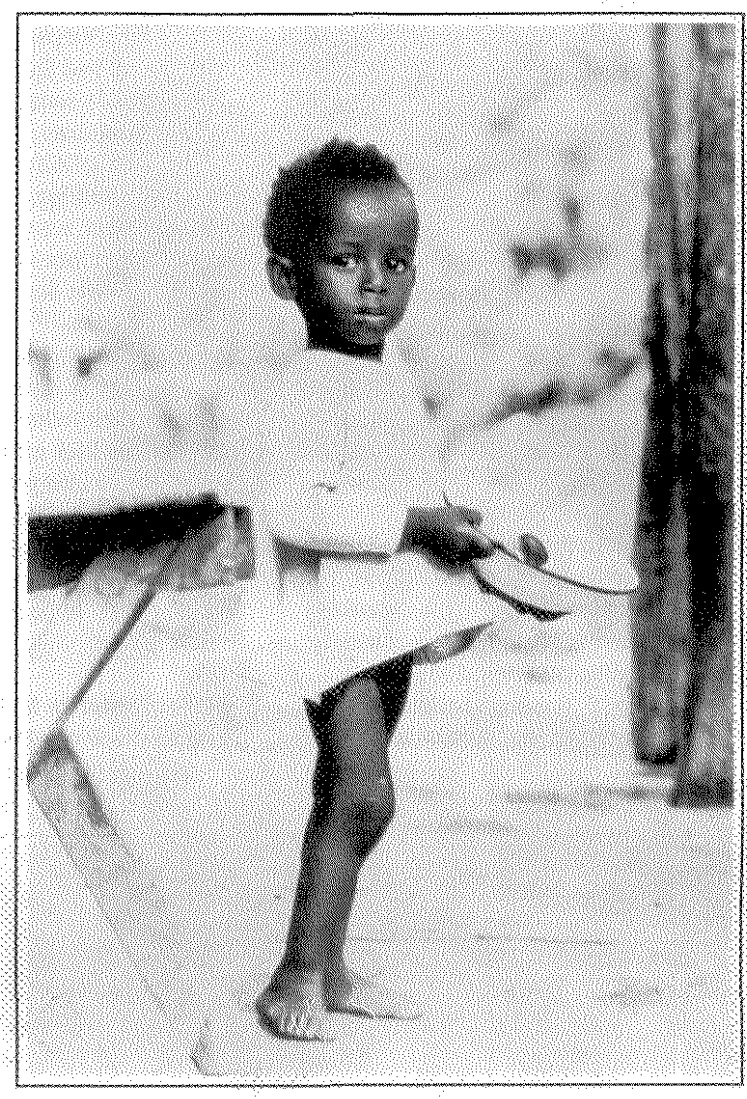
May none of you be in need, and if so, we pray that help is near.

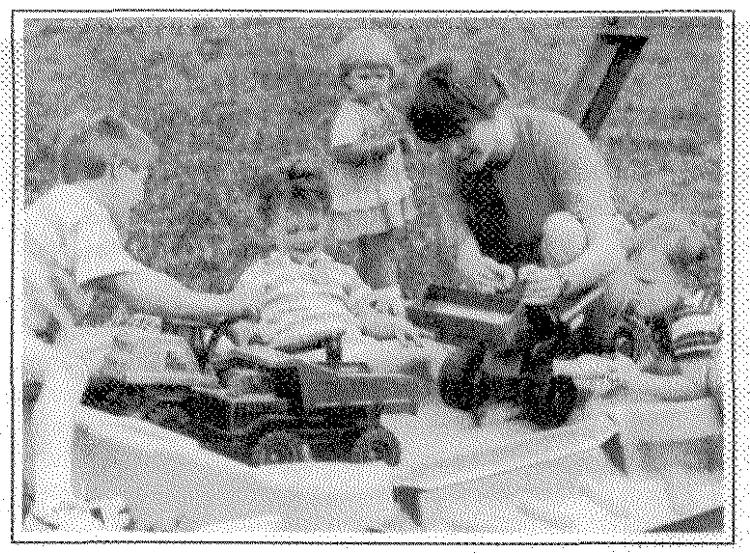
—Ben Schlichenmayer
President, AFGE 2755
—Tom Vranas
President, IAM PM2829

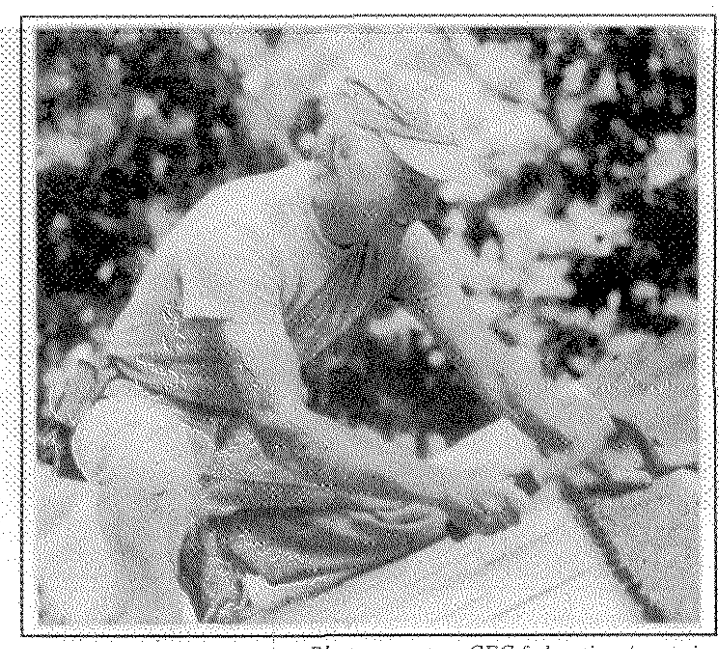
Combined Fed

More than 30 million people worldwide are refugees, and some 75 percent of them are women and children. Your contribution can help them survive.

Locally, CFC-funded federations and agencies provide a range of services, from helping people repair their homes to providing day care.







Photos courtesy CFC federations/agencies

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  - **The LLLL pool for dis** **federations/agencies.**
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See the CFC brochure f

American Red Cross

Represents itself

Worldwide emergency communications to military and their families; service to federal personnel, veterans; disaster relief; health and safety courses; international aid; blood services.

Children's Charities of America

Represents 44 agencies

All children are our future. They need help. Reach out and feed, teach, protect and care for the children in America and around the world.

Earth Share

Represents 40 agencies

One gift supports 40 agencies that protect America and the world's health and natural resources, and educational programs that teach people how they can help.

Independent Charities of America

Represents 169 agencies

Feeding the hungry, sheltering the homeless, protecting the children and healing the sick. America's independent charities are working with you to share.

International Service Agencies

Represents 42 agencies

American charities helping millions of people worldwide survive disasters and disease, ending poverty with food, medicine, shelter, safe water, education, tools, seeds and farm animals.

National Black United Service Agencies

Represents 15 agencies

The only national black federation of charities organized to help national and local organizations gain resources to provide for the critical needs of African American communities.

National Voluntary Health Agencies

Represents 65 agencies

A federation of national voluntary health agencies that support research, patient and community services and public and professional education.

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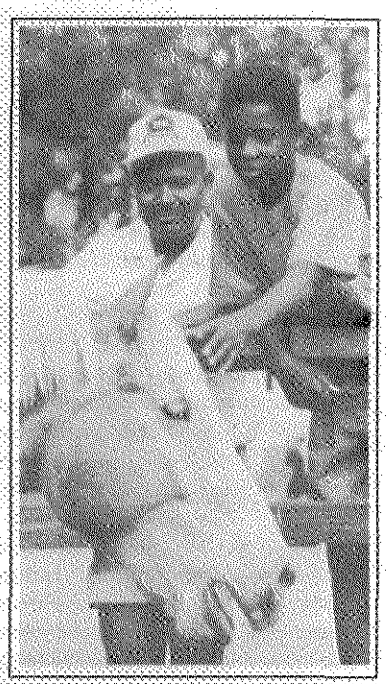
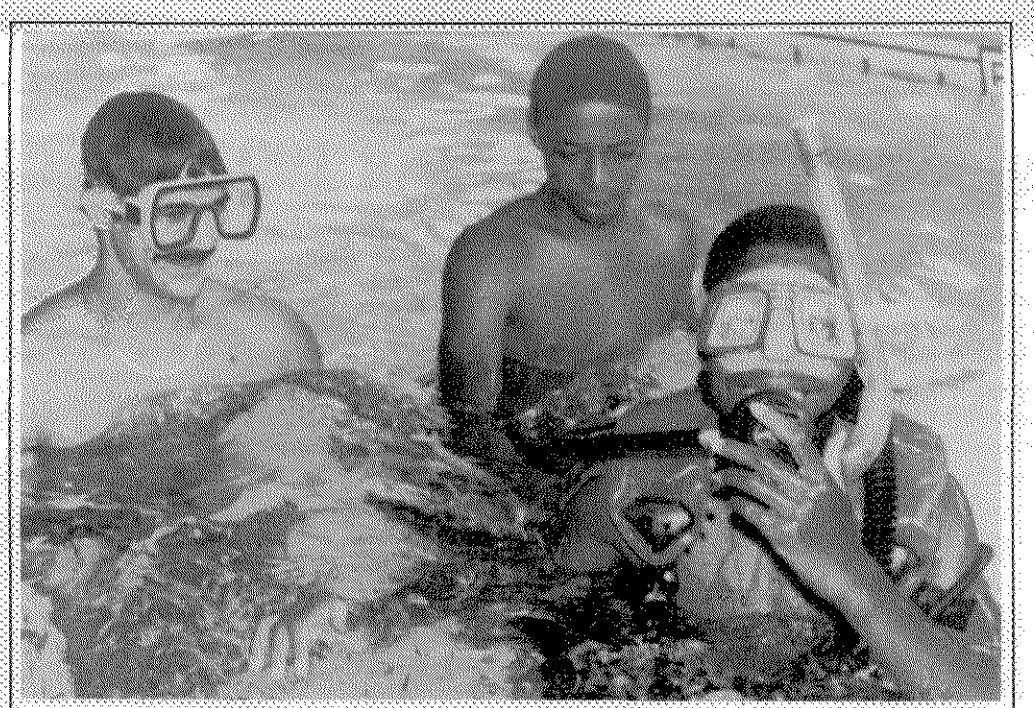
At left, an impoverished young girl cares for her brother. Children such as these need our help in this country and around the world.





Above and left: Donating to the CFC gives troubled or needy teens the chance for new experiences—like learning how to snorkel or riding a horse.

ational/United ervice Agencies
presents 65 agencies

Giving in the American radition, N/USA charities provide human care services and programs that help you, your family and your community.

USO
Represents itself

USO articulates the needs and promotes the quality of life of military personnel while delivering pertinent services to support transient military families while deployed overseas.

United Way of America
Represents 18 agencies

Acts as a catalyst to solve such problems as AIDS, hunger and homelessness, illiteracy, teenage pregnancy, child care, aging population, alcoholism and drug abuse.

United Way of Greater Williamsburg
Represents 23 agencies

Helps neighbors, builds community. Supports local agencies serving over 18,000 citizens. Help includes homeless and unemployed, elderly, child care, information, referral.

United Way of South Hampton Roads
Represents 64 agencies

A way to help family, friends and neighbors. The federation offers a 24-hour HELPLINE, plus day care, youth activities, counseling and more.

United Way of the Virginia Peninsula
Represents 40 agencies

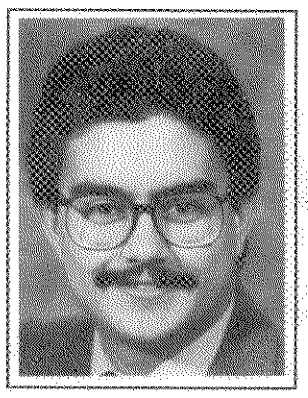
Accountable, local, efficient and effective. Your one gift supports local human service programs on the Peninsula that help people who really need it.

World Service Organizations of America
Represents 29 agencies

We need your help to end poverty and hunger, fight disease, increase economic opportunity without destroying the environment and preserve peace in our global neighborhood.

Apprentice Class of 1992

Uenking Elected Student Speaker



Michael D. Uenking has been elected by his classmates as speaker for the apprentice program class of 1992 and will address the commencement assembly at the graduation ceremony.

He is a mechanical designer engineering technician in the Facilities Systems Branch, Facilities Engineering Division. Uenking entered the program as a direct hire after two years of service with the Naval Aviation Depot in Norfolk as an aircraft sheet metal mechanic apprentice. He attended Tidewater Community College, graduating magna cum laude with an associate in science degree in engineering and summa cum laude with an engineering/technical assistant certificate.

Uenking expects to graduate from Old Dominion University in 1993 with a bachelor of science degree in mechanical engineering and plans to attend graduate school. He is a member of Pi Tau Sigma, a mechanical engineering honor society; and a former member of Phi Theta Kappa, a two-year college honor society.

Uenking's honors include a superior accomplishment award for exceptional service to the Mechanical Engineering Section, a certificate of outstanding performance while assigned to the Facilities Systems Branch, three employee suggestion awards, acceptance into the career field development program and a five-year service pin. Design projects Uenking has been involved with include the Visual Motion Simulator cockpit modifications, design assistance of the 16-Foot seeder traversing mechanism, design of the 30 x 60 Foot spinner access hatches, .3-Meter TCT cesium iodide window frame and test vessel design and hangar weather radar platform modifications. Uenking also is the CAD (Computer-Aided Design) coordinator of the Mechanical Engineering Section. He has been a volunteer for many programs and community projects, including the CHROME program and the Multiple Sclerosis Walkathon. He also was a NASA representative during National Engineers Week and an CPR instructor at Langley. Uenking lives in Virginia Beach and plans to be married in May.

50 YEARS OF EXCELLENCE

This year is the 50th anniversary of the apprentice program, which was created to develop the specialized skills and knowledge required to keep shop methods and techniques abreast of advancing research demands. In the past five decades, Langley has graduated nearly 1,350 apprentices from the six-year program, which combines classroom instruction at local colleges with on-the-job training at Langley. The 1992 class will graduate 43 students.

Richard Whitcomb To Speak At 1992 Apprentice Graduation

Dr. Richard T. Whitcomb, winner of one of Langley's five Collier Trophies, will be the featured speaker at the Engineering Technician Apprentice Program graduation ceremony October 2 at the H.J.E. Reid Conference Center.

Richard Whitcomb in 1954 with an area rule model at Langley.

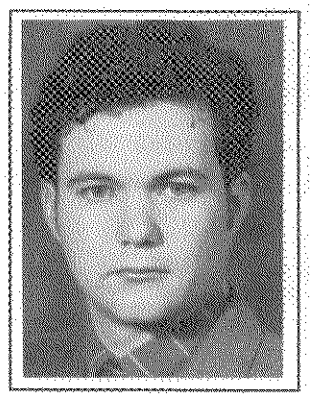
Whitcomb, who retired from NASA in 1980, won the Collier in 1954 for discovering a revolutionary concept called the area rule, a method of designing aircraft to reduce drag and increase speed without adding power. The famous "Coke bottle" shape it produced has been incorporated in nearly every American supersonic plane.

He also invented the supercritical wing in the late 1960s. The wing allows substantial increases in speed, efficiency or maneuverability of aircraft at high subsonic speeds.

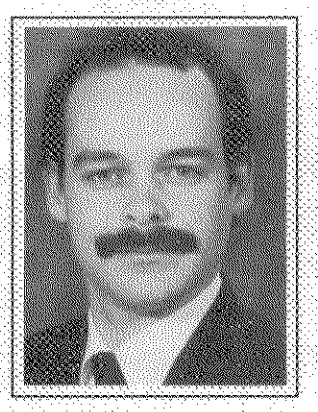
Whitcomb began his career in 1943 with NASA's predecessor agency, the National Advisory Committee for Aeronautics (NACA). He spent his career at Langley's Transonic Aerodynamics Branch, becoming head in 1958. He has received many awards. He won the Exceptional Service Medal of the Air Force in 1955; the first Distinguished Service Medal presented by NACA in 1956; the NASA Scientific Achievement Medal in 1969; the 1969 Sylvanus Albert Reed Award from the American Institute of Aeronautics and Astronautics (AIAA); and the National Medal of Science from the President in 1973. Whitcomb was named in 1956 by the U.S. Chamber of Commerce as one of the nation's 10 outstanding young men. In 1974, he received a $25,000 NASA cash award for the supercritical wing. He was elected an AIAA fellow in 1971; received the AIAA Aircraft Design Award in 1974; was elected a member of the National Academy of Engineering in 1976; received the Award for Meritorious Service to Aviation from the National Business Aircraft Association in 1978; and received the Presidential Rank of Meritorious Executive in 1980.

Langley Apprentice Class of 1992

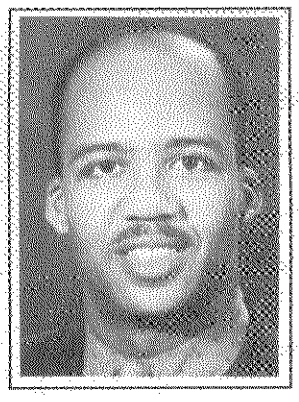
Compiled by Nancy M. H. Kruse



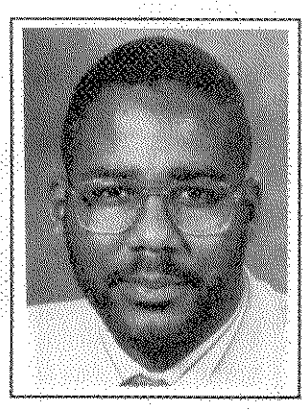
Edward E. Adcock is an electronics engineering technician in the Aerodynamic and Thermodynamic Measurements Branch, Instrument Research Division. He entered NASA through the co-op program at Thomas Nelson Community College (TNCC) and was converted to an apprentice upon completion of his co-op term. He has an associate in applied science degree in electronics technology and graduated cum laude from TNCC. He works in pressure measurement and flow measurement consultation. He has co-authored two published papers and has two patents pending. One of his papers is on an acoustic flameout detector; the other is on a cryogenic multichannel electronically scanned pressure module. Adcock, a Christopher Newport University senior, is finishing a bachelor's degree in applied physics and microelectronics. He lives in Hampton.



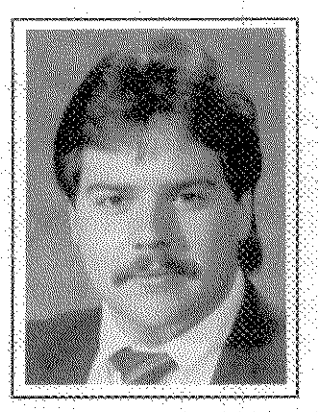
Bruce W. Barnes is an electronics engineering technician in the Nonintrusive Diagnostics Branch, Instrument Research Division. He entered NASA through the co-op program at Thomas Nelson Community College (TNCC) and was converted to an apprentice upon completion of his co-op term. Barnes has an associate in applied science degree in electronics technology, graduating summa cum laude from TNCC. He is working in combustion diagnostics. He helped determine which fuel-injector design would be best for the National Aero-Space Plane (NASP). During his apprenticeship he received a special achievement award for exceptional performance in implementing the test section optical access designs for the setup of the Rayleigh apparatus for the NASP mixing augmentation tests in the Mach 6 High Reynolds Number Facility. Barnes lives in Hampton.



Kelvin G. Boston is a mechanical engineering technician in the Composite Models Development Section, Models and Materials Technology Branch, Fabrication Division. He is a direct Office of Personnel Management hire. Boston is working on the Free Flight Rotorcraft Research Vehicle (FFRRV), which is a robot-controlled helicopter. Boston received a group achievement award for his contributions to the National Transonic Facility (NTF) blades. Boston served five years active duty in the Marines and is in the Marine reserves as a tactical air traffic controller. His vocational experience includes three years of classes in architecture at Hampton University. He plans to continue his degree requirements at Thomas Nelson Community College and Hampton University. Boston lives in Newport News.

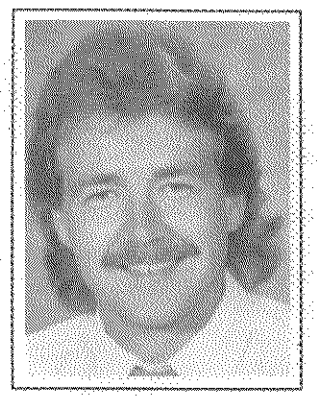


Morton W. Boston is an engineering technician in the Materials Processing and Development Section, Models and Materials Technology Branch, Fabrication Division. He entered NASA as a co-op through Thomas Nelson Community College (TNCC) and was converted to an apprentice. He has an associate in applied science degree in mechanical technology from TNCC and Level II certificates for Magnetic Particle Inspection and for Liquid Penetrant Inspection. Boston is pursuing a bachelor's degree in mechanical engineering with a minor in electronics. He has a group achievement award for his work on the National Transonic Facility, and four suggestion awards. He has a tech brief and patent pending on a portable slitter for slicing thermoplastic matrices. Boston has a certificate of appreciation as a CETA project member. He lives in Hampton.

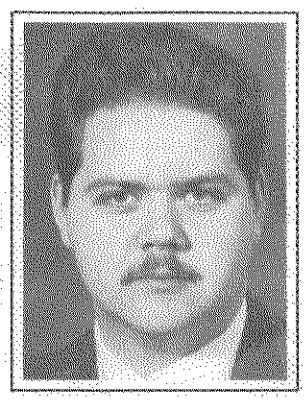


Jeffrey S. Brady is a mechanical engineering technician in the Advanced Machining Development Section, Metals Applications Technology Branch, Fabrication Division. He entered NASA through the co-op program at Thomas Nelson Community College (TNCC) and was accepted into the apprentice program upon completion of his term. Brady has a two-year degree in machine shop from New Horizons Technical Center and an associate in applied science degree in mechanical technology from TNCC. He works in the machine shop on the LASE project. Achievements include a superior accomplishment award and a letter of commendation for support on the LASE project, and a letter of commendation from the Army for his work on a prototype thermal infrared beacon for Desert Storm. He also received a quality increase for outstanding job performance. He lives in York County.

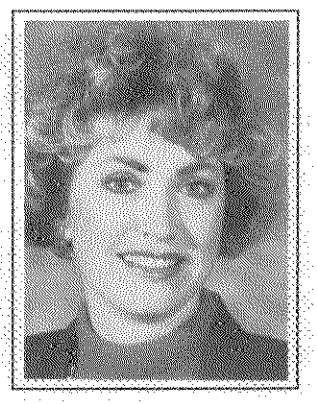
Jeffrey W. Bullock is a mechanical engineering technician in Technical Support Section C, Mechanical Support and Utilities Operations Branch, Operations Support Division. He entered NASA as a co-op through Thomas Nelson Community College (TNCC). He has an associate in applied science degree in mechanical technology and graduated magna cum laude from TNCC. Bullock is working on the Douglas LB546G project at the Low Turbulence Pressure Tunnel and has worked with National Aero-Space Plane (NASP) research models. He has a suggestion award for a thermally insulated electronically scanned pressure module enclosure, and a team award for engineering excellence and outstanding productivity for the LTPT Douglas test team. He lives in Hampton.



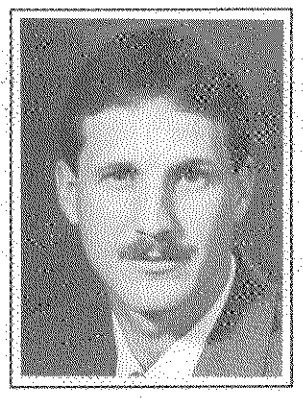
Scott E. Colbert is a mechanical engineering technician in Tunnels Support Section D, Tunnel Operations Branch, Operations Support Division. He entered NASA as a co-op through Thomas Nelson Community College (TNCC). Scott was accepted into the program upon completion of his term. He has an associate in applied science degree in mechanical technology and graduated summa cum laude from TNCC. Scott works in the National Transonic Facility (NTF). He received a letter of commendation as a member of the High Speed 7 by 10-Foot Tunnel Technician Crew. He also has a group achievement award for the NTF Mishap Recovery at the NTF. Scott is taking classes at TNCC towards a mechanical engineering degree. He plans to attend Old Dominion University and pursue a bachelors degree in mechanical engineering.



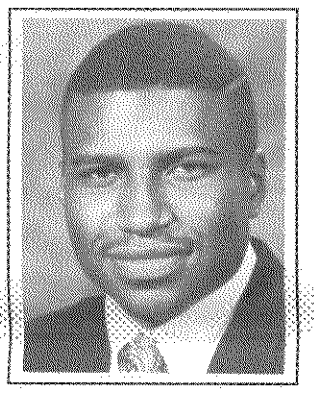
Jeffrey A. Collins is a mechanical engineering technician in Technical Support Section A, Laboratories Operations Branch, Operations Support Division. He entered NASA as a co-op through Thomas Nelson Community College. Collins was accepted into the program upon completion of his term. He has an associate in applied science degree in mechanical technology from TNCC. Collins is works in the Acoustic Research Laboratory. His achievements include working with Long Duration Exposure Facility (LDEF) research, and experience in nine different buildings on various research projects. Collins received a letter of commendation for assisting in facility operations while working in the High Energy Science building. He plans to pursue a degree in management. Collins and his wife, Linda, and son Nathaniel Lee live in Windsor.



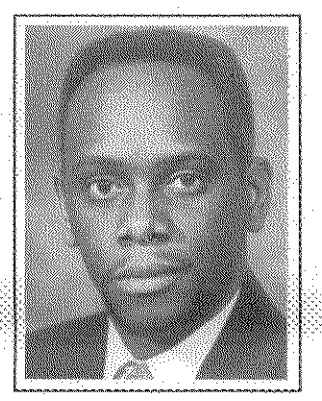
Janet M. Connelly is an electronics engineering technician in the Atmospheric and Thermodynamic Measurements Branch, Instrument Research Division. Previously she worked for RCA Service Co. in electronic fabrication. Connelly graduated cum laude from Thomas Nelson Community College with an associate in applied science degree in electronics technology. She is a technical monitor for the electrical/temperature calibration effort at Wyle Laboratories, for which she received a certificate of outstanding performance. Connelly is responsible for implementation of the Resistance Measurement Assurance Program. Other projects include providing technical support for the optical flame-out detection in the 8-Foot High Temperature Tunnel, and making in-situ thermal measurements on aircraft tires. Connelly co-authored two technical papers.



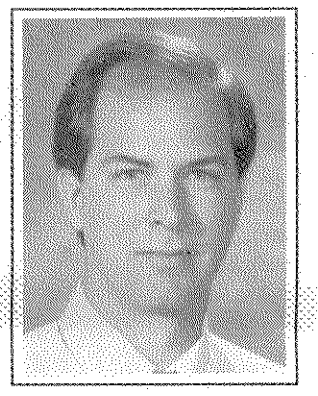
Benjamin M. Copeland Jr. is an electronics engineering technician in the Microelectronics Technical Support Section, Electronics Technology Branch, Fabrication Division. He entered NASA as a co-op through Thomas Nelson Community College (TNCC). He has an associate in applied science degree in electronics technology from TNCC. Copeland is working on hot film sensor development in the Microelectronics Development Group. One of his accomplishments is a joint patent disclosure that involves developing a process for a "Wide Range Temperature Hot Film Sensor System." He has a superior accomplishment award for technical contributions in microelectronics fabrication. He also has a certificate of appreciation and commendation for dedication and service to the 1988 Governors School Program. He lives in Smithfield with his wife, Yvette.



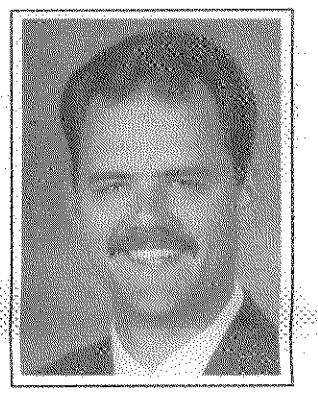
Gregory K. Draughon is an electronics engineering technician in the Microelectronics Technical Support Section, Electronics Technology Branch, Fabrication Division. He entered NASA as a co-op through Thomas Nelson Community College (TNCC) and then entered the apprentice program. He has an associate in applied science degree in electronics technology and graduated from TNCC. He is graduating from the apprentice program cum laude. Draughon works in the microelectronics area on fabrication of hypersonic models. He has a superior accomplishment award for excellence in support of the hypersonic models heat transfer studies program, and a certificate of outstanding performance. He has worked with middle school students in the ATOMS program, which encourages middle school students to study math and science. Draughon lives in Hampton.



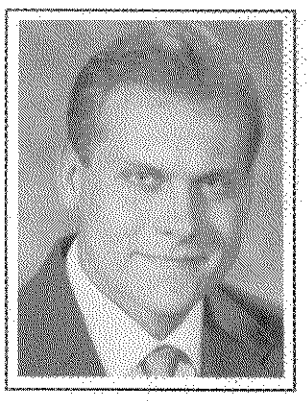
Quinton Duncan is a mechanical engineering technician in the Laboratories Operations Branch, Operations Support Division. He entered NASA as a direct Office of Personnel Management hire. He has an associate in applied science and a bachelor's degree in electronics technology from Norfolk State University. He is graduating cum laude from the apprentice program. He has a letter of commendation for design improvement and construction of a palladium deposition gun for use in an ultrahigh vacuum coating system to protect a sample against oxygen and carbon uptake. He has a certificate of appreciation as a member of the Langley Crew and Equipment Translation Aid Flight Experiment Team, and a group achievement award for the Space-Based Beam Power Research Team. He lives in Portsmouth and has two daughters, Kenisha and Lakeda.



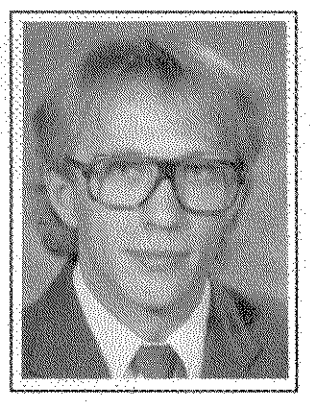
Robert G. Edwards is a mechanical engineering technician in Tunnels Support Section D, Tunnels Operations Branch, Operations Support Division. He entered NASA as a co-op through Thomas Nelson Community College (TNCC) and was later accepted into the apprentice program upon completion of his co-op term. Edwards has an associate in applied science degree in mechanical technology from TNCC. He is working in the Unitary Wind Tunnel and has worked with several General Dynamics research models and has performed facility modification work. During his apprenticeship, he received a special achievement award for exceptional technical contributions and improvements to the ESP Instruments at the Unitary Wind Tunnel. He and his wife, Catherine, and daughter Jessica live in Newport News.



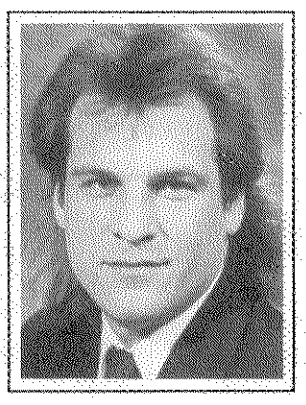
Steven W. Gayle is a mechanical engineering technician in the Metals Technology Branch, Fabrication Division. He entered NASA as a co-op through Thomas Nelson Community College (TNCC) and was accepted into the apprentice program upon completion of his co-op term. Gayle has an associate in applied science degree in mechanical technology from TNCC. He is graduating from the apprentice program magna cum laude. Some of Gayle's work achievements include working with the F-18 model, Active Controls model, Induced Drag Research model, LASE project, and the 16-Foot Transonic Tunnel Blade overhaul. He received a superior accomplishment award and certificate of outstanding performance. He lives in Mathews County.



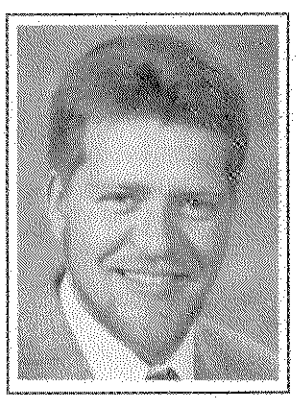
James W. Godsey is a mechanical engineering technician in Tunnels Support Section C, Tunnels Operations Branch, Operations Support Division. He entered NASA through the co-op program at Thomas Nelson Community College (TNCC) and was accepted into the apprentice program upon completion of his co-op term. Godsey has an associate in applied science degree in mechanical engineering technology, graduating magna cum laude from TNCC. He is working on the Douglas LB546G model in the Low Turbulence Pressure Tunnel. He previously worked in the Mach 6 High Reynolds Number Tunnel. During Godsey's apprenticeship he received a team excellence award for work at the Low Turbulence Pressure Tunnel, a group achievement award for work at the 8-Foot Transonic Pressure Tunnel and a letter of commendation for work at the 8-Foot High Temperature Tunnel. He lives in Newport News.



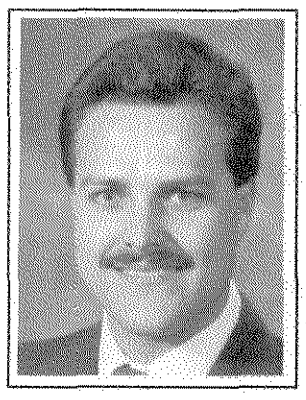
James A. Hensley is a mechanical engineering technician in the Tunnels Operations Branch, Operations Support Division. He was a direct hire from the Office of Personnel Management. Hensley is graduating from the apprentice program magna cum laude. He plans to complete an associate in applied science degree in mechanical technology from Thomas Nelson Community College. Hensley is working at the 31 Inch Mach 10 Tunnel. Some of his achievements while in the apprentice program include a team excellence award for work at the 16-Foot Tunnel, group achievement award for work at the 8-Foot Transonic Pressure Tunnel and at the National Transonic Facility, and letters of commendation from the Unitary Plan Wind Tunnel and 15 Inch Mach 6 Tunnel. Hensley lives in Smithfield with his wife, Mira, daughter Jennifer and son Jimmy.



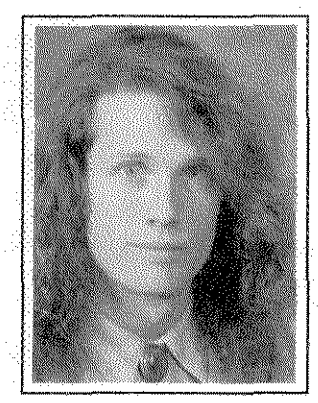
Jack B. Hester is a mechanical engineering technician in the Composites and Models Development Section, Models and Materials Development Section, Fabrication Division. He entered NASA as a co-op through Thomas Nelson Community College (TNCC) and was accepted into the apprentice school upon completion of his co-op term. Hester has two associate in applied science degrees, one in mechanical technology and another in drafting and design technology, both from TNCC. He also is a magna cum laude graduate of the apprentice school. During his apprenticeship, Hester received a superior accomplishment award for suggestions and fabrication to the Full Scale EA-6 Leading Edge Wing Configuration. He lives in Newport News with his wife, Brenda, and daughter Niki.



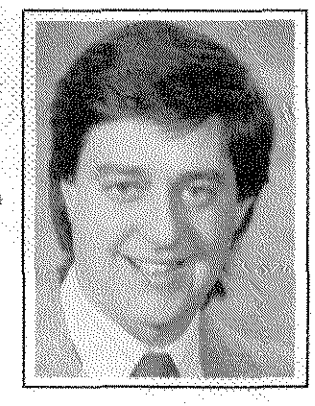
Gregory S. Hogge is an electrical engineering technician in the Electrical Support Branch, Operations Support Division. He entered NASA as a co-op through Thomas Nelson Community College (TNCC) and was converted to an apprentice upon completion of his co-op term. He has an associate in applied science degree in electronics technology from (TNCC). Hogge is graduating from the apprentice program summa cum laude with a perfect 4.0 grade-point average. He plans to continue his education at Christopher Newport University and receive a bachelors in science degree in Applied Physics and Microelectronics. Hogge is working in the Laboratory and Plant Electrical Support Section. During his apprenticeship he received a certificate of outstanding performance and a letter of appreciation for his work on the B-1247 scamjet steam ejector system. Hogge lives in Hampton with his wife, Cindy.



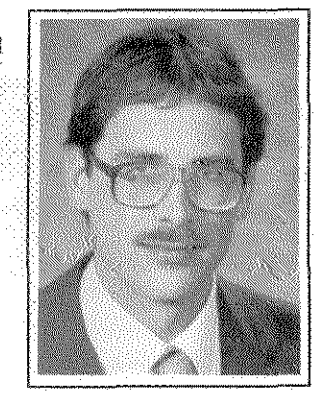
Richard A. Jones is an electronics engineering technician in the System Validation Methods Branch, Information Systems Division. He entered NASA as a co-op through Thomas Nelson Community College (TNCC). Jones has an associate in applied science degree in electronics engineering technology from TNCC. He is graduating summa cum laude from the apprentice program. He is lead technician for the advanced optic-based architectures part of the Fly-By-Light/Power-By-Wire program. He is lead technician for the High Intensity Radiated Fields laboratory. He provided technical support on the Active Flexible Wing and the Fault-Tolerant Processor projects. Jones has a superior accomplishment award for work on the Lightning-Induced Upset Experiment. He and his wife, Karen, live in Hampton and are expecting their first child in November.



Donald F. Kepley is an electronics engineering technician in the Microelectronics and Technical Support Section, Electronics Technology Branch, Fabrication Division. He entered NASA as a co-op through Thomas Nelson Community College (TNCC). He has an associate in applied science degree in electronics technology and graduated magna cum laude from TNCC. Kepley is working in the Electronics Packaging and Development Group, designing printed circuit boards for research projects. He is proficient in computer-aided design (CAD) programs while laying out artwork for printed circuit boards. Kepley was involved in the upgrade of the entire Langley radio frequency broadband cable TV/NASA network system. Kepley lives in Hampton.



David G. Kessler is a mechanical engineering technician in Technical Support Section C, Laboratories Operations Branch, Operations Support Division. He entered NASA as a co-op through Thomas Nelson Community College (TNCC). He earned an associate in applied science degree in mechanical technology and graduated magna cum laude from TNCC. Kessler also has a bachelor's degree in music with a minor in business from James Madison University, and a real estate license. He is working in the Structural Dynamics Branch and the Polymer Materials Branch. He received a superior accomplishment award for support of the Hypersonic Propulsion Branch. He recently bought a home in the Dandy area of York County.

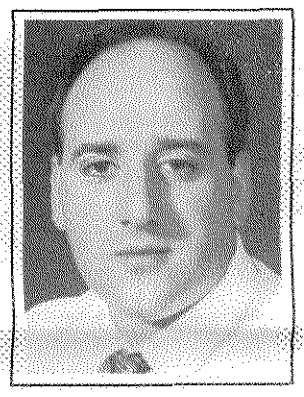


Glen C. King is a mechanical engineering technician in the Materials Processing and Development Section, Models and Materials Technology Branch, Fabrication Division. He joined NASA as a co-op at Thomas Nelson Community College (TNCC). He completed the apprentice program with a 4.0 grade-point average. He is assigned to the Nondestructive Evaluation Group. King has an associate in applied science degree in mechanical technology and an associate in science degree in engineering, graduating with honors from TNCC. He is pursuing a mechanical engineering degree at Old Dominion University. He was accepted into the NASA Career Field Development Program. King is a member of the ATOMS program, in which participants discuss the importance of math and science with middle school students. The Air Force veteran lives in Yorktown.

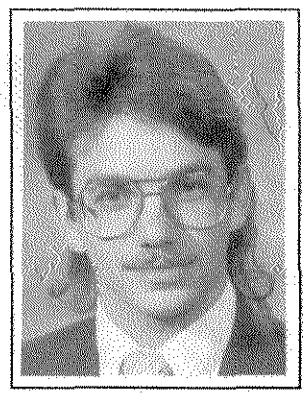
John W. Kirtley is an electrical engineering technician in the Laboratory and Plant Electrical Section, Electrical Support Branch, Operations Support Division. He was a direct hire from the Office of Personnel Management. Kirtley has a diploma in radio and television servicing and an associate in applied science degree in electronics technology from Thomas Nelson Community College (TNCC). He has taken advanced courses at Old Dominion University. Kirtley is a cum laude graduate of the apprentice school. His work achievements include a letter of commendation for the installation of a safety interlock for the laboratory telerobotic manipulator system at the Telerobotic Systems Research Lab and a superior accomplishment award for excellence in replacing the oil flow meters at the Unitary Wind Tunnel. Kirtley lives in Newport News.

Nancy M.H. Kruse is an electronics engineering technician in the Electronics Technology Branch, Fabrication Division. She was a secretary in the Composite Model Shop before entering the Growth Opportunity (GO) program and then the apprentice school. Kruse has associate degrees in secretarial science and electronics technology. She is a magna cum laude graduate of Thomas Nelson Community College. She has a certificate of outstanding performance for her work with the F-106B, a special achievement award for technical contributions in microelectronics fabrication and a certificate of appreciation for outstanding accomplishment in the controls-structure interaction program. She is a member of the ATOMS program, for which she won a certificate of appreciation. She also took part in National Engineers Week. She and her husband, Bernie, live in Hampton.

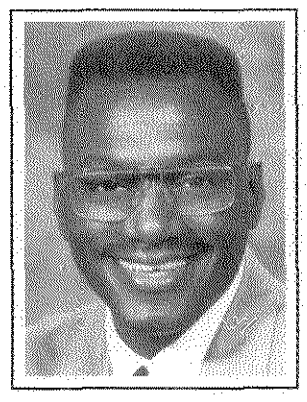
Heather L. Layne is a mechanical engineering technician in Technical Support Section B, Laboratory Operations Branch, Operations Support Division. She entered NASA through the co-op program at Thomas Nelson Community College (TNCC). Layne has an associate in applied science degree in mechanical technology from TNCC. She is also graduating from the apprentice program summa cum laude with a 4.0 grade-point average. Layne was a member of Phi Theta Kappa Honor Society at TNCC. She is working in the Jet Engine Exhaust Simulator. Layne's achievements include an outstanding performance award, a group achievement award, a letter of commendation for her work for the High Energy Science Branch and a letter of commendation from the Hypersonic Propulsion Branch. She and her husband, Trevor, live in Hampton.



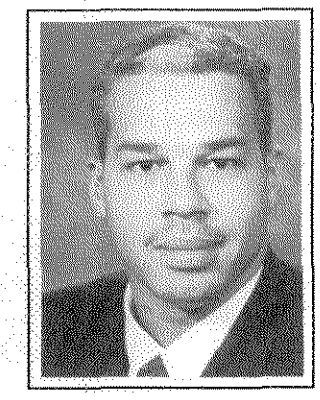
Vincenzo M. LeBoffe is a mechanical designer in the Aeronautical Engineering Branch, Systems Engineering Division. He entered the apprentice program as a direct Office of Personnel Management hire. He has an associate in applied science degree in drafting and design from Tidewater Community College (TCC). LeBoffe is pursuing an associate in applied science degree in mechanical engineering from TCC and plans to attend Old Dominion University for a bachelor of science degree in mechanical engineering. He is assigned to the Model Engineering Design Section and is technical project engineer on several models. He formerly was a designer at Newport News Shipbuilding. He served in the Virginia National Guard and is a reservist. LeBoffe, who lives in Virginia Beach, is getting married a week after his apprentice graduation.



C. Benny Lunsford is an electronics engineering technician in the Facility Research Instrumentation Branch, Instrument Research Division. He entered NASA as a co-op through Thomas Nelson Community College (TNCC). Lunsford has an associate in applied science degree in electronics technology, graduating cum laude from TNCC. He is also graduating from the apprentice program magna cum laude. He is working on his bachelor of science degree in applied physics and microelectronics from Christopher Newport University. Lunsford has been working in the Data Systems Development Section on both small and large data systems, and has given support to the Open Architecture System. Lunsford lives in Grafton.



Karl I. Maddox is a mechanical engineering technician in the Tunnels Operations Branch, Operations Support Division. He entered the apprentice program through Langley Air Force Base's Office of Personnel Management. Maddox has a bachelor of science degree in electronics technology and an associate in applied science in mathematics also from Norfolk State University. He plans to pursue a master's degree in electronics. In his apprenticeship, he rotated through seven research facilities and is assigned to the 14 x 22 Foot Subsonic Tunnel. He has supported research and has done studies on NASA's National Aero-Space Plane (NASP). Maddox was a part of the VAW-78 E-2C Squadron for 10½ years in the Navy Reserves and is still in the reserves. Maddox lives in Hampton with his wife, Karen, and their two children, Lorenzo and Kierra.

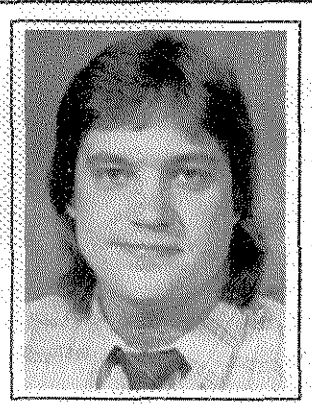


Ricky L. Martin is an engineering technician in the Laboratory Operations Branch, Operations Support Division. He entered NASA as a direct Office of Personnel Management hire. He has been involved in several projects during his apprenticeship, among them the Light Detection and Ranging (LIDAR) system; the Advanced Technology Research Laboratory, where materials are being developed for the National Aero-Space Plane (NASP) program; and High Intensity Noise Facility, where acoustic testing is applied for jet noise research. Martin is assigned to the Aircraft Landing Dynamics Facility, where he supports the aircraft runway friction test study program. He has a bachelor of science degree in electronics engineering technology from Norfolk State University. Martin is a cum laude graduate of the apprentice program. He lives in Chesapeake with his wife Darlene, son Corey, and daughter Omni.

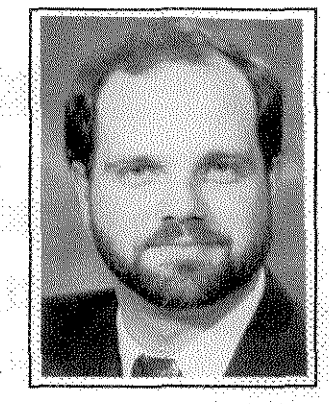
John W. Meador is a mechanical engineering technician in the Tunnels Operations Branch, Operations Support Division. He entered NASA through the co-op program at Thomas Nelson Community College (TNCC) and was converted to an apprentice upon completion of his term. He has an associate in applied science degree in mechanical technology from TNCC. Meador is graduating from the apprentice program summa cum laude with a 4.0 grade-point average. Meador is assigned to the National Transonic Facility in support of wind tunnel testing and has rotated through eight facilities. During his apprenticeship he received a superior accomplishment award, a group achievement award, a team excellence award and a suggestion award. He and his wife Michele, daughter Alyssa, and son Johnathan live in Norfolk.

Photo not available

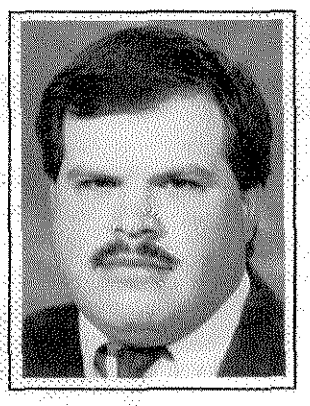
Class of 1992



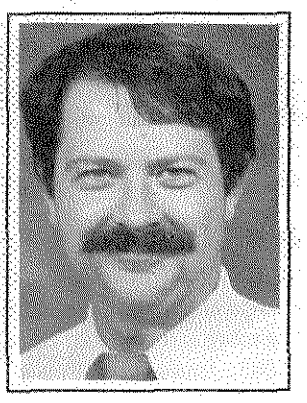
Ty D. Moen is a mechanical engineering technician in the Mechanical Support Utilities Operations Branch, Operations Support Division. He entered NASA as a co-op through Thomas Nelson Community College (TNCC) and was converted to an apprentice after he completed his co-op term. Moen has an associate in applied science degree in mechanical technology from TNCC. He is working in the Mechanical Equipment Support Section. During Moen's apprenticeship he received a group achievement for being a part of the National Transonic Facility mishap team. Moen plans to continue his education at a later date. He lives in Grafton.



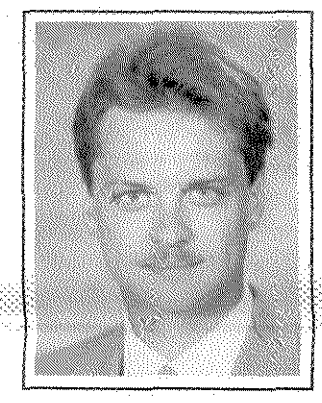
Gene S. Monroe Jr. is an electronics engineering technician in the Electronics Technology Branch, Fabrication Division. He entered NASA as a co-op through Tidewater Community College (TCC). Monroe has completed an apprenticeship in construction. He has a one-year certificate in electronics and an associate in applied science degree in electronics technology from TCC. He is working at the Electronics Packaging Development Group, representing electronics fabrication for the Automated Structures Assembly Lab. He has represented the Electronics Fabrication Shop for the MAPS project and spent a year as an engineering aid to the Windshear Radar project. He has a letter of commendation for his robotics work and a letter of appreciation for contributions to National Engineers Week. He and his wife, Denise, and son Gene III live in Portsmouth.



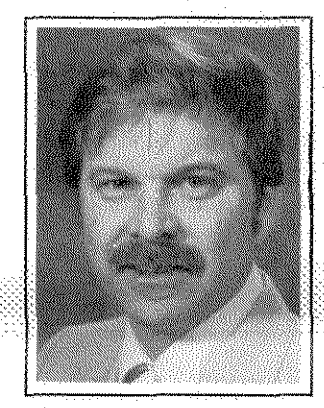
Jeffrey J. Pierro is a mechanical engineering technician in the Systems Development Branch, Systems Engineering Division. He entered NASA as a co-op through Thomas Nelson Community College (TNCC). Pierro has an associate in applied science degree in mechanical engineering technology from TNCC. He is graduating the apprentice program summa cum laude. During his apprenticeship he received a superior accomplishment award for exceptional performance in providing fracture mechanics testing support to the space shuttle solid rocket booster D6AC steel test. Pierro is working in the Systems Development Support Section's Vibration Laboratory. He spends most of his spare time taking classes and working towards getting his mechanical engineering degree. Pierro lives in Seaford.



Daniel W. Pritchard is a mechanical engineering technician in the Tunnels Operations Branch, Operations Support Division. He entered NASA through the co-op program at Thomas Nelson Community College (TNCC). Pritchard has a bachelor of science in clinical psychology from Christopher Newport University and an associate in applied science in mechanical technology from TNCC, graduating both programs summa cum laude. He plans to pursue a bachelor in engineering and a master's in clinical psychology. His achievements include a letter of commendation for design and construction of a portable wind tunnel. He has also had letters of commendation, team excellence awards and a letter of thanks from his director. Pritchard has received awards from his community for work with emotionally disturbed and disabled people. Pritchard, a former Marine, lives in Hampton.



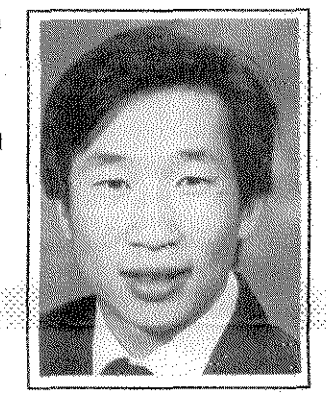
Robert C. Redman Jr. is an electrical engineering technician in the Electrical Drives and Systems Operations Section, Electrical Support Branch, Operations Support Division. He entered NASA as a co-op through Thomas Nelson Community College (TNCC). Redman has an associate in applied science degree in electronics technology from TNCC. He is a magna cum laude graduate of the apprentice program. Redman is working at the NTF/16 Foot TDT Tunnel Drive Control Complex, performing drive operations, trouble-shooting and facility electrical support. Redman has generated electrical drawings and performed field verification of electrical drawings. He has a group achievement award for work during the National Transonic Facility mishap recovery, and a certificate of outstanding performance. Redman lives in Newport News.



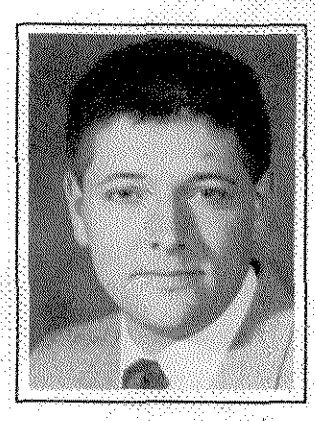
Darrell W. Sacra is an electronics engineering technician in the Analysis and Simulation Branch, Analysis and Computation Division. He entered NASA through the co-op program at Thomas Nelson Community College (TNCC). He has an associate in applied science degree in electronics technology from TNCC. He is graduating the apprentice program summa cum laude. Sacra is also a junior in the electrical engineering technology undergraduate program at Old Dominion University. He has a superior accomplishment award in the design and development of a video signal distribution system for flight simulators. Sacra is working in the video support for ASB's flight simulators, maintaining the video electronics for several flight simulators . Sacra, his wife, Bonnie, and daughter Amanda live in York County.

Cassandra D. Stevens is a magna cum laude graduate. She is an engineering technician working for the Laboratory Operations Branch, Operations Support Division. She entered NASA through the co-op program at Thomas Nelson Community College (TNCC). Stevens has a distinguished service award with the Combined Federal Campaign (CFC) and two letters of commendation: support of the HL-20 and the Composite Fuselage model projects. She is assigned to the Acoustics Research Laboratory, involved in such tests as the Sonic Boom Simulator and the High Subsonic Acoustic Wind Tunnel.

Photo not available



Anh Trinh is a mechanical engineering technician in the Mechanical Support and Utilities Operations Branch, Operations Support Division. He entered NASA through the co-op program at Thomas Nelson Community College (TNCC). Trinh has a two-year diploma in machine tools operation and an associate in applied science degree in mechanical technology from TNCC. He is graduating cum laude from the apprentice school. He received a group achievement award for NTF Fan Blade Mishap Recovery and a special achievement award for the 8 Foot High Temperature Tunnel modifications. Trinh's achievements include modification of a sidewall door at the National Transonic Facility, and installation of a robotic system in Building 1220. He lives in Newport News.



Gary A. Wainwright is a mechanical engineering technician in the Composite Model Development Section, Models and Materials Technology Branch, Fabrication Division . He entered NASA through the co-op program at Thomas Nelson Community College (TNCC). Wainwright has an associate in applied science degree in mechanical technology from TNCC. He is graduating summa cum laude from the apprentice program. Wainwright is working in the Composite Model Shop fabricating wind tunnel and display models. Among his achievements are a letter of appreciation for superior performance in spin model fabrication, a letter of appreciation for contributions to the NASA 70th anniversary historical exhibit and letter of appreciation for design and fabrication of a gravity exhibit. Wainwright has done extensive work on such projects as the HL-20 and F-18 nose flaps. He lives in Carrollton.

Richard T. Wheeler is a mechanical engineering technician in Technical Support Section C, Tunnels Operations Branch, Operations Support Division. Wheeler entered NASA as a co-op through Thomas Nelson Community College (TNCC). Wheeler earned two associate in applied science degrees, one in mechanical engineering technology and another in drafting and design, both from TNCC. He is graduating from the apprentice school summa cum laude. Wheeler is working at the NASA Plum Tree Drop Test Site, where he working on the X-31 drop model. During his apprenticeship, Wheeler received a special achievement award for support to research at the 8 Foot High Temperature Tunnel. Wheeler lives in Gloucester.

Photo not available

Clifford B. Williford is a mechanical engineering technician in Technical Support Section A, Laboratory Operations Branch, Operations Support Division. He entered the apprentice program through the Competitive Placement Program (CPP). He is attending Thomas Nelson Community College (TNCC) and plans to complete an associate in applied science degree in mechanical technology. He is graduating the apprentice school magna cum laude. Williford is working in the High Intensity Noise Facility (HINF) and is primarily working in the Jet Noise Lab on acoustic measurements. During Williford's apprenticeship he received a superior accomplishment award for his work on the aging aircraft project and a certificate of outstanding performance. Williford lives in Hampton.

Carol C. Winbush is a mechanical engineering technician in the Tunnels Operations Branch, Operations Support Division. She entered NASA as a co-op through Thomas Nelson Community College (TNCC). She has an associate in applied science degree in mechanical technology and an applied science degree in engineering from TNCC. She is main operator in the Nozzle Test Chamber and was an operator of the 12 Foot Low Speed Tunnel in 1989. She has taken part in the NASA/Peninsula Engineering Council's Career Day program for the past two years. Her accomplishments include a suggestion award for tunnel window installation/removal assistance; a superior accomplishment award for exceptional support to the Boeing/NASP Transpiration Nosecap Test Program; two letters of commendation; and a certificate of outstanding performance. She lives in Newport News with husband Clifford III and children Carol, Clifford IV and Sir Christopher.

Happenings

DELAY AGING? The next brown bag seminar will discuss "Effects of the aging process: Can it be delayed?" The seminar will be held from noon to 12:30 p.m. Thursday, October 1, in the cafeteria executive dining room. To be discussed are changes associated with aging and modifications that can help slow the process.

WOMEN IN AEROSPACE Orientation Program will be held Thursday, October 1, from 5 to 6 p.m. in the Hampton Room of the H.J.E. Reid Conference Center. For more information, call Gaudy Bezos-O'Connor, ext. 45083.

ELECTIONS will be held by the LAA Executive Board in November for secretary/treasurer and chairperson-socials, arts & crafts. Nominees must be full-time civil service employees. Nominating forms are available at the LAA office along with specific board member responsibilities. Nomination forms must be returned to the LAA office, 14 Langley Blvd., Room 112, by close of business October 5.

ORGANIC FOOD: An organizational meeting will be at 11:30 a.m. September 30, Room 103, Building 1192C to discuss a group to purchase organic food. A minimum number of people are required for the group to continue. For more information, contact Bart Singer electronically at singer@tab00 or by calling ext. 42316.

HELP PLANT 75 trees Saturday, October 3, from 9 a.m. to noon. The LAA Conservation Club will complete the planting of 75 trees in honor of Langley's 75th Anniversary. Volunteers are needed to dig holes, plant trees and spread mulch. Contact Tim Collins, ext. 43113.

SO LONG SUMMERTIME is the theme of an LAA social hour Friday, September 25 at the H.J.E. Reid Conference Center from 4 to 8 p.m. Music is by deejay Dale Ashcom and cover charge is $1. The next social hour is October 9 from 4 to 6:30 p.m.

FEMALE ROOMMATE wanted to share 3-bedroom, 1½-bath home in Wythe. No smokers. Rent is $250 per month plus half of the utilities and a $200 deposit. Call 722-7127 before 9 p.m.

A RETIREMENT celebration will be held for Charles L. Ladson at the Fort Monroe Officers Club on October 2. Cost is $15 per person or $28 per couple. Dinner includes prime rib buffet with seafood and poultry, homemade breads and desserts. Send reservations and money to Acquilla S. "Jeanne" Hill, Mail Stop 274. Call ext. 46357 for more information.

DISABLED PERSONS Satellite Committee will meet October 10 from 8:15 to 9:30 a.m. in the cafeteria. Meetings are open to all employees and contractors at Langley and to anyone else with an interest in the Disability Program.

LAA TURKEY SHOOT: The annual LAA Turkey Shoot will be held November 7 at the H.J.E. Reid Conference Center. Matches begin at 9 a.m. and continue until dusk. Cost is $1 per shot. Tickets are on sale now. To sell tickets for the event, call Andrea Lewis at ext. 46369.

ROOMMATE WANTED: Hampton/Threechopt available October 9. Female seeking nonsmoking, mature, responsible adult to share 2-bedroom townhouse, 2 full baths, lots of closets, washer/dryer, cable, $260 per month, $260 security deposit, pay half of utilities. Call 723-4723 and leave message.

REMINDER: The main gym is for the use of NASA personnel, contractors and their spouses only. Unauthorized personnel have used the facility. If unauthorized personnel are found using the facility, the person who reserved the gym will lose that privilege. All participants are required to carry their NASA/contractor badge at all times. Random checks will be conducted to verify participants.

FREE AEROBICS: Get energized with NASA aerobics! Open to all employees and contractors. Low-impact with interval weight training classes in the LAA gym. Body Dynamics are held Monday, Wednesday and Friday from 6:15 to 7:15 a.m. Lunchtime Energizer is held from 11 to 11:45 a.m. For more information call ext. 46387.

LOW-IMPACT AND BENCH AEROBICS classes are held Tuesdays and Thursdays from 5 to 6 p.m. in the LAA gym. Cost is $12 per month or $6 per month if attending only one day a week. Free body composition and analysis and blood pressure screening is available before class. The classes are open to employees, contractors and their families. Call ext. 42295 for more information.

HOUSE FOR SALE: Hampton, Willow Oaks, 4-bedroom brick rancher, 218 Missionary Ridge, 2 baths, living room, dining room, eat-in kitchen, den, utility room, garage, central air, gas heat, hardwood floors, 1,980 square feet, $114,900. Call 851-0552.

TOASTMASTERS meets from 11:30 a.m. to 1 p.m. October 14 in Building 1222.

DISCOVER CUONG-NHU Oriental martial arts with the Langley Karate Club. Classes are held at the gym Mondays, Wednesdays, 5 to 7 p.m. New students will be accepted October 26 through November 25. Enrollment is open to NASA civil servants, contractors, immediate families. Cost, $6 per month. Stop at gym during class, ask for Roy Albang, or call 596-7736, 7 to 10 p.m.

LAND FOR SALE: 2.9 acres in Carrollton, three miles from the James River Bridge, $41,900. Call 874-7414.

MAMMOGRAMS will be offered October 13, 14, 15, 21 and 22 by Riverside Mammography Services. The van will be next to the Health Clinic (Building 1149). Cost is $50. NASA employees, retirees, contractors and family members are eligible. Call 864-3191 for appointment.

BULK RATE
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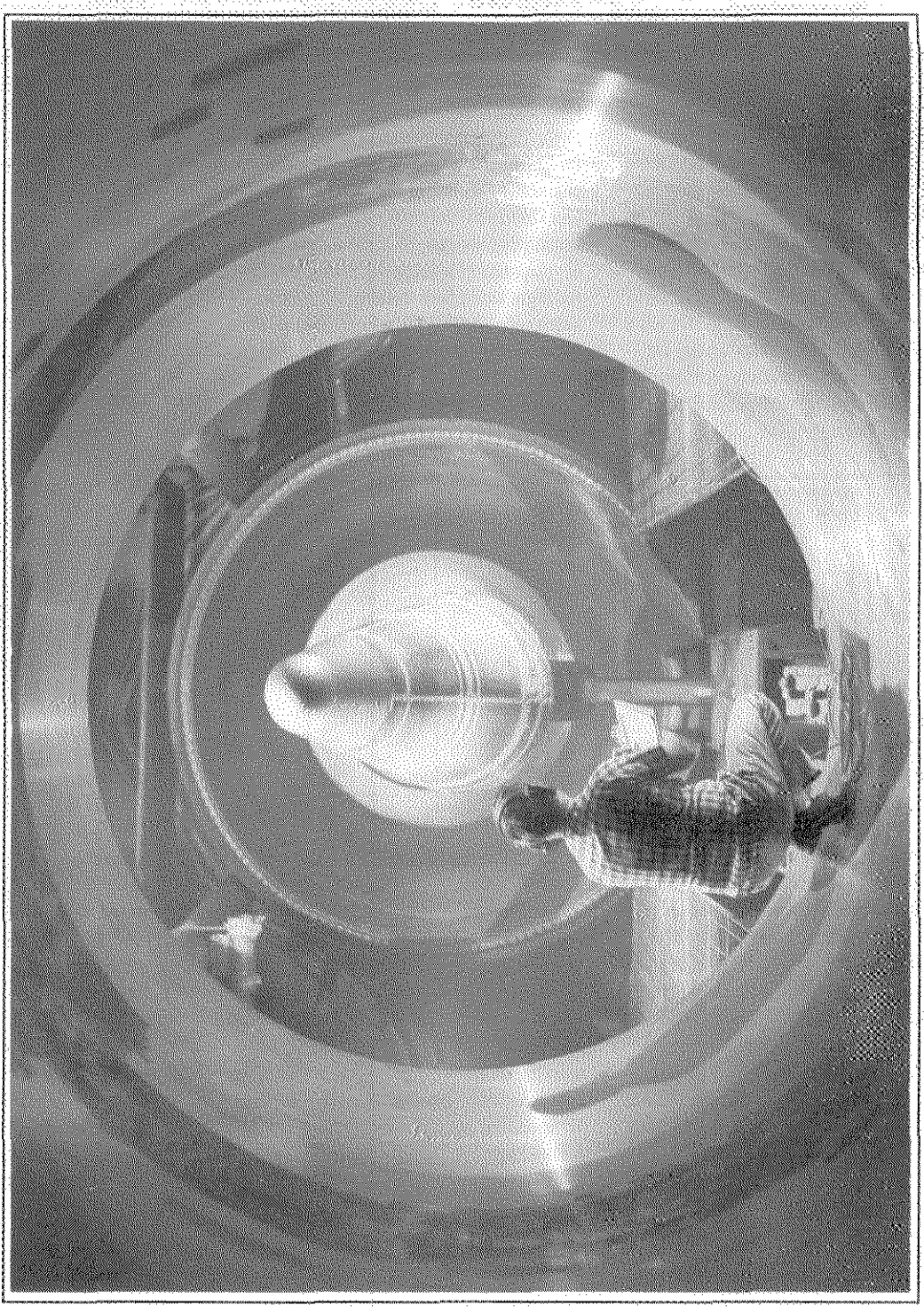
Researcher News



LOOKING BACK - TO 1967: A technician inspects a model in the test section of the 8-Foot High Temperature Tunnel in preparation for an aerothermodynamics test of a spacecraft nose cone. Operational since 1964, this blowdown test facility is used to test structures and materials under the stress and high temperatures of hypersonic flight.

1917 1992 75 Years NACA NASA Langley Research Center

Langley News Researcher

Biweekly Employee and Contractor Publication

Volume 6 ❖ Issue 19 ❖ October 9, 1992

Company's Coming...

Center Shows Off Past, Present and Future

NASA Langley will host a 75th Anniversary Open House on Saturday, October 17, from 9 a.m. to 4 p.m. The event will feature tours of 15 facilities, test runs of the Aircraft Landing Dynamics Facility, children's programs at the H.J.E. Reid Conference Center and more. The public is welcome.

Highlights in the hangar will include Langley's Long Duration Exposure Facility, which orbited the Earth for six years, the Boeing 737 "flying laboratory" recently back from windshear testing in Florida, the HL-20 and NASP models, a Viking lander and static display. Research and visiting aircraft will be included.

At the Aircraft Landing Dynamics Facility, test runs will be conducted at 11 a.m., and 1 and 3 p.m. Shuttle tires and runway surfaces will also be on display with several ground test vehicles. The nearby Impact Dynamics Research Facility will include an all-composite Lear Fan airframe being readied for a crash test and a B-707 fuselage section mounted in the drop tower.

At the Reid Conference Center, aerospace education demonstrations will be presented at 10:15 and 11:15 a.m., while a presentation on kites will be made at 1:15 and 2:15 p.m. Educational video programs will be shown at 9:15 a.m. and at 12:15 and 3:15 p.m.

Many other displays and tours will be available at the following facilities:

Reid Conference Center (children's programs, static displays).

Flight Simulation Research.

Robotics and Electromagnetic Effects Laboratory.

Advanced Aerospace Fabrication.

Hangar (research aircraft and static displays).

Space Structures Research Laboratory.

Structures and Materials Laboratory.

Cafeteria (food, gift shop).

14 by 22-Foot Subsonic Wind Tunnel and 10-Foot High-Speed Wind Tunnel.

Unitary Wind Tunnel and 31-Inch Mach 10 Wind Tunnel.

Atmospheric Science Research.

Acoustics Laboratory.

Aircraft Landing Dynamics Facility.

Impact Dynamics Research Facility.

30-by 60-Foot Wind Tunnel in the East Area.

Shuttle buses will provide on-Center transportation for all attendees. Visitors may enter the main or Wythe Creek gates. Cars will be directed to parking lots near bus stops and tour facilities.

Please see **OPEN HOUSE,** *Page 3*

Langley Leads International Atmospheric Study

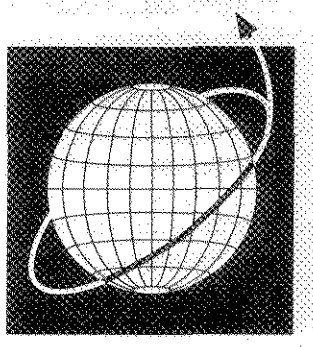
BY CRAIG MURDEN

The effects of human activity on global atmospheric change is the focus of a Langley-led international scientific investigation in a region of the world far removed from sources of industrial or automotive pollution.

More than 200 scientists from 13 countries are probing enhanced concentrations of harmful ozone over large regions of southern Africa and Brazil. Believed linked to massive biomass burning on the two continents, the pool of pollution was recently uncovered by satellite analysis.

Heading the Brazilian effort as the on-scene project manager is James M. Hoell Jr. while Dr. Jack Fishman is serving as the mission scientist. In Africa, Dr. Joel S. Levine and Wesley R. Cofer III handled ground and airborne based studies, respectively. All are assigned to the Center's Atmospheric Sciences Division under the direction of Dr. James D. Lawrence Jr.

Potential impacts on global chemistry and effects on climate and ecology have underscored the sense of urgency voiced by the world's atmospheric science community in mounting the expeditions. Investigation of the new phenomenon is employing a variety of high-tech instrumentation including observations from satellites, aircraft and ground platforms. It was Fishman's



ISY

pioneering work in the analysis of satellite data to chart new ozone sources that laid much of the groundwork for both ventures.

The field campaign, which began in early September, will extend through most of October. In addition to satellite surveillance, NASA's DC-8 "flying laboratory" from the Ames Research Center is being featured. The Space Shuttle Endeavour, on its September mission, photographed African and South American smoke palls to provide new visual perspective on the nature of these emissions.

The South American segment is a joint effort between the space agencies of the United States and Brazil. It addresses the source areas in central Brazil and tracks the long-range distribution of gases as they move into the southern tropical Atlantic. Satellites, specially instrumented Brazilian aircraft, the NASA DC-8 and balloon-borne sampling platforms are being used.

The African venture is a collaboration of European, African and North American scientists to investigate savanna fires in southern Africa, their movement across that continent and the relationship between fires, savanna ecology and atmospheric chemistry. Measurements from ground, tower, balloon and airborne platforms will be integrated with data from the Brazilian segment and with satellite observations.

Scientists in both projects acknowledge that the movements and chemical mechanisms of this ozone anomaly are extremely complex and that explanations up to this point have been speculative. These new investigations will be the first to provide concrete insights on the global impact of tropical biomass burning. Some scientists believe the effects of fire emissions on the atmosphere's chemistry are comparable to those from fossil fuels in the northern latitudes. The emissions from the burning undoubtedly have some effect on the Earth's climatic balance, but whether this could lead to net warming or cooling is still open to speculation. Scientists should get some answers to these and other questions when the measurement data are analyzed and researched.

Lending A Helping Hand

Mary K. Ross is a 67-year-old alert, cheerful and friendly individual who has arthritis and circulatory problems and has suffered two mild strokes and a fractured hip. She depends heavily on the services provided by the Peninsula Agency on Aging. "The agency is a marvelous organization, and they have done so much for me," Mrs. Ross said to Combined Federal Campaign volunteers. Pictured with Mrs. Ross are Ben J. Schlichenmayer, American Federation of Government Employees Union; Roscoe D. Edge, NASA-Union Liaison; Colleen Wilhelm, agency case manager; Dr. Douglas L. Dwoyer, CFC co-chairman; and Scott Wagner, a former CFC chairman. The agency provides those 60 or older with case management services, congregate meals, home-delivered meals, home-care, group transportation, special programs, advocacy and employment opportunities. Mrs. Ross' son Richard Ross, supervisor of the operating systems group at Wyle Laboratories, said that the agency personnel have been very helpful and are very friendly. "I am grateful for the services they provide to someone who cannot get around easily or drive." The Peninsula Agency on Aging can use *your* designated "All-star gift." Please consider their needs when you make your pledge during the Combined Federal Campaign.

Two Views On United States Space Exploration Highlights Colloquium

The next Langley Colloquium Series will feature a debate entitled "Where is the U.S. Heading in Space? Two Views" on Tuesday, October 13, at 2 p.m. in the H.J.E. Reid Conference Center auditorium.

Squaring off will be two internationally recognized authorities on space policy: Dr. John M. Logsdon III, director for both the Center for International Science and Technology Policy and the Space Policy Institute of George Washington University's Elliott School of International Affairs, and Dr. Hans M. Mark, chancellor of the University of Texas System and a former NASA deputy administrator.

Each speaker will be allowed 20 minutes to present the major emphasis of his analysis and recommendations on various issues, including the end of the Cold War, the presidential election, the global space recession, the national economy and international cooperation and competition.

Questions will be taken from the audience for the remainder of the program, which ends at 3:10 p.m.

A 20-minute period will follow in which each speaker comments

Please see **COLLOQUIUM,** *Page 3*

ON THE INSIDE

The Tuskegee Airmen will be honored by several organizations because of their 50th anniversary, Page 3

Columbia's versatility will be shown in the upcoming mission, Page 2.

News Briefs

Goldin Maps Out Standards For Agency, Shuttle High Priority

NASA Administrator Daniel Goldin has announced priorities and initiatives aimed at improving the way NASA does business.

In an announcement at a meeting of the American Institute of Aeronautics and Astronautics, Goldin said the initiatives represent work by the Red and Blue teams he established to examine ways NASA could operate faster, better and cheaper while maintaining safety.

At the September 18 meeting in Washington, D.C., Goldin said the Agency's priority remains a safe Shuttle program, and that current investments are designed to improve the system's performance and safety into the early 21st Century.

The space station project is the second priority. Goldin said NASA will put its best talent on that project and that he expects industry to do the same. Goldin said NASA is considering establishment of a contract award fee pool that would remunerate contractors based on how well the teams worked as an integrated unit.

Other priorities including inviting the airframe and engine manufacturers to a brainstorming and review session of NASA's aeronautics priorities to make sure the industry's and the Agency's priorities are concurrent.

Goldin also reaffirmed the Agency's commitment to science by announcing NASA's intention to work with its centers, universities and contractors to establish a new process for instrument development and thereby help resolve one of the impacts to timely and within-budget development of science platforms.

Goldin also said the Agency will not tolerate contracts that run over cost or behind schedule or that do not deliver the product as specified. The Agency will hold itself accountable for establishing firm requirements and hold the firms accountable for delivering the product they contracted to produce. Goldin said a recent General Accounting Office report on 29 NASA programs showed an average overrun of 75 percent, which the Agency cannot afford.

Goldin also said NASA would share the results of Red and Blue team examinations of other initiatives with the public in a series of "town meetings" beginning in November.

STS-52's Nine-Day Mission Will Show Columbia's Versatility

Shuttle flight STS-52 will be an ambitious mission, demonstrating the versatility of orbiter Columbia as a satellite launcher, science platform and technology testbed. Launch is planned for Oct. 15 from the Kennedy Space Center, Fla. The nine-day, 20-hour and 54-minute mission is scheduled to land on Oct. 25 at the Kennedy Center.

The crew of six and 11 major payloads will be aboard Columbia's 13th mission, the 51st Space Shuttle flight. Mission Commander is James Wetherbee with Michael Baker the pilot. Mission specialists are Charles Lacy Veach, William Shepherd and Tamara Jernigan. Steve MacLean is the payload specialist and the third Canadian citizen to fly aboard the Shuttle.

Columbia will eject the LAGEOS-II satellite from the cargo bay on the second mission day. Built by the Italian Space Agency using NASA blueprints, this small 900-pound satellite will help geologists fill in important details about the Earth. The first LAGEOS was launched in 1976. Adding a second spacecraft will enable researchers to gather twice the data.

Program Scientist Dr. Miriam Baltuck said geologists use this information to monitor the extremely slow movements of the Earth's crustal plates, to measure and understand the "wobble" in Earth's axis of rotation, collect information on the Earth's size and shape and more accurately determine the length of the day.

A major new materials processing payload makes its debut on STS-52, the first United States Microgravity Payload (USMP-1). The payload consists of three experiments mounted on a new carrier, derived from the previously flown Materials Science Lab, in Columbia's cargo bay.

Experiments on USMP-1 will explore using the unique space environment to do research that is not possible on Earth. The science, while basic in nature, could impact applications on Earth in areas such as computer memory, metals and semiconductors. Another experiment will measure the Shuttle's vibrations, information critical to scientists understanding the current experiments and planning future experiments.

Canadian Payload Specialist MacLean will perform a bevy of experiments called CANEX-2. Many of these experiments are extensions of work carried out by Dr. Marc Garneau as part of the CANEX group of experiments that flew in 1984.

CANEX-2 is actually 10 separate investigations. Results from CANEX-2 have potential applications in machine vision systems for use with robotic equipment in space and in environments such as mines and nuclear reactors. Other potential applications relate to the manufacturing of goods, the development of new protective coatings for spacecraft materials, improvements in materials processing, and a better understanding of Earth's stratosphere which contains the protective ozone layer.

Columbia will be turned into an orbiting test-bed for other STS-52 experiments. One, called the Attitude Sensor Package built by the European Space Agency, will gather information on the performance and accuracy of new sensors. Space is the best place to test these sensors. The data returned could be used in the design of sensors of future spacecraft.

Major payloads, sponsored by NASA's Commercial Programs Office, will examine a compound for possible use in combating diseases which involve loss of bone mass; thin-film membrane research which has potential application in the biotechnology and pollution control field; and a new facility for growing semiconductor crystals which permits interaction from the crew to achieve optimum growth.

A commerical protein crystal growth facility will fly on STS-52. Scientists hope a new facility will result in more crystals that are better ordered, larger and more uniform in size than their ground-based counterparts.

LETTERS

James Manning writes: During my career at NACA/NASA, I was very fortunate to have the opportunity to work with many talented and capable people. In my retirement, I shall miss the stimulation of that association and the friendship that developed from it.

Many of those friends were in attendance at my retirement celebration and I really appreciated that. I shall cherish the warmth shown me and my family and the mementos presented to me. It was a splendid retirement celebration. Thanks to all.

Technology Workshop Set For Oct. 26-27

The second Langley Workshop on Adaptive/Intelligent/Smart Materials and Systems originally planned for September has been rescheduled for Oct. 26-27 in the H.J.E. Reid Conference Center. Presentations are being solicited from in-house Langley government and contractor employees on topics including but not limited to; material system development and applications, transducer development and applications, modeling, control system design, either implementations or application. The workshop will be expanded to two days this year with the first day for in-house presentations and the second day for invited Department of Defense and university organizations to overview their work and/or technology needs.

The format of the workshop will be informal, with 20-minute presentations including discussion. No papers will be required but copies of presentation material will be compiled and distributed after the conference to attendees. If interested in making a presentation or attending, contact either Richard Silcox, ext. 43590, Mail Stop 463; Jennifer Heeg, ext. 42795, Mail Stop 243; or Michael Fox, ext. 45590, Mail Stop 413; by Oct. 15. This workshop is sponsored by the Active Structures Technical Committee. The workshop's intent is to bring together researchers at Langley working or wishing to work in this area as well as to increase the awareness of this technology.

Voluntary Leave

The Voluntary Leave Transfer Program is designed to permit employees to donate annual leave to other employees who are experiencing personal or family medical emergencies.

The following employees are approved recipients in the Voluntary Leave Transfer Program: S. Janet Dail, Bette L. Duncan, Francine W. Guthrie, Cassandra D. Stevens, Noel A. Talcott, Jr., Carol C. Winbush, Belle L. Wood, Darrell A. Wood.

If you wish to donate annual leave to these recipients, or wish more information, please contact Linda Park of the Employee Relations Program at ext. 42610.

CDC Seeks Boxes

Every Halloween, Langley Child Development Center parents assemble a "haunted house" from cardboard boxes. Refrigerator boxes are best, but any box big enough for a 5-year-old to crawl through will work.

If you have boxes at work or home, please think of the center. Boxes can be dropped at the center, Building 1231 near the Langley Federal Credit Union. Or call Barb Merrill, ext. 47670, Heidi Meeks, ext. 44827, or Carey Buttrill, ext. 44016 for pickup. The haunted house will be built October 30.

Books Available

Additional copies of *Winds of Change* may be purchased by calling the Superintendent of Documents at (202) 783-3238. The estimated price is $17.

Bloodmobile Report

Total number of donors for the Sept. 16 bloodmobile was 298. Total first time donors were five, according to Coordinators Annette Forrest of NASA and Barbara Thompson, Redcross.

James L. Leiffer, 15 gallons.

William J. Debnam, 13 gallons.

Rodney D. Russell, Melvin L. Jones, Robert J. Wallis, 8 gallons.

Ronald D. Lewis, Michael G. Fleck, Mark T. Lord, Wilbur B. Fichter, 7 gallons.

Michael S. Dashiell, Jeffrey Singleton, Jimmy D. Case, James L. Puffenberger, 4 gallons.

Lee H. Jordan, Joseph L. Japp, 3 gallons.

Emitt D. Fuller, Donald F. Kepley, Michael DiFulvio, Edward N. Scearce, Patricia K. Deyerle, Harold I. Simmons, 2 gallons.

Andrea M. Lewis, Charles A. Monroe Jr., Richard E. Martin, Jose A. Vega, Frank J. Novak, 1 gallon.

First time donors include Bill Tomek, Haus Seywald, Charles McCallister, Kathryn Stacy, Judy Ligon.

The next bloodmobile will be Nov. 18.

EEOC New Regulation Speeds Complaints

Starting on October 1, a new regulation, 29 C.F.R. PART 1614, became operational. It will allow for quicker, more efficient processing of discrimination complaints.

The Equal Employment Opportunity Commission's new regulation revises the way federal agencies and the commission process administrative complaints and appeals of employment discrimination filed by federal employees and applicants for federal employment. The new regulation is expected to promote impartial, fair and early resolution of complaints. For more information, call Vivian Merritt at ext. 43290.

News Researcher

The Researcher News, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23665-5225, is published every other Friday in the interest of all Langley staff and retirees. Submit contributions to the Editor, Mail Stop 115, telephone 864-6126. Articles are due at noon the Tuesday following the date of this issue.

Managing Editor ..... Jean Drummond Clough

Editor ..... Michael Finneran

Assistant Editor ..... Susan A. Smigielski

Photojournalist ..... Carol Petrachenko

Photographer ..... Fred Jones

The privilege of advertising in this publication is restricted to the employees and retirees of the Langley Research Center. Articles advertised here must be offered without regard to race, color, religion, sex or national origin.

All materials are subject to editing.

New Bedroom Furniture Shows New Sides Of Life

My wife is fairly level headed, prudent and very reasonable - until it comes to the subject of furniture. Our bedroom furniture, the disparate pieces garnered by diligent garage sale trips during my graduate-student days, offends her constantly. Her infrequent bouts of insomnia are always traced back to my interior "dickerations."

Last week, after much prodding on her part, we drove over 200 miles to a crowded furniture store near Washington, D.C. After three long, tiring hours of elbowing other shoppers, I decided on a bedroom set in white, while my wife preferred the same set in black lacquer finish.

Under the guise of making a comparative evaluation, she made me shuffle back and forth between the two bedrooms until, at the seventeenth trek across the sets, my resistance wilted and I gave in to her selection.

The task of loading the heavy ready-to-assemble furniture boxes fell on my Peewee-Hermanisque shoulders and by the time this chore got done I bore a striking resemblance to Quasimodo, the hunchback. We got back home after 10 p.m. and my wife, in solicitous tones, asked me how I was feeling. I replied, "Feel great - all that lifting didn't bother me a bit. Fresh as a fruitcake." My feeble attempts at sarcasm were greeted by a look of complete disdain and the suggestion that we should start the wonderous task of assembling the furniture.

My wife promised to lend me a helping hand, which meant she would perch on a nearby sofa and say things like "Are you sure that piece fits here? Did it really hurt THAT bad?" and "Can you hold the hammering noise down while I'm watching Jay Leno?" Anyway, she "helped" me assemble a few pieces of furniture till 1:30 a.m. By that time, I had three broken nails, two punctured fingers, a sore wrist and had on more than a few occasions cussed like a sucker-punched sailor. That night, I dreamt I was driving a hammer down I-95 while nails lined up on both sides on the road and sang, "Please don't hurt us, Mr. Hammer."

The next morning, after gulping down a cup of coffee, I was at it again. My knees looked like I had crawled six miles in gravel, my elbows were hurting something awful and my fingers ached from twisting in what seemed like a few hundred screws. Thankfully, by evening, all the bedroom pieces were completely assembled and I heaved a great big sigh of relief.

My wife surveyed the new furniture pieces perched in their designated locations. "Hmmmm," she went, "maybe you were right. The white furniture would have looked better with the pink drapes." My righteous I-told-you-so expression was short-lived as she continued, "Want to return these and get the white ones?"

Ramki Krishnan is a research scientist in the Theoretical Flow Physics Branch. He works for Anaylyical Services & Materials Inc.

Tuskegee Airmen Honored

On March 17, 1942, the first class of black flying cadets graduated from the Tuskegee Army Air Field in Alabama. This was the first time in U.S. history that a large-scale government program was established that trained and used blacks in military aviation.

In honor of the 50th anniversary of the Tuskegee Experiment, the Virginia Air and Space Center, the War Memorial Museum of Virginia, the Tuskegee Airmen Inc. and the Newsome House will host programs October 16 and 17.

Retired Lt. Gen. Benjamin O. Davis Jr., a graduate of the first class of black flying cadets and commander of the 99th Fighter Squadron, will speak about the Tuskegee experiment at the Air and Space Center on October 16 at 8 p.m. The fee is the basic admission rate to the center: $3 for adults, $2.50 for seniors and military and $1.50 for children through the 12th grade.

On Saturday, October 17, the following activities will take place at the Air and Space Center and at the War Memorial Museum:

- 10 a.m. to 2 p.m.: Guided tours of the Air and Space Center led by members of the Tuskegee Airmen. A question-and-answer session will be held in front of the a new exhibit at the center called "The Tuskegee Airmen." Also, a book signing will be held at the center by Lt. Gen. Davis. In addition, Tuskegee films will be shown hourly at the center and the museum.
- 11 a.m. to noon: A concert by the United States Continental Army Band in the courtyard of the center.
- 2 p.m.: A concert by the same band will be held in the Monument Grove of the War Memorial Museum.
- 2:30 p.m.: A remembrance ceremony for fallen Tuskegee Fliers in the Monument Grove at the museum.
- 7 p.m.: A tour of the War Memorial Museum.
- 7:30 p.m.: A panel discussion by the Tuskegee Airmen at the War Memorial Museum.
- 9 p.m.: A reception at the museum.

For more information, call the Air and Space Center at 727-0900 or the War Memorial Museum at 247-8523.

Langley Researchers Earn Arch T. Colwell Award

Gregory S. Manuel, of the Research Information and Applications Division, Technology Utilization and Applications Office; Kamran Daryabeigi and David W. Alderfer, of the Instrument Research Division, Thermal Instrumentations Section; and Clifford J. Obara, of the Flight Applications Division, Flight Research Branch, have received a 1991 Arch T. Colwell Merit Award for their paper entitled "In-Flight Off-Surface Flow Visualization Using Infrared Imaging."

The award was established by Arch T. Colwell to recognize authors of outstanding papers presented at meetings of the Society of Automotive Engineers (SAE). Papers are judged for their value as original contributions to the knowledge of mobility engineering.

The paper was one of 14 picked from 2000 published for SAE meetings in 1991. Certificates were presented September 30 in Dearborn, Michigan, at the SAE Worldwide Passenger Car Meeting and Exposition.

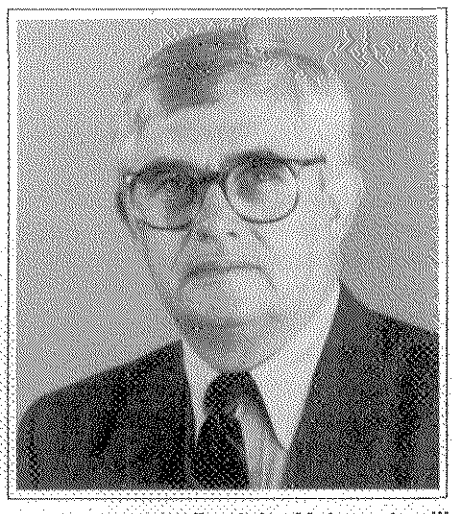
COLLOQUIUM:

Continued from Page 1

on the other's opinions.

In addition, Logsdon will present a lecture entitled "U.S.A. Space Policy" at 7:30 that night at the Virginia Air and Space Center as part of the public Sigma Series Lectures.

Logsdon is also a professor of political science and international affairs at George Washington University. He has a bachelor of science degree in physics from Xavier University and a doctorate in political science from New York University. He has been at George Washington since 1970 and taught at The Catholic University of America.

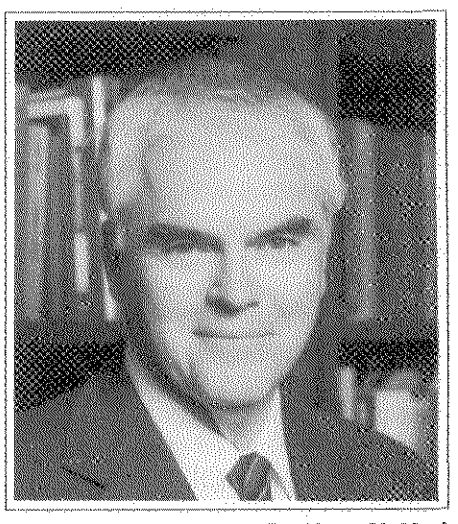


Dr. John M. Logsdon III

He is the author of *The Decision to Go to the Moon: Project Apollo and the National Interest*. Logsdon was appointed in January to Vice President Quayle's Space Policy Advisory Board. He is a current and past member of many aerospace organizations and has lectured widely and written often on space, science and technology policy.

Mark was appointed NASA deputy administrator in 1981. From 1977 to 1979, he was undersecretary of the Air Force and was named secretary in 1979. Prior to moving to Washington, D.C., he was director of Ames Research Center in California.

Mark has a degree in physics from the University of California at Berkeley and a doctorate in physics from the Massachusetts Institute of Technology (MIT). He is a professor of aerospace engineering and engineering mechanics at the University of Texas at Austin. He has held academic positions at MIT, the University of California at Berkeley and Stanford University. Among his many publications are the books *The Space Station: A Personal Journey*, *The Management of Institutions* and *In Search of the Fulcrum*.



Dr. Hans M. Mark

OPEN HOUSE:

Continued from Page 1

Disability accessible buses will be located in the small parking lot behind the cafeteria. The shuttle buses will run two continuous routes, one around the West Area and another to and from the 30-by 60-Foot Tunnel in the East Area. East Area buses will leave from the intersection of East Taylor Street and Lindbergh Way near the northeast corner of the hangar. NASA personnel will not be permitted to take friends or family members into buildings that are not open to the public.

A two-hour tour with sign interpreters for the hearing impaired will be available from 11 a.m. to 1 p.m. The bus will leave from the conference center at 11 a.m. For more information call (voice) 864-3973 or (TTY) 864-3920.

The cafeteria will sell fast-food and beverages from 10 a.m. to 2 p.m., while food vendors will be set up on the picnic grounds of the Reid Conference Center and near the hangar.

Douglas Broome Dies

Douglas Broome, Jr., 55, deputy director of Solar System Exploration died Sept. 27 of liver cancer.

Broome began his career with NASA in 1959 at Langley as an aerospace engineer where he worked on power systems for the Mercury capsule.

Most recently, he was instrumental in last month's Mars Observer launch.

THEN & NOW

Excerpts from old Langley newsletters will appear throughout the Center's 75th Anniversary year. The following is from the March 19, 1972 issue of the Langley Researcher.

The New Scout Project Office Building was officially opened last Friday when Director Edgar M. Cortright presided at an afternoon ribbon cutting ceremony.

In dedicating the new facility, Cortright said "Project Scout has brought honor and pride to our Center and our country for 14 years. Scout has had a successful record from the start and the last 23 launchings have been successful."

The addition, which cost about $200,000, was designed by Rancorn, Wildman and Krause, Architects and built by La-Sal Construction Co. Roland English is head of the project. Scout is NASA's smallest four-stage, solid propellant rocket vehicle capable of putting a satellite payload into orbit.

Happenings

FEMALE ROOMMATE wanted to share 3-bedroom, 1½-bath home in Wythe. No smokers. Rent is $250 per month plus half of the utilities and a $200 deposit. Call 722-7127 before 9 p.m.

LAA TURKEY SHOOT: The annual LAA Turkey Shoot will be held November 7 at the H.J.E. Reid Conference Center. Matches begin at 9 a.m. and continue until dusk. Cost is $1 per shot. Tickets are on sale now. To sell tickets for the event, call Andrea Lewis at ext. 46369.

ROOMMATE WANTED: Hampton/Threechopt available October 9. Female seeking nonsmoking, responsible adult to share 2-bedroom townhouse, 2 full baths, lots of closets, washer/dryer, cable, $260 per month, $260 deposit, pay half of utilities. Call 723-4723.

FREE AEROBICS: Get energized with NASA aerobics! Open to all employees and contractors. Low-impact with interval weight training classes in the LAA gym. Body Dynamics are held Monday, Wednesday and Friday from 6:15 to 7:15 a.m. Lunchtime Energizer is held from 11 to 11:45 a.m. For more information call ext. 46387.

STEP AEROBICS: More classes will be featured in October in addition to low impact. Step heights for all levels, Tuesdays and Thursdays, 5-6 p.m. and Saturdays 9:30-10:30 a.m., LAA Gym. First class is free. Open to all employees and families. Call ext. 42295.

FEDERAL WOMEN'S PROGRAM COMMITTEE will present Lynn Eppard, Legislative Chair of Federally Employed Women, Inc. in the H.J.E. Reid Conference Center Oct. 13 from 10-11 a.m., speaking on national election issues pertaining to women, families and federal employees. All employees are invited to attend. Charge time to J.O. A2987. Call Patsy Campbell at ext. 43291. The committee will meet Oct. 14 from 8:30-9:30 a.m. in the H.J.E. Reid Conference Center.

TOASTMASTERS meets from 11:30 a.m. to 1 p.m. October 14 in Building 1222.

DISCOVER CUONG-NHU Oriental martial arts with the Langley Karate Club. Classes are held at the gym Mondays, Wednesdays, 5 to 7 p.m. New students will be accepted October 26 through November 25. Enrollment is open to NASA civil servants, contractor, immediate families. Cost, $6 per month. Stop at gym during class, ask for Roy Albang, or call 596-7736, 7 to 10 p.m.

LAND FOR SALE: 2.9 miles in Carrollton, $41,900. Call 874-7414.

MAMMOGRAMS will be offered October 13, 14, 15, 21 and 22 by Riverside Mammography Services. The van will be next to the Health Clinic (Building 1149). Cost is $50. NASA employees, retirees, contractors and family members are eligible. Call 864-3191 for appointment.

CAR FOR SALE: 1977 Corvette, 16,000 original miles, L 82 engine, 4 speed. Original dark red paint, leather interior, $20,000 firm. Call 220-9500.

EARLY CHRISTMAS PRESENT from the LAA Aerobics Club. Join through December and receive one month free for you, a family member or friend. Low-impact, step classes and toning with free weights and steps provided. Call 42295 for information.

LAA HALLOWEEN HOEDOWN will be Oct. 23 from 4-8 p.m. Music by Foxfire. $1 cover charge.

FOUND: One pair of men's bifocal glasses with case. Call security, ext. 43420 to identify and claim.

HOUSE FOR RENT WANTED: York Co., Poquoson, Williamsburg. Needed preferably by Dec. 1. At least 3 bedrooms. Call Joe at 468-2026.

ROOMMATE WANTED: For large 3-bedroom house with eat-in kitchen, garage and house privileges, fireplace, lots of benefits. Only $300 a month including utilities. Call digital pager, 872-5241.

HOUSE FOR SALE: Harpersville, Newport News, 1,650 square feet, brick/aluminum-sided colonial, 4 bedrooms, living room, dining room, den with fireplace, eat-in kitchen with dishwasher and pantry, hardwood floors, gas heat/hot water, central air, fenced back yard, one-car garage, 15 minutes to LAFB, $89,900, call 599-5453.

ROOMMATE WANTED: Looking for female to share a beautiful 2-bedroom riverfront house in Fox Hill. Has all utilities plus jacuzzi and garage, $375 a month plus half utilities. Available October 1. Call 850-4756.

INTERCENTER FALL RACES will continue with two mile races Oct. 15 and Oct. 19 and a 10 KM Oct. 13 and Oct. 22. Races start at 5 p.m. on Doolittle Road. All NASA employees, retirees, on-site contractors and co-ops can participate. Walkers are welcome. For more information call Richard Shearer ext. 47036.

ROOMMATE WANTED: Looking for males to share three-bedroom house for $200 a month including utilities. Call 723-4782 and ask for Stephen.

CAR FOR SALE: 1987 BMW 325, five speed, AC, full power, sunroof, stereo, excellent condition, $10,000, Call 872-6827.

KINDERGARTEN PROGRAM: The Langley Child Development Center is registering children for its new kindergarten program. A full-day program will be provided by a certified kindergarten teacher. Applicants must be five years old by October 31, 1992. Call ext. 44827.

National Aeronautics and
Space Administration
Langley Research Center
Hampton, Virginia 23665-5225

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News Researcher

NASA engineer David Conner inspects a noise sensor on a U.S. Army High Mobility Multipurpose Wheeled Vehicle, known as "the Hummer" or "Hum-Vee," in NASA Langley's 14x22 Foot Subsonic Tunnel. The joint Army-NASA tests are part of an effort to increase the vehicle's combat survivability. The tests documented the wind-generated noise levels of Hummer acoustic sensors and sensor wind screens. With this information factored in, sounds of enemy vehicles can be more accurately identified.

1917 1992
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News Researcher

Bi-weekly Employee and Contractor Publication
Volume 6 ❖ Issue 20 ❖ October 23, 1992

Goldin Announces Management Changes

In an effort to improve management and focus on programs that are essential to America's future, NASA Administrator Daniel S. Goldin, announced last week a series of structural changes in the agency.

"Of all the agencies in government, NASA has a unique responsibility to invest in the future, to ensure there is hope and opportunity, to keep America on the cutting edge of technology, Goldin said.

Aeronautics

One of the changes made by Goldin is the appointment of former Langley Center Director Richard H. Petersen to Special Assistant to the Administrator to develop a comprehensive and integrated long-term plan that identifies the critical facilities for aeronautics and space. Petersen left Langley last year after being appointed Associate Administrator for the Office of Aeronautics and Space Technology.

Goldin said NASA needs a better balance of programs between subsonic, National Aerospace Plane, hypersonics and high speed civil transport. In addition, NASA needs to develop a strategic plan to ensure the agency has the proper facilities to keep America's aerospace industry the world's leader.

Goldin said the Office of Aeronautics and Space Technology will be divided into the Office of Aeronautics and a recently created Office of Advanced Concepts and Technology.

Advanced Concepts and Technology

Goldin said Cecil Rosen will become Acting Associate Administrator for the Office Of Aeronautics. Rosen was Director of Aeronautics.

Gregory Reck will become Acting Associate Administrator for the newly created office of Advanced Concepts and Technology. Under Reck, Courtney Stadd will become Acting Deputy Associate Administrator for the new office.

Additionally, the restructure will include the Office of Commercial Programs becoming part of this new arrangement. In doing do, Goldin said his intentions are to attract America's greatest researchers in academia and industry. It will also help commercialize technology and transfer technology to create jobs, he added.

Jack Mannix, who was Assistant Administrator for the Office of Commercial Programs, will become Associate General Counsel for Intellectual Property.

In explaining his changes for the area of aeronautics, Goldin said "as the Augustine Report points out, NASA's infrastructure is critical to meeting its mission goals.

He added NASA must develop an integrated facilities plan, in coordination with other government agencies and private industry, to construct world class facilities for aeronautics and space.

"We must avoid duplication in government and industry to achieve maximum results and stretch taxpayers dollars," he said.

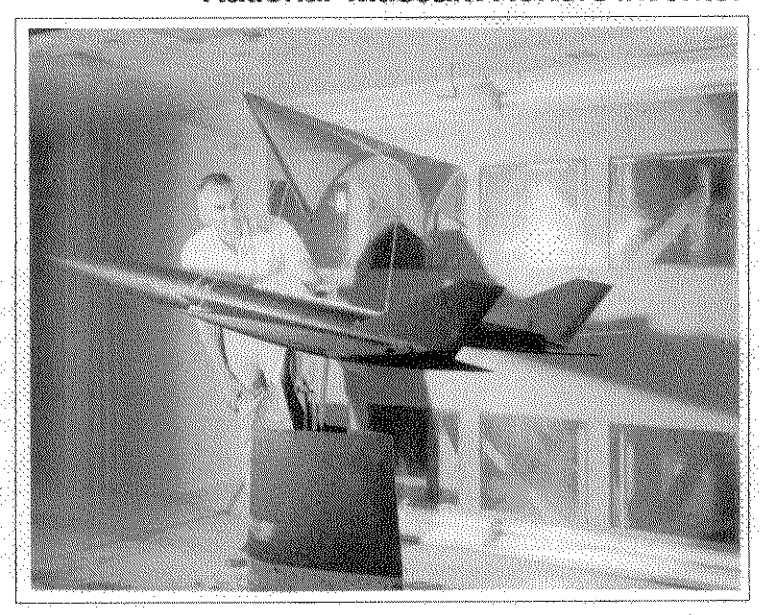
Space Station Freedom

For Space Station Freedom, Goldin said the focus of management of the station is the highest priority for NASA. Saying he was taking steps to ensure NASA's top talent is working on this program, Goldin appointed Marty Kress to become Deputy Program Manager for Policy and Management. He will be responsible for strengthening cooperation with the Space Station user community, international partners and the private sector. According to Goldin, Kress was instrumental during budget deliberations on Capitol Hill.

Kress' appointment will allow Space Station Associate

Please see **GOLDIN**, *page 5*

National Museum Honors Inventor



Francis M. Rogallo, developer of the flexible wing concept that led to modern-day hang gliders, was honored by the National Air and Space Museum Oct. 16. Rogallo was presented the NASM Trophy, awarded annually for outstanding achievement in the fields of aerospace science and technology. Rogallo had a long and outstanding career as an inventor of aeronautical devices, but his name is most closely associated with the flexible wing concept which he developed while working for NASA on the space program in the late 1950s at Langley. The wing concept was a candidate for return of spacecraft and astronauts from Earth orbit. The photo is from 1959 and shows Rogallo and a spacecraft model fitted with a flexible wing in a Langley wind tunnel.

Assessment Team Earns Top Honors

Langley's Award Fee Assessment Team has received a Presidential Quality and Management Improvement Award from President Bush for outstanding leadership in achieving significant cost savings through fee reductions on support service contracts.

The awards, presented in Washington, D.C. on Oct. 20, went to William R. Kivett, procurement officer, who led the group effort; John F. Stokes, director for Management Operations; Robert R. Moore Jr., deputy director for Management Operations; Michael F. Cavelli Jr., supervisory procurement analyst, Acquisition Division; Everette S. Ketchum, supervisory contract specialist; and Rosemary C. Froehlich, supervisory contract specialist.

The team improved Langley's award fee process with changes in performance evaluation plans, scoring definitions, application of scoring criteria and the level of award fees being negotiated on the support service contracts.

The team negotiated fee reductions that resulted in a $1.6 million annual savings for the Center. In 1983, negotiated fee percentages on award fee contracts were about 9 percent. This compares to fee percentages that today range from 6.3 percent to 7.5 percent. Similar reductions have been made on fixed-fee service contracts, where fees now range from 4.1 percent to 7 percent.

"These fee reductions have been effective on negotiation at a time in a slow, deliberate and difficult process, as such contracts were of a five-year duration with varying completion dates," according to the award nomination.

ISY Exhibits NASA's Contributions

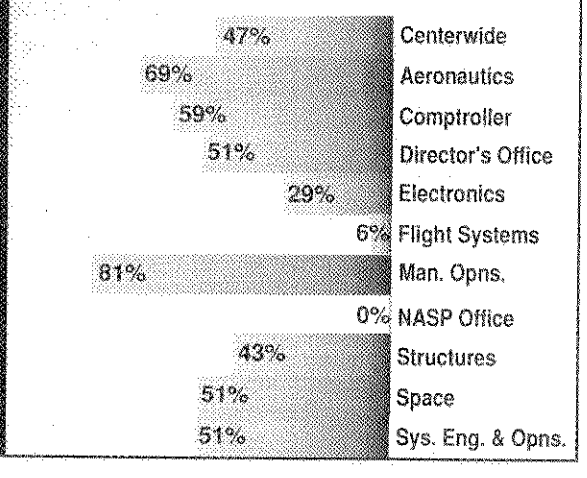
ISY EXHIBIT OPENS AT VIRGINIA AIR AND SPACE CENTER. **The overall thrust of 1992's International Space Year and NASA Langley's role in the year-long celebration is highlighted in a Langley-developed exhibit on display in the Virginia Air and Space Center's second-floor changing gallery. The display focuses on two of NASA's major initiatives, Mission to Planet Earth—an investigation of our home planet—and Mission from Planet Earth—a return to the Moon and on to Mars. The International Space Year is a world-wide celebration of exploration and discovery and marks the 500th anniversary of Columbus' voyage to the New World. Taking a close look at the new display are Pat Cotturone and his son Luke from Suffolk, Va.**

COUNTDOWN

Combined Federal Campaign

Langley has raised $ 142,775 toward its $305,000 goal

Percentage of each organization's goal as of October --



News Briefs

AROUND THE AGENCY

EDUCATION REPRESENTATIVE ATTENDS CONFERENCE - A representative of the Educational Programs Office attended an STS-47 Educators' Launch Conference entitled "Increasing Access for Minorities in Science, Engineering and Technology" in September in Orlando, Fla. During the conference, 70 teachers at 24 schools participated in the Catholic Television Network Project SEE Teleconference. A community involvement program workshop was held in Ogden, Utah, in September. There were 36 schools visited during the workshop, which was held in cooperation with the Thiokol Corporation, Weber State University and several school districts. A total of 475 educators attended an all-day teacher workshop at Weber State University.

HST SCIENTISTS PRESENT RESULTS - Hubble Space Telescope scientists presented the results of a recent Wide Field/Planetary Camera image taken through a massive cluster of galaxies which produced a striking mirror-image of an even more distant galaxy through a technique known as "gravitational lensing." This effect was first proposed by Albert Einstein and has been used by ground-based telescopes but never before by a space telescope. Richard Ellis of England's Durham University was the investigator for these images and said "we already knew from ground-based images that this cluster of galaxies could act as a gravitational lens. The remarkable feature of the new data is the detail with which we can study background galaxies by combining the lensing phenomenon with the excellent image quality possible with the Hubble."

ISAMS INOPERATIVE - UARS is operating minimally. However, attempts to restart the UARS Improved Stratospheric and Mesospheric Sounder (ISAMS) chopper wheel motor still have not been successful and so ISAMS remains inoperative. The motor stopped working on July 29. Automated attempts to restart the motor continue. In September, the observatory made a routine forward to backward yaw around. This maneuver, executed approximately every 36 days, keeps the solar array on the Sun side of the observatory and the instruments in the correct orientation with respect to the Sun. UARS was launched September 12, 1991 from the Space Shuttle Discovery.

GEOTAIL IN FULL MODE - Geotail is now in full science mode with the first segment of the mission, the deep tail phase, during which the spacecraft will use several orbits to travel deep into the geomagnetic tail, using lunar swing-bys to achieve the deep orbits. On September 26, Geotail reached its first deeptail apogee, and conducted a velocity adjustment to shape the orbit for the first in-bound lunar swing-by scheduled for October. Geotail was launched in July from Cape Canaveral Air Force Station on board a Delta II rocket.

NewTech '92 Addresses Various Issues

NewTech 92, the ninth annual symposium on developments in science and technology, was October 20 at the Continuous Electron Beam Accelerator Facility (CEBAF) in Newport News.

The symposium, sponsored by U.S. Rep. Herbert H. Bateman and the Virginia Peninsula area's Chamber of Commerce and Economic Development Council, featured prominent speakers addressing such issues as:

- U.S. science and technology policy.
- The global warming controversy.
- Issues involved in economic conversion from defense to commercial enterprise.
- The just-launched TOPEX/POSEIDON satellite study ocean circulation.
- Free electron laser technology.

Calendars for Upcoming Year Available

Requests for the 1993 calendars can now be submitted to the Stockroom, Mail Stop 382, on NASA Langley Form 55. Stock numbers for the calendars are as follows:

NSN 7510-010275-0644, Calendar Pad, Flipover; 3" x 3 5/8" (EA).

NSN 7510-01-275-0646, Calendar Pad, Executive Flipover; 3-5/8" x 5-7/8" (EA).

NSN 7510-01-241-0546, Wall Calendar, displays three months at a time; 11-5/8 x 8-7/8" (EA).

NSN 7530-01275-0586, Loose-Leaf Appointment Book Refill, daily and monthly calendar sheets; 6-1/2" x 5-1/2" (EA).

NSN 7530-01-233-2436, Weekly Appointment Book, features two pages per week, columns for appointments and reminders are marked off in 15-minute intervals; 8-1/2" x 11" (EA).

7510-01-241-0551, Desk Blotter, monthly sheets ruled and squared for each day; 17" x 22" (EA).

Each branch secretary should submit branch and section requirements to reduce the number of requests. Other stock supplies cannot be ordered on the same form as the calendar requests.

VASC Board of Directors Set To Accept Nominations For Thomas Chisman Medal

The Board of Directors for the Virginia Air and Space Center and Hampton Roads History Center is accepting nominations for the Thomas P. Chisman Memorial Medal.

The award will be presented in late November or early December, according to Kim Hinson event and media coordinator of the center.

The Thomas P. Chisman Memorial Medal, established to honor others who carry on his tradition, will be presented to those who best epitomize the character and contributions of Thomas P. Chisman.

The life of Chisman, 1921 to 1991, was characterized by extraordinary personal, business and community achievement. He was a devoted family man and unrelenting community activist contributing to all areas of life in Hampton Roads.

Chisman's accomplishments are legendary. He founded WVEC-TV and joined other area leaders to form the Future of Hampton Roads, a group that fosters regional solutions to regional problems.

Chisman left Hampton Roads a lifetime of achievements: museums, hospitals, schools and newly developed downtowns.

The last years of his life were spent ensuring the Virginia Air and Space Center would become one of the regions's premier attractions. The center is a lasting monument to Chisman's vision and love of Hampton Roads.

To be eligible for the Chisman Memorial Medal, the recipient will have provided distinguished services and/or personal contributions in one or more of the following areas:

- To the Virginia Air and Space Center and Hampton Roads History Center.
- To regional cooperation and development.
- To the cultural community.
- To regional education and educational institutions.
- To regional aerospace history and advancement.
- To regional history.

The Thomas P. Chisman Medal is funded in part by a contribution from A.H. Belo Company, the parent company of WVEC-TV. For information call 727-0900.

Telescope Viewing

The Skywatchers Astronomy Club will host an evening of telescopic viewing of the heavens Oct. 30 from 7:30 p.m. until midnight at the club's observatory, 10 Lindburgh Road.

A variety of telescopes will be set up for this event. It is free and open to the public. For more information call Marilyn Ogburn, ext. 41175.

Flu Shots Available

Flu shots are available from 8 a.m.- 4 p.m. daily at the Health Clinic, building 1149. No appointment is needed.

The shots are available to NASA and on-site contractor employees.

The shots are free and will be given as long as there is a vaccine. The shots are sponsored by the Office of Occupational Health Services.

Correction

An article in the September 25 issue of the *Researcher News* incorrectly stated that Dr. Carlos A. Liceaga has a doctorate in computer science. He has a doctorate in electrical and computer engineering.

Speakers Bureau Report

Nicholas T. Lagen spoke at the NASA Education Workshop for Elementary Teachers at the Virginia Air and Space Center on A History and the Principles of Flight.

Sharon Tanner spoke at Wakefield Elementary School on the Invisibile Source of Gravity and on Estimation and Accuracy in Measurements.

Richard Eckman spoke at National Refrigeration Service meetung on the Anatarctic Ozone Hole: The Impact of CFCs and Implication for the Future.

Dr. M. Patrick McCormick spoke at the Poquoson Lions Club on Impact of Volcanic Eruption of Mt. Pinatubo on the Earth's Atmosphere.

Dr. John Buckley and **Robert Fox** spoke at the Amherst County Public Library on Induction Heating For Fabrication and Repairs in Space.

Dr. Karen Jackson spoke to the Department of the Army's Federal Women's Program on Women in NASA. Dr. Jackson also spoke to Vint Hill Farms Army Station, Warrenton, Va. Federal Women's Program on Crash Dynamic Research Program.

Dr. Joel Levine spoke to the Women in Aerospace in Washington, D.C. on A Planet at Risk and to the Society of Engineers, Hampton Roads Section on A Planet at Risk.

Douglas Stanley spoke to the Smithfield Kiwanis on the Next Generation of Space Shuttle.

Joe Talbot spoke to the Williamsburg Rotary Club on the Russian Space Program.

LETTERS

Kelly J. Hayhurst writes: I am one of the NASA Langley Research Center employees who participated in the Day of Caring project on Sept. 10.

I wanted to let you know what a wonderful experience it was to participate in this event. I worked at Newport News Social Services sorting and boxing donated clothing for local clothes closets. All of us who volunteered at the social services department (including a few others from NASA) worked so hard - but it felt really good. I could go on for a long time telling you about how much being a part of this event meant to me. My objective in writing you, though, is to say that I hope that the small turnout of NASA employees does not discourage NASA LaRC from participating in this event in the future. In fact, I hope the Day of Caring becomes a traditional way of kicking off the Combined Federal Campaign. I certainly plan on participating in future Day of Caring events and would like to volunteer to help coordinate such events here at NASA if such help is ever needed.

My sincerest thanks to those at NASA who were responsible for providing the opportunity to be a part of the Day of Caring!

IN MEMORIAM

Edwin Wilson

Edwin Wilson, 72, died Oct. 4. The World War II Army veteran retired from NASA in 1973 after 20 years of service. The family of the York County native requests that expressions of sympathy take the form of contributions to the Asbury Wesleyan Church, 605 Harpersville Road, Newport News, 23606.

The family of the late **Douglas E. Hicks,** a 1988 NASA retiree, expresses appreciation for your sympathy and help during our time of trial.

Signed Mildred Hicks and family.

Halloween Party Planned At VASC

Enjoy safe trick-or-treating at the Virginia Air and Space Center and Hampton Roads History Center Oct. 31 from 5-7 p.m. sponsored by the Price Club.

Children can meet the pirates of Hampton, listen to a storyteller and make their own pirate craft. Prizes will be awarded for the best costumes.

Admission is $1.50 for non-members and free for members. Children must be accompanied by an adult. For information call 727-0900, extension 714.

News Researcher

The Researcher News, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23665-5225, is published every other Friday in the interest of all Langley staff and retirees. Submit contributions to the Editor, Mail Stop 115, telephone 864-6126. Articles are due at noon the Tuesday following the date of this issue.

Managing Editor ..... Jean Drummond Clough

Editor ..... Michael Finneran

Assistant Editor ..... Susan A. Smigielski

Photojournalist ..... Carol Petrachenko

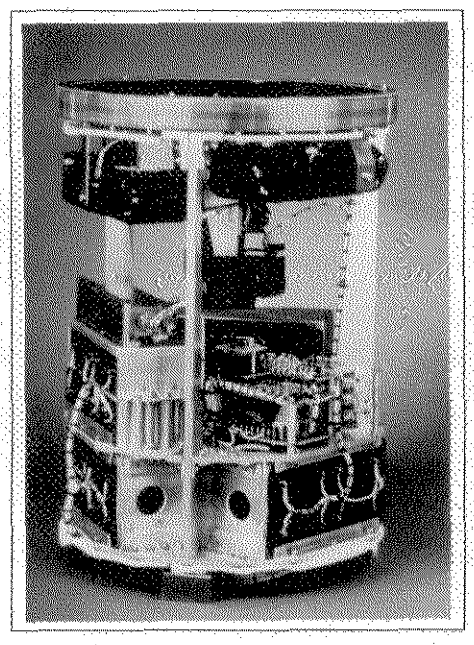
Photographer ..... Fred Jones

The privilege of advertising in this publication is restricted to the employees and retirees of the Langley Research Center. Articles advertised here must be offered without regard to race, color, religion, sex or national origin.

All materials are subject to editing.

Langley Participates In CAN DO

By SUSAN A. SMIGIELSKI



History will be made on flight STS-57 with the help of the Charleston County School District's CAN DO Get Away Special (GAS) Space Shuttle Payload Project, Poquoson Schools and Langley Research Center.

The South Carolina school district is using a five-foot canister sponsored by the Center. The payload, known as GEOCAM, will include 250 separate small student designed experiments. No other payload in the history of the space program has ever undertaken this many different experiments.

In addition, the canister has been designed to hold four cameras to photograph the Earth. Suitable photographic targets will be chosen by teachers and students based on weather, sun angle, orbiter orientation and crew activities. Targets selected will be sent to the Shuttle twice a day as crew notes. These efforts will be managed through a student-run mission control room. The mission control site will be at the Medical University of South Carolina.

Activities and reports from the control room will be televised to students throughout the state by the South Carolina Educational Television Network. Technical television personnel of the Medical University of South Carolina will also assist.

The CAN DO teachers have designed classroom activities to use 1,000 photos. The photos are the first educational payload to ever photograph the Earth from space.

Special emphasis will be placed on comparing the new photos to those taken 20 years ago by Skylab. The camera system of the CAN DO project has been designed to match the coverage and wavelengths used on Skylab. Students will search for environmental changes that may have taken place during the generation, thus allowing students to discover for themselves the major effects caused by deforestation and pollution. With the assistance of atmospheric scientists, the photos should provide clues to the degradation of the air quality often mentioned by astronauts. Dr. Mitchell Colgan and other faculty members of the College of Charleston will aid in the interpretation of the results.

Student experiments will also play a large role in the payload. The student designed experiments from more than 60 Charleston County classrooms. The experiments will test the effect of space on various materials. Students from kindergarten to 12th grade have chosen materials ranging from brine shrimp eggs to collard green seeds to fly in space. Each student team has five samples of their materials: one to fly in space, one to serve as a passive control, and one each to be exposed to high doses of radiation, extreme cold and high gravity. The positive control procedures are carried out at the Medical University of South Carolina as part of its Business/Education Partnership Program with the Charleston County School District Office of Math, Sciences and Technology.

A major goal of the experiments is to teach the skills of proper experimental design as well as execution of valid scientific experiments.

A separate, bigger scale experiment will be conducted with the help of the WESTVACO Forestry Division. The group donated Sycamore and Loblolly Pine seeds to permit each Charleston County school to raise its own "space trees." These seeds have flown 160 mile above the Earth.

An exchange of information between Charleston County School District and Poquoson Schools will take place.

Parking Made Easier In Langley Headquarters Area

Finding a parking space in Langley's crowded "downtown"—the Headquarters area—will soon be easier thanks to an improvement project scheduled to begin this fall.

An additional 22 parking slots will be added near three facilities: Headquarters on Langley Boulevard, the Executive Conference Center and the Information Systems Research Facility on South Wright Street.

The improvement, identified in the Facilities Master Plan update, will be achieved by redefining the pavement boundaries.

Plans call for existing landscaping to be preserved or repositioned.

"This is one of the highest impact areas," said Master Planner John Mouring. "Nobody can find a parking space over there."

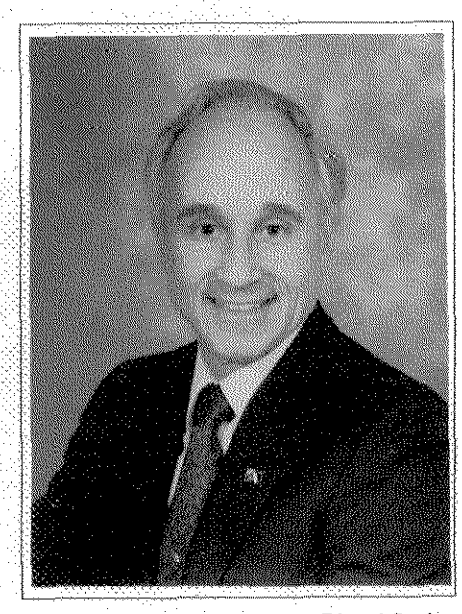
Mouring said the extra spaces will be "for the masses"—no reserved slots are to be added.

The improvement is part of an overall design that could add as many as 700 parking spaces on Center in the future, Mouring said.

Alumni Celebrates 75th Anniversary With Big Band

Langley's 75th Anniversary Alumni Banquet will be Nov. 14 at the Williamsburg Hilton. The cost is $16 per person and includes entertainment, dinner and dancing to the Big Band orchestra "Remembrance." The banquet is open to the public, so early reservations are encouraged. Tables may be reserved for groups of 10. For information and reservations call Abe Leiss, chairman, at 877-2939.

Materials Division Assistant Chief Heads For Retirement



Bland Stein

Bland A. Stein, assistant chief of the Materials Division, is retiring October 30 after 36 years of service. He held the position since 1988 and also was chairman of the Long Duration Exposure Facility (LDEF) Environmental Effects on Materials Special Investigation Group.

Stein began his Langley career in 1956 as a materials research engineer and has served as head, Metals Section; assistant head, Materials Applications Branch; head, Materials Research Branch; head, Polymeric Materials Branch; and head, Applied Materials Branch.

He is the author or co-author of more than 50 technical papers and presentations and holds a patent on rapid adhesive induction bonding. In March, he received a NASA Exceptional Service Medal for "outstanding contributions and leadership in the Agency's aerospace structural materials program."

He also has received a Special Achievement Award and numerous Group Achievement Awards.

The New York City native has a bachelor of science degree in mechanical engineering from City College of New York and a master of science degree in metallurgical engineering from Virginia Polytechnic Institute and State University. He has had postgraduate training in materials engineering at North Carolina State University and in public administration through a NASA fellowship at the University of Virginia.

He has been an adjunct professor at George Washington University and Christopher Newport College.

Stein is an associate fellow of the American Institute of Aeronautics and Astronautics and has served on its technical committee on materials. He is a member and past president of the Hampton Roads Chapter of the American Society for Metals, International. Stein is a member of the American Society for Testing and Materials and the American Society of Mechanical Engineers. He chaired the Aerospace Subcommittee of the ASTM/ASME Joint Committee on the Effects of Temperature on the Properties of Materials.

Stein also is a member of the Society for the Advancement of Materials and Process Engineering, American Ceramic Society, Sigma XI and Alpha Sigma Mu.

Women In Aerospace Recently Honor Several Members For Achievements

The Hampton Roads Section of Women in Aerospace joined national members in honoring 10 award recipients at WIA's Seventh Annual Awards Reception on Sept. 16th in the Library of Congress, Washington D.C.

Each year, WIA presents awards for outstanding achievement in aerospace, for lifetime achievement, and for excellence in aerospace education.

These awards honor women who may not have received public recognition for their work and who serve as examples of the valuable contributions of women in aerospace.

This year's award recipients included Janet K. Ruff and Linda Billings for outstanding achievement and Jeanne Lee Crews and Jaylee Mead for lifetime achievement.

Former astronaut Kathryn D. Sullivan received the aerospace explorer award, which was presented by NASA Deputy Administrator Aaron Cohen.

Hampton Roads Section

The Hampton Roads Section recently held its first annual Awards Dinner and Installation of Officers at the Upper Crust Restaurant in Hampton.

A new member, Donna G. Roper, received the outstanding member award for 1991-1992.

The recently elected officers for 1992-1993 are Pamela A. Davis, president; Gaudy Bezos-O'Connor, vice president of programs; Veloria J. Martinson, vice president of membership; Sharon E. (Cheri) Tanner, vice president of education; Mary L. Sandy, secretary; and Kelli F. Willshire, treasurer.

All of the officers are Langley employees except Mary L. Sandy, who is the director of the Virginia Space Grant Consortium.

Established at Langley in July 1991, the Hampton Roads Section sponsors programs of interest to all aerospace professionals from career growth to the most recent scientific studies.

The programs sponsored this year included "Networking in the Nineties" presented by Karen Belding, co-founder of the Peninsula's Women's Network.

The group recently presented the program "A Planet at Risk" given by Dr. Joel Levine, a senior research scientist in the Atmospheric Sciences Division.

The Hampton Roads Section also holds bimonthly business meetings and has three active committees: programs, membership and education.

The education committee is currently working on several projects to enable members to participate and enhance the education of today's youth.

For more information about the WIA Hampton Roads Section, please call Pamela Davis at X41307.

Six Teams Come Out On Top In 1992 Softball Season Tournament

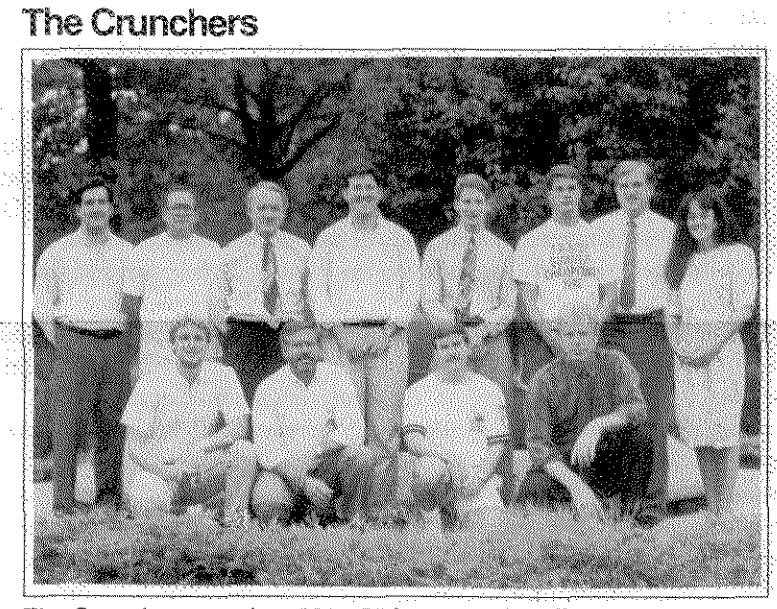
The Ballers

The Ballers are the 1992 "A" League softball tournament champions. Front row, from left: Ray Rhew, Jimmy Adams, Wayne Merson and Alan Frizzell. Back row, from left: Bob Redman, Chip Quinn, Rodney Russell, Mark Frye and Bob Booth. Not pictured: Archie Dimery, Steve Geissinger, Bob Borchardt and John Costulis.

BBI

BBI is the 1992 "B" League softball tournament champion. From left: Steve Lee, Chris Wright, Robert Hayhurst, Mike Houseknecht, Ty Moen, Joe Vega, Brian Cheshire, Dave Kessler and Jeff Pierro. Now shown: Craig Neal, Phil Robinson, Robert Patterson, Joe Woolsey and John Swartzbaugh.

The Crunchers

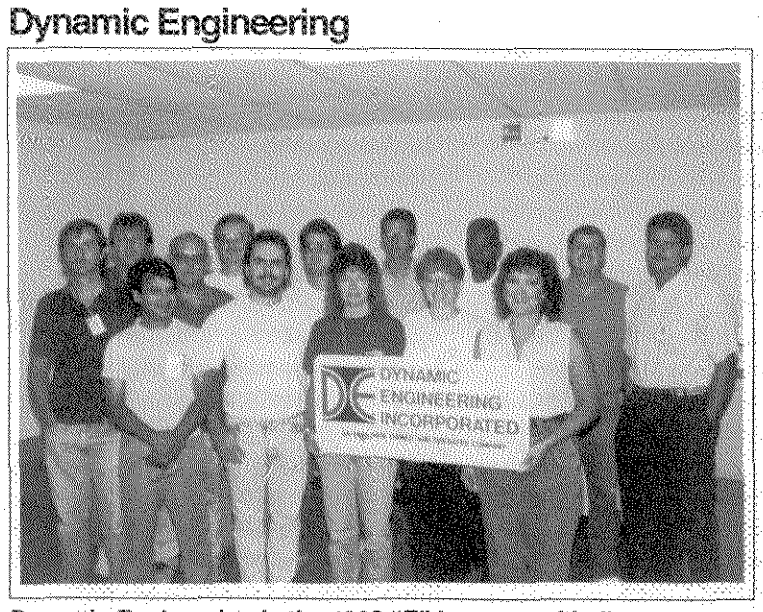


The Crunchers are the 1992 "C" League softball tournament champions. Front row, from left: Dale Davis, Jerry Hoerger, Gordy Degear and Ken Frink. Back row, from left: Ed Moas, Jerry Alexander, Jim Taylor, Richard Siebels, Staten Spruill, Tommy Weih, Tom Frasher and Allison Ballew. Not shown: Billy Weiss, Jimmy Hathaway and Jennifer Heeg.

The Nuggets

The Nuggets are the 1992 "D" League softball tournament champions. Front row, from left: Gary Bayless, Tony Giunta, Bryan Dansberry, Stan Cole and Dave Turnock. Back row, from left: Chester Langston, Tony Rivera, James Florence, Woodrow Whitlow, Mike Durham, Joe Caravella, Don Keller and Ken Dawson. Not shown: Mike Melendez, Bill Bissett, George Lockett, Mike Bandwen and David Myers.

Dynamic Engineering



Dynamic Engineering is the 1992 "E" League softball tournament champion. From left: Michael Welch, Larry Holland, Zahid Qureshi, Gene Hansen, George Clements, Danny Young, Bob Lewis, Kim Potter, Gerald Britt, Scottie Girouard, Archie Lewis, Carol Clements, Keith Tweed and Buddy Keeter.

Hypersonics

Hypersonics is the 1992 "F" League softball tournament champion. Front row, from left: John Paul Phillips, Lawrence Taylor, Rick Kreis, Pam Schmidt and Abel Torres. Back row, from left: Bill Dziedzic, Dave Sleight, John Martin, Paul Ferlemann, Dan Stevens, Craig Collier, Glenn Bobskill, Bob Bittner, Dave Roberts and Marlon Mao. Not shown: Judi Miller and Laura Bass.

BY LOU GLAAB
Softball commissioner

The 1992 NASA Softball League was a success this year, with 35 teams taking part in the four-month season. This year, teams were grouped in three divisions for the first round of play, then, based on win/loss record, separated into six leagues for the second part of the season and the championship tournament.

All teams participated in the double-elimination tournament, which concluded the season in early August. This resulted in each team playing 18 to 22 games, the difference resulting from tournament play.

The Ballers won the "A" League tournament championship for the third year. Unlike the previous two years, the Ballers (15-4) allowed a few teams to beat them, but only in regular season play. In the tournament the team went undefeated and allowed the Ueckers (14-7) to play them for nine innings before a two-run homer ended the game in favor of the Ballers.

BBI (10-10-1) won the "B" League for the second year in a row. This year they had to fight their way through the losers' bracket in the tournament and then beat the tough Dynamic Engineering (8-12) Division 1 team twice to win.

The Crunchers (16-3), proved to be the toughest team in Division 2, and went on to win the "C" League championship, winning three games in a row. In the final game of the tournament they destroyed the Rat Pack (13-8) by a score of 25 to 10.

In "D" League the resurrected Nuggets (10-11) were able to win the tournament after placing only fourth in regular season play. This team also persevered through the losers' bracket and ended up winning the tournament by beating the Nuts (9-11-1) by a score of 9 to 6.

The "E" League tournament was won by the much-improved Dynamic Engineering (18-1) Division 3 team. After only losing one game during regular season play they swept through the tournament and beat the Brewers (13-8-1) in the final game by a score of 10 to 7. In contrast, Dynamic Engineering only won two games the entire 1991 season.

Hypersonics (11-11) proved they had what it takes as they won the "F" League tournament, and in the process played the most games of any championship team this season. After a shaky start, they worked hard to win their way out of the losers' bracket and then beat Rage (9-12) in the final game by a score 22 to 7 to win the tournament.

People & Places

Employee Awards

SUPERIOR ACCOMPLISHMENT AWARDS

Darrell A. Wood, aerospace technologist, technical management, Projects Division (PD), for outstanding and innovative leadership during a period of unusually high productivity for the Clouds and the Earth's Radiant Energy Systems (CERES) Project.

Steven X.S. Bauer, aerospace engineer, Applied Aerodynamics Division (AAD), for superior accomplishment in demonstrating the application of forebody-nose passive porosity for side-force alleviation.

Joseph C. Davis, engineering technician, Fabrication Division (FD), for excellence in monitoring and coordinating the manufacturing of research hardware.

Jeffrey D. Flamm, aerospace research engineer, AAD, for outstanding performance in determining flow quality in the Unitary Plan Wind Tunnel.

David L. Giltinan, engineering technician, FD, for exceptional performance of monitoring the magnetic suspension system.

Jeffrey S. Hill, AAD, for outstanding contributions to the National Transonic Facility (NTF) as safety head and facility engineer.

Mark. L. McMillin, research engineer, Space Systems Division (SSD), for outstanding contributions to the improvements in vehicle solid geometry generation which provide efficient communication across engineering disciplines.

Lisa C. Simonsen, research engineer, SSD, for outstanding contributions to development of analysis methods and application of these methods for understanding radiation exposure effects on manned space exploration missions.

Wayne D. Geouge, engineering technician, FD, for highly effective and innovative support to the 48-Inch Semi-Span Model project.

Jay M. Brandon, research engineer, Flight Applications Division (FAD), for outstanding performance in flight dynamics research and pioneering research in documenting dynamic stall effects on a realistic fighter configuration.

Donald G. Buhl, electronics technician, Analysis and Computation Division (ACD), for exceptional achievement in upgrades to increase productivity of the Differential Maneuvering Simulator.

Norma K. Campbell, computer engineer, FAD, for outstanding performance and significant contributions in providing computer support for the Flight Dynamics Branch.

Rodney L. Duncan, aerospace technologist, project management, PD, for superior effort and leadership which have contributed significantly to the excellent progress on the Lidar In-Space Technology Experiment (LITE) Project.

Randall D. Grove, aerospace engineer, ACD, for exceptional performance as the ASB project leader in the implementation of the Flight Simulation Computing System.

Lindsey W. Lowe, electronics technician, ACD, for exceptional achievement in data base modifications for the Computer-Generated Image System and the design of remote power controllers for the Visual Motion Simulator.

Lemuel E. Meetz, electronics engineer, ACD, for exceptional achievement in improved simulation productivity through computerization of record-keeping, problem reporting and scheduling of real-time resources.

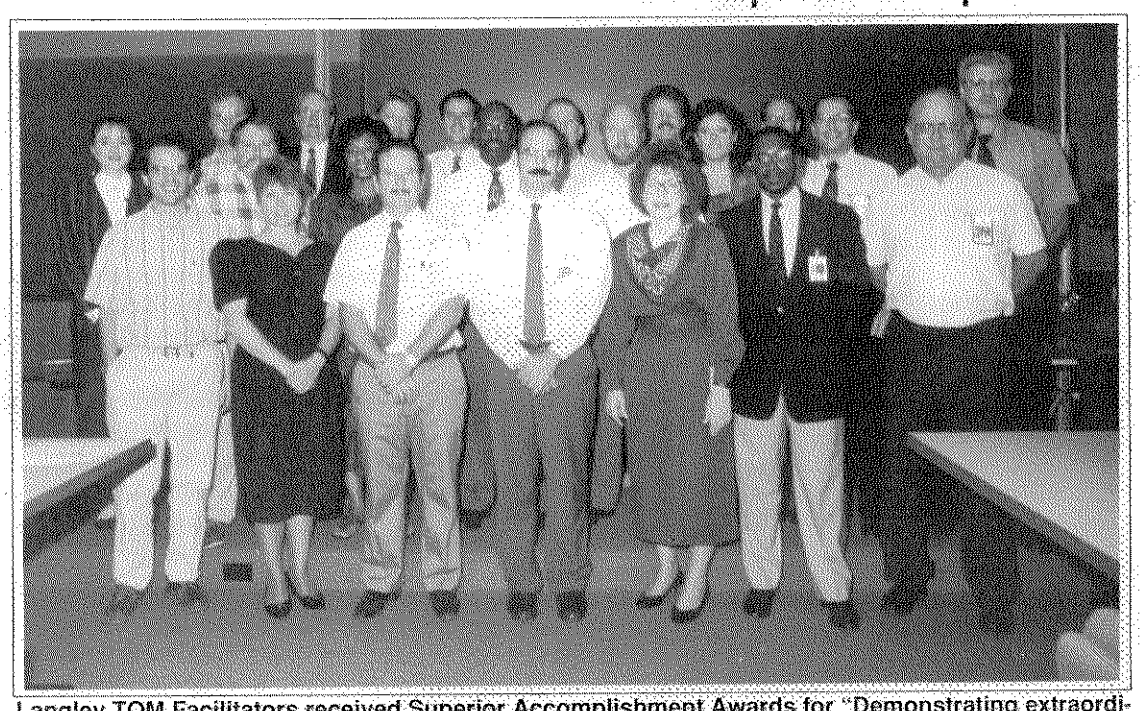
Marilyn E. Ogburn, research engineer, FAD, for outstanding performance and significant contributions in the use of piloted simulation to conduct high-angle-of-attack flight dynamics research of advanced aircraft concepts.

I. Stuart Rose, production controller, FD, for excellence in monitoring and coordinating the manufacture of research hardware.

Scott A. Striepe, research engineer, SSD, for outstanding contributions to the design of interplanetary trajectories for aerobraking systems and the definition of crew radiation shielding requirements.

D. Phillip Milburn, engineering technician, FD, for exceptional job performance and dedication to duty.

Superior Accomplishment



Langley TQM Facilitators received Superior Accomplishment Awards for "Demonstrating extraordinary expertise and dedication in support of TQM implementation at Langley Research Center. Recipients are (front row, left to right) Dr. Christopher Rumsey, Debra Carraway, Davis Wright, George Finelli, Donna Martin, Dr. Woodrow Whitlow Jr., Associate Director Sid Pauls, (back row, left to right) Laurie Andrews, Delwin Croom Jr., J. Russell McHatton, Michael Glenn, Christyl Chamblee, Henry Zumbrun, Guy Kemmerly, Arthur Gooden, Howard Puckett Jr., R. Jenkins, Richard Walters, Ruth Martin, Steven Young, James Batterson, Irwin Schauer. Not pictured D. Rhodes, C. Spitzer, P. Edgette, D. Neil.

First Student Payload Has Successful Launch

The first student managed and built payload flown on a NASA sounding rocket was launch successfully Sept. 21, from NASA Goddard Space Flight Center's Wallops Flight Facility, Wallops Island, Va.

The pilot project, known as the Colorado Student Ozone Atmospheric Rocket (CSOAR), was developed to demonstrate the use of sounding rocket flight as a valuable educational tool for undergraduate and graduate students.

"This is like winning the Super Bowl the first time you try," said Elaine Hansen, Director of the Colorado Space Grant Consortium.

The payload, designed to measure ozone density in the atmosphere, was carried aloft by a NASA single stage Orion sounding rocket at 2:32 p.m. EDT.

After reaching at 33.5 mile (53.9) kilometer) altitude in 116 seconds, the payload descended by parachute into the Atlantic Ocean where it was recovered by the United States Coast Guard .

The project was a joint venture between NASA and the Space Grant Consortiums in Colorado and Virginia.

Goldin:

continued from page 1

Administrator, Dick Kohrs, to focus on day-to-day development of Space Station.

■ Mary Kerwin, director of the Liaison Divsion, will become Acting Assistant Administrator for Legislative Affairs.

■ Tom Campbell, formerly NASA Comptroller, will become Chief Financial Officer for SSF to ensure budget estimates are followed.

■ Gary Allison, who was Deputy Comptroller, will become Acting Comptroller.

Science and Technology

■ Len Fisk will be promoted to the new position of Chief Scientist for NASA. He was previously Associate Administrator for Space Science and Applications.

Earth and Planetary Science

The Office of Science and Space Applications will be divided into two parts to bring focus to the programs.

■ Shelby Tilford will become Acting Associate Administrator of Mission to Planet Earth.

■ Wes Huntress, previously Director of Solar System Exploration, will become Acting Associate Administrator of Planetary Science and Astrophysics.

Russian Programs

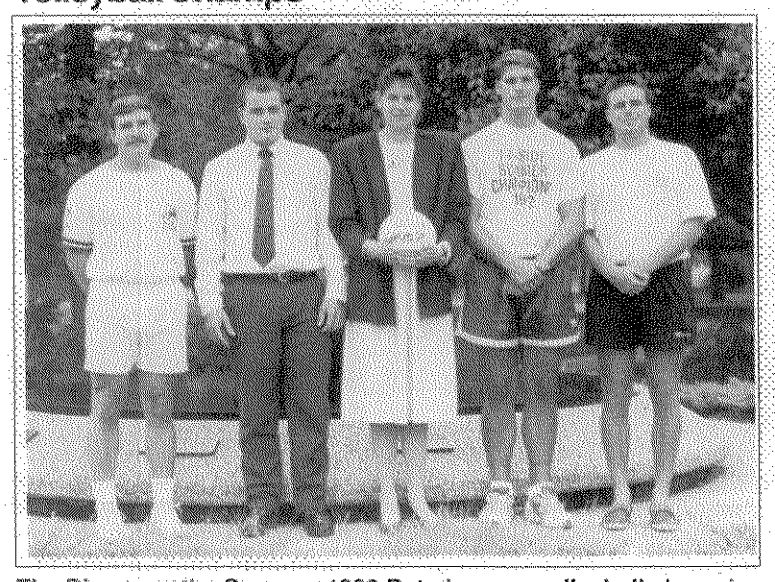
Sam Keller, Associate Administrator for Russian Programs will be on Special Assignment.

In preparation for the changes, Goldin said over the past six months he has traveled to NASA centers, visiting with hundreds of employees, worked with the Red and Blue Teams, met with CEOs of America's top companies, and reached out into minority and women-owned companies.

Goldin traveled abroad to meet with leaders in space policy, met personally with nearly 200 members of Congress and analyzed major reports such as the Augustine Report, The Paine Commission Report, and The Rogers Commission Report.

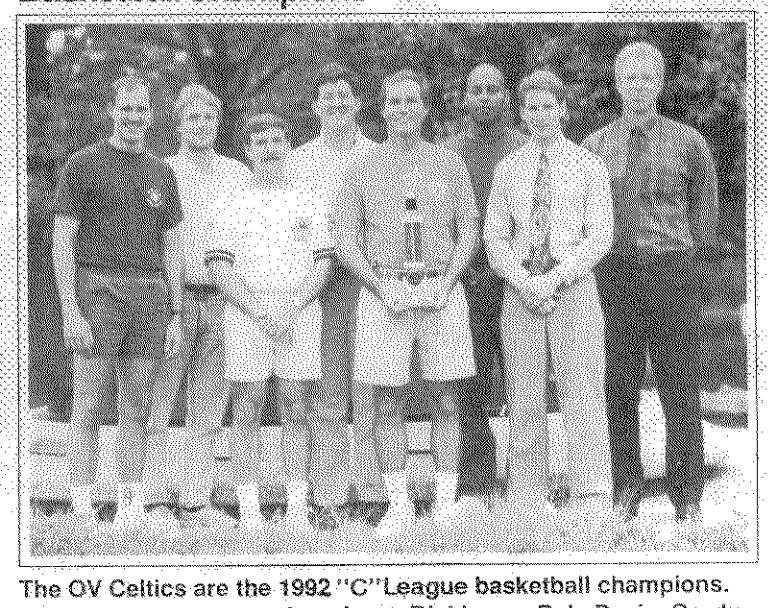
He also met with leaders of academia and the science community.

Volleyball Champs



The Dinos are the Summer 1992 Beta League volleyball champions. Team members are, from left, Gordy Degear, Bobby Smith, Dina Weiss, Tom Weih and Scott Eby. Not shown is Billy Weiss.

Basketball Champions



The OV Celtics are the 1992 "C" League basketball champions. From left are team members Larry Dickinson, Dale Davis, Gordy Degear, Richard Siebels, Don Petrine, Bakori Davis, Staten Spruill and Ken Frink.

Happenings

SEEKING CARPOOL from Wards Corner area of Norfolk, Mondays, Wednesdays, Fridays, 8 a.m.-4:30 p.m. Call Susan ext. 43293 or 531-9685.

LAA TURKEY SHOOT: The annual LAA Turkey Shoot will be held November 7 at the H.J.E. Reid Conference Center. Matches begin at 9 a.m. and continue until dusk. Cost is $1 per shot. Tickets are on sale now. To sell tickets for the event, call Andrea Lewis at ext. 46369.

ROOMMATE WANTED: Hampton/Threechopt available October 9. Female seeking nonsmoking, responsible adult to share 2-bedroom townhouse, 2 full baths, lots of closets, washer/dryer, cable, $260 per month, $260 deposit, pay half of utilities. Call 723-4723.

FREE AEROBICS: Get energized with NASA aerobics! Open to all employees and contractors. Low-impact with interval weight training classes in the LAA gym. Body Dynamics are held Monday, Wednesday and Friday from 6:15 to 7:15 a.m. Lunchtime Energizer is held from 11 to 11:45 a.m. For more information call ext. 46387.

STEP AEROBICS: More classes will be featured in October in addition to low impact. Step heights for all levels, Tuesdays and Thursdays, 5-6 p.m. and Saturdays 9:30-10:30 a.m., LAA Gym. First class is free. Open to all employees and families. Call ext. 42295.

DISCOVER CUONG-NHU: Oriental martial arts with the Langley Karate Club. Classes are held at the gym Mondays, Wednesdays, 5 to 7 p.m. New students will be accepted October 26 through November 25. Enrollment is open to NASA civil servants, contractors & immediate families. Cost, $6 per month. Stop at gym during class, ask for Roy Albang, or call 596-7736, 7 to 10 p.m.

LAND FOR SALE: 2.9 miles in Carrollton, $41,900. Call 874-7414.

TOASTMASTERS will meet Oct. 28 in building 1222 from 11:30 a.m. to 1 p.m.

CAR FOR SALE: 1977 Corvette, 16,000 original miles, L 82 engine, 4 speed. Original dark red paint, leather interior, $20,000 firm. Call 220-9500.

EARLY CHRISTMAS PRESENT from the LAA Aerobics Club. Join through December and receive one month free for you, a family member or friend. Low-impact, step classes and toning with free weights and steps provided. Call ext. 42295 for information.

FOR RENT: Condominium at Nags Head. First week in November, $250. Call 229-9338 after 5 p.m.

FOUND: One pair of men's bifocal glasses with case. Call security, ext. 43420 to identify and claim.

HOUSE FOR RENT WANTED: York Co., Poquoson, Williamsburg. Needed preferably by Dec. 1. At least 3 bedrooms. Call Joe at 468-2026.

ROOMMATE WANTED: For large 3-bedroom house with eat-in kitchen, garage and house privileges, fireplace, lots of benefits. Only $300 a month including utilities. Call digital pager, 872-5241.

HOUSE FOR SALE: Harpersville, Newport News, 1,650 square feet, brick/aluminum-sided colonial, 4 bedrooms, living room, dining room, den with fireplace, eat-in kitchen with dishwasher and pantry, hardwood floors, gas heat/hot water, central air, fenced back yard, one-car garage, 15 minutes to LAFB, $89,900, call 599-5453.

ROOMMATE WANTED: Looking for female to share a beautiful 2-bedroom riverfront house in Fox Hill. Has all utilities plus jacuzzi and garage, $375 a month plus half utilities. Available October 1. Call 850-4756.

ROOMMATE WANTED: Looking for males to share three-bedroom house for $200 a month including utilities. Call 723-4782 and ask for Stephen.

CAR FOR SALE: 1987 BMW 325, five speed, AC, full power, sunroof, stereo, excellent condition, $10,000, Call 872-6827.

KINDERGARTEN PROGRAM: The Langley Child Development Center is registering children for its new kindergarten program. A full-day program will be provided by a certified kindergarten teacher. Applicants must be five years old by October 31, 1992. Call ext. 44827.

LOST DOCUMENT: Electron Beam Diagnostics, pt. 1, Author is Buckalew, W.H., Call number, 70N32737. Please call Kim Chi at ext. 44672.

FEDERALLY EMPLOYED WOMEN will have a general meeting Oct. 29 at 11:30 a.m. at the Chapman Lounge, LAFB NCO Club. Jackie Smith, lesiglative chair, will brief the group on legislative process. Members are asked to bring a friend. Call Patsy Campbell at ext. 43291 or Beverly Burse at ext. 42420 for more information.

CONDO FOR SALE: Hampton, 2-bedroom, 11/2 bath, refrigerator, microwave, dishwasher, washer/dryer, easy access to interstate, assumable $2,000 down, pymts of $571 per month, under 10 percent loan or $59,000. Call 827-0903.

FOR SALE: Antique Victorian Walnut bedroom suit from 1800s. Dresser, wash stand, 6' bed, mattress and box springs. $1,500. Call 826-6994.

FOUND: Pocket calculator. Call Learning Center, 42325.

LAA SOCIAL: Nov. 5, 4-6:30 p.m. at Reid Center.

National Aeronautics and Space Administration
Langley Research Center
Hampton, Virginia 23665-5225

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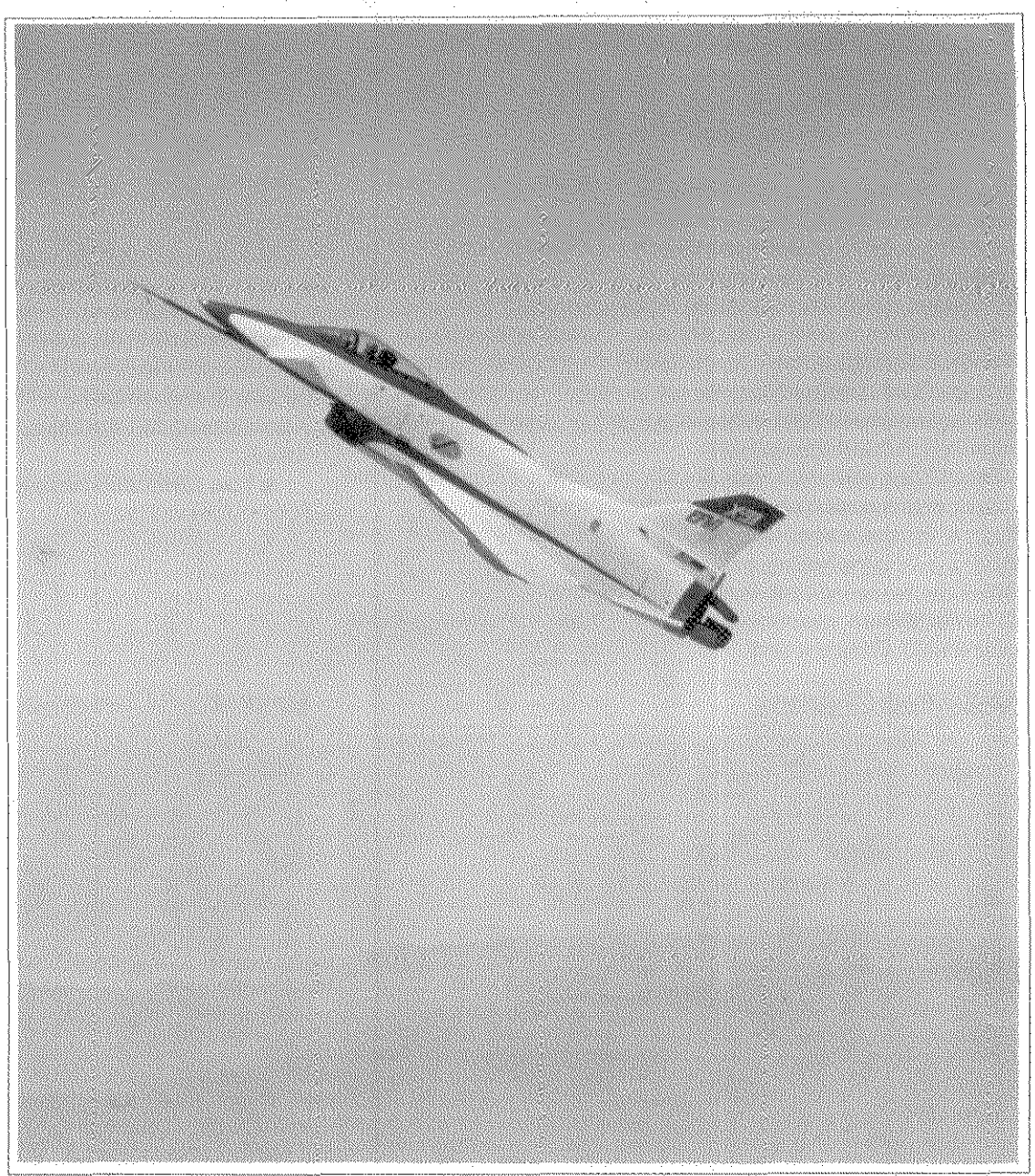
News Researcher



70 Degrees Reached - The X-31 reached 70 degrees angle of attack for the first time Sept. 18 in a research flight at NASA's Dryden Flight Research Facility, Edwards, Calif. with Cmdr. Al Groves, U.S. Navy pilot and member of the International Test Organization, at the controls. The International Test Organization is managed by the Defense Advanced Research Projects Agency (DARPA) and in addition to NASA, includes as participants the U.S. Navy and Air Force, the Federal Republic of Germany, Rockwell International and Messerschmitt Bolkow-Blohm.

1917 - 1992
75 Years
NACA
NASA
Langley Research Center

Researcher News

Bi-weekly Employee and Contractor Publication

Volume 6 ❖ Issue 21 ❖ November 6, 1992

Parking Plan Would Add More Than 700 Spaces

Please see map on Page 4

Tired of that daily search for the elusive parking space? Take heart—some 736 new parking spaces are planned at 14 locations, according to the updated Langley Facilities Master Plan.

The number of sites and their locations are based on requests from facility coordinators, new parking required by facility construction and by more efficient reconfiguration of existing areas.

Several parking improvements have been completed and others soon will be underway.

"The Langley parking squeeze is most intense in our older 'downtown' area, but the newer west campus area has its problems too," said Facilities Master Planner John Mouring.

Mouring said that traditionally at Langley, parking has been located convenient to individual facilities.

"But with the increasing density of facilities and parking requirements, we are bumping up against a no-go situation," he said. "Competition for space—especially downtown—may eventually force us to peripheral parking with more walking than before."

Mouring said it is difficult to say when the new parking program would be complete.

"It's relatively easy to plot out a parking solution," he said. "The funding to accomplish the designs is another matter, so improvements will materialize gradually. Hopefully, the average rate may be 150 to 175 spaces per year."

Several improvements in the plan recently were completed and others soon will be underway. So far, Mouring said, 174 new parking slots have been added at Langley.

"We added 42 spaces at the hangar just by revising the parking pattern," Mouring said. "And we did the same thing at the Acoustic Research Laboratory, adding 65 spaces while increasing paving for only 29 of those."

Plans include the addition of 22 spaces in the Headquarters area and 66 at the new University Affairs Center.

Show And Tell At Open House

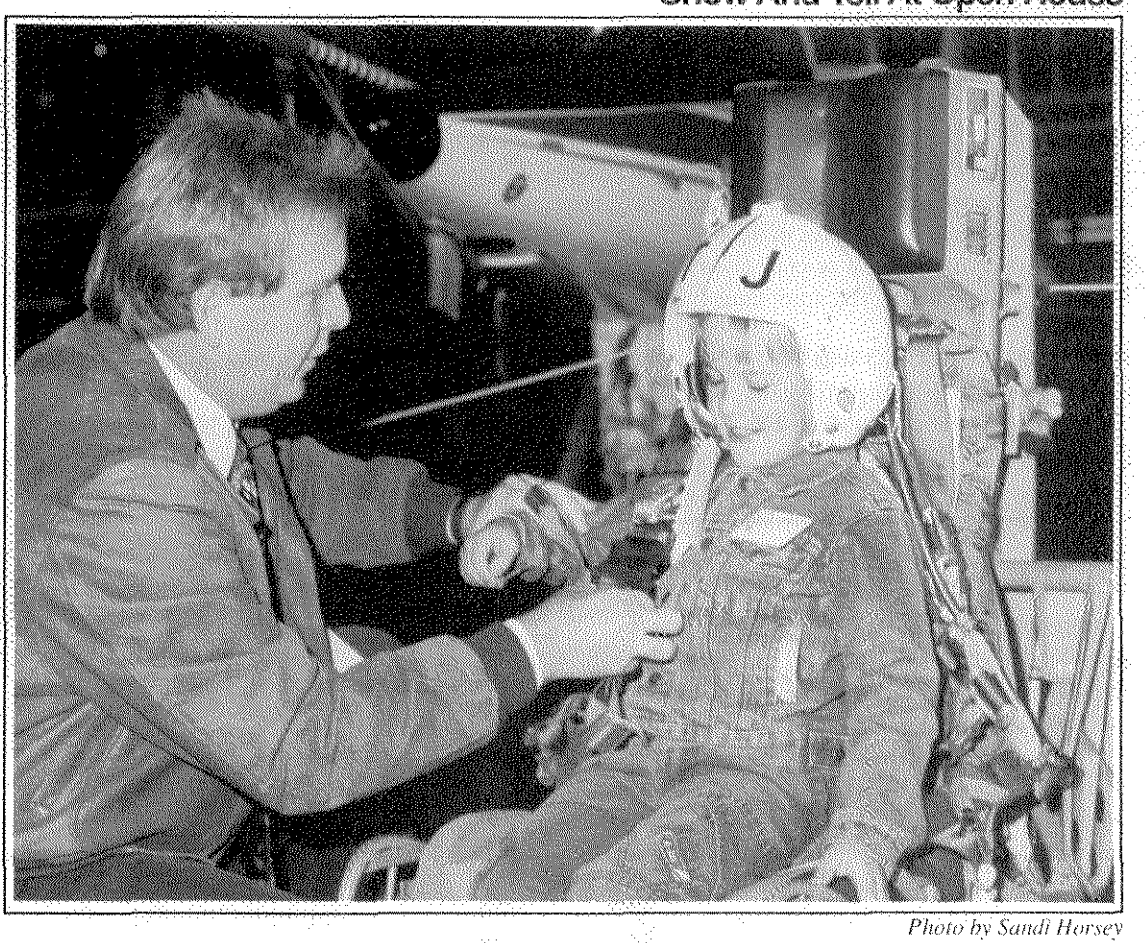


Photo by Sandi Horsey

Dale Bowser, of the Flight Applications Division, helps a young visitor strap in during Langley's 75th Anniversary Open House on October 17. For more photos, please see page 5.

Rule Change Would Improve Workplace For The Disabled

The next time you drive up to a building at Langley, ask yourself: Does it have parking for people with disabilities? Does it have ramps? Are the restrooms accessible to those who use wheelchairs? Chances are that if the facility is a public one, the answers are yes.

Diane E. Forrest

"At this center we are more accessible than most people believe," says Diane E. Forrest, manager of Langley's Disability Program in the Office of Equal Opportunity Programs.

But the rules may be about to get tougher to ensure non-discrimination against the disabled. That was the word out of Project Access, a four-day training program for NASA program and facility managers last month in Orlando, Fla.

Access to federal facilities is covered by the Rehabilitation Act of 1973, which says that architectural barriers must be eliminated so that people with disabilities may readily enter buildings and use facilities, such as restrooms, with ease.

Enter the newer Americans with Disabilities Act (ADA) of 1990. For now, the ADA applies only to the private sector. Many, however, expect most provisions of the ADA soon will be incorporated into federal rules.

The ADA mandates not only access, but the broader concept of "accommodation" of the estimated 61 million Americans who have a disability or mobility impairment.

"This means that, for

Please see **DISABLED**, *Page 2*

CFC Spotlight: Council On Domestic Violence

BY JEAN CLOUGH

The Virginia Peninsula Council on Domestic Violence (VPCDV) is a nonprofit organization that serves as a refuge, an advocate and a counselor for Peninsula women and their children who are the victims of family violence.

Virginia Peninsula

The council also serves as a community educator, increasing awareness of the dynamics and prevalence of the problem and shaping attitudes to reduce the incidence of future battering.

The council provides a temporary emergency shelter and a short- and long-term transitional shelter for the abused.

As part of this year's Combined Federal Campaign (CFC), Langley staff members recently visited the Council's thrift store in Hampton where women can get clothing, toys, food and toiletries.

On the Peninsula last year, more than 5,200 nights of shelter were provided for more than 650 abused women and children.

Domestic violence takes its toll on the family and society. Won't you consider the VPCDV when you pledge to the CFC this year?

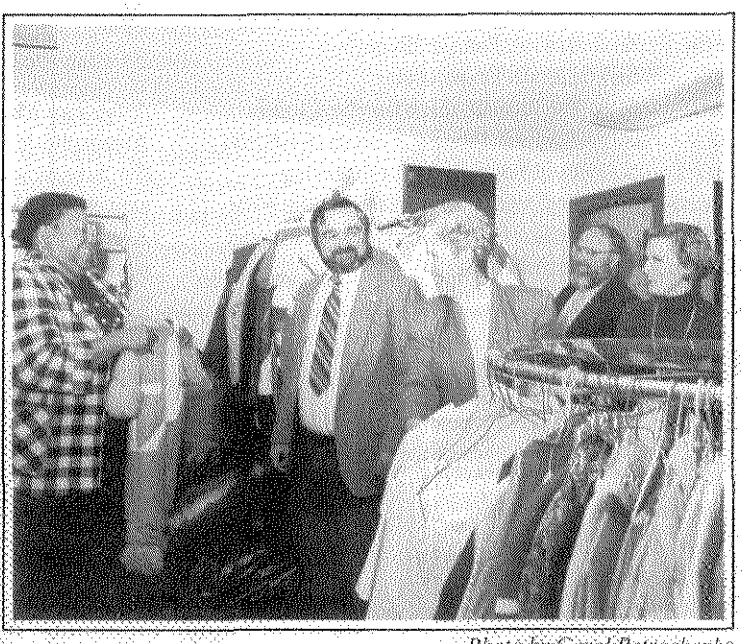
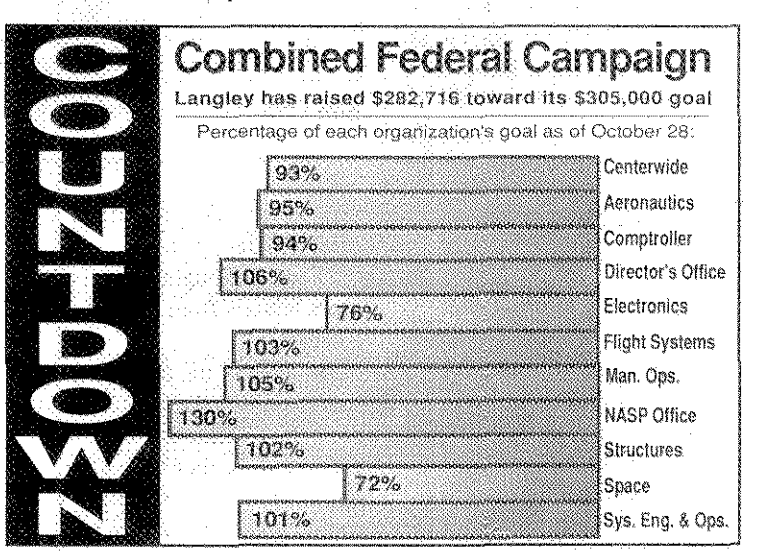


Photo by Carol Petrachenko

At left, Pattie McNeil, store coordinator, and Karen Bohlke, middle, a program coordinator, show donated clothing to Langley representatives. From left are The Center's Thomas L. Vranas, an engineering technician representing the Pattern Makers Union; Gary P. Beasley, technical assistant to the director for Flight Systems; and Diane S. Wieting, staff assistant to the director for Space.



News Briefs

AROUND THE AGENCY

EARTHQUAKE FAULTS REVEALED — Geologists at the Jet Propulsion Laboratory and Louisiana State University in Baton Rouge have discovered several previously unknown earthquake faults in California's northeastern Mojave Desert. They found the faults by analyzing remote sensing images at optical, infrared and radar wavelengths. The findings were presented last month at the annual meeting of the Geological Society of America in Cincinnati, Ohio. The faults are visible on computer-processed images taken by the Thematic Mapper instrument on Landsat 5, which obtains images simultaneously in seven bands at optical and infrared wavelengths. Corresponding images from the French SPOT satellite and the NASA airborne synthetic aperture radar images confirmed the existence of the faults.

MISSION SPECIALISTS NAMED — Leroy Chiao and Donald A. Thomas have been assigned as mission specialists on the International Microgravity Laboratory-2, space shuttle mission STS-55, scheduled for June 1994. Chiao, 32, has a doctorate in chemical engineering from the University of California. He is working crew equipment issues in the Mission Development Branch of the Astronaut Office. Thomas, 42, has a doctorate in materials science from Cornell University. Thomas is a CAPCOM, an astronaut in the Mission Control Center who communicates with the shuttle crew during a mission.

MAGELLAN, ROGALLO WIN TROPHY — The Magellan Project Team at the Jet Propulsion Laboratory has won the 1992 National Air and Space Museum Trophy from the Smithsonian Institution. The team won for mapping the mysterious cloud-covered surface of Venus. In addition, Francis M. Rogallo won for pioneering work that led him to invent the "flexible wing" now used on hang gliders and ultralights. The awards were presented October 16 at the museum in Washington, D.C.

Harrison Receives Space Achievement Award

Edwin F. Harrison of the Atmospheric Sciences Division has received the 1992 Space Achievement Award from the Langley Chapter of the National Space Society.

Harrison, head of the Radiation Sciences Branch, was cited for "a consistent, significant contribution to the exploration and development of outer space."

Harrison began his career as a research engineer in the Aero-Physics Division after graduating from East Carolina University in 1957.

Before serving in his present capacity, he was head of the Mission Analysis Section and then of the Missions and Operations Branch.

Harrison is a principal investigator on the Earth Radiation Budget Experiment (ERBE) Science Team, a co-investigator on the science team for the Clouds and the Earth's Radiant Energy System (CERES) experiment selected for the Earth Observing System (EOS), and a co-investigator for the First International Satellite Cloud Climatology Project Regional Experiment (FIRE).

He received a Langley Special Achievement Award in 1970, a NASA Exceptional Service Medal in 1979, the H.J.E. Reid Award in 1985, a Langley Special Achievement Award in 1988 and a NASA Exceptional Scientific Achievement Medal in 1989.

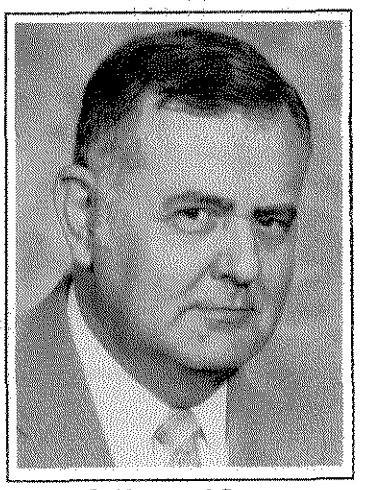
Harrison has authored or co-authored more than 80 technical reports and scientific articles.

He recently co-authored a chapter on radiation budget at the top of the atmosphere for the Atlas of Satellite Observations Related to Global Change. The atlas is being published by the Cambridge University Press in commemoration of International Space Year.

Harrison is a member of the American Meteorological Society (AMS), the Atmospheric Radiation Committee of the AMS, the American Geophysical Union, and is an associate fellow in the American Institute of Aeronautics and Astronautics. He also serves on the Atmospheric Environment Technical Committee.

Walter Hoggard, Chief, SSQRD, Passes Away

IN MEMORIAM



Walter C. Hoggard Sr.

Walter Clyde Hoggard Sr., chief of the Systems Safety, Quality and Reliability Division (SSQRD), died Thursday, October 22, while at work. He was 56.

Said Robert L. Swain, director for the Systems Engineering and Operations Directorate (SE&O): "Walt was a rare individual whose personal expertise and demeanor blended so well into his outstanding leadership of Langley's third-party, independent oversight across this Center's broad array of R&D/institutional programs with respect to safety, reliability, quality and environmental compliance.

"He brought a high measure of sensibility and rationality to a basically 'junkyard dog' function, ensuring the best possible well-being of our programs, personnel, facilities and operations," Swain said. "As Langley's emergency preparedness officer, Walt was the focal point in bomb threats, snows, hurricanes, etc., advising Center management regarding recommended actions.

"While most of us slept through these threats, Walt was often up all night and weekends in our behalf. He had an outstanding talent for putting troublesome issues in proper perspective and was a highly effective spokesman for the Center with the media regarding these issues.

"He handled, so beautifully, the difficult task of simultaneously reporting functionally to three separate entities: SE&O, the Langley deputy director, and Code Q in NASA Headquarters. Taking major physical obstacles in stride, Walt was a pure delight to work with. This Center will sorely miss him," Swain said.

Hoggard began his government career in 1955 and was head of quality and reliability for the Scout Project, and operations engineer in recovery and operations for the Space Task Group. In 1989, he attended the Carnegie Mellon University Senior Executive Seminar in Pittsburgh. In addition, he was an adjunct professor of industrial safety at Old Dominion University.

He received several Special Achievement Awards and, in 1984, a NASA Exceptional Service Medal. He earned a bachelor of science degree in mechanical engineering from Virginia Polytechnic Institute and State University in 1959.

Also...

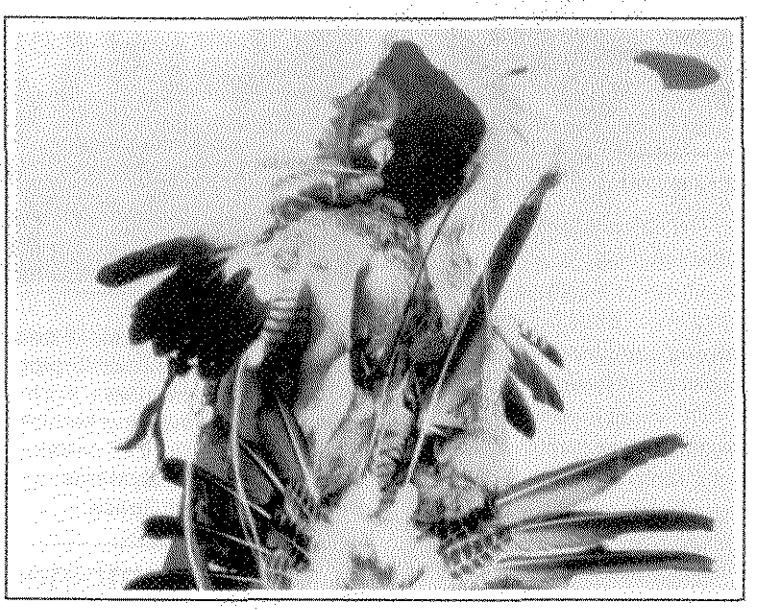
John E. Canady Jr. died Thursday, October 15. He was 71. Canady retired in December 1981.

Leo J. Johnson Jr. died Monday, October 19. He was 70. Johnson retired in August 1980.

Indian Ceremony To Honor Native American Heritage

A program celebrating Native American Heritage Month will be sponsored by the Office of Equal Opportunity Programs on Tuesday, November 10, at 2 p.m. in the H.J.E. Reid Conference Center auditorium.

Kim Little Bear, a Sioux descendant, will perform authentic Indian ceremonies and share information on history and customs. The event is open to all employees. For more information, call ext. 43290.



Kim Little Bear will perform at Langley on November 10.

Humor Contest Is Won By Lin

Representing NASA Toastmaster Club No. 3184, Dr. John D. Lin won the Humorous Speech Area Contest at the Williamsburg Training Center Sept. 23.

He will continue to compete against the best Toastmasters on the Peninsula at the division level.

Lin works in the Experimental Flow Physics Branch, Fluid Mechanics Division.

Shuttle Passes

Car passes to the next launch of the space shuttle are available. Discovery, STS-53, was scheduled for launch on December 2.

For passes, contact Ann Suit, Mail Stop 154, ext. 43305.

DISABLED:

Continued from Page 1

example, if you're blind and working at Langley and you use a computer, you'll get a talking computer," says Forrest, who was one of six Langley participants in the Orlando program. "Not only will the building you work in have to be accessible to you, your work area will have to accommodate you."

Forrest brought home two more lessons from Project Access:

■ "One of the things we learned is that the Center should never buy a film that isn't captioned—either closed- or open-captioned—and that we should make that part of our contracts."

■ Conferences at Langley, she says, should provide Braille and large print for the blind and visually impaired, and interpreters for the deaf.

Other Langley participants in Project Access were Burnett W. Peters Jr., head of the Office of Equal Opportunity Programs; Randy A. Manning of the Industry Relations Office, Management Operations Directorate; Merven N. Pfeiffer, Facilities Engineering Division; Lawrence B. Cooper III, Fabrication Division; and Michael Finneran, editor, *Researcher News*.

All except Finneran are members of Langley's Disabled Persons Advisory Committee.

News Researcher

The **Researcher News**, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23681-0001, is published every other Friday in the interest of all Langley staff and retirees. Submit contributions to the Editor, Mail Stop 115, telephone 864-6126. Articles are due at noon the Tuesday following the date of this issue.

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Photojournalist ..... Carol Petrachenko

Photographer ..... Fred Jones

The privilege of advertising in this publication is restricted to the employees and retirees of the Langley Research Center. Articles advertised here must be offered without regard to race, color, religion, sex or national origin.

All materials are subject to editing.

Researchers Look For 17th Century Air In Lead Coffins

Samples May Hold Clues To Changes In Atmosphere

For years, "old air" has been a quest of scientists seeking to measure the impact of human activity on the atmosphere.

Because today's environment may have been changed by a multitude of man-made products, one way to assess that impact is by examining air prior to the industrial revolution, said Dr. Joel Levine, a senior research scientist in Langley's Atmospheric Sciences Division (ASD).

A sample of old air would help scientists examine, for example, how the so-called "greenhouse" gases such as carbon dioxide, methane and nitrous oxide have changed over the centuries before industrialization.

Photos by Fred Jones

Dr. Joel Levine, Wesley Cofer and Mark Moore examine one of three lead coffins. Moore is head, Radiation Source Department, Armed Forces Radiobiology Institute.

Elusive air

Like real-life Indiana Joneses, researchers have hunted for old air in the sealed chambers of Egyptian pyramids, in air bubbles in glass art, in sunken ships and in the space between the cork and the liquid in wine and champagne bottles.

"Everyone has been unsuccessful," Levine said. "So far, the oldest air is from 1958."

Langley researchers, however, say there's a chance they may have found what others have only sought—a sample of 300-year-old air, taken from one of three lead-encased coffins discovered two years ago in Historic St. Mary's City, Md.

The rare coffins—only five are known to exist in North America—were tested in October. They are undergoing scientific and historical examination by about 30 researchers from the United States and England. In addition to Levine, Langley's team included Wesley R. Cofer III, an ASD senior research scientist; Loyd Overbay of the Operations Support Division; and Edward L. Winstead of GATS, a contractor.

Of the three lead coffins unearthed, the one on the left showed the most promise for containing old air.

The Langley team extracted air samples on October 21, 22 and 23. The first two coffins, Levine said, had obvious holes, meaning they could not have contained old air. The third coffin yielded air samples that, as of last week, Langley researchers were testing to determine if they are pristine. If freon is discovered in the samples, scientists will know the air is not pristine. Freon, a fluorocarbon, is a man-made substance introduced this century.

Initial analysis, said Cofer, revealed high concentrations of carbon dioxide. Those high levels indicate that the air may have been influenced by decomposition. Cofer, however, said it's too soon be sure.

"We really haven't analyzed it fully at this point," he said.

Said Levine: "Instant science in this instance is difficult. It's a complex problem. But I think that, given enough time, we may be able to unravel this riddle."

Saving Bay Topic Of Next Colloquium

The Langley Colloquium Series on Monday will feature a lecture on the Chesapeake Bay from Michael D. Kensler, Hampton Roads coordinator of the Chesapeake Bay Foundation.

Titled "Turning the Tide: Saving the Chesapeake Bay," the talk will begin at 2 p.m. November 9 in the H.J.E. Reid Conference Center.

The lecture will be followed by questions and discussion.

Critical issues

To be covered are the importance of the Bay and the factors that determine its health. An overview will describe the condition of the Bay, trends in the restoration effort, critical issues facing the Bay and a prognosis for the future.

Kensler has worked for the Norfolk-based Hampton Roads Office of the Chesapeake Bay Foundation since September 1990.

From 1986 to 1988, he was a volunteer lobbyist for the Sierra Club at the U.S. House of Representatives on the subject of preserving the Arctic National Wildlife Refuge.

Kensler has two degrees from the University of Michigan: a master of science in natural resources and a bachelor of arts in public policy.

SCHEDULE

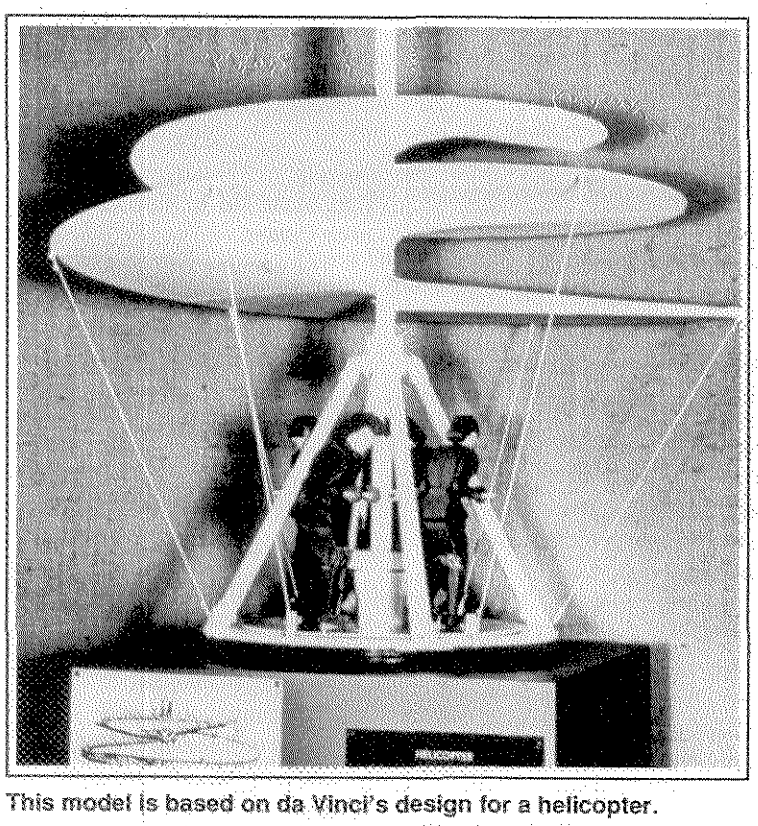
The Langley Colloquium Series sponsors lectures from noted speakers, followed by questions and discussion, at 2 p.m. every month in the H.J.E. Reid Conference Center. The following is a schedule of coming colloquiums.

DATE: Dec. 14
SPEAKER: Chris Madson
TOPIC: America's Wilderness in the 21st Century

DATE: Jan. 19
SPEAKER: Lou Williams
TOPIC: High-Speed Civil Transport

February to be announced

DATE: Mar. 8
SPEAKER: John Christman
TOPIC: Serendipity – Luck in Science



This model is based on da Vinci's design for a helicopter.

Da Vinci Models To Appear At Air And Space Center

IBM's traveling exhibition of working models re-created from Leonardo da Vinci's sketches of aeronautic, mechanical and hydraulic devices will be on display at the Virginia Air and Space Center and Hampton Roads History Center beginning November 22.

MARK YOUR CALENDAR

The *Models of Leonardo da Vinci* exhibit features 20 models, including a parachute, helicopter, triple-tiered machine gun, odometer, printing press and flying machine.

The models were built according to da Vinci's scientific and technical drawings from the 15th Century and are designed so visitors can interact with their moveable parts. The models are IBM-commissioned re-creations of originals that were built in Milan, Italy, in 1938. The IBM collection has been shown all over the world since 1951.

The center is open Monday, Tuesday, Wednesday and Thursday from 10 a.m. to 5 p.m.; Friday from 10 a.m. to 9 p.m.; Saturday from 10 a.m. to 5 p.m. and Sunday from noon to 5 p.m.

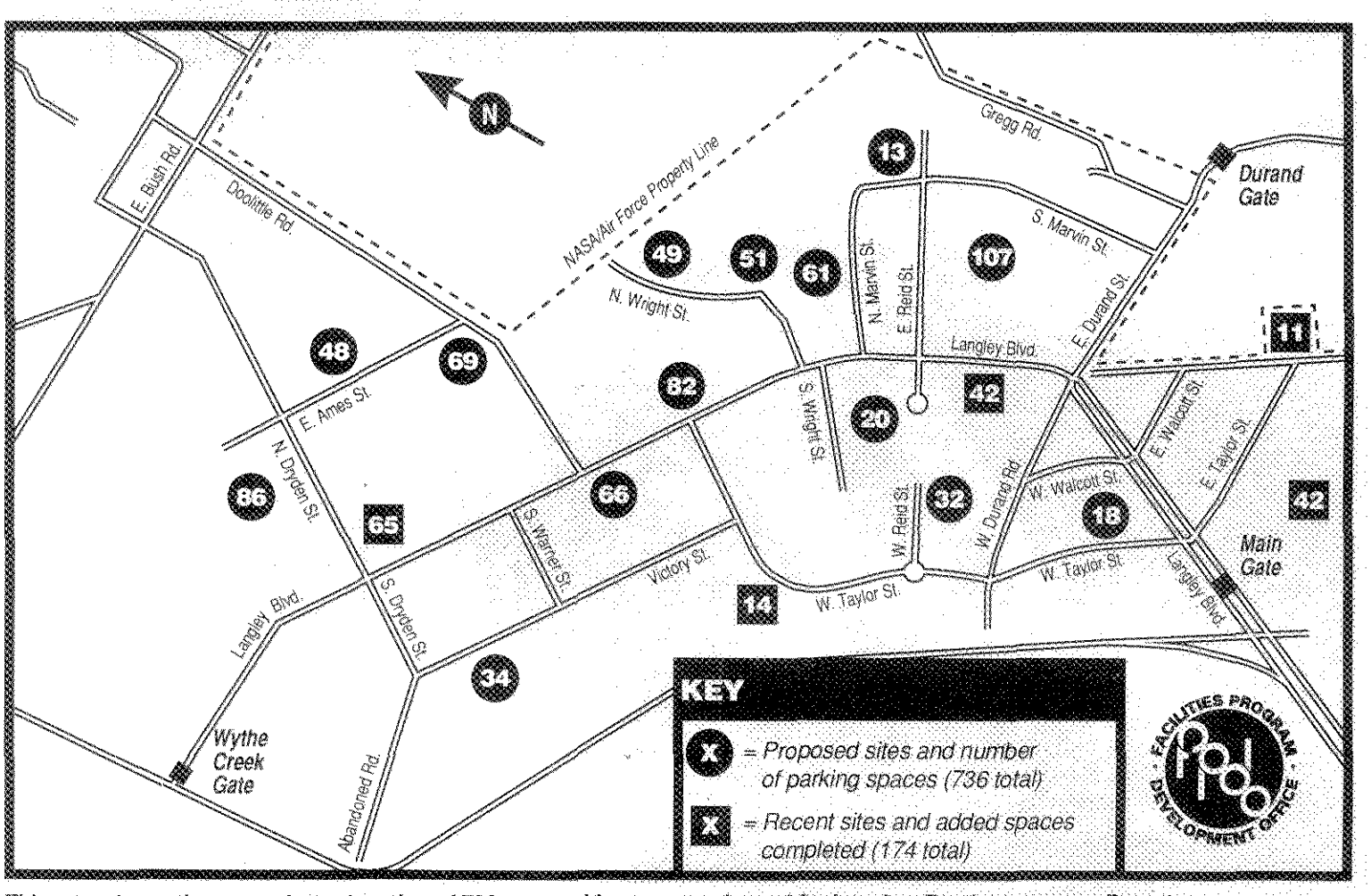
Admission to the center and IMAX film is $6 for adults, $5.50 for senior citizens and military personnel and $4.25 for children.

For more information, call 727-0900.

Sealed-Bid Sale Starts November 9

Langley will conduct a sealed-bid sale on ADP equipment used on Center. Inspection hours are from 9 a.m. to 3:30 p.m. November 9 through 13 in Building 1249 at 2 South Marvin St.

For more information, contact Theresa Elliott, ext. 43570, Building 1206T, or ext. 45764, Building 1249.



This map shows the approximate location of 736 new parking spaces planned for Langley. For the story, see Page 1.

Alumni Banquet Set For Nov. 14

The Langley Alumni Association and the Center will sponsor a banquet and dance in honor of the 75th Anniversary.

The event will be held at the Williamsburg Hilton Conference Center, 50 Kingsmill Road, on Saturday, November 14. A. Scott Crossfield, a former X-15 test pilot and NACA employee, will be the guest speaker. The event will begin with a cash-bar social at 6 p.m., followed by dinner at 7 p.m., entertainment by the Menchville High School Show and Jazz Choir at 8 p.m. and dancing to the music of the group Remembrance from 9 p.m. to midnight. The cost is $16 per person. Checks should be made payable to the LaRCAA and sent to Abe Leiss, P.O. Box 2250, Newport News, Va., 23609 by November 10. Attendees are asked to provide first and last names for badges. All employees, contractors and retirees and their guests are invited. For more information, call Leiss at 877-2939.

Visiting Langley

Virginia Space Grant Consortium members visited Langley recently for a luncheon and tour as part of 75th Anniversary activities. The luncheon was hosted by Center Director Paul F. Holloway and Deputy Director Dr. H. Lee Beach Jr. From left: Dr. Paul Homsher, Old Dominion University; Michael Miller, Center for Innovative Technology; and Mary Sandy, consortium director.

Presidential Awards

Langley's Award Fee Assessment Team has received a Presidential Quality and Management Improvement Award for outstanding leadership in achieving significant cost savings through fee reductions on support service contracts. From left: Langley Deputy Director Dr. H. Lee Beach Jr.; Darleen A. Druyun, the NASA Administrator's chief of staff; John F. Stokes, director for Management Operations; William R. Kivett, procurement officer, who led the group effort; Robert R. Moore Jr., Management Operations deputy director; Everette S. Ketchum, supervisory contract specialist; Rosemary C. Froehlich, supervisory contract specialist; and Michael F. Cavelli Jr., supervisory procurement analyst. The awards were presented in Washington, D.C., on October 20.

TQM Leads To Forms Changes

As a result of Langley's Total Quality Management process, several policy changes are effective immediately in the Forms Management Office.

Organizational forms that contain an N-number (e.g., MSD N-255) no longer will be tracked within this office and future organizational forms will not be given a number. Help will still be provided in the design of forms for those who need it.

Each office requesting reproduction of an organizational form will continue to complete a Langley Form 77 (Request for Reproduction), which is to be sent, with the form to be reproduced, to Mail Stop 123, Forms Management Office.

The office will continue to be the approving office for reproduction but no longer will keep a history of these forms. The responsibility for maintaining negatives and/or originals, as well as history of these forms, will be that of the requester.

Any office that uses existing organizational forms and wishes to receive the background information on them should call Nola Graves at ext. 48284 no later than November 13; otherwise this information will be destroyed.

To retain continuity and standardization and remain within the legal limits of official forms use, the forms manager will maintain all Langley, NASA, Standard and Optional Forms. Changes to these forms will continue to require action and approval of the Forms Management Office.

Irving Abel

Donna M. Speller

1992 EEO Award Is Presented To Speller And Abel

Langley's 1992 Equal Employment Opportunity Award has been given to Donna M. Speller, program analyst, Structural Dynamics Division (SDS), and Irving Abel, SDS chief.

Outstanding leadership

Abel and Speller were recognized for outstanding leadership and significant personal contributions in advancing equal opportunity at Langley.

Center Deputy Director Dr. H. Lee Beach presented each with a plaque and Speller with a cash award. Abel was not eligible for a cash award because he is a Senior Executive Service member.

Retirement Dinner Set For Childress

A retirement dinner in honor of Otis S. Childress will be held November 21 starting at 6:30 p.m. in the H.J.E. Reid Conference Center.

The evening will feature a cash bar, dinner and program for $15 per person, which covers dinner and gift. Send checks for reservations to Laura Eure, Mail Stop 462, by November 13.

Plans Change At Learning Center

The Learning Center will not be moving to modular units and will not be closed, as was previously announced.

The center's hours of operation will remain 7:30 a.m. to 4:30 p.m. Monday through Friday.

About 15,000 Tour Langley At 75th Anniversary Open House

Langley threw its doors open to the public October 17 for the 75th Anniversary Open House, which featured numerous displays and tours of 15 facilities.

The official car count was 4,610, which translates to 14,000 to 16,000 people.

Open facilities were:

- H.J.E. Reid Conference Center
- Flight Simulation Research
- Robotics Laboratory
- Advanced Aerospace Fabrication
- Hangar
- Space Structures Research Laboratory
- Structures and Materials Laboratory
- Cafeteria
- 14- by 22-Foot Subsonic Tunnel
- 7- by 10-Foot High-Speed Tunnel
- Unitary Wind Tunnel
- 31-Inch Mach 10 Tunnel
- Atmospheric Science Research
- Acoustics Laboratory
- Aircraft Landing Dynamics Facility
- Impact Dynamics Research Facility
- 30- by 60-Foot Tunnel

Photo by Sandi Horsey

Langley's 737 research aircraft was open to the public in the hangar.

Photo by Sandi Horsey

Visitors tour the Visual Motion Simulator.

Photo by Sandi Horsey

Langley's F-16A support aircraft, shown here outside the hangar, was an attention-getter at the 75th Anniversary Open House.

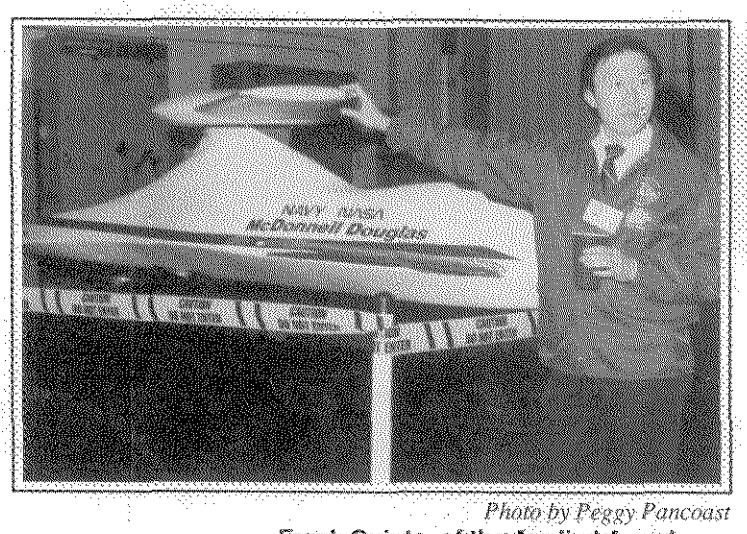


Photo by Peggy Pancoast

Frank Quinto, of the Applied Aerodynamics Division, explains a model.

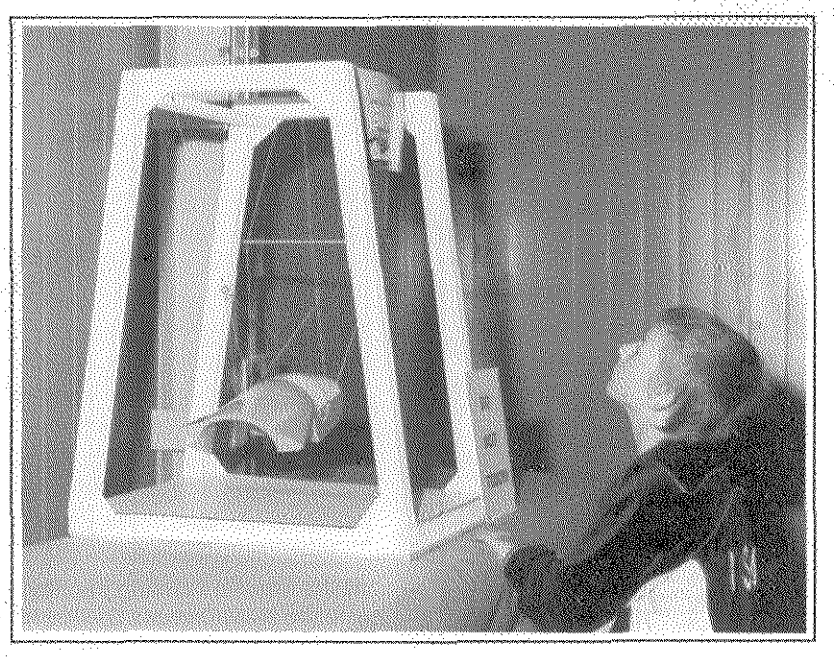
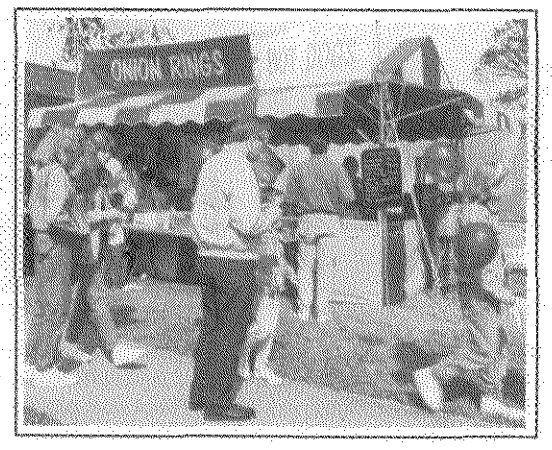


Photo by Sandi Horsey

Crash test models were on display at the Impact Dynamic Research Facility.



You can work up an appetite touring Langley's facilities. Rick Hoff, of the Research, Information and Applications Division, checks out the food.

Photo by Peggy Pancoast

Happenings

THE LAA PILGRIMS PARTY will be held at the H.J.E. Reid Conference Center on November 20 from 4 to 8 p.m. Admission is $1. Entertainment will be announced.

THE FEDERAL WOMEN'S PROGRAM COMMITTEE meeting will be held November 18 at 8:30 a.m. in the H.J.E. Reid Conference Center, Langley Room. Featured will be a presentation by Citizens Against Crime. For more information, call Patsy Campbell, ext. 43291.

HOUSE FOR RENT: In Riverdale, on small creek, 10 minutes from Langley, brick rancher, 3 bedrooms, 1½ baths, living room with fireplace, dining room, eat-in kitchen, den, garage, patio, larger corner lot with fruit trees, central air, gas heat, refrigerator and dishwasher. Lease and deposit required, pet deposit, $695 per month. Available on December 1. Call 868-6453.

AEROBICS WITH MUSCLE: Join the bench and low-impact classes that focus on toning legs, hips and buttocks. Abdominal work every class. Equipment provided. Classes are Tuesdays and Thursdays from 5 to 6 p.m. and Saturdays from 9:30 to 10:30 a.m. in the gym. The classes are open to all employees, contractors and their families. For more information, call ext. 42295.

THE DISABLED PERSONS SATELLITE COMMITTEE will meet November 12 from 8:15 to 9:30 a.m. in the cafeteria, 16 W. Taylor Road. The meetings are open to all employees and contractors at Langley and to anyone who has an interest in the Disability Program.

LAA TURKEY SHOOT: The annual LAA Turkey Shoot will be held November 7 at the H.J.E. Reid Conference Center. Matches begin at 9 a.m. and continue until dusk. Cost is $1 per shot. Tickets are on sale now.

PUPPIES: Chow chow puppies will be available the first week of November. Three black and two rare blues. Call 877-2186.

TOWNHOUSE FOR SALE: Near NASA, Summer Place, 1,150 square feet, 2 bedrooms, 1½ baths, eat-in kitchen, den area with fireplace, living room, central air, privacy fenced backyard, all appliances, $64,800. Call 696-5053 (Gloucester).

FREE AEROBICS: Get energized with NASA aerobics! Open to all employees and contractors. Low-impact with interval weight training classes in the LAA gym. Body Dynamics are held Monday, Wednesday and Friday from 6:15 to 7:15 a.m. Lunchtime Energizer is held from 11 to 11:45 a.m. For more information, call ext. 46387.

DISCOVER CUONG-NHU: Oriental martial arts with the Langley Karate Club. Classes are held at the gym Mondays and Wednesdays, 5 to 7 p.m. New students will be accepted through November 25. Enrollment is open to NASA civil servants, contractors and immediate families. The cost is $6 per month. Stop at gym during class, ask for Roy Albang, or call 596-7736, 7 to 10 p.m.

TOASTMASTERS will meet November 11 in Building 1222 from 11:30 a.m. to 1 p.m.

EARLY CHRISTMAS PRESENT from the LAA Aerobics Club. Join through December and receive one month free for you, a family member or friend. Low-impact, step classes and toning with free-weights and steps provided. Call ext. 42295 for information.

THE NASA SCIENCE FICTION CLUB again will help sponsor Tidewater's largest and oldest science fiction convention, to be held at the Holiday Inn Executive Center on Newtown Road, Virginia Beach. Convention memberships are $25 for the weekend. Award-winning guests include author Elizabeth Scarborough, artist Don Maitz and game designer Frank Chadwick. The convention will feature an art show, a dealer room and many science fiction-related activities. For more information, call John Kaiser at ext. 47380.

TURKEY TROT: Enter the annual two-mile fun run and predict your time. The race, sponsored by the Langley Fitness Center, starts at 5 p.m. November 19 on Doolittle Road. Turkeys will be raffled and there is a $2 entry fee. For more information, call Paul Derrick, ext. 46387.

FOR SALE: Antique Victorian walnut bedroom suit from the 1800s. Dresser, wash stand, 6-foot bed, mattress and box springs, $1,500. Call 826-6994.

THE SUPERVISORS CLUB will hold a membership meeting November 13 at 4:30 p.m. Members planning to attend should call Bruce Adderholdt, ext. 42733, by November 11.

16th Annual Smokeout Scheduled For Nov. 19

The American Cancer Society has designated November 19 as the 16th Annual Great American Smokeout, in which smokers are encouraged to quit for 24 hours—and possibly forever.

Nonsmokers are encouraged to participate by "adopting" family members, friends and co-workers who smoke and urging them to kick the habit for the day.

"Adoption" papers will be available in the Health Clinic beginning November 16. Nonsmokers who agree to adopt someone will promise to keep a watchful eye on and provide moral support for their charges.

Quitter Survival Kits will be available in the cafeteria during lunch on Wednesday and Thursday, November 18 and 19.

On Smokeout Day in the cafeteria, smokers can trade cigarettes or other tobacco products for a "treat."

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Researcher News

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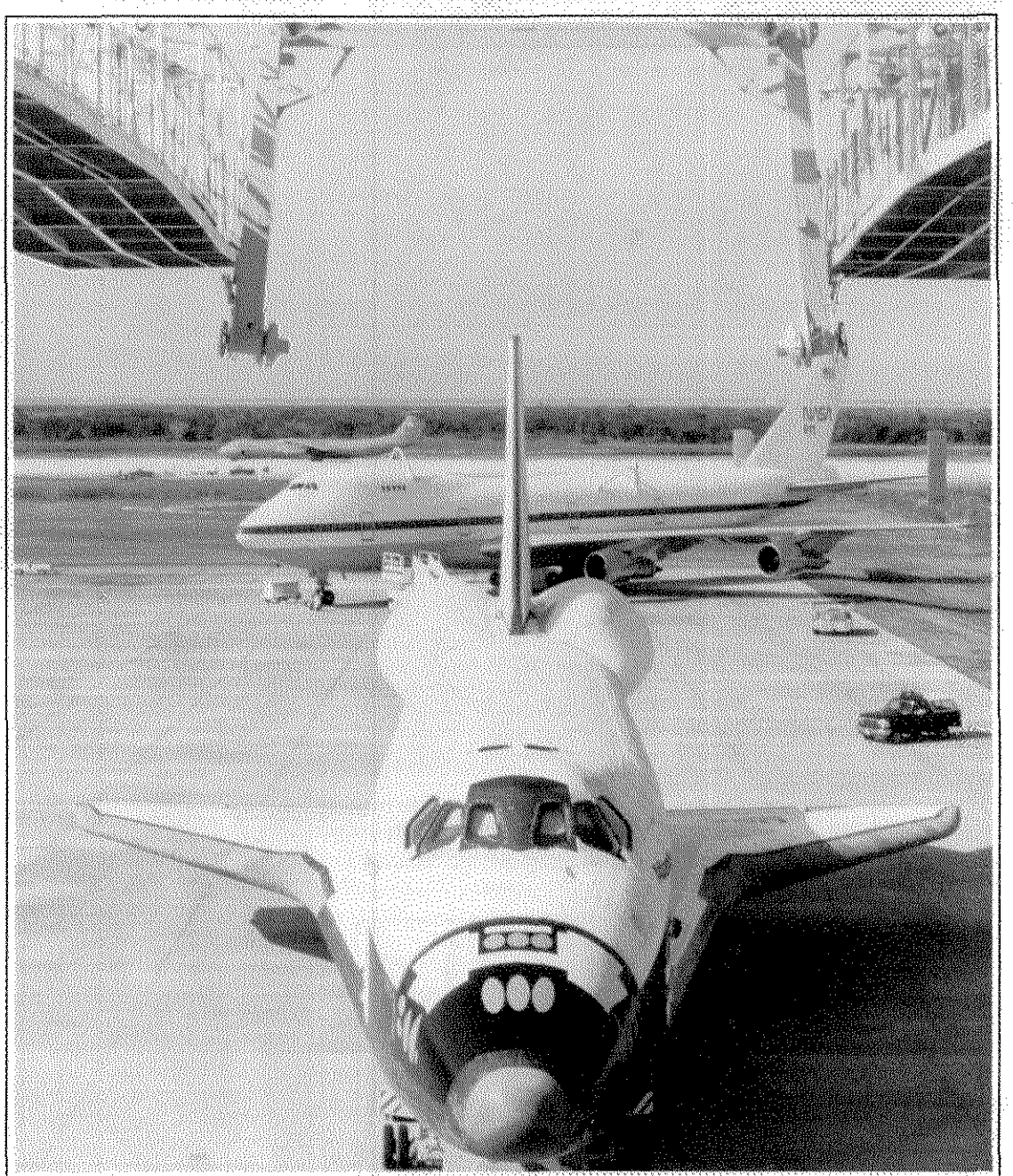


Kennedy Space Center photo

At the Shuttle Landing Facility, Kennedy Space Center, the orbiter Atlantis is about to be hoisted into the Mate/Demate Device for mating with the 747 Shuttle Carrier Aircraft. Atlantis will undergo a yearlong series of structural inspections and modifications at the Rockwell plant in California, returning to Kennedy in September 1993. It is scheduled to resume flying missions in 1994.

1917 - 1992 75 Years NACA NASA Langley Research Center

Researcher News

Bi-weekly Employee and Contractor Publication

Volume 6 ❖ Issue 22 ❖ November 20, 1992

Center Director Assigned Temporarily To Headquarters

Center Director Paul F. Holloway will be temporarily assigned to NASA Headquarters as a special assistant to Administrator Daniel S. Goldin.

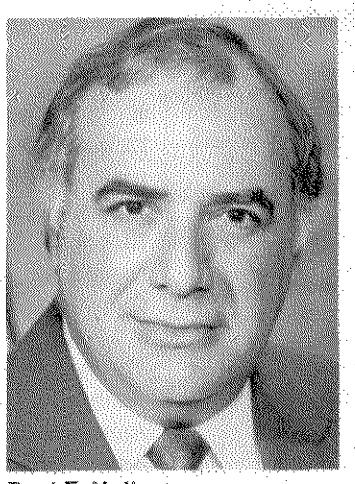
"Paul has a distinguished career of service with NASA and has provided unparalleled leadership at Langley," Goldin said in making the announcement November 12.

"I'm very pleased to announce his new position as special assistant at Headquarters, where he will be intimately involved with the day-to-day operations of the agency."

Holloway was appointed director of Langley in October 1991. Prior to that, he had served as deputy director since 1985.

He noted that this is not the first time he has served at Headquarters.

"After the election in 1976, when a Democratic president from the South was preparing to move in after multiple Republican terms, I was detailed to Headquarters during the transition," Holloway said. "This month, history repeated, and once again I'm headed for Washington.



Paul F. Holloway

"Working in the administrator's office during this transition will be challenging, exciting and very educational. My goal is to do the best job I can possibly do in representing NASA—and to return to Langley ASAP!"

Holloway said it is unclear how long his assignment will last "because it depends on the new President making a decision on the NASA administrator, followed by the selection and confirmation by the Senate of a deputy administrator.

Beach is acting director

"My job is to assist Dr. Aaron Cohen, acting deputy administrator, until a new deputy administrator is named and confirmed," Holloway said. "As always, in my absence, Dr. H. Lee Beach Jr. will be acting director. In the interim, I will be at Langley whenever possible to assist Lee and Sid Pauls, acting deputy director.

"My thoughts will be with you, especially during the

See **ASSIGNED,** *Page 2*

1992-93 CFC Campaign Exceeds Goal

As chairwoman of the 1992-93 Combined Federal Campaign, I would like to extend a heartfelt thank you to all of the employees who, once more, put our fund-raising drive over the top. You have shown that Langley's spirit of giving shines brightly even in economic hard times.

Because of the hard work of Center campaign workers and the generosity of our employees, the campaign has been a resounding success. NASA was the only federal organization on the Peninsula to raise its goal this year—and we exceeded it.

As of November 12, NASA Langley Research Center employees had contributed $307,102 to the campaign, putting us more than $2,100 over our goal of $305,000. We expect total donations to be even higher by the time final results are tabulated.

Your "All Star Gifts" will help thousands on the Peninsula and beyond through the winter and the year to come. Once again, thanks.

– Belinda Adams
1992-93 CFC chairwoman

Reid Conference Center: More Than Just Meeting Rooms

Services Range From Catering To Booking Rooms

Looking for a place to hold a meeting, conference, social, luncheon or dinner?

The H.J.E. Reid Conference Center, at 14 Langley Blvd., offers meeting rooms and audiovisual equipment and support.

Planning a conference? The center's staff members not only can provide a place to meet, they can arrange for rooms for guests at discount rates, said Pam Verniel, manager of the conference center, which in 1991 was the site of nearly 700 events involving some 50,000 people.

Rooms for all needs

"There's something going on all the time," Verniel said.

The Reid Center has the following rooms: the auditorium, which seats 500 people theater-style, 185 for banquets, and 120 classroom-style; the Hampton Room, which seats 40; the Langley Room, which seats 75; and the Wythe Room, which seats 12.

Arrangements can be made for coffee, refreshments, transportation, audiovisual support, motel and hotel reservations, on-site and off-site dining reservations and socials.

Registration fees can be managed through a conference center account.

Audiovisual equipment

The main auditorium has triple rear-screen projection for vu-graphs, 35mm slides, and video.

All rooms are equipped with monitors for live or videotape viewing. There are portable overhead and 35mm projectors.

For people who would like to have a program videotaped, or wish to project computer displays on the screen, the capability is there.

Verniel also manages two other conference facilities. They are in the Executive Conference Center at 3 S. Wright St., and in Room 200 in the High-Speed 7- by 10-Foot Tunnel facility at 17 W. Taylor Road.

"We have two picnic shelters, which can be reserved for office parties and picnics," she added. "If you want to eat your lunch outside, people who work at the Center are welcome to use the tables."

Photo by Fred Jones

Manager Pam Verniel stands at the entrance of the H.J.E. Reid Conference Center, which last year was the site of nearly 700 events involving 50,000 people.

> *"We offer all types of services. All people have to do is call and we'll help them out."*
>
> **—Pam Verniel**

The center also offers regional maps, brochures, hotel and restaurant information, and information on local attractions, Verniel said.

"As you can see, we offer all types of services," she said. "All people have to do is call and we'll help them out."

For on- and off-Center meetings and conferences, the center also has a conference support contractor to assist with a variety of meetings needs.

Services can be provided by issuing a purchase request through the conference center.

Verniel added:

"We can do just about anything to help people who are putting on conferences and meetings. We are very flexible and cooperative."

For more information about the H.J.E. Reid Conference Center, call Pam Verniel at ext. 46362.

Space Grant Scholarships Are Available

Students pursuing studies in fields related to aerospace may qualify for scholarships and fellowships offered by the Virginia Space Grant Consortium for the 1993-94 academic year.

A minimum of $150,000 is awarded annually to students in aerospace-related disciplines at the five Virginia Space Grant institutions: The College of William and Mary, Hampton University, Old Dominion University, the University of Virginia; and Virginia Polytechnic Institute and State University.

The scholarship and fellowship awards require that a student participate in an active, identified research experience with a faculty advisor.

Undergraduate students may receive up to $8,500, which includes a stipend, travel and materials to support research activities during the academic year and/or through the summer. Eligibility is not limited to science and engineering majors.

See **SCHOLARSHIP,** *Page 2*

News Briefs

AROUND THE AGENCY

Concept Would Make Freedom User-Friendly

A common complaint by space scientists is that it takes too long to conduct an experiment in space and get the data back.

A new effort by the Space Station Freedom program has been initiated to dramatically reduce the time it would take to integrate small experiments on the station.

Rapidly integrating small payloads

"It's called EXPRESS, for Expedited Processing of Experiments to Space Station," said Robert Moorehead, deputy director of Space Station Freedom. "Under this effort, we will build the hardware and develop the procedures necessary for rapid integration of small payloads on Freedom.

"We established the EXPRESS project because we are committed to developing a user-friendly space station through the small payloads program which will support innovative scientific, technological and commercial research through a streamlined payload integration process," he said.

Currently, it can take up to five years to get an experiment integrated on a shuttle or Spacelab mission. Spacelab is a pressurized laboratory that flies in the cargo bay of the shuttle.

"We hope we can cut the time it takes to get a small payload flown aboard Freedom to less than a year," said Mark Uhran, manager of the EXPRESS payload project.

"Freedom's three laboratories contain more than 40 refrigerator-sized experiment racks. These racks supply the experiments with electricity, cooling, data lines and other services," said Uhran.

"They are called International Standard Payload Racks because the services are identical in the United States, European and Japanese modules."

"The EXPRESS concept is to build a common set of hardware that will fit in these common racks like drawers in a dresser," said Uhran.

Development of the EXPRESS payload rack will be led by the Marshall Space Flight Center Payload Projects Office. Support will be provided by the Johnson and Kennedy centers.

Illustrated Summaries Tell The Center's History

Several illustrated summaries tell interesting bite-sized pieces of the Langley story.

To obtain one of these publications, please stop by Building 1153, Room 115. Retirees should call (804) 864-3293. Publications are:

Exploring NASA's Roots, 12 pages. This is an excellent summary of the Center's history.

Langley National Historic Landmarks, 8 pages. Outlines Langley's five national historic landmarks and the contributions of each.

The Mustang Story: Recollections of the XP-51, 8 pages. Retired Langley pilot Jack Reeder tells of flight testing the famous U.S. fighter that first used the NACA laminar airfoil.

Testing the First Supersonic Aircraft: Memoirs of NACA Pilot Bob Champine, 12 pages. Langley NACA pilot in the "right stuff" era breaks the sound barrier in the desert and flies at Langley.

Langley Contributions to Spaceflight, 12 pages. This is an overview of Langley's contributions to manned and unmanned spaceflight.

Langley Contributions to Apollo, 8 pages. A good short summary of Langley's contributions to the nation's push to be the first to the moon, starting with the earliest days of Mercury.

Scout Launch Vehicle Program, 2 pages. Scout is a simple, inexpensive, highly successful launch vehicle developed by Langley that pioneered a methodical launch preparation strategy.

Langley Contributions to the Space Shuttle, 2 pages. This outlines Langley's many research and technology contributions to the space shuttle.

Soon to be published:

Lunar Orbit Rendezvous, 8 pages. Chronicles how the dark-horse candidate concept for getting to the moon won over direct ascent and the part key people played. The lunar orbit concept was important for getting to the moon before the decade's end and was, perhaps, Langley's greatest contribution to the Apollo program.

Speakers Bureau Report: September, October

Frank Allario discussed Langley software developments for space and aircraft at The College of William & Mary.

Michael A. Chapman spoke to the Bethel High School CHROME Club about electrical engineering and academic preparation for science and technology careers.

Vickie Connors delivered a talk entitled "Observing Our Planet from Space" at the 1992 Tidewater Association of Science Educators Conference in Virginia Beach. At Rice University in Texas, she discussed the satellite measurement of air pollution.

Jane Hogge discussed NASA programs at Fairview Elementary School in Roanoke.

Dr. Karen Jackson delivered a talk at Embry-Riddle University entitled "GA Full-Scale Crash Test Program and B720 CID Transport Crash."

Dr. Joel Levine gave a talk entitled "A Planet at Risk" to Ashbrook High School in Charlotte, N.C., and to the Quality of Natural Resources Commission at Belmont Abbey College in Belmont, N.C.

Bob Pegg discussed the National Aero-Space Plane (NASP) at Hampton University and also at the Virginia Aviation Trades Association in Chesterfield County.

Doug Stanley discussed the next generation of space shuttles at the Norfolk Lions Club.

Bob Stuever discussed flight research at Langley and careers in aeronautics and space at Andale Elementary/Middle School in Andale, Kan. He also discussed the shuttle and Space Station Freedom at the Young Astronauts Club in Andale.

SCHOLARSHIP:

Continued from Page 1

Any undergraduate major that includes course work related to an understanding of, or interest in, aerospace is eligible. Scholarship awards are not renewable.

The graduate fellowships are $5,000 add-on awards to supplement and enhance basic graduate research support, such as graduate research assistantships, teaching assistantships, scholarships and fellowships.

Graduate students must be pursuing a degree in an aerospace-related field such as science or engineering. Fellowship awards are made annually and are renewable up to three years.

Scholarship and fellowship funding has been provided by NASA, the state of Virginia and The Bionetics Corp. in Hampton. Completed scholarship and fellowship applications must be received by February 5, 1993.

Send for application

Application packets, which provide complete details of the programs, may be obtained from the Virginia Space Grant Consortium, 2713-D Magruder Blvd., Hampton, Va. 23666.

For more information, call 865-0726.

Technology 2002 Conference Will Feature Langley Papers

Langley researchers will present four papers at Technology 2002, the third national technology transfer conference and exposition next month in Baltimore, Md.

The papers are:

- "High-Performance Networks and Supercomputers for Real-Time Flight Simulation," by Jeff I. Cleveland, Computer Systems Branch, Analysis and Computation Division.
- "Integration of Design, Thermal, Structural, and Optical Analyses, Including Thermal Animation," by Ruth M. Amundsen, Thermal Analysis Section, Systems Engineering Division.
- "Instrumentation for Measurement of Gas Permeability of Polymeric Membranes," by Dr. Billy T. Upchurch and Dr. George M. Wood, Aerodynamic and Thermodynamic Measurements Branch, Instrument Research Division; and Dr. Kenneth G. Brown and Karen S. Burns, Old Dominion University.
- "Automated Real-Time Software Development," by Denise R. Jones, Cockpit Technology Branch, Flight Management Division; Carrie K. Walker, Systems Architecture Branch, Information Systems Division; and John J. Turkovich, Charles Stark Draper Laboratory.

The conference, from December 1 through 3, is sponsored by NASA and coincides with National Technology Transfer Week, November 30 through December 5. Langley's contributions to the conference are being coordinated through the Technology Utilization and Applications Office, Research Information and Applications Division.

For more information, call Greg Manuel at ext. 43864.

Voluntary Leave Transfer Recipients

The following employees are approved recipients in the Voluntary Leave Transfer Program: Harriett M. Berkley, Martha C. Brown, Monica L. Cooper, S. Janet Dail, Bette L. Duncan, Francine W. Guthrie, Elizabeth R. Mustain, John P. Stack, Cassandra D. Stevens, Noel A. Talcott Jr., Carol C. Winbush, Belle L. Wood and Darrell A. Wood.

Employees who wish to donate leave or want to know more about the program should call Linda Park, Employee Relations Office, ext. 42610.

The Voluntary Leave Transfer Program is designed to permit employees to donate annual leave to other employees with personal or family medical emergencies.

ASSIGNED:

Continued from Page 1

Particularly on my mind will be returning to Langley and the honor of being your director."

Holloway joined Langley in 1960 as an aerospace research engineer and served in various positions, including chief, Space Systems Division; and director for Space.

His research work has been in hypersonic aerodynamics, boundary layer transition and flow separation, analysis of entry flight mechanisms and Earth orbital and planetary space missions.

Holloway earned a bachelor of science degree in aeronautical engineering from Virginia Polytechnic Institute and State University in 1960 and did graduate study in physics at The College of William and Mary.

He is a fellow of the American Institute of Aeronautics and Astronautics and the American Aeronautical Society.

Stein Party Planned

Bland A. Stein will be honored at a retirement party Monday, November 30, at the H.J.E. Reid Conference Center. A cash bar social will begin at 5:30 p.m. Dinner will be at 6:30 p.m., followed by a program. The cost is $14 per person. Contributions for a gift are welcome. Respond with a check to Sherry Ellis, Mail Stop 188M.

THANK YOU

The family of the late **Douglas Eugene "Gene" Hicks** wishes to express its appreciation to those who donated blood on his behalf.

IN MEMORIAM

Charles Jethro Yates died Saturday, October 31. He was 72. Yates retired in 1975 as a supervisor after 30 years with the Contract Support Office.

News Researcher

The **Researcher News**, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23681-0001, is published every other Friday in the interest of all Langley staff and retirees. Submit contributions to the Editor, Mail Stop 115, telephone 864-6126. Articles are due at noon the Tuesday following the date of this issue.

Managing Editor ..... Marny Skora

Editor ..... Michael Finneran

Assistant Editor ..... Susan A. Smigielski

Photojournalist ..... Carol Petrachenko

Photographer ..... Fred Jones

The privilege of advertising in this publication is restricted to the employees and retirees of the Langley Research Center. Articles advertised here must be offered without regard to race, color, religion, sex or national origin.

All materials are subject to editing.

Langley Man Nets Gold In Spacemodeling Championships

Robert T. Biedron has won a gold medal in the Ninth World Spacemodeling Championships.

The world championships are held every second year and are sponsored by the Federation Aeronautique Internationale. This year the competition was held in Melbourne, Fla., in September.

Biedron, an aerospace engineer in the Computational Aerodynamics Branch, scored the highest point total of 19 entrants representing nine countries in the S7 scale model category. The category is considered the most difficult and prestigious part of the model-rocket competition.

Biedron, who built and flew an Ariane 3 model rocket, is the first American to receive a medal higher than a bronze in the S7 competition.

Biedron is the first American to receive a medal higher than a bronze in this competition.

Three-stage rocket

His model had three stages. The first had a seven-motor cluster of rockets; the upper two stages were separated and ignited by radio control from the ground. All three stages were recovered by parachute.

The competition is judged in two parts: a static display in which the fidelity and detail of the model in comparison to the actual rocket are most important, and a flight of the model in which the staging and flight profile of the actual vehicle are duplicated as closely as possible.

Biedron was in second place after the static display and in first place following the flight.

Biedron has built model rockets and taken part in national and international competitions as a hobby since he became interested in model rockets around the time of Apollo 11.

The models are entirely hand made and require many hours to build because of the intricate detail required to place in world competitions.

Biedron's model of the Ariane 3 includes details of small features such as access doors, control panels and rivets. The specifications of the detailing are pieced together from diagrams and photos of the actual rocket; the supporting documentation is judged as part of the competition.

His Ariane 3 model was built over two years, and Biedron estimates it took 500 to 1,000 hours to complete.

He has entered four international competitions, including meets in Czechoslovakia, Yugoslavia and the former Soviet Union. Biedron's previous best in world competition was a silver medal for the highest attained altitude.

Biedron works for the Analytical Services & Materials Corp. He began working at Langley in 1987 after receiving a doctorate in aerospace engineering from the University of Michigan. His work involves developing computational fluid dynamics algorithms to analyze the viscous flow over complex aerodynamic configurations, such the F/A-18 High-Alpha Research Vehicle.

Robert T. Biedron's Ariane 3 model rocket is entirely handmade. Biedron says the competition-winner took him two years and more than 500 hours to complete.

Northam Wins JANNAF Award

Dr. G. Burton Northam has been presented with the Joint Army Navy NASA Air Force (JANNAF) Combustion Subcommittee Certificate of Recognition. He is reacting flow group leader in the Experimental Methods Branch, Fluid Mechanics Division.

The award is presented for significant technical and administrative contributions in the scientific area addressed by the subcommittee.

Langley Retirees

The following Langley employees have announced their retirements:

Charles L. Ladson, Applied Aerodynamics Division, effective September 3, 1992.

Robert I. Armistead, Operations Support Division, effective October 30, 1992.

Otis S. Childress Jr., Acoustics Division, effective October 30, 1992.

Joseph J. Davis, Guidance and Control Division, effective October 30, 1992.

E. Eugene Hall, Space Station Freedom Office, effective October 30, 1992.

Miriam A. Hall, Instrument Research Division, effective October 30, 1992.

Lawrence J. Farrow, Fabrication Division, effective October 31, 1992.

M. Patricia F. Turgeon, Acquisition Division, effective November 27, 1992.

Luncheon Honors Volunteers Whose Dedication Spreads The Langley Story

BY SUSAN A. SMIGIELSKI

Getting the word out about Langley's mission, goals and accomplishments can be attributed, in part, to a group that gives its time for free.

Earlier this month, Center Director Paul F. Holloway hosted a luncheon for 18 volunteers in the cafeteria's private dining room. These volunteers were honored for being a vital part of Langley's outreach program in the past year.

The Langley volunteers are retirees, employees or their spouses. Others are aerospace enthusiasts who simply take an interest in Langley's mission.

Some are longtime volunteers who have chosen to continue offering their services since the Visitor Center closed in October 1991.

Thirteen of the volunteers make up a group called Operation Communication. Together they have spent more than 275 hours training and touring. The group assisted with more than 30 tours by presenting Center overviews and visiting facilities that highlight Langley's research.

"You should be very proud of how many individuals you reach without leaving the Center."

—Paul F. Holloway

"When the Visitor Center closed about a year ago, we formed our Operation Communication group to assist with VIP visits to the Center," Holloway said in a talk during the luncheon.

Langley public affairs specialist Marny Skora recruited former Visitor Center volunteers, Center alumni and Toastmasters members as the core of the communication effort.

"I think our greatest success is the tremendous talent pool we have developed to enthusiastically relate the NASA Langley story," she said.

The Resource Center and Public Mail volunteers donate about 40 hours a month. They spend most of that time answering letters from students and the public. In a month, the volunteers may respond to more than 300 letters.

"And those letters—those unending letters addressed 'Dear NASA' are golden opportunities to capture young minds and mold careers via the postal system," Holloway said.

In addition, these volunteers assist with mailing NASA lesson plans and educational information to teachers in Langley's five-state region.

"The packages of lesson plans, printed materials and videotapes you prepare have inspired students and community groups all over the area and the country. You should be very proud of how many individuals you reach without leaving the Center," Holloway said.

Deputy Director Dr. H. Lee Beach Jr. presented each volunteer with a certificate of appreciation and a 75th Anniversary memento.

Photo by Carol Petrachenko

Volunteers, from left, include Sadie Boyer, Betty Brummer, Myra Walton, Dick Whitcomb, Tammy Robinson, Don Ward, Mary Levin, Bob Miserentino, Gladys Hardrath, Steve Yaros, Nita Hamilton, Ray Whipple, Clarence Brown, Ken Curtis, Maxine Copeland and Peggy Hews. Not shown are Diana Freeman and David Workman.

Employee Awards

Scott R. Young, engineering technician, Operations Support Division (OSD), for demonstrating extraordinary expertise and dedication in support of Total Quality Management implementation.

Russell J. McHatton, lead engineering technician, OSD, for demonstrating extraordinary expertise and dedication in support of Total Quality Management implementation.

Davis B. Wright Jr., aerospace technologist, experimental facilities development, Facilities Engineering Division (FEngD), for demonstrating extraordinary expertise and dedication in support of Total Quality Management implementation.

Charles E. (Rusty) Jenkins Jr., aerospace engineer, Systems Engineering Division (SED), for demonstrating extraordinary expertise and dedication in support of Total Quality Management implementation.

Milam J. Walters, aerospace engineer, SED, for demonstrating extraordinary expertise and dedication in support of Total Quality Management implementation.

Henry N. Zumbrun, engineering technician, Fabrication Division (FD), for demonstrating extraordinary expertise and dedication in support of Total Quality Management implementation.

Delwin R. Croom Jr., quality assurance specialist, FD, for demonstrating extraordinary expertise and dedication in support of Total Quality Management implementation.

Arthur L. Gooden, mathematician, Analysis and Computation Division (ACD), for demonstrating extraordinary expertise and dedication in support of Total Quality Management implementation.

Christyl M. Chamblee, electronics engineer, Flight Electronics Division (FED), for demonstrating extraordinary expertise and dedication in support of Total Quality Management implementation.

Laurie W. Andrews, program analyst, FED, for demonstrating extraordinary expertise and dedication in support of Total Quality Management implementation.

David B. Rhodes, aerospace technologist, Instrument Research Division (IRD), for demonstrating extraordinary expertise and dedication in support of Total Quality Management implementation.

Debra J. Carraway, supervisory electronics engineer, IRD, for demonstrating extraordinary expertise and dedication in support of Total Quality Management implementation.

Donna L. Martin, secretary, IRD, for demonstrating extraordinary expertise and dedication in support of Total Quality Management implementation.

Guy T. Kemmerly, aerospace engineer, Applied Aerodynamics Division (AAD), for demonstrating extraordinary expertise and dedication in support of Total Quality Management implementation.

Christopher L. Rumsey, aerospace engineer, Fluid Mechanics Division (FldMD), for demonstrating extraordinary expertise and dedication in support of Total Quality Management implementation.

Irwin J. Schauer, management and program analyst, Management Operations Directorate, for demonstrating extraordinary expertise and dedication in support of Total Quality Management implementation.

Peter J. Edgette, health manager, Human Resources Management Division (HRMD), for demonstrating extraordinary expertise and dedication in support of Total Quality Management implementation.

Michael Glenn, supervisory employee development specialist, HRMD, for demonstrating extraordinary expertise and dedication in support of Total Quality Management implementation.

Howard R. Puckett Jr., management analysis officer, Management Support Division (MSD), for demonstrating extraordinary expertise and dedication in support of Total Quality Management implementation.

Woodrow Whitlow Jr., supervisory aerospace engineer, Materials Division (MD), for demonstrating extraordinary expertise and dedication in support of Total Quality Management implementation.

Ruth M. Martin, supervisory aerospace engineer, Acoustics Division (AcoD), for demonstrating extraordinary expertise and dedication in support of Total Quality Management implementation.

Sandra G. Zumbrun, production controller, FD, for excellence in monitoring and coordinating the manufacture of research hardware.

Penny L. Murphy, resources control assistant, FD, for exemplary job performance and dedication to duty.

Robert M. Connell Jr., quality assurance specialist, FD, for excellence in the performance of quality assurance assignments related to computer-aided measurement of models and model-related hardware.

Ronald L. Barnes, engineering technician, FD, for exceptional contributions to the SAB-08 Project.

Bradley L. Crawford, engineering technician, FD, for superior fabrication support in the manufacturing process of the Shock Control Insert (SCI) Nozzle.

C. Calvin Davis, engineering technician, FD, for superior fabrication support in the manufacturing process of the NASP Flutter Model Project.

James F. Pike, quality assurance specialist, FD, for excellence in the performance of quality assurance assignments during welding inspections.

Richard J. Siebels, grants officer and grants group leader, Acquisition Division (AD), for superior accomplishments in the award and administration of grants and cooperative agreements.

Deneace Manley Hines, secretary (stenography), AD, for excellence in the improvement of office procedures and establishment of a secure facility for the Applied Acoustics Branch.

Richard C. Shisler, contracting officer and group leader, AD, for superior accomplishments in the award and administration of supply and construction contracts.

Vicki A. Johnson, secretary, OSD, for excellent administrative support to the Mechanical Support and Utilities Operations Branch.

Charles M. McClish, engineering technician, OSD, for exceptional support and contributions to research conducted at the Transonic Dynamics Tunnel.

David S. Aliff, engineering technician, OSD, for exceptional skill, innovation and dedication in support of the 8-Foot High-Temperature Tunnel shakedown operations.

Robert E. Blakeslee, safety and occupational health specialist, Systems Safety, Quality & Reliability Division (SSQRD), for outstanding support to the support service contractor safety program.

Clarence F. Breen, safety and occupational health specialist, SSQRD, for outstanding support to the support service contractor safety program.

Taumi S. Daniels, electronics engineer, IRD, for the software and hardware integration of a new dynamic stability instrumentation system.

Thomas L. Jordan, mechanical engineer, IRD, for mechanical hardware integration of a new dynamic stability instrumentation system.

John S. Tripp, senior research engineer, IRD, for innovative design of a new dynamic stability instrumentation system.

George M. Wood Jr., electronics engineer, IRD, for outstanding contributions as co-principal investigator in preparing the GPPM experiment for flight.

Billy T. Upchurch, senior research scientist, IRD, for outstanding contributions and technical leadership in the advancement of measurement technology for both ground based and flight instrumentation systems.

Stanton L. DeHaven, aerospace technologist, gas and fluid systems, FEngD, for exceptional work in support of the LGMSS, the 8-Foot High-Temperature Tunnel and the Transonic Dynamics Tunnel Heavy Gas Recovery System and excellent work on other engineering assignments.

Carlos S. Perez-Ramos, aerospace technologist, FEngD, for excellence in the recertification and repair of high pressure systems.

William S. Pillow, mechanical engineering technician, FEngD, for exceptional work in support of the modifications to the National Transonic Facility for productivity and the Combined Loads Test System projects and excellent work on other engineering assignments.

Cecil E. Nichols Jr., aerospace technologist, FEngD, for exceptional contribution to the National Aero-Space Plane Program through the design and operation of a laser velocimetry particle seeding system that provided the nonintrusive diagnostic techniques to obtain critical hypersonic flow fluid measurements.

Larry A. Snyder, civil engineer, FEngD, for excellent project management, design and construction management for Lab "C" addition to the Advanced Control Test Facility.

Terry J. Tyler, mechanical engineering technician, FEngD, for excellence in the direction of the engineering services contractor.

Laurence D. Leavitt, supervisory aerospace engineer, AAD, for outstanding performance in providing support for the Source Evaluation Board for the wind tunnel models contract and as acting assistant AAD chief.

William J. Monta, research engineer, AAD, for outstanding performance upgrading and operating the gas mixing/dispensing system in support of Hypersonic, Polvered-Model Testing in the 20-inch Mach 6 Wind Tunnel.

Elizabeth B. Plentovich, aerospace engineer, AAD, for outstanding efforts in conceiving and directing the Transonic Aerodynamics Branch Cavity Flow Research Program.

Gary E. Erickson, aerospace engineer, AAD, for proposing the use of a colored water surface flow visualization technique for wind tunnel testing.

Floyd J. Wilcox Jr., aerospace engineer, AAD, for proposing the use of a colored water surface flow visualization technique for wind tunnel testing.

L. Bernard Garrett, aerospace engineer, Space Station Freedom Office (SSFO), for the identification and development of system analysis concepts, approaches and tools.

College Students Help Virginia Air And Space Center Understand Its Customers

Thomas Nelson Community College (TNCC) marketing students believe that marketing success begins with understanding the customer. Under the direction of Dr. Christine Meade, program head for marketing and management at TNCC, the students will apply what they have learned to conduct research at the Virginia Air and Space Center and Hampton Roads History Center.

For six weeks beginning in November, students in the Consumer Behavior class at TNCC will conduct a study of the visitors at the center. Their research will include how visitors found out about the center, their favorite exhibits, perception of staff availability and adequacy of directional signs.

"It is so important that students experience 'real live' marketing activities as part of a classroom learning experience," Meade said. "They begin to make the connection between the theory in the books and how this is put into practice by marketing practitioners."

Mary Kenerley, marketing manager at the center, has worked with the students to ensure they are collecting data that will be useful to the marketing effort.

"The students at Thomas Nelson are gathering information we need to evaluate if the center is meeting the visitors' expectations," she said. "This is a great opportunity for the center to obtain this information and work with a local educational facility."

The center has exceeded visitor projections by 22 percent since its opening April 5.

Irving Abel

Donna M. Speller

Abel And Speller Receive EEO Award For 1992

Langley's 1992 Equal Employment Opportunity (EEO) Award has been given to Donna M. Speller, program analyst, Analysis and Computation Division, and Irving Abel, chief, Structural Dynamics Division.

Abel and Speller were recognized for outstanding leadership and significant personal contributions in advancing equal opportunity at Langley.

Center Deputy Director Dr. H. Lee Beach Jr. presented each with a plaque and Speller with a cash award.

Abel was not eligible for a cash award because he is a Senior Executive Service member.

TNT Basketball Champs

The 1992 A-League basketball championship has been won by TNT. Team members are, back row from left: John Simmons, Clyde Medley and Sam James. Front row: Kendall Freeman, Mike Powell and Bert Cano. Not shown are coach Ricky Clark and players John Lawson and Stuart Cooke.

Employee Awards

John L. Allen, aerospace technologist, project management, SSFO, for outstanding management of a team of civil servants and contractors in the performance of the MSAD Study of Aluminum Racks for the Space Station Freedom.

William M. Cirillo, aerospace technologist, technical engineering operations management, SSFO, for outstanding work in directing a key agency study to determine National Launch Vehicle/Cargo Transfer Vehicle potential for Space Station Freedom logistics.

William L. Willshire Jr., aerospace engineer, AcoD, for outstanding performance with the division's flight experiments of sonic boom and climb-to-cruise.

SEB Award Winners

Langley's Atmospheric Sciences Research and Technology Support Services Source Evaluation Board (SEB) has been selected by the NASA Headquarters assistant administrator for procurement to receive one of the SEB awards presented annually. Board members are, front row from left: Jeanne D. Covington, consultant; Richard N. Green, voting member; and Mary Jane Yeager and Richard E. Davis, consultants. Back row: John N. Shoosmith, chairman; Dwayne E. Hinton, Stanley W. Ward and Richard A. Foss, voting members; and Robert P. Rhinehart, consultant. Not shown are David S. McDougal, Ellis E. Remsberg, Jeremy Becker-Welts and James J. Hoell Jr., consultants.

SEB Award Winners

Langley's Aerospace Model Systems and Developmental Test Hardware Source Evaluation Board (SEB) has been selected by the NASA Headquarters assistant administrator for procurement to receive one of the SEB awards presented annually. Board members are, front row from left: Charlotte T. Hardy, voting member; Barry L. Price, John D. Antinori Jr. and Norma F. Davis, consultants; and Joseph B. Davenport, voting member. Back row: Laurence D. Leavitt, voting member; Sandra M. Glenn and Alton W. Grimes, consultants; Eugene L. Kelsey and Fred M. Smith, voting members; John T. Bush III, consultant; and William S. Lassiter, chairman. Not shown is Charles E. Cockrell, consultant.

Happenings

LAA SOCIAL: A Pilgrims Party will be held at the H.J.E. Reid Conference Center on Friday, November 20, from 4 to 8 p.m. Admission is $1. On December 4, an LAA Social will be held from 4 to 6:30 p.m.

HOUSE FOR RENT: In Riverdale, on small creek, 10 minutes from Langley, brick rancher, 3 bedrooms, 1½ baths, living room with fireplace, dining room, eat-in kitchen, den, garage, patio, large corner lot with fruit trees, central air, gas heat, refrigerator and dishwasher. Lease and pet deposit required, $695 per month. Available on December 1. Call 868-6453.

AEROBICS WITH MUSCLE: Join the bench and low-impact classes that focus on toning legs, hips and buttocks. Abdominal work every class. Equipment provided. Classes are Tuesdays and Thursdays from 5 to 6 p.m. and Saturdays from 9:30 to 10:30 a.m. in the gym. The classes are open to all employees, contractors and their families. For more information, call ext. 42295.

CAR FOR SALE: 1988 Ford Escort "Pony," a 2-door hatchback with automatic transmission, new starter, battery and brakes. Red with 51,000 miles, in excellent condition. Asking $2,400. Call 851-8680.

TOWNHOUSE FOR SALE: Near NASA, Summer Place, 1,150 square feet, 2 bedrooms, 1½ baths, eat-in kitchen, den area with fireplace, living room, central air, privacy fenced backyard, all appliances, $64,800. Call 693-5053 (Gloucester).

SAILING: The Langley Air Force Base Sailing Center is offering classes in maintenance and navigation. Basic fiberglass maintenance for boats is being offered every Wednesday for three weeks at $60 per person. Sign up through December 2. Basic navigation is being offered every Thursday for four weeks at $70 per person. Sign up by December 3. Call 764-7220 for more information.

VIRGINIA CHORAL SOCIETY: The 1992-93 concert season will open with the renowned oratio *Elijah* by Felix Mendelsson. The 90-voice chorus will be accompanied by a chamber orchestra. Two performances will be given: Friday, November 20, at Gloria Dei Lutheran Church, Fox Hill Road, Hampton; and Saturday, November 21, at Trinity Lutheran Church, River Road, Newport News. Both start at 8 p.m. Tickets at the door are $8; $5 for senior citizens, students and military. Call 1 (800) 400-4VCS for more information.

FREE AEROBICS: Get energized with NASA aerobics! Open to all employees and contractors. Low-impact with interval weight training classes in the LAA gym. Body Dynamics are held Monday, Wednesday and Friday from 6:15 to 7:15 a.m. Lunchtime Energizer is held from 11 to 11:45 a.m. For more information, call ext. 46387.

DISCOVER CUONG-NHU: Oriental martial arts with the Langley Karate Club. Classes are held at the gym Mondays and Wednesdays, 5 to 7 p.m. New students will be accepted through November 25. Enrollment is open to NASA civil servants, contractors and immediate families. The cost is $6 per month. Stop at the gym during class, ask for Roy Albang, or call 596-7736 between 7 and 10 p.m.

TOASTMASTERS: The club will meet November 25 in Building 1222 from 11:30 a.m. to 1 p.m.

EARLY CHRISTMAS PRESENT: From the LAA Aerobics Club. Join through December and receive one month free for you, a family member or friend. Low-impact, step classes and toning with free-weights and steps provided. Call ext. 42295 for information.

FOR SALE: Antique Victorian walnut bedroom suit from the 1800s. Dresser, wash stand, 6-foot bed, mattress and box springs, $1,500. Call 826-6994.

PUPPIES: Chow chow puppies, three black and two rare blues, are for sale. Call 877-2186.

PRIVATE TUTORING: All grade levels, experienced and degreed. References available. Call 723-6932.

MODEL RAILROAD OPEN HOUSE: The Chesapeake Bay & Western Scale model railroad will be open to the public from 10 a.m. to 5 p.m. Saturday, November 21, and from 1 to 5 p.m. Sunday, November 22, at 110F Dare Road (behind Grafton Hobby Center) in Grafton. Admission is free.

COLLOQUIUM SCHEDULE

The Langley Colloquium Series sponsors lectures from noted speakers, followed by questions and discussion, at 2 p.m. every month in the H.J.E. Reid Conference Center. The following is a schedule of coming colloquiums:

December 14: Chris Madson, "America's Wilderness in the 21st Century."

January 19: Lou Williams, "High-Speed Civil Transport."

February: To be announced.

March 8: John Christman, "Serendipity—Luck in Science."

Researcher News

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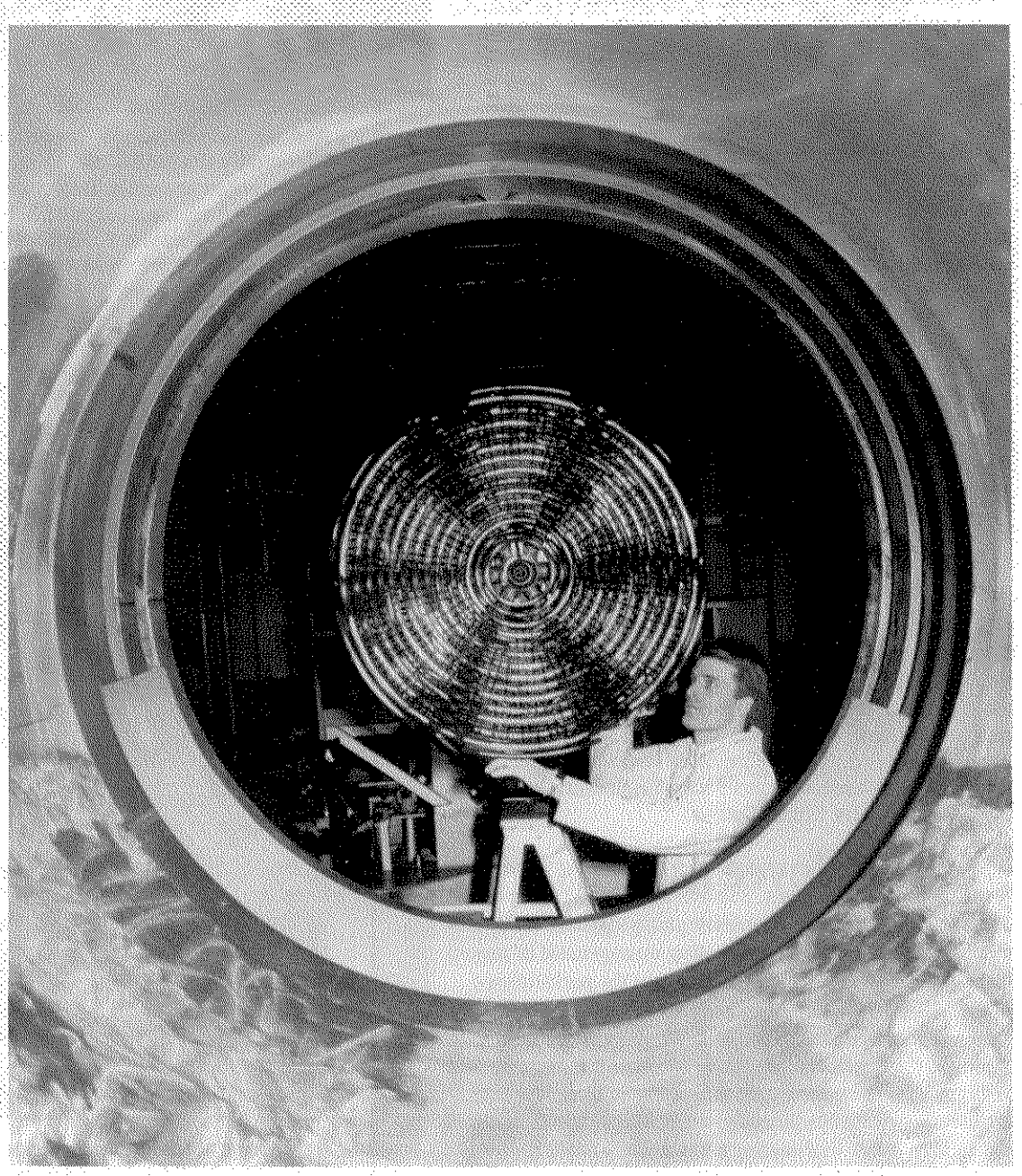

Photo by Carol Petrachenko

The first oxygen-enriched runs of the newly modified 8-Foot High-Temperature Tunnel took place October 30 and November 5 and 10. The successful checkout runs were a significant milestone toward realistic scramjet engine testing in support of the National Aero-Space Plane program. Adding liquid oxygen to the tunnel's air flow better simulates flying through the atmosphere. In this recent photo, technician Jeff Conover inspects the tunnel's fuel injector.

1917 - 1992
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Researcher News

Bi-weekly Employee and Contractor Publication

Volume 6 ❖ Issue 23 ❖ December 4, 1992

Employees Help With Hurricane Relief Effort

Three Langley employees—James Ellison, Deborah Powell and Howard Robinson—were among the many federal workers who helped in the disaster relief effort following Hurricane Andrew in South Florida.

The three traveled to Florida separately and were reimbursed for their time with administrative leave.

Ellison, assistant manager of the National Aero-Space Plane Office, spent nearly a week in Homestead, one of the hardest hit communities. Ellison helped drive a truck loaded with supplies nonstop to Florida from Orcutt Baptist Church in Newport News.

He was one of about 20 volunteers who stayed at the home of a member of the First Baptist Church of Homestead. Ellison helped clean up damage to the member's home and church, unloaded trucks, packed food and distributed supplies.

"It was the worst thing I've ever seen," he said of the destruction inflicted by the late-August hurricane. "The most devastating and most impressive thing was that the damage was everywhere. Nobody was left untouched."

Deborah Powell was in Florida from October 18 to 31 as a volunteer for the Salvation Army. She was put up in a Salvation Army facility in Fort Lauderdale, about 40 miles north of the worst damage.

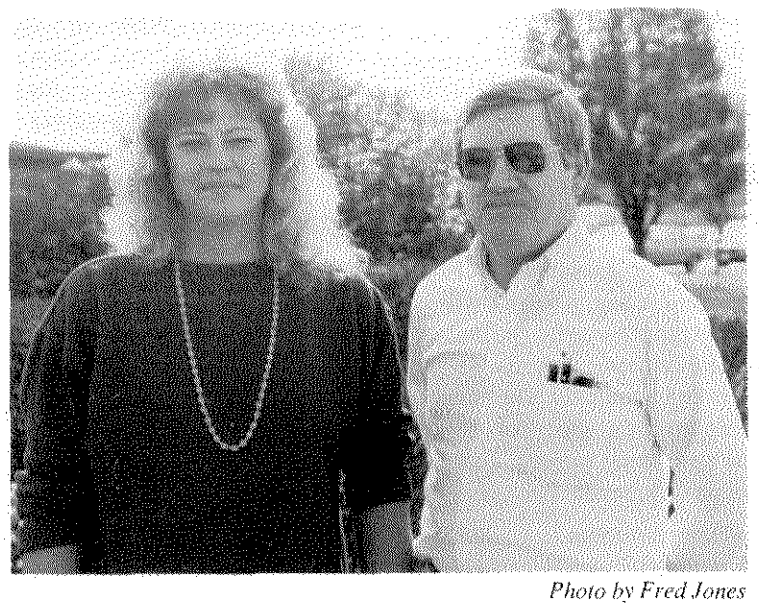


Photo by Fred Jones

Deborah Powell and James Ellison were two of three Langley employees who went to South Florida to aid in the cleanup of Hurricane Andrew. Not shown is volunteer Howard Robinson.

"Every morning we were trucked down to their facility in Homestead," said Powell, industrial property officer in the Logistics Management Branch, Management Support Division. "For the majority of the time, I worked in a strip mall that was bought for the Salvation Army by Ross Perot and used as a warehouse and distribution center."

Andrew's human toll

For the first week, Powell worked in the warehouse, unpacking and sorting donations. "I drove the forklift. I unloaded trucks," she said. "I put together baby food packages."

In the second week, she saw the hurricane's human toll first-hand while distributing food and other supplies to the long lines of people left homeless and hungry.

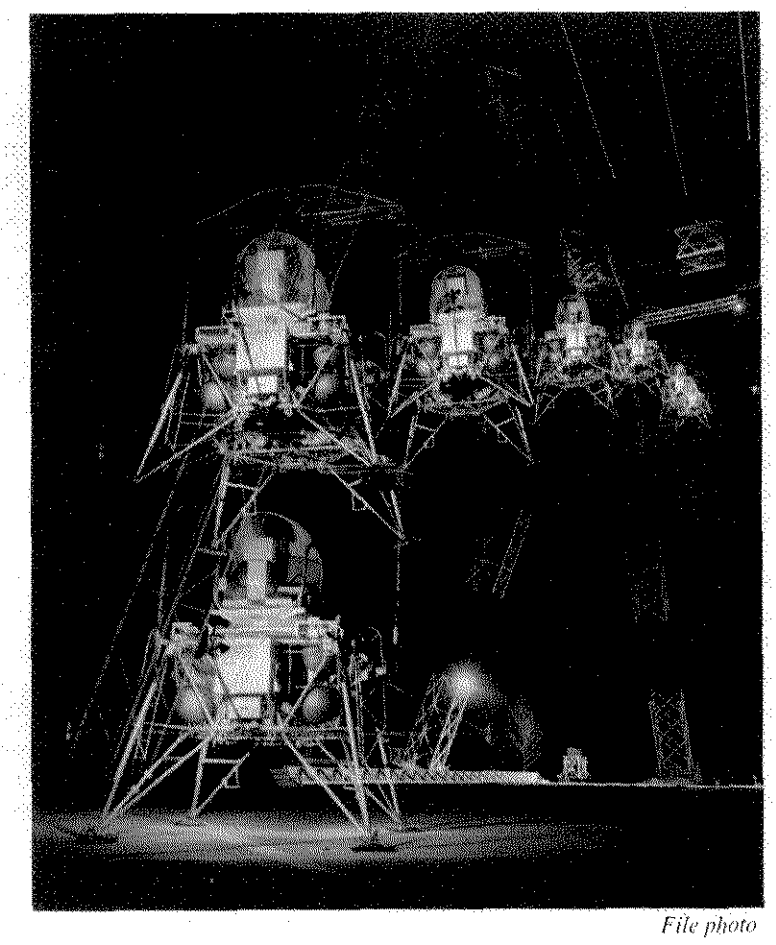
"It was absolutely unbelievable," Powell said. "The thing that struck me was the devastation and how much more still needs to be done. I had thought that by the time I got there, they'd be getting through cleaning up. But it was in chaos."

Howard Robinson said his trip to South Florida "was probably one of the quickest ever."

He and a friend drove to Homestead from Orcutt Baptist Church on September 8 and were back the 10th.

"We drove down, unloaded and came back," said Robinson, an Operations Support Division

See **HURRICANE,** *on* **Page 2**



File photo

This multiple exposure captures the movement of the Lunar Excursion Module Simulator during a nighttime training session.

Lunar Facility Is Dedicated As Historic Landmark

BY KRISTINA MURDEN

When the Apollo astronauts first walked on the moon, they blasted off from Florida and reported to Mission Control in Texas, but they had been trained at Langley. On December 3, the facility where 24 Apollo astronauts learned how to land, walk and even jump around on the moon was formally dedicated as a National Historic Landmark.

The 250-foot-high A-frame gantry known during the Apollo era as the Lunar Landing Research Facility (LLRF) was recognized by the hanging of a plaque at the site as part of Langley's year-long 75th Anniversary celebration. The LLRF was designated a National Historic Landmark in 1985 after the National Historic Preservation Act was expanded to include aerospace sites.

"We have a great sense of pride in the history of the facility," said John Tanner, head of the Landing and Impact Dynamics Branch.

Apollo astronauts including Neil Armstrong and Alan Shepard practiced the final 150-foot descent to the moon's surface at the LLRF. Their vehicle was the Lunar Excursion Module Simulator now in the Virginia Air and Space Center.

"We discovered what a key role shadows would play in the landings, so we practiced mostly

See **LUNAR,** *on* **Page 2**

Langley's Jack Reeder Makes Hall Of Fame

Former Langley research pilot John P. "Jack" Reeder has been inducted into the Michigan Aviation Hall of Fame for his outstanding contributions to the advancement of aircraft of all types.

The sixth annual enshrinement ceremony and dinner took place on November 7 in Lansing, Mich.

Reeder's pioneering efforts have helped improve the quality and safety of military and civilian flight.

Reeder, a Michigan native, joined the NACA in 1938 and worked in the Full-Scale Wind Tunnel until 1942, when he joined the pilot staff of the Flight Research Division. In his first year there, he flight-tested 19 new aircraft.

Reeder, who lives in Newport News, also served as head of Flight Operations and as chief research pilot. He also was assistant chief of the Flight Mechanics and Technology Division while continuing to function as head of Flight Operations.

Jack Reeder flew 235 types of military and civilian aircraft.

As NASA's first helicopter pilot, Reeder is best known for his pioneering work in helicopter and V/STOL aerodynamics and handling.

In addition to being a member of the team that drafted the original military specifications for the flying qualities of helicopters, he is a founding member of the Twirly Birds.

Reeder's most important and lasting contribution to aviation may have been convincing NASA to pursue advanced transport and operating systems, which identified, evaluated and demonstrated systems and concepts that would enhance airport and runway capacity as well as all-weather flight. As part of this program, he led the team that won a NASA Group Achievement Award for demonstrating the capability of the Microwave Landing System.

Reeder remained on active flight status until he retired in 1980 with numerous awards and fellowships.

In all, Reeder flew 235 types of aircraft for research and evaluation, including 76 jets, 61 helicopters and eight VTOL aircraft.

He also published 75 technical papers and reports.

Time Capsule Will Preserve A Record For The Future

Langley will complete its year-long 75th Anniversary celebration December 17 by burying a time capsule.

A brief ceremony will begin at 11 a.m., when Associate Director Sidney F. Pauls will dedicate the capsule.

The chemical-resistant plastic capsule, about the size of a 55-gallon drum, will be pressurized with inert gas and enclosed in an underground concrete chamber near West Durand Street and the Technical Library. The capsule will anchor the south end of the pedestrian greenspace mall where the Langley Conservation Club and the Center recently planted 75th Anniversary trees.

Plans are to open the capsule at the 25-year mark—July 17, 2017—as part of the Center's 100th anniversary activities, then reseal it until Langley's 150th anniversary.

The site will be marked later with a weathered, bronze-finished aluminum "span

See **CAPSULE,** *on* **Page 5**

News Briefs

AROUND THE AGENCY

OPERATING SPACECRAFT UPDATE — (As of early November) - **Magellan:** The spacecraft continued to operate normally. **Galileo:** The spacecraft was operating normally. **Hubble Space Telescope (HST):** Operations and science data collection have been normal. The WF/PC II and COSTAR development efforts continue on schedule. **Ulysses:** Operations have been nominal. A science team meeting at the Paris Observatory in France focused on the Jupiter Flyby. **Gamma Ray Observatory (GRO):** The electrical power system performance showed a continuation of recent trends. **Upper Atmosphere Research Satellite (UARS):** The observatory continued to function normally following a successful yaw maneuver October 29. The solar array offset and charge current limitation appeared to have stabilized the battery condition. **Extreme Ultraviolet Explorer (EUVE):** The spacecraft spent most of last week in survey mode. On October 26, a wobble was noticed in the spectrometer data for a number of orbits. The wobble was estimated at about two arc minutes. Investigation is ongoing. **Solar, Anomalous and Magnetospheric Particle Explorer (SAMPEX):** A major flare began late on October 30 and was still in progress, producing very high ion counts. All instruments were gathering data. It appeared that the LEICA high-voltage problem was temperature-induced and could be managed by power cycling. Analysis will continue after the flare is over. **GEOTAIL:** The spacecraft completed its second lunar swingby and was headed toward the tail of the magnetosphere for the second time. All of the United States instruments were working well. **TOPEX/Poseidon:** The satellite and sensors were performing nominally. The batteries continued to perform well. **Mars Observer:** The spacecraft continued on the correct trajectory for cruise to Mars with all subsystems performing nominally. No significant problems were being worked. The charging strategy recommended by the battery working group was uplinked on October 28. Each battery will be alternately charged for 12 hours during cruise phase.

HEADQUARTERS APPOINTMENTS — NASA Administrator Daniel S. Goldin has announced the appointment of Dr. Charles Pellerin as associate deputy administrator for Strategic Planning, John R. Dailey as NASA associate deputy administrator and Ralph C. Thomas as assistant administrator for Small and Disadvantaged Business Utilization. Dailey and Thomas were selected after a nationwide search and review. Pellerin, a 25-year veteran of NASA, most recently was deputy associate administrator for Safety and Mission Quality. Dailey comes from the Marine Corps, where he was assistant commandant before retiring in September. Thomas, formerly executive director of the National Association of Minority Contractors, is the first assistant administrator for Small and Disadvantaged Business Utilization, a division recently elevated in stature to ensure that NASA reflects the nation's full diversity.

LUNAR:

Continued from Page 1

at night," said Granville Webb, facility manager since then. He also is manager of the Aircraft Landing Dynamics Facility and safety head for both facilities.

How many practice landings did each astronaut make before the real thing? According to Webb, "whenever they felt ready. Maybe eight, 10 or 12 times. The astronauts judged their own proficiency."

The floor of the facility used to be covered with craters simulating the moon's surface.

"One time it rained and the craters filled up with water, and Neil discovered that the spray from the water reacted like the dust on the moon during a landing, so we decided to leave it there," said Webb. "But this was after we had drilled holes in the craters to drain them. We just plugged them back up.

"During Apollo, Langley was much more like an operational facility than a research center," said Webb. "When the astronauts were here, when you wanted something done, it happened immediately.

"We had an almost unlimited budget it seemed, which made things happen quickly—there were always spare parts around to get going again. Apollo could never happen today like it did back then. We were not nearly as structured then and we are much more safety and quality conscious now."

Practiced moon-walking

The astronauts, and even Walter Cronkite, practiced walking on the moon at the LLRF. Suspended from cables, suited astronauts walked and jumped along an inclined wall where one-sixth of their weight was simulated with the ingenious lunar-gravity simulator.

Since Apollo, the facility has been used as the Impact Dynamics Research Facility. In the 1970s, airframes were crashed in studies designed to increase survivability and determine how to absorb impact loads, said Tanner.

"We've also crashed helicopters and, since 1985, we've been studying composite airframe structures. We will continue to improve crash survivability characteristics."

Langley's Viking landers also were hung from the gantry to test their stability.

"The facility will continue to make significant research contributions," said Tanner.

When it first became operational in 1965, it was intended only for Apollo and it still has an indefinite life.

"It's just a neat place to be," said Tanner.

HURRICANE:

Continued from Page 1

engineering technician at the Aircraft Landing Dynamics Facility. "It was a pretty tough trip. I drove for 44 hours straight."

Like Powell and Ellison, Robinson was overwhelmed by the hurricane's devastation.

"You'd see shingles missing, then you'd see part of rooftops missing," he said. "I saw trees with six-foot-diameter trunks ripped right out of the ground. It was like a giant bush hog came down and wiped everything out."

December 10 Computer Expo Planned At H.J.E. Reid Conference Center

The Langley Research Center Winter Computer Expo will be held Thursday, December 10, from 10 a.m. to 2 p.m. in the H.J.E. Reid Conference Center.

More than 30 exhibits

The one-day show, sponsored by the National Small Business Council and the Evaluation and Information Center, will feature advanced computer and information systems technologies from more than 30 exhibitors.

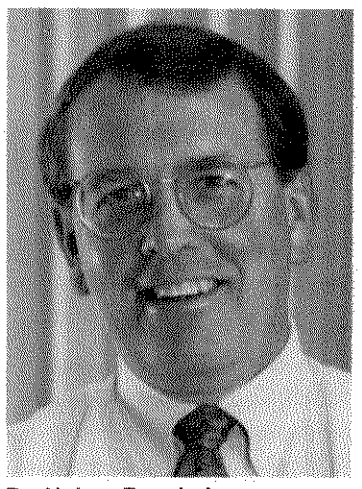
Exhibits will feature the latest in engineering capabilities, office automation, lab automation, graphics, CAD/CAM workstations, multimedia, Unix, OCR, scientific computing and more. All Langley employees and contractors are invited to attend at no charge. Refreshments will be served.

Cafeteria To Update Restrooms, Stairs

Restrooms in the cafeteria will be refurbished to make them more modern and to provide increased access to people with disabilities.

A lift for the disabled will be installed on one side of the stairs between the restrooms and the main dining room. This will make the restrooms and the executive dining room more accessible. The work is scheduled to be finished between late January and mid-February.

Volunteering: An Opportunity For Us To Make A Difference



Dr. H. Lee Beach Jr.

For 75 years, Langley has championed our people as our greatest resource. While we claim some of the finest technical and support personnel in the agency, we also know that our people actively support the communities in which they live. I'd like to focus on community involvement for a moment.

It's easy to complain about what's wrong in the world today—crime, drugs, illiteracy, the environment, hunger, health care, our nation's homeless, our troubled youth, our forgotten seniors. Helping to solve these problems is what volunteering is all about! And countless numbers of our employees are currently involved in volunteer activities.

In response to the National and Community Services Act of 1990, NASA has already established a Community Services Program at Headquarters. We are now in the process of developing community programs at each of the field centers to help employees participate in local volunteer opportunities.

Members of one of the most experienced, trained and diverse work forces in the nation, government workers offer a virtually limitless pool of talent. Thousands of federal employees volunteer in a variety of community service activities.

Langley employees are no exception. Active in schools, churches and community organizations, our people are tutoring, mentoring, counseling and encouraging others to excel in school, in the workplace and in life.

In order to help you continue to serve others, we need to know where your interests lie, where you are already active and what other opportunities you would like to investigate.

In December, we will survey all civil servants to establish an agency and center baseline for volunteer activities. I would like to ask each of you to give this initiative priority—to take a moment during this busy holiday season and complete the survey form.

Once we have this baseline information, we will be able to better design a Langley program that will channel resources into the community and offer you a mechanism for sharing your talent.

If you have any questions, feel free to call Marny Skora at extension 43315.

I thank you, in advance, for your willingness to share your time, your talent and your energy.

Dr. H. Lee Beach Jr.
Acting Director

Langley Runners Club Results

Thirty-six Langley employees and contractors took part in the NASA Fall Intercenter Competition's 10K race, and 93 ran in the two-mile event.

Top Langley runners in the 10K race were: **Men** - Bill Rogers, 35:15 minutes; Dale Taft, 35:15; and Erik Kielin, 36:43. **Women** - Jonay Campbell, 50:23; Jan Spangler, 50:45; and Alene Heuser, 51:50. In the two-mile race, top runners were: **Men** - Bill Rogers, 10:34; Erik Kielin, 11:36; John Hoppe, 11:52; and Steve Sudik, 11:52. **Women** - Michelle Calloway, 15:18; Jan Spangler, 16:03; and Jonay Campbell, 16:04.

Just The Fax

Got a fax to send but no way to send it?

Fax machines are available at three locations on Center:

- For work-related business, a fax machine and lead sheets are available in the cafeteria building. See Pat DeWitt in Room 141 of the cafeteria. Her office can also send Western Union telexes and cablegrams.
- For personal business, pay fax machines that take credit cards are located in the cafeteria near the gift shop and in the lounge area of the H.J.E. Reid Conference Center.

News Researcher

The **Researcher News**, an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23681-0001, is published every other Friday in the interest of all Langley staff and retirees. Submit contributions to the Editor, Mail Stop 115, telephone 864-6126. Articles are due at noon the Tuesday following the date of this issue.

Managing Editor ..... Marny Skora
Editor ..... Michael Finneran
Assistant Editor ..... Susan A. Smigielski
Photojournalist ..... Carol Petrachenko
Photographer ..... Fred Jones

The privilege of advertising in this publication is restricted to the employees and retirees of the Langley Research Center. Articles advertised here must be offered without regard to race, color, religion, sex or national origin.

All materials are subject to editing.

AIAA Selects Maglieri As 1993 Engineer Of The Year

Domenic J. Maglieri has been selected to receive the Engineer of the Year Award for 1993 from the American Institute of Aeronautics and Astronautics (AIAA).

The national award, created in 1989, is presented to an AIAA member who has made outstanding contributions in some facet of aerospace engineering.

Sonic boom work

Maglieri is being honored "for outstanding contributions to the fundamental understanding, prediction and control of aircraft noise, and sonic booms; therefore, furthering the design of environmentally acceptable commercial aircraft systems."

The award will be presented at a luncheon Wednesday, February 17, during the AIAA Aerospace Design Conference in Irvine, Calif. The 40,000-member AIAA is the nation's largest and oldest technical society devoted to the progress of science and engineering in aviation and space.

Maglieri has been director of projects for the Hampton Division of Eagle Engineering Inc. since retiring from Langley in 1986 after 35 years of research and management leadership in aircraft noise and sonic boom effects.

He has authored or co-authored more than 150 technical papers on gust loads, airplane and helicopter noise, sonic boom, and subsonic and supersonic transport technology.

Maglieri is internationally recognized for his expertise, and his assistance is sought by both government and industry.

Since the late 1950s, he has been a leader in the planning, implementation and acquisition of sonic boom data on all of the supersonic aircraft and space vehicles, and in the prediction of sonic boom effects for the next generation of high-speed aircraft and aerospace planes.

Maglieri led the Eagle Engineering effort in support of the Nordam Co., in Tulsa, Okla., in the development of "hush kits" for the Pratt & Whitney engine on the Boeing 737 aircraft.

His experience and involvement in aircraft noise-reduction programs played a major role in the attainment of more stringent Federal Aviation Administration noise requirements, which extended the aircraft's operational usefulness for airlines and improved the airport-community noise environment.

Domenic J. Maglieri

Maglieri also was named Engineering of the Year for 1990-91 by the Engineers Club of the Virginia Peninsula.

Board Issues Report On Tether Mission

The report of NASA's Tethered Satellite System Investigative Board has identified causes for four of five problems that prevented full deployment of the satellite on space shuttle mission STS-46.

In its report, the board, chaired by Langley Chief Engineer Darrell Branscome, made recommendations for preventing similar problems.

The board said slack that developed in the tether where it moves between one pulley and another caused two snags during deployment and retrieval: when first releasing the satellite from the deployer and when the satellite was at 735 feet.

"The crew found a way to procedurally get around this slack problem," said Branscome. "In both cases, the jamming was overcome. By itself, this problem would not have prevented us from fully deploying the satellite."

Protruding bolt

NASA had reported on August 28 that the cause of the unplanned stops at 587 and 840 feet was a mechanical obstruction—a protruding bolt—that prevented part of the tether reel mechanism from moving across its full range of travel.

"We contacted the bolt when the satellite was out at 587 feet," Branscome said. "What we learned from our ground simulations was that, in spite of the bolt obstruction, it was possible to pull additional tether off the reel, out to 840 feet.

The report said that the bolt was part of a hardware change made late in the review process and should have been caught in the systems engineering review.

"The board made some excellent recommendations in the report on how to deal with things like late changes to the hardware," said Jeremiah Pearson, associate administrator for Space Flight, who formed the board August 12. The six-member board included representatives from NASA centers and the Italian Space Agency.

"We are going to look carefully at their recommendations and apply the lessons learned from this flight to future missions," Pearson said.

No plausible scenario has been validated by post-flight demonstration regarding difficulty in retracting one of two umbilicals between the tethered satellite and deployer.

Based on its findings, the board recommended several specific hardware assessments and modifications that should be made to other elements of the tethered system if NASA decides to fly it again.

Center Director Is Grand Marshal Of City Parade

When the Hampton Holly Days Parade and Party hits the streets, Center Director Paul F. Holloway will be leading the procession. He is serving as grand marshal of this year's event, which starts at 7 p.m. Saturday, December 5.

Holloway will take the parade from the intersection of Victoria Boulevard and Kecoughtan Road along Settlers Landing Road past the Virginia Air and Space Center. The parade will end at Hampton's city hall.

The parade will feature Santa on a restored antique fire engine, more than 20 illuminated floats, nine bands and an assortment of costumed characters.

Future Of Wilderness Is Topic Of Colloquium

The future of the nation's wilderness will be the topic of the next colloquium series lecture Monday, December 14.

Entitled "America's Wilderness in the 21st Century," the lecture will be given by wilderness writer Chris Madson at 2 p.m. in the H.J.E. Reid Conference Center.

Protection issues

Madson will discuss the history of wilderness protection in Wyoming, the controversies, the changes in mission and the need for aggressive action on behalf of wilderness. The outcome of these issues will shape both the future of the West's most spectacular wildlife species, such as the grizzly bear and the gray wolf, and economic and recreational development in the Rockies. He also will present his lecture at 7:30 p.m. December 14 in the Virginia Air and Space Center as part of The Sigma Series Lectures, which are free public lectures sponsored by the Virginia Air and Space Center and Hampton Roads History Center, the Daily Press and NASA.

Chris Madson

Madson has been editor of Wyoming *Wildlife* magazine since 1983. He has written hundreds of articles on wildlife and wilderness and is the author of the book *When Nature Heals: The Greening of the Rocky Mountain Arsenal.*

He also is a freelance writer and photographer and has received numerous awards from writer and conservation associations. Madson has a bachelor of arts degree in biology with honors from Grinnell College, in Iowa, and a master's degree in wildlife ecology from the University of Wisconsin.

Crime Seminars Planned At Center

Citizens Against Crime will present one-hour seminars entitled "Living Safely in a Dangerous World" at the H.J.E. Reid Conference Center.

Seminars will be Friday, December 4, at 8:30 and 10 a.m. and 1 p.m., and Monday, December 7, at 7 p.m.

Employees, contractors, retirees and family members are invited. The program is sponsored by the Federal Women's Program Committee and the Security Services Branch.

FWP Begins Offering Legislative Information

As a service of the Federal Women's Program, legislative information will be announced quarterly in the **Researcher News** and placed on file in the Technical Library.

The following material is available at the library as a result of this service:

- Names and addresses of state and federal legislators.
- Reapportionment maps and a listing of General Assembly districts in Virginia, plus statistical data.
- A monthly newsletter entitled *Update on Women and Family Issues in Congress,* which is published monthly during congressional sessions.

Langley Research Center
FWP
Federal Women's Program

The newsletter lists bills introduced in Congress, committee action, floor action and pending legislation, plus information on other issues.

Some bills before Congress include:

Child support enforcement - four bills.

Family leave - four bills.

Health - two bills.

Violence against women - three bills.

Welfare - one bill.

Miscellaneous - two bills.

For more information on these items, please contact Gretchen Gottlich at ext. 42303 in the Technical Library.

Air And Space Center To Feature Exhibit, Children's Movie Party

A NASA art exhibit and a children's holiday party are being featured at the Virginia Air and Space Center and Hampton Roads History Center.

Visions of Flight, a NASA art collection, is on display at the center through September 1993. It opened November 10. The collection features some of the most dynamic pieces from NASA's archives and documents the history, excitement and progress of the space program.

NASA has run an art program for more than 25 years, documenting major activities of America's space program. Artists range from traditionalists, such as Paul Calle, Robert McCall and James Wyeth, to moderns Robert Rauschenberg and Lamar Dodd.

Center hours are Monday through Thursday, 10 a.m. to 5 p.m.; Friday, 10 a.m. to 9 p.m.; Saturday, 10 a.m. to 5 p.m.; and Sunday, noon to 5 p.m. For more information, call 727-0900.

Children ages five to 12 can enjoy a holiday movie at the center Saturday, December 5, from 10 a.m. to noon. The event will feature a movie, refreshments and activities.

While their children are taking part in the festivities, parents can shop in the center's gift store and receive a 20 percent discount. Admission to the party is $3 for members, $4 for non-members. For reservations, call 727-0900, ext. 717.

Employee Awards

Frances T. Meissner, mathematician, Analysis and Computation Division (ACD), for exceptional contributions to the overall data management support activities for the Computer Management Branch.

Peggy B. Rollins, computer specialist, ACD, for timely and effective support of the Central Scientific Computing Complex Resource Management System.

Clifford J. Obara, aerospace engineer, Flight Applications Division (FAD), for outstanding technical expertise and leadership in the conduct of the Hybrid Laminar Flow Flight Experiment.

Edward A. Modlin, engineering technician, Flight Electronics Division (FED), for outstanding individual contributions to the spectroscopy and evaluation of solid-state laser materials.

W. Thomas Bundick, electronics engineer, Guidance and Control Division (GCD), for superior performance in providing and documenting significant technical contributions in developing an adaptive failure-detection and identification system for detecting aircraft control-element failures.

Catherine A. Bigelow, aerospace engineer, Materials Division (MD), for the development of innovative models and computer codes for the analysis of metal matrix composites.

Richard W. Barnwell, associate chief, Space Systems Division (SSD), for outstanding contributions to the division in maintaining excellence in research program content and quality publication of research results.

Dana E. Chandonnet, student trainee (clerk stenographer), Systems Engineering Division (SED), for significant contributions and outstanding performance of secretarial co-op duties in support of the Systems Development Branch.

Rose Gaskins, secretary, Director for Space, for outstanding secretarial support, both assigned and assumed, to the Space Directorate office staff.

Jeannette W. George, computer specialist, Business Data Systems Division (BDSD), for exceptional performance and invaluable contributions to the BDSD Computer Security Access System.

Charmaine G. McLean, secretary, MD, for extraordinary secretarial and administrative contributions to the Structures Directorate, MD and the Mechanics of Materials Branch.

Lee T. McIntosh, senior data systems project engineer, Instrument Research Division (IRD), for exceptional effort in the definition of system requirements and the conceptual design of the data systems for the jet exit test facility and 30- by 60-Foot Tunnel.

Arlene S. Levine, program analyst, MD, for exceptional achievement in planning and implementing the dissemination of the Long-Duration Exposure Facility (LDEF) results to the user community.

Thomas S. Gates, aerospace engineer, MD, for the technical leadership of the development of accelerated test methods to characterize the long-term durability of composite materials.

Carolyn C. Eby, branch secretary, Information Systems Division (ISD), for continued superior secretarial and administrative support to the AGARD Lecture Series area coordinator, and for her excellent arrangements for the American Institute of Aeronautics and Astronautics (AIAA) Computer Systems Technical Committee Meeting sponsored by NASA Langley.

Cynthia A. Wyatt, secretary, Space Exploration Initiative Office (SEIO), for exceptional service in training a new part-time secretary while maintaining high productivity.

Peter W. Lewis, senior structural analyst, Facilities Engineering Division (FEngD), for sustained high performance for the structural analysis of the complex and unique Langley research facilities.

William S. Small, electrical engineering technician, Operations Support Division (OSD), for excellence in support of structures research.

Vincent J. Fleck Jr., aerospace technologist, FEngD, for completing the highly successful seeder design for the 20-Inch Mach 6 Tunnel in a professional and timely manner.

Hsu Shaio-Shan Branham, electrical engineering technician, OSD, for excellence in support of Structures Directorate research projects.

Ken K. Tedjojuwono, electronics research engineer, IRD, for significant contributions to the high-temperature fiber optics development program.

Tony L. Trexler, supervisory aerospace engineering technician, FAD, for leadership in the performance of the duties of facility safety head and contributions in furtherance of the goals and objectives of the safety program.

Guy T. Kemmerly, aerospace engineer, Applied Aerodynamics Division (AAD), for outstanding performance as the Subsonic Aerodynamics Branch focal point for experimental and computational research in support of the high-lift element of the High-Speed Research Program.

Kenneth M. Jones, aerospace engineer, AAD, for sustained performance as the leader of the Applied Computational Group, which has had a major impact on the computational research of the Subsonic Aerodynamics Branch.

Farhad Ghaffari, aerospace engineer, AAD, for outstanding accomplishment in correlating computational predictions of the F/A-18 aircraft flow field with wind tunnel and flight data.

Tamara L. Croom, secretary, AAD, for outstanding efforts toward efficient development, integration and implementation of NASA and Army time and attendance standards associated with the variable day schedule for the Subsonic Aerodynamics Branch.

Troy M. Brown, clerk, IRD, for outstanding clerical and secretarial contributions to the Aerodynamic and Thermodynamic Measurements Branch.

Cuyler W. Brooks Jr., facility safety head, AAD, for continued outstanding performance and promoting the safe and efficient operation of the 8-Foot Transonic Pressure Tunnel.

Edward E. Adcock, apprentice technician, IRD, for outstanding contributions in the accomplishment of flow instrumentation consultation and the design of flow measurements systems.

Michael Mitchell, electronics engineer, IRD, for outstanding contributions in the design, development and application of ESP systems in nine research facilities.

Velma L. Clark, branch secretary, Projects Division (PD), for successful personal commitment to, and outstanding implementation of, Total Quality Management within her sphere of influence as secretary of the Projects Control Branch.

Dan D. Vicroy, research engineer, Flight Management Division (FltMD), for outstanding service as technical chairman of the Fourth Airborne Wind Shear Conference and as leader of an effort to network the branch's personal computers.

Mark A. Hutchinson, electronics engineer, IRD, for outstanding contributions in the design, development and application of ESP systems in nine research facilities.

Patricia R. Whitehead, secretary, Director for Aeronautics, for contributions to the implementation of the Aeronautics Directorate Strategic Planning and RTOP Automation Project.

Jo Ann H. Woodcock, secretary, ISD, for superior performance in developing an improved time-and-attendance input system for the division office.

Sharyn M. Hilstrom, contract specialist, Advanced Vehicles Division (AVD), for exceptional support to the Advanced Aircraft Program in providing expert and efficient contractual management.

James O. Johnson, aerospace engineer technician, FAD, for exceptional performance of support duties on the UH-1H.

Sally C. Johnson, researcher, ISD, for producing a highly successful workshop in support of formal methods research.

Sandra G. Johnson, half-time secretary, ISD, for providing special support for the introduction of EPRS and TADS to SVMB.

N. Scott Higdon, electronics engineer, Atmospheric Sciences Division (ASD), for outstanding efforts in the development of airborne differential absorption lidar systems and the plans for their safe operation and application.

Alicia G. Allen, secretary, ISD, for significant contributions in support of the Automation Technology Branch and special support for Formal Methods Workshop.

Jose M. Alvarez, principal investigator, ASD, for leadership and dedication in highly successful lidar studies of cirrus clouds during FIRE Intensive Field and Extended Time Operations.

Robert B. Askew, lead engineering technician, OSD, for exceptional technical skill and innovative support to data system upgrades in the 14- by 22-Foot Subsonic Tunnel.

Bruce R. Barkstrom, aerospace technologist, climate and radiation studies, ASD, for outstanding leadership in developing the methodology and documentation requirements for creating the CERES data processing system.

John D. W. Barrick, co-principal investigator, ASD, for outstanding contributions in the development and application of Langley TAMMS for regional airborne measurements of trace gas emissions.

T. Dale Bess, aerospace technologist, climate and radiation studies, ASD, for major contributions to earth radiation budget research through the analysis of satellite data sets.

Calvin C. Chandler, supervisory aerospace engineering technician, FAD, for outstanding support of the 75th Anniversary celebration on July 17.

Sherman A. Clevenson, aerospace engineer, Acoustics Division (AcoD), for planning and implementation of improvements to the Thermal Acoustic Fatigue Apparatus.

Wesley R. Cofer III, senior research scientist, ASD, for outstanding contributions to the measurement of emissions from global biomass burning.

Monica L. Cooper, secretary, FEngD, for exceptional service in the management of Specifications and Contract Coordination Office's clerical work and for the management of the RFC and submittal process.

People & Places

Employee Awards

Joan Y. Crepps, contract specialist, ACD, for outstanding contributions in the development of a contract for the supercomputer expansion.

Michelle T. Ferebee, computer engineer, ASD, for outstanding management of the ERBE optical disk data archiving systems leading to completion of all ERBE scanner data distribution.

Robert A. Golub, senior researcher and manager, AcoD, for outstanding leadership in developing an improved noise prediction code for high-speed civil transports.

Robert E. Grandle, data systems manager, AcoD, for outstanding support of division and center computer systems.

William D. Harvey, aerospace engineer, AVD, for exceptional performance in managing studies to identify major transportation capacity issues that could benefit from NASA research.

Sam A. Harvey, security specialist, AVD, for exceptional support to the Advanced Aircraft Program in providing expert and efficient security management.

Jay C. Hardin, chief scientist, AcoD, for outstanding technical leadership and mentoring support for members of the division.

Kenneth V. Haggard, data reduction manager, ASD, for outstanding contributions to the successful production of HALOE science data.

William Jason Healy Jr., engineering technician apprentice, OSD, for exceptional technical and dedicated support to research conducted in the Low Turbulence Pressure Tunnel.

John B. Anders Jr., aerospace engineer, Fluid Mechanics Division (FldMD), for outstanding technical and managerial leadership of the Heavy Gas Program.

Philip R. Young, senior analytical chemist, MD, for advancing NASA's goal to develop the full potential of advanced composite materials through in-situ cure monitoring of polymer chemistry using optical fibers, as reported in the paper that won the division's 1992 Best Paper Competition.

Matthew M. Winston, aerospace engineer, AVD, for superior management of the Douglas contract and his responsiveness to the HSR team.

Julia H. Whitehead, research engineer, FAD, for excellent performance and technical contributions to the Federal Aviation Administration (FAA) Aging Aircraft Loads Measurement Program.

Carroll W. Rowland, electronics technician, FED, for leadership and technical contributions to the Lidar In-space Technology Experiment optics and detector development efforts.

David E. Reubush, National Aero-Space Plane (NASP) Office, for outstanding support to the NASP office in the management of hypersonic technology.

Barbara H. Pitts, systems manager, FldMD, for continued outstanding service to the Experimental Flow Physics Branch as computer systems manager, programmer and property custodian.

Lawrence D. Huebner, senior research engineer, AAD, for outstanding performance in leading, managing and conducting research for the NASP program government work package number 5.

Daniel J. DiCarlo, senior research engineer, FAD, for outstanding leadership and coordination of the ANSER Flight Experiment hardware.

Richard E. Davis, electronics engineer, FED, for outstanding individual contributions to the high-resolution modeling of atmospheric interactions of solid-state lasers for remote sensing.

William A. Corlett, operations manager, AAD, for outstanding performance locating, identifying, cataloging and storing wind tunnel models previously tested in the Unitary Plan Wind Tunnel.

W. Frank Staylor, aerospace technologist, climate and radiation studies, ASD, for outstanding contributions to the development of a method for accurately estimating global short-wave radiation budget for climate studies.

W. Stephen Syrett Jr., electrical engineer, FEngD, for exceptional dedication in the management of the control systems upgrade for modifications to the National Transonic Facility for Productivity (FY 90).

Linda S. Warren, computer engineer, ASD, for outstanding leadership of the SOLCON team leading to excellent solar data acquisition results during the ATLAS-1 shuttle mission.

Richard T. Wheeler, engineering technician, OSD, for exceptional technical performance and contributions to the X-31 Drop Model Program.

Charles H. Whitlock, aerospace technologist, climate and radiation studies, ASD, for outstanding contributions to the measurement and estimation of the global surface radiation budget for climate studies.

Ann W. Wilson, photographic control assistant, Research Information and Applications Division (RIAD), for exceptional service in planning and implementing the computerized budget tracking system.

David M. Winker, aerospace technologist, climate and radiation studies, ASD, for outstanding efforts in the development of methodologies for collection, processing, validation and archival of data for the Lidar In-Space Technology Experiment.

Sylvia B. Blair, travel specialist, Travel Section, for exceptional performance and dedication to the Electronics Directorate's travelers.

G. Sharon Fairheart, staff assistant, Director for Electronics, for dedication and professionalism in the administrative management of the directorate.

George B. Finelli, supervisory electronics engineer, ISD, for contributions to the formulation of the FAA software certification standard.

Whitney C. Harris, secretary, FED, for outstanding individual contributions to the Sensor Systems Branch in implementing the FED reorganization.

Tammy L. Spellman, secretary, Director for Electronics, for the exemplary performance of office management and the renovation of the directorate office suite.

Linda R. Smith, secretary, Director for Electronics, for dedication and professionalism in pursuit of secretarial excellence for the directorate office.

Tammie A. Bonser, secretarial co-op, AAD, for outstanding secretarial support to the High-Reynolds-Number Aerodynamics Branch.

Charles S. Bryant, senior data systems project engineer, IRD, for exceptional leadership in the conceptual design of the Scramjet and 14- by 22- Foot Facility data systems and as blue team leader for data systems strategic planning.

Richard E. Campbell, electronics engineer, FED, for outstanding individual contributions to the management of the development and testing of LASE Titanium Sapphire Laser Subsystem.

Clayton Bair, Senior Scientist, Sensor Technology Branch

IN MEMORIAM

Clayton Harvey Bair, 45, died October 28 from a heart attack. He worked in the Sensor Technology Branch, Flight Electronics Division. Bair, who joined NASA as a co-op in 1966, "devoted his career to the study of the Earth's atmosphere," said William E. Miller, head of the Sensor Technology Branch. "Clay made important original contributions in the areas of high-resolution spectroscopy of atmospheric molecules and their transport. As a mentor, Clay gave unsparingly of his time to summer students, graduate students, co-ops and young NASA researchers."

Bair's work used passive and active laser techniques, including heterodyne spectroscopy, differential absorption lidar and Doppler lidar. In the last several years, Bair concentrated on developing narrow-line, solid-state lasers for atmospheric remote sensing. His contributions to the first injection-seeded titanium sapphire laser led to the use of this laser on the ER-2 research aircraft during the Lidar Atmospheric Sensing Experiment.

Most recently, he was developing eye-safe, diode laser pumped, solid-state laser systems for atmospheric measurements from space.

Dave Jones

Dave Jones died Friday, October 16. He retired from the West Machine Shop in January 1980 after 32 years of service.

AIAA Opens Competition

A paper competition to recognize on-the-job technical accomplishments of members under 35 years old is being sponsored by the Young Professionals Committee of the Hampton Roads Section, American Institute of Aeronautics and Astronautics (AIAA).

Members may submit one first-author paper that has been published or accepted for publication in an archival and refereed publication. The paper must have been originally submitted while a professional member. Papers received by January 15 will be judged for technical content and style by an independent committee.

The winner will be picked in April and honored at a banquet in May. Applicants should submit three reprints or three copies of the manuscript and a copy of the acceptance letter and author information, including age and membership number, to Elizabeth M. Lee, NASA Langley Research Center, Mail Stop 173, Hampton, Va. 23681-0001. Call 864-2269 for more information.

Leave Transfer Recipients

The following employees are approved recipients in the Voluntary Leave Transfer Program: Harriett M. Berkley, Monica L. Cooper, Bette L. Duncan, Francine W. Guthrie, Elizabeth R. Mustain, John P. Stack, Cassandra D. Stevens, Noel A. Talcott Jr., Carol C. Winbush, Belle L. Wood and Darrell A. Wood.

The Voluntary Leave Transfer Program is designed to permit employees to donate annual leave to other employees with personal or family medical emergencies.

Employees who wish to donate annual leave to these recipients, or want more information about the program, should call Linda Park, Employee Relations Office, ext. 42610.

CAPSULE:

Continued from Page 1

sculpture" built by Fabrication Division apprentices. As part of the ceremony, a brass dedication cover—also cast at Langley—will be installed above the capsule chamber.

Site construction management is being handled by the Operations Support Division.

The capsule will include items representative of Langley research activities, 75th Anniversary events and memorabilia, personnel, general institutional documents and several models and instruments.

Many of the items are being included as the result of suggestions solicited from Langley personnel. Final decisions about the contents were made by historical program coordinator Richard Layman and a working group appointed by each directorate. A list of contents will be available after December 17.

Happenings

OLD-TIMERS COFFEE: December 19 at 9 a.m. in Building 1244 (the hangar), mechanic's break room.

CALL FOR PAPERS: The 2nd International Symposium on Magnetic Suspension Technology will be held in Seattle, Wash., August 11 through 13. March 1 is the deadline for submission of one-page abstracts. For more information, contact Gin Marks at ext. 41714 or Mail Stop 479.

FOR SALE: King-size bed, padded headboard with matching comforter and shams, mattress and box springs, $100. Tyco HO 4- by 8-foot train board with track, trestle bridge, trestle switches, two locomotives and six freight cars, $50. Call 851-0552.

HOUSE FOR RENT: In Yorktown's Running Man subdivision, a 3-bedroom, 2-bath house with refrigerator, stove, gas fireplace, washer/dryer, Jacuzzi, large deck and garage. Five minutes from Langley. Lease and deposit required. Rent $900 per month. Available from December 1 to July 31. Call Pater at 723-7742 before 5 p.m. and at 827-1124 after 5 p.m.

LAA SOCIAL: Will be held December 4 from 4 to 6:30 p.m. in the H.J.E. Reid Conference Center. On December 18, a Holiday Open House will be held from 3:30 to 8 p.m. Entertainment will be announced. There will be no cover charge.

DISCOVER CUONG-NHU: Oriental martial arts with the Langley Karate Club. Classes are held at the gym Mondays and Wednesdays, 5 to 7 p.m. New students will be accepted through November 25. Enrollment is open to NASA civil servants, contractors and immediate families. The cost is $6 per month. Stop at the gym during class, ask for Roy Albang, or call 596-7736 between 7 and 10 p.m.

AEROBICS WITH MUSCLE: Join the bench and low-impact classes that focus on toning legs, hips and buttocks. Abdominal work every class. Equipment provided. Classes are Tuesdays and Thursdays from 5 to 6 p.m. and Saturdays from 9:30 to 10:30 a.m. in the gym. The classes are open to all employees, contractors and their families. For more information, call ext. 42295.

CAR FOR SALE: 1988 Ford Escort "Pony," a 2-door hatchback with automatic transmission, new starter, battery and brakes. Red with 51,000 miles, in excellent condition. Asking $2,400. Call 851-8680.

TOWNHOUSE FOR SALE: Near NASA, Summer Place, 1,150 square feet, 2 bedrooms, 1½ baths, eat-in kitchen, den area with fireplace, living room, central air, privacy fenced backyard, all appliances, $64,800. Call 693-5053 (Gloucester).

FREE AEROBICS: Get energized with NASA aerobics! Open to all employees and contractors. Low-impact with interval weight training classes in the LAA gym. Body Dynamics are held Monday, Wednesday and Friday from 6:15 to 7:15 a.m. Lunchtime Energizer is held from 11 to 11:45 a.m. For more information, call ext. 46387.

TOASTMASTERS: The club will meet December 9 in Building 1222 from 11:30 a.m. to 1 p.m.

EARLY CHRISTMAS PRESENT: From the LAA Aerobics Club. Join through December and receive one month free for you, a family member or friend. Low-impact, step classes and toning with free-weights and steps provided. Call ext. 42295 for information.

FOR SALE: Antique Victorian walnut bedroom suit from the 1800s. Dresser, wash stand, 6-foot bed, mattress and box springs, $1,500. Call 826-6994.

PUPPIES: Chow chow puppies, three black and two rare blues, are for sale. Call 877-2186.

PRIVATE TUTORING: All grade levels, experienced and degreed. References available. Call 723-6932.

HOUSE FOR RENT: In Riverdale, on small creek, 10 minutes from Langley, brick rancher, 3 bedrooms, 1½ baths, living room with fireplace, dining room, eat-in kitchen, den, garage, patio, large corner lot with fruit trees, central air, gas heat, refrigerator and dishwasher. Lease and pet deposit required, $695 per month. Available on December 1. Call 868-6453.

COLLOQUIUM SCHEDULE

The Langley Colloquium Series sponsors lectures from noted speakers, followed by questions and discussion, at 2 p.m. every month in the H.J.E. Reid Conference Center. The following is a schedule of coming colloquiums:

January 19: Lou Williams, "High-Speed Civil Transport."

February to be determined.

March 8: John Christman, "Serendipity—Luck in Science."

Researcher News

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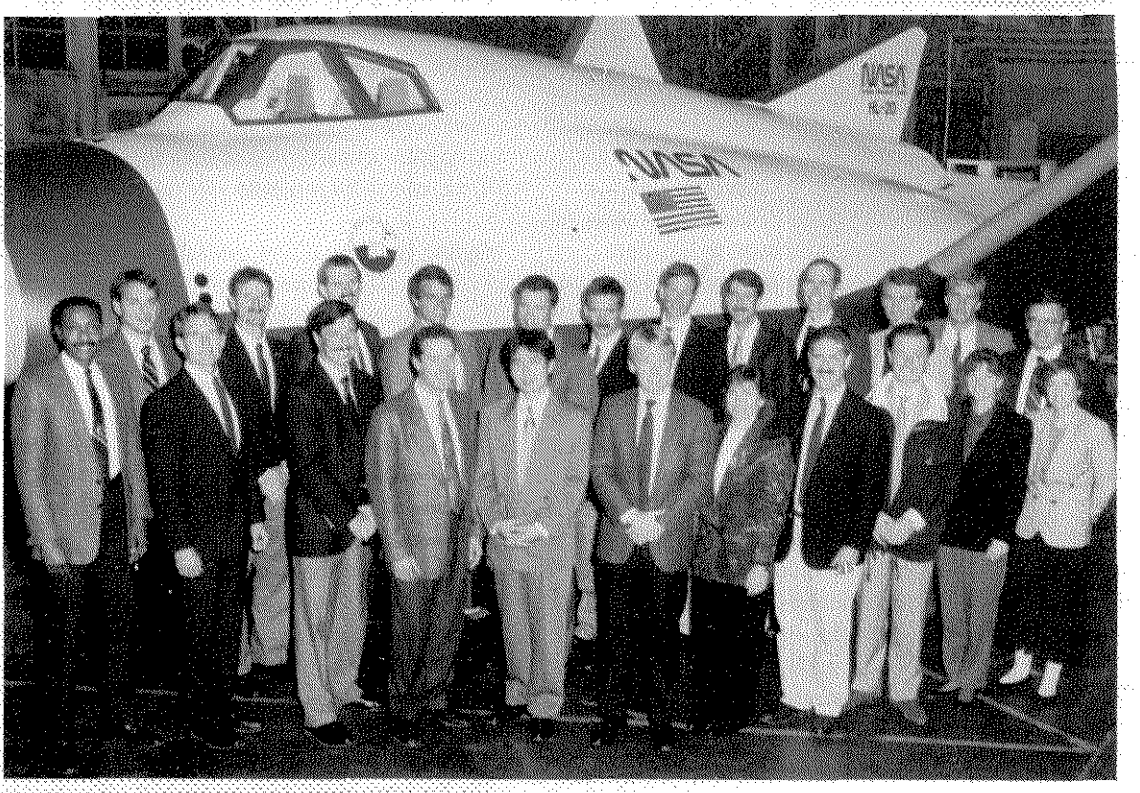


Photos by Fred Jones

Astronaut candidates toured Langley on November 17, beginning with lunch in the cafeteria and ending with a photo in front of the HL-20 "space taxi" in the hangar, above. Front row, from left: Cmdr. Winston E. Scott; Cmdr. Jerry M. Linenger; Capt. Scott J. Horowitz; Jean-Francois Clervoy; Koichi Wakata; Dr. Andrew S.W. Thomas; Dr. Mary Ellen Weber; Dr. John M. Grunsfeld; Maurizo Cheli; Capt. Catherine G. Coleman; and Lt. Cmdr. Wendy B. Lawrence. Back row, from left: Dr. Richard M. Linnehan; Joseph R. Tanner; Steven L. Smith; Kevin R. Kregel; Lt. Cmdr. Michael E. Lopez-Alegria; Chris Hadfield; Dr. Michael Gernhardt; Lt. Cmdr. Kent V. Rominger; Dr. Daniel T. Barry; Lt. Cmdr. Brent W. Jett; Dr. Scott E. Parazynski; and Dr. Marc Garneau. At right, from left: Coleman, Jett, John Tanner and Garneau examine a shuttle tire at the Landing and Impact Dynamics Branch, which Tanner heads.

1917 - 1992
75 Years
NACA
NASA
Langley Research Center

Researcher News

Bi-weekly Employee and Contractor Publication

Volume 6 ❖ Issue 24 ❖ December 18, 1992

Struhar Named Comptroller

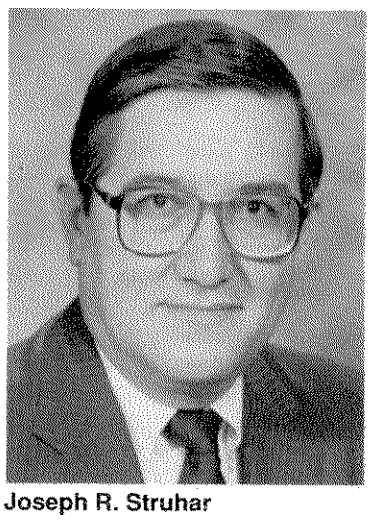
PRD Chief Fills A New Position

Joseph R. Struhar has been named comptroller, a new position that reports to the Center director.

Creation of the Senior Executive Service position fulfills a recent requirement that each center have a comptroller. Struhar assumed his new duties effective December 14. The appointment requires approval of the Office of Management and Budget.

Struhar had been chief of the Programs and Resources Division since June 1990. Organizational responsibility for that division, and for the Financial Management Division, have been transferred to the comptroller.

Struhar began his Langley career in August 1960 as a staff accountant. In 1965, he was named head of the Appropriation Accounting Section. He became assistant head of the Accounting Branch in 1966 and head in 1970. Struhar was named assistant chief of the Financial Management Division in 1973 and chief in 1981.



Joseph R. Struhar

He has a bachelor of science degree in business administration from Duquesne University and a master of science degree in business administration from The College of William and Mary.

Struhar received a NASA Exceptional Service Medal in 1988 and is a member and past president of the Association of Government Accountants.

Past Year Was A Special One At Langley

Anniversary Celebration, Aerospace Advances Mark 1992

Holiday Message

As 1992 draws to a close, we join the senior staff to wish you and your family the very best during this holiday season.

It has been a special year here at Langley, and what better time to look back upon our accomplishments than now, as our 75th Anniversary ends and 1993 approaches. Langley's anniversary has given us all the chance to reflect on our humble beginnings in 1917 and to trace our progress from the dawn of flight to the space age.

We have much to be proud of. In the past year, we saw the successful checkout of the 8-Foot High-Temperature Tunnel at Mach 7. The National Transonic Facility is operational and getting good data. We successfully completed the first phase of our Advanced Composites Technology program. We have continued to make progress toward a High-Speed Civil Transport. Our windshear sensors program completed its flight-test phase with excellent results. For the first time, we demonstrated in flight that significant amounts of laminar flow are achievable on commercial transport engine nacelles.

And years of hard work paid off with the opening, in April, of the Virginia Air and Space Center and Hampton Roads History Center, which showcases Langley's many contributions to aviation and space research.

In space, Langley's truss-joint hardware not only performed as expected, it helped with the unexpected when it served as part of a platform used to snare the Intelsat-IV satellite in May.

Langley also continued to pioneer the understanding of the Earth's atmosphere with the Airborne Arctic Stratospheric Expedition, the Lidar Atmospheric Sensing Experiment, the Pacific Exploratory Mission, a study of Mount Pinatubo's eruption and development of the Lidar In-Space Technology Experiment, which is scheduled to be shipped to Kennedy in mid-1993.

Thank you all for your tremendous efforts over the last year. Now we look forward to the new year—and we are confident we will meet its challenges with the combination of spirit, dedication and excellence that long has been the Langley hallmark.

Best wishes.

Paul Holloway
Director

Lee Beach
Deputy Director

Sid Pauls
Associate Director

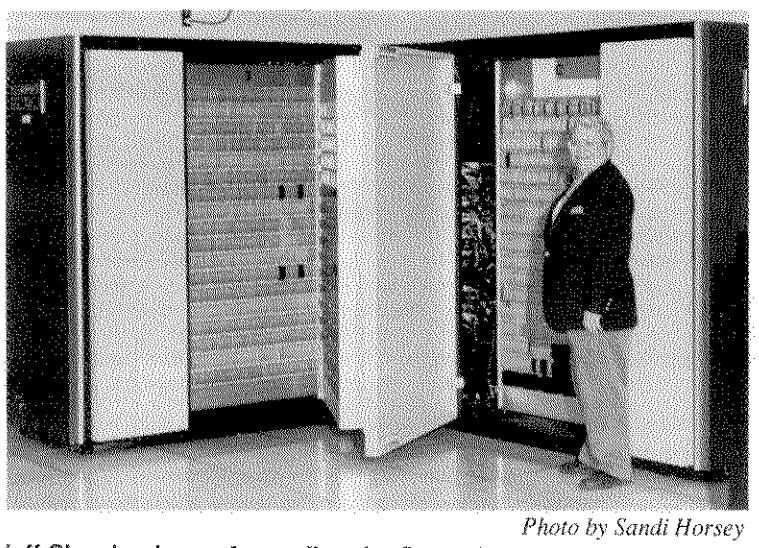


Photo by Sandi Horsey

Jeff Cleveland says farewell to the Control Data Cyber 170 series model 175 during a decommissioning ceremony last month.

"R" Is Retired After 16 Years Of Flight Simulation Service

A powerful computer known affectionately as "R" has been put out to pasture after 16 years of service—an eternity in the quickly changing computing world.

The Control Data Cyber 170 series model 175 was decommissioned November 20 at a ceremony that featured speeches and poems lauding the aged machine.

The computer had been used by the Analysis and Computation Division (ACD) for real-time flight simulation and analytical batch processing.

The batch computations ranged from small jobs of a few seconds to extremely complex work requiring many machine hours per run.

The flight simulation applications were run concurrently, with each job typically requiring a full set of complex aerodynamic computations repeated over 30 times each second.

The "R" machine was put into service in 1976 along with a similar computer called "T" that was retired in June. They are being replaced by a Convex C3230 "Agena" and a Convex C3850 supercomputer "Gemini."

The new system is about 20 times faster than the old one, with about 100 times more memory, said Jeff Cleveland, of ACD's Computer Systems Branch.

"R" is being sold for parts, Cleveland added. "It cost us three million bucks," he said, "and we're selling it for $3,000."

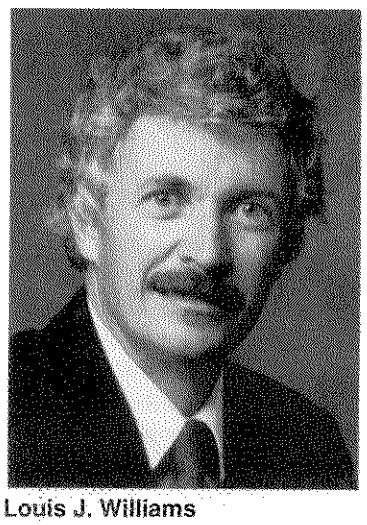
High-Speed Jet Topic Of January Colloquium

Demand Growing But Technology Presents Challenge

Development of a supersonic airliner aimed at filling the rapidly growing long-haul air travel market will be outlined in a Colloquium Series lecture Tuesday, January 19.

The presentation, open to NASA employees, contractors and retirees, begins at 2 p.m. in the H.J.E. Reid Conference Center, 14 Langley Blvd.

Louis J. Williams, director of High-Speed Research at NASA Headquarters, will present the lecture. The session will include a question-and-answer period and discussion.



Louis J. Williams

Lucrative market

Air traffic assessments have indicated a substantial market for a High-Speed Civil Transport (HSCT) to satisfy the rapidly growing demand for long-haul air travel, particularly across the Pacific Ocean. Capturing this market is worth about $200 billion in sales and 140,000 new jobs.

Experts anticipate the development of a supersonic transport shortly after the turn of the century. According to Williams, studies indicate that an environmentally compatible and economically viable HSCT may be feasible. But developing the required technology, Williams said, represents an extremely difficult challenge.

Prior to Williams' current assignment, he was director of the Aerodynamics Division at NASA Headquarters and assistant director for Aeronautics (General Aviation and Transport Aircraft) during the development of the High-Speed Research and Wind Tunnel Revitalization programs.

Before moving to headquarters in 1986, Williams was head of the Subsonic Aerodynamics Branch at Langley. Prior to coming to Langley in 1980, he was chief of the V/STOL Systems Branch at Ames Research Center.

Williams has a master of science degree in aeronautics and astronautics from the University of Washington.

New Policy Eliminates Color-Coded Badges

New and replacement NASA identification badges are being issued with a white photograph background instead of the familiar blue for "confidential" and red for "secret."

The red and blue backgrounds, which have no functional use, have been eliminated by a NASA-wide policy change. As a result, new clearance verification procedures have been implemented.

On-site civil service clearance verifications will be accomplished by each organization's administrative staff. For that purpose, a personnel security clearance roster is provided monthly by the Security Office to each time and attendance clerk.

Clearances may also be verified by the Security Office, ext. 43426, during day-shift hours, and by the security dispatcher, ext. 45500, during evening, weekend and holiday hours. As security clearance status changes occur each month, clearance verification is necessary to avoid inadvertent disclosure of classified information.

Clearance verification for personnel from other NASA centers must be accomplished by contacting the Security Office, ext. 43426.

News Briefs

AROUND THE AGENCY

HUBBLE REVEALS MORE MYSTERIES OF THE UNIVERSE — The Hubble Space Telescope (HST) has provided scientists with a look at two space objects: a chain of luminous knots in the core of the most distant known galaxy, and a disk of material that surrounds and is being pulled into a suspected black hole. The luminous knots are in a galaxy that existed in the infancy of the universe, more than 10 billion light years from Earth. One theory is that the knots are giant clusters of stars. Another is that they are gas or dust clouds caught in a "searchlight" beam of energy from a massive black hole. The disk of material viewed by Hubble has been seen before, but this was the best look yet. Scientists say the disk's nucleus probably is the home of a black hole with a mass 10 million times that of the sun. The disk is at the core of a galaxy in the Virgo Cluster 45 million light years from Earth.

MANAGEMENT CHANGES MADE TO SPACE STATION — NASA plans to consolidate some management functions for the Space Station Freedom program and create a contractor-led integration team to ensure the successful building and deployment of the international space station. As part of the plan, the Level I (NASA Headquarters) and Level II (Reston) offices will be combined, with Reston remaining the focal point. The agency also is working toward establishing a Joint Vehicle Integration Team (JVIT) at Johnson Space Center that will be staffed by the three space station prime contractors. NASA will manage the contract. Richard Kohrs will continue as director of Space Station Freedom and will be located at Reston. The deputy director for Program and Operations will be transitioned to Johnson.

COMPUTERS TO HELP SOLVE PROPULSION CHALLENGES — An array of powerful, interconnected computers will help NASA solve some of the complex problems associated with designing aircraft propulsion systems. The Lewis Advanced Clubs Environment (LACE) system at Lewis Research Center, Cleveland, Ohio, is a network of 33 IBM RISC/6000 stand-alone computer workstations that can be set up for both distributed and parallel computing. LACE can perform up to one billion floating point operations per second and has three billion bytes of memory, making it the world's most powerful IBM workstation cluster.

***NASA MAGAZINE* SEEKS CONTRIBUTIONS** — The agency's quarterly magazine is seeking contributions for its "As I See It" column and "Off Hours" section. For "As I See It," submissions should be personal and try to hit on issues with which other employees might identify. Length is three double-spaced pages. Accepted submissions are subject to editing. "Off Hours," which is written by the magazine, profiles NASA individuals involved in interesting after-work activities. Could that be you or someone you know? Call the editor, Beth Schmid, at (202) 358-1768.

Spacewalk Set For STS-54 In January

With just over three years left before construction of Space Station Freedom begins in Earth orbit, NASA has decided to add spacewalks to upcoming shuttle flights when possible, beginning with one during STS-54 in January.

The spacewalks, or extravehicular activities (EVAs), will fine-tune the methods of training astronauts for assembly tasks in space and raise the spacewalk experience levels of astronauts, ground controllers and instructors.

EVAs will be added to shuttle missions only when they can be performed with no impact on the other objectives. They will be the lowest priority on each mission.

For STS-54, scheduled for launch January 13, astronauts Greg Harbaugh and Mario Runco Jr. will perform a five-hour spacewalk to evaluate their ability to move around Endeavour's cargo bay with and without large objects; closely align large objects; and install equipment. The tests also will provide information on the time required for various tasks and for the astronauts to become acclimated to the spacewalk environment.

STS-54 is the only shuttle flight to have a spacewalk officially added as part of the new tests. However, several other 1993 shuttle flights are being studied as candidates for spacewalks.

Viking Continues To Pay Off With Photos Of 'Marsquakes'

Viking Orbiter photos of Mars indicate that the red planet once was very active tectonically and may still be shaken by quakes daily, according to a paper in the journal *Science*.

About two marsquakes of magnitude 5 or greater, and about 100 of magnitude 3 or more, occur yearly, the paper said.

"That is a promising prospect for seismological investigations on future missions to Mars," said Dr. Matthew Golombek of the Jet Propulsion Laboratory (JPL) and one of the paper's authors.

Golombek is project scientist for the Mars Environmental Survey (MESUR) project, which would place a network of landers, each with a seismometer, on the Martian surface. Four would be sent in 1999, four in 2001 and eight in 2003.

A precursor mission called MESUR Pathfinder is under study as part of NASA's proposed Discovery Program of small, low-cost planetary missions. MESUR Pathfinder would place a lander on Mars with a robotic rover deploying, among other instruments, a seismometer as early as 1996.

The Viking project, which put two landers on Mars in 1976, was managed by Langley until 1978, when JPL assumed the task.

Speakers Bureau Report

The following Langley representatives recently made public-speaking appearances in October and November:

Dr. Pat McCormick delivered a commencement address entitled "Don't Give Up" at the Federal Executive Institute in Charlottesville.

Brian Pritchard discussed the Space Exploration Initiative at the Virginia Power Co. in Norfolk.

Ian MacConochie discussed developing mass properties for the HL-20 at a meeting of the Hampton Roads Chapter of the Society of Allied Weight Engineers.

Dr. Joel Levine gave a talk entitled "A Planet at Risk" at the Sloan School of Management at the Massachusetts Institute of Technology; at Langley's Technical Library; and at the annual meeting of the Virginia Association of Science Teachers in Richmond.

Dr. Roger Breckenridge discussed Space Station Freedom at a meeting of the Naval Helicopter Association.

Weldon Staton discussed NASA careers at the Davis Middle School in Hampton.

Keith Norwood discussed NASA careers at a meeting of Bruton High School's CHROME Club.

A.B. Blair Jr. discussed space shuttle operations at the Southern Middle School in Burlington, N.C.

Thanks For Kindness, Support During Daughter's Treatment

LETTERS

Noel A. Talcott Jr. writes:

My wife Nancy and I would like to again thank those of you who kept us in your thoughts and prayers during the year.

Over the course of the past year, we have seen significant changes in our daughter Natalie's behavior, skill levels and her awareness of her surroundings. Natalie's doctors have evaluated her and agree she is following the natural course for children with Sanfilippo disease. It is unlikely that the bone marrow transplant is supplying the missing enzyme to her brain (or not in sufficient quantity) to halt the neurological progression of the disease.

Natalie is participating in a study to use Thalidomide for the treatment of graft versus host disease. She has been on the medication for four months and her liver enzyme levels have shown significant improvement. Thalidomide treatment offers the possibility of eliminating some or all Natalie's immunosuppressing drugs and their corresponding side effects.

We hope to start weaning her medications after the first of the year. Natalie attends a special school in Hampton. The classroom setting and instructors are just great, and the can address her special needs. She really enjoys going to school.

We appreciate all of your cards and letters, especially the ones for Natalie. I am also grateful to those who donated leave so that I could be with Nancy and Natalie as required through this ordeal.

Red Cross Caps 75th

Like Langley, the Red Cross celebrated 75 years of service in 1992. Here, William C. Woods gives blood during a Red Cross Bloodmobile drive at the Center.

Red Cross Bloodmobile Report

The Red Cross Bloodmobile in November received donations from 266 people at Langley, including first-time donors **Richard Morgan, Patrick Bauer, Jeffrey Scaton, Crystal Fenn and Clinton J. Reese.**

The following personnel have donated two or more gallons of blood: **James J. Fay,** 21 gallons; **Billy B. Dancy,** 19 gallons; **Charles M. Hudson,** 17 gallons; **Victor Delnore,** 14 gallons; **John B. Kovton** and **Robert F. Berry Jr.,** 13 gallons; **Harry H. Heyson,** 12 gallons; **John Crosby** and **Marcella Hogge,** 10 gallons; **Walter Wade,** 9 gallons; **Lemuel Meetze,** 9 gallons; **Cadd T. Moore III,** 7 gallons; **Clemans A. Powell** and **David E. Terray,** 6 gallons; **Jimmy Case** and **Patricia P. Davis,** 5 gallons; **John W. Hopkins Jr.,** 4 gallons; **Cornelius O'Connor, Donald G. Bowen, Gregory S. Hogge, James B. Hallissy** and **Mark W. Tryke,** 3 gallons; **Thomas W. Hall, William R. Rosch** and **Keith Woodman,** 2 gallons.

IN MEMORIAM

Clifton W. Skoch, 70, died Wednesday, November 18. Skoch retired in 1974 after 27 years of service at Langley.

News Researcher

The **Researcher News,** an official publication of the Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23681-0001, is published every other Friday in the interest of all Langley staff and retirees. Submit contributions to the Editor, Mail Stop 115, telephone 864-6126. Articles are due at noon the Tuesday following the date of this issue.

Managing Editor ..... Marny Skora

Editor ..... Michael Finneran

Assistant Editor ..... Susan A. Smigielski

Photojournalist ..... Carol Petrachenko

Photographer ..... Fred Jones

The privilege of advertising in this publication is restricted to the employees and retirees of the Langley Research Center. Articles advertised here must be offered without regard to race, color, religion, sex or national origin.

All materials are subject to editing.

Langley Receives CFC Award

Photo courtesy Fort Monroe

Dr. Belinda Adams, Langley 1992-93 Combined Federal Campaign (CFC) chairwoman, accepts a CFC award from Gen. Frederick M. Franks Jr., honorary chairman, Peninsula CFC. Langley was named an All-Star Humanitarian Organization for exceeding its goal of $305,000. Adams accepted the award on behalf of Center Director Paul F. Holloway.

VASC Seeks Docents, Plans Tours

The Virginia Air and Space Center and Hampton Roads History Center is recruiting for its next docent class, which will begin January 25. Training, which takes place at the center, is scheduled as follows:

- Weekday docents, 9:30 a.m. to 3 p.m. January 25 through February 13.
- Weekend docents, 9:30 a.m. to 3 p.m. January 30 and February 6, 13, 20 and 27.

For more information, or to obtain an application, call the Public Programs Department at 727-0900, ext. 735. The deadline for signing up is January 18.

Special guided tours are available at the center the week of December 28 through 31 and every Saturday and Sunday through January 3. Through the holidays, the center also will present Langley's 75th Anniversary film *Pictures in the Mind.*

Tours will be offered:

- Saturdays - "Hampton History: From Rocks to Rockets," 11:30 a.m.; "Flight: An Air of Adventure," 12:30 p.m.; "Space: The Continuing Quest," 1:30 p.m.
- Sundays - "Hampton History: From Rocks to Rockets," 1:30 a.m.; "Flight: An Air of Adventure," 2:30 p.m.; "Space: The Continuing Quest," 3:30 p.m.
- December 28-31 - "Hampton History: From Rocks to Rockets," 11:30 a.m.; "Flight: An Air of Adventure," 12:30 p.m.; "Space: The Continuing Quest," 1:30 p.m.

Borg Receives Best Paper Award

Stephen E. Borg of the Instrument Research Division (IRD) has won the Major Charles Bassett III Outstanding Paper Award from the Instrument Society of America.

Bassett was a member of the society's Aerospace Industries Division, an astronaut, and a member of the Gemini IX crew at the time of his death.

The award is given by the Aerospace Industries Division to the presenter of the best paper at its annual symposium.

Borg's paper was entitled "Development of an Optical Flameout Detection System for High Temperature Wind Tunnels" and was presented at the 38th International Instrumentation Symposium.

Borg, who works in IRD's Thermal Instrumentation Section, will receive a plaque and an honorarium.

Researcher News '93 Schedule

The following are 1993 **Researcher News** deadline and distribution dates:

Jan. 5	Jan. 15
Jan. 19	Jan. 29
Feb. 2	Feb. 12
Feb. 16	Feb. 26
March 2	March 12
March 16	March 26
March 30	April 9
April 13	April 23
April 27	May 7
May 11	May 21
May 25	June 4
June 8	June 18
June 29	July 2
July 6	July 16
July 20	July 30
Aug. 3	Aug. 13
Aug. 17	Aug. 27
Aug. 31	Sept. 10
Sept. 14	Sept. 24
Sept. 28	Oct. 8
Oct. 12	Oct. 22
Oct. 26	Nov. 5
Nov. 9	Nov. 19
Nov. 30	Dec. 3
Dec. 7	Dec. 17

Shuart Is Assistant Chief, Structural Mechanics

Dr. Mark J. Shuart has been named assistant chief, Structural Mechanics Division. Prior to this appointment, he was assistant head of the division's Aircraft Structures Branch.

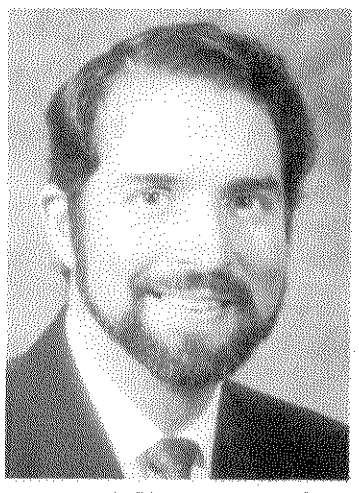
Shuart came to Langley in 1977 and has been conducting research on the response and failure of fiber-reinforced composite structures and materials, a topic on which he has had more than 35 publications and presentations.

He has received seven group and individual awards. Two of those awards were for authoring, on two occasions, the best research paper in the Structural Mechanics Division.

Shuart has bachelor of science and master of science degrees in engineering mechanics from the Virginia Polytechnic Institute and State University. His doctorate of philosophy in applied sciences is from the University of Delaware.

He is a senior member of the American Institute of Aeronautics and Astronautics.

Shuart lives in Hampton with his wife, Jane, and daughters Amy and Emily.



Dr. Mark J. Shuart was assistant head, Aircraft Structures.

"PRINCE" Team Examines Acquisition Process

A Quality Action Team was established in September to evaluate acquisition procedures in order to streamline internal ordering, receiving and inspection processes.

The team is looking at preparation of supply specifications, ordering, delivery, receipt and inspection, equipment control, payment, and order close-out.

Dubbed the PRINCE (Procurement, Receipt Inspection, and Costs Enhancement) Project, the team has held weekly meetings, completed Total Quality Management training for all members and examined all functional areas, including the Wyle Laboratories receipt and acceptance process.

Teams also were established to work hands-on in the Purchasing and ADP Contracts Branch, Logistics Management Branch and Commercial Accounting Section, and in evaluating purchase descriptions and specifications.

Near-term plans are for team members to visit Goddard Space Flight Center for an overview of processes there, and to conduct end-user interviews at Langley for identification and validation of problem areas.

Team members

Team members include Ron Krodel and Teresa Elliott, Management Support Division; Sandi Ray, Sandra Glenn, Shirley Evans and Mike Stubbs, Acquisition Division; Mary Lewis, Human Resources Management Division; Bruce Adderholdt, Fabrication Division; Marie Ashe, Flight Applications Division; Harold Burks and Jim Nelson, Materials Division; Frank Capone, Mason & Hanger Services Inc.; Arlen Carter, Atmospheric Sciences Division; Mike Goode and Eric Cooper, Information Systems Division; Jerry Hoerger, Business Data Systems Division; Mark Hutchinson and Bill Graveline, Instrument Research Division; Pat Link, Financial Management Division; and Bill Tennis, Operations Support Division.

PRINCE Quality Action Team members Bill Graveline and Mary Lewis inspect incoming receipts. The team is evaluating acquisition procedures in an effort to streamline internal ordering, receiving and inspection proccess.

Employees Asked To Help Compile List Of All TQM Teams At Langley

The Director's Office is asking that a list of all Total Quality Management (TQM) team activities be compiled and maintained.

Organizations refer to these TQM teams by various names, such as Quality Action Team, Continuous Improvement Project and Process Improvement Team.

For consistency, Langley has decided to refer to these teams as Quality Action Teams, or QATs.

A QAT is a group of employees who may be interdisciplinary and cross organizational lines.

Issues addressed by these teams may be identified by management officials or employees and may focus on systems or multiple functions.

These teams are resolution and prevention oriented and investigate and recommend process improvements and solutions to specific problems.

Each team leader should provide the title or purpose of his or her team, its goal, the name of the organization and the leader's name and phone number.

Each team leader is asked to provide the title or purpose of his or her team, its goal, the name of the organization and the leader's name and phone number.

Please give this information to Sally Lindberg, who can be reached at Mail Stop 201, ext. 46110 or through QuickMail.

The information will be used to keep Langley employees informed of continuous improvement activities at the Center, and should help avoid duplication of efforts.

The information also will be used to respond to TQM-related requests from NASA Headquarters and other organizations.

Employee Awards

Neil C. Coffey, computer specialist, Flight Electronics Division (FED), for excellent performance and flight contributions to the Hybrid Laminar Flow Nacelle Program and Small Expendable Deployer System (SEDS) Program.

Jessica E. Dail, secretary, FED, for outstanding individual contributions to the Electro-Optics Branch in implementing the FED reorganization.

William M. Hall, electronics engineer, FED, for outstanding individual contributions to the development and testing of the LASE signal processing subsystem.

Neil A. Holmberg, aerospace technologist, project management, Facilities Engineering Division (FEngD), for exceptional support in engineering facility development of the Large Gap Magnetic Suspension System for ACTF.

Charles R. Hyde, electronics engineer, FED, for continuing excellent performance and flight instrumentation contributions to the Free-Flight Drop Model Research Program.

Kelly L. Johnson, secretarial co-op, FED, for outstanding individual contributions to the division in implementing the FED reorganization.

Frank V. Jones, facilities management coordinator, FED, for outstanding individual contributions to the establishment of critically needed clean rooms for the development and assembly of the LASE Ti:Sapphire laser.

Jane C. Leffel, research secretary, FED, for the outstanding individual contributions made as research secretary to the Sensor Technology Branch during a period of reorganization.

Jeffrey J. Massie, electronics engineer, FED, for excellent performance and flight instrumentation contributions to the X-31 Free-Flight Drop Model Research Program.

James A. McAdoo, electronics engineer, FED, for outstanding individual contributions to the development of innovative detector designs and design of a detector test facility.

Anne E. Overbay, secretary, FED, for outstanding individual contributions to the division office in achieving a smooth transition to the new organization.

J. Otis Riggins Jr., electronics technologist, FED, for excellent performance and flight instrumentation contributions to the aircraft programs.

Paul W. Roberts, aerospace technologist, Instrument Research Division (IRD), for the development of a surgical force detection probe.

Donald J. Davis, electronics technician, FEngD, for outstanding support in the development of controls for insert/retrieve-gripper mechanism.

Wayne W. Rohrbach, electronics technician, FED, for outstanding contributions to the test and characterization of the LITE science detector subsystems.

Mark A. Spiers, engineering technician, for exceptional technical and operational support to the LOX and hydrogen systems shakedown test operations at the 8-Foot High-Temperature Tunnel.

Tommy C. Steele, engineering technician, FED, for outstanding individual contributions to the success of the 1992 IBEX mission.

Julie A. Williams-Byrd, electronics engineer, FED, for outstanding individual contributions to the LITE Laser Transmitter Module development and testing.

Ray W. Gregory, engineering technician, IRD, for exceptional performance in the formulation, design and construction of a state-of-the-art absorption instrument required for Langley facilities.

Richard B. Ivey, engineering technician, Fabrication Division (FD), for exceptional fabrication performance on the NASP GWP #1 models.

Troy F. Middleton, aerospace technologist, Fluid Mechanics Division (FldMD), for efficient coordination of research projects and the operation of the Combustion-Heated Scramjet Test Facility and the Direct-Connect Supersonic-Combustion Test Facility.

Glenn R. Slayton, engineering technician, FD, for superior fabrication support in the repair of the isolation bladders for the 8-Foot Transonic Pressure Tunnel.

Marguerite F. Verlander, program analyst, Space Station Freedom Office (SSFO), for exceptional performance in initiating and implementing procedures for ensuring that contracts are costed accurately and in a timely manner.

John W. Wilson, senior research scientist, Space Systems Division (SSD), for outstanding and sustained contributions to the science of space radiation transport theory and for the reporting of these developments in "Transport Methods and Interactions for Space Radiations."

Timothy G. Wood, engineering technician, FD, for exceptional fabrication performance on the Test Techniques Demonstrator Model.

Robert S. Davis, engineering technician, FD, for superior fabrication support in the manufacturing process of the Self-Adaptive Airfoil with Passive Venting.

Ja H. Lee, senior research scientist, SSD, for outstanding contributions to the definition of a new propulsion concept and for new research directions for the High Energy Science Branch.

Scott A. Spencer, electronics technician, IRD, for outstanding contributions and innovation in supporting the development of the division's open architecture data systems lab.

Clinton Duncan, engineering technician, Operations Support Division (OSD), for exceptional technical performance and contributions to the X-31 Drop Model Program.

Richard T. Wheeler, engineering technician, OSD, for exceptional technical performance and contributions to the X-31 Drop Model Program.

Ricky E. Smith, engineering technician, OSD, for exceptional technical contributions and leadership in upgrading the capabilities of the Polymeric Materials Branch's Composite Development Lab.

John J. Snoha, engineering technician, OSD, for exceptionally productive and dedicated technical support of the Polymeric Materials Branch's Advanced Composite Development Lab.

Jeffrey W. Werner, engineering technician, OSD, for exceptionally productive and dedicated technical support of the Spacecraft Dynamics Branch's Spacecraft Structures Research Lab.

Jerry W. Wright, electrical engineering technician, OSD, for outstanding efforts and contributions in daily power distribution assignment and special committee work.

Helen M. Bruce, computer assistant, Director for Electronics, for outstanding performance in support of the Information Resources Management Office.

Lise P. Crowe, secretary, FIDMD, for outstanding performance in coordinating the administrative activities of Langley's HPCC Program.

Stephen E. Devan, personnel specialist, Director for Electronics, for exceptional performance and dedication to the directorate employees' personnel requirements.

Stephen E. Borg, electronics engineer, IRD, for outstanding contributions in developing an Optical Flameout Detector to ensure the safe operation of the 8-Foot High-Temperature Tunnel.

William G. Culliton, electronics technician apprentice, IRD, for special achievements contributing to the successful and timely accomplishment of laser Doppler velocimeter electronic system improvements.

R. Bradley Gardner, contract specialist, Acquisition Division (AD), for outstanding performance in the negotiation process for the F-16XL Supersonic Laminar Flow Control Experiment.

Billy W. Beasley Sr., supervisory electrical engineering technician, OSD, for providing excellent technical and supervisory support to wind tunnel drives and associated research equipment.

Emitt D. Fuller, engineering technician, OSD, for outstanding contributions to the piping effort of the 8-Foot High-Temperature Tunnel shakedown team.

James W. Green, engineering technician, OSD, for outstanding technical support during operational checkout of the vacuum facility.

Alan W. Henderson, electrical engineering technician, OSD, for outstanding efforts and contributions in all areas of Power Distribution Systems as well as support to troubleshooting and repair of Drive Control Systems and components.

Nadine E. McHatton, secretary, FD, for exemplary performance in the implementation of updated Center record-keeping systems and variable-day schedules.

Jacqueline T. Kallick, staff assistant, Systems Engineering and Operations Directorate, for exemplary service in human resource management activities for the directorate.

Marvin E. Beatty III, electronics engineer, FED, for outstanding technical management of the Spaceflight Optical Disk Recorder program as the contracting officer technical representative for the Drive Development contract.

Michael A. Flood, electronics technician, FED, for sustained exceptional support to the development of the Lidar In-Space Technology Experiment electronics subsystem.

Michael S. Grant, electronics engineer, FED, for outstanding and sustained exceptional support to the development of the CERES Experiment electronics.

Marilee M. Roell, electronics engineer, FED, for technical leadership and design contributions in the development of the Measurement of Air Pollution from Satellites Experiment electronics.

David M. Rosenbaum, electronics engineer, FED, for sustained technical leadership and design contributions in the development of the Lidar In-Space Technology Experiment electronics subsystem.

Jerry H. Tucker, electronics engineer, FED, for sustained technical support and exceptional contributions in the development of spaceflight electronics for the NASA science mission.

Eddie D. Rhyne, electrical engineering technician, OSD, for excellence in getting the schlieren system at the 8-Foot High-Temperature Tunnel back in working order.

People & Places

Employee Awards

Charles H. Hudgins, engineering technician, OSD, for exceptional technical contribution to the Airborne In-Situ Ozone Measurement System Operations and support to the Atmospheric Studies Laboratory.

Stella V. Harrison, aerospace engineering technician, Flight Applications Division (FAD), for exceptional performance of support duties on the B-737.

Dwight E. Elliott, quality assurance specialist, FAD, for exceptional performance of duties in support of the F-16XL at Dryden Flight Research Facility.

Angela E. Claud, secretary, FAD, for superior secretarial contributions to the division.

Karen S. Whitley, engineering technician, OSD, for exceptionally innovative and highly productive technical support of the Polymeric Materials Branch's Thermal Analysis Lab.

Sharon E. Lowther, engineering technician, OSD, for exceptionally dedicated technical support of the Polymeric Materials Research Program.

Thomas A. Grepiotis, engineering technician, Systems Engineering Division (SED), for superior achievement in the performance of qualification testing of AFE transducers and related facility modifications.

Stephen J. Hughes, aerospace engineer, SED, for sustained high-level performance in support of the design, fabrication, assembly and integration of LITE and SUNLITE subsystems.

Michael C. Greenwood, engineering technician, SED, for sustained high-level performance in support of the LITE project.

Ginger L. Freeman, student trainee, Management Support Division (MSD), for exemplary performance and support to the division.

Robert M. Ely, engineering technician, OSD, for exceptionally talented chemical support of the Materials Division's development of polymer materials as well as leadership in the safe and efficient management and disposal of its large chemical inventory.

George E. Geiger, senior technician, OSD, for outstanding technical support provided to the Energy Office.

Gary L. Carl, safety and occupational health specialist, Systems Safety, Quality & Reliability Division (SSQRD), for outstanding support to the Noise Control Program.

Russell E. McKean, safety engineer, SSQRD, for timely and effective support to the Safety Engineering Program.

Davis B. Wright Jr., aerospace technologist, FEngD, for excellence in the certification of the 0.3-Meter Cryotunnel for operation with SF6 gas.

Edward R. Long Jr., materials research engineer, Materials Division (MD), for outstanding performance in establishing a state-of-the-art capability in the nondestructive evaluation of composite materials by ultrasonic inspection.

Joan G. Funk, materials research engineer, MD, for exemplary performance and achievement in the development and timely distribution of the LDEF Materials Data Base that will serve as a valuable resource to the spacecraft user community for years to come.

Neal T. Frink, aerospace engineer, Applied Aerodynamics Division (AAD), for creating an efficient unstructured grid flow solver to the Euler equations and providing outstanding technical leadership to the unstructured methods team.

Paul D. Aronsohn, electrical engineering technician, OSD, for excellence in providing high level support to the 1/3 Meter Cryogenic Wind Tunnel.

Charles J. Shoemaker, technology utilization engineer, Technology Utilization and Applications Office, for exceptional performance in executing added duties which facilitate the operation of the office.

Doyle P. Swofford, aerospace engineer, SED, for co-authoring the 1991 SED Paper of the Year entitled "Thermal Control of a LIDAR Laser System Using a Non-Conventional Ram Air Heat Exchange."

Brian D. Killough Jr., aerospace engineer, SED, for co-authoring the 1991 SED Paper of the Year entitled "Thermal Control of a LIDAR Laser System Using a Non-Conventional Ram Air Heat Exchange."

William Alexander Jr., aerospace engineer, SED, for co-authoring the 1991 SED Paper of the Year entitled "Thermal Control of a LIDAR Laser System Using a Non-Conventional Ram Air Heat Exchange."

Bordie D. Poole, property custodian, Atmospheric Sciences Division (ASD), for demonstrating excellence in performing duties for the Aerosol Research Branch.

Alberta W. Reid, property custodian, ASD, for demonstrating excellence in performing duties for the Data Management Office.

Shirley R. Stephenson, property custodian, ASD, for demonstrating excellence in performing duties for the Atmospheric Studies Branch.

Nancy S. Holt, property custodian, ASD, for demonstrating excellence in performing duties for the division.

Jean G. Cridlin, property custodian, ASD, for demonstrating excellence in performing duties for the Radiation Sciences Branch.

Goldie C. Smith, division secretary, ASD, for outstanding contributions to the Office Systems Technology Cooperative Education Clerical Training Program.

David M. Winker, aerospace technologist, ASD, for outstanding efforts in the development and use of atmospheric lidar systems and as deputy project scientist for the Lidar In-Space Technology Experiment.

Joseph M. Zawodny, aerospace technologist, ASD, for outstanding efforts in the development of remote sensing technology and the use and analysis of remote sensing data on atmospheric trace constituents.

Lance E. Deaver, computer engineer, ASD, for outstanding contributions and dedicated service in the production and analysis of HALOE science data.

Louis D. Galland, electronics engineer, Analysis and Computation Division (ACD), for outstanding performance in applying computer graphics to facilitate network operations and maintenance.

Kenneth V. Haggard, aerospace technologist, ASD, for outstanding contributions and dedicated service in implementing the operational processing system for the HALOE science data.

Raymond L. Haynes, part-time clerk, ASD, for exceptional performance in providing secretarial support to the Radiation Sciences Branch.

Thomas W. Hogge, senior electronics research technician, Flight Management Division (FltMD), for superior accomplishment in the timely and effective specification/procurement of graphics systems for flight display research.

IN PERSON

Who Needs Television When You Can Shop?

BY RAMKI KRISHNAN

A column in a recent issue of the local newspaper insinuated that more and more of us are addicted to TV and that we are missing out on communicating with our spouses, reciting poems and reading Leo Buscaglia. These comments rankled us because my wife and I, card-carrying members of the American Couch Potato Union, communicate endlessly about who should take out the trash, delight in reciting risque limericks and have no idea who this Buscaglia person is. To prove the columnist wrong, we decided to go without TV for the whole weekend.

Krishnan

Our no-TV experiment began at 5 p.m. on Friday, and to head off early TV pangs, we decided to do a little shopping and then grab dinner. That way, when we returned home, we would be tempted only by unappetizing reruns of *Trapper John, M.D.* and *Perry Mason*. The quality of our dinner conversation reflected how wrong the columnist was in deriding our communication skills. I crammed into an hour a description of the exquisite pain I experienced the time I chanced barefoot into a can of nails, while my wife described in exacting detail how, last year, all her wisdom teeth were pulled out. Neither of us could remember the last time we had such a upbeat, cheerful exchange.

TV alternatives

The next morning, to keep from watching the toons, we indulged in rating the comics in the funny pages. Our TV-deprived nerves were so ragged that I awarded poor Blondie an "F" and watched horrified as my wife tore into Calvin and Hobbes, calling the strip "childish." Realizing that our tenuous hold on sanity was slipping fast, we bolted to the nearest distraction, a department store.

Inside the store, my wife made for the lingerie section, an area I've learned to steer clear of. When I'm surrounded by all that exotic intimate wear, my studied nonchalance deserts me rapidly and flight becomes a preeminent concern. I am useless to my wife here, and to anything she holds up, I say, "Excellent choice. Let's pay and scram." Left to myself, I killed an hour reading the fine print on a warranty card and then, on wandering around the store, spied my spouse in the electronics section engrossed in an rerun of *Gilligan's Island*. I blurted something about cheating, causing a salesperson who was within earshot to shake her head and mutter nasty words about insecure men.

Withdrawal pains

That night, we took turns recounting our all-time favorite episodes. I waxed poetic about last year's Miami vs. Florida State football game, while my wife recalled the *I Love Lucy* episode that had Lucy working in a candy factory. NFL day (called Sunday, in some distant lands) was even harder than Saturday. As game time neared, I caught myself cradling the remote control and staring forlornly at the inert TV screen. My wife suggested a relaxing drive to the Williamsburg Pottery, and this shopping spree helped calm our agitated nerves. After dinner, we settled down with a couple of good books and savored the afterglow that comes from kicking a bad habit.

Will my wife and I be emulating Idaho's best the coming weekends? Of course, YES! Our shopping bills for the TV-less weekend arrived yesterday, indicating an amount that would easily put Imelda Marcos to shame. By our calculations, we can't afford to turn off our TV till the year 1996.

Krishnan works for Analytical Services and Materials Inc. in the Computational Sciences Branch.

Happenings

HOUSE FOR RENT: Single-family house in Williamsburg, furnished, including refrigerator, dishwasher, washer/dryer, 3 bedrooms (or 2 plus study), 2 baths, 10 minutes from college, on cul-de-sac, convenient to high school and junior high. Living room with fireplace, deck, garage, central air, ideal for faculty, professional couple or small family. Available after December 20. Rent $650 per month. Call 221-3454.

GIFT WRAPPING: Service available through December 23. Call Monique at 865-1609, weekdays from 6 to 9 p.m., weekends 10 a.m. to 9 p.m. Prices: small, $1; medium (shirt box), $2; large (coat), $3. Next-day service guaranteed.

PIANO: Wonderful Christmas gift. A Yamaha piano, regularly $4,500, must sacrifice for $2,000. Walnut studio, under warranty. Call 722-7795 after 6 p.m. or any time weekends.

CAMPSITE FOR SALE: "Virginia Landing" on the Eastern Shore, reached from Route 13 at Painter and Quimby. On ocean, with good beach, marina, deep channel, pool and tennis courts. Call Pat Shea, 722-7045.

FOR SAIL: Laser sailboat, complete equipment, $600. Also, an Optimist sailing dinghy with two North sails, blades with carrier, hull cover, race equipped, $1,200. Call 850-2859.

LOST: Glasses case, padded soft brown plastic. Lost Wednesday, December 9, at about 9 a.m., probably along West Taylor Street or West Taylor Road between Buildings 1293B and 1268A. Call Dan Giesy, ext. 44006.

TOWNHOME FOR RENT: In Victoria Station in Denbigh, 1,650 square feet, 3 bedrooms, 2½ baths, front and back porch, shed, attic, pool, $645 per month. Call 591-8419.

EARLY CHRISTMAS PRESENT: From the LAA Aerobics Club. Join through December and receive one month free for you, a family member or friend. Low-impact, step classes and toning with free-weights and steps provided. Call ext. 42295 for information.

TELA TAX SERVICE: Member, National Association of Tax Practitioners. Electronic filing. Small-business bookkeeping services. By appointment. Call 874-3121.

HOUSE FOR RENT: In Yorktown's Running Man subdivision, a 3-bedroom, 2-bath house with refrigerator, stove, gas fireplace, washer/dryer, Jacuzzi, large deck and garage. Five minutes from Langley. Lease and deposit required. Rent $900 per month. Available from December 1 to July 31. Call Pater at 723-7742 before 5 p.m. and at 827-1124 after 5 p.m.

PRIVATE TUTORING: All grade levels, experienced and degreed. References available. Call 723-6932.

LAA HOLIDAY OPEN HOUSE: Will be held December 18 from 3:30 to 8 p.m. Entertainment will be announced. There will be no cover charge.

AEROBICS WITH MUSCLE: Join the bench and low-impact classes that focus on toning legs, hips and buttocks. Abdominal work every class. Equipment provided. Classes are Tuesdays and Thursdays from 5 to 6 p.m. and Saturdays from 9:30 to 10:30 a.m. in the gym. The classes are open to all employees, contractors and their families. For more information, call ext. 42295.

TOWNHOUSE FOR SALE: Near NASA, Summer Place, 1,150 square feet, 2 bedrooms, 1½ baths, eat-in kitchen, den area with fireplace, living room, central air, privacy fenced backyard, all appliances, $64,800. Call 693-5053 (Gloucester).

HOUSE FOR RENT: In Riverdale, on small creek, 10 minutes from Langley, brick rancher, 3 bedrooms, 1½ baths, living room with fireplace, dining room, eat-in kitchen, den, garage, patio, large corner lot with fruit trees, central air, gas heat, refrigerator and dishwasher. Lease and pet deposit required, $695 per month. Available on December 1. Call 868-6453.

FOR SALE: King-size bed, padded headboard with matching comforter and shams, mattress and box springs, $100. Tyco HO 4- by 8-foot train board with track, trestle bridge, trestle switches, two locomotives and six freight cars, $50. Call 851-0552.

TOASTMASTERS: The next meeting will be held from 11:30 a.m. to 1 p.m. Wednesday, December 30, in Building 1222.

FREE AEROBICS: Get energized with NASA aerobics! Open to all employees and contractors. Low-impact with interval weight training classes in the LAA gym. Body Dynamics are held Monday, Wednesday and Friday from 6:15 to 7:15 a.m. Lunchtime Energizer is held from 11 to 11:45 a.m. For more information, call ext. 46387.

"Use Or Lose" Leave Reminder

Please note that if you are donating "use or lose" leave, regulations do not permit donors to give more hours than there are hours left in the leave year to work. For example, if you make your donation January 8, the last workday of the leave year, a maximum of eight hours may be donated.

The following employees are approved recipients in the Voluntary Leave Transfer Program: Harriett M. Berkley, Monica L. Cooper, Bette L. "Jeanie" Duncan, Francine W. Guthrie, Elizabeth R. Mustain, John P. Stack, Cassandra D. Stevens, Noel A. Talcott Jr., Belle L. Wood and Darrell A. Wood.

Researcher News

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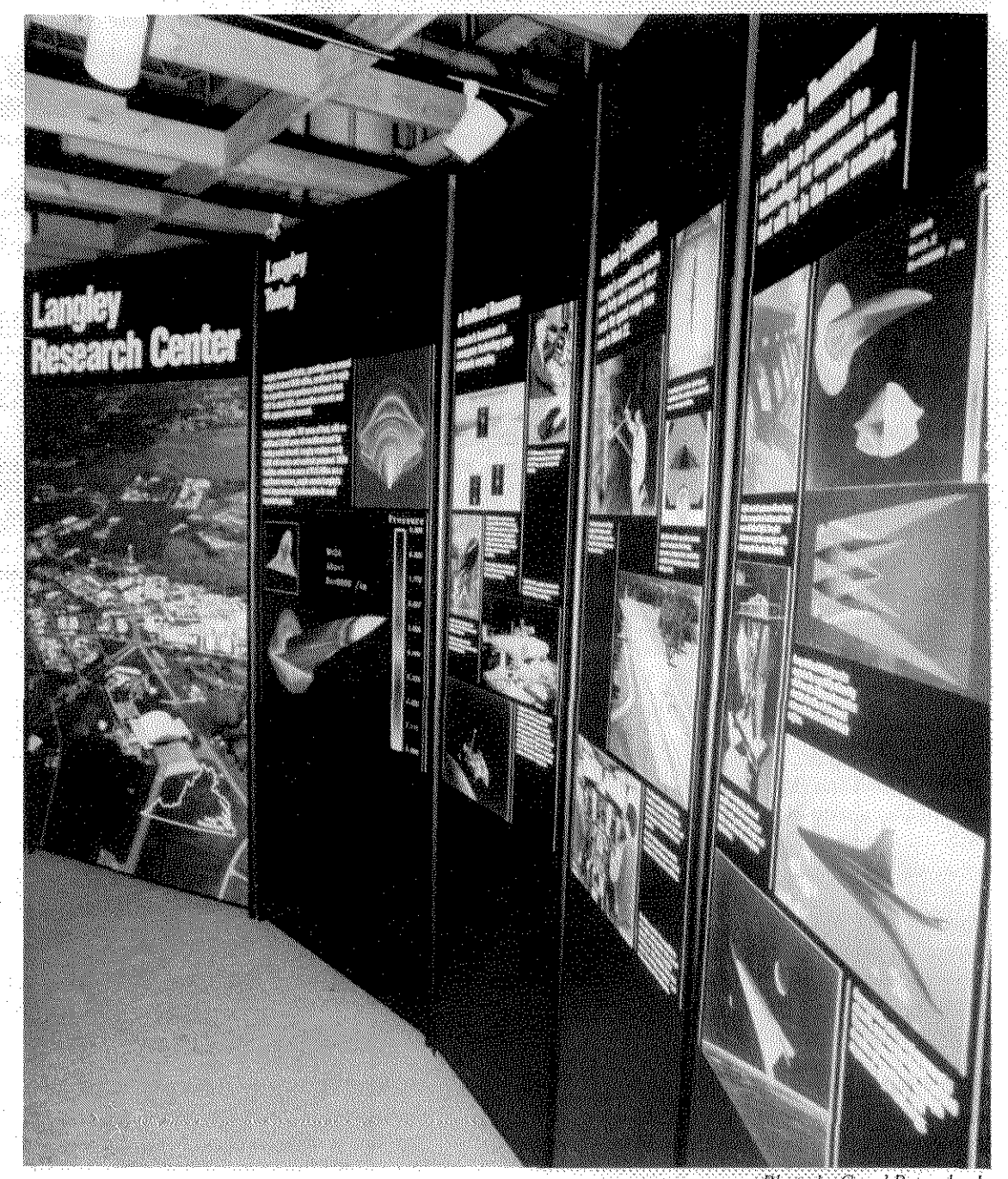

Photo by Carol Petrachenko

Entitled "This is Langley Research Center," this exhibit at Waterside Festival Marketplace in Norfolk outlines the history and work being done at the Center. The display was to be moved from Waterside this week and installed January 11 at Newport News-Williamsburg International Airport.